



Malaria outbreak in Tshwane District

Malaria has been confirmed in 6 patients in Gauteng Province without a recent history of travel. These cases originate from two separate areas: 3 patients from Soshanguve, north of Pretoria, and 3 patients from a private housing estate in Pretorius Park, Pretoria East. Entomological investigations conducted at one of the two affected sites found no anopheline mosquito larvae or adults. Samples of culicine and aedine larvae and adults (yet to be identified to species level) were collected from the cemetery, but these do not pose a risk of malaria transmission. Investigations into these clusters are continuing; however, it is likely these cases acquired infection by the bites of infected mosquitoes translocated from endemic areas in vehicles, containers or by other modes – a relatively rare occurrence known as odyssean malaria. Nevertheless, the possibility of a locally breeding malaria vector population causing local malaria transmission cannot be ruled out at this stage.

Furthermore, in southern Africa the peak malaria transmission season extends from September to May each year, and many travellers will have been exposed to infection during their recent holidays.

We urge healthcare workers throughout the country to maintain a high index of suspicion for malaria. Malaria should always be considered in febrile patients post-travel to a malaria-risk area, as well as in patients with unexplained fever even in the absence of a travel history. Malaria cannot be excluded on clinical grounds alone and a blood test is urgently required either by smear microscopy or by rapid diagnostic test. An initial negative result does not exclude infection and successive testing should be carried out every 12-24 hours until the patient recovers or an alternative diagnosis is confirmed. Malaria should be considered in any febrile patient in whom an alternate diagnosis is not readily apparent, especially if the patient's platelet count is low. Thrombocytopenia is a very common (but not

invariable) finding in patients with both uncomplicated and severe malaria; its unexplained presence in a febrile patient should alert one to the possibility of malaria. In febrile patients with low platelet counts where malaria investigations have not specifically been requested, laboratory personnel are encouraged to prompt such investigations be carried out in discussions with the attending healthcare workers. Malaria may also be considered in any patient with fever and impaired consciousness.

Without appropriate treatment, malaria can progress rapidly to severe disease and death. Confirmed malaria cases must be notified to the Department of Health. Artemether-lumefantrine (Coartem[®]) is first-line treatment for uncomplicated falciparum malaria (except in children <6 months of age and in the first trimester of pregnancy). Alternatively, quinine plus either doxycycline or clindamycin can be used. Quinine plus clindamycin is the treatment of choice in uncomplicated malaria cases for those in the first trimester of pregnancy and in children ≤ 5kg. Intravenous quinine should be used for cases of severe malaria. Where available, intravenous artesunate should be used for non-pregnant adults and children with severe malaria. It is important to exclude hypoglycaemia in patients with a depressed mental state.

Detailed information on the clinical presentation, diagnosis and management of malaria cases, as well as the South African malaria risk areas, can be found in the Department of Health Guidelines for the Treatment of Malaria in South Africa, 2010; available online at: http://www.doh.gov.za/docs/policy/2011/malaria_treatment.pdf.

Source: Division of Surveillance, Outbreak Response and Travel Health, and Centre for Opportunistic, Tropical and Hospital Infections, NICD-NHLS. Department of Health: City of Tshwane Metropolitan Municipality and Gauteng Province.

Typhoid fever alert for returning travellers

Zimbabwe: There has been an ongoing outbreak of typhoid fever in Harare since 10 October 2011. As of the 5 January 2012, a total 1 078 suspected cases of typhoid fever had been identified, of which 26 are laboratory confirmed as *Salmonella* Typhi. The outbreak is centered in the north-western region of Harare, with the suburb of Dzivaresekwa (n=575, 53%) worst affected. Numbers were reported to be declining through December 2011 to January 2012 and the situation is currently stable. Intermittent water supplies, forcing residents to drink water from unprotected sources, appear largely responsible for the outbreak. Interventions put in place include: continuous health education to the community on importance of safe water collection and storage, safe food preparation, improved hygiene and sanitation practices. Water purification tablets were provided to each household for treating water and 6 boreholes were sunk in the affected areas to provide alternative sources of water.

