

**Sensitivity of different larval collection methods in dengue vector surveillance  
in the Kandy and Nuwara Eliya districts**

P H D Kusumawathie<sup>1\*</sup>, G A J S K Jayasooriya<sup>1</sup> and A R Wickremasinghe<sup>2</sup>

<sup>1</sup>*Regional Office, Anti Malaria Campaign, Dutugemunu Mawatha, Watapuluwa, Kandy*

<sup>2</sup>*Department of Community and Family Medicine, Faculty of Medicine, University of Kelaniya, Ragama*

A study was carried out during the period June 2005 - May 2006 in the Kandy and Nuwara Eliya districts to determine the sensitivity of 1, 5, 10 and 15 larvae collection methods in dengue vector surveillance. *Aedes* larval surveys were conducted at 19 sites in 17 Divisional Director of Health services areas of the two districts. In each survey, a minimum of 100 houses were visited, all possible indoor and outdoor *Aedes* breeding sites were examined. Twenty *Aedes* larvae were collected randomly in groups of 1<sup>st</sup>, 2<sup>nd</sup>-5<sup>th</sup>, 6<sup>th</sup>-10<sup>th</sup>, 11<sup>th</sup>- 15<sup>th</sup> and 16<sup>th</sup>- 20<sup>th</sup> larvae, in separate containers, from

each positive container (If a particular container had < 20 larvae, all larvae were collected and grouped as previously). Larvae were identified to species. Sensitivity of 1, 5, 10 and 15 larvae collection methods were determined taking the 20 larvae collection method as the gold standard. Five *Aedes* species, namely, *Aedes aegypti*, *Ae. albopictus*, *Ae. chrysolineatus*, *Ae. macdougalli*, and *Ae. vittatus* were found to be breeding in the containers in the study sites. Of the 353 positive containers, 236 (66.86%) were positive for a single *Aedes* species, 110 (31.16%) for two species and 7 (1.98%) for 3 species. For *Ae. aegypti*, the sensitivities of 1, 5 and 10 larval collection methods were 68.26 (95% CI: 59.32 – 77.21), 91.35 (95% CI: 85.94 – 96.75) and 99.03 (95% CI: 97.16 – 100.0), respectively. 100% sensitivity was observed in 15 larvae collection methods. For *Ae. albopictus*, the sensitivities of 1 and 5 larvae methods were 74.66 (95% CI: 68.93 – 80.39) and 95.48 (95% CI: 92.73 – 98.22), respectively. Ten and 15 larvae collection methods were 100% sensitive. It is recommended to collect a minimum of 10 *Aedes* larvae (or all if < 10 larvae), to achieve a > 99% sensitivity for dengue vector surveillance. Entomological teams should be well trained in differentiating *Aedes* larvae from non-*Aedes* larvae in the breeding habitat, in order to prevent collection of non-*Aedes* larvae that occur commonly in the breeding sites of *Ae. aegypti* and *Ae. albopictus*.

Tel: 081-2210687