malaria consortium

disease control, better health

Co-implementing vitamin A supplementation with seasonal malaria chemoprevention in Sokoto state, Nigeria: A feasibility study

Olusola Oresanya

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Introduction

Vitamin A deficiency

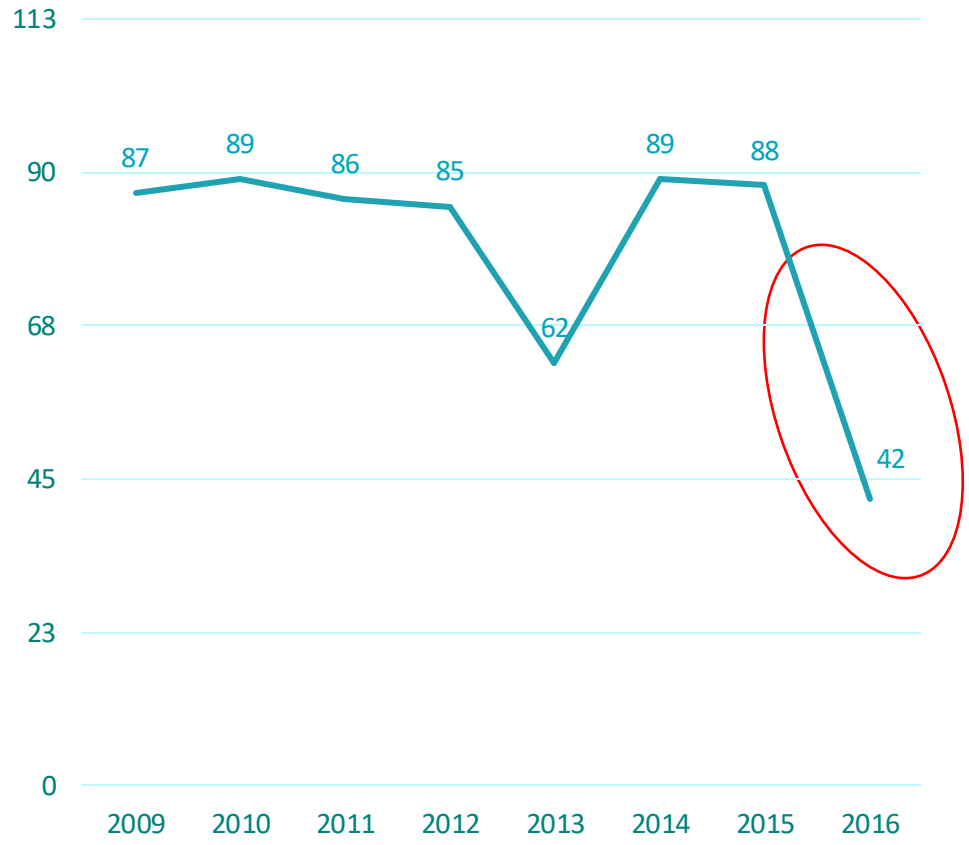
- Of the two billion people estimated to have micronutrient deficiencies globally, children in developing countries are most affected.
- Children with clinical signs of Vitamin A deficiency (VAD) are 3–12 times more likely to die than those who are not deficient.
- High-dose vitamin A supplementation (VAS) given twice yearly to children 6–59 months can reduce all-cause mortality by 24 percent.
- The World Health Organization (WHO) recommends high-dose VAS twice yearly for countries with high under-five mortality rates.
- Despite VAD being a major risk factor for child survival in Nigeria, in 2018, vitamin A coverage was just 41 percent.
- In Nigeria, VAS is delivered to children 6–59 months twice each year via the maternal, neonatal and child health (MNCH) weeks, using a fixed post delivery strategy.

Malaria and seasonal chemoprevention

- Nigeria has one of the highest malaria burdens, contributing about 25 percent to the global burden.
- Malaria deaths disproportionately affect children, especially those living in areas with highly seasonal malaria transmission, such as the Sahel.
- Seasonal malaria chemoprevention (SMC) is a WHO-recommended intermittent administration of full treatment courses of sulphadoxine-pyrimethamine and amodiaquine (SPAQ) during the malaria season to prevent malaria illness in children under five.
- SMC is delivered door-to-door by community distributors (CDs), targeting children 3–59 months.
- Nigeria introduced SMC as a pilot in 2013 and has since scaled up to all eligible states in the Sahel, reaching about 12 million eligible children in 2020.

