



COVERAGE MONITORING NETWORK



NAME OF PROGRAMME: Aweil Nutrition Programme

LOCATION: Aweil West County, Northern Bahr el Ghazal State, South Sudan

DATE OF INVESTIGATION: 26th February to 13th March 2015

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TYPE OF INVESTIGATION: SQUEAC (Semi-Quantitative Evaluation of Access and Coverage)

TYPE OF PROGRAMME: OTP for SAM

IMPLEMENTING ORGANISATION: Concern Worldwide





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Our profound gratitude goes to all carers and other informants for setting aside some time for interviews and allowing assessment teams to access their daily lives.

ABBREVIATIONS

CWW	Concern Worldwide
CHD	County Health Department
CTPF	Community Transformation Process Facilitators
CMAM	Community Management of Acute Malnutrition
GAM	Global Acute Malnutrition
HHP	Home Health Promoter
MC	Malaria Consortium
MUAC	Mid-Upper Arm Circumference
NBeG	Northern Bahr el Ghazal
NIWG	Nutrition Information Working Group
OTP	Outpatient Therapeutic Care
PHCC	Primary Health Care Centre
PHCU	Primary Health Care Unit
PLW	Pregnant and Lactating Women
RUTF	Ready-to-use Therapeutic Food
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SFP	Supplementary Feeding Programme
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage



EXECUTIVE SUMMARY

Aweil West County is one of 5 counties in Northern Bahr el Ghazal State, in South Sudan. The county is bordered by Aweil North County to the north, Aweil East County to the east, Aweil South County to the southeast, Aweil Central County to the south and Raga County in Western Bahr el Ghazal State to the west. The official population figures from the 2008 South Sudanese census is 166, 217, with the latest figures issued by RSS being 222,742. The proportion of children under 5 years old is 18%. The main ethnic group in Northern Bahr el Ghazal region is Dinka who are comprised of many independent but interlinked clans.

Concern Worldwide has been supporting the implementation of the nutrition programmes in NBeG state since 2000. As an active member of the Nutrition Cluster, CWW has been working to support the CHD who have a limited capacity and do not have adequate resources to run the programmes by themselves. CWW liaises with UNICEF and WFP for nutrition supplies.

While CWW's nutritional interventions coincide with improved malnutrition rates in the county, a SMART survey conducted in April 2014 show that Global Acute Malnutrition (GAM) rate (using WFH method) for the pre-harvest period was still above the acceptable WHO emergency thresholds of 15%. The GAM prevalence was 17% and Severe Acute Malnutrition (SAM) with/without oedema was 1.8%. In the post-harvest survey conducted in October 2014, the GAM rate was 13.9% and the SAM rate was 2.5%. Even with the improved post-harvest GAM figures, Aweil West remains highly vulnerable to shocks, which would have a large effect on the nutritional status of children.

The SQUEAC Methodology is designed to be conducted in three phases which include Stage 1, Stage 2 and Stage 3. Stage 1 involves identifying areas of low and high coverage as well as reasons for coverage failure using routine program data, any other existing data and qualitative data. Stage 2 involves, confirming the location of areas of high and low coverage and the reasons for coverage failure identified in stage 1. This is done using the small studies, small surveys and small-area surveys. Stage 3 involves providing an estimate of overall program coverage using Bayesian techniques. The SQUEAC methodology was designed to be low resource in terms of financial and human resources.

The first coverage assessment was carried out in Aweil West in April 2013. The estimated point coverage from that assessment was 50.7%. The main barriers to good program quality and coverage were identified to be Poor community perception of CMAM programme, Inconsistent supply of RUTF and Poor record keeping. CWW sought to undertake this assessment to measure progress since the last assessment and also identify factors affecting program coverage.

This coverage assessment was conducted between 26th February and 15th March 2015. A total of 21 participants were involved in the process. The assessment established that the CMAM Coverage in Aweil West County is 39.8% (95% CI: 29.0% - 51.9%) which is below the 50% recommended by the SHERE standard for a rural population. The main barriers identified were Shortcomings in the quality of CMAM, RUTF stock outs, Limited knowledge about malnutrition, Denial of the existence of malnutrition, Lack of understanding of CMAM programme, No distinction between CMAM programme & other services provided at the health centre, Inaccessibility due to flooding during the rainy seasons, Distance, PlumpyNut being perceived as food and being sold in the market, Heavy workload of women, Stigmatisation, Lack or shortcomings of CHW networks and Non-engagement of key community figures.

Based on the finding of the study, the following recommendations were developed:

Recommendation 1: Improve the quality of the Community-based Management of Acute Malnutrition (CMAM) programme.

Recommendation 2: Reinforce the coordination and stimulate the active participation of all actors taking part in the CMAM programme.

Recommendation 3: Develop and put in place a new community outreach strategy for community health volunteers in order to assure regular and homogeneous screening and sensitisation of the target population.

Recommendation 4: Develop and put in place a new community outreach strategy for a variety of community actors in order to complement and enrich the activities carried out by community health volunteers.

Recommendation 5: Develop and put in place an efficient monitoring & evaluation system for community outreach (sensitisation, screening, follow-up of defaulters, etc.).



OBJECTIVES

PRINCIPAL OBJECTIVE:

- To evaluate access and coverage of OTP program using SQUEAC methodology in Aweil West County

SUB - OBJECTIVES:

- To map out point coverage in Aweil West
- Identify factors affecting uptake of the CMAM services in Aweil West
- Develop in collaboration with organisation and partners specific recommendations to improve acceptance and coverage of the programme.
- Enhance competencies of CWW, MoH and other stakeholder's technical staffs in SQUEAC methodology

CONTEXT

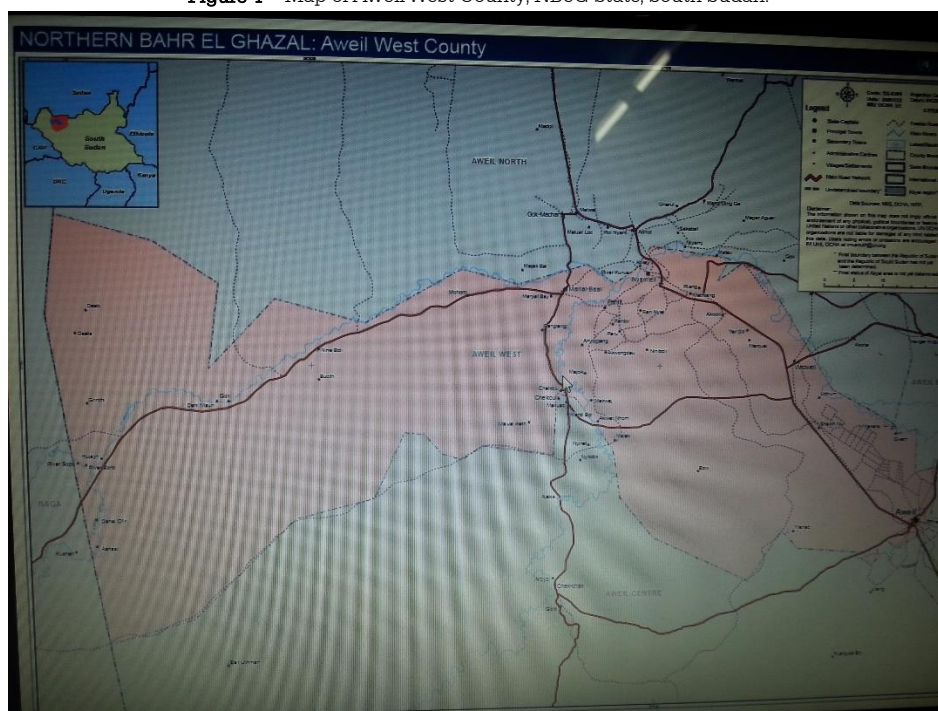
OVERVIEW OF THE AREA

Northern Bahr el Ghazal is one of the 10 states of South Sudan. It has an area of 30,543 km² and is part of the Bahr el Ghazal region. It borders South Darfur to the north, Western Bahr el Ghazal to the west and south, and Warrap and Abyei to the east. Aweil is the capital of the state.

Aweil West County is one of 5 counties in Northern Bahr El Ghazal State. It is bordered by Aweil North County to the north, Aweil East County to the east, Aweil South County to the southeast, Aweil Central County to the south and Raga County in Western Bahr el Ghazal State to the west.

The County lies 900 kilometres (560 mi), by road, northwest of Juba, the capital of South Sudan and the largest city in that country. The geographic coordinates of the county are: 9° 30' 0.00"N, 28° 0' 0.00"E (Latitude: 9.0000; Longitude: 27.0000). Aweil West is further divided into 9 payams (sub-counties) where the assessment took place. These payams are Gumjuer Centre, Gumjuer East, Gumjuer West, Ayat Centre, Ayat East, Ayat West, Mariem West, Mariem East and Achana. It has the highest rate of poverty, 76% according to government statistics, of the 10 states of South Sudan.

Figure 1 – Map of Aweil West County, NBeG State, South Sudan.



DESCRIPTION OF THE POPULATION

According to the 2008 South Sudanese census, the population of Aweil West County is about 166, 217¹. Since then, RSS has been issuing higher figures each year with the latest being 222,742. These figures, however, disputed by the authorities, are the only recently available population figures and form a baseline on which future estimates can be based. The county is further divided into payams (sub-counties) and then to bomas in which the villages are located. The exact number of villages per boma and bomas per payam could not be established because different documents reported different figures. Some of the reasons could be the seasonal movement of some populations (for cultivation or fishing) making it difficult to have exact population figures per village/payam. The average household size is 6 and 18% of the population are aged 6-59 months².

The main ethnic group in Northern Bahr el Ghazal region is Dinka who comprise of many independent but interlinked clans.

Due to its proximity to the almost three decade long civil conflict with Sudan, Northern Bahr el Ghazal State has suffered chronic under development with its infrastructure, human resources and community and household in a dilapidated state.

Northern Bahr el Ghazal (NBeG) is the poorest state in South Sudan with minimal capacity to provide even the most basic of services and is also the most food insecure state with 62% of the population moderately food insecure and 10% severely insecure³ which is also attributed to poor agronomic practices.

In December 2013, fighting between two rival government factions broke out in Juba, and quickly spread across the country, primarily on ethnic lines, and especially focused on Unity, Upper Nile and Jonglei states. The fighting led to massive displacement, with many people fleeing their homes, particularly to UNMISS bases, and to neighbouring countries. In total, since December 2013, 1.91 million people in total have been displaced, with 1.44 million of these internally displaced. Even though NBeG State was not directly affected by the conflict, there has been indirect impacts which have influenced the programme; including difficulty accessing key supplies, resource reallocation to conflict areas by donors, and inaccessibility leading to increased prices. There has also been some insecurity which affected programmes. For example, in June and July 2014, there were troop and rebel movements in Aweil West, affecting travel of

¹ South Sudanese Census - Population by County, 2008.

² Aweil West pre-harvest anthropometry and mortality survey, CWW, April 2014.

³ Annual Needs and Livelihoods Analysis Report, February 2012.



programme staff as well as community workers and beneficiaries.

NUTRITIONAL SITUATION

Aweil West County remains amongst the highest risk counties for child malnutrition and mortality in 2014⁴. Factors such as sub-optimal young child feeding practices, food insecurity, illness, conflict, and displacement exacerbate the critical nutrition situation.⁵ Within the Ministry of Health (MoH), nutrition has a low priority and receives an insufficient allocation of staff and resources to support sustainable nutrition programme implementation and delivery.

While CWW's nutritional interventions coincide with improved malnutrition rates in the county, a SMART survey conducted in April 2014 show that Global Acute Malnutrition (GAM) rate (using WFH method) for the pre-harvest period was still above the acceptable WHO emergency thresholds of 15%. The GAM prevalence was 17% and Severe Acute Malnutrition (SAM) with/without oedema was 1.8%. In the post-harvest survey conducted in October 2014, the GAM rate was 13.9% and the SAM rate was 2.5%. Even with the improved post-harvest GAM figures, Aweil West remains highly vulnerable to shocks, which would have a large effect on the nutritional status of children.

The chronic nature of GAM suggests that the root of the problem lays with chronic food insecurity as well as poor child care practices which are further exacerbated by a high disease burden. Analyses from the surveys have shown that children subsist on mostly the local diet, which is composed of cereals and seasonal vegetables, notably lacking in protein and nutrient diversity, and generally insufficient to meet their nutrient needs. Surveys during the lean months reveal that households' food stocks are depleted and there is an acute shortage of staple food. Good nutrition, especially in the 'window of development opportunity'—from conception to 24 months— is essential for the development of full intellectual capacity, educational performance, and productivity. Some children being treated for malnutrition with medical complications in stabilization centers default because their caretakers, usually mothers, are unable to sustain their own nutritional needs while their child is unwell and away from home. Women are disproportionately affected by malnutrition due to numerous factors, including traditional gender roles, which can lead to worse nutritional outcomes compared to men, particularly impacting pregnant and lactating women (PLWs) and the children under their care. The high work burden of women means sub-optimal young child feeding practices are common in the county.

DETAILS OF HEALTH AND NUTRITION SERVICES

OTP for SAM treatment in Aweil West is implemented in 22 CWW-supported health facilities (17 PHCUs and 5 PHCCs (the two stabilization centres are located). CWW is operational in all nine payams of Aweil West.

Concern Worldwide has been supporting the implementation of the nutrition programmes in NBeG state since 2000. As an active member of the Nutrition Cluster, CWW has been working to support the CHD who have a limited capacity and do not have adequate resources to run the programmes by themselves. CWW liaises with UNICEF and WFP for nutrition supplies.

The Interim Guidelines Integrated Management of Severe Acute Malnutrition⁶ were adopted in 2009 and they address SAM treatment in children 6-59 months. They integrate Community Outreach, Outpatient care for the management of SAM without medical complications, Inpatient care for the management of SAM with medical complications, Inpatient care for the management of SAM for infants under 6 months and Monitoring and reporting.

