

## Variation in Malaria Transmission Dynamics in Three Different Sites in Western Kenya (2012)

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### Abstract

The main objective was to investigate malaria transmission dynamics in three different sites, two highland villages (Fort Ternan and Lunyerere) and a lowland peri-urban area (Nyalenda) of Kisumu city. Adult mosquitoes were collected using PSC and CDC light trap while malaria parasite incidence data was collected from a cohort of children on monthly basis. Rainfall, humidity and temperature data were collected by automated weather stations. Negative binomial and Poisson generalized additive models were used to examine the risk of being infected, as well as the association with the weather variables. *Anopheles gambiae* s.s. was most abundant in Lunyerere, *An. arabiensis* in Nyalenda and *An. funestus* in Fort Ternan. The CDC light traps caught a higher proportion of mosquitoes (52.3%) than PSC (47.7%), although not significantly different ( $P = 0.689$ ). The EIR's were 0, 61.79 and 6.91 bites/person/year for Fort Ternan, Lunyerere and Nyalenda. Site, month and core body temperature were all associated with the risk of having malaria parasites ( $P < 0.0001$ ). Rainfall was found to be significantly associated with the occurrence of *P. falciparum* malaria parasites, but not relative humidity and air temperature. The presence of malaria parasite-infected children in all the study sites provides evidence of local malaria transmission.

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