



## Influenza

### Viral Watch: influenza-like illness (ILI) surveillance programme

The number of specimens submitted for influenza detection by the Viral Watch influenza surveillance programme has continued to decline, as has the detection rate. The largest number of specimens (1 305) was received during the month of June, when 648/1 305 (50%) were positive for influenza.

This year influenza detections have been made from 1 027 patients attending Viral Watch sites throughout the country. Of these, 1 015 (99%) have been further identified: 856/1 015 (84%) as influenza A(H1N1)2009, 96/1 015 (9%) as A(H3N2), 31/1 015 (3%) as influenza B, and 32/1 015 (3%) were dual positives indicating influenza co-infections (including combinations of A(H1N1)2009 and A(H3N2), A(H1N1)2009

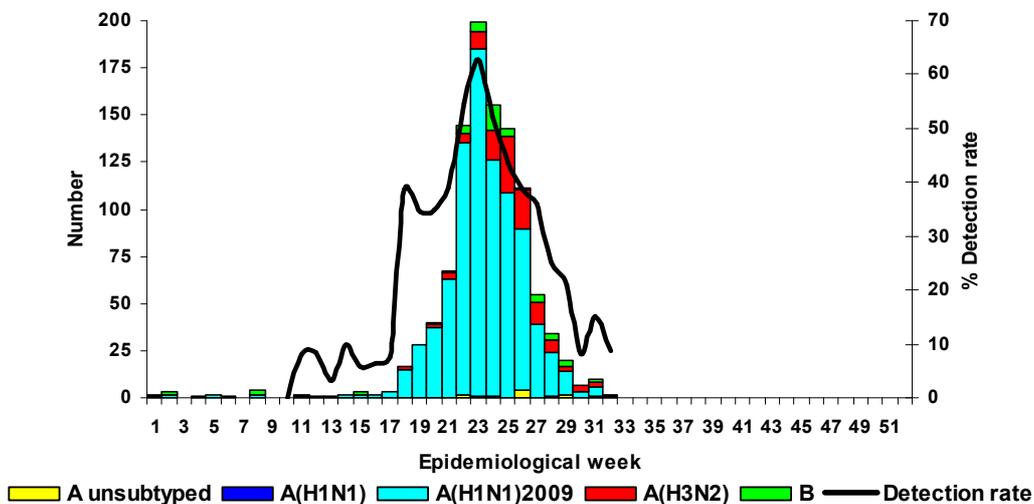


Figure 1: Number of positive samples by influenza types and subtypes and detection rate by week, Viral Watch surveillance programme 2011.

### Severe Acute Respiratory Illness (SARI) surveillance programme

SARI surveillance is a sentinel hospital-based surveillance program conducted at four sites in four provinces of South Africa. Hospitalised patients meeting the surveillance case definition are prospectively enrolled and clinical and epidemiologic data are collected using standardised questionnaires. Upper respiratory tract samples are tested for the presence of influenza and other respiratory viruses using real time reverse transcriptase PCR. Please note that data presented here are preliminary.

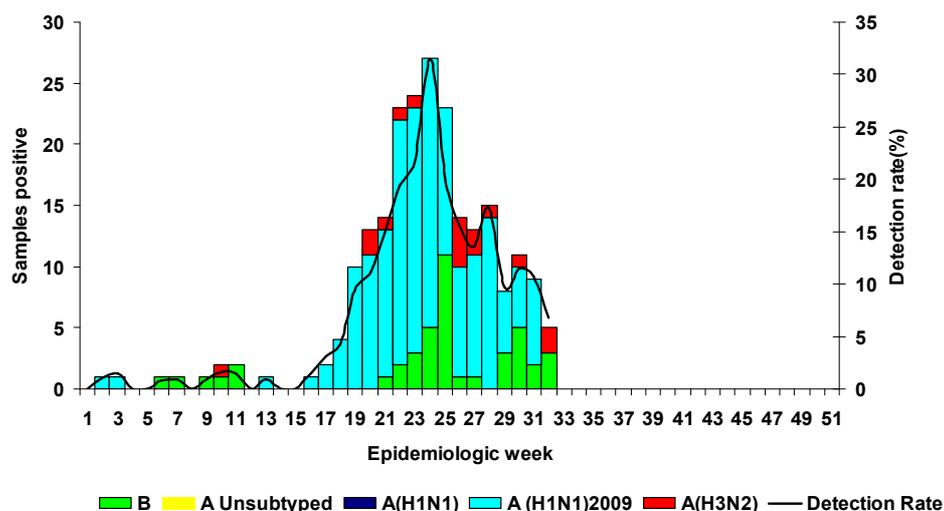
For the period 1 January to 14 August 2011, 3 124 patients were enrolled into the SARI programme. Of these, 99% (n=3 090) have been tested and 224/3 090 (7%) were positive

for influenza virus. Of the influenza positive cases:

- 74% (166/224) were influenza A(H1N1)2009
- 19% (42/224) were influenza B
- 7% (15/224) were influenza A(H3N2), and
- 0.4%(1/224) were co-infected with influenza A(H1N1)2009 and A(H3N2).

