

Abstract

Research Title : The application of geographic information system in dengue haemorrhagic fever risk assessment in Samut songkhram province, Thailand

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This research aimed to study the application of Geographic Information System in DHF risk assessment in risk areas of Samut Songkhram Province. After assessing risks of the disease with the analyzed factors at the statistical significance (p -value < 0.05), there were four factors influencing the DHF incidence including 1) Population density 2) Household number 3) Residential areas and 4) Man-made water resources. According to the GIS model of DHF risk assessment at a provincial level using the GIS and Overlay Analysis method analyzing the factors of DHF patient number, household number in each subdistrict, populations, residential areas, and man-made water resources, the very high risk areas covered 37.17 square kilometers (9%), the high risk areas covered 98.76 square kilometers (23.89%), the moderate risk areas covered 54.34 square kilometers (13.14%), and the low risk areas covered 223.12 square kilometers (53.97%). At a district level, the very high risk areas in Muang Samut Songkhram District were 45.44% of the total area and the low risk areas in Bang Khonthi District was 90.79% of the total areas. The low risk areas in Amphawa District were 73.63% of the total areas. At a subdistrict level, there were two subdistricts from the total assessed 36 subdistricts at very high risk. The two subdistricts were Mae Khlong and Lat Yai in Muang Samut Songkham District. According to the research findings, the GIS is one of highly effective tools for controlling DHF within areas and preventing DHF spread among tourists from an area to another area.

Keywords: Geographic information system, Dengue haemorrhagic fever, Risk assessment