



VALID

RESEARCH

REPORT

*Chrissy Banda, Bina Shaba, Safari Balegamire, Moussa Sogoba,
Ernest Guevarra, Lio Fieschi*



Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) Survey of Community Management of Acute Malnutrition program

Northern States of Nigeria

**(Sokoto, Kebbi, Zamfara, Kano, Katsina, Gombe,
Jigawa, Bauchi, Adamawa, Yobe, Borno)**



**Chrissy Banda, Bina Shaba, Safari Balegamire, Moussa Sogoba,
Ernest Guevarra, Lio Fieschi
Valid International**

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Abbreviations

CMAM	Community-Based Management of Acute Malnutrition
EPI	Expanded Program on Immunisation
LGA	Local Government Area
LQAS	Lot Quality Assurance Sampling
FMOH	Federal Ministry of Health
MUAC	Mid Upper Arm Circumference
NA	Not Available
NBS	National Bureau of Statistics
PSU	Primary Sampling Unit
RC	Recovering Case
SAM	Severe Acute Malnutrition
SLEAC	Simplified Lot Quality Assurance Sampling Evaluation of Access
SMART	Standardized Monitoring Assessment of Relief & Transitions
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
UNICEF	United Nations Children's Fund

Summary

A coverage survey using the Simplified Lot Quality Assurance Sampling Evaluation of Access or SLEAC methodology was carried out across 71 Local Government Areas (LGAs) implementing CMAM program in 11 states in the north of Nigeria. The survey was conducted in two Blocks: the West block and the East Block. The states of western block were Sokoto, Kebbi, Zamfara, Katsina, Kano and the states of the Eastern block were Gombe, Jigawa, Bauchi, Adamawa, Yobe and Borno.

The SLEAC used three-class classifier with 20% and 50% as the thresholds to determine low, moderate and high coverage classes (i.e. 20% or less, between 20% and 50% and greater than 50% respectively).

Of the 71 LGAs surveyed, more than half have moderate coverage (40 LGAs) but only 4 have high coverage. There were 27 LGAs with low coverage. At the state level, 8 of the 11 states surveyed had moderate coverage and only 3 states had low coverage. However, no state has achieved high coverage. Except for Adamawa and Kebbi state, coverage in all other states was heterogeneous. Overall coverage in the northern states of Nigeria was moderate with an estimate of 36.6% (95% CI: 32.3% – 40.9%).

The key barriers to service uptake and access for those children who were not in the program were: 1) no knowledge of malnutrition; 2) no knowledge of the program; 3) no knowledge of how the program works; 4) constraints and responsibilities of the mother; 5) service delivery problems; and 5) geographical access issues.

Based on the levels of coverage achieved and the barriers identified, the following actions are recommended to improve the coverage:

- 1) Strengthening of the program's community mobilization strategy with a strong emphasis on raising community awareness regarding malnutrition, its causes and manifestations and available treatment through the program. Community mobilization should be aimed at the whole community including community leaders;
- 2) Strengthening the integration of CMAM into the activities of the health center (e.g. EPI, consultations, etc.);
- 3) Develop, trial and institutionalize alternative service delivery mechanisms which aim at increasing beneficiaries' access to the program's services with particular attention to those who live far from the health centers or the health posts providing the service. These alternative mechanisms may include mobile treatment centers which would cater for most distant villages or fortnightly follow-ups for beneficiaries who live far from treatment sites or who face significant opportunity costs related to the standard weekly follow-up visits;
- 4) Setting up the management of moderate acute malnutrition component of CMAM; and,
- 5) Perform a focused SQUEAC (Semi-Quantitative Evaluation of Access and Coverage) in a selection of the LGAs implementing CMAM which builds on the findings of the SLEAC particularly with regard to the spatial distribution of coverage in each of the LGA and within the states. This would entail more detailed mapping of the results of the SLEAC that would inform how improvements to the program can be implemented particularly in terms of positioning of new treatment sites (if deemed necessary) or alternative service delivery mechanisms mentioned in item 3 above

1. Introduction

In Nigeria, acute malnutrition of children under 5 years is a major public health concern. Nigeria is ranked third in the world for absolute number of children under 5 years with severe acute malnutrition (SAM) particularly in the country's northern states where the risk of acute malnutrition is highest¹.

In response to this situation, the Federal Ministry of Health (FMOH) supported by partners has been implementing community-based management of acute malnutrition (CMAM) program with the aim of treating children afflicted by the condition and hence preventing mortality caused by malnutrition. CMAM implementation was first piloted in 2009 in 3 LGAs of Gombe state and 5 LGAs of Kebbi state. By 2010 the CMAM program was expanded to other states namely Sokoto, Zamfara, Katsina, Kano, Jigawa, Bauchi, Adamawa, Yobe and Borno with a total of 378 CMAM sites ².

Program coverage, defined as the proportion of children 6 to 59 months old with SAM who receive therapeutic care, is a key indicator of CMAM program impact. Measuring program coverage is therefore a critical step in assessing program performance. It is for this purpose that a SLEAC has been performed in the 11 states across 71 LGAs in the north of the country which are implementing CMAM.

This report describes and details the process and the outcomes of the SLEAC conducted between October 2013 and February 2014.

2. Objectives of the SLEAC survey

The objectives of the SLEAC survey are:

1. To assess the impact of the CMAM program in 75 LGAs across 11 states (i.e. Adamawa, Bauchi, Borno, Gombe, Jigawa, Kano, Katsina, Kebbi, Sokoto, Yobe and Zamfara) in the north of Nigeria;
2. To train in-country survey team on the SLEAC; and,
3. To raise awareness and understanding on program coverage and build capacity of partners involved at different levels (Ministries, NGOs, UNICEF)

¹As cited in 'Commission Decision on the financing of humanitarian actions in West Africa from the 10th European Development Fund'. European Commission, 2010

² ACF, Save the children, Valid, MOH Nigeria, report on Assessing Coverage of CMAM Services in Nigeria a& Building Government Monitoring Capacity, 2013.

3. Methodology

3.1 SLEAC sample design

SLEAC was used as a wide-area survey method in order to classify coverage at the Local government Area (LGA) level.

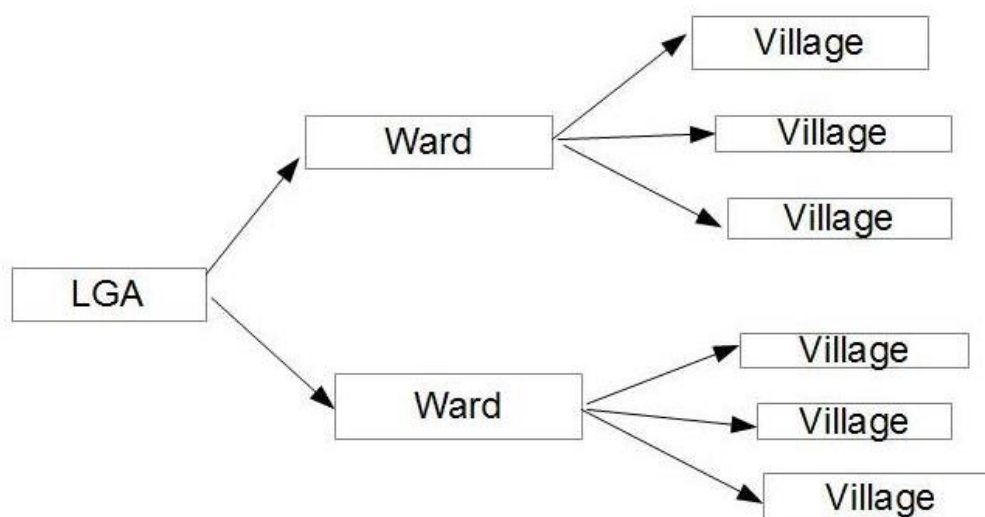
SLEAC is a low-resource method for *classifying* and *estimating* the coverage of selective feeding programs. SLEAC surveys classify coverage at the level of the service delivery unit. It provides also limited data (i.e., reasons for non-attendance collected from a single informant type using a single method with a small sample size) on barriers to service uptake and analysis. This varies with the scale of the program.

SLEAC survey uses a two-stage sampling design.

Stage 1 sampling: Selection of PSUs

This is the sampling method that is used to select the villages or settlements to be sampled in the survey. The primary sampling unit (PSU) used in the SLEAC survey was village or settlement. Complete village lists per LGA organized by ward were provided by the National Bureau of Statistic (NBS). The structure of LGA-level samples are shown in Figure 1

Figure 1 : Structure of samples in LGAs



A target of $n = 40$ cases was used in each LGA. This is a standard SLEAC sample size for large populations.

The number of PSUs needed to reach the target sample size in each LGA was calculated using the following formula:

$$n_{psu} = \frac{\text{Target sample size (n)}}{\text{median village population all ages} \times \frac{\text{percentage of population 6 – 59 months}}{100} \times \frac{\text{SAM prevalence}}{100}}$$

The percentage of the population aged between 6 and 59 months was estimated as 18%. SAM prevalence rates by MUAC were taken from results of SMART surveys conducted in 2011, 2012 and 2013. The SAM prevalence rate used in the formula for each state was adjusted from the results of the prevalence surveys taking into account the difference in seasons between the dates that the prevalence surveys were conducted and the dates that the SLEACs were going to be performed. More importantly, adjustments were made to the SAM prevalence rates with the underlying aim of ensuring that enough villages or settlements were surveyed in order to reach the target sample size of 40 per LGA. This generally meant having to underestimate the prevalence of SAM per state. Table 1 presents the SAM prevalence rates per state used to obtain the number of LGAs to be surveyed using the formula specified above.

Table 1 : SAM prevalence rates per state used in the SLEAC survey

States	Prevalence used in SLEAC	Prevalence of SAM, SMART 2013	Prevalence of SAM, SMART 2012	Prevalence of SAM, SMART 2011
Sokoto	1.5	1.3	3.7	NA
Kebbi	2	1.2	2.1	NA
Zamfara	1.5	2.3	3	NA
Katsina	1.5	5.4	1.2	NA
Kano	1.5	3.9	2.1	NA
Gombe	1	0.7	NA	4.7
Jigawa	2	3.7	2	3.2
Bauchi	2	2.5	NA	NA
Adamawa	1	0.4	NA	NA
Borno	2	2.2	1.7	NA
Yobe	2	1.5	2.4	NA

It should be noted that the SAM prevalence rates used were state level estimates and not LGA prevalence results. The recommendation for SLEAC surveys is that wherever possible, local prevalence rates (i.e. rates estimated for the local areas in which the SLEAC survey is being conducted) should be used {Myatt:2012tt}. For the case of this SLEAC, there were no SMART surveys done at the LGA level. Hence, we assumed that SAM prevalence is homogenous within each state and assigned the SAM prevalence of the state to each of the constituent LGAs to be surveyed.

A minimum of 25 PSUs was set in cases where the calculated number of villages / settlements per LGA needed to be sampled was less than 25. This was done to ensure as much as possible an even spatial spread of the stage 1 sample.

A systematic sampling approach was used to select the PSUs to be sampled. This was done through the following steps:

Step 1. The list of villages was organized by LGA and then by ward.

Step 2. A sampling interval was calculated using the following formula:

$$\text{sampling interval} = \frac{\text{number of villages in LGA}}{n_{psu}}$$

Step 3. A random starting PSU from the top of the list was selected using a random number between 1 and the sampling interval. The random number was generated using Microsoft Excel software.

Stage 2. A within-community sampling method

Stage 2 sampling involves finding the target population in the selected PSUs. The target population was:

- Child aged 6 to 59 months old; and,
- MUAC < 115 mm; and / or,
- With nutritional oedema; and / or
- In the CMAM program

The PSUs selected in stage 1 were sampled using a case-finding method designed to find all or nearly all SAM cases in the particular PSU.

In rural PSUs, an active and adaptive case finding approach was used. This method involved developing a case-finding question appropriate to the location and context from the base question of:

Where can we find children who are sick, thin, have swollen legs or feet, or have recently been sick and have not recovered fully, or are attending a feeding program?

This question was adapted and improved using information collected from key informants to include local terms (in all local languages) and local aetiological beliefs regarding wasting and oedema.

In urban PSUs, house-to-house, door-to-door case finding was implemented. This is based on experience in conducting coverage surveys in urban areas where the use of key informants and context-specific case finding questions was not effective in finding all SAM cases {Myatt:2012tt}.

Once found, SAM cases were then assessed as to whether they were covered in the CMAM program or not.

- A SAM case was assessed to be covered by the program if the child met the criteria of the target population stated above and was enrolled in the program verified by the presence of RUTF or the OTP card
- A SAM case was assessed to be not covered by the program if the child met the criteria of the target population and was not enrolled in the program.
- A recovering case was a child aged 6 – 59 months who was enrolled in the program and waiting to be discharged with a MUAC > 115 mm and no nutritional oedema.

A tally sheet (see Annex 1) was filled for each village sampled and each child who fulfilled the criteria of the survey was recorded. When a SAM case was not covered a standard questionnaire regarding the barriers to access and coverage was administered to the caregiver (see Annex 2).

3.2 Coverage Estimator

There are two coverage estimators that have been developed: *point* and *period* coverage.

Point coverage

This estimator uses data for current cases (i.e. those children who are still currently SAM) only. It is calculated using the following formula:

$$\text{Point coverage} = \frac{\text{Number of current cases attending program}}{\text{Number of current cases}}$$

The **point coverage** estimator provides a snapshot of program performance and places a strong emphasis on the coverage and timeliness of case-finding and recruitment.

Period coverage

This estimator uses data for both current and recovering cases. It is calculated using the following formula:

$$\text{Period coverage} = \frac{\text{Number of current and recovering cases in the program}}{\text{Number of current cases} + \text{Number of recovering cases}}$$

The **period coverage** estimator includes recovering cases. These are children that should be in the program because they have not yet met program discharge criteria.

Depending on program context, either point or period coverage should be used to describe program coverage. In general, the recommendation is that if the program has good case-finding and short lengths of stay, period coverage is likely to be appropriate.

On the other hand, if the program has poor case-finding and recruitment and long lengths of stay due to late presentation and / or late admission, point coverage is likely to be appropriate {Myatt:2012tt}.

In the case of this SLEAC, it would have been ideal that an appropriate, LGA-specific coverage estimator be chosen to best capture the coverage situation in each LGA. However, there was limited program information and context available to the survey team to fully decide which estimator to use per LGA.

Despite this limitation, there were general characteristics of CMAM programming in Nigeria and the coverage achievements of some LGAs where surveys have been conducted before that provided insight and guidance as to which coverage estimator was the most appropriate albeit for all the LGAs surveyed and not LGA-specific.

In general, the following observations about CMAM programming and coverage in Nigeria can be made:

1. CMAM programming in Nigeria is challenging mainly due to the high caseloads and the geographical spread of the need for the services. This manifests as large numbers of cases coming in for the first time or for follow-up. In such context, case-finding for enrolment to the program is always a difficult task.
2. Defaulting is a significant issue in Nigeria. Whilst some of the programs implemented in particular states and LGAs (especially those in which previous coverage surveys has already noted this problem and have provided recommendations for improvement) may have improved on this problem already but for majority of the LGAs surveyed this is most likely still a significant problem.