According to the guidelines, the following protocols are observed:

Admission criteria:

- Children 6-59 months
- Bilateral pitting oedema + and ++ Or Severe wasting (MUAC < 115 mm or WFH < -3 z-score)

And

- Appetite test passed
- No medical complication
- Child clinically well and alert

Discharge criteria:

⁴ Nutrition pre-harvest Anthropometry and Mortality Survey, CWW, April 2014.

⁵ Situation Analysis of Nutrition in Southern Sudan, GOSS/MOH/DN, 2009.

⁶ Government of Southern Sudan Ministry of Health Interim Guidelines Integrated Management of Severe Acute Malnutrition, December 2009.



- 15 percent weight gain maintained for two consecutive visits (of admission weight or weight free of oedema)
- No bilateral pitting oedema for two consecutive visits
- Clinically well and alert

RESULTS OF PREVIOUS COVERAGE ASSESSMENT

In order to assess and improve program performance in terms of access and coverage, the first ever coverage assessment was carried out in Aweil West in April 2013. The estimated point coverage from that assessment was 50.7%. The main barriers to good program quality and coverage were identified to be poor community perception of CMAM programme, inconsistent supply of RUTF and poor record keeping.

This is the second SQUEAC investigation to be conducted in Aweil West. CWW sought to undertake the assessment to measure progress since the last assessment and also identify factors affecting program coverage.

INVESTIGATION PROCESS

STAGE 1

QUANTITATIVE DATA

Quantitative data analysis was done through January – December 2014 trends analysis of main project indicators, and analysis of treatment cards for discharged beneficiaries over the same period.

Data available was not disaggregated by specific indicators that were to be analysed which meant it all data had to be entered again into an Excel database that would analyse the specific indicators.

During analysis of OTP admission cards of discharged beneficiaries, it was discovered that caregivers do not go home with a slip to show that they are served in the CWW program which posed a challenge in stages 2 and 3 as it could not be ascertained which programs the beneficiaries were benefitting from.

Treatment card analysis

A total of 1,493 cards from all health facilities supported by CWW in Aweil West were analysed. It was noted that some of the cards were not properly filled out and some important information was missing from each. Most of the defaulters were not noted properly on the cards which led to most of them being discharged 'cured' whereas this was not the reality. This also goes on to explain why there are very few defaulters in the programme.

Also noted was the fact that children were staying in the programme for too long. As will be seen in the graphs that follow, a very high percentage of beneficiaries had a length of stay longer than 16 weeks.

MUAC data showed children being discharged with a MUAC as high as >12.5 but this is explained by the fact that discharge is done based on 15% weight gain and not MUAC⁶⁷.

Admission trends

Figure 2 below shows the number of SAM cases admitted per OTP over a 12-month period (January 2014 – December 2014). Nyamlell PHCC had most of the admissions (219). The OTP site with the least admissions was Amatnyang which had only 25 admissions.

⁶⁷ Since the completion of the assessment, the discharge criteria is now based on MUAC after revisions were done and approved by the MoH



Figure 2 - Admissions over time (Jan – Dec 2014) in Aweil West County, NBeG State, South Sudan.

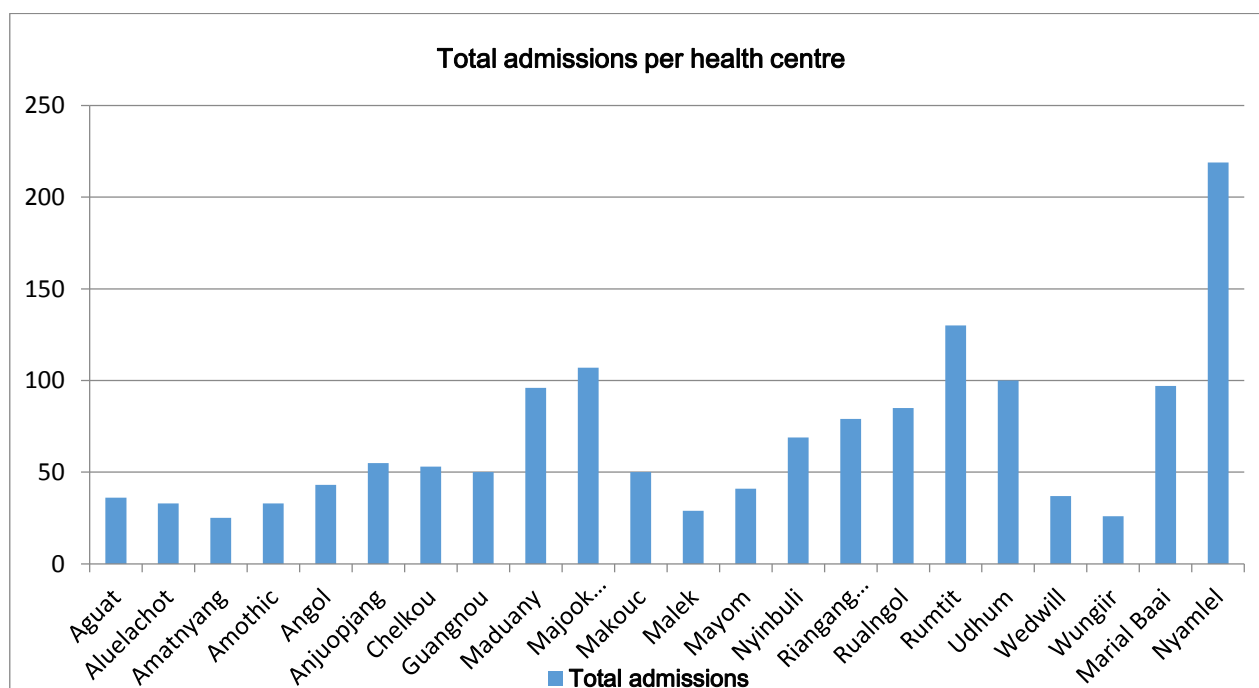
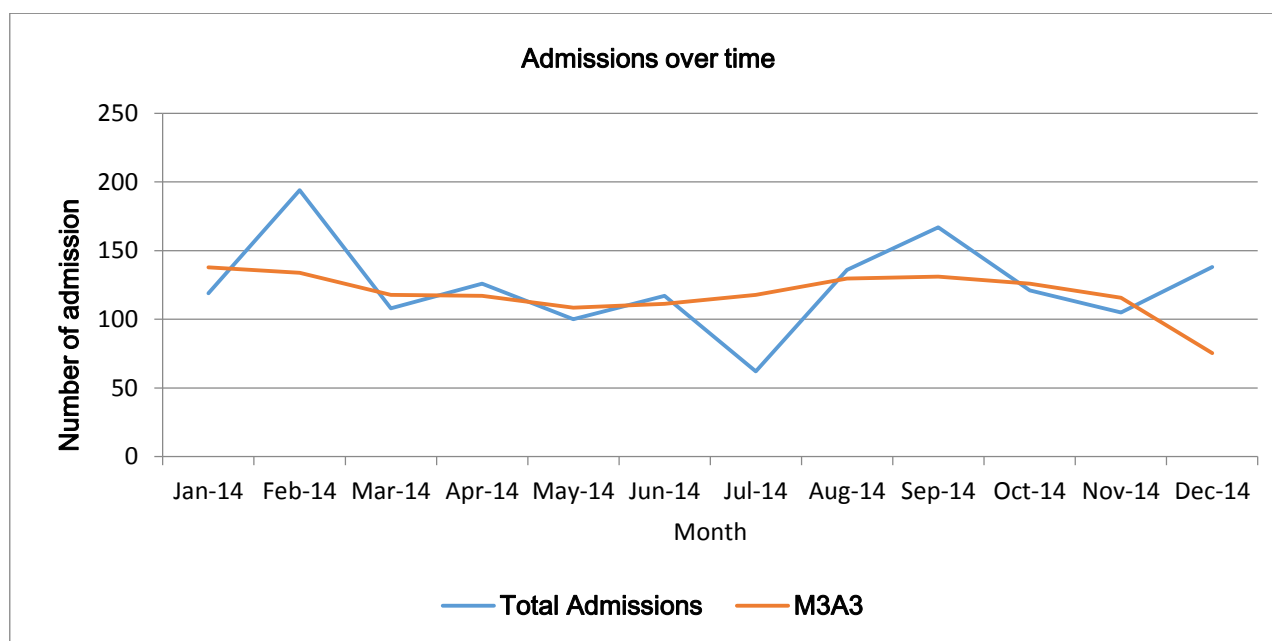


Figure 3 - Total admissions over time for Aweil West County, NBeG State, South Sudan plotted against a seasonal calendar⁸



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Climatic conditions												
Dry/rainy season	Dry season				Rain	Rain	Rain	Rain	Rain	Rain	Dry season	
Low/high temperature	+	++	++	+++	+++	++	++	++	++	++	+	+

⁸ The seasonal calendar was formulated with information obtained from the SQUEAC team



Economic activities												
Food crops (preparation/seeding/weeding/harvest)			Preparation		Seeding		Weeding		Harvest			Prep.
Vegetables (preparation/seeding/harvest)	Seeding		Harvest									Preparation
Demand for agricultural labour												
Agricultural lean season							Lean season					
Demand for non-agricultural labour												
Transhumance												
Pastoral lean season												
Illnesses												
Malnutrition	+	+	+	++	++	++	+++	+++	+	+	+	+
Diarrhoea		+	++	+++	+++	+	+	+	+			
Malaria	+					+	++	+++	+++	++	+	+
Typhoid fever						+	++	++	++	+	+	+
Acute respiratory Infections (ARI)	++	+						+	+	+	++	+++
Food security												
Availability of staple foods	+	+	+						+++	++	++	++
Access to staple foods	+	+	+						+++	++	++	++
Price of staple foods	++	++	+++	+++	+++	+++	+++	+++	+	+	++	++

The rise in admissions in February is consistent with an increase in staple food prices which translates into families having less to eat. The increase in March-April is attributed to intervention through the re-introduction of BSFP in addition to weekly OTP days. The decrease in admission seen in May – July was due to inaccessible facilities due to floods and impact of insecurity which was experienced through fighting especially in Nyinboli. The increase of admissions in August could be attributed to an increase in malnutrition levels and an increase in severity of seasonal disease such as diarrhoea and malaria.

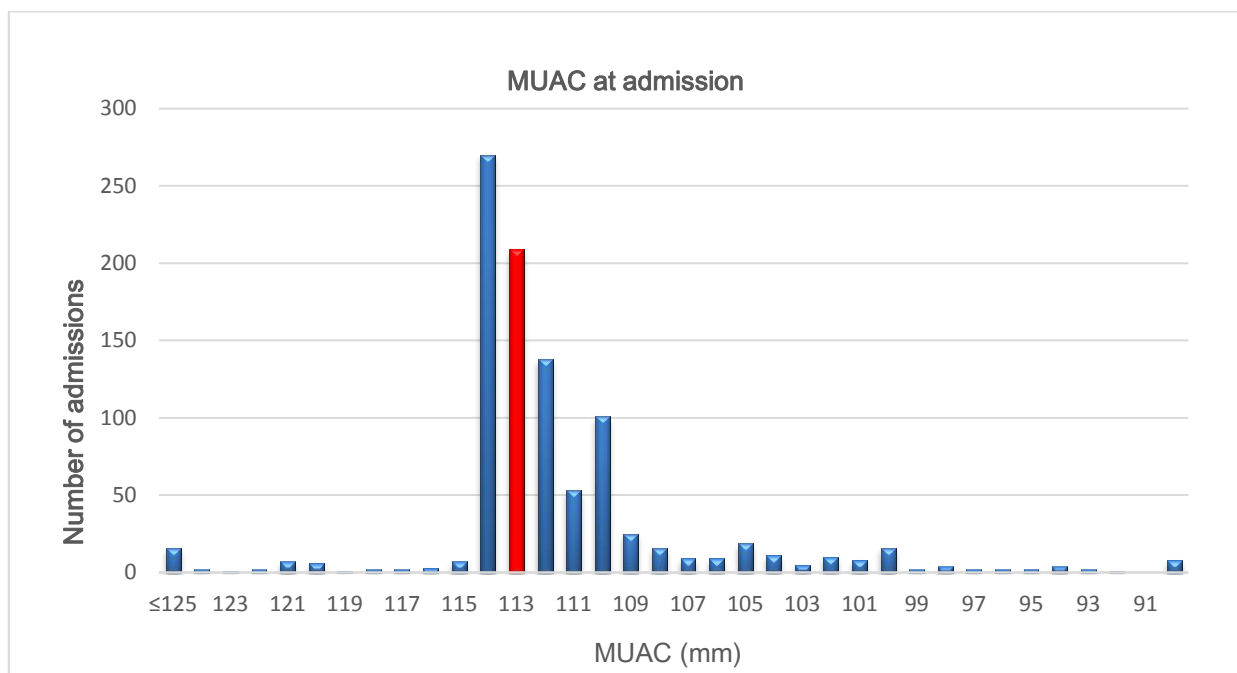
MUAC on Admission

The data analysed shows early treatment seeking behaviour as majority of the admissions have a MUAC between 110mm and 114mm. The median MUAC on admission is 113 and is indicated with the red line on the graph.

Some beneficiaries are still presenting with very low MUAC (< 95 mm) at the health facility. The cases should be treated as *critical cases* and investigations carried out as to why they are presenting so late to the health facilities. These investigations of critical incidents often reveal very useful information about program performance. One way of ensuring less critical cases is to intensify community mobilization at the village level to ensure caregivers are aware on what to look out for and also know where to take their children when they are sick.

The few cases of admission on MUAC more than 114mm into OTP is an indication of problems with the programme's recruitment procedures. It means that some staff are not well versed with admission criteria and refresher trainings and on-the-job trainings will go a long way in rectifying this.

