

SMC ALLIANCE ANNUAL MEETING

28 Feb - 02 March 2023 | Conakry, Guinea



Photo: Emmanuel Massoungui MAM



Contents

Session I : Introduction	3
Opening remarks	3
Session II : Countries' lessons learnt – Reaching hard-to-reach communities	6
Burkina Faso	6
Chad	6
Guinea-Bissau	7
Mali	7
Niger	7
Session III : Countries' lessons learnt – Routinizing and sustaining SMC	9
Niger	9
Guinea	9
Togo	10
Senegal	11
Session IV : ICountries' lessons learnt – Digitalizing SMC	12
Benin	12
Gambia	13
Ghana	14
Nigeria	14
SMC digitalization handbook	15
Session V : Countries' lessons learnt – Introduction of SMC; new countries, new geographies	16
Cote d'Ivoire	16
Mauritania	17
Mozambique	17
Uganda	18
Update, significance, and implication of research results in Mozambique and Uganda	19
Session VI : Countries Planning for 2023 SMC Campaign	20
SMC in West Africa: perspectives from a regional support team	20
SMC implementation guide from WHO: updates from the new edition	21
Session VII : Malaria Chemoprevention: other prevention tools for malaria control and elimination	22
WHO recommendation for RTSS vaccine	22
Perennial malaria chemoprevention (PMC): Update from various pilots	23
The landscape of malaria chemoprevention: An analysis of need and demand for SMC and PMC commodities in sub-Saharan Africa	23
Considerations for future uptake of SMC	24
Global Fund Update Chemoprevention Financing	24
Session VIII : SMC Project updates	25
OPT-SMC	25
OPT-SMC project in Cameroon - What is the effect of reminders by household leaders to eligible families on SPAQ adherence?	25
Evaluation approach to the quality of the administration of the medication SPAQ to children 3-59 months in the district of Djioula, Mali	26
Factors contributing to the adoption of SMC in Nigeria	27
The SMC Impact project	28
SMC impact project in Nigeria - Support and outcomes	28
Implementation of additional cycle of SMC and expansion into children aged 5-9 years (Niger)	28
Mali: Adaptation of SMC – how many sites are necessary in a health district?	29
SMC Impact project in Guinea	29
PMI Mali	30
PMI Niger	30
SMC Alliance research priorities	31
MDA with DHA PQ and primaquine to reduce malaria in moderate to low malaria transmission settings in Senegal	31
Development of triple ACTs for noncomplicate	33
Future malaria chemoprevention landscape	34

Session I : Introduction

The 2023 SMC Alliance annual meeting marks the 10th anniversary of the implementation of Seasonal Malaria Chemoprevention (SMC) and is the 5th meeting being organized by the Alliance. The opening session of the meeting was moderated by Ibrahima Sanoh, head of communications at the NMCP of Guinea. In attendance was the Saif Kaidi, chief of staff of the Ministry of Health; Dr Bachira, a consultant from the ministry of health; Prof Alioune Camara, who is the NMCP director; Mr. Jean Konan from the WHO country office in Guinea and Dr. Seneman Gany. To date, fifteen countries are implementing SMC routinely and several others are piloting the intervention. Seventeen countries (Benin, Burkina Faso, Cameroon, Chad, the Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Mauritania, Mozambique, Nigeria, Niger, Madagascar, Senegal, Togo, Uganda) attended the 2023 annual meeting. ▣

Opening remarks

Dr. Alioune Camara –Guinea

In his opening remarks, Dr. Camara who leads the NMCP of Guinea, thanked the SMC Alliance for hosting its 10th anniversary meeting in Guinea. He said that thanks to the government, international partners and stakeholders, SMC was initiated in Guinea in 2015. Based on lessons learned, SMC was scaled up in 2017. Thanks to the support of all involved, in 2022, 1.7 million children benefitted from SMC and coverage rates were about 99%. The intervention was however halted in Guinea in 2019. However, with support from partners and the resilience of the country's health system, Guinea continues to benefit from SMC. To close, Dr. Camara thanked the Chief of Staff of the Ministry of Health for her presence as well as all participants for their presence and participation. He also thanked Dr. Tchouatieu and MMV for organizing the event.

Dr Bachir Kanté - Ministry of Health, Guinea-Bissau

Dr. Kante welcomed all present to Guinea, on behalf of the Minister of Health and the Prime Minister of the Republic of Guinea. He also thanked the local team who have worked tirelessly with the ministry to achieve all their efforts. He confirmed that malaria is a national priority, so the government is tirelessly working hard to put in place strategies and efforts to achieve malaria control and eradication objectives. He said Guinea also takes note of its co-financing responsibilities and hopes that outcomes from the Alliance's annual meeting will help boost malaria eradication efforts in the country. On behalf of the Ministry of Health, he thanked everyone for accepting the invitation.

Erin Eckert – SMC

Erin Eckert, the current co-chair, said the Alliance is a collaborative organization of all programmes implementing SMC as well as the World Health Organization (WHO), a policy making partner. The group has monthly meetings to plan activities, coordinate work, and to garner support from donors and ensure countries continue to benefit from SMC. In addition, in 2022, the WHO amended its guidelines to allow for broader implementation of SMC.

She then presented the meeting's objectives for the week, which included going through coverage results for past years' campaigns, and detailed forecasts for 2023 and 2024. Meeting participants will also be

learning about best practices for SMC implementation as well as campaign digitization. They will also be listening to reports from ongoing projects, reviewing lessons learned from last years' campaigns, and reviewing how these can be applied to subsequent years. She noted that this year marks the 10th anniversary of SMC as the intervention, which was initially implemented in 2013. She encouraged countries to use the time to strengthen interactions with colleagues.

Dr. Jean-Konan Kouame – World Health Organisation, Guinea-Bissau country office

Dr. Konan, the WHO country office representative for Guinea Bissau, said SMC is one of the strategies to achieve high level impact against malaria, a disease which remains a health challenge and socio-economic problem affecting the development of Africa. He said for 2022, progress against malaria control and elimination stagnated. This greatly impacts health and livelihoods in sub-Saharan Africa. About 246 000 lives were lost to malaria in sub-Saharan Africa.

In 2022, despite the COVID-19 pandemic, there was a fall in malaria cases. Yet, the malaria burden (in terms of cases) in Africa is high at about 94% of the world's burden and 96% of deaths. While efforts achieved are being celebrated, it must be remembered that the global malaria community has only seven years to achieve the strategy and 2030 targets set by WHO. To achieve impact, all strategies to reduce malaria must be put in place and it is essential to ensure that human resources are adequate to achieve objectives. Country leadership must reinforce strategies adapted to the country context. Care around the patient's total life must be centralized. Moreover, trust and investment in innovation is needed.

Dr. Peter Olumese – World Health Organization Global Malaria Programme

Dr. Olumese presented the updated chemoprevention strategy and went through the new and updated recommendations with the group. He said a consolidated guidelines format has replaced the previous intervention-based guidelines. So, the previously available stand-alone intervention-based guidelines (the 3rd edition of the Guidelines for the treatment of malaria; and the Guidelines for Malaria Vector Control) have now been migrated into the single guideline document which is available on the WHO website.

The updated chemoprevention recommendations no longer specify age groups, transmission intensity thresholds, numbers of doses or cycles, or specific medicines. NMPs are encouraged to consider local data to determine how to best tailor chemoprevention strategies to local needs and determine which age groups should be targeted where, for how long, how frequently, and with which medicines.

However, further guidance on these specificities based on the current available evidence will be provided through field manuals. The field manual will guide countries to set out these parameters based on their epidemiological and seasonal context. The updated SMC implementation field guide provides this additional guidance information. Some of these include - the definition of malaria seasonal transmission which remains unchanged (i.e., four consecutive months with more than 60% of annual malaria cases taking place); and malaria prevalence of a clinical attack rate of ≥ 0.1 malaria episodes per child in target groups. Children in age groups at risk of severe malaria are recommended for SMC. In most areas, these children are below the age of 5 years and so, remain the main target population.

A fifth cycle should be added if a month on either side of the 4-month season contributes more than 10% of the annual burden. Modeling has shown that benefits of a sixth cycle are often minimal, so it is not recommended. Please note that it is possible in the same country to have areas where three cycles will be needed while in others, it will be five cycles. SPAQ remains the recommended option for SMC.


Regarding other chemoprevention interventions, he said that implementation guidance manual for moving from PMC to beyond PMCare still being developed. Similarly, implementation manuals for IPTsc (IPT in school children) and for post-discharge malaria chemoprevention (PDMC) for children with malaria and severe anaemia will be developed in the future following the available of the needed evidence based.

A question arose regarding monitoring adverse events associated with SMC. Dr. Olumese responded that deployment of SMC should be used as one of the interventions to strengthen national pharmacovigilance systems and structures. As such, a separate pharmacovigilance system should not be created only for SMC. However, based on the historical evidence on the number of SMC doses administered, it can be deduced that the number of severe adverse reactions associated with SMC are negligible.

Charlotte Eddis - Monitoring and Evaluation subgroup of the SMC Alliance

Ms Eddis presented the work done by the monitoring and evaluation (M&E) sub-group and the toolkit that had been produced and published online on the SMC Alliance's website. She encouraged countries to use the toolkit and share their views on it. She also shared information about the upcoming webinar being organized by the group. She encouraged countries to provide ideas for additional webinars on M&E topics and methods that could be implemented in the future.

