Mosquito-borne disease containment strategy depends on precise response

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Alessia Melegaro, epidemiologist at Bocconi University. Credit: Paolo Tonato

The arrival of travelers infected by mosquito-borne pathogens, coming from endemic regions can trigger sustained autochthonous transmission of diseases such as Zika, dengue, and chikungunya in Europe. As

specific treatments and vaccines are often unavailable, in most cases, the containment of potential outbreaks mainly relies on the interruption of the transmission chain via the reduction of mosquito density.

New research based on the Italian experience with the 2007 and 2017 outbreaks of chikungunya, a disease borne by the tiger mosquito, shows that different vector control strategies are needed depending on the time when the first cases are notified, thus providing useful indications supporting urgent decision-making of public health authorities in response to emerging mosquito-borne epidemics.

Alessia Melegaro of Bocconi's Dondena Center, co-author of the study, says, "In particular, results suggest that if Chikungunya cases are notified in late spring or during summer, the combination of larvicides, adulticides and breeding site removal represents the optimal response strategy. On the other hand, larvicides are proven to be more cost effective in early summer and in the warmer seasons, while adulticides should be preferred in the fall and colder seasons."

More information: F. Trentini et al, The containment of potential outbreaks triggered by imported Chikungunya cases in Italy: a cost utility epidemiological assessment of vector control measures, *Scientific Reports* (2018). DOI: 10.1038/s41598-018-27443-9

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