

Dengue Fever and Dengue Haemorrhagic Fever

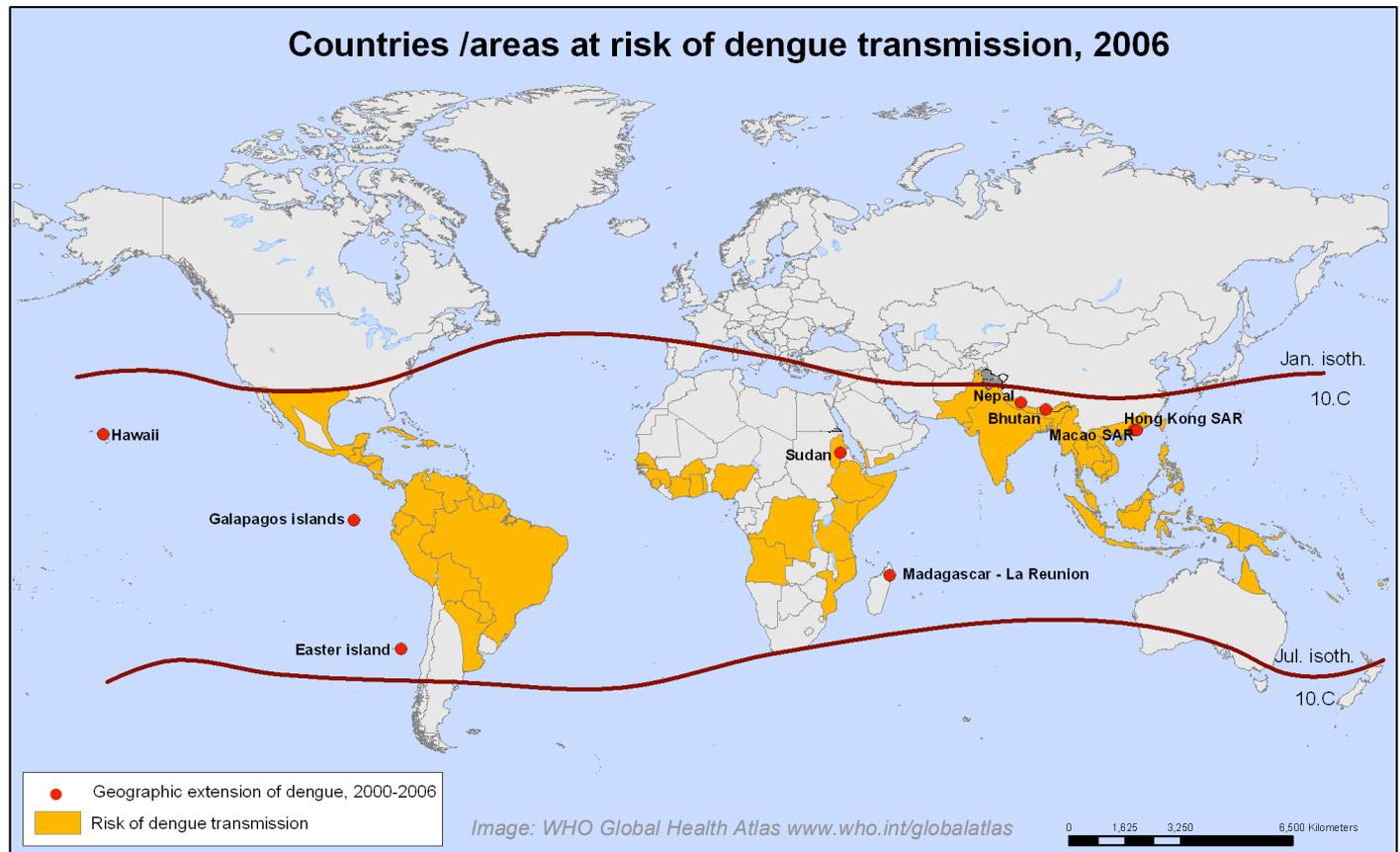
Description

Dengue Fever is a viral infection transmitted by a daytime biting mosquito. In recent years has become a major international public health concern. It is found in tropical and sub-tropical regions around the world, predominantly in urban and semi-urban areas. Dengue Haemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS) are potentially lethal complications that today affect most Asian countries and have become a leading cause of hospitalisation and death among children in several of them.

Some 2500 million people – two fifths of the world's population – are now at risk from Dengue Fever. The World Health Organisation (WHO) currently estimates that there may be 50 million cases of dengue infection worldwide every year.

