POST EVENT COVERAGE SURVEY OF THE HEALTHCARE INTEGRATED VITAMIN A SUPPLEMENTATION DISTRIBUTION (VASD) EXERCISE IN BENUE STATE, NIGERIA.

EXECUTIVE SUMMARY

Title	Post event Coverage Survey of the Healthcare Integrated Vitamin A Supplementation Delivery (VASD) Exercise in Benue State, Nigeria
Objectives	• To validate administrative VAS and deworming coverage data • To identify factors associated with the receipt of VAS in Benue state • To assess the contribution made by the social mobilization strategy on caregivers' awareness and participation during the September / October 2020 VAS distribution in Benue State
Methods	Post event coverage (PEC) survey was conducted within six weeks of the implementation of the September / October 2020 VAS distribution in Benue state, Nigeria. Thirty clusters (30) were randomly selected in Benue using probability proportionate to size (PPS) sampling. In each cluster, 30 caregivers, 1 health worker (HW) and 1 community leader were interviewed.
Results	VAS coverage in Benue among children 6-59 months of age was 44.8%; much lower than state administrative coverage data (103.4%). Meanwhile, deworming coverage was found to be 31.5%, which is not too far removed from the administrative coverage of 25.4% reported by the state. More caregivers heard about the VASD event from town announcers (67.5%), and religious leaders (43.9%). Although there was good understanding of Vitamin A among health workers interviewed, detailed knowledge of key VAS messages was poor among caregivers and community leaders in Benue State.
Discussion and Recommendations	The results highlight findings from the PEC survey conducted in Benue State, Nigeria. Coverage of VAS was much lower than the administrative coverage reported by the state. The delivery model used (mainly health facility-based delivery) coupled with poor awareness creation and mobilization efforts could be largely responsible for the low coverage. Town announcers were found to be effective channels for creating awareness about the VASD among caregivers. Adopting a modified delivery model that integrates house-to-house teams with health facility-based and outreach teams would ensure higher coverages in subsequent VASD exercises. Ensuring adequate funding through advocacy visit to key decision makers as well as continued capacity strengthening of key personnel such as health workers and town announcers is also recommended.

ACKNOWLEDGEMENT

The PEC survey in Benue State, Nigeria for the September / October 2020 VAS distribution exercise for children 6-59 months was conducted by Helen Keller International (Helen Keller) in collaboration with the Benue State Primary Health Care Development Board (BSPHDB).

Helen Keller Nigeria takes this opportunity to express its gratitude to all those who, directly or indirectly, contributed to this survey.

Firstly, our sincere thanks to the GiveWell for their financial support towards the implementation of the Post Event Coverage Survey in Benue state.

Our thanks also go to the local, political and administrative authorities and particularly the Benue State Primary Health Care Development Board without which this study would have been difficult to conduct. We will not fail to appreciate the caregivers, health workers and community leaders who were willing to spare few minutes of their time to answer our questions which led to the realization of this data.

We also thank all team leaders and enumerators who worked diligently and with close attention to detail in order to collect the data presented in this report.

ACRONYM GUIDE

AMEPI	Africa Mideast Progressive Initiative
BSPHDB	Benue State Primary Healthcare Development Board
CHEW	Community Health Extension Workers
COVID-19	Novel Coronavirus Disease 2019
EPI	Expanded Programme on Immunization
FANC	Focused Antenatal Care
FMOH	Federal Ministry of Health
GAVA	Global Alliance for Vitamin A
H2RA	Hard-to-Reach Areas
HF	Health Facility
HW	Health Worker
LLIN	Long Lasting Insecticide Treated Nets
LGA	Local Government Area
NBS	National Bureau of Statistics
NDHS	Nigerian Demographic and Health Survey
NGO	Non-Governmental Organization
NPHCDA	National Primary Health Care Development Agency
NPC	National Population Commission
MNCHW	Maternal New-born and Child Health Week
ORS	Oral Rehydration Solution

PECS	Post Event Coverage Survey
PHC	Primary Health Centre
PHF	Private Health Facility
SDG	Sustainable Development Goal
SPSS	Statistical Package for the Social Sciences
VA	Vitamin A
VAC	Vitamin A Capsule
VAD	Vitamin A Deficiency
VADI	Vitamin A and Deworming Intervention
VAS	Vitamin A Supplementation
VASD	Vitamin A Supplementation Distribution
WHO	World Health Organization

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1. INTRODUCTION

1.1 Background

Vitamin A Deficiency (VAD) is a major public health problem especially in poor societies and low-income countries. The effect of VAD leads to high rates of morbidity and mortality, particularly for children under the age of five. In Nigeria, the rate of VAD amongst children aged 6 to 59 months is high at 29.5%.[1] Based on the 2018 National demographic and Health Survey (NDHS) findings, the under-5 mortality rate has decreased since 2008, from 157 deaths per 1,000 live births to 132 deaths per 1,000 live births. Similarly, there has been a slight reduction in infant mortality, from 75 to 67 deaths per 1,000 live births.[2] However, there has been no noticeable change in the neonatal mortality rate over the same period.

In settings where VAD is a public health problem, bi-annual high-dose Vitamin A Supplementation is recommended by World Health Organization (WHO) in infants and children 6-59 months of age as a public health intervention to reduce child morbidity and mortality.[3]

Vitamin A supplementation (VAS) is a cost-effective intervention that reduces the risk of all-cause child mortality by 24% in areas where VAD exists.[4] It can also reduce morbidity from many common childhood conditions caused by VAD, such as xerophthalmia (a condition in which the eye is unable to produce tears) and night blindness by 68%.[5]

In Nigeria, the delivery of VAS has been integrated with other maternal and child survival interventions during the bi-annual Maternal, Newborn and Child Health Week (MNCHW) campaign. These campaigns are usually implemented in May / June and November / December of each year. Interventions such as VAS, deworming, focused antennal care (FANC), routine immunization, Zinc/Lo-ORS, nutrition assessment and education among others are delivered free-of-charge by trained health workers / volunteers at designated health facilities (HF) and fixed outreach posts during the week-long campaign.

[1] Imdad A et al. Vitamin A supplementation for preventing mortality and morbidity in children 6 months to 5 years of age. *Cochrane Database of Systematic Reviews,* 2010 (12): CD008524

[2] National Population Commission, MEASURE DHS, ICF International. Nigeria Demographic and Health Survey 2018 Report.

[3] WHO, Geneva, 2010. WHO Guidelines: Vitamin A Supplementation in Infants and Children 6 - 59 Months of Age

[4] Beaton GH, Martorell R, Aronson KJ, Edmonston B, McCabe G, Ross AC, et al. Effectiveness of vitamin A supplementation in the control of young child morbidity and mortality in developing countries. ACC/SCN State-of-the-Art Series: Nutrition Policy Discussion Paper No. 13. Geneva: The United Nations, 1993

[5] WHO, UNICEF. *Integration of vitamin A supplementation with immunization: policy and programme implications*. Geneva, World Health Organization, 1998 http://whqlibdoc.who.int/hq/1998/ WHO_EPI_GEN_98.07.pdf, accessed 20 May 2011

Prior to the implementation of the MNCHW, advocacy visits for fund mobilization and trainings of health personnel are carried out at different levels. Various social mobilization activities such as community dialogues, town announcements, rallies, sensitization of religious leaders, airing of radio jingles, flag off e.t.c are also carried out at the community level to enlighten caregivers. These activities usually culminate in the mobilization of caregivers and eligible children to the health facilities / outreach posts to receive services.

