S3 Text. Statistical notation for the generalised linear mixed model used to estimate the effect of repellent distribution on *Plasmodium* spp. infection.

The model can be formally written as:

, (1)

where

~ *N*(0,), ~ *N*(0,) and ~ *N*(0,) , (2)

Where is the vector of model time-varying covariates, is the model constant and represents the probability of infection at baseline and during ‘cool’ season, the time-varying fixed effect for repellent distribution for village *j* at occasion *i-t* (where *t* is time (months) since the introduction of repellent), the linear effect of time, and dummy indicators for the effect of malaria season, the random-effect (i.e. intercept) for between-village heterogeneity in baseline probability of malaria, the random-effect (i.e. coefficient) for between-village heterogeneity in the effect of repellent distribution and the random-effect (i.e. intercept) for the temporal (i.e. between-month) variability in probability of malaria.