



Conducted by the International Rescue Committee

COVERAGE ASSESSMENT

SEMI-QUANTITATIVE EVALUATION OF ACCESS & COVERAGE



Aweil South County; Northern Bahr el Ghazal State
Republic of South Sudan

Survey date: 13 – 24 March 2015

Authors

Ireene Makura; Nutrition in iCCM Advisor & Stanley Anyigu; Nutrition Program Manager

Funded by the Department for International Development

ACKNOWLEDGEMENT

First and foremost the IRC would like to thank DFID for funding the SQUEAC assessment in Aweil South County of Northern Bahr el Ghazal in South Sudan.

The SQUEAC assessment would not have been successful without the support of the Ministry of Health County Health Department in Aweil South County which gave authorizations for the implementation of the SQUEAC assessment. It is important to acknowledge with gratitude the technical inputs by the Coverage Monitoring Network (CMN) Lovely Amin and Melaku Dessie for providing remote support to the IRC staff on technical aspects of the SQUEAC methodology.

The nutrition department of the IRC lead by Jeff Kalalu Matenda was key in organization the assessment and contributed to the write up of the report. Gratitude also goes to the Nutrition Information Working Group of South Sudan for the technical review and support given to the IRC in the planning of the assessment. The IRC Aweil South County program played a pivotal role in ensuring that all activities of the survey are carried out smoothly. Special mention goes to the Field Manager of the IRC in Aweil South County Robert Mamawi and the logistics department. The Nutrition program team lead by Stanley Anyigu the Nutrition Manager in Aweil South County had everything organised for the assessment and expressed a keen interest in the assessment. The assessment team did a commendable job towards SQUEAC completion including walking for long hours and staying to review program and collected data past working hours.

Last but not least, the carers, community leaders and community based volunteers work is acknowledged well in this report as they were the major source of information who made this assessment possible.

ACRONYMS

BRAC	Bangladesh Rehabilitation Assistance Committee
CBD	Community based Distributor
CHD	County Health Department
CI	Credible interval
CMN	Coverage Monitoring Network
CNV	Community Nutrition Volunteers
CNW	Community Nutrition Workers
DFID	Department for International Development
FGD	Focus Group Discussion
HF	Health Facility
HH	Household
ICCM	Integrated Community Case Management
IMAM	Integrated Management of Acute Malnutrition
IRC	International Rescue Committee
JAM	Joint Aid Management
KII	Key Informant Interview
LoS	Length of Stay
MAGDA	
MAM	Moderate Acute Malnutrition
MUAC	Mid-Upper Arm Circumference
NBeG	Northern Bahr el Ghazal
NGO	Non-Governmental Organization
OTP	Outpatient Therapeutic Program
PHCC	Primary Health Care Centre
PHCU	Primary Health Care Unit
PSI	Population Services International
RUSF	Ready to Use Supplementary Food
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
SSI	Semi-Structured Interview
TH	Traditional Healer
TSFP	Targeted Supplementary Food Program
VHC	Village Health Committee
WVI	World Vision International

Table of Contents

ACKNOWLEDGEMENT	1
ACRONYMS.....	2
1 EXECUTIVE SUMMARY	4
2 INTRODUCTION.....	6
3 OVERVIEW OF THE ASSESSMENT'	7
3.1 OBJECTIVES OF THE ASSESSMENT.....	8
3.2 EXPECTED OUTPUT.....	8
4 INVESTIGATION PROCESS	8
4.1 STAGE ONE: ANALYSIS OF QUALITATIVE AND QUANTITATIVE DATA.....	8
4.1.1 ROUTINE PROGRAMME MONITORING DATA.....	8
4.1.2 RECORD KEEPING IN HEALTH FACILITIES.....	16
4.1.3 COMMUNITY ASSESSMENT.....	17
4.1.4 FACTORS INFLUENCING ACCESS TO IMAM SERVICES	23
4.1.5 COMMUNITY MOBILIZATION STRATEGY	25
4.2 STAGE 2: SMALL AREA SURVEY	27
4.2.1 SMALL AREA SURVEY FINDINGS	28
4.3 STAGE 3: WIDE AREA SURVEY.....	28
4.3.1 SCORING BOOSTERS AND BARRIERS.....	28
4.3.2 FORMING THE PRIOR.....	29
4.3.3 SAMPLE SIZE CALCULATION	29
4.3.4 SAMPLING.....	30
4.3.5 WIDE AREA SURVEY FINDINGS.....	31
4.3.6 COVERAGE ESTIMATION	31
5 CONCLUSION AND RECOMMENDATION.....	33
6 LIMITATIONS.....	36
7 ACTION PLAN TO IMPROVE PROGRAM COVERAGE AND ACCESSIBILITY	0
8 ANNEXES.....	0
ANNEX 1: Schedule - SQUEAC Training & Assessment, Aweil South; South Sudan; 10-24 March 2015.....	0
ANNEX 2: Aweil South SQUEAC Survey Participant list	1
ANNEX 3: DATA COLLECTION TOOLS FOR SMALL AND WIDE AREA SURVEY.....	2
ANNEX 4: SMALL AND WIDE AREA SURVEY QUESTIONNAIRE FOR CHILDREN NOT IN THE PROGRAM	3

1 EXECUTIVE SUMMARY

A coverage investigation for an Integrated Management of Acute Malnutrition (IMAM) program implemented by the International Rescue Committee was conducted in Aweil South County utilizing the Semi-Quantitative Evaluation of Access & Coverage (SQUEAC) methodology with remote support from the Coverage Monitoring Network (CMN). The assessment took place from the 13th to the 24th of March 2015.

Aweil South County is one of the five counties of Northern Bahr el Ghazal State in South Sudan. It has an estimated population of 144,638¹ and is mainly inhabited by the Dinka tribe. Aweil South County consists of 8 payams however out of the 8 payams, only villages in 6 payams were included in the survey. These villages are under the catchment area of the six functional OTPs that were running for over a year in Aweil South County. The IRC has been providing health care services in Aweil South County since 2010 to date. The IRC has interventions in nutrition, integrated Community Case Management of childhood illnesses and supports the Ministry of Health in providing primary health care to the community through a national health systems strengthening intervention.

The assessment used a three stage SQUEAC methodology which included stage 1 for collecting and analysing qualitative and quantitative data from OTP records, reports and the community; stage 2 for developing and testing a hypothesis on coverage drawn from stage one findings (Small Area Survey) and stage 3 was conducting a Wide Area Survey to estimate the programme coverage rates of Out-patient Therapeutic Programme (OTP). The Bayesian SQUEAC calculator was used to calculate the sample size for the wide area survey. Purposive sampling was used to select villages for the small area survey while villages were randomly selected from the sampling frame of villages in the 6 payams for Aweil South County for the wide area survey. All children in the selected villages were assessed for SAM using MUAC and checking for bilateral pitting oedema.

Single coverage = 48.8% CI (39.4% - 58.3%)

Point Coverage = 41.1% CI (30.5% - 52.8%)

Single coverage of IMAM services was estimated at 48.8% CI (39.4% - 58.3%) with a $p = 0.5761$ showing a considerable overlap between the assumed coverage value (prior = 45%) and the outcome of data collected from the wide area survey. Coverage, however, does not meet the required minimum SHPERE standards for rural areas of $\geq 50\%$. There were a number of barriers and boosters identified for the program that influenced access and uptake of IMAM services.

Major boosters and barriers influencing program access and uptake in Aweil South County

Boosters	Barrier
Involvement of traditional community leaders in IMAM program	Long distance to facility
Availability of IMAM services and community is aware of the services and the delivery points	Inaccessibility of facility due to flooding after rainy season
Continued availability of RUTF especially during the dry season	High opportunity cost and workload for caregivers
Child improvement and positive outcome resulting in mother to mother referrals	Cultural beliefs that result in malnutrition cases being stigmatized or influencing negative health seeking behaviours
Active screening and referral in the community by CNWs & CNVs and opportunistic screening by CBDs	Lack of OTP infrastructure including waiting room and secure store
Some communities are close to the facility	Long waiting hours at the facility
Priority of giving services is given to referral cases	Migration due to lack of drinking water in the dry season
Good relationship between beneficiaries and staff	Few CNVs per site and lack of monthly incentives for CNVs and CBDs
Service is free of charge	Shortage of supplies during wet season
	Community's lack of knowledge on admission criteria and purpose of the program

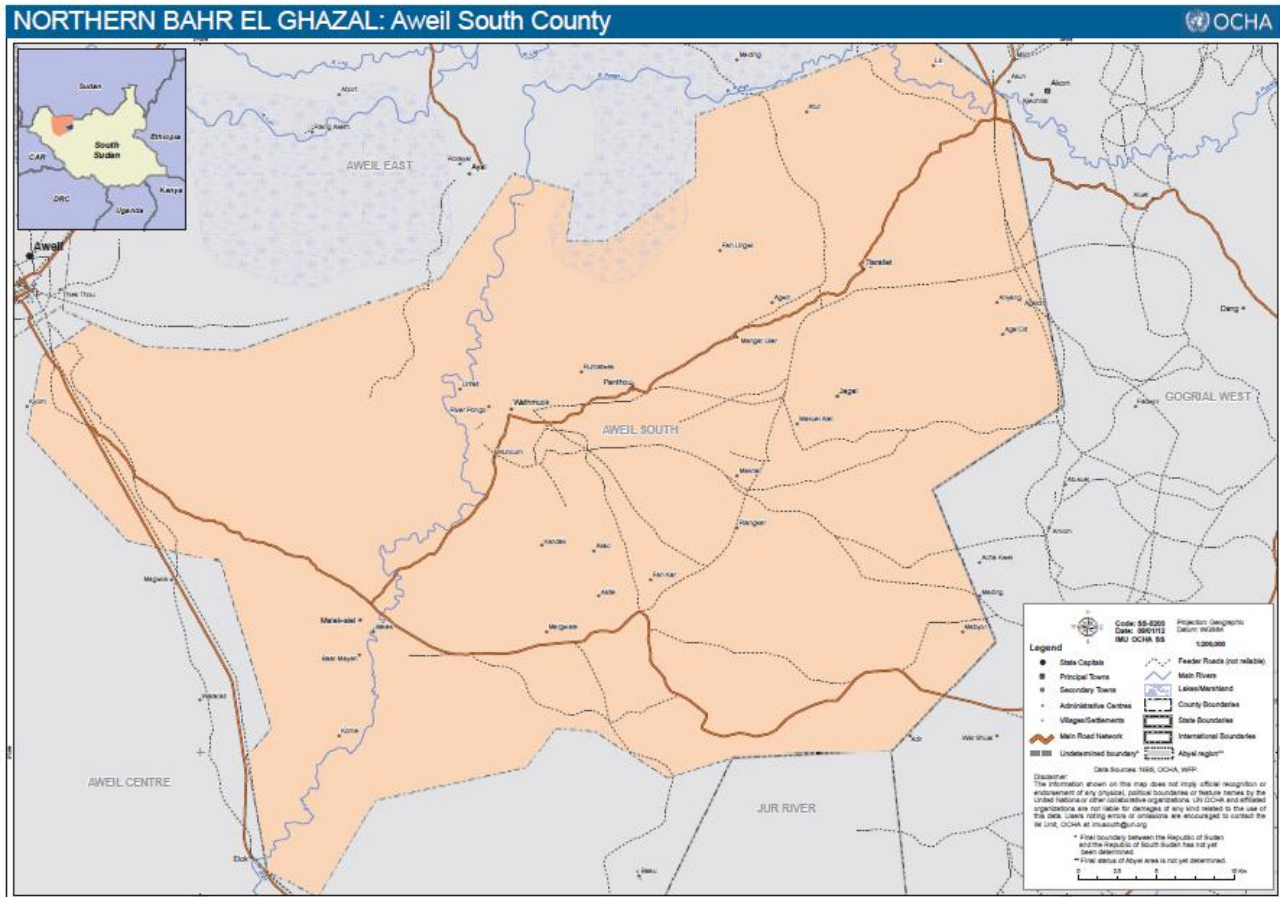
¹ Population projected from the 2008 NBS Census data

The following recommendations were made for the County as a whole and the nutrition program in Aweil South County:

1. The CHD to put in place a nutrition coordination mechanism in the County for the different nutrition partners to ensure more beneficiaries access nutrition services and active participation of all partners in addressing the community's needs.
2. Increase the community's access to the IMAM services by improving the quality of services provided for at the health facilities and by increasing the number of treatments sites.
3. Build on the existing community mobilization strategy to be context specific and use the effective identified communication channels to pass health messages.
4. Build capacity of staff and community volunteers on IMAM protocols and reporting as per the IMSAM Guidelines of South Sudan.
5. Improve the infrastructure, capacity and ensure adequate supply of medication at the health facilities to address the needs of the community.
6. Develop and put in place effective and efficient monitoring and evaluation system for the program including the community mobilization strategy.
7. Develop and put in place a standard reporting mechanism that captures all nutrition indicators and can be used at all levels of programming.
8. Implementation of nutrition sensitive interventions that will address the underlying causes of malnutrition (food insecurity, provision of clean and safe water, sanitation and hygiene and adequate maternal and child care).
9. Improve the community's support mechanism for mothers and caregivers by creating community's awareness on maternal and child health.
10. To conduct a follow up SQUEAC survey for the IMAM program in Aweil South County early 2016 to assess progress.

2 INTRODUCTION

South Sudan officially the Republic of South Sudan, is a landlocked country in north-eastern Africa that gained its independence from Sudan in 2011. South Sudan is divided into ten states, which correspond to three historical regions: Bahr el Ghazal, Equatoria, and Greater Upper Nile. The assessment was conducted in Aweil South County one of the five counties in Northern Bahr el Ghazal State. NBeG state is one of the 10 states of South Sudan in the Bahr el Ghazal region.



Aweil South County is one of the five counties in NBeG State and has an area of 1,976km². It is divided into 8 payams, which are further divided into 28 bomas. There are a total of 262 villages in Aweil South County² with an estimated population of 144,638³. The county is predominantly inhabited by the Dinka tribe.

The major livelihoods undertaken in Aweil South County are farming and livestock; which each contribute 34% of the livelihood activities in the community and fishing at 30%. The major crops grown are sorghum, sesame, maize and groundnuts. However these livelihoods have had major shocks affecting them in the past two years. These shocks include natural disasters, limited access to markets and conflict. This has seen most families in the county unable to fully provide for their families. Aweil South County is one of the counties in South Sudan with an almost established health care system. There are a total of 10 functional health facilities in the county run by the government's health department, supported by the IRC. The county has considerable good access to clean and safe water as there are a total of 24 boreholes in the county. There is need for maintenance on the boreholes as they serve a large community⁴.

The assessment was conducted in six (Ayai, Tiar-Aliet, Panthou, Nyieth, Wathmouk and Wuncum) out of eight payams. One health facility from the six payams providing IMAM services under the IRC was included in the

² Village assessment survey, County Atlas 2013; IOM

³ Population projected from NBS Census results of 2008

⁴ NBS; OCHA, IOM, ESRI 2013

assessment. Two-days of training were provided to the assessment team on the SQUEAC methodology, an understanding of coverage, community mobilization assessment and qualitative data collection methods. The IRC team closely supervised the data collection and analysis process in order to ensure data quality. The data were interpreted and analyzed with program and CHD staff in the field. The IRC received remote technical support from the Coverage Network Monitoring in conducting the assessment.

