

## **Limited Effect of Ground Floor Fogging on Mosquito Distribution in High-Rise Condominia**

### **ABSTRACT**

Fogging with insecticides is one of the main control measures for adult mosquito populations employed in countries that are affected by dengue. In many such countries, urban communities are increasingly characterised by high-density residence in high-rise condominia. Although fogging is typically applied at the ground level, its efficacy in three-dimensional urban environments is poorly understood. Here, we investigated the effect of fogging on vector mosquito distribution and abundance in high-rise condominia by conducting a before-after fogging survey. We showed that although mosquitoes were significantly concentrated at the lower levels in high-rise condominia, they were found throughout the three-dimensional environments. Fogging did not significantly alter this distribution or abundance pattern across any floor level. Thus, any fogging effect was short-lived as mosquito populations recovered within a few days before the subsequent scheduled treatment. In addition, increasing fogging frequency within practicable limits did not prolong the intended control effect. As urban mosquitoes are increasingly insusceptible to fogging due to insecticide resistance and vertical avoidance, this study demonstrates the need to implement other mosquito control strategies for high-rise condominia to manage mosquito populations.