

DISTRICT LEVEL MALARIA RISK IN MAINLAND TANZANIA: DEVELOPING A STRATIFICATION APPROACH FOR TARGETED MALARIA INTERVENTION STRATEGIES

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Introduction: Recent efforts in malaria control in mainland Tanzania has led to progressive changes in the epidemiological profile of malaria with prevalence in children aged 6-59 months declining from 18.1% in 2008 to 7.3% in 2017. As heterogeneity in malaria transmission increases, a sub-regional stratification becomes crucial for optimised implementation of interventions. However to this aspect, malaria global strategy only provide generic guidance to countries.

Aim: Developing an approach for country specific stratification at district level according to malaria burden for identification of suitable intervention packages per strata.

Methods: The annual parasite incidence, test positivity rate, confirmed malaria incidence and malaria positivity in pregnant women obtained from routine District Health Information System (DHIS2), and parasite positivity rate in school children ($PfPR_{5to16}$) obtained from the two latest biennial district representative School Malaria Parasitological Surveys (SMPS) were used as malaria burden indicators. The $PfPR_{5to16}$ was taken as reference for the other indicators to determine appropriate thresholds. The maximum value of the past three years was used to allocate each district to one of four risk strata determined based on the identified thresholds. After stratification, modelling was used to predict the impact of intervention packages per strata.

Results: The identified thresholds defined four epidemiological strata: very low ($<1\%$ $PfPR_{5to16}$), low ($1-5\%$ $PfPR_{5to16}$), moderate ($5-30\%$ $PfPR_{5to16}$) and high ($>30\%$ $PfPR_{5to16}$). Out of 184 districts, 28 districts were in the very low strata (12% of the population), 34 in the low strata (28% of population), 49 in the moderate strata (23% of population) and 73 in the high strata (37% of population). Geographically, most of the districts in the low strata were situated in the central corridor running from north-east to south-west parts of the country, whilst the areas in the moderate to high strata were seen in the north-west and south-east regions.

Conclusion: A stratification approach based on routinely collected malaria burden estimates was developed. The resulting stratification allowed for setting effective targeted interventions towards malaria burden reduction or elimination according to the transmission intensity in mainland Tanzania.