

## Dengue Fact Sheet

1. **What is Dengue (DEN)?** - DEN is a serious disease caused by one of four closely related dengue virus sub-types (DEN-1, -2, -3 or -4). In the Western Hemisphere, the *Aedes aegypti* mosquito is the most important transmitter of DEN viruses, although a 2001 outbreak in Hawaii was transmitted by the *Aedes albopictus* mosquito.
2. **Where does DEN occur?** - DEN is endemic in the Caribbean, Central and South America, many Pacific Islands, and Southeast and South Asia. In the United States, outbreaks of DEN have occurred in Texas, the Florida Keys, and Hawaii.
3. **What is the disease incubation period in humans?** – The time from infection to onset of symptoms of DEN is usually five to fifteen days.
4. **How is DEN diagnosed?** A diagnosis of DEN disease requires that a blood or cerebrospinal fluid specimen be collected and sent to a laboratory for testing for the presence of the virus or antibodies. Sometimes paired blood specimens (taken early and several weeks later) are needed to make the diagnosis. Most clinical laboratories cannot reliably test for DEN infection. There are no specific signs or symptoms of DEN infection.
5. **How common is DEN in Pennsylvania?** – On average, more than fifteen cases of DEN are diagnosed each year in Pennsylvania, either in persons who have traveled to a foreign endemic area or in persons from those areas visiting the state.
6. **What can I do to prevent DEN infection?** – DEN cannot be spread directly from person to person. Although work is under way to develop a vaccine, at present there is none. The best way to prevent DEN is to routinely prevent mosquito bites. *Aedes* mosquitoes feed during daylight hours and are present in both urban and rural areas, therefore, travelers to areas with DEN should routinely wear mosquito repellent while outdoors during their mosquito season (in some areas this may be year round). The most effective mosquito repellants will contain DEET and should be carefully applied following the manufacturer’s directions.
7. **What are the symptoms of the DEN?** - The principal symptoms of DEN are high fever, severe headache, pain behind the eyes, joint pain, muscle and bone pain, rash, and mild bleeding (e.g., nose or gums bleed, easy bruising). DEN has been referred to as “*break bone fever*” because of the severe bone and joint pain that is often present during the infection. However, many people do not show any signs or symptoms when infected with DEN. Generally, younger children and those with their first DEN infection have a milder illness than older children and adults. The mortality rate from DEN in hospitalized patients is less than 1.0%.
8. **What is Dengue Hemorrhagic Fever (DHF)?** - DHF is a more severe form of DEN infection. It can be fatal if unrecognized and not properly treated in a timely manner. The

cause of this complication is unknown, but it is thought to be more common the second time someone is infected with DEN (people can be infected at different times with each of the four types of DEN virus). With good medical management, DHF mortality can be less than 1%.

9. **What are the symptoms of DHF?** - DHF is characterized by a fever that lasts from 2 to 7 days, with general signs and symptoms consistent with DEN. When the initial fever declines, symptoms including persistent vomiting, severe abdominal pain, and difficulty breathing, may develop. This marks the beginning of a 24- to 48-hour period when the smallest blood vessels (capillaries) become excessively permeable (leaky), allowing the fluid component to escape from the blood vessels into the abdomen (ascites) and into the lining of the lungs (pleural effusion). DHF may lead to bleeding manifestations, failure of the circulatory system and shock, followed by death.
10. **What is the treatment for DEN?** - There is no specific medication for treatment of a DEN infection. Persons who think they have DEN should use analgesics (pain relievers) with acetaminophen and avoid those containing aspirin. They should also rest, drink plenty of fluids, and consult a physician. If they feel worse (develop vomiting and severe abdominal pain) in the first 24 hours after the fever declines, they should immediately go to the hospital emergency department for evaluation.
11. **What is the treatment for DHF?** - As with DEN fever, there is no specific medication for DHF. It can however be effectively treated by fluid replacement therapy if an early clinical diagnosis is made. DHF management frequently requires hospitalization.
12. **Where can outbreaks of DEN occur?** - Outbreaks of DEN occur primarily in areas where *Aedes* mosquitoes live. This includes most tropical urban areas of the world. DEN viruses may be introduced into areas by travelers who become infected while visiting other areas of the tropics where DEN commonly exists.
13. **What can be done to reduce the risk of acquiring DEN?** – **Since** there is no DEN vaccine, the best preventive measure in areas infested with *Aedes* mosquitoes is to eliminate the nearby places where the mosquito may lay her eggs:
  - a. Items that collect rainwater or to store water, e.g. plastic containers, 55-gallon drums, buckets, or tires should be covered or properly discarded.
  - b. Pet and animal watering containers and vases with fresh flowers should be emptied and cleaned (to remove mosquito eggs and larvae) at least once a week.
  - c. Using air conditioning or window and door screens reduces the risk of mosquitoes coming indoors.
  - d. 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.
14. **More DEN information:** <http://www.cdc.gov/dengue/>



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