



Learning from experience

Seasonal chemoprevention as an effective malaria preventive strategy for children in the Sahel

Produced by Malaria Consortium as part of the Unitaid-funded ACCESS-SMC project



SMC medication



Health workers administer SMC medication, Burkina Faso

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ACCESS-SMC is a Unitaid-funded project, led by Malaria Consortium in partnership with Catholic Relief Services, which is supporting National Malaria Control Programmes to scale up access to seasonal malaria chemoprevention to save children's lives across seven countries in the Sahel.

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Introduction

Malaria in the Sahel

In sub-Saharan Africa, malaria remains the leading cause of morbidity and mortality, especially in young children. An estimated 285,000 children died from malaria before their fifth birthday in 2016 despite the notable achievements made in reducing malaria cases and deaths since 2000.^[1] Out of the 15 countries carrying 80 percent of the global malaria burden, all but one are located in sub-Saharan Africa,^[2] with many in the Sahel region. Targeting malaria prevention and treatment efforts in this region is, therefore, of paramount importance if global elimination goals are to be met.

Malaria and the Sustainable Development Goals

With the introduction of the Sustainable Development Goals (SDGs), governments and development stakeholders made a bold commitment to end malaria by 2030. Earlier global initiatives, including the Millennium Development Goals and the ongoing Roll Back Malaria Partnership, have strengthened malaria control strategies and helped stabilise funding, but a lack of sustained local government commitment and financing, as well as international funding, continue to be the main barrier to eliminating the disease. Indeed, in 2016 only US\$2.7 billion (£2.1 billion GBP) was spent on malaria control and elimination — a figure far below the annual \$6.5 billion (£5.1 billion) investment recommended by the World Health Organization (WHO) if the 2030 target is to be achieved.^[3]

There has been some progress in the past decade with the introduction of more effective preventive tools, such

as long lasting insecticidal nets and improved case management tools, such as rapid diagnostic tests for malaria, and artemisinin-based combination therapy drugs. Despite their proven effectiveness, access to and acceptance of these tools varies. As a result, there is unacceptably high morbidity and mortality attributable to malaria among the biologically most vulnerable groups: under-fives and pregnant women. Emerging resistance of malaria parasites to artemisinin and of mosquitoes to commonly used insecticides threatens to reverse progress that has been made, and there is not likely to be a highly effective malaria vaccine for many years to come. It is, therefore, imperative that the interventions currently at our disposal are used more effectively and in ways that achieve a rapid and sustainable impact. There is also increasing recognition that effective malaria control will require different strategies contextualised to specific geographic areas and populations, particularly as countries aspire to achieve pre-elimination. It is in this context that, in 2012, the WHO approved seasonal malaria chemoprevention (SMC) as an effective tool in the prevention of malaria.

Across the Sahel subregion, most childhood malarial infections and deaths occur during the rainy season, which is generally short, lasting three to four months. Giving effective antimalarial SMC treatments at monthly intervals during this period has been shown to be 75 percent protective against uncomplicated and severe malaria in children under five.^[4] SMC is cost-effective and, as shown in this paper, with adequate supervision and

operational support can be safely administered by community health workers in resource-constrained countries. This paper highlights the positive experience of ACCESS-SMC, the key successes, the main constraints and the remaining gaps for universal access by eligible children to this life-saving intervention.



A child is given water to help swallow the medication, Burkina Faso

What is seasonal malaria chemoprevention?

SMC is a relatively new and effective intervention to prevent malaria in children under five — those most vulnerable to the disease's effects. It involves the intermittent administration of full treatment courses of an antimalarial medicine to children in areas of high transmission of malaria during the rainy season. WHO recommends SMC with sulfadoxine-pyrimethamine plus amodiaquine (SP+AQ), which prevents malarial illness by maintaining therapeutic antimalarial drug concentrations in the blood throughout the period of greatest malarial risk.

This intervention is recommended:

- where malaria transmission and more than 60 percent of clinical malaria cases occur during a period of four months coinciding with the rainy season
- where the clinical attack rate for malaria is greater than 0.1 attacks per child per transmission season in the target age group (children 3–59 months)
- where SP+AQ is efficacious (>90 percent efficacy).

This confines the intervention to the Sahel and sub-Sahel areas of central and western Africa.

1 World Health Organization. Malaria in children under five. [2018 Jan 26; cited 2019 Jan 9]. Available from: http://www.who.int/malaria/areas/high_risk_groups/children/en/.

2 World Health Organization. World Malaria Report. Geneva: World Health Organization; 2017.

3 Ibid.

4 World Health Organization. Seasonal malaria chemoprevention (SMC). [2017 May 01; cited 2019 Jan 25]. Available from: https://www.who.int/malaria/areas/preventive_therapies/children/en/.