Given these observations and based on knowledge of previous coverage surveys done in Nigeria, point coverage was chosen as the more appropriate coverage estimator for reporting coverage estimates for the following reasons:

1. Timely case-finding will always be an important factor to achieving good coverage and in the context of CMAM programming in Nigeria this factor is also the hardest to get right. Using the point coverage estimator will further emphasize the importance of timely case-finding towards increasing program coverage. As will be noted later in the report, it is very likely that the LGAs with moderate to high point coverage are more likely to have good and timely case-finding.
2. Point coverage will most likely have less bias than period coverage in the context of high defaulting. A recent study into defaulting in Gombe state showed that whilst death was shown as the main outcome of those who have defaulted, recovery (i.e. MUAC > 115 and no oedema) was the third most common outcome after defaulting. Period coverage doesn't take into account cases who are recovering but are not in the program (such as those defaulters who have recovered) and as such tend to overestimate coverage. Point coverage, on the other hand, is not susceptible to this bias as it doesn't account for recovering cases. Whilst this may not be the case for some LGAs with no problems with defaulting, it is very likely

that for most LGAs that face the complex mechanism of defaulting, period coverage may give a distorted assessment of coverage.

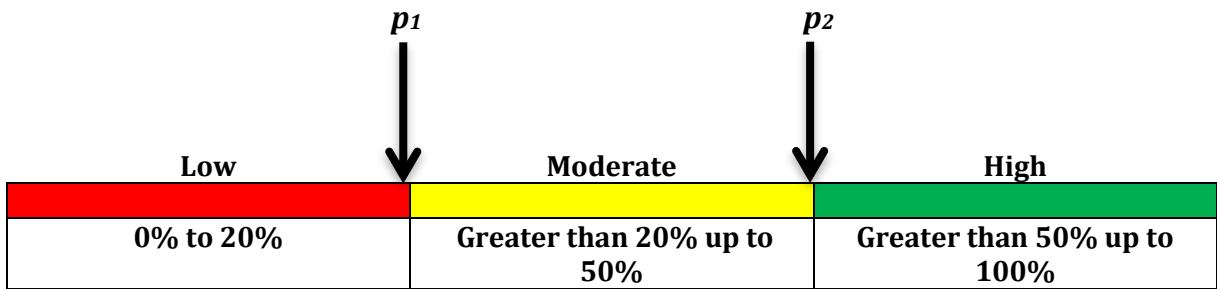
3.3 Data analysis

Coverage classification

The simplified lot quality assurance sampling (LQAS) classification technique was used to analyse the data. A two-standard (20% and 50%), three-class (low, moderate, high) classifier was used to classify the coverage in each LGA. The three classes were defined as follows:

Low coverage	: 20% or below
Moderate coverage	: Greater than 20% up to 50%
High coverage	: Above 50%

Figure 2 : The two-standard, three-class classifier



The standards were used to create decision rules using the rule-of-thumb formulas:

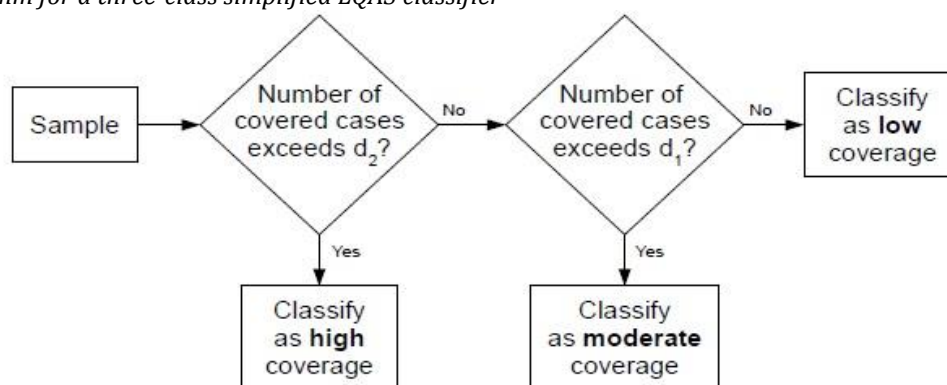
$$d_1 = \lfloor n \times p_1 \rfloor = \left\lfloor n \times \frac{20}{100} \right\rfloor = \left\lfloor \frac{n}{5} \right\rfloor$$

$$d_2 = \lfloor n \times 2 \rfloor = \left\lfloor n \times \frac{50}{100} \right\rfloor = \left\lfloor \frac{n}{2} \right\rfloor$$

Where n is the sample size achieved by the survey, p_1 is the lower coverage threshold (i.e., 20%), and p_2 is the upper coverage threshold (i.e. 50%).

Coverage in each LGA and state was classified using the algorithm presented in Figure 3.

Figure 3 : Algorithm for a three-class simplified LQAS classifier



Coverage estimation

An aggregate estimate of coverage was calculated for each state and for all the LGAs combined using standard weighted estimation of proportions techniques used for a stratified sample as described in the FANTA SQUEAC and SLEAC handbook {Myatt:2012tt}. Chi-square testing was performed to assess whether coverage results were homogeneous within each state. Whether or not coverage is homogenous within each state allows for the contextualisation of the state level and overall coverage estimates calculated³.

3.4 Survey implementation

The SLEAC coverage survey was carried out in two blocks:

- West block: Kebbi, Sokoto, Katsina, Zamfara and Kano States
- East block: Gombe, Bauchi, Jigawa, Yobe, Borno and Adamawa States

Due to security reasons, it was not possible to perform the survey in 4 LGAs of Borno state namely Bama, Ngala, Mobbar and Monguno hence survey was cancelled in these LGAs.

The SLEAC survey in the West Block was held from 1 October 2013 to 20 December 2013 (Annex 3) and in the East Block from 9 December 2013 to 19 February 2014 (Annex 4).

³ State-level and overall coverage estimate aggregates are only meaningful if coverage across the LGAs within a state are not significantly different from each other.

Training of interviewers

Two training sessions on the SLEAC methodology (4 days for each training) were conducted for each of the two groups of investigators from two blocks. One was held in the Kebbi State from 2 to 6 October 2013 and another in Gombe State from 9 December to 12 December 2013. In the spirit of capacity building, 8 managers from NBS, one manager from the MOH and 15 surveyors from NBS and MOH belonging to the West Block survey team were trained. For the East Block, 8 managers from NBS, one from the MOH and 20 surveyors (11 from MOH and 9 from NBS) were also trained on SLEAC methodology. Annex 5 and Annex 6 present the names of surveyors and managers of NBS and MOH who have been trained.

The theoretical component of the training covered an **introduction** to coverage, the **objectives** of the SLEAC survey, SLEAC **methodology**, the procedure for **active adaptive case-finding** method, **anthropometric measurement and tools** of the survey (see Annex 7). Practice focused on anthropometric measurements (the standardization of anthropometric measurements), research local terminology used to describe malnutrition (see **Annex 8**), and active case finding.

Sampling

Only LGAs with CMAM program were surveyed. Table 2 shows the number and proportion of LGAs of different states which had CMAM programs hence surveyed.

Table 2 : LGAs with CMAM program

	SN	State	Number of LGAs with CMAM	Number of LGAs with No CMAM	Total LGAs	LGA Geographic coverage
Block West	1.	Kebbi	10	11	21	48%
	2.	Sokoto	7	16	23	30%
	3.	Zamfara	6	8	14	43%
	4.	Katsina	10	24	34	29%
	5.	Kano	6	38	44	14%
Block East	6.	Gombe	3	8	11	27%
	7.	Jigawa	12	15	27	44%
	8.	Bauchi	3	17	20	15%
	9.	Adamawa	3	18	21	14%
	10.	Borno	6	21	27	22%
	11.	Yobe	9	8	17	53%
	Total	11 states	75	184	259	29%

Table 3 summarizes the number of LGAs, Wards, villages, the number of SAM cases and recovering cases found during the investigation in the 11 states.

Table 3 : Description of SLEAC sample by state

	STATES	LGA's	WARDS	SETTLEMENTS	SAM CASES	RECOVERING CASES
Western Block	Kebbi	10	111	329	840	14
	Sokoto	7	69	360	884	19
	Zamfara	6	54	270	765	57
	Katsina	10	108	317	823	243
	Kano	6	58	173	334	110
East block	Gombe	3	32	138	215	114
	Jigawa	12	130	376	751	264
	Bauchi	3	46	83	241	35
	Adamawa	3	31	110	240	48
	Yobe	9	23	56	707	75
	Borno	2	23	56	132	14
	Total	71	910	2929	5947	993

On the list of villages covered by the CMAM program provided by NBS, some villages sampled were replaced by others during the implementation of the survey. The reasons for replacement were 1) sampled settlement/village was not included in the LGA covered by CMAM program; 2) the village was uninhabited or was no longer there; 3) population has migrated; and, 4) in some villages (Njibiri and Wafi in Borno, Jaji gurawa in Yobe state) surveyors were rejected because population thought survey was about EPI (Expanded Program on Immunization) program of polio; and, 5) due to insecurity. The new village chosen was selected for its proximity to the old village.

Data collection

Data collection was carried out for the Western Block by 15 investigators (7 from NBS and 8 from MOH) who were grouped into 6 teams and data collection of the states of Eastern block was carried out by 20 investigators (NBS 11 and 9 MOH) who were grouped into 10 two-person teams.

During the investigation, supervision of activities was provided by Valid International staff. After completing the survey in a state a debriefing session was organized to provide instant results of the state to the authorities of MOH, NBS and other partners involved in the CMAM activities.

Quality control of data

To ensure data quality, the following measures were put in place:

- Regular field supervision of surveyors in each state except for Yobe and Borno due to insecurity;
- Random field data checks were performed by supervisors to confirm case finding and also recording of data on tally sheets.
- In the state of Yobe where supervisors were not able to go due to insecurity, some LGAs like Geidam, Nguru and Potiskum were done two times by different teams of surveyors to confirm the result found.

Difficulties encountered During the Survey

- Accessibilities of some villages

Some villages were inaccessible by vehicles due to lack of roads and in some situations investigators were obliged to walk to reach the villages or used motorcycles, canoes or walk on foot to cross a river to reach the village. Some roads were too sandy.

Administrative procedures with local authorities before starting the survey in a state and LGAs were cumbersome which contributed to the slowness in the implementation of the activities of the investigation.

- The scheduled dates of the debriefing in some states did not suit or fit in very well with the agenda of local authorities and in some situations, the SLEAC survey team was obliged to go back from one state to the previous state in order to perform a debriefing session and this situation slowed down the activities of the survey.

- Insecurity in some states especially Yobe and Borno states. Two investigators withdrew from the survey because of the insecurity in these two states. Due to insecurity, 4 LGAs in Borno State, namely Bama, Ngala, Monguno, Mobbar, were not surveyed and some villages were replaced.

4. Results

4.1 Profiles of SAM children

The SAM cases found during the survey were profiled by their age and their MUAC. The median of age was included for all cases found in the survey and the median of MUAC was included for the uncovered cases only because it presents reach information about the risk of mortality for the SAM children not covered in the community.

Table 4 : Profile of SAM cases and uncovered SAM cases

State	Age (months)		MUAC (mm)of uncovered cases	
	Median	Mode	Median	Mode
Sokoto	16	12	109	110
Kebbi	16	24	109	110
Zamfara	16	24	108	113
Katsina	16	24	109	113
Kano	17	24	110	114
Gombe	18	24	112	113
Jigawa	17	24	110	114
Bauchi	18	24	108	113
Adamawa	17	24	108	114
Yobe	14	12	110	112
Borno	13	12	108	113

The age profile indicates that the sample of SAM cases found during the coverage survey was what had been expected. SAM was expected to be more prevalent in the younger age group of children between 6 to 24 months, as they are the most susceptible to various known causal factors of malnutrition.

Regarding the MUAC measurements, except for Kano, Gombe, Jigawa and Yobe states, the medians of uncovered cases found in others states were less than 110 mm indicating a high risk of mortality. As the median was less than 110mm, (not close to 115 mm) it showed that SAM cases were undetected in the community for a long time. Therefore, much effort should be invested in detecting SAM cases much earlier. Annex 9 presents the histogram of age of all cases and the histogram of MUAC of uncovered cases.

Furthermore it should be noted that on the total of 5947 cases of severe acute malnutrition, 237 cases had oedema or 4.5%. The table 5 presents the number of oedema cases found for each state and their degree.

Table 5 : Characteristics of oedema cases

States	Oedema cases			
	n	+	++	+++
Kebbi	2	1	1	0
Sokoto	8	7	1	0
Zamfara	5	2	1	2
Katsina	55	42	8	5
Kano	29	23	5	1
Gombe	27	17	7	3
Jigawa	62	20	28	14
Bauchi	5	2	2	1
Adamawa	6	3	3	0
Yobe	35	23	11	1
Borno	3	1	2	0
Total	237	141 (59.5%)	69(29.1)	27(11.4%)

4.2 Coverage classification

Coverage classification at the state level

Table 6 presents the point coverage classification results for all states. The point coverage was used in all of the states. The coverage in the states of Kebbi, Sokoto and Zamfara was low. The coverage in the rest of the states was moderate.

Table 6 : Classification of coverage at the state level

State	SAM cases found	Covered SAM cases	Decision rule 1	$c > d_1?$	Decision rule 2	$c > d_2?$	Coverage classification
	n		$d_1 = \left\lfloor \frac{n}{5} \right\rfloor$		$d_1 = \left\lfloor \frac{n}{2} \right\rfloor$		
Sokoto	897	63	179	No	448	No	Low
Kebbi	840	101	168	No	120	No	Low
Zamfara	766	131	153	No	383	No	Low
Katsina	824	314	162	Yes	407	No	Moderate
Kano	334	141	66	Yes	167	No	Moderate
Gombe	215	45	215	Yes	107	No	Moderate
Jigawa	751	248	150	Yes	375	No	Moderate
Bauchi	241	115	48	No	120	No	Moderate
Adamawa	240	114	48	Yes	120	No	Moderate
Yobe	707	187	112	Yes	281	No	Moderate
Borno	132	37	26	Yes	66	No	Moderate
Total	5947	1496	1189	Yes	2973	No	Moderate

Coverage classification at the LGA level

Table 7 presents classification of coverage for each LGA surveyed.

Of the 71 LGAs surveyed, more than half (40 LGAs) had moderate coverage and 27 had low coverage. Only 4 LGAs had high coverage. All LGAs in Kebbi and Sokoto had low coverage. All LGAs in Adamawa had moderate coverage and in Katsina and Kano, all LGAs had moderate coverage except for one in each state which had high coverage. The coverage classification per LGA gave an indication of the homogeneity of coverage results in each of the states. The LGAs in Adamawa, Kebbi and Sokoto all had the same coverage classification and most likely had quite even distribution of coverage. This should be taken into consideration when interpreting the results of the aggregated classification presented above in Table 6.

Figure 4 presents a map of coverage classification for the 71 LGAs surveyed.

