

## **Spatial distribution of Burkitt's lymphoma in Kenya and association with malaria risk**

### **Abstract:**

Endemic Burkitt's lymphoma (BL) is the most common paediatric malignancy in equatorial Africa and was originally shown to occur at high-incidence rates in regions where malaria transmission is holoendemic. New ecological models of malaria that are based on both parasite prevalence and disease have been described. In this study, we examined district level data collected from paediatric BL cases in Kenya from 1988 through 1997 and assessed whether the distribution of district level incidence rates could be explained by new ecologic estimates of malaria risk. Chi-square tests and log-linear regression models were used to evaluate these associations. An association with tribe of origin as a factor also was examined. The 10-year average annual incidence rate (IR) for Kenya was 0.61 per 100 000 children. Incidence rates varied by malaria transmission intensity as follows: low malaria risk (BL IR = 0.39), arid/seasonal (0.25), highland (0.66), endemic coast (0.68), and endemic lake (1.23) ( $\chi^2 = 11.32$ ,  $P = 0.002$ ). In a log-linear model, BL rates were 3.5 times greater in regions with chronic and intense malaria transmission intensity than in regions with no or sporadic malaria transmission (odds ratio = 3.47, 95% confidence interval = 1.30–9.30), regardless of tribe. Although crude tribe-specific incidence rates ranged between 0.0 and 3.26, tribe was not associated with BL after controlling for malaria. These findings support the aetiologic role of intense malaria transmission intensity in BL.