Late 2019 / early 2020 saw the emergence of the new Coronavirus disease - COVID-19. This led to the World Health Organization (WHO) suspending all mass vaccination campaigns in March 2020. As a result, the MNCHW campaign was also suspended across all States in Nigeria. Following the WHO suspension, the Global Alliance for Vitamin A (GAVA) developed guidelines for the safe administration of Vitamin A in the context of COVID-19.[6]

In September / October 2020, Benue state implemented a "*controlled*" MNCHW event. The aim of this "*controlled*" event was to limit the spread of COVID-19 by preventing crowds of caregivers and children gathering en masse, at the health facilities (HF) in line with the GAVA guidelines. Vitamin A, deworming, and other key child and maternal health interventions were instead delivered as part of routine services in designated HFs and temporary fixed posts in hard-to-reach areas during a 5-day period. Other services delivered during the Vitamin A Supplementation distribution (VASD) exercise include routine immunization, nutrition screening, health promotion, iron-folate, family planning, and HIV counselling and testing for pregnant women and adolescent girls.

1.2 Statement of the Problem

VAS coverage figures in Nigeria are based on administrative data collected during the implementation days using tally sheets. Administrative reporting usually takes up to two (2) months to aggregate and reach national level for official coverage estimates, putting the accuracy of the data into question. Adding up tallies at various levels also exposes the data to errors, and could potentially affect the numerator. Over the years, validation surveys have reported coverage that is lower than the administrative data. For example, in Katsina State, a VAS Post Event Coverage Survey (PECS) conducted by Helen Keller in collaboration with the Government showed that coverage for children 6-59 months of age during the 2014 round 2 VAS distribution was 43.5%, in contrast to the 80.0% tally sheet coverage reported by the state. The table below indicates the difference in coverage between tally sheet data and Post Event Coverage validation surveys in several states in Nigeria.

[6] GAVA 2020: Administration of Vitamin A Supplementation for Preschool Aged-Children in the Context of Covid-19

Table 1: Difference in Coverage between Administrative (Tally Sheet) and PECS Data

FCT R1 2012		Akwa Ibom R2 2013		Benue R2 2013		Ebonyi R1 2014		Ekiti R2 2014		Katsina R2 2014	
Admin (%)	PECS (%)	Admin (%)	PECS (%)	Admin (%)	PECS (%)	Admin (%)	PECS (%)	Admin (%)	PECS (%)	Admin (%)	PECS (%)
66.6	66.9	97.0	45.8	92.0	50.7	106.0	56.6	81.0	66.3	80.0	43.5

Among the challenges affecting uptake of VAS is the poor awareness among caregivers about MNCHW campaigns. For example, PECS conducted in 2015 in Ekiti and Katsina states where VAS coverage was found to be 66.3% and 43.5% respectively, showed that majority of children who did not receive VAS (Ekiti 47.2%, Katsina 49.8%) did so because of lack of information about the campaigns. Likewise, responses from the client exit interviews which are usually conducted during the MNCHW campaigns show that majority of caregivers are not often aware of the campaign, they just happen to bring their children for routine immunization.

Over the years, Helen Keller has supported some aspect of social mobilization across several states in Nigeria in order to increase awareness among caregivers, community participation and uptake of services during the MNCHW. Aspects supported include printing of IEC materials (banners, posters, job aids, stickers, VAS envelopes e.t.c), production and airing of radio jingles (in English and local languages) with key messages about the campaign, training and deployment of town announcers, sensitization of religious and community leaders and community dialogues. However, despite awareness creation, activities are usually not fully implemented due to inadequate funding of the campaign especially by the State and LGAs, and this often contributes to low coverage.

In the 4th quarter of 2020, Helen Keller received a 3-year grant (2020 – 2022) from GiveWell to expand its support for the implementation of Vitamin A supplementation (VAS) among children 6 – 59 months of age to a second (2nd) state in Nigeria, the first being Nassarawa state. Benue state was chosen based on poor nutrition and health indices as well as the paucity of partners funding health interventions in the state. GiveWell however required that a Post Event Coverage Survey be conducted after the September / October 2020 VAS distribution in Benue to further justify the need for support.

1.3. Objectives of the Survey

The objectives of the PEC survey were:

a. To validate administrative VAS and Deworming coverage data.

b. To identify factors associated with the receipt of VAS in Benue State.

c. To assess the contribution made by the social mobilization strategy on caregiver awareness and participation during the September / October 2020 VASD in Benue State

2. METHODOLOGY

2.1 General Design

The PEC survey used a randomized, cross-sectional cluster design and was conducted within six weeks after the September / October 2020 VASD in Benue state to ensure accurate recall by caregivers. To ensure the selection of a representative sample of households, 30 clusters (communities) were randomly selected from the 1996 projected population census list of communities in Benue State, using probability proportionate to size sampling (PPS). Sampling was done at the community level because this was the smallest unit for which there is population data from the National Bureau of Statistics (NBS).[7]

The methodology for the survey was adapted from the WHO/EPI cluster sampling methodology.[8] Five teams of four (4) enumerators each were trained to collect data from caregivers in thirty (30) communities. After proper community entry, the map of each community was drafted by the teams with the help of a community member. Using a map of each community, each cluster (community) was then divided into four (4) quadrants. In each of the first two quadrants, eight (8) households were randomly surveyed while in each of the last two quadrants, seven (7) households were interviewed. Thus, giving a total of thirty (30) caregivers interviewed in each community.

To determine the households to be included in the survey, one of five starting points were chosen at random in each quadrant. Once the survey team reached each starting point, a bottle was spun to determine the direction that the survey team should proceed in. Once the direction was determined, the first household to be interviewed was randomly selected and data collection started from the selected household until the target number of surveys for each quadrant was completed. This process was repeated in each of the four quadrants of the cluster.

Households were considered eligible for the survey if they had a child 6-59 months of age at the time of the September / October 2020 VAS distribution in Benue state and the primary caregiver was present. If there was more than one eligible caregiver present, one was selected at random to participate in the survey. Likewise, if a caregiver had more than one eligible child, one was selected at random to be the focus of the survey. Children's ages were verified by health cards whenever possible. In cases where a health card was not available, caregivers were asked if they could recall the child's date of birth or otherwise the month and year of birth or a significant event that took place around the time of their child's birth.

[7] 2006 Nigeria Census, National Bureau of Statistics
[8] Immunization Coverage Cluster Survey-Reference Manual. World Health Organization, 2005

If the age of a child could not be obtained either via health card, recall by the caregiver or using a significant event, the caregiver was not interviewed and the team continued to the next eligible household after thanking the primary caregiver.

In addition to caregivers, one Health Worker (HW) and one village/community leader were surveyed in each cluster. The HWs, which included community health extension workers (CHEW), were selected based on their availability at the HF. However, the HW interviewed had to have been involved with the last VASD exercise in order to be eligible to participate. All data were collected with mobile phones using ODK-collect app and uploaded to the ONA platform for aggregation and analysis. Prior to beginning the survey, all enumerators participated in a two-day training in which one day was dedicated to training on collecting data using mobile phones. Specific measures were put in place to ensure data quality including pre-testing and adjusting the survey tools prior to data collection. All survey data were reviewed by the survey team leader prior to uploading to the ONA server.

2.2 Data Management and Reporting

Data collected from the 30 communities were uploaded from the smartphones for storage at a central server (ONA). The raw data were thereafter exported from the website and converted to SAV/SPSS format for ease of data analysis. The eligibility criteria for including caregivers in the survey was having a child or children aged 6 – 59 months at the time of the last September / October 2020 VASD in Benue State.