Celine Audibert – Medicines for Malaria Venture

Dr. Audibert presented information on SMC data provided by countries from the 2022 campaigns. She noted that some of the countries may still be validating their data, so it may take a while to receive their data. Since 2012, 832 million treatments have been used for SMC and 47.9 million children have been reached with the intervention. Regarding coverage, she encouraged countries to discuss lessons learned and challenges encountered in achieving coverage levels. She added that since 2012, there are now 3500 districts implementing SMC. Some countries are now implementing the 5th cycle. 



Session II : Countries' lessons learnt – Reaching hard-to-reach communities

Burkina Faso

Presentation for Burkina Faso - Dao Boulaye, NMCP of Burkina Faso



SMC was adopted in 2014 in Burkina Faso and expanded in 2018. Since 2018, SMC is being combined with vaccination and malnutrition screening. In 2022, the NMCP commenced SMC implementation in June and ended in October. Fifty-nine districts implemented four cycles of SMC while nineteen districts implemented five cycles. In 2021, the digitization pilot could not be implemented due to security challenges. For areas where security was a concern, the NMCP used security personnel and community distributors to deliver SMC door to door. Discussions are also held at the district and community levels. In the districts implementing five cycles, there were security concerns, so the pilots could not be scaled up.

To enable outreach and needs' assessment of displaced populations and hard-to-reach districts, the team initiated an enumeration exercise in April. Efforts have also been made to improve the supply of input to support implementation. The team also used helicopters and security escorts to enable outreach to hardship areas. They also organized training for community distributors. Training programmes within health facilities were also organized. Community health workers were also involved in training programmes. There were however challenges with communication between coworkers and communities. To mitigate this, the team goes physically to communities and uses existing channels such as a town crier.

The NMCP is still challenged in reaching all targeted children. What is more, they faced challenges with the distribution of information on smartphones due to the potential loss of connectivity. Regarding payment, the NMCP tries to use mobile money. However, this often presents challenges in taking out money for community distributors. For micro-planning, there is need to consider unplanned costs such as cost of fuel and transportation to reflect real costs.

Chad

Presentation from Chad - Kodbessé Boulotigam, NMCP of Chad



For 2022, the NMCP of Chad started the SMC campaign mid-July and ended towards the second week of October. A similar plan is scheduled for 2023. Four cycles of SMC were implemented in 2022 and it will be the same for 2023. Children under five years were targeted. Twenty-seven districts are managed by Malaria Consortium while the rest are managed by the Global Fund, UNICEF and MSF. SMC is implemented from the middle towards the north of Chad.

The NMCP intends to identify young people and train them to distribute SMC. Nomads are very difficult to reach due to conflicts between farmers as well as floods, and limited access due to hardship areas. The NMCP therefore plans to train sedentary agents or several nomads to reach nomadic populations. This makes it difficult to reach eligible children and to have them receive their second and third doses. No innovation or field distribution strategy is being planned for nomads.

The NMCP would like to conduct a study to find a drug distribution strategy adaptable to the nomadic population due to their perpetual movement during the drug distribution period. They also want to conduct a study to investigate the effect of taking the SMC medicines, especially the second and third doses by children.

Guinea-Bissau

Presentation for Guinea-Bissau – Ould Ahmed Mohammed, NMCP of Guinea-Bissau



SMC was implemented in four key regions using a door-to-door strategy for six days over four cycles. In 2022, the NMCP achieved coverage of 93.1%. SMC was implemented for children 3-59 months using community agents. The NMCP also introduced data collection on tablets. This enabled them to monitor the teams of distributors. Social media and radio are used for sensitization. At the beginning of the SMC campaign, all supplies are transported to agents for distribution in designated areas. Community agents are knowledgeable about the communities they serve and follow mobile populations to enable reach to children in these communities.

The NMCP intends to conduct the following studies: collaborating with the NMCPs of Senegal and Guinea in the synchronization of the dates of the SMC campaign and data exchange; as well as conducting a study to evaluate the impact of the SMC in the target regions (Bafatá, Gabú and Tombali).

Mali

Outreach to hard-to-reach areas in Mali – Aissata Kone, NMCP of Mali



Mali's 2022 SMC program started in the third week of July and went into the second week of October. Three cycles of SMC were implemented in some districts and four in others. A pilot programme for five cycles was implemented in only two health districts.

The areas that are most difficult to access include conflict zones armed or occupied by armed groups as these may reject mass campaigns; gold mining areas due to mobile and uncontrolled population movement; flooded areas; nomadic areas with long distances in-between; and areas with poor road conditions which make access difficult.

All regions in Mali are affected by the security challenges. In 2022, the country had a lot of internally displaced populations from Niger and Mauritania. COVID-19 also complicated implementation. In conflict zones, armies have been managing security zones and the road network is not good. Mobile tools have been put in place to cover mobile and hard-to-reach populations. For areas occupied by armed groups, sensitization activities were conducted prior to the initiation of SMC. The NMCP also collaborates with security, defense forces, and humanitarian organizations to enable transport of supplies to these zones. In mining areas where the populations are very mobile, SMC medicines are administered at night or during break times.

The NMCP is also planning to work closely with gold miners as mining areas are difficult to fully cover. They also want to work with pharma companies to assist with delivering medicines. Implementation teams also need to expand to enable the team to be more effective.

Niger

Presentation for Niger - Ibrahim Ouba, NMCP of Niger



In 2022, SMC was implemented from July to November in Niger. Some districts implement four cycles while others implement five cycles. SMC was implemented for children aged three months to five years and delivered in sixty-seven districts in 2022. The same will be done for 2023. Coverage levels of 104-105% were achieved for the first three cycles. This, however, dropped to 84% on the fourth cycle. However, in some areas, data was not available to assess coverage levels. Subsidies were also offered to selected households to help achieve targets set. SMC was also combined with malnutrition screening.

In terms of innovations, an ICT4D team was put together. This team trained SMC leads, trainers, and trainers of trainers. Data assessment is ongoing. Challenges remain that hinder the team from obtaining high quality data. It is hoped that digital data collection will help address this. In implementing digital data collection activities, the team was challenged with the mastery of the data collection app by local supervisors and distributors as well as the absence of children in households during distribution.

To improve the quality of SMC implementation, the capacity of distributors must be increased and timing of visits to deliver SMC must be adapted to suit the times when families are at home. The monitoring and evaluation of SMC must also be improved. Distributors and agents or actors of distribution must also be recruited. As taking the second and third doses at home are not easy, household supervision may be needed. The team also works together with authorities to reduce cost and improve efficiency. They also intend to employ both fixed and mobile implementation. Impact studies are also needed. [□](#)



Session III : Countries' lessons learnt – Routinizing and sustaining SMC

Cameroon

Presentation for Niger - Ibrahim Ouba, NMCP of Niger



SMC was implemented for the first time in 2016 in Cameroon. In 2022, the intervention was implemented from mid-July to mid-October for the districts implementing four cycles and to mid-November for the districts implementing five cycles. Children aged three months to five years were covered by SMC. Four cycles of SMC were implemented in thirty-eight districts while five cycles were implemented in nine districts.

The NMCP has had reductions in, and lack of funding, from some funding agencies. The NMCP therefore embarked on a strategy to increase health system and community ownership of SMC implementation and to determine an implementation strategy acceptable to the health system. Following this exercise, the NMCP developed a strategy for distributing SPAQ in routine mode, i.e., using the resources of the health system.

Challenges encountered in implementing SMC during this period include following-up of the administration of SPAQ with respecting the 28-day intervals between the cycles; allocation of the daily workload and activities for the community development workers; filling gaps when volunteers were absent and keeping volunteers motivated throughout the activity.

The team uses Kobocollect to collect information digitally. In some areas of the country, they are security challenges with Boko Haram. In areas without community workers, new workers need to be trained. The NMCP also intends to work on community ownership of SMC and provision of incentives for community workers to improve delivery of the intervention.

Guinea

Presentation for Guinea - Yaya Barry – NMCP of Guinea



In Guinea, the SMC cycle started in July and ended in October. The same is planned for 2023. However, for Dabola, the SMC cycle started in June and ended in October. Children aged 3-59 months are covered. There are two areas for implementing SMC. Key partners who support the NMCP of Guinea are the Global Fund and PMI. Four cycles of SMC were implemented in sixteen health districts while five cycles were implemented in Dabola. PMI covered seven districts. The Global Fund also works with Plan International. SMC implementation is often phased in with other interventions. At the community level, workers involved in administering SMC, supported with malaria case management, and vaccination or care for pregnant women. In 2022, the team tested nearly 3000 suspected malaria cases and treated children presumptuously for malaria. Coverage of SMC was low as stocks of inputs were low.

For innovation activities, the NMCP decided to focus on enumeration. Key activities include ensuring electronic archiving of data to improve the planning of SMC campaigns; improving SMC implementation through facilitating rapid access to data for stakeholders for decision-making; improving proximity and district supervision; reducing the quantity of paper-based documents used; tracking the stock of SPAQ and SMC tools at all levels; and assuring data completeness and consistency.

