Incidence of malaria is clustered and buffers around plantations: a spatial analysis

Title	Incidence of malaria is clustered and buffers around plantations: a spatial analysis
Author Order	3 of 5
Accreditation	
Abstract	BackgroundMalaria is re-emerging because of imported cases and the presence of potential vectors that can transmit and spread malaria. Malaria is a health problem in Banyumas District. Mapping the spread of infectious diseases is epidemiologically important. The purpose of this study was to determine the relationship between the variables and the epidemiology of malaria that were spatially modeled using the geographic information system (GIS).MethodsThis was a case-control study with ratio of 1:1. Cases were malaria-positive patients and controls were people without malaria, as diagnosed by microscopic examination. Minimum sample size was 139 per group and total sample size was 282 people. Chi-square was used to test the relationship between the variables, and GIS modeling to determine the spatial distribution of malaria cases.ResultsThere were significant relationships between level of income below minimum wage, not using mosquito nets, not using wire netting, not using insect repellents, habit of going out at night, history of malaria, cattle sheds not located between woods and residential area, history of going to endemic areas, residence at distances <1000 m from plantations, bushes, swamps and puddles, with incidence of confirmed malaria (p<0.001). The group of cases living <1000 meters from plantations numbered 141 (100%).ConclusionsMalaria incidence is clustered and buffers around plantations at <1000 m. Malaria hot spots are displayed as risk maps that are useful for monitoring and spatial targeting of prevention and control measures against the disease.
Publisher Name	Faculty of Medicine, Universitas Trisakti
Publish Date	2015-08-15
Publish Year	2015
Doi	DOI: 10.18051/UnivMed.2015.v34.138-148
Citation	
Source	Universa Medicina
Source Issue	Vol. 34 No. 2 (2015)
Source Page	138-148
Url	https://univmed.org/ejurnal/index.php/medicina/article/view/29/419
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