

Effective malaria prevention in pregnant women despite drug resistance

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Sulfadoxine-pyrimethamine (SP) retains parasitological activity and remains effective for preventing *P. falciparum* infection in pregnant women and low birth weight in babies, even in areas with a high

prevalence of mutations associated with SP resistance. This is the main conclusion of a study conducted in southern Mozambique and led by the Manhica Health Research Institute (CISM) and the Barcelona Institute for Global Health (ISGlobal).

Providing preventive antimalarial treatment to [pregnant women](#) and children under five, regardless of whether they are infected, is an effective strategy for reducing the burden of malaria in these two highly vulnerable populations. In pregnant women, monthly doses of sulfadoxine-pyrimethamine (SP) after the first trimester have been shown to be safe and effective in reducing the severe consequences of malaria in mothers and their babies, including [low birth weight](#).

However, there is concern about the growing prevalence of malaria parasites that carry a series of mutations that decrease the efficacy of SP. Specifically, five mutations in two genes (quintuple mutants) are associated with SP resistance.

"Curiously, even in areas where the prevalence of quintuple mutants is high, chemoprevention with SP still seems to provide a benefit to pregnant women," says ISGlobal researcher Alfredo Mayor. "Whether this sustained benefit is due to other non-malaria effects of sulfadoxine (which also acts as an antibiotic), or whether there is still a direct effect on malaria infections, is not clear," he adds.

To answer this question, a team led by Mayor and CISM researcher Glòria Matambisso investigated malaria infections, antibodies, clinical outcomes and parasite resistance markers over three years in a total of 4,016 pregnant women in Southern Mozambique.

SP retains anti-parasite activity

Despite the fact that 94% of infected women at the first antenatal visit

carried quintuple mutants, preventive treatment with SP (IPTp-SP) remained effective in those who took three or more doses of SP during pregnancy (84% of the participants).

Specifically, they showed increased clearance of *P. falciparum* infections (the prevalence of infected women fell from 7.7% at the first visit to 1.9% at delivery); had a lower prevalence of antibodies resulting from parasite colonization of the placenta, and their babies had a higher birth weight, compared to women who took less than three doses of SP.

"Our results suggest that SP retains activity against parasites carrying these five mutations and that the observed benefit is not only due to sulfadoxine's antibiotic properties," says Glória Matambisso, first author of the study. In other words, the sustained parasitological effect of SP in clearing malaria infections, combined with the antibiotic properties of sulfadoxine, may explain why IPTp-SP remains beneficial even in areas where the quintuple mutation is dominant.

The authors conclude that until more effective alternatives are found, SP should continue to be used for [malaria](#) chemoprevention in pregnant women despite the high prevalence of molecular markers of drug resistance.

"This is good news," says Mayor. However, the fact that many of the participants went to their first antenatal visit at week 21 (instead of during the first trimester, as recommended) and that 16% of them failed to receive three or more SP doses means that there are still major barriers to the successful implementation of IPTp. "We need to strengthen our operational capacities to provide timely chemoprevention to pregnant women," he adds.

The findings are [published](#) in the *Journal of Infection*.

More information: Glória Matambisso et al, Sustained clinical benefit of malaria chemoprevention with sulfadoxine-pyrimethamine (SP) in pregnant women in a region with high SP resistance markers, *Journal of Infection* (2024). [DOI: 10.1016/j.jinf.2024.106144](https://doi.org/10.1016/j.jinf.2024.106144)

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