Table 7 : Coverage classification per LGA

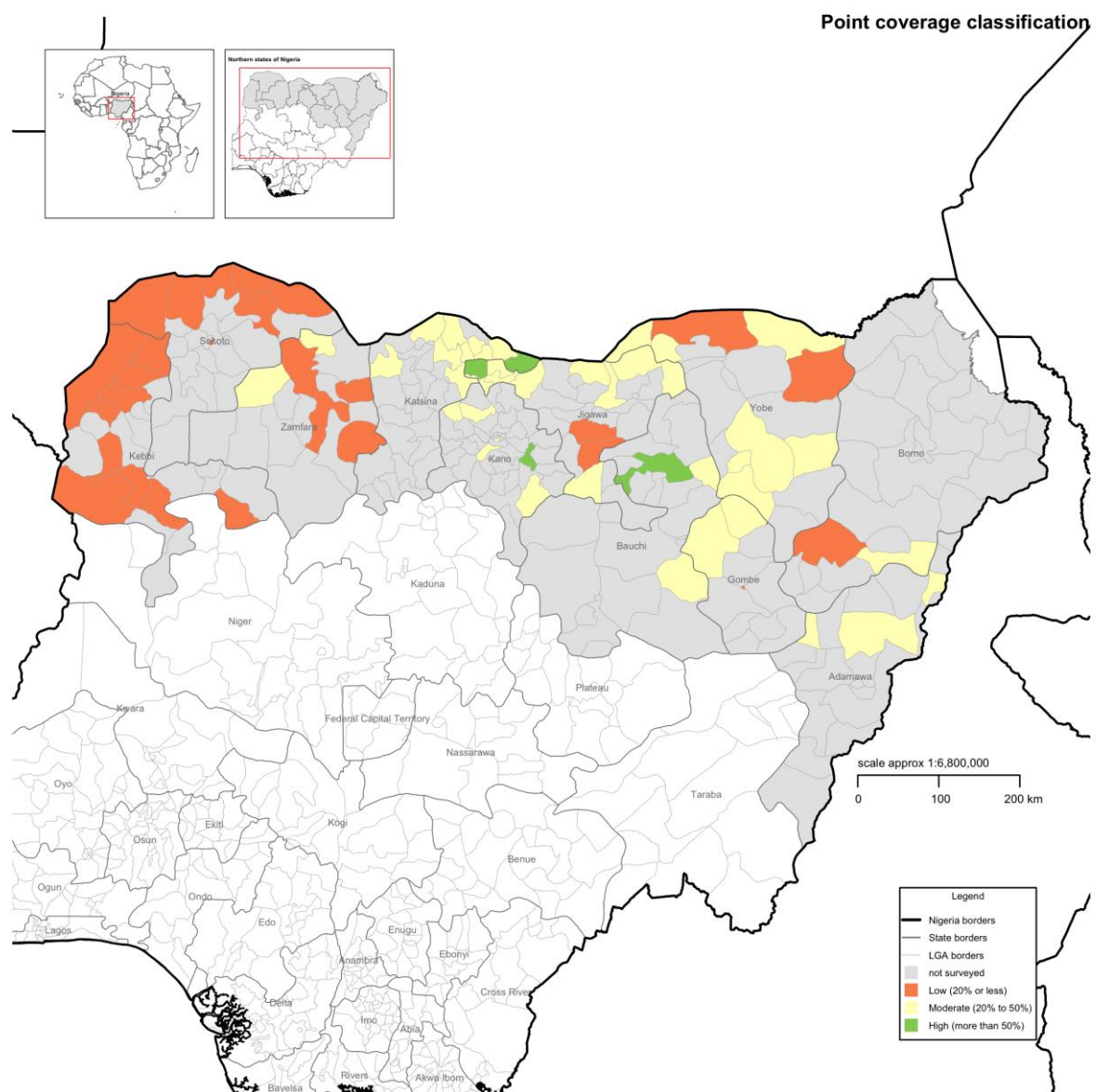
State	LGA	Number village sampled	SAM cases found	Covered SAM cases (c)	Lower decision threshold	Is $c > d_1$?	Upper decision threshold	Is $c > d_2$?	Coverage classification
Sokoto	Tangaza	41	83	9	16	No	41	No	Low
	South sokoto	25	46	6	9	No	23	No	Low
	Illale	25	73	8	14	No	36	No	Low
	Gude	91	129	25	25	No	64	No	Low
	Goronyo	79	180	1	36	No	90	No	Low
	Saborn birnin	26	138	9	27	No	69	No	Low
	Garda	73	248	5	49	No	124	No	Low
Kebbi	Arewa	41	66	5	13	No	33	No	Low
	Argungu	23	129	11	25	No	64	No	Low
	Augie	39	124	18	24	No	62	No	Low
	Birnin Kebbi	25	108	18	21	No	54	No	Low
	Bugudo	25	65	8	13	No	32	No	Low
	Kalgo	25	110	9	22	No	55	No	Low
	Koko Besse	25	64	8	12	No	32	No	Low
	Sakaba	76	50	3	10	No	25	No	Low
	Shanga	25	59	9	11	No	29	No	Low
	Suru	25	65	8	13	No	32	No	Low

Zamfara	Bungudu	40	78	10	15	No	39	No	Low
	Birnin Magaji	26	108	11	21	No	54	No	Low
	Bakura	44	111	34	22	Yes	55	No	Moderate
	Maradun	102	336	48	67	No	168	No	Low
	Shinkafi	32	77	20	15	Yes	38	No	Moderate
	Tsafe	26	56	8	11	No	28	No	Low
Katsina	Mashi	49	130	31	26	Yes	65	No	Moderate
	Mani	39	81	22	16	Yes	40	No	Moderate
	Daura	25	66	31	13	Yes	33	No	Moderate
	Dutsi	27	74	32	14	Yes	37	No	Moderate
	Zango	35	115	40	23	Yes	57	No	Moderate
	Baure	31	134	68	26	Yes	67	Yes	High
	Sandamu	28	59	20	11	Yes	29	No	Moderate
	Ingawa	25	48	16	9	Yes	24	No	Moderate
	Batsari	33	81	37	16	Yes	40	No	Moderate
	Kaita	25	36	17	7	Yes	18	No	Moderate
Kano	Bichi	25	53	14	10	Yes	26	No	Moderate
	KMC	48	43	20	8	Yes	21	No	Moderate
	Madobi	25	61	20	12	Yes	30	No	Moderate
	Sumaila	25	38	17	7	Yes	19	No	Moderate
	Tsanyawa	25	58	24	11	Yes	29	No	Moderate
	Wudil	25	81	46	16	Yes	40	yes	High

Gombe	Gombe	25	50	2	10	No	25	No	Low
	Dukku	58	81	22	16	Yes	40	No	Moderate
	Nafada	55	84	21	16	Yes	42	No	Moderate
Jigawa	Babura	25	74	37	14	Yes	37	No	Moderate
	Birnin kudu	48	78	17	15	Yes	59	No	Moderate
	Birniwa	34	49	10	9	Yes	24	No	Moderate
	Guri	36	64	26	12	Yes	32	No	Moderate
	Jahun	27	88	14	17	No	44	No	Low
	Kaugama	25	45	16	9	Yes	22	No	Moderate
	Kazaure	36	54	13	10	Yes	27	No	Moderate
	Kiyawa	26	43	7	8	No	21	No	Low
	Roni	26	50	18	10	Yes	25	No	Moderate
	Gwiwa	26	105	64	21	Yes	52	Yes	High
	Yankwashi	28	45	14	9	Yes	22	No	Moderate
	Maigatare	39	56	12	11	Yes	28	No	Moderate
Bauchi	Damban	33	91	43	18	Yes	45	No	Moderate
	Katagum	25	65	44	13	Yes	32	Yes	High
	Kirfi	25	85	28	17	Yes	42	No	Moderate
Adama wa	Song	44	103	50	20	Yes	51	No	Moderate
	Guyuk	33	62	28	12	Yes	31	No	Moderate
	Mubi North	28	75	36	15	Yes	37	No	Moderate

Yobe	Damaturu	30	95	29	19	Yes	47	No	Moderate
	Fika	25	61	28	12	Yes	30	No	Moderate
	Fune	27	65	15	13	Yes	32	No	Moderate
	Geidam	30	86	7	17	No	43	No	Low
	Machina	25	51	15	10	Yes	25	No	Moderate
	Nguru	26	145	47	29	Yes	72	No	Moderate
	Postikum	29	43	10	8	Yes	21	No	Moderate
	Yusufari	29	81	16	16	No	40	No	Low
	Yunusari	27	80	20	16	Yes	40	No	Moderate
Borno	Biu	30	61	9	12	No	30	No	Low
	Askira Uba	26	71	28	14	Yes	35	No	Moderate

Figure 4 : Map of point coverage classification across the 71 LGAs surveyed



4.3 Coverage estimates

Coverage estimation was done at the state level. Table 8 presents the results.

Bauchi had the highest coverage estimate at 56.9% while Sokoto had the lowest coverage estimate at 5.3%.

Table 8 : Coverage estimates per state

	States	SAM prevalence ⁴	Coverage Estimation	95% Confidence interval
Western Block	Sokoto	1.3%	5.3	4.0 – 6.6
	Kebbi	1.2%	12.6	11.7 – 13.4
	Zamfara	1.3%	11.4	9.9 – 12.3
	Katsina	5.4%	37.9	32.2 – 41.9
	Kano	3.9%	41.8	35.0 – 48.6
East Block	Gombe	0.07%	14.5	10.2 – 18.9
	Jigawa	3.7%	30.9	27.6 – 34.3
	Bauchi	2.5%	56.9	49.9 – 64.4
	Adamawa	0.04%	48.0	41.5 – 54.5
	Yobe	1.5%	26.6	24.5 – 28.8
	Borno	2.2%	31.4	23.2 – 39.6

Chi-square test performed per state indicated that only Adamawa and Kebbi state had homogeneous coverage across the LGA surveyed⁵. This means that the overall estimates for these two states (12.6% and 48% for Kebbi and Adamawa respectively) most likely is the coverage across all the LGAs providing CMAM services in the two states. For the rest of the states, however, the overall estimates should be taken into context given within-state variability of coverage as shown by the per LGA classification in the previous section and the chi-square testing performed.

The overall point coverage for all states was 36.6 % (32.3 – 40.9%). Again, this result should be taken in context of high variability of coverage across the LGAs.

4.4 Barriers to service uptake and access

A questionnaire (see Annex 2) was administered to mothers of SAM cases children who were not in program, in order to identify the barriers of the program. For the good comprehension of the questions, the terminologies of malnutrition in local languages (Annex 8) were used by the surveyors.

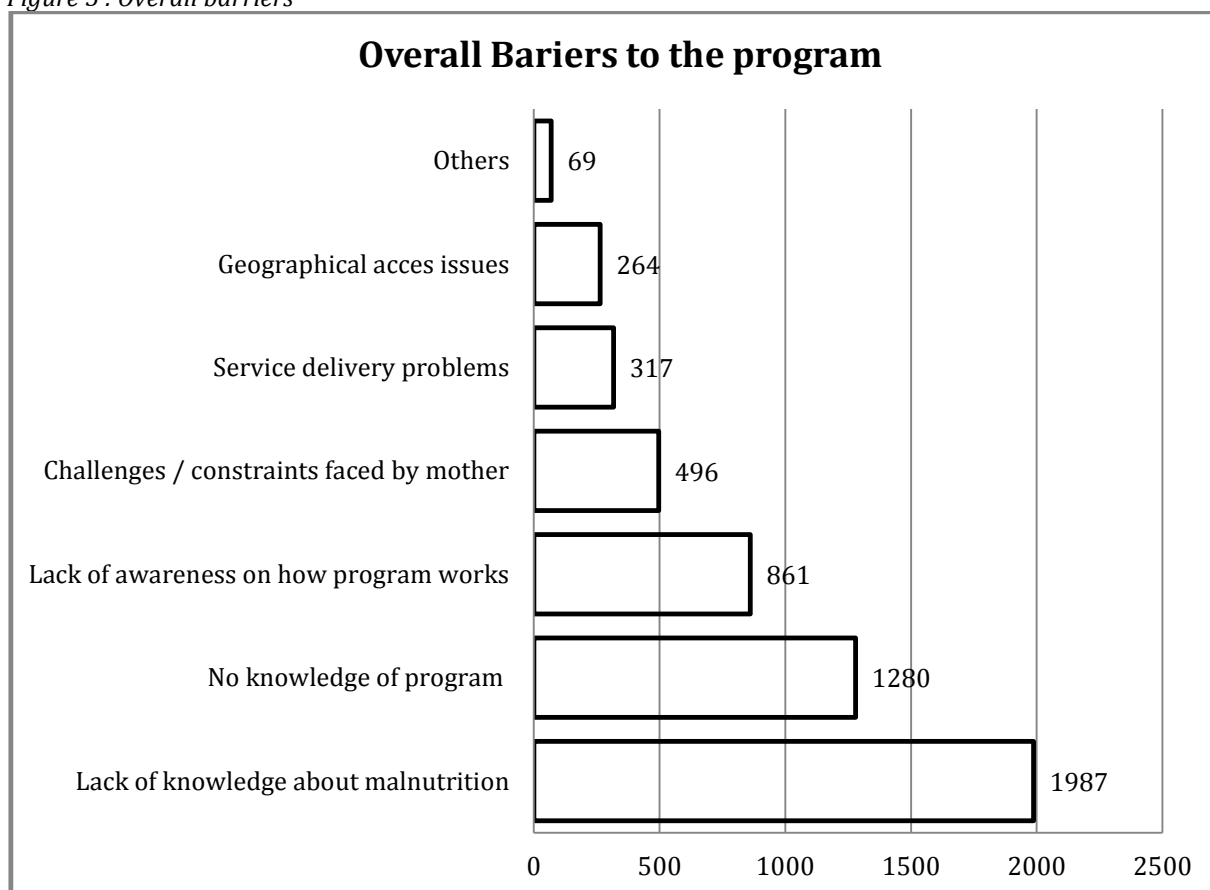
⁴ Prevalence of MUAC SAM of SMART survey 2013

⁵ Although Sokoto had low coverage classification across all its LGAs, one LGA stood out as almost being classified as moderate and has a significantly higher coverage than all other LGAs in Sokoto. This is most likely the reason why based on chi-square testing, Sokoto was assessed to have heterogeneous coverage.

Overall barriers to service and access for the 11 states

The Pareto chart of the Figure 5 shows the overall barriers for the program of all states.

Figure 5 : Overall barriers



The detailed barriers list under each barriers theme are found in **Table 9**.