The project

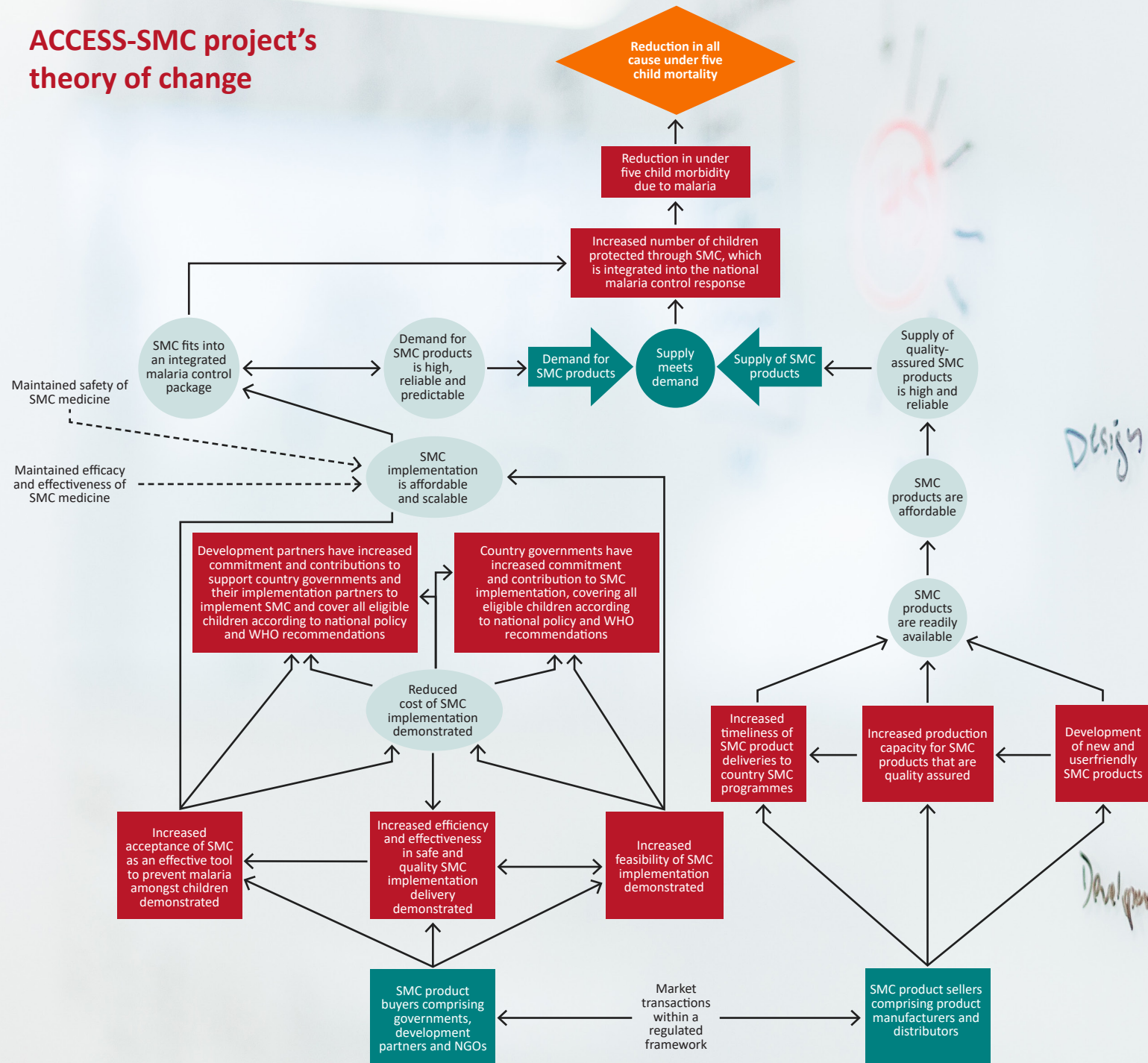
Aims

ACCESS-SMC was launched in 2015 to overcome barriers to SMC scale-up, supporting national malaria control/elimination programmes (NMCPs) in Burkina Faso, Chad, Guinea, Mali, Niger, Nigeria and The Gambia. Funded by Unitaid, the project was led by Malaria Consortium in partnership with Catholic Relief Services and supported by the London School of Hygiene & Tropical Medicine (LSHTM), Centre de Support de Santé International, Management Sciences for Health, Medicines for Malaria Venture, and Speak Up Africa.

The project aimed to provide up to 30 million SMC treatments to 7.5 million children under five per year for two years, preventing millions of cases of malaria and helping to avert many thousands of deaths. This would require rapidly expanding the global supply of quality-assured and child-friendly SMC treatments, which would be achieved by significantly increasing predictable demand through feasible, acceptable and affordable implementation of SMC owned by national governments.

Project design

ACCESS-SMC project's theory of change



Before the project began, key partnerships were formed with each of the seven countries' NMCPs and indicators of success were agreed. The partnerships, which included cost-sharing arrangements and concessions on tax waivers for SMC supplies, were designed to strengthen NMCP ownership, ensure their continued engagement and commitment to the scale-up of SMC, address bottlenecks and leverage resources.

NMCPs committed to using only the new quality-assured, co-blistered SP+AQ drugs, instead of previously used loose tablets. This, in turn, influenced other implementing partners to commit to using only quality-assured commodities. It was also agreed that the purchasing price of SMC products would remain at an acceptable level near budgeted price, and that country-level pharmacovigilance systems would be strengthened to meet the needs of the mass drug administration (MDA) campaigns.

One of the objectives of the project was to identify the key cost drivers of SMC administration and use this information to improve the affordability of equitable SMC implementation. The activities associated with this objective would then help to promote its wider adoption by:

- influencing changes in the global supply of acceptable, quality-assured SP+AQ treatments
- demonstrating feasibility and impact of SMC at scale
- strengthening national pharmacovigilance systems and generating evidence of the safety of SMC
- assessing the efficacy of SMC drugs and monitoring parasite resistance
- mobilising additional resources to sustain demand for SMC and reach more children.

The requirements for achieving this objective were adapted to reflect the individual country context once the project had begun to operate at scale.