The 2011 influenza season, which started in week 20 (week starting 16 May), appears to have peaked; the highest detection rate was 31% in week 24 (week starting 5 June 2011) and has been declining since - Figure 2.

Source: Divisions of Epidemiology and Virology, NICD-NHLS



**Figure 2: Number of positive samples by influenza types and subtypes and detection rate by week, SARI surveillance programme 2011.**

## Measles and Rubella

There are no additional laboratory-confirmed measles cases since the last published Communiqué. One of the three cases that was reported in the July Communiqué was vaccine-related, and has been removed from the database, bringing the total to 18 440 cases from January 2009 to 11 August 2011. Since January 2011, a total of 3 094 suspected measles cases was tested. Of these, 3% (81/3 094) were measles IgM positive and 22% (678/3 094) rubella IgM positive. Measles and rubella cases were reported from all nine

provinces. Age was known in 90% (73/81) and 97% (655/678) of measles and rubella cases respectively. Of patients with measles, children <1 year accounted for 51% (37/73) of the cases with 33% (24/73) occurring in those aged <9 months. Of patients with rubella, the age group 5-9 years accounted for the highest proportion of the total (49%, 324/655).

**Source:** Divisions of Epidemiology and Virology, NICD-NHLS

## Rotavirus

The South African National Department of Health introduced monovalent human rotavirus vaccine (GSK Biologicals) into the expanded programme of immunisation (EPI) in August of 2009 to address rotavirus associated morbidity and mortality. It is available to all infants under the age of 24 weeks in South Africa and is routinely administered at weeks 6 and 14.

The NICD-NHLS set up a sentinel surveillance system for severe diarrhoea in April 2009 at five hospitals in four provinces (North West, Gauteng, Mpumalanga and KwaZulu-Natal). All children under the age of five years who are admitted to one of the sentinel hospitals with acute diarrhoea (diarrhoea of less than 7 days duration, with at least three loose stools in any 24 hour period) are eligible for enrolment.

Demographic, clinical and outcome data are collected in a structured interview and a stool sample is collected for rotavirus testing (ProsPecT ELISA). The start and the end of the rotavirus season is defined as a weekly detection rate of  $\geq 20\%$  and  $< 20\%$  for 2 consecutive weeks respectively.

In 2011, sporadic rotavirus cases were detected from week 15 (week ending 17 April). The 2011 season, which started in week 21 (week ending 29 May) when the rotavirus detection rate was 36% (4/11) and remained above 20% in subsequent weeks, is ongoing. To date, the highest detection rate was in week 30 (week ending 31 July) in which 8/10 (80%) stools tested were rotavirus positive. The 2011 rotavirus season started later than

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the 2009 and 2010 seasons; one week later than in 2010 and a minimum of five weeks later than in 2009. The 2009 season lasted until the end of September (week 40), with a minimum duration of 24 weeks. The rotavirus season in 2010 ended the week of September 12 (week 36) and was 7 weeks shorter in duration than the 2009 season. The 2011 rotavirus season is ongoing for 10 weeks to date (as at 31 July).

For the period 1 January 2011 to 31 July 2011, the total number of cases testing rotavirus

positive (90) was lower compared to the number of rotavirus positive cases for the same period in 2010 (214). For the period 15 April to 31 July 2009, 303/489 stools tested were rotavirus positive (62%).

Data from the rotavirus sentinel surveillance programme show reductions in paediatric rotavirus-related hospitalisations in the first and second year after nationwide vaccination of infants in South Africa.

**Source:** Epidemiology and Surveillance and Viral Gastroenteritis Units, NICD-NHLS

### Meningococcal disease

Sporadic cases of meningococcal disease continue to be reported across the country, with a small seasonal increase of laboratory-confirmed cases. Cases are expected to increase further, usually peaking during the months of August to October. Laboratory-based reporting has inherent delays, so although clinical cases may be increasing, these cases may not yet be reflected in the data presented here.

