

SEVERE ACUTE MALNUTRITION MANAGEMENT IN **NIGERIA**

ACF INTERNATIONAL
ACF NIGERIA
MARCH 2015



CHALLENGES, LESSONS & THE ROAD AHEAD



ACKNOWLEDGEMENTS

The authors would like to thank all partners in the Coverage Assessment Programme for their participation and everyone making Community-Based Management of Acute Malnutrition (CMAM) services in Nigeria possible. Special thanks to the local government areas (LGA) in North Nigeria that have made important efforts to guarantee the availability of CMAM services for their communities. This acknowledgment extends to state health ministries, agencies and nutrition officers that oversee CMAM functioning in their regions. The Federal Government has been a pillar of strength, permitting this programme to continue. Particular recognition goes to the Federal Ministry of Health and its head of nutrition, Dr Chris Isokpunwu.

Special thanks to the Children Investment Fund Foundation (CIFF) for acknowledging that nutrition matters and that innovative ways of treating it are worth the effort. Under its umbrella, the authors further acknowledge the invaluable work of all international partners, for without their hard work this programme would not have been possible. Thanks to UNICEF in Nigeria, to Valid International, and to Save the Children International.

This research was also possible thanks to input from nutritional and technical experts, such as Mark Myatt of Brixton Health, Robert Johnston of UNICEF, and staff at ACF International and UNICEF Nigeria who have provided basic information, data, comments and editing.

Last but not least, the authors extend recognition to the people directly working with CMAM in Nigeria: to the local community volunteers and caregivers who have been generously giving their time; to the technical teams from ACF, Valid International and Save the Children, which have conducted the coverage assessments; to the managerial staff of UNICEF, ACF and Save the Children in Abuja; and to Center for Communication Programs Nigeria (CCPN) for their encouraging work in promoting CMAM through community mobilisation.

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ACRONYMS

ACF	Action Contre la Faim / Action Against Hunger
CIFF	Children Investment Fund Foundation
CMAM	Community-based Management of Acute Malnutrition
CV	Community Volunteer
DHS	Demographic and Health Survey
FMOH	Federal Ministry of Health
GAM	Global Acute Malnutrition
HAZ	Height for Age Z-scores
HF	Health Facility
IDS	Institute of Development Studies (United Kingdom)
LGA	Local Government Authority
MAM	Moderate Acute Malnutrition
MUAC	Mid-Upper Arm Circumference
NNHS	National Nutrition and Health Survey
ORIE	Operational Research and Impact Evaluation (Research cluster within WINNN)
OTP	Outpatient Therapeutic Programme
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SLEAC	Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage
SMART	Standardised Monitoring Assessment of Relief and Transitions
SMOH	State Ministry of Health
SNO	State Nutrition Officer
SPHCDA	State Primary Health Care Development Agency
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VI	Valid International
WINNN	Working for Improving Nutrition in North Nigeria
WHO	World Health Organisation
WHZ	Weight for Height Z-scores

FIVE KEY LESSONS ABOUT SEVERE ACUTE MALNUTRITION MANAGEMENT IN NIGERIA

1

Two out of every three cases of severe acute malnutrition (SAM) in North Nigeria are unable to access treatment.

Recent research suggests that CMAM services across the 11 northern states are reaching an estimated 36.6% of SAM cases. This is comparable to coverage estimates in other countries including Mali and Cameroon.

2

SAM management services are located in states with the greatest need, but the spread of services within those states remains limited. Most states only offer SAM management services in less than half their Local Government Areas (LGAs) due to important resource constraints. This considerably reduces the capacity to deliver services to the targeted population, which is why both supportive and expansive actions should be taken into consideration.

3

CMAM services availability needs to match good delivery. The information coming from coverage assessments shows that performance of CMAM services should improve through more and better trained staff and uninterrupted supply of essential inputs so it can have a positive impact on coverage.

4

Awareness about SAM and CMAM services can and must be improved. Lack of awareness was found to be the most important barrier preventing access to treatment among caregivers who did not approach CMAM services. This finding was consistent across all states and is also one of the leading causes of defaulting.

5

There is room for improving the quality of SAM management information data. Whilst nationally aggregated data suggests high quality outcome indicators (cure, defaulter, death) across most states, localised analysis of records as part of the coverage assessments suggests that these figures are often inaccurate. Improving the quality of the data can be achieved by greater technical capacity in health facilities, and with local governments continually conducting data quality assessments. Strong and reliable data can boost the ability of nutrition stakeholders to make informed, strategic and tactical decisions about how best to strengthen scale-up efforts.

INTRODUCTION

Six years after the introduction of community-based management of acute malnutrition (CMAM) in Nigeria, the country is entering a key stage in its fight against severe acute malnutrition (SAM). After an accelerated scale-up process that has seen the roll out of CMAM services across the northern states and the admission of over 1,000,000 SAM cases, sufficient evidence has been generated to analyse the successes, challenges and lessons that must shape the future of SAM management in Nigeria.

This review was carried out by Action Against Hunger (ACF) with the support of the Children's Investment Fund Foundation (CIFF). Its goal is to help policy makers and practitioners answer some fundamental questions about the scale of the SAM problem in Nigeria, the performance of CMAM services to-date, and its implications for the future of SAM management in Nigeria and beyond.

The review builds on a range of data sources, from information originally reported by local governments and collected by the Ministry of Health (MoH) and UNICEF, to first-hand data collected by ACF, Save the Children and Valid International through direct coverage assessments in the field. The review benefited not only from the recent availability of CMAM coverage information from across northern Nigeria, but also from the ability to invest in data collection to answer some of the questions that emerged during the course of the analysis.

The structure of the review follows a basic line of enquiry focusing on understanding the challenges, reviewing the solutions and extracting the broader implications. The review is thus structured along a series of key, sequential questions

- ▶ **What is the state of SAM?**
- ▶ **How have treatment services responded to this situation?**
- ▶ **How have these services performed?**
- ▶ **What proportion of SAM cases have services succeeded in reaching?**
- ▶ **Why have some failed to access services?**
- ▶ **Can these challenges be addressed?**
- ▶ **What does it mean for the future of CMAM in Nigeria and beyond?**

The aim of structuring the review according to these questions is to not only make the experiences and information more accessible but to acknowledge that the review is one of the many voices of the conversation about SAM management in Nigeria. By consolidating much of the information currently available and generating new information, the review seeks to further the debate and inform future efforts to strengthen and expand CMAM services in the country.

WHAT IS THE SCALE OF SEVERE ACUTE MALNUTRITION IN NIGERIA?

Nigeria has one of the highest rates of acute malnutrition in the world. In 2013, UNICEF ranked Nigeria 13th in its global classification of countries with the highest rates of Global Acute Malnutrition (GAM)¹. At 14 per cent, Nigeria's GAM rate is higher than the West and Central African mean, and 5 per cent higher than the Sub-Saharan average of 9 per cent². Nutritional needs extend beyond acute malnutrition: an estimated 37 per cent of children under five years of age (U5) are believed to be stunted³ and between 21 per cent⁴ and 29 per cent⁵ are thought to be underweight.

Although the scale of the nutrition needs is generally understood, nutrition data is often varied and inconsistent⁶ (see Table 1).

TABLE 1

MOST RECENT DATA AVAILABLE REGARDING PREVALENCE OF ACUTE MALNUTRITION IN NIGERIA

NATIONWIDE PREVALENCE OF ACUTE MALNUTRITION			
SURVEY (MOST RECENT DATA)	SAM (WHZ)	MAM (WHZ)	GAM (WHZ)
Smart-NNHS (2014)	2.2%	6.5%	8.7%
WHO global database on child growth and malnutrition (2013) ⁷	9.1%	9.0%	18.1%
National DHS (2013)	8.7%	9.3%	18.0%

Regardless of which estimates are used, two important things are noticeable throughout the next pages; a) the yearly prevalence of acute malnutrition is changing, with no consistent upward/downward pattern - as indicated in Figure 1-, and; b) it is unequally distributed across the country (see Figure 2).

The NDHS shows that underweight has increased from 24 per cent up to 29 per cent between 2003 and 2013. Although stunting has decreased (from 42 per cent to 37 per cent), its reduction has been matched by an increase of Global Acute Malnutrition (from 11 per cent to 18 per cent)⁸. These national averages hide an even more diverse nutrition picture at a sub-national level (see Figure 2)⁹. There are significant differences in GAM levels between the South-eastern (11.4 per cent) and the North-western (30.8 per cent) parts of the country¹⁰.

Between 2003 and 2008, all regions in Nigeria witnessed an increase in severe acute malnutrition (SAM) prevalence and absolute number of cases. Yet, in the period immediately after, the Northeast saw its SAM prevalence decrease, with similar improvements also recorded in the North Central area and the Southwest part of the country (see Figure 2). Yet nutritional needs in the North remain high; three northern states have levels of GAM above the crisis threshold, three more are above the 'warning threshold' of 10 per cent (see Annexe 1). **Only nine states in the whole country - all of them in the South - are below the 'acceptable' 5 per cent level for GAM.**

FIGURE 1

EVOLUTION OF NATIONWIDE GAM AND SAM PREVALENCE (by data source)

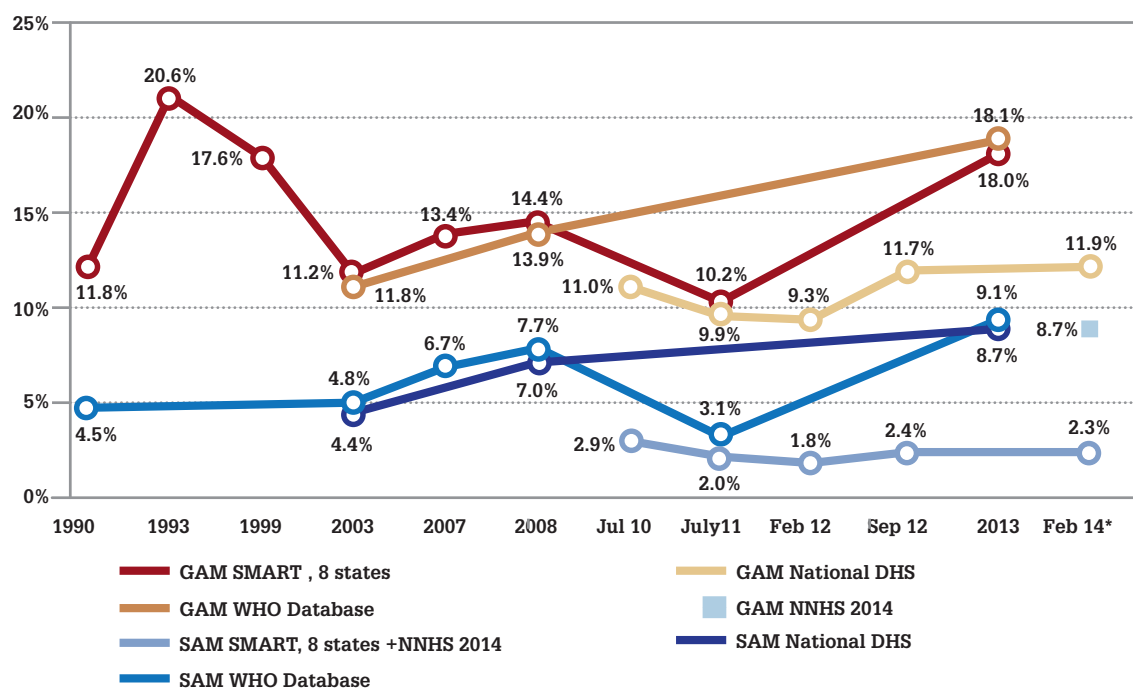
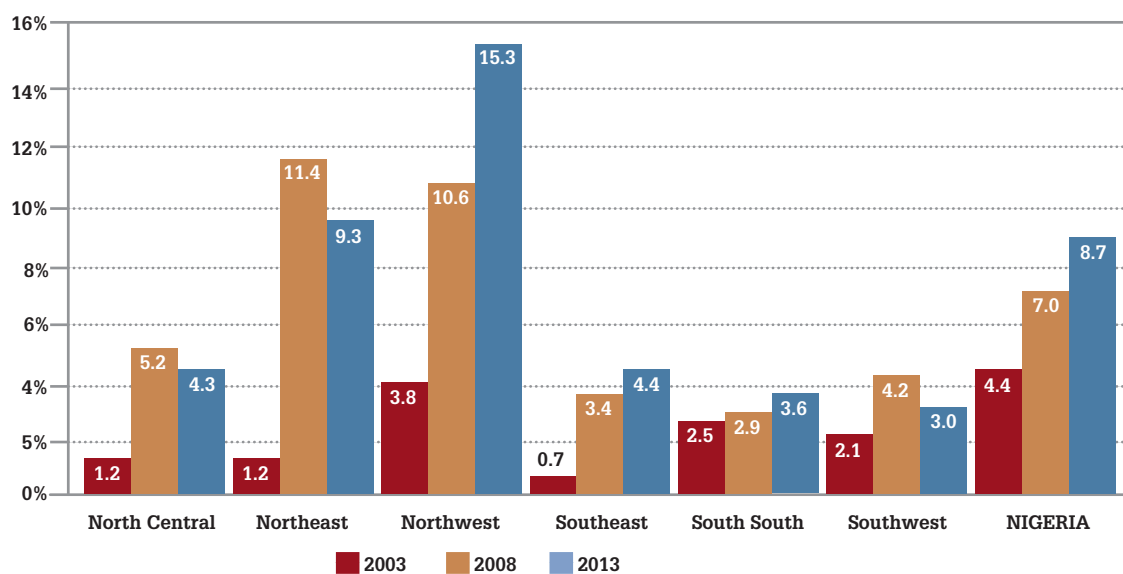


FIGURE 2

EVOLUTION OF SAM PREVALENCE BY REGION ACCORDING TO THE NDHS



During the past few years, additional nutritional data has emerged. UNICEF has recently introduced a system of constant cross-sectional surveys on nutrition and health carried out once or twice a year in eight northern states of Nigeria. These surveys, which like the National Nutrition and Health Survey (NNHS) of 2014 use the SMART methodology, have also demonstrated that stunting (chronic malnutrition measured through height to age Z scores –HAZ–) consistently exceeds 50 per cent among children under five, well above the national average. These results also show no significant improvement in wasting (weight to height Z scores –see footnote 1). Although SAM prevalence appears to be much lower than other surveys suggest, suggest, the overall national trend is comparable with trends at the regional level (see extra Figures in the Annex)¹¹.

The specifics may vary, but the overall picture of nutritional needs in Nigeria is clear; **the country is home to a significant number of children suffering from SAM, and most of these are clustered in the Northern states. Recent trends show that rates are increasing across the country.** Whilst the scale of the need has been well understood for some time, it is only in recent years that a concerted effort has taken place to launch and roll-out Community-based Management of Acute Malnutrition (CMAM) services specifically designed to address these increasing needs in northern states.

HOW HAS COMMUNITY-BASED MANAGEMENT OF ACUTE MALNUTRITION RESPONDED TO THE NEED IN NIGERIA

Community-based Management of Acute Malnutrition (CMAM) was introduced in Nigeria at the end of 2009, through a pilot programme implemented by two state governments (Gombe and Kebbi) in six local government areas with technical support from VALID International and UNICEF. From the start, the CMAM programme in Nigeria aimed to explore and evaluate “different approaches to integrate CMAM into routine health services in a sustainable manner” across northern Nigeria¹². With this in mind, CMAM was promptly introduced into broader programmes.