Zambia: A large outbreak of typhoid fever has been reported in Mufulira's Mupambe Township (Copperbelt Province). As of 6 January 2012, various media reports documented at least 2 094 suspected cases and 3 deaths in the two weeks since the outbreak began. However, the

situation is reportedly stabilising.

The differential diagnosis of travellers returning from these areas, who present with an enteric fever-like syndrome, should include typhoid fever. Symptoms may include fever, headache, gastrointestinal symptoms (such as abdominal pain, nausea, constipation and/or diarrhoea) and other non-specific symptoms. Erythematous maculopapular lesions (rose spots) are only present in a third of patients, and may be difficult to detect on dark-skinned individuals. Blood culture is the diagnostic test of choice for laboratory investigations. Serological tests have poor sensitivity and specificity. Clinically suspected cases must be notified to the Department of Health. Ciprofloxacin is the recommended treatment for adult and paediatric patients with both uncomplicated and severe typhoid fever. Furthermore, the circulation multiple waterborne enteric pathogens is likely in the event of a widespread outbreak due to contamination of community water supplies. Clinicians should keep this in mind when treating returning travellers with diarrhoea.

Source: South African Field Epidemiology and Laboratory Training Programme (SA-FELTP), Division of Surveillance Outbreak Response and Travel Health, and Centre for Enteric Diseases, NICD-NHLS.

Tick bite fever

Tick bite fever (TBF) is the likely diagnosis in a 42-year-old patient resident on a small-holding in the Vaal triangle, Gauteng Province, who presented with an acute febrile illness, severe headache and myalgia. A small lesion on the back of his head was noted as well as a blotchy macular rash, which was suggestive of a possible diagnosis of TBF. An initial suboptimal clinical response to doxycycline (possibly related to vomiting), and the presence of a thrombocytopenia (platelet count $56 \times 10^9/L$), prompted concerns about possible Crimean-Congo haemorrhagic fever (CCHF); however, the transaminases were only marginally raised and there was no bleeding. RT-PCR and serology for CCHF were negative. The patient responded well to parenteral ciprofloxacin and recovered fully.

An increase in the number of cases of TBF has been noted in parts of the country since the beginning of September 2011, including several patients with severe illness, largely as a result of misdiagnosis and delayed treatment.

In South Africa, TBF is common in both urban and rural settings at all times of the year. Symptoms include rash, fever, headache and lymphadenopathy after an incubation period of 5 to 7 days.

TBF is an important differential diagnosis of acute febrile illness with multiorgan involvement and haemorrhage. CCHF must be urgently considered in such cases and investigated by laboratory testing. The diagnosis of TBF is a clinical one, based on the findings of an eschar or possible tick exposure. The Weil-Felix test is neither sensitive nor specific, the sensitivity of PCR is variable, and IFA serology typically becomes positive only after 7-10 days of illness. Doxycycline is the treatment of choice in all age groups, and ciprofloxacin IVI in very ill patients who are unable to tolerate oral treatment.

Source: Centre for Emerging and Zoonotic Diseases, Division of Surveillance, Outbreak Response and Travel Health, NICD-NHLS.

Trypanosomiasis

A Dutch national travelling in southern Africa was admitted to a private hospital in Johannesburg for the treatment of East African trypanosomiasis (EAT). He reported numerous tsetse bites while visiting the Mana Pools National Park, Zimbabwe in December 2011. He developed an acute febrile illness approximately 10 days later, as well as a skin lesion suggestive of a trypanosomal chancre. In Zimbabwe, the diagnosis of trypanosomiasis was made on a peripheral stained blood smear and treatment with suramin was commenced. He was transferred to South Africa for completion of the treatment course. Other than profound thrombocytopenia (platelet count $14 \times 10^9/L$), no major complications of the disease have occurred to date. EAT is well recognised in the

Zambezi Valley and in neighbouring Zambian areas, with sporadic cases confirmed in travellers to both Mana Pools and the Luangwa Valley in recent years. EAT must always be considered in persons who present with acute febrile illness, who have visited known endemic areas and in whom malaria tests are negative. EAT requires urgent treatment with suramin. Refer to NICD Communiqués: June and August 2009, and January, August and November 2010, for more information on the diagnosis and management of EAT.