Case for action

- According to the United Nations International Children's Emergency Fund (UNICEF), children vulnerable to VAD in priority countries more than tripled (from 19 to 62 million) in 2015–2016.
- Despite MNCH weeks in Nigeria, evidence showed no significant increase in MNCH interventions, including VAS coverage.
- In 2018, VAS coverage in Nigeria (41 percent) varied widely sub-nationally, ranging from six to 86 percent.
- The number of states meeting the effective coverage threshold of 70 percent has been declining in Nigeria since 2014.

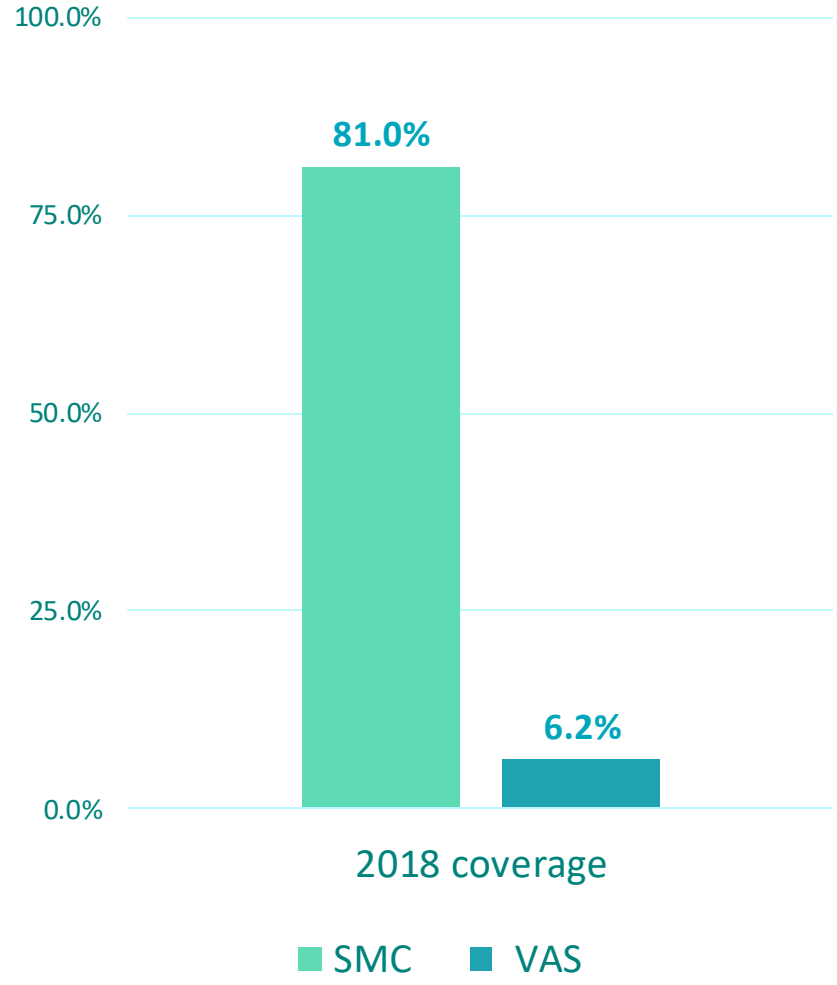


Vitamin A coverage in priority countries with under-five mortality rates >70 percent

Source: UNICEF global nutrition database. Coverage at a crossroads: New directions for vitamin A supplementation programmes. [2018; cited 2020 Sep 29].

Why integrate VAS with SMC?

- WHO recommends integrating VAS into public health programmes aimed at improving child survival.
- SMC presents a ready platform and an opportunity to do more with available resources.
- Both SMC and VAS target children under five.
- SMC has been successful in reaching eligible children, even in hard-to-reach areas, achieving high coverage via door-to-door visits.
- Vitamin A coverage is very low compared to SMC coverage.
- Currently, we could reach 12 million children via SMC and VAS given at least once during the year — potentially more as SMC is scaled up.



