children's lives are at risk. The study also reveals the major limitations the providers still face when trying to diagnose a child with tuberculosis.[9] It is unconscionable that during the COVID-19 pandemic—where point-of-care diagnostic tests were developed in a matter of months—we still do not have a reliable test for paediatric tuberculosis.[10] Marcy and colleagues' work is a step in the right direction, but we still have a long way to go.

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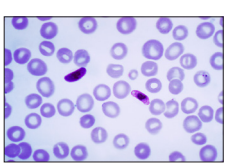
Usefulness of seasonal malaria chemoprevention in the Sahel

Seasonal malaria chemoprevention is an important intervention recommended for children aged 3–59 months living in highly seasonal transmission areas of the Sahel subregion of Africa to provide protection against malaria during the rainy season.[1] In *The Lancet Infectious Diseases,* Colin J Sutherland and colleagues[2] report on the prevalence of *Plasmodium falciparum* genetic variants associated with drug resistance before and after the implementation of seasonal malaria chemoprevention with sulfadoxine–pyrimethamine plus amodiaquine in areas across seven Sahelian countries (Burkina Faso, Chad, Guinea, Mali, Nigeria, Niger, and The Gambia). In these areas, monthly seasonal malaria chemoprevention was scaled up among children younger than 5 years in 2016, and community surveys including a collection of dried blood spot samples were conducted at baseline from December, 2015, to March, 2016, and two years later, from December, 2017, to March, 2018 (periods theoretically following the malaria transmission seasons in the study areas). In parallel, individuals aged 10–30 years not receiving seasonal malaria chemoprevention drugs were surveyed as a control population. Infections with *P falciparum* parasites were monitored, with attention paid to isolates harbouring specific molecular markers to sulfadoxine–pyrimethamine (ie, alleles in the *dhfr* and *dhps* genes) and to amodiaquine (ie, alleles in the *crt* and *mdr1* genes).[2]

A priori, because amodiaquine resistance (conferred by the presence of both the *mdr1* YY haplotype (encoding 86Tyr and 184Tyr) and the *crt* CVIET haplotype [72Cys-73Val-74Ile-75Glu-76Thr], or by the *crt* SVMNT haplotype [72Ser-73Val-74Met-75Asn-76Thr]) is not common in Africa,[3] we would expect the spread of sulfadoxine–pyrimethamine-resistant parasites to be the main threat to the effectiveness of upscaling of seasonal malaria chemoprevention with sulfadoxine–pyrimethamine and amodiaquine in Africa. Overall, the study showed a substantial decrease in the prevalence of *P falciparum* malaria infections between 2016 and 2018, suggesting an immediate parasitological usefulness of sulfadoxine–pyrimethamine and amodiaquine for seasonal malaria chemoprevention in the study population.[2]

The effectiveness of this intervention was probably favoured by the specific genetic background of malaria parasites, and is consistent with previous observations in the region.[4] Unlike reports from eastern Africa,[5] most malaria parasites isolated from Sahelian countries did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not carry surrogate markers relevant to sulfadoxine–pyrimethamine resistance and loss of prophylactic efficacy of these drugs, such as haplotypes containing a *dhps* mutation resulting in the Lys540Glu substitution.[2,4] However, alongside the efficacy of seasonal malaria chemoprevention in children, a substantial decrease in malaria infection prevalence was simultaneously recorded in the control population of individuals aged 10–30 years not receiving this intervention. Additionally, consistent evidence of a decreasing prevalence of malaria was not shown over the follow-up period in The Gambia—the only country in the study where the seasonal malaria chemoprevention strategy had already begun before the study period. Therefore, we believe that ascertaining the effectiveness of seasonal malaria chemoprevention with sulfadoxine–pyrimethamine and amodiaquine would require a more comprehensive interpretation, taking into account possible confounding factors (eg, concomitant malaria interventions or environmental factors) that could have independently affected the transmission dynamics of malaria in the population. Moreover, on the basis of our experience and the widely acknowledged resilience of sulfadoxine–pyrimethamine in the context of drug resistance in pregnant women,[5–7] we believe that assessing the clinical usefulness of sulfadoxine–pyrimethamine-containing chemoprevention regimens in children should not be restricted to parasitological clearance, especially because this drug combination potentially confers additional pharmacological effects (eg, broad-spectrum antibacterial and immunomodulatory effects).[5,8] Future evaluations might, therefore, consider including additional clinical parameters such as haemoglobin concentrations to potentially strengthen evidence on the immediate usefulness of sulfadoxine–pyrimethamine plus amodiaquine for seasonal malaria chemoprevention in children.

Because *P falciparum* parasites carrying molecular markers of resistance to sulfadoxine–pyrimethamine and amodiaquine did not increase overtime, Sutherland and colleagues[2] concluded that the drug combination did not drive the emergence of resistant malaria and did not pose a substantial threat to the seasonal malaria chemoprevention effectiveness in the study population. Nonetheless, this study was conducted over a relatively short period for drug selection pressure to manifestly occur. Thus, the potential effect of seasonal malaria chemoprevention on the development of resistant parasites discussed in this study should be considered with some caution.

Despite the limitations raised above, this analysis of nearly 58 000 parasite isolates has provided an important population-level overview of the prevalence of malaria infection and antimalarial drug resistance in a region that has been relatively unexplored. We advocate for orthogonal interpretation of intervention outcomes by considering factors other than the chemoprevention that would have synergistically affected the malaria dynamics in the study region. Moreover, a long-term population follow-up is warranted and could be extremely informative with regard to the usefulness of seasonal malaria chemoprevention and its possible effect on the emergence of resistance to sulfadoxine–pyrimethamine or amodiaquine.

We declare no competing interests.

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