Source: Division of Surveillance, Outbreak Response, and Travel Health; and Centre for Opportunistic, Tropical and Hospital Infections, NICD-NHLS.

Rabies update

During 2011, a total of 6 human rabies cases in South Africa was confirmed by the NICD-NHLS. Cases were reported from Limpopo (n=3), KwaZulu-Natal (n=2), and Eastern Cape (n=1) provinces. No cases have yet been confirmed for 2012.

These statistics underestimate the true burden of the disease as few cases are clinically suspected and reported, or cases may die within the community and remain undiagnosed. A number of cases remain categorised as "clinical rabies" due to issues encountered that limit the ability to confirm the diagnosis, including failure to collect the appropriate and timely specimens, suboptimal specimens, and challenges

surrounding post-mortem specimen collection. Obtaining a definitive laboratory diagnosis (ante- or post-mortem) is important for the family of the patient and critical to the public health prevention and response efforts in South Africa. Ante-mortem investigations should include the collection of saliva and a nuchal skin biopsy (containing hair follicles). A brain specimen is the preferred specimen for post-mortem laboratory testing, but if not available, clinicians should obtain a nuchal skin biopsy for rabies diagnosis.

Source: Division of Surveillance, Outbreak Response and Travel Health, and Centre for Emerging and Zoonotic Diseases, NICD-NHLS.

Gastroenteritis & foodborne illness outbreaks

Two outbreaks, from a total of 12 incidents reported to the NICD in December 2011 are presented in this communiqué.

Johannesburg, Gauteng Province

On 9 December, 29 children (aged 3 to 6 years), of 73 at a crèche in a Johannesburg suburb, experienced diarrhoea and vomiting (with or without convulsions) and were treated at three different health facilities. The children ate milk with brown mabele (ground maize for making porridge) on 9 December according to crèche management. The suspected index case had diarrhoea on 8 December and the child's mother reported illness onset on 9 December.

Stool specimens were collected from 15 cases on 10 December. A milk sample, four surface swabs, six hand swabs from food preparers, and five water samples were collected and submitted to the NHLS Infection Control Services Laboratory. *Shigella* species were identified from 10 of the 15 stool specimens. Additional confirmation of 10 isolates by the Enteric Disease Centre, NICD was characterised as *Shigella sonnei* Phase II, and PFGE demonstrated an indistinguishable pattern. High bacterial counts were identified in the milk sample, with innumerable mould counts. No pathogens were identified from the environmental samples received. It was reported that none of the

food preparers presented with diarrhoea. Recommendations and health education were provided to crèche management and staff on hand washing and general hygiene.

Shigellosis is an infectious disease caused by *Shigella* spp. Characteristic symptoms of dysentery or diarrhoea, fever and stomach cramps typically begin 12 to 96 hours after exposure. *Shigella* species are classified by four serogroups (A-D respectively): *S. dysenteriae*, *S. flexneri*, *S. boydii*, and *S. sonnei*. Transmission is via the faecal-oral route, including person to person spread, and outbreaks have been attributed to vehicles such as contaminated food, water or fomites, and are commonly associated with inadequate sanitation and basic hygiene practices, which may have been the case in the above-mentioned incident. From a total of 1 622 *Shigella* isolates received in 2011, the Enteric Disease Centre, NICD-NHLS, characterised 281 isolates as *S. sonnei*. A cluster/outbreak of *S. sonnei* was first reported in 2006 in the Northern Cape, as part of a diarrhoeal outbreak at a children's home. *Shigella* contributes significantly to the burden of diarrhoeal disease in South Africa. It is important that all diarrhoeal disease outbreaks are reported and investigated. The above-mentioned outbreak was reported as a foodborne illness incident, although the ingestion of the implicated food occurred after the sus-

pected index case developed symptoms.

Sisonke, KwaZulu-Natal (KZN) Province

Communicable Disease Officials and Environmental Health Practitioners of the KZN Department of Health conducted an investigation after a report of a foodborne illness outbreak by an infection control practitioner. On follow-up they found that a cow had died on 2 December and the meat was cooked and consumed on 3 December. A total of 31 people that ate meat developed symptoms, either the same evening or the following morning. Cases presented to a local hospital and symptoms included headache, diarrhoea, vomiting, dehydration and tiredness. Health education was intensified in the community. Four clinical specimens and meat samples were collected and forwarded to the NHLS Public Health Laboratory in Durban. *Salmonella* Enteritidis were isolated from all four stool specimens and three cooked meat samples. In addition, *Bacillus cereus* was identified on all the meat samples.

