

Transforming the malaria landscape: results from a three-year implementation research project expanding access to seasonal malaria chemoprevention in seven Sahelian countries (ACCESS-SMC)

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Introduction

Malaria is both preventable and treatable, but 292,000 children in Africa died from malaria before their fifth birthday in 2015. Seasonal malaria chemoprevention (SMC) has been recommended since 2012. By 2014, less than 5% of the 25 million eligible children at the time benefited from SMC. To respond to this gap, a partnership led by Malaria Consortium in collaboration with Catholic Relief Services, with funding from UNITAID, implemented SMC in Burkina Faso, Chad, Guinea, Mali, Niger, Nigeria, The Gambia.

ACCESS-SMC aimed to demonstrate feasibility, impact and safety of SMC at scale. Approximately **3.2 and 6.4 million children** received SMC in 2015 and 2016 respectively, and **3.9 million** are targeted in 2017 in Burkina Faso, Chad and Nigeria. Thanks in part to this joint effort, the global production of SP+AQ treatments increased from 9.9 million in 2014 to over 60 million in 2016.



For three years now (2015-2017), SMC has been delivered to millions of children during the four months of the rainy season, when malaria transmission is highest.

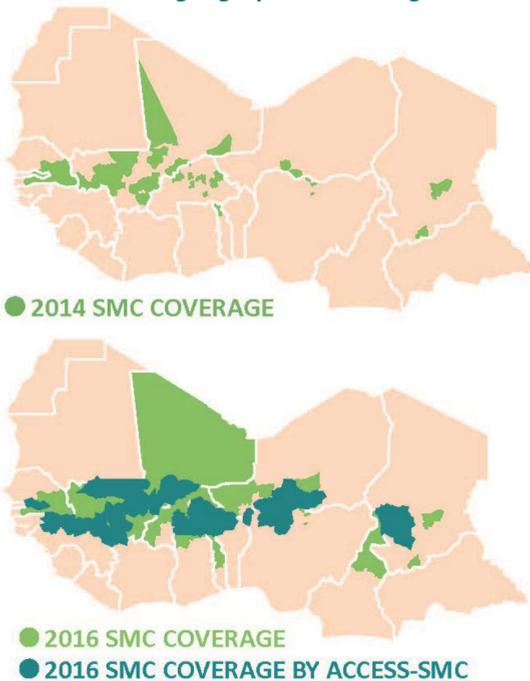
Methods

SMC was administered by community health workers through various distribution approaches. To evaluate the effectiveness of SMC delivery at scale and monitor the process and quality of delivery, a number of studies were carried out assessing coverage, safety, efficacy, impact, and resistance. Coverage was measured through cluster surveys in each country at the end of each season (2015 and 2016), and at the end of each cycle in 2017. Case-control studies carried out in five countries assessed drug efficacy, and baseline molecular markers' surveys in each country assessed the prevalence of markers of parasite resistance. Sentinel sites and HMIS data analyses have been performed to assess reductions in morbidity and mortality, and cost analyses were performed to identify the key cost drivers of SMC.

