

# DENGUE VIRUS INFECTION FACT SHEET



## Overview

Dengue (pronounced den' gee) virus infection is a serious disease that is passed to humans through the bite of an infected mosquito. Five different types of dengue viruses exist, and it is therefore possible to be infected with dengue virus more than once. Dengue is common in many tropical countries and accounts for an estimated 50-100 million infections and 22,000 deaths per year. Today, about 2.5 billion people, or 40 percent of the world's population, live in areas where there is a risk of dengue transmission. Dengue is not common in the United States, and nearly all dengue cases reported in the 48 continental states were acquired during travel to a tropical location where dengue is common. People can protect themselves from dengue virus infection by taking actions to prevent mosquito bites.

## Signs and Symptoms

As many as one half of all dengue-infected persons are asymptomatic, that is, they have no clinical signs or symptoms of disease. Common symptoms of dengue virus infection include high fever, severe headache, severe pain behind the eyes, joint pain, muscle and bone pain, rash, and mild bleeding (e.g., nose or gums bleed, easy bruising). Dengue virus infection with these symptoms is usually referred to as dengue fever. Generally, younger children and those with their first dengue virus infection have a milder illness than older children and adults.

## Causes and Transmission

Dengue is transmitted to people by the bite of an *Aedes* species mosquito that is infected with a dengue virus. It takes four to seven days after the bite for a person to develop infection with dengue virus. The most important mosquito that transmits dengue virus is *Ae. aegypti* (the yellow fever mosquito), but a similar mosquito called *Ae. albopictus* (Asian tiger mosquito) can also transmit dengue. The mosquito becomes infected with dengue virus when it bites a person who has dengue virus in their blood. The person can either have symptoms of dengue virus infection or they may have no symptoms. After about one week, the mosquito can then transmit the virus while biting a healthy person.

Dengue cannot be spread directly from person to person. Rarely, persons can be infected with dengue through blood transfusion or organ transplantation.

## Risk Factors

The risk of being infected by dengue virus depends largely on where a person lives. Persons who live in tropical areas are at highest risk due to the presence of *Ae. aegypti* in these areas. This kind mosquito is considered to be the most important transmitter of dengue virus globally. Persons are at greater risk of severe dengue infection if they have ever been infected with one type of dengue virus in the past and are subsequently re-infected by a different type of dengue virus.

Contact between *Aedes* mosquitoes and people with travel-acquired dengue infection is infrequent in the continental United States. Therefore, dengue virus infections that are imported due to travel rarely result in additional, locally-acquired

dengue virus infections. The last reported dengue virus outbreaks in the continental United States were in Key West, Florida during 2009-2010 and in Martin County, Florida in 2013.

### **Complications**

Some persons, especially persons who have had dengue virus infection in the past, can develop severe illness. Severe dengue infection may begin with symptoms of dengue fever; however, as the fever declines, symptoms quickly progress to include frequent vomiting, severe stomach pain, difficulty breathing and significant bleeding. Persons who develop severe dengue infections are more likely to become hospitalized or die.

### **Tests and Diagnosis**

In order to diagnose a dengue virus infection, a health care provider will need to collect a blood sample from the patient and have it tested for evidence of dengue virus infection. The laboratory will run special tests on the patient's blood sample to look for antibodies to dengue virus or to detect dengue virus RNA (viral particles).

### **Treatments**

There is no specific medication for treatment of a dengue infection. Persons who think they have dengue should use analgesics (pain relievers) with acetaminophen and avoid those containing aspirin. They should also rest, drink plenty of fluids and consult a health care provider. If they feel worse (e.g., develop vomiting and severe stomach pain) in the first 24 hours after the fever declines, they should immediately seek care at a hospital emergency department.

### **Prevention**

A vaccine for dengue virus infection was recently developed and approved for use in certain countries but is not currently available in the United States. Until a vaccine is widely available, persons who may be visiting areas where dengue is common should take actions to prevent mosquito bites. These actions include using mosquito repellent, covering exposed skin, and staying in houses or facilities that have air conditioning or window and door screens without holes. More information is available at <http://wwwnc.cdc.gov/travel/page/avoid-bug-bites>.

Persons who are traveling to locations where dengue virus is common (or are unsure whether dengue is common) should visit the Centers for Disease Control and Prevention's (CDC) traveler's health website (<http://wwwnc.cdc.gov/travel/destinations/list>) for more information.

### **Disease Patterns**

In many parts of the tropics and subtropics, dengue virus infections occur year-round. Dengue infections are most common during seasons when *Aedes* mosquito populations are high (often during wet seasons, which leads to increased mosquito breeding). These areas are also at risk for dengue outbreaks, when large numbers of people become infected during a short time period.

**Additional Information**

Centers for Disease Control and Prevention: <http://www.cdc.gov/dengue>

*This fact sheet provides general information. Please contact your physician for specific clinical information.*

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