Regarding the digitization of SMC data, the team will be migrating data from the national platform, currently Commcare, to DHIS2. Data entry is done at the health facility level and aggregated. There are currently challenges with reaching remote areas. The team also intends to reach mining areas and has identified activities that will support access and coverage. To improve coverage, local staff must be trained to adapt

to the lifestyle (i.e. times at home, mobility, etc) of local areas. Another challenge the team encounters is with transport of inputs to targeted areas. The NMCP contemplated reducing the number of children over the eight-day period of administration to reduce the workload on workers and distribution teams and improve efficiency. The team has also developed a microplanning strategy. The team remains challenged in terms of respecting timelines.

Guinea has received support from the OPT-SMC project for implementing SMC in mining communities. This required working with local workers in mining communities and including household leaders in monitoring activities.

Togo

Presentation for Togo - Tinah Atcha-Oubou – NMCP of Togo



For 2022, the NMCP of Togo started SMC implementation on the 1st of July and finished on the 4th of October. Four cycles of SMC were administered and coverage rates of 92.1% were achieved. DHIS 2 is used as the national health data repository and is used to capture SMC data as well.

The team intends to decentralize the management of SMC. In several areas, the team experienced insecurity challenges due to jihadist groups. Displaced populations were treated in their host area either in their family units or grouped in specific locations. Soon, the NMCP would like to adapt the SMC strategy to cover areas of growing insecurity in the Savannah.

Databases will also be made available for linear monitoring. Togo also embarked on feasibility studies on combining SMC with other interventions; strengthening quality improvement of SMC implementation; and identifying studies aimed at highlighting the impact of SMC.

Key issues the NMCP is trying to address include standardizing the expression of needs, especially at the operational level (micro-planning); facilitating the collection of data in households; monitoring of implementation from built-in dashboards; facilitating the supervision and monitoring of the effective implementation of this activity; and availability of the database, allowing the linear monitoring of the treatment of children according to the cycles.

Research themes that the team would like to carry out include the feasibility and acceptability of integrating SMC into the routine community health system in Togo. This has been agreed upon between the Ministry of Health and Malaria Consortium. The NMCP is also trying to control costs and improve the quality of treatment through making SMC a routine intervention. The NMCP is also carrying out a qualitative study with formative intent, conducted in three areas in each district implementing IMCI-C.



Senegal


Presentation for Senegal - Stander Naby Kaly, NMCP of Senegal



In Senegal, SMC was implemented from June to September in sixteen districts within five regions. Coverage rates of between 93 to 98% were achieved. The NMCP of Senegal is working to ensure community ownership of initiatives so they are involved in planning and training activities. They are also planning a pilot study to see if it is possible to mainstream SMC into other routine health activities.

3 900 adverse side effects were observed in 2022, while 1 900 were observed in 2021. 42% of side effects were in children aged 12-59 months while 52% of side effects were in children 5-10 years of age and the remaining 6% were in children aged 0-11 months. Medicines were also made available in time to manage side effects. Offering free health care also increased the acceptance of SMC. Door-to-door implementation similarly helped to increase acceptance and manage side effects. The involvement of other sectors (community development, youth, education, etc.) has enabled heads of households and mothers of children to have information on the advantages and importance of comprehensive treatment and to detect the symptoms early. The NMCP will also engage SMC drug manufacturers to investigate the reason for the higher rates of adverse effects in older children.

The team equally intends to extend SMC to other districts. They also need to synchronize with countries sharing borders to enjoy mutual benefits and synergize efforts. As part of cross-border collaboration, the NMCP has been having meetings with Guinea and Guinea-Bissau for the past two years. A similar plan was explored with The Gambia and Senegal. SMC must also be streamlined into other community-based health initiatives. The team also would like to reach mining communities and will work on that.

The NMCP also hopes to do the following in the future: measure theoretical coverage in all health districts; solicit for funding for the implementation of mass drug administration (MDA) in the South and South-East health districts of the country; digitize SMC data (pilot in one district in 2023); combine SMC and active malaria screening (pilot in one district in 2023). 



Session IV : Countries' lessons learnt – Digitalizing SMC

Benin

Presentation for Benin - Dr. William Houndjo – NMCP of Benin



Benin implemented SMC from June to September 2021 and 2022 in most areas. The intervention was however implemented from July to October for Aibori. Four cycles of SMC were implemented in two districts and children aged 3-59 months were targeted while three cycles were implemented in five regions. Coverage results obtained were 52.1% for 2022; for 2023, coverage results of 60% have been forecasted. The NMCP will train operational actors and provide supervision for community workers. Data planning workshops occur daily to review data and address inconsistencies. When outliers are identified, the team tries to address inconsistency and conducts data review meetings.

The Red Rose app was used to support digitization and, using a map, also helps with the reorientation. Red Rose can equally be used to capture coverage levels and help identify areas that have not been covered. It also provides the possibility to capture data in real time. In terms of staffing, students and agents who can easily work on a smartphone were selected for this exercise. Solar power banks for powering the smartphones were also acquired.

Areas with internet access for synchronizing data need to be identified. The team conducted community advocacy to ensure people understood why they were using the smartphones. In Benin, a mixed method (door-to-door and fixed post) was used for digitization. Including a vendor or sub-vendor also increased the cost of digitization. Moreover, the benefits of real-time data in terms of data quality and using existing data, e.g. household data, from nets campaigns for SMC campaigns is much larger, although this has not been quantified.

Key challenges the NMCP encountered included lack of resources and nonavailability of the same population for all four cycles. The team also organized monitoring of SMC for children ten weeks to twenty-four months. Information from community health agents also needs to be validated. What is more, there were several bugs with the smartphone application. More advocacy is needed to integrate financing for the digitization of SMC in the health and malaria budget.



Gambia

Presentation for The Gambia – Olimatou Kolley – NMCP of the Gambia



Digitization of health data for SMC in the Gambia started in 2014. It was previously used for long lasting insecticide nets (LLINs) campaigns in 2014. A coverage rate of 97% was achieved for LLIN campaigns. The Gambia is stratified into three strata. Red zone (high), yellow (moderate), and green (no malaria cases). CRS purchased smartphones and trained community workers on entering data. To select a denominator, microplanning is carried out at the beginning of any SMC campaign. The results for these are used as the denominator. The Gambia also uses the number of kids registered in the community as the denominator.

The team started with Iphone builder, which has helped to improve timeliness; has allowed for real-time data collection and increased data quality. They then moved from the Iphone builder to Commcare in 2017 as Iphone builder was too complicated and not very user friendly. Commcare continues to be used for SMC and net distribution for pregnant women. In 2017, apple ipads were exchanged for mobile devices for the installation of the Commcare app. Personalized logins were created and trainings were also carried out. Using mobile devices across multiple campaigns helps to maximize resources.

However, using Commcare requires a subscription and a fee to access the application. The data analytic tools on the app are also limited. To address these challenges, the team has moved to DHIS2 to align with partner reporting. This application allows for real-time data collection using a data tracker. It also enables data analytics. DHIS2 is also an open-source free tool and is easily customizable. It is also the Ministry of Health's main reporting platform. The NMCP pushed partners to align to their reporting. DHIS2 is also used in the tracking of COVID-19 data and by the Ministry of Education as an Education Management Platform. Built-in data analysis tools are also available. Training programmes were also conducted for DHIS2.

DHIS also helps to track kids who have not been covered by comparing with the national data available. IT teams are also available to support implementation. Technical support is provided by whatsapp. The team also works with regional data managers to provide tier three support.

DHIS2 has made field monitoring easier. The teams analyze the data at the end of each day. Audit trails are also available to identify errors made by going back to communities to cross check data. For 2023, DHIS2 will be scaled up nationwide. M&E and local partners also support scale up. A study was conducted to evaluate and select the appropriate app to be used. DHIS2 is equally being used by the ministry of health for Covid-19 surveillance and vaccination as well as education management.

The NMCP of the Gambia faces several limitations for digitization. There are certain areas with no internet access. The server capacity is low, which in turn creates backup issues. The team therefore intends to develop custom solutions to mitigate against performance and functionality.

Ghana

Presentation for Ghana - Ihsan Issaka Abubakar – NMCP of Ghana



In 2022, SMC was implemented from the last week of June to the second week of October. This timing will be maintained in 2023. In 2022, SMC was implemented for the first time in the Bono and Oti regions. Four cycles of SMC were implemented; and children aged 3-59 months were targeted. In 2022, a coverage rate of 89.8% was achieved; in 2023, a coverage target of 90% is expected.

Children aged 59 months (i.e. at the age limit) were allowed to complete the campaign rather than exiting the campaign after the first cycle as they would have exceeded the age limit after the first cycle.

Ghana relies on population and housing census data segregated by districts to identify a denominator. However, when registering households, the NMCP realised that the number of households captured in the census data is much lower than the number of registered households; this will be rectified.

The team has been using its in-house designed app, SiCapp, for data collection of SMC; and this will continue to be used. SiCapp is an android platform to be used on Samsung phones. Prior to the use of SiCapp, hardcopy registers were used and could be lost during heavy rains. SiCapp has made data collection faster; has allowed for timely monitoring of coverage; and increased the quality of the data collected. It has also removed the need for printing registers. Volunteers can also track their performance before it gets to district or sub-levels. For subsequent cycles, data is only updated if needed.