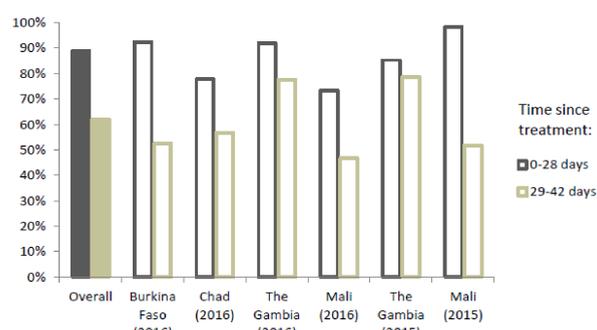


ESTIMATED AVERAGE RECURRENT COST PER CHILD TO RECEIVE SMC EACH YEAR

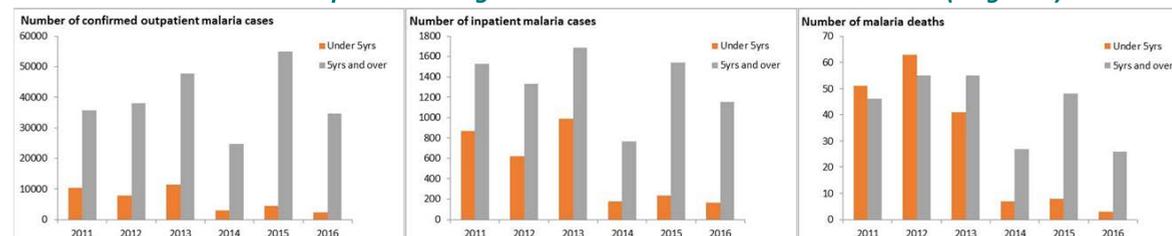
Trends in SMC geographical coverage



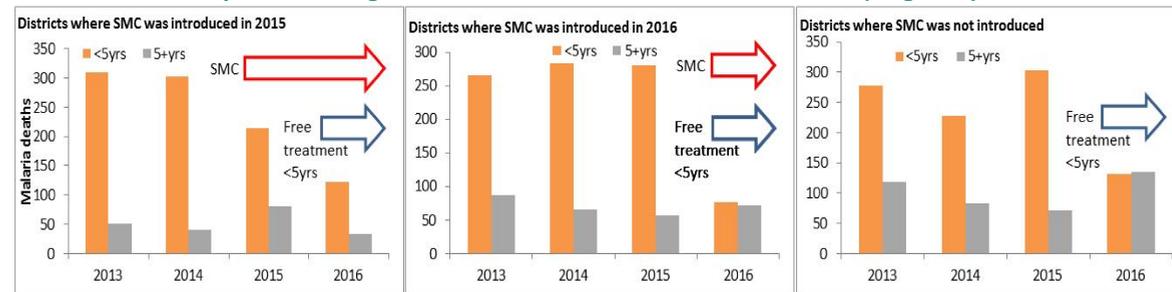
Efficacy of SMC from case-control studies (2015-2016)



Malaria cases and deaths reported during the transmission season in the Gambia (Aug-Nov)



Malaria deaths reported during the transmissions season in Burkina Faso (Aug-Nov)



Two examples of SMC impact are shown above. In The Gambia, there was a reduction of over 50% in the number of malaria cases and malaria deaths in the transmission season in children under 5 years of age, following introduction of SMC. There was no similar relative reduction in regions of the country that did not have SMC during the same period. In Burkina Faso, SMC was associated with 50% reduction in malaria deaths, after taking into account other factors including the effects of the introduction, from June 2016, of free treatment for children under five years old.

Costing studies revealed a weighted average cost of US \$4.20 per child/year in 2015, and US \$3.60 in 2016.

Conclusion

SMC is feasible at scale, reasonably priced, safe and effective. Continued monitoring of SMC delivery, safety and efficacy are essential to ensure that SMC programmes remain effective.

Results

Coverage surveys showed that 87% of eligible children were reached by the program in 2015 and 91% in 2016, and 73% and 70% in each year received at least three monthly treatments. Preliminary results from the first cycle in 2017 showed that 81% of eligible children were reached in the three remaining project countries.

National pharmacovigilance systems have been strengthened through SMC programmes. A safety review found no safety concerns with a very low incidence of severe adverse reactions. Prevalence of molecular markers of resistance to SMC drugs was low, consistent with the high level of efficacy of monthly treatments observed in case control studies.

Trends in national malaria HMIS data are consistent with a substantial reduction in malaria cases in SMC implementation areas. Based on predictions of incidence of malaria and malaria mortality using the Imperial College Malaria model, and assuming SMC treatments have at least 80% efficacy over one month, it is estimated that ACCESS-SMC averted about 6 million cases of malaria and 37,000 deaths.