Guidelines for Assessing the Efficacy of Insecticidal Space Sprays for Control of the Dengue Vector Aedes Aegypti

by

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The document lays stress on "how to carry out entomological assessments" of the impact of insecticidal space sprays on the main dengue vector, Aedes aegypti, and to guide them in that process.

All mosquito-collection methods have practical limitations and introduce sampling bias. The two methods recommended in these guidelines, infusion-baited ovitraps and backpack aspirator collections, sample different portions of the adult mosquito population. The former selectively monitors the activity of gravid, egg-laying females, whereas the latter monitors indoor resting females in all stages of the gonotrophic cycle. Both methods were developed to enable public health authorities to assess the impact of space spray applications of insecticides by monitoring the Ae. aegypti population on a daily basis.

Infusion-enhanced ovitraps are cheap and simple to operate, use minimal manpower, and are less reliant on skills and diligence. Collections from resting sites by backpack aspirator to monitor the adult population in a more direct way and provide material suitable for parous rate determination. However, they are more labour intensive, require higher skills and dedication, and are more intrusive to local inhabitants. If resources are available, the simultaneous use of both methods will increase confidence in the results.

Insight into the movement of aerosols in the target area can be obtained by cage bioassays but these are not a substitute for monitoring the effects of space sprays on the vector population.

The ultimate aim of operational evaluations is to determine whether space sprays are effective under local conditions, and if so, how often treatments must be applied in order to have an impact on dengue transmission. Local authorities should conduct such evaluations to determine whether space sprays are a useful public health intervention.