SMC Alliance

From concept to scale

Celebrating 10 years

of seasonal malaria chemoprevention

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Contents

Foreword

The success of seasonal malaria chemoprevention (SMC) is testimony to a decade of single-minded perseverance of all the SMC stakeholders. It is also testimony to the commitment of countries, regulators, donors and health workers in their pursuit of ways to reduce the impact of malaria on the young.

This report charts its evolution. Over the past 10 years stakeholders across sectors have worked at the SMC coalface generating data to support a change of malaria policies aimed at reducing the burden of disease, especially among the under-served.

Eager to replicate its early success in places like Nigeria and Senegal, 13 countries in west Africa have now adopted SMC and are helping it reach new geographies and age groups, to protect even more lives. Although SMC has proved its mettle as a prevention measure, the SMC Alliance is seeking to further strengthen and boost its impact, e.g., studies have shown that its efficacy rises significantly when used in combination with the RTS,S malaria vaccine.

The numbers say it all. Millions of precious lives have been protected. We must not lose this hard-won momentum. The SMC Alliance is preparing for new malaria challenges that the next 10 years will undoubtedly bring. If we can prevent its occurrence and reduce transmission, the battle is already half won. SMC is showing us the way.

Erin Eckert

Co-Chair, SMC Alliance

1. Building the case for SMC

There is a long history of using antimalarial medicines for the prevention of malaria in affected populations.[1] In the early years of the new millennium, the approach received renewed interest, especially in the form of intermittent preventive treatment (IPT), which involves the repeated administration of therapeutic courses of medicines to at-risk individuals, regardless of whether they are infected. The aim is to prevent illness by maintaining therapeutic drug concentrations in the blood. IPT was initially used to provide protection from malaria among pregnant women and children under one year, referred to as intermittent preventive treatment in pregnancy (IPTp) and intermittent preventive treatment in infants (IPTi), respectively. There was also recognition, however, that in areas where malaria transmission is seasonal, most of the malaria cases and deaths occur not in infants but in older children.[2] Studies conducted in Senegal and Mali indicated that regular courses of antimalarials given during the peak transmission season can be effective in reducing malaria cases among older children in those areas.[3,4] This approach was initially known as intermittent preventive treatment in children (IPTc). Questions remained concerning the choice of antimalarials; dosing, timing and frequency of administration of antimalarial courses; the age range that should be targeted and the seasonality criteria that should be used to guide the use of IPTc; how the intervention can be delivered sustainably while achieving high coverage; the degree to which the approach affects the development of parasite resistance; and to what extent the approach adds to the protection afforded by other malaria control measures.

Over the following years, many studies were conducted to confirm that IPTc can be an effective malaria prevention strategy in areas of seasonal malaria transmission, and to address the open research questions.[5,6] Evidence from cluster-randomised trials showed that the approach can prevent around three-quarters of both uncomplicated and severe malaria episodes in children.[6] A combination of two antimalarials emerged as the safest and most effective drug regimen: sulfadoxine-pyrimethamine (SP) and amodiaquine (AQ). As the consensus grew that IPTc should be used more widely in areas where malaria transmission is seasonal, the intervention came to be known as seasonal malaria chemoprevention (SMC).

Considering the growing body of evidence, the World Health Organization (WHO) recommended the scale-up of SMC in the Sahel and sub-Sahel region of Africa in 2012.[7] Annual SMC rounds targeting children 3–59 months and comprising four monthly cycles of SP plus AQ (SPAQ) were recommended in areas where malaria transmission was highly seasonal. These were defined as areas where more than 60 percent of clinical malaria cases occur during a maximum of four months, and where the clinical attack rate of malaria is greater than 0.1 attack per transmission season among children under five. SMC delivery should start at the beginning of the peak transmission season, which typically coincides with the rainy season. The policy recommendation specified that SMC should not be implemented in areas where the therapeutic efficacy of SPAQ is below 90 percent due to parasite resistance. For this reason, SMC was not recommended for scale-up in East and southern Africa, where resistance to SP is widespread. The policy recommendation was followed by the publication of an SMC field guide in 2013, which provided technical information and operational tools to guide decision-making on the adoption and implementation of SMC.[8] In 2015, SMC was incorporated into WHO's Global Technical Strategy for Malaria 2016–2030, which calls for the expansion of malaria prevention among vulnerable groups.[9]

2. From pilot to scale

Following the WHO policy recommendation for the scale-up of SMC, the governments of Chad, The Gambia, Mali, Mauritania, Niger and Senegal signed the Nouakchott Initiative in 2013 to accelerate and coordinate regional malaria control efforts, with SMC as a key strategy. The geographic scope was later expanded to include Burkina Faso and Nigeria.[10] Pilot projects (Spotlight 1) were conducted in various countries to determine the optimal delivery strategy for SMC. In most contexts, community-based distribution of the medicines achieved higher coverage than fixed-point distribution strategies.[11]

SPOTLIGHT 1:

Piloting SMC in Katsina, Nigeria

One of the locations selected to pilot SMC following WHO's recommendation was Katsina state in northern Nigeria. Across a 33-month project beginning in 2013, the Katsina state government worked with partners to design a community-based delivery system for SMC. This involved launching and executing SMC delivery within the target population and evaluating community acceptability, cost and effectiveness of the delivery. Over 150,000 children in Katsina were reached with SMC with over 487,000 blister packs of SPAQ. Important insights from this phase were that community distributors should be from the communities they work with and that key health system stakeholders needed to be closely involved in SMC delivery to ensure local ownership and consistency with national policy.[12] The success in Katsina led to the further use of SMC in Jigawa and Kano states in 2014.

