

## Abstract of Master's Dissertation

No.1

Course	Health Innovation (Master of Science)	Name	Yuta Hoshi
Thesis Title	A hot summer delays the population peak of <i>Aedes albopictus</i> in Tokyo		
<b>Abstract of Master's Dissertation</b>			
<p><b>Background:</b> In temperate regions, the dengue virus vector mosquito, <i>Aedes albopictus</i> (Skuse), often has a population peak in mid-summer. Epidemics for dengue and chikungunya viruses in temperate regions also often occur in mid-summer, and appear to coincide with the population peak of <i>Ae. albopictus</i>. Since high temperatures decrease mosquito body size and fecundity, a temperature above a certain threshold may reduce the survivorship and population size. The summer of 2018 in Tokyo was hot, and it was speculated that the adverse weather might affect the population dynamics of <i>Ae. albopictus</i>.</p> <p><b>Objective:</b> The present study examined the hypothesis that a hot summer shifts the peak of <i>Ae. albopictus</i> population to later in the year.</p> <p><b>Method :</b> Mosquito data between June and October from 2015 to 2019 were obtained from 26 sites through the surveillance systems established in the central part and western part (Tama area) of Tokyo. Logistic regression analysis was used to examine the relationships between mosquito population peaks and temperature. The dependent variable was the presence or absence of a peak in the late season (September or October). The explanatory variables were average temperature, average relative humidity, and the total precipitation for each month; and the average temperature over the mosquito season (seasonal temperature).</p> <p><b>Result :</b> The peak of <i>Ae. albopictus</i> more likely shifted to the late season with an increase of the average seasonal temperature. The average temperatures of June, August, September, and October were also positively associated with a delayed peak of <i>Ae. albopictus</i>.</p> <p><b>Conclusion :</b> These results suggest that local governments should monitor temperature throughout the summer as a means to inform mosquito prevention measures.</p>			

\* The abstract, containing the objective, method, result and conclusion should not exceed 300-500words and printed double sided on A4 paper)