

3 VECTOR-BORNE DISEASES

Dengue in Africa

Dengue is an emerging disease and has caused major outbreaks in tropical and subtropical African, South East Asian and South American countries in recent years. It is thought to be the most common mosquito-borne disease globally, with the World Health Organization (WHO) estimating >50-100 million cases of dengue occurring across approximately 100 countries annually, with potential for further spread.

Dengue infection

Dengue is caused by infection with one of four different serotypes of dengue virus, which differ in geographic spread, but may co-circulate. The virus is transmitted primarily by urban-adapted, day-biting *Aedes aegypti* mosquitoes, which are closely associated with human dwellings.

Most dengue virus infections are asymptomatic, but symptomatic disease can range from mild to severe and fatal disease. Following an incubation period of 3-7 days, symptoms begin abruptly and follow three phases:

- The febrile phase is characterised by a high fever, with a range of accompanying symptoms including headache, retro-orbital pain, vomiting, myalgia, arthralgia, and sometimes a macular/maculopapular rash. Mild haemorrhagic features such as petechiae or purpurae (usually at venepuncture sites) and hepatomegaly often occur. Laboratory findings include mild to moderate thrombocytopenia, leucopenia, and moderate transaminasemia. This first phase lasts 3-7 days after which most patients recover.
- The critical phase develops in a minority of cases (mostly in children and young adults), and is characterised by a systemic vascular leak syndrome. This may lead to the rapid development of severe disease which manifests as dengue shock syndrome or haemorrhage, both of which may be fatal. Vascular permeability normalises within 48-72 hours, accompanied by a rapid improvement in symptoms.
- The recovery phase is characterised by a rapid improvement and resolution of symptoms. A second rash may appear during this phase, ranging from a mild maculopapular rash to severe pruritic lesions which desquamate over a few weeks. Adults may experience marked fatigue for several weeks after resolution of

other symptoms.

There are no effective antiviral agents for treating dengue infection. Treatment is supportive, with judicious fluid management and careful monitoring for the development of severe disease. Preventive dengue vaccines are in various stages of clinical evaluation.

Dengue alert for South Africans travelling abroad

In South Africa, dengue fever is diagnosed in travellers returning from affected regions, mostly South East Asia (including, but not restricted to Bali, Phuket, Thailand, Vietnam, Cambodia) and African countries, and less frequently from South America. Of concern is the significant increase in dengue outbreaks/cases reported from African countries over the past two years; this is of particular importance to South African travellers or expatriates working in African countries.

Highlight: the most recent dengue outbreaks in Africa

Figure 2 shows the distribution of dengue in Africa, highlighting countries and areas reporting recent outbreaks.

Angola

The country has reported an unprecedented increase in dengue cases since 2013, primarily in the capital city of Luanda and surrounds. Evidence of co-circulation of dengue viruses type 1 and 4 has been documented. Angola is considered endemic for dengue, and reports of dengue cases/outbreaks date back to the 1960s. The NICD-NHLS confirmed 17 cases of dengue fever in returning travellers to South Africa since the outbreak started. It is noteworthy that five of these cases tested PCR-positive, indicating that these patients had viraemia when presenting in South Africa. This raises the concern of possible autochthonous outbreaks of dengue in South Africa, as was reported in Durban during 1926-1927. The NICD-NHLS also assisted in the laboratory confirmation of dengue fever in patients hospitalised in Angola during 2013.

Kenya

An outbreak of dengue fever was reported from Kenya in February 2013 and is ongoing, with the northern region of Kenya being most affected. A total of 190 cases was reported up until April 2014,

after which the outbreak appeared to wane. However, an increase in cases from Mombasa (southern Kenya) was reported later that month, evidence of the first confirmed dengue outbreak in this area since 1982. The NICD-NHLS confirmed two cases of dengue fever in patients returning to South Africa after travelling in these affected areas.

Mozambique

On 10 April 2014 the Mozambican health authorities confirmed an outbreak of dengue centred in Pemba, the capital city of Cabo Delgado Province in northern Mozambique (bordering on Tanzania). The last report in the beginning of May 2014 counts the total number of cases as 243 (77 laboratory confirmed), with no deaths. Nampula Province, also in the northern Mozambique, reported 40 cases (21 laboratory confirmed) with no deaths. There is possibly co-circulation of Chikungunya virus in this outbreak, but this remains to be confirmed. Three cases of dengue fever have been laboratory

confirmed in travellers returning to South Africa from Pemba and Maputo since this outbreak began.