Since 2015 Malaria Consortium has helped prevent

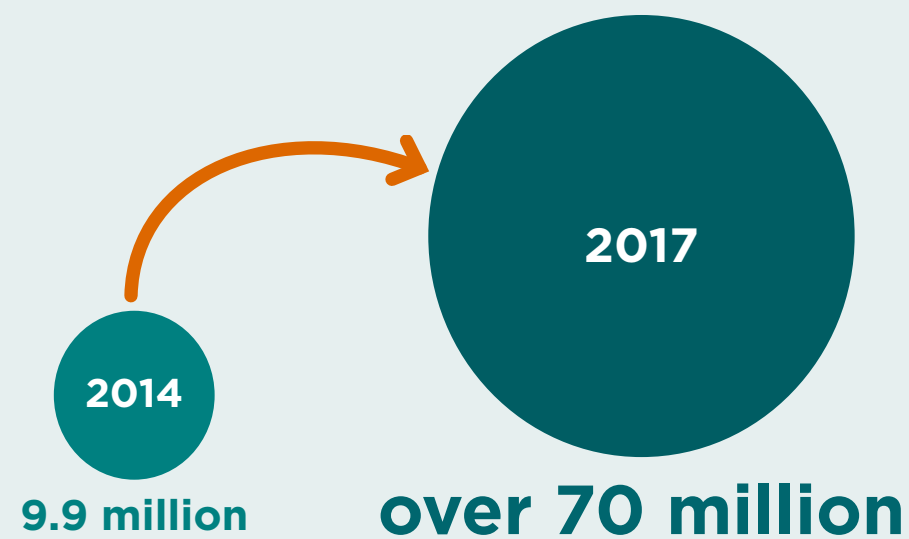
10 million
cases of malaria

and

over
60,000
deaths



We ensured an increase in production of SMC medicines



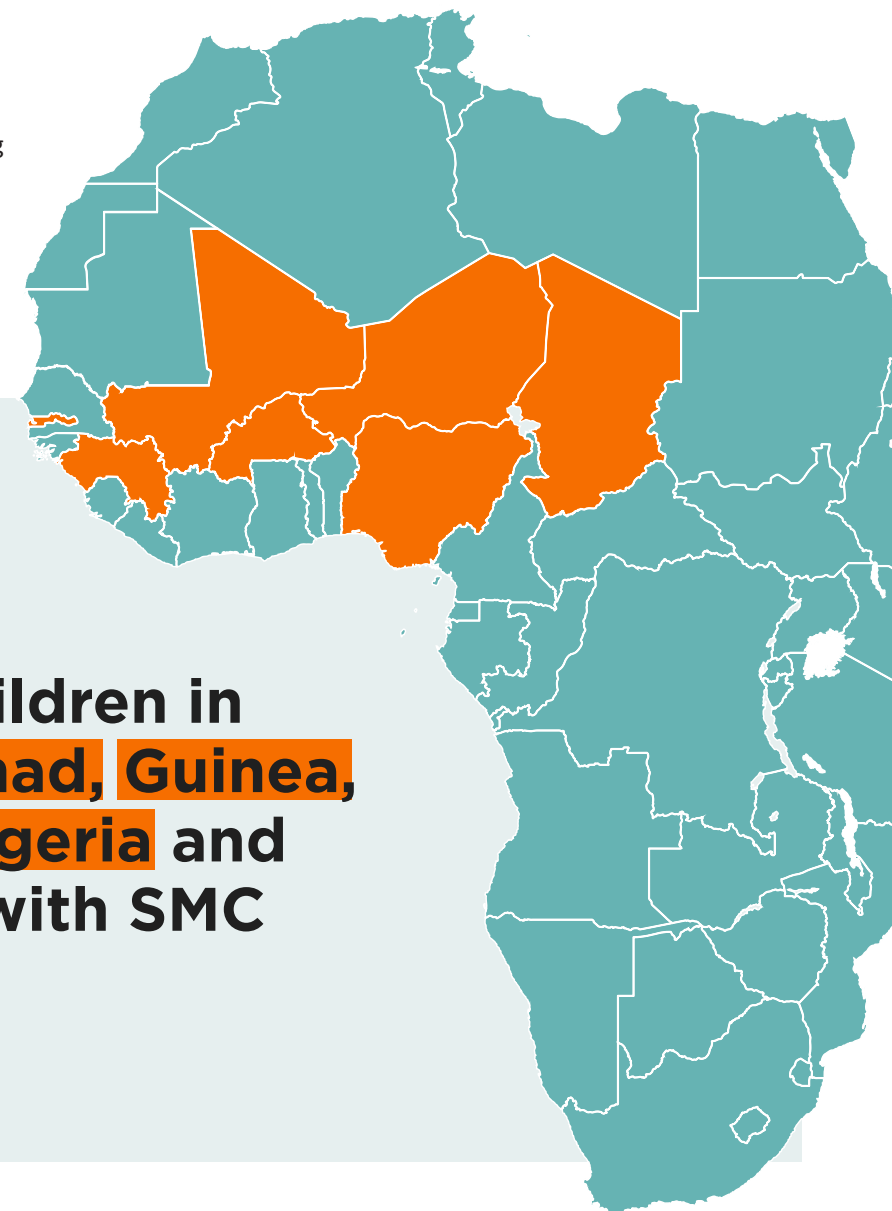
Achievements

In 2012, SMC was recommended by WHO as a preventive intervention in areas with high seasonal malaria transmission in the Sahel region of sub-Saharan Africa. However, by 2014, less than five percent of all eligible children (an estimated 25 million) were benefiting from this relatively new approach.

By improving demand forecasting and ensuring centralised procurement, ACCESS-SMC helped catalyse the supply market volume from 9.9 million treatments delivered to target countries in 2014 to over 70 million by 2017. ACCESS-SMC was the first buyer for newly introduced, quality-assured dispersible tablets, with over 80 percent of ACCESS-SMC orders in 2016 being for these more palatable and easier to administer tablets. By 2017, all buyers were purchasing dispersible tablets.

Over three years of implementation (2015–2017), according to project data, it is estimated that ACCESS-SMC may have averted over 60,000 deaths and prevented over 10 million cases of malaria.

A consortium of leading organisations working in malaria prevention formed a partnership to deliver SMC in seven countries and ACCESS-SMC's first campaign in 2015 provided preventive SMC treatment to over 3.1 million children. The following year saw over 6.3 million children reached. During 2017 and supported by new funding mechanisms, Guinea, Mali, Niger and The Gambia continued implementing SMC programmes through different funding mechanisms, whilst ACCESS-SMC continued to support a further SMC season in Burkina Faso, Chad and Nigeria, reaching an estimated 3.9 million children.



We reach children in **Burkina Faso, Chad, Guinea, Mali, Niger, Nigeria and The Gambia** with SMC



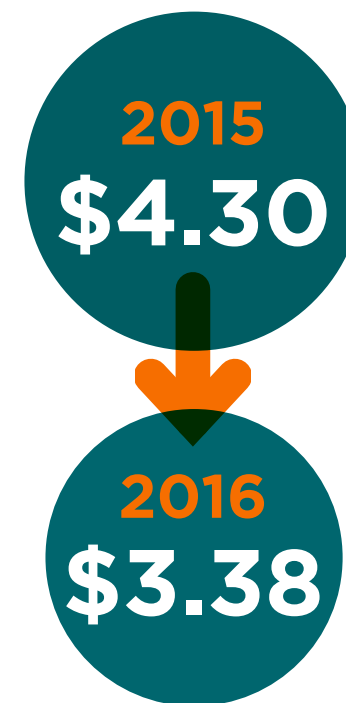
Evolution of seasonal malaria chemoprevention medication

Between 2014 and 2015, SMC medication evolved from non-dissolving loose pills to co-blistered SP+AQ tablets that were crushed and mixed with water and sugar to mask the bitter taste of amodiaquine. The process took at least five minutes to administer per child and often children spat the mixture out, requiring the treatment to be administered a second time.

The move to sweetened, dispersible tablets in 2016 reduced delays and logistical costs, eliminated the need for sugar, increased acceptability among children and simplified administration practices. With the introduction of these child-friendly SP+AQ tablets, drugs now take less than one minute to administer. Only a small amount of water is required and the taste is much more palatable.

The cost of seasonal malaria chemoprevention

Estimated average annual recurrent cost of SMC per child



Before ACCESS-SMC, there was limited information on the key cost drivers of SMC and competing funding priorities led to significant barriers for scaling up the intervention in the Sahel. In 2015 and 2016, surveys were conducted to determine the cost of implementing SMC in all seven countries, including: equipment, drugs, travel and transportation, salaries and incentives, social mobilisation, and meeting and training costs.

Findings indicated that, at an average cost of less than \$5 (£4) per child treated each year, SMC was a cost-effective intervention for preventing millions of cases of childhood malaria. The survey results also highlighted a reduction in the average cost of administering the equivalent of four monthly cycles to one child, falling from \$4.30 (£3.37) in 2015 to \$3.3 (£2.65) in 2016. Across the seven project countries, the majority of costs were attributed to the purchase of SMC drugs and supplies, training and distribution and supervision/monitoring.

The reduction in costs was primarily due to the increased geographical and demographic coverage of SMC and the spread of fixed costs (e.g. for management, supervision and training)

across a larger target population. In 2015, ACCESS-SMC supported the distribution of 12.4 million treatments to approximately 3.1 million children, while in 2016 it more than doubled its coverage to an average 6.3 million children (6.6 million at its peak), distributing over 25 million treatments.