The IRC has been providing health care services in Aweil South County from 2010. To date the organization supports the government of South Sudan in the health systems' strengthening project of health facilities. To foster sustainability the health systems' strengthening project is led by the county health department and the IRC is there to technically support the initiative. The IRC also implements integrated community case management (iCCM) for the treatment of malaria, pneumonia, diarrhoea and screening and referral of SAM cases to the health facility and has opened eight SAM (without medical complications) treatment sites within the existing health facilities utilizing the Government of South Sudan Integrated Management of Severe Acute Malnutrition guidelines.

3 OVERVIEW OF THE ASSESSMENT

The assessment was conducted from 11-23 March 2015 (Annex 1) in Aweil South County. Fourteen participants (Annex 2) took part in the assessment; 12 from the IRC and 2 from the CHD. The assessment commenced with two days training on the principles of the SQUEAC methodology and how to conduct a community assessment. The following days were on data collection and review together with the team. This process utilized various methods that enabled the team to improve their skills on recording, collecting and utilising routine programme's monitoring data hence improve the quality of services; information gathered from various key stakeholders to get a better understanding of the program from the beneficiaries' point of view and utilizing the qualitative and quantitative data collected to formulate a program that meets the needs of the beneficiaries. The assessment team developed an action plan to strengthen and improve uptake and usage of IMAM services by the community.

SQUEAC is a combination of assessment and survey and it allows for analysis of both qualitative and quantitative evidence to produce a comprehensive understanding of coverage and the dynamics associated with it. The approach places relatively low demand on logistical, financial and human resources to provide detailed information regarding overall coverage, areas of low and high coverage and the principle factors preventing higher coverage in a given target area. A three stage approach was used.

Stage 1: The first stage looked into quantitative and qualitative data. Existing routine data which has previously been collected and compiled was combined with qualitative data to produce a coverage "picture". The data provided a projection of coverage levels for both the entire target area and also specific areas suspected of relatively high or low coverage within the program target zone. The SQUEAC methodology appreciates that the existing data monitored routinely in the program should be used to inform/give a picture of the program performance.

Stage 2: A one day small area survey was conducted. A hypothesis on coverage was developed from stage one data analysis. This hypothesis was tested in stage two to confirm that coverage is indeed as predicted in stage one.

Stage 3: The third stage was a wide area survey in areas (villages) randomly selected. Information gathered in stage one and two informed building the Prior (the assumed coverage estimate) and the sample size was automatically calculated using the Bayesian SQUEAC calculator. Data collected was analysed and entered in the Bayesian SQUEAC calculator to give the coverage estimate.

During the small and wide area survey additional qualitative data will be collected in order to explain why some severely malnourished children are not enrolled in the OTP.

3.1 OBJECTIVES OF THE ASSESSMENT

The broad objective of the assessment was to estimate OTP coverage for the IRC implemented IMAM program in Aweil South and assess the effectiveness of the project. Point coverage was estimated in this survey due to the long length of stay of the children in the program as this will give a better picture of coverage than the period coverage which would be influenced by the high number of recovering cases in the program. The following specific objectives were included in the assessment:

- a) To assess the program's effectiveness i.e. how well the program meets the needs of the community,
- b) To get a better understanding of the community's perspective of the program through a community socio-cultural assessment,
- c) To identify factors and encourage and those that discourage community members from access and using IMAM services and
- d) To recommend actions that will improve uptake and access of IMAM services to the community and inform other programs in the same community to develop projects that will meet the needs of the community.

3.2 EXPECTED OUTPUT

At the end of the training the assessment team hoped to achieve the following:

- a) Trained IRC and CHD staff on SQUEAC methodology,
- b) Develop an action plan and propose recommendations to improve the strategy for community mobilization for IMAM programme
- c) Produce a final coverage survey report for Aweil South County SQUEAC assessment.

4 INVESTIGATION PROCESS

4.1 STAGE ONE: ANALYSIS OF QUALITATIVE AND QUANTITATIVE DATA

At stage 1 the existing program data were collected by the IMAM program staff and analyzed for all the six OTP sites which were operational for at least the last twelve months in the county. The routine program monitoring data was collected from OTP patient registers, patient cards and reports from the six (6) treatment centres. In addition to the routine program data, a comprehensive community assessment was conducted by the team and contextual data was collected from various stakeholders in the communities using key informant interviews, group discussions and by observation to generate data and information to give a robust picture of the coverage and access to nutrition services and associated factors influencing access and uptake of nutrition services in Aweil South County.

4.1.1 ROUTINE PROGRAMME MONITORING DATA

SQUEAC utilizes routine program monitoring data that are accessible and directly related to quality of service in the program. The data can be used to assess three things: i) the accuracy and appropriateness of the data linked to the coverage and program performance, ii) whether or not a program is responding well to the demands of its context, and iii) whether there are specific areas within the programme's target area expected to have either relatively low or high coverage. The data is further analysed in relation to seasonality, disease pattern and changes in the target area that have an effect on the program. The program performance indicators are compared to international minimum standard (SPHERE) related to the context of the implementation area. The aim was to assess the program's capacity to respond to changes in demand for its services. The following data was collected and analysed:

ADMISSION DATA

Admissions trend and seasonal calendar, MUAC status at admission, age at admission and the sources of referrals

PROGRAMME PERFORMANCE INDICATORS

Cured, Defaulters, Death, Non responders, Transferred cases and Length of stay in program

DEFAULTER DATA

Monthly trends of defaulting, defaulter's nutritional status at the time of defaulting, number of weeks spent in OTP before defaulting and reason for defaulting

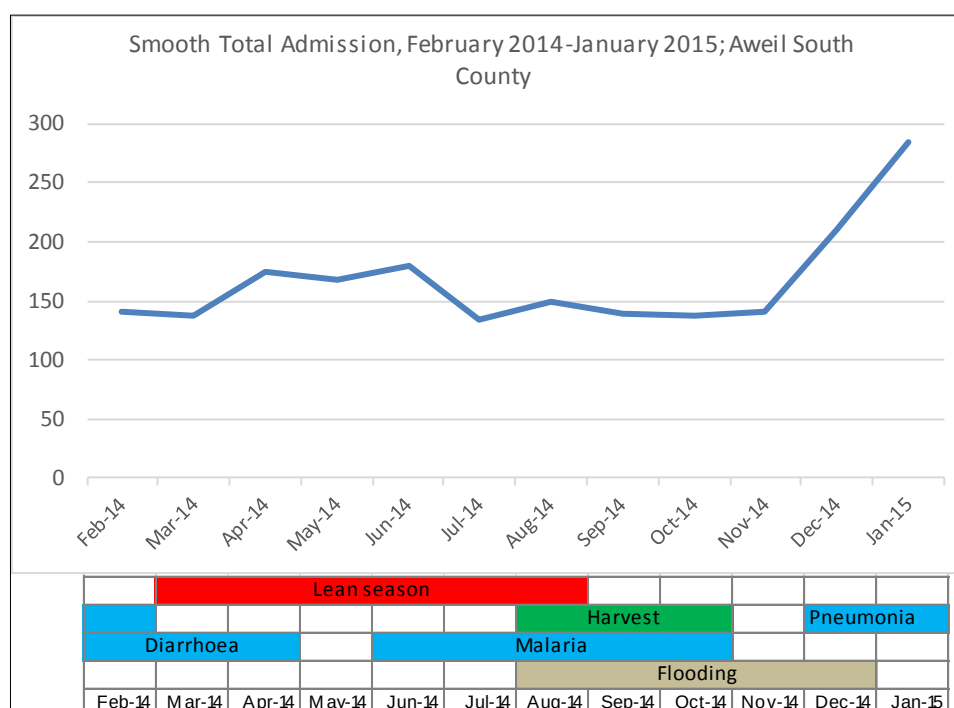
4.1.1.1 ADMISSIONS DATA

In Aweil South County, the IRC Nutrition (IMAM) program has admitted a total of 1,998 children between 6-59 months of age from February 2014 to January 2015 in six (6) OTPs. Of the 1,998 children admitted 88% (1,640) of the children were successfully treated and discharged cured.

OTP ADMISSION AND SEASONAL TRENDS

The graph below shows the admission trends for six OTP sites in Aweil South County in comparison with the seasonal calendar and disease pattern. The admission trends kept a consistent trend from February 2014, with slight reduction in March and peaked in June 2014. The assessment team in consultation with the communities identified seasonal peak of childhood diseases and hunger. The peak season for childhood illnesses was from June to August 2014 and hunger gap also fall within the same period. Admissions were noticeably high in these months however they were controlled by breaks in supply of RUTF in these months. There was lower admission rates in the months of July to Oct 2014 this was partly due to stock out of ready to use therapeutic foods in those months. Adequate supplies of RUTF were received from UNICEF in Dec 2014 and this resulted in a peak in admissions from Dec 2014 and Jan 2015.

Figure 1: Admission trends in IMAM program, Aweil South County; March 2015

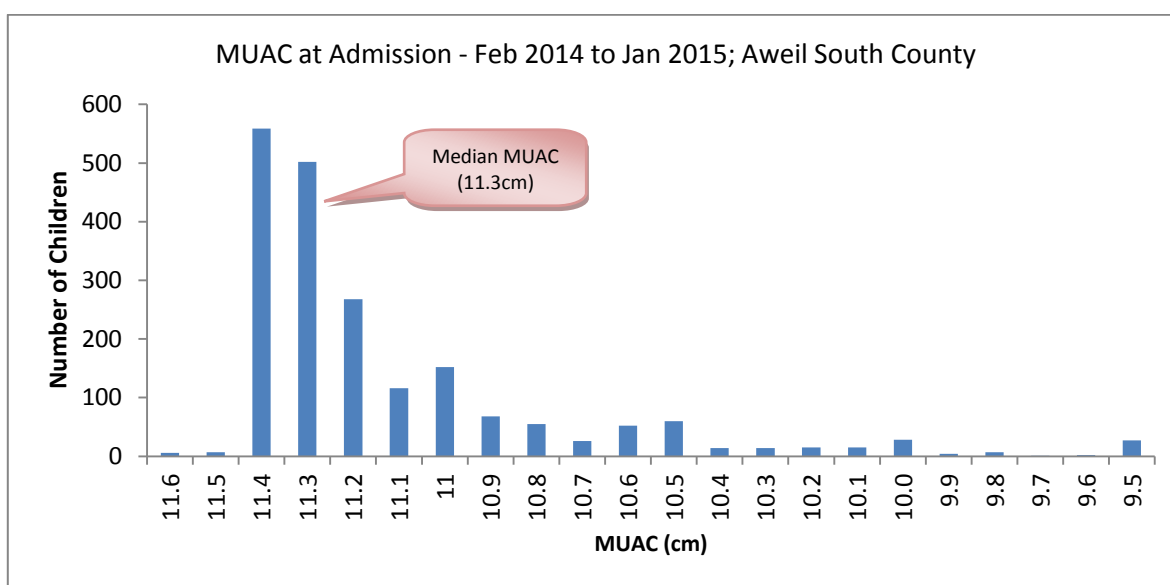


MUAC AT THE TIME OF ADMISSION IN OTP

The measurement of MUAC at the time of admission was part of the routine program data collected and analysed from OTP patient registers. The data collected from the OTP registers from February 2014 to January

2015 allowed the assessment team to determine the timeliness of reporting and treatment seeking behaviour as well as the proactiveness of the Community nutrition volunteers and Community nutrition workers on timely screening and referral of children 6-59 months to OTP facilities for admission. The median MUAC at admission from the routine program data was 11.3cm. This shows an encouraging health care seeking behaviour pattern among the community indicating most malnutrition cases are identified and referred for admission timely. Twenty eight percent (n=559) of the admitted cases during the period of February 2014 to Jan 2015 were recorded to have MUAC measurement of 11.4cm. This number is high which might either reflect timeliness in identifying SAM cases or inaccuracy in measuring MUAC (when the tension is too tight). There were a few cases (n=13) admitted with a MUAC of 11.5cm and 11.6cm which does not fall in the admission criteria. Nineteen percent (n=388) of the cases were admitted with a MUAC less than 11cm which shows there need to strengthen community mobilization for early identification of malnutrition cases as this leaves the child susceptible medical to complications.

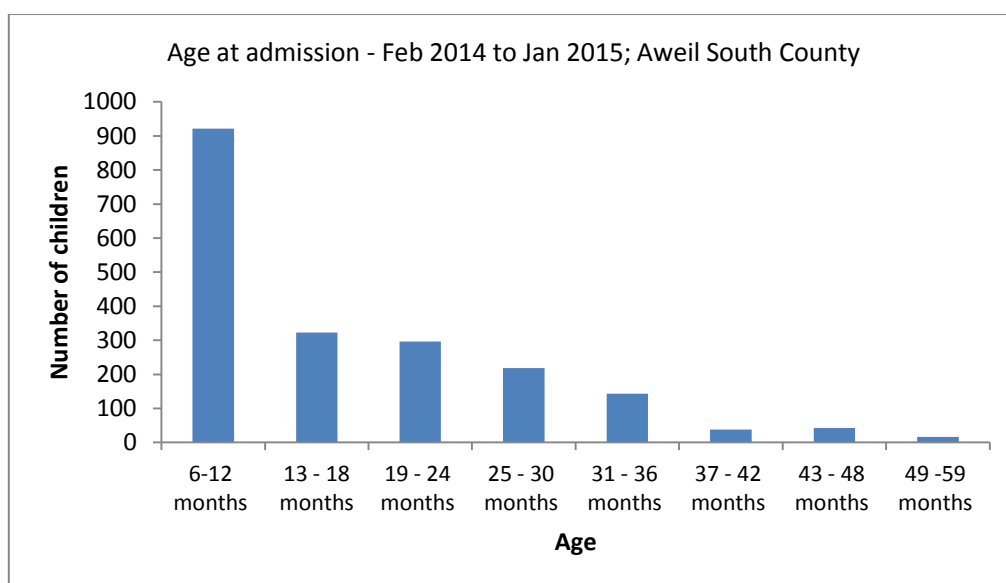
Figure 2: MUAC at admission in OTP, Aweil South County; March 2015



AGE AT ADMISSION

From the routine admission data collection, the assessment team ran analysis of the ages at admission, this is particularly significant to identify the age groups at higher risks of malnutrition and it also assists in targeting intervention to specific most affected age groups. Data from the six OTPs collected for period of February 2014 to January 2015 indicates, majority (46%) of the children admitted fall in age of group of 6-12 months and the second highest number of admission (16%) is age group of 13-18 months and 14.8% of the admission within age group of 19-24, overall more than three quarter of the total admissions with SAM cases that were admitted to OTPs are children of 6- 24 months. This indicates that the need for infant and young child feeding interventions is called for in all the implementation areas of Aweil South County to address feeding issues and associated deviated practices among the communities.