Table 9: Barriers to service uptake and access

	Sokoto	Kebbi	Zamfara	Katsina	Kano	Gombe	Jigawa	Buachi	Adamawa	Yobe	Borno	Total
1. Lack of knowledge about malnutrition	443	361	259	91	110	65	229	79	61	238	51	1987
Ignorance of malnutrition	441	350	259	85	109	65	227	79	61	238	51	1965
Think the child will regain his health over time	0	1	0	1	0	0	0	0	0	0	0	2
Didn't know the child malnourished/thought it's size	1	5	0	4	1	0	2	0	0	0	0	13
Don't know whether the child has to be treated in clinic	1	5	0	1	0	0	0	0	0	0	0	7
2. No knowledge of program	334	224	191	44	30	73	105	59	59	145	16	1280
3. Service delivery problems	58	41	38	26	25	11	42	13	11	36	16	317
Out of stock	17	21	27	11	17	8	23	3	11	19	12	169
Plumpy out of stock	16	21	27	11	17	8	23	3	11	19	12	168
Out of stock (not specified)	1	0	0	0	0	0	0	0	0	0	0	1
Inappropriate treatment	6	8	1	5	8	1	14	5	0	7	0	55
The amount of RUTF was too little to justify the journey	2	4	0	1	0	1	14	5	0	6	0	33
No recovering despite the treatment / Discharge no cured	4	4	1	4	8	0	0	0	0	1	0	22
Negative attitude / behaviour of health personnel	12	2	7	6	0	0	0	0	0	0	2	29
Attitude or fear of Health worker	1	0	4	6	0	0	0	0	0	0	0	11
Absence of health agent	10	0	3	0	0	0	0	0	0	0	2	15
Bad reception	0	1	0	0	0	0	0	0	0	0	0	1
Was asked to buy RUTF	1	1	0	0	0	0	0	0	0	0	0	2
Inaccurate / inappropriate advice	12	9	3	0	0	0	0	0	0	1	0	25
Health worker advised that child too young to be admitted /under age	2	0	0	0	0	0	0	0	0	0	0	2
Health worker said that the child is growing well	0	0	0	0	0	0	0	0	0	1	0	1
Visited clinic recently but told child not malnourished	2	1	0	0	0	0	0	0	0	0	0	3
The child was discharged / told child not malnourished and not to come back	8	8	3	0	0	0	0	0	0	0	0	19
Screening and referral issues	10	1	0	4	0	1	3	5	0	4	2	30
When brought child to HF received only tablets/injection/ORS	9	0	0	0	0	0	0	0	0	4	2	15
The nurse didn't admit child to the program / wasn't given any treatment at HF	1	1	0	4	0	1	3	5	0	0	0	15
Others	1	0	0	0	0	1	2	0	0	5	0	9
No satisfaction with health service	0	0	0	0	0	1	2	0	0	5	0	8
Was obliged to bring back the child home because waiting too long at queue	1	0	0	0	0	0	0	0	0	0	0	1
4. Lack of awareness on how program works	95	161	94	113	30	28	143	42	26	101	28	861
Fear of rejection	35	80	47	28	3	5	40	4	10	20	7	279
Child has been rejected before	12	32	13	21	2	0	22	1	4	15	3	125
Other people's children have been rejected	23	48	34	7	1	5	18	3	6	5	4	154
Misconceptions about the program	60	81	47	85	27	23	103	38	16	81	21	582
Believes that at first child needs to be hospitalised	21	38	15	16	12	7	24	4	2	17	3	159
Doesn't know how the program works	2	0	1	0	0	1	3	0	0	14	4	25
They didn't tell mother to go back to Health Center to continue treatment	1	8	3	49	9	0	0	0	0	0	0	70
Program cannot help the child / Prefers traditional medicine	34	35	27	19	6	14	75	34	14	50	14	322
Defaulted before and think that can not be admitted again	2	0	1	0	0	0	0	0	0	0	0	3
Require a permission/ be admitted to OTP/Reference by Volunteers to go to OTP	0	0	0	0	0	1	1	0	0	0	0	2
Waiting for the day of consultation to the HC queue	0	0	0	1	0	0	0	0	0	0	0	1
5. Challenges / constraints faced by mother	76	93	85	25	24	14	67	9	13	76	14	496
Medical	21	23	23	10	8	2	3	3	2	11	3	109
Mother is sick	19	23	23	10	8	2	3	3	2	11	3	106
Mother pregnant / gave birth	2	0	1	0	0	0	0	0	0	0	0	3
Cultural / Social position / Commitments	55	70	62	15	16	12	64	6	11	65	11	387
Husband refused	25	38	26	1	3	5	34	3	6	33	8	182
Father of the child was absent	1	0	1	6	1	0	0	0	0	0	0	9
There is no one else who can take care of the other siblings	1	5	4	0	2	0	10	2	1	6	1	32
No time / too busy	14	13	22	4	2	4	10	0	3	4	0	76
The mother cannot carry more than one child	4	8	4	0	4	1	3	0	0	13	1	38
Family moving / mother traveled / Family was exodus / in farming hamlet	2	2	0	0	2	0	0	0	0	2	0	8
Mother did not bring the child to CSI/Reasons not known	2	1	2	1	0	0	0	0	0	0	0	6
The mother feels ashamed or shy about coming	6	3	3	3	2	2	7	1	1	7	1	36
6. Geographical access issues	22	40	63	7	12	4	27	4	4	65	16	264
Too far	19	30	61	6	10	4	19	2	3	55	7	216
No money to pay for treatment / transport	3	10	2	1	2	0	8	2	1	10	5	44
Insecurity	0	0	0	0	0	0	0	0	0	0	4	4
7. Others	9	20	10	11	3	3	6	0	1	6	0	69
Lost the referral slip	0	0	0	1	0	0	0	0	0	1	0	2
The child doesn't eat RUTF	6	15	7	8	1	2	4	0	1	3	0	47
Planned to go tomorrow / this week	0	1	0	0	0	0	1	0	0	0	0	2
Mother divorced, married to another husband/ Mother in law refused/mother die	2	4	1	1	2	1	1	0	0	2	0	14
The child was sick	1	0	2	1	0	0	0	0	0	0	0	4

Coverage barriers for each state

The summaries of barriers to the program of different states are represented in the Figure 6 to 16 and the detail of barriers of each state is found in table 12.