By the end of epidemiological week 32 (week ending 12 August), a total of 165 laboratory-confirmed cases were reported to the Respiratory and Meningeal Pathogens Reference Unit (RMPRU), NICD-NHLS (Table). These cases showed diversity in serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 137/165 (83%) of cases.

Serogroups B and W135 have been identified most commonly this year (35/137, 26% serogroup B and 65/137, 47% serogroup W135). Other identified serogroups included C (9%, 12/137) and Y (17%, 23/137).

The winter and spring seasons are when cases of meningococcal disease typically increase. 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. All cases of suspected meningococcal disease (meningitis and sepsis) should be notified telephonically to the Department of Health.

**Source:** Respiratory and Meningeal Pathogens Reference Unit, NICD-NHLS

**Table: Number of laboratory-confirmed meningococcal disease cases reported by week 32, 2010 and 2011, by province**

Province	2010	2011
Eastern Cape	13	20
Free State	15	10
Gauteng	106	79
KwaZulu-Natal	21	11
Limpopo	5	3
Mpumalanga	12	10
Northern Cape	15	5
North West	8	2
Western Cape	33	25
<b>South Africa</b>	<b>228</b>	<b>165</b>

## Rabies

No additional cases of human rabies were confirmed in the past month. A suspected case<sup>1</sup> of human rabies in KwaZulu-Natal Province is being investigated. The child, a seven-year-old boy from Kwa Makhutha (about 25km south of Durban), was bitten by a stray dog in July 2011. He sustained several wounds to the face, right arm and right hand. The patient apparently did receive post-exposure prophylaxis of which the details are to be confirmed. About one month later he presented with confusion and hallucinations progressing to a comatose state. Laboratory testing and further investigation of this case is ongoing.

Rabies post-exposure prophylaxis is safe and effective when administered according to prescribed regimens. The importance of administering rabies immunoglobulin in addition to vaccine in category 3 injuries (bites

and scratches that draw blood, lick of mucous membranes or broken skin) cannot be overstated, and failures have been reported where patients have received vaccination but no immunoglobulin in such instances.

A total of three human cases, all from Limpopo Province, have been confirmed for South Africa for 2011 to date. Last month a clinically probable case of rabies was reported from KwaZulu-Natal Province, but specimens were not available for testing.

<sup>1</sup> Case definition as described in: Cohen et al., 2007. *Emerging Infectious Diseases* 13(12), 1880-1886

**Source:** Special Pathogens and Outbreak Response Units, NICD-NHLS

## Tick bite fever

Tick bite fever (TBF) is the likely diagnosis in two patients investigated for viral haemorrhagic fever (VHF) in the past week. The first patient, an 8-year-old child with underlying IgA nephropathy resident in Gauteng Province, developed a febrile illness with headache and myalgia one day after visiting a game farm near Vanderbijlpark (also in Gauteng Province). On admission to hospital 3 days later, a tender cervical lymph node was noted without an obvious eschar, prompting the suspicion of Crimean-Congo haemorrhagic fever (CCHF). However, normal liver function tests and platelet count did not support a diagnosis of CCHF. The initial suspected bite lesion evolved quite rapidly to an eschar, which was highly suggestive of tick bite fever. The incubation period for TBF is typically 7-10 days versus 24 hours for tick-transmitted CCHF, so the infection was probably acquired at her home and not related to visiting the game farm. The patient responded well to doxycycline treatment.

The second patient, a 53-year-old resident of a suburb on the outskirts of Rustenburg (North West Province), presented with an acute febrile illness that progressed over 3-4 days necessitating admission to hospital. She was

treated with broad-spectrum antibiotics but her clinical condition deteriorated over the following 2-3 days accompanied by leukopenia (white cell count =  $2.1 \times 10^9/L$ ), thrombocytopenia ( $65 \times 10^9/L$ ), elevated hepatic transaminases and a negative Weil Felix test. This constellation of findings prompted the suspicion of CCHF infection. However, the development of a maculopapular rash and a lesion in keeping with an eschar were highly suggestive of TBF, and she responded well to the addition of doxycycline.

TBF is an important entity in the differential diagnosis of acute febrile illness and is common in South Africa, in both urban and rural settings throughout the year. However, complicated disease with haemorrhagic skin lesions, thrombocytopenia, transaminasemia and negative laboratory testing for TBF often raises the suspicion of a VHF. The diagnosis of TBF is predominantly clinical, based on the findings of an eschar (usually with local lymphadenopathy) in a patient with acute febrile illness and should prompt treatment with doxycycline. Laboratory tests for TBF are problematic - the Weil Felix test is neither sensitive nor specific and not recommended, the performance of

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PCR is variable, and rickettsial IFA serology test typically becomes positive only after 7-10 days of illness. Doxycycline is optimal therapy in all age groups.

