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ACCESS SMC

Achieving catalytic expansion of seasonal malaria chemoprevention in the Sahel

Learning Brief

Community health workers administering the first dose of SMC and recording data

Seasonal malaria chemoprevention

Seasonal malaria chemoprevention: transforming the malaria landscape in the Sahel

Key messages

- SMC is an antimalarial preventive treatment course comprising of sulfadoxime pyrimethamine plus amodiaquine (SP+AQ). It is administered to children aged 3-59 months every 28-30 days for four months by trained community health workers in the Sahel region.
- The ACCESS-SMC project has demonstrated that the implementation of SMC at scale is feasible and safe. Over 15 million and 30 million SP+AQ treatments were distributed in 2015 and 2016, respectively. In 2016, approximately 6.4 million children received SMC.
- ACCESS-SMC coordinated market-shaping efforts that justified manufacturer investments to develop child-friendly dispersible SP+AQ formulations and to begin entering the quality-assured SP+AQ market.
- A costing study in 2015 estimated the average recurrent cost per child to receive SMC was less than 4.60$ USD per year, which shows that SMC is a low-cost intervention for preventing malaria among children under five.
- Beyond ACCESS-SMC, country National Malaria Control and Elimination Programs and other SMC implementing partners reached an additional five million children in 2016. This brought the total proportion of eligible children treated in the Sahel to 45.20 percent in 2016, significantly below the universal coverage standards of at least 80 percent.
- Additional annual funding is needed to provide SMC to all eligible children in the Sahel region (9.5 million eligible children in Nigeria alone did not receive SMC in 2016).

Barriers to the implementation of SMC at scale in 2014

- Low demand for the production of quality-assured SP+AQ, at the right dosage, in the right formulation, packaged in a user-friendly way
- Limited evidence of safety and efficacy when administering SP+AQ at scale
- Limited evidence of SMC being a cost effective method to prevent malaria in areas with seasonal surges in malaria incidences
- Underdeveloped systems to administer SMC and monitor adverse drug reactions

Why seasonal malaria chemoprevention?

Malaria is an infectious disease that, despite being preventable and treatable, caused over 429,000 deaths in 2015[1]. Over 70 percent of malaria deaths occur in children under five years old, who are especially vulnerable to malaria. In 2012, the World Health Organization (WHO) issued policy recommendations on seasonal malaria chemoprevention (SMC) as an effective tool to prevent malaria in children aged 3-59 months after studies found it can prevent up to 75 percent of malaria cases. In the Sahel, where malaria incidence increases with the rainy season, there are 25 million eligible children who can benefit from this life-saving treatment. However, only eight percent of eligible children had benefited from the SMC intervention by October 2014.

SMC is administered to children under five in areas where the highest burden of malaria peaks during the rainy season, which lasts approximately four months of the year. Four preventive treatment courses of SP+AQ are administered one month apart. Community health workers (CHWs) administer the first dose under directly observed treatment (DOT), and caregivers are counselled by trained CHWs on how to administer the remaining doses at home over the next two days (home doses). Anti-malarial drug concentrations remain in the blood throughout the four months, protecting children from malaria. A child-friendly, dispersible formulation recently became available and was used during the 2016 intervention.

Achieving Catalytic Expansion of Seasonal Malaria Chemoprevention in the Sahel (ACCESS-SMC) is a three-year project that launched in late 2014 to promote wider adoption of SMC by demonstrating its feasibility and impact at-scale. The project focused on seven countries in the Sahel: Burkina Faso, Chad, Guinea, Mali, Niger, Nigeria and The Gambia, where over 60 percent of all malaria cases occur during the rainy season. In these countries, there is low resistance to SP+AQ, unlike countries in eastern Africa. A dose of SP+AQ provides four weeks of protection, with roughly 90 percent efficacy when administered correctly. ACCESS-SMC is the first implementation research that promoted the SMC at scale in the Sahel.

The ACCESS-SMC project

To contribute to the reduction of malaria during the rainy season in the Sahel, ACCESS-SMC aimed to increase global interest and capacity among manufacturers for quality-assured SMC products, efficiently procure and administer SP+AQ treatments, demonstrate the safety and effectiveness of SMC delivered at scale, and create sustainable demand for SMC by engaging stakeholders to advocate for the resources to improve access to SMC.

Caregivers administer SMC doses at home on the second and third days

[1] *World Health Organization, World Malaria Report 2016*

Increasing the global production of SMC:

An estimated 110 million SP+AQ doses were required to treat all 25 million eligible children. ACCESS-SMC initiated the push to increase production of WHO approved, quality assured SP+AQ. While Guilin Pharmaceutical Co., Ltd, is the only producer of quality SP+AQ, the project saw an increase in the global production of SMC from around 9.9 million at project onset to 60 million by the end of 2016. This was achieved through a joint effort which required investments in web forecasting tools accessible to pharmaceutical companies, and strengthening SMC product demand forecasting. National Malaria Control Programs (NMCPs) and other malaria stakeholders developed standardized methodology, tools and a business case for additional manufacturers to enter the SP+AQ market to strengthen the product demand forecasting.

