

Dengue fever type 1 outbreak in Yap

The dengue fever type 1 outbreak that occurred in Yap from May 2004 to January 2005 happened right after a natural disaster, Typhoon Sudal. Yap consists of a main island and scattered outlying islands. 263 cases with symptoms of dengue fever (WHO *Inform'ACTION* case definition) were from the Main Island, initially from mainly the east coastal and Colonia areas then slowly spreading throughout the rest of the municipalities. These areas were heavily affected by the typhoon. The rest of the cases (395) were reported in from the outlying islands, bringing the total to 658 cases. The age range was 2 months to 54 years old. There were a total of 42 hospital admissions and no death cases of DF/DSS through out the epidemic. Nine cases are known to have been exported from Yap to Palau in July, touching off a small epidemic there. Six cases were exported to Japan via a group of visiting school children, without known secondary spread. It is thought that the index case in Yap was a high school student in Chuuk State who returned to Yap for summer vacation.

The species of mosquito responsible for the epidemic is *Aedes aegypti*.

Testing started in July 2004, and 82 blood samples were tested using the PENTAX Anti-Dengue Virus IgM Kit of which 48.8% were IgM positive and 51.2% IgM negative. Of the samples, 53 were sent to the Pasteur Institute, in New Caledonia for confirmatory testing by PCR, and 15 tested positive for dengue type 1.

Measures taken to control the epidemic included activation of the EpiNet team with meetings scheduled weekly, a daily radio conference with the outlying islands, sanitation department visits to places where dengue fever was last reported in Yap, distribution of dengue fever flyers in the outpatient department and inpatient wards at Yap State Hospital including handing the flyer to outpatients with suspicion of dengue, radio messages on control and preventive measures, weekly radio update on the outbreak, radio messages on signs and symptoms, and addition of a standardised dengue case report form to the patient encounter form for all Department of Health patient visits.

Our experience with this recent epidemic showed us that our surveillance system and our preparedness for epidemics need to be improved. We need to work more on the following:

- Improve our existing surveillance system to detect early cases and control epidemic.
- Have available portable laboratory test kits for hospital and field use for dengue fever (as well as leptospirosis, typhoid fever, cholera) in the state.
- Achieve capability to immediately access the LabNet level 2 laboratories to avoid delays in confirmation of outbreak-prone diseases that require more sophisticated lab testing.
- A regular community campaign by the sanitation department on environmental cleanliness, to decrease the chance that such a widespread outbreak will recur.
- Improve our existing radio network communication and reporting with the outlying islands (and do weekly active radio surveillance with each dispensary for outbreaks rather than waiting for reports from the field).
- Keep screens doors closed in hospital wards at all times to prevent mosquitoes from entering and spreading disease. (One of the earliest clusters of cases was around the hospital, following the admission of dengue patients)
- Develop and maintain an isolation ward to contain and treat other contagious diseases that may occur.

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