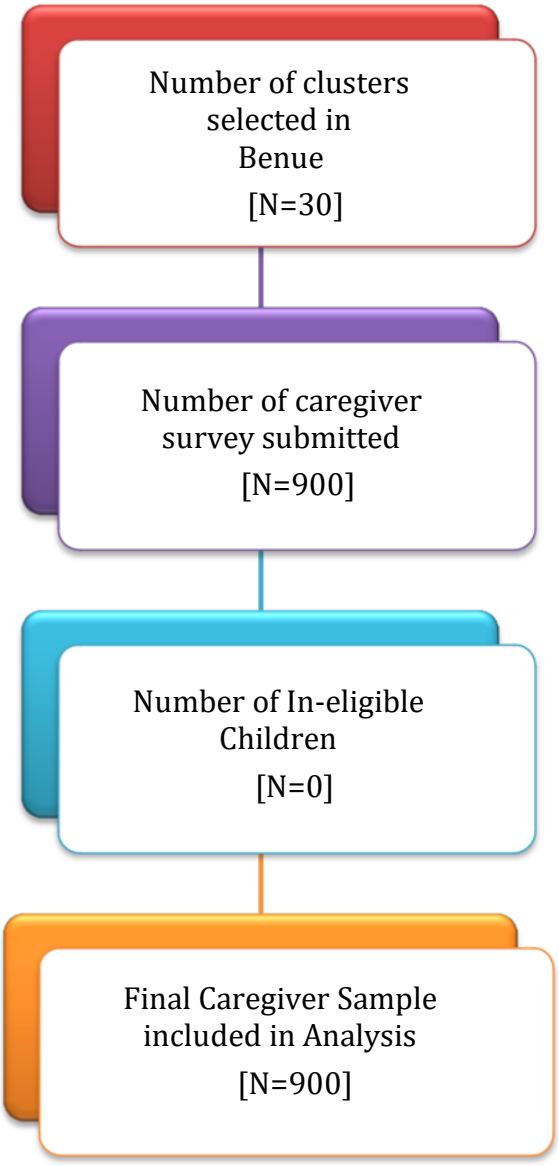
For children whose exact day of birth was unknown, an estimated date was arrived at by using the 15th day of the month and year of birth given by the caregiver. IBM SPSS Statistics 22 was used to compute frequencies and cross-tabulations in order to compare children who were supplemented and those who were not. A p-value of <0.05 was considered as significant. The 95% confidence interval was also calculated.

3. SURVEY FINDINGS

3.1 Enrolment and Final Sample

The final sample used for analysis comprised of nine hundred (900) caregivers, thirty (30) community leaders and thirty (30) health workers who participated in the last VASD in Benue state.

Figure 1: Flow of Participants in Final Analytical Sample for Benue State



3.2 Description of the Sample

Table 2 and 3 give an overview of the socio-demographic characteristics of the final sample included in the analysis. Majority of the children were aged 12- 59 months and more than half did not have birth certificates/health cards. Farming was the main source of income of the caregivers surveyed.

3.2.1 Descriptive Statistics of Children and Caregivers Surveyed

Table 2 provides a descriptive overview of the caregivers and children surveyed. A larger percentage (86.7%) of the children assessed fell within the 12 – 59 months age group, while only 13.3% were aged 6 – 11 months. There were more female (52.1%) than male children (47.9%) in the sampled population.

Most of the caregivers interviewed were the child's mother (72.9%). More than a third of the caregivers (30.7%) fell within the >/= 35 years age range, followed by the 25 - 29 years age range (29.8%). Only 12.9% of the caregivers had no form of education, while about 42.6% had completed secondary school. Majority of the respondents (95.3%) were Christians.

Table 2: Descriptive Statistics of Children and Caregivers Surveyed		
Child Characteristics		
Age in months	**(N = 900)**	**(%)**
6-11	120	13.3%
12-59	780	86.7%
Gender	**(N=900)**	**(%)**
Male	431	47.9%
Female	469	52.1%
Health Card/Birth Certificate	**(N=900)**	**(%)**
No	558	62.0%
Yes	342	38.0%
Caregiver / Informant Characteristics		
Relationship with the Child	**(N=900)**	**(%)**
Mother	656	72.9%
Father	142	15.8%
Grandparent	42	4.7%
Sibling	25	2.8%

Aunt/Uncle	33	3.7%
Other (Neighbour: 1, Step mom: 1)	2	0.2%
Age (years)	**(N=900)**	**(%)**
< 20	29	3.2%
20–24	139	15.4%
25–29	268	29.8%
30–34	188	20.9%
>/= 35	276	30.7%
Level of Education	**(N=900)**	**(%)**
None	116	12.9%
Primary education	313	34.8%
Secondary education	383	42.6%
Tertiary education	87	9.7%
Others (Grade 2)	1	0.1%
Religion	**(N=900)**	**(%)**
Christian	858	95.3%
Muslim	33	3.7%
Traditional	8	0.9%
No Religion	1	0.1%

3.2.2 Descriptive Statistics of Households

Table 3 provides an overview of the characteristics of households. Most of households were located in rural areas (79.9%) with only 20.1% based in non-rural areas. More than half of the caregivers (62.8%) indicated farming as their main source of income; followed by trading / business (26.3%). Only few (3.7%) were unemployed / stay-at-home.

The main source of drinking water for majority of the households was well / borehole (76.3%), while most used firewood (87.6%) as their main source of cooking fuel. About a quarter of the caregivers (25.2%) lived 21 - 30 minutes away from the PHC, while 21.9% lived 11 - 20 minutes away.

Table 3: Descriptive Statistics of the Household		
Type of the Area	**(N=900)**	**(%)**
Rural	719	79.9%
Non-rural	181	20.1%
Income Source	**(N=900)**	**(%)**
Farmer	565	62.8%
Trader or Business	237	26.3%
Civil Servant	28	3.1%
Artisan	19	2.1%
Fisherwoman or Fisherman	5	0.6%
Unemployed / Stay at Home / Student	33	3.7%
Other: (Clinic worker, mortuary attendant, cyclist, minister)	13	1.4%
Main Source of Drinking Water	**(N=900)**	**(%)**
Private pipe / tap	13	1.4%
Public pipe / tap	17	1.9%
River / Lake	171	19.0%
Well / Borehole	687	76.3%
Others (Rain water / Sachet Water / Reservoir)	10	1.1%
Type of Household Toilet	**(N=900)**	**(%)**
Bush	260	28.9%
Pit Latrine	354	39.3%
VIP Latrine	169	18.8%
Water Closet System	116	12.9%
River	1	0.1%
Primary Source of Cooking Fuel	**(N=900)**	**(%)**
Charcoal	45	5.0%
Electricity	1	0.1%
Firewood	788	87.6%
Gas	37	4.1%

Kerosene	27	3.0%
Distance of Household from Health Facility	**(N=900)**	**(%)**
< 5 minutes	46	5.4%
5 – 10 minutes	136	15.1%
11 - 20 minutes	197	21.9%
21– 30 minutes	227	25.2%
>30 minutes but <1 hour	188	20.9%
>1 hour	105	11.7%
Other (don't know)	1	0.1%
Ownership of working	**(N=900)**	**(%)**
	Yes	
Cell phone	752	83.6%
Radio	538	59.8%
TV	308	34.2%

3.3 VAS Coverage among Children 6 - 59 Month of Age

Key Finding: Only *44.8% of children aged 6 - 59 months received VAS during the September / October 2020 VASD exercise in Benue state.*

The primary objective of the survey was to validate administrative VAS coverage data and identify factors associated with the receipt of VAS in Benue state. The survey results showed that only 44.8% of eligible children were supplemented, as seen in Table 4 below. This is considerably lower than the administrative coverage (tally sheet data) reported by the state (103.4%). This suggests that more than half (55.2%) of eligible children were missed in the 2020 VASD in Benue state.

