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Research Article

Community Engagement in Routine Vitamin A Supplementation: Opportunity for first Contact for Children 6-11 Months of Age in the two Health Districts in Far North Cameroon

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Abstract:

Introduction: Vitamin A supplementation (VAS) is one of the most cost-effective interventions with the greatest impact in reducing infant and child mortality. The implementation of this intervention is done through routine mass campaigns in health facilities (HFs) following the child immunization schedule. Mass VAS campaigns are costly, donor-driven, and heavily dependent on funding for mass immunization campaigns. According to DHIS 2 (2020) data, Kaele and Guidiguis health districts had VAS coverage below 70% for 6-11 months in 2019.

Results: In the two health districts, 188 people benefited from capacity building on VAS activities. That is 42 health workers (HWs) and 146 community health workers (CHWs). Of the 3520 children (50.5% girls and 45.5% boys; Guidiguis=1696 and Kaele=1824; average age= 7 months) who received their first dose of vitamin A (first contact), 2194 (62.32%) were in the HF and 1326 (37.66%) at the community (25.73% in advanced strategies and 11.93% in home visits (HVs).

Conclusion: The capacity building of HWs and CHWs to be involved in VAS programs is a form of community engagement that could help catch up with children who are not accessing HFs services at the community level for VAS. We recommend further comparative research on the cost-effectiveness of community engagement in VAS programs versus mass vitamin A campaigns.

Key words: vitamin a; vitamin a supplementation; child, nutrition; six-month contact

1. Introduction

In Cameroon, the infant and child mortality rate remain high at 80 deaths per 1,000 live births. In the Far North region, this rate is higher than the national average, with a death rate of 102 per 1000 live births. This region is also one of the areas (along with the North and Adamaoua) in which the prevalence of micronutrient deficiencies is generally very high, such as vitamin A deficiency, which affects more than 35% of children [1]. Vitamin A supplementation (VAS) is one of the most cost-effective interventions to reduce infant and child mortality [2]. This scientific evidence shows that VAS for children reduces all cause infant mortality by 23% and, if implemented at 6 months of age, could reduce infant mortality by 2.3% (children 6-11 months old). In an environment where exclusive breastfeeding is not widely practiced, with a rate of 40% [1], many children arrive at 6 months with a high risk of vitamin A deficiency. VAS at 6 months of age should reduce the risk of vitamin A deficiency

and improve the chances of survival. The point of contact at 6 months (PC6M) to receive vitamin A is not always sufficiently developed and therefore most children do not receive their first dose of vitamin A until 9 months when they come for measles vaccination.

The integration of VAS into polio campaigns has been documented as a good practice in Angola, Chad, Côte d'Ivoire, Tanzania, and Togo [3]. Mass campaigns are costly, donor-driven, and heavily dependent on funding for mass vaccination campaigns. There is a need to analyze alternative opportunities to cover large numbers of children for vitamin A supplementation at first contact. The Ministry of Public Health (MoH) of Cameroon is supported by several partners to strengthen nutrition activities in Cameroon.

In the far north of Cameroon, the International Humanitarian Organization, Helen Keller International (HKI) has been working with the MoH since 2017 to strengthen community participation in VAS in two health districts of Kaele and Guidiguis. Our study aimed to examine gaps among children supplemented with vitamin A in the community at first contact with strengthening community participation by Community Health Workers (CHWs) in 2020 in the two districts.

2. Materials and methods Study design

This is a descriptive cross-sectional study of children aged 6-11 months who received vitamin A supplementation for their first contact in the period April to December 2020, based on secondary data extracted from the Vitamin A registers of the health facilities in the districts of Kaele and Guidiguis.

Sampling and study population

2.1.1. Sample

The sampling was exhaustive, with all children who visited health facilities in the target districts and whose data were available and complete in the Vitamin A registers being enrolled in the study. A total of 3520 children who received their first dose of vitamin A between April 1st and December 31st, 2020, were enrolled in the study.

