



# Integrating seasonal malaria chemoprevention and vitamin A supplementation

Lessons learnt from Nigeria

## Key learning

- Co-design and collaborative planning of the integrated seasonal malaria chemoprevention and vitamin A supplementation campaign with stakeholders at all levels encourages support, engenders active participation and facilitates programme ownership.
- Full integration of vitamin A delivery with seasonal malaria chemoprevention campaigns is feasible, with minimal incremental cost, and is acceptable to implementers and communities.
- Utilising existing health systems, and programme delivery structures and mechanisms during design and planning facilitates stakeholder buy-in.

## Background

Malaria, diarrhoea and pneumonia remain the leading causes of death in children under five in west and central Africa.<sup>[1]</sup> Malnutrition, including micro-nutrient deficiencies, are an underlying factor in 50 percent of these deaths.<sup>[2]</sup> Globally, about 190 million children under five are affected by vitamin A deficiency (VAD),<sup>[3]</sup> which increases the risk of fatality in children with measles, gastroenteritis and pneumonia. In Nigeria, the prevalence of VAD among under-fives was estimated at about 30 percent in 2018.<sup>[4]</sup> High dose vitamin A supplementation (VAS) can reduce all-cause under-five mortality by 24 percent, yet its coverage remains low in Nigeria at 45 percent.<sup>[5]</sup> To date, VAS has been delivered through fixed-post community outreaches during periodic Maternal, Newborn and Child Health (MNCH) Weeks, which have largely been ineffective in reaching the target population, particularly in hard-to-reach areas.<sup>[6]</sup>

Seasonal malaria chemoprevention (SMC) presents a viable platform to increase vitamin A coverage among children under five through door-to-door distribution. SMC achieves high administrative coverage (i.e. based on household survey data) of over 95 percent in most states where it is implemented.<sup>[7]</sup> An initial feasibility study by Malaria Consortium in 2019 that tested the co-implementation of SMC and VAS in one local government area (LGA) in northwest Nigeria indicated improved VAS coverage from two to 59 percent.<sup>[8]</sup> Building on our aim to strengthen the evidence for policy guidance on the full integration of VAS with SMC campaigns at scale, we conducted a follow-up study in 2021.



Mothers and children wait in line at a health facility, Niger state, Nigeria

## Project activities

With support from the Bill & Melinda Gate Foundation, under the Health Campaign Effectiveness project at the Task Force for Global Health, we carried out a study using a convergent mixed-methods approach to test the integration of VAS with SMC campaigns in Giade (rural) and Katagum (urban) LGA in Bauchi state between May and December 2021. We selected Bauchi for its low VAS coverage of 29 percent,<sup>[4]</sup> and the two LGAs based on their reported VAS coverage, locality and security situation. The 2021 study aimed to assess the feasibility, acceptability, effectiveness, equity, safety and cost of full integration of VAS into SMC campaigns in two contexts using a before and after evaluation method. To achieve our research objective, we:

- conducted key stakeholder engagement and advocacy at the national and state levels, as well as advocacy visits with traditional rulers and opinion leaders in the selected LGAs, encouraging project buy-in and ownership
- carried out stakeholder analysis and mapping, identifying and classifying stakeholders according to their power, interest and influence on the project
- held a co-design workshop to review recommendations and lessons learnt from the 2019 study, which we used to inform the design of the follow-up research and to develop a campaign co-implementation strategy
- inaugurated a research uptake committee, in partnership with the National Malaria Elimination Programme (NMEP), giving decision-making power to key stakeholders. We envisage that this will increase the likelihood that research results are translated into actionable policy recommendations
- reviewed and adapted existing standard SMC tools, training guides and job aids with stakeholders, integrating the VAS delivery component. The finalised data capture tools were used for implementation
- selected and trained field personnel — community distributors, health workers, and LGA and state personnel involved in SMC implementation, as well as those involved in nutrition programming — on the implementation strategy
- carried out community sensitisation and awareness raising about the integrated campaign in project LGAs using town announcements and media channels, particularly radio jingles
- implemented the integrated campaign during SMC cycle 4; we monitored and supervised implementation to ensure provider compliance and community adherence to the implementation guidelines
- qualitatively assessed the acceptability and feasibility of integration through focus group discussions and key informant interviews; and quantitatively assessed effectiveness, safety and equity through baseline and endline household surveys, as well as a financial and economic cost analysis that included the operational cost of integration, the opportunity cost of adding VAS to SMC, and the cost of vitamin A.

## Results

- Overall, 170,681 children received both SMC and VAS during the integrated campaign, whereas 157,876 received VAS only after the campaign.
  - VAS coverage increased from 1.2 percent at baseline (without SMC integration) to 82.3 percent at endline (with SMC integration), in both project LGAs.
  - Integration did not adversely affect the coverage of the SMC campaign (the proportion of children who received SMC medicines on day 1 of the course). There was no marked difference in coverage between baseline and endline, which was 91.9 and 89.4 percent, respectively.
  - The quality of SMC delivery was maintained: the proportion of children who received the first dose of SMC increased from 77.1 percent at baseline to 85.9 percent at endline.
  - Integrating VAS with SMC is safe in children 3–59 months.
- Adverse drug reactions were reported in only 1.6 percent of children who received VAS and SMC, and 4.1 percent of children who received SMC only.
- Integration was equitable. There was no difference between wealth indices, education level of caregivers, or age or sex of children who received SMC only, VAS only or SMC with VAS. However, more children received SMC and VAS in rural versus urban areas.
  - The total economic and financial cost per child that received SMC during the baseline cycle was \$0.94, while the cost per child receiving both VAS and SMC during the endline cycle was \$1.18. Integrating VAS into the usual SMC cycle introduced an additional minimal cost of \$0.24 per child.
  - Findings from focus group discussions and key informant interviews with the caregivers, implementers and government stakeholders showed that integration is feasible and acceptable.