Table 4: Coverage of Vitamin A Supplementation (VAS) among Children 6-59		
	(n/N)	**(%)**
Overall	403/900	44.8%
By Sex	**(n/N)**	**(%)**
Female	204/469	43.5%
Male	199/431	46.2%

3.4 Deworming Coverage among Children 12 - 59 Month of Age

Key Finding: Only *31.5% of children aged 12 - 59 months were dewormed during the September / October 2020 VASD exercise in Benue state*

The survey results revealed that 31.5% of eligible children (12 - 59 months) received deworming tablets during the last VASD in Benue state, as seen in Table 5 below. This is close to the administrative coverage (tally sheet data) for deworming reported by the state (25.4%), signifying that the coverage was not exaggerated. However, the survey findings suggest that majority (68.5%) of eligible children were missed and did not receive deworming during the 2020 VASD exercise in Benue state.

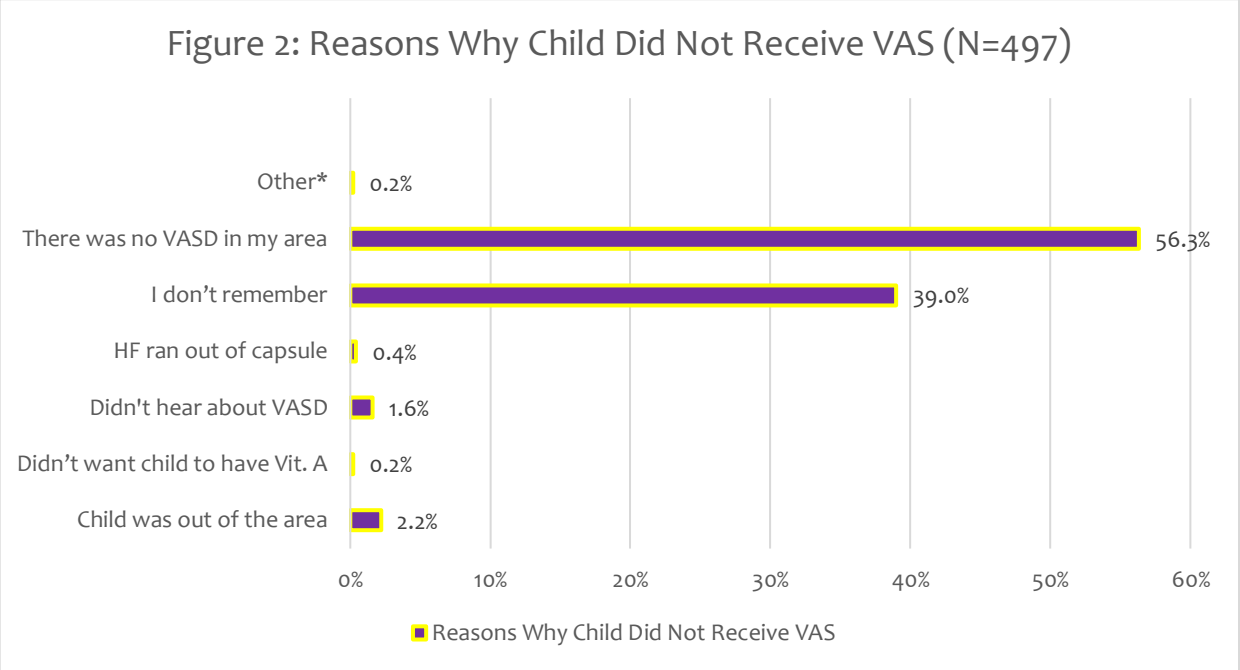
Table 5: Coverage of Deworming among Children 12-59

	(n/N)	(%)
Overall	246/780	31.5%
By Sex	**(n/N)**	**(%)**
Female	122/404	30.2%
Male	124/376	32.9%

3.5 Characteristics of Children Missed During the Last Campaign

Key Finding: *The main reason given by caregivers of whose eligible children were missed during the last VASD in Benue state was that there was no VASD in their area (56.3%).*

Figure 2 provides information on the reasons why eligible children missed being supplemented during the September/ October 2020 VASD exercise in Benue state. More than half of the caregivers (56.3%) interviewed said their children did not receive VAS because there was no VAS distribution in their area. Almost forty percent (39.0%) could not remember why their children did not receive VAS.



3.6 Caregiver Knowledge about Vitamin A

Key Finding: *More than a third of the caregivers interviewed (34.6%) did not know any benefit of Vitamin A*

3.6.1 Caregivers' Awareness about Vitamin A and Its Benefits

Table 6 below shows that more than a third of the caregivers (34.6%) did not know any benefit of Vitamin A. Only 20.8% knew that VAS protects the child against disease or even that Vitamin A reduces risk of death (6.0%), while 28.7% reported that Vitamin A prevents blindness/helps vision.

Table 6: Caregivers' Awareness of and Knowledge about Vitamin A and Its Benefits

Have you ever heard about Vitamin A?	**(N=900)**	**(%)**
Yes	547	60.8%
No	353	39.2%
What are the Benefits of Vitamin A?	**(N=547)**	**(%)**
Prevents blindness / Helps Vision	157	28.7%
Protects against Disease	114	20.8%

Reduces risk of death	33	6.0%
Improves child's health	195	35.6%
Helps with growth	81	14.8%
I don't know / Don't Remember	189	34.6%
Other (Good for children, prevents body hotness, strengthens body)	5	0.9%

3.6.2 Caregivers' Knowledge of the Recommended Age of 1st VAS Receipt among Children

In table 7 below, only 26.7% of caregivers knew the correct age at which a child should receive Vitamin A for the first time (i.e. at 6 months). Majority (61.2%) did not know the correct age.

Table 7: Caregivers' Knowledge about the Age of First VAS Receipt among Children (N=547)

At what Age should a Child Receive Vitamin A for the 1st Time?	**(N)**	**(%)**
At Birth	8	1.5%
6 Months	146	26.7%
9 Months	18	3.3%
I don't know	335	61.2%
Other*	40	7.3%

*Other: *2 months, 2 - 3 months, less than 1 year, 1 year, 1 or 2 years, 1 to 5 years, 2 years, 3 to 4 years, 4 years and below, under 5 years*

3.6.3 Caregivers' Knowledge of the Frequency of VAS for Eligible Children

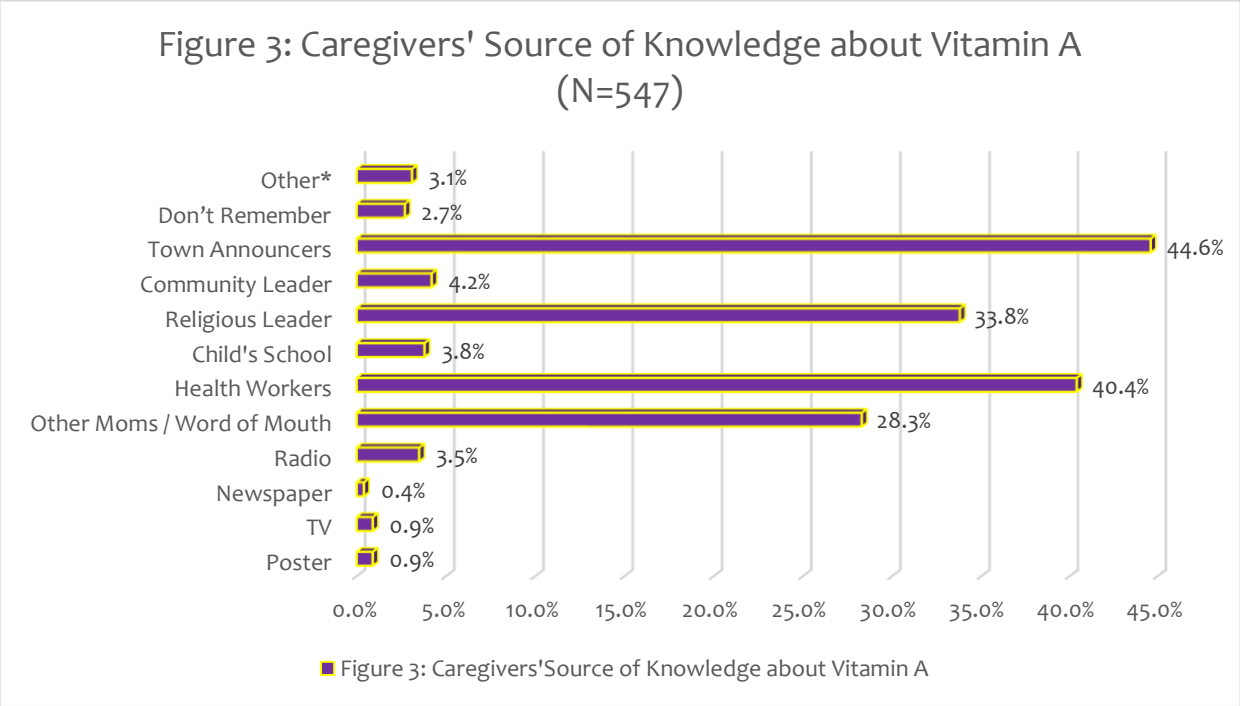
Table 8 below shows that in Benue state, only 22.9% of caregivers could correctly state the frequency of VAS receipt among eligible children (i.e. every 6 months). Majority (71.1%) did not know this fact.