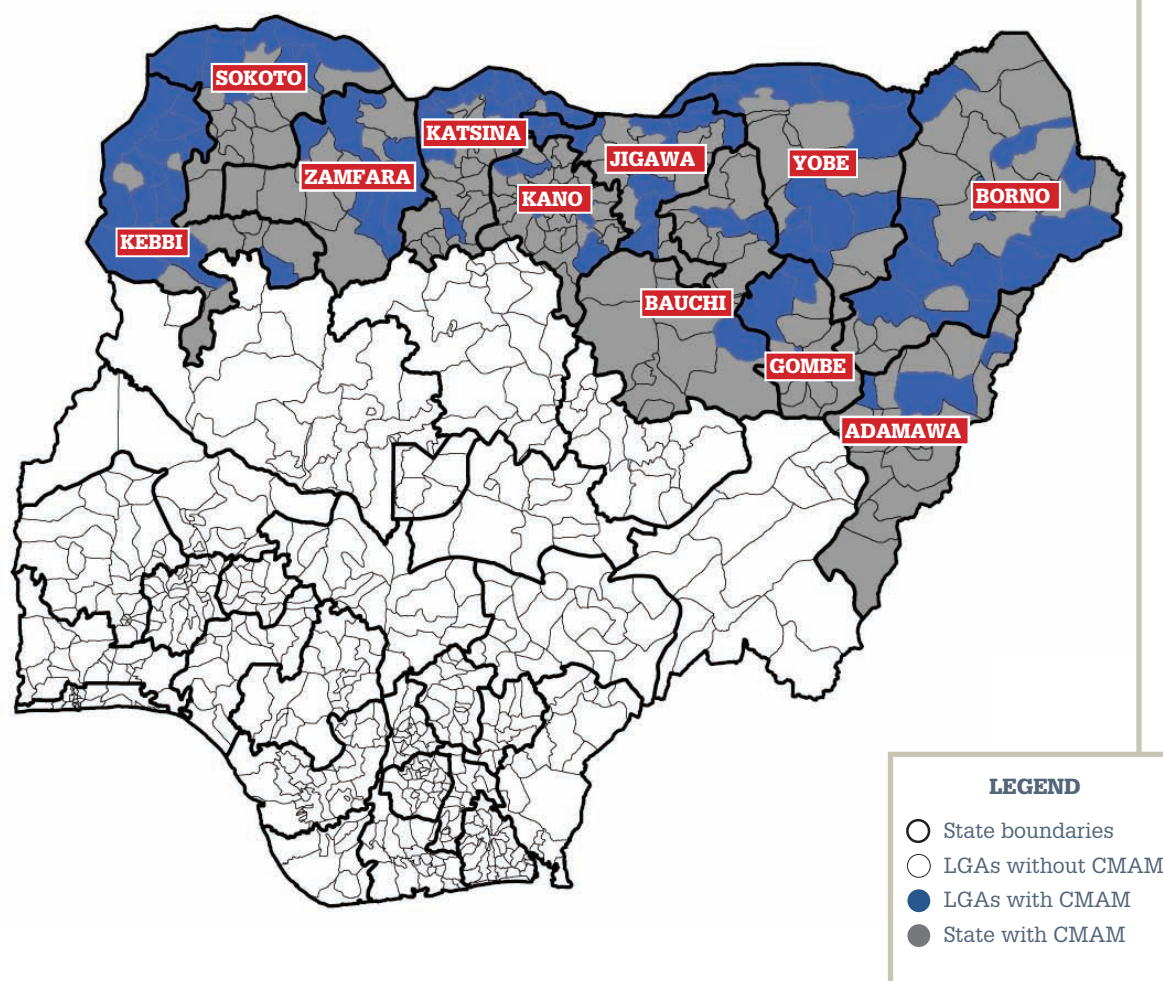
Initially, Save the Children, Médecins Sans Frontières and ACF implemented and supported CMAM in different states in collaboration with state ministries of health. After a strong expansion with support from ECHO, CMAM was eventually included into the DFID-funded Working to Improving Nutrition in Northern Nigeria (WINNN) project, and the CIFF funded programme, which have both contributed to efforts by: which has contributed to efforts by: state health authorities, UNICEF and international non-governmental organisations to scale up CMAM services.

HOW ARE CMAM SERVICES DISTRIBUTED ACROSS STATES?

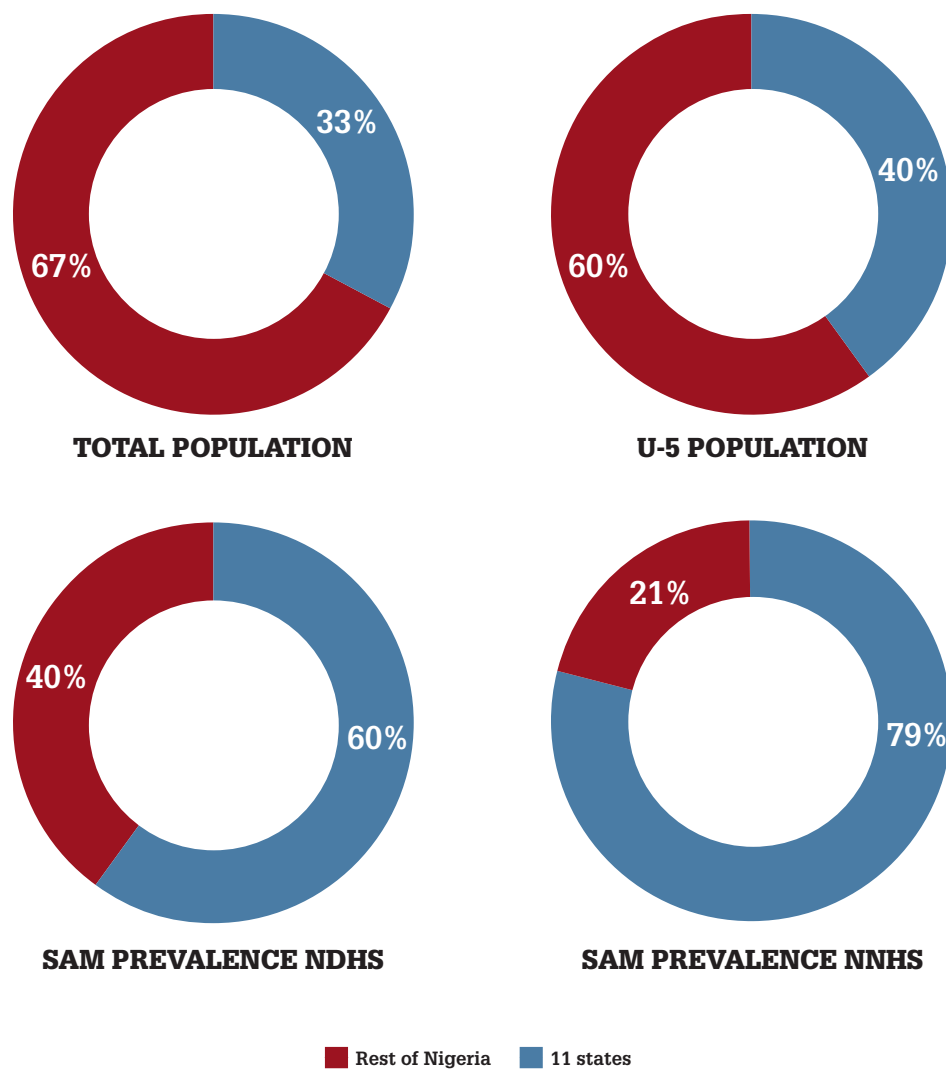
The availability of CMAM services in Nigeria has increased at an accelerated pace; from 30 health facilities offering it at the end of 2009 to 294 by 2010, and up to 591 in mid-2014. As of July 2014, CMAM services were available in 91 out of 259 Local Government Areas (LGAs) in 11 Nigerian states, all of them in the North: Adamawa, Bauchi, Borno, Gombe, Jigawa, Kano, Katsina, Kebbi, Sokoto, Yobe and Zamfara (find full list in Annexes). Together, they host an estimated population of 60.4 million, representing a third of Nigeria’s total spread across over 40 per cent of the country’s landmass¹³, which indicates the potential reach of CMAM services.

FIGURE 3

MAP HIGHLIGHTING STATES AND LGAS OFFERING CMAM



These 11 states currently offering CMAM services are home to 11.9 million U5 children, which represent a comparatively higher proportion of all U5 children in Nigeria (40.4 per cent). These states also account for the largest proportion of all SAM children in the country. Depending on available data, between 60.2 per cent and 79.2 per cent of all SAM cases in Nigeria live in these 11 states¹⁴. **Whilst this suggests that CMAM services have been strategically positioned in those areas where the need is greatest, the actual distribution of services *within* these states plays the most relevant role when evaluating geographical coverage.**

FIGURE 4**SHARES OF POPULATION, U-5 POPULATION
AND SAM PREVALENCE IN THE NORTH**

NOTE. Clockwise: a) share of total population; b) share of U-5 population; c) Share of SAM prevalence –NNHS 2014-; d) Share of SAM prevalence –NDHS 2013-

HOW ARE CMAM SERVICES DISTRIBUTED WITHIN STATES?

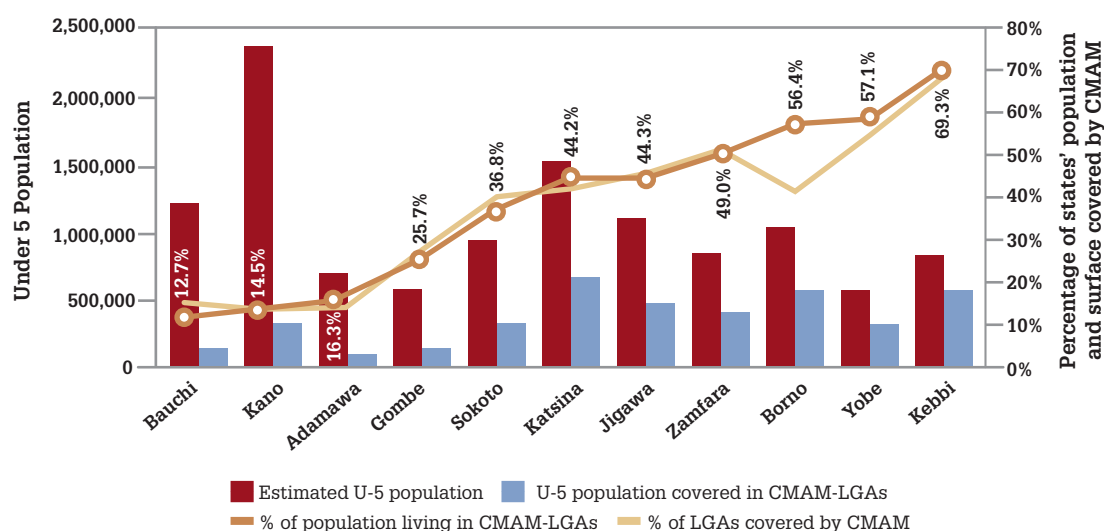
A total of 642 health facilities currently offer CMAM services in 91 LGAs –an average of 35.1 per cent of all LGAs in these 11 states. Assuming that HF's offering CMAM are strategically placed within each LGA, their average catchment area¹⁵ is 246km². If their total surfaces are combined, they reach an estimated 35.6 per cent of the population of these 11 states over a similar proportion of the territory (see Figure 5 and 6). **This suggests that whilst CMAM services are located in those states with the greatest needs, the spread of the services remains limited.**

For example, CMAM is absent from more than 80 per cent of LGAs in three states, leaving more than 80 per cent of their population potentially out of reach (see Figure 6). Only three states offer CMAM services in enough LGAs to potentially cover half or more of the total under-five population¹⁶. (see Figure 5) Moreover, it is not possible to tell, from a state-level point of view, whether existing LGAs with health facilities delivering CMAM services were selected to meet an observed need. It is also too soon to tell if a geographically widespread availability of CMAM has had positive effects on diminishing SAM prevalence¹⁷.

What it is possible to say is that the plans through which CMAM was scaled up in the region did follow a systematic approach. This explains why three quarters of local government areas offering CMAM services do so in five or six health facilities. This number (either five or six) is usually what is needed to cover half of the wards contained in each local government area. Therefore, acceptable geographical coverage of CMAM services at LGA level can also be understood as having achieved a target number of health facilities in each local government area. In that sense, CMAM has growth with equilibrium.

FIGURE 5

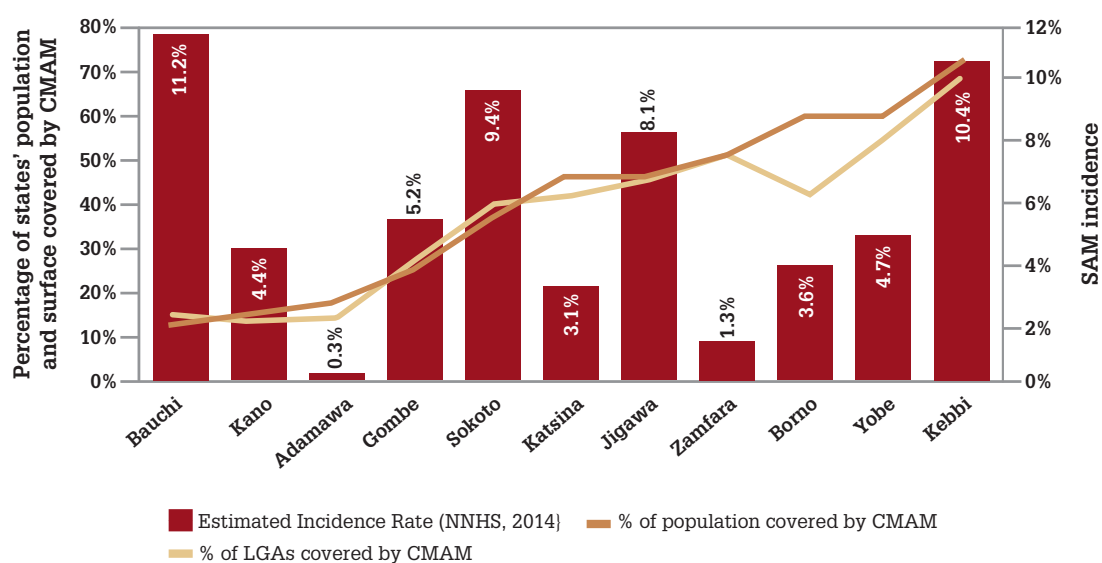
GEOGRAPHIC AND DEMOGRAPHIC CMAM COVERAGE BY STATE



Additionally, there is no evident relationship between existing SAM incidence rates for each state and the potential geographical and demographic coverage of each CMAM centre. Figure depicts a situation where the state with the highest *incidence* rate of SAM according to the 2014 National Nutrition and Health Survey finds itself at the lower extreme in the share of state's population potentially covered by local government areas with CMAM. This apparent lack of relationship further suggest that there are still important gaps to fill at state-level, where some states with high incidence rate of SAM remain poorly covered by CMAM services.