2.1.2. Population and sites

The Kaele and Guidiguis health districts are in the far north region of Cameroon, in the department of Mayo Kani, and had 29 health areas in 2020. In the same period, the number of children aged 6-11 months living in the two health districts was estimated at 4,314 and 7,238 respectively, and the target vitamin A coverage was 80% in each district [4]. According to DHIS 2 (2020) data, both health districts had VAS coverage in the first quarter of 2019 below 70% for 6- 11 months and below 50% for 12-59 months. VAS coverage in Guidiguis and Kaele districts was 57.4% and 47% for 6-11 months and 21.1% and 12.6% for 12-59 months, respectively [5].

a. Tools and data collection

Data were collected for one month, from 1er to November 30, 2021, from vitamin A supplementation records available in the health facilities (HF) of both districts. Two investigators (one per district) reviewed the available data from April 1er to December 31, 2020. Only data for children aged 6-11 months in the study area were extracted from the registers. The data collected from the registries were directly entered into an ODK form by smartphone and exported to KoboCollect. The data sent to KoboCollect were reviewed, processed and compiled daily by a study investigator. A questionnaire was also administered to each health facility manager to collect data on the number of NPHs and CHWs by gender who received capacity building on VAS activities in the health area during the year 2020. This data was also entered into ODK and transferred to KoboCollect.

b. Methods of analysis

The data entered on ODK, were exported from KoboCollect in Excel format (xlsx), and then groomed by an investigator from the research team. Proportions, tables and figures were generated by pivot table using Microsoft Excel 2010.

c. Ethical Consideration

This research uses secondary data from the literature review of health facility registers in the two target health districts. The data collected were de-identified to preserve the confidentiality of the study targets. Only the study investigators, participants in the collection and analysis of the study had access to the database. The smart phones and the Kobo Collect account that housed the data had password-protected access, accessible only to the study investigators. The study received health clearance for implementation from the relevant health districts.

3. Results

The review and analysis of data from Vitamin A supplementation records over a 9-month period (1st April to 31st December 2020) in 32 health facilities in Kaele and Guidiguis health districts showed the following results.

a. Socio-demographic data

A total of 3520 children aged 6-11 months were enrolled in 32 health facilities in the two target health districts: 1696 (48.1%) in Guidiguis and 1824 (51.8%) in Kaele. The number of male children was significantly lower than the number of female children, with 1741 (49.4%) and 1779 (50.5%) respectively, for a sex ratio of 1.02. The age of the children ranged from 6 to 11 months, with an average of 7 months, a variation of 6 and 8 months respectively between the two districts Kaele and Guidiguis, standard deviation 1.5 months for both sexes.

Heath districts	Female	Male	Total	Average age (months)
Guidiguis	840 (49,52)	856 (54,47)	1696 (48,18)	8,02
Kaele	939 (51,48)	885(48,51)	1824 (51,8)	6,98
Total	1779 (50,53)	1741 (49,46)	3520 (100%)	7,45

Table 1. Distribution of children by sex, age by district

b. Strengthening community participation

The document review of the health districts' activity reports showed that the Kaele and Guidiguis health districts, thanks to the support of the partner Helen Keller International, had benefited from a capacity-building workshop held over two days in both districts on September 25-26, 2019 (the previous year of the study period). The first day of training targeted the heads of health facilities and the managers of the expanded program on immunization (EPI) in each health facility and the second day targeted the CHWs. Topics on the agenda included: (i) Overall presentation of the vitamin A project; (ii) Project implementation strategy and data collection tools; (iii) Roles and responsibilities of project stakeholders and (iv) Financial Procedure for the Payment of Actors.

Table 2 below summarizes the number of participants in the capacity building workshops in the two health districts. A total of 146 CHWs and 42 health workers (HWs) were trained by MoH with support of the partner HKI in the two health districts. In Kaele district, each HF benefited from capacity building on nutrition activities for 01 HW and 05 CHWs per health area, for a total of 70 CHWs and 14 HWs. In Guidiguis health

district, at least 02 HWs per health area (except for two health areas which had benefited from 04 each) and at least 05 CHWs per health area (06 CHWs in one area) had benefited from capacity building, i.e., a total of 28 HWs and 76 CHWs respectively.

