

## Vectors: Control and Epidemiology (Poster Presentation)

24.001

### Studies on Dengue Fever in Antigua: Prevalence, Distribution and Population Dynamics of *Aedes Aegypti*

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Antigua is an eastern Caribbean island in West Indies. Although dengue fever is endemic in this region and is reported on and off in Antigua, there has been no published report on its vectors in the island. This investigation aims at providing information on *Aedes aegypti*, the dengue fever vector, on the island.

Mosquitoes were collected weekly around human habitations with light traps from July, 2006 to October, 2007 all over the island and identified to species level. Sources of blood meal of most of the fed females were determined by agglutination tests. Larval mosquitoes were collected with dippers all over the island and the habitats containing those of *Ae. aegypti* were noted.

*Aedes aegypti* was the most common *Aedes* spp, constituting 4.34% of all mosquitoes encountered with large populations in the densely populated inland areas. Peak population was in December and lowest populations were in January to April. Others were *Ae. tortilis* and *Ae. taeniorhynchus*. Larvae of *Ae. aegypti* utilized household water tanks and old tyres and stagnant ponds at roadsides in the inland areas while abandoned boats were the predominant breeding sites in the coastal areas. Agglutination tests showed that about 86% of the blood meals of engorged females were from humans, 7% from cattle, 5% from sheep/goats and 2% from poultry. Nulliparous females were predominant throughout the year, ranging from 60–80% of weekly collections; in contrast, parous females gradually increased in numbers with the lowest population in April and highest peak in January.

The high number of *Ae. aegypti* collected around human habitation, the preponderance of breeding sites and its all-year round breeding, its wide distribution throughout the island especially in the densely populated inland areas, its predominantly anthropagic feeding indicate the preeminence of this mosquito species as the major vector of dengue fever in Antigua.

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### The Anopheles Belt on the Island of Antigua

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Malaria does not exist in Antigua, an eastern Caribbean island, but the recent report of the disease in neighbouring Jamaica created anxiety on the possibility of its spread to the country. This investigation was designed to ascertain whether there are potential vectors of malaria in Antigua.

Mosquitoes were collected weekly around human habitations with light traps from November, 2006 to October, 2007 all over the island and identified to species level. Sources of blood meal of most of the fed *Anopheles* spp. were determined by agglutination tests. Larval mosquitoes were collected with dippers all over the island and habitats of *Anopheles* larvae were noted. Randomly selected unfed females were dissected to identify their state of parity.

The most numerous *Anopheles* was *An. albimanus*, constituting 2.53% of all mosquitoes collected. Other species were *An. aquasalis* and *An. argyritarsis*. *An. albimanus* and *An. aquasalis* were restricted to the coastal areas forming a belt around the island. *An. albimanus* had peak and lowest population in April and December respectively while the population of *An. aquasalis* was lowest in October and highest in February. Commonly used by all *Anopheles* spp was clear water in abandoned boats, household water tanks, old tyres and stagnant ponds on roadsides. Agglutination tests showed that all of the blood meals of the three *Anopheles* spp. were from humans. Nulliparous females were predominant throughout the year, ranging from 50–70% of weekly collections; parous females had the lowest population in December and peak in June.

*An. albimanus* is a major vector of malaria in South America. The considerable number collected around human habitation, its all-year round breeding in several sites, its wide distribution in the coastal areas heavily populated by hotels and its predominantly anthropagic feeding make this species a potential vector of malaria in Antigua.

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24.003

### Surveillance for Dengue Vector Mosquito in Kurunegala District, Sri Lanka

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**Background:** Dengue vector surveillance is an important tool to determine the time and area/s to initiate control action. Our objective was to identify entomological risk factors with regard to transmission of dengue in a dengue hot-spot.

**Methods:** In the study 75 human dwellings in a dengue hot-spot in the District of Kurunegala was selected based on high disease incidence during 2000–2004, high *Aedes* as well as human population density and increased building activities. House to house mosquito surveillance was carried out from 08.00 am to 12.00 noon during May–August, 2007. Larvae and adult *Aedes* mosquitoes were collected indoors and outdoors using normal larval surveillance and human landing diurnal collection techniques respectively. Environmental and sociological data were obtained from households by interviewer administered questionnaires and observations.

**Results:** The house index for *Aedes aegypti* and *Aedes albopictus* ranged from 1.33%–6.60% and