**FIGURE 6**

GEOGRAPHIC AND DEMOGRAPHIC CMAM COVERAGE COMPARED TO SAM INCIDENCE RATES



The available data suggests that beyond correctly focusing on the northern states, present CMAM locations within each state do not fully reflect current needs. Most states only offer CMAM in less than half their LGAs. Despite the increase in the number of sites and LGAs delivering CMAM services, availability is still limited when compared to the total population in need.

HOW ARE EXISTING CMAM SERVICES PERFORMING ACROSS NIGERIA?

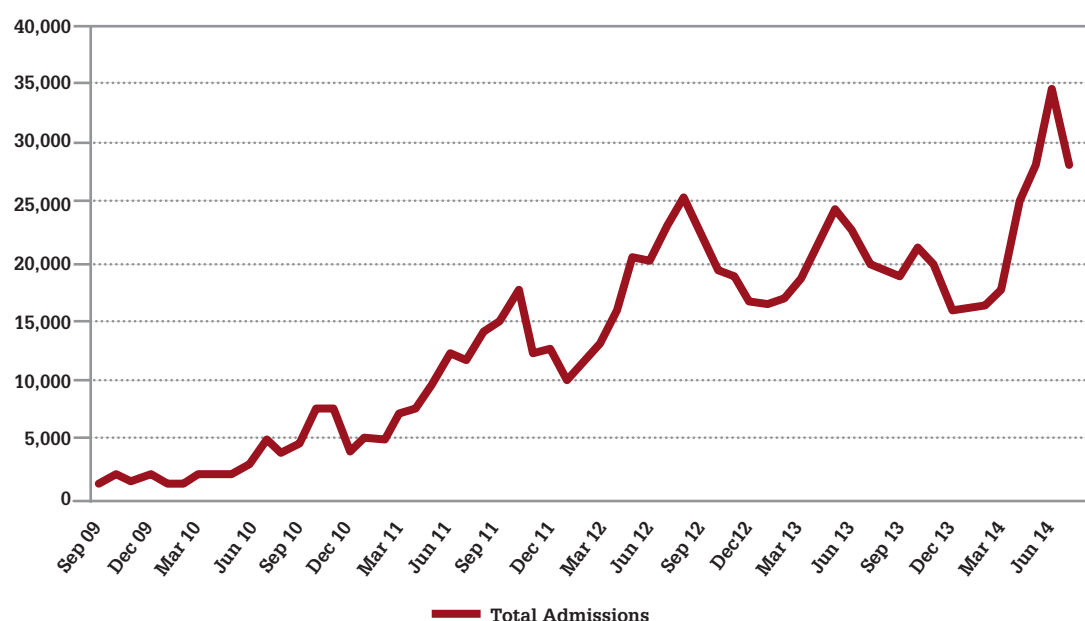
The performance of CMAM services generally relies on a handful of outcome indicators, including admissions and discharges. The outcome indicators used to evaluate performance are based on discharges, and include recovery (or cure) rate, deaths, defaulter rate (proportion of children who abandon treatment prior to completion¹⁹) and non-responder rates.

ARE CMAM SERVICES SUCCESSFULLY ENROLLING SAM CASES?

Between September 2009 and June 2014, CMAM services in Nigeria admitted 802,500 children. Half of these have been admitted since mid-2013 (see Figure 7). Throughout this period, admissions have not only consistently increased but also shown fluctuations, reflecting predictable seasonal variations in uptake (probably linked to agricultural and diseases calendars) but also service-delivery challenges (including RUTF stock-outs)¹⁹.

FIGURE 7

TOTAL ADMISSIONS PER MONTH (11 states aggregate)



CMAM services are being accessed but they are not always accessed early. An analysis of admission data from Jigawa and Yobe state²⁰ revealed that many of the children enrolled into CMAM services arrive with low Mid-Upper Arm Circumference (MUAC). Coverage assessments carried out across the north have found that median MUAC on admission was around 105mm²¹. Low MUAC reflects a delay in the presentation of SAM cases, which in turn indicates the presence of barriers to access²².

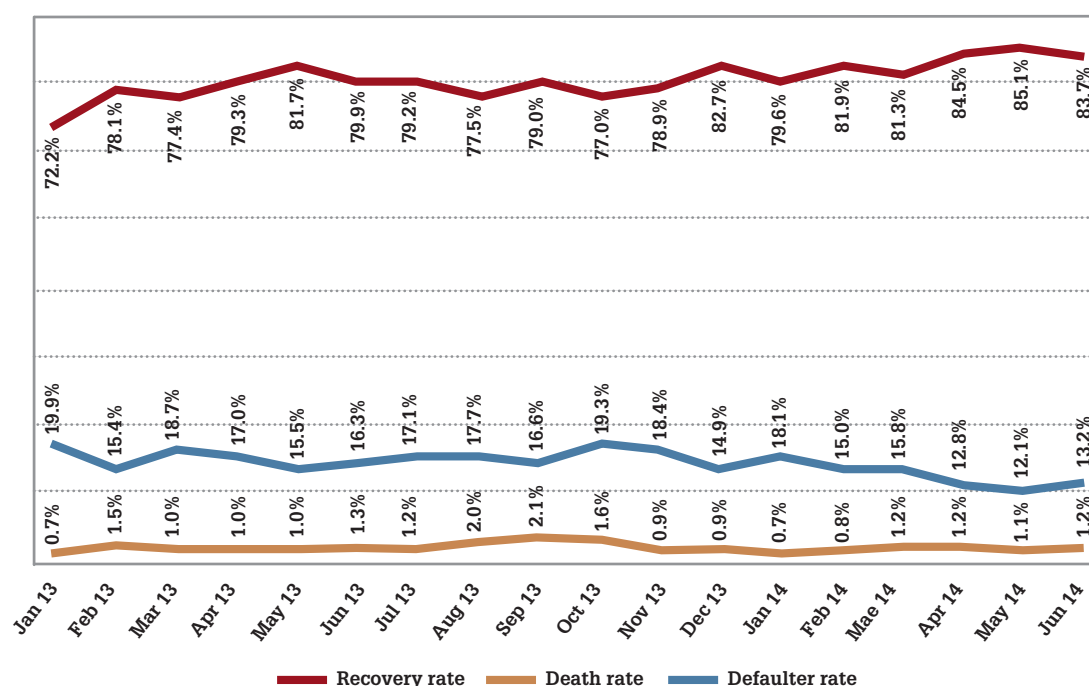
WHAT PROPORTION OF ENROLLED SAM CASES EVENTUALLY RECOVERS?

CMAM intervenes to save lives. It provides prompt medical services to children facing high risk of death. In Nigeria, a report by UNICEF with ACF and Brixton Health estimated that, from 2009 through October 2014, 172,898 deaths (95 per cent CI = 137,526; 208,434) have been prevented thanks to the treatment²³. This number is logically related to the performance of the programme itself. And a higher number of lives saved can be achieved with a better performing intervention. But what do we know about the performance of CMAM in Nigeria?

Figure 8 provides general trends for performance rates since January 2013, which are based on the official reporting made by each local government area to state governments. In aggregate, it appears as if these rates have had little or no seasonal variation, with some improvement over the last 18 months. Based on the 538 out of 592 CMAM facilities that have consistently reported their figures for the first half of 2014, 73 per cent exceeded SPHERE standards for recovery (75 per cent or above).

FIGURE 8

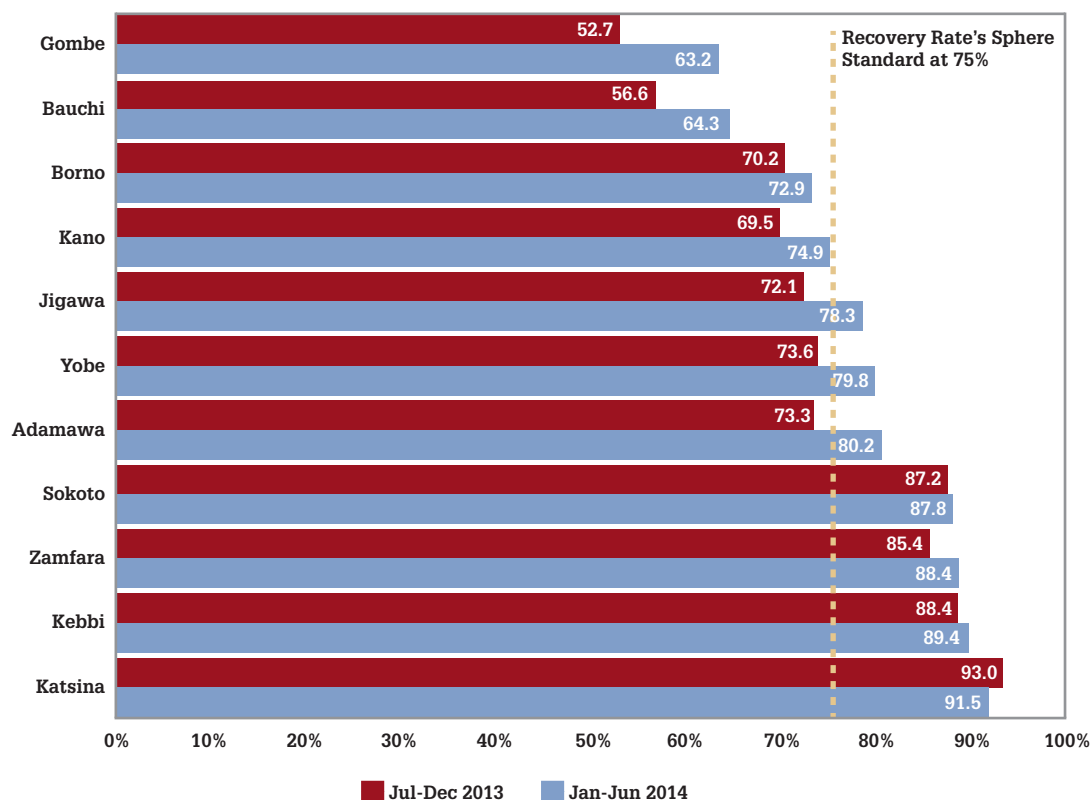
EVOLUTION OF RECOVERY RATE IN 11 STATES DURING 2013 AND 2014



Yet, some important variations remain at state level with 7 out of 11 states meeting SPHERE standards overall by June 2014 (Figure 9). Variation within individual states also exists, that more than 90 per cent of Katsina's CMAM facilities have recovery rates above the SPHERE threshold, compared to the lowest performing state where only 23 per cent of CMAM facilities have recovery rates above the SPHERE thresholds (see Table 2). More than half of some states' CMAM facilities have shown recovery rates below 75 per cent, with as much as 20 per cent of other states' sites showing less than 50 per cent recovery rate (see Table 2).

FIGURE 9

RECOVERY RATE BY STATE



The differences among states are important, but not as striking as the divergences between health facilities within LGAs, where variations between the recovery and default rates exceed 50 per cent in some facilities.

TABLE 2

**PERCENTAGE OF HEALTH FACILITIES DELIVERING CMAM IN EACH STATE
ACCORDING TO THEIR REPORTED RECOVERY RATES (Jan-Jun 2014)**

STATE	HIGH RECOVERY RATE (>75%)	MEDIUM RECOVERY RATE (50 TO 75%)	LOW RECOVERY RATE (25 TO 50%)	VERY LOW RECOVERY RATE (<25%)	GRAND TOTAL
Adamawa	88.9% (16)	11.1% (2)	0.0%	0.0%	100% (18)
Bauchi	35.3% (6)	47.1% (8)	17.6% (3)	0.0%	100% (17)
Borno	36.6% (15)	41.5% (17)	12.2% (5)	9.8% (4)	100% (41)
Gombe	23.5% (4)	58.8% (10)	17.6% (3)	0.0%	100% (17)
Jigawa	69.4% (34)	28.6% (14)	2.0% (1)	0.0%	100% (49)
Kano	41.9% (13)	58.1% (18)	0.0%	0.0%	100% (31)
Katsina	91.2% (103)	8.8% (10)	0.0%	0.0%	100% (113)
Kebbi	87.2% (75)	7.0% (6)	1.2% (1)	4.7% (4)	100% (86)
Sokoto	88.5% (46)	7.7% (4)	3.8% (2)	0.0%	100% (52)
Yobe	60.6% (40)	34.8% (23)	4.5% (3)	0.0%	100% (66)
Zamfara	87.5% (42)	10.4% (5)	2.1% (1)	0.0%	100% (48)
Grand Total	73.2% (394)	21.7% (117)	3.5% (19)	1.5% (8)	100% (538)

The most logical explanation for these variations would be that difference in size (and thus distance to travel) and catchment areas of health facilities offering CMAM define the outcome of the services provided. Yet, when recovery rates are assessed in relation to the average catchment area of facilities, no discernible pattern emerges (see Table 3).

TABLE 3

LGAS' PERFORMANCE ACCORDING TO THE COVERAGE AREA OF THEIR HEALTH FACILITIES DELIVERING CMAM SERVICES

TYPE OF LGA BY AVERAGE AREA COVERAGE OF ITS HF OFFERING CMAM	HIGH RECOVERY RATE (>75%)	MEDIUM RECOVERY RATE (65 TO 75%)	LOW RECOVERY RATE (<65%)	TOTAL
<125 km2/CMAM centre	66.67%	16.67%	16.67%	100%
125 to 250 km2/CMAM Centre	72.22%	13.89%	13.89%	100%
251 to 500 km2/CMAM Centre	64.29%	28.57%	7.14%	100%
>500 km2/CMAM centre	64.29%	28.57%	7.14%	100%
Total	68.54%	19.10%	12.36%	100%

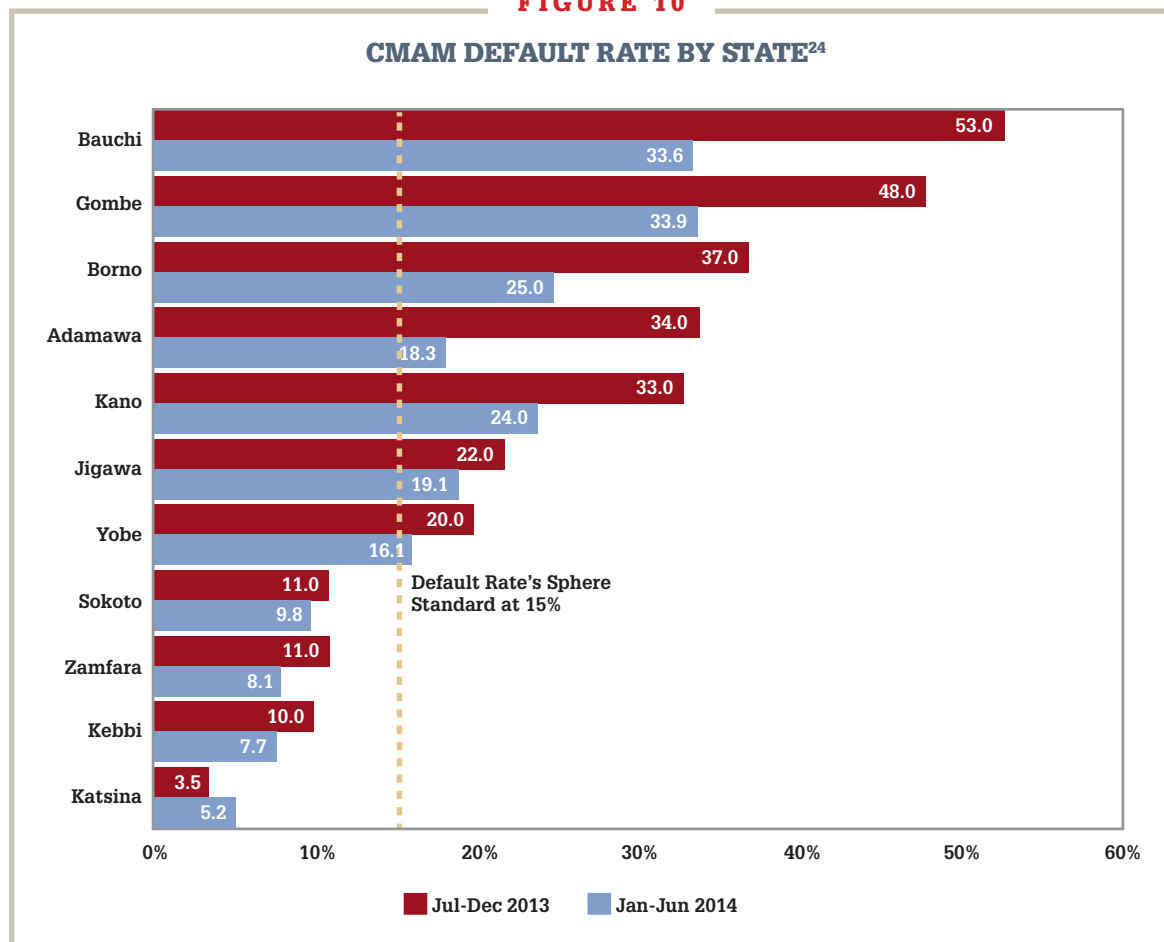
To answer the question of the section, and following figures delivered by LGAs and states, a relatively significant proportion of admissions to the programme do recover. Since February 2013, the average cure rate for the eleven states has consistently been above the SPHERE standard of 75 per cent. In the largest LGAs, where health facilities offering CMAM are more spatially dispersed, low recovery rates are even less common than in small LGAs where centres are covering smaller areas. **Available data suggests that geographic patterns do not explain the performance of each health facility.**

WHAT PROPORTION OF THE ENROLLED SAM CASES FAIL TO COMPLETE TREATMENT?

