Vector control limited to dengue positive cases for a cost effective strategy to contain epidemic: New Caledonian experience in 2008

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In New Caledonia, the last dengue epidemic due to serotype 1 occurred in 2003-2004: 3000 confirmed cases and 17 deaths. The Pasteur Institute of New Caledonia (IPNC), the reference laboratory for dengue, centralizes the biological samples from all the territory. The massive use of insecticide spreading around all clinically suspected cases has induced the emergence of Aedes aegypti resistance to deltamethrin, and thus the necessity to use malathion, either alone or associated with deltamethrin. In 2005, the resistance decreased down to 37\%. A new strategy to control dengue outbreak has been implemented, based on an effective collaboration between clinicians, Pasteur Institute and private laboratories, health authorities and the local hygiene departments. Since June 2007, 2 new diagnostic tests to detect NS1 antigen (ELISA and dipstick test) have been introduced at the IPNC. NS1 antigen is generally positive during the period of viremia, from day 1 to day 10 after the onset of the disease. The use of a rapid test permitted an early implementation of cost effective control measures such as the spraying of insecticide targeted on positive cases and a better efficiency of the local hygiene departments (human and materials resources concentration on confirmed cases), which probably contributed to limit the disease burden. Another advantage of this strategy is the limitation of the emergence of the resistance of A. aegypti to insecticides.

In 2008, New Caledonia faced with a dengue epidemic due to the serotype 1. About 1000 patients were confirmed positive. No death was directly attributed to dengue and the number of hospitalizations was moderate. The epidemiology of the outbreak will be described. The sensitivity of A. aegypti to deltamethrin is satisfying (only 4-5 \% of resistance).