Preliminary analysis of potential health systems savings and cost-effectiveness shows that SMC is comparable to other cost-effective malaria interventions, with a median incremental cost-effectiveness ratio of \$21.10 (£16.54) per disability-adjusted life year averted. On potential savings for health systems concerning the cost of diagnostics and treatment, project data suggest that ACCESS-SMC may have saved over \$120 million (£94 million).

These results suggest that large-scale implementation of SMC is a worthwhile investment, which can result in a greater reduction in the overall burden of malaria in the Sahel as well as a lower average cost per child reached by SMC. Understanding the cost of delivering SMC has allowed countries to advocate more effectively for sufficient financial resources to introduce and scale up the intervention.

\$120 million

saved through ACCESS-SMC

Approach used for scaling up seasonal malaria chemoprevention

Increasing global production

In 2013, at the time of the launch of SMC, funding exceeded available commodities, with no WHO prequalified manufacturers of SP+AQ. While the procurement target for 2015 at the start of ACCESS-SMC was 30 million treatments, only about half of that amount could be procured and delivered to countries in time for distribution.

By 2016, all 30 million treatments were available for purchase but, due to the limited capacity of the only manufacturer of Expert Review Panel approved SP+AQ formulations (Guilin Pharmaceuticals), a number of countries had to delay the start of SMC campaigns as they waited for product delivery.

ACCESS-SMC initiated the push to increase production of quality-assured SP+AQ treatments by providing stable demand for a few years, enabling Guilin Pharmaceuticals to invest in productivity improvements, as well as encouraging other drug manufacturers to enter production of SP+AQ as its feasibility was being demonstrated. Global production of SMC treatments reached 60 million by the end of 2016, and stabilised at nearly 70 million in 2017.

Setting agendas and planning

ACCESS-SMC provided partners with an opportunity to strengthen their capacity for in-country coordination and accurate planning, by supporting each country with needs assessments, planning workshops before each SMC round, and operational review meetings at the end of each season. Countries where the SMC agenda was clearly set (including roles and responsibilities for coordination, and defined planning and implementation) consistently

outperformed those where in-country ownership was weaker and planning less effective.

For example, Burkina Faso, Guinea and Mali's respective Ministries of Health were all heavily involved in planning and launching SMC cycles — even embedding these processes in official ministerial calendars and setting up coordination groups in some cases — and had high SMC coverage. Meanwhile, Niger's planning was less timely and did not fully address serious social barriers to SMC roll-out, which resulted in lower coverage.

In the case of Niger, conservative gender norms that limit women's access to healthcare contributed to the very low coverage achieved with a fixed point approach (7–11 percent) and it took three cycles to recognise and remedy this issue. It was solved by switching to the door-to-door approach, which enabled women and children to be reached at home. Had there been better planning and consideration of the context and relevant cultural factors in the choice of approach before the start of the campaign, the initial poor coverage may have been prevented.

This demonstrates the importance of timely planning and identification of possible barriers and risks well in advance of the start of any SMC cycle. Doing so enabled any potential problems to be addressed expediently, e.g. via increased advocacy or local engagement, identification of the right distribution methods, and/or improved, locally-adapted social and behaviour change communication (SBCC) tools.

ACCESS-SMC also facilitated cross-country learning between the seven



A mother waits for her child to receive SMC treatment, Burkina Faso

project countries. Via jointly attended annual planning and review meetings, ACCESS-SMC enabled countries' NMCPs and implementing/research partners to critically assess SMC implementation, revise planning timelines, review project data, and identify successes and failures. As a result of these lessons-sharing events, all ACCESS-SMC countries' planning and implementation performance improved incrementally over time.

With the clear purpose of demonstrating that SMC is a successful and cost-effective intervention and promoting the uptake of best practice beyond the focus countries, Malaria Consortium organised a joint consultation on SMC in collaboration with WHO and the West African Health Organization (WAHO), held in Burkina Faso in February 2017, which was open to all eligible countries. The success of this coordinated SMC forum encouraged stakeholders to continue organising similar events post ACCESS-SMC; the latest took place in Niger in February 2018, and hosted all eligible countries' NMCPs and implementing/research partners.

Building in-country capacity

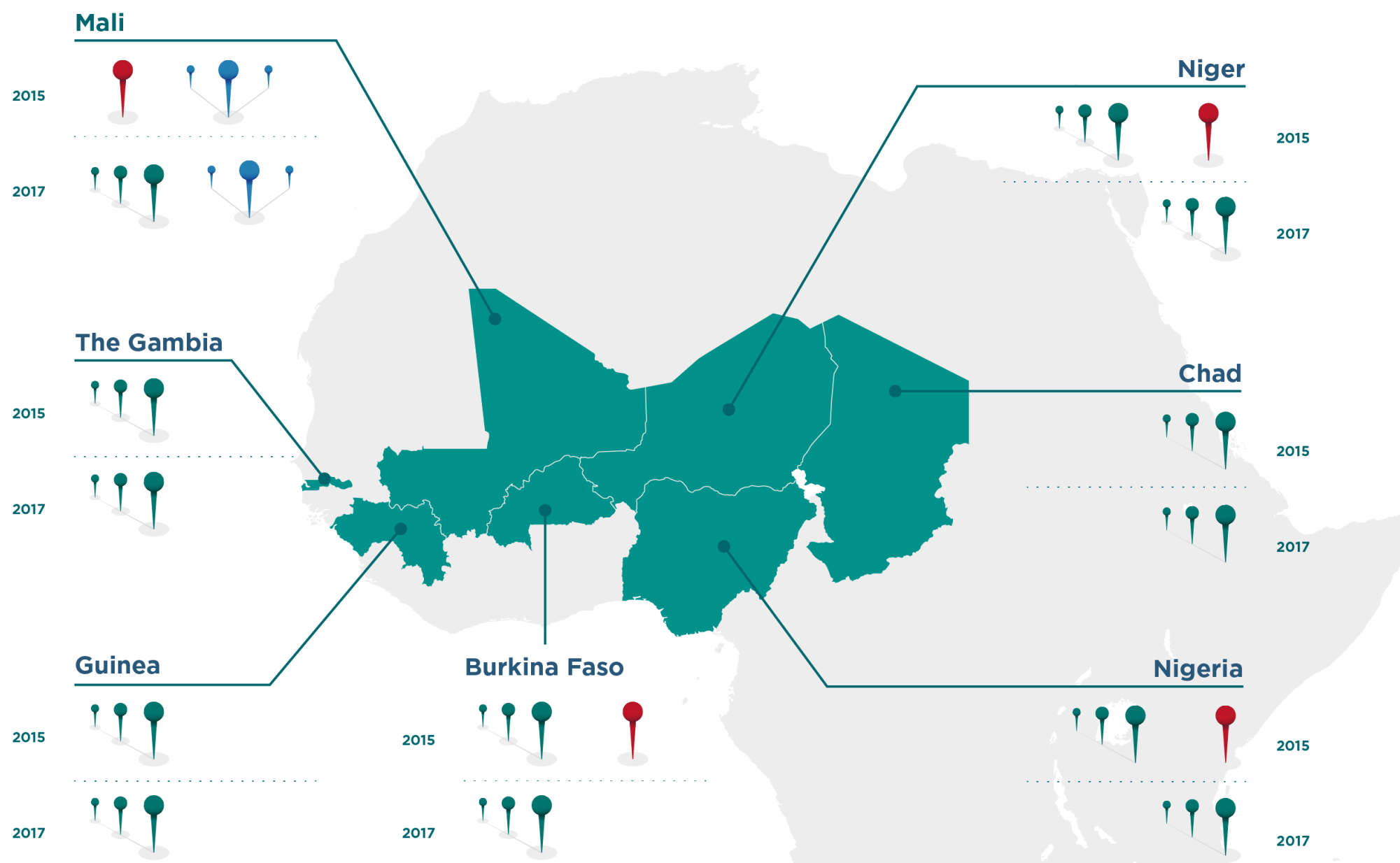
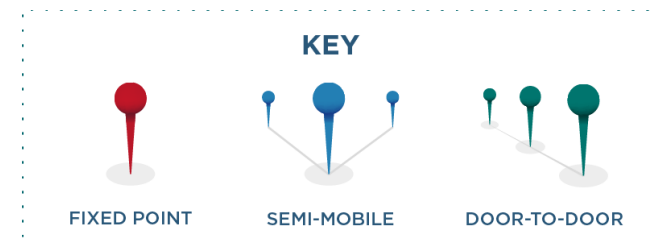
ACCESS-SMC, like any MDA campaign, required a large network of human resources, including trained health volunteers and distributors, Ministry of Health staff, health workers, supervisors, and monitoring and evaluation and logistics personnel. As such, project partners developed training materials and protocols in collaboration with national health authorities and in line with WHO guidelines, and trained approximately 29,000 people in 2015, 60,000 in 2016, and 50,000 in 2017.

