

B. SUMMARY

Title: Validation of *Aedes* larval surveillance against *Aedes* ovitrap surveillance for the monitoring of *Aedes aegypti* (Linnaeus) and *Aedes albopictus* (Skuse) populations in a Colombo suburb.

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Abstract:

The dengue fevers are a major public health problem in Sri Lanka causing much morbidity and mortality particularly in the younger age groups. Dengue is transmitted by *Aedes* mosquitoes and an essential component of control of dengue transmission is vector surveillance. Currently only larval sampling techniques are in routine use for vector surveillance in Sri Lanka. The objective of the study was to introduce a new technique to monitor dengue vector breeding and to compare this technique with that in current use in Sri Lanka. The study was carried out from 15th July 1995 to 15th October 1995 in the Dehiwala Medical Officer Of Health area. Both larval and ovitrap surveys were carried out in 220 houses on nine rounds at ten days apart. Larval and ovitrap surveys were done according to standard techniques, both indoors and outdoors, in each household. Larval identification was based on standard keys. The accepted indices for the larval surveillance, Breteau Index (BI), House Index (HI), Container

Index (CI) and the Ovitrap Index (OI) for ovitrap surveillance were calculated. Of the total 1980 ovitraps placed inside the houses, 295 premises were identified as positive for *Aedes aegypti* breeding and 688 as positive for *Aedes albopictus* breeding. The corresponding figures for ovitraps placed outdoors were 171 and 1523 respectively. From the larval surveillance, during the three month period *Aedes aegypti* was detected in 11 houses and *Aedes albopictus* in 11 houses indoors, while outdoors, 58 houses were positive for *Aedes aegypti* breeding and 200 houses were positive for *Aedes albopictus*. Thus the ovitrap surveillance technique was significantly more sensitive than larval surveillance in detecting *Aedes* densities for both species, for indoor breeding (chi-square test 4.06, $p < 0.05$ at 1df).

For outdoor breeding, the difference in ovitrap surveillance and larval surveillance was highly significant with the former being more sensitive (Chi-square test 33.17, $p < 0.000$ at 1df). The equipment for ovitrap is simple and the cost is approximately Rs 17.00 per ovitrap. The number of days for the team of two workers (Entomological Assistant & Field Attendant) to cover 220 houses were two days. Although there was no cost involved in equipment, for larval surveillance, it took eight days for the team to cover the same number of premises. The study showed that the ovitrap surveillance technique was more sensitive and more cost-effective than larval surveillance in detecting *Aedes* breeding both in indoors and outdoors, in houses in a dengue transmission area in Sri Lanka. Therefore indicating the former technique to be of higher predictive value as a warning signal in

dengue epidemics for use in control programs. However, the larval surveillance is of value as it showed the types of container habitats and as such is important in health education programmes for the prevention of *Aedes* breeding. Results also showed *Ae. albopictus* to be the predominant species in Colombo suburbs. Thus vector competence studies to define the vectorial capacity of this species for dengue transmission under local conditions is indicated.

Communication

Gunawardena PDSM, Wijesundera MdeS, Weilgama DJ. Evaluation of the ovitrap technique for monitoring *Aedes* mosquito breeding in Sri Lanka. PCC Garnham Commemoration Meeting. Third International Medical Congress. Abstracts, 22-25th August 1996, Kandy, Sri Lanka. pp 41.

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