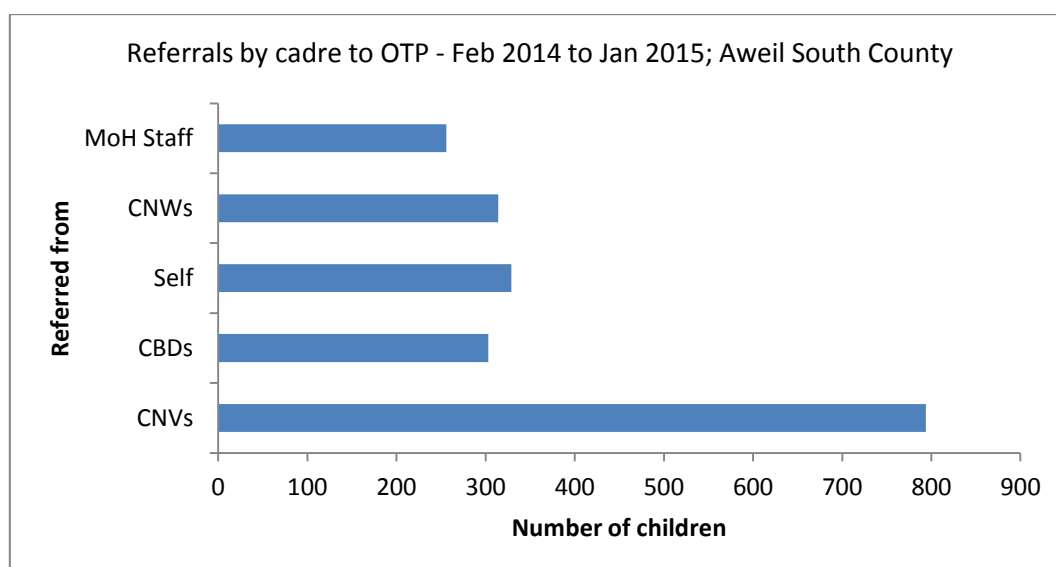
Figure 3: Age at admission in OTP, Aweil South County; March 2015



SOURCE OF REFERRAL TO OTP

A total of 1998 children were admitted in the six OTPs from February 2014 to January 2015, their sources of referral to OTPs were recorded during time of admissions. Sixty percent of the referrals were from the community volunteers (CNVs and CBDs) who are the frontlines in community mobilizations and change agents based in the communities.

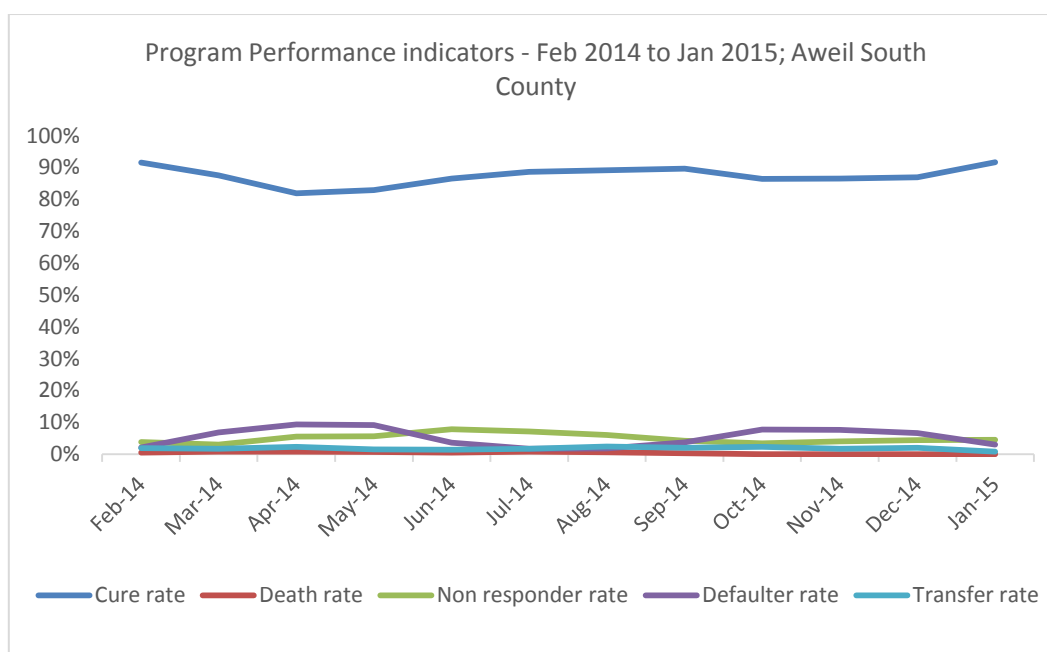
Figure 4: Sources of referrals to OTP, Aweil South County; March 2015



4.1.1.2 PROGRAMME PERFORMANCE INDICATORS

The program performance indicators (cured, defaulter, non-recovered, death rate, LoS and average weight gain) are monitored on a monthly basis to evaluate how well the program is performing compared to international standards. From February 2014 to January 2015 a total of 1,840 children exited the nutrition programme in OTP. All the performance indicators were in line with the SPHERE minimum standards with 88% of the children being discharged as cured during this period. The program registered five deaths from February 2014 to January 2015 and these deaths were caused by the development of medical complications at home while the child is in the program. Referrals for further management were made but due to long distances travelled to hospital coupled with issues related to access due to poor road terrains and flooding made referred children either reach very late to the referral points or sometimes not reaching at all.

Figure 5: OTP Programme Performance Indicators, Aweil South County OTP; March 2015

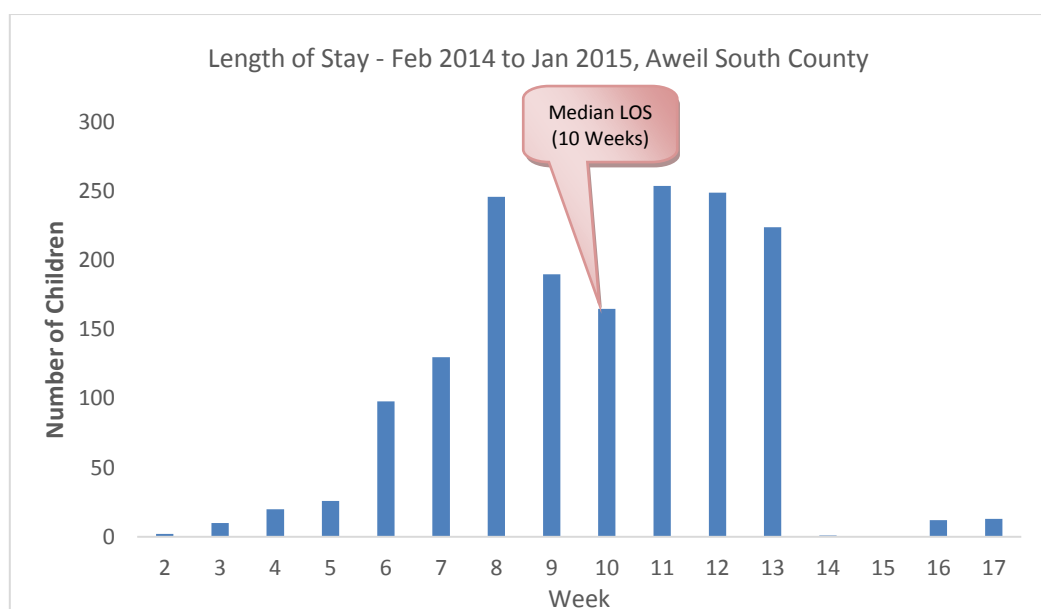


Performance indicator	SPHERE Standard	Achieved
Cure rate	> 75%	88%
Death rate	< 10%	0%
Defaulter rate	< 15%	5%
Non recovered	< 15%	5%
Transfer out	-	2%

LENGTH OF STAY (LOS)

Length of Stay in OTPs is an important performance indicator to assess the average period needed to cure a child and quality of care a child is receiving during treatment at the facility and at homes. According to IMSAM guidelines South Sudan, the average acceptable length of stay in OTP is between 45-60 days. The median length of stay for children admitted in Aweil South nutrition program is 70 days (10 weeks) which is slightly higher than the expected length of stay. In all the OTPs assessed most children are discharged past the recommended length of stay in OTP program, longer length of stay in program is indicative of low level of care and adherence to procedures of staff and/or caregivers, misuse of RUTF and it is also suggestive of low MUAC at admission due to late identification of malnutrition or late presentation for treatment. When children are admitted to OTP with lower MUACs, it takes longer for the child to respond to treatments.

Figure 6: Length of Stay in OTP, Aweil South County; March 2015



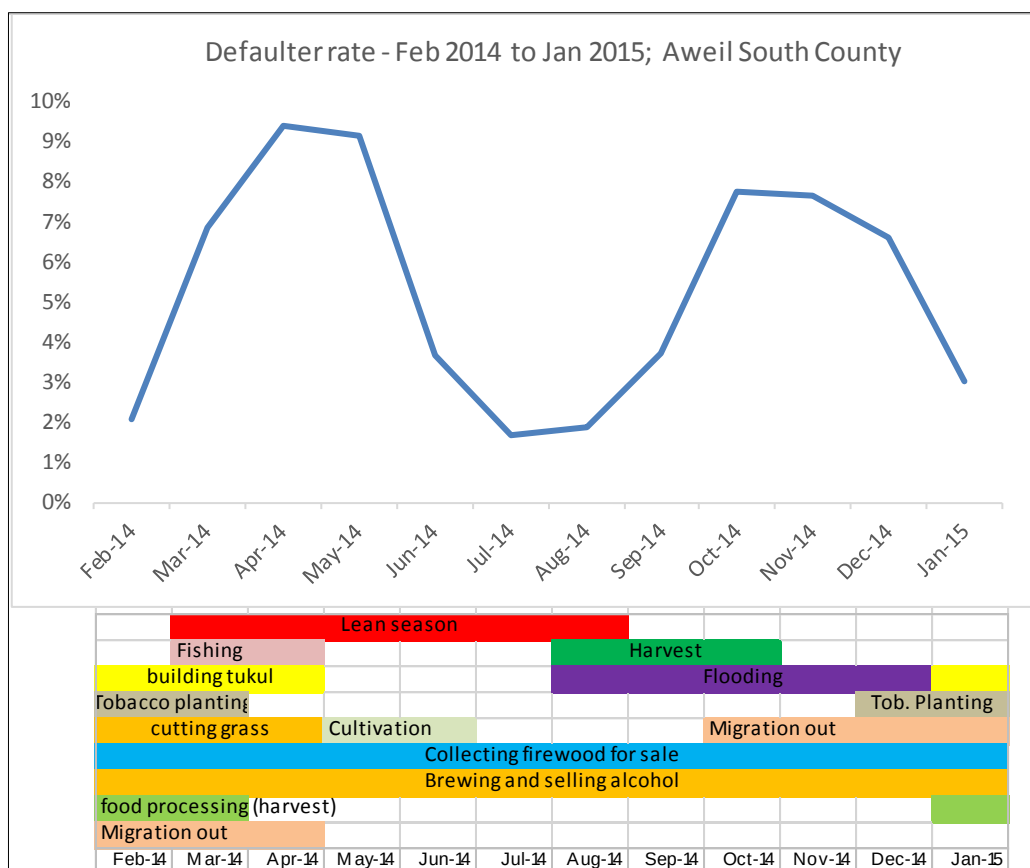
4.1.1.3 DATA ON DEFAULTERS

According to the South Sudan draft IMSAM guidelines a defaulter is classified as a child who is absent for treatment appointments for three consecutive visits. The defaulter data were examined as follows:

ANALYSIS OF DEFAULTERS' DATA COMPARED TO HUNGER GAP AND LABOUR DEMAND TRENDS

The defaulter rate for Aweil South nutrition programme was going up from Feb to May 2014. The beginning of the year is characterized by a number of female labour activities and out migration. One of the major reasons identified by mothers as a barrier to accessing IMAM services was their workload which overwhelmed them. This is clearly evident with the defaulter trend from Feb to May 2014. The rise in defaulter rate in these months might also be attributed to the fact that the program was starting up and there was not a clear understanding of the treatment procedures by the caregivers. The defaulter rate dropped sharply down after May (the peak of the hunger season) and started rising in Sept 2014. September onwards the high defaulter rate can be attributed to out migration, flooding which increased migration and reduced access to the facilities and it is the peak of the harvest season. The overall defaulter rate from Feb 2014 -Jan 2015 is 5% which is within the acceptable SPHERE standard (< 15%).

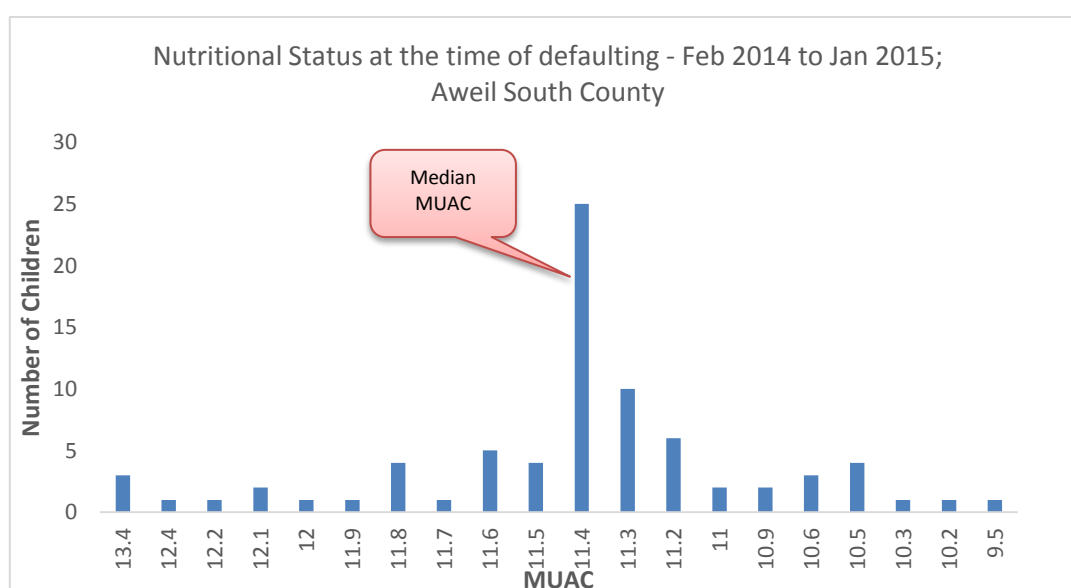
Figure 7: OTP Defaulter and Labour demand calendar, Aweil South County, March 2015



NUTRITIONAL STATUS AT THE TIME OF DEFAULTING

The quality of care given to beneficiaries at the facility and/or the community's perception on the program can be deduced from monitoring the nutritional status of children at the time of defaulting. This information when analysed can be used to address issues related to defaulting. Data collected from the six OTPs in Aweil South County showed that 71% (n=55) of children defaulted when they were still malnourished (MUAC < 11.5cm). The number of children defaulting when they are still malnourished is too high and needs to be addressed. There is need to improve the program in line with the communities' needs and requirements to ensure uptake and adherence to services. The main reasons for defaulting identified were out migration, long distances walked to facility, sickness of the caregiver and lack of supplies at the facility.

