

Dengue in Brazil: Epidemiology and diagnosis over 25 years by a regional reference laboratory

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Dengue is considered the most important mosquito-borne viral disease in humans who live in the tropical and subtropical areas of the world. High dengue activity in Brazil during the past 26 years is evidenced by the large number of cases. DENV-1, DENV-2 and DENV-3 were introduced in Rio de Janeiro, in 1986, 1990 and 2000, respectively. DENV-4 has recently been isolated after 28 years. The introduction of DENV-2 in 1990 caused the first cases of DHF and DSS. DENV-3 introduction led to severe epidemics in 2002 with DHF cases and deaths. In 2007–2008, the country experienced the most severe dengue epidemic in terms of morbidity and mortality and severe cases in children. Genomic analysis on DENV-2 identified the introduction of a distinct lineage of the Asian/American genotype. In 2009 and 2010, DENV-1 reemerged and the phylogeny also demonstrated the circulation of distinct lineages. Since 1986, laboratorial diagnosis has played an important role in the disease surveillance. Virus isolation and IgM ELISA were first used. With the introduction with DENV-2 in 1990, immune response characterization was performed by an IgG-ELISA. In the 90's, molecular techniques such as RT-PCR and sequencing were used for nucleic acid detection and characterization. Real-time PCR showed to be essential for dengue fatal cases confirmation and NS1 tests have been used for the early diagnosis of dengue infections. Our experience has shown that the implementation of new diagnosis techniques over the years constituted an important and reliable tool for the disease surveillance in Brazil.

Biography

Flavia dos Santos has completed her PhD at the age of 29 from the Oswaldo Cruz Institute, Brazil and her postdoctoral fellowship in 2007 from the University of California, Berkeley, USA. She is currently a Brazilian Ministry of Health employee. For the past 17 years she has been working on the Regional Reference Laboratory for Dengue and Yellow Fever Diagnosis and has published about 30 papers.

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