

# High malaria transmission areas remain a problem for elimination

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Current tools for combating malaria, such as artemisinin-combination therapy and increasing coverage of long-lasting insecticide bednets can result in major reductions in *Plasmodium falciparum* malaria transmission and the associated disease burden in Africa. Furthermore, if such interventions can be rolled out to achieve a comprehensive and sustained intervention program, a parasite prevalence threshold of 1% may be achievable in areas where there is a low- to moderate transmission of malaria and where mosquitoes mainly rest indoors. These are the findings from a modeling study by Jamie Griffin and colleagues from Imperial College London and the London School of Hygiene and Tropical Medicine, published in this week's *PLoS Medicine*.

The authors reached these conclusions by developing a mathematical simulation model for *P. falciparum* transmission in Africa, which incorporated three major types of mosquito, parasite prevalence data in 34 areas of Africa with differing *P. falciparum* malaria transmission levels, and the effect of switching to artemisinin-combination therapy and increasing coverage of long-lasting insecticide treated bednets. Then the authors explored the impact on transmission of continued roll-out of long-lasting insecticide treated bednets, additional rounds of indoor residual spraying, mass screening and treatment and a future vaccine in six representative settings with varying transmission intensity with the aim of reaching a realistic target of 80% coverage. The model predicted some success in low and moderate transmission settings but in high-transmission areas and those in which mosquitoes are mainly outdoor-resting, additional new tools that target outdoor-biting mosquitoes and

substantial social improvements will be required as higher levels of intervention coverage are unrealistic.

The authors say, "Our model is necessarily a simplification of the more complex dynamics underlying [malaria transmission](#) and control, so numerical results should be interpreted more as providing intuitive insight into potential scenarios than as firm predictions of what might happen in a given setting."

**More information:** Griffin JT, Hollingsworth TD, Okell LC, Churcher TS, White M, et al. (2010) Reducing Plasmodium falciparum Malaria Transmission in Africa: A Model-Based Evaluation of Intervention Strategies. PLoS Med 7 (8): e1000324.  
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