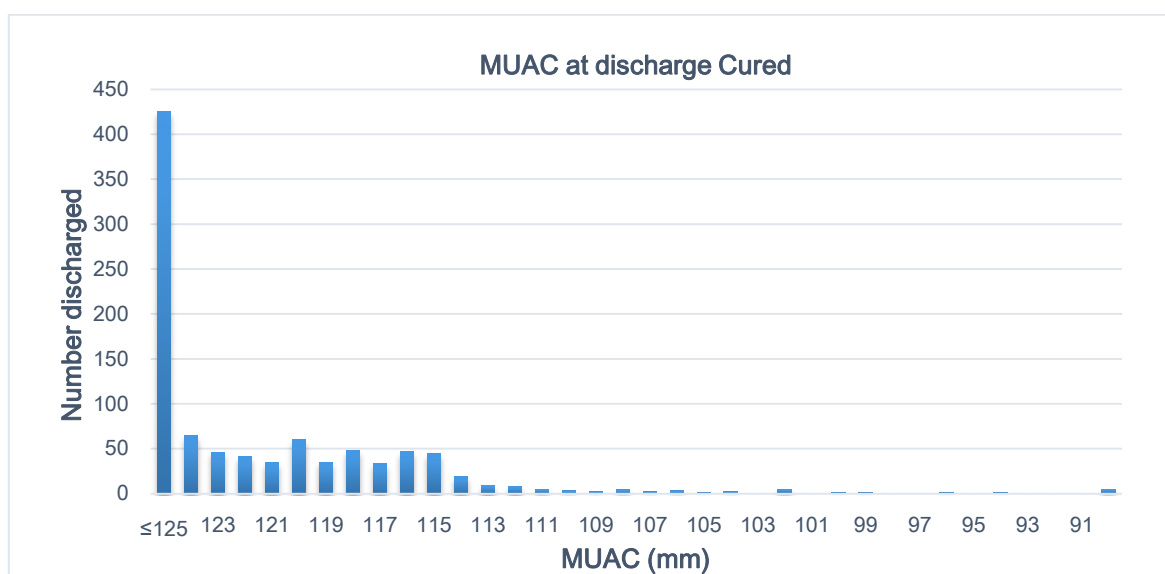
Figure 4 - MUAC on admission for Aweil West OTPs, NBeG State, South Sudan.



MUAC at Discharge

Some cases are being discharged with a MUAC below programme admission criteria. This is something that needs to be addressed by the programme as it is an indicator of protocols not clearly understood by health centre personnel. According to South Sudan Interim Guidelines on management of SAM, discharge is not done MUAC but by 15% weight gain and this explains this graph. However, at the time of the assessment, the guidelines were under review by the Nutrition Cluster and it has been proposed that discharge criteria from OTP be done by MUAC (MUAC $\geq$ 11.5) for two consecutive visits) which will be in accordance with the international standards.

Figure 5 - MUAC at discharged cured for Aweil West County, NBeG State, South Sudan.

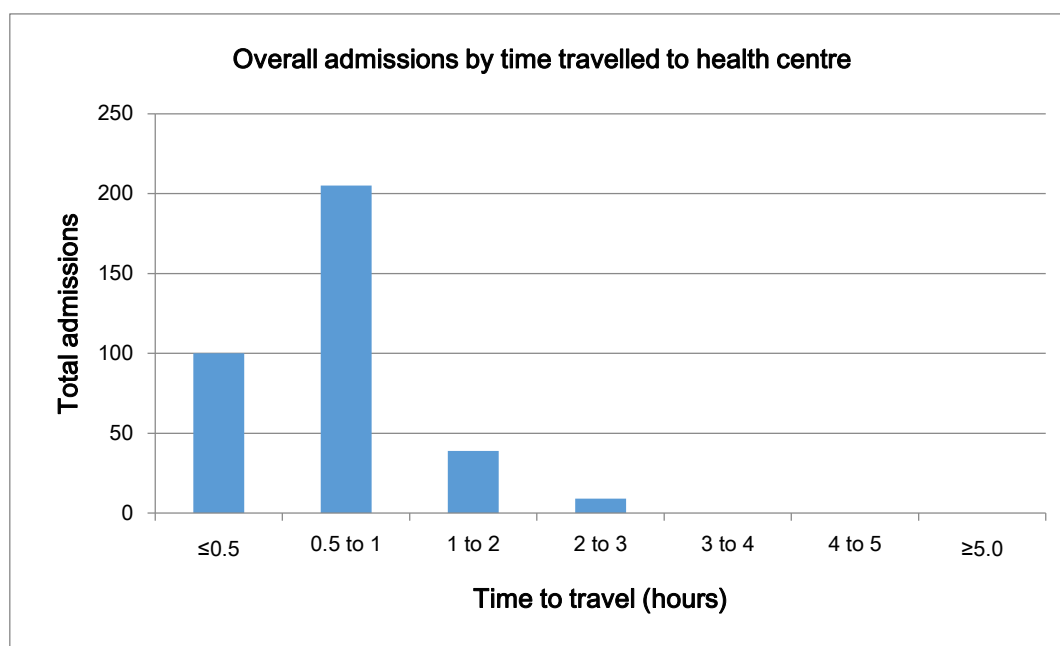




Distance from treatment centre

Data on distances of villages to/from health facilities (in kms) was not available at the time of the assessment. Distance to OTP was recorded in terms of time (minutes/hours) and not distances (kms). Only 353 (23.6%) of cards analysed had distance to travel recorded on them. From this analysis, the average time to travel to an OTP was found to be 30 minutes to 1 hour.

Figure 6 – Overall admissions by time travelled to health centre in Aweil West County, NBeG State, South Sudan.



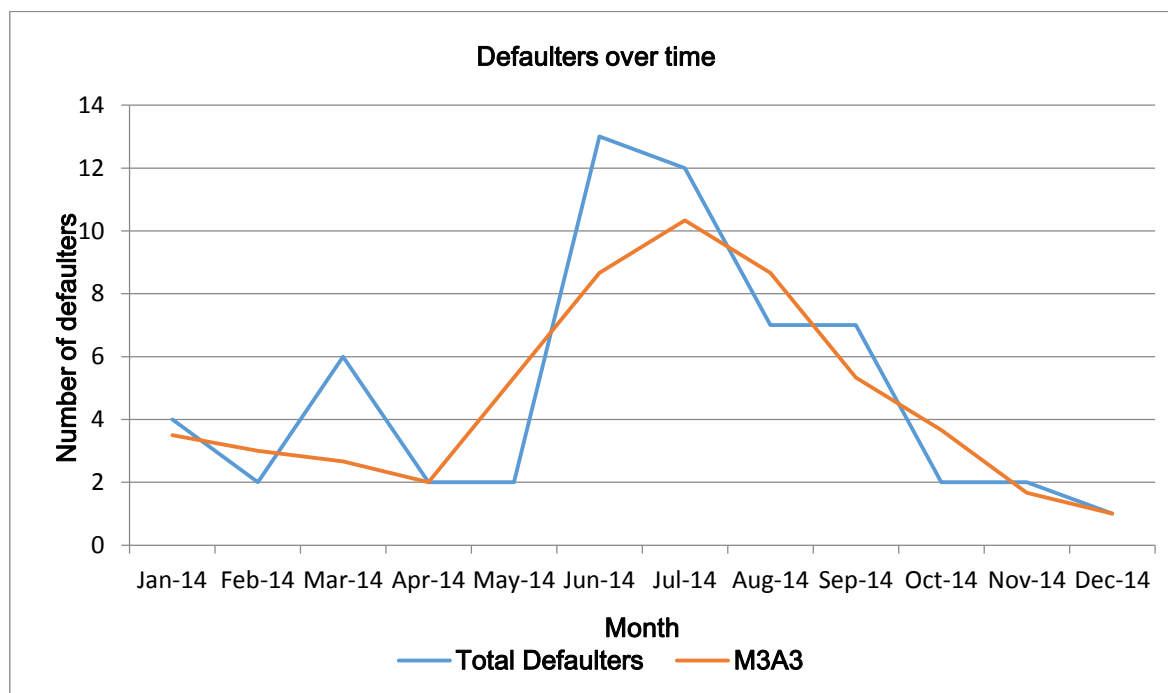
Defaulters

Defaulters are children that have been admitted into the program but leave the program without being formally discharged, without being transferred to another service, or without having died⁹. High defaulting rates are associated with low programme coverage. In South Sudan, a child is considered a defaulter when they have been absent for three consecutive weeks or outpatient care sessions⁴.

From the cards analysed, defaulters were not properly recorded as some beneficiaries who were clearly defaulters were discharged as cured. In some instances, after a child had been absent, it was not indicated with an 'A' as per protocol. Defaulter tracing mechanisms were non-existent at the time of the assessment. This is explained by the fact that no outreach services were carried out by the teams. There needs to be a linkage with the health department (which operates at community level) to strengthen this component.

⁹ Myatt, Mark et al. 2012. Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)/Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) Technical Reference. Washington, DC: FHI 360/FANTA.

Figure 7 – Defaulters over time in Aweil West, NBeG State, South Sudan.

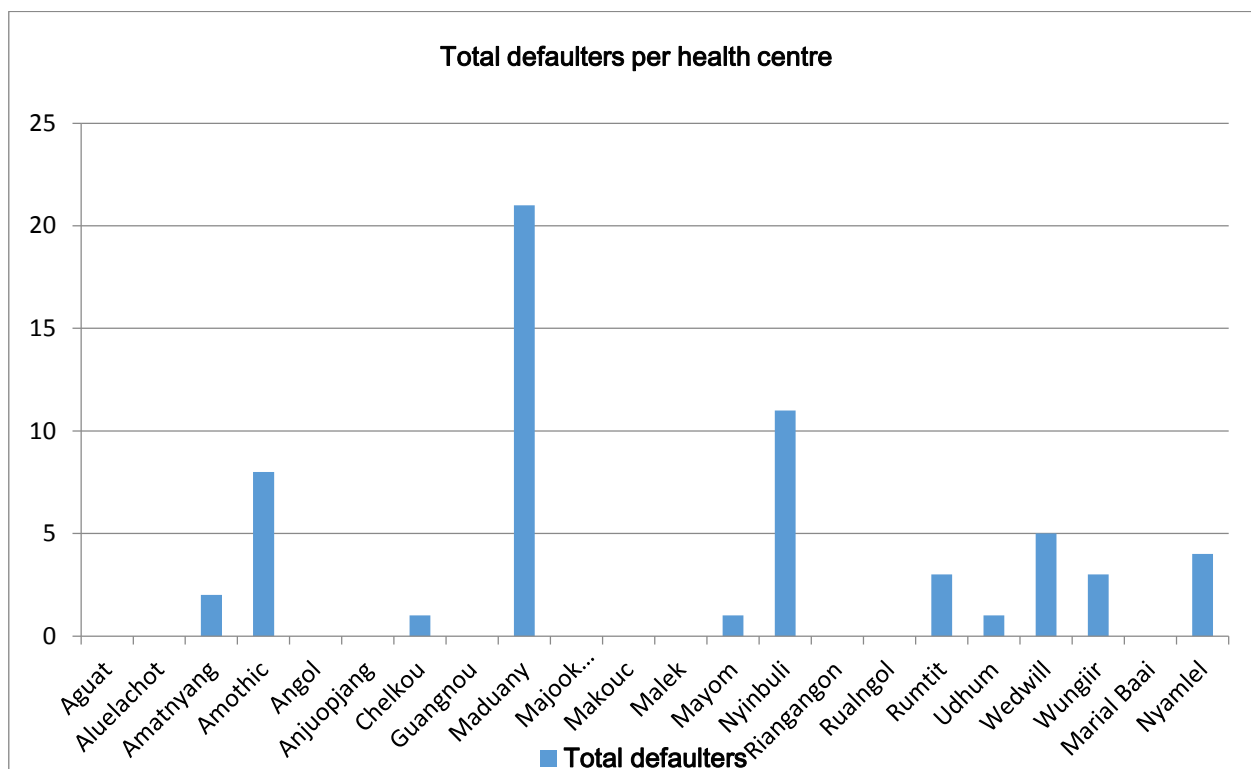


The high defaulter rates in the month of June are explained by the seasonal calendar. This is during the rainy season where some facilities are inaccessible which translates to caregivers not being able to access services. It is also during the rainy season that some people migrate either for agriculture or fishing. One way to curb this would be to have a transfer system between facilities whereby caregivers could still attend clinics irregardless of where they are. During this period, seeding is also taking place which means most caregivers are out in the fields and do not have time to take the children to the health centres.

The figure below presents defaulters data per health facility.



Figure 8 – Total defaulters per health centre in Aweil West, NBeG State, South Sudan.

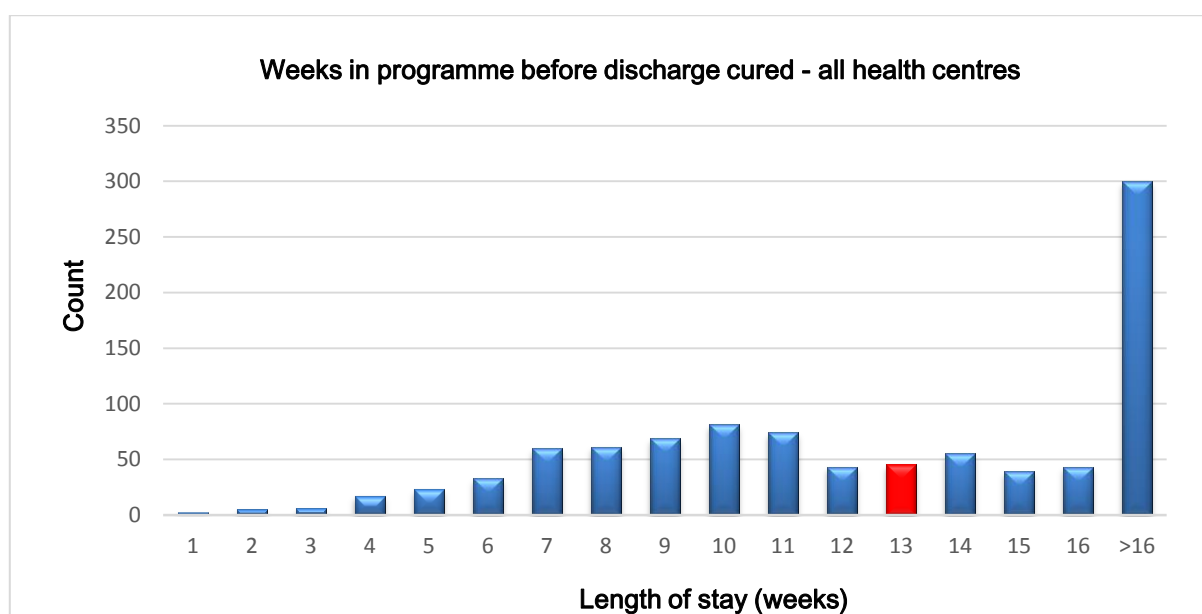


As earlier stated, this data was not readily available from majority of the cards analysed (wrong classification during discharge). This translates into technical shortcomings in the programme which could be rectified by on-the-job training.