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By 2014, eight Sahelian countries were implementing SMC, reaching about 2.5 million children. However, despite support from a range of donors, there was insufficient funding to reach large numbers of children. Scale-up was also held back by the limited supply of quality-assured SPAQ in the formulation and dosage needed for SMC. Between 2015 and 2017, the Achieving Catalytic Expansion of SMC in the Sahel (ACCESS-SMC) project, funded by Unitaid, sought to overcome those barriers. The overall aim was to scale up SMC in seven Sahelian countries: Burkina Faso, Chad, The Gambia, Guinea, Mali, Niger and Nigeria. At its peak, more than seven million children were reached through ACCESS-SMC. This was achieved in close collaboration with the national malaria programmes, who firmly established SMC programmes and embedded the intervention within national guidelines and existing health system structures (Spotlight 2).

SPOTLIGHT 2:

Embedding SMC in health system structures in Burkina Faso

As early as 2014, SMC distributions began in Burkina Faso. While it was then not a part of the country's official national strategy, the National Malaria Control Programme, supported by partners, gradually scaled the intervention over five years: from 7 districts in 2014 to 17 in 2015, 54 in 2016, 59 in 2017, 65 in 2018 to 70 districts in 2019, representing 100% of the country. This success was possible by strong commitment to the activity at national, regional, and local level, ensuring awareness and support for SMC amongst communities. An example of how existing health system structures supported SMC scale up is the use of chief nurses at health facilities to coordinate the training and deployment of teams of community distributors, who in turn spent time telephoning households that the distributions were starting. Research led by the Société d'études et de recherche en santé publique in Burkina Faso in 2017 found in three districts in 2017 that 93% of mothers knew about the upcoming campaign.

The successful scale up and SMC in Burkina Faso over this period and the success stories that accompany it were used to advocate to the government resulting in the integration of SMC into the national malaria policy and strategic plan for malaria control.

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As countries gained more and more experience of implementing SMC, the intervention became a regular annual programme, with monthly SMC distribution cycles during the high transmission season at its core. Routine processes and tools have since been established for all the other intervention components (Figure 1), and SMC activities occur throughout the year. Increasing the scale of SMC also created a market for quality-assured SPAQ. (Spotlight 3).

"From 200 to 300 cases of malaria a month before SMC, my health center now records 75 to 150 cases of malaria per month. Another amazing factor is that SMC is an incentive for populations toadhere to other mass prevention [interventions], like polio immunization."

Gassara Goudja, Chief Health Officer, Walia Ordre de Malte, Chad in 2018

"I no longer spend money [earned from] my small business to look after my children because they do not get sick during the rainy season anymore. I can save money now. We want SMC to continue, otherwise our children will suffer and we will not be able to save because we will be spending time at the health centre again."

Bénédicte, Caregiver from Ziniaré, Burkina Faso in 2018

Photos: Sophie Garcia/Malaria Consortium

SPOTLIGHT 3:

Market shaping to increase production of SPAQ

As SMC was scaled up as part of the ACCESS-SMC project and demand for SPAQ increased, work took place to increase production of a child-friendly, affordable, quality-assured formulation of SPAQ in collaboration with a manufacturer. Over the course of the project, the global production of SPAQ for use in SMC increased from 9.9 million blister packs in 2014 to over 70 million in 2017.

Over the past several years, access to SPAQ has continued to increase and so has its demand. As of 2021, two manufacturers – based in China and India – had been granted WHO prequalification status for their SPAQ. There have also been efforts to increase the production capacity in Africa, with a Kenyan manufacturer becoming the first African WHO approved supplier of SP, one half of SPAQ. Further work has been done with two Nigeria manufacturers to develop further high-quality SP products.

In the last few years, there have been growing SP resistance concerns. To tackle this issue, consultations have taken place on the desired attributes of next-generation SMC drugs, which led to the identification of several combinations of potential alternatives to SPAQ. Safety studies in healthy volunteers for these new combinations are ongoing.

Medicines for Malaria Venture

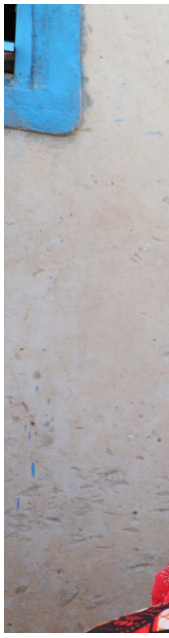
ACCESS-SMC also contributed to building the evidence base for the impact of SMC at scale by evaluating its feasibility, effectiveness and cost-effectiveness, as well as by addressing safety and drug resistance. The project demonstrated that SMC is safe, high coverage can be achieved using a door-to-door delivery strategy and resistance to SPAQ remains uncommon.[13] Case-control studies in seven ACCESS-SMC countries have shown that SMC implemented under programmatic conditions provides high levels of protection comparable to those found in trial settings, with an average protective effectiveness of 88 percent against clinical malaria over a 28-day period.[14] A study in Mali showed that SMC reduced hospital admissions among children under five by 39 percent.[15] SMC has also been shown to be highly cost-effective. An analysis of SMC implemented in the seven ACCESS-SMC countries in 2016 estimated that the intervention resulted in economic cost savings to those countries' health systems totalling 66 million United States dollars by reducing the cost of malaria diagnosis, treatment and hospital admissions.[16]

3. SMC today

Building on the early successes of SMC, national malaria programmes have continued to scale up SMC. In 2021, 15 countries were implementing SMC and around 45 million children were reached. This was made possible by the leadership of national malaria programmes and support from implementing partners and donors. In recent years, the growth of SMC has continued, despite the challenges posed by the emergence of the COVID-19 pandemic (Spotlight 4).[17]

The scale-up of SMC across the Sahel is commonly seen as a

Care giver directly administering SPAQ to her child in a Fulani settlement of Sokoto state. Credit: Malaria Consortium



“Ten years after the first SMC pilots, Unitaid is proud to have supported the world’s first large-scale catalytic introduction of this life-saving intervention, and to see the impact our early efforts are having on broader access today.

