

About Dengue



- Dengue fever is the **fastest-spreading vector-borne viral disease worldwide**.¹ Its incidence has risen 30-fold in the past 50 years, and more countries are reporting their first outbreaks of the disease.²
- Most dengue infections are asymptomatic or lead to mild illness with flu-like symptoms, but occasionally severe dengue can lead to potentially deadly complications.³
 - Most dengue cases are either asymptomatic or subclinical; approximately 25% lead to clinically apparent disease, and around 5% of these may be severe cases.^{4,5}
- Dengue is caused by four distinct, but closely related, dengue virus serotypes (DENV-1, 2, 3 and 4).³
 - Recovery from infection with one serotype is thought to provide long lasting, but not necessarily complete, protection against that serotype, and short-lived, partial protection against other serotypes. This means it is possible to be infected with dengue up to four times.³
- Dengue is found mostly in urban and semi-urban areas in tropical and sub-tropical climates where *Aedes aegypti* and *Aedes albopictus* mosquitoes are most common.⁶
 - Climate conditions, such as rainy season in endemic countries, can lead to increased mosquito breeding.⁷

Dengue is a top ten threat to global health and endemic in more than 100 countries⁸

- About 50% of the world's population lives under the threat of dengue, which is responsible for approximately **390 million infections** globally per year and **500,000 hospitalizations** annually.^{3,9}
- The global economic burden of dengue is substantial and has been estimated to cost **\$12 billion per year**.¹⁰
- Since 1970, dengue has spread from **nine countries to 100+ countries**.³

- The Americas, South-East Asia and Western Pacific regions are the most seriously affected, with Asia representing ~70% of the global burden of disease.³
- More than six billion people could be at risk for dengue by 2080 due to population growth in endemic areas.⁶

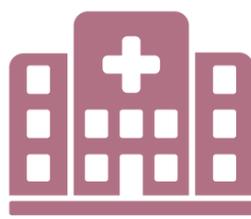


- A vast majority of dengue cases are asymptomatic or mild and self-managed, resulting in the actual numbers of dengue cases being under-reported and making it difficult to estimate the true extent of the disease and incidence rates.^{3,11}

Dengue can have a negative impact on endemic regions and put significant burdens on communities

Hospitals Struggle with High Numbers of Cases

- Severe dengue is a **leading cause of hospitalization and death** in children and adults in endemic regions.³
- Epidemics are unpredictable and are becoming increasingly frequent, with dengue now capable of spreading to previously unaffected areas due to global warming. During an outbreak, affected areas can see a massive spike in cases and admitted patients.^{12,13}
 - Healthcare facilities may face difficulties in finding the necessary space to care for the significant rapid influx of patients, resulting in ordinary hospital wards being converted into makeshift dengue wards.^{12,13}
 - Staff on call may not always be sufficient to meet patient demand, leading to stress, fatigue, and unexpected lack of attendance.¹²



The Economic Impact of Dengue is Broad



Individuals

The average cost range per hospitalized person in endemic countries can vary anywhere from **\$36-\$2,000**¹⁰ and families may spend **up to a quarter of monthly household income** for hospitalizations due to dengue fever, or more, depending on socioeconomic factors.^{15,16}



Local Governments

Local governments in dengue endemic regions face the expenses of additional personnel, equipment and supplies needed for vector control and surveillance; and monitoring and communication of information about cases, outbreaks and death.¹⁷



Countries

Countries experiencing dengue outbreaks may see loss in tourism, business travel and in foreign and local investment.¹⁷ Dengue can also significantly impact a region's productivity, with long-term fatigue effecting educational levels and labor supply.¹⁷

Controlling Dengue

- Current efforts for dengue control are directed at reducing infection rate through vector control methods, such as personal protection, biological control, chemical control and environmental management of mosquitoes³:
 - **Preventing breeding:** Removing or applying insecticide to outdoor water storage containers;
 - **Emergency control measures:** Space spraying of insecticide (i.e., fogging) during outbreaks;
 - **Personal protection measures:** Use of window screens, repellents, or wearing clothing that minimizes skin exposure.
- With limited options available to prevent dengue infection, there is a need for safe and effective dengue vaccines.



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