To improve its use, the team will update SiCapp to make it more flexible and friendly for community workers. They also want to create a link between SiCapp and the DHIS2 platform to sync data. More tablets are needed to speed up data collection and power banks are needed to support areas with limited electricity. A key challenge is that it has been difficult to get geo coordinates of some areas due to poor internet connectivity. The team will work with telecom companies to improve internet connectivity in these areas.

Challenges encountered include the following: As SMC is implemented in rough terrains that are often home to poorer communities, it is sometimes difficult to attract community health workers who can use android phones and app. Other challenges include unreliable electricity or power supply in some communities; poor internet connectivity for data synchronization; and missing/damaged android tablets and chargers. No drug resistance or efficacy study was conducted.

Nigeria

Presentation from Nigeria - Emmanuel Shekarau – SMC Focal point, NMEP of Nigeria



In 2022, SMC was implemented from the first week of June to the third week of October in Nigeria. This timing can vary by state. Four cycles of SMC were implemented in sixteen states while five cycles are implemented in five states. In 2022, 383 local government areas were covered. Seventy-three local government areas implemented five cycles. Children aged 3-59 months were targeted.

The NMEP is responsible for the digitalization of SMC and routine activities in Nigeria. This involves the use of ICT4D (Information and Communication Technologies) which leverages on the BYOD (Bring Your Own Device) approach to scale up digitalization to selected states.

Data-driven decision-making and informed monitoring were possible using reported data transmitted in real-time. Using unique IDs, children who received SPAQ are accurately tracked. GIS data helped to identify suspicious activities and strengthen monitoring and supervision during implementation. The digitization of SPAQ commodity management will be used to improve commodity accountability. Contrary to the previous paper-based documentation system, the use of technology enhanced prompt payment processes.

Digitalization of SMC was piloted in 2021 and expanded to ninety-three districts in four states in the country. Digitalization has provided better data quality management and helped with payment processes for community health workers. It has also supported with improving commodity management as well as with daily stock tracking and consumption. It equally supports daily data reconciliation. Commodity stockouts have previously hindered the implementation of all four cycles. The app used is installed on the personal devices of community health workers as acquiring devices for all community health workers will be expensive.

There was delayed acceptance of the technology by stakeholders at the state level which in turn delayed SMC implementation, especially for the first cycle. By the second cycle, all issues had been resolved. Limited mobile network availability makes real-time data reporting during implementation a challenge. Some community health distributors were also not adhering to the selection criteria and will require additional training. There were also issues with incompatible devices brought by the community drug distributors, which could not be used for the application.


SMC digitalization handbook

Vyvyenne Chigboh – Catholic Relief Services

Several countries have started digitalizing data for SMC. CRS, in discussions with the OPT-SMC team as well as the Alliance for malaria prevention, realized there was a gap in tools to support countries with digitalization. This SMC digitalization handbook was developed to support countries with the uptake, scale up and operationalization of digital campaigns. The handbook is not a how-to guide but rather provides key considerations and recommendations in operationalizations of large-scale digital campaigns. The handbook provides several definitions, links, and resources from organizations supporting digitalization.

It was also explained that digitized means making a paper-based format digital but digitalize means updating the delivery mode through integrated campaigns. It was also explained that digital campaigns provided better or more rapid decision-making opportunities; investments were returned at-scale; and provided more accountability and efficiency. Using the case study of The Gambia, the handbook also provided experiences from the implementation of digital campaigns for countries looking to implement or scale-up. It also provides recommendations on the number of people needed for a digital campaign depending on the size of the campaign.

The criteria for implementing a digitalization campaign are also included. Suggested content for training staff for implementing digitalization tools for SMC and ITN campaigns is also included.

Training must be adapted to the specific situation of the country where the campaign is being implemented. Recommendations are also provided at the end of each chapter. It also provides various components for incorporating technology into malaria campaigns. These key components include macroplanning, microplanning, supply chain management, training, communication, registration, and distribution as well as monitoring and evaluation. Recommendations for managing devices are also available. These include suggestions on where to store devices, sim card management, application updates and distribution to distributors. There are also recommendations on whether digitalization campaigns are necessary and how to implement pilots and scale up processes as well as the type of technology (ies) that can be considered for digitization campaigns. The handbook stresses that data quality starts with people and the type of training they have as well as the type of technology being used. The Alliance for Malaria Prevention also provides a helpful guide for leveraging digital tools in campaigns. 

Session V : Countries' lessons learnt – Introduction of SMC; new countries, new geographies

Chair: Christian Rassi – Malaria Consortium

Cote d'Ivoire

Presentation for La Cote d'Ivoire - Jacques Agnon Yoffoua – NMCP of La Cote d'Ivoire



In 2023, La Cote d'Ivoire implemented SMC at scale for the first time in two districts. A pilot project had been earlier implemented in 2021. The main objectives of the pilot were to determine the acceptability and feasibility of performing five cycles of SMC for families and health care workers and to measure the impact of the SMC strategy on the incidence of malaria in the target population. This pilot was conducted in the district of Dikodougou in the Northern part of Cote d'Ivoire. Cote d'Ivoire decided to explore both perennial and seasonal malaria chemoprevention. Five health areas were covered. The study covered children aged 3 to 59 months. SMC was implemented for five cycles from July through to November and for three days per cycle. On the first day of each cycle, the medicine was provided by a health care worker while it was given to the child by the caregiver on the second and third days.

A coverage rate of over 50% was achieved for the first cycle while higher coverage rates were achieved for the third cycle as well as greater levels of adherence. Increase in compliance from the third visit indicates support of the population and the perseverance of the health workers who implemented advanced strategies to reach the greatest number of children. The reputation of the effectiveness of SMC has made it more acceptable by health workers and the population.

A major challenge encountered was the absence of children due to farm work, so an outreach strategy was used to reach children. Based on the results from the pilot study, the NMCP concluded that SMC can be extended to other health districts. For 2023 and 2024, SMC will be implemented in two districts (Dikodougou and Kabakala) over five cycles. An outreach strategy is needed to reach children in hard-to-reach areas.

In 2023, a normative document and M&E plan will be prepared; enumeration of the needed logistics will also be required. In 2024, SMC will be expanded, and the pilot phase of digitalization will commence in 2024. Cash payment will be made to health workers who are not able to access digital payments. A sustainable advocacy campaign is being planned to increase acceptance. Technical assistance will also be needed in 2024 when the programme commences. National and international consultants will also be needed. In terms of research projects, impact and cost-effectiveness projects are being considered.

Research priorities being considered include an evaluation of the impact and the cost/effectiveness ratio of the introduction of seasonal malaria chemoprevention in the eligible areas of northern Côte d'Ivoire; and optimizing SMC with community health workers.

Mauritania

Presentation for Mauritania - Dr. Abdallahai Ely Salem – NMCP of Mauritania



The NMCP of Mauritania is new and was created at the beginning of February 2023. However, SMC was implemented in Mauritania for the first time in 2021. The campaign was delayed for a month due to the rainy season. The Global Fund is the main partner for the NMCP. About 87 000 children were covered in the 2021 campaign. In 2022, four cycles were covered but not all children could be covered due to limited funds. The NMCP intends to undertake an enumeration project to understand the number of children that could benefit from SMC. No resistance to the SMC medicines was recorded.

In the South-western part of Mauritania, there are a lot of refugees from neighbouring countries such as Mali due to conflict and terrorist actions and as such it was previously difficult to implement SMC for the areas where the refugees dwell. The NMCP has now been able to implement SMC for children in those areas. The NMCP of Mali has also sent a doctor to support the refugees in Mauritania during the SMC campaign; this assisted with the implementation of the campaign for these children. The refugees have also been enumerated and incorporated in the health system.

Although the NMCP was supposed to start the SMC campaign in 2023, there has been a gap in funds as the organization that is supporting the NMCP has announced that it will no longer be able to do that. The NMCP is therefore seeking assistance from other partners to help implement SMC for 2023. They are also being challenged by lack of access to vehicles. It has also been difficult to motivate community distributors to implement the third and fourth cycles due to payment delays. Moreover, as the Mauritanian population is quite mobile, it was very difficult to undertake the enumeration exercise. The NMCP will also train PNLP staff on how to address all these issues.

In the future, the NMCP said they will start planning campaigns on time and implement advocacy and communication activities before each passage. It will also improve the implementation of mobile distribution and identify an adequate way to ensure the payment of community actors. There is also need to correctly estimate the population targeted by mobile distribution.

Mozambique

Presentation for Mozambique - Regina Passe, NMCP of Mozambique



The NMCP of Mozambique implemented SMC from January through to April 2022 during the rainy season. Four cycles were implemented in four districts. At the pilot phase (December 2020 – March 2021), SMC was implemented in two districts; two additional districts were later added. In 2022, 115000 children were targeted. For the 2023 round, which was ongoing at the time of the meeting, 1.3 million children were targeted. A coverage rate of 69 - 71.6% was achieved in 2022. The NMCP also intends to mainstream digitalization into the SMC programme. During the implementation of SMC, the team ensured that children who had not been immunized were immunized.

In 2022, the team tried to investigate the level of resistance to SMC medicines. Another goal of the pilot study was to understand what the most effective and best approach for implementing SMC is. A randomized control trial was conducted in the Nampula district for children aged 3-59 months to understand the efficacy of SMC. The Nampula province was selected because of the seasonality of malaria transmission in this region. This enabled the team to gather lessons learnt. A monitoring and evaluation system was also implemented to capture adverse effects.