When Unitaid and partners embarked on the ACCESS SMC project, adoption of the 2012 WHO recommendation was low and fewer than 4% of all eligible children benefited from SMC.

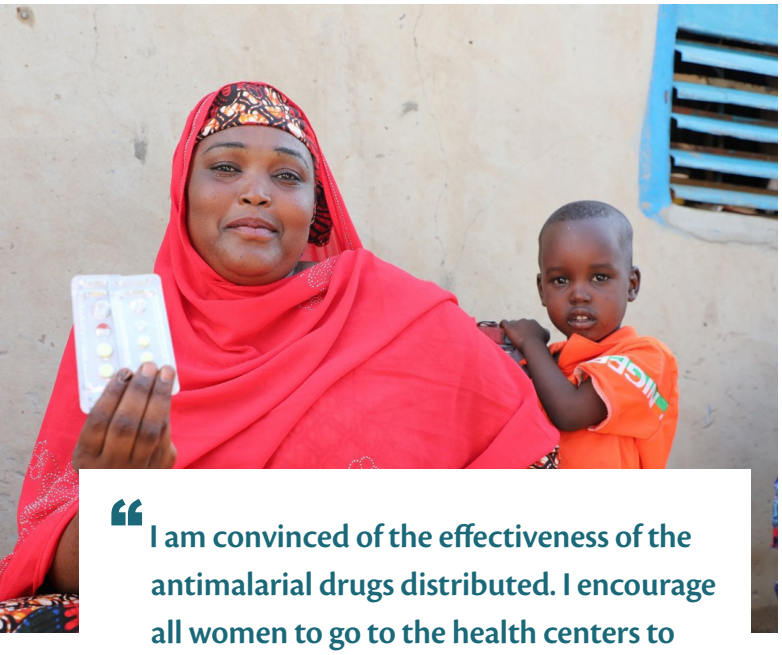
ACCESS-SMC promoted wider uptake by demonstrating the feasibility and impact of SMC at scale, and supported industry to manufacture a child-friendly, palatable, easy-to-administer product specifically for SMC.

Over the duration of the project, seven countries successfully scaled-up access to SMC, reaching more than 25% of all eligible children at the time and helping drive down the cost of treatment delivery to less than US$4 per child.

Through strong partnerships, collaboration, and coordination across the malaria community, by the project’s end, an additional five countries had initiated programmes. Today, 15 countries implement SMC and over 45 million children have access to the intervention.

With ongoing widespread scale-up, the impact of these earlier efforts are visible today: since the start of the ACCESS-SMC project in 2014, an estimated 160 million malaria cases have been averted and more than 700,000 lives saved.”

Dr Phillipe Duneton, Executive Director, Unitaid



> “I am convinced of the effectiveness of the antimalarial drugs distributed. I encourage all women to go to the health centers to take these drugs, follow the treatment and respect the instructions given by the health workers.”

Zeinabou Issafoi, caregiver from Zinder, Niger

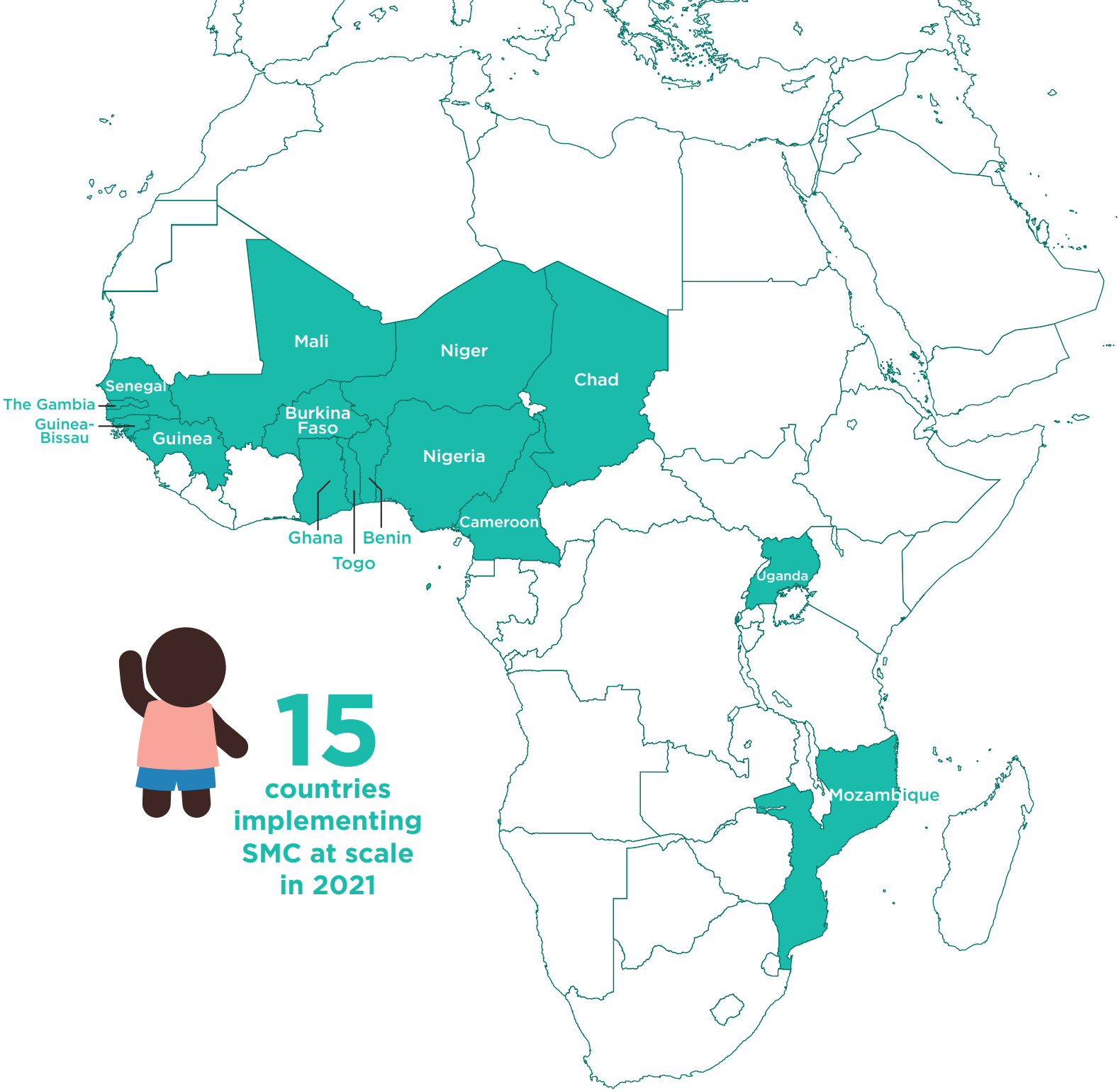
> “Nowadays, women know the importance of anti-malarial medicine because they have seen positive results. Sometimes parents ask us when the next campaign will take place.”

