Major 2010 dengue epidemics in the French West Indies: what lessons for the future?

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**Background:** Dengue fever is endemo-epidemic in the whole Region of the Americas, leading to recurrent epidemics at 3- to 5-year intervals. French West Indies (FWI), as part of the Caribbean Islands, are periodically hit by outbreaks that usually start in July-August, with arrival of the rainy season. In 2010, FWI experienced the largest dengue outbreak ever described in these territories.

Epidemiological situation was monitored through several indicators in order to follow dynamic of the outbreak and to adapt control measures.

**Methods:** Weekly number of cases was estimated through data from a sentinel doctors network. Daily number of emergency room visits for dengue fever was also available. Confirmed cases were declared by laboratories, and severe cases were notified by hospital wards.

**Results:** In Guadeloupe, the epidemic lasted for 47 weeks and more than 44,000 estimated dengue-like syndromes were diagnosed in GP clinics. More than 400 subject were hospitalized for dengue fever, and 6 died. In Martinique, the outbreak started later but had a similar evolution, with a total of 40,000 estimated cases in 36 weeks among whom 636 were hospitalized and 17 died.

The unusual side of the epidemiological situation was discernible very early, much before the epidemic became major, since indicators started to increase during the dry season, which is very unusual.

Virological surveillance showed a large predominance of DEN1 virus.

**Conclusion:** The 2010 epidemic was the greatest ever described in the FWI. Two main factors, i.e. a low immunity of the population against the circulating serotype and particular climatic conditions, might have facilitated the settlement of a viral transmission despite the dry season. This unusual situation was considered as a warning sign, and led to major outbreaks in both islands a few weeks later. Follow-up of epidemiological indicators is necessary to detect as soon as possible unusual situations. Further more, development of biological and modelling tools should be promoted, as well as integrated management strategies for prevention and control.