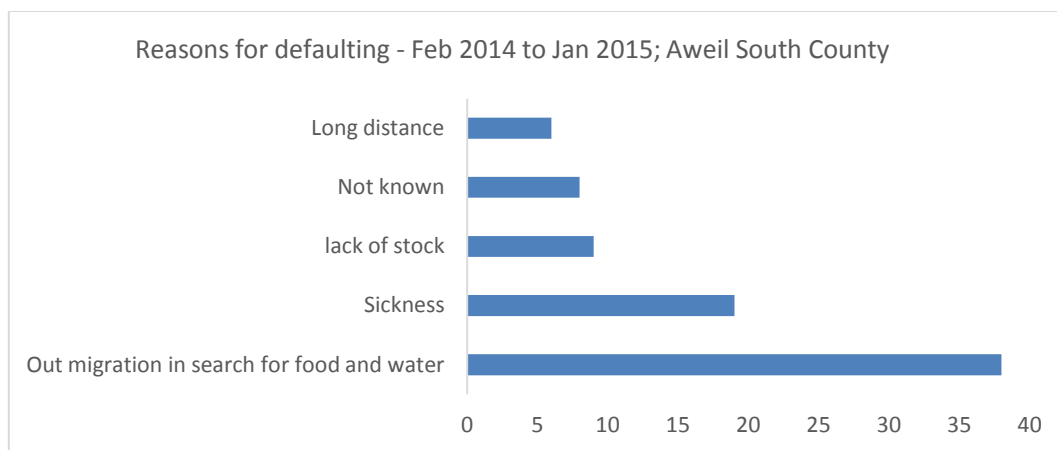
Figure 8: Nutritional status at time of defaulting, Aweil South County; March 2015



REASONS FOR DEFAULTING FROM OTP

A number of reasons were identified for children who had defaulted in the programme. The reasons among others were out migration of the families with children in the program in search of food, the caretakers falling sick, lack of stock at the treatment site and long distances. There was no major out-cry from the community with regards to supply issues as supplies have been fairly consistent. However there were reports on some supply cut off coupled with long distances to the facilities which discouraged caregivers from coming back for treatment. The major reason as shown in Figure 9 below for caregivers not taking up IMAM services was out migration in search for food. This shows a great need to address the food security situation in this county. After exhausting their harvest the families do not have any other source of food and they have to migrate to fishing/cattle camps or in search for livelihoods to support the family with food.

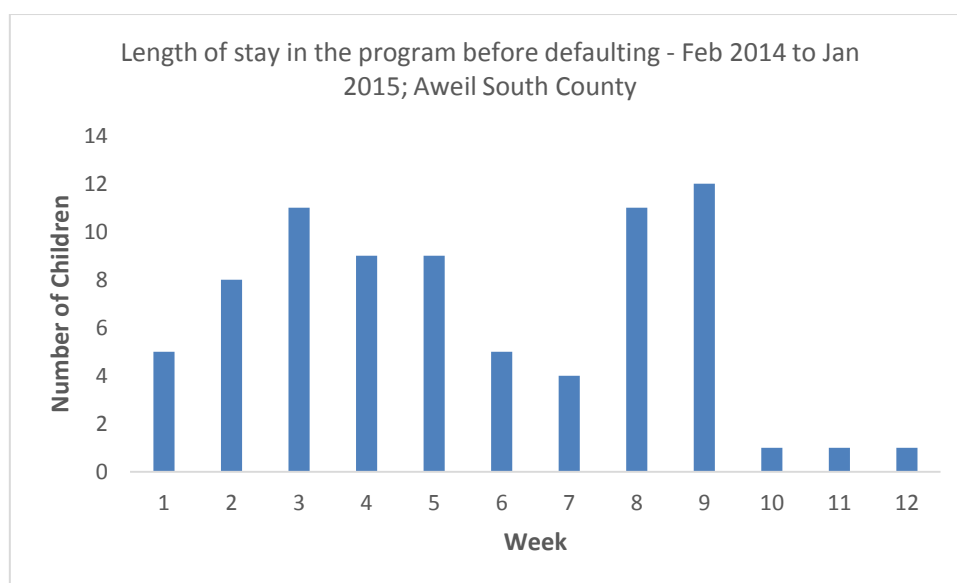
Figure 9: Reasons for defaulting from OTP; Aweil South County; March 2015



TIME OF DEFAULTING FROM OTP

It is vital to monitor the length of stay in the programme before defaulting. This information directly reflects on the quality of services the beneficiaries are getting from the OTPs. A short period indicates poor quality of services rendered at the OTPs while longer periods would reflect situations where caregivers think their children are cured and there are no more needs to continue with the treatment. 61% of the defaulters left the program before the lower limit of the recommended length of stay as cured case. This reflects on the quality of care at the OTPs. Interviews with selected caregivers pointed out longer distance travelled for services and long waiting hours as some of the reasons for early defaulting.

Figure 10: Number of weeks spent in OTP before defaulting; Aweil South County; March 2015



4.1.2 RECORD KEEPING IN HEALTH FACILITIES

The IMAM programme monitoring data provided was useful and allowed the analysis of some important indicators of the IMAM programme that are essential for SQUEAC assessment and to understand the service qualities of the programme. The data were found consistent and available for most of the important indicators of the OTP programme.

To assess the quality of record keeping at the OTP level, in the six selected OTPs the admission cards and the registers were examined by the assessment team. The team checked 180 cards to assess if they were filled completely. 84 cards (47%) were not filled completely. Information missing on most cards included exit category, information vital for weekly follow up such as weight or MUAC on some follow up visits or admission anthropometry. Information necessary for home visit such as caregiver's name, village and community volunteer's name were missing. Some cards were not recorded on whether the child had passed or failed appetite test during some follow up visit making it impossible to determine if it was conducted. Vaccination details are not updated in most cards. Weeks where a child is absent or when there was no stock, are left blank making it difficult to differentiate absenteeism and stock out weeks.

The same 180 cards were checked against the registers (to assess if information on the individual cards matches with the information compiled in the register). 41 cards (23%) had information not matching with that in the register. The mismatches were same registration number allocated to more than one child, the same child having different registration numbers, exit information, admission info, names, LOS not matching in card and register, child discharged cured on card and non-recovered in register. These mismatches make the data questionable as it is impossible to determine with record is accurate.

A sample of 120 cards was assessed for correctness. 27 cards (22%) filled incorrectly. Information was interchanged between cells, routine medication given on inappropriate weeks, child gaining weight when checking weights but recorded as not gaining weight on weight changes. Mistakes in MUAC recording e.g. MUAC 2, discharge criteria not clear whether its target weight or MUAC >11.5. Child stays too long beyond either discharge criteria. The record keeping of the programme has room for improve and more attention needs to be given on recording information correctly and fully. The CNWs regular constant supervision and continuous training and controlling and/or minimizing the crowds and hence workload on OTP day will result in improved data recording.

4.1.3 COMMUNITY ASSESSMENT

Understanding the local community and the operating context is a pre-requisite for any successful development or humanitarian intervention. An appreciation of the social organization, key community figures, the ways in which messages are transmitted, typical health seeking behaviour and the support mechanisms people use in times of difficulty, is vital in designing a programme that is responsive to need. It was therefore imperative that a comprehensive community assessment be conducted in Aweil South to better inform the nutrition programme and other programmes in the same operational area.

4.1.3.1 ASSESSMENT OBJECTIVES

The main objective of the community assessment was to get a better understanding of the community's structure, health beliefs, health seeking behaviour, communication channels and the communities' perception on the nutrition program in order to formulate a community mobilization strategy that is specific to Aweil South County. The following were the specific objectives of the assessment:

- 1) To assess the community's knowledge, beliefs and practices in relation to acute malnutrition and illness;
- 2) To understand community structures, leadership, stakeholders, organizations in the nutrition program and community volunteer networks,
- 3) To identify appropriate communication channels that can be used for community mobilization;
- 4) To assess factors that influence the community's decision to access and use IMAM services;
- 5) To revise the community mobilization strategy to improve access and uptake of the IMAM services;
- 6) To build capacity of the IRC nutrition and CHD staff in undertaking community mobilization assessment and designing a community mobilization strategy for the IMAM program.

4.1.3.2 METHODOLOGY

A comprehensive mixed method approach was employed to collect data from different stakeholders in Aweil South County. Qualitative data was collected through key-informant interview (KII), semi-structured interview (SSI), focus group discussion (FGD) and observation of the health facilities.

Data was collected in three stages in line with the SQUEAC methodology. In the first stage of the investigation, data was collected from health facility and community level. At health facility level interviews and group discussions were conducted with facility staff, caregivers of children in the IMAM program and community outreach workers and volunteers. Six health facilities (Ayai, Panthou, Wuncum, Nyieth, Wathmuok and Tiar-Aliet - that have been providing malnutrition treatment services for the past one year) were included in the assessment. At community level six villages (three close to the health facility and three far from the health facility), from the six facilities and six payams were purposefully selected. Focus group discussions and interviews were conducted with community figures (political, religious, traditional leaders, traditional birth attendant, traditional healer, associations/community groups, volunteer networks, mothers and fathers of children less than five years of age). A total of 42 KIIs and FGDs were conducted at health facility and community level. Other interviews were conducted with CHD representatives and IRC project staff. Semi-structured interviews with caregivers of children malnourished (SAM cases) but not admitted in the program were conducted at second and third stages of the SQUEAC; a total of thirty (30) SSI were conducted to further identify factors affecting access and use of IMAM services.

4.1.3.3 FINDINGS AND DISCUSSION

COMMUNITY LEADERSHIP AND STRUCTURES

There are two main distinct types of recognized leadership structures in Aweil South County. There is the political and traditional leadership structure. The two structures are well collaborated with a clear working relation and communication channels.

The political leadership structure is led by a County Commissioner who is appointed to the position by the state. Each payam is governed by a Payam Administrator and each boma by a Boma Administrator. These positions are elected into power by the community however there is a lot of political influence in their selection. The political leaders are well respected in the community and they are the gateway to the community.

Traditional leaders' positions are cultural, running in the family/clan passed from generation to generation. They are the vanguards in mobilizing the community to embrace and support programmes. The hierarchy starts from the Executive Chief (*Alaam Thit*) who reign at payam level, the Chiefs (*Beny*) and the Sub-Chiefs (*Alaam Chol*) at boma level, and the headman/village leaders (*Raandit baai*) at village level. The traditional leaders particularly the headmen are in contact with the community on a daily basis. Chiefs and headmen were involved in the start-up of the IMAM program through meetings and they were the key mobilizers for the start-up mass screening. The involvement of the traditional leaders encourages the community to seek services provided by the IMAM program and it enables the IMAM program to gain full access to the community.

The traditional leaders involved in the program need to have a better understanding of malnutrition, its causes and prevention. In as much as these leaders are involved in the program and are aware of the IMAM services and the service delivery points, there is little knowledge on malnutrition as a condition that can be treated and prevented. For the traditional leaders to be effective in community mobilization for the IMAM program more efforts should be put in place to ensure a better understanding of malnutrition and replace the communities' misconception and myths with facts. The political leaders are not well informed and involved in the program. As these are well respected in the community they would add value to the program if they are actively involved in community mobilization activities and would be key contributors to foster program acceptance and sustainability in the long run.

There are two main religions followed in Aweil South County. The community is very traditional and at the same time they follow Christianity. The older population are more traditional while the middle and younger generations tend to complement the two religions. The religious leaders include the spiritual leaders who are usually the traditional healers of the community and Christians are led by pastors and priests. The traditional religion is valued more compared to Christianity. The community seeks advice from the spiritual leaders/traditional healer on issues concerning their families including health of their children. It was clear from all discussions held in the community and at the health facility that the first point for seeking care for sick children is the health facility because the services provided are free of charge. However for those who can afford to further consult traditional healers will consult with them on the causes of the child's illness. Interviews with traditional healers revealed that they were aware of the IMAM program and the services they were offering to the community. Some traditional healers revealed that they send their children and also refer sick children to the facility, however they will provide the family with a cause for the child's illness as this is a means of earning a living for the THs.

The traditional healers, spiritual leaders, pastors and priests are not involved in the IMAM program. They can be key people to pass messages to the community. The spiritual leaders and traditional healers (although this might create a conflict of interest) should be empowered on life-saving health seeking behavior. They should be acknowledged and involved in health initiative as their opinion is valued by the community members especially men who are the family decision makers. Involving these cadres in the IMAM program, giving them a better understanding of malnutrition will increase the usage of IMAM services by the community; enhance community mobilization and timely case identification.

COMMUNITY GROUPS AND VOLUNTEERS

There are a few functional groups or associations in Aweil South County namely; women group, youth association and traders' union. The groups are mainly self-help groups however equipped with the right kind of

information can be used as change agents in the community. These associations are not involved in the IMAM program. Involving these groups in community mobilization will increase uptake of IMAM services as the members of these groups are people well known to the community.

There is a general concern in Northern Bahr el Ghazal State of plumpy-nut being sold in the market. Higher County and State officials have been involved in trying to address this situation. Involving community groups in the IMAM program particularly the traders' union to better understand the purpose of the program and their role and social responsibility to the community they are operating in, will have positive benefits for the program and its beneficiaries and minimize the sale of RUTF/RUSF in the markets.

Aweil South County, like many other counties in South Sudan, has an extensive community volunteer network. Most volunteers are associated to different programs supported by NGOs in the community. In health and nutrition there are Community Based Distributors (CBDs), Community Nutrition Volunteers (CNVs), Village Health Committee (VHC) and social mobilizers. The volunteers are selected by the community leaders in consultation with the community members. Most caregivers revealed that the community volunteer networks in their community were their source of information and most caregivers take their children to them particularly CBDs when they are sick.

There are 528 Community Based Distributors (CBDs) in Aweil South, who are trained to provide home-based treatment for malaria, diarrhoea, pneumonia and screening and referral children with severe acute malnutrition to the health facility. The CBDs are not involved in active case finding. They however screen every child who is brought to them for treatment in the community by caregivers. This provides an opportunity for the IMAM program to identify malnutrition cases before the condition deteriorates considering the vicious cycle between malnutrition and diseases. The CBDs also advise caregivers on the importance of feeding a sick child.

The IMAM program implemented by the IRC in Aweil South has 43 Community Nutrition Volunteers (CNVs). There are at least five (5) CNVs in each OTP catchment area. These CNVs are responsible for community sensitization on IMAM and malnutrition, active case finding and referral, follow up of necessary cases and giving health and nutrition education. The responsibilities and mode of volunteerism for the CNVs are not clearly understood and this has impacted on the community mobilization strategy being implemented. The CNVs reporting system is not well established therefore difficult to follow up with their progress and give feedback on performance. CNVs are expected to cover too many villages which is not feasible as they are volunteers with other responsibilities to their families. This has a negative impact on the quality of work done by the CNVs and some villages are rarely visited.

Children referred to the health facility by CNVs and CBDs are re-screened to confirm admission. There were 62 children referred to Panthou health facility by CNVs and CBDs from the 19th of February to 20th of March 2015. Out of 62 children referred 24 children (39%) were true cases of SAM. To identify the cause of the wrong referrals, it was noted that the technique of measuring MUAC was not well mastered among the volunteers. Some volunteers revealed that they were at times forced to refer cases that do not meet admission criteria to maintain family and/or community relations. More training and mentoring on identifying malnutrition using the MUAC tape is required for the community volunteers. Training sessions should be longer and more frequent. Currently the volunteers are trained for one day and after every quarter and biannually for CNVs and CBDs respectively.

The Village Health Committee (VHC) is another community volunteer network in Aweil South. The committee is made up of 10-15 individuals selected by community leaders in consultation with the community members. The committee is at Boma level and supports health facilities and all health initiatives in the community. They are the frontlines for health initiatives in the community. The VHCs are supported by the Ministry of Health (CHD). In order to foster sustainability and integrating nutrition interventions to the basic health care package

there is need for collaboration between CNVs, CBDs and the VHC. Currently the inclusion of the committee in the IMAM program is limited.

