

## Abstract

The role of *Aedes aegypti* surveillance and control in relation to the epidemiology, prevention and control of dengue fever in Jamaica.

By

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The control of dengue fever depends on the level of *Aedes aegypti* infestation and thus relies heavily on the measures for controlling the vector. Quite recently, despite the implementation of mosquito control measures, the *Aedes aegypti* population has still escalated. The vector apparently has adapted to or resisted most of the control methods. The failure of *Aedes aegypti* control programmes has been blamed on the vector's biological features fostering the development of species resistance to chemical control or environmental factors favouring the increase of the *Aedes aegypti*' population at a faster rate than the control methods can reduce them. Nevertheless, many *Aedes aegypti* control programmes are improperly planned and implemented or the control measures are often used as reactive methods of controlling dengue fever outbreaks, rather than as continuous proactive strategies for preventing the disease.

*Aedes aegypti* breeding is basically a problem of domestic sanitation and therefore communities have an essential role to play in source reduction activities. The activities of some governmental departments, non governmental organizations and

the private sector may encourage the increase of *Aedes aegypti* mosquitoes or play a positive role in vector control. Consequently, intra sectoral and intersectoral in vector control are very important.

This study examined the control measures applied by the Jamaican Ministry of Health, Vector Control Department and the community for *Aedes aegypti* surveillance and control, and determined the effectiveness of and obstacles to the mosquito control activities presently being applied. The aim of the study was achieved through the execution of an entomology survey, an environmental survey, an insecticide susceptibility test, key informant interviews with vector control staff from the Ministry of Health and the administration of a Knowledge-Attitude-practice survey.

The research results showed that the environmental conditions in the study area were conducive to *Aedes aegypti* breeding and proliferation, especially during the months of July to October. *Aedes aegypti* mosquitoes were present throughout the study area, with a higher density of *Aedes aegypti* larvae in Tavern and Gordon Town. *Aedes aegypti* larvae collected from Mona and Hermitage were highly susceptible to a 1% abate larvicide.

The socio-political climate and volatility of some areas were identified as obstacles affecting *Aedes aegypti* control, coupled with the absence of active community participation, intersectoral collaboration, continuous political commitment and

adequate allocation of resources to the *Aedes aegypti* control effort.

Most of the community members in the study area had a poor attitude toward *Aedes aegypti* control and relied heavily on the government to control dengue fever, even though some of them had a basic knowledge about mosquito control. The attitude and practices of the community members relating to *Aedes aegypti* control were greatly influenced by whether the community was being severely affected by mosquitoes or by the level of vector control attention given to the community by the government.