Achieving Equitable and Feasible Campaign Integration through SMC and Vitamin A Collaboration: Findings from Bauchi State Nigeria
Outline

- Background
- Study purpose, objectives and Methods
- Project’s Theory of Change
- Study implementation plan
- Results
- Lessons Learned
- Summary of key messages
## Background and problem addressed

### Background

- 190 million children U5 are affected by vitamin A deficiency (VAD) globally.
- Prevalence is 30% in Nigeria
- VAD is a major risk factor for child survival, children with clinical signs of vitamin A deficiency are 3-12 times more likely to die than those non-deficient
- High-dose vitamin A supplementation (VAS) delivered twice per year is a proven low-cost intervention which can reduce all-cause mortality in children by 24%.
- WHO recommends bi-annual high-dose VAS given every 4-6 months to children aged 6-59 months who are at risk of VAD

### Problem or Gap

- VAS campaigns in place in Nigeria have largely been ineffective due to poor implementation of the MNCH Week strategy
- In 2018, **VAS coverage in Nigeria was 45%** with wide variations sub-nationally, ranging from 6 to 86% – inequity
- The number of states meeting the effective coverage threshold of 70% has been on the decline since 2014.
- Addressing the poor coverage of VAS is key for child survival in Nigeria and critical for universal health coverage.
- Based on WHO’s recommendation to integrate community interventions, **SMC provides an existing viable and promising platform within which VAS could be fully integrated to achieve higher coverage**
- A pilot study was conducted earlier in Sokoto with promising results but outstanding research questions
Study Location

Study locations are Giade (rural) and Katagum (urban) LGAs of Bauchi State, North East, Nigeria

Health indicators in Bauchi State

- Stunting prevalence of 55%
- VAS coverage (National Nutrition and Health Survey) was 29%
- SMC implementation started in Bauchi in 2020 and covered 10 LGAs, including Giade and Katagum.

The average administrative SMC coverage for the state for the 2020 round was 103%.
Study purpose and objectives

Purpose

• To provide a body of evidence to support policy makers’ decision-making regarding full integration of VAS with SMC campaigns at scale and in diverse settings using a mixed methods study design

Objectives:

1. Design and implement in collaboration with key stakeholders, an integrated SMC plus VAS campaign at scale and in diverse settings (rural and urban) in Bauchi state as part of the existing SMC program.
2. Assess the feasibility (including effectiveness, equity, safety and cost) and acceptability of integrating VAS with SMC among caregivers, CDDs and health workers as well as policy makers.
3. Develop and implement a research uptake plan
4. Provide policy makers and stakeholders with a body of evidence to inform decision about integrated SMC and VAS in Nigeria

Outcomes

Intermediate Outcome 1:
Demonstrated high coverage of Vitamin A delivered through integration with SMC campaigns at scale

Intermediate Outcome 2:
Policy decision-making facilitated through availability of a body of evidence on integrating VAS into SMC delivery platforms.
Research Questions and methods

**Primary Research Question**: What is the effect of full integration of SMC with VAS at scale on vitamin A coverage, SMC coverage, safety, equity and cost?

**Secondary Research Questions**:

1. What is the acceptability of integrating vitamin A with SMC from the perspective of community health workers and caregivers?

1. What are caregivers’ & community health workers’ perceptions of feasibility of integrating SMC with VAS?

**Design**

- An implementation research study that used a convergent mixed-methods approach to test the integration of VAS with an SMC program in different settings and provide information to fill knowledge gaps; and pragmatic evidence that can be used to inform policy adoption and subsequent scale-up or expansion.

**Qualitative** – assessed acceptability and feasibility

- Focus Group Discussions (FGDs) targeting Community Drug Distributors (CDDs), their supervisors delivering the intervention and caregivers of children who will receive the integrated package

- Key informant interviews (KIIs) targeting program managers at policy level, LGA and health facility level, State, and technical partners

**Quantitative** – assessed effectiveness, safety and cost

- Baseline and endline household surveys before and after the distribution of vitamin A via SMC in the study sites