Table 8: Caregivers' Knowledge about the Frequency of VAS for Eligible Children (N=547)		
How often should a Child 6 - 59 months receive Vitamin A capsules?	**(N)**	**(%)**
Don't Know	389	71.1%
Every 6 months (2 times/year) / During each VASD	125	22.9%
Every Day	1	0.2%
Other*	32	5.9%

*Other: *once per year, 2 to 3 times per year, every 3 months, 3 times per year, 4 times, 9 months - 59 months, 2 times or more, anytime, once a month, when announced*

3.6.4 Caregivers' Source of Knowledge of Vitamin A

Figure 3 below indicates that in Benue, the most common source of information about Vitamin A was from Town Announcers (44.6%), followed by the Health workers (40.4%) and then Religious Leaders (33.8%).



*Other: *Respondent's school, Market, Internet, LGA, Women's meeting*

3.7 Caregivers Knowledge about Deworming

3.7.1 Caregivers' Knowledge about the Benefits of Deworming

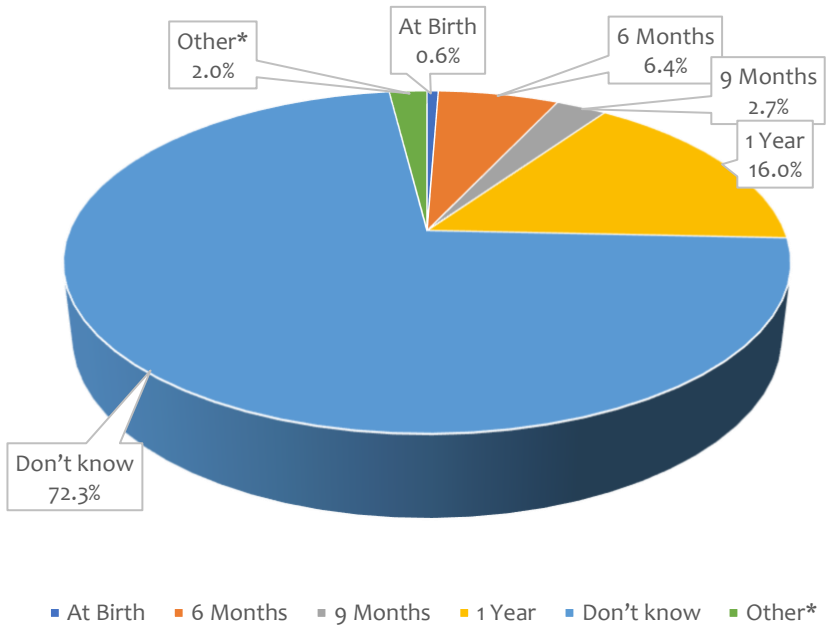
Only a quarter (25.8%) of caregivers knew that the key benefit of deworming was to treat intestinal worms while very few (1.4%) knew that it protects against anaemia. However, more than half (51.9%) did not know any benefit as shown in Table 9 below:

Table 9: Caregivers' Knowledge about the Benefits of Deworming (N=900)		
What are the Benefits of Deworming?	**(N)**	**(%)**
Treatment of intestinal worms	232	25.8%
Treatment of stomach pain	234	26.0%
Protects against illness	82	9.1%
Protects against anaemia	13	1.4%
Improves child's health	128	14.2%
Don't know	467	51.9%
Other*	14	1.6%

*Other: *Improves appetite, treats itching*

3.7.2 Caregivers' Knowledge about the Age of First Receipt of Deworming

Figure 4: Caregivers' Knowledge of Age of 1st Deworming Receipt (N=900)



As shown in Figure 4 above, majority of the caregivers did not know the age at which a child should begin receiving deworming tablets (i.e. at 12 months or 1 year). Only, 16.0% of caregivers knew the correct age of 1st receipt for deworming.

3.8. Caregivers Knowledge about VASD

Data in Table 10 below shows only 49.8% of the caregivers were aware that a VASD exercise held in their community in September / October 2020. However, only 28.8% knew the key target group of the VASD exercise (i.e. children 6 - 59 months). Over sixty percent (67.0%) recalled that the VASD exercise took place mostly in the health facilities. Majority of the caregivers recalled that VAS (79.9%) and deworming (50.4%) were the 2 key commodities administered to eligible children during the exercise. The main source of awareness creation about the VADI mentioned by the caregivers was town announcer (67.5%), followed by religious leaders (43.9%) and health workers (28.8%). More than half recalled that the venue (67.2%) and date (55.6%) of the VASD exercise was the main key messages passed across to them about the distribution.

Table 10: Caregivers' Awareness of and Knowledge about VASD		
Was there VASD in your community in September / October 2020?	**(N=900)**	**(%)**
Yes	448	49.8%
No	277	30.8%
I don't Know	175	19.4%
Who should attend the VASD?	**(N=448)**	**(%)**
Everyone	9	2.0%
All children	162	36.2%
Children 6 – 59 months	129	28.8%
Women of Reproduction age	14	3.1%
Don't know	128	28.6%
Others	22	4.9%
Where did the VASD exercise take place?	**(N=448)**	**(%)**
Health facility / hospital	300	67.0%
Home / door-to-door	16	3.6%
Market	21	4.7%
Church / mosque	30	6.7%

School	27	6.0%
Don't know	5	1.1%
Other (Motor park, public square, village head house, under tree)	49	10.9%
What services were provided during the last VASD?	**(N=448)**	**(%)**
Deworming	226	50.4%
VAS	358	79.9%
Don't know / don't remember	63	14.1%
Other (Measles, Immunization, MUAC Screening)	3	0.7%
How did you find out about the VASD event?	**(N=448)**	**(%)**
Other mothers / word of mouth	87	21.6%
Health worker	116	28.8%
Child's school	17	4.2%
Religious leaders / places of worship	177	43.9%
Community leaders	22	5.5%
Town announcer / roaming vehicle with loudspeaker	272	67.5%
Don't remember	1	0.2%
Other (market)	7	1.7%
What specific message were you given about the VASD event?	**(N=448)**	**(%)**
Date of the VASD	224	55.6%
Time VASD starts and ends daily	154	38.2%
Venue of the VASD	271	67.2%
Target group of the VASD	82	20.3%
Benefits of the VASD	113	28.0%
Other	5	1.2%

3.9 Health Workers and Community Leaders' Recollection of VASD

3.9.1 Channels and Messages about VASD to Caregiver

The survey team also conducted key informant interviews with health workers and community leaders in the 30 selected communities of Benue state. Findings from the interview show that all the health workers (100%) and more than half of the community leaders (66.7%) affirmed that a VASD event held in their community in September / October 2020.