Shaped by continuous learning over the three years, ACCESS-SMC took into consideration the following when

building in-country capacity:

- Skills:** to ensure high-quality implementation and reporting, local trainers, supervisors and volunteers were recruited based on specified criteria, and recruitment processes were carefully monitored. Nonetheless, in some countries, financial incentives (such as per diems) occasionally led to biased recruitment (e.g. nepotism), which threatened the quality of delivery and coverage. As such, Malaria Consortium increasingly oversaw the project's human resource-related processes (including recruitment, retention and dismissal) wherever such problems risked compromising the quality or reach of the intervention.
- Training:** building on WHO's SMC Field Guide, ACCESS-SMC developed SMC training materials, field guides, and job aids in English and French. These were adapted by implementing countries based on their past experience with SMC and on available national standards. At the end of the 2015 SMC campaign, they were reviewed and updated based on identified implementation needs and CHWs' capabilities. For instance, the original training guides and materials were quite content-heavy, and the training sessions they facilitated were found to be less practical than they needed to be. Thus, revisions simplified content, used less text and more images, and encouraged training sessions to concentrate more on practical skills (e.g. drug safety and administration). Overall, training topics included: SMC eligibility criteria, SMC administration methods, monitoring severe adverse reactions to SMC and effective communication with caregivers.

Distribution methods used by project countries





Distribution methods

- **Door-to-door:** two CHWs travelled to each house and used WHO's eligibility criteria to identify which children should receive SMC. One CHW administered the medicine, while the other entered information into a tally sheet, beneficiary card and, if the child was sick, a referral form. As per the project's administration protocol, children with a fever or with any signs of adverse reactions were referred to the nearest health facility for medical attention.
- **Fixed point:** a team of three to six CHWs, sometimes headed by a qualified health worker, administered SMC to children brought to a predetermined location by caregivers. Health facilities were converted to fixed points so children were able to receive referrals and be tested and treated for malaria immediately if any symptoms were present.
- **Mixed/semi-mobile approaches:** these included a range of mixed methods which, while used sparingly, enabled CHWs to serve hard-to-reach populations, such as children in nomadic communities or in areas with significant seasonal migration, mostly linked to agricultural work.

- **Tasks:** the roles and responsibilities of all implementers and supervisors were clearly defined and were based on local contexts and skills. For example, in some settings frontline volunteers were unable to complete key tasks (e.g. stock reconciliation) due to low literacy levels. In others, community health workers (CHWs) sometimes overlooked sharing information with caregivers about the importance to adhere to at-home doses.
- **Gender:** during the first few cycles of SMC, male health workers and volunteers were generally refused access to households in northwestern Nigeria due to gender-related social norms, which resulted in children not receiving SMC and in incomplete monitoring of SMC administration and communication practices. As such, in 2016 the project primarily recruited female distributors and supervisors in Sokoto and Zamfara.

- **Supervision:** having found that weak supervision was responsible for SMC campaigns underperforming in some areas in 2015, the project prioritised delivering effective supervision — i.e. supervision that was efficient, high-quality and accountable. It implemented creative solutions (such as using teachers, social workers or retired health workers to distribute/supervise SMC where skilled volunteers were in short supply) to ensure efficiency and to improve service quality. Likewise, it instigated a full performance management system, complete with clear processes for managing underperforming employees/volunteers (starting with constructive feedback, moving to a formal warning, and concluding with dismissal), to strengthen accountability.

Using multiple distribution methods

The project used various approaches to deliver SMC across the seven countries. Of these, door-to-door distribution was favoured in most countries and became widespread by 2017, primarily because it enabled the project to maximise its coverage without increasing costs significantly. The method was also preferred because it helped improve adherence to the full four month long treatment schedule (including delivery of the second and third doses at home). During household visits, CHWs explained the benefits of SMC, built trust among communities and opened further dialogue with caregivers about malaria and its prevention, all of which fostered a positive environment for SMC uptake. This was especially the case in locations where CHW networks were already well-established and where volunteers were well-trained and skilled.

The door-to-door approach also overcame some of the challenges that had limited the success of the fixed point approach during the 2015 cycle. By tasking and incentivising CHWs to reach eligible children regardless of distance and/or weather, door-to-door delivery obviated the need for caregivers to make four, often long and challenging, journeys over a period of four months for their children to receive SMC – a hard sell given SMC’s preventive rather than curative nature.

Likewise, by having CHWs visit households, door-to-door delivery of SMC was able to overcome cultural or social norms that may limit female caregivers’ movement outside of the household and, therefore, their ability to bring their children to fixed points for SMC. For example, in the city of Maradi, Niger, the decision in 2015 to use fixed point distribution within a

very conservative urban society resulted in extremely low coverage (7.2 to 13.6 percent in the first three cycles) despite increasing communication and sensitisation efforts. When the decision to test using the door-to-door approach in the fourth cycle of 2015 was made, administrative coverage shot up to 87.8 percent and the number of teams increased with limited impact on overall cost. Maradi and other urban areas in Niger have been served mostly through door-to-door delivery since 2016.