CMAM services in Northern Nigeria recorded an average default rate of 14.4 per cent during 2014 (see Figure 10). Default rates have significantly decreased in virtually every state and it's the first time since the beginning of CMAM in Nigeria that the average defaulting rate falls below the SPHERE standard of 15 per cent. Seven out of 11 states met the SPHERE standard of 75 per cent recovery (a clear improvement from late 2013), but there are still important differences, with divergence of almost 30 per cent between the highest and lowest performing states (see Figures 9 and 10). Regarding defaults, however, only four states range below the SPHERE standard of 15 per cent, which shows the strong weight that successful states such as Katsina (1st in admissions) and Zamfara (4th) have when determining the average. Conversely, seven states still range above the threshold. Observing performance across LGAs confirms the differences between regions: 57 per cent of LGAs reported a default rate below the SPHERE standard of 15 per cent, and as much as 21 per cent reported default rates of 25 per cent or more.



FIGURE 10

CMAM DEFAULT RATE BY STATE²⁴

On the other hand, differences between states are also reflected through a breakdown by health facility offering CMAM services: more than 90 per cent of Katsina's 113 health facilities presented a default rate below 15 per cent. In Gombe, 12 out of 17 health facilities recorded default rates of 25 per cent or higher, with equally high rates recorded in at least three more states.

Geographic issues are certainly related to defaulting in terms of access and mobility, but that does not seem to be the case for the average areas covered by CMAM facilities in each of the 91 LGAs. Four out of the top five local government areas with the highest number of km² per HF's catchment area have default rates below 15 per cent, while three out of the top five local government areas at the opposite end present default rates well above 20 per cent. If there is a pattern between the average extension of the catchment areas and defaulting, the available data from CMAM in Nigeria does not conclusively demonstrate it.

It is thus possible to suggest that the performance of each CMAM facility depends on factors other than its geographic composition, and SQUEAC Coverage Assessments (Semi-Quantitative Evaluation of Access and Coverage), discussed in following sections, were implemented to identify such factors. Also, subsequent analyses of defaulter data at LGA level, however, suggest that the problem of defaulting may be significantly higher than the routine monitoring data officially reported suggests. This is likely to be a problem of hidden defaulters²⁵. The SQUEAC assessments casted light upon this issue (see full data differences in the Annexes)²⁶. **None of the LGAs reviewed through the SQUEACs were found to have defaulter rates lower than the 15 per cent SPHERE standard, and only one LGA was found to have a cure rate above 75 per cent. Such disparity among officially reported figures and results found in direct assessments is not unique to Nigeria and has been a feature of CMAM services in other countries. Yet, it does raise important questions not only about the accuracy of the data available but also of the potential analysis that can be done on a regular basis to monitor and guide scale-up efforts.**

WHAT PROPORTION OF SAM CASES IS SUCCESSFULLY REACHING CMAM SERVICES IN NIGERIA?

The impact of CMAM services depends not only on the quality of the treatment, but also on the capacity to provide it to the highest possible proportion of those who need it. Assessing the coverage of CMAM services can be achieved in two ways; indirectly, using existing data, or directly by collecting new data.

WHAT CAN WE LEARN FROM AN INDIRECT ESTIMATION OF CMAM COVERAGE IN NIGERIA?

In order to estimate indirect coverage rates, data on total population, U-5 population and levels of SAM prevalence are needed²⁷. Indirect coverage calculations require using total number of admissions during a given period as a numerator and the incidence as the denominator. When estimated indirectly, the coverage of CMAM services in Nigeria produces unreliable estimates (see Table 4).

TABLE 4

INDIRECT TREATMENT COVERAGE RATES AS CALCULATED FROM THE NNHS INDICATORS

STATE	TREATMENT COVERAGE RATE NNHS 2014 (WHZ)	TREATMENT COVERAGE RATE NNHS 2014 (MUAC)
Adamawa	264.61%	132.30%
Bauchi	3.95%	11.33%
Borno	14.54%	20.77%
Gombe	31.14%	22.94%
Jigawa	44.99%	124.60%
Kano	14.25%	38.01%
Katsina	305.80%	50.97%
Kebbi	49.95%	64.22%
Sokoto	35.19%	29.91%
Yobe	52.24%	134.97%
Zamfara	89.73%	82.83%
TOTAL 11 states	33.88%	50.57%

Whilst these indirect results may serve programmatic planning purposes, they are unreliable as a means of evaluating the performance of CMAM services in Nigeria. In order to generate reliable estimates of CMAM coverage, direct methods must be used.

WHAT CAN WE LEARN FROM A DIRECT ESTIMATION OF CMAM COVERAGE IN NIGERIA?

A new generation of fast and reliable direct methods to evaluate coverage have been developed in recent years²⁸. In 2013, a consortium led by Valid International and with Action Against Hunger and Save the Children International carried out a coverage survey focusing on the 11 states offering CMAM services in the country. This survey, using the Simplified LOAS Evaluation of Access and Coverage (SLEAC) method, provided state-level classifications of coverage and an aggregated estimate of coverage across the 11 states.

During the SLEAC, the classification of state-level coverage was done using a standardised scale; low (20 per cent or less), medium (between 20 per cent and 50 per cent) and high (greater than 50 per cent)²⁹. The SLEAC survey also classified the coverage of CMAM services in 71 out of the 91 LGAs across the 11 states (see Figure 13 and Table 6). **The SLEAC concluded that coverage of CMAM services across the 11 states combined is moderate with an estimate of 36.6 per cent (95 per cent CI: 32.3 per cent – 40.9 per cent).** Such levels of coverage are comparable with other West-African cases. CMAM in Mali has an estimated coverage of 22.3 per cent; in northern Cameroun it scored 41.8 per cent and 42.1 per cent in eastern Burkina Faso.

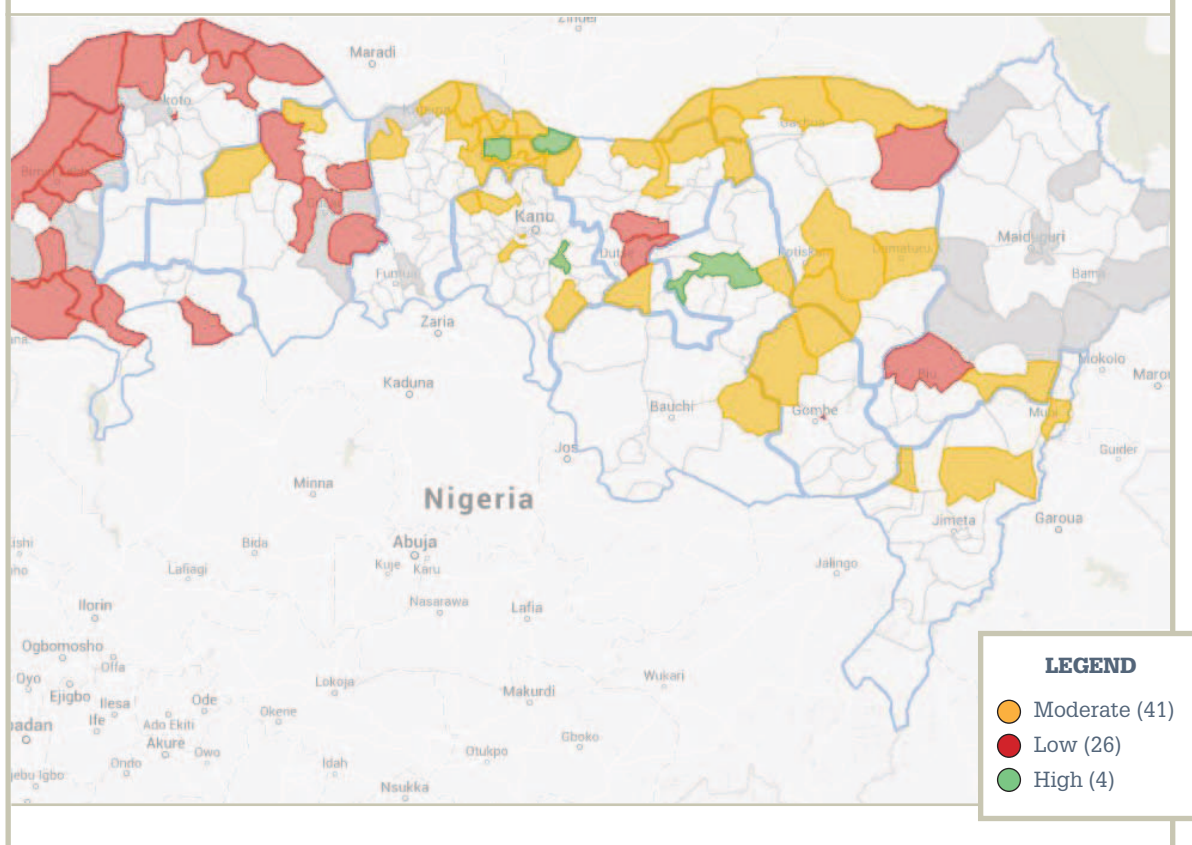
TABLE 5

NUMBER OF LGAS BY COVERAGE CLASSIFICATION AND BY STATE

STATE (Number of LGAs offering CMAM evaluated in SLEAC)	LOW COVERAGE (<20%)	MEDIUM COVERAGE (20% TO 50%)	HIGH COVERAGE (>50%)
Sokoto (7)	7	0	0
Kebbi (10)	10	0	0
Zamfara (6)	4	2	0
Katsina (10)	0	9	1
Kano (6)	0	5	1
Gombe (3)	1	2	0
Jigawa (12)	2	9	1
Bauchi (3)	0	2	1
Adamawa (3)	0	3	0
Yobe (9)	2	7	0
Borno (2)	1	1	0
TOTAL (71)	27	40	4

FIGURE 11

SLEAC'S MAP OF THE 11 CMAM STATES SHOWING COVERAGE CLASSIFICATION BY LGA

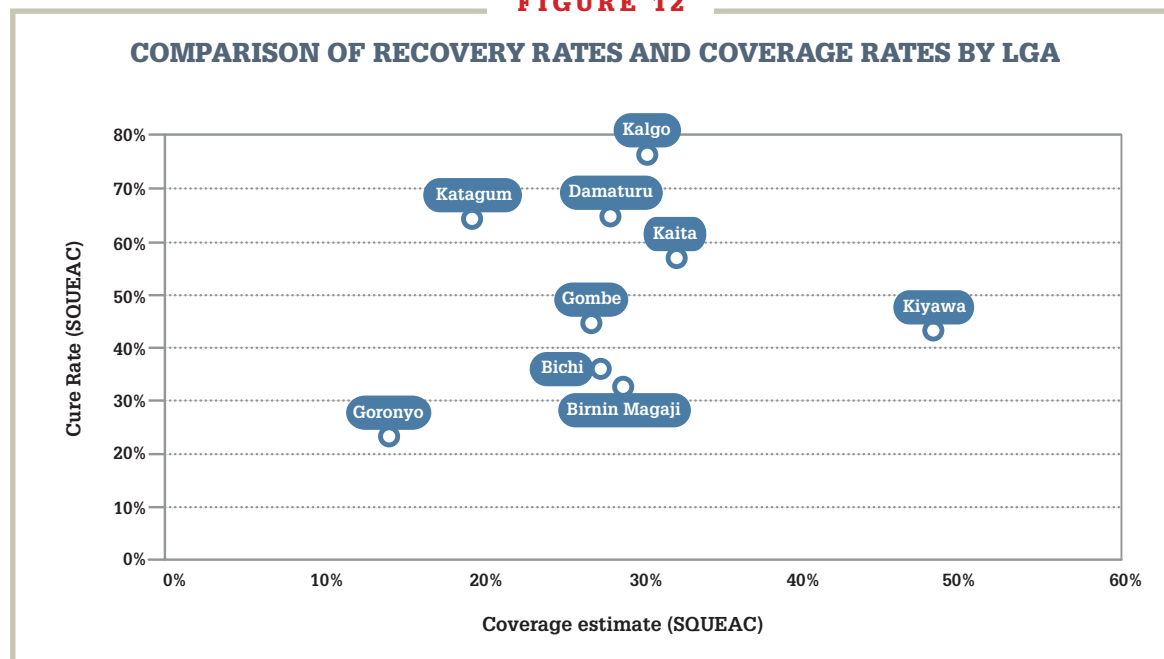


The results showed significant differences between LGAs in the northwest (with widespread low coverage) and north-northeast (with widespread moderate coverage). Only four LGAs were classified as having high levels of coverage.

Following the SLEAC coverage survey, a series of localised SQUEAC coverage assessments were carried out across the 11 states. The aim was to delve deeper into the local dynamics that influence CMAM coverage, to understand the impact of specific barriers and boosters, and to follow up on some of the most relevant barriers pushed forward by the SLEAC³⁰. Both datasets combined have helped explore the relationship between CMAM management coverage and other important variables.