After one year of implementation, the outcome of the study suggested that SMC has many health benefits. Based on the research results, it can be concluded that implementing SMC is effective and feasible. However, resistance markers data and data on the chemoprevention efficacy of SPAQ are still being analyzed. Robust conclusions on the suitability of SMC in the region can only be drawn once those results are available, later in 2023.

In terms of challenges, the team noticed that applying the eligibility criteria for the target children was a challenge. Many children were also infected with malaria and could therefore not be covered. They also want to understand the maximum coverage rate possible, should SMC be scaled up. It is hoped that digitizing SMC will help mitigate some of these issues as well as challenges with using the paper-based system. Paying community agents in cash was also challenging.

The NMCP hopes to work with local actors and authorities as well as partners to implement SMC. Sensitization is also critical to ensure community ownership. The team will engage health professionals to help treat and protect children from malaria in areas not covered by SMC. More supervisors and healthcare workers also need to be recruited and trained. Similarly, additional resources need to be directed at supervision.

Uganda

Presentation for Uganda, Anthony Nuwa, Malaria Consortium (on behalf of Jane Nabakooza – NMCD of Uganda)



The Uganda Malaria Reduction and Elimination Strategic Plan 2021–2025 proposed SMC as an intervention for accelerating progress towards malaria elimination. Modelling by the Swiss Tropical and Public Health Institute suggests that SMC could be a feasible strategy for malaria prevention in the Karamoja region of Uganda, which is a high prevalence and highly seasonal zone of malaria transmission.

The NMCP of Uganda implemented SMC for the first time in May 2022 and ended in September 2022, implementing five cycles in eight districts. Children covered were aged 3–59 months. The Karamoja region that reports the highest prevalence of malaria was selected for the initial pilot project. In the first phase (2021), 80 000 children were targeted while 250 000 children were targeted for the second phase in 2022. The team also implemented studies to measure the coverage of SMC through an end of round household survey. A resistance marker study was conducted as well as a feasibility and acceptability of SMC study. Other studies conducted include a chemoprevention efficacy study as well as a safety study and a cluster-randomised controlled trial to measure the effectiveness of SMC with SPAQ. Dihydroartemisinin-piperaquine (DP) was explored as an alternative drug regimen.

The results obtained from the implementation phase revealed a significant drop in malaria; malaria rates were 92% lower in children who had received SMC compared with those who had not. In comparing SPAQ to DP, the randomized cluster trial showed that children in the SPAQ arm had a 94% lower risk of getting an RDT-confirmed malaria episode versus 96% for children in the DP arm, showing that DP is not significantly more effective than SPAQ. Moreover, 90% of children never experienced a malaria episode several months after the intervention. In comparison, in the control area, 85 percent of children developed at least one episode and 60 percent had at least two episodes over the follow-up period. A change in the level of resistance markers was not noted; ongoing surveillance will be pursued to monitor potential emergence of resistance. Results from the chemoprevention efficacy as well as safety and resistance marker studies are yet to be received.

The team intends to implement SMC in nine districts in 2023 and conduct additional studies; potential research topics include combining SMC with other interventions; mass screening and treatment (MSAT), malaria vaccine and LLINs; as well as measuring the impact of SMC in older children; and investigating the overall burden of malaria in the Karamoja region.

Update, significance, and implication of research results in Mozambique and Uganda

Craig Bonnington, Malaria Consortium



It was observed that SMC, when implemented in Uganda and Mozambique over the course of the two-year study, significantly reduced malaria in eligible age children. Thus, SMC was found to be highly effective in these countries. There was no change in the level of resistance markers during the first year in both countries, although we know that there was a high presence of resistance markers in these areas prior to the implementation of SMC. Further studies are however needed to establish the true state of resistance. We also need to investigate further the relationship between disease and infection i.e., how and if SPAQ really prevents malaria. The more the chemopreventive efficacy of SPAQ in different geographies is understood, the greater the possibility of predicting the future effectiveness of SMC and make recommendations for or against SMC in these areas.

Results for chemoprevention efficacy for Mozambique and Uganda will be available later in 2023. Results from the DP (dihydroartemisinin-piperaquine) safety study in infants for Uganda will also become available later in 2023. The results will be presented in appropriate forums and implications for SMC policy and practice will be discussed with national and global stakeholders. [□](#)



Session VI : Countries Planning for 2023 SMC Campaign

SMC in West Africa: perspectives from a regional support team

Dr. William Bosu – WAHO

The West African region has a disproportionately large share of the global malaria burden. About 50% of global malaria cases (120 million out of 247 million) and 53% of global malaria deaths (327000 out of 619 000) occurred in West Africa alone in 2022. SMC is one of the key malaria interventions deployed for reducing the burden of malaria. More than 3500 districts in West Africa implement SMC. This has been a significant increase in comparison to previous years.

In 2021 and 2022, the West African Health Organization undertook eleven support visits to SMC implementing countries in West Africa. Countries visited in 2022 include Togo, Benin, Niger, Ghana, and Nigeria. The objectives of these support visits included the following: learning the planning processes; field experiences; data analysis related to SMC campaigns; learning about the digitalization of SMC campaigns; participating in the supervision of the SMC; participating in the review of daily performance in drug distribution; health promotion; nutrition; assessment of children; promotion of the use of insecticide-impregnated nets; management of refusals and side-effects; providing support in data collection, collation, quality control and dissemination; and providing technical support as needed.

Results from the visits indicate that Benin, Ghana, and Niger organized their SMC campaigns during the month of March while Nigeria starts in July and Togo goes into September. Number of days per round varied from three days in Benin and Togo, four days in Niger and Nigeria, to as long as seven days in Ghana. Benin and Ghana exclusively implemented door-to-door campaigns while others had mixed or fixed strategies. All countries had regular planning meetings before the performance reviews. There were no programmes in place to send supplies ahead of campaign. Supply shortages were not reported. Only Niger combined SMC with malnutrition screening and education on bednets.

Positive reports included the following: mothers whose children had received SMC were aware of how to administer the medicines. Caregivers also confirmed that volunteers visited on days two and three to check whether they had administered the medicines. Whatsapp groups were used to support cross-border collaboration between Niger and Nigeria.

There were aspects that could be improved upon. Although health workers claimed that sensitization and advocacy within communities had been conducted, some members of the communities had not heard of SMC. In a few households, mothers had kept the drugs and not given them to their children on days two or three. In terms of advocacy, some caregivers had not heard of the campaign and there was low visibility of the campaign at the regional and district health directorate levels. There was also non-systematic marking of the homes and there also needs to be a common understanding of what marking of housing means. For instance, the number of eligible children in a household was not noted as part of the marking. Of note, manual data recording is still in effect. In some cases, recording of the SMC service delivery in MCH booklets was either not done at all or it was done inconsistently. No further analysis of the causes and distribution of the refusals was done or resolved. Refusals were not adequately checked to understand why there were refusals. There was poor communication on what to do regarding pharmacovigilance. There was also no systematic management of waste.

Digitalization was implemented in all countries except one. Data was synchronized in the evening and reviewed either in the evening or the next day.

It is recommended that community distributors should be selected from local communities as they already know household members and can influence acceptance of SMC. They should also be adequately remunerated to motivate them for the success of the exercise. If possible, remuneration for CHW in hard-to-reach areas should be higher than that for those in non-hardship areas. A dynamic registration system must also be adopted to permit children encountered who did not normally live in a community or those from adjoining regions to be dosed. Pharmacovigilance of the adverse effect of the drug administration must also be strengthened. Areas that need more attention must also be identified and more resources applied in these areas.

SMC implementation guide from WHO: updates from the new edition

Dr. Peter Olumese, Global Malaria Programme of the World Health Organisation

Prior to the previous perception that there are no restrictions on SMC and countries can implement SMC as they deemed fit, this is not the case. Indeed, while some of the previous restrictions have been eased, WHO is saying that countries must always refer to the new field manual for the correct information on administering SMC and in understanding the restrictions.

Best practices for SMC implementation have been compiled in the updated field guide. Section 1 provides an introduction, section 2 provides definitions, changes in the guide, and provides evidence-based specificities needed to facilitate national adoption, adaptation, and implementation while section 3 provides guidance for national policies on number of SMC cycles; age range expansion; and spatial targeting. Section 4 speaks to planning and implementation, while section 5 is about monitoring and evaluation. The guide then closes with references and tools. The WHO will provide support to countries in updating national tools and guidance based on this global field guide.

In response to where SMC can be implemented, WHO recommends that SMC should be implemented in areas with highly seasonal malaria transmission; so countries need to check for malaria seasonality before deciding to implement SMC. Therefore, the intervention should not be implemented in areas that do not exhibit a high seasonality of malaria.

Specifically for Mozambique and Uganda, malaria is not highly seasonal everywhere. However, there are areas within Mozambique and Uganda that may have highly seasonal areas and for those areas, SMC may be suitable. So, for the other areas, the NMP must investigate the right mix of interventions to use to protect the population from malaria.