COMMUNITY SUPPORT MECHANISM

Women are undeniably the main caregivers of children and they are responsible for the day to day running of homes and family. They are responsible for ensuring that the family has food and general maintenance of the home. The workload for most women is often overwhelming. Females, in this community, are disadvantaged from an early age. They do not have equal opportunities as the male child to go to school as they are prepared for marriage. They get married off at an early age into a polygamous marriage where they are left to fend for themselves and their children. Mothers are mainly the sole decision makers on seeking health care for their children and most of them take their children for treatment to the CBDs and/or at the health facility first as health care services are provided for free of charge. Fathers were reported to be in support of the mothers' decisions when it concerns seeking health care services for the children. However where the father has money to consult with the traditional healers they will consult a TH on the cause of the child's illness.

Women in a polygamous marriage are responsible for their own children. Men are however the overall decision makers of the family. The mother requires her husband's support to continue with treatment of the child at the facility. The IMAM program has not involved men and this at times present as a barrier to accessing IMAM services. Fathers should be aware of the importance and purpose of the IMAM program and have a better understanding of malnutrition to improve utilization of the IMAM services.

ORGANIZATIONS SUPPORTING HEALTH AND NUTRITION IN AWEIL SOUTH COUNTY

There are four International NGOs supporting health, nutrition and food security in Aweil South County. The IRC is the only organization based in the county therefore coordination of activities with other partners is limited. Coordination meetings at county level for nutrition interventions are not conducted on a regular basis. This has resulted in less coordinated activities and links between the different projects, implemented in the county, are not well established.

The organizations providing health and nutrition services include the IRC, World Vision International, BRAC, MAGDA and JAM. The IRC, BRAC and WVI are implementing IMAM with the latter providing treatment services for moderate acute malnutrition cases without medical complications in two payams; Tiar-Aliet and Nyoc Awany. The IRC, MAGDA and BRAC are providing treatment of severe acute malnutrition cases without medical complications in OTPs. The IRC and MAGDA's treatment sites are within the existing health facility while BRAC's treatment sites are mobile OTPs in selected areas in the different payams. SAM cases with medical complications are referred to Aweil town which is 55km from Aweil South (Panthou) and cost 75SSP for transport by car and 100SSP by motorbike (at the time of reporting). There is no direct transport from Panthou to Aweil town making the trip to the Stabilization centre expensive for caregivers. The IRC supports the community with ambulance services to Aweil town for critical cases. Referral from one component of IMAM to the other within the county is not coordinated and patients are usually lost in the process of referrals.

The IRC also supports the health facilities through the national health system strengthening initiative and through the Integrated Community Case Management (iCCM) program. JAM, on the other hand, is implementing food and cash for assets programs supported by WFP.

COMMUNICATION CHANNELS

There are numerous formal and informal communication channels identified that are used to disseminate information within the community. The identified communication channels were further assessed to identify the target group and their effectiveness and efficiency in passing the information. Communication channels identified as the most effective, in Aweil South County, are generally targeting the whole community.

Community meetings are the most popular form of transmitting information in all payams in Aweil South County. Meeting are held from county to village level by the community leaders either traditional or political leaders. Community meeting are well attended by both men and women and were identified as the communication channel that is most effective as information comes from a trusted source and everyone can attend and have the actual message.

Community leaders and organizations operating in the area also make use of community announcers who use microphones and move from village to village passing a message. This was identified as an effective way of communicating with the community as the message is taken direct to the community and reaches many people.

Other community events such as marriage ceremonies or weddings, funerals and market days were identified as communication channels that can be effective if properly utilized as they pull large crowds of people together in one location. People gather in such events for days and information is passed in different forms, either through announcements or from peer to peer.

CBDs and CNVs were identified by the community, especially mothers, as a reliable source of health information. Caregivers also get their information from the health facility when they go for services. They further pass on this information to their peers.

Table 1: Formal and Informal Communication Channels in Aweil South County

Communication Channels	Women	Community	Perceived effectiveness
Formal Communication Channel			
Community meetings		X	High
Community announcement via microphone		X	High
Community sensitization by CNVs and CBDs		X	High
Announcement after church services		X	Medium
Letter from a higher authority		X	Low
Message at the health facility		X	Medium
Informal Communication Channel			
Peer to peer communication	X		High
Social events: wedding, child naming and funerals		X	Medium
Market day – information exchange		X	High

LOCAL UNDERSTANDING OF CHILDHOOD ILLNESS AND MALNUTRITION

The common childhood illnesses identified include diarrhoea, malaria, malnutrition, cough, pneumonia, and eye infections. Malaria and diarrhoea were identified as the most severe childhood illnesses that occur in June to October and Feb to March respectively. Malnutrition is recognized as a distinct and easily recognizable condition in the community. Most community members particularly mothers were able to differentiate malnutrition from other childhood illnesses. They were also able to describe the signs and symptoms of malnutrition and the causes. However there is a strong belief in the community that malnutrition is a spiritual condition that needs to be addressed spiritually. This indicates that there is need to create more awareness of the condition, its causes and treatment.

The signs and symptoms of malnutrition mentioned included; a child with very thin arms and thighs (*aci juet*), an old man's face (*acit nyin aci dhiop*), red or thin hair (*aci nhiim lut*), swelling of the feet (*aci buot guop*), general body weakness (*aci guop niop*), big stomach (*aci jootyic bei*), a child with no buttocks (*anguem*), sunken eyes and a child who does not grow well compared to children of the same age. The local terms used to describe malnutrition are *cala*, *door*, *cok* and *guck* which all mean losing weight or being very thin. The terms used to describe malnutrition

are derogative in nature which shows that there was stigma associated with the illness which is not the case anymore; as caregivers are eager to have their children enrolled in the program and receive RUTF which is perceived as food. Among the 30 caregivers who had children identified with SAM and not in the program 26 caregivers (87%) claimed to know that their children were malnourished.

The perceived causes of malnutrition were 'bad' feeding, poor hygiene, diarrhoea, vomiting, food shortage, poor appetite of the child, early weaning (due to a mother getting pregnant while she is still breastfeeding), infected breast milk (due to a mother having sexual intercourse with her husband when she is still breast feeding) and long term illness of either the child or the mother. The causes of malnutrition were clearer to caregivers with children in the program. However community and religious leaders, fathers and traditional healers cited a number of belief and misconceptions that are associated with malnutrition. They believe that:

- It is God's will for a child to be malnourished or it runs in the family,
- Infected breast milk causes malnutrition. The breast milk will be infected by:
 - A breastfeeding mother having sexual intercourse with her husband,
 - Not washing the breast before breastfeeding, to cool the milk,
 - Sick mother who is breastfeeding
 - Breastfeeding while the mother is pregnant

There is therefore need to increase community awareness of all groups particularly men as they are the overall decision makers on malnutrition, its causes and treatment.

INFANT AND YOUNG CHILD FEEDING (IYCF) AND CARE PRACTICES

Recommended IYCF practices are not optimum in Aweil South County. Maternal and child care is not prioritized in the community and hence their well-being is up to the mother alone. There are cultural beliefs that are practiced that interfere with proper IYCF practices. Initiation of breastfeeding depends with how long it takes to have the placenta removed from the mother. It is believed that a mother cannot breastfeed when the placenta has not been delivered and this situation results in the baby being fed on cow's milk first before the mothers is able to breastfeed.

Other fluids are introduced to the child too early in life. The main liquids consumed by the children are cow's milk and water even from the first day of life. Introduction of complementary foods is either too early at 3 months or comes too late at 7-9 months and the child is fed on watery porridge. The diet at this stage is not diversified. The frequency for feeding the children from 6-24 months of age is lower than recommended. A child who is 12 months of age was reported to be fed 2-3 times a day on mainly porridge made from sorghum. Mothers believe that their milk is at times not good for the baby due to the high temperatures and they express the 'bad milk' before feeding the child.

Mothers are responsible for ensuring that the household has enough food hence this interferes with child care practices. Most children are left at home with their older siblings to take care of them while the mother is engaged with livelihood activities. Older siblings bring the children to the health facility for treatment. This negatively impacts the care given to the child and feeding and/or good hygiene practices are abandoned. As a result of these poor care practices the children are vulnerable to sickness including food poisoning or developing stomach infections, diarrhoea, colds and malaria. The support mechanism for mothers needs to be improved by involving other family members (grandmothers and fathers) in child welfare and care. This requires more than just creating awareness in men on maternal and child care. Investments on changing behavior or attitude of the health and welfare of the family in men are paramount as one of the long term and sustainable solution to child malnutrition in Aweil South County.

TREATMENT OF ACUTE MALNUTRITION AND OTHER ILLNESS

When children get sick their caregivers take them to the CBDs and health facilities as their first point of contact. These services are readily available, free of charge and the community has seen the positive response of their children to the treatment. There are traditional remedies used to treat child illness such as malaria and coughs. These include leaves and roots from certain trees and can be administered by anyone even at home as the elderly have information on these remedies.

There is a desire by mothers to have their children admitted into the IMAM program. This might be attributed to the fact that RUTF (plumpy-nut) is perceived as food not medicinal food. Out of 30 mothers interviewed with children with SAM and not in the program 20 (93%) caregivers reported that they were aware of the program and eight of them had been admitted before. Seven children from the eight who had been admitted in the program had been discharged as non-responders and they were more than eager to go back for enrolment into the program. Cases who reported to have been rejected before were delighted to have their children referred to the health facility for enrolment as they would go to the health facility, anyway, for re-screening after every week.

The need for mothers to have their children admitted in the program is a result of high levels of food insecurity in the families and RUTF is shared or sold in the market so that the mother can buy other food commodities that will be consumed by all family members. The misuse of RUTF reflects on the long length of stay in the program for children with SAM and a higher non-response rate. There is therefore need to address the causes of RUTF misuse and to create more awareness on the effects of malnutrition on the child and the population as a whole.

Homemade remedies used to treat malnutrition in the communities include; taking the children to cattle camps where they can be fed on milk, feeding the child on sesame, groundnut paste and oil, feeding the child on *lulu* oil (this is a local tree – raak which produces fruits that have seeds producing the lulu oil) and roots and leaves of certain trees which only the elderly know. The belief is that a child with malnutrition has a dry heart therefore the oil and milk will rehydrate the body and make the child gain weight.

4.1.4 FACTORS INFLUENCING ACCESS TO IMAM SERVICES

The community assessment identified factors that both encourage and discourage the community to take up IMAM services. These are summarized in tables 2 and 3 below.

Table 2: Factors encouraging community members to seek IMAM services in Aweil South County.

No	Boosters	Concept
1	Involvement of traditional community leaders in IMAM program	Community leaders (<i>chiefs and headmen</i>) were involved in the start-up of the program and mass screening. They are continuously involved through monthly meetings and are reliable on passing messages to their communities.
2	Availability of IMAM services and community is aware of the services and the delivery points	The community is aware of the availability of the treatment services and are familiar with the service delivery points as all OTPs are within existing health facilities.
3	Continued availability of RUTF especially during the dry season	Treatment supplies are always available for the greater part of the year. There is an integration of IMAM services with PHC services and routine medication can be received from either service.
4	Child improvement and positive outcome resulting in mother to mother referrals	The mothers and other community members can easily see the improvement in the children admitted in the program.
5	Active screening and referral and community sensitization in the	Community screening encourages more mothers to seek health care services as they are identified early and referred for

	community by CNWs & CNVs and opportunistic screening by CBDs	treatment. They also get reliable information of their children's illness from community volunteers and are encouraged to go to the facility.
6	Some communities are close to the facility	Proximity to the health facility encourages the caregivers to take up the services.
7	Priority of giving services is given to referred cases	Cases referred to the health facility from the community are given first preference and this encourages them to come as they do not spend much time at the facility.
8	Good relationship between beneficiaries and staff	There is good beneficiary and staff interaction, the caregivers feel they are respected, listened to and informed on service provision procedures.
9	Service is free of charge	The service is free of charge compared to the other alternative of consulting traditional healers where they have to pay for the services. Caregivers therefore prefer to go to the health facility for treatment.

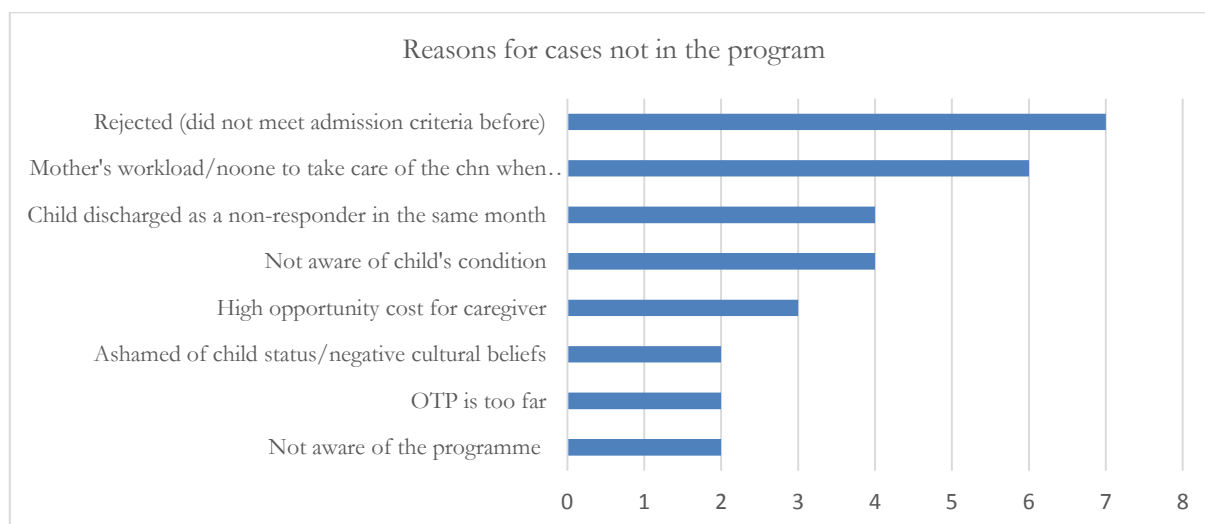
Table 3: Factors discouraging community members from seeking IMAM services in Aweil South County

No	Barrier	Concept
1	Long distance to facility	There is only one treatment site per payam. This means some villages will have to walk for hours to get to the facilities. The IMAM program requires caregivers to come on a weekly basis for review and resupply of RUTF this will become overwhelming for the caregivers.
2	Inaccessibility of facility due to flooding after rainy season	During the rainy season accessing the health facilities is difficult due to floods. This time of the year is also characterized by an increase in defaulters.
3	High opportunity cost and workload for caregivers	The weekly appointment to the facilities takes up the caregivers' time to provide for the other members of the families and also their livelihood activities are left unattended for long periods of time when the child is enrolled in the program. Mothers also reported of having too much work at home and caring for the other children so that they will not be able to attend the weekly visits.
4	Cultural beliefs that result in malnutrition cases being stigmatized or influencing negative health seeking behaviors	Key community figures especially the elderly believe that malnutrition is a result of a mother who has sexual intercourse with her husband when she is still breastfeeding, or a mother who gives birth to twins and one twin passes away, cannot go out of the HH until a ceremony for the deceased child is conducted. It is also believed that a mother with only one child (the first one) cannot have a malnourished child as this shows that the mother does not take good care of child. Those that are perceived to be rich in the community cannot access IMAM services as it is shameful for them to have malnourished children.
5	Lack of OTP infrastructure including waiting room and secure store	The lack of structures at the facilities discouraged mothers to come to the facility with their children as they stay long under the sun. The issue of storage has an impact on preposition enough stocks during the rainy season.
6	Long waiting hours at the facility	Activities during OTP days are too many and overwhelming for the two staff available resulting in mothers staying at the facility for long hours. This is also attributed to having a limited number of days in a week for OTP services.
7	Migration due to either floods, lack of drinking water in the dry season and in search of food	People are forced to leave their homes in certain seasons and they will not be able to access the services from where they migrate to.
8	Few CNVs per site and lack of monthly incentives for CNVs and CBDs	Active case finding by community volunteers is not well established and the few community volunteers available have not mastered the skill of measuring MUAC. They are not motivated to perform better due to lack of incentives.
9	Shortage of supplies during wet season	During wet seasons (where supplies are not prepositioned in adequate stocks) the facilities experience stock outs and when there is a stock out caregivers stop coming for treatment.
10	Community's lack of	There is a high perceived rejection from the program, this is because the

	knowledge on admission criteria and purpose of the program	community members do not understand the purpose of the program and some are not aware of the admission criteria. RUTF is perceived as food that can be shared in the household hence there is a high demand of RUTF in the community.
--	--	---

In the second and third stage of the assessment 30 caregivers with children with SAM and not admitted into the IMAM program were interviewed to identify the reasons for not seeking IMAM services. Most reasons mentioned by these caregivers were identified in the community and OTP discussions and interviews. The graph below shows the reasons for not seeking IMAM services.

