

Small children and pregnant women may be underdosed in current malaria regimen

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Current recommended dosing regimens for the most widely used

treatment for uncomplicated *Plasmodium falciparum* malaria may be sub-optimal for the most vulnerable populations of patients, according to a study published this week in *PLOS Medicine*, led by Prof Joel Tarning of the WorldWide Antimalarial Resistance Network and the Mahidol Oxford Tropical Medicine Research Network (MORU).

Artemether-lumefantrine is the most widely used [treatment](#) for uncomplicated *Plasmodium falciparum* malaria, but lower cure rates have been reported in children below 5 years of age and pregnant women. Pharmacokinetic-pharmacodynamic trials are generally small, and individual studies typically do not enrol enough young children or pregnant women to assess properly the pharmacological properties in these specific groups. To respond to this challenge, a team of researchers from multiple institutions conducted a systematic review and meta-analysis using individual patient data from 26 clinical studies published between 1990 and 2013.

The researchers pooled relevant individual data on lumefantrine blood level measurements, clinical covariates, and outcome data from 4,122 patients who received artemether-lumefantrine, and developed a pharmacological model to understand how body weight, pregnancy, and baseline parasite density influence drug levels in [patients](#). The results suggest that that lumefantrine concentrations 7 days after starting standard 3-day treatment were 24% and 13% lower in children weighing

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