**Source:** Special Pathogens and Outbreak Response Units, NICD-NHLS

### Highly pathogenic avian influenza (H5N2) outbreak in ostriches: update

Further ostrich farms have tested positive for highly pathogenic avian influenza (H5N2) since the last update. As of 19 August 2011, the Western Cape Department of Agriculture, Forestry and Fisheries reported a cumulative total of 34 ostrich farms within the HPAI (H5N2) control area in Oudtshoorn and one farm outside the control area, that have tested positive on PCR/serology. The most recent positive farm was identified on 4 August 2011. Controlled slaughter of flocks at all the positive farms has been undertaken.

The recent HPAI (H5N2)-positive farms are either adjacent to previously affected farms, or have epidemiological links to them through movement of infected ostriches. Surveillance for human HPAI (H5N2) cases in potentially

exposed persons is ongoing, but there have been no laboratory-confirmed human HPAI (H5N2) cases to date. A HPAI (H5N2) serosurvey in exposed persons at the abattoir, selected farms with infected ostriches, and veterinary services staff was undertaken in the first week of August. The purpose of the survey is to establish if any asymptomatic/sub-clinical infections have occurred during the current outbreak, and to gain a better understanding of transmission dynamics at the animal-human interface in order to be better prepared for future HPAI outbreaks.

**Source:** Outbreak Response and Respiratory Virus Units, NICD-NHLS; Department of Agriculture, Forestry and Fisheries, and Department of Health, Western Cape

### Foodborne illness outbreaks

In July 2011, foodborne pathogens were identified in four of the eight foodborne illness outbreaks reported to the Outbreak Response Unit, NICD-NHLS.

#### George, Western Cape Province

A foodborne illness outbreak occurred on 12 July at a community centre in George, where a fundraising event (luncheon) was held for a local crèche; 34 people were affected. The food for the event was purchased on 11 July and prepared on the day of the event at the crèche kitchen. The menu included: noodles with tuna, greek salad, egg-mayonnaise-carrot salad, potato and egg salad, chicken, savoury rice, custard, malva pudding and fruit salad. The salads were pre-prepared on 11 July, stored in buckets and were not refrigerated. Desserts were also pre-prepared but refrigerated. Cases started presenting 2 hours after the food was served, reporting symptoms including: nausea, headache, vomiting, diarrhoea and dizziness. The affected people were assessed at the local provincial hospital, none requiring admission. Food samples were obtained by Environmental Health practitioners

and forwarded to the NHLS Public Health Laboratory in Greenpoint, Cape Town, for laboratory testing. *Staphylococcus aureus* and faecal enterococci were isolated from numerous specimens (egg-mayonnaise-carrot salad, noodle salad, savoury rice, and greek salad). In addition, *S. aureus*, *Bacillus cereus* and faecal enterococci were isolated from the potato and egg salad.

#### Ufafa, KwaZulu-Natal Province

An outbreak in Sisonke District related to the consumption of meat from a cow which had died from natural causes was reported to the local health department on 13 July. The investigation was undertaken by the Communicable Disease Control and Environmental Health units. On 5 July, eight people (aged 12–61 years) ate the cow's liver. All eight then presented with symptoms 6-12 hours later, including: diarrhoea, vomiting, loss of appetite, and fever. Three cases were admitted to hospital. Another of the cases, a 12-year-old boy, subsequently died on 7 July. He had not been taken to hospital and no post-mortem was performed. No clinical specimens

were collected from any of the cases. Raw meat, liver and water samples were submitted to the NHLS Public Health Laboratory, Durban. Health education was conducted amongst the family and neighbours and a community awareness campaign was planned. Non-typhoidal *Salmonella* spp (NTS) was isolated from a meat sample and *Clostridium perfringens* from a liver sample. Further characterisation of the NTS isolate by the Enteric Disease Reference Unit (EDRU), NICD-NHLS confirmed it as *Salmonella enteritidis*.

#### **Ekhuruleni, Gauteng Province**

On 12 July, four of 110 attendees at a workshop held at a civic centre on 11 July reported diarrhoea and abdominal cramps. Food had been prepared by a caterer for the event. Investigation at the catering premises as well as another premises where a Halaal dish had been prepared was undertaken by Environmental Health practitioners. *C. perfringens* was identified on a clinical specimen and food specimens (rice and gravy, meat stew, chicken, and pumpkin). Diarrhoeal-toxin producing *B. cereus* was also identified from the meat stew.