Majority of health workers (86.7%) and 80.0% of community leaders recalled that town announcers were the main channel used to sensitize caregivers about the VASD, with religious leaders and health workers being other common channels mentioned. Most health workers (73.3%) and community leaders (75.0%) also stated that venue was the major key message about the VASD exercise passed across to caregivers using the afore mentioned channels.

All health workers (100.0%) and community leaders (100.0%) interviewed affirmed that Vitamin A, and deworming (100.0% of health workers vs. 90.0% of community leaders) were the key commodities given to eligible children in their communities during the last VASD exercise.

Table 11: Channels and Messages about VASD to Caregivers

	Health Workers		**Community Leaders**	
Was there VASD in your community / HF in September / October 2020?	**(N=30)**	**(%)**	**(N=30)**	**(%)**
Yes	30	100.0%	20	66.7%
No	0	0%	5	16.7%
I don't know	0	0%	5	16.7%
What channels were used to inform caregivers about the VASD?	**N=30**	**(%)**	**(N=20)**	**(%)**
Radio	1	3.3%	1	5.0%
Word of Mouth /Other Mothers	8	26.7%	4	20.0%
Health Worker	6	20.0%	11	55.0%
Child's School	3	10.0%	0	0%
Religious Leaders	21	70.0%	10	50.0%
Community Leaders	10	33.3%	8	40.0%
Town Announcers	26	86.7%	16	80.0%
Other (Market)	2	6.7%	1	5.0%

What specific message were the caregivers told about the VASD?	**(N=30)**	**(%)**	**(N=20)**	**(%)**
Date of the VASD	15	50.0%	13	65.0%
Daily Time of the VASD	17	56.7%	9	45.0%
Venue of the VASD	22	73.3%	15	75.0%
Target group of the VASD	18	60.0%	10	50.0%
Benefits of the VASD	19	63.3%	7	35.0%
Other (Drugs are free)	1	3.3%	1	5.0%
Services provided during the last VASD	**(N=30)**	**(%)**	**(N=20)**	**(%)**
VAS	30	100.%	20	100.0%
Deworming	30	100.0%	18	90.0%
Immunization	14	46.7%	4	20.0%
Health / Nutrition Education	13	43.3%	3	15.0%
Other services (HCT, MUAC, IFA for pregnant women)	4	13.3%	0	0%
Location where VAS was given to Child during the last VASD (multiple responses allowed)	**(N=30)**	**(%)**	**(N=15)**	**(%)**
Health Facility	29	96.7%	12	80.0%
Door-to-Door / Home		100%	1	6.7%
Market	8	26.7%	2	13.3%
Church / Mosque	8	26.7%	2	13.3%
School	14	46.7%	5	33.3%
Other (community leader's house, open field, refugee camp, temporary outpost)	7	23.3%	4	26.7%

3.9.2 Health Workers' Sociodemographic Characteristics

Among the HWs surveyed, majority worked in the community PHC (76.9%), most were females (73.3%), Community Health Extension Workers (46.7%) and had been CHEWs for more than 1 year (96.7%), as shown in Table 12 below:

Table 12: Health Workers' Sociodemographic Characteristics		
Gender	**(N = 30)**	**(%)**
Female	22	73.3%
Male	8	26.7%
Title/Position	**(N = 30)**	**(%)**
Ward Health Supervisor	1	3.3%
Community Health Extension Worker (CHEW)	14	46.7%
Community Health Officer	10	33.3%
Clinical Officer	2	6.7%
Nurse	1	3.3%
Midwife	2	6.7%
How many years have you been in this position?	**(N = 30)**	**(%)**
< or = 1 year	1	3.3%
> 1 year	29	96.7%
Type of Health Facility	**(N=30)**	**(%)**
Primary Health Centre (PHC)	23	76.7%
Private Health Facility (PHF)	2	6.7%
Government Health Centre	3	10.0%
Other (Comprehensive Health care centre, health post)	2	6.7%

3.9.3 Knowledge of VAS among Health Workers

Table 13 below summarizes the knowledge of HW about VAS. Majority of health workers (90.0%) reported that they had attended a training on VAS, with the last training being received by most (85.2%) barely less than 3 months before the study was conducted. These findings are also corroborated by fact that 83.3% of HWs mentioned trainings / workshops / seminars as their main source of information about VAS. It is therefore not surprising that many of the health workers were knowledgeable about the target group for VAS (90.0%), the benefits (90.0%), the correct dosage for children 6 - 11 months (96.7%) and 12 - 59 months (100.0%) respectively, the age of first receipt (86.9%) and frequency of VAS receipt (70.0%).

Table 13: Health Workers' Knowledge of VAS		
Have you ever attended training on VAS?	**(N = 30)**	**(%)**
No	3	10.0%
Yes	27	90.0%
Last Training on Vitamin A	**(N = 27)**	**(%)**
Less than 3 months ago	23	85.2%
3 - 6 months ago	1	3.7%
7 - 12 months ago	3	11.1%
Target Group for VAS	**(N = 30)**	**(%)**
Children 6 - 59 months	27	90.0%
Children with malnutrition	1	3.3%
Pregnant women	1	3.3%
Other (0 - 59 months, 6 - 11 months, between 9 and 53 months)	3	10.0%
What are the benefits of Vitamin A (multiple responses allowed)	**(N = 30)**	**(%)**
Prevents blindness / Helps Vision	27	90.0%
Protects against Disease	6	20.0%
Reduces risk of death	3	10.0%
Improves Child's Health	18	60.0%
Helps with Child Growth	11	36.7%
Increases appetite	8	26.7%
At what age should children receive Vitamin A capsule for the 1st time	**(N=30)**	**(%)**
6 months	26	86.7%
9 months	1	3.3%
At birth	1	3.3%
Other (11 months, 9 - 12 months)	2	6.7%

At what age should children receive deworming tablet for the 1st time?	**(N=30)**	**(%)**
6 months	9	30.0%
9 months	1	3.3%
1 year	17	56.7%
Don't know	1	3.3%
Others (11 months, 59 months)	2	6.7%
How often should children 6 - 59 months receive Vitamin A capsules	**(N=30)**	**(%)**
Every 6 months /During each VASD	21	70.0%
Every day	1	3.3%
Other (once a year, 3 months, 3 times per year, at immunization, once a year for sick children)	9	30.0%
Dosage of VAS for children 6-11 months	**(N=30)**	**(%)**
One blue/100,000 IU capsules	29	96.7%
One red / 200,000 IU capsules	1	3.3%
Half Red / 200,000 IU capsules	2	6.7%
Dosage of VAS for children 12 – 59 months	**(N=30)**	**(%)**
One red / 200,000 IU capsules	30	100%
Two Blue / 100,000 IU capsules	4	13.3%
Sources of Information about VAS	**(N=30)**	**(%)**
Radio	7	23.3%
FMOH/SMOH Staff	7	23.3%
NGO	1	3.3%
Poster/Job Aid/Flier/Banners	1	3.3%
Trainings/Workshops/Seminars	25	83.3%
School Curriculum	4	13.3%

3.9.4 Community Leaders' Sociodemographic Characteristics

Table 14 captures the sociodemographic characteristics of the Community Leaders surveyed. Most (93.3%) were males with almost half of them (43.3%) being village heads. Forty percent (40.0%) of them had been community leaders for between 6 - 10 years. However, only 43.3% of them had completed their tertiary (university / polytechnic / college of education) education. An equal proportion of the community leaders said they played no role (40.0%) during the last VAS distribution, while others were involved in mobilizing their communities to receive services during the last VASD (40.0%).

