

Decreases in malaria transmission may be followed by increased susceptibility in children

June 28 2016

Progress in reducing malaria burden in Africa may have had the paradoxical effect of increasing transmission among older children in recent years, according to research published this week in *PLOS Medicine*.

The 25-year observational study, by Polycarp Mogeni, of the KEMRI-Wellcome Trust Research Programme, Kilifi, Kenya, and colleagues, analyzed [malaria](#) screening data from pediatric emergency admissions to Kilifi County Hospital between 1990 and 2014. Over this time, 69,104 children aged from 3 months to 13 years old who were admitted had malaria screening data available. The proportion of admissions found positive for malaria decreased from a high of 56% in 1998 to a low of 7% in 2009, but then rose again to 24% in 2014. The recent increases in infections coincided with a shift in burden from younger to [older children](#), and the researchers found children that lived in areas with high usage of insecticide treated bednets (ITNs) were less likely to present with malaria than children who lived in areas with low usage of ITNs. The researchers suggest that the upswing of malaria transmission among older children following a period of low malaria transmission may be due to decreased acquired immunity due to the fact that these children were less likely to have been exposed to malaria early in life.

The authors note that varying levels of access to care and bednet use may have introduced bias, and that the data were taken from a single

geographic setting. However, the authors say the findings suggest that malaria elimination will require continued—and increasing—vigilance: "As countries and regions make progress in malaria control, maintaining control measures will be essential: in fact, further progress will be required to offset the increasing rates of malaria in older children."

In an accompanying Perspective, Lorenz von Seidlein and Jakob Knudsen discuss the hurdle that decreased immunity presents for malaria elimination strategies, and potential strategies for improving ITN usage in high-transmission settings.

More information: Polycarp Mogeni et al. Age, Spatial, and Temporal Variations in Hospital Admissions with Malaria in Kilifi County, Kenya: A 25-Year Longitudinal Observational Study, *PLOS Medicine* (2016).
[DOI: 10.1371/journal.pmed.1002047](https://doi.org/10.1371/journal.pmed.1002047)

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Citation: Decreases in malaria transmission may be followed by increased susceptibility in children (2016, June 28) retrieved 25 April 2024 from
<https://medicalxpress.com/news/2016-06-decreases-malaria-transmission-susceptibility-children.html>

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