



## DENGUE & CHIKUNGUNYA

[www.who.int/ith](http://www.who.int/ith) → disease distribution maps

[http://gamapserver.who.int/mapLibrary/Files/Maps/Global\\_DengueTransmission\\_ITHRiskMap.png](http://gamapserver.who.int/mapLibrary/Files/Maps/Global_DengueTransmission_ITHRiskMap.png)

[http://gamapserver.who.int/mapLibrary/Files/Maps/Global\\_Chikungunya\\_ITHRiskMap.png](http://gamapserver.who.int/mapLibrary/Files/Maps/Global_Chikungunya_ITHRiskMap.png)

Dengue is the most frequently encountered tropical arbovirolosis (arbovirolosis = arthropodborne infectious viral disease (transmitted by insects)); chikungunya, yellow fever, Japanese and tick-borne encephalitis are other examples of arbovirolosis. Dengue and chikungunya are transmitted by the *Aedes* mosquito, a species that stings during daytime.

The dengue virus occurs in South-east Asia, the Caribbean, Central America, South America and sporadically in Africa and northern Australia. The disease is now widespread in many tropical areas. The chikungunya virus sporadically occurs in parts of Africa and at present epidemics emerge in India and South-east Asia. Contrary to malaria, these infectious diseases occur just as frequently in urban as in rural areas.

### DENGUE

The classical course of the **dengue** infection is characterised by a sudden onset of fever, headache, aching joints (dandy or breakbone fever) and significant muscle pain (including lumbar or lower back pain and pain around the eyes) which explains the stiffness that is felt. Sometimes there is a dry cough, and relative bradycardia (slow heartbeat). The disease often has a biphasic pattern: after 3-4 days of fever a temporary improvement occurs, around the 5<sup>th</sup> or 6<sup>th</sup> day the fever intensifies again. At that time a red macular exanthema (comparable to measles) can appear. After a few days the temperature returns to normal, though this may be followed by a period of difficult recovery lasting several weeks. Fatigue, muscle pains and neuralgias characterize this period. No specific treatment exists and the disease heals spontaneously. Dengue fever must never be treated by aspirin. Paracetamol however can be taken against fever.

Occasionally, life threatening forms can occur: around the 3<sup>rd</sup> to 4<sup>th</sup> day when the fever goes down and the patient seemingly feels fitter, his condition can rapidly deteriorate. There is serious vomiting and abdominal pain. Life-threatening gastrointestinal bleeding can occur and/or a state of shock (fall in blood pressure) can arise. Good medical care (fast administering of the right amount of intravenous fluids) almost always leads to a positive outcome.

The incidence of these life-threatening forms has clearly increased over the last 20 years. It is assumed that after an earlier infection with one of the 4 serotypes of the dengue virus (numbered 1, 2, 3 and 4) there is an increased risk of complications in case of subsequent infection with another, different serotype. During the three months following an infection with one serotype, cross-protection against the other serotypes can occur. After that there is – probably a life-long - risk of the haemorrhagic form or shock. These complicated forms are however extremely rare in travellers and expats. Mainly local young children fall victim to dengue. On the condition that the correct treatment of the right administration of fluid with intravenous infusion occurs in a well-equipped hospital when the first signs of hypotension occur, death through the serious form of this disease is lower than 1%. Because of the many aspects of the disease, it is impossible to establish the risk of the haemorrhagic form for an individual traveller who already suffered from dengue. In practice however it remains very small (smaller than the risk of a fatal car accident during the journey, that is 1 per 100.000 travellers per month).

## CHIKUNGUNYA

The chikungunya virus is characterized by a sudden onset of high fever and symptoms of influenza, mostly accompanied by intense aching joints in the extremities (ankles, wrists and/or fingers). Other possible symptoms are swollen hands and/or feet, skin rash and light haemorrhages (gums). Usually the course of the disease is benign and the disease heals spontaneously after one week, however evolution (from weeks to months) to chronicity may occur. During the epidemic on Réunion Island, it was noticed that a temporary meningo-encephalitis (inflammation of brains and cerebral membrane) may exceptionally occur in young children and newborn babies; there were some occasional deaths among the fragile elderly people (comparable to the mortality rate death in elderly people during an influenza epidemic). The treatment is purely symptomatic with paracetamol or non steroidal inflammation inhibitors (e.g. ibuprofen).

**There is no vaccine against dengue or chikungunya at the moment. Protective measures against mosquito bites are the cornerstone of prevention.** Protective measures against mosquito bites are especially important in the event of a local epidemic. **The transmitting *Aedes* mosquito tends to bite in the morning (i.e. from 9 to 11 a.m.), and during the afternoon until just before sunset (i.e. from 13.00 to 17.00).**

When using sun creams and insect repellents based on DEET, recent studies have shown that DEET reduces the effectiveness of the sun cream, but that sun creams do not have a negative influence on the effectiveness of DEET. It is advisable, therefore, to apply a sun cream with a higher protection factor, to apply the repellent above the sun cream and to take additional precautions to protect against UV.

**Dengue, countries or areas at risk, 2010**

