**S2 Methods: R Code Description**

All are codes are provided as supplementary material S4 Methods: R scripts

**"Effective Coverage Estimate Cascade Model" Code**

This R code is adopted by the candidate to take a country's children recode DHS/MIS survey recode data variables related to fever, health-seeking, and drug treatment compliance to derive malaria effective coverage metrics by country, admin1 (sub national level), and survey by year. The code also requires adherence, cure and resistance rates for the antimalarial drugs informed by literature review. The code was created and developed by Katya Galactionova ([e.galactionova@unibas.ch](mailto:e.galactionova@unibas.ch)) and was converted from Stata to R by Rémi Turquier ([remi.turquier@ensae.fr](mailto:remi.turquier@ensae.fr)).

The modified code for our analysis is provided as supplementary data;

*KE\_effective\_coverage\_estimate\_model\_2003\_candidate\_1083832.R*

*KE\_effective\_coverage\_estimate\_model\_2009\_2022\_candidate\_1083832.R*

**"Effective Cascade Complete Surveys Compilation and Analysis" Code**

This R code is adopted by the candidate to take DHS/MIS survey recode data variables related to fever, excel outputs of the effective coverage metrics by country, admin1 (sub national level), and survey by year compiles them together and creates descriptive plots for these outputs

The code for our analysis is provided as supplementary data;

*KE\_effective\_cascade\_output\_compilation\_candidate\_1083832.R*

**"Dynamic Modelling of Malaria Transmission for Case Management Impact"**

This R code is adopted by the candidate to take outputs of the effective coverage metrics and model what effect improving the effective coverage estimate has on observed malaria incidence and prevalence

The code for our analysis is provided as supplementary data;

*KE\_effective\_estimate\_effect\_SIS\_model\_candidate\_1083832.R*

**“Interactive visualization of model results dashboard”**

A shiny app to provide a user an interactive and intuitive interface to visualize malaria cases effective treated by the healthcare system using the effective cascade model and the effect on observed incidence and prevalence by improving the effective cascade estimate using the VivaxModelR package model

The code for our analysis is provided as supplementary data;

*KE\_effective\_cascade\_dashboard\_candidate\_1083832.R*