Figure 6 : Barriers to service uptake and access in Sokoto

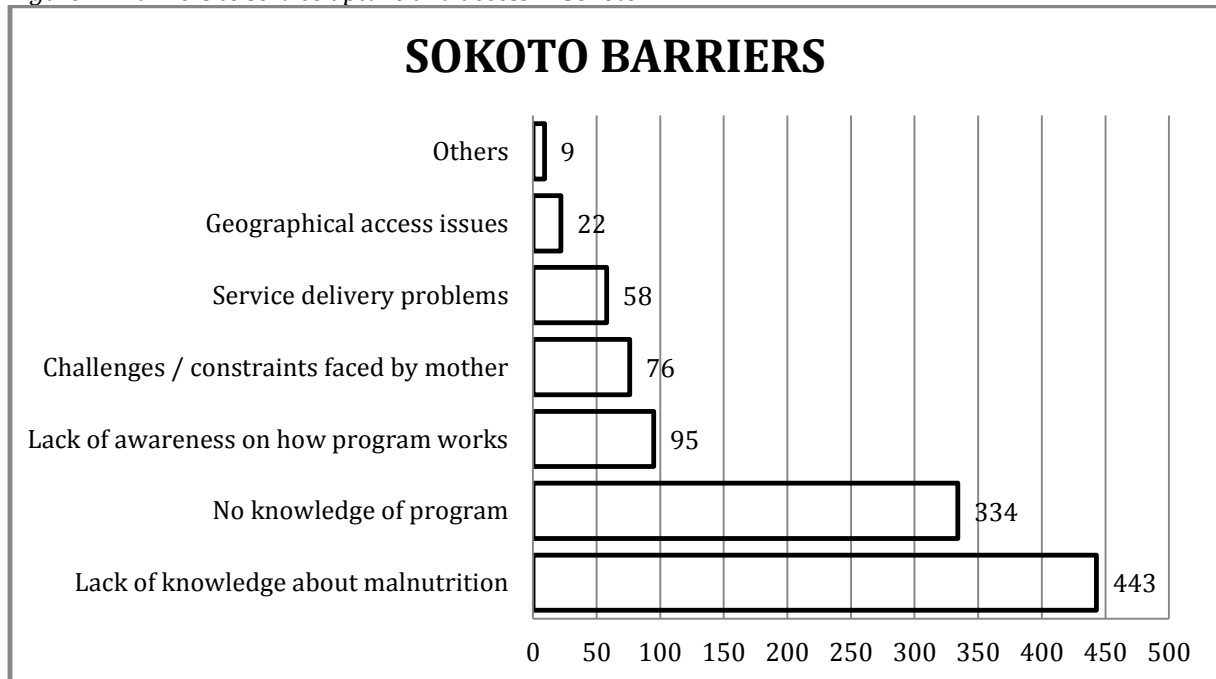


Figure 7 : Barriers to service uptake and access in Kebbi

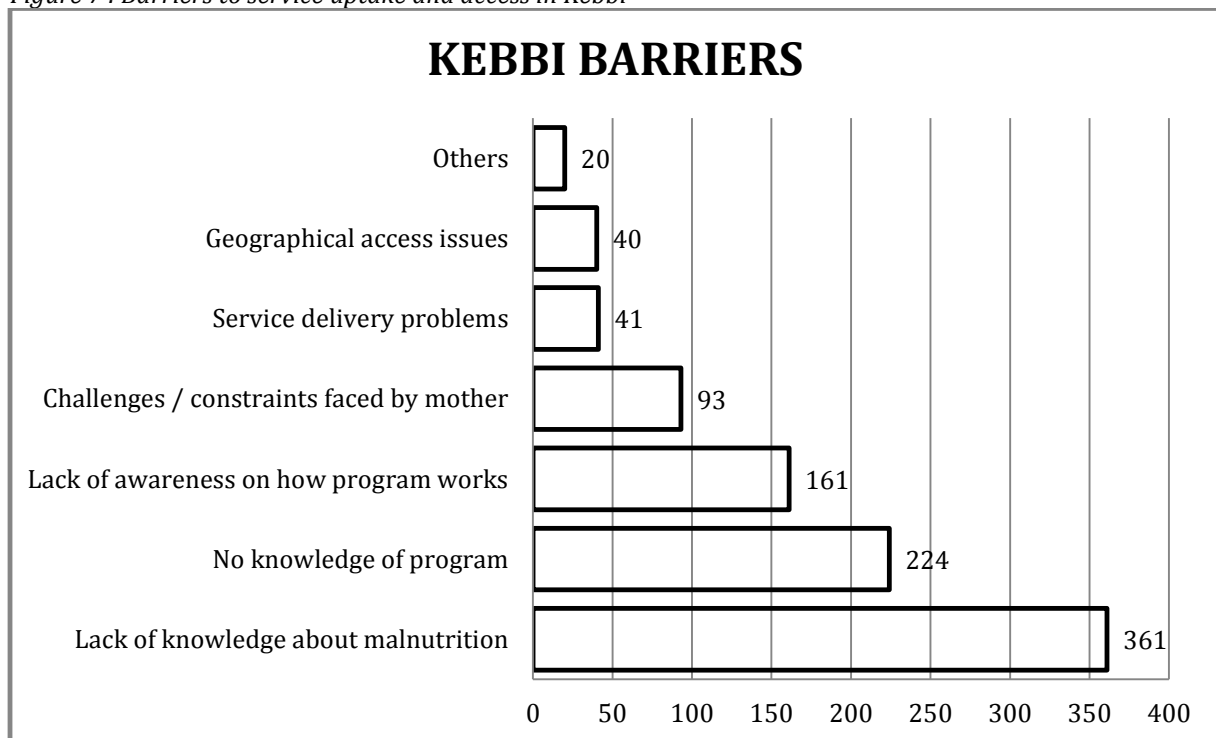


Figure 8 : Barriers to service uptake and access in Zamfara

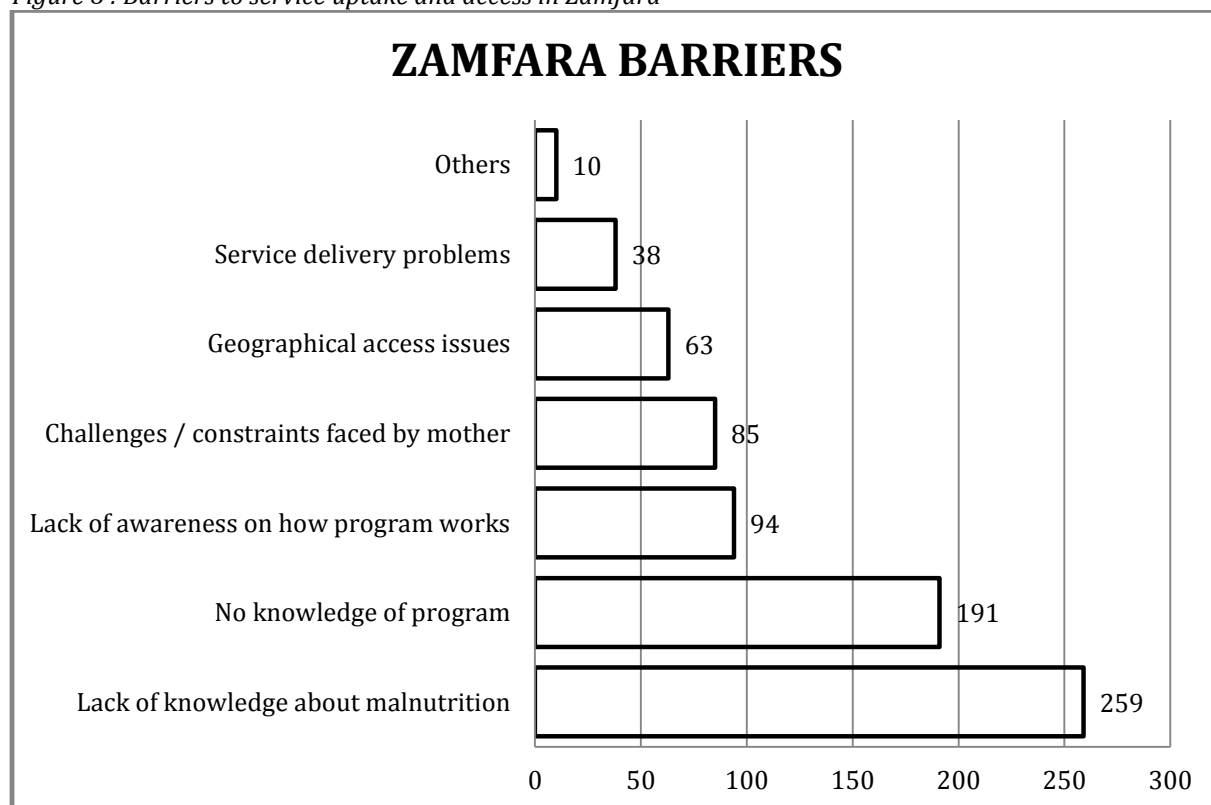


Figure 9 : Barriers to service uptake and access in Katsina

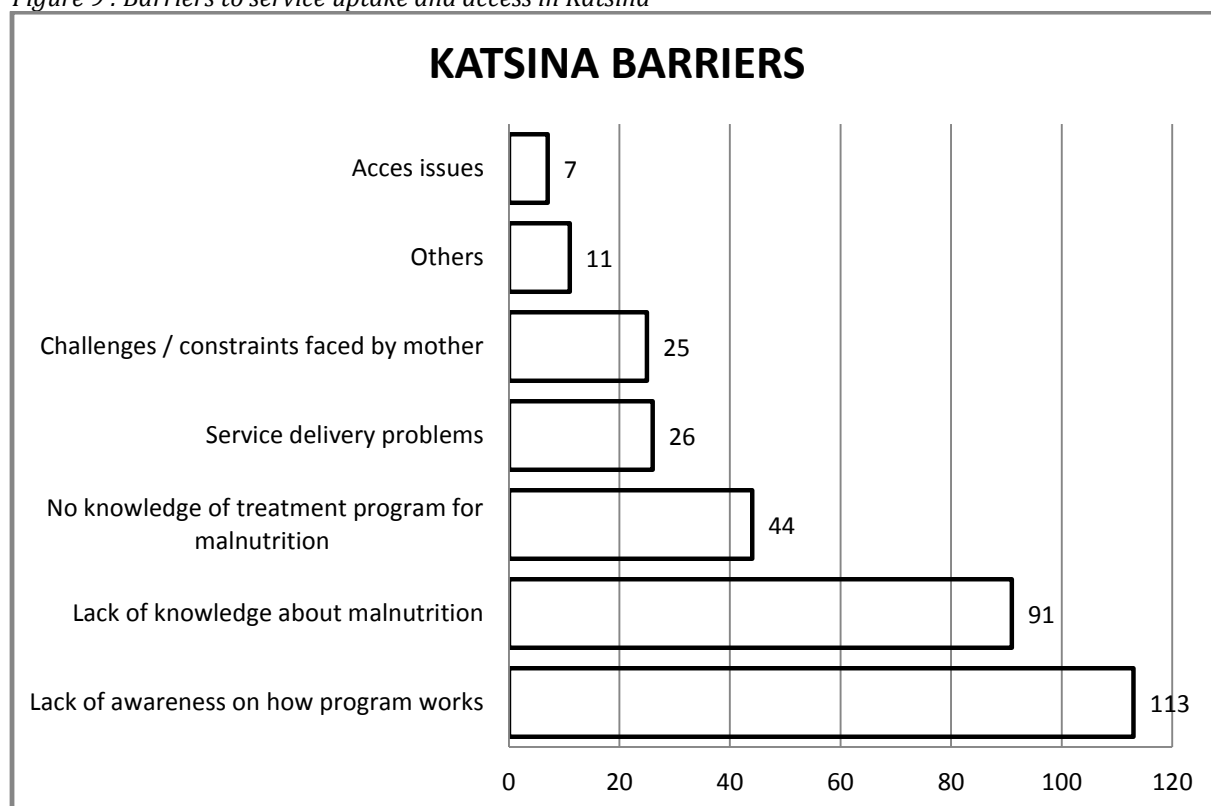


Figure 10 : Barriers to service uptake and access in Kano

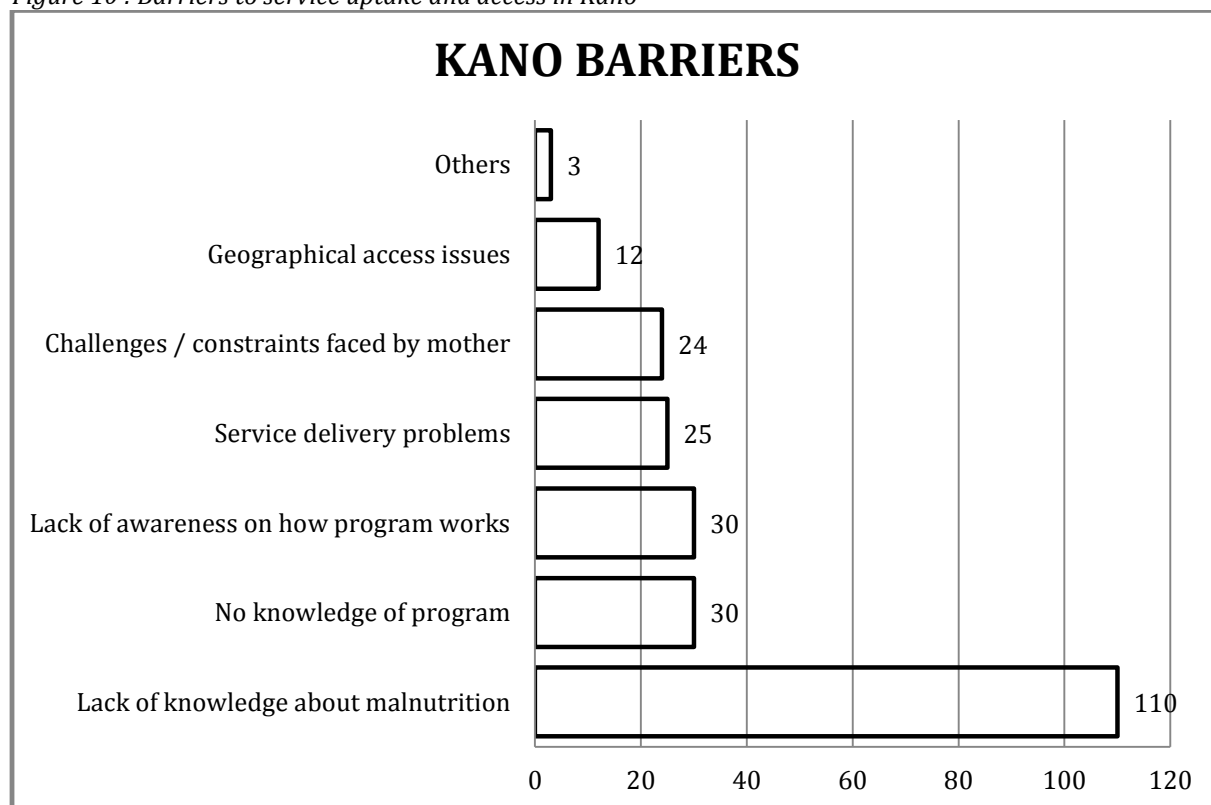


Figure 11 : Barriers to service uptake and access in Gombe

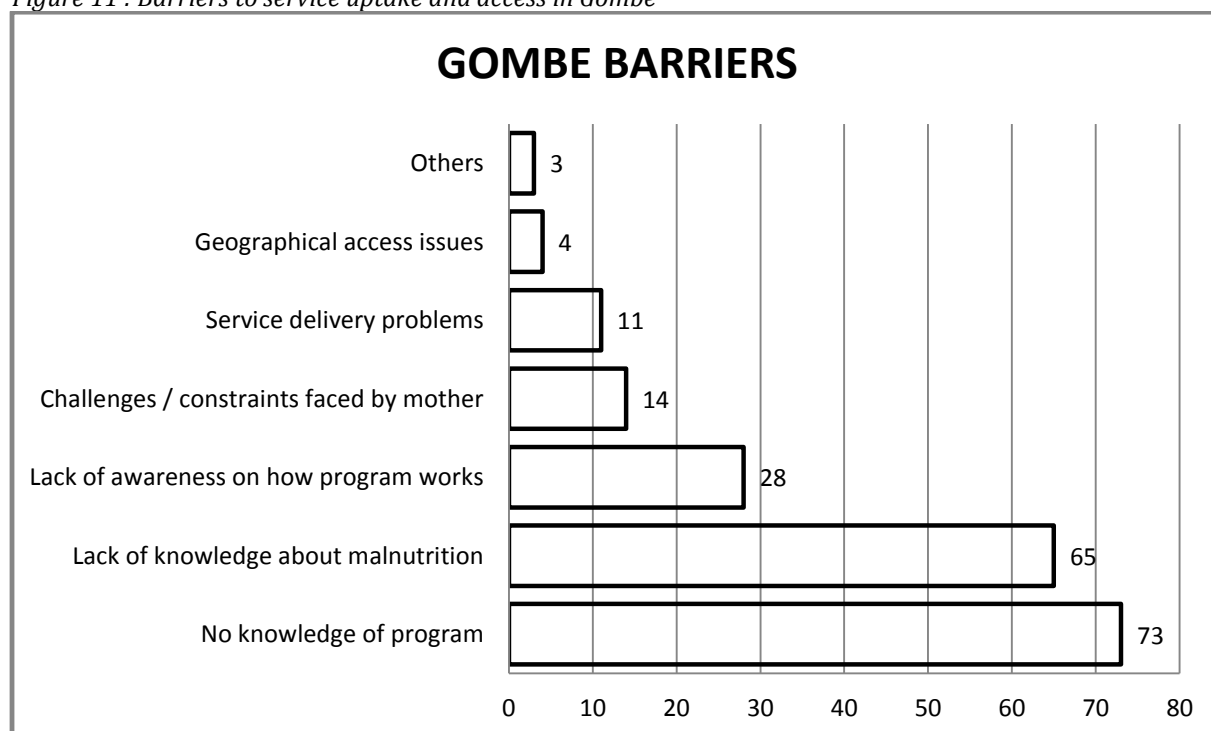


Figure 12 : Barriers to service uptake and access in Jigawa

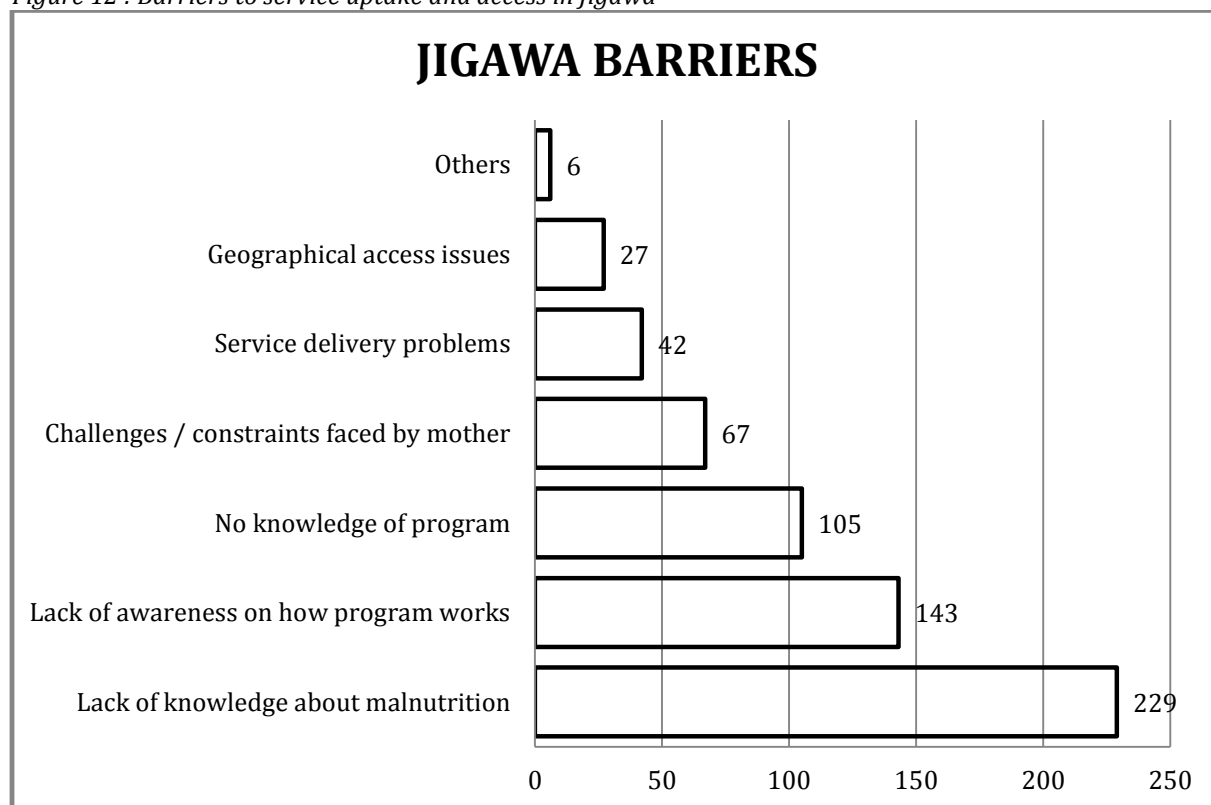


Figure 13 : Barriers to service uptake and access in Bauchi

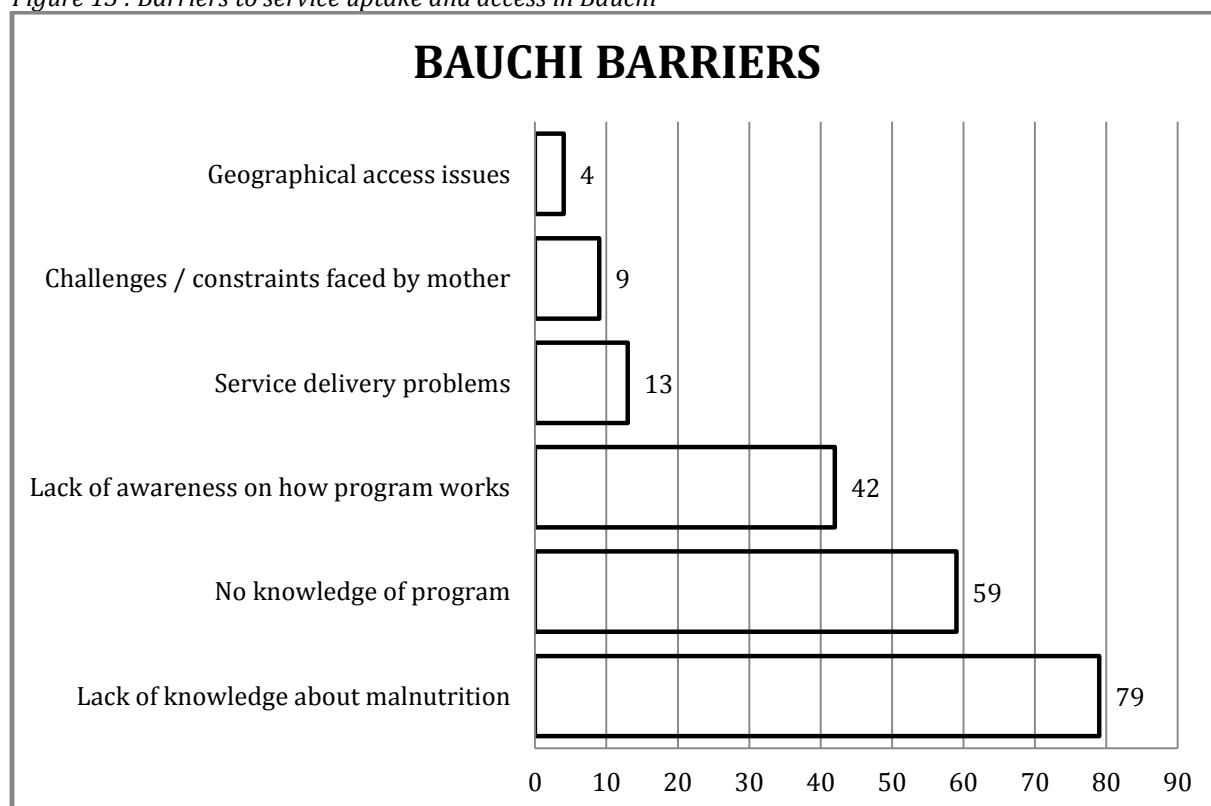


Figure 14 : Barriers to service uptake and access in Adamawa

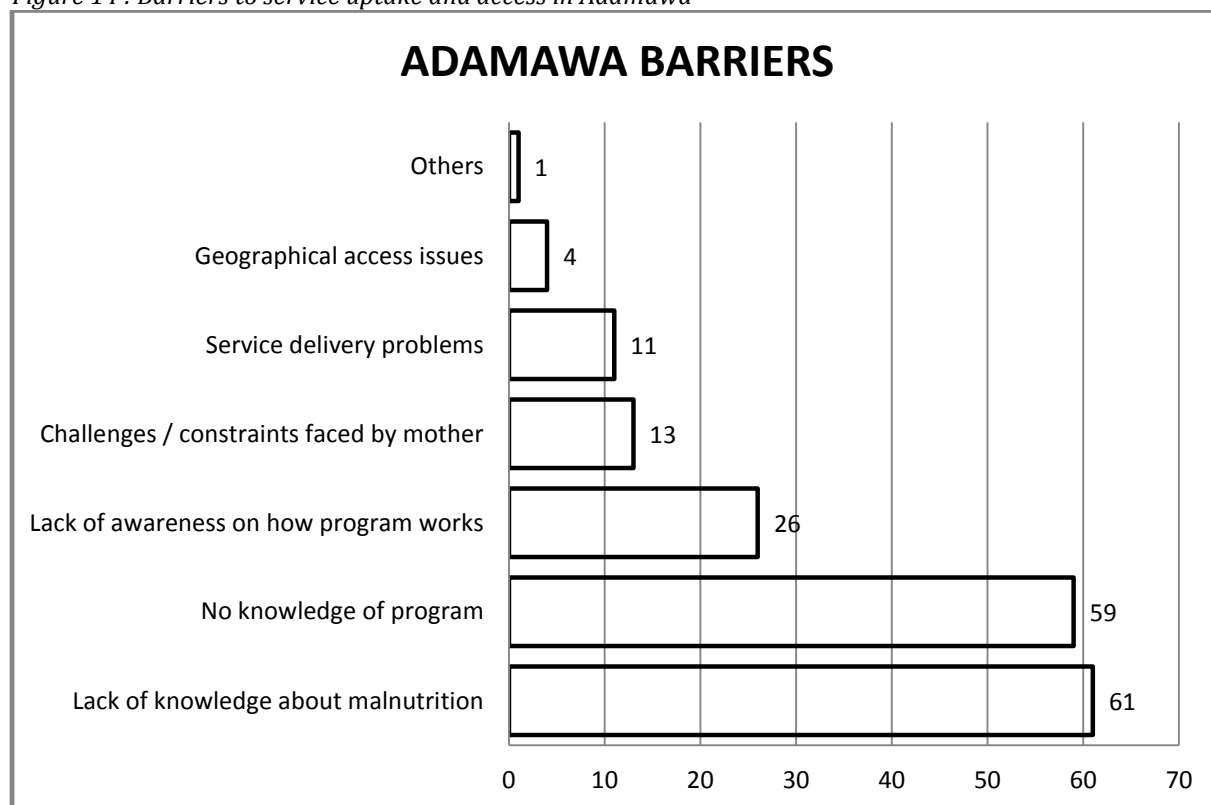


Figure 15 : Barriers to service uptake and access in Yobe

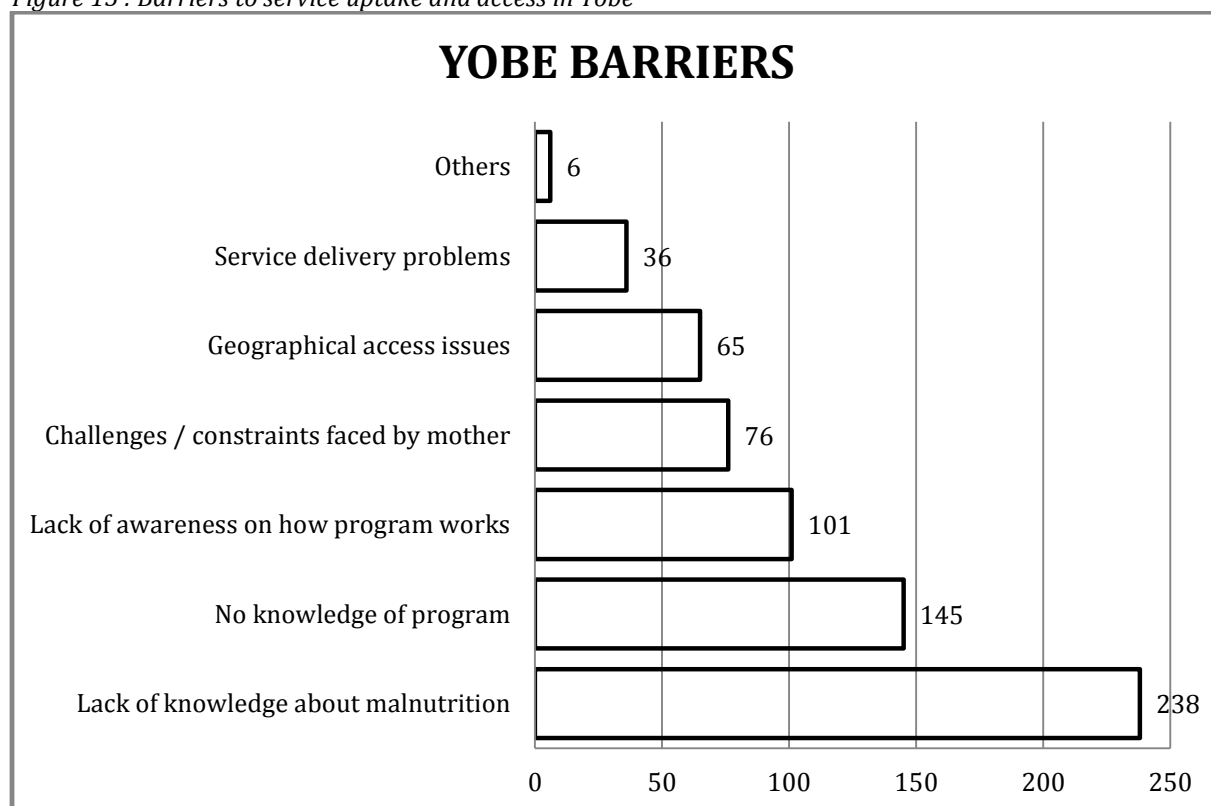
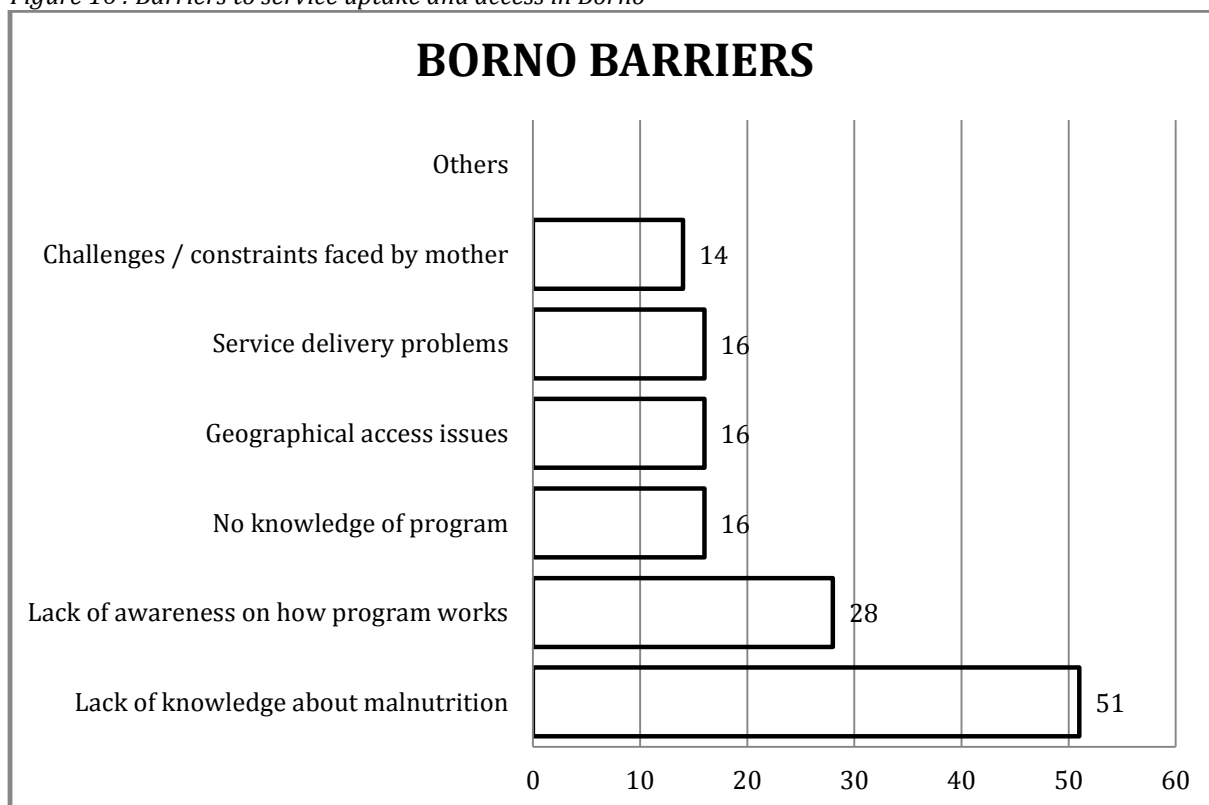


Figure 16 : Barriers to service uptake and access in Borno



5. Conclusions

The coverage in the northern states of Nigeria is moderate with an overall estimate of 36.6% (95% CI: 32.3% – 40.9%).

Coverage classification was performed for each LGA, in which we have found 27 LGAs having low coverage, 40 LGAs with moderate coverage and 4 LGAs with high coverage. Barriers to coverage have been reported for each state. The survey coverage has allowed under capacity building, to train agents of MOH and NBS on the SLEAC methodology.

6. Recommendations

According to overall barriers found by SLEAC coverage survey, some preliminary recommendations have been formulated which can be applied to all programs of each state:

- Emphasize on community mobilization
 - Sensitization.

Awareness through voluntary on malnutrition should be focused on the knowledge of the early signs of malnutrition, consequences and also prevention. This awareness can be performed in several ways, through posters, radio broadcasts etc.

Awareness about malnutrition should also include awareness about the program, how it works, admission criteria, explaining the phenomenon of rejection, the advantage of management of SAM cases in the program compared to traditional treatment etc.

- Include community leaders on sensitization of CMAM program activities

The community leaders as village chief, religious leaders should be involved in sensitization of the program to facilitate the acceptance of program by community. It is also important to educate traditional healer in CMAM activities so they can participate in referring cases. Husbands, chiefs and families are also key persons to be involved in this awareness to facilitate greater ownership of the program by households

- Active case finding by volunteers (monthly)
 - To ensure that each village has a volunteers **with a MUAC tape**

For each LGA with CMAM activities, it is important to ensure that each village has a volunteer who performs screening activities at least once by month and each volunteer should have a MUAC tape

- Perform regular Refresher training for Volunteers, consider incentives

For the volunteers, it is important to conduct regular refresher training as an incentive

- Service delivery

- Strength integration CMAM program in routine activities of Health center

In other activities of the Health Centre (consultations, immunization activities, etc.) it would be important to integrate the screening cases MAS

- Harmonize visit of mothers with many constraints with schedule of CMAM program

For mothers who have many constraints it is important to discuss with them to harmonize a specific program of visits to the health center.

- Avoid stock out of RUTF of each program

- For access issues

- Organize mobile treatment to far villages

- Give a treatment of RUTF for two weeks for people who live far from the health center

- Implement the program treatment of moderate acute malnutrition.

In the active case finding of the SLEAC survey, several cases of moderate acute malnutrition have been identified and it is essential and important to set up a program of support for moderate acute malnutrition to prevent relapse of severe acute malnutrition after being discharged