Figure 11: Reasons for not seeking IMAM services



Perceived rejection (situations where the child does not meet admission criteria) was mentioned by 23% (n=7) of mothers as a reason for not being in the program. In as much as they were currently not in the program upon receiving a referral slip to go for services all of them agreed. This shows the eagerness of caregivers to have their children admitted into the nutrition program. More awareness needs to be created on the purpose of the IMAM services, malnutrition and its consequences. Mother's workload was amongst the top reasons for not accessing services. There is need for interventions that improve the support mechanism for women and involve men in the welfare of their families. This will be a long term behaviour change interventions.

4.1.5 COMMUNITY MOBILIZATION STRATEGY

STRUCTURE OF THE MOBILIZATION TEAM

The mobilization team is currently led by a Community Outreach Supervisor. The Supervisor works closely with the Community Nutrition Workers at facility level and interacts with the CNVs. The Community Outreach Supervisor is responsible for coordinating community mobilization activities (community meetings and/or sensitization, training CNWs, CNVs and CBDs on community mobilization) at county level. CNVs are supervised and supported on a daily basis by the CNWs, while the CBDs are supervised by CBD Monitors. Day to day implementation of community mobilization activities is the responsibility of the CNWs and CNVs with support from the Community Outreach Supervisor.

COMMUNITY SENSITIZATION

Community sensitization is the first, and arguably the most important activity in community mobilization of an IMAM program for acceptance, uptake and sustainability. Sensitization for the IMAM program in Aweil South County is mainly through community meetings, before screening, the information caregivers receive at the

health facility and training sessions held for staff and community volunteers. The main topics discussed during these sensitization sessions include the target group of the IMAM program, the interpretation of the different colours of the MUAC tape and the existence of IMAM services. Sensitization is done on a regular basis however, the topics covered are the same and do not fully elaborate the causes of malnutrition, its consequences and the purpose of its treatment; to give the community the full picture of the program.

RECOMMENDATIONS ON SENSITIZATION

There are two basic steps in sensitization; sensitization messages and sensitization strategy. The sensitization message should be short and precise but long enough to explain what the programme is about. It should include local terms that the community are familiar with. The sensitization strategy is designed to make sure that the sensitization message is disseminated far and wide in the community. There is need to develop sensitization messages that are specific to a particular target group and identify sensitization strategy that works best with the particular target group.

There is need for the IRC nutrition program in Aweil South to develop a sensitization plan. The discussions held in the community clearly indicate that the purpose of the program and the knowledge of malnutrition as a curable condition are not clearly understood. Sensitization should go beyond passing messages during meeting or before screening. Training on malnutrition and IMAM services for key community figures including community leaders should be done and this will empower them to pass the correct messages in their community. Simple sensitization messages with pictures should be developed for the different cadres (CNVs, CBDs, CNWs, VHCs) involved in the IMAM program, keeping the target group of the message in mind.

CASE FINDING

a) Mass screening

Mass screening was conducted for start-up of IMAM activities. The mass screening was done at the health facilities. It is a good opportunity to identify children with malnutrition as they gather in one location. However it has its limitations if community based screening is not strengthened as caregivers will continue coming to the facility for screening adding workload at the facility. Caregivers come to the facility even if they had been turned away the previous week with the hope that their children will be enrolled in the program as RUTF is perceived as food.

b) Active Case Finding

Active case finding is conducted by CNVs and CNWs. Each facility draws a movement plan for a month for community mobilization activities. The message for community screening is passed through community leaders, mothers with children in the program, CNVs and community announcers. A community screening report is generated from the results of such screening and children identified with SAM by MUAC and oedema are referred to the facility. The role CNVs play in active case finding is not clear to them. They are few in number and have a bigger catchment area which makes it impossible to perform as volunteers.

c) Passive screening

Passive screening is conducted at health facility and by CBDs when patients come to them for treatment. Passive screening at health facility and the active case finding done in the community is not recorded separately and there are no records of community screening conducted by CNVs therefore it is difficult to monitor CNVs performance and plan refresher training based on performance.

RECOMMENDATIONS ON CASE FINDING

Community screening needs to be elaborated and community volunteers reporting formats developed and shared on a weekly basis. The movement plan form the facility for active case finding in the community is a very useful tool. Community volunteers can be involved in the planning of the movement plan and use this plan to foster independence for them to conduct their activities with remote support from the CNWs. Passive screening and active screening should be recorded separately for proper analysis.

FOLLOW-UP OF CASES

Home visits are done by both CNVs and CNWs. These are done to cases that are deteriorating in general condition and/or have no weight gain, absent cases, defaulters and cases with bilateral pitting oedema. A home visit report is written and attached to the patient admission card for cases that defaulted from the program. Other home visit feedbacks are not recorded and hence impossible to assess when and if they are undertaken. The form can only be administered by a literate person limiting its use to CNWs only. CNVs are encouraged to give verbal feedback on the cases they follow-up and this will be recorded on the admission card. Feedback based from recall is unreliable and usually goes unreported.

RECOMMENDATIONS ON FOLLOW-UP

Community leaders should be involved in case follow-up as they are familiar with the community members and the CNVs cannot cover all villages. Community leaders are influential in their community with the right knowledge they can support their communities and the IMAM program and reduce the incidences of absenteeism and defaulting. To fully empower and establish community volunteers, a home visit/follow-up form that can be used by illiterate individuals needs to be developed. This will give a picture of the main reasons of not attending for treatment and corrective measures can be taken.

4.2 STAGE 2: SMALL AREA SURVEY

The second stage of SQUEAC utilised the data (qualitative and quantitative) gathered and analysed in stage one. Assumptions and/or questions were generated on the coverage picture from the data analysed in stage one. To validate the assumption further investigation was conducted. The data analysed raised questions on whether OTPs with high admissions had high coverage while OTPs with low admissions had low coverage.

Six villages from high (Panthou OTP) and low (Wuncum OTP) admission OTP each were purposively selected and surveyed by the six teams in two days to find SAM cases. The survey sample size was the number of SAM children found by the surveyors in the selected villages in the two days of the assessment. Based on the coverage threshold for rural areas noted in SPHERE minimum standard, $\geq 50\%$ coverage was defined as the minimum coverage rate.

Pre-designed questionnaires (Annex 3) were used to record SAM cases, including both current active cases and recovering cases. Semi-structured interviews were carried out for SAM cases found not enrolled in the program using a pre-designed questionnaire (Annex 4) to identify the reasons for not attending the program. A door to door case finding method was utilized to find active cases of SAM as well as recovering cases.

CASE DEFINITION

The admission criteria into OTP for children between the ages of 6-59 months in the IRC nutrition program follow the IMSAM guidelines for South Sudan. A child to meet the admission criteria should have a mid - upper arm circumference (MUAC) of < 11.5 cm or bilateral pitting oedema with no medical complication

4.2.1 SMALL AREA SURVEY FINDINGS

In the twelve villages surveyed in the Small Area Survey 12 cases of SAM were identified and 5 were identified to be in the program. To validate the hypothesis made on Panthou and Wuncum OTPs a threshold value calculation was used to determine whether coverage was greater or less than 50%.

$$d = \frac{n}{2} \quad \text{where: 'd' is the threshold value and 'n' is the number of active cases found in the village.}$$

Interpretation: if number of cases found in the program are more than the threshold value, coverage is >50% and vis-versa

Table 4: Active SAM cases found in Small Area Survey; Aweil South County; March 2015

Summary	Active cases	Threshold value	Cases in prog.
High Coverage: Panthou	3	2	1
Low Coverage: Wuncum	9	5	4

Decision rule for High coverage OTP (Panthou)	Decision rule Low coverage OTP (Wuncum)
In Panthou 3 SAM cases were detected. Out of the 3 case more than one child needed to be in programme for 50% coverage confirmation.	In Wuncum 9 SAM cases were detected. Out of the 9 cases less than 5 children needed to be in the program for less than 50% coverage confirmation.
The survey found 1 case in programme, therefore this part of hypothesis was not confirmed.	The survey found 4 cases in programme; therefore this part of hypothesis was confirmed.
Hence villages around OTPs with high SAM admissions do not necessarily have higher coverage.	Hence villages around OTPs with low SAM admissions might have low coverage.

Panthou OTP had the highest admission rate while Wuncum OTP had the lowest admission rate. Taking into consideration the contextual information Panthou OTP is within a health facility (PHCC) with better facilities and infrastructure compared to Wuncum OTP where services are provided for under a tree. Panthou health facility is also located in the main centre with a market where more people can access. Wuncum health facility is however isolated and there is poor road network to the health facility. Taking this contextual information into consideration it was assumed that Panthou OTP had high coverage and Wuncum OTP had a lower coverage. The results of the small area survey however rejected the hypothesis that high admission OTPs has high coverage while confirming that low admission OTPs indeed have low coverage.

4.3 STAGE 3: WIDE AREA SURVEY

To complement existing data, the survey team collected new statistical data on coverage to provide an estimate of overall program coverage which is estimated using the Bayesian SQUEAC calculator. The foundation of the Bayesian techniques is that what we know about program coverage (our feeling of what it actually is) should be incorporated into the coverage analysis. In this stage the survey team gathered all information from stage one and two to understand the possible coverage rate and created a Prior (a statistical representation of our belief in program coverage).

4.3.1 SCORING BOOSTERS AND BARRIERS

The list of comprehensive boosters and barriers were derived from well triangulated evidence in stage 1 and stage 2 by the assessment team. The scoring of boosters and barriers was done by the assessment team based on the weight of each element. The scale used for rating was from 0 to 10 and a barrier or booster was rated based

on its effect on access and uptake of IMAM services. The scores for each category were added to “build up” the coverage score. The scores of boosters were added to zero (i.e. lowest possible coverage) and the scorers of barriers are “subtracted” from 100% i.e. highest possible coverage (Table 5).

Table 5: Scoring boosters and barriers, Aweil South County; March 2015

Boosters	Score		Barrier
Involvement of traditional community leaders in IMAM program	8	7	Long distance to facility
Availability of IMAM services and community is aware of the services and the delivery points	8	7	Inaccessibility of facility due to flooding after rainy season
Continued availability of RUTF especially during the dry season	7	5	High opportunity cost and workload for caregivers
Child improvement and positive outcome resulting in mother to mother referrals	6	5	Cultural beliefs that result in malnutrition cases being stigmatized or influencing negative health seeking behaviours
Active screening and referral in the community by CNWs & CNVs and opportunistic screening by CBDs	8	7	Lack of OTP infrastructure including waiting room and secure store
Some communities are close to the facility	7	7	Long waiting hours at the facility
Priority of giving services is given to referral cases	7	7	Migration due to lack of drinking water in the dry season
Good relationship between beneficiaries and staff	6	8	Few CNVs per site and lack of monthly incentives for CNVs and CBDs
Service is free of charge	9	6	Shortage of supplies during wet season
		9	Community's lack of knowledge on admission criteria and purpose of the program
Total score for boosters	66	68	Total score for barriers
Add score to 0% (lowest possible coverage)	0+66 (66)	100-68 (32)	Add score to 100% (highest possible coverage)
	$(66+32)/2 = 49\%$		

4.3.2 FORMING THE PRIOR⁵

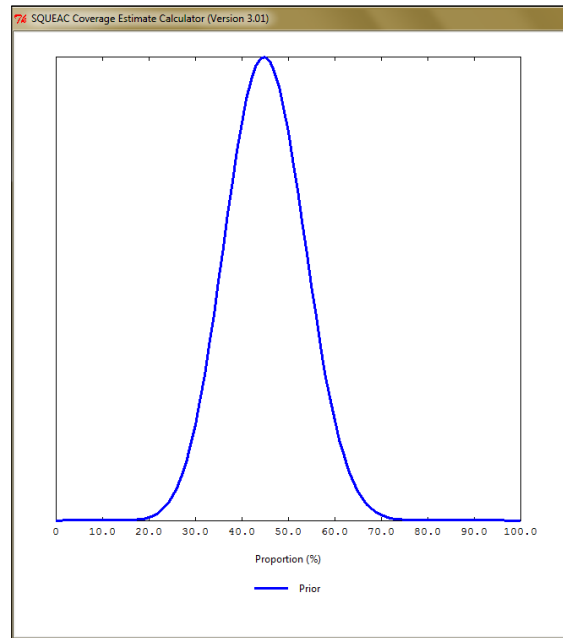
Prior is generally set using the prior information from stage one and two data to make an informed assumption about the most likely coverage value and then express it as a probability density. Based on the findings from stage one and two data, the assessment team set the ‘prior’, for the final stage of the coverage survey. The team assumed that the program coverage is likely to be around 45%. Therefore the ‘mode’ was set at 45%, with speculation of lowest possible coverage 20% and highest possible coverage 70%.

4.3.3 SAMPLE SIZE CALCULATION

To select the sample size for ‘wide area survey’ SQUEAC turns to Bayesian calculator by setting the ‘Prior’ or ‘Mode’ of the coverage. The prior is then described using the probability, alpha prior = 15.6 and Beta prior = 19.0 using Bayesian SQUEAC software (Figure 12). The precision was set at $\pm 12\%$, then software the automatically calculated, 33 SAM cases required to be found regardless of whether they are in the program or not in the program.

Figure 12: Prior for OTP coverage, Aweil South County; March 2015

⁵ PRIOR is a statistical representation of our belief in programme coverage



4.3.4 SAMPLING

The wide area survey sampling covered the entire program catchment areas of the six OTPs included in the survey. Sample size requirements were calculated, using simulation with the Bayesian-SQUEAC calculator by setting the 'Prior'. To calculate the number of village to be included in the survey the following formula was used:

$$n_{\text{villages}} = \frac{n}{\text{average village population} \times \frac{\% \text{ of children 6-59 months}}{100} \times \frac{\text{prevalence}}{100}}$$

n = sample size from the Bayesian SQUEAC calculator (33)

Average village population = 291

% of children 6-59 months = 19%

Based on 2014 SMART survey⁶, the prevalence of SAM based on MUAC was 4%

The number of villages calculated from the formula and the parameters above were fifteen. To ensure a representative sample all villages were listed in the six payams of the survey area. Systematic random sampling was used to select the 15 villages to include in the survey. The survey team ended up going to more than 15 villages (24 villages) to meet the target of children required in the survey. Systematic random sampling from the list of villages was used as the distribution of the villages in the different catchment areas was scattered hence the use of the recommended spatial sampling methodology was not feasible as the map had areas we were not including in the sampling frame.

