

Seasonal malaria chemoprevention

Reaching 25 million children with life-saving antimalarial medicines

Background

Seasonal malaria chemoprevention (SMC) is a highly effective community-based intervention to prevent malaria infections in areas where the malaria burden is high and transmission occurs mainly during a period of three to five months, often coinciding with the rainy season. It involves administering monthly courses of antimalarial medicines during this peak transmission period to children at risk from severe malaria. Annual rounds of this life-saving intervention have been recommended by the World Health Organization (WHO) since 2012.^[1] In 2022, SMC was implemented in 17 countries in Africa, targeting over 49 million children, the majority of whom are under five years of age.^[2]

Malaria Consortium is a leading implementer of SMC. With our project partners, we led the rapid scale-up through the Achieving Catalytic Expansion of Seasonal Malaria Chemoprevention in the Sahel (ACCESS-SMC) project in 2015–2017, reaching close to seven million children in Burkina Faso, Chad, The Gambia, Guinea, Mali, Niger and Nigeria. This project demonstrated that SMC is cost-effective, safe and that high coverage can be achieved at scale.^[3,4]

Country

Burkina Faso
Chad
Côte d'Ivoire (Technical assistance only)
Mozambique
Nigeria
South Sudan
Togo
Uganda

Donor

Malaria Consortium's SMC portfolio is largely 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. It is also supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria in some areas and, through the SMC IMPACT project, by the Korea International Cooperation Agency. Some of our SMC research is supported by the Bill & Melinda Gates Foundation.

Length of project

Implementing since 2013, programme ongoing

Partners

National malaria programmes in each country

Following on from the success of ACCESS-SMC, since 2018, we have continued to support national malaria programmes in Burkina Faso, Chad and Nigeria, while also expanding our reach to Mozambique, South Sudan, Togo and Uganda. In 2023, across Malaria Consortium's portfolio, we targeted 25 million children with SMC, representing around half of the total number of children reached globally.^[5] In 2024 we plan to expand our work to provide technical assistance on SMC to the national malaria programme in Côte d'Ivoire while maintaining our current scale across our established programme in the seven countries listed above.

In addition to our work on SMC implementation, we have continued to pioneer SMC research with the aims of strengthening the quality and effectiveness of SMC delivery and defining the future of the intervention. We also continue to invest in external relations to promote the case for investing in SMC.

Project outline and objectives

SMC campaigns are implemented under the leadership of national malaria programmes and through countries' existing health system structures, with Malaria Consortium acting as a key implementing partner. While the scope of Malaria Consortium's support for campaigns varies from country to country, we provide technical and operational support on all the components of SMC, a complex public health intervention (see Figure 1):

Activities

- **Planning and enumeration:** Planning starts several months before the annual SMC round. This involves determining timelines, estimating the target population, and recruiting community distributors and supervisors.
- **Procurement and supply management:** The SMC drugs are shipped from the manufacturer to the central warehouses in SMC-implementing countries. Along with other SMC commodities, the drugs are then distributed to health facilities. Malaria Consortium procured 81.7 million blister packs of SMC medicines in 2023.
- **Community engagement:** To ensure high acceptability among communities, we conduct sensitisation meetings with local leaders, broadcast radio spots and enlist town announcers to disseminate information during the SMC round.
- **Training:** Before the start of the SMC round, all community distributors and supervisors are trained on how to administer SMC drugs. Malaria Consortium supported the training of more than 270,000 SMC implementers in 2022.
- **Distribution and administration:** Medicines are transferred from health facilities to community distributors,

who then travel door-to-door to identify eligible children and administer the SMC medicines.

- **Referral and pharmacovigilance:** Community distributors refer sick children to qualified healthcare providers, where they are tested for malaria. If children test positive, they will be treated with an effective antimalarial. While SMC medicines are safe, systems are in place to monitor and respond to adverse reactions.
- **Supervision:** Supervisors observe how community distributors administer the SMC drugs and provide constructive feedback. Facility-based health workers and health authority staff support supervisors.
- **Monitoring and evaluation:** Community distributors collect administrative data on the number of children reached. To assess coverage and quality of SMC implementation, we conduct household surveys.

In addition to these core elements, there are three overarching activities that take place alongside the main process:

- **Payments to SMC implementers:** Our teams work to ensure SMC implementers are paid for their work, often via mobile money applications.
- **Risk management:** This ongoing process seeks to mitigate operational risks to successful implementation, including relating to security and weather events.
- **Digitalisation:** We are working with partners on the digitalisation of SMC. This will allow processes to become more efficient while improving the flow of campaign data to aid decision-making.

Figure 1: SMC Intervention components





Child is assisted to take antimalarial medication during a seasonal malaria chemoprevention exercise in Karamoja, Uganda

Research and the future of SMC

Our research helps Malaria Consortium and its partners to continuously improve the delivery of SMC campaigns. We work closely with national and global policymakers to ensure learning from our research is reflected in their work. This helps them to create new, and improve existing, SMC policies.