Delivering social behaviour change communication activities

To ensure local support, malaria control interventions, like many health interventions, require a strong community engagement component and investment in a coherent, evidence-based SBCC strategy that takes into account local social norms and communities’ understanding of the needs, risks and benefits of an intervention.

ACCESS-SMC’s SBCC strategy was multi-pronged, comprising training of CHWs and town announcers (local volunteers specialised in social mobilisation), multimedia activities and engagement with trusted local leaders. The latter was particularly integral as, when caregivers were first introduced to SMC, their motivation to travel to fixed points and to give their children subsequent doses of SMC at home was limited. By seeking the support of trusted local leaders and community members in delivering its sensitisation activities, the project was able to improve caregivers’ understanding of malaria and the benefits of prevention, as well as to manage their expectations around SMC’s purpose (as a complementary malaria control strategy), availability and potential side effects. Caregivers’ knowledge and trust in SMC was

further built via the project’s training and multimedia activities; using project toolkits, trained facilitators convened social mobilisation events/community fora at which videos on SMC were shared, while community radio stations broadcast public service announcements and interactive shows to encourage adherence.

ACCESS-SMC conducted mixed methods studies in all project countries to examine social acceptability — specifically looking at ability (knowledge and skills), motivation (beliefs, values and incentives) and possibility (access to services, products and social norms) — and to identify the information sources that influenced families’ decision-making processes. It found high acceptance of SMC in all countries; caregivers perceived that SMC would provide a very tangible protective impact against a known deadly disease. Coverage surveys conducted across all countries at the end of the first round (between November and December 2015) also revealed that intention to take up SMC was high — 96 percent of respondents reported planning to use the preventive measure in the future. The studies additionally found that, in all countries, caregivers preferred to hear about information before the campaign through radio shows, town announcers or CHWs, with the latter being the preferred channels for interpersonal communication together with health workers. Despite strong communication with beneficiaries in countries like Mali that predominantly used fixed point distribution, door-to-door distribution was almost universally valued as the most appropriate strategy by caregivers due to geographical and economic barriers to access. This is why, over the years, most countries shifted to a door-to-door strategy and progressively achieved higher coverage.

In focus: responsive programming in Nigeria

During the 2015 door-to-door SMC campaign in the predominantly Muslim Sokoto and Zamfara states of northern Nigeria, many male health workers and volunteers were refused access to households due to gender-related sociocultural norms that preclude men from entering other men’s households (especially when women are present) and women from leaving their homes without the patriarch’s permission. As the majority of frontline health workers were male, this resulted in many children not being able to receive SMC and in incomplete monitoring of SMC administration and communication practices.

To avoid such eventualities in the 2016 SMC campaign, the project primarily recruited women into the frontline roles in Sokoto and Zamfara states. Additionally, since men are the core decision makers in these communities, the project also enlisted male community and religious leaders — alongside traditional public announcers — as community mobilisers to help improve the campaign’s access to eligible children through dialogue and sensitisation events. Project learning revealed that interaction with these mobilisers had been key to men allowing female distributors to enter their households and, subsequently, to women accepting and adhering to the full course of SMC treatment for their child(ren).

This case study highlights the importance of adapting programming to sociocultural realities, particularly in settings where SMC campaigns have been less successful in the past. By identifying and addressing previously encountered bottlenecks and norms, context-specific communication strategies and delivery models can be developed that should increase SMC coverage among target communities.

Continuity of seasonal malaria chemoprevention post ACCESS-SMC

The transition of SMC support from Unitaid-funded ACCESS-SMC towards other donors was completed by late 2017, with the Global Fund, USAID's President's Malaria Initiative (PMI), the World Bank and philanthropic funding covering all previous ACCESS-SMC districts in all seven countries. This support is expected to remain consistent throughout 2019, while geographical coverage from 2020 onwards is uncertain due to concomitant end of World Bank project, end of Global Fund round 2017–2019, and likely exhaustion of the current designated funding phase. However, both Global Fund and philanthropic support are likely to continue in 2020 and beyond.

Throughout the project, ACCESS-SMC members have engaged at country, regional and global levels to secure buy-in for SMC during and beyond the project. In general, this engagement since 2015 has translated to a successful transition of all ACCESS-SMC target districts to alternative funding streams after the end of the project in 2017. In an effort to secure successful transition of SMC in the seven ACCESS-SMC countries, ACCESS-SMC members began discussions in 2015 with the Global Fund and other donors (such as PMI, the UK Department for International Development and the World Bank) to ensure SMC would be included in their plans for 2017 and onwards.

In four of the seven countries — Mali, Guinea, Niger and The Gambia — SMC activities in ACCESS-SMC areas, including commodities and implementation costs, were included in the Global Fund's New Funding Model from 2017, and all have prospects to continue for at least up to 2019 and possibly beyond. The project thus managed to ensure

continuity in all former ACCESS-SMC districts in these four countries, keeping over 3.2 million children covered by SMC.

The engagement of the Global Fund did not materialise at the expected scale (in Chad), time (Burkina Faso) or at all (Nigeria) by the end of the project. However, Malaria Consortium managed to secure transition funding from several philanthropic organisations, and in particular from Good Ventures, as a result of achieving GiveWell top charity status in 2017 (and since) for its SMC activities. With these funds, Malaria Consortium was able to support former ACCESS-SMC areas in Chad and Nigeria in 2018, and will continue to do so in 2019.

In Burkina Faso, ACCESS-SMC and the NMCP have regularly liaised both with the Global Fund and the two other major funders, the World Bank and PMI, to discuss potential transition options, thanks to their commitment to large-scale SMC support in the country. As a result, PMI replaced ACCESS-SMC support in six districts from 2018, while the Global Fund and the World Bank started supporting five and four former ACCESS-SMC districts respectively, ensuring a transition for 15 out of 31 districts supported by ACCESS-SMC. Malaria Consortium continued supporting the remaining districts thanks to philanthropic funding mentioned above.

Besides direct fundraising efforts, and as part of the advocacy endeavors to reach a broader audience and promote the sustainability of the intervention, a number of visibility activities boosted awareness on the impact of SMC. These included the European Congress on

Tropical Medicine and International Health (October 2017) featuring a poster presentation on ACCESS-SMC, and the American Society of Tropical Medicine and Hygiene's annual conference (November 2017) featuring, for the third year running, a symposium dedicated to SMC co-chaired by Malaria Consortium and LSHTM.

