Analysis of Repeat Hospital Admissions for Dengue to Estimate the Frequency of Third or Fourth Dengue Infections Resulting in Admissions and Dengue Hemorrhagic Fever, and Serotype Sequences


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Immunity to a single dengue virus (DENV) infection does not provide heterologous immunity to subsequent infection. In fact, the greatest risk for dengue hemorrhagic fever (DHF) is with a second DENV serotype exposure. The risk for DHF with a third or fourth dengue infection relative to a first or second exposure is not known. An analysis of our database of children admitted to the Queen Sirikit National Institute of Child Health and Kamphaeng Phet Provincial Hospital with suspected dengue illness revealed that the number of dengue admissions caused by a third or fourth DENV infection was extremely low (0.08–0.8%). Once admitted, the risk for DHF relative to dengue fever was not different for those experiencing third or fourth DENV infections over those experiencing a second DENV infection. We document new dengue serotype infection sequences leading to DHF of 1–4, 2–3, 3–1, and 3–4.

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