Poster: 1142

Feasibility, acceptability and protective effectiveness of seasonal malaria chemoprevention in Uganda

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Introduction

Given widespread prevalence of markers associated with sulfadoxine-pyrimethamine (SP) and amodiaquine (AQ) resistance, seasonal malaria chemoprevention (SMC) has to date not been implemented at scale in east and southern Africa. Effectiveness of SMC in reducing malaria incidence and mortality has been demonstrated in areas of low resistance in the Sahel, but its feasibility, acceptability, and protective effectiveness in areas with high resistance are unknown. Malaria Consortium and Uganda's Ministry of Health conducted an implementation study in the Karamoja region to assess the protective effectiveness of SMC as a complementary malaria control intervention. This involved five monthly cycles of SMC delivered to ~85,000 children 3–59 months in May–September 2021.

Methods

We used an effectiveness-implementation hybrid type I design to assess:

- feasibility of SMC implementation in terms of coverage/quality through household surveys
- safety of repeated use of SPAQ among children 3–59 months by analysing routine pharmacovigilance data
- acceptability among stakeholders using key informant interviews and focus group discussions
- protective effectiveness of SMC using SPAQ through a quasi-experimental non-randomised study in two intervention districts (Kotido and Moroto) and a control district (Nabilatuk)
- prevalence of molecular markers of SP/AQ resistance through blood spot analysis.

Results

- SMC was successfully delivered to schedule and at the anticipated scale, achieving high coverage. Results from an end-of-cycle survey (n=800) showed 97.7 percent (95% CI: 97.1–98.2) of eligible children received day 1 SPAQ by directly observed treatment. In cycle three, 98.9 percent (95% CI: 98.5–99.2) of those children received the full course of SPAQ.
- No serious adverse events were reported.
- SMC was highly/widely accepted by all stakeholders at different levels, policy makers, implementers and beneficiaries (Figure 1), but level of acceptability differed across socio-demographic groups.
- Children in intervention districts had a 92.2 percent lower risk of developing confirmed malaria in the five-month follow-up versus those in the control, who experienced more malaria attacks (Table 1 and Figure 2).
- The hazard ratio (HR) for malaria infection among children in intervention districts was six times less than in the control district, after controlling for gender, bed net ownership and net use (HR 0.06; 95% CI: 0.04– 0.09), $p < 0.001$).
- In the intervention areas 90 percent of children never experienced a malaria episode, versus 15 percent in the control area; 85 percent of children in the control developed at least one episode and 60 percent had at least two over the follow-up period (Figure 3).
- Samples for molecular markers of SP and AQ resistance are being processed.

References

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Seasonal malaria chemoprevention with SPAQ is feasible, acceptable and demonstrates good protective effectiveness against malaria morbidity in the Karamoja region

Figure 1: Selected quotes from key stakeholders in Uganda

"The community is very grateful. They also rush whenever they hear about the suppy of SPAQ. Honestly, the community has responded very well and they love the programme"

Local leader

"So when I heard about this, I knew I would not refuse. After all, it was for the benefit my children. Right now, my children are okay as compared to before."

Caregiver

"The district leadership looks at this programme as being very helpful to the community in the fight against malaria and that's why we are solely behind this programme. The top district leadership is involved."

Political leader

"I accepted [SMC] because I have been suffering a lot in terms of treatment. Imagine moving from where I stay up to Tapac, how many kilometres? I accepted because I knew my children were going to benefit."

Caregiver

malaria consortium
disease control, better health

Read more

http://bit.ly/MC-ASTMH-SMC

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Conclusion

SMC using SPAQ is feasible and highly acceptable among the various stakeholders across different levels. It provides high protective effectiveness against malaria in the eligible age group of children in the Karamoja subregion of Uganda.

Supplementary visuals

Table 1: Protective effectiveness of SPAQ among children 3–59 months

District	Confirmed malaria cases	Person time of observation	Incidence rate	Incidence rate per 100 person months of observation
Intervention districts	60	1982	0.030	3.0
Control district	387	997	0.3382	38.82
Comparison of intervention and control	Incidence rate ratio: 0.078 (95% CI: 0.063–0.096), p<0.0001) Protective effect size: 92.2% (1–0.078)			

Figure 2: Kaplan Meier plots comparing malaria infection among recipients and non-recipients of SPAQ

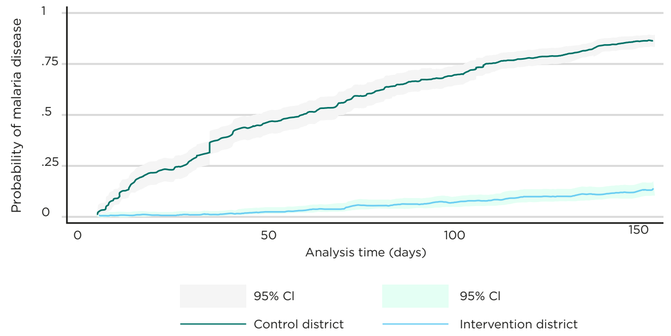
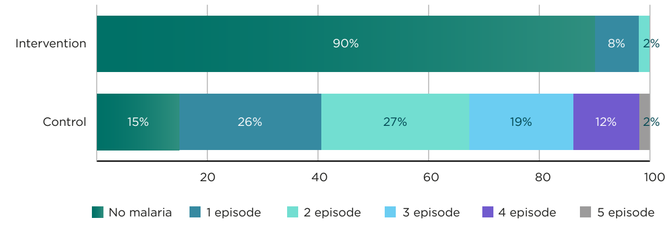


Figure 3: Number of confirmed malaria episodes among children 3–59 months during five months of follow-up (n=199 in the control, 390 in the intervention arm)



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