

Does indoor spraying help prevent dengue?

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The *Mesocyclops* is a predator that eats the dengue mosquito larvae. Credit: Department of Foreign Affairs, Flickr

The prevention of dengue, the most prevalent mosquito-borne virus in the world, relies heavily on controlling mosquito populations, as the currently available dengue vaccine is only partially effective. Indoor spraying—which involves spraying of insecticides inside houses—has

the potential to be a key part of those prevention efforts, researchers report in *PLOS Neglected Tropical Diseases*.

Dengue infects between 300 and 500 million people every year, causing symptoms in around 100 million individuals and severe disease in half a million. The virus is primarily spread by *Aedes aegypti* mosquitos, which live in tropical and subtropical areas of the world. Numerous insecticides are known to kill adult and immature *Aedes* mosquitos, but exposing the mosquitos to the insecticides can be challenging, since the insects tend to rest in hidden, indoor areas.

To determine the effectiveness of indoor spraying in preventing [dengue](#), Olaf Horstick, of the University of Heidelberg, Germany, and colleagues searched seven research databases for existing literature on indoor residual spraying (IRS) and indoor space spraying (ISS). They then systematically reviewed papers that were identified pertaining to the effect of IRS and ISS on dengue.

Out of seven studies—three on IRS and four on ISS—all concluded that there was some effect on either mosquito populations or dengue case numbers. The strength of evidence was strongest for the effect of IRS and ISS on adult mosquito populations, with multiple studies reporting no adult mosquitos surviving the indoor treatments. Evidence on the indoor treatments to reduce larval populations or dengue cases was more limited. More research is needed on indoor spraying, the team concluded, although the review results are very promising, particularly in comparison with other *Aedes* control methods.

More information: Samuel M, Maoz D, Manrique P, Ward T, Runge-Ranzinger S, Toledo J, et al. (2017) Community effectiveness of indoor spraying as a dengue vector control method: A systematic review. *PLoS Negl Trop Dis* 11(8): e0005837. doi.org/10.1371/journal.pntd.0005837

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