	District	Male	Female	Total
HWs	Kaele	14	00	14
	Guidiguis	24	04	28
Total		38	05	42
CHWs	Kaele	48	21	70
	Guidiguis	65	11	76
Total		113	33	146
Totals		151	36	187

Table 2: Number of participants in the trainings, DS Kaele and Guidiguis

According to Table 2, of the 187 participants trained in these two health districts, 80.75% were men (38 HWs and 113 CHWs) and 19.25% were women (4 HWs and 113 CHWs). There was a low participation rate of women in the health services.

c. Gateways and first contact to vitamin A supplementation in the districts

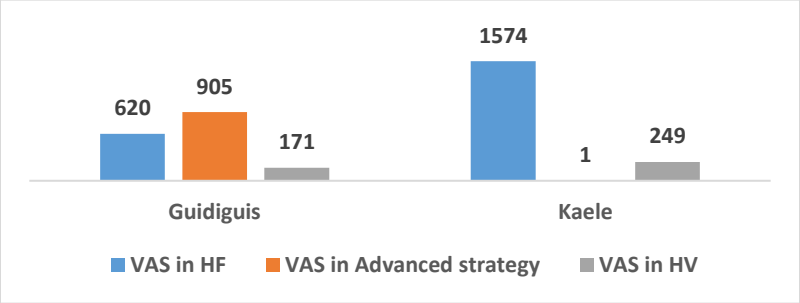

Figure 1: Distribution of VAS by entry point and health districts

In both districts, during the study period, community activities such as advanced strategies were organized by the health services for areas far from the health facilities with a minimum primary health care package and with the support of CHWs living in the intervention area. The home visits (HVs) were organized by the CHWs in the community with a reduced package of activities, such as the search for signs and symptoms of malnutrition in 6–59-month-olds, vitamin A supplementation, distribution of micronutrient powders (MNPs) and deworming. In both districts, three entry points for the first VAS contact were recorded: (i) VAS in the HF; (ii) VAS in the advanced strategy and (iii) VAS in the HVs. In Kaele health district, the HF remains the major entry point with 1574 children supplemented; and in Guidiguis health district, the advanced strategy registers the largest number of children supplemented with 905 children (Figure 1).

Table 3 shows that most children were supplemented in the health facilities, with 62.32% (2194/3520). This coverage remains low compared to the annual coverage often targeted (80%). The other entry points outside of the services offered in the health facilities made it possible to supplement 37.6% of children in the community for the first VAS contact. Of the 1,326 children who received their first dose of vitamin A in the community, 25.73% of children were supplemented with advanced strategies and 11.93% with home visits by CHWs. In the Guidiguis health district, the gateways outside the health facility services represent the largest proportion of children who received their first contact supplementation with 63.44%, i.e., 53.36% in advanced strategy and 10.08% in HV, compared to 36.5% in HFs.

Items	HFs		Advanced strategy		HV		Total	
	Nbre	(%)	Nbre	(%)	Nbre	(%)	Nbre	(%)
Guidiguis	620	36,55	905	53,36	171	10,08	1696	100
Féminin	315		451		74		840	
Masculin	305		454		97		856	
Kaele	1574	86,29	1	<1	249	13,65	1824	100
Féminin	801		1		137		939	
Masculin	773		0	0	112		885	
Total	2194	62,32	906	25,73	420	11,93		100

Table 3: Distribution of children supplemented with vitamin A, first contact by gateway.