Through our research, we evaluate innovations and seek to improve the sustainability of SMC as a long-term health intervention. Where necessary we also form partnerships with research institutes who are leaders in their fields. For example, we are collaborating with Imperial College London on using epidemiological modelling to assess the impact of SMC in new geographies, and working with locally based academic partners, such as the Training and Research Unit of Excellence (TRUE) in Malawi, to ensure success in implementing studies in new areas.

Case study: The role of lead mothers

Lead mothers are community health volunteers that help caregivers comply with monthly administration of antimalarial drugs during SMC campaigns. Lead mothers were used to assist SMC implementation across several states in Nigeria, but there was a relative lack of evidence about their role and how effective they were.

In 2021 we led a formative assessment indicating that, through their strong connection to communities, lead mothers do influence caregivers to adopt healthy malaria prevention behaviours during SMC campaigns.^[6] We subsequently worked with the National Malaria Elimination Programme (NMEP) in Nigeria to co-design and evaluate an intervention in Kano state in northern Nigeria to optimise the role of lead mothers to help improve malaria prevention in SMC-implementing communities.^[6] We are now working with the NMEP to explore

how learning from this study can influence malaria prevention across the country.

Case study: Expanding SMC to new geographies

The Sahel region of West and Central Africa has historically been prioritised for the scale-up of SMC due to the highly seasonal malaria transmission pattern and to low parasite resistance to the medicines used for SMC. In 2022, the WHO published revised guidelines for malaria, which no longer define geographic restrictions for SMC.^[7] The intervention can now potentially be used in new geographies in East and southern Africa where malaria transmission is seasonal. However, parasite resistance to the SMC medicines is high across the region. During high transmission seasons between 2020 and 2022, Malaria Consortium conducted extensive implementation research studies in Mozambique, South Sudan and Uganda that assessed whether SMC could be a viable malaria prevention strategy in these new geographies, despite parasite resistance.^[8-10] Studies in each country included assessments of the feasibility, acceptability and overall effectiveness of SMC in preventing malaria cases during the high transmission season. In addition, the studies assessed the chemoprevention efficacy of SMC medicines and monitored the prevalence of resistance markers associated with parasite resistance to these medicines.

Our research found SMC in the new locations to be safe, feasible and highly acceptable. In areas where our studies were undertaken, SMC is now being delivered to children under the guidance of malaria control programmes in each country. In addition to this, we are working with these malaria control programmes to ensure that evidence produced from our studies will contribute to discussions in each country about the role SMC will play in malaria control in the future.

Case study: SMC and vitamin A supplementation

The scale and reach of SMC activities that Malaria Consortium conducts with its partners gives us a major platform through which to improve the health of the communities with whom we work. In Nigeria, vitamin A deficiency is a public health problem and a major risk factor for child survival. In 2019, we conducted several studies in Sokoto state in Nigeria that explored the feasibility and acceptability of integrating vitamin A supplementation (VAS) with SMC in one local government area.^[11] The study provided evidence that VAS coverage can be significantly increased when integrated with SMC campaigns, without negatively affecting the quality of delivery or decreasing the coverage of SMC.

In 2021, we conducted a follow-up study in Bauchi state on the safety, equity and cost of integration in rural and urban settings.^[12] This showed that using the SMC platform to deliver VAS was safe and equitable and had a cost of \$0.24 per child. We are continuing to work with the Ministry of Health to use these findings to improve vitamin A deficiency rates in Nigeria. In 2024, this research will translate directly into action as VAS is scaled up alongside SMC in two states in Nigeria: Bauchi and Niger.

Case study: Exploring the integration of SMC into routine health service delivery in Togo

Malaria Consortium is committed to ensuring that SMC delivery is sustainable in the longer term. To ensure this, we conduct research into sustainable practices for delivery. For

example, we are currently researching the acceptability and feasibility of integrating SMC into routine health service delivery at the community level in Togo. The results will inform the development of an integrated implementation model, which we aim to test together with the national malaria programme and other SMC stakeholders.

Advocacy and partnerships for SMC

Malaria Consortium invests in policy, advocacy and other external relations activities to promote the case for SMC and highlight its impact on communities. We also seek to build and maintain partnerships with governments, academic institutions, other implementing organisations, and donor and philanthropic communities.

Through these activities, we look to share our experiences as a leading SMC implementer and research organisation to inform SMC policy and practice worldwide, to make the case for sustainable funding for SMC and, ultimately, to improve the intervention for the benefit of the children who receive it.

Malaria Consortium also plays a leading role in the SMC Alliance, a global forum for implementing countries and partners to coordinate activities, share learning and discuss innovations. We are a founding member of the Alliance and act as Secretariat for the Alliance's Advocacy and Communications and Research subgroups.

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Cover image: SMC programme delivery in Jigawa, Nigeria.

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