Dengue is a neglected tropical disease caused by a virus spread through the bite of infected Aedes mosquitoes. There are four strains of the virus, all of which can infect humans. Disease severity varies widely from asymptomatic to severe illness and death.

While most cases in the U.S. are due to foreign travel, locally-acquired cases of dengue have been reported in Arizona, California, Florida, Hawaii, Puerto Rico, and Texas. In 2023 there were approximately 1,200 locally-acquired cases of dengue in the United States and 1,700 travel-related cases.

Impact of Dengue

According to the World Health Organization, about half of the world’s population is considered at risk for dengue.

There are approximately 100-400 million cases of dengue per year, resulting in approximately 40,000 deaths.

The disease is also known as “breakbone fever” because of the severe joint pain in some cases.

Transmission generally occurs through the bite of infected mosquitoes, though an infection can be passed from mother to child in utero or during childbirth or through exposure to contaminated blood.

Infections are confirmed through a blood test, as symptoms are similar to other diseases, such as the flu.

Symptoms

1 in 4 people infected with dengue feel sick. Of those who feel sick, 1 in 20 will have a severe infection. Severe infections are more common in people who have had dengue before, infants, and pregnant women.

Mild Cases
- Fever
- Rash
- Nausea, vomiting
- Aches and pains
- Typically lasts about 2-7 days

Severe Cases
- Shock
- Internal bleeding
- Death
- Cases enter this stage typically 24-48 hours after fever disappears
Cases of dengue are highest in tropical and subtropical regions, with approximately 70% of cases occurring in Asia. However, cases in other countries are on the rise and the disease is endemic in more than 100 countries. The European Centre for Disease Prevention and Control reported 410 confirmed cases of dengue in 2021. While Europe does not have high rates of the disease, it is a rising public health concern in the region. In 2023, there were the highest rates of dengue ever recorded in the Americas, with over 4 million cases.

Treatments and Vaccination

There is currently no treatment specifically for dengue infections. Instead symptoms are treated as needed, such as using acetaminophen to manage a fever. There is an approved dengue vaccine for children 9-16 years old that is part of routine immunizations for children in Puerto Rico.

Current Research

The National Institute of Allergy and Infectious Diseases, a branch of the NIH, funds dengue research, including discovering novel treatments and vaccines.

Current research at Johns Hopkins University seeks to target the mosquito vector that spreads dengue, as well as other diseases like malaria.

The Fred Hutchinson Cancer Research Center is currently studying potential new vaccines that could target all four strains of the virus.