Table 14: Community Leaders' Sociodemographic Characteristics		
Gender	**(N=30)**	**(%)**
Female	2	6.7%
Male	28	93.3%
Title/Position	**(N=30)**	**(%)**
Traditional Ruler	9	30.0%
Village Head	13	43.3%
Religious Leader	2	6.7%
Group community leader	2	6.7%
Other (Clan head, kindred head, wife of district head)	4	13.3%
Highest Level of Education Received	**(N=30)**	**(%)**
None	4	13.3%
Primary Education	7	23.3%
Secondary Education	6	20.0%
University / Polytechnic / Diploma / College of Education	13	43.3%
How many years have you been a community leader?	**(N=30)**	**(%)**
<=5 years	9	30.0%
6 - 10 years	12	40.0%
>10 years	9	30.0%
Role during the last VADI	**(N=30)**	**(%)**
No role	8	40.0%
Advising local leaders	6	30.0%
Community mobilization	8	40.0%

3.9.5 Knowledge of VAS among Community Leaders

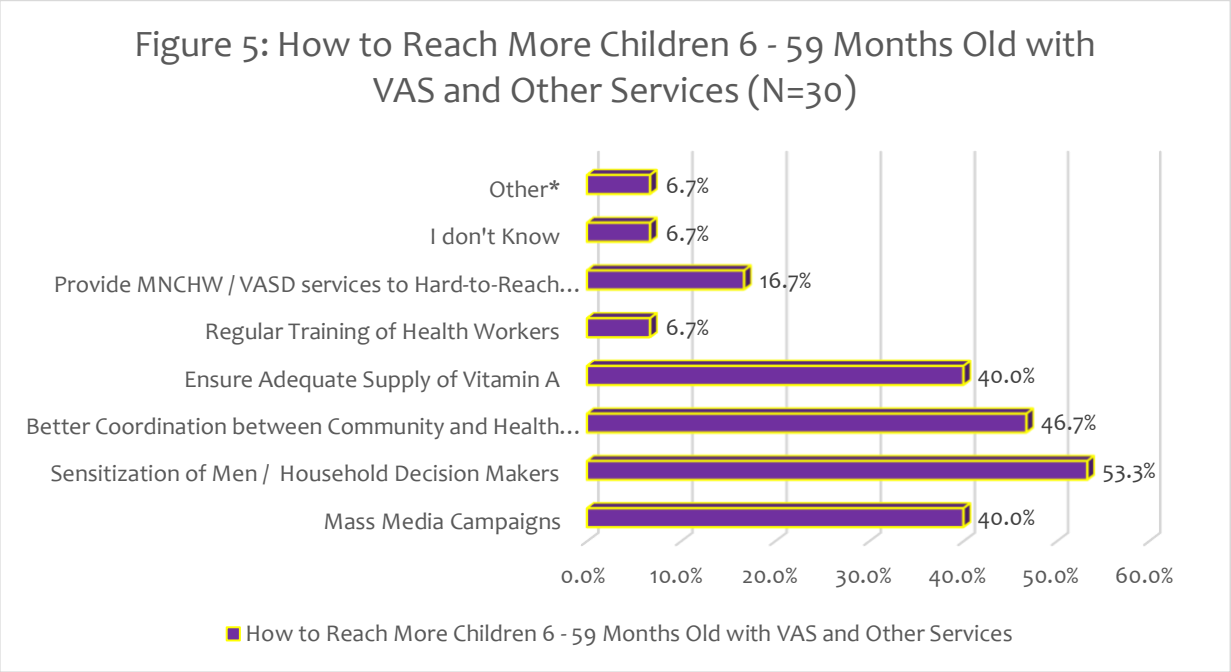
Table 15 below shows that most of the community leaders (73.3%) had heard about Vitamin A. More than half of the CLs said that Vitamin A improves child health (63.6%). However, while about almost half knew that it helps vision by preventing blindness (45.5%), fewer knew of Vitamin A's role in strengthening the child's immune system by protecting against diseases (31.8%) and thus reducing the risk of death (13.6%).

Only about a third of the community leaders knew the age by which children should receive VAS for the 1st time (31.8%) and about a quarter knew the frequency of VAS receipt among eligible children (22.7%). Most of the CLs (81.8%) received information about VAS from health workers.

Table 15: Community Leaders' Awareness of and Knowledge about VAS		
Have you ever heard of Vitamin A?	**(N=30)**	**(%)**
No	8	26.7%
Yes	22	73.3%
What are the benefits of Vitamin A (multiple responses allowed)	**(N=22)**	**(%)**
Prevents blindness / Helps Vision	10	45.5%
Protects against Disease	7	31.8%
Reduces risk of death	3	13.8%
Improves Child's Health	14	63.6%
Helps with Child Growth	5	22.7%
I don't know / Don't Remember	4	18.2%
At what age should children receive Vitamin A capsule for the 1st time	**(N=22)**	**(%)**
6 months	7	31.8%
At birth	1	4.5%
I don't know	13	59.1%
Other (1 year)	1	4.5%

At what age should children receive deworming tablet for the 1st time?	**(N=30)**	**(%)**
6 months	5	16.7%
9 months	1	3.3%
1 year	3	10.0%
Don't know	19	63.3%
Other (2 years, 3 - 5 years)	2	6.7%
How often should children 6 - 59 months receive Vitamin A capsules	**(N=22)**	**(%)**
Every 6 months /During each VADI	5	22.7%
Don't know	15	68.2%
Other (3 times a year)	2	9.1%
Sources of Information about VAS	**(N=22)**	**(%)**
Radio	6	27.3%
Health Worker	18	81.8%
Poster/Flier/Banners	1	4.5%
Trainings/Workshops/Seminars	1	4.5%
School Curriculum	1	4.5%
Other (Town announcer)	1	4.5%

3.9.6 Community Leaders' Perception on How to Reach More Eligible Children



*Other: *Including older people, conducting the VASD more frequently, proper coordination*

When asked what could be done to reach more eligible children in their communities with VAS and other key child survival services, more than half of the community leaders (53.3%) stressed the need for continued sensitization of men or household decision makers as shown in Figure 5 above.

4. DISCUSSION

The PEC survey was conducted in Benue State within six weeks of the September / October 2020 VASD. The main reasons for conducting the survey were to validate administrative VAS coverage data and identify factors associated with the receipt of VAS in Benue State and to assess the contribution made by the social mobilization strategy on caregiver awareness and participation during the September / October 2020 VASD in Benue State.

Findings from the survey revealed that only 44.8% of children 6 - 59 months of age received Vitamin A during the last VASD in Benue state, as against the 103.4% administrative coverage reported by the state. This suggests that a considerable number of eligible children were not supplemented during the last VASD in Benue state. The disparity in the VAS coverage could be as a result of an under-estimation of the target population used for the VASD exercise. A projection of the outdated 2006 census figure was used in calculating the denominator. The fact that administrative VAS coverage reported was above 100% also point to errors in the estimation of the target population (i.e. the denominator), suggesting the need for proper training of health workers in this regard.

Findings on deworming coverage (31.5%) on the other hand, showed close results with the administrative coverage reported (25.4%), indicating that many eligible children (68.5%) were not dewormed during the last VASD exercise in the state. The low deworming coverage could be explained by the insufficient quantity of deworming tablets procured by the state due to inadequate funding. The state procured a mere 55,000 doses of albendazole and received an additional 150,000 doses as donation from Africa Mideast Progressive Initiative (AMEPI). The total doses available for the exercise was therefore not enough to reach the target population of 1,021,118 children aged 12 - 59 months old.

Limiting the exercise mainly to PHCs during routine services with few temporary fixed posts may also have contributed to the low coverage found, especially if awareness creation and social mobilization efforts prior to the implementation was poor and inadequate, as was also the case during the VASD. More than half of the caregivers (56.3%) whose children did not receive Vitamin A said their children were missed because there was no VASD exercise in their area.

