

Factsheet about Dengue Fever

Dengue fever (DF) is a painful, debilitating mosquito-borne disease caused by any one of four closely related serotypes (DEN-1, DEN-2, DEN-3, and DEN-4), of the genus *Flavivirus*, related to the viruses that cause West Nile infection and yellow fever. Each year an estimated 100 million cases of dengue fever occur worldwide. Most of these are in tropical and subtropical areas of the world.

- The Indian subcontinent
- Southeast Asia
- Southern China
- Taiwan
- The Pacific Islands
- The Caribbean (except Cuba and the Cayman Islands)
- Mexico
- Africa
- Central and South America (except Chile, Paraguay, and Argentina)

Aedes aegypti, a domestic day-biting mosquito that prefers to feed on humans, is the most common *vector* for Dengue fever. The mosquito becomes infected when it bites a person with dengue virus in their blood. The virus is not contagious and cannot be spread directly from person to person. There must be a person-to-mosquito-to-another-person pathway.

The mosquito flourishes during rainy seasons and can breed in artificial containers such as; water-filled flower pots, plastic bags and cans year-round. One mosquito bite can cause the disease.

Aedes albopictus, a secondary dengue vector in Asia, has spread to North America and Europe largely due to the international trade in used tyres and other goods. *Ae. albopictus* is highly adaptive and therefore can survive in cooler temperate regions of Europe. Its spread is due to its tolerance to temperatures below freezing, hibernation, and ability to shelter in microhabitats.

Diagnosing Dengue Fever

Doctors can diagnose dengue infection with a blood test to check for the virus or antibodies to it. If you become sick after travelling to a tropical area, let your doctor know. This will allow your doctor to evaluate the possibility that symptoms were caused by a dengue infection.

Symptoms of Dengue Fever

Symptoms, which usually begin four to six days after infection and last for up to 10 days, may include;

- Sudden, high fever
- Severe headaches
- Pain behind the eyes
- Severe joint and muscle pain
- Nausea
- Vomiting
- Skin rash, which appears three to four days after the onset of fever
- Mild bleeding (such a nose bleed, bleeding gums, or easy bruising)



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Victims of dengue often have contortions due to the intense joint and muscle pain, hence the name 'breakbone fever'. Sometimes symptoms are mild and can be mistaken for those of the flu or another viral infection. Younger children and people who have never had the infection before tend to have milder cases than older children and adults. However, serious problems can develop. These include **dengue hemorrhagic fever (DHF)**, a rare complication characterized by high fever, damage to lymph and blood vessels, bleeding from the nose and gums, enlargement of the liver, and failure of the circulatory system. The symptoms may progress to massive bleeding, shock, and death. This is called **dengue shock syndrome (DSS)**. People with weakened immune systems as well as those with a second or subsequent dengue infection are believed to be at greater risk for developing dengue hemorrhagic fever.

Infection with one of the serotypes provides immunity to only that serotype for life, so persons living in a dengue-endemic area can have more than one dengue infection during their lifetime. However, cross-immunity to the other serotypes after recovery is only partial and temporary. Subsequent infections by other serotypes increase the risk of developing severe dengue.

Treatment for Dengue Fever

There is no specific medicine to treat dengue infection. If you think you may have dengue fever, you should use pain relievers with acetaminophen and avoid medicines with aspirin, which could worsen bleeding. You should also rest, drink plenty of fluids, and see your doctor. If you start to feel worse in the first 24 hours after your fever goes down, you should get to a hospital immediately to be checked for complications.

Preventing Dengue Fever

There is no vaccine to prevent dengue fever. The best way to prevent the disease is to prevent being bitten by infected mosquitoes, particularly if you are living in or travelling to a tropical area. This involves protecting yourself and making efforts to keep the mosquito population down.

To protect yourself:

- Stay away from heavily populated residential areas, if possible.
- Use mosquito repellents, even indoors.
- When outdoors, wear light coloured long-sleeved shirts and long pants tucked into socks.
- When indoors, use air conditioning if available.

- Make sure window and door screens are secure and free of holes. If sleeping areas are not screened or air conditioned, use mosquito nets.
- If you have symptoms of dengue, speak to your doctor.

To reduce the mosquito population, get rid of places where mosquitoes can breed. These include old tyres, cans, flower pots or other containers that collect rain. Regularly change the water in outdoor bird baths and pets water dishes.

If someone in your home gets dengue fever, be especially vigilant about efforts to protect yourself and other family members from mosquitoes. Mosquitoes that bite the infected family member could spread the infection to others in your home.

History of Dengue

The first reported epidemics of DF occurred in 1779-1780 in Asia, Africa and North America. The near simultaneous occurrence of outbreaks on three continents indicated that these viruses and their mosquito vector have had a worldwide distribution in the tropics for more than 200 years. During most of this time DF was considered a mild, non-fatal disease of visitors to the tropics. Generally, there were long intervals (10-40 years) between major epidemics, mainly because the introduction of a new serotype in a susceptible population occurred only if viruses and their mosquito vector could survive the slow transport between population centres via sailing vessels.

