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Geographical distribution of seroconfirmed dengue patients during single epidemic of dengue infection in Jaffna

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Dengue virus is transmitted infected *Aedes aegypti* and *Aedes albopictus* mosquito. As there is no licensed vaccine, vector control is the major measure adopted to control disease transmission. Dengue transmission shows significant variations in land use patterns such as built up areas, water bodies, agriculture land, grass land, bare land and it has been considered as criteria to create dengue risk maps. Identifying dengue risk areas is therefore expected to help health authorities to prioritize their resources to such areas and to prevent the spread of the disease further. In this study dengue risk map was created based on land use pattern and analyzed with confirmed dengue cases for year 2018 in Jaffna district. Digital image from surveying department Jaffna was used to identify the land use pattern. The risk areas were identified using software ArcMap 10.4. The correlation of the created dengue risk map was analyzed with the confirmed Dengue cases obtained from all 14-medical officer of health (MOH) area in Jaffna district and serologically positive cases from Jaffna Teaching Hospital also included in this study. Very high-risk dengue area pockets were found in Jaffna, Nallur, Uduvil, Chankanai, Karainnagar, Sandilipay, Thellipalai and Pointpedro MOH areas. Velanai and Maruthenkerny MOH areas have very low dengue risk pockets. Confirmed dengue cases also correlates with the identified dengue risk areas where Jaffna MOH has the highest number of dengue patients and Velanai MOH areas has low number of dengue patients. Jaffna MOH has 16.6% and Velanai has 1.1% of the total number of dengue cases in Jaffna district. The deviations may be due to various environmental factors which are related to vector breeding. Identified dengue risk areas are expected to help health authorities to prioritize their resources to such areas and to reduce the transmission of the disease further.

Key words- Dengue, land use, vector

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