SMC versus vitamin A coverage in Sokoto state, 2018

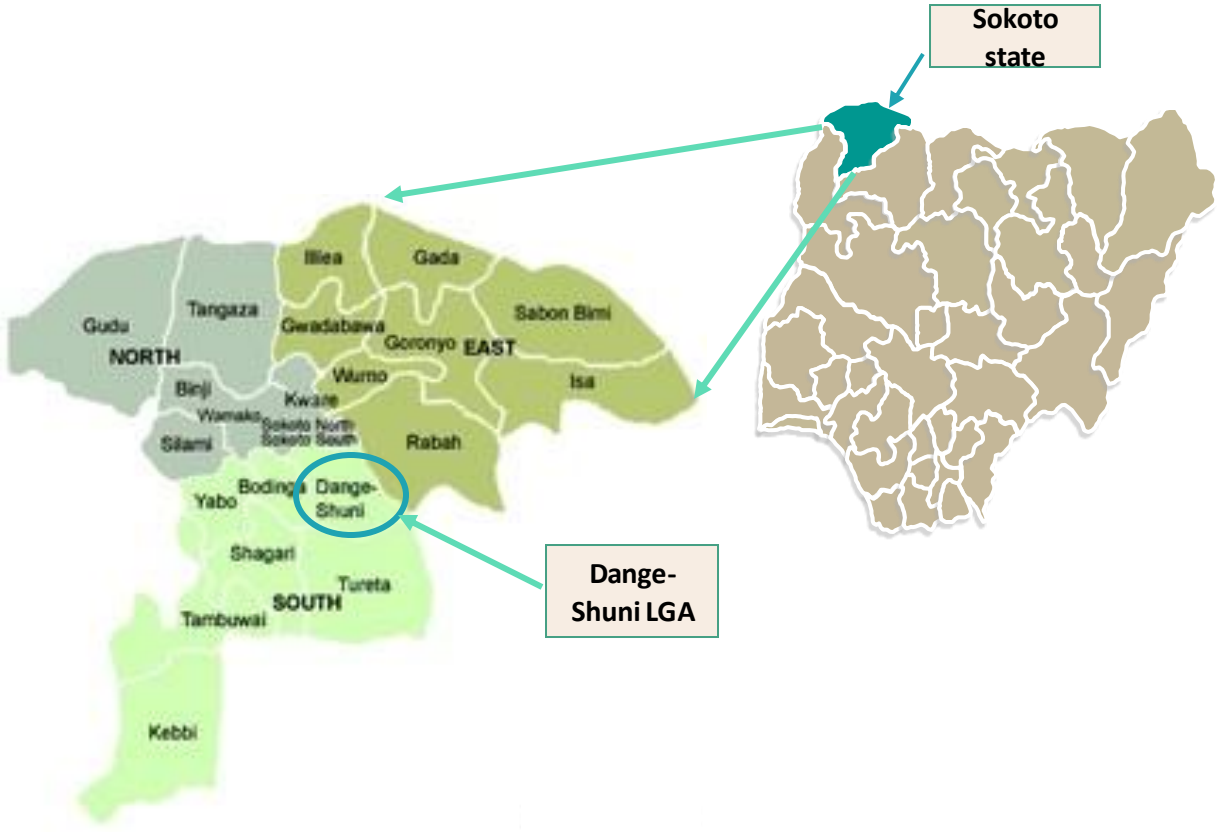
Sources: UNICEF. National Nutrition and Health (NNHS) 2018. [cited 2019 Feb 28] and Malaria Consortium. SMC survey in Northern Nigeria 2018: Final report. Oxford Policy Management: Nigeria; 2019.

Methodology

Study location and context

Malaria Consortium integrated VAS during the last cycle of SMC delivery in Dange-Shuni local government area (LGA), Sokoto state, in October 2019.

Total population (2019 projection)	285,697
Target population (children under five)	57,139
SMC coverage (2018)	100 percent



Map of Sokoto state in Nigeria showing Dange-Shuni LGA

Source: Welcome to Sokoto. Sokoto state profile. [2015; cited 2019 Jun 25].

Study aim and objectives

The aim of this study is to explore the feasibility and acceptability of integrating VAS with SMC in one LGA in Sokoto state.

Principal research question:

- Is delivering vitamin A to children 6–59 months via SMC feasible and acceptable?