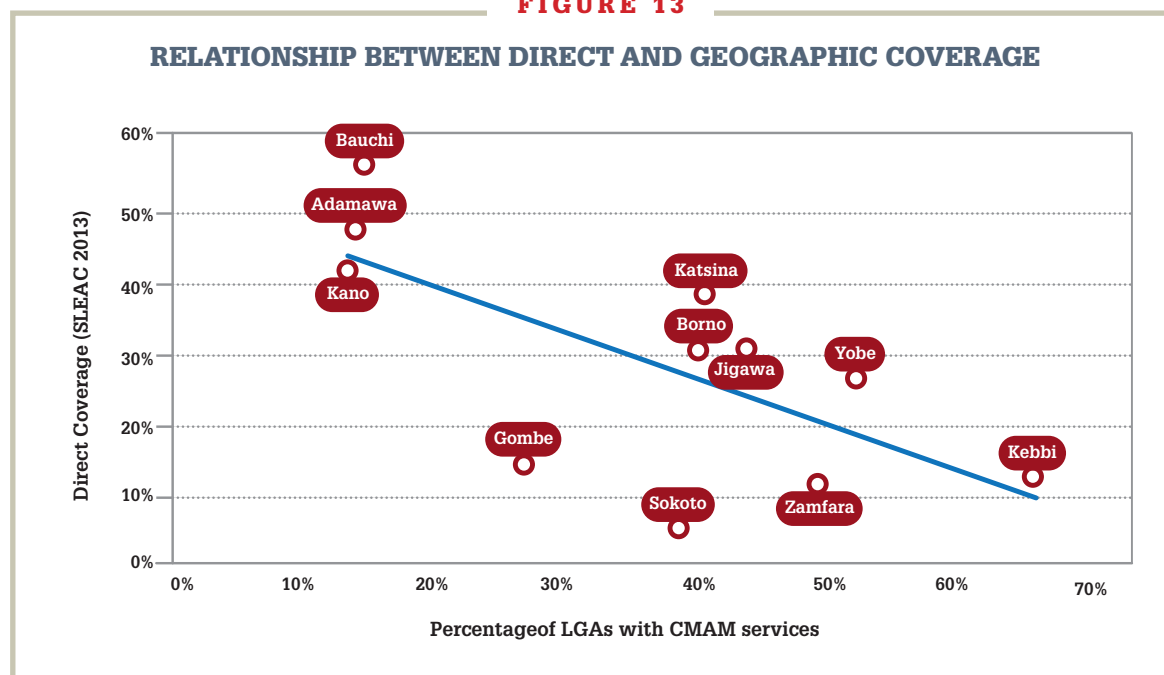
The relationships between direct treatment coverage estimates and recovery and/or default rates as reported by local government areas also appears to be more complex than it would seem at first glance. The data from the localised SQUEAC assessments shows a limited relationship between the level of coverage and the performance of the programme (see Figure 12). **This emphasises the importance of accompanying expansions in coverage with improvements in service delivery and other elements that can potentially increase the cure rate (such as enhanced sensitisation), and that default and cure rates alone cannot work as proxy indicators for the level of coverage.**

FIGURE 12



In the case of geographical coverage, the data has been particularly striking (see Figure 13). Bauchi state, for example, was found through the SLEAC to have high coverage in spite of being one of the states with the lowest share of local government areas offering CMAM services. Kebbi, one of the lowest performing states in terms of treatment coverage (12 per cent) was found to have one of the highest levels of geographic coverage of services (>50 per cent). **What this suggests is that more services do not necessarily lead to greater uptake, that improving accessibility may not be achieved only by increasing availability. This in turn suggests that treatment coverage is more sensitive to other determinants of coverage.**

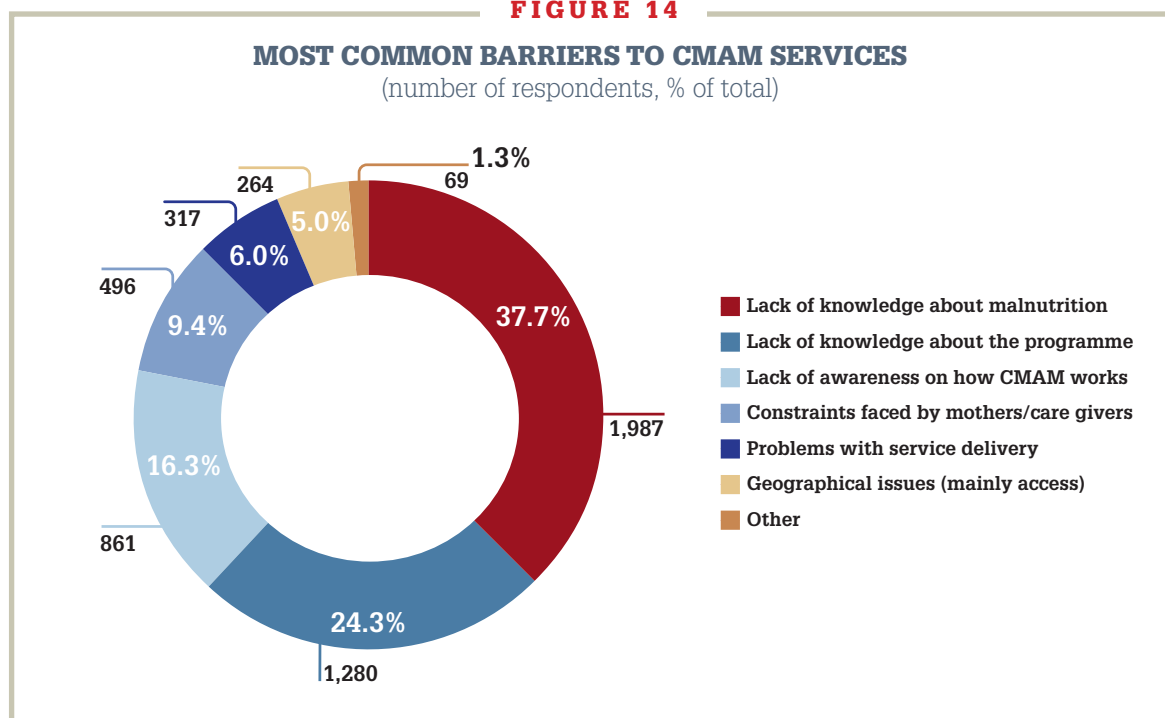
FIGURE 13



WHAT DETERMINANTS INFLUENCE THE COVERAGE OF CMAM SERVICES IN NIGERIA?

The SLEAC assessment of 2013/14 provided some initial understanding of the determinants or barriers affecting access to CMAM services in Northern Nigeria. Although single determinants are rarely individually responsible for non-attendance, their classification is helpful when evaluating why caregivers of children identified with SAM are not accessing CMAM services³¹. **The SLEAC survey found 47 different barriers identified by the respondents, which can further be categorised in seven major groups. Two of them, lack of knowledge about malnutrition and lack of knowledge about CMAM services available were the most commonly found barriers across the 11 states** (see Figure 14).

FIGURE 14



Altogether, almost two thirds of respondents either lacked knowledge about malnutrition or were unaware about the existence and availability of CMAM services. When combined with the figures of caregivers unaware of how the CMAM services work, awareness accounted for 75 per cent of all non-attendants. The relevance of knowledge and information oriented barriers should not overlook the crucial challenge that other kinds of obstacles pose, such as other constraints faced by mothers and, especially, problems in service delivery that are connected to demographic challenges, needs in capacity building and in infrastructural support.

Localised coverage assessments also enabled a more nuanced analysis of how these barriers interact with each other in different areas (see Figure 16)³². Although some variations can be found regarding the weight of poor service-delivery, the general importance of awareness-related barriers was reinforced³³.

FIGURE 15

RELEVANCE OF AWARENESS-RELATED BARRIERS BY STATE ACCORDING TO SLEAC FINDINGS

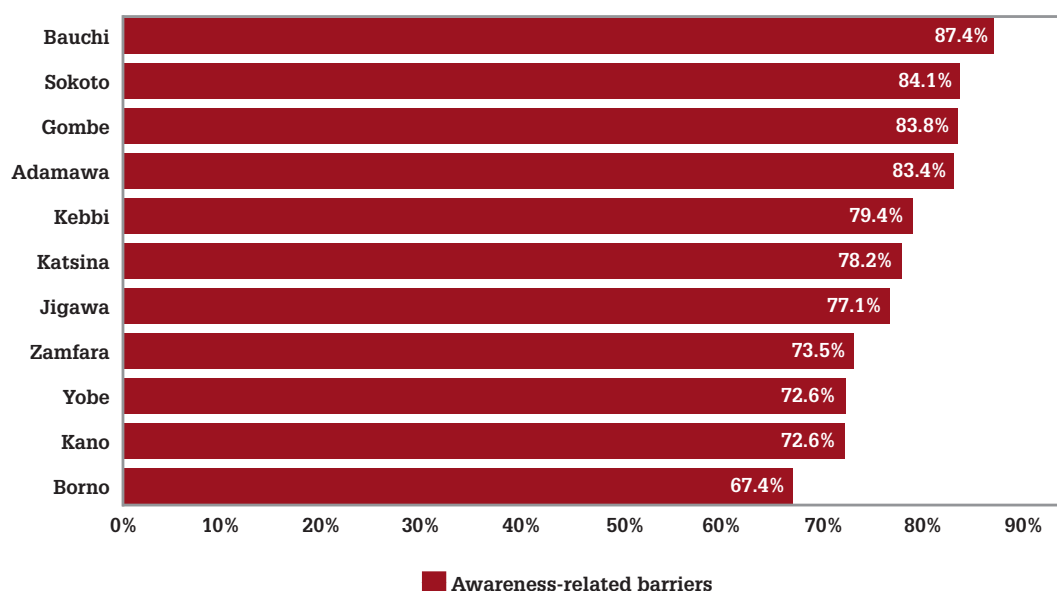
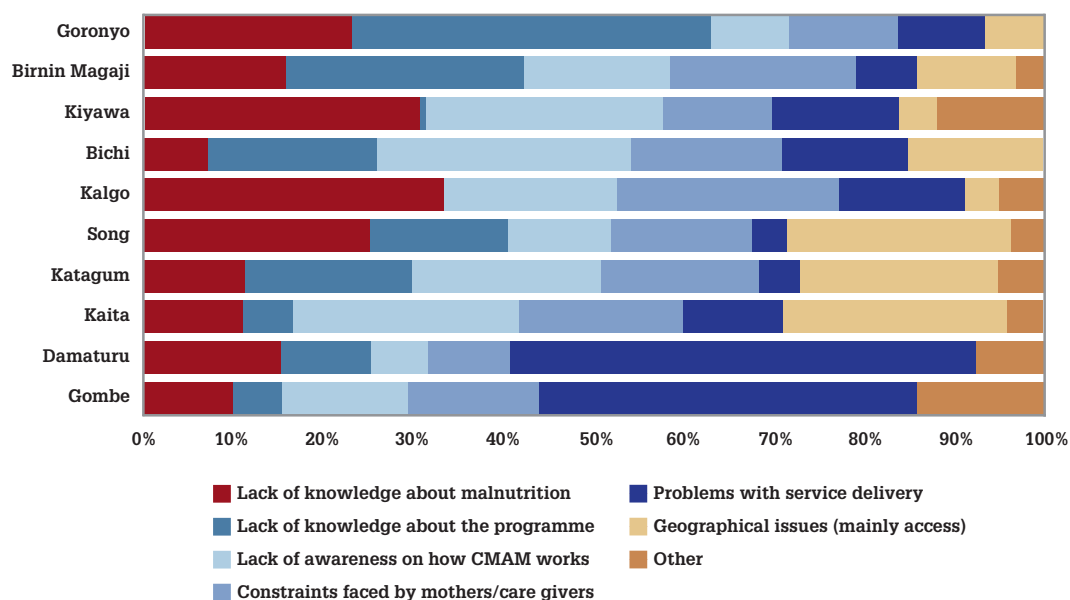


FIGURE 16

GRAPH SHOWING THE RELATIVE WEIGHT OF BARRIERS' CATEGORIES ACCORDING TO EACH SQUEAC



HOW DO DIFFERENT TYPES OF AWARENESS IMPACT ON CMAM COVERAGE IN NIGERIA?

Low awareness levels are the single most important barrier affecting CMAM services worldwide³⁴. For the most part, it reflects the limited investment in sensitisation and communication and the limited engagement that occurs between service-providers and the communities they serve. Lack of awareness impacts CMAM services in a number of ways.

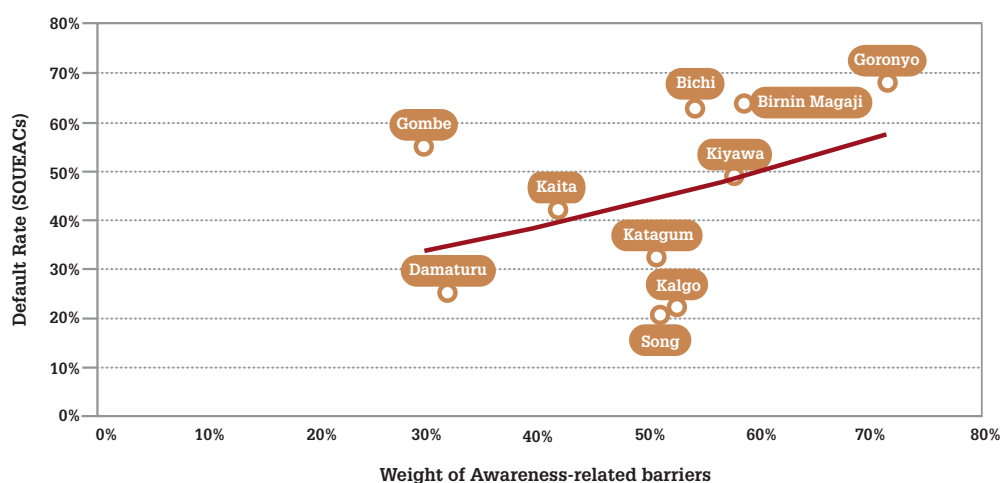
Firstly, by depriving caregivers from the choice to seek care. If caregivers are unaware of the services, or are unable to link the condition they see in their children with the services on offer, they cannot voluntarily seek care. Conversely, improved communication with communities can improve health seeking behaviour and peer-to-peer referrals.

Secondly, by creating confusion. Beneficiaries may be aware of the programme's existence, but may not fully understand eligibility, or the capacity to return if the child relapses. Poor communication can also contribute to confusion about treatment protocols, or the importance of compliance with the treatment regime, which in turn can contribute to absenteeism and defaulting.

Whilst assessing the impact of individual determinants on defaulting, the data does suggest that default rates are more likely to be high in those places where the relevance of awareness-related barriers is comparatively higher (see Figure 17). **Awareness-related barriers are more likely than others to explain defaulting among SAM cases.**

FIGURE 17

RELATIONSHIP BETWEEN DEFAULT RATES AS MEASURED BY THE SQUEACS, AND THE WEIGHT OF AWARENESS-RELATED BARRIERS



HOW DO OTHER DETERMINANTS IMPACT ON CMAM COVERAGE IN NIGERIA?

