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# Tackling malaria transmission in sub-Saharan Africa

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After almost two decades of substantial reductions in the global burden of malaria, progress has stagnated.[1] Global scientific and policy leaders agree that to achieve malaria eradication, interventions must focus not only on preventing malaria disease but also on decreasing malaria transmission.[2] Children younger than 5 years and pregnant women are at the highest risk of severe disease and have previously been the primary targets of malaria control interventions. However, apparently healthy older children and adults also harbour transmissible malaria parasites.

Several studies from across sub-Saharan Africa have revealed an underappreciated burden of malaria in school-age children, among whom prevalence of infection is often higher than that among younger children and adults.[3–6] Although infections in schoolage children rarely lead to severe disease or treatment seeking, they are associated with anaemia, school absences, and decreased educational attainment.[7] Mass treatment of school children with effective antimalarial drugs substantially lowers the prevalence of malaria infection and anaemia and improves cognitive function.[8–11]

School-age children are more likely than people of other ages to be infected with gametocytes, which are required for host-to-host transmission. This age group is a predominant source of parasites in infected mosquitos that perpetuate malaria transmission.[12–14] Thus, decreasing malaria infection rates could reduce parasite transmission and thereby prevalence of infection in the community. This novel strategy is being used to advance malaria elimination in Africa.

In *The Lancet Global Health,* Sarah Staedke and colleagues[15] report the results of a cluster-randomised controlled trial of intermittent preventive treatment (IPT) of schoolchildren in Uganda, which has a high burden of malaria despite wide use of insecticide- treated nets. They investigated whether IPT with dihydroartemisinin-piperaquine (DP) would reduce community parasite prevalence and entomological inoculation rates. 9286 children aged 5–20 years received at least one full course of three doses of DP. Compared with children in control clusters who received no treatment, a small but significant reduction in



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microscopically detected parasite prevalence was seen (19% *vs* 23%, adjusted risk ratio 0.85, 95% CI 0.73–1.00, p=0.05). Of note, coverage with the IPT intervention was low, with only 43% of children receiving at least one dose of DP. Thus, observing any effect is remarkable. A slightly lower annual entomological inoculation rate was seen in the IPT group than in the control group, but the difference was not significant.

The authors attribute the low uptake primarily to initially poor community acceptance of the intervention and logistical difficulties in obtaining informed consent and assent from parents and children. These challenges are not unique to this study and, in fact, are particularly common in school-based research.[16,17] Schools are an attractive platform for programmatic interventions because the target population is brought together generally in a government-regulated environment. However, for research purposes, these benefits can become challenges. For example, parents are mostly not present at schools and, therefore, might be sceptical of the intent of research staff. Informed consent must be obtained from parents, for which they need to go to the school or to be found in the community, Students must be identified definitively to ensure they can be given repeated treatment doses. In some settings, identification would be simple, but schools in malaria endemic regions are often chaotic. School registration and attendance records are unreliable because many children use different names at home and at school, and the spelling of names might vary due to illiteracy of the parents or guardians. Individual teachers can be responsible for hundreds of students, limiting their ability to confirm students' identities. Thus, measuring intervention effects in the research setting might not reflect the potential of programmatic interventions.[18,19] Creative solutions for these challenges, such as considering community-based consent for interventions with limited risks, are needed.

While previous school-based intervention studies have focused on the health benefit to individual children, the results of Staedke and colleagues suggest that school-based IPT could have a broader effect by decreasing malaria in the communities where the children live. Further studies with increased coverage and in different settings are needed to support these findings. New interventions, especially those targeting key reservoirs of transmission, are essential to achieving the goal of malaria elimination. School-based malaria treatment can capitalise on existing infrastructures to deliver an intervention that improves the health of school-age children and might also serve as a novel approach to decreasing malaria transmission where other interventions have failed to lessen the burden of this disease.

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