Strengthening health systems:

ACCESS-SMC built the capacity of health systems at national and sub-national levels. Nearly 50,000 health workers, mostly CHWs, received training in administering, supervising and monitoring SMC efficiently and at scale. They were also trained on how to inform communities about the benefits of SMC, and how to teach caregivers to administer SMC at home after a CHW had administered the first dose. Training was delivered using a cascade approach. SMC training materials, field guides, and job aids were reviewed annually to evaluate its effectiveness and ease of use, and then updated based on identified implementation needs and CHWs capabilities. For example, the 2016 revised training materials used less text and more images. The training topics included SMC eligibility criteria, SMC administration methods, monitoring severe adverse reactions to SMC and effective communication with the caregivers of SMC beneficiaries. On site mentoring from supervisors throughout the season was also key for quality assurance of SMC administration.

SMC administration:

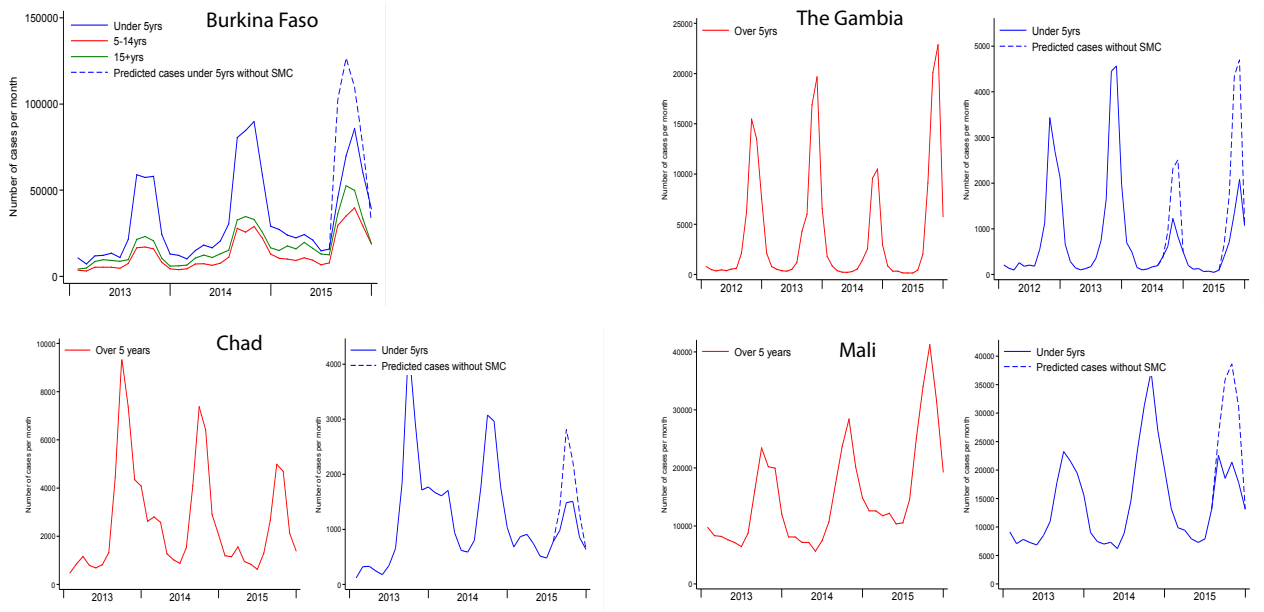
A door-to-door or fixed point approach was used to deliver SMC; in some instances, a semi-mobile approach was adopted. For door-to-door administration, a team of two CHWs travelled to each house to identify eligible children based on the WHO eligibility criteria. One CHW administered the medicines while the other entered information onto a tally sheet, patient register, beneficiary card, and if necessary a referral form. Children with a fever, or any signs of adverse reactions, were referred to the nearest health facility for medical attention. Fixed points and mobile delivery involved a larger team of three to six CHWs, sometimes headed by a qualified health worker. SMC was administered to children who were brought to a pre-determined location by their caregivers.

SMC evaluation:

At the start of the ACCESS-SMC project, there was limited evidence on the feasibility, safety and effectiveness of SMC drugs when used at scale outside clinical trials. In many countries, systems to monitor adverse drug reactions could neither identify nor manage adverse effects, nor refer them through the health system to the national drug monitoring authorities. This lack of evidence, coupled with limited information about the costs and impact of SMC, discouraged drug manufacturers and implementers from making large-scale investments in SMC. There were also fears that resistance to the drugs would develop.