Localised coverage assessments have also shed light on the impact of other determinants on CMAM coverage that powerfully explain current challenges faced today. These include:

- ▶ **High opportunity costs:** mothers, the principal caregivers, must balance health seeking behaviour with other productive (economic) and reproductive (household) activities, which often limits their availability for travelling to health facilities, to guarantee nutritious food to the household and to diversify sources of income. The need to secure approval or support from their husbands also can compound the problem. Such structural constraints underline the delivery of and the access to CMAM services in the region and are strongly interrelated with other categories of barriers.
- ▶ **Logistic and organisational problems:**
 - Interruptions in Ready-to-use therapeutic food flows are certainly the single most important material constraint. Disruptions periodically occurred in mid and late 2013, and led to a substantial decrease in admissions and recovery rates, although with different impacts on the performance of each LGA depending on the duration of each particular episode and the quantity of RUTF stocks available in each LGA
 - Insecurity also plays a significant role. When combined, these two problems can have significant effects on coverage; in one assessed LGA these two determinants accounted for 52 per cent of non-attendance.
- ▶ **Opening times:** the weekly schedule of CMAM services also creates an additional barrier for those caregivers who seek care as services are only available one day a week. An alternative to rotating services can only be secured through a sustained process of capacity building with full technical and institutional support.
- ▶ **Adherence to treatment protocols:** another challenge that requires increasing attention on capacity building and service delivery. The adherence varies, with many recorded instances of CMAM national protocols not followed correctly. For example, up to 34 per cent of children in one local area assessed through a SQUEAC were admitted with a middle upper arm circumference measurement above 115mm. In another local area, a concerning 71 per cent of children (631) were discharged as cured with middle upper arm circumference measurement below 125mm and an average length of stay in the programme of five weeks. In another LGA, 44 per cent (706) were discharged with a measurement below 115mm.
 - SQUEACs further identified challenges regarding screening, referral and tracing back of cured and default children. Although these account directly for service quality, they altogether have an indirect impact on service coverage.
- ▶ **Distance to health facilities:** was found to be the most significant reasons for non-attendance for 11 per cent of respondents, a more important obstacle in regions exposed to violence and insecurity. Moreover, distance has an effect in both directions: not only has it become a challenge for caregivers to attend Health Facilities, but also a challenge for CVs to perform their duties in distant communities. Improving mobility and availability of CVs can therefore have a positive effect on the obstacles caused by distance and accessibility.

CAN THE COVERAGE OF CMAM SERVICES IN NIGERIA BE IMPROVED BY ADDRESSING ONE OF THE MAIN BARRIERS?

In order to explore the impact of awareness on CMAM coverage, ACF partnered with the Center for Communication Programs Nigeria (CCPN) to evaluate whether a standalone sensitisation campaign³⁵ would improve the coverage of CMAM services. Having identified what is likely to be the most relevant barrier to access across the board (awareness-related barriers), the objective was to control whether a concise intervention in that direction could have an impact on coverage and access to CMAM services. The answer seems to be more complex. On its own, dealing with awareness-related barriers is probably not enough to improve performance and coverage outcomes of CMAM services. Whilst remaining well aware of the need for holistic approaches, ACF and the consortium argued that it was viable and relevant to punctually address awareness-related barriers.

Two LGAs were selected in Sokoto state for this pilot; Goronyo and Sokoto South. These two LGAs were partly selected given the absence of NGO support, a factor that would be important to evaluate the future replicability of these activities. Also, because base-line coverage was found to be particularly low. The SLEAC classified their coverage as low (below 20 per cent), and the Goronyo SQUEAC confirmed it with an estimate of 14.5 per cent. Finally, because security and access were not an issue, and, coincidentally, because their population is similar and not far from the regional average (184,000 and 195,000 respectively), whilst one being a fully urban LGA, and the other a mostly rural one. Finally, it was agreed that two endline SQUEACs were to be conducted at the end of the Pilot to assess its impact on coverage and service delivery.

Prior to the launch of the campaign, CCPN began to involve local authorities at both state and LGA level, organising workshops designed to explain the goals of the initiative.

The sensitisation campaign focused on: a) the use of media (notably radio) to disseminate basic information, suggest practices and present testimonies related to CMAM service-delivery in the region, and; b) the deployment of local community volunteers to organise community-based activities including group discussions, door-to-door sensitisation visits and face-to-face interviews with local authorities to improve awareness around malnutrition and CMAM services.

The implementation of these activities was supported by Hikima Community Mobilization and Development Initiative (HCOMDI) a local grassroots organisation. Over the course of four months, CVs delivered:

- ▶ Over 110 community dialogues about malnutrition and possible treatments, helping caregivers to recognise its effects among their children and explaining CMAM's services. These included key community figures such as religious leaders and traditional authorities.
- ▶ Over 300 household visits across several communities to directly reach caregivers and children alike. They also intervened in family and village ceremonies (weddings, name days, etc.) to spread CMAM-related messages.
- ▶ Active case-finding activities in a training-like modality to enable volunteers to recognise, assess and refer potential SAM cases.

RESULTS OF THE COMMUNITY MOBILISATION CAMPAIGN

Overall, the campaign was able to deploy a significant amount of activities through the constant participation of 40 committed volunteers. Community dialogues and house visits took place in all 11 catchment areas of the HF offering CMAM services. In all cases, CVs and members of the HCOMDI local grass-roots organisation transmitted messages regarding the manifestation and causes of acute malnutrition; possible preventive methods; the availability and functioning of CMAM services in particular HF; the best practices to be followed during the treatment; and recommendations about nutritious food consumption.

These activities were accompanied by the constant transmission of four radio spots on state-wide radio (in total, they were aired 970 times across four months), and the distribution of printed illustrated materials, such as posters, leaflets and booklets in tens of villages both within and outside HF's catchment areas. Messages were clear and they depicted and targeted different audiences such as community leaders, mothers, fathers and community volunteers. In a series of preliminary results, CCPN informed that 4,350 children were referred to HF offering CMAM services in both LGAs. This suggests that messages mostly reached target groups and had a positive impact on volunteers activities.

CCPN reported to have faced structural and institutional challenges, such as an insufficient number of volunteers available and trained, and an unsatisfactory degree of openness about the prevalence of SAM by state officials. CCPN further recommended increasing government support to health facilities through recruitment and training of more staff, and direct support to community mobilisation activities.

In such situation, the question remains: what was the measurable effect of the community mobilisation campaign? An additional two coverage assessments (SQUEACs) were included into the project in order to compare CMAM coverage and performance against the baseline levels of the SLEAC and the first Goronyo SQUEAC (April 2014).

► Coverage.

Estimated coverage levels remained low. Sokoto South's level improved slightly compared to the SLEAC (below 20 per cent), whereas Goronyo (14.7 per cent) did not experience meaningful changes³⁶. Coverage levels can remain static immediately after a community mobilisation, in particular, if these activities are not complemented with other measures to address other key barriers to access.

► Admissions.

Other indicators and trends of service delivery can provide a more meaningful reflection of the impact of community mobilisation activities. Admissions, for example, reached a peak in both LGAs during September (first month of activities). They stayed high in Sokoto South but decreased somewhat in Goronyo. In both LGAs the admissions between September and December 2014 were higher than in the first part of the year (this period's admissions correspond to 41 per cent in Goronyo and 40.6 per cent in Sokoto South). Whilst it is impossible to directly attribute admissions trends to the community mobilisation activities implemented, they do provide encouraging evidence of the potential positive impact that these can have.

► Barriers to access.

On average, awareness-related barriers remain the most important reason for non-attendance. Evidence suggests that this is more relevant in urban Sokoto South, and less so in rural Goronyo. The study also demonstrated that these barriers can be positively tackled. In Goronyo, awareness related barriers accounted for 71 per cent of all non-covered cases prior to the campaign. This proportion had reduced to 48 per cent after the campaign. Whilst this is based on a small sample, it does suggest that targeted campaigns can have a measurable impact on awareness related barriers.

WHAT ARE THE IMPLICATIONS FOR THE FUTURE SCALE-UP OF CMAM SERVICES IN NIGERIA?

The lack of a quantifiable and quick impact of the community mobilisation campaign in CMAM coverage levels does not rule out its fundamental achievements; it is likely that the campaign didn't go far enough, but it took the right direction. Awareness about nutrition and CMAM remain relevant barriers, especially in Sokoto's urban setting. However, rural areas its weight seems to be decreasing, allowing us to see other strong barriers affecting access to CMAM and to explore complementary solutions in those directions³⁷.

The implementation of any communications campaign, as CCPN's experience shows, **can only deliver positive results if efforts are met by government support at all levels in order to address other barriers that potentially have a strong impact on access and coverage**. In other words, other barriers cannot be overlooked if a full approach on challenges of CMAM is to be defined.

This requires government involvement at all levels. Health authorities should engage in a process of evidence-based advocacy to secure the institutionalisation of support mechanisms for scaling CMAM up. It is important to boost financial and policy support from the Federal Government, hence the relevance of advocating for a revision of national CMAM protocols and ensuring adherence to them, and for the approval and implementation of the National Food & Nutrition Policy that could reactivate food and nutrition committees at national, state and local government area levels.

This final section proposes a set of recommendations of possible, practical solutions to the various categories of challenges identified.

- ▶ Staff need to be more aware of the complexities of CMAM, and better supported by relevant authorities to complement their tasks with community mobilisation, sensitisation and follow-up of individual cases. A good alternative would be to engage with state authorities to design and deliver periodical trainings for health workers and community volunteers so that gaps in service delivery are identified and corrected.
- ▶ Important efforts need to be made to tackle structural barriers limiting access to CMAM services:
 - Improving service delivery in more health facilities through a programme of calculated expansion of CMAM where it is more needed (see below).
 - In the long run, improving transport and infrastructure for patients and inputs (especially ready-to-use therapeutic food and routine drugs).
 - Complement SAM management and health interventions with programmes for economic activities to boost food security and strengthen local livelihoods.
 - Empowering local women through their fundamental role in providing care both inside and outside the household.

In Sokoto, for instance, one of the achievements of the community mobilisation campaign was to underline some of these challenges by effectively addressing problems of awareness and local CVs motivation and mobilisation. Moreover, as has also happened in Kebbi and elsewhere, the state government committed to channel extra funding to support transport and delivery of RUTF.

Furthermore, and drawing from the general lessons learned during the last six years of CMAM implementation in Nigeria, the following points can prove critical as services are consolidated and scaled-up in the future. Five lessons in particular warrant special attention³⁸.

1 Two out of every three SAM cases in North Nigeria are not accessing treatment. Recent estimates suggest that CMAM services across the 11 northern states are reaching an estimated 36.6 per cent of SAM cases. This is comparable to coverage estimates in other countries including Mali and Cameroon. The availability and verifiability of this information provides an important baseline from which to evaluate future progress. Follow-up reviews/surveys must be considered in order to provide a framework to evaluate any future improvements. Yet, and perhaps more importantly, the programmatic lessons and recommendations generated over the last 18 months regarding coverage must be reviewed and made actionable as part of government-led efforts to improve access and coverage across the northern states.

2 SAM management services are located in states with the greatest need, but the spread of services within those states remains limited. Most states only offer SAM treatment services in less than half their local government areas, which considerably reduces the capacity to deliver services to the targeted population. Likewise, in LGAs offering CMAM services there are still important gaps to fill regarding HFs not providing such services. Optimal performance at state level will depend in part on optimal distribution of services within the states and further including them into state's health structures. Short-term actions (designing mechanisms for mobile treatment) can be proposed, always within a long-term expansion of support and resources to guarantee the availability of inputs for CMAM management, including supplies (Ready-to-use therapeutic food and drugs) and human resources capacities.

3 The expansion of CMAM services has not been matched by an increase in trained and available staff. The National Protocol guidelines are not always properly followed, holding up the improvement of the performance of service in many LGAs. A recurrent finding in SQUEACs was that guidelines for admission, treatment and discharge were sometimes overlooked. This presents an extra challenge to the quality of service delivery, maintains default rates high and does not generate all the community trust that CMAM management requires. Recommendations from the SQUEACs pointed toward extending training on CMAM services to all relevant health workers, regardless of their direct involvement with CMAM delivery. This, combined with an absolute increase in the number of health workers and community volunteers, has the potential to increase the quality of services delivered both through the availability of adequate numbers of personnel, and the improvement of treatment, screening, referral and follow-up activities. Furthermore, the current rotating delivery model, which provides service in one HF each day only, could be complemented with and extension of tasks expected from community volunteers: screening activities can be accompanied by a well organised mobile distribution of ready-to-use therapeutic food to reduce default.

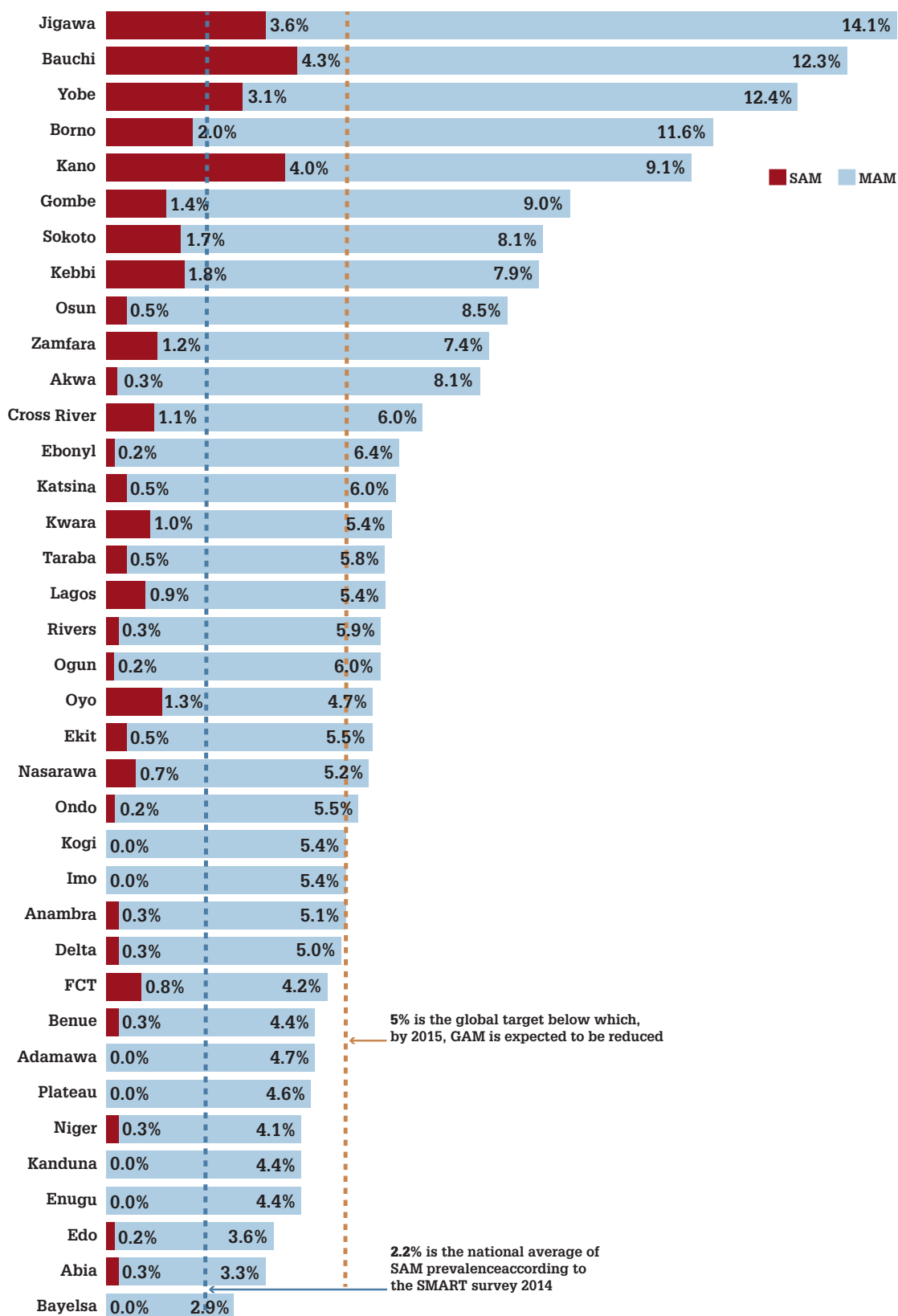
4 Making CMAM services available does not make them accessible. The data shows that the coverage in areas with higher number of facilities, or lower geographical or demographic catchment areas, is not necessarily higher. Expanding CMAM services within and across LGAs is important, but it will not be sufficient to ensure access to services. The experience of the last few years demonstrates that the accessibility of services is determined by the interplay of a wider range of context-specific issues that must be understood and influenced. These are especially related to the community component of CMAM, such as community health workers. Any future consolidation and/or scale-up of CMAM services must match an expansion of services with targeted efforts to address barriers to access. Simultaneously, concrete additional efforts for improving infrastructural and logistic obstacles, such as stock-outs of RUTF, are necessary. Examples of this can be the expansion of LGA and even HF based stocks of ready-to-use therapeutic food so that more is delivered in less frequent visits; double, or triple rations of ready-to-use therapeutic food can be considered as an alternative to reduce the number of visits and time of travel for caregivers.

