

RELATIVE COSTS AND DISABILITY DUE TO DENGUE IN THAILAND: AN EPIDEMIOLOGICAL APPROACH

**Anderson KB, Nisalak A, Chunsuttiwat S, Mammen MP, Green S, Rothman AL,
Vaughn DW, Libraty DH, Ennis FA and Endy TP**

Dengue virus infection is a global health problem with significant economic burden due to hospitalization and illness. This study evaluates the cost and disability adjusted life-years (DALYs) lost to symptomatic dengue in Kamphaeng Phet, Thailand, using data from a five-year prospective study in school children. All febrile school absences were evaluated, allowing comparison of dengue and non-dengue illnesses. Cost calculations include direct and indirect expenses. Dengue caused a loss of 398.5 DALYs/million (D/m) and \$20,110 from 1998-2002, representing 17.8% of all DALYs and 13.7% of dollars lost to febrile illness in the cohort. Yearly variability was observed, with maximum burden in the dengue epidemic years of 1998 and 2001 (710.9 D/m and \$5220, and 700 D/m and \$8600, respectively) and minimum in the interepidemic years of 2000 and 2002 (53.4 D/m and \$880, and 153 D/m and \$1870). The DALYs lost during epidemic years differed in clinical composition: while the majority of DALYs lost to dengue in 1998 were primarily in non-hospitalized patients (71.9%), the majority in 2001 were due to hospitalized illness (57.9%). DALYs lost to non-dengue illness were several-fold higher than for dengue each year; within hospitalized patients, however, dengue was responsible for greater loss of DALYs in all years but 2000. The average cost was higher for dengue compared to non-dengue febrile illness (\$64.50 vs. \$47.70). Considering dengue only, the average cost of illness was highest for hospitalized DHF patients, while total costs were higher for non-hospitalized dengue. The serotype-attributable burden of disease varied yearly: Den 3 was associated with the greatest costs and disability in 1998, Den 2 predominated from 1999-2002, and Den 4 was associated with minimal disease burden each year. These findings bear importance on the development of multivalent dengue vaccines. Dengue is associated with a significant amount of disability in the region (from 4-33% of DALYs lost to febrile illness each year), and should be given high priority in research and prevention efforts.

**53rd Annual Meeting of the American Society Tropical Medicine and Hygiene (ASTMH).
Miami, Florida, USA. 7-11 November 2004.**

Am J Trop Med Hyg. 2004; 70(4 suppl):2.

THE ROLE OF CELLULAR IMMUNITY IN DENGUE INFECTION

**Srikiatkachorn A, Libraty DH, Green S, Endy TP, Kalayanarooj S, Nisalak A,
Vaughn DW, Mammen MP Jr, Ennis FA and Rothman AL**

Several studies have shown that prior infection with dengue virus increases the risk of developing severe disease with subsequent infection with another strain of the virus. Although some DHF (dengue hemorrhagic fever) cases occur with primary infection, over 90% of DHF cases occur in individuals who exhibit a secondary antibody response. In parallel with an enhanced humoral response in patients who develop DHF, cellular immunity also exhibits an enhanced activation