



## FACTS



# 3.9 Bn

people at risk  
of being infected



About

# 390 M

infections per year



This disease  
is endemic in

# 129

countries

# DENGUE

## A global partnership to tackle a rapidly spreading climate-sensitive disease

The World Health Organization classifies dengue as one of the top ten threats to global health. The disease is caused by a virus that is mostly spread by the bite of *Aedes aegypti* mosquitoes. Although some people develop no symptoms, dengue can cause fever, nausea, vomiting, rashes, fatigue, and eye, muscle, joint, and bone pain. A smaller proportion of people develop plasma leakage resulting in fluid accumulation. Severe plasma leakage can result in shock, organ dysfunction and severe bleeding – known as severe dengue. A person can progress to severe dengue very suddenly and eventually succumb to their illness if plasma leakage is not detected early. Repeated infection can increase people's risk of developing severe dengue.

Dengue is the most widely distributed mosquito-borne viral disease in the world, and it continues to spread rapidly because of climate change, rapid urbanization, and population growth. 60% of the world's population is predicted to be at risk by 2080.

The sheer numbers of patients presenting to healthcare facilities during dengue outbreaks are already proving to be a huge burden in resource-limited settings. Yet, despite consensus that a full array of diagnostic, preventive, and treatment tools are needed for dengue, no specific drugs exist to treat the disease, and there is only limited use of vaccines. Without effective treatments, pressure will continue to mount on already overburdened health systems, fuelling cycles of poverty in already marginalized communities.

## The push for progress

Medicines are needed to treat dengue at different stages and to reduce the risk of an infection progressing to severe disease. With the goal of finding a safe, affordable, and effective treatment for dengue, we are working with partners to establish a global alliance of leading public health institutes in dengue-endemic countries that will carry out pre-clinical studies and clinical trials. We are also working together on diagnostics, biomarkers, and regulatory and access strategies. Partner institutes from Thailand, India, Brazil, and Malaysia have already joined the alliance, and members from additional countries are set to join soon.



Photo credit: Maneesh Agnihotri-DNDi

**Princy, 8 years old, and her mother, Latha,** live in Vellore, Tamil Nadu, India. After falling ill with dengue, Princy was hospitalized at Christian Medical College Vellore, where her mother works as a nurse. Fortunately for Princy, Latha recognized the signs and symptoms of the disease and knew to seek prompt treatment.

“ I took Princy to the hospital when her fever didn't settle. That got me worried. As I saw many children with dengue in the hospital in last few months, I suspected that Princy might be infected, too.

**Our goal is now** to work in close collaboration with endemic country partners to advance treatment solutions that can prevent progression to severe dengue and reduce burden on public health systems.

## **South-South collaboration to find a safe, affordable, and effective treatment**

In 2022, DNDi and Alliance partners in endemic countries kicked off efforts to deliver an affordable and accessible treatment solution for dengue within five years. Partners will also work together on diagnostics and regulatory and access strategies, and on mobilizing resources.

Ahead of later-stage clinical trials, partners' early efforts are focused on pre-clinical research to identify the most promising drug candidates from among repurposed antivirals and host-directed therapies, with goal of developing optimal combination treatment options. DNDi teams are also working to negotiate potential collaborations with pharmaceutical industry partners to test novel antivirals as potential dengue treatments.

In Africa, where dengue research has not been prioritised or well-funded, dengue burden appears to low; however, this is largely considered to be due under-reporting. To address the urgent need to better understand the incidence of dengue in Africa, DNDi and partners are supporting seroprevalence surveys in the Democratic Republic of the Congo, Ghana, and Senegal to develop more accurate estimates of dengue burden that can help governments to make informed decisions about treatment and control strategies.