5 Awareness about SAM, the existence of CMAM and the way it functions can and must be improved. Lack of awareness was found to be the most important barrier preventing access to treatment across all states and is one of the leading causes of defaulting. A community mobilisation strategy should be designed to sustain wider sensitisation campaigns involving local population and empowering local and state authorities. Such campaigns should target caregivers and communities (in order to increase awareness) as well as CVs and health facility staff (with the purpose of correctly explaining how treatment works and improving service delivery and efficiency). Authorities can coordinate with local organisations and groups of community volunteers that will be able to offer good insights on the sociocultural particularities of each region. The community mobilisation experiences in Sokoto show that sensitisation activities need to be matched with stronger official support in capacity building, service delivery, consolidation of transport infrastructure and coherent economic activity to improve local livelihoods.

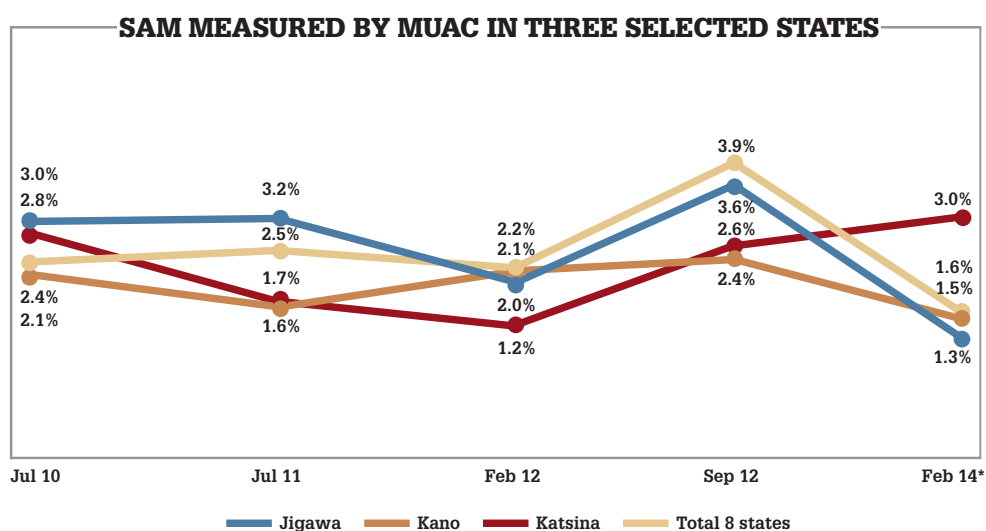
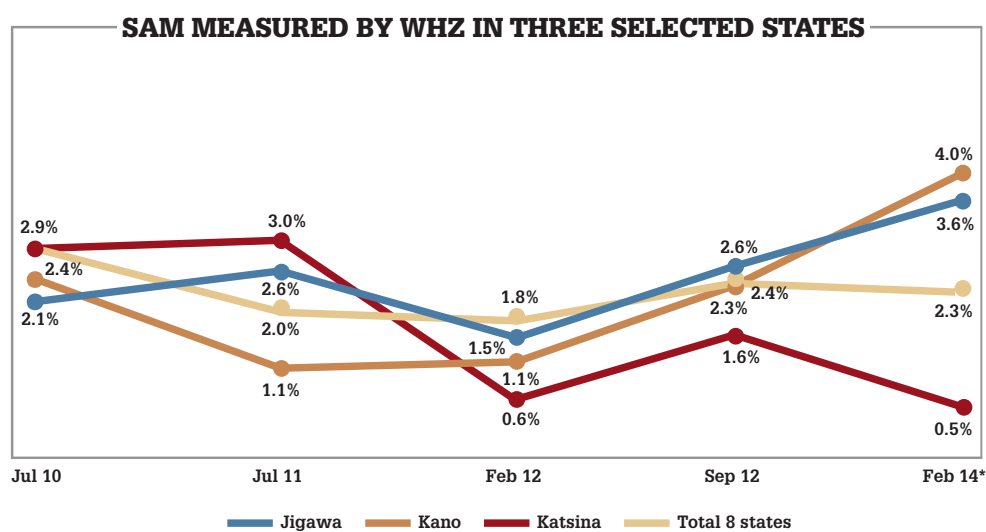
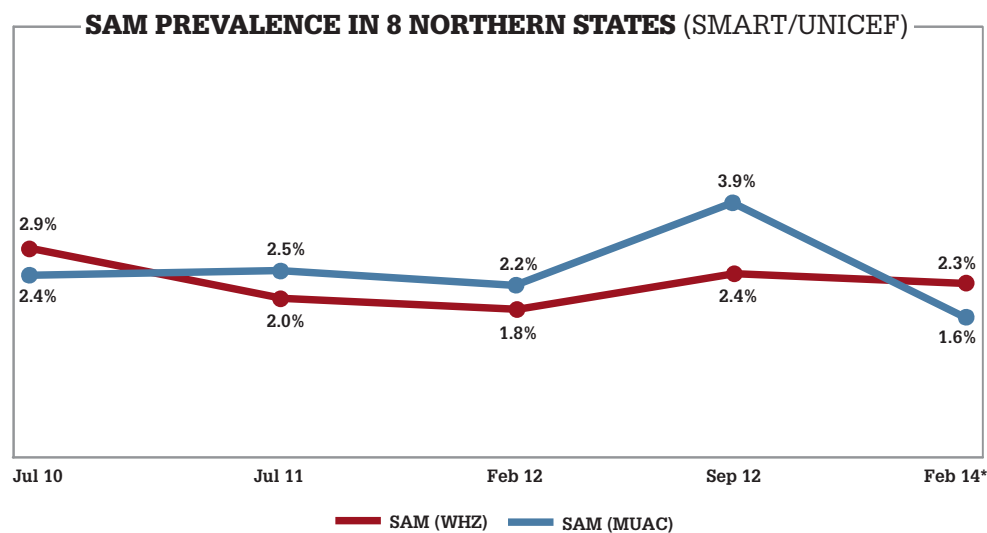
6 The quality of SAM treatment information is questionable. Whilst nationally aggregated data suggests high quality outcome indicators (cure, defaulter, death) across most states, localised analysis of records suggests that these figures are sometimes inaccurate and mask a significant number of hidden defaulters³⁹. Reliance on such data may be impacting on the ability of nutrition stakeholders to make informed, strategic and tactical decisions about how best to strengthen scale-up efforts. The scale up of CMAM services requires strong information systems that can provide reliable and timely information to decision makers at a LGA, state and federal level. Improving the quality of available information must be prioritised, and the expansion of existing pilot models (including RapidSMS) considered. Besides, strong commitments to capacity building, training and resource allocations are necessary to improve the performance of CMAM service-delivery.

ANNEXES

A) GLOBAL ACUTE MALNUTRITION BY STATE (SMART SURVEY 2014)



B) TRENDS OF SAM PREVALENCE IN SELECTED STATES ACCORDING TO MEASUREMENT



C) DEFAULT AND CURE RATES. LGA REPORTS COMPARED TO SQUEAC FINDINGS

LGA (STATE)	DEFAULT RATES (SQUEAC)	DEFAULT RATES (LGA REPORT)	CURE RATES (SQUEAC)	CURE RATES (LGA REPORT)
GORONYO (Sokoto)	67.9% (Jan-Mar 2014) 12% (Jan-Jun 2013)	1.1%	23.2% (Jan-Mar 2014) 81% (Jan-Jun 2013)	98.1%
DAMATURU (Yobe)	38% (Jan 2013-Apr 2014)	23.3%	48% (Jan 2013-Apr 2014)	67.5%
KALGO (Kebbi)	22% (Jan-Apr 2014)	3.7%	76.3% (Jan-Apr 2014)	89.3%
KIYAWA (Jigawa)	48.5% (Jan 2013-Jun 2014)	35.3%	43% (Jan 2013-Jun 2014)	62.7%
BIRNIN MAGAJI (Zamfara)	63.9% (Jan 2013-Jun 2014)	4.4%	32.9% (Jan 2013-Jun 2014)	95%
KATAGUM (Bauchi)	31.4% (Jan 2013-Aug 2014)	36.8%	64.2% (Jan 2013-Aug 2014)	61.5%
KAITA (Katsina)	41.9% (Jan 2013-Jun 2014)	4.3%	57.5% (Jan 2013-Jun 2014)	93.9%
BICHI (Kano)	62% (Oct 2012-Jun 2014)	35.2%	36% (Oct 2012-Jun 2014)	64%
GOMBE (Gombe)	54.7% (Jan 2013-Jun 2014)	51.6%	44.7% (Jan 2013-Jun 2014)	46.1%

Note that all figures reported by LGAs cover January to June 2014. Also, note that most LGAs suffered from a RUTF stock-out for at least two months in mid and/or late 2013.

D) RECOMMENDATIONS AND CONCLUSIONS RESULTING FROM COVERAGE ASSESSMENTS (SQUEACS)

COMMUNITY MOBILISATION AND SENSITISATION STRATEGIES

An overall recommendation is to design and implement a Community Mobilisation strategy within CMAM service-delivery structures to improve sensitisation activities. Even though this may be a long term task, it is all the more important that federal and state authorities engage with the development of wide communication campaigns for increasing awareness and demand for CMAM services.

Some punctual recommendations for a strategy-building are:

- **Develop key messages, identify target audiences and create materials.**
- **Identify each actor's responsibilities and put into place practices for monitoring and evaluating the activities of such actors.**

Such a strategy could be designed upon the basis of existing experiences (namely, CCPN's work in Sokoto state, ACF experiences in Yobe). In order to guarantee the ownership of local actors, it could be prepared through working sessions including local and state authorities, community members and existing CVs, health workers and other staff. Technical advice from other partners can be useful.

Such a community mobilisation strategy should consider:

- **Mapping out existing CVs and their coverage areas**
- **Identifying and engaging new CVs**
 - Deliberate about the possibility of creating mechanisms for retribution and motivation for CVs.
- **Periodically training and re training new and old CVs into CMAM functioning, especially regarding screening, referral and follow-up activities.**
- **Engaging with CVs, HWs and community members for creating and implementing collective sensitisation activities.**
 - Training sessions for local authorities, especially Local Nutrition Officers and State Nutrition Officers could be useful to guarantee their support on top of their participation at community-based activities (dialogues, interventions at public events, etc.)
 - Pay particular attention to activities aiming at husband involvement in care.
 - Introduce health talks at all levels and in different spaces (OTP services, public spaces, regular health facility treatment, etc.).

CAPACITY BUILDING AND GOVERNMENT SUPPORT

CMAM's correct performance also rests upon everyday activities conducted by health staff and local authorities. Service delivery at OTP requires professional and sensitised staff that are both correctly trained and motivated, and fully supported by other stakeholders (from state and federal authorities to supporting NGOs). The SQUEACs identified the urge to expand training on CMAM to all Health Workers directly and indirectly implicated in the OTPs. Simultaneously, enough public support is to be provided to guarantee that such expansion reaches all existing OTPs.

- **Health workers should be fully trained in CMAM National Protocol.**
 - To the extent possible, Health staff allocated to other services should also be familiarised with CMAM practices. Passive screening and a good communication about discharge criteria would then improve.
 - Half-yearly retraining sessions for all health staff. This should focus on lessons learned and improvements to be made.
- Mechanisms of supportive supervision need to be put in place. State and LGA authorities can collaborate in monitoring OTPs' activities and achievements.
- It is recommended to set up **Routine Data Quality Assessments (RDQA)**.
 - Strengthen M&E component. State nutrition officers (SNO) to supervise RDQA and draw conclusions for retraining sessions that they themselves should preside.
 - RDQA to become a useful tool to address the discrepancies in data reported to LGAs and states, as was identified by the SQUEAC researches.

Increasing the staff-base of health service delivery in North Nigeria

This is clearly a mid and long-term goal, but it is a fundamental step if existing mechanisms for service delivery (for instance, the rotating mechanism for CMAM) are to be improved.

Improvement of RUTF and routine-drugs supply

- States should encourage better collaboration with LGAs for timely distribution of these inputs to all OTPs.
- State and LGA officials should also join efforts against the payments that beneficiaries are still often obliged to make for RUTF and routine-drugs in certain OTPs.

GEOGRAPHIC COVERAGE AND ACCESS

On average, only six or seven health facilities per LGA offer CMAM services. Considering that most LGAs have over 30 health facilities to cover more than 230,000 people, the ratio of OTPs to population is limited. Geographical coverage within LGAs already providing SAM treatment should improve.

- All relevant stakeholders should design an expansion plan to efficiently improve geographical coverage:
 - In the short term, it can start by putting in place a mechanism for mobile treatment.
 - Also, in order to reduce the burden on transport issues, OTPs should consider handing out double rations of RUTF for fortnightly visits.
- Based on SQUEACs and on routine data, a mapping of current needs should be made. (For example, identify beneficiaries' wards of origin to understand which wards lacking OTPs need them the most).
 - One long-term goal could be to install at least one OTP in each ward.
 - Define costs, including new staff, training sessions and technical support for programme launching.
 - Existence of local CVs is a good indicator of whether expansion is feasible.