- Cost analysis - secondary cost data to be provided by the SMC program finance unit to ascertain financial and economic cost of the integrated campaign
Assumptions:
1. Commodity availability guaranteed from the existing SMC program and Vitamin Angels
2. Stakeholders willing and available for co-creation and design of implementation strategy
3. Security or any other unforeseen challenges do not disrupt project implementation as planned
4. Stakeholders, policy makers own research findings and use them to guide decision on adoption of integrated VAS with SMC
# Study implementation plan

## Planning
- Stakeholder analysis and mapping for the integrated campaign
- National, state and LGA level Stakeholder engagement
- Co-creation of implementation strategy
- Inauguration of Research Uptake Committee
- Protocol development and ethics approval

## Quantitative evaluation
- Coverage
- Safety
- Equity
- Quality of SMC
- Cost

## Implementation
- Adaptation, validation & printing of integrated field implementation tools
- Recruitment and training of Field personnel
- Community mobilization and awareness creation
- Integrated campaign implementation

## Quantitative & qualitative
- House hold survey of 540 HHs
- 12 FGDs & 12 KIIs

## Dissemination
- State level dissemination
- National dissemination
- Dissemination April 2022

## Research Uptake Plan & Timeline
- Project inception February – March 2021
- Baseline evaluation September 2021
- Intervention April - October 2021
- Endline evaluation November 2021

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**Health Campaign Effectiveness**


A program of [The Task Force for Global Health](https://www.thetaskforce.org)
VAS coverage increased from 1.2% at baseline (without SMC integration) to 82.3% at endline (with SMC integration), in both project LGAs.

Integration did not adversely affect the coverage of the SMC campaign.

SMC coverage was 91.9% at baseline and 89.4% at endline, however this difference was not statistically significant ($P$-value =0.175).

Self-reported SMC and VAS Coverages were higher than card-confirmed coverages.
Results: Quality of SMC delivery

- The quality of SMC delivery was not affected by the integration, it improved significantly following integration.

- The proportion of children who received the first dose of SMC increased from 77.1% at baseline to 85.9% at endline.

<table>
<thead>
<tr>
<th>First dose SMC given as DOT</th>
<th>Baseline</th>
<th>Endline</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>114 (22.9)</td>
<td>68 (14.1)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Yes</td>
<td>384 (77.1)</td>
<td>414 (85.9)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>498 (100)</td>
<td>482 (100)</td>
<td></td>
</tr>
</tbody>
</table>
### Results: Equity

<table>
<thead>
<tr>
<th>Background Characteristics</th>
<th>Vitamin A</th>
<th></th>
<th>SMC</th>
<th></th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No  n (%)</td>
<td>Yes  n (%)</td>
<td>P-value</td>
<td>No  n (%)</td>
<td>Yes  n (%)</td>
</tr>
<tr>
<td>Child's age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-11months</td>
<td>11 (11.6)</td>
<td>40 (9)</td>
<td>0.624</td>
<td>8 (14.0)</td>
<td>43 (8.9)</td>
</tr>
<tr>
<td>12-59months</td>
<td>84 (88.4)</td>
<td>402 (91)</td>
<td></td>
<td>49 (86.0)</td>
<td>439 (91.1)</td>
</tr>
<tr>
<td>Child's sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>55 (57.9)</td>
<td>189 (42.8)</td>
<td>0.064</td>
<td>30 (52.6)</td>
<td>215 (44.6)</td>
</tr>
<tr>
<td>Male</td>
<td>40 (42.1)</td>
<td>253 (57.2)</td>
<td></td>
<td>27 (47.4)</td>
<td>267 (55.4)</td>
</tr>
<tr>
<td>Household religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>3 (3.2)</td>
<td>4 (0.9)</td>
<td>0.126</td>
<td>3 (5.3)</td>
<td>4 (0.8)</td>
</tr>
<tr>
<td>Islam</td>
<td>92 (96.8)</td>
<td>438 (99.1)</td>
<td></td>
<td>54 (94.7)</td>
<td>478 (99.2)</td>
</tr>
<tr>
<td>Wealth index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest</td>
<td>39 (40.2)</td>
<td>158 (35.7)</td>
<td>0.838</td>
<td>27 (47.4)</td>
<td>170 (35.3)</td>
</tr>
<tr>
<td>Middle</td>
<td>30 (30.9)</td>
<td>145 (32.8)</td>
<td></td>
<td>16 (28.1)</td>
<td>159 (33.0)</td>
</tr>
<tr>
<td>Upper</td>
<td>28 (28.9)</td>
<td>139 (31.4)</td>
<td></td>
<td>14 (24.6)</td>
<td>153 (31.7)</td>
</tr>
</tbody>
</table>