A pandemic of dengue began in Southeast Asia after World War II and has spread around the globe since then. Epidemics caused by multiple serotypes (hyperendemicity) are more frequent, the geographic distribution of dengue viruses and their mosquito vectors has expanded and DHF has emerged in the Pacific region and the Americas. In Southeast Asia, epidemic DHF first appeared in the 1950s but by 1975 it had become a frequent cause of hospitalization and death among children in many countries in that region.

Current Trends

In the 1980s, DHF began a second expansion into Asia when Sri Lanka, India, and the Maldives had their first major DHF epidemics. Pakistan first reported an epidemic of dengue fever in 1994. After an absence of 35 years, epidemic dengue fever re-emerged in both Taiwan and the People's Republic of China in the 1980s. The People's Republic of China had a series of epidemics caused by all four serotypes and the first major epidemic of DHF, caused by DEN-2, was reported on Hainan Island in 1985. Singapore also had a resurgence of dengue/DHF from 1990 to 1994 after a successful control program had prevented significant transmission for over 20 years. In other countries of Asia where DHF is endemic, the epidemics have become progressively larger in the last 15 years.

In the Pacific, dengue viruses were reintroduced in the early 1970s after an absence of more than 25 years. Epidemic activity caused by all four serotypes has intensified in recent years with major epidemics of DHF on several islands.

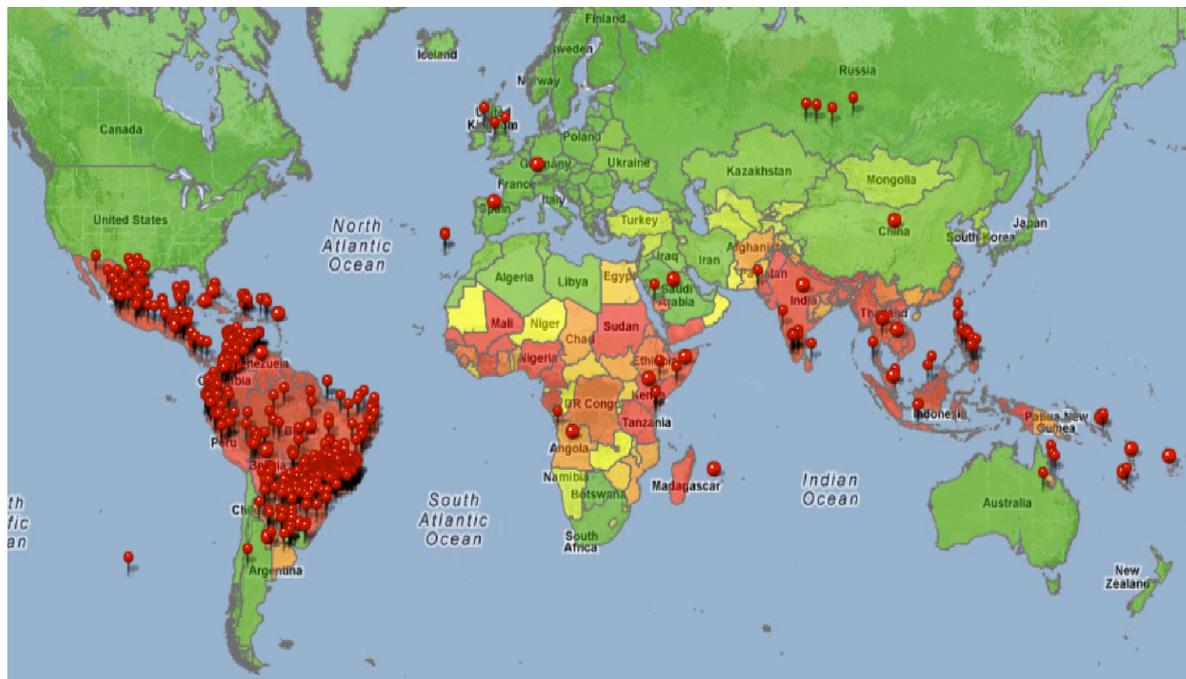
Despite surveillance for dengue in Africa, epidemic dengue fever caused by all four serotypes has increased dramatically since 1980.

The emergence of dengue/DHF as a major public health problem has been most dramatic in the American region. The Pan American Health Organization started a campaign that eradicated *Ae. aegypti* from most Central and South American countries in the 1950s and 1960s. As a result, epidemic dengue occurred only sporadically in some Caribbean islands during this period. The *Ae. aegypti*

eradication program, which was officially discontinued in the United States in 1970, gradually weakened elsewhere and the mosquito began to re-infest countries from which it had been eradicated. As a result, the geographic distribution of *Ae. aegypti* in 2002 was much wider than that before the eradication program.

In 2013, cases have occurred in Florida (United States of America) and Yunnan province of China. Dengue also continues to affect several south American countries notably Honduras, Costa Rica and Mexico. In Asia, Singapore has reported an increase in cases after a lapse of several years and outbreaks have also been reported in Laos. In 2014, trends indicate increases in the number of cases in the Cook Islands, Malaysia, Fiji and Vanuatu, with Dengue Type 3 (DEN 3) affecting the Pacific Island countries after a lapse of over 10 years.

An estimated 500 000 people with severe dengue require hospitalization each year, a large proportion of whom are children. About 2.5% of those affected die.



<http://ennaidtherapeutics.com/potential-cure-for-dengue/>.

Sources

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