To find SAM and recovering cases of SAM, a door to door case finds method was used, which was the same methodology used for the small area survey. This method allowed for the inclusion of all, or nearly all, current SAM cases in all surveyed villages. The wide area survey took four days of data collection from the selected villages. Finding SAM cases was difficult as some of the population had been reported to have migrated to cattle camps or other had migrated in search of food and better livelihoods. All children between the ages of 6-59

⁶ INTEGRATED NUTRITIONAL ANTHROPOMETRY AND MORTALITY SMART SURVEY, Aweil South County; NBeG State Republic of South Sudan, Final report, April 2014

months in each village were screened with MUAC. Cases that were 'not in the IMAM program were referred to the nearest OTP site.

4.3.5 WIDE AREA SURVEY FINDINGS

The assessment team found 37 SAM cases from 24 selected villages that were surveyed using MUAC measurement and checking for bilateral pitting oedema. Out of the 37 SAM cases found in the sampled villages 14 cases were found in the program.

Table 6: Wide area survey results for OTP; Aweil South County; March 2015

VILLAGE	TOTAL CASES	SAM IN PROG	SAM NOT IN PROG	RECOVERING CASES
Ajith	0	0	0	4
Lac	0	0	0	3
Rom-akac	1	0	1	0
Amuol	1	0	1	0
Hal maker	0	0	0	1
Mathiang agor	4	4	0	0
Wac abak	1	0	1	0
Wathmakol	1	0	1	0
Rup-pabol	3	3	0	4
Kuel abong	2	0	2	0
Pan-rual	4	0	4	0
Panthobug	3	1	2	0
Langagot	2	1	1	0
Mading	2	0	2	1
Buol	0	0	0	1
Rum-awec	0	0	0	1
Majok wet ajal	1	0	1	0
Mayen thanybur	5	2	3	0
War-ngap	1	0	1	3
Achuan	0	0	0	1
Mayom lac	1	0	1	0
Ngapachot	1	0	1	2
Wun-akol	1	0	1	0
Wunkiir	3	3	0	0
TOTAL	37	14	23	21

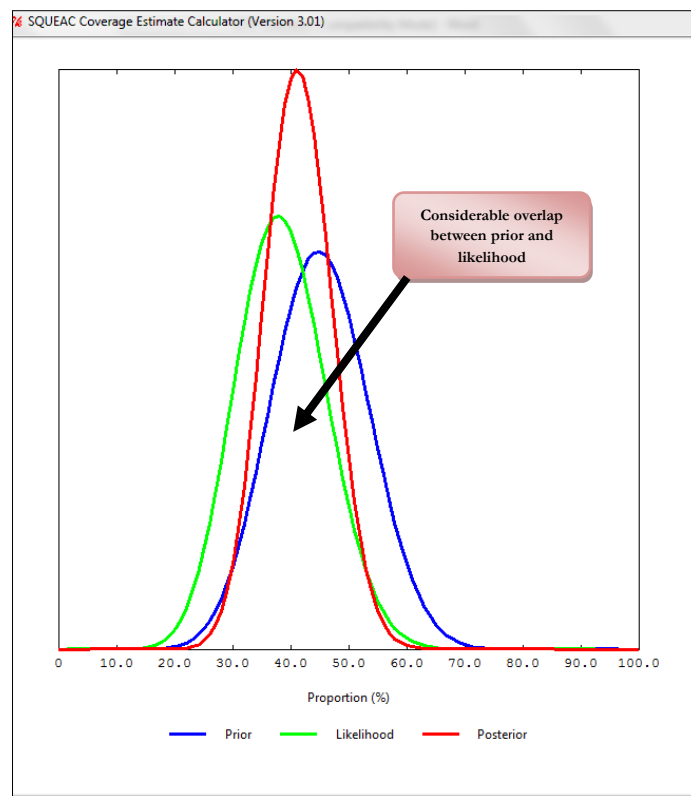
4.3.6 COVERAGE ESTIMATION

To estimate the program coverage rate data from the wide area survey and the pre-set Bayesian-SQUEAC prior was used. For this survey point and single⁷ coverage estimators were reported.

To calculate the point coverage for OTP the total number of SAM cases found in the community were inserted in the Bayesian SQUEAC calculator as a denominator (37) and cases identified with SAM and in the program as numerator (14) with a precision of $\pm 12\%$. The point coverage is estimated at 41.1% rate with a 95% Credible Interval of (30.4% - 52.9%), P value = 0.5567 and Z statistic = 0.59 (figure 13). Figure 13 shows a conjugate analysis with no prior-likelihood conflict ($p = 0.5567$) therefore the posterior coverage calculated from the Bayesian Calculator can be used as the point coverage for the IRC Aweil South County IMAM program.

Figure 13: Point Coverage Estimate for Aweil South County; March 2015

⁷ The Single Coverage Estimator has been developed by Valid International, the Coverage Monitoring Network, the World Food Programme and Brixton Health.

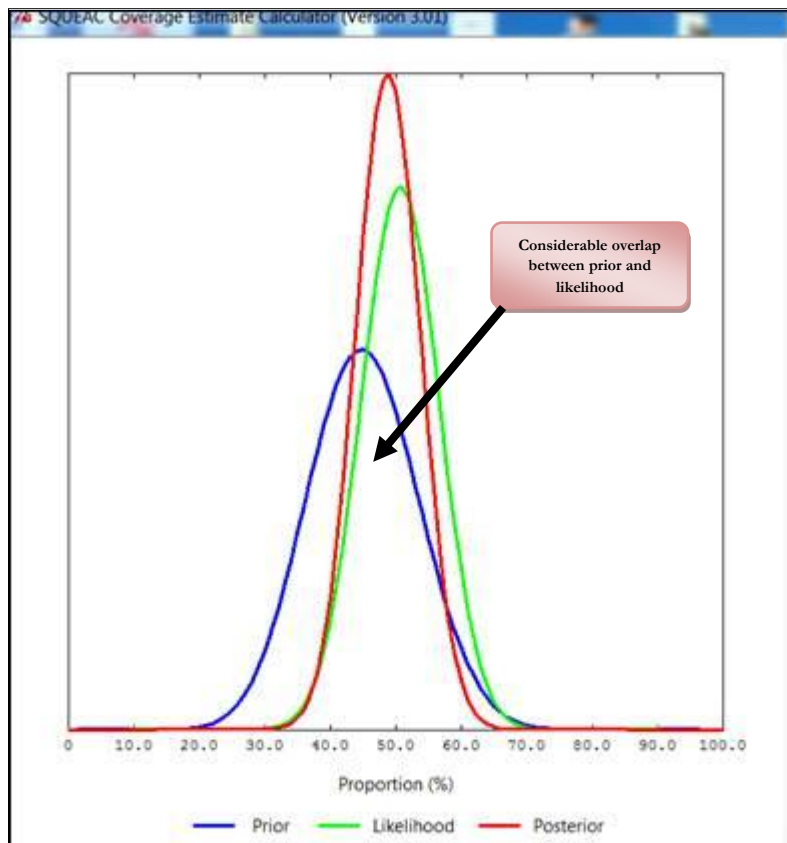


In order to address the limitations of using either the point or period coverage estimators the single coverage estimator has been developed and it can estimate overall programme performance. To calculate the single coverage for OTP the denominator and numerator to insert in the Bayesian SQUEAC calculator were calculated from the equation below; where the denominator (69) is the total number of current SAM and recovering cases in the programme and current SAM and recovering cases not in the programme; and the numerator (35) is the sum of the current SAM and recovering cases in the programme. The numerator and denominator were inserted into the Bayesian SQUEAC calculator with the same Alpha and Beta values (α 15.6; β 19.0) and precision $\pm 12\%$ that had been used from the pre-set 'Prior'. The Bayesian-Software estimated 'Single' coverage at **48.8%** rate with Credible Interval of (CI 39.4% - 58.3%), and P value= 0.5761, there is considerable overlap between 'prior' and 'likelihood' (figure: 14).

Table 7: Single coverage estimation for OTP, Aweil South; March 2015

Description of SAM survey data	Number	Equation
K = a correction factor	3	$R_{out} \approx \frac{1}{k} \times [R_{in} \times \left(\frac{C_{in} + C_{out} + 1}{C_{in} + 1} \right) - R_{in}]$
C_{in} = Current SAM cases in the programme	14	
C_{out} = Current SAM cases not in the programme	23	$R_{out} \approx \frac{1}{3} \times \left[21 \times \left(\frac{14 + 23 + 1}{14 + 1} \right) - 21 \right] = 11$
R_{in} = Recovering SAM cases in the program	21	
R_{out} = Recovering SAM cases not in the program	11	

Figure 14: Single coverage for OTP, Aweil South, S. Sudan; March 2015



Mothers and/or caregivers for children identified with SAM and not in the program during the small and wide area survey were interviewed to further identify the barriers to access. A total of 30 semi-structured interviews were conducted with the caregivers. Information asked to these caregivers included their knowledge of the condition of malnutrition, the program, barriers to accessing services, health seeking behaviour and infant and you child feeding. The findings from these interviews are described in detail in section community assessment.

5 CONCLUSION AND RECOMMENDATION

An important indicator of performance in the nutrition programs is the coverage. Coverage measures how many children are affected by SAM and what proportion of these children are being treated by the IMAM program. The tool used to collect this information is a coverage survey. The single coverage for the IMAM program run by the IRC from November 2013 was 48.8% CI (39.4% - 58.3%) which is below the SPHERE standards of $\geq 50\%$ in rural areas.

The SQUEAC tool was used as a monitoring and an informative process of coverage of IMAM program in Aweil South County. Monitoring in the sense that it tracked implementation of the program against the requirements laid down in the IMAM international and national protocols such as early treatment seeking, length of stay in the program and provision of appropriate care as long as it is needed. It is an informative process as it provided key barriers and boosters to treatment access, i.e., factors that affect program uptake and coverage. The following recommendations were made together with the CHD to improve quality of services provided for in Aweil South nutrition program and increase service uptake and coverage to meet the community's needs:

- ❖ The CHD to put in place a nutrition coordination mechanism in the County for the different nutrition partners to ensure more beneficiaries access nutrition services and active participation of all partners in addressing the community's needs.

There are a number of nutrition partners in the county (IRC, WVI, BRAC and MAGDA), however nutrition interventions are not well coordinated and there is limited interaction between the partners. With a well-coordinated mechanism more children will be reached and resources will be well distributed in the community for a more effective response. There is therefore need for regular coordination meetings and sharing of program plans and progress reports with the CHD and among the partners. The CHD and the nutrition partners in the county also need to take an active role in addressing the sale of RUTF/RUSF in the markets in Aweil South County.

- ❖ Increase the community's access to the IMAM services by improving the quality of services provided for at the health facilities and by increasing the number of treatment sites.

Caregivers identified long waiting hours at the facility and high opportunity cost of the treatment for the family. Currently the nutrition program run by the IRC provides OTP services 1 to 2 days per week at every facility. This time is limited and results in overcrowding at the facility. There is need for the program to increase the number of days for providing OTP services at the facility and put more emphasis on community screening. Due to long distances travelled by the caregivers to the facilities and the high opportunity cost incurred by the family in accessing the services, revisits for cases identified as stable can be made bimonthly rather than on a weekly basis. There is also need to increase the treatment sites or operating mobile clinics to reach more children.

- ❖ Build on the existing community mobilization strategy to be context specific and use the effective identified communication channels to pass health messages.

There is a clear community mobilization strategy for the IMAM program in Aweil South County. OTP staff has three days of conducting community mobilization activities in the week. However the strategy can be improved by providing regular training for staff and community volunteers on community mobilization activities. Recommendations for the community mobilization strategy are outlined in the Community Assessment section of this report.

- ❖ Build capacity of staff and community volunteers on IMAM protocols and reporting as per the IMSAM Guidelines of South Sudan.

Interviews with OTP staff, CNVs and CBDs reflected gaps in knowledge with regards to the admission, discharge protocol and procedures to be followed in IMSAM treatment. Community volunteers' technique for measuring MUAC is poor resulting in many cases referred by the volunteers to the facilities being rejected. Regular refresher trainings on IMSAM guidelines for staff and volunteers should be conducted. On the job mentoring and supportive supervision for all cadres has to be strengthened.

- ❖ Improve the infrastructure, capacity and ensure adequate supply of medication at the health facilities to address the needs of the community.

Lack of waiting area and stores for keeping adequate supplies has negatively impacted on the program as caregivers are not comfortable to stay for long hours at the facility under a tree or coming to the facility and finding that there are no supplies. Improving the health facilities infrastructure and having safe and secure storage facilities will give a positive boost to the quality of care caregivers receive from the facility and will likely improve program coverage.

- ❖ Develop and put in place effective and efficient monitoring and evaluation system for the program including the community mobilization strategy.

Community mobilization activities are well planned and executed. However there is a gap in monitoring and reporting of the activities. There is no clear feedback mechanism for community volunteers' performance as

they do not have a recorded report. There is need of developing a monitoring and evaluation mechanism to follow up community mobilization activities and develop a feedback mechanism to ensure that the community mobilization strategy used is effectively. Simple reporting formats should be developed for the community volunteers (CNVs in particular) as this will help to assess their performance and track community based activities.

- ❖ Develop and put in place a standard reporting mechanism that captures all nutrition indicators and can be used at all levels of programming.

On collecting program monitoring data, most of the information was collected from the patients' registers and admission cards. This data is not routinely monitored (nutritional status at admission, time of defaulting, nutritional status at defaulting, admission trends, and source of referrals). This information is vital to make informed decision and improving the quality of services and require regular monitoring. The monthly and weekly reporting system is not well established and some important indicators (Average weight gain, length of stay, screening data segregated as active and passive screening and analysis of defaulter and/or death cases) are not captured in the monthly reporting tools, leaving a gap on such information. There is therefore a need to develop a nutrition database which can be used at all levels of programming and with information on a weekly basis. This database will form the base of all nutrition reports that go to different partners and donors.

- ❖ Implementation of nutrition sensitive interventions that will address the underlying causes of malnutrition (food insecurity, provision of clean and safe water, sanitation and hygiene and adequate maternal and child care).

Most nutrition interventions in the community are aimed at treating malnutrition while the underlying causes of malnutrition are not addressed. Therapeutic supplies have been historically sold in the market; in Aweil South County and NBeG State as a whole; and used as a substitute for food in some households. There are high levels of food insecurity in the community, with most households reported to have one meal a day. Hygiene and sanitation is very poor while the community's access to clean and safe water is not guaranteed. Maternal and child care practices can be improved. Infant and young child feeding practices are not adequate and young siblings are left to care for their younger siblings while the caregivers are engaged in other household chores. Interventions that address underlying causes of malnutrition need to be introduced in Aweil South County to have a lasting impact on efforts to treat malnutrition.

- ❖ Improve the community's support mechanism for mothers and caregivers by creating community's awareness on maternal and child health.

