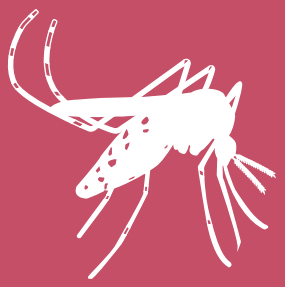

FACTS

3.9 billion

people at risk

Cases doubling

every year since 2021

Endemic in

129 countries

around the world

DENGUE

Developing urgently needed treatments for a rapidly spreading climate-sensitive disease

The World Health Organization (WHO) classifies dengue as one of the top 10 threats to global health, but while there are innovations in vaccines and vector control, there is still no specific treatment. Caused by a virus that is spread by the bite of the Aedes mosquito, dengue symptoms can include fever, nausea, vomiting, rashes, fatigue, and intense eye, muscle, joint, and bone pain. For some, dengue infection can become severe, with complications such as bleeding and plasma leakage that can lead to shock, organ dysfunction, and death. Pregnant women, children, older adults, and people with comorbidities are most at risk.

The most common mosquito-borne viral disease in the world, dengue is spreading rapidly due to climate change, urbanization, and population growth. Now endemic in more than 100 countries from the Americas to Africa and Asia, some estimates suggest 60% of the world's population will be at risk by 2080. Despite its prevalence and severity, there is no specific treatment for dengue. Medicines that can treat the disease – and prevent mild cases from becoming severe – are urgently needed.

The push for progress

We established the Dengue Alliance, a global partnership of leading public health institutes in endemic countries, to develop new treatments that are effective against the disease. Our teams and partners are also carrying out much-needed research on the burden of dengue in African countries.

OUR GOAL IS NOW to deliver an affordable and accessible dengue treatment solution, complete our assessment of the dengue burden in Africa, and support the identification of biomarkers that can accurately predict progression to severe dengue.

Advancing innovation – led by endemic countries

The Dengue Alliance is a global partnership led by institutions from dengue-endemic countries that aims to develop affordable and accessible treatments for dengue. Current members include the Translational Health Science and Technology Institute, India; Faculty of Medicine, Siriraj Hospital, Mahidol University, Thailand; Ministry of Health, Malaysia; Oswaldo Cruz Foundation (Fiocruz), Brazil; Federal University of Minas Gerais, Brazil; and DNDi.

In 2024, the Alliance's pre-clinical research efforts included *in vitro* and *in vivo* studies of three host-directed therapies identified in collaboration with BenevolentAI using AI-guided methods to determine the mechanism of their potential protective effect on membrane integrity in dengue infection models.

Alliance partners also advanced engagement with developers of direct-acting antivirals and preparations for clinical trials, developing study protocols and completing pre-clinical evaluation of several compounds – two of which were identified as ready for Phase II and III studies. In June 2025, DNDi and Serum Institute of India (SII) initiated a partnership to advance development of one front-running candidate – a monoclonal antibody now in Phase III trials in India. DNDi and SII will collaborate to

DNDi
Best Science for the Most Neglected

> **It's not fair – children are dying, teenagers are dying, adults are dying. I'd really like something to prevent these deaths.**
>
> **JACIRA** lives in the community of Morro dos Prazeres in Rio de Janeiro, Brazil. When she had dengue, she had difficulty getting up and down the stairs and struggled with loss of breath. She had pain in her joints, arms, and legs, and experienced headache and fever.

Photo credit: Fábio Nascimento-DNDi

conduct additional Phase III trials of the potential new treatment in other dengue-endemic countries, including Brazil. Another candidate – the niclosamide-based broad-spectrum antiviral candidate Xafty – will be jointly developed by DNDi and Hyundai Bioscience Co., Ltd. following the signing of a Memorandum of Understanding in February 2025, with preparations for a Phase II clinical trial in Vietnam planned to begin in the third quarter of 2025.

Alongside their research on new treatments in 2024, Alliance members also advanced work to identify dengue biomarkers to predict disease progression and carried out epidemiological research to assess the global burden of disease and develop use-case scenarios to facilitate treatment access.

Overcoming knowledge gaps in Africa to inform the global response

Cases of dengue were documented on the African continent as early as 1823, and the infection has been reported in 34 countries – but the current burden of disease is unclear. New data is urgently needed to inform decision-making on the deployment of prevention tools such as vaccines and vector control strategies, as well as future treatments.

Using a novel methodological approach, DNDi teams continued working with partners Imperial College London; Institut Pasteur de Dakar, Senegal; Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR), Kwame Nkrumah University of Science and Technology (KNUST), Ghana; and National Biomedical Research Institute (INRB), DRC to complete a retrospective study on the prevalence of dengue in Senegal, Ghana, and the DRC. Following confirmation of results from selected samples, mathematical modelling was used to develop age-stratified estimates of the burden of disease, with the final results presented at the ASTMH (New Orleans, US) and ICID (Cape Town, South Africa) conferences.

A scoping review of scientific literature on the global incidence of dengue from 2014 to 2023 was also completed and published in the journal *eBiomedicine* in May 2024. Its new estimates of risk of infection can inform modelling efforts to improve understanding of the heterogeneity in dengue transmission and inform public health interventions.