

# Dengue research in India: A scientometric analysis of publications, 2003-12

## Abstract

The present study quantitatively analyze Indian dengue research output during the 10 years from 2003 to 2012, using Scopus international multidisciplinary database. The study focused on global publication output, share, rank, and citation impact of top 15 most productive nations, India's publications output, growth, global publication share and research impact, international collaborative papers share in national output and the share of major international collaborative partner countries in total India's international collaborative papers, contribution of various sub-fields and distribution by population age groups, productivity and citation impact of its leading Indian institutions and authors and Indian contribution in most productive journals. Indian contribution in dengue fever research consisted of 910 papers, which increased from 27 papers in 2003 to 193 papers in 2012, witnessing an annual average growth rate of 28.19%. Among the top 15 most productive countries, India holds second position in dengue fever research output, with global publication share of 10.22% during 2003-12. The average citation per paper scored by India was 3.27, the least among the top 15 most productive countries during 2003-12. India's share of international collaborative papers was 10.55% during 2003-12, which increased from 9.12% during 2003-07 to 11.13% during 2008-12. The present India's research efforts in dengue research are low in view of the 50,222 cases of dengue in 2012 alone. The country needs to increase its research output and also increase its research impact substantially particularly through enhanced national and international collaboration, besides evolving a national policy for identification, monitoring and control of dengue cases and also evolving a research strategy with sufficient funding commitment to solve this growing national problem.

**Key words:** Dengue, India, scientometric

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## INTRODUCTION

Viruses are tiny agents that can infect a variety of living organisms, including bacteria, plants, and animals. Like other viruses, the dengue virus is a microscopic structure that can only replicate inside a host organism. The dengue viruses are members of the genus *Flavivirus* in the family *Flaviviridae*. Along with the dengue virus, this genus also includes a number of other viruses transmitted by mosquitoes and ticks that are responsible for human diseases. *Flavivirus* includes the yellow fever, West Nile, Japanese encephalitis, and tick-borne encephalitis viruses.<sup>[1]</sup>

Dengue fever (DF), also known as breakbone fever, is an infectious tropical disease, caused by the dengue virus. Symptoms include fever, headache, muscle and joint pains, and a characteristic skin rash (similar to measles). In smaller proportion of cases, the disease develops into the life threatening dengue hemorrhagic fever (DHF) resulting in bleeding low levels of blood platelets and blood plasma leakage, or into dengue shock syndrome (DSS), where dangerously low blood pressure occurs.<sup>[2]</sup>

DF is caused by any of the four closely related viruses, namely DEN-1, DEN-2, DEN-3, and DEN-4. These four viruses are called serotypes because each has different interactions with the antibodies in human blood serum. The four dengue viruses are similar — they share approximately 65% of their genomes — but even within a single serotype, there is some genetic variation. Despite these variations, infection with each of the dengue serotypes results in the same disease and range of clinical symptoms.<sup>[1]</sup>

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