



Dengue and Dengue Hemorrhagic Fever: Questions and Answers for Tsunami Survivors

What is dengue?

Dengue (pronounced den' gee) is a disease caused by any one of four closely related viruses (DEN-1, DEN-2, DEN-3, or DEN-4). The viruses are transmitted to humans by the bite of an infected mosquito. It is estimated that there are over 100 million cases of dengue worldwide each year.

What is dengue hemorrhagic fever (DHF)?

DHF is a more severe form of dengue. It can be fatal if unrecognized and not properly treated. DHF is caused by infection with the same viruses that cause dengue. With good medical management, mortality due to DHF can be less than 1%.

How are dengue and dengue hemorrhagic fever (DHF) spread?

Dengue is transmitted to people by the bite of an *Aedes* mosquito that is infected with a dengue virus. The mosquito becomes infected with dengue virus when it bites a person who has dengue or DHF and after about a week can transmit the virus while biting a healthy person. Dengue cannot be spread directly from person to person.

What are the symptoms of the disease?

The principal symptoms of dengue are high fever, severe headache, backache, joint pains, nausea and vomiting, eye pain, and rash. Generally, younger children have a milder illness than older children and adults.

Dengue hemorrhagic fever is characterized by a fever that lasts from 2 to 7 days, with general signs and symptoms that could occur with many other illnesses (e.g., nausea, vomiting, abdominal pain, and headache). This stage is followed by hemorrhagic manifestations, tendency to bruise easily or other types of skin hemorrhages, bleeding nose or gums, and possibly internal bleeding. The smallest blood vessels (capillaries) become excessively permeable ("leaky"), allowing the fluid component to escape from the blood vessels. This may lead to failure of the circulatory system and shock, followed by death, if circulatory failure is not corrected.

What is the treatment for dengue?

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 physician.

Is there an effective treatment for dengue hemorrhagic fever (DHF)?

As with dengue, there is no specific medication for DHF. It can however be effectively treated by fluid replacement therapy if an early clinical diagnosis is made. Hospitalization is frequently required in order to adequately manage DHF. Physicians who suspect that a patient has DHF may want to consult the Dengue Branch at CDC, for more information.

Where can outbreaks of dengue occur?

Outbreaks of dengue occur primarily in areas where *Aedes aegypti* (sometimes also *Aedes albopictus*) mosquitoes live. This includes most tropical urban areas of the world. Dengue viruses may be introduced

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into areas by travelers who become infected while visiting other areas of the tropics where dengue commonly exists.

What can be done to reduce the risk of acquiring dengue?

There is no vaccine for preventing dengue. The best preventive measure for residents living in areas infested with *Aedes aegypti* is to eliminate the places where the mosquito lays her eggs, primarily artificial containers that hold water.

Items that collect rainwater or are used to store water (for example, plastic containers, 55-gallon drums, buckets, or used automobile tires) should be covered or properly discarded. Pet and animal watering containers and vases with fresh flowers should be emptied and scoured at least once a week. This will eliminate the mosquito eggs and larvae and reduce the number of mosquitoes present in these areas. For travelers to areas with dengue, as well as people living in areas with dengue, the risk of being bitten by mosquitoes indoors is reduced by utilization of air conditioning or windows and doors that are screened. Proper application of mosquito repellents containing 20% to 30% DEET as the active ingredient on exposed skin and clothing decreases the risk of being bitten by mosquitoes. The risk of dengue infection for international travelers appears to be small, unless an epidemic is in progress.

For more information, visit www.bt.cdc.gov/disasters/tsunamis, or call the CDC public response hotline at 888-246-2675 (English), 888-246-2857 (español), or 866-874-2646 (TTY).

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