Regarding the protective efficacy of medicines, countries need to decide how this is applied should the current medicines not be as efficacious as they should be. ▣



Session VII : Malaria Chemoprevention: other prevention tools for malaria control and elimination

WHO recommendation for RTSS vaccine

Dr. Rafik Okine, World Health Organization

The RTSS vaccine is a four-dose vaccine given from five months of age with three doses of the vaccine given four weeks apart. The fourth dose is administered 12-18 months after the third dose and can be given at any age years until age five. Countries may choose to administer the fourth dose at fifteen months of age if it coincides with other vaccines. Up to five doses can be given. To maximize impact, the vaccination's timing must match the period of highest malaria transmission. The immune response reaches its highest after dose three and then wanes before dose four.

The vaccine can be co-administered concomitantly with the pentavalent (DPwP/Hep B/Hib), OPV, measles, rubella, yellow fever, rotavirus, and pneumococcal conjugate vaccines. In February 2023, 1.3 million children had received at least one dose of the RTS,S vaccine. The vaccine can also be integrated with other interventions such as deworming, Vit A supplementation, and LLIN distribution. The shelf life of the vaccine is thirty-six months at storage temperature between +2°C and +8°C and it is freeze sensitive and light sensitive.

The vaccine can be delivered via campaign mode, a hybrid approach or through EPI programmes or based on the age of the child. A school-based vaccination strategy may be implemented for two-year old children. With the hybrid option, the first three doses are given by age through the routine EPI (age-based) with the annual doses (seasonal boost) given through a vaccination campaign prior to the peak transmission season. The fourth dose is then given in campaign style mode; intensified communication campaigns are needed. Vaccine should be included with campaigns that have good coverage to hopefully increase coverage and impact. The length of protection the vaccine confers is being investigated.

Summary findings for pilot studies indicate that vaccine introduction is feasible, and uptake and coverage have been good. The vaccine is also considered to be safe. Phase 3 clinical trial data from Burkina Faso and Mali where SMC was combined with the vaccine also show higher efficacy levels.

The vaccine is not replacing any other malaria intervention as it must be given in complementarity. Efficacy in complementarity is higher than for the vaccine alone or SMC alone. As there is still substantial susceptibility to malaria after age three, there is need for malaria prevention interventions. Children who have missed the malaria vaccine can be referred for SMC. UNICEF has secured a supply of 18 million doses of the vaccine from GSK. However, this is insufficient in comparison to the number of children who need to be protected against malaria. WHO has conducted a stratification analysis to determine the areas of highest need for accessing the vaccine.

Perennial malaria chemoprevention (PMC): Update from various pilots

Meredith Center, The PLUS project

The Plus project is a perennial malaria chemoprevention (PMC) project that was launched in November 2022 in Cote d'Ivoire, in December 2022 in Benin and Cameroon, and in February 2023 in Mozambique. The project will end in 2025. The project will do the following. In Benin, Cameroon, Cote d'Ivoire and Mozambique, the project will co-design, implement and evaluate country-adapted models of PMC integrated into existing health systems. It will also provide support for evaluation & policy adoption in DRC, Ghana, and Zambia. In contrast to SMC where a combination of SP and AQ are used, only SP (pediatric dispersible formulation) is being used for the PLUS project, although WHO's recommendation is to not use only SP as it is a monotherapy. Training of countries is ongoing, and the project is NMCP led. The intervention has been launched in Cote d'Ivoire and was launched in Mozambique in mid-February.

Cameroon has adopted an PMC model with Vit A supp every six months; from six months of age, a measles vaccination is added on. Cote d'Ivoire has a five-contact model. In addition to SMC, Cote d'Ivoire administers PMC and the EPI vaccine for children aged 18 months and above. Mozambique combines PMC with routine EPI vaccines, Vit A supplementation, and deworming.

A study to demonstrate impact has been carried out by several partners. The study included policy adoption, process evaluation, and impact evaluation. Learnings and evidence from the project as well as a community of practice and a project website are available. Webinars will also be organized. What is more, there are implementation tools available. Evidence from research will also be shared broadly. Other PMC projects are ongoing in Sierra Leone, Togo, Nigeria, and DRC.

The landscape of malaria chemoprevention: An analysis of need and demand for SMC and PMC commodities in sub-Saharan Africa

Salome Muchiri – Clinton Health Access Initiative

CHAI is part of the global malaria commodities programme funded by the Gates Foundation. The project tries to use transparent methods to develop a supply forecast. Forecasts developed include a 10-year deep dive and a 2022 deep dive. The deep dive discusses both PMC and SMC but focuses on SMC.

The team has also researched into the malaria commodities' landscape. To identify areas for the WHO forecast, the team looked at the duration of malaria transmission (more than 60%) and Plasmodium falciparum prevalence (greater than 5%). Data from the Alliance was used to project the number of children aged 3-59 months and 5-10 years to forecast supplies. Based on rainfall and malaria transmission data, the project identified areas in the Sahel as well as others in Eastern and Southern Africa (such as Sudan, Malawi, Mozambique, Uganda, etc.) that are eligible for SMC. For 2022, the project forecasted that about 75 million children will be eligible for SMC and about 159 million treatments will be needed. However, about 358 million treatments would be needed in 2030 if SMC would be scaled up.

These forecasts were disputed by WHO and other partners due to the geographic selection of the areas. Ongoing work will be done to refine the forecast.

Considerations for future uptake of SMC

Studies show that DHA PQ could be suitable for SMC. However, DHA PQ costs about 1.5 USD per dose versus less than a dollar per dose for SPAQ. Regarding safety, SPAQ has been known to be safe; but DHA PQ safety studies need to be conducted.

Given the sustained interest, an increased growth in uptake due to geographic expansion and population growth is forecasted. There could however also be leveling off as countries move to targeted deployment approaches or struggle with budget constraints. Alternatives to SPAQ are needed to address resistance concerns.

Global Fund Update Chemoprevention Financing

Susan Nasr – The Global Fund

The Global Fund's (TGF) objectives for malaria strategy specific for this meeting are to: implement malaria interventions, tailored to sub-national level, using granular data, and enabling decision-making and action; optimize chemoprevention; expand equitable access to quality early diagnosis and treatment of malaria; and to drive towards elimination and facilitate prevention of re-establishment of malaria.

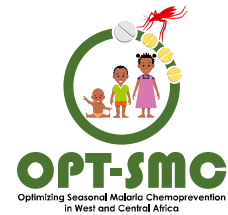
Malaria funds have increased by 111.2 million compared to 2020-2022. However, due to an increase in the cost of doing business, countries must be more prudent on how to use funds. There have been changes in malaria allocation to the fifteen highest burden countries; twenty-two countries have had their funds decreased; funds for eleven countries have remained stable; and twenty-nine countries have had their funds increased; No malaria specific catalytic funding exists.

Except for the malaria vaccine that is supported by GAVI, updated WHO guidelines on options regarding chemoprevention can be supported by TGF. Support to the integration of digital platforms into malaria programming can also be provided.

In the application, it is important to provide a clear definition of what intervention is to be supported and where it will be targeted. In addition, how the intervention mix will be prioritized must also be clearly stated. Consideration of lessons learnt from previous chemoprevention efforts must also be incorporated as well as considerations for integrating with other interventions. Highlighting new chemoprevention interventions and providing support for strengthening capacity for evidence-based decision-making will also be helpful. ▣



Session VIII : SMC Project updates



OPT-SMC

Prof. Jean-Louis Ndiaye; University of Thiès

OPT-SMC is an EDCTP funded project that will build the capacity of national malaria programmes. The team has received proposals from thirteen countries. Project partners include NMCP partners together with TDR, MMV, LSHTM, and Uni Thies. The project will promote inter-country collaboration and operational research, etc. The goal of the project team is to monitor the projects implemented by countries and provide recommendations on how to improve these.

Projects implemented / being implemented include the following: Ghana, Benin, The Gambia, and Senegal have implemented monitoring and evaluation projects. Guinea, Nigeria, and Burkina Faso have implemented qualitative projects to investigate barriers to uptake, while Mali and Cameroon are implementing projects to explore the development of new strategies. Niger, Togo, Chad, and Guinea-Bissau are also exploring an adaptation to target groups through OPT-SMC projects.

OPT-SMC project in Cameroon - What is the effect of reminders by household leaders to eligible families on SPAQ adherence?

Dr. Ali



The NMCP discussed its project on the effectiveness of using household leaders (HL) to improve adherence and the impact of SMC in Northern Cameroon in terms of overall coverage, adherence to dose two and dose three of SPAQ, community parasite carriage, and acceptability and feasibility.

SMC distribution strategy changed from fixed post to first dose given by CHW and then dose two and three by caregivers. To understand the impact of this change, outputs measured were coverage and effectiveness.

In the first arm (Arm 1), reminders were sent to three households in each health area; in arm two, men and women who had given SMC to their children in the past and who were respected in community as well as the head of the health center were selected. These were to remind caregivers in five to six households in each health area. In the third arm, reminders were sent by town criers who reminded people about the second- and third-day doses. 120 non-remunerated household leaders were trained for 2.5 hours in what to do when delivering reminders as well as checking for side effects.

A survey was administered after this to 1800 households with adherence questions included. A baseline and end-of-round parasite survey had been administered earlier. Additional activities that were included are a malaria RDT questionnaire as well as microscopy and dried blood spot tests. Bed net coverage was also checked.

The baseline study results indicated that coverage was significantly lower than in standard of care. There was also a reduction in the proportion of children adhering to second and third SMC dose.