Source: Division of Surveillance, Outbreak Response and Travel Health, and Enteric Diseases Centre, NICD-NHLS; Department of Health and NHLS Public Health Laboratory, KZN; Gauteng Department of Health; City of Johannesburg Department of Health; NHLS Infection Control Services, Clinical Microbiology and Infectious Diseases, Johannesburg Academic Hospital.

Anthrax outbreak in Zimbabwe

The Zimbabwe Ministry of Health and Child Welfare first identified an outbreak of anthrax on 24 November 2011. Numerous animal deaths among wild game (hippos and elephants) and domestic livestock (cattle, goats and donkeys) due to anthrax were described. The latest reports find that the incidence of new human cases appears to be declining, with a cumulative total of 132 cases (without any deaths) identified up to 25 December 2011. Areas affected include the Mashonaland Central (Mbire and Mt. Darwin districts) and Midlands (Gokwe North District) provinces.

Anthrax is transmitted from animals to humans by ingestion, inhalation or handling infected animal products. Cutaneous anthrax is the most common form of the disease in humans; gastrointestinal anthrax and pulmonary anthrax are rare in our setting. Travellers should be advised to avoid contact with animals or animal products within high-risk areas. Vaccines are not available to the general public.

Source: Division of Surveillance, Outbreak Response and Travel Health, NICD-NHLS

Yellow fever: vaccination now required for Eritrea

The Department of Health (DoH) has added Eritrea to list of countries requiring vaccination against yellow fever. In 2011, the WHO classified Eritrea and Zambia as areas at "low-risk" for yellow fever transmission, and the DoH has

moved to enforce vaccinations for travellers from these areas. As of 1 January 2012, all travellers from Eritrea are required to show proof of vaccination upon entry into South Africa.

Travellers to the regulated countries (see [December 2011 Communiqué](#)) must obtain a yellow fever vaccination from an accredited travel health clinic at least 10 days prior to departure, and carry the original certificate with them. This includes passengers in transit, irrespective of whether they have left the airport or the time spent in that country. Vaccines are valid for 10 years, but are contraindicated in pregnant women, infants <9 months, individuals with egg allergies, and certain immunosuppressed individuals (including HIV-infected persons with $CD4 < 200/mm^3$); however, these individuals still require an official vaccine waiver certificate. 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).

South African port authorities are strictly enforcing yellow fever vaccination policies. Travellers without a valid certificate upon presentation to the port will be refused entry and sent back to their originating country at their own expense. Returning South African residents without a valid certificate will be subjected to surveillance for up to 6 days.

Source: Division of Surveillance, Outbreak Response and Travel Health, NICD-NHLS.

Dengue fever

Dengue virus infection was recently confirmed by PCR in a 58-years-old female resident of Dar es Salaam, Tanzania, who visited South Africa during December 2011 for holidays. The patient experienced onset of fever, headache, myalgia, rigors and night-sweats two days prior to travelling, and has since recovered.

Dengue fever has become a major, international public health concern with an estimated annual incidence of 50 million infections. Of concern to South Africa are travellers returning from tropical and sub-tropical countries where the disease is endemic. Dengue has been described as the most common cause of fever in travellers returning from the Caribbean, Central America and south-central Asia. Areas affected extend to most tropical and subtropical countries of Oceania, Asia, the

Caribbean, the Americas, and parts of Africa (Figure). Dengue virus is transmitted to humans through the bites of infected *Aedes* mosquitoes, principally *Aedes aegypti*, which commonly breed within households and are most active during the day.