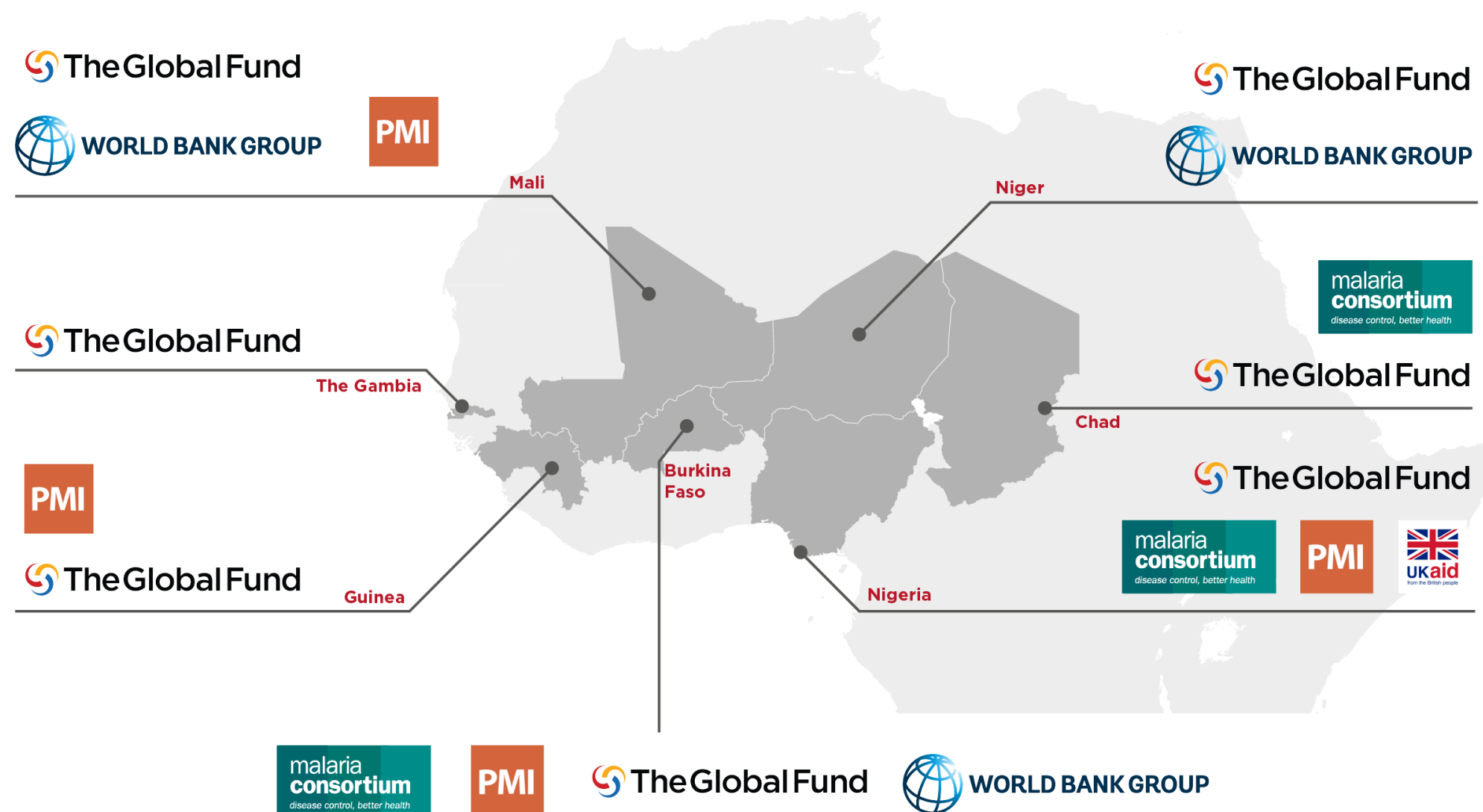
Most significantly, in February 2017 Malaria Consortium, in collaboration with the WHO Global Malaria Programme, WAHO and ACCESS-SMC partner organisations, organised a three-day seminar to share key lessons learnt and recommendations for future implementation of SMC beyond the ACCESS-SMC project. More than

90 participants from 12 NMCPs and 24 implementing partners attended, including NMCPs from the seven project countries and ACCESS-SMC partners invested in funding SMC (such as Unitaid, the Global Fund, Unicef and PMI). The recommendations generated highlighted the importance of improving coordination, delivery and monitoring

in the coming years, with a focus on increased government ownership.

Despite the project's success in these efforts to promote SMC, the supply and funding constraints still limit SMC to only just half of the eligible children in the Sahel and sub-Saharan regions of Africa, with over 12 million still left out of this life-saving intervention.

Core programme funding for each country



Key learning

The ACCESS-SMC project has shown that high coverage and a major scale-up of SMC in the Sahel is feasible and effective. Key lessons from implementing SMC activities in seven countries include:

- **Efficient and timely supply chain management, from quantification, to procurement and distribution, is essential due to the seasonal nature of SMC campaigns.** Orders should be made at least nine months in advance of the SMC season, but ideally up to one year before. Failure to address the complexities of a monopolistic and undersized drug market or appropriately mitigating against supply-related risks (e.g. incorrect quantification of medication required, shipment and/or importation delays, and localised stock-outs) will result in lower SMC coverage, reduced effectiveness, and an increase in the average cost of SMC per child.
- **Barriers to increasing production still remain, with market constraints having an impact on planning.** The global production capacity is currently approximately 6.3 million

treatments per month and orders are required at least nine months in advance. Even if yearly production capacity (approximately 75 million treatments) was used in full, with orders being given a year in advance, it would still be insufficient to reach all eligible children in the region. Additionally, decisions to fund SMC are often made annually by donors and confirmed later in the calendar year, reducing the capacity of suppliers to produce and ship SMC commodities in time for the start of the rainy season.

- **User competencies and learning skills need to be critically assessed prior to heavy investment in training and development of comprehensive training materials (field guides and job aids).** These assessments need to be based on best practices and implementation needs most appropriate to the context. For instance, it has been more effective to use training options and materials with less theory and more practice, and less text and more images in countries where the skills base of

CHWs is relatively weak. In addition, different task assignments should be considered for different countries, and the focus should be on a few key elements:

- age-based eligibility
- correct drug dosage
- directly observed treatment of first combined dose of SP+AQ
- complete and precise documentation of the drug administration process
- effective communication on the importance of treatment adherence (for both home doses and across four cycles)
- basic awareness of adverse reactions and severe adverse events
- basic referral protocols.



SMC health worker, Burkina Faso

- **Smart, effective and focused supervision is crucial.** It enables accurate monitoring of SMC performance, rapid identification of potential coverage issues, and strong quality assurance. Lessons from the first two years showed that supervision was often carried out as a tick-box exercise (mostly to check operational aspects of SMC administration), without a focus on quality improvement, and by personnel who did not have the skills and/or were not sufficiently engaged to generate meaningful change among frontline distributors or caregivers. By enhancing its supervision framework through improved supervision tools and in-process monitoring, ACCESS-SMC witnessed a general improvement in the ways supervision was carried out and drugs were administered, and, above all, in coverage.