#### **Fezile Dabi district, Free State Province**

An outbreak was reported from a correctional services facility in the Fezile Dabi Health District on 25 July. Fifty-two inmates (aged 19–69 years) presented with symptoms, predominantly abdominal cramps and diarrhoea, on the evening of 24 July into the early hours of the next morning. The cases were treated symptomatically at the facility clinic and none required hospitalisation. The facility houses 1 014 inmates and food is prepared in the facility kitchen. The dinner menu on 24 July consisted of: chicken (prepared with tomato paste and soup powder), samp, cabbage and sweet potatoes. Dinner is usually consumed from 3pm to early

evening. The investigation included conducting case interviews, collecting clinical and food samples, and inspection of the kitchen premises. Various concerns and issues related to general hygiene standards and practice and food preparation were identified. Twenty stool specimens were received at the NHLS Infection Control Services Laboratory, Johannesburg. The following laboratory results were reported:

- *C. perfringens* was isolated from 19 specimens. All were negative for *C. perfringens* Type A enterotoxin
- *S. aureus* was isolated and *S. aureus* enterotoxin was detected from two specimens
- *B. cereus* was isolated and *B. cereus* diarrhoeal enterotoxin was detected from one specimen
- *S. enteritidis* was isolated from one specimen
- One specimen was negative for all pathogens tested.

#### **Public website for reporting suspected foodborne illness incidents**

There is a website where members of the public can report any illness suspected to be related to the consumption of food from a restaurant or business. The web address is: <http://www.foodpoisoning.co.za>. It serves as a nationwide "portal" for public use as part of a national database registry that can help determine if an individual's illness is part of a larger foodborne illness outbreak. These reports are sent directly to the local public health department for investigation.

**Source:** Outbreak Response and Enteric Disease Reference Units, NICD-NHLS; NHLS Infection Control Services Laboratory, Johannesburg; Department of Health and Greenpoint NHLS Public Health Laboratory, Western Cape Province; Department of Health and Durban NHLS Public Health Laboratory, KwaZulu-Natal Province; Gauteng Department of Health; Free State Department of Health

## **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.

**West Nile virus (WNV):** European countries (Albania, Greece, Israel, Romania and Russian Federation)

**Alert:** An increase in WNV cases has been noted in Europe. From the beginning of July 2011 to 11 August 2011, the following has

been reported: two cases in Albania, 22 in Greece, six in Israel, one in Romania and 11 in the Russian Federation. Increased reporting reflects higher awareness among healthcare workers, enhanced laboratory capacities and favourable weather conditions with rainfall and high temperatures leading to a substantial increase in mosquitoes.

**The disease:** Infection is asymptomatic in 80% of cases, whilst 20% may develop symptoms including: fever, headache, lethargy, myalgia, nausea, vomiting, diarrhoea, maculopapular skin rash (predominantly on the trunk), pharyngitis and rarely lymphadenopathy. Neuroinvasive disease (manifested as meningitis, encephalitis, flaccid paralysis or mixed pattern of disease) is the major complication, with a case fatality rate of 10%. WNV is primarily transmitted through the bites of infected mosquitoes.

**Advice to travellers:** No medications or vaccines are available for prevention; however, travellers are reminded to protect against mosquito bites. WNV-transmitting mosquitoes are most active between dusk and dawn. Use insect repellents (containing 30-50% DEET), wear long sleeves and trousers, and light-coloured clothing. Screens on doors and windows should be used to keep mosquitoes out.

**Cholera:** Democratic Republic of Congo (DRC) and Republic of Congo

**Alert:** Cholera outbreaks are being reported along the Congo river. In DRC, the outbreak was reported in March 2011 and has intensified in the last 3-4 weeks, affecting four provinces (Bandundu, Équateur, Kinshasa and Orientale). As of 20 July 2011, a total of 3 896 cases, including 265 deaths have been reported. In the neighbouring Republic of Congo, between 14 June and 20 July 2011, a total of 181 suspected cases including 6 deaths have been

reported from four provinces (Brazzaville, Cuvette, Likouala and Plateaux).

