

Exploring the use of seasonal malaria chemoprevention in South Sudan

Background

Malaria Consortium is a leading implementer of seasonal malaria chemoprevention (SMC) and has supported its delivery across West and Central Africa. SMC is delivered in monthly cycles during the malaria season using a combination of two antimalarials: sulfadoxine-pyrimethamine (SP) and amodiaquine (AQ), or 'SPAQ'.^[1] The estimated protective effectiveness of SMC in reducing the incidence of clinical malaria within 28 days of administration was found to be 88 percent in a recent study.^[2]

In South Sudan, malaria accounts for 33 percent of all hospital admissions and is the leading cause of mortality in children under five.^[3,4] The country has a history of protracted conflict and insecurity, and limited access to basic malaria diagnostic, treatment and vector control interventions. Malaria is considered endemic in South Sudan, with transmission occurring throughout the year and peaking during the rainy season, which typically occurs during the second half of the calendar year.

Due to high levels of SP resistance in East and southern Africa, SMC has so far only been scaled up across the Sahel region of West and Central Africa.^[5] However, it has

been suggested that SMC remains effective, because SP retains its chemoprevention efficacy, even in areas where resistance is high.

We recently conducted implementation research in Uganda and Mozambique, demonstrating that malaria cases were significantly less likely to occur in areas that received SMC compared to those that did not, and that SMC is feasible, acceptable and safe.^[6,7]

Objectives

1. Estimate the effectiveness of SMC in terms of its impact on malaria incidence among children 3–59 months
2. Determine the chemoprevention efficacy of SPAQ and the extent to which efficacy is affected by drug resistance and drug concentrations
3. Track the presence and change of SPAQ resistance markers over time as a result of SMC implementation
4. Explore the potential scalability of SMC within other states of South Sudan
5. Understand the feasibility and acceptability of implementing SMC in South Sudan.

Methods

The study will be conducted in an intervention area in Aweil South County in Northern Bahr el Ghazal state, alongside a control area that will not receive SMC. We based site selection on criteria including seasonality, high under-five mortality, insufficient access to healthcare and low treatment-seeking behaviour. *Boma* health workers (local community health workers trained in delivering standardised health services to communities) and trained community distributors will deliver SMC door-to-door to approximately 17,000 eligible children in the intervention area over three days each month (July – October 2022). We will explore:

- effectiveness of SMC via two cross-sectional surveys to establish confirmed malaria cases in the intervention and control areas
- chemoprevention efficacy of SPAQ through a prospective cohort study to determine if SPAQ provides 28 days of protection from infection, and whether drug concentrations and resistance influence the duration of protection
- coverage of SMC using an end-of-round household survey conducted after the last

SMC cycle in October, which captures other variables related to adherence and quality of implementation

- feasibility and acceptability of SMC through focus group discussions and key informant interviews
- changes in resistance marker prevalence through a resistance markers study that uses a questionnaire and blood samples
- modelling of other SMC-eligible areas in South Sudan.

Results

The results of this study will be available in early 2023. These could inform malaria strategy and policy change in South Sudan related to SMC, as well as strengthen existing malaria control interventions. The results may also support the expansion of SMC into new geographies, especially in light of the World Health Organization's recently published Consolidated Guidelines for Malaria, which provide the flexibility to adapt malaria prevention and control strategies to the local context.^[8] Malaria Consortium is continuing to explore this in East and southern Africa.

References

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Acknowledgement: This programme is funded through philanthropic donations received as a result of being awarded Top Charity status by GiveWell, a non-profit organisation dedicated to finding outstanding giving opportunities.

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