Length of Stay

This is defined as duration of treatment episode i.e. the time from admission to discharge. Long lengths of stay (as indicated by the figure below, may be due to late admission or poor adherence to OTP treatment protocols by program staff (e.g. failure to explain treatment protocols to caregivers, RUTF stock-outs etc.) and beneficiaries (e.g. sharing of RUTF with other people in the household etc.).

Figure 9 – Length of stay before cure in Aweil West, NBeG State, South Sudan.

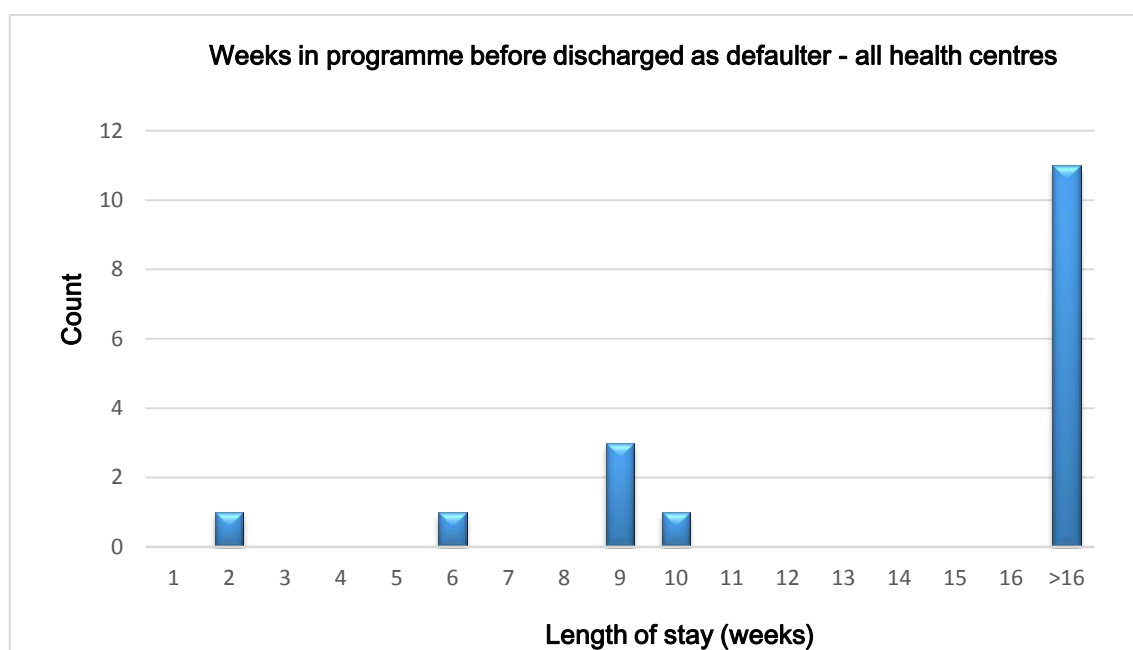




In Aweil West, the average length of stay is 13 weeks (red line on graph). According to the South Sudan guidelines, the average length of stay is 6 - 8 weeks.

Figure 10 below shows the length of stay of program defaulters. Of the few cases that were discharged as defaulters, most of them were staying in the programme for longer than 16 weeks.

Figure 10 – Length of stay before default in Aweil West, NBeG State, South Sudan.



Outcome trends

The following graphs show the outcome trends of the assessment period (January-December 2014). All parameters are within SPHERE standards for OTP treatment (Cure rate - $\geq 75\%$, Death rate - $\leq 10\%$ and Defaulter rate - $\leq 15\%$).

Figure 11 – Outcome trends – Aweil West County, NBeG State, South Sudan.

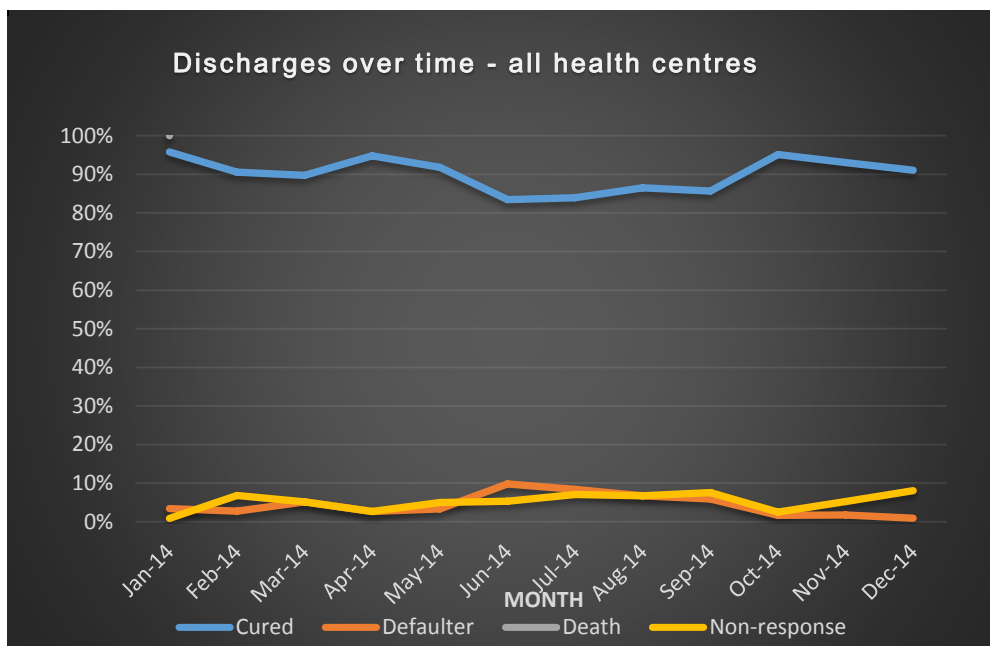
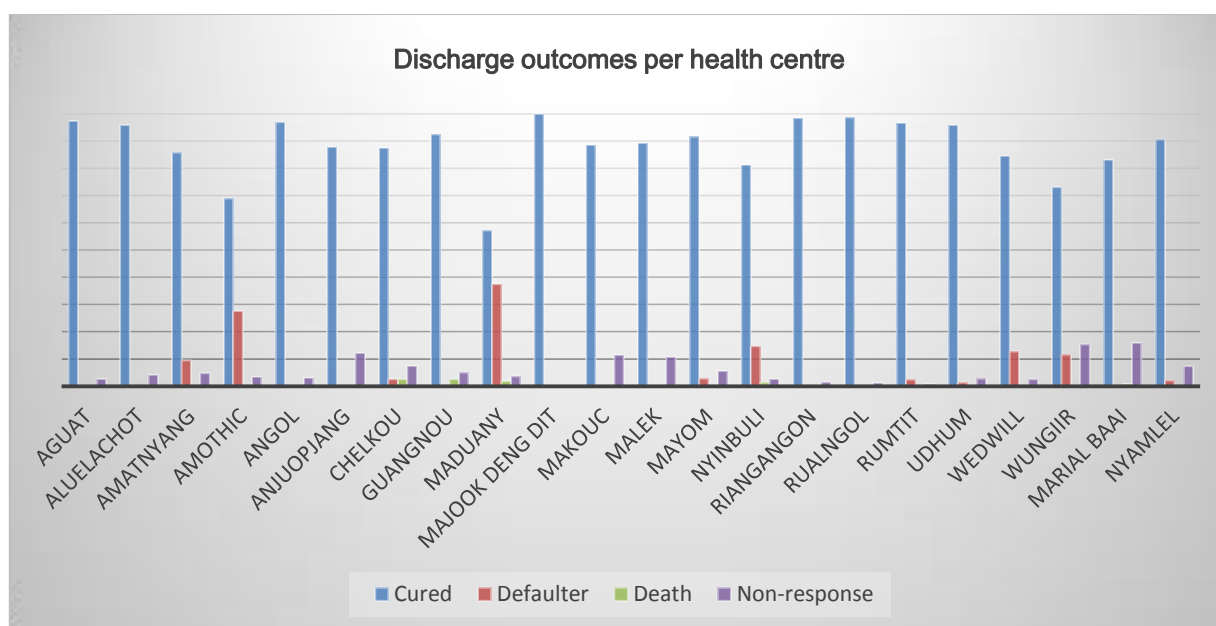


Figure 12 – Outcome trends per health centre – Aweil West County, NBeG State, South Sudan.



QUALITATIVE DATA

The qualitative data collection was organised according to the « *qualitative sampling matrix* » (cf. Annex 3), developed in collaboration with key members of the assessment team. In order to assure the representativity of all health zones (HZ) as well as the unbiased participation of all key informants, a unique tool was developed allowing to taking into consideration all factors, visualising them and transcribing them onto a planning calendar. On a daily basis, each team, composed of two enumerators and one supervisor, carried out at least two semi-directive interviews and/or group discussions, totalling



to 56 interviews with 137 interviewed people in the whole Aweil West County. The use of the qualitative sampling matrix allowed achieving the exhaustivity of data and their triangulation by method, source and ethnic group.

The qualitative data collection was oriented by a set interview guides, adapted for each group of key informants. Their objective was to better orientate discussions and assure the entirety and complementarity of collected data, which was later analysed by the assessment team, duly documented and contextualised.

LOCAL UNDERSTANDING OF MALNUTRITION

The interviewees referred to malnutrition using 14 local terms, out of which « *ador* » or « *door* » were most frequently used. Both terms refer to a child suffering from marasmus and are not considered stigmatising as such. The most common term for kwashiorkor was « *buut* », meaning “*oedema/swollen*”.

Local term	Language	Meaning
Ador	D	« A malnourished person »
Door	D	« Malnutrition characterised by thinness/emaciation; bony »
Jot yic bei	D	« Pot belly due to disease(s) including malnutrition »
Buut	D	« Swelling/oedema due to any disease including malnutrition »
Pier	D	<i>Idem.</i> (may be used interchangeably with “buut”)
Nuan	D	« A very weak person due to disease including malnutrition; not alert, apathetic. »
Jueet	D	A general description of an emaciated person reflecting severe thinness and loss of muscles.
Ngueet	D	A general description of emaciated person reflecting mild thinness and loss of muscles.
Chala	D	Term for a malnourished child with a distended abdomen (pot-belly), swollen feet and face.
A/Tuei	D	Disease characterised by abdominal swelling due to any disease including malnutrition for a long period (chronic problem).
Dhiong	D	« Food made with butter »
Degaria	A	« Pot belly due to disease (such as Kwashiorkor) »
Dueny	D	« Paralysis; believed to be due to witchcraft or other cause »
Aduany	D	« A paralysed person due to any disease »

The global understanding of malnutrition among the interviewed population varies only to a little degree. The prevailing majority did not demonstrate comprehensive knowledge of the disease, including its causes, symptoms and effects. What is even more surprising, none of eight carers of malnourished children, already benefiting from the programme, could cite these elements. For that reason, it is possible to deduce that the sensitisation at the health facility is minimal or of very poor quality.

The limited knowledge of malnutrition, driven by a handful of local beliefs on its causes, might be a determining factor of **stigmatisation** of the disease in the community. While some attribute the stigmatisation to poverty, which weakens one's status vis-à-vis other community members, others understand malnutrition as a consequence of a sexual intercourse during breastfeeding and/or premature pregnancy and consequent weaning. If a child is malnourished, the community may be particularly critical towards his or her parents and their sexual appetite. The couple, but particularly the woman, may be accused of poor parenting practices, which influences her future interactions in the community.



THERAPEUTIC ITINERARIES

The prevailing majority of interviewees did not hesitate to talk about health centres as their first and only option to cure malnutrition. Even carers of malnourished children admitted that once they realised that their child was sick and/or he was screened for malnutrition, they set out on a journey to the health facility nearby. However, other (traditional) practices exist and people do try them, especially if they live in a remote location and/or cannot afford a one pound cost-sharing fee to access services. Apart from herbs and roots, the population turns to what they perceive as nutritious foods (porridge, milk, peanuts) to treat malnutrition. In fact, they may be imitating « *miguak ador* », as PlumpyNut® is referred to locally, produced on the base of similar ingredients. In people's minds, it is not necessarily seen as a medicine. Many respondents referred to it as food "*given to children and mothers*". Evidence exists that mothers share it with other children/family members and/or exchange it for other commodities on the market.

UNDERSTANDING AND APPRECIATION OF CMAM PROGRAMME

Following a detailed inquiry on the local understanding of a CMAM programme it is possible to conclude that the population is insufficiently informed about the nature of the programme, its services and eligibility criteria. While some respondents did not make a distinction between a CMAM programme and other PHCC/PHCU activities, others referred to it as food aid or food distribution. This links with their understanding of PlumpyNut® as food rather than medicine, as mentioned above.

The population displayed equal confusion about the eligibility criteria. Despite the fact that they observe screening activities at the facility or village level, none of the respondents mentioned that "red" and "yellow" children may benefit from the programme (upon the confirmation by the health personnel) while "green" children are healthy. Most often, people explained that the programme targets all children and women or at least those who are sick. Age span eligibility for services was limited to 24 – 36 months.

Despite or thanks to this limited, if not incorrect perception, the population greatly appreciates the programme and desires the continuation and uptake of efforts. They recognize good collaboration among partners as a cornerstone of a good quality CMAM programme, highlighting the support offered by international non-governmental organisations to the County Health Department and individual PHCCs/PHCUs in the area. However, carers are still expected to pay a one pound (SSP) cost-sharing fee for the first consultation, which appears to be a barrier to access for a large number of vulnerable families in need of the service. The cost burden becomes even heavier if PlumpyNut® and other drugs are unavailable and need to be bought at the pharmacy/local market.