**Advice to travellers:** Travellers are urged to drink water that is bottled (preferably carbonated) or bring it to a rolling boil for 1 minute. 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. Peel fruit and vegetables yourself (do not eat the peelings), and avoid those that cannot be peeled. Avoid foods and beverages from street vendors. Frequently wash hands with soap and water, or use an alcohol-based sanitiser if clean water is not available. Vaccine is not routinely recommended for travellers.

**Measles:** New Zealand

**Alert:** New Zealand has experienced increased transmission and outbreaks of measles virus from 2009 to date, with 181 cases reported this year alone (as at 10 August 2011).

**Advice to travellers:** Although South Africa has recently experienced its own outbreak of measles, travellers to New Zealand may be at increased risk of measles infection due to a higher potential for transmission surrounding mass gatherings (such as the upcoming 2011 Rugby World Cup). Measles is vaccine-preventable and travellers should ensure their routine immunisations are up to date and consider a measles booster vaccine if appropriate.

**References and additional reading:** ProMED-Mail ([www.promedmail.org](http://www.promedmail.org)); World Health Organization ([www.who.int](http://www.who.int)). Last accessed: 2011/08/19.

**Source:** Outbreak Response and Travel Health Units, NICD-NHLS

## New yellow fever vaccinations requirements in effect from 1 October '11

The South African Department of Health has officially revised the yellow fever vaccination policy. As of 1 October 2011, all travellers to and from Zambia, in addition to the countries below, will be required to show proof of yellow

fever vaccination, or a valid waiver certificate. The addition of Zambia to the countries requiring vaccination is following a reassessment of the areas at risk by the WHO<sup>1</sup>.

As per the International Health Regulations (2005), travellers between these countries and South Africa must obtain a yellow fever vaccination in consultation with their local travel-health clinic. Vaccination certificates are routinely checked at the South African port of entry and before departure for returning travellers. Passengers in transit within the regulated countries, irrespective of whether they have left the airport or the time spent in that country, will still require a yellow fever vaccination certificate, as the South African authorities are unable to guarantee that the traveller has not been placed at risk whilst in that country/airport. Travellers should also take note of the following points:

- Yellow fever vaccine should be administered at least 10 days prior to departure.
- Yellow fever vaccination certificates are valid for 10 years.
- Vaccine is contraindicated in pregnant women, infants <9 months, individuals with egg allergies, and certain immunosuppressed individuals (including HIV infected persons with CD4<200/mm<sup>3</sup>). These individuals still require a health certificate indicating the reason for non-receipt of vaccine (vaccine waiver).

Port authorities will exercise the following measures for all travellers who fail to produce a valid yellow fever vaccination certificate at the port of entry:

- Refuse entry, or
- Vaccinate (at their own expense) and quarantine the traveller for up to 6 days, or
- For travellers with exemption certifications, allow entry and place the traveller under surveillance (including a requirement to report development of fever or any other symptoms to the health authorities).

Vaccinated travellers should still take precautionary measures to avoid being bitten by mosquitoes due to the many other communicable disease risks transmitted by these vectors (e.g. malaria, dengue).

<sup>1</sup> Jentes ES et al. The revised global yellow fever risk map and recommendations for vaccination, 2010: consensus of the Informal WHO Working Group on Geographic Risk for Yellow Fever. *Lancet Infect Dis* 2011;11:622-32

**Source:** Outbreak Response and Travel Health Units, NICD-NHLS

### List of countries for which a yellow fever vaccination certificate is required for entry into South Africa from 1 October 2011

- |                            |                                    |                         |                               |
|----------------------------|------------------------------------|-------------------------|-------------------------------|
| • Angola                   | • Côte d'Ivoire                    | • Kenya                 | • Sierra Leone                |
| • Argentina                | • Democratic Republic of the Congo | • Liberia               | • Somalia                     |
| • Benin                    | • Ecuador                          | • Mali                  | • Sudan                       |
| • Bolivia                  | • Equatorial Guinea                | • Mauritania            | • Suriname                    |
| • Brazil                   | • Ethiopia                         | • Niger                 | • Togo                        |
| • Burkina Faso             | • French Guyana                    | • Nigeria               | • Trinidad and Tobago         |
| • Burundi                  | • Gabon                            | • Panama                | • Uganda                      |
| • Cameroon                 | • Gambia                           | • Paraguay              | • United Republic of Tanzania |
| • Central African Republic | • Ghana                            | • Peru                  | • Venezuela                   |
| • Chad                     | • Guinea                           | • Rwanda                | • Zambia                      |
| • Colombia                 | • Guyana                           | • Sao Tome and Principe |                               |
| • Congo                    | • Guinea-Bissau                    | • Senegal               |                               |