- **Door-to-door distribution of SMC is cost-effective.** While administration methods should always be selected based on local, cultural specificities and accessibility, the door-to-door approach is generally able to overcome the

most critical physical, economic, geographical, climactic and cultural barriers to access and, therefore, to adherence to the full treatment schedule. Its impact on cumulative costs is marginal, while its unit cost per child treated is lower than the fixed point method — making it an effective means of maximising coverage.

- **Targeting both male and female caregivers when designing SBCC interventions to foster acceptance of SMC is vital.** Although it is usually women, as primary caregivers, who identify signs of illness and know when advice from a health worker should be sought, the ultimate choice to seek care often lies with men, as primary decision makers. Importantly, coverage surveys that assessed knowledge of SMC by (mostly) female caregivers showed that there was still a lot of confusion on what SMC does (prevention versus treatment, and malaria versus other diseases) and how often it should be given to children. SMC is more likely to reach its full protective potential if mothers and other caregivers are both thoroughly informed and empowered to eventually become advocates within their families so that key positive behaviours can be fully adopted.

Recommendations

1 Governments/donors should commit to increasing funding for SMC by \$48–56 million (£37–44 million) per year. SMC is a safe and cost-effective intervention that can easily be implemented at scale. However, half of all eligible children in the Sahel are still not receiving this vital preventive measure due, largely, to funding shortages. SMC requires predictable and steady future funding so that market inefficiencies can be minimised by timely orders and planned production of the right quantities of quality-assured drugs.

2 Stakeholders should plan SMC campaigns in a timely and accurate manner. This will necessitate improved population estimates, reliable quantification and timely procurement of drugs, and coherent, decentralised planning and programme resourcing. Given the supply capacity constraints, Ministries of Health should start procuring medication at least 10 months before the first cycle of SMC is due to commence.

3 Ministries of Health should lead in coordinating SMC planning and implementation from the outset, aligning and integrating these with national-level malaria control and elimination initiatives, plans and policies. By embedding SMC into existing technical coordination/planning working groups and mechanisms, it will be possible to improve future ownership and sustainable financing of SMC among countries' core packages of malaria interventions.

4 Ministries of Health and other relevant stakeholders should work together to enhance the quality of malaria-related data captured by health management information systems (HMIS). This should include identifying a proxy measure for SMC impact. By routinely collecting (in a timely manner and to an acceptable level of completeness) and disaggregating such data, impact analyses of and decision making on malaria interventions will be facilitated.

5 Stakeholders should adopt a collaborative approach to strengthening pharmacovigilance systems in line with WHO's guidelines. However, while ACCESS-SMC provided a window of opportunity for targeted improvements, this should be achieved by a transversal approach to continuous adverse events monitoring, carried out throughout the year beyond just SMC and under the aegis of WHO.

6 Ministries of Health should guide stakeholders in using standardised indicators and tools in their SMC programming that will enable comparison across geographical areas within each country and across interventions, while also allowing for the use of context-specific supervision and monitoring tools. **Implementing partners** should provide the technical assistance required to continually review/strengthen these tools to improve operational results monitoring and programme accountability and to ensure that a sustained standard of activities is delivered. In addition, research initiatives (that are overseen by and conducted in collaboration with Ministries of Health) should continue to be prioritised to ensure appropriate assessment of interventions' continued effectiveness and impact.

7 Ministries of Health, through their NMCPs and with the support of donors, implementing partners and academia, should establish evaluation frameworks for SMC interventions that include continuous measurement of coverage, impact and efficacy, as well as monitor the potential development of parasite resistance to SMC. A regional collaboration framework should also be established to support standardised evaluation methods, in coordination with key regional bodies such as WHO's Inter-country Support Teams for West and Central Africa, Roll Back Malaria's West Africa Network and WAHO.

8 Ministries of Health should pilot the integration of other preventive and curative services (e.g. screening and referral for severe acute malnutrition, deworming and other integrated community case management priority interventions) within the SMC implementation framework. This will require effective coordination of various vertical health programmes and stakeholders that are likely to have different priorities. By taking advantage of SMC's extensive, mass community health platform, such a pilot could have a significant impact on child health. However, integration should not compromise SMC coverage and effectiveness, but rather help improve SMC's cost-effectiveness.

Moving the seasonal malaria chemoprevention coverage agenda forward

In the five years since being recommended as a promising malaria control intervention, SMC distribution has expanded dramatically and now covers more than half of all eligible children in the Sahel. ACCESS-SMC has been catalytic in this expansion, reaching millions of children in three years with a life-saving intervention and encouraging other players in public health to support SMC. While this scale-up was successful and relatively swift, there is still a large gap to fill.

The challenges in increasing access to and coverage of SMC are many (whether related to the supply side, to local implementation choices, inadequate planning, insufficient quality assurance processes or limited resources) and some evidence gaps remain. However, the knowledge base around best practice is ever-expanding and the benefits of SMC as a complementary preventive approach to malaria control are evident. As such, SMC merits greater investment so that the remaining 15 million children who currently are not receiving SMC can be reached.

ACCESS-SMC partnership

Malaria Consortium is one of the world's leading non-profit organisations specialising in the prevention, control and treatment of malaria and other communicable diseases among vulnerable populations. Its mission is to improve lives in Africa and Asia through sustainable, evidence-based programmes that combat targeted diseases and promote child and maternal health.

Catholic Relief Services (CRS) was founded in 1943 and carries out the commitment of the Bishops of the United States to assist the poor and vulnerable overseas. CRS is a multi-sectoral agency working mainly on health, humanitarian emergencies, and agricultural livelihoods in over 100 countries. As part of the universal mission of the Catholic Church, it works with national and international partners to assist people on the basis of need, not creed, race or nationality.

Medicines for Malaria Venture is a leading product development partnership in the field of antimalarial drug research and development. Its mission is to reduce the burden of malaria in disease-endemic countries by discovering, developing and delivering new, effective and affordable antimalarial drugs.

The London School of Hygiene & Tropical Medicine is renowned for its research, postgraduate studies and continuing education in public and global health. Its mission is to improve health and health equity in the UK and worldwide, working in partnership to achieve excellence in public and global health research, education and translation of knowledge into policy and practice.

Management Sciences for Health works with countries and communities to build strong, resilient, sustainable health systems. Its mission is to save lives and improving health of the world's poorest and most vulnerable people by closing the gap between knowledge and action in public health.

Speak Up Africa is a women-led strategic communications and advocacy organisation dedicated to catalysing leadership, enabling policy change, and increasing awareness for sustainable development in Africa. With ensuring health and well-being of all at their core, Speak up Africa supports SDGs 1–6 in transforming societies throughout Africa and making sure every man, woman and child is empowered to live a long and healthy life.



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