Once admitted, the reception of carers is not always welcoming. Interviewees mentioned that health centre personnel are often absent from their work stations. While human resources at facilities are already stretched, the frequent absenteeism of certain team members further disturbs the operation and adds an extra burden to the available staff. According to collected testimonies, OTP clinics are run by the personnel who are present at the facility, regardless of whether they were trained and/or possess sufficient expertise to carry out related activities.

The question of expertise remains relevant even if the dedicated staff is present. Few voices expressed that health personnel's skills remain limited and heavily dependent on the exterior support despite long-term training and coaching, which they have been receiving. Interviewees mentioned non-respect of MUAC measurement procedures, OTP cards not being filled properly and/or the lack of default follow-up as the biggest drawbacks. The systematic screening of children of less than five years of age is not performed.

Further, the information shared with carers during the consultation is greatly insufficient while no sensitisation sessions on malnutrition are held while carers are waiting. This feeds directly into the limited understanding of malnutrition of carers, who did not provide evidence of a comprehensive understanding of their children's condition and/or the nature of RUTF. Thus, not fully understanding consequences on their child's health, they may be easily swayed not to attend consecutive consultations and check-ups, especially if they are overwhelmed with other household duties.

SCREENING AND REFERRAL

Home Health Promoters (HHPs) were identified as main actors of active case finding/referral activities in Aweil West County, complemented by Traditional Birth Attendants (TBAs) and Malaria Consortium's Community-based Drug Distributors (CDDs). In case a child needs to be referred to the facility for treatment, HHPs give carers a reference slip and inform them which day they should present the child for the consultation. A copy of the reference slip is delivered to the health facility in order to cross-check admission of the child into the programme. In case the child is absent or defaults,



the HHP should perform a home visit which would inform the programme about circumstances which motivated such behaviour. The actual implementation of this procedure was not confirmed.

A detailed planning of screening per catchment area does not exist. Screening figures are reported globally without any distinction of localities. The frequency of outreach activities at the boma/village is unknown while the local population reports diverse timings – some mentioning monthly occurrence of screening sessions, others confirming their complete absence. Generally-speaking, the majority, if not the totality, of screening activities were concentrated in the proximity of health facilities. The realisation of activities beyond a radius of “acceptable distance” was not confirmed.

Referral by CMAM programme beneficiaries was not confirmed by either key informant. A couple of carers mentioned that they would refer a child like theirs because the programme is very helpful but neither could attest having already done so. Nevertheless, this practice should be intensively encouraged through all, formal and informal, exchanges with carers at the facility or community level.

SENSITISATION

The HHP network was identified as a main implementer of community sensitisation activities in Aweil West County. Their efforts are mainly complemented by those of CDDs; TBAs and Boma Health Committees (BHCs) to a lesser degree. Other community actors, such as village chiefs, religious authorities or community-based organisations, limit their engagement to a passive support or mere awarding of a permission to organise sensitisation sessions in their village. However, their active participation is a key to successful community mobilisation as their opinion matters and could add leverage to behaviour change.

The non-engagement of key community figures is partially motivated by gender segregation of current sensitisation activities, which focus solely on women. However, given their role and decision-making power in the household and beyond, men should also be targeted and encouraged to assist.

The thematic scope of sensitisation sessions covers primarily exclusive breastfeeding, infant and young child nutrition or personal hygiene. Malnutrition was mentioned only by a couple of interviewees while others confirmed the absence of such messages.

Geographical coverage of sensitisation sessions mirrors the coverage of community health volunteers' network. Currently, not all villages benefit from the presence and activity of volunteers. BHCs concentrate around health facilities and the same applies to HHPs and TBAs, even though they may be more dispersed. However, their activities are rather limited to their village of origin which automatically excludes activities beyond the acceptable radius.

Communication channels used within CMAM framework are rather limited. The majority of activities focus on the diffusion of messages, which represents a top-down approach, while other possibilities are used scarcely.

Peer-to-peer diffusion of messages is implemented through mother-to-mother support groups who were trained to diffuse IYCF messages. However, these groups have not properly supervised and thus there is not sufficient evidence and/or details about their work in the community.

Door-to-door sensitisation about malnutrition is carried out by home health promoters while they perform screening of children younger than 59 months. Their activities were also under-supervised and are currently undergoing a restructuring in line with a governmental strategy to assure higher efficiency.

The other two channels, special events and mass media, are utilised on an ad hoc basis at the occasion of international days dedicated to promoting awareness about certain issues, e.g. World Breastfeeding Day, World AIDS Day, etc. The Health programme in Aweil West County co-organises these events with the County Health Department but their scope is often limited to one location. For this reason, they are not deemed to have a county-scale impact.



Communication channels	Diffusion of messages	« Opinion leader » encourages the action	« Role model » demonstrates the struggle and success	Community engagement	Dialogue about barriers and solutions
« Peer 2 Peer »	✓	×	✓	×	×
« Door 2 Door »	✓	×	×	×	×
Community discussions	×	×	×	×	×
Community theatre / Special events	✓	✓	×	×	×
Mass media	✓	×	×	×	×

* In the table above, orange squares represent communication channels used in the framework of a CMAM programme. The squares in light orange represent communication channels used ad hoc or irregularly. The blue squares represent recommended complementary activities aiming to reinforce the community sensitisation and behaviour change. They also represent a participative communication approach which takes its roots in the mass media and refines towards a dialogue on barriers and solutions at the peer 2 peer level.

STAGE 2

The goal of this stage is to test the hypotheses about coverage and access elaborated in stage 1. This hypothesis usually take the form of identifying areas where the combined data suggest that coverage is likely to be either high or low. The small-area surveys method was used to test the hypotheses for IMAM high and low coverage areas. Door to door methodology was used to find SAM cases.

Based on stage 1 data, distance was identified as a factor that had a potential effect on coverage in Aweil West. A small area survey was therefore undertaken in 6 villages identified together with the team (3 close to OTP, 3 far from OTP) to test this hypothesis.

The following 6 villages were selected:

Table 1 – Villages selected for the small-area survey in Aweil West County, NBeG State, South Sudan.

Villages far from to OTP	Villages close to OTP
Jorbuich - MDD HF	Malith Tony - Nyamlell HF
Riang Majok - Udhum HF	Warlac - Rumtit HF
Loldiing – Guangnou	Yal - Makuoc HF

Before conducting the exercise, the team was trained on how to take proper MUAC measurements. The teams were also taken through the questionnaires for covered and non-covered cases. The case definition (SAM children (MUAC<115mm or bilateral pitting oedema present) aged 6-59 months) was also explained.

Results from the small area survey are as follows:


Table 2 – Results from small-area survey

Village	Total SAM	SAM not covered	SAM covered	Recovering Cases	TFU
Jorbuich	1	0	0	1	0
Riang Majok	0	0	0	0	0
Loldiing	1	0	0	1	0
Malith Tony	1	0	1	0	0
Warlac	2	0	2	0	0
Yal	3	2	1	0	0
Total	8	2	4	2	0

For analysis of the results, LOAS (simplified lot quality assurance sampling) was done in order to obtain a classification of coverage. Since Aweil West is considered a rural population, the SPHERE standard for coverage of rural CMAM programmes of 50% was used.

The following formula was used to determine the decision rule for the hypothesis:

$$d = \left\lceil n * \frac{p}{100} \right\rceil$$

d = decision rule

n = number of cases found

p = coverage standard

Table 3 – Calculations of decision rule and results Stage 2 hypothesis

Villages close to the OTP			Conclusions
Malith Tony, Warlac, Yal	Target Coverage	50%	The decision rule has been met, therefore confirming that coverage close to the OTP is high
	n = 1+2+3 = 6		
	Decision Rule (d)	=n*(50/100)	
	d = 3		
	Covered SAM cases	= 4	
Villages far from the OTP			Conclusions
Jorbuich, Rieng Majok, Loldiing	Target Coverage	50%	No cases were found and so this part of the hypothesis could not be confirmed nor denied
	n = 0+0+0 = 0		
	Decision Rule (d)	=n*(50/100)	
	d = 0		
	Covered SAM cases	= 0	

FORMING THE PRIOR

The prior was constructed by combining the results from stages 1 and 2. This included routine program data, qualitative data and all relevant findings from the small-area surveys.

The prior was the result of combining five modes:



a. Simple (Unweighted) boosters and barriers

The simple BBQ is the first and simplest approach to calculating the prior. A uniform score of 8 points was attributed to each element (either a barrier or booster). The total booster and total barrier scores were summed. The total booster score was then added to the minimum possible coverage (0%) and the total barrier score was subtracted from the maximal possible coverage (100%). The coverage estimate was then calculated by taking the mean of these two percentages.

$$\begin{aligned} 100\% - \text{sum of barriers} &= 100 - 96 = 4 \\ &\text{and} \\ 0\% + \text{sum of boosters} &= 0 + 40 = 40 \end{aligned}$$

The mode calculated from the simple weighting was:

$$\frac{4\% + 40\%}{2} = \underline{\underline{22\%}}$$

b. Weighted boosted and barriers

A score from 1 to 8 was attributed to each element. The score reflected the relative importance or likely effect that the element had on coverage. The total booster score was then added to the minimum possible coverage (0%) and the total barrier score was subtracted from the maximal possible coverage (100%). The coverage estimate was calculated by taking the mean of these two percentages.

$$\begin{aligned} 100\% - \text{sum of barriers} &= 100 - 59 = 41 \\ &\text{and} \\ 0\% + \text{sum of boosters} &= 0 + 25 = 25 \end{aligned}$$

The mode calculated from the simple weighting was:

$$\frac{41\% + 25\%}{2} = \underline{\underline{33\%}}$$

c. Community weighting of boosters and barriers

The main difference between this and 'b' above is that whereas 'b' is done with the assessment team at the end of stage 1, the community weighting is done with community members. It goes a long way in strengthening data collected as it included community members' weighting of the boosters and barriers.

The outcome of this exercise was as follows:

$$\begin{aligned} 100\% - \text{sum of barriers} &= 100 - 61 = 39 \\ &\text{and} \\ 0\% + \text{sum of boosters} &= 0 + 30 = 30 \end{aligned}$$

The mode calculated from the simple weighting was:

$$\frac{39 + 30\%}{2} = \underline{\underline{34.5\%}}$$

Table 4 below shows boosters and barriers with triangulation and weighting. The numbers in brackets represent scores from community weighting of boosters and barriers. 'C' stands for community.

Table 4 – Boosters and Barriers used to inform coverage prior belief (with triangulation and weighting)

	Triangulation		Weighting			Triangulation		Weighting	
<i>Positive Factors (Boosters)</i>	Sources	Method	Simple	Weighted	<i>Negative Factors (Barriers)</i>	Sources	Method	Simple	Weighted
Good collaboration among partners	RA, CHW, 2xTBA, HCP, CHD	GD, SSI	8	4 (C6)	Shortcomings in the quality of CMAM programming - Absence of HCP/HHPs - Limited skills' set of HCP - Heavy workload of HCP - Negative attitude towards patients/carers - Lack of sensitisation on malnutrition @ PHCU/PHCC level - Non-respect of MUAC measurement procedures - OTP cards not properly filled - No follow-up of defaulters - HC not structurally adapted for OTP	C ^{CMAM} , 4xC ^{CMAM F} , RA, CHW, 3xHCP, 5xAT	SSI, O	8	5 (C4)
Effectiveness of treatment	2xC ^{CMAM F} , 2xC ^{CMAM M} , W, 2xT, RA, CL, 3xCBO, 2xCHW, 2xTBA	GD, II, SSI	8	6 (C6)	RUTF stock outs	C ^{CMAM} , 2xM, RA, 2xTBA, 3xCHW, CDD, HCP, BHC, AT	GD, II, SSI, O	8	6 (C6)
Appreciation of CMAM programme	M, 3xC ^{CMAM} , 3xC ^{CMAM F} , 2xT, 2xRA, 3xCL, CBO, 2xCHW, CDD, 2xTBA, BHC, 3xHCP	GD, SSI	8	7 (C6)	Limited knowledge about malnutrition	2xM, 3xW, 3xC ^{CMAM F} , 4xC ^{CMAM M} , 2xT, 2xTH, 2xRA, 4xCL, CBO, 3xCHW, CDD, BHC, 3xHCP, CHD, 3xCWW	GD, SSI	8	6 (C5)
Good quality of CMAM programme - Reception - Short waiting time satisfactory staff-patient interface	4xC ^{CMAM} , 2xC ^{CMAM F} , 6xAT	SSI, O	8	3 (C6)	Denial of the existence of malnutrition	W, 2xM, C ^{CMAM F} , C ^{CMAM M} , T, 2xTH, 2xCL, 2xCBO	GD, II, SSI	8	5 (C5)
Existence of community outreach activities - Sensitisation - Screening	C ^{CMAM} , 3xM, W, 2xCBO, 2xRA, 3xCL, 2xT, 2xCHW, 3xTBA, BHC, 5xHCP, CHD,	GD, SSI	8	5 (C6)	Lack of understanding of CMAM programme - No distinction between CMAM programme & other services provided @ HC - MAM = food aid	2xM, 2xW, C ^{CMAM M} , T, TH, CL, CBO, HCP, CHD, CWW	GD, SSI	8	5 (C4)



	2xCWW				- Misunderstanding of admission criteria/eligibility				
					Inaccessibility - Flooding during the rainy season	M, TBA, BHC, CBO, CHW, 2xHCP, CHD, 3xCWW	GD, SSI	8	4 (C6)
					Distance	2xRA, 3xCL, T, TH, TBA, CBO, 2xHCP	GD, SSI	8	5 (C7)
					PlumpyNut = food - RUTF sharing - RUTF selling	2xW, M, C ^{6AM} _F , TH, 2xCHW, CDD, HCP, 2xCWW	GD, SSI	8	4 (C5)
					Heavy workload of women -Lack of time for HC consultation	CBO, CDD, CHD	GD, SSI	8	3 (C3)
					Stigmatisation - Early sex/pregnancy = poor (breast)feeding - Poverty - Bad parenting	3xM, 2xW, 2xC ^{6AM} _M , 2xC ^{6AM} _F , 2xTH, 4xCL, 3xCBO, 3xCHW, 2xT, 2xRA, 4xTBA, CDD, BHC, 5xHCP, CHD, CWW	GD, II, SSI	8	6 (C5)
					Lack or shortcomings of CHW networks - No screening - No sensitisation	C ^{6AM} _F , M, 4xW, 3x CL, RA, T, TH, CBO, CHW, 2xHCP	GD, II, SSI	8	5 (C6)
					Non-engagement of key community figures	CL, 2xHCP, AT	GD, O, SSI	8	5 (C5)
Totals			40	25 (C30)				96	59 (C61)