## Lessons learnt

- Early, collaborative microplanning and targeted community engagement were critical to achieving high coverage of VAS. Integrating VAS requirements into SMC implementation micro plans for the two LGAs, with active engagement of all key stakeholders, was a priority. Adequate supply chain preparedness was critical to ensuring vitamin A and SMC medicines were available and co-packaged for distribution from the central medical stores to the health facilities. Using local announcers and radio jingles was particularly effective for targeted community awareness creation on the campaign and its benefits because the caregivers were informed about the date and time community distributors were going to visit their homes. Door-to-door distribution proved to be effective in achieving higher VAS coverage than that previously reported with the fixed-post-delivery approach used during biannual MNCH Weeks, where many children living far from functional health facilities were not reached. Community distributors were able to reach almost every household, irrespective of how remote they were.
  - The adoption of a co-design approach to develop the strategy that informed the study protocol provided the opportunity to identify and address potential bottlenecks to the integration. We adjusted community distributors' daily targets by factoring in a 30-minute wait after administering SMC medicines, before giving vitamin A. We reduced daily targets from 70 children per day to 56 children per day and added an implementation day to avoid compromising quality.
  - Using existing community distributors, selected from their communities and already trained and familiar with SMC implementation, ensured a seamless integrated delivery. Additional training on VAS delivery within an SMC campaign using pictorial algorithms and standard operating procedures reduced difficulties among community distributors in applying the slightly different age bands for the two interventions.
- Effective monitoring and supportive supervision of field personnel ensured compliance with integration and intervention guidelines. Prompt correction of errors using the 'sandwich' method — constructive feedback delivered between praise — by the supervisors was particularly useful in boosting community distributors' confidence and ensuring protocol adherence.
  - Harmonising VAS and SMC implementation tools (such as tally sheets, referral forms and summary sheets) and aligning these with the national district health information system (DHIS) Growth Monitoring Register — the reporting system for vitamin A — helped to test the feasibility of feeding campaign data into the national reporting platform, with promising results. The number of children reported on the DHIS platform to have received VAS increased during implementation (September–October) from 1,118 to 53,253 in Giade LGA, and from 1,631 to 91,699 in Katagum LGA.
  - Ensuring a strong pharmacovigilance system is in place is key to ensuring safe delivery of the integrated campaign. This includes specific key messaging about adverse drug reactions directed at caregivers during home visits.
  - Integrating VAS with SMC offers the opportunity to improve VAS coverage at a minimal additional cost. Seeking efficiencies in programme delivery with an established platform is a viable sustainability strategy that will enable the health system to achieve more with little additional cost.

# Recommendations

We recommend the following for scale-up of the integrated campaign:

1. **Early and all-inclusive stakeholder engagement** should be carried out to ensure consensus on integrated campaign implementation strategy before the start of campaign.
2. Implementers should ensure **all stakeholders for both programmes, malaria and nutrition, are involved during microplanning** to ensure inputs, processes and expected outputs are agreed.
3. Existing coordination platforms comprising key decision makers (both for the malaria and nutrition programmes) should be identified to provide oversight and coordination of the integrated campaign, to sign off on the implementation strategy, and to help with trouble-shooting and resolving bottlenecks during implementation. .
4. **Ensure quality data from the micro plans are used for commodity supply management.** State governments should source vitamin A and ensure sufficient quantities are available for integrated campaigns, using existing safe storage available from the MNCH Weeks. They should factor lead time for supply of commodities into distribution plans and campaign start dates. This would support the aim of reaching all eligible children with the drugs prior to the peak period of malaria transmission.
5. Key messages about the benefits, effects and side effects of vitamin A benefits should be **incorporated into the SMC communication strategy** and used for awareness creation at all levels.
6. Potential **increased workload of the additional intervention should be considered** in determining the daily targets for the community distributors to ensure protocol adherence without compromising the quality of delivery. In the event of campaign scale-up, the number of days allocated to delivery must be increased. .
7. **Existing government-owned data collection platforms should be used to capture campaign data.** Where there is no existing community-based health information system in place, or the existing system is inadequate, implementers should provide support to develop harmonised and sustainable data capturing tools. These would enable seamless data flow and quality checks for effective and efficient monitoring and evaluation of the integrated campaign.
8. **Ensure all staff are trained and properly equipped in pharmacovigilance.** They should be able to respond to and report adverse drug reactions to the National Pharmacovigilance Centre to ensure the safety of children receiving SMC and VAS, and to investigate moderate to severe reactions to determine their cause.
9. **Personnel remunerations should be paid promptly**, through appropriate institutional structures, to encourage staff to perform at their optimum capacities.
10. The NMEP, NPHCDA, the Child Health unit of the Federal Ministry of Health and state governments should **carry out a budget impact analysis and explore funding options for an integrated SMC and VAS campaign** to scale up the intervention



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**Cover image:** SMC implementation in Nigeria

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