Aissata Saga, community distributor in Saga district, Niamey, Niger.

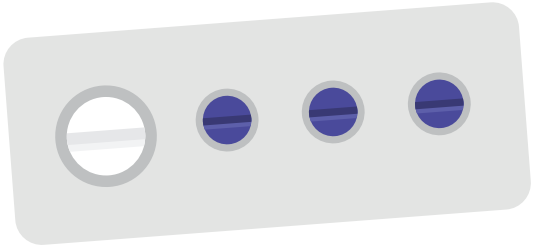
> “In 2020, thanks to our partners, we were able to protect 4.5 million children from malaria through SMC campaign despite the disruption of our health system caused by COVID-19.”

Dr Abou Yahaya, NPMC Coordinator, Niger

Photos: Hadjara Laouali Balla/CRS

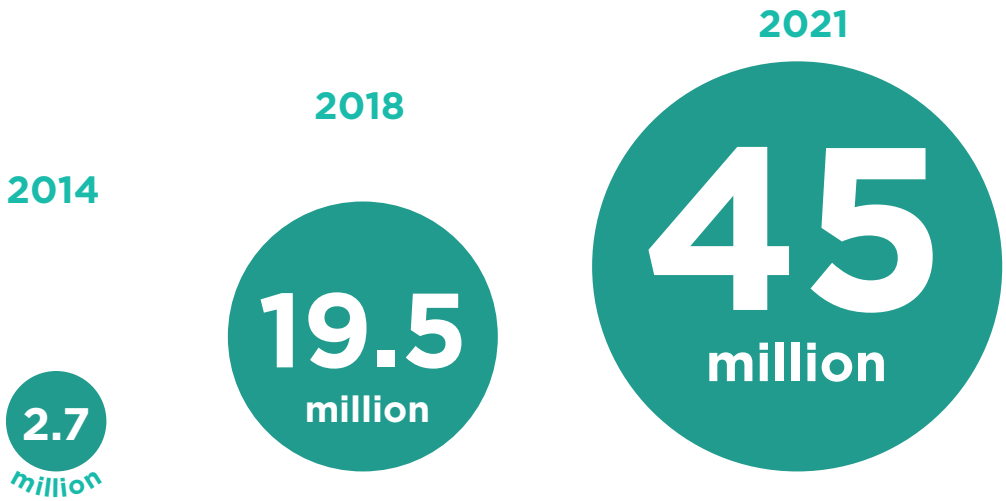


15
countries implementing SMC at scale in 2021

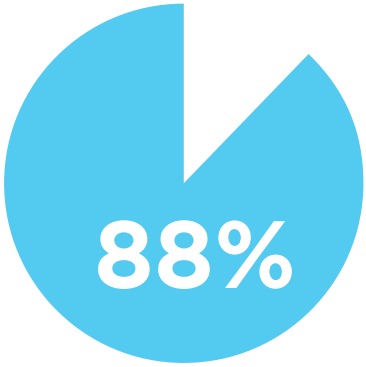


728 million
blister packs of SPAQ procured since 2014

Number of children reached



SMC provides an



protective effect against clinical malaria

in children 3-59 months over a 28-day period[14]

The weighted average economic

cost of administering four monthly SMC cycles is

$3.63

per child[16]

SPOTLIGHT 4:

COVID-19 and its impact on SMC

To ensure that SMC campaigns were maintained as an essential malaria service while minimising the risk of COVID-19 infection for SMC implementers and communities, adaptations to all SMC intervention components were required. Several measures were enacted to protect and reassure children, caregivers and community distributors involved in SMC campaigns. Measures included the procurement and distribution of personal protective equipment (PPE); the adaptation of job aids for community distributors to include COVID-19 specific guidance; enhanced hygiene and distancing measures; and community engagement and rumour management about COVID-19 and malaria. The international SMC community, through the RBM Partnership to End Malaria, also worked together to issue wide-ranging operational guidance for countries to assist with aligning SMC campaigns with the wider COVID-19 response.

