

# Malaria severity not determined solely by parasite levels in blood

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Although malaria kills some 600,000 African children each year, most cases of the mosquito-borne parasitic disease in children are mild. Repeated infection does generate some immunity, and episodes of severe malaria are unusual once a child reaches age 5. However, the relative contributions of such factors as the level of malaria-causing parasites in a person's blood—parasite density—to disease severity and to development of protective immunity are not well understood.

To clarify these issues, researchers from the United States and Tanzania regularly examined 882 Tanzanian [children](#) beginning at birth and continuing for an average of two years. No simple relationship between parasite density and malaria severity emerged. For example, 253 children had a total of 444 infections characterized by high parasite density and mild symptoms. Of the 102 children who did develop severe malaria at least once while enrolled in the study, almost two-thirds (67) had high parasite density but only mild [disease](#) either before or after the episode of severe malaria.

Moreover, data from this study suggest that one or two mild episodes of malaria are not sufficient to eliminate the risk of severe malaria; a finding contrary to predictions made by some mathematical models. The researchers note that this prospective study is the first to provide direct evidence that [severe malaria](#) risk is stable over several infections. The findings suggest a new approach to malaria vaccine development based on naturally acquired immunity. Such a vaccine would prevent severe disease and death in children, without necessarily reducing exposure to

the [malaria parasite](#).

The research team was led by Patrick E. Duffy, M.D., of the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health.

**More information:** BP Gonçalves et al. Parasite burden and severity of malaria in Tanzanian children. NEJM [DOI: 10.1056/NEJM10.1056/NEJMoa1303944](#) (2014).

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