Dengue mosquito vector surveillance in a dengue hot-spot in Kurunegala District, Sri Lanka

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INTRODUCTION

Dengue is an acute, mosquito-transmitted viral disease.

Dengue is prevalent throughout the tropics and subtropics.

Aedes aegypti  Aedes albopictus
In South Asia, dengue has been declared as one of the most, fast-spreading vector-borne diseases.
In the absence of a vaccine, control of the vector mosquito, is the only effective preventive measure.

Therefore, mosquito surveillance is important for early detection of outbreaks along with implementation of prompt control activities.
To identify entomological risk factors with regard to transmission of dengue in a dengue hot-spot
Seventy five human dwellings in Vehara in the Kurunegala District of the North Western Province Sri Lanka were selected based on:

- High disease incidence during 2000-2004
- High *Aedes* population
- Human population density
- Increased building activities
House to house mosquito surveillance was carried out - 08.00 am to 12.00 noon May-August, 2007

Indoor and outdoor larval and adult *Aedes* mosquito collections were made:

- Normal larval surveillance
- Human landing diurnal collection techniques
RESULTS

The House Index (HI) - *Aedes aegypti*

$$HI = \frac{\text{No. of positive houses for Aedes larvae}}{\text{No. of houses inspected}} \times 100$$

>5% = high risk (dengue sensitive)
The House Index - *Ae. albopictus*

- May: 1.56%
- June: 3.54%
- July: 1.33%
- August: 6.66%

>5% = high risk (dengue sensitive)
The Breteau Index (BI) - *Ae. aegypti*

\[ BI = \frac{\text{No. of positive containers for Aedes larvae}}{\text{No. of houses inspected (WHO 1995)}} \times 100 \]

>20 % = high risk (dengue sensitive)
The Breteau Index (BI) - *Ae. albopictus*

- May: 5.8%
- June: 15.2%
- July: 1.3%
- August: 18%

>20% = high risk (dengue sensitive)
Man Hour Density (bites/man/hour):

- 0.43 (in June) - 5.78 (in July) - *Ae. aegypti*
- 0.49 (in June) - 1.33 (in July) - *Ae. albopictus*

> 2 bites/man/hour = high risk (dengue sensitive)
Key containers for the *Aedes* species found in the study area—

- Cement tanks
- Plastic buckets
- Tyres
CONCLUSION

Vector surveillance (Breteau index and the Man Hour Density) showed that the predominant vector species - *Ae. aegypti*. 

[Image of a mosquito]
High *Aedes* mosquito larval densities and adult Biting rates; pose a potential threat of dengue outbreak in the study area.
RECOMMENDATIONS

Community must be educated regarding effective measures to protect them from dengue.

eg: Prevent larval breeding in the cement tanks
RECOMMENDATIONS

Their cooperation should be elicited in the early detection and elimination of vector species by:

- source reduction,
- environmental management
- personal protection measures
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