Primary objective:

- to assess the feasibility of integrating VAS with the SMC programme.

Secondary objectives:

- to explore the acceptability of integrating VAS with SMC from the perspective of community health workers (CHWs) and caregivers
- to estimate the potential effect of the integrated strategy on SMC coverage.

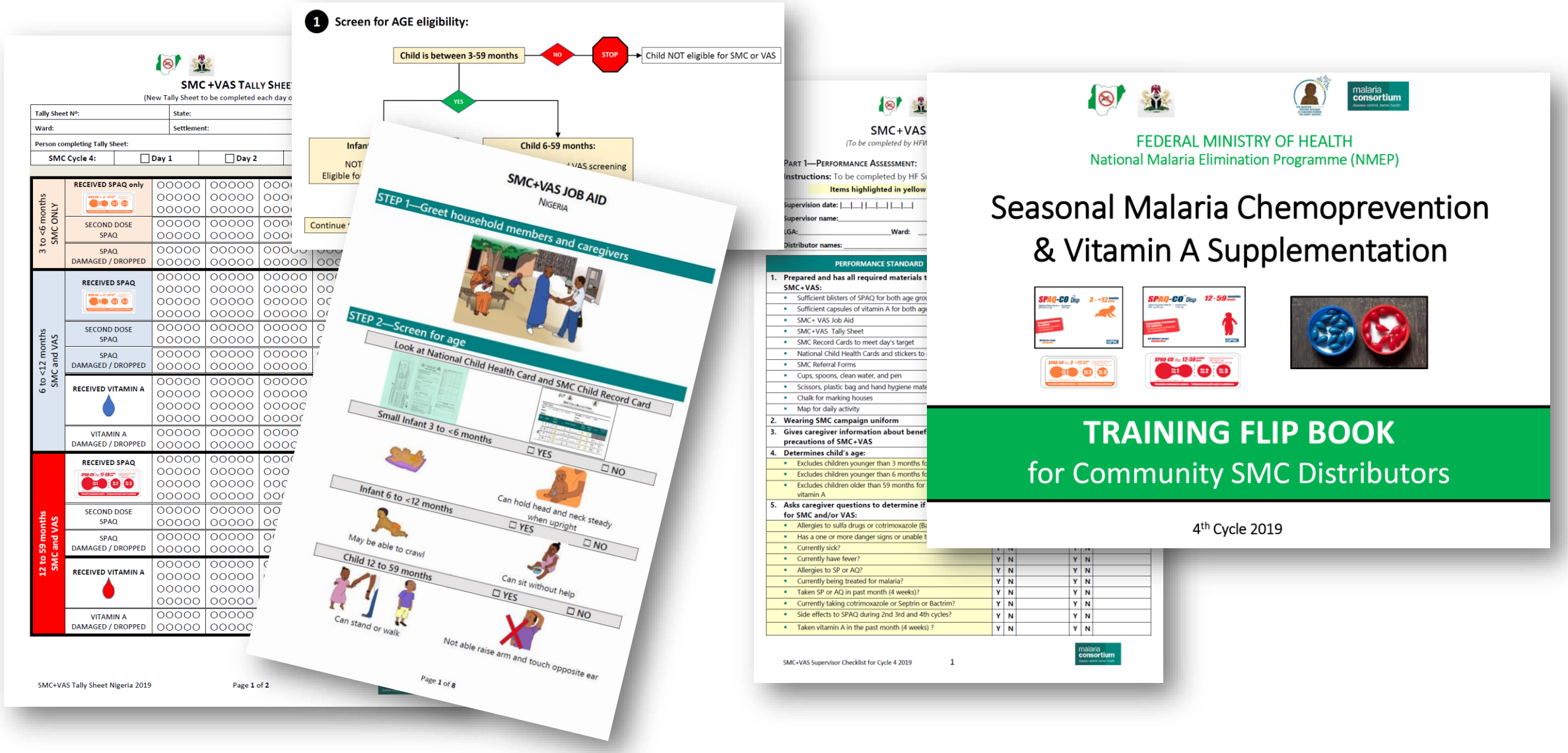
Eligibility criteria

Eligibility for SMC	Eligibility for VAS
Inclusion criterion	**Inclusion criterion**
• child is 3–59 months	• child is 6–59 months
Exclusion criteria	**Exclusion criteria**
• aged 5–10 years	• aged 5–10 years
• allergy to SP or AQ or cotrimoxazole (septrin or bactrim)	• child has severe respiratory infection or difficulty breathing
• child has taken SP or cotrimoxazole (septin or bactrim) in the past four weeks	• child has taken vitamin A in the past month.
• child is very sick	
• child has fever.	

