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CORRELATION BETWEEN THE PREVALENCE OF VECTOR IMMATURE STAGES AND DENGUE CASES REPORTED FROM GOTHATUWA MOH AREA, COLOMBO

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Aedes vector data utilized for vector control interventions are often correlated with reported dengue cases. This study analysed data on vector immature stages (VIS) with reported cases in the Gothatuwa Medical Officer of Health (MOH) area, Colombo, from January to August 2022 to assess their correlation to develop a timeline for efficient vector control strategies. VIS data were collected by larval vector surveillance conducted monthly, selecting 100 households systematically and placing 100 ovitraps representing indoors and outdoors equally in each sampling period. The disease surveillance system obtained monthly reported dengue cases for the MOH area. Monthly correlations between dengue cases and vector data (Number of positive premises for larvae-PP, number of positive containers for larvae-PC, number of ovitraps positive for eggs-OP and number of viable eggs-VE of *Aedes* vector) were analyzed using Pearson correlation coefficients. The same analysis was done considering one-month and two-month lag periods for cases. The *Aedes* egg strips collected from the ovitrap surveillances were reared in laboratory conditions to assess viability. Reported cases showed the best positive correlations with PP ($r = 0.57$, $p = 0.24$), PC ($r = 0.63$, $p = 0.08$) and VE ($r = 0.56$, $p = 0.25$) when the one-month lag period was considered. Correlations of the dengue cases with VE ($r = 0.72$, $p = 0.72$) and OP ($r = 0.39$, $p = 0.44$) were increased when the lag period was extended to two months. If the data were contemporary, reported cases showed moderate positive correlation only with PP ($r = 0.55$, $p = 0.25$) and PC ($r = 0.52$, $p = 0.27$). However, a statistical significance was not observed ($p>0.05$) for either of the correlations. Higher vector larval prevalence could best describe potential dengue outbreaks occurring after four weeks, while the availability of viable eggs could describe the same occurrence after four to eight weeks. Prevalence data on each VIS can be used as proactive indicators in predicting outbreaks of a particular area accordingly and planning the optimum time to execute vector control programs to strengthen the preventive aspect of dengue control. Reporting cases may depend on factors other than vector prevalence, although the cases showed some correlations with most VIS data.

Keywords: *Aedes*, Correlation, Dengue, Outbreak, Prevalence