In 2001 alone, there were more than 609 000 reported cases of dengue in the Americas, of which 15 000 cases were DHF. This is greater than double the number of dengue cases that were recorded in the same region in 1995. Not only is the disease spreading to new areas but also explosive outbreaks are occurring.¹

Distribution



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Data Source: WHO
Map Production: Public Health Mapping and GIS
Communicable Diseases (CDS) World Health Organization

Causative Agent

The dengue virus is a flavivirus of which there are 4 different serotypes, Den 1,2, 3, and 4. In certain circumstances, the disease may progress to Dengue Haemorrhagic Fever (DHF) or Dengue Shock Syndrome (DSS) both of which can be fatal. This is, however, rare in travellers, but there has been evidence to suggest that a subsequent infection with a dengue virus of a different serotype may be the cause of these two syndromes.²

Transmission

Transmission occurs following a bite from an infected *Aedes aegypti* or *Aedes albopictus* mosquito. The *Aedes* genus of mosquito bites during the day and like to breed in small pools of water close to human habitation such as household water vessels, puddles and disused tyres.

¹ World Health Organization, Factbook <http://www.who.int/mediacentre/factbooks/fs117/en/>

The virus is spread from an infected human to a mosquito and then to another human, often in areas where there are dense human populations. In parts of SE Asia and Africa, the transmission cycle may also involve jungle primates that act as a reservoir for the virus.

Although they are most active during daylight hours, biting from dawn to dusk, mosquitoes will feed throughout the day if indoors or during overcast weather. The mosquito becomes infectious 8-10 days after feeding and remains infectious for life (2-3 months).³

Signs and Symptoms

Dengue Fever – severe flu-like, seldom fatal:

- Sudden high fever lasting 1 to 5 days which may reoccur
- Flat red rashes typically spreading from trunk to limbs and face
- Headache
- Muscle aches
- Joint aches
- Nausea
- Vomiting
- Increased skin sensitivity
- Enlarged lymph nodes

Many cases are subclinical and asymptomatic. Most infections are self-limiting with improvement in symptoms and rapid recovery occurring three to four days after the onset of the typical rash.

Some cases may progress to the more serious Dengue Haemorrhagic Fever (DHF). This form of dengue is more common in children and rarely seen in travellers.

Dengue Haemorrhagic Fever – potentially fatal:

- Sudden deterioration between day 2 and 7
- Rise in temperature
- Bleeding under the skin, gums and the stomach
- Intense continuous abdominal pain
- Vomiting
- Shock (*Dengue Shock Syndrome*)
- Respiratory or renal failure



Mortality rates in uncontrolled shock have been as high as 40-50%; however with good fluid replacement therapy, rates should be 1-2%.⁵

After recovering from dengue fever and DHF the patient will have lifelong immunity to the particular infecting virus serotype. The patient may however suffer from prolonged fatigue, sometimes associated with depression.

Treatment

Professional medical advice should be sought if Dengue Fever or Dengue Haemorrhagic Fever is suspected. Acetyl salicylic acid (aspirin) and nonsteroidal anti-inflammatory agents (such as ibuprofen) should be avoided because of their anticoagulant properties. Patients should be encouraged to rest and take fluids. In severe cases, the prompt infusion of intravenous fluids is necessary to maintain adequate blood pressure. Vital signs must be monitored frequently.⁶

Prevention and Control

No vaccine or chemoprophylaxis is available. Prevention is complicated by the day biting habit of the *Aedes* mosquito. Travellers can reduce their risk of acquiring dengue by:

- When possible, remaining in well-screened or air-conditioned areas
- Covering up, wearing long sleeves and trousers
- Applying insect repellent (30% DEET is recommended) to all exposed skin and clothing.⁷
- Avoiding epidemic areas

At present, the only method of controlling Dengue and DHF is to eliminate the mosquito's breeding habitats. This is achieved through chemical control and larva and environmental management with community-based clean-up campaigns to remove tyres, bottles, cans and other items that catch and retain small pools of water.

³ National Travel Health Network and Centre <http://www.nathnac.org/pro/factsheets/dengue.htm#Risk>

⁴ WHO Neglected Disease Research Programme <http://www.who.int/tdr/diseases/dengue/diseaseinfo.htm>

⁵ Heymann D (Ed.) Control of Communicable Disease Manual APHA Washington DC 18th Ed.

⁶ Medlineplus Medical Encyclopedia <http://www.nlm.nih.gov/medlineplus/ency/article/001274.htm#treatment>