Table 5 – Key for weighting of positive and negative factors effecting coverage

<i>Source</i>		<i>Method</i>	
W	Women	GD	Group Discussion
M	Men	ID	Informal Discussion
C ^{SAM W}	Carer of malnourished child (woman)	SSI	Semi-structured interview
C ^{SAM M}	Carer of malnourished child (male)	II	Informal Interview
T	Teacher	CS	Case Study
TH	Traditional Healer	O	Observation
HHP	Home Health Promoter	DA	Data Analysis
HP	Hygiene Promoter		
CDD	Community Drug Distributor		
TBA	Traditional Birth Attendant		
BHC	Boma Health Committee		
RA	Religious authority (pastor, imam, etc.)		
CL	Community leader (village chief, deputy chief, etc.)		
E	Elders		
CBO	Community-based organisation (association, cooperative)		
HCP	Health Centre Personnel		
CWW	Nutrition Personnel (Concern Worldwide)		
CHD	County Health Department		
AT	Assessment Team		

d. Concept maps

This is a graphical analysis technique that was used to organize the data. The final product, the concept-map, is a diagram that visualizes relationships between findings. Links were drawn between different boosters and barriers, representing the relationship between them. The various relationships types traced included: results in, leads to, encourages, helps create, allows, etc. Two concept maps were created, for barriers and boosters. For each map, the total number of 'linkages' was counted. As before, the booster linkage sum was added to the minimum possible coverage value (0%) while the barrier linkage sum was subtracted from the maximum possible coverage value (100%). The coverage estimate was calculated by taking the mean of these two percentages.

$$\begin{aligned}
 100\% - \text{sum of barriers} &= 100 - 54 = 46 \\
 &\text{and} \\
 0\% + \text{sum of boosters} &= 0 + 11 = 11
 \end{aligned}$$

The mode calculated from the simple weighting was:

$$\frac{46 + 11\%}{2} = \underline{\underline{28.5\%}}$$

e. Histogram of belief

During a participatory working group, the investigation team designed a histogram representing the prior mode. This was done by asking each of the assessment team members to write, on a post-it note, what they believe the prior mode is and then adding it to a flipchart. Once all the post-it notes were added, they were arranged from the lowest to the highest and the median of all the estimations was obtained.

This process was done realistically and democratically. The histogram mode was identified to be 38%

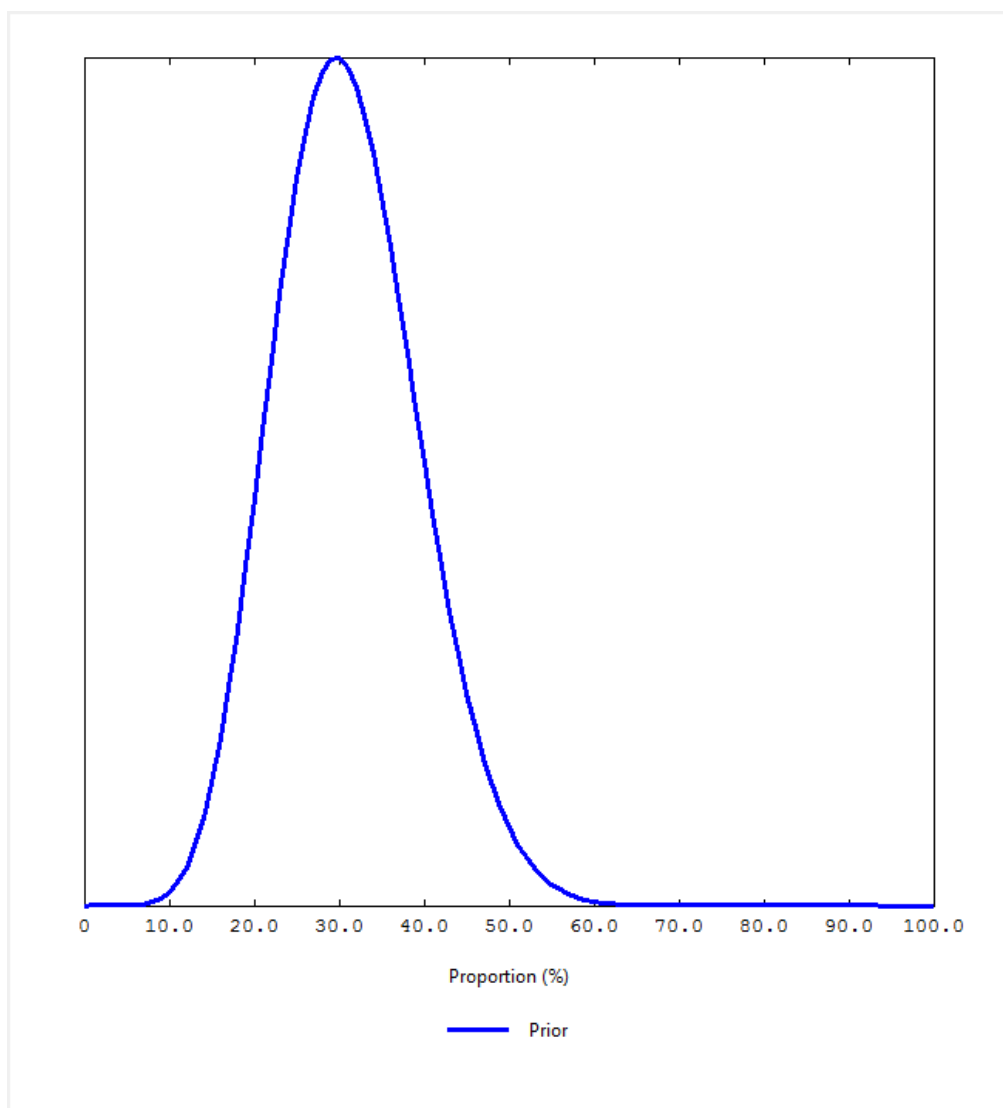
The prior mode was then calculated by taking the means of the 5 modes

$$\begin{aligned}
 \text{Prior mode} &= \frac{22\% + 33\% + 34.5 + 28.5\% + 38\%}{5} \\
 &= \underline{\underline{31.2\%}}
 \end{aligned}$$

With a mode of 31.2% and a credibility interval of 25%, α and β values were then calculated and these were used to represent shape parameters.

The figure below represents the prior probability of 31.2%

Figure 1 – Representation of the prior probability



$$\alpha = 9.32 \text{ and } \beta = 20.73$$



STAGE 3

The main aim of this stage is to complete a wide area survey to complement the findings of stages 1 and 2. In this stage, an estimate coverage for Aweil West County is obtained. Data collected in this stage forms the 'likelihood'. This is then combined with the 'prior' to obtain the 'posterior' which is the coverage estimate.

Building the likelihood – the wide area survey

In order for coverage likelihood to be determined, a wide area survey was conducted in 33 villages all over Aweil West County.

▪ Sample size calculation

For the prior described above, and a precision of 10%, the BayesSQUEAC calculator specified a minimum sample size of **n=48**.

The following calculation was used to determine the number of villages to be visited in order to achieve a sample size of 48.

$$n \text{ villages} = \left\lceil \frac{n}{\text{average population per village} \times \frac{\% \text{ population 6-59 months}}{100} \times \frac{(\text{prevalence of SAM})}{100}} \right\rceil$$

- $n = 48$
- % population 6-59 months = 18%
- Prevalence of SAM = 1.6%¹⁰
- Average population of each village = 500¹¹

$$= \left\lceil \frac{48}{500 \times 0.18 \times 0.016} \right\rceil$$

$$= 33.3$$

$$\underline{\underline{= 33 \text{ villages}}}$$

▪ Sampling framework

A two stage sampling method was used. First, the villages were randomly selected in intervals of 9 from a list of villages provided (The team could not use a map since the available maps did not have all the villages on them). Second, house to house case finding was done to identify all SAM children in each village.

Villages covered by Malaria Consortium were to a greater extent excluded from the final list of villages used for sampling.

Table 6 – Villages selected for Wide Area Survey in Aweil West County, NBeG State, South Sudan.

	Village Name	Boma	Payam
1	Aweil Pouou	Maduany	Mariem East
2	Panrak	Amothic	Mariem West
3	Khar Kou	Kueny Rac	Mariem West
4	Hila Kamuja	Udhum	Mariem West

¹⁰ Aweil West 2014 Pre-harvest Anthropometry and Mortality Survey.

¹¹ This figure was obtained by averaging the total population and Aweil West villages visited and also in consultation with the CWW Nutrition team.



5	Nyikel	Udhum	Mariem West
6	Akoc Wet Ngong	Wunliet	Mariem West
7	Luit Angot	Wunliet	Mariem West
8	Hong Pakir	Akuak Ngap	Gumjuer Centre
9	Ngok Rol	Chumich	Gumjuer Centre
10	Kang Kuot	Nyamlel Thi	Gumjuer Centre
11	Akuak Kou	Akueyic	Gumjuer Centre
12	Macharangom	Akueyic	Gumjuer Centre
13	Adhot Chlic	Makuei	Gumjuer East
14	Mabok Akot	Makuei	Gumjuer East
15	Mabil	Wet Weil	Gumjuer East
16	Wet Weil	Wet Weil	Gumjuer East
17	Maperalel	Aguat	Gumjuer East
18	Maper Pami	Achana	Achana
19	Makol Agep	Mangok Deng Dit	Achana
20	Hong Wet Jok	Amudho	Gumjuer West
21	Hong wet wek	Amudho	Gumjuer West
22	Nyin Alel Majak	Marol Bol	Gumjuer West
23	Riang kou	Marol Bol	Gumjuer West
24	Machar Adhot	Majok Adim	Ayat East
25	Machar Dau Yiel	Marial Baai	Ayat East
26	Maraial Baai	Marial Baai	Ayat East
27	Marial Lual	Ajook	Ayat Centre
28	Akuark Det	Ajook	Ayat Centre
29	Ajok Gout	Wungiir	Ayat Centre
30	Akuangueth	Wungiir	Ayat Centre
31	Akuarkroul	Malek Mayar	Ayat West
32	Mayom Bol	Mayon Bol	Ayat West
33	Mayom agep	Nyinbouli	Ayat West

The same process that was used during the small area survey was carried out. As stigma was identified as a barrier in stage 1, door to door sampling was employed as opposed to active and adaptive case finding.

A questionnaire for both covered and non-covered cases identified during this stage was employed in order to ascertain reasons for both cases.

The wide area survey was conducted over a period of 3 days with 6 teams of 3 people each.

▪ Results of the wide-area survey

In total, 38 SAM cases were identified. The results of this stage are as follow:

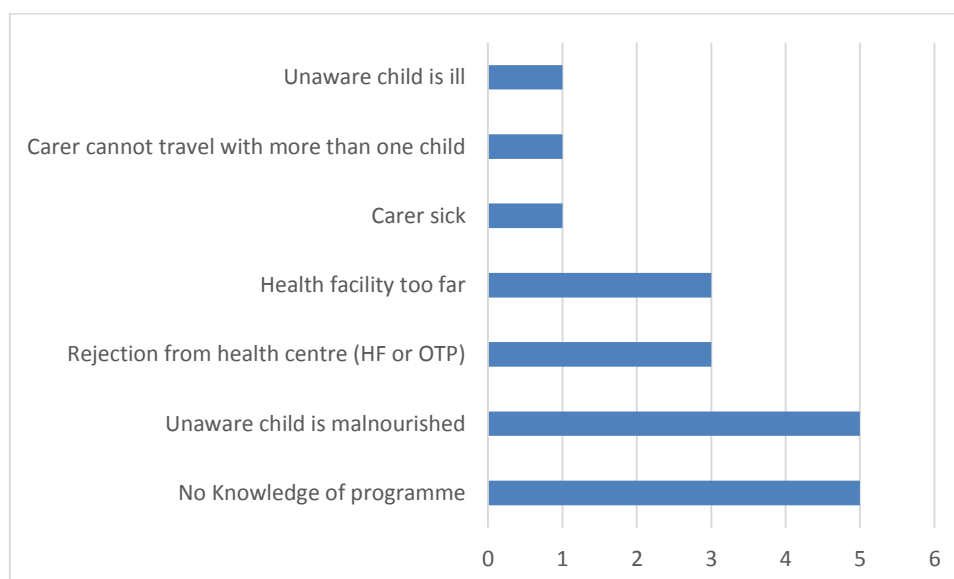
Table 7 – Results of Wide Area Survey in Aweil West County, NBeG State, South Sudan

Type of case	Number found
Total SAM cases	38
SAM cases not in the programme (non-covered)	20

SAM cases in the programme (covered)	18
Recovering cases (in programme with MUAC $\geq$ 11.5cm)	29

From the questionnaires administered to the non-covered cases, the barriers below were identified.