ACCESS-SMC developed a comprehensive monitoring plan for the scale-up of SMC to measure impact and ensure CHWs and caregivers administered the treatments proficiently, SMC remained safe to administer to children and that no resistance to SP+AQ developed. To strengthen the national pharmacovigilance (drug safety monitoring) systems, national pharmacovigilance forms were replicated and used by health facilities to ensure severe adverse events were easily reported. Health facilities were also

Figure 1: Trends of malaria reduction in four ACCESS-SMC countries



London School of Hygiene & Tropical Medicine, 2016

provided with standard end-of-cycle reporting tools, and daily summary reports were collated from the CHWs summaries or tally sheets. These daily reports captured the data necessary for providing the administrative coverage data for each cycle, such as the number of children administered with SMC per day, any adverse reactions and the quantities of SP+AQ used, wasted or left over.

Additionally, household coverage surveys were conducted after the fourth SMC distribution cycle in 2015 to evaluate the administrative data, and also assess whether the intervention was being implemented correctly and reached the intended target population. Sentinel survey sites were established at selected health facilities to further monitor the efficacy of SP+AQ, and assess evidence of any emerging drug resistance.

Impact

ACCESS-SMC helped country National Malaria Control Programs reach over 3.2 million of the nearly four million children treated overall in 2015. Using the experience from that year, and with a UNITAID funding commitment to Malaria Consortium for 30 million treatments, preliminary estimates reveal ACCESS-SMC treated approximately 6.4 million children during the 2016 campaign. Coverage surveys confirmed that the proportion of eligible children reached by ACCESS-SMC was high. Across the Sahel, an estimated 88 percent of children under five received SMC, with 74 percent of them receiving at least three monthly treatments.

This high coverage resulted in a decrease in the number of malaria cases in children under five diagnosed at health facilities. Health Management Information Systems comparisons that were carried out in Burkina Faso, Chad, Mali and The Gambia showed that the reduction in the number of malaria cases ranged from 24 percent in Chad to 66 percent in The Gambia (Figure 1). This is in line with estimates and results in other countries not covered by ACCESS-SMC. These preliminary estimates show that the high levels of coverage achieved through ACCESS-SMC has had a major impact on the malaria burden.

In 2016, monitoring SMC delivery was improved to include rapid assessment surveys at the end of individual cycles and assessments about the quality of service. The results from these will be triangulated with those from surveys with CHWs that aimed to gain a better understanding of the quality of SMC delivery and effective coverage. The survey results are expected in mid-2017.

Lessons learned and recommendations

The ACCESS-SMC project has shown that a scale-up of SMC in the Sahel is feasible and effective. The lessons learned from some of the challenges faced during the first year of SMC administration contributed to a more effective scale-up.

Dispersible tablets are new on the market and easier to use: Since 2014, the administration of SMC evolved from hard tablets administered from bags, to blister packages, and to a child-friendly dispersible formulation. During the 2015 campaign, SP+AQ tablets were crushed, then mixed with water and sugar to mask its bitter taste. This process takes at least five minutes to administer to each child. Often, children spit out the mixture, requiring the CHW to administer the treatment a second time. ACCESS-SMC saw a need to switch to sweetened dispersible tablets that would be more palatable to children. The dispersible tablets are currently in use, and require only a small quantity of water and take less than 30 seconds to administer.

A door-to-door approach leads to better coverage: During review sessions in 2015, ACCESS-SMC also found that a door-to-door method of administering SMC was associated with better coverage while the increase in relative cost appeared negligible. Administration methods, though, are guided by contextual factors, such as cultural and religious practices, location and accessibility.

While recent efforts to scale up SMC have shown that SMC is feasible and effective, still only about half of the total eligible children receive SMC treatment in the Sahel. In order to scale up SMC further and achieve universal coverage of all eligible children, it is important to ensure the following recommendations are followed:

- Guarantee commitment from governments in the Sahel to explore SMC in areas affected by seasonal peaks in malaria transmission.
- Increase funding from development partners to extend SMC to more eligible areas and countries in the Sahel.
- Increase the availability of quality-assured, child-friendly SMC drugs, which are easier to administer and more palatable to children.
- Continue evaluation of SMC effectiveness and SP+AQ efficacy through comprehensive monitoring and evaluation of impact and trends of parasite resistance.

This brief is a summary of the Learning Paper, *Seasonal malaria chemoprevention (SMC): transforming the malaria landscape in the Sahel,* which will be published in February 2017. The paper will be available to download at: www.access-smc.org/pages/resources/16

Photo credits: Malaria Consortium/Susan Schulman

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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 Programs to scale up access to seasonal malaria chemoprevention to save children's lives across seven countries in the Sahel. By demonstrating the feasibility and impact of SMC at scale, ACCESS-SMC will promote the intervention's wider adoption.

For more information visit www.unitaid.org and www.access-smc.org