The pandemic also caused disruptions in supply chains, impacting delivery schedules for PPE as well as for the medicines used for SMC. National stockpiles were drawn upon for both commodities, but additional procurement on the global markets took place. This proved challenging as demand rose to unprecedented levels.

Despite the challenges — and in a highly complex environment — SMC campaigns took place across all geographies at the normal scale in 2020, reaching over 30 million children.

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success story. In recent years, the global discourse among the SMC community has increasingly focused on how the intervention can be adapted to different contexts, and which innovations can be introduced to maximise its contribution to the global fight against malaria. We have seen a paradigm shift away from a one-size-fits-all approach to SMC, towards much greater variation and flexibility.

In June 2022, WHO published consolidated guidelines for malaria,[18] which underline the need to provide greater flexibility to malaria-endemic countries to adapt malaria strategies to the local context and epidemiology. For SMC, the guidelines no longer define geographic restrictions and provide greater flexibility in recognising age-based risk.

Many countries have conducted stratification exercises to determine the optimal mix of malaria interventions at the subnational level. In some cases, those exercises have resulted in the identification of new locations that are suitable for SMC, including locations where a significant portion of malaria cases happen just before or after the four-month peak transmission season. In those locations, some countries have adapted their SMC strategy to vary the number of monthly SMC cycles. For example, Nigeria had initially targeted nine Sahelian states in the north of the country for SMC, with all nine states reached with SMC for the first time in 2020. Following a stratification exercise conducted as part of the High Burden to High Impact initiative in 2019, the country's National Malaria Elimination Programme now considers 20 states and the Federal Capital Territory as eligible for SMC. Those in the south, where the transmission season is longer, are aiming to implement five monthly SMC cycles. All of those states were reached with SMC in 2022, which has contributed substantially to the increased number of children targeted for SMC over the last few years.

In addition to expanding to new locations, some countries have experimented with extending the eligible age range for SMC. For example, a study conducted in Senegal found that SMC in children up to 10 years is well tolerated and effective (Spotlight 5).[19]

SPOTLIGHT 5:

Expanding SMC to children 5–10 years in Senegal

The adoption of SMC in Senegal has gone through several stages. Following the WHO recommendation in March 2012, the National Malaria Control Programme conducted series of workshops for SMC policy adoption and for two other strategies (rectal artesunate and ACT in pregnancy). SMC studies undertaken in central and south Senegal presented during these meetings showed high protective efficacy rates both in children under 5 and 5 to 9 years old. SMC was found feasible, acceptable by both communities and health workers with a good safety profile (Cisse et al. 2016, Ndiaye et al, 2016, Ndiaye et al 2019). Malaria incidence data from hospitals in southeast Senegal confirmed the high incidence rate of severe malaria in children 5-9 years. SMC was adopted in December 2012 and implemented in children 3 to 120 months in 2013 as a pilot before been scaled up in 2014 in 4 regions.
Université de Thiès

SMC delivery in Mozambique during COVID-19. Credit: Malaria Consortium

4. The future of SMC

Greater flexibility in how SMC is deployed is likely to result in the expansion of SMC to new locations. These include areas of east and southern Africa where the burden of malaria is high and transmission is seasonal, but parasite resistance to SMC is high. Malaria modelling has indicated that SMC may be a viable malaria prevention strategy despite parasite resistance.[20] Implementation research exploring the feasibility, accessibility and impact of SMC in Uganda and Mozambique is ongoing and preliminary results are promising (Spotlight 6). However, compared with the Sahel, there is much greater heterogeneity across East and southern Africa, for example in terms of parasite resistance profiles, malaria transmission and prevalence, and population immunity. The more we understand about the chemoprevention efficacy[21] of SMC medicines in different contexts — that is, their ability to clear existing infections and prevent new ones — the more confidently we can predict the future effectiveness of SMC in those contexts. While SPAQ remains efficacious for use in SMC, there is a need to develop and test alternative drug regimens that could replace or complement SPAQ in the future. More research is also needed on the impact of climate change and humanitarian emergencies.

SMC is a community-based platform that consistently reaches a large number of children and could potentially be used for the delivery of other interventions in the future, thereby increasing combined coverage and reducing overall cost (Spotlight 7). In some cases, interventions might not be delivered through the SMC platform, but impact could be maximised by coordinating their delivery in a given location. Examples could include the distribution of long-lasting insecticidal nets and malaria vaccines. A study conducted in Burkina Faso and Mali found that a combination of SMC and the RTS,S/AS01 malaria vaccine was superior to either intervention alone.[23] Other approaches to minimising cost and ensuring the sustainability of the intervention is to embed SMC within routine health system activities (Spotlight 8) and to harmonise SMC delivery across borders (Spotlight 9).

SPOTLIGHT 6:

Expanding SMC to new geographies

Until 2021, SMC had only ever been implemented in the Sahel region of West Africa, where SMC has been shown to be 75 percent effective in preventing uncomplicated and severe malaria during the peak transmission period. In East and southern Africa, factors including parasite resistance, varying levels of malaria transmission, population immunity and human genetic polymorphisms had raised doubts over whether SMC could be an effective malaria prevention strategy outside of the Sahel.

Since 2021, Uganda and Mozambique have led the way in conducting SMC implementation studies in the region for the first time, to evaluate its acceptability, feasibility and effectiveness with a view to potential scale-up. In 2022, WHO issued updated chemoprevention guidelines. These give more flexibility to malaria-endemic countries to develop chemoprevention strategies in line with local contexts, further making the case for the use of SMC outside of the Sahel.