The results showed that adherence was higher in the control region than in intervention region. Adherence fell from the first cycle to the fourth cycle but remained uniformly constant. Using household leaders is feasible and increased adherence by households.

Results from the community parasite prevalence study reveal a higher baseline and parasite prevalence in the target area, suggesting ongoing transmission at least one month prior to start of SMC cycle 1 and extending to November, one month after the end. The team is therefore considering starting SMC one cycle earlier to reduce burden. A clear shift in burden of malaria to non-target children aged 5-14 years was also observed. Thus, it would be good to consider extending SMC to children aged 5-14 years as well.

Evaluation approach to the quality of the administration of the medication SPAQ to children 3-59 months in the district of Djioula, Mali

Dr Mady Cissoko, NMCP of Mali



Results from various studies suggested that SMC coverage in Mali is sub-optimal. As such, the team decided to evaluate three modes for the administration of SMC by doing the following:

DOT approach

Six health areas were selected. The standard approach which is currently used in Mali is as follows: CHW give the first dose and caregivers give dose two and three. However, in the experimented DOT approach, agents administer all three doses often via a door-to-door campaign which typically takes five days. The results indicate that in practice, 94% of the administration of the second and third dose was done by agents while 6% was done by caregivers.

Community-based approach

This approach makes use of outreach mobilisers who spread the message before and during the campaign. A survey was conducted as part of the assessment. The NMCP randomly selected one village from each health district. In each village, households were randomly selected. In practice, in the community approach, the second dose was administered by community monitoring agents at a coverage level of 85% while the third dose was administered at a dose of 83%.

Coverage results achieved by approach

The survey covered 1006 children. The cost for implementing four cycles of SMC for the standard approach was 2246 euros, while it cost 2845 euros for the community-based approach and 3071 euros for the DOT approach.

98% of the parents reported having been informed. In the community approach, when community leaders were used, 95% of caregivers administered the second dose while 85% administered the third dose. To enable these approaches, the number of agents had to be increased from 28 to 105.

In the beginning, the team lacked logistical support and supervisors. Moreover, to derive feedback on approaches, the directives had to be adapted. Better tools for noting the administration of SMC e.g. notebooks also had to be provided.

It was also reported that questions in the questionnaire should have been clearer. It was not clear whether children were more comfortable receiving SMC from their parents or from a health worker.

This study demonstrates that community actors are very important to the administration of SMC drugs to children. Using community health workers to remind communities to administer second and third doses also helped with adherence. The community approach gave the best coverage of administration of all doses. Results received from these studies must be confirmed before scaling up.

Factors contributing to the adoption of SMC in Nigeria

Dr. Nnena Ogbulafor



This study was to investigate the knowledge of malaria and SMC among households; the perceived effects of SMC on a child's health; and experiences and attitudes of caregivers. The methodology adopted was as follows. The team selected five states and two local government (LGAs) in each state based on geographical mapping as well as performance (low) of the LGA. Caregivers were also selected based on whether they could read and write.

Data collection

Key information interviews, in-depth interviews at state levels, and focus group discussions were conducted in the local language, where necessary, to collect data.

Facilitators to the adoption of SMC in Nigeria included positive attitudes by caregivers, improved sweet flavour of medicines, and friendly community drug distributors. CDDs already known in community were also trusted. Caregivers said they preferred SMC delivered by the door-to-door approach rather than at the fixed-point approach.

Some mothers were weary of SMC because of the perceived side effects which include weakness in children. Other barriers include ignorance and skepticism. Male caregivers said drugs were insufficient to go around to all. Other barriers include incomplete coverage, shortage of drugs, and lack of access to hard-to-reach areas. These were however isolated cases.

Recommendations from the study were to address concerns of caregivers and ensure that supply and availability of medicines and logistical products are adequate as well as motivate community drug distributors.

The NMCP has been able to secure funds for the revision of training modules, for a workshop on pharmacovigilance, and to scale up the use of digitization. ▣



The SMC Impact project



SMC impact project in Nigeria - Support and outcomes

Chibuzo Oguoma, Malaria Consortium



SMC was first implemented in Bauchi State, Nigeria, in 2020 in ten of the twenty Local Government Areas (LGAs). This left a gap of ten LGAs without SMC coverage in Bauchi State. The SMC Impact project was implemented in Ningi and Tafawa Balewa LGAs in the Bauchi State in 2021 and 2022, covering two of the previously unreached LGAs. Other LGAs were supported with philanthropic funding such that the entire state of Bauchi is now covered. Based on administrative coverage data, more children than targeted were reached in the SMC Impact LGAs. According to household surveys conducted by independent assessors, coverage was 94.5% in Bauchi State. 2022 coverage results were generally higher than those for 2021.

Malaria incidence in SMC Impact LGAs

A reduction in the incidence of malaria after the implementation of SMC was recorded. The SMC Impact project helped to expand SMC in terms of geographical coverage. Expanded geographical coverage also reduced the incidence of malaria in the supported area. Based on HMIS data, there was an overall reduction of 16.8% in malaria incidence in the Ningi and Tafawa Balewa LGAs over the course of two years. The incidence of malaria reduced by 34.9% for both LGAs during the peak transmissions season (June – October) for 2020 through to 2022.

Implementation of additional cycle of SMC and expansion into children aged 5-9 years (Niger)

Ibrahim Ouba, NMP Niger



The NMCP of Niger decided to add an additional cycle of SMC for November during the 2022 campaign through the SMC Impact project. Four districts in Niger trialed a fifth round of SMC. One of these districts also extended the intervention into children aged five to nine years.

The team proceeded to review the monitoring tools. Assessment meetings were held for each round so the team could correct difficulties that had been encountered. Micro-plans and lobbying were also conducted to promote acceptance of the project. As not all districts were implementing SMC for children aged five to nine years, people from other districts brought their children in this age group so they could benefit from the intervention.

This project also made it possible to reach a target group (children five to nine years of age) that was previously not considered for SMC but is very affected by the disease of malaria. Other achievements include the following. As part of the monitoring and evaluation, there has been a revision of tools, micro-planning, joint supervision mission, and evaluation meetings of the results of the SMC campaign. Other achievements from the project include expansion of advocacy and communication activities as well as data management and analysis.

Mali: Adaptation of SMC – how many sites are necessary in a health district?

Mady Cissoko



The NMCP in Mali has been investigating what the best time to roll out SMC is. The team looked into monthly rainfall patterns and malaria incidence to inform themselves. In Mali, there are areas with non-seasonal rainfall. Other areas have very low levels of malaria, with sporadic malaria intensity during the rainy season as well as in districts where the burden of malaria is high and very seasonal.

The team also decided to review malaria surveillance data on a monthly level for up to five years. However, data was available for only three years. In two districts, it made sense to implement four cycles of SMC based on the data available while in others it was unclear. In yet another district (Diré), there was high transmission, but transmission was spread out through various seasons and in different districts. Based on this data, Mali decided to start SMC in July for those in the south and in August for those in the North. Cycles will vary from three to five months based on the district.

SMC Impact project in Guinea

Haba Moriba, CRS Guinea



Together with MMV and CRS, Guinea conducted a study to understand the cost-effectiveness of including an additional cycle of SMC in the health district of Dabola. In 2022, the team conducted a pilot project in Dabola. Work is also ongoing to conduct a comparative analysis as well as for the introduction of the new medicine, Pyramax, for treating uncomplicated malaria.

In general, there was an exclusion rate of 0.4 -1.8%. Malaria cases and deaths in Dabola also fell in comparison to control areas, and prior to the implementation of the SMC Impact project. All actions must be taken to implement transmission measures.

83% and 95% of target children were covered respectively in 2021 and 2022 by five cycles of SMC. There was positive appreciation and community support for this additional cycle of SMC being implemented. Administration of the first doses of SP-AQ by mothers or caregivers contributed to the reduction of children refusing, rejecting, or vomiting medication. Monitoring during and after each cycle of SMC improved SMC coverage. The exclusion of eligible children due to fever was also reduced during the July rounds.

The availability of Pyramax, which is a second line therapy for malaria, will reduce the pressure on artemether lumefantrine. Incorporating lessons learned from, and challenges identified during these first two years of the project will increase the impact of SMC on malaria indicators.



PMI Mali

Beh Kamate



This presentation looked at the background of payment in Mali through the PMI intervention. It also presented successes and lessons learnt. Since the start of SMC in Mali, PMI used to make payments by cash. However, this was not safe as the amounts delivered were very large.

However, from this campaign, it was identified that payment mechanisms must be varied. A stable internet connection is also needed to facilitate payments as are the right bank account details. PMI put in place a mechanism which included the installation of a committee and the collection of the copies of ID cards of field agents. The campaign was piloted for an SMC campaign with four cycles. Field agents were also trained. The payment agents also engaged with health centers and documents were verified by the bank agents. Documents that could not be verified were returned.

As a result of this mechanism, PMI was able to pay thousands of workers within three days. The finance workers were also able to make a dashboard which helped to identify the levels of payment that had been made. This payment mechanism helped to reduce the number of intermediaries needed for payments and reduced the risk of fraud as well as removed security risks. Overall, it helped to increase the commitment of community health workers. There was however a minimal percentage (1%) of failures.

