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'Test and Treat' model offers new strategy for eliminating malaria

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As researchers work to eliminate malaria worldwide, new strategies are needed to find and treat individuals who have malaria, but show no signs of the disease. The prevalence of asymptomatic or minimally symptomatic malaria can be as high as 35 percent in populations with malaria and these asymptomatic individuals can serve as a reservoir for spreading malaria even in areas where disease transmission has declined.

In a new study, researchers at the Johns Hopkins Malaria Research Institute found that a strategy of actively identifying undiagnosed malaria and then treating those with the disease resulted in significantly lower prevalence of malaria cases compared to a control group. Their findings are published in the February 3 edition of the journal PLoS ONE.

"New strategies are needed, particularly in areas of declining transmission. One strategy is to screen people for malaria and treat those who are infected, even those who are not sick enough to go to the clinic," said lead author, Catherine G. Sutcliffe, PhD, an assistant scientist with the Johns Hopkins Bloomberg School of Public Health's Department of Epidemiology. "Using artemisinin combination therapy can enhance this strategy, as treatment can reduce transmission to mosquitoes. In regions of declining transmission, the burden of malaria could be reduced to such an extent that elimination is achievable."

The study was conducted in southern Zambia, with colleagues from the Johns Hopkins Malaria Research Institute in Macha. Researchers

analyzed data from surveys conducted in 2007 and between 2008 and 2009. In both surveys, households were screened for malaria using rapid diagnostic tests and treated with artemisinin combination therapy when malaria was detected.

According to the new study, a proactive test-and-treat case-detection strategy resulted in a sixfold reduction in prevalence in 2008 and 2009, with the initial parasite prevalence at 4 percent. Test and treat showed a twofold reduction in 2007, when community prevalence was higher at 24 percent.

"Proactive case detection with treatment using artemisinin-combination therapy can reduce transmission and provide indirect protection to household members. If resources permit, this strategy could be targeted to hot spots to achieve further reductions in malaria transmission," said William J. Moss, MD, senior author of the study and associate professor with the Johns Hopkins Bloomberg School of Public Health.

Worldwide, malaria afflicts more than 225 million people. The disease kills between 800,000 and 1 million people each year, many of whom are children living in Africa.

More information: Authors of "Reduced Risk of Malaria Parastemia Following Household Screening and Treatment: A Cross-Sectional and Longitudinal Cohort Study" include Catherine G. Sutcliffe, PhD; Tamaki Kobayashi, PhD; Harry Hamapumbu; Timothy Shields, MA; Sungano Mharakurwa, PhD; Philip E. Thuma, MD; Thomas A. Louis, PhD; Gregory Glass, PhD; and William J. Moss, MD.

Provided by Johns Hopkins University Bloomberg School of Public Health

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