Findings from the implementation studies in Mozambique and Uganda suggest that SMC with SPAQ is safe, feasible and acceptable in the local context, achieving high coverage across the study areas. The intervention also appears to be highly effective. Results from non-randomised trials showed that children in districts where SMC was distributed were 86 percent and 92 percent less likely, respectively, to develop clinical malaria than those in non-SMC districts in Mozambique and Uganda.[24]

In January 2023, Mozambique became the first country outside the Sahel region to scale up SMC from its initial study.

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SPOTLIGHT 7:

Integrating SMC with other health services

Community-based SMC distribution consistently reaches a large number of children. The same platform can be used for the delivery of other interventions. For example, Burkina Faso, Mali and Niger have successfully integrated malnutrition screening into SMC delivery. In Nigeria, integrating vitamin A supplementation with SMC has substantially increased vitamin A coverage.[22] In some cases, interventions may not be delivered through the same mechanisms, but a partially integrated approach can maximise their combined public health impact. Guinea, for example, has made use of SMC campaigns to check on household use of bed nets, child vaccination status and uptake of services for malaria in pregnancy. Utilising the successful SMC platform for other community-based interventions and coordinating across health programmes has the potential to unlock efficiencies at the health system level, maximising coverage and reducing overall cost.

To identify optimal delivery mechanisms and ensure that integration does not come at the expense of reduced quality or increased cost of SMC, research is needed to assess the feasibility, acceptability, safety and overall (cost)-effectiveness of integrated community-based interventions.

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SPOTLIGHT 8:

Routine distribution of SMC

In Cameroon in early 2022, ahead of the year's SMC campaign, a decision was taken to pilot a new approach to distribution known as routine distribution. Social mobilisation, household enumeration and delivery of SMC was performed by the existing cadre of community health workers (CHWs) in 11 health districts out of the 47 eligible for SMC. These CHW were responsible for covering all of the children in their catchment areas in a period of less than 10 days. The expectation is that CHW familiarity with the families in their communities should facilitate these required steps. In contrast, in the other 36 SMC districts, SMC was conducted as a mass campaign, requiring recruitment, training and payment of a large number of distributors. Based on the reported results of the 2022 campaign, more than 98% of enumerated children were reached with SMC. No difference was noted in terms of performance between campaign and routine health districts; however, the cost of routine distribution was much lower ($1.24/child treated in mass campaign mode vs. $1.02 in routine mode). A total of 2 147 CHWs were involved in mobilization and distribution in the routine mode. This number would have been 4 102 in mass campaign mode. Similarly, Togo is currently conducting research on how SMC could be integrated into the routine delivery of community health services.

PMI Impact Malaria

SPOTLIGHT 9:

Cross-border harmonisation

The Sahel Malaria and Neglected Tropical Diseases (SM/NTD) Project was implemented 2016-2019 in Burkina Faso, Mali and Niger. It aimed to increase access to and use of harmonised community-level services for the prevention and treatment of malaria and select Neglected Tropical Diseases in targeted cross-borders areas. This involved strengthening regional collaboration across participating countries, supporting coordinated implementation of SMC and other interventions in cross-border areas, and building institutional capacity to coordinate and monitor implementation. Coordinating and harmonising SMC delivery across the three countries ensured that populations in the border region received SMC at the right time and helped achieve high coverage.

West African Health Organization

Finally, digital tools have the potential to transform how public health interventions are implemented by increasing efficiency, accountability and equity. There are numerous use cases for digital tools within SMC, including mapping the target population, collecting administrative data and processing payments to SMC implementers (Spotlight 10). A challenge that has so far held back the scale-up of digital tools in SMC is the need to define scalable and sustainable implementation models, ideally enabling multi-use across different health campaigns and routine surveillance.

SPOTLIGHT 10:

Digitalising SMC

Digitalisation has brought us more reliable data. "We can follow field agent work in real time and have coverage data in real time too, so we don't need coverage surveys", says the PNLP in Benin, where the government aims to fully digitise its SMC campaigns through a partially integrated health campaign. Digitalisation involved using the database from the ITN campaign enumeration process for the SMC campaign. This meant that households did not need to be re-enumerated; rather, campaign agents only had to update information on births, deaths and population movements. This resulted in cost savings and economies of scale. Efforts have also been made to run data analytics to better understand which households might have been missed during the campaign. This activity assisted with re-strategising for future campaigns. Other countries that have started exploring the use of digital tools in SMC include Benin, Burkina Faso, Ghana, Guinea, Mali, Niger, Nigeria and The Gambia) to similarly digitise SMC campaigns across multiple platforms for improved efficiency, quality and coverage of campaigns, as well for operational transparency and accountability.