No significant difference between the children that received SMC and VAS at endline and those who did not receive when analyzed against their background demographic characteristics, child's age, sex, household religion and wealth index.
Results: Equity -2

<table>
<thead>
<tr>
<th>Background Characteristics</th>
<th>Vitamin A</th>
<th></th>
<th>SMC</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>P-value</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td>n (%)</td>
</tr>
<tr>
<td><strong>Locality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>58 (61.1)</td>
<td>211 (47.7)</td>
<td>0.023</td>
<td>46 (80.7)</td>
</tr>
<tr>
<td>Rural</td>
<td>37 (38.9)</td>
<td>231 (52.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Caregiver's highest level education attended</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Formal Education</td>
<td>78 (82.1)</td>
<td>344 (78.0)</td>
<td>0.474</td>
<td>45 (79.0)</td>
</tr>
<tr>
<td>Pre-primary</td>
<td>0 (0)</td>
<td>1 (0.2)</td>
<td></td>
<td>0 (0)</td>
</tr>
<tr>
<td>Primary</td>
<td>5 (5.26)</td>
<td>45 (10.4)</td>
<td></td>
<td>6 (10.5)</td>
</tr>
<tr>
<td>Secondary</td>
<td>7 (7.37)</td>
<td>40 (9.0)</td>
<td></td>
<td>2 (3.5)</td>
</tr>
<tr>
<td>Higher</td>
<td>5 (5.26)</td>
<td>11 (2.5)</td>
<td></td>
<td>4 (7.02)</td>
</tr>
</tbody>
</table>

However, we discovered that children living in urban areas were less likely to be reached with SMC or VAS.
## Results: Cost

<table>
<thead>
<tr>
<th></th>
<th>SMC without VAS (baseline)</th>
<th>SMC with VAS (Endline)</th>
<th>Main cost drivers for both campaigns: Cost of distribution, SPAQ and training.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average cost per child fully covered</td>
<td>$0.94</td>
<td>$1.18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Excludes design and start up cost)</td>
<td>(Excludes design and start up cost)</td>
<td></td>
</tr>
<tr>
<td>Additional cost of integration per child</td>
<td>0.24 (₦98.11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost categories:</td>
<td>SMC drugs (SPAQ), labor, training, meetings, supervision, Vitamin A, demand creation, opportunity costs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The total cost per child receiving only SMC at baseline was $0.94 (₦385.6), while the total cost per child receiving both vitamin A and SMC at endline was $1.18 (₦483.71).
- Integrating VAS into the usual SMC cycle introduced an additional minimal cost of $0.24 (₦98.11) per child.
Lessons Learned

1. Early, collaborative microplanning (which integrated VAS requirements into SMC implementation micro plans) and targeted community engagement were needed to achieve high VAS coverage. This involved the active engagement of all key stakeholders.

2. 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.

3. Door-to-door distribution proved to be more effective than the current national strategy in achieving higher VAS coverage. Community distributors were able to reach almost every household, irrespective of distance.
Lessons Learned...cont’d.

4. Using existing community distributors, selected from their communities and already trained in/familiar with SMC implementation with adequate supervision, ensured a seamless integrated delivery.

5. 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.

High-dose vitamin A supplementation (VAS) delivered twice annually is a proven low-cost intervention that has been shown to reduce all-cause mortality in children.

Integrating VAS with SMC improved VAS coverage at a minimal additional cost, without lowering the quality of SMC service. Leveraging on established and acceptable platform is a viable sustainability strategy.

Stakeholder and caregiver engagement at all levels on behavioural expectation was critical to success.

Integrating VAS with SMC is safe, feasible, acceptable to community members and implementers, and can be achieved at minimal additional cost.

Integration of VAS with SMC can strengthen the health system for more equitable service delivery and provide a template for deployment in other health interventions.
Project team

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THANK YOU.