- Perform SQUEAC investigations at least one by state in order to understand different barriers and boosters and provide strong and evidence-based recommendations for the program

Annex 1. SLEAC: Active Case Finding Data collection

SLEAC: Active Case Finding Data collection

State: _____

LGA: _____

Ward/PHC: _____

Village: _____

Team: _____

Date : _____

Child's name	Age (Months)	MUAC (cm)	Oedema (+, ++, +++)	SAM Case Y/N	SAM Covered	SAM Not covered	Recovering	Verification with Health Card / RUTF (tick)
								<input type="checkbox"/> Health Card <input type="checkbox"/>
								<input type="checkbox"/> Health Card <input type="checkbox"/>
								<input type="checkbox"/> Health Card <input type="checkbox"/>
								<input type="checkbox"/> Health Card <input type="checkbox"/>
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								<input type="checkbox"/> Health Card <input type="checkbox"/>
								<input type="checkbox"/> Health Card <input type="checkbox"/>
								<input type="checkbox"/> Health Card <input type="checkbox"/>
Total								

Annex 2. Survey Questionnaire for caretakers with cases NOT in the programme

State: _____ LGA: _____ WARD/PHC: _____
Village: _____ Team No: _____
Child Name: _____

1a. DO YOU THINK YOUR CHILD IS SICK? IF YES, WHAT IS HE/SHE SUFFERING FROM? _____

1. DO YOU THINK YOUR CHILD IS MALNOURISHED?

☐ YES ☐ NO

2. DO YOU KNOW IF THERE IS A TREATMENT FOR MALNOURISHED CHILDREN AT THE HEALTH CENTRE?

☐ YES ☐ NO (stop)

3. WHY DID YOU NOT TAKE YOUR CHILD TO THE HEALTH CENTRE?

☐ Too far (How long to walk?hours)

☐ No time / too busy

Specify the activity that makes them busy this season _____

☐ The mother is sick

☐ The mother cannot carry more than one child

☐ The mother feels ashamed or shy about coming

☐ No other person who can take care of the other siblings

☐ Service delivery issues (specify)

☐ The amount of food was too little to justify coming

☐ The child has been rejected. When? (This week, last month etc) _____

☐ The children of the others have been rejected

☐ My husband refused

☐ The mother thought it was necessary to be enrolled at the hospital first

☐ The mother does not think the programme can help her child (prefers traditional healer, etc.)

☐ Other reasons: _____

4. WAS YOUR CHILD PREVIOUSLY TREATED FOR MALNUTRITION AT THE HC (OTP/SC)?

☐ YES ☐ NO (=> stop!)

If yes, why is he/she not treated now?

☐ Defaulted, When?.....Why?.....

☐ Discharged cured (when?)

☐ Discharged non-cured (when?)

☐ Other: _____

(Thank the mother/carer)

Annex 3. Itinerary of the survey in the Western block

Day	Date	Activity
Monday	30 September	Consultants arrive in Kebbi state
Tuesday	1st October	Training of SLEAC Survey
Wednesday	2nd October	Training of SLEAC Survey
Thursday	3rd October	Training of SLEAC Survey
Friday	4th October	Training of SLEAC Survey
Saturday	5 October	Training of SLEAC Survey
Sunday	6 October to 8 October	SLEAC – surveyors went home to collect their luggage's
Wednesday	9 October to 12 October	SLEAC- survey
Saturday	12 October	SLEAC –surveyors travelled to their homes in preparation of Sallat holiday
Sunday	13 October to 15 October	SLEAC-surveyors were on public holiday for Sallat cerebrations
Wednesday	16 October to 19 October	SLEAC-the survey was suspended due to in appropriate vehicles (saloon cars) were used instead of 4 wheel drive.
Sunday	20 October	SLEAC-surveyors travelled back to kebbi from the break of Sallat and suspension of survey
Monday	21 October to 5 November	SLEAC-survey resumed in Kebbi state
Wednesday	6 November	SLEAC-survey teams travelled to sokoto state
Thursday	7 November to 20 November	SLEAC- survey commenced in sokoto state
Monday	18 November	SLEAC- Debriefing in Kebbi state at the ministry of health
Thursday	21November	SLEAC-survey teams travelled to Zamfara
Friday	22 November to 29 November	SLEAC- survey commenced in Zamfara state
Saturday	30 November	SLEAC-surveyors travelled to Katsina state
Monday	2 December to	Debriefing in Zamfara state at NBS office
Tuesday	3 December to 13 December	SLEAC-Survey resumed in katsina state
Friday	13 December	Debriefing meeting done in Katsina state
Saturday	14 December	SLEAC-survey teams travelled to Kano
Saturday	14 December to 20 December	SLEAC-survey was being implemented
Thursaday	19 December	Consultants arrived in Abuja
Saturday	21 December	Consultants left for Abuja International port for the Christmas break
Sunday	22 December	From Addis abba to Malawi