As earlier noted, findings from the survey revealed that more than half of eligible children were missed, and did not receive VAS (55.2%) mainly because there was no VASD in their area as reported by their caregivers. This finding further indicates the importance of and need for early and consistent awareness creation activities and sensitization of caregivers and the communities in general prior to and during the distribution.

The PEC Survey also revealed that detailed knowledge of VA among caregivers was very poor. More than a third of the caregivers interviewed (34.6%) did not know any benefit of VA. Over

sixty percent didn't know the age at which children should receive VA for the first time (61.2%), nor the frequency of VAS receipt (71.1%) among eligible children. Only 20.8% knew that VAS protects the child against disease or even that Vitamin A reduces risk of death (6.0%) among children 6 - 59 months of age. These findings suggest that health workers may not be consistently educating caregivers on VAS during health talks or after supplementing their children. This is not surprising as it has been observed from the field during previous supportive supervision visits that HWs often only give health talk on the 1st and 2nd days of the MNCHW campaign and only at their first contact with caregivers. To address this, HWs will need to be constantly reminded to give continuing health talks throughout the duration of the distribution and be provided with job aids containing specific key messages about VAS, deworming and COVID-19 prevention. This will guide the HWs on what exactly to tell caregivers as they go about their duties.

According to PECS, main sources of information mentioned by caregivers for passing across information about the VASD event were via Town Announcers (67.5%) followed by the Religious leaders / places of worship (43.9%). This is not surprising as trained town announcers usually walk through communities passing information about the event prior to and during the VASD. Caregivers are also in close contact with religious leaders whenever they visit places of worship (churches or mosques) and these religious leaders are usually sensitized prior to the VASD exercise. It is therefore important to keep sensitizing and strengthening the capacity of these key information channels using specific / targeted key messages in order to further improve mobilization, uptake of services and subsequently coverage among the target beneficiaries of VASD.

Survey findings show that an appreciable number of the health workers had detailed knowledge about VAS, its benefits (90.0%), the correct dosage for children 6 -11 months (96.7%) and children 12 - 59 months (91.0%), age of first receipt (86.7%) and frequency of VAS receipt (70.0%).

This is encouraging because previous surveys have found only a general awareness about Vitamin A among health workers with very few (37.5%)[9] having detailed knowledge about the intervention. This suggests that the training given to the health teams prior to the VASD event was effective in terms of knowledge retained and should continue.

The same can however not be said for the Community Leaders. While many of them (73.3%) had heard about Vitamin A, less than half knew that it prevents blindness (45.5%). Even fewer knew of other key details about Vitamin A such as it's important role in strengthening the child's immune system by protecting against diseases (31.8%) and thus reducing the risk of death (13.6%).

[9] Helen Keller International 2016, Report of Post Event Coverage Survey of the Maternal Newborn and Child Health Week Conducted in FCT

Only about a third of the community leaders knew the age by which children should receive VAS for the 1st time (31.8%) and only about a quarter knew the frequency of VAS receipt among eligible children (22.7%). Most of the CLs (81.8%) received information about VAS from health workers. This suggests that although the HWs are well trained and knowledgeable, they are not taking the time to effectively pass down this knowledge to others such as community leaders and caregivers. Community leaders are important, not just as gatekeepers but also as a trusted source of information about health events in their communities.

Given this fact, HWs therefore need to properly educate community leaders and beneficiaries about Vitamin A prior to the VASD event (e.g. during community dialogues) and during implementation, needs to be stressed during the training of HWs and even during the supportive supervision and monitoring visits conducted during implementation.

It is imperative to note that more than half of the community leaders (53.3%) suggested continued sensitization of men and household decision makers as an effective way to reach more eligible children with Vitamin A and other child-survival services in their communities. This is already being done via the community dialogues which often includes community leaders, religious leaders, leaders of market unions, school administrators, caregivers e.t.c. Efforts should therefore be made to continue strengthening this pre-implementation aspect of the VASD, to ensure fair representation of men, who are also often the household decision makers.

5. CONCLUSION AND RECOMMENDATIONS

The PEC survey conducted in Benue state found that VAS and deworming coverage among children 6 - 59 months and 12- 59 months of age respectively were below the recommended 80% coverage level required for a public health effect. The delivery model used in Benue (delivering VAS and other interventions via mainly the PHC routine services with a few temporarily fixed posts), coupled with poor sensitization and social mobilization and inadequate funding of the exercise seemed to be the key contributors to the large proportion of eligible children missed and consequently, the low coverage recorded.

These findings are in stark contrast to the VAS and deworming coverage found during the PECS in Nassarawa state, whose VASD exercise was conducted merely a month before that of Benue state. VAS coverage for Nassarawa was found to be 93.1%, while deworming was 91.1%.[10] Administrative coverage for both interventions was given as 97.0%, suggesting that the coverage was not unduly exaggerated. The delivery platforms used by Nassarawa state during the VASD most likely played a major role in the high coverage found.

Due to the global suspension on mass vaccination campaigns by the WHO, Nassarawa state adopted a modified MNCHW delivery approach in line with the GAVA guidelines on safe administration of Vitamin A in the context of COVID-19.

The *Nassarawa model* involved the use of trained health teams to deliver VAS to eligible children at home via three (3) channels: a mainly door-to-door approach, in addition to having fixed post teams at the health facilities and special mobile transit teams. This delivery approach differs from the normal way VAS campaigns are usually implemented i.e. as a mainly health facility-based intervention, with few outreach posts - a model similar to the one used in Benue state. To ensure high VAS and deworming coverage, it is therefore recommended that the "*Nassarawa model*" be adopted by Benue state for subsequent VASD, especially within the context of COVID-19.

Employing the *Nassarawa model* within Benue state will undoubtedly require huge funding commitment, especially as Benue has almost twice the number of LGAs as Nassarawa state (23 vs. 13). It is therefore imperative to prioritize a series of advocacy visits at various levels (especially, State and LGA levels) early enough in the planning process for timely and adequate release of funds to fully implement subsequent VASD exercise. If, however, the *Nassarawa model* cannot be fully implemented due to funding constraints, modifying the Benue model to include more fixed and mobile outreach posts, amidst intensive sensitization and social mobilization efforts prior to and during the exercise is recommended.

[10] Post Event Coverage Survey of Vitamin A and Deworming Intervention (VADI) in Nassarawa State, Nigeria

For those children who received VAS, using community structures such as trained town announcers seemed to be effective in sensitizing caregivers, creating awareness and ensuring uptake of VAS and deworming during the distribution exercise, despite the challenge posed by COVID-19.

Training of health personnel prior to the VASD was also found to be effective, as seen by their detailed knowledge of VAS. However, the need to effectively cascade this detailed knowledge of VAS and deworming down to the community leaders and key beneficiaries (caregivers) was also seen.

Based on the survey findings, the following actions are recommended:

1. Advocacy for timely and sufficient release of fund by the State and LGAs to facilitate the full implementation of the VASD, including procurement of adequate quantities of other key child health interventions such as Albendazole.
2. Use of the *Nassarawa model*, where 3 sets of health teams are trained to deliver VAS and deworming via door-to-door, fixed post and mobile outreaches, is highly encouraged especially in the context of COVID-19. If, however, the *Nassarawa model* cannot be fully implemented, modifying the Benue model to include more fixed and mobile outreach posts, amidst intensive sensitization and social mobilization efforts prior to and during the exercise is recommended.
3. Need for proper training of HWs on how to accurately estimate the target population for VAS and deworming
4. Continued use of trained town announcers to create awareness among caregivers and the community prior to and during the VASD is also encouraged
5. Capacity strengthening of HWs on VAS, deworming and COVID-19 key messages during training and using neck tag job aids should also be adopted and HWs should be reminded to consistently pass across these key messages to community leaders and caregivers prior to and during implementation.
6. Continued sensitization of men and household decision makers during community dialogues is also recommended.