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Economic and Epidemiological Impact of Dengue Illness in Brazil

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Dengue is a serious global health problem in endemic countries such as Brazil where it is the most important vector-borne infection. Overall there were 1.68 million notified cases in 2015. This has resulted in multiple initiatives to try and control the disease burden. Most patients with dengue in Brazil are self-treated at home. However, serious complications can arise including leukopenia, hemorrhage and circulatory collapse leading to deaths. Several studies have estimated the cost and disease burden but none from a public health perspective based on the entire population.

Consequently, we sought to address this using Brazilian public health system (SUS) databases.

Method: Descriptive study linking together several SUS databases from 2000 - 2015. All procedures and associated costs were obtained via the Hospital Information System (SIH). Data was broken down into specific age groups and incidences to better calculate associated disability-adjusted life years (DALYs) to improve understanding of the disease burden for future policy decisions. **Results:** 739,177 hospitalization procedures were verified as dengue and severe dengue during the study years. Overall, SUS spent almost US\$159 million and US\$10 million to treat dengue and severe dengue, respectively, between 2000-2015. The principal costs for SUS were hospitalization costs as the majority of patients were self-treated at home as only minor symptoms. On average, 273 per 100,000 inhabitants were notified to the authorities for dengue and 3 per 100,000 for severe dengue. Annual DALYs estimates ranged from 72.35 to 6,824.45 during the course of the study period.

Conclusion: The epidemiological and morbidity burden associated with dengue is substantial in Brazil. However, the costs to SUS costs are affected by most patients self-treating at home. Consequently, the Brazilian government urgently needs to proactively evaluate the real costs and clinical benefits of any potential dengue vaccination program versus current prevention programmes and costs to guide future decision making.

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