Annex 4: Itinerary of the survey in the East block

Day	Date	Activity
Sunday	8 December	Consultants arrived in Gombe state
Monday	9 December	Training of SLEAC Survey
Tuesday	10 December	Training of SLEAC Survey
Wednesday	11 December	Training of SLEAC Survey
Thursday	12 December	Training of SLEAC Survey
Friday	13 December to 16 December	SLEAC-Survey field work started in Gombe state
Tuesday	17 December	Debriefing meeting at the Ministry of health in Gombe state
Wednesday	18 December	Consultants travelled to Abuja
Thursday	19 December	Meeting with ACF (debriefed on survey)
Friday	20 December and 21 December	Consultants left for Christmas Break
Friday	3 January and 4 January	Consultants arrived in Abuja
Sunday	5 January	Consultants Travelled to Kano
Monday	6 January	Consultants travelled to Jigawa and recompilation done to surveyors
Monday	6 January to 13 January	SLEAC-survey Resumed in Jigawa state
Thursday	14 January	Debriefing meeting at the ministry of health in Jigawa state
Thursday	14 January	SLEAC-survey teams travelled to Bauchi state
Friday	14 January to 16 January	SLEAC-survey started in Bauchi state
Monday	17 January	Debriefing meeting at the ministry of health Bauchi state
Monday	17 January	SLEAC-survey teams travelled to Adamawa state
	18 to January 22	SLEAC-Survey started in Adamawa state
Thursday	23 January	Debriefing in Adamawa at the Ministry of health
Thursday	23 January	SLEAC -Survey travelled to Yobe state
Friday	24 January to 28 January	SLEAC-survey started in Yobe state
Wednesday	29 January	SLEAC –survey teams travelled to Borno state
Thursday	30 January to 1 st February	SLEAC –survey conducted in Borno state
Saturday	2 nd February	SLEAC-survey teams travelled to Yobe state for quality control
Saturday	2 nd to 3 rd February	SLEAC survey was conducted in Yobe state for quality control

Tuesday	4 February	Survey teams returned from yobe state to Gombe and the survey finished after a debriefing
Wesnesday	5 th February	Consultants travelled to Abuja
Wesnesday	12 th February	Consultants had a power point presentation on the survey with partners ACF,UNICEF, Save the children
Thursday	13 th February	Left Abuja guest house to airport to connect to their various countries

Annex 5. Participants on the SLEAC training and surveyors of Western Block

NIGERIA CMAM SLEAC COVERAGE SURVEY TRAINING IN KEBBI STATE FROM 2ND TO 5TH OCTOBER 2013

LIST OF PARTICIPANTS

SR. NO.	NAME	POSITION	AGENCY	PHONE NO.
1.	Mr. Mohammed Sheshi	Data Collector	NBS, Zamfara	08036916033
2.	Ms. Murjanatu Lawal	Nurse	MOH, Zamfara	08066315023
3.	Ms. Fatima Mohammed	Data Collector	MOH, Zamfara	07036633235
4.	Mr. Murtala Muhammed	Data Collector	MOH, Sokoto	08086246628
5.	Ms. Hauwa Mati	Data Collector	NBS, Katsina	08065971769
6.	Ms. Erina Emmanuel	Data Collector	NBS, Kano	08037172404
7.	Ms. Dada Ahmad Manga	Data Collector	NBS, Sokoto	08039670838
8.	Ms. Salamat Suleiman	Family Planning Logistics Officer	MOH, Sokoto	08035475227
9.	Ms. Balkisu Ibrahim Ahmed	Data Collector	NBS, Kebbi	08020633706
10.	Ms. Ameen Aliyu Garba	Statistician	MOH, Kebbi	08032412295 08032950708
11.*	Ms. Zulaihat Mohammed	SMOH	MOH, Kano	08065566448
12.*	Ms. Fatima Muhammad	SMOH	MOH, Kano	08062249023
13.	Mr. Kazeem Adekunle	State Officer	NBS, Sokoto	08032528322
14.	Mr. Hassan Haruna	State Officer	NBS, Zamfara	07036048440
15.	Mr. Linus Nnanji	State Officer	NBS, Katsina	08035073804
16.	Mr. Akor Samson Sinday	State Officer	NBS, Kebbi	07060962035
17.	Mr. Usman Muhammed Altine	Data Collector	NBS, Kebbi	08068982572
18.**	Mr. Emmanuel Umolo	State Officer Rep. Kano	NBS, Kano	07036350218
19*.	Ms. Aishatu Aminu Yar'Adua	IMCI Coordinator	MOH, SPHCDA Katsina	08025088241
20.	Ms. Aisha Abdullahi Ranetawa	Ass. Nutrition Officer	MOH, Katsina	08136362863
21.	Mr. I.z. Maigida	Zonal Controller (West)	NBS	08033286895
22.	Mr. Abdul Malik Mohammed	Nutrition Assistant	MOH, Kebbi	08084045463
23.	Ms. Omoluwabi Grace Ozofu	Scientific Officer	FMOH, Nutrition Div., Abuja	08063032823
24.	Mr. Tunde Adebisi	Chief Statistician	NBS, Abuja	08035322799
25.	Mr. Sanusi Ahmed	Chief Statistician	NBS, Abuja	08033279948
26.**	Ms. Kulu Umar	Ass, Chief Community Health Technician	MOH, Birnin Kebbi	07034818201
27.	Chrissy Banda	Supervisor	Valid	08107315173
28.	Bina Shaba	Supervisor	Valid	08134873393
29.	Moussa Sogoba	Supervisor	Valid	08108162260
30.	Lionella Fieschi	Supervisor	Valid	08134874977

*Withdraws

** Replacements

NIGERIA CMAM SLEAC COVERAGE SURVEY TRAINING IN KEBBI STATE FROM 2ND TO 5TH OCTOBER 2013

LIST OF SURVEYORS

SR. NO.	NAME	POSITION	EGAENCY	PHONE NO.
1.	Mr. Mohammed Sheshi	Surveyor	NBS, Zamfara	08036916033
2.	Ms. Murjanatu Lawal	Surveyor	MOH	08066315023
3.	Ms. Fatima Mohammed	surveyor	MOH	07036633235
4.	Mr. Murtala Muhammed	Surveyor	MOH	08086246628
5.	Ms. Hauwa Mati	Surveyor	NBS, Katsina	08065971769
6	Ms. Erina Emmanuel	Surveyor	NBS, Kano	08037172404
7.	Ms. Dada Ahmad Manga	Surveyor	NBS, Sokoto	08039670838
8.	Ms. Salamatu Suleiman	Surveyor	MOH, Sokoto	08035475227
9.	Ms. Balkisu Ibrahim Ahmed	Surveyor	NBS, Kebbi	08020633706
10.	Ms. Ameenah Aliyu Garba	Surveyor	MOH	08032412295 08032950708
11.	Mr. Usman Muhammed Altine	surveyor	NBS, Kebbi	08068982572
12.	Mr. Emmanuel Umolo	Surveyor	NBS, Kano	07036350218
13.	Ms. Aisha Abdullahi Ranetawa	Surveyor	MOH, Katsina	08136362863
14.	Mr. Abdul Malik Mohammed	surveyor	MOH, Kebbi	08084045463
15.	Ms. Kulu Umar	Surveyor	MOH, Birnin Kebbi	07034818201

Annex 6. Participants on the SLEAC training and surveyors of East Block

COMMUNITY – BASED MANAGEMENT OF ACUTE MALNUTRITION, SLEAC SURVEY TRAINING

9- 12- DECEMBER, 2013. NORTH-EAST ZONE. GOMBE. ATTENDANCES DAY 1

S/N	NAME	STATE	DESIGN.	PHONE
1.	Musa Muhammed	Jigawa	State Officer	0803592813
2.	Aisha Abdullahi	Jigawa	Enumerator	08065536507
3.	Salamat Zakari	Jigawa	Enumerator	07064834163
4.	Aishatu Dahiru Musa	Jigawa	Enumerator	08068161537
5.	Elizabeth A. Kwaya	Adamawa	Enumerator	07065289172
6.	Rebecca Tarfa	Adamawa	Enumerator	08036431235
7.	Ijagila Mark Dewa	Adamawa	Enumerator	07065700954
8.	John B. Dawala	Adamawa	State officer	07064238369
9.	Maryam Dauda	Bauchi	Enumerator	08066163917
10.	Abdul Salihu Isah	Bauchi	Enumerator	08082029282
11.	Tarpaya J. Lassa	Gombe	Logistician	08036029944
12.	Daniel Watah Jimmy	Bauchi	Enumerator	08133214327
13.	M. J. Saleh	Bauchi	State officer	07038234606
14.	Rahila James Zoka	Borno	Enumerator	08133196968
15.	Agbaji Okpozu	Borno	State officer	08036788929
16.	Aisha Allamin	Borno	Enumerator	08064860444
17.	Amina Mustapha	born	Enumerator	08067353198
18.	Habiba Abdullahi	Yobe	Enumerator	08068946143
19.	Hadiza Abba Jakusko	Yobe	Enumerator	07030235106
20.	Ruth Musa	Yobe	Enumerator	08036119127
21.	M.D Yusuf	Yobe	State officer	08039633584
22.	Mary Lawal	Gombe	State officer	07033489802
23.	Agnes Alhassan	Gombe	Enumerator	08036932485
24.	Ronas Amusa	Gombe	Enumerator	08023803791
25.	Asabe Boaz	Gombe	Enumerator	08086409965
26.	Alisabatu Fanus	Gombe	Enumerator	07030667550
27.	Chrissy Banda	Abuja	Consultant	08107315173
28.	Wakili IND	Gombe	Zonal Controller	08059170806
29.	Safari Balegomire	Abuja	Consultant	08137624928
30.	Ibrahim Abubakar	Yobe	Enumerator	08033905235
31.	Jamila Mohammed Inuwa	Bauchi	Enumerator	08039431715
32.	Sanusi Ahmed	Abuja	Coordinator	08033279948
33.	Tunde Adebisi	Abuja	coordinator	08035322799

Annex 7. Schedule of the training

Day 1. Theory

- Introduction on the methodology
- Anthropometric measurement (theory)
- Process of active case finding => preparatory stage

Day 2. Theory

- Field work
 - o preparatory stage
 - o Key informant
- Anthropometric measurement (practice)
- Preparatory stage: finalization

Day 3. Theory

- Active case finding process
- Survey tools
- Standardization of anthropometric measurement

Day 4. Practice

- Active case finding of cases in the village
- Recapitulation on the methodology
- Question of surveyors

Annex 8. Terminology and Keys informants

TERMINOLOGY of EAST BLOCK

English	Hausa	Fulani
Very thin child	Ramewa – (Ramamme).	Foido or yaido
Child with swollen feet	Mai kumburi, Mai tauna. Kaba	KwaidoButi . Mai kumburi mai taun. KwaideMakkoubbuti
Orphan	Maraya or yaron non maraya ne	maraya
Child name		Bingelgoje
Thinness	Ramewa	
Children at risk small children under 5	_____	BaccifemareTundi Bali
SAM	Tamowa. CiwonYunwa. Ciwonshannono a kainciki. Ciwonkakane	Yellow bacci, GiwonYougo
RUTF	GidanAsibiti	Abinchitamowa
Loss of Appetite	Rashinanabina	Onyamakunyami
Oedema		Butaral
Diarrhoea		Sarai
Vomitting		Yuyai
Swollen of feet hands and face	Kaba	_____
Big head tummy and very thin body	Tata kunji	_____
High Body Temperature	Zafinjiki	Bandimakuhulli
Ribs can be counted	Awwaza	Awwaza
Fever	Zazzabi	Zazzabi
RUTF	MaganiTamowa	MaganiTamowa

Key informants:

- Community volunteer
- Traditional birth attendant
- Community health workers
- Traditional Healers is called Labawo in fulani
- Ward head is called Jauro in Fulani
- Village Head in Fulani Hardo
- Ward Head in Hausa Maianguwa
- Traditional Healers in Hausa Mai MaganinGargajiya
- Health workers
- Mothers.
- children

TERMINOLOGIES OF WESTERN BLOCK

English	Hausa	Fulani	Zabarmawa	Dakarkari
Verythinchild	Ramewa – (Ramamme).	Foido or yaido	Fabuyan	WakanBunine
Child withswollenfeet	Mai kumburi, Mai tauna. Kaba	KwaidoButi . Mai kumburi mai taun. KwaideMakkoubbuti	Fusi	WakanNasiruhokine. Mai kumburi mai tauna
Orphan	Maraya or yaron non maraya ne	maraya	Alatumi	Wahunauzaitinda
Verysickchild	_____	_____	ZankakansinDabani	_____
SAM	Tamowa	_____	Akwagu	_____
RUTF	Abinchitamowa	Abinchitamowa	Tamowa	Abinchitamowa
Loss of Appetite	Rashinanabina	Onyamakunyami	_____	_____
Swollen of feet hands and face	Kaba	_____	_____	_____
Big head tummy and very thin body	Tata kunji	_____	_____	_____
High Body Temperature	Zafinjiki	Bandimakuhulli	_____	_____
Ribscanbecounted	Awwaza	Awwaza	_____	Awwaza
Fever	Zazzabi	Zazzabi	_____	Zazzabi
RUTF	MaganiTamowa	MaganiTamowa	_____	MaganiTamowa

Key actors:

- Community volunteer in zabaramawa is called yadda yen(with local language translation)
- Traditional birth attendant in Zabaramawa is called Antugai
- Communityhealthworkers
- Herbalist in Zabaramawa is called Zima
- Village head
- Health workers
- Mothers.

Annex 9. Histogram of age and MUAC cases under 115 mm

Figure 1: Age and MUAC profile of uncovered SAM cases in Sokoto state.

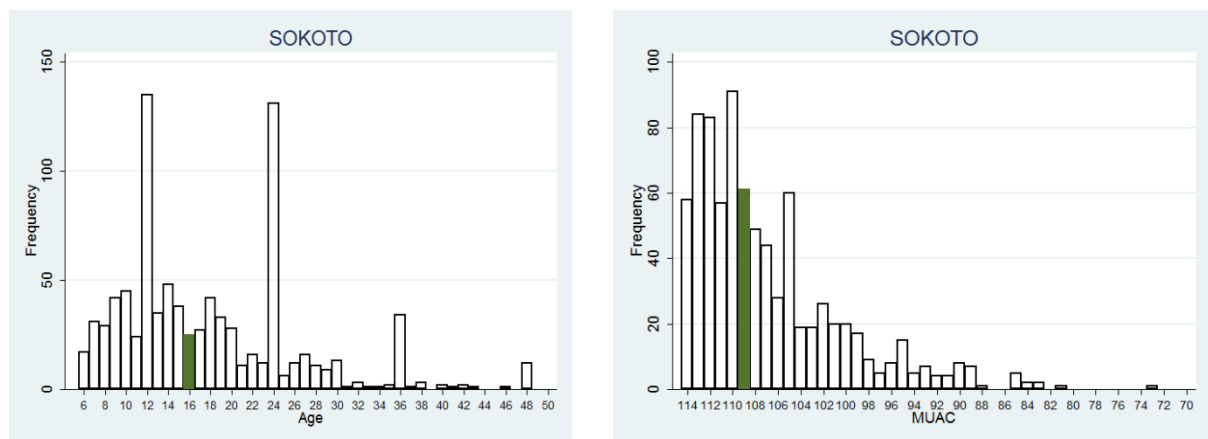


Figure2: Age and MUAC profile of Uncovered SAM cases in Kebbi state.