Figure 16 – Reasons for non-covered cases found during the Wide Area Survey, Aweil West County, NBeG State, South Sudan



*One 'non-covered case questionnaire was missing a reason why the mother had not taken the child to the clinic/OTP

▪ Coverage estimate

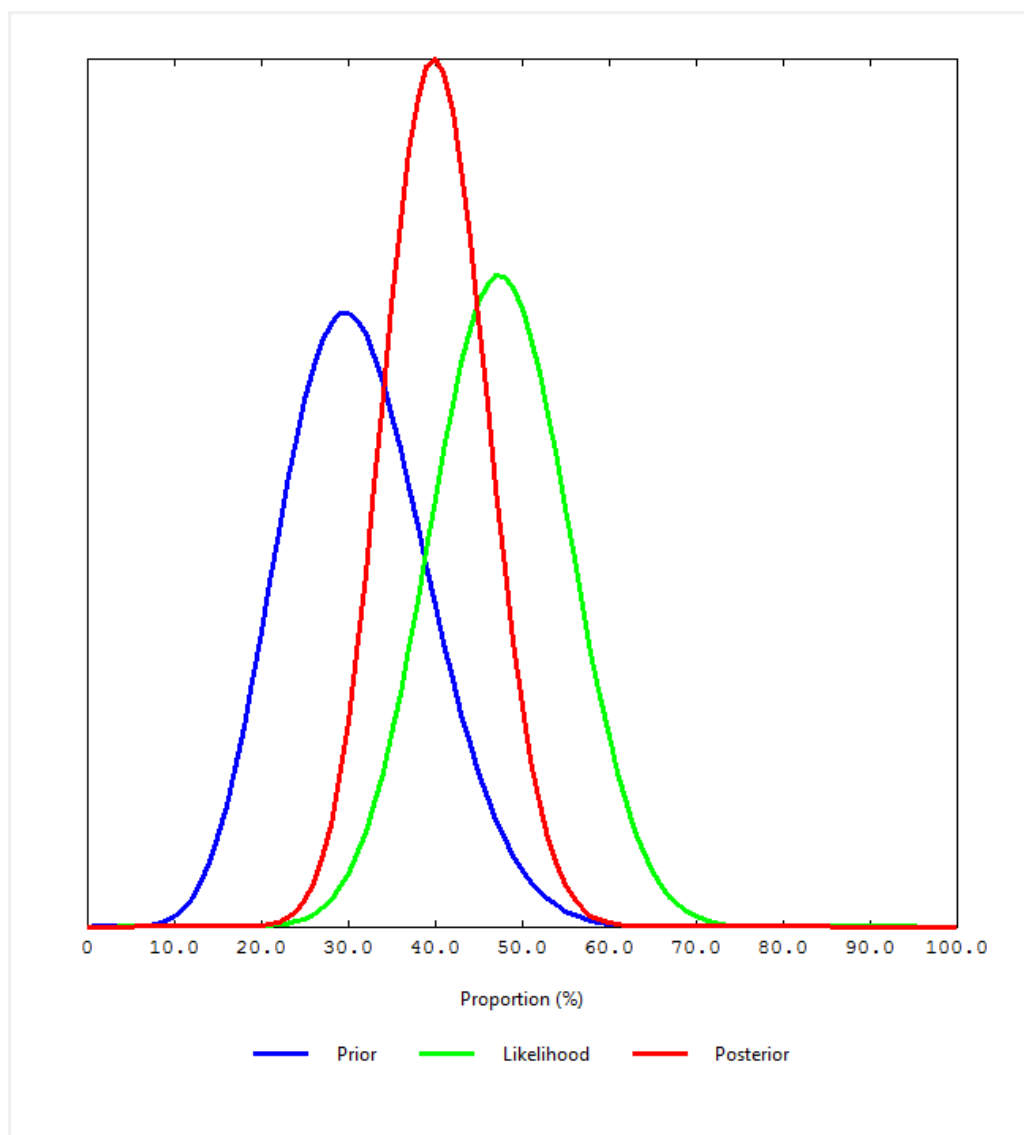
Point coverage was calculated through the BayesSQUEAC calculator that combines the information of the prior and the likelihood and produced the following result:

39.8% [95% CI: 29.0% - 51.9%]

Since Aweil West is considered a rural setting, this coverage estimate is below the SPHERE standard for rural CMAM programmes (50%).

The following figure presents this coverage estimate.

Figure 17 - Graphic representation of the point coverage estimate including the prior, likelihood and posterior information



From the analysis, there is no conflict between the prior (blue curve) and the likelihood (green curve) since there's considerable overlap between the two distributions (prior and likelihood). The posterior estimate of 39.8% is accurate.

This figure, however, cannot solely be said to represent CWW's efforts only. During the small and wide area surveys, it was realised that MC was operating in some of the villages visited (Akoc Wet Ngong, Adhot Chlic, Mabok Akot, Wet Weil, Ajok Gaut, Akuangueth). This was despite the efforts to remove some villages (provided by Malaria Consortium (MC)) from the final list of villages sampled. It was not very clear where BRAC operates mobile clinics which posed a challenge in identification of the villages.



DISCUSSION & RECOMMENDATIONS

The barriers identified during the wide area survey provide evidence of what the program needs to focus on. This includes, but is not limited to, increasing awareness about the programme and malnutrition in the coverage area, clear explanation of entry criteria into the programme so that beneficiaries don't feel rejected which reduces the chances of them not going to the health facility even when their child meets the admission criteria. Information from stage 1 gives in-depth information on what reforms should be carried out and this is clearly outlined in the Action Plan¹²

From the assessment, it is clear that HHP activities have serious short comings. This is especially evident in the areas of defaulter tracing, screening, referral and follow up of cases. As main actors of active case finding/referral activities in Aweil West County, HHP activities need to be intensified and broadened to areas beyond health facility proximity. This will ensure that a larger population is reached.

Limited knowledge of malnutrition and limited knowledge of the programme identified as barriers might have been determining factors of stigmatization of malnutrition in the community. Although this didn't come out when asked the first time, it came out upon probing which goes to show that it's an issue that needs to be addressed. Health education geared towards causes of malnutrition will go a long way in addressing the stigma. Demystification of false beliefs (e.g. that having sex while breastfeeding poisons breast milk) should be addressed in health education. During the assessment, health education sessions were not being conducted in the health facilities and the programme needs to work on this as it's an effective way of reaching a wider population.

The fact that RUTF is viewed as food is a worrying trend. It needs to be presented as a medicine just like any other that will assist children in getting well. With this (presenting RUTF as a medicine), factors such as sharing among family members and selling of the RUTF will be tackled to a large extent. Collaboration with the CHD, WFP and UNICEF should also be intensified to ensure that stocks at the health facilities are well managed and accounted for, as stock outs and pipeline breaks have negative impacts on the programme. Storage facilities should also ensure that stocks are safe because as was evidenced during the assessment, some facilities did not have adequate storage facilities.

The reporting process for the OTP program merits some reforms. Data needs to be reported as per specific indicators (as was done during the assessment). Since the implementation is the responsibility of the CHD, CWW should work with the team to ensure the sustainability and ownership of the program. Data needs to be more detailed and of better quality in the treatment cards and admission and discharge criteria need to be adhered to. Continuous on-the-job-training needs to be intensified and supervision carried out to ensure protocol is being followed. This also includes more detailed data at HHP level and ongoing analysis of individual OTP performance. All this data will help the programme identify shortfalls in the program and with that, identification of the changes that need to take place.

Differences between SQUEAC 2013 and SQUEAC 2015

In contract to SQUEAC 2013, current assessment benefited from a detailed community assessment, which translated into two separate but complementary reports – Community Assessment report and SQUEAC report – which provide a more detailed guidance to CMAM partners. , The community assessment extended and enriched the qualitative data collection carried out in Stage 1. While it confirmed many of the findings from SQUEAC 2013, it also uncovered new tendencies, which have had a considerable impact on coverage.

Firstly, SQUEAC 2015 identified the **stigmatisation** of children/parents as a “new” barrier to coverage/access to services. This barrier did not come out during SQUEAC 2013 but was uncovered during our assessment and weighted 6 on a scale from 1-8. This in itself is an important finding as it is linked with the **denial of the existence of malnutrition**, also a new barrier weighted 5/8.

Secondly, SQUEAC 2013 identified **correct knowledge of admission criteria** as a booster while in 2015 this element became a barrier. The same goes for the **involvement of community leaders in CMAM activities**. Although reasons may be multiple, it is possible that this shift from boosters to barriers was caused by a decrease in communication and community engagement activities.

¹² Annex 4



Thirdly, both SQUEAC 2013 and 2015 identified barriers such as **wrong understanding of CMAM programme, shortcomings in CHV networks, inadequate staff and supervision in health facilities**, all of them rated high. Under normal circumstances, there should have been an improvement in these areas, however, due to various factors, recommendations might not have been implemented as planned and thus these remained in the game (and could even deteriorate).



ANNEXES

ANNEX 1: INVESTIGATION TEAM

FIRST NAME, SURNAME	GENDER (M/F)	POSITION	ORGANISATION
Anne Kainyu Gitari	F	Coverage Advisor	CMN
Lenka Blanárová	F	Community Mobilisation Advisor	CMN
Adan Alio Abdi	M	Nutrition Programme Manager	CWW
Ester Vincent	F	Nutrition Programme Officer	CWW
Makuei Angok	M	Assistant Programme Officer, Nutrition	CWW
Mark Deng Lual	M	Food Clerk	CWW
Agalation Deng	M	Nutrition Assistant	CWW
Tong Garang	M	Nutrition Assistant	CWW
Athieng Tong	F	Nutrition Assistant	CWW
Mark Alich	M	Assistant Programme Officer, CHN	CWW
William Wol	M	Food Income Market	CWW
Joseph Bor	M	HIV Officer	CHD
Santino Atak	M	Pharmaceutical and logistics Officer	CHD
Lual Thou	M	Enumerator	
Mary Akech	F	Enumerator	
Jane Poni Charles	F	Enumerator	
William Deng	M	Enumerator	
Moses Manhial	M	Enumerator	
Luka Deng Deng	M	Enumerator	
Santino Gop	M	Enumerator	
Angelo Dhieu	M	Enumerator	



ANNEX 2: CHRONOGRAMME OF ASSESSMENT

Date	Activity
22 nd February	Travel to Juba/ Briefing with CD/Nutrition focal person
23 rd February	Preparation of SQUEAC framework
24 th February	Travel to Aweil West
25 th February	Detailed SQUEAC planning with local teams
26 th February	SQUEAC Training
27 th February	Community Assessment Training
28 th February – 3 rd March	Qualitative Data Collection and Analysis
4 th – 5 th March	Formulation of Hypothesis and Planning for Stage 2
6 th March	Stage 2: Small Area Survey
7 th – 12 th March	Stage 3: Wide Area Survey
13 th March	Development of Posterior, Recommendations and Action Plan Debrief with Nutrition PM
14 th March	Travel back to Juba/ Debrief with CWW Country team
15 th March	Travel to Nairobi (Anne)/Vienna (Lenka)



ANNEX 3: MAP OF AWEIL WEST COUNTY SHOWING LOCATION OF HEALTH FACILITIES



ANNEX 4: ACTION PLAN

RECOMMENDATION 1: Improve the quality of the Community-based Management of Acute Malnutrition (CMAM) programme

Objective	Justification	Responsible	Performance indicator	Target	Deadline
Produce an exhaustive mapping of villages in Aweil West County, organised by payams and bomas, interlinking them with health facilities where services are provided.	Shortcomings in the quality of CMAM programme	CHD Concern Worldwide	Exhaustive mapping of all villages in the catchment area of each health facility.	1	05/2015
Complement the exhaustive mapping of villages with a clear delineation of areas of intervention of all partners supporting CHD in the domain of Nutrition.	Idem.	CHD Concern Worldwide Malaria Consortium BRAC	Areas of intervention of all partners are clearly delineated and duly documented.	1	05/2015
Adopt new guidelines on discharge criteria using MUAC rather than 15% weight gain.	Idem.	MoH UNICEF Concern Worldwide	New discharge criteria discussed, adopted and duly communicated to all partners.	1	ASAP
Diversify admission sources on OTP cards to include slots for Community health volunteers, Peer referrals, Self referrals, Other community members referrals, Passive screening by health facility personnel, etc.	Idem.	CHD Concern Worldwide	Admission sources on OTP cards diversified and duly communicated to all health facilities.	1	05/2015
Train and/or provide a refresher training to health facility personnel involved in CMAM	Idem.	CHD Concern Worldwide	No. of trained personnel.	100% personnel	04 – 05/2015 10 – 11/2015
- reception; - anthropometric measurements; - OTP cards/registers/management tools, etc.					
Provide a continuous on-the-job coaching to health facility personnel with a decreasing involvement for Concern Worldwide in order to stimulate their independence in the execution of CMAM-related activities.	Idem.	CHD Concern Worldwide	12-month coaching planned developed, validated and duly documented.	1	05/2015 onwards
			Weekly progress review through field reports.		
Assure the systematic implementation	Idem.	CHD	No. of persons coming for	100% of children and PLWs	05/2015 onwards

RECOMMENDATION 1: Improve the quality of the Community-based Management of Acute Malnutrition (CMAM) programme

Objective	Justification	Responsible	Performance indicator	Target	Deadline
and follow-up of passive screening of all children between 6-59 months as well as all pregnant and lactating women coming for medical consultation.		Concern Worldwide	consultation and screened passively.	coming for a medical consultation	
Develop and put in place a new sensitisation strategy at the health facility level, assuring systematic sensitisation for malnourished carers and integrating the malnutrition in other educational activities, in order to optimise the understanding of malnutrition and its treatment.	* Shortcomings in the quality of CMAM programme * Limited knowledge about the malnutrition * Denial of the existence of the malnutrition * Stigmatisation * Lack of understanding of CMAM programme * PlumpyNut® = food	CHD Concern Worldwide	Sensitisation developed, duly documented and communicated to health facilities.	1	05 – 06/2015
Develop and put in place a monitoring system for the new sensitisation strategy at the health facility level.	Idem.	CHD Concern Worldwide	Monitoring system of the strategy developed and duly documented.	Once per month/PHCU.	05 – 06/2015

RECOMMENDATION 2: Reinforce the coordination and stimulate the active participation of all actors taking part in CMAM programme

Objective	Justification	Responsible	Performance indicator	Target	Deadline
Assure the leadership and active collaboration of the public health and nutrition officer in all community outreach activities.	* Integrated project * Sustainability * Accountability	CHD	Public health and nutrition officer leads on and actively collaborates with all partners in relation to the development, implementation and monitoring of community outreach activities at the health facility as well as the village level.	PHNO engages with all partners on a weekly basis and keeps a written record of his activities, including weekly field visits to PHCC/PHCU.	05/2015 onwards
Organise bi-monthly coordination meetings at CHD level in order to present nutrition updates, exchange experience, develop/align/complement health/nutrition strategies applicable to the whole county and to monitor/consolidate their progress.	* Shortcomings in the quality of CMAM programme * Shortcomings in CHV networks * Limited knowledge about malnutrition * Denial of the existence of the	CHD <i>Obligatory participation:</i> PHNO Supervisors PHCC/PHCU Concern Worldwide Malaria Consortium	Coordination meetings planned, organised and duly documented (invitation letters, agendas, minutes, etc.)	6 times a year	05/2015 07/2015 09/2015 11/2015 01/2016 03/2016