Tanzania

The Ministry of Health and Social Welfare of Tanzania declared a dengue outbreak in February 2014. As of the end of May 2014, the outbreak is ongoing in Dar Es Salaam and surrounds with a total of 2 121 suspected cases (1 018 laboratory confirmed) including four deaths. Eight suspected cases (one laboratory confirmed) were reported from Zanzibar. The NICD-NHLS has confirmed a total of four travel-associated dengue fever cases from Tanzania since the onset of this outbreak.

Other affected African countries

Recent outbreaks of dengue have been reported from Senegal, Ethiopia and Somalia. One travel-

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

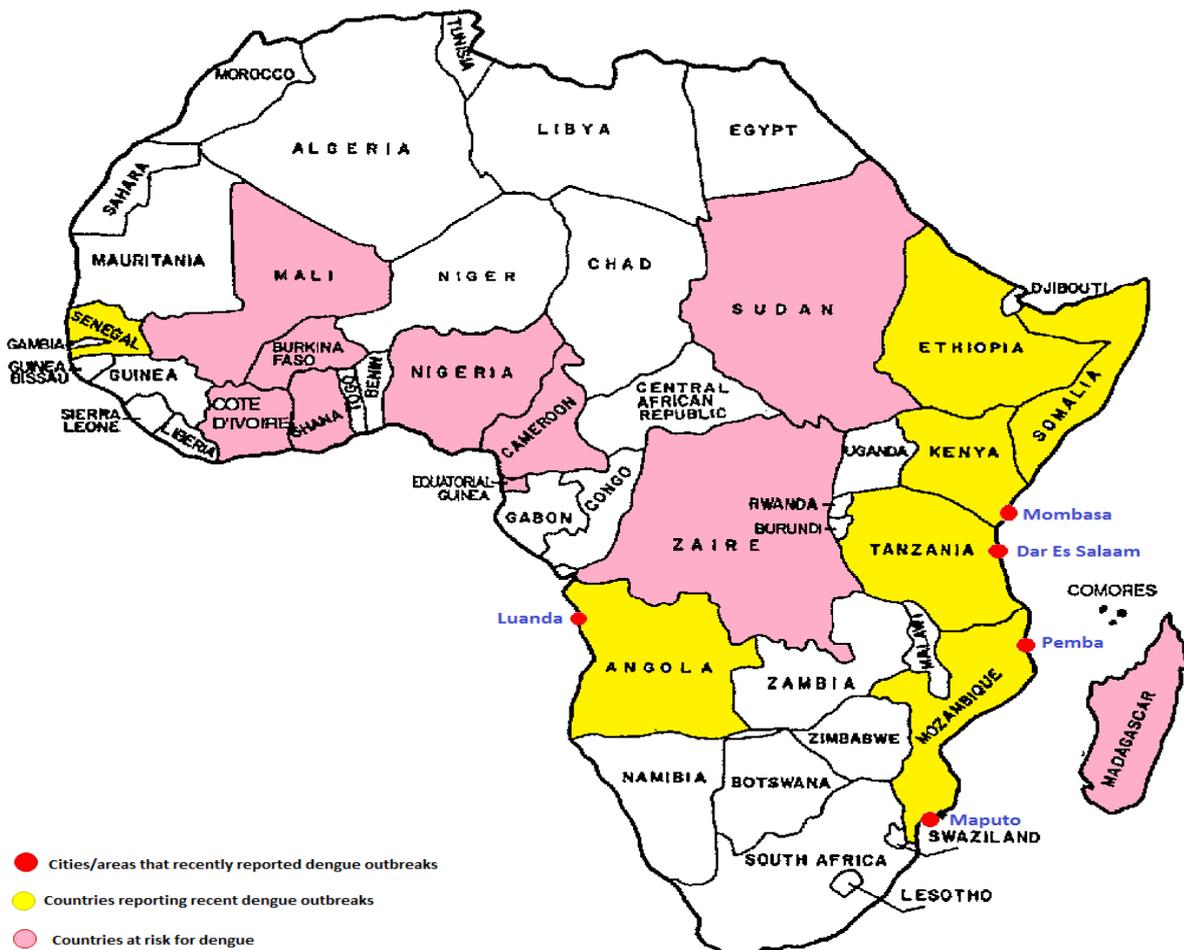


Figure 2. Map showing distribution of dengue in Africa