**E) FULL LIST OF STATES AND LGAS OFFERING CMAM SERVICES,
PLUS NUMBER OF HEALTH FACILITIES IN EACH LGA.**

STATES & LGAS	HF OFFERING CMAM	STATES & LGAS	HF OFFERING CMAM	STATES & LGAS	HF OFFERING CMAM
ADAMAWA	18	Kiyawa	6	Kamba	6
Guyuk	6	Maigatari	6	Koko Besse	6
Mubi North	6	Roni	2	Maiyama	6
Song	6	Yaukwashi	2	Sakaba	6
BAUCHI	18	KANO	37	Shanga	6
Damba	6	Bichi	6	Suru	5
Katagum	6	Kano Municipal	7	SOKOTO	55
Kirfi	6	Madobi	6	Binji	6
BORNO	56	Sumaila	6	Gada	6
Askira Uba	6	Tsanyawa	6	Goronyo (MSF F)	5
Bama	6	Wudil	6	Gudu	6
Biu	6	KATSINA	116	Illela	6
Damboa	5	Bakori	6	Sabon Bini	6
Gworza	5	Batsari	6	Sokoto South	8
Jere	5	Baure	16	Tangaza	6
Kaga	5	Daura	11	Wamakko	6
MMC	5	Dutsi	14	YOBE	77
Mobbar	1	Ingawa	6	Damaturu (ACF)	13
Monguno	6	Jibiya	8	Fika	6
Ngala	6	Kaita	8	Fune (ACF)	18
GOMBE	18	Katsina	3	Geidam	6
Duku	6	Mai'aduwa	6	Maichana	6
Gombe	6	Mani	6	Nguru	6
Nafada	6	Mashi	6	Potiskum	10
JIGAWA	61	Sandamu	5	Yunusari	6
Babura	6	Zango	15	Yusufari	6
Bikudu	6	KEBBI	90	ZAMFARA	48
Birriniwa	7	Arewa	5	B/ Magaji	6
Guri	6	Argungu	6	Bakura	8
Gwiwa	6	Augie	10	Bungudu	9
Jahun	6	B/Kebbi	17	Gusau	6
Kaugama	6	Bugudo	5	Maradun	6
Kazaure (MSF-F)	2	Gwandu	6	Shinkafi	7
		Kalgo	6	Tsafe	6
				GRAND TOTAL	592

REFERENCES

- ¹ Based on wasting. Wasting occurs when the relationship between weight and height for a given child is below the median as determined by the WHO Multicentre Growth Reference Study of 2006. It is determined by the number of standard deviations units (Z-scores) below the average.
- ² In this case, UNICEF used the prevalence data provided by the National DHS of 2008 (<http://data.unicef.org/nutrition/malnutrition>). See more details about the different surveys below. Regional and continental averages should be considered with caution given that there is no consistency among the methodologies used by each country's survey.
- ³ According to the 2013 NDHS, elaborated with the support of the Nigerian National Bureau of Statistics (NBS), UNICEF, USAID, DFID and public-private partnerships in Nigeria.
- ⁴ According to the 2013 NDHS.
- ⁵ According to the National Nutrition and Health Survey of 2014 (NNHS), based on the SMART methodology. SMART surveys eliminate all cases where the Z-score is either +3 or -3 from the observed mean of each of its three anthropometric indicators –WHZ for wasting or Global Acute Malnutrition (GAM), WAZ for underweight and HAZ for stunting. For some, this threshold is regarded as little practical, given that it gets rid of a wide number of cases on the basis that they could be measurement errors. On the other hand, the NDHS usually cleans data starting at +/- 5 Z-scores, which allows including much more cases into the survey. For an elaborate discussion on methodologies used across the board, please refer to Sonya Crowe et al., "Effect of nutrition survey 'cleaning criteria' on estimates of malnutrition prevalence and disease burden: secondary data analysis", in *PeerJ*, 2:e380, 2014; and Emmanuel Grellety et al., "Observational Bias during Nutrition Surveillance: Results of Mixed Longitudinal and Cross-Sectional Data Collection System in Northern Nigeria", in *Plos One*, Vol. 8, Num. 5, May 2013.
- ⁶ The abovementioned NNHS proposed that, nationwide, 8.7% of U-5 suffer from wasting, which is a basic measure of the relationship between height and weight. Wasting is a clear sign of acute malnutrition, along with the presence of bilateral oedema and MUAC measure below 125mm. The NNHS survey, based on SMART methodology, consistently depicts wasting/GAM (and especially SAM) as a less prevalent problem than what the National Demographic and Health Survey (NDHS of 2013) suggested. In the NNHS, all malnutrition indicators appear as being lower than what the National DHS identified in 2013, but given that there is no previous national SMART survey to compare with, there is no way of contrasting the data on an historical trend. Also, SMART is the only methodology that includes MUAC measurements, providing two different –if sometimes opposing– data. This is a positive element, given that MUAC is perhaps the easiest and most widespread measurement available.
- ⁷ WHO Global Databases are instruments compiling information coming from national surveys and census plus data originated in surveys conducted by international organisations (mostly UN bodies). Whilst its most recent figures are closely related to the NDHS, the WHO database becomes relevant for offering data going as far back as the early 1990s (see Figure 1). <http://www.who.int/nutgrowthdb/database/countries/nga/en/>
- ⁸ It can be argued, however, that cases of acute malnutrition are now easier to identify and that the surveys' methodology has improved, especially after the 2006 WHO standards, which may explain why more GAM cases are now being identified.
- ⁹ In a geographically reduced but statistically significant survey carried out by the UK's Institute of Development Studies (IDS), Global Acute Malnutrition affects up to 16.2% in five states on Northern Nigeria, with SAM being prevalent among 5.8% of children under 3 years old. Using three years of age is a relevant methodological element that casts light upon the most vulnerable period of a child's life: its first two to three years after birth. It also takes into account the high mortality rate that affects children before their fifth birthday, which is actually a reason why malnutrition rates among U-5 children are comparatively lower. In addition, when commenting on other health indicators, IDS' Operational Research and Impact Evaluation (ORIE) project suggested that no more than 20% of Nigerians have access to Primary Health Care services (PHC), a situation that is even particularly acute in the Northern states.
- ¹⁰ Based on the 2013 NDHS. Underweight and stunting levels in any survey also find their extreme representations in the South East (lowest figures) and the Northwest (consistently the highest; comparable in Figure 2 with SAM).
- ¹¹ This holds also true for SAM measured through MUAC and/or bilateral oedema, but in general terms the data is different. There is no particular pattern to explain why, in some surveys, severe acute malnutrition was reported as higher when measured by MUAC, and at other surveys when measured by WHZ.
- ¹² Various authors, "From Pilot to Scale-Up: The CMAM Experience in Nigeria", <http://www.cmamforum.org/resource/689> (as previously mentioned, the high SAM rates in North Nigeria triggered the decision of allocating CMAM services exclusively to this region)
- ¹³ Population data has been obtained from the UNFPA databases. Where necessary, calculations for obtaining population forecasts in each state have been made based on the growth rates proposed by UNFPA. Regarding each state's area, information was obtained from the Annual Abstract of Statistics, 2010, National Bureau of Statistics, Nigerian Federal Government. Further calculations were made by the authors.
- ¹⁴ The 2013 NDHS report suggested that, out of 2.54 million children suffering from SAM across Nigeria, 1.5 million of these cases are in these 11 states; the 2014 NNHS indicates that there are 361,000 cases of SAM, with 286,000 U-5 severely acutely malnourished in these 11 states.
- ¹⁵ It is here acknowledged that catchment areas can be defined in different ways. Since this is not a widely available figure for HF in each LGA, for the purpose of this Review the total extension of each LGA was divided by the number of HF offering CMAM services in order to obtain such figure. This is a simplifying approach, but it frames a general situation in which performance of CMAM across all KGAs does not seem defined by the LGAs' spatial extension.
- ¹⁶ For instance, Bauchi, the state with the highest incidence rate of SAM according to the 2014 NNHS finds itself at the lower extreme in the share of state's population potentially covered by LGAs with CMAM (see Figure 5). There is no relationship between the geographic coverage of CMAM in a given state and the indices of SAM prevalence, which further suggest that there are still important gaps to fill at state-level, where some states with high incidence rate of SAM remain poorly covered by CMAM services.
- ¹⁷ Prevalence and incidence rates are not available at LGA level, and at state-level they differ from source to source. It would be useful to produce that data, not only in order to know whether CMAM centres exist where they are most needed, but also to know where it would be better to introduce new CMAM centres.
- ¹⁸ Defaulting is one of the hardest things to accurately measure. It is calculated on the basis of children that abandon the programme for more than two consecutive visits, but presents problems when needing to calculate those that came back after a few weeks of absence. Also, children having dropped after the first week are not counted as part of the programme, but are nevertheless part of the total admissions. This means that officially reported defaulter rates are generally lower than the number of actual children who stop treatment prior to discharge.
- ¹⁹ The SQUEACs researches confirmed that RUTF and routine drugs stock-outs commonly happened in several states during the second half of 2013 (see following sections).
- ²⁰ Mark Myatt, Analysis of routinely collected clinical data from CMAM programs in two states of Nigeria for the years 2010 – 2013, Brixton Health, 24th June 2014.
- ²¹ Even though 105mm is a common median, there are significant extreme values that need to be addressed. Gombe LGA, for example, presented a median MUAC at admission of 100mm with a large caseload between 85 and 95mm –a critical situation. Despite of this, MUAC at admission does not seem to serve as a proxy indicator related to performance rates or coverage estimates. The SQUEACs identified that high levels of coverage or good recovery rates do not follow from a high MUAC at admission median (see section 4).
- ²² CMAM in Nigeria favours admission of SAM cases on the basis of the children's MUAC measurement. Although there are other indicators for identifying SAM, MUAC is arguably the most accurate one for predicting risk of death among U5.
- ²³ In a recent study supported by UNICEF and with ACF and Brixton Health, it was calculated that, from the beginning in 2009 until October 2014, 172,898 lives have been saved through CMAM. Such result mostly relies on a generalised cure rate of the programme. Nevertheless, and even if the real figure can be lower, the concrete achievement of CMAM regarding lives of children at risk is undeniable. (Assaye Bulti, Stanley Chitekwe, Chloe Puett and Mark Myatt, "How many lives do our CMAM programs save?", in press, January 2014).
- ²⁴ Default Rates offered by LGA data recorded by UNICEF's analysis do not always coincide with Recovery Rates: the sum of both in some states produces a result above 100%. Here lays, yet again, another element for building up a case for stronger and more efficient data recording at all levels (OTP centre, LGA and state).
- ²⁵ A challenge for better data reporting and data management appears in several contexts. Hidden defaulters are SAM cases that have not been reported as such, either by mistake, by confusion provoked by narrow definitions, or by poor capacity and awareness. Children in the programme that are absent for over three weeks are supposed to be discharged and, if they come back, reincorporated as a new admission. This does not always happen. There is also data mismanagement and, overall, a lack of monitoring and data quality checks at the facility levels.
- ²⁶ It is also possible to find graphs and analysis of this issue in the SQUEAC report of Birnin Magaji (Zamfara state), which is available here: http://www.coverage-monitoring.org/wp-content/uploads/2015/01/05.-Birnin-Magaji-SQUEAC-Report_Final.pdf
- ²⁷ In order to generate the necessary information, a series of steps were followed. First, the total population was estimated using the 2006 National Census and UNFPA data. In 2006, national population was calculated at 140,431,790. From this, the U5 population is then estimated. Using state-based growth rates calculated by UNFPA, 16.1% of total population are expected to be children Under-5, amounting to approximately 22.5 million children in 2006. An estimated 30% population growth was then applied to this in order to establish an estimated population in 2014. From this, the estimated U5 population suffering from SAM was calculated using gross prevalence of SAM (total number of children suffering from it) in each state was estimated according to the indicators (percentages of SAM incidence) offered by both the NDHS of 2013 and the NNHS/SMART of 2014. When comparing both surveys, total estimated cases of SAM can be particularly dissimilar. Perhaps the most extreme example regards Kaduna state, where the NDHS estimated SAM prevalence at 27.6% and the NNHS did so at 0.1%. On a national level, the use of one survey's variables or the other can explain a difference of more than 2 million SAM cases nationwide: a variance of over 800%. The variation is significant, and even more pronounced when malnutrition estimates are adjusted using incidence rates. SAM incidence, or burden, is calculated using a factor of 1.6 and a formula that effectively serves to increase by 260% the percentage of prevalence as indicated in any given survey to calculate a year-long SAM burden. This has a multiplier effect both on the individual rates and total numbers of SAM cases according to each individual variable, and on the total difference among them. Based on the NNHS 2014 survey estimates, the SAM caseload in 2014 was estimated to be 361,390 across the 11 Northern states.
- ²⁸ Among them, the most relevant methodologies are those, like the SQUEAC, that combine qualitative with quantitative research methods. For more information, please refer to: Guevarra, Norris, Guerrero and Myatt, Assessment of Coverage of Community-based Management of Acute Malnutrition, CMAM Forum, Version 2 (Sep 2014). Available in: <http://www.cmamforum.org/Pool/Resources/Coverage-and-CMAM-2012-v2-sept2014.pdf>
- ²⁹ The direct estimates from the SLEAC survey do not show any correlation with the indirect estimates at a state level. As such, the comparability of total estimates for all states is therefore circumstantial and should not be seen as a sign of wider compatibility between both approaches.
- ³⁰ The SLEAC conclusions recommended improving community sensitisation, screening and other CVs' related tasks. It called for CVs to follow training and retraining sessions, and for CMAM services to be further integrated into routine activities of HFs. Finally, it insisted on the importance of facilitating access to services through mobile treatment units and two weeks rations. Most SQUEAC recommendations indicated that such issues are still widely valid.
- ³¹ Proposed categories are nothing more than broad guidelines for describing what, in reality, is the result of complex interaction among those same categories.
- ³² Note that for security reasons, the third phases of the SQUEACs in Geidam (Yobe) and Biu (Borno) were not conducted, and therefore quantifiable information on barriers could not be gathered.
- ³³ SQUEACs found, however, that lack of awareness about the programme's existence is not a homogeneous problem. Kalgo, Kiyawa and Kaita, LGAs with a moderate level of coverage but with still underachieving cure rates, barely reported any caregivers unaware about the programme's existence, whilst Goronyo and Birnin Magaji (both low performing LGAs) did.
- ³⁴ Puett, Hauenstein and Guerrero, "What factors influence access to CMAM?", in *Access for All*, CMN, London, 2013.
- ³⁵ A successful sensitisation/communication campaign is expected to address awareness-related barriers ranging from sets of socio-cultural values (acknowledging malnutrition and hunger implies acknowledging the household's poverty, which in turn damages the head of household's reputation), to lack of information about the issue (most caregivers simply ignore what malnutrition is, or believe that its effects on their children are natural). When it comes to misconceptions about the programme, these range from the obvious unawareness of CMAM's existence, to the predilection of consulting traditional healers or the fear of having to hospitalise a child. On the other hand, poor performance of existing CMAM services can discourage people from attending, therefore damaging the reputation of CMAM in a given community.
- ³⁶ The first Programme SQUEAC took place precisely in Goronyo and its coverage estimate was 14.3%. In the SLEAC in late 2013, the LGA had an estimated coverage of 0.5%.
- ³⁷ For instance, both the Community Mobilisation campaign and the closure SQUEACs informed about a three weeks long breakout in RUTF distribution in December 2014. Ensuring an unaltered flow of RUTF is a key element of CMAM functioning that can affect efforts made to improve awareness and technical delivery of treatment.
- ³⁸ The most frequent recommendations appearing in SQUEACs and other researches are including in the third annex.
- ³⁹ Look particularly at the SQUEAC report from Birnin Magaji, Zamfara state, but also at Kaita (Katsina state) and Bichi (Kano state). The reports are available here: <http://www.coverage-monitoring.org/useful-reports/nigeria/>



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CHALLENGES, LESSONS & THE ROAD AHEAD

