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:

$ logit\{Pr(y\_{ij}=1)\left| x\_{ij}, ζ\_{1j,}ζ\_{2i, } ζ\_{3j}Intervention\_{i-tj}\right\}= β\_{1}+ β\_{2}Intervention\_{i-tj}+β\_{3}Time\_{ij}+β\_{4}Season\_{1ij }+ β\_{5}Season\_{2ij}+ζ\_{1j}+ ζ\_{2i}+ ζ\_{3j}Intervention\_{i-tj} $, (1)

where

 $ζ\_{1j}$ ~ *N*(0,$ψ\_{1}$), $ζ\_{2i}$ ~ *N*(0,$ψ\_{2}$) and $ζ\_{3j}Intervention\_{ij}$ ~ *N*(0,$ψ\_{3}$) , (2)

Where $x\_{ij}$ is the vector of model time-varying covariates, $β\_{1}$ is the model constant and represents the probability of infection at baseline and during ‘cool’ season, $β\_{2}$ 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), $β\_{3}$ the linear effect of time, $β\_{4} $and $β\_{5} $dummy indicators for the effect of malaria season, $ζ\_{1j} $the random-effect (i.e. intercept) for between-village heterogeneity in baseline probability of malaria, $ζ\_{3j}$ the random-effect (i.e. coefficient) for between-village heterogeneity in the effect of repellent distribution and $ζ\_{2i,}$ the random-effect (i.e. intercept) for the temporal (i.e. between-month) variability in probability of malaria.