

"CLUSTERING" OF MALARIA IN INDIVIDUALS AND  
HOUSEHOLDS IN KATARAGAMA, A  
MALARIA ENDEMIC AREA IN SRI LANKA

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An epidemiological study on malaria was conducted by us in a demographically well defined population of 3625 individuals resident in 7 contiguous villages in Kataragama. The malaria incidence in this population with respect to each individual resident and each household was monitored through a period of 17 months from November 1986. We analysed this information to ascertain if malaria was homogenously distributed in the population or if it was "clustered" in households and individuals.

To avoid sampling errors due to the fact that some households had few occupants, we considered a house-group rather than a household, as a unit in this study. A house-group was defined as a cluster of adjacent houses containing at least 10 individuals. We found that the distribution of the malaria incidence in house-groups (case index) during the 17 month monitoring did not conform to a poisson distribution; more house-groups had very low or very high case indices than could be expected from a poisson distribution, indicating that malaria was clustered in houses. This was confirmed by a statistical analysis using the chi-square test. By a similar analysis based on the average number of malaria infections per person, we found that malaria was clustered in individuals as well.

It is evident from our analysis that malaria in Kataragama is "clustered" in both individual and houses. When the case indices of house-groups were mapped with respect to the geographical location of the house-groups, it was found that house-groups with high case indices tended to be located at the periphery of a village, along its forest-boundary; individuals in houses at the forest boundary are likely to be the first hosts to be encountered by mosquitoes flying in from the forest area. This may mean that of all the possible reasons for malaria being clustered in houses, a non-homogenous man-mosquito contact was the most significant for the clustering seen here.