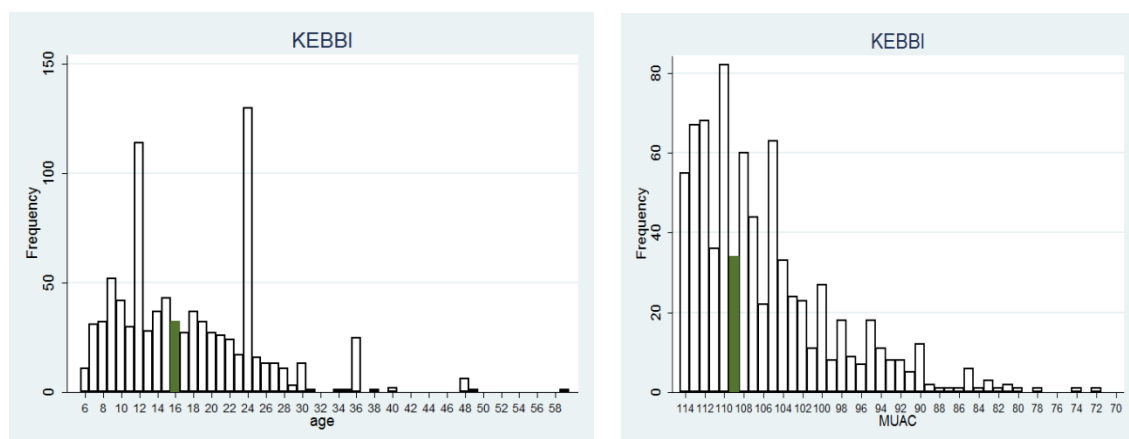


Figure 3: Age and MUAC profile of Uncovered SAM cases in Zamfara state.

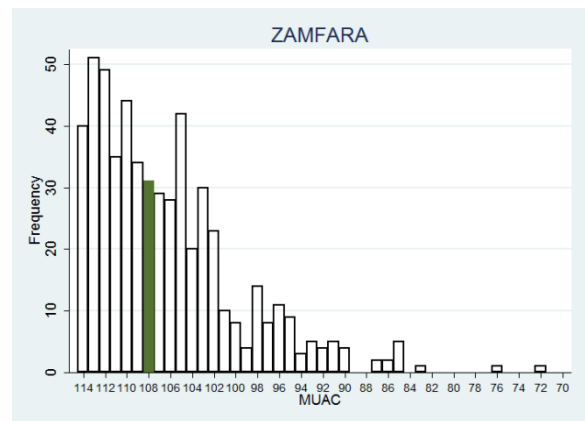
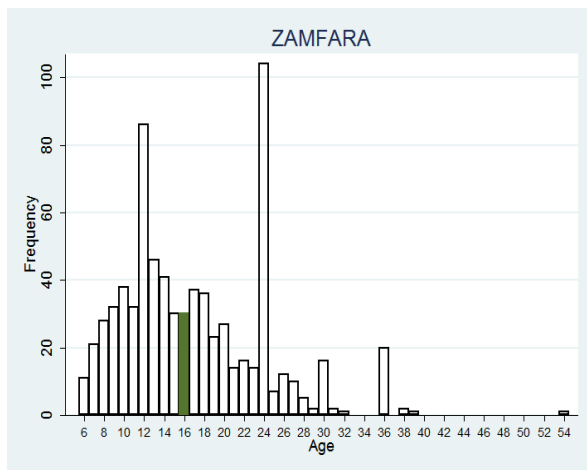


Figure4: Age and MUAC profile of uncovered SAM cases in Katsina state.

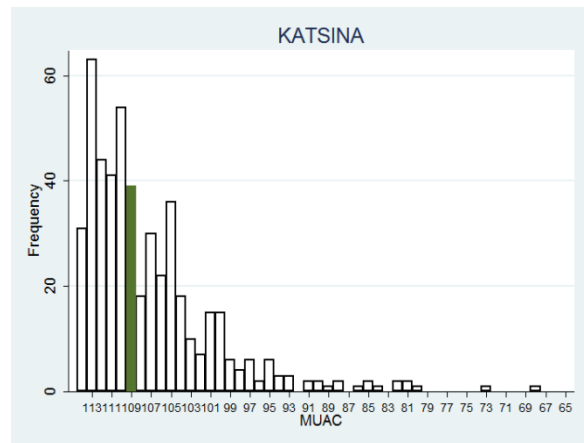
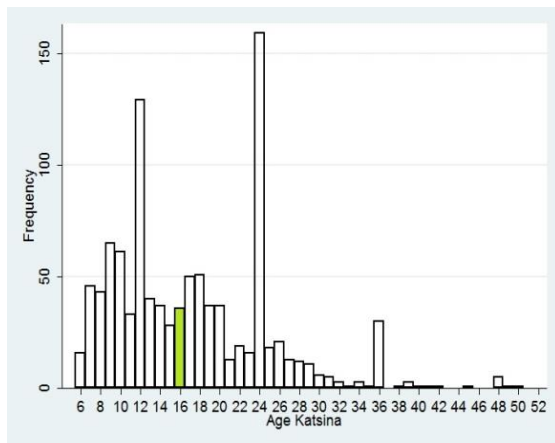


Figure5: Age and MUAC profile of uncovered SAM cases in Kano state.

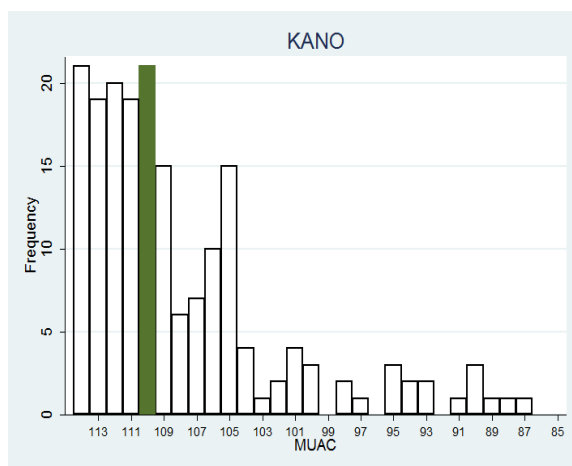
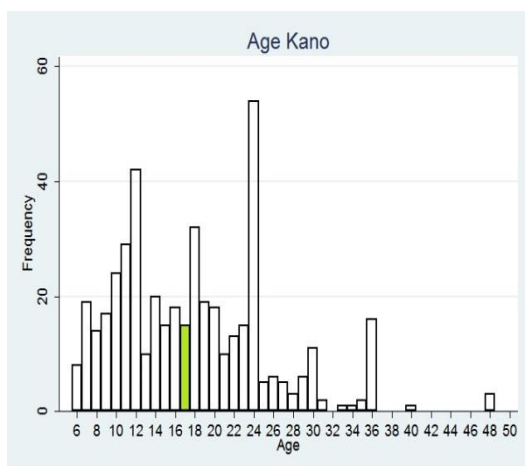


Figure 6: Age and MUAC profile of Uncovered SAM cases in Gombe state.

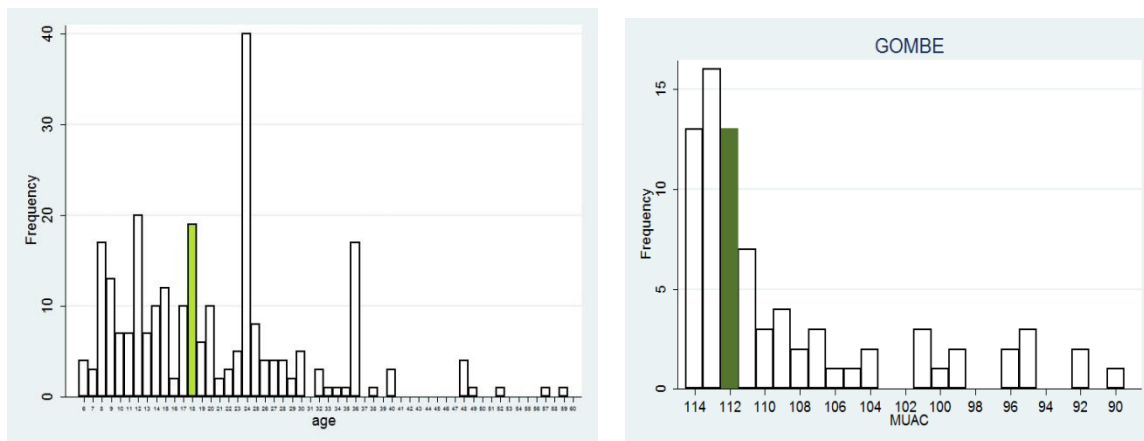


Figure 7: Age and MUAC profile of Uncovered SAM cases in Jigawa state.

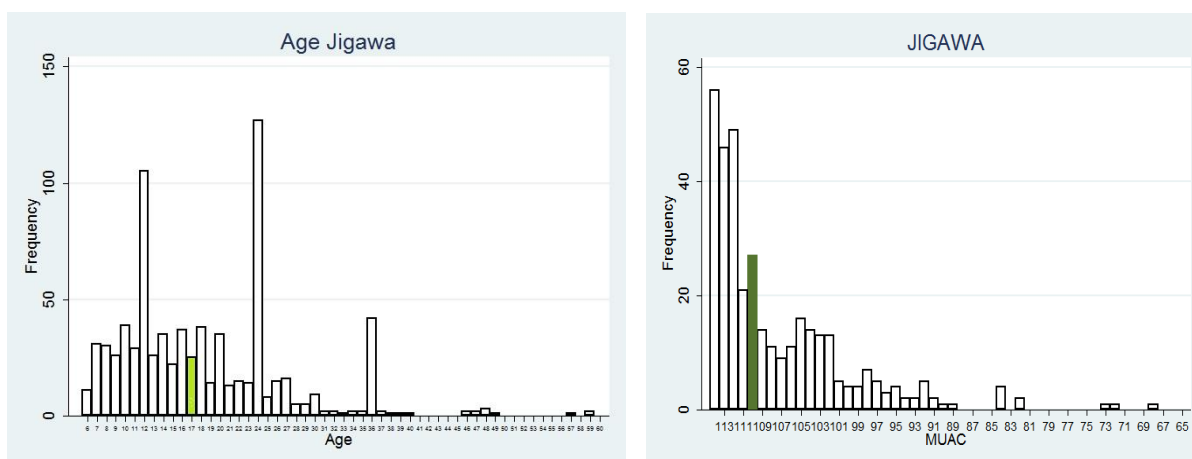


Figure8: Age and MUAC profile of Uncovered SAM cases in Bauchi state.

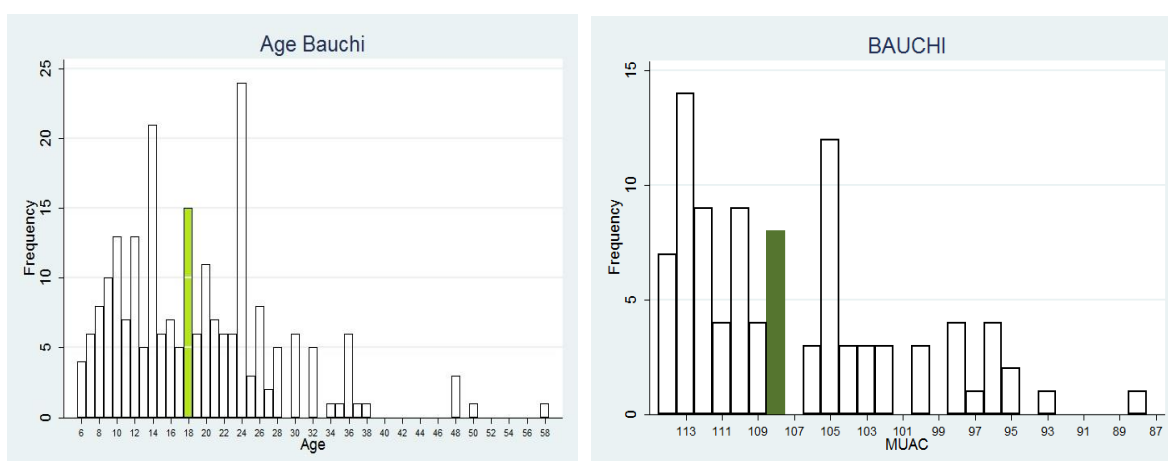


Figure 8: Age and MUAC profile of Uncovered SAM cases in Adamawa state.

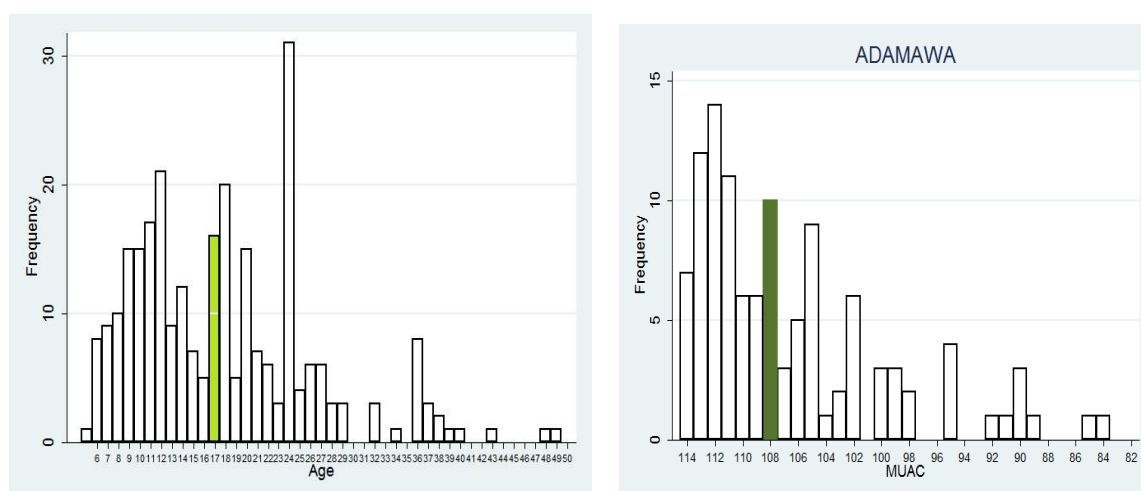


Figure 9: Age and MUAC profile of Uncovered SAM cases in Yobe state.

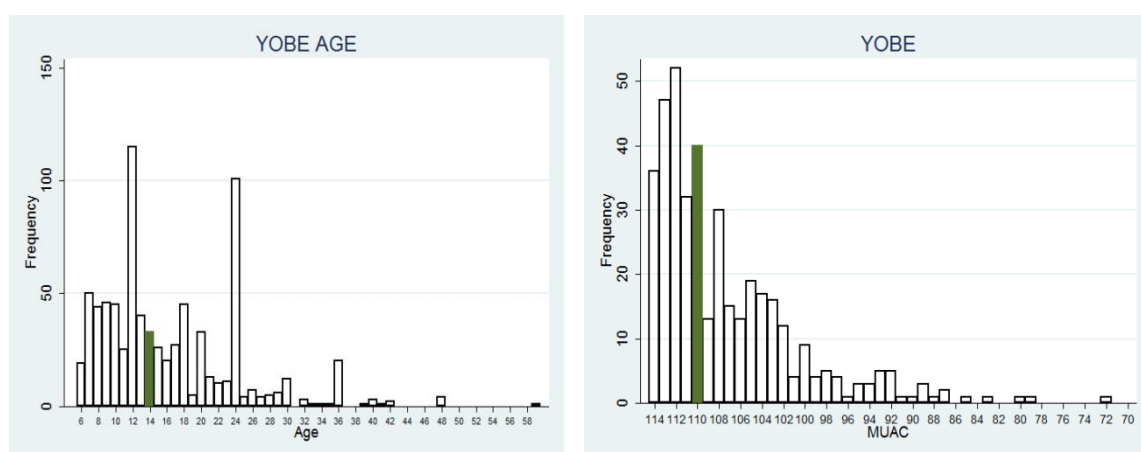


Figure 10: Age and MUAC profile of Uncovered SAM cases in Borno state.