4. Discussion

The objective of our study was to analyze alternative opportunities to cover many children to be supplemented with vitamin A at first contact. The integration of vitamin A into polio campaigns has been documented as a good practice in Angola, Chad, Côte d'Ivoire, Tanzania and Togo [3]. Administration of Vita A during National Immunization Days (NIDs) helps to raise awareness, improve technical capacity and evaluation. Polio NIDs provide an entry point for the sustainable provision of vitamin A

supplementation with routine immunization services [6]. As polio programs advance and campaigns decline, there is a risk that fewer children will be reached each year to benefit from VAS [3]. Mass campaigns are expensive, donor-driven, and heavily dependent on funding for mass immunization campaigns. They require extensive macrolevel planning at the national and international levels for the timely ordering, shipping, and distribution of commodities and micro-planning at all levels of the health system. Campaigns do not encourage health-seeking behaviors in vulnerable communities and do not build the capacity and resilience of routine services to meet demand [7]. Activities may not continue after partner funding ends. However, community ownership of projects is important to make activities sustainable. A study conducted in Togo in 2019 on the low level of ownership of projects by the partner communities of the NGO Plan International Togo (PIT), showed that the communities struggle to take ownership of the projects carried out in their localities. According to the same study, 63.64% of respondents found the training of facilitators (external and local) less effective and 28.28% found it completely ineffective [8].

Low community participation limits ownership of the project. Strengthening community participation in routine VAS may be the best practice versus mass campaign for good VAS coverage in the health districts. Our data showed that during the study period, in each health area, between 1 and 2 health workers; 4-6 CHWs per health area had benefited from capacity building on VAS and nutrition activities. This contributed to referring children to health facilities for VAS, supporting VAS activities during advanced strategies and supplementing children directly at home. The work of Ouédraogo, O., (2022), showed that the use of community health workers (CHWs) is successful in community-based VAS and deworming programs. In addition, this strategy has good acceptability at the community level. According to the authors, mothers are satisfied with door-to-door visits because they can be served in a timely manner. In the same study, parents confirmed that fixed posts in advanced strategies allow for catching up on missed doses of vitamin A. Community-based supplementation also reduces patient flow and waiting times in health facilities [9].

Our study showed an average of 25.7% of children supplemented with advanced vitamin A in both health districts and 53.3% in Guidiguis district. These proportions are slightly below the 62% estimated by Janmohamed, A. and Doledec, D. (2017). This difference could be explained by the fact that the authors evaluated VAS platforms during a mass deworming and VAS campaign which often mobilizes more logistical, financial (such as daily motivation of CHWs), supervisory and communication resources to sensitize parents [10]. Similarly, the coverage observed for children supplemented with Vitamin A through home visits is derived from door to-door mass campaigns, which are not comparable to our 11.9% coverage in the study. The VAS home visit strategy here in the Guidiguis and Kaele health district context consisted solely of catching up with children who could not access health facilities for various reasons. Unlike advanced strategies, which is a routine activity of health facilities in Cameroon to deliver primary health care outside of health services in a fixed community post. Apart from mass campaigns, the role of home visits is to monitor the nutritional status, immunization, vitamin A supplementation, etc., of children in households and refer them to health centers for care. The low proportion of 11.9% is therefore justified by the fact that most children were referred to the health facilities and had benefited from VAS in advanced strategies. This strengthening of community participation through the referral of children to be supplemented to the health facility also justifies the high proportion (62.2%) of children who received VAS at the health facility level.

5. Conclusion

Community participation is a necessary condition for the sustainability of a project. Building the capacity of health workers and community health workers to participate in vitamin supplementation programs is a form of community participation. It helps to catch up with children in the community who are not accessing health services. Our study shows that about 37.6% of children aged 6-11 months could be caught up in the community and receive their first doses of vitamin A through advanced strategies and community based HVs. We recommend expanding capacity building programs for community health workers and their involvement in the implementation of nutrition activities. Conduct further comparative research on the cost-effectiveness of community participation programs in VAS versus mass vitamin A distribution campaigns.

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Conflicts of interest

The capacity building of health workers and community health workers in the health areas of the two health districts was funded and implemented by Helen Keller International (HKI) as part of its projects. The vitamin A registers used by the health facilities were donated by Helen Keller International to MoH Cameroon. This research is not part of HKI's activities, nor is it requested by HKI.

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