Classic dengue fever is characterised by sudden onset of fever with frontal headache, retro-orbital pain and myalgia. Dermatological manifestations occur in up to 50% of patients and present as an early facial flushing or erythematous mottling, or an eruption with an intense erythematous pattern with islands of normal skin between. Thrombocytopenia is common and is typically self-limiting. Most cases are uncomplicated; however, dengue haemorrhagic fever (DHF) can occur with minor bleeding from mucosal surfaces (usually

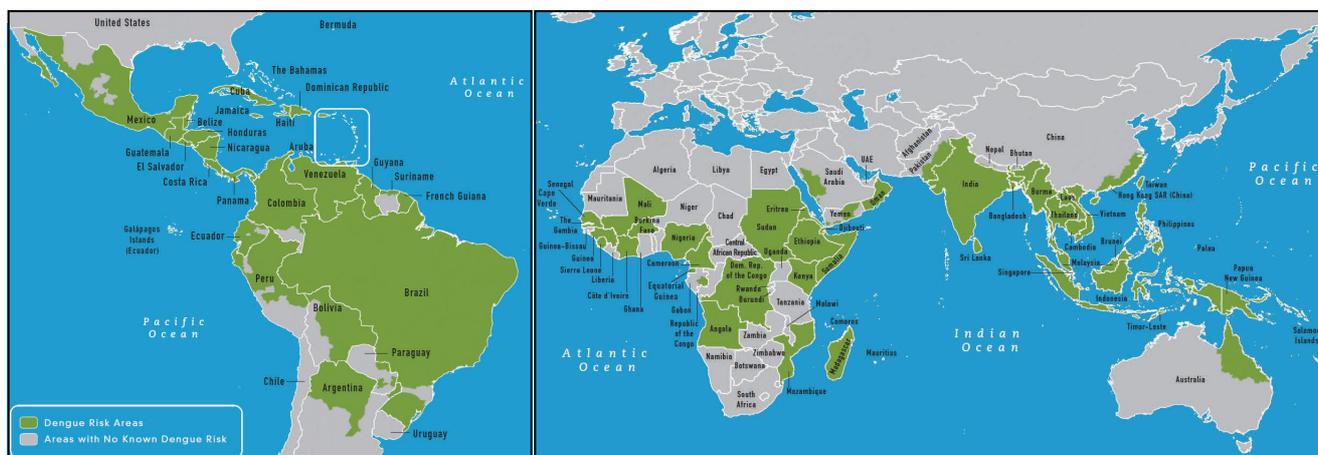


Figure: Maps showing countries at risk of dengue virus transmission.

Adapted from: CDC. Yellow book 2012, Ch. 3, Dengue fever and dengue hemorrhagic fever, <http://wwwnc.cdc.gov/travel/yellowbook/2012/chapter-3-infectious-diseases-related-to-travel/dengue-fever-and-dengue-hemorrhagic-fever.htm>

epistaxis, bleeding from the gums, haematuria, and metrorrhagia), gastrointestinal haemorrhage and haemoptysis. In moderate DHF cases, all signs and symptoms abate after the fever subsides. In severe cases, the patient's condition may suddenly deteriorate after a few days of fever; the temperature drops, followed by signs of circulatory failure and hypovolemic shock caused by increased vascular permeability and plasma leakage – dengue shock syndrome (DHF-DSS). In such cases, bleeding may appear as petechiae or larger ecchymoses. Patients can recover following appropriate medical treatment. Acetaminophen products are recommended for managing fever (avoid aspirin or ibuprofen). Patients should be encouraged to rest and take abundant fluids. In severe cases, the prompt infusion of intravenous fluids is necessary to maintain adequate blood pressure and prevent shock.

The differential diagnosis of travellers returning with fever, myalgia and rash should include

dengue fever. Laboratory investigations are required in these cases and should include the collection of clotted blood during the acute phase (first 5 days of illness), and both acute and convalescent serum samples. Conducting a full repertoire of serological and virological tests is strongly recommended as tests are highly dependent on timing of specimen collection. Appropriate infection prevention and control protocols should be observed when collecting and handling specimens and these should be packaged as biohazardous material. Store and transport at 4°C (or on ice packs) to the **NICD-NHLS, 1 Modderfontein Rd., Sandringham, Gauteng, 2192.**

Source: Division of Surveillance, Outbreak Response and Travel Health, and Centre for Emerging and Zoonotic Diseases, NICD-NHLS.