Catholic Relief Services

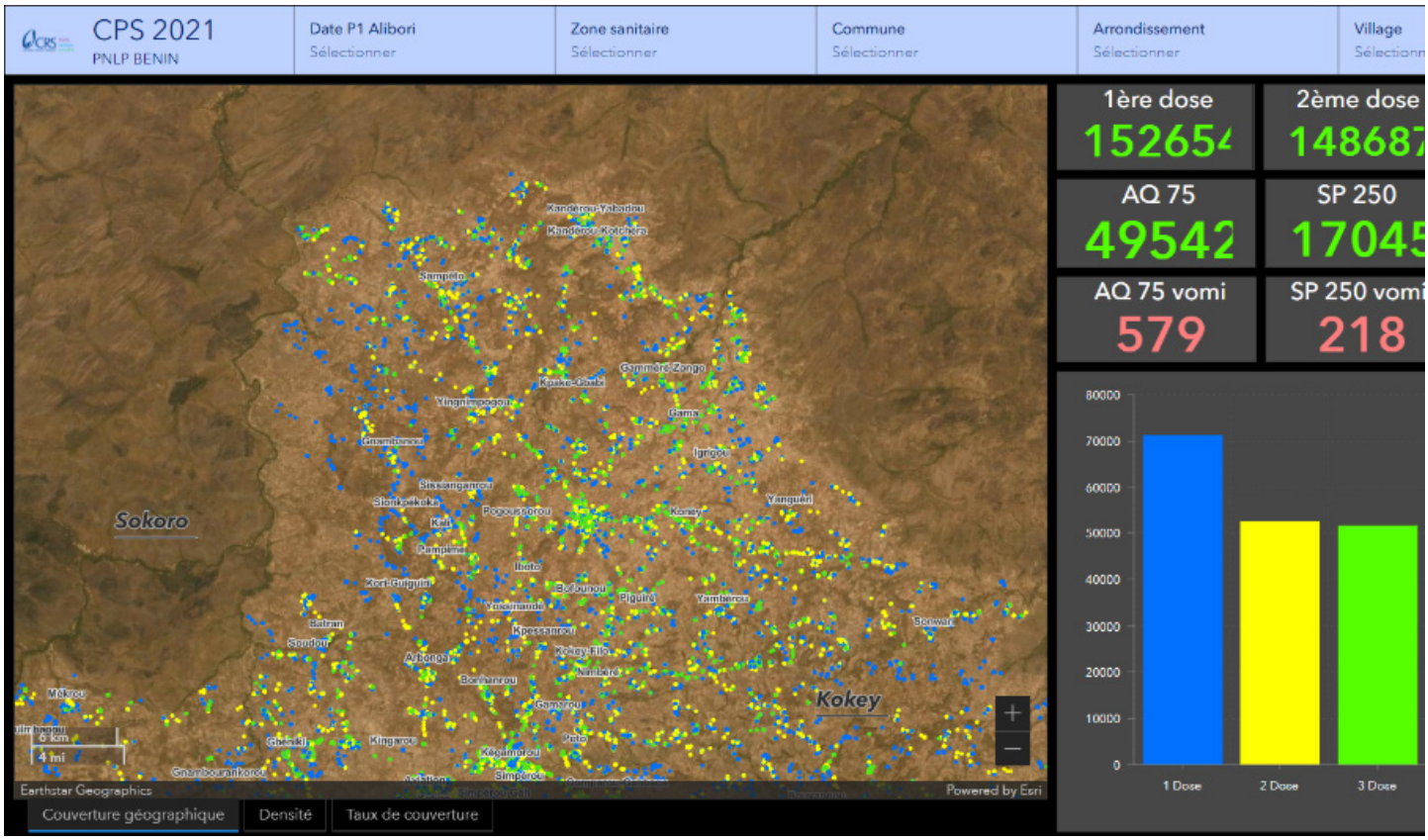
5. Concluding remarks

This report has charted the growth of SMC from a concept before it was recommended by WHO in 2012, through to the scale up that led to the intervention reaching 45 million children in 2021. The past decade has been a success story characterised by collaboration, led by national malaria control programmes and supported by implementing organisations and a range of international donors including Unitaid, The Global Fund to Fight AIDS, Tuberculosis and Malaria, the President's Malaria Initiative, the Bill and Melinda Gates Foundation and the Korea International Cooperation Agency. SMC has also been supported by generous donations from philanthropists and the effective altruism community.

During the past decade, the SMC community has innovated. Working with pharmaceutical companies, the production of SPAQ has been scaled up to meet the growing demand, and the formulation of the medicines has been altered to improve acceptability with the children required to take it. Expansion to a wider age range has used in some countries and others have piloted new approaches to routine distribution while new digital tools have come online to provide data that allows malaria programmes to make more informed decisions about campaign planning. More recently, implementing countries have had to balance the continuity of SMC with pressures applied on wider health services by the outbreak of the COVID-19 pandemic, during which the intervention was completed at the planned scale, with infection control adaptations in place.

The top line numbers outlined in this report illustrate the enormous scale that has been achieved across the entire decade. 728 million blister packs of SMC medicines have been procured for distribution across the implementing countries with those medicines providing an 88% protective effect against malaria in children 3-59 months. This scale and effectiveness have been achieved while keeping the cost per child while keeping the cost per child low.

Now, as we move into the second decade of SMC implementation, the updated consolidated guidelines on malaria published by WHO in 2022 have broadened the criteria for where and how SMC can be implemented. Uganda and Mozambique are leading the way in showing how SMC can be used successfully outside of the Sahel region. These developments suggest that the scale of SMC could continue to increase through the next decade and many millions more children could be reached and protected from malaria.



