

# 1. Introduction

Dengue fever (DF) and its severe forms—dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS)—have become major international public health concerns. Over the past three decades, there has been a dramatic global increase in the frequency of dengue fever (DF), DHF and DSS and their epidemics, with a concomitant increase in disease incidence (*Box 1*). Dengue is found in tropical and subtropical regions around the world, predominantly in urban and semi-urban areas. The disease is caused by a virus belonging to family *Flaviviridae* that is spread by *Aedes (Stegomyia)* mosquitoes. There is no specific treatment for dengue, but appropriate medical care frequently saves the lives of patients with the more serious dengue haemorrhagic fever. The most effective way to prevent dengue virus transmission is to combat the disease-carrying mosquitoes.

According to the *World Health Report 1996*,<sup>1</sup> the “re-emergence of infectious diseases is a warning that progress achieved so far towards global security in health and prosperity may be wasted”. The report further indicated that: “infectious diseases range from those occurring in tropical areas (such as malaria and DHF, which are most common in developing countries) to diseases found worldwide (such as hepatitis and sexually transmitted diseases, including HIV/AIDS) and foodborne illnesses that affect large numbers of people in both the richer and poorer nations.”

## **Box 1: Dengue and dengue haemorrhagic fever: Key facts**

- Some 2.5 billion people – two fifths of the world's population in tropical and subtropical countries – are at risk.
- An estimated 50 million dengue infections occur worldwide annually.
- An estimated 500 000 people with DHF require hospitalization each year. A very large proportion (approximately 90%) of them are children aged less than five years, and about 2.5% of those affected die.
- Dengue and DHF is endemic in more than 100 countries in the WHO regions of Africa, the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific. The South-East Asia and Western Pacific regions are the most seriously affected.
- Epidemics of dengue are increasing in frequency. During epidemics, infection rates among those who have not been previously exposed to the virus are often 40% to 50% but can also reach 80% to 90%.
- Seasonal variation is observed.
- *Aedes (Stegomyia) aegypti* is the primary epidemic vector.
- Primarily an urban disease, dengue and DHF are now spreading to rural areas worldwide.
- Imported cases are common.
- Co-circulation of multiple serotypes/genotypes is evident.

The first confirmed epidemic of DHF was recorded in the Philippines in 1953–1954 and in Thailand in 1958. Since then, Member countries of the WHO South-East Asia (SEA) and Western Pacific (WP) regions have reported major dengue outbreaks at regular frequencies. In India, the

first confirmed DHF outbreak occurred in 1963. Other countries of the Region, namely Indonesia, Maldives, Myanmar and Sri Lanka, have also reported major DHF outbreaks. These outbreaks prompted a biregional (SEA and WP regions) meeting on dengue in 1974 in Manila, the Philippines, where technical guidelines for the diagnosis, treatment, and prevention and control of dengue and DHF were developed. This document was later revised at a summit meeting in Bangkok in 1980.

In May 1993, the Forty-sixth World Health Assembly (46th WHA, 1993) adopted a resolution on dengue prevention and control, which urged that the strengthening of national and local programmes for the prevention and control of dengue fever (DF), DHF and DSS should be among the foremost health priorities of those WHO Member States where the disease is endemic. The resolution also urged Member States to: (1) develop strategies to contain the spread and increasing incidence of dengue in a manner sustainable; (2) improve community health education; (3) encourage health promotion; (4) bolster research; (5) expand dengue surveillance; (6) provide guidance on vector control; and (7) prioritize the mobilization of external resources for disease prevention. In response to the World Health Assembly resolution, a global strategy for the operationalization of vector control was developed. It comprised five major components, as outlined in Box 2.

**Box 2: Salient Features of Global Strategy for Control of DF/DHF Vectors**

- Selective integrated mosquito control with community and intersectoral participation.
- Active disease surveillance based on strong health information systems.
- Emergency preparedness.
- Capacity-building and training.
- Intensive research on vector control.

Accordingly, several publications were issued by three regional offices of the World Health Organization—South-East Asia (SEARO) [*Monograph on dengue/dengue haemorrhagic fever* in 1993, a regional strategy for the control of DF/DHF in 1995, and *Guidelines on Management of Dengue Epidemics* in 1996]; Western Pacific (WPRO) [*Guidelines for Dengue Surveillance and Mosquito Control* in 1995]; and the Americas (AMRO PAHO) [*Dengue and Dengue Haemorrhagic Fever in the Americas: Guidelines for Prevention and Control* in 1994].

A 2002 World Health Assembly resolution (WHA 55.17) urged greater commitment to dengue from Member States and WHO. In 2005, the International Health Regulations (IHR) were formulated. These regulations stipulated that Member States detect and respond to any disease (for example, dengue) that has demonstrated the ability to cause serious public health impact and spread rapidly internationally.<sup>2</sup>

More recently, a biregional (SEA and WP regions) Asia-Pacific Dengue Strategic Plan (2008–2015) was developed to reverse the rising trend of dengue in the Member countries of these Regions. This has been endorsed by the Regional Committees of both the South-East Asia Region [resolution SEA/RC61/R5 (2008)] and the Western Pacific Region [resolution WPR/RC59/R6 (2008)].

Due to the high disease burden, dengue has become a priority area for several global organizations other than WHO, including the United Nations Children’s Fund (UNICEF), United Nations Environment Programme (UNEP), the World Bank, and the WHO Special Programme for Research and Training in Tropical Diseases (TDR), among others.

In this backdrop, the 1999 Guidelines for Prevention and Control of Dengue/DHF (*WHO Regional Publication, SEARO No. 29*) have been revised, updated and rechristened as the **“Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Haemorrhagic Fever: Revised and Expanded”**. These *Guidelines* incorporate new developments and strategies in dengue prevention and control.