



Fact Sheet on Dengue and Dengue haemorrhagic fever

Summary

- Dengue fever is a severe flu-like illness that affects older children and adults but rarely causes death;
- Dengue fever is transmitted by female *Aedes aegypti* mosquitoes who acquire the virus while feeding on the blood of an infected person. *Aedes aegypti* mosquitoes bite during the day, but protection against mosquitoes should be also during evenings and nights;
- Persons suspected of having dengue fever or Dengue Haemorrhagic Fever (DHF) must see a doctor at once;
- There is no specific treatment for dengue fever but early recognition and symptomatic treatment can save lives. People who are infected with dengue should drink a lot of fluids and eat nutritious food, as this may improve the course of the disease;
- Dengue disease is not contagious, however: when dengue patients are bitten by an infected dengue mosquito, the mosquito may infect somebody else. Therefore, the dengue patient should be kept under a mosquito net or in a screened room during the period of illness,
- People who think maybe infected with dengue and people who are infected with dengue should avoid taking aspirin or brufen. Paracetamol can be given on medical advice.



Aedes aegypti; adult female mosquito taking a blood meal on human skin
Source: WHO/TDR/Stammers

1. General

Dengue is a mosquito-borne infection which in recent years has become a major international public health concern. Dengue is found in tropical and sub-tropical regions around the world, predominantly in urban and semi-urban areas.

There are four distinct, but closely related, viruses that cause dengue. Recovery from infection by one provides lifelong immunity against that serotype but confers only partial and transient protection against subsequent infection by the other three. There is good evidence that sequential infection increases the risk of more serious disease resulting in DHF.

Dengue occurs in two forms:

- Dengue Fever
- Dengue Haemorrhagic Fever

Dengue fever is marked by the onset of sudden high fever, severe headache and pain behind the eyes, muscles and joints.

DHF is a more severe form, in which bleeding and sometimes shock occurs, leading to death. Especially for children, DHF is a serious threat. Symptoms of bleeding usually occur after 3-5 days of fever.

The high fever continues for five to six days (103-105 Fahrenheit or 39-40 Celsius). On the third or the fourth day the fever is known to come down, but it will rise again. The patient feels much discomfort and will be very weak after the illness.

2. Recognition of Dengue Fever

- Sudden onset of high fever;
- Severe headache (mostly in the forehead);
- Pain behind the eyes which worsens with eye movement;
- Body aches and joint pains;
- Nausea or vomiting.

3. Recognition of Dengue Haemorrhagic Fever and Shock

Any of the following are symptoms similar to dengue fever plus:

- Severe and continuous pain in abdomen;
- Bleeding from the nose, mouth and gums or skin bruising;
- Frequent vomiting with or without blood;
- Black stools, like coal tar;
- Excessive thirst (dry mouth);
- Pale, cold skin;
- Restlessness or sleepiness.

4. Prevalence

The global prevalence of dengue has grown dramatically in recent decades. The disease is now endemic in more than 100 countries in Africa, the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific. Before 1970 only nine countries had experienced DHF epidemics, a number that had increased more than four-fold by 1995.

Some 2/500 million people (2/5 of the world's population) are now at risk from dengue. WHO currently estimates there may be 50 million cases of dengue infection worldwide every year.

The spread of dengue is attributed to expanding geographic distribution of the four dengue viruses and of their mosquito vectors. A rapid rise in urban populations is bringing ever greater numbers of people into contact with this vector, especially in areas that are favourable for mosquito breeding, e.g. where household water storage is common and where solid waste disposal services are inadequate.

5. Transmission

Dengue viruses are transmitted to humans through the bites of infective female *Aedes* mosquitoes. Mosquitoes generally acquire the virus while feeding on the blood of an infected person. After virus incubation for 8-10 days, an infected mosquito is capable, during probing and blood feeding, of transmitting the virus, to susceptible individuals for the rest of its life. Infected female mosquitoes may

also transmit the virus to their offspring by transovarial (via the eggs) transmission, but the role of this in sustaining transmission of virus to humans has not yet been delineated.

Humans are the main amplifying host of the virus, although studies have shown that in some parts of the world monkeys may become infected and perhaps serve as a source of virus for uninfected mosquitoes. The virus circulates in the blood of infected humans for two to seven days, at approximately the same time as they have fever; *Aedes* mosquitoes may acquire the virus when they feed on an individual during this period.

6. Characteristics

Dengue fever is a severe, flu-like illness that affects infants, young children and adults, but seldom causes death.

The clinical features of dengue fever vary according to the age of the patient. Infants and young children may have a non-specific febrile illness with rash. Older children and adults may have either a mild febrile syndrome or the classical incapacitating disease with abrupt onset and high fever, severe headache, pain behind the eyes, muscle and joint pains, and rash.

Dengue haemorrhagic fever is a potentially deadly complication that is characterized by high fever, haemorrhagic phenomena (often with enlargement of the liver) and in severe cases, circulatory failure. The illness commonly begins with a sudden rise in temperature accompanied by facial flush and other non-specific constitutional symptoms of dengue fever. The fever usually continues for two to seven days and can be as high as 40-41°C, possibly with febrile convulsions and haemorrhagic phenomena.

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 the patient may rapidly go into a critical state of shock and die within 12-24 hours, or quickly recover following appropriate volume replacement therapy.

7. Treatment

There is no specific treatment for dengue fever. However, careful clinical management by experienced physicians and nurses frequently saves the lives of DHF patients. ***With appropriate intensive supportive therapy, mortality may be reduced to less than 1%. Maintenance of the circulating fluid volume is the central feature of DHF case management.***

Aspirin and Brufen should be avoided in dengue fever, as it is known to increase the bleeding tendency and also it increases the stomach pain. ***Paracetamol can be given on medical advice.*** If one or more signs of Dengue Haemorrhagic fever are seen, the patient should be taken to the hospital immediately. The patient should be given enough fluid to drink while transferring the patient to the hospital.

8. Prevention and control

At present, the only method of controlling or preventing dengue and DHF is to combat the vector mosquitoes.

(i) Preventing mosquito bites:

Dengue **mosquitoes bite during the daytime**. Therefore one should protect himself/herself from the mosquito bites:

- Wearing full sleeve clothes and long dresses to cover the limbs;
- Use repellent – care should be taken in using repellents on small children and the elderly;
- Using mosquito coils and electric vapour mats during the daytime to prevent Dengue;
- Using mosquito nets – to protect babies, old people and others, who may rest during the day. The effectiveness of such nets can be improved by treating them with *permethrin* (pyrethroid insecticide). Curtains (cloth or bamboo) can also be treated with insecticide and hung at windows or doorways, to repel or kill mosquitoes.
- Protection of people sick with dengue – Mosquitoes become infected when they bite people who are sick with dengue. Mosquito nets and mosquito coils will effectively prevent mosquitoes from biting sick people and help stop the spread of dengue

(ii) Preventing multiplication of mosquitoes:

Mosquitoes which spread dengue, live and breed in and around houses in shallow water, either dirty or clean. Therefore, still standing water should be avoided at all times.

- Draining water from coolers, tanks, barrels, drums and buckets, etc.;
- There should be no water in coolers when not in use;
- Removing from the house all objects, e.g. plant saucers, etc. which have water collected in them;
- Removing water from refrigerator drip pans every other day;
- All stored water containers should be kept covered all the time;
- Discarding solid waste and objects where water collects, e.g. bottles, tins, tyres, etc.
- Draining water from tree holes and leaf axis.

<http://www.who.int/topics/dengue/en/>
<http://www.who.int/tdr/diseases/dengue/>
<http://www.who.int/denguenet>