Benin SMC coverage dashboard. Each dot represents each dose received by each child. Blue represents the first dose, yellow the second dose and green the third dose. Credit: Elijah Egwu, CRS

References

1. Greenwood B. The use of anti-malarial drugs to prevent malaria in the population of malaria-endemic areas. Am J Trop Med Hyg. 2004; 70(1): 1-7.
2. Greenwood B. Review: Intermittent preventive treatment--a new approach to the prevention of malaria in children in areas with seasonal malaria transmission. Trop Med Int Health. 2006; 11(7): 983-91.
3. Cissé B, Sokhna C, Boulanger D, Milet J, Bâ el H, Richardson K, et al. Seasonal intermittent preventive treatment with artesunate and sulfadoxine-pyrimethamine for prevention of malaria in Senegalese children: A randomised, placebo-controlled, double-blind trial. Lancet. 2006; 367(9511): 659-67.
4. Dicko A, Sagara I, Sissoko MS, Guindo O, Diallo AI, Kone M, et al. Impact of intermittent preventive treatment with sulphadoxine-pyrimethamine targeting the transmission season on the incidence of clinical malaria in children in Mali. Malar J. 2008; 7: 123.
5. Wilson AL; IPTc Taskforce. A systematic review and meta-analysis of the efficacy and safety of intermittent preventive treatment of malaria in children (IPTc). PLoS One. 2011; 6(2): e16976.
6. Meremikwu MM, Donegan S, Sinclair D, Esu E, Oringanje C. Intermittent preventive treatment for malaria in children living in areas with seasonal transmission. Cochrane Database Syst Rev. 2012; 2012(2): CD003756.
7. World Health Organization. WHO policy recommendation: Seasonal malaria chemoprevention (SMC) for Plasmodium falciparum malaria control in highly seasonal transmission areas of the Sahel sub-region in Africa. Geneva: WHO; 2012.
8. World Health Organization. Seasonal malaria chemoprevention with sulfadoxine-pyrimethamine plus amodiaquine in children: A field guide. Geneva: WHO; 2013.
9. World Health Organization. Global technical strategy for malaria 2016 – 2030: 2021 update. Geneva: WHO; 2021.
10. Noor AM, Kibuchi E, Mitto B, Coulibaly D, Doumbo OK, Snow RW. Sub-national targeting of seasonal malaria chemoprevention in the Sahelian countries of the Nouakchott initiative. PLoS One. 2015; 10(8): e0136919.
11. Barry A, Issiaka D, Traore T, Mahamar A, Diarra B, Sagara I, et al. Optimal mode for delivery of seasonal malaria chemoprevention in Ouelessebougou, Mali: A cluster randomized trial. PLoS One. 2018; 13(3): e0193296.
12. Strachan CE, Kana M, Martin S, Dada J, Wandera N, Marasciulo M, et al. The use of formative research to inform the design of a seasonal malaria chemoprevention intervention in northern Nigeria. Malar J. 2016; 15: 474.
13. ACCESS-SMC Partnership. Effectiveness of seasonal malaria chemoprevention at scale in west and central Africa: An observational study. The Lancet, 2020; 396(10265): 1829–40.
14. Cairns M, Ceesay SJ, Sagara I, Zongo I, Kessely H, Gamougam K, et al. Effectiveness of seasonal malaria chemoprevention (SMC) treatments when SMC is implemented at scale: Case-control studies in 5 countries. PLoS Medicine, 2021; 18(9): e1003727.
15. Issiaka D, Barry A, Traore T, Diarra B, Cook D, Keita M, et al. Impact of seasonal malaria chemoprevention on hospital admissions and mortality in children under 5 years of age in Ouelessebougou, Mali. Malar J. 2020; 19(1): 103.
16. Gilmartin C, Nonvignon J, Cairns M, Milligan P, Bocoum F, Winskill P, et al. Seasonal malaria chemoprevention in the Sahel subregion of Africa: A cost-effectiveness and cost-savings analysis. Lancet Global Health, 2021; 9(2): e199-e208.
17. RBM Partnership to End Malaria. Adapting seasonal malaria chemoprevention in the context of COVID-19: Operational guidance. Geneva: RBM; 2020.
18. World Health Organization. WHO guidelines for malaria. Geneva: WHO; 2022.
19. Cissé B, Ba EH, Sokhna C, NDiaye JL, Gomis JF, Dial Y, et al. Effectiveness of seasonal malaria chemoprevention in children under ten years of age in Senegal: A stepped-wedge cluster-randomised trial. PLoS Med. 2016; 13(11): e1002175.
20. Owen BN, Winkel M, Bonnington C, Nuwa A, Achan J, Opigo J, et al. Dynamical malaria modeling as a tool for bold policy-making. Nat Med. 2022; 28(4): 610-611.
21. World Health Organization. Malaria chemoprevention efficacy study protocol. Geneva: WHO; 2022.
22. Oresanya O, Phillips A, Okereke E, Ahmadu A, Ibinaiye T, Marasciulo M, et al. Co-implementing vitamin A supplementation with seasonal malaria chemoprevention in Sokoto State, Nigeria: A feasibility and acceptability study. BMC Health Serv Res. 2022; 22(1): 871.
23. Chandramohan D, Zongo I, Sagara I, Cairns M, Yerbanga RS, Diarra M, et al. Seasonal malaria vaccination with or without seasonal malaria chemoprevention. N Engl J Med. 2021; 385(11): 1005-1017.
24. Nuwa A, Baker K, Bonnington C, Odongo M, Kyagulanyi T, Bwanika JB, et al. A non-randomized controlled trial to assess the protective effect of SMC in the context of high parasite resistance in Uganda. Malar J. 2023; 22: 63.

About the SMC Alliance

The SMC Alliance is a group of stakeholders with an interest in SMC, from national malaria programmes to international technical partners, donors, research institutes and implementing agencies. It was created as an initiative of SMC implementing countries in November 2013, under the auspices of the annual West and Central African Regional Networks review and planning meeting for malaria control activities organised in Abidjan, Ivory Coast. Since 2020, the SMC Alliance has been a workstream under the RBM Partnership to End Malaria's Country/Regional Support Partner Committee. Currently, the Alliance is made up of over 25 implementing countries, universities and research organisations, and governmental and international organisations.

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