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Singapore deepens interest in dengue virus transmission

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Dengue virus makes mosquitos bite more often to better transmit disease: Study

Software-analysed high-resolution videos have revealed that dengue-infected mosquitos are more attracted to mammals and bite more often, tripling disease transmission opportunities.

The research team from Duke-NUS Medical School, the French Research Institute for Sustainable Development (IRD), the University of Montpellier, France, and other collaborators say their findings could help scientists develop more effective disease control strategies, which have eluded scientists so far.

“We found that the dengue virus increases mosquito attraction to the mammalian host and the number of mosquito bites,” said Associate Professor Ashley St. John, from Duke NUS’ Emerging Infectious Diseases (EID) Programme, a senior co-author of the study. “The higher attraction to the mammalian host increases the chances of the mosquito to bite, while more bites increase the number of transmission events because each bite results in the transmission of the virus.”

More specifically, the researchers found that infected mosquitos are significantly less able to locate a blood vessel to feed from with the first insertion of their probe. Instead, they have to insert and re-insert the probe until they are successful. With each insertion, the infected mosquito releases virus-carrying saliva into the host’s skin.

The research team next wants to understand the molecular mechanisms behind these changes to mosquito behaviour. If they can identify a gene or protein responsible for the changes, scientists might be able to design chemicals to alter them.