PMI Niger

Daniel Koko



Impact Malaria has been supporting the NMCP of Niger since 2018. Community health workers were initially paid in cash, but carrying cash poses huge security risks. Moreover, there are also parts of Niger that are inaccessible by road transportation. Another key issue that is often encountered is the poor road network. What is more, as Niger implements four cycles of SMC, the team needed to justify reasons for the payment for the first cycle before proceeding to the other cycles, which caused delays in starting subsequent cycles. As such, a different mechanism that could address the above issues had to be put in place.

PMI employed companies to take responsibility for transferring money to community workers. This allowed the transfer of risk to money transfer companies. It also allowed for the payment of community workers within 48 hours. There would also be no loss of funds; this also eliminated the need for intermediaries. Nonetheless, there were some issues with the system such as limited communication channels between the agencies and health workers. Moreover, some health workers did not have mobile money accounts.

Lessons learnt

PMI needed to sign contracts with transfer agencies. This helped them plan when to start transactions. The increase in the number of transfer companies also increased competition and helped to stratify which agencies would be best placed to work with which communities. Preparatory meetings also helped agencies to communicate with respective health workers which also supported in increasing the commitment of community health workers.

Nationally validated microplans which are centered at all levels were also used. Each time a community health worker drops out, he/she is replaced with another community health worker and the list gets updated at all levels. The payment agent also ensures that agents are physically present for work as they are marked when they report to work before they are paid. They are also informed on time and arrive on time to make payments.

What is more, for those who did not have orange money numbers, PMI developed a tool that allowed a third party to receive the funds. In this case, they and that third party were asked to sign a form which authorizes PMI to make the payments.

SMC Alliance research priorities

Susana Scott; Co-chair SMC Alliance research sub-group

In September 2022, Malaria Consortium started a project to define future research priorities for SMC. The aim of the project is to reach consensus on a list of medium-term SMC research priorities over the next five to ten years. Three survey waves will be sent to everyone using the e-delphi methodology.

Surveys and responses can be in English or French. The surveys will look at the importance of the research; to what degree specific research questions have been answered; and whether they'd be feasible to conduct. The first questionnaire has already been sent out and the results have been analyzed.

For the first survey wave, 26 responses were received, but only 25 had data. For the results for the first survey, research questions were rated according to 1) their importance, 2) their feasibility, and 3) the degree to which they have already been answered on a five-point Likert scale.

Research themes that were accorded the highest priority were those to evaluate the impact of drug regimens; and the degree to which children could benefit from SMC. New questions suggested included: impact of using different drugs selecting resistance in the opposite directions; issues with overdosing; and the negative impacts of using SMC; among others.

Two questions were particularly polarizing in terms of importance ratings: Evaluate logistical challenges facing SMC campaigns; and evaluate the delivery of SMC through home visits at different times of the day on SMC outcomes.

As next steps, the team will update outcome data based on any new responses. They will also compile a list of new questions based on expert suggestions, for inclusion in Wave 2; and discuss and analyze responses from wave 1 in the SMC Alliance research subgroup.

MDA with DHA PQ and primaquine to reduce malaria in moderate to low malaria transmission settings in Senegal

Prof. Jean-Louis Ndiaye, University of Thiès



Senegal has reduced its burden of malaria by about 78%. Despite these efforts, malaria parasite reservoirs are not being reduced in some communities where malaria transmission is high and malaria is still endemic in these areas. The team therefore explored the use of a time-limited MDA with dihydroartemisinin-piperaquine (DHA-PQP) and single, low-dose primaquine in the context of optimized control which includes use of bed nets; community case management; and SMC to reduce the transmission of malaria in moderate-low transmission settings. They also investigated the use of MDA versus SMC on village level malaria incidence to determine if a parasite level of lower than 5 cases per 1000 can be reached in these villages.

A randomized control trial was conducted in 60 villages with a 3km buffer zone. These were split into two: 30 villages each in the SMC intervention area and 30 villages in the MDA intervention area. Single dose primaquine was given once. It also had to be converted into a syrup to be given to children and this took time. MDA was administered one month before administering SMC through the door-to-door approach. Home distributors were used to screen people daily. This incidence level was monitored over a year with malaria nets distributed prior to the intervention.

At least 80% of participants received at least one dose of MDA in the three rounds. The refusal rate was about 1-2%. Children were better covered in SMC than MDA. Reasons why people were not covered include absence due to market days, farming activities, traditional and religious ceremonies, etc.



In addition, as this was during the COVID era, due to negative social media communication, some people, especially adolescents and young people, were not willing to take the medicines.

MDA reduced the incidence of malaria by 53% compared to SMC. Effects of MDA on clinical incidence were also greater in those aged ten years and above. The effect of the intervention was about 70%. PCR and microscopic observations also revealed the same trends.

No changes have been observed so far in terms of molecular markers. Side effects observed for MDA were more than for SMC but were minor and minimal in number. It was also observed that children aged ten and above complained more of side effects. There was also a reduction in side effects as cycles increased.

vParticipant perceptions of MDA improved over rounds due to perceived reduction in malaria cases, added benefit of malaria prevention for adults, and less bitter taste of drugs. There was also active engagement by trusted leaders in the community. Teams increased reach by going to households early in the morning and through phone outreach in remote locations.

In conclusion, MDAs have had good acceptability despite some challenges. It is expected that MDAs will be scaled up in two other districts. A strategy is needed on how to cover nomadic and mobile populations as they could re-infect others if they are not covered.

WHO however has recommended against using MDA to reduce malaria transmission as MDA has been shown not to be appropriate for moving towards elimination.

Development of triple ACTs for noncomplicated

Mehul Dhorda – Mahidol University

There is partial resistance to artemisinin in some parts of East Africa. History of resistance to artemisinin shows that artemisinin resistance levels may be increasing. First there has already been emergence of partial resistance to artemisinin in several countries in the Greater Mekong which have brought failure rates to more than 50%.

Generally, when there is artemisinin resistance to artemisinin, clearance is delayed, and this needs to be cleared by a partner drug. This however also poses resistance to the partner drug in the future. For artemisinin to fail, there must be three mutations. As such the resistance and protection of partner drugs must be investigated and care must be taken when considering the partner drug.

A study in Cambodia showed that in areas where there have been high failure rates to DHA PQ, the treatment has proved effective when a third ACT was introduced. This new triple combination drug has also been well-tolerated. The benefits of triple ACTs go beyond bringing good health to the patient and includes protecting the wider population from malaria. This therefore suggests that even when triple ACTs may pose minor side effects, they still need to be considered due to the population-wide benefit. Of note, these studies were conducted before artemisinin resistance was recorded in East Africa. Overall, triple ACTs should be able to delay artemisinin ACTs. In addition, it is better to deploy triple ACTs early, rather than wait for artemisinin resistance to occur before deploying them.

The DeTACT project trail covers ten countries. These studies are ongoing and include testing AL, amodiaquine and artesunate amodiaquine. The studies were conducted in 3000 patients. Side effects recorded include an increased risk of bradycardia, although this was not found to be significant, as well as vomiting and anaemia. Full results are expected at the end of 2023. A second study, a fixed dose TACT study, is being planned and results are expected at the end of 2024. It is anticipated that dossiers will be submitted to WHO at the end of 2025. The cost of triple ACTs is also expected to be higher than double ACTs, but the difference is not expected to be extreme.



Future malaria chemoprevention landscape

Céline Audibert

Current malaria prevention interventions include the RTS,S vaccine while new products include mRNA vaccine, long acting injectables and monoclonal antibodies. These medicines will be available within eight to ten years. To understand which interventions and products should be administered and when, a market study was conducted consisting of 60 interviews with local central level respondents from NMCPs, academic research, funding partners and policy makers in Q2 and Q3 2022 by African Population Health Research Centre based in Nairobi. Questions were adapted to each country context and participants role and experience.

The positive findings for SMC that came out of the survey include trust in trials, awareness, financial and human resource support, and ownership by NMCPs. Negatives were lack of policy, issues relating to procurement, challenges with mobilizing financial and human resources especially in the face of COVID 19, and acceptance and adherence.

Regarding perennial chemoprevention, expected drivers include building existing EPI programmes and introduction in districts not eligible for SMC. However, concerns such as too much use of SP in infants, insufficient evidence, lack of involvement by decision makers and competing health priorities such as COVID-19. The attractive aspect of PMC is that it can be done in non-SMC areas and administered all year round.

For the RTS,S vaccine, key drivers included the pilots and involvement of WHO endorsement, building on past experiences from vaccination campaigns, community engagement and access to transportation facilities.

For the new interventions, knowledge was high for mRNA but low for long acting injectables (LAI) and mixed for monoclonal antibodies. A watch-and-wait position makes LAI and mAbs reduce their appeal. ■



Credits

Editor SMC Alliance 2023

Design Comstone, Geneva

Photographs

Cover	Carl Craft, MMV
P.5	Toby Madden/ MMV
P.6	Unknown, MMV
P.10	Emmanuel Masureka
P.11	Emmanuel Masureka
P.12	Emmanuel Masureka
P.19	Damien Schumann
P.21	Damien Schumann
P.24	Rawpixel
P.27	ELizabeth Poll, MMV
P.29	Emmanuel Masureka
P.32	Maud Majeres Lugand, MMV
P.33	Unsplash
P.34	Rawpixel