RECOMMENDATION 2: Reinforce the coordination and stimulate the active participation of all actors taking part in CMAM programme

Objective	Justification	Responsible	Performance indicator	Target	Deadline
	malnutrition * Stigmatisation * Lack of understanding about CMAM programme * PlumpyNut® = food	BRAC			
Organise quarterly coordination meetings at the level of each PHCC/PHCU in order to establish a planning calendar of community outreach activities for entire catchment area and to monitor/consolidate its progress.	Idem.	PHNO Concern Worldwide <i>Obligatory participation:</i> Incharge PHCC/PHCU PHCC/PHCU personnel BHC all CHVs (regardless of their category)	Coordination meetings planned, organised and duly documented (agendas, minutes, etc.)	4 times a year	06/2015 09/2015 12/2015 03/2016
Prepare/consolidate list of key messages linked to malnutrition, including its underlying causes, addressing local beliefs and perceptions.	Idem.	Concern Worldwide <i>With a support of a variety of community actors.</i>	Existence of a list of harmonised key messages linked to malnutrition.	1	05/2015
Prepare an illustrated pamphlet, translated in local language/s, covering harmonised key messages.	Idem.	CHFP Concern Worldwide	Existence of an illustrated pamphlet printed for distribution among community actors.	1	06/2015
Develop the content of sensitisation sessions adapted to target audience, i.e.: * CHVs * BHC * Influential people (CL, RA, CBO, T, M2M) * Men * Women	Idem.	Concern Worldwide <i>With a support of a variety of community actors.</i>	Existence of training modules adapted to target audience.	5	06/2015

RECOMMENDATION 3: Develop and put in place a new community outreach strategy for community health volunteers in order to assure regular and homogeneous screening and sensitisation of the target population

Objective	Justification	Responsible	Performance indicator	Target	Deadline
Map out all community health	* Shortcomings in CHV	PHNO	Exhaustive mapping of all CHVs	1	05/2015



RECOMMENDATION 3: Develop and put in place a new community outreach strategy for community health volunteers in order to assure regular and homogeneous screening and sensitisation of the target population

Objective	Justification	Responsible	Performance indicator	Target	Deadline
volunteers, regardless of their category, in the catchment area of each health facility.	networks * Limited knowledge about malnutrition * Denial of the existence of the malnutrition * Stigmatisation * Lack of understanding about CMAM programme * PlumpyNut® = food	Concern Worldwide	in the catchment area of each health facility.		
Assure that each boma has at least one or two dynamic community health volunteers, out of which one is a woman.	Idem.	CHFP Concern Worldwide Incharge PHCC/PHCU BHC Village chiefs	Each boma elects or re-elects its CHVs, assuring that one of the two is a woman.	1 CHV - man and/or 1 CHV – woman per boma.	06/2015
Reinforce technical and interpersonal capacities of each CHV (newly elected or re-elected) via (refresher) training sessions in each health facility.	Idem.	Concern Worldwide Incharge PHCC/PHCU BHC	Each CHV is duly trained on all aspects of his position, including voluntary work for the good of their communities.	1-2 (refresher) training sessions per health facility.	06/2015 – 07/2015 (refresher training after 6 months, if necessary)
Provide each CHV with necessary material (MUAC, reference slips, illustrated pamphlet of harmonised key messages, etc.) in order to allow them to carry out regularly their tasks and responsibilities.	Idem.	CHFP Concern Worldwide Incharge PHCC/PHCU	Each CHV has necessary material to carry out his/her work.	1 MUAC per CHV reference slips 1 illustrated brochure of harmonised key messages.	06/2015 – 07/2015
Assure monthly screening in each boma, preferably in different villages on a rotating basis.	* Shortcoming in CHV networks * Inaccessibility * Distance	CHV <i>Supervised by:</i> Incharge PHCC/PHCU BHC CHFP Concern Worldwide	Existence of a quarterly screening planning calendar developed during the coordination meeting at the health facility level.	1 per health facility	07/2015 onwards
Assure the organisation of two sensitisation sessions per month in each boma, preferably in different villages on a rotating basis - one carried out by a CHV-man dedicated to male population and one carried out by a CHV-woman, if possible,	* Shortcomings in CHV networks * Limited knowledge about malnutrition * Denial of the existence of the malnutrition * Stigmatisation	CHV <i>Supervised by:</i> Incharge PHCC/PHCU BHC PHNO Concern Worldwide	Existence of a quarterly community sensitisation planning calendar elaborated during the coordination meeting at the health facility level.	1 per health facility	07/2015 onwards



RECOMMENDATION 3: Develop and put in place a new community outreach strategy for community health volunteers in order to assure regular and homogeneous screening and sensitisation of the target population

Objective	Justification	Responsible	Performance indicator	Target	Deadline
dedicated to female population in the village (including young women and girls).	* Lack of understanding about CMAM programme * PlumpyNut® = food * Inaccessibility * Distance				

RECOMMENDATION 4: Develop and put in place a new community outreach strategy for a variety of community actors in order to complement and enrich the activities carried out by community health volunteers

Objective	Justification	Responsible	Performance indicator	Target	Deadline
Map out key community actors in the catchment area of each PHCC/PHCU, namely: community leaders (CL), religious authorities (RA), teachers (T), community-based organisations (CBO), mother-2-mother support groups (M2M) and/or other influential players.	* Shortcomings in * Limited knowledge about malnutrition * Denial of the existence of the malnutrition * Stigmatisation * Lack of understanding about CMAM programme * PlumpyNut® = food * Inaccessibility * Distance	PHNO Concern Worldwide <i>With the support of a variety of community actors.</i>	Mapping of key community actors in the catchment area of each PHCC/PHCU.	1	06/2015
Organise sensitisation meetings with boma health committees in the catchment area of each PHCC/PHCU, advocating, inter alia, for their support of CHVs and complementing their activities, whenever needed, and for dynamic mobilisation of key community actors in that area.		PHNO Concern Worldwide Incharge PHCC/PHCU	Sensitisation meetings with BHC in each health facility planned, organised and duly documented (sensitisation modules, minutes, etc.)	1 per health facility	07/2015
Provide each participant with necessary material (MUAC, reference slips, illustrated pamphlet of harmonised key messages, etc.) in order to allow them to carry out regularly their tasks and responsibilities.	Idem.	Concern Worldwide	Each participant receives necessary material to carry out his/her work.	1 per participant	07/2015

RECOMMENDATION 4: Develop and put in place a new community outreach strategy for a variety of community actors in order to complement and enrich the activities carried out by community health volunteers

Objective	Justification	Responsible	Performance indicator	Target	Deadline
Assure monthly screening in each boma of the PHCC/PHCU catchment area, particularly in villages not covered by CHVs.	* Shortcoming in CHV networks * Inaccessibility * Distance	BHC <i>Supervised by:</i> Incharge PHCC/PHCU CHFP Concern Worldwide	Existence of a quarterly screening planning calendar developed during the coordination meeting at the health facility level.	1 per health facility	08/2015 onwards
Organise sensitisation meetings with CL, RA, T, CBO, M2M and other influential players in each boma, advocating, inter alia, for their support of CHVs and the community sensitisation through community channels available to them (with a particular focus on the sensitisation of men).	Idem.	BHC <i>Supervised by:</i> Concern Worldwide Personnel PHCC/PHCU CHV	Sensitisation meetings with CL, RA, T, CBO and M2M in each boma planned, organised and duly documented (sensitisation modules, minutes, etc.)	1 per boma	08/2015 – 10/2015
Provide each participant with an illustrated pamphlet of harmonised key in order to stimulate their engagement in the community sensitisation.	Idem.	Concern Worldwide	Each participant receives an illustrated pamphlet of harmonised key messages.	1 per participant	08/2015 – 10/2015
Organise experience-sharing exchanges with CL, RA, T, CBO, M2M and other influential players in each boma in order to collect their feedback on the activities carried out in their villages, including challenges and barriers to behaviour change.	Idem.	BHC <i>Supervised by:</i> Concern Worldwide Personnel PHCC/PHCU CHV	Experience-sharing exchanges with CL, RA, T, CBO, and M2M planned, organised and duly documented (field reports/minutes)	1 per boma	02/2016 – 04/2016
Organise sensitisation meetings at the facility level with existing mother-2-mother support groups (M2M), advocating, inter alia, for their support of CHVs in monthly screening of the target population in their respective villages at least once a month.	Idem.	PNHO Concern Worldwide BHC	Sensitisation meetings with M2M planned, organised and duly documented (sensitisation modules, minutes, etc.)	1 per health facility	07/2015 – 08/2015
Provide each participant with a MUAC and simplified reference slips in order to stimulate their engagement in screening activities.	Idem.	Concern Worldwide	Each participant receives necessary material.	1 per participant	07/2015 – 08/2015

RECOMMENDATION 4: Develop and put in place a new community outreach strategy for a variety of community actors in order to complement and enrich the activities carried out by community health volunteers

Objective	Justification	Responsible	Performance indicator	Target	Deadline
Organise experience-sharing exchanges with existing mother-2-mother support groups (M2M) in order to collect their feedback on the activities carried out in their villages, including challenges and barriers to such activities.	Idem.	PHNO Concern Worldwide BHC	Experience-sharing exchanges with M2M planned, organised and duly documented (field reports/minutes)	1 per facility	01/2016 – 02/2016
Organise special events linked to local festivities and/or international days, connected directly or indirectly to malnutrition, engaging theatrical, musical or others groups in the community sensitisation at a larger scale.	Idem.	CHFP Concern Worldwide Theatrical/musical groups CBO <i>With the support of:</i> Incharge PHCC/PHCU, BHC, CHV, CL/CBO/RA/T	Special events planned, organised and duly documented (planning calendar, minutes of planning meetings, field reports of special events, etc.)	Once per year per health facility	07/2015 – 06/2016 (calendar of special events validated in 06/2015)
Organise radio shows on a variety of subjects linked to malnutrition, including its underlying causes, addressing local beliefs and perceptions.	Idem.	PHNO Concern Worldwide Local radio <i>With the support of:</i> Incharge PHCC/PHCU, BHC, CHV, CL/CBO/RA/T	Radio shows planned, organised and duly documented (planning calendar, scripts, etc.)	Once per month	07/2015 – 06/2016 (planning calendar of radio shows validated in 06/2015)

RECOMMENDATION 5: Develop and put in place an efficient monitoring & evaluation system for community outreach (sensitisation, screening, follow-up of defaulters, etc.)

Objective	Justification	Responsible	Performance indicator	Target	Deadline
Develop and put in place a database allowing to monitor the progress of planned community outreach activities (i.e. sensitisation, screening) detailing, inter alia, the following: * date * locality * names of responsible persons * name of the supervisor * number of M/W/Ch sensitised/screened * subjects / sensitisation messages * notes and/or particular questions which need to be	* Shortcomings in CHV networks * Limited knowledge about malnutrition * Denial of the existence of the malnutrition * Stigmatisation * Lack of understanding about CMAM programme * PlumpyNut® = food	PHNO Concern Worldwide Incharge PHCC/PHCU	Database developed and put in place.	1	05/2015 – 06/2015

**RECOMMENDATION 5: Develop and put in place an efficient monitoring & evaluation system for community outreach (sensitisation, screening, follow-up of defaulters, etc.)**

Objective	Justification	Responsible	Performance indicator	Target	Deadline
addressed					
Organise monthly planning meetings in order to monitor and evaluate the the implementation of community outreach activities (i.e. sensitisation, screening)	Idem.	PHNO and/or Concern Worldwide Incharge PHCC/PHCU BHC	Community outreach activities are witnessed by one of the following: PHNO Concern Worldwide BHC CL/CBO/RA/T CHV and duly documented in the database.	min. 75%	06/2015 onwards
Inform persons involved about their supervision responsibilities at least one week in advance.	Idem.	PHNO Concern Worldwide Incharge PHCC/PHCU BHC	All involved persons are duly informed and confirm their availability.	100%	06/2015 onwards
Each field visit is accompanied by a short courtesy visit of influential community members in order to encourage a continuous dialogue with host communities and to allow partners to react promptly to eventual challenges.	Idem.	PHNO Concern Worldwide BHC CL/CBO/RA/T CHV	Each courtesy visit of influential persons is duly documented in the database, including their key remarks.	100%	07/2015 onwards

ANNEX 5: QUESTIONNAIRES

QUESTIONNAIRE FOR NON COVERED SAM CASES

District : _____

OTP Catchment Area : _____

Village : _____

Name of Carer : _____

Name of Child : _____

Team : _____

Date : _____

1. Do you think your child is sick?

☐ Yes; which illness is your child suffering from? _____

☐ No → STOP

2. Do you think your child is malnourished?

☐ Yes

☐ No → STOP

3. Do you know where you can take your child to be treated (for malnutrition)?

☐ Yes; what is the name of the programme/where is it?

☐ No → STOP

4. Why have you not taken your child to the Health Centre?

5. Has your child previously received treatment from the OTP or SFP or TFU? (circle appropriate)

☐ Yes; why are they no longer in the programme?

☐ No → STOP

☐ 1. Defaulter; when? _____

why? _____

☐ 2. Discharged cured; when? _____

☐ 3. Discharged non-cured; when? _____

☐ 4. Other reasons : _____

Thank the carer and provide with a referral slip.

Any additional comments/observations :

QUESTIONNAIRE FOR COVERED SAM CASES

District : _____

Village : _____

Name of Carer : _____

Team : _____

1. How did you first know that your child was malnourished?

2. How did you hear about the programme?

3. Did you treat your child before coming to the health facility/OTP?

☐ Yes; How?

And why did you then go to the health facility?

4. Do you know any other malnourished children in the community?