The burden for caring for children on mother is too high. There is little support for mothers in Aweil South County. Mothers are responsible for taking care of the children, feeding the family, building the tukuls and are engaged in numerous livelihood activities to feed the family. Men on the other hand do not play a pivotal role in the welfare of their families. This is a polygamous community and mothers are given all the responsibilities of taking care of their children. These numerous activities by mothers result in inadequate care practices for the children. Caregivers are forced to leave their young children under the care of older siblings which further compromises child health. There is a need for the community as a whole to understand and realize the effects of these kinds of practices on the well-being of the children and the mothers. This will take longer to address and see changes however men should be actively involved in the nutrition program and get a good understanding of the causes and consequences of malnutrition.

- ❖ To conduct a follow up SQUEAC survey for the IMAM program in Aweil South County early 2016 to assess progress.

6 LIMITATIONS

The small and wide area survey had challenges in getting the required number of children between 6-59 months with malnutrition to include in the survey. It was reported that, at the time of the survey, most families had migrated either to cattle or fish camps, in search of better livelihood or moved out due to floods. Instead of the planned 2 days for the wide area survey the team collected data for the wide area survey in 4 days to meet the required number of children needed to estimate coverage.

Point coverage was used to as the coverage estimator for Aweil South County. This estimator uses data for current cases only. It provides a snapshot of service performance and places a strong emphasis on the timeliness of case finding and recruitment leading to shorter length of stay in the program. However the nutrition program in Aweil South County has a long length of stay for malnourished cases hence the point coverage estimator might penalize good performance by missing these cases out. Therefore it is important to interpret the coverage estimator of the program with caution and with an understanding of the factors influencing coverage.

7 ACTION PLAN TO IMPROVE PROGRAM COVERAGE AND ACCESSIBILITY

The coverage investigation held in Aweil South County found single coverage for the nutrition program run by the IRC to be **48.8% CI (39.4% - 58.3)**. This is below the SPHERE minimum standard of $\geq 50\%$ in rural areas. A number of barriers and boosters were identified by the community, beneficiaries and staff. Each barriers identified had possible recommendations to address it and hence anticipated to improve coverage, while the boosters will be re-enforced to ensure they continue to encourage beneficiaries to seek and uptake IMAM services. The recommendations made by the assessment team have other aspects beyond the nutrition IMAM program. The below action plan has aspects only specific to the nutrition programs in the county. These were recommended by the assessment team with the aim of improving service provision, increasing program access and coverage.

#	ACTIVITY	PERFORMANCE INDICATOR	TARGET	RESPONSIBLE	TIMELINE
1	STRENGTHENING IMAM SERVICES AT HEALTH FACILITY				
1.1	Improve coordination between partners in the county (with emphasize on health and nutrition coordination meetings at county level)	Coordination meetings at County level with all partners Coordination meeting minutes	Once a month	County authorities - All partners meetings CHD – health and nutrition meetings	April 2015 – March 2016
1.2	Linking nutrition services to other nutrition sensitive initiatives in the community for a holistic approach to addressing malnutrition (introduction of IYCF services, food aid programs, WASH and nutrition gardens)	# of IMAM patients benefits from other nutrition sensitive initiatives in the community	80% of the beneficiaries	County department heads and partners in the county	April 2015 - March 2016
1.3	Pre-positioning of supplies to facility (in the dry season), proper management of supplies at health facility and ensuring supplies are secure.	# of stock outs or supply breaks per quarter minimized	Facilities to have stock at all times (80%) of the year	IRC, CHD, UNICEF and community members	April 2015- March 2016
1.4	Decentralizing IMAM services to the beneficiaries (through the provision of mobile services to villages far from the facilities or opening new treatment sites)	Number of new treatment sites opened	At least every HF (functional or not) should provide IMAM services	CHD and Nutrition Partners	April 2015 – March 2016
1.5	Provision of comprehensive IMAM services at all facilities and inpatient care in PHCCs	# of fully functional OTP/TSFP sites in the County At least one SC in the county	All functional facilities to have OTP and TSFP services SC in the PHCC	CHD and nutrition partners in the county	April 2015- March 2016
1.6	Joint support and supervision for IMAM services by CHD and IRC and/or other nutrition partners in the County (following support and supervision checklist in the draft National Guidelines for IMSAM)	Quarterly joint support and supervision to treatment facilities Monthly support and supervision to sites by IRC	4 Joint support and supervision conducted for each sites by both the IRC and CHD Monthly follow up visits	CHD and IRC	April 2015 – March 2016

#	ACTIVITY	PERFORMANCE INDICATOR	TARGET/ FREQUENCY	RESPONSIBLE	TIMELINE
1.7	Revising the admission cards and other data collection tools to be in harmony with those required by the national guidelines.	Harmonization of data collection tool with the National protocols	Use of nationally recognized tools for the management of acute malnutrition	IRC and PSI	July 2015
1.8	Construction of OTP sites, waiting area and stores - four sites require these rehabilitations - Ayai, Makuel Alec, Akac, Wuncum)	Complete construction of sites, waiting areas and stores	4 sites	IRC	April – July 2015
1.9	Capacity building for nutrition staff and volunteers in the form of training and monthly meetings with staff. Training plans for staff including MoH staff to be formulated to ensure all receive basic training for management of acute malnutrition.	# of trainings held for staff Refresher training on a quarterly basis after initial training Monthly staff meeting minutes	All IRC nutrition and MoH staff receive initial training and at least 3 refresher trainings per year	IRC	April 2015 – March 2016
1.10	Increase the number of OTP days at health facility	OTP days per week to be increased from one to two/three depending on the number of beneficiaries served at a particular facility	2/3 OTP days per week	IRC	April 2015 – March 2016
1.11	To have a replacement plan for staff on leave (leave and movement plan developed and shared to all with plan for gaps communicated to all)	Each facility has a leave and movement plan	At least two staff available at each OTP day	IRC	April 2015 - March 2016
2	COMMUNITY MOBILIZATION ACTIVITIES				
2.1	Village mapping – Listing villages within three walking hours to the facility (regardless of payam) for community mobilization planning (assigning villages to CNVs, CBDs and CNWs outreach activities)	List of villages within each facility catchment area and the signed volunteer	All villages within three hours walking distance to the health facilities providing IMAM services	IRC	July 2015
2.2	Increasing the number of CNVs to increase coverage of community mobilization activities	# of newly selected CNVs per health facility	At least one CNV per village	IRC	Jan 2016
2.3	Formulation of a monthly community mobilization plan for each OTP by the CNWs and CNVs	Active screening conducted in a village once a month Follow up and community sensitization sessions held on a monthly basis	Active case finding in 80% of the villages to be done on a monthly basis Monthly sensitisation sessions	IRC	April 2015 – March 2016

#	ACTIVITY	PERFORMANCE INDICATOR	TARGET/ FREQUENCY	RESPONSIBLE	TIMELINE
2.4	COMMUNITY SENSITIZATION				
2.4.1	Formulation of sensitization messages specific for different types of audience to be sensitized in the community	Development of sensitization modules and job aids for specific audiences	Module for Health Professionals Module for Volunteers Module for community leaders Module for caregivers Modules for fathers	IRC	July 2015
2.4.2	Conducting community sensitization meeting with community leaders and taking advantage of community gatherings (monthly)	Monthly sensitization meeting with community leaders and meeting minutes	At least one meeting per boma per month Quorum of leaders should be 75%	CHD and IRC	April 2015 – March 2016
2.4.3	Engaging community leaders, traders' union and influential community members in dialogue to address the issue of selling of RUTF in the market	No RUTF/RUSF found in the market	Quarterly	County Authorities	April 2015 – March 2016
2.4.4	Make available equipment necessary to conduct mobilization activities for staff and community volunteers (i.e. bicycle spare parts and microphones)	All health facilities have functional microphones and bicycles for CNWs	Once off	IRC	July 2015
2.5	CAPACITY BUILDING				
2.5.1	There is need for regular CNVs training for a better understanding of the roles and responsibilities and for accountability to the beneficiaries	# of trainings conducted for all CNVs; Refresher training held on a quarterly basis	An initial training for all CNVs followed by at least 3 refresher training	IRC	April 2015 – March 2016
2.5.2	Motivation of CNVs through supervision, support and incentives	# of support and supervision for each community volunteer Monthly incentives	Monthly support and supervision to each community volunteer	IRC and CHD	April 2015 – March 2016
2.5.3	Weekly and monthly reporting form CNVs on community mobilization activities and feedback shared to them as part of mentoring	# of weekly and monthly reports received from each CNV	52 weekly reports 12 monthly reports	IRC	April 2015 – March 2016
2.5.4	Monthly meeting with CNVs to re-enforce their activities and plan the following month's community mobilization plan	# of coordination meeting health CNVs and minutes from the meeting	12 monthly meetings	IRC	April 2015 – March 2016
2.5.5	Increase the duration of nutrition training for CBDs including refresher trainings and provide sufficient support and supervision on case identification.	# of competent CBDs in identifying SAM cases	528 CBDs	IRC	April 2015 – March 2016
2.6	Involve CBDs more in the treatment of acute malnutrition – provision of home based SAM treatment	% of children successfully treated by CBDs	75% of their admissions	IRC	March 2016

**ANNEX 1: Schedule - SQUEAC Training & Assessment, Aweil South; South Sudan; 10-24
March 2015**

Time	Activity	Facilitator
Wednesday; 11 Mar.	Class room training Opening Session Introduction Overview of the SQUEAC methodology Overview of the qualitative data collection objectives, methods Group work identify Programme's boosters and Barriers	Irene & Stanley
Thursday; 12 Mar.	Class room training Overview FGD , KII methods OTP Checklist Review of the questionnaire Distribution of task to the assessment team Developing Seasonal Calendar Analysis some programme data	Irene & Stanley
Friday; 13 Mar.	Field data collection Information collection from OTP OTP Checklist FGD/KII with OTP Mothers, and Health Centre staff Developing Seasonal Calendar with OTP mothers	Team
Saturday; 14 Mar.	Classroom training Analysis of field data (OTP data) Identification of potential barriers and boosters of coverage Plan for community data collection.	Stanley/Irene
Sunday; 15 Mar.	Field data collection Collection of some Contextual Data from the stakeholder from selected villages	Team
Monday; 16 Mar.	Classroom training Contextual data analysis (Field data) Identification of potential barriers and boosters of coverage Plan for OTP visit and data collection.	Stanley/Irene
Tuesday; 17 Mar. & Wednesday 18	Field data collection Carry out Small Area Survey Meeting the CHD and partners at county level	Team
Thursday 19 Mar.	Classroom training Data analysis of Small area survey Data analysis (qualitative) OTP Data analysis Bayesian SQUEAC Calculation of samples and villages for 'wide area survey'	Stanley/Irene
Friday; 20 Mar., Saturday 21 Mar. & Monday 23 Mar.	Field data collection Carry out Wide Area Survey	Team
Tuesday; 24 Mar.	Classroom training Data compilation of wide area survey Estimations of coverage Recommendation Develop Joint Action Plan (JAP)	Stanley/Irene Team including CHD Reps.

ANNEX 2: Aweil South SQUEAC Survey Participant list

No.	Name	Position	Sex	Organization
1	Joseph Ajing Ayok	Community Nutirtion Worker	M	IRC
2	Paul Akot Kuol	Community Nutirtion Worker	M	IRC
3	Peter Wek Anyuon	Community Nutirtion Worker	M	IRC
4	Peter Akol Angok	Community Nutirtion Worker	M	IRC
5	Luka Koor Koor	Community Nutirtion Worker	M	IRC
6	Angelo Deng Chiec	Community Nutirtion Worker	M	IRC
7	John Garang Malong	Community Nutirtion Worker	M	IRC
8	Elizabeth Adut Mayom	Community Nutirtion Worker	F	IRC
9	Santino Nyal Lual	Pharmacy Technician	M	CHD
10	Santino Madhieu Achuil	CHD HR Officer	M	CHD
11	Philip Amet Deng	Community Outreach Supervisor	M	IRC
12	William Deng Lual	Nutrition Program Officer	M	IRC
13	David Maluak	Nutrition Deputy Manager	M	IRC

ANNEX 3: DATA COLLECTION TOOLS FOR SMALL AND WIDE AREA SURVEY

SQUEAC: Small Area Survey SAM, Aweil South, March 2015

Date: ____/____/____ Team: _____ Team member: _____ Boma & Village: _____

#	Child's Name	Father's Name	Age (Month)	SEX		MUAC in cm	Oedema	SAM case in the prog.	SAM case NOT in the prog.	OTP recovering Cases in prog.
				M	F					
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

SQUEAC: Wide Area Survey SAM, Aweil South, March 2015

Date: ____/____/____ Team: _____ Team member: _____ Boma & Village: _____

#	Child's Name	Father's Name	Age (Month)	SEX		MUAC in cm	Oedema	SAM case in the prog.	SAM case NOT in the prog.	OTP recovering Cases in prog.
				M	F					
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

ANNEX 4: SMALL AND WIDE AREA SURVEY QUESTIONNAIRE FOR CHILDREN NOT IN THE PROGRAM

Small/ Wide area survey Questionnaire for the guardians of a child (Active SAM) NOT in the program, Aweil South, South Sudan.

Name of Child: _____

Boma/Village: _____

OTP: _____

Date: _____

1. DO YOU THINK THAT YOUR CHILD IS MALNOURISHED?

YES ☐

NO ☐

2. DO YOU KNOW A PROGRAM WHICH CAN HELP MALNOURISHED CHILDREN?

YES ☐

NO ☐

If answer is NO go to question 6

If yes, what is the name of the program? _____

3. WHY DIDN'T YOU BRING YOUR CHILD IN FOR CONSULTATION TO THIS PROGRAM?

- a. Too far (What distance to be travelled with foot? _____ **OR** how many hours? _____)
- b. I do not have time/too occupied. (Specify the activity which occupies the guardian _____)
- c. The mother is sick
- d. The mother cannot travel with more than one child
- e. The mother is ashamed to go the program (stigma, no good cloths etc...)
- f. Problems of safety
- g. The quality of services is too poor to justify to go
- h. The child was rejected before.
- i. The child of other people was rejected
- j. My husband has refused
- k. The guardians do not believe that the program can help the child (or prefers the traditional medicine, etc.)
- l. Other reasons, Specify: _____

4. Was the CHILD ADMITTED IN the PROGRAM before?

YES ☐

NO ☐

If answer is NO go to question 6

If answer is YES, why is the child not registered in the program at present?

- a. Defaulted, When: _____ Why: _____
- b. Cured and discharged from the program (When? _____)
- c. Discharged but not cured (non-recovered) when? _____
- d. Others reason specify: _____

5. If you decide to use CMAM service which facility would you go and why?

6. Who decide or influence you to take or NOT to take a child to a health facility and why?

7. How do you deal with a child who sick? Where do you first seek a solution for a sick child? (**Probe:** home remedies with herbs used, which herbs are used, are the traditional treatment sought and administered before children are taken to a health facility? Change of trend on the use of these methods, CBDs/CNVs)

8. Information on Infant and young child feeding

- a. Do you (women caregivers) breastfeed your babies under six months of age?
- b. At what age do mother start to give additional liquids to infants?
- c. At what age do caregivers introduce complementary foods to their infants?
- d. How many times per day does a mother feed a 12 month-old infant? What is this child fed on, on a daily basis?

(Thank the guardian)