Study design, sampling and data analysis

- Mixed methods implementation research was conducted.
- Stakeholder engagement involved nutrition, malaria and child health programmes.
- Training: CHWs and supervisors (already trained in SMC delivery) were trained in adapted tools and standard operating procedures for co-implementation of VAS and SMC.
- Implementation: 4th SMC cycle, November 2019.
- Baseline and endline household coverage surveys (n≈180)
    - Structured questionnaire on mobile Android devices and coverage point estimates, along with 95 percent confidence intervals (CIs), calculated and compared between survey periods using cluster-adjusted chi-square tests.
- Key informant interviews (n=12) and focus group discussions (n=12)
    - Audio recordings and notes transcribed and thematic content analysed.

Adaptation of tools for co-implementation



Results

Coverage at baseline and endline

- VAS coverage increased significantly between baseline and endline, rising from two to 59 percent.
- SMC coverage increased slightly from 70 to 76 percent; however, these estimates were not statistically significant.

Variable	Baseline (n=188)		Endline (n=197)		
	percent	CI	percent	CI	p value
Child received vitamin A					
Yes	1.6	0.4–7.0	59.4	47.0–70.7	<0.001
No	98.4	93.0–99.7	40.6	29.3–53.0	
Child received SMC					
Yes	69.7	57.4–79.7	75.6	64.8–84.0	0.412
No	30.3	20.3–42.6	24.4	16.0–35.2	

Effect of integration on quality of SMC delivery

Variable	Percent at baseline (n=131)	Percent at endline (n=149)	p value
Child received first dose from CD on first day (DOT)	67.5	53.7	0.264

- Administration of the first dose of SMC by the CDs through directly observed therapy (DOT) was not significantly different between baseline and endline.

Perception of feasibility

- Caregivers liked the ease and convenience of door-to-door drug distribution and expressed an interest in seeing the programme extended more widely.
- Key informants:
    - believed low technical knowledge needed to administer VAS facilitated integration with SMC
    - noted potential confusion that could arise from administering dosing regimens of VAS and SMC to different age groups
    - mentioned logistical difficulties in deploying materials and drugs to hard-to-reach areas to avoid stock-outs
    - felt integration was time-consuming and some CDs were unable to reach the targeted number of children due to excessive workload.
- CDs wanted remuneration to be commensurate with their increased workload.

Perception of acceptability and sustainability

- Most CDs and supervisors reported that “every house accepted us” and “everybody was willing” for their children to receive SMC and VAS.
- Key informants were in favour of scaling up the integrated programme.
- Supervisors wanted state government to take ownership of the integrated programme in terms of contribution, funding and accountability.
- Community members should be encouraged to take ownership of the programme by participating in planning.

Summary of key findings

- Co-implementation of VAS and SMC is feasible and generally acceptable.
- VAS coverage increased by integrating its delivery with SMC.
- The integration of VAS did not negatively affect SMC coverage or quality.
- CDs could potentially be confused over the different SMC and VAS dosage regimen for different age groups.
- Co-implementation could be time-consuming and result in extra work for CDs.

Key messages and implications of findings

- The SMC campaign could be used as a complementary platform to MNCH weeks for delivering at least one dose of VAS to eligible children annually, with higher coverage.
- However, scaling up will require:
    - validation of the study's findings at a larger scale
    - testing in varied contexts to tackle potential barriers at a larger scale
    - evaluation of cost-effectiveness to inform scale-up
    - addressing future barriers to implementation identified in the study
    - developing and testing alternative delivery approaches for SMC and VAS to reduce CDs' workload (e.g. extending delivery periods or increasing number of CD teams)
    - proper training and supervision to manage confusion over eligibility for different dosages of VAS and SMC.

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Principal Investigator: Dr Olusola Oresanya, Malaria Consortium Nigeria
E-mail: o.oresanya@malariaconsortium.org

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