

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
- Dengue is **caused by any of the four dengue virus serotypes**, each of which can cause dengue or severe dengue.³
- 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 often found in tropical and subtropical regions where *Aedes aegypti* and *Aedes albopictus* mosquitoes are most common. Anyone traveling to an area with dengue is at risk of the disease.⁶

The Geographical Range of Dengue is Expanding

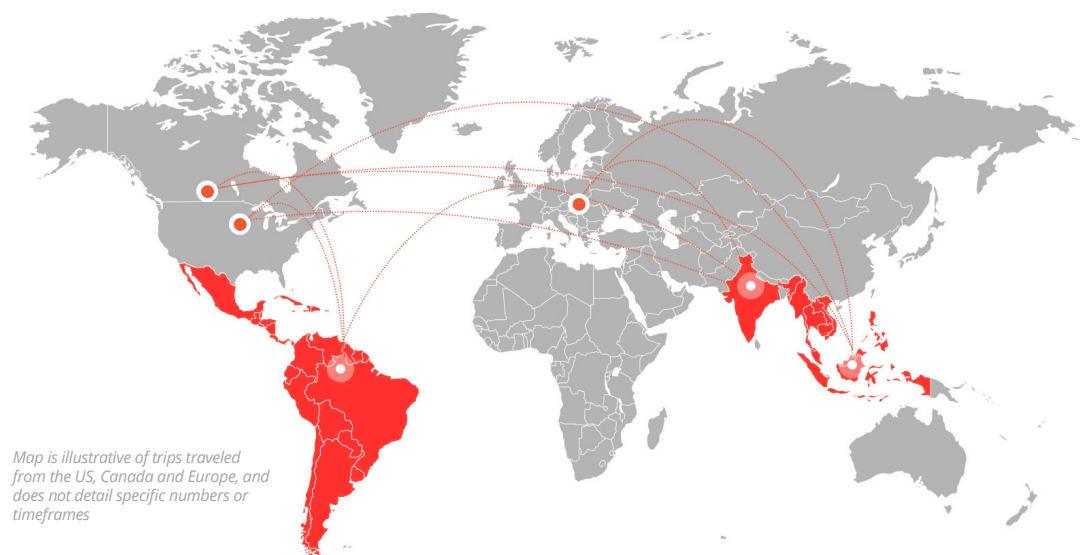
- The incidence of dengue has grown dramatically around the world in recent decades, causing an estimated **390 million infections** and **500,000 hospitalizations** annually.^{3,7}
- Globalization, air travel, urbanization and climate change have contributed to the global transmission of the disease in new areas, including in the contiguous United States (U.S.), continental Europe and overseas territories.⁸
 - Climate change can affect transmission, as dengue mosquitoes reproduce more quickly and bite more frequently at higher temperatures.⁹ Increasing temperatures may enable greater spread and transmission in low-risk or currently dengue-free parts of Asia, Europe, North America, and Australia.¹⁰
 - Climate change may also affect the geographic range of dengue through its effects on human and natural systems, such as water storage, land use, and irrigation.¹⁰

Locally acquired cases of dengue are now observed on an almost annual basis in many European countries,³ including reported cases in Spain in 2019 and France and Italy in 2020.¹¹

In the U.S., local dengue outbreaks in the last ten years occurred in Hawaii, Florida and Texas, but nearly all dengue cases reported in the 48 contiguous U.S. states are in travelers infected elsewhere.¹²

Risk to Travelers

- Dengue is a **leading cause of fever among travelers** returning from Latin America, the Caribbean and Southeast Asia and is the second-most diagnosed cause of fever in travelers returning to Europe from endemic countries.^{13,14}
- In 2018, there were more than **90 million arrivals*** to dengue endemic countries from the U.S., Canada and Europe.¹⁵



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.



*non-resident visitors

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