



# COVERAGE ASSESSMENT

» SEMI-QUANTITATIVE EVALUATION OF ACCESS AND  
COVERAGE

2015

## Adjumani District, Uganda

August-September 2015

Emily Hockenhull



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# Abbreviations

|        |                                                     |
|--------|-----------------------------------------------------|
| ACF    | Action Contre la Faim                               |
| CHWs   | Community Health Workers                            |
| CMAM   | Community Management of Acute Malnutrition          |
| CMN    | Coverage Monitoring Network                         |
| CSB    | Corn Soy Blend                                      |
| DHO    | District Health Office                              |
| FGD    | Focus Group Discussion                              |
| GAM    | Global Acute Malnutrition                           |
| IMAM   | Integrated Management of Acute Malnutrition         |
| ITC    | Inpatient Therapeutic Care                          |
| IYCF   | Infant and Young Child Feeding                      |
| MAM    | Moderate Acute Malnutrition                         |
| MoH    | Ministry of Health                                  |
| MUAC   | Middle Upper Arm Circumference                      |
| NGO    | Non-Governmental Organisation                       |
| OPM    | Office of the Prime Minister                        |
| OTC    | Outpatient Therapeutic Centre                       |
| RUTF   | Ready to Use Therapeutic Food                       |
| RWC    | Refugee Welfare Council                             |
| SAM    | Severe Acute Malnutrition                           |
| SFP    | Supplementary Feeding Programme                     |
| SQUEAC | Semi Quantitative Evaluation of Access and Coverage |
| UNICEF | United Nations Children's Fund                      |
| VHT    | Village Health Teams                                |
| WFP    | World Food Programme                                |

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# Executive Summary

There are currently 100,684 (updated 16<sup>th</sup> September 2015)<sup>1</sup> refugees from South Sudan settled in the Adjumani district in West Nile Sub-Region, Northern Uganda. In response to the emergency and to alarming levels of Severe Acute Malnutrition (SAM) and Moderate Acute Malnutrition (MAM) reported in nutrition surveys<sup>2</sup>, Supplementary Feeding Programmes (SFP) and Outpatient Therapeutic Centre (OTC) programmes have been scaled up. The World Food Programme (WFP) has funded Medical Teams International (MTI) to implement the SFP programme (at 9 sites) and the OTC (at four sites). Action Contre La Faim Uganda (ACF-UG) is the implementing partner in four OTC sites, and Concern Worldwide is the implementing partner in the remaining OTC sites across the district (those addressing both refugee and host needs) and in Inpatient Therapeutic Care (ITC) sites.

A Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) assessment was carried out to assess coverage of the SFP and OTC programmes in the refugee catchment area, to identify factors affecting coverage and to develop specific recommendations, based on the assessment outcomes to improve access to and coverage of the programme. An additional objective was to build capacity of district health teams and key nutrition partners on the SQUEAC methodology.

Quantitative and qualitative data were collected and analysed during Stage 1 of the investigation. The main boosters to coverage were strong community mobilisation and active VHTs who were screening regularly in the community using MUAC and running nutrition education sessions. There was a strong awareness of the aetiology, prevention and treatment of malnutrition in the community. This is enhanced through several partner organisations running additional nutrition programmes alongside the existing IMAM components.

The main barriers to coverage are the poor coordination and cohesion among IMAM implementing partners, which leads to gaps in screening activities and in programme admission criteria. Other barriers include long distance to the facility which can deter carers from taking children, or increase defaulting and poor experiences at the health facility, due to poor organisation.

A wide area survey was conducted for the Supplementary Feeding Programme (SFP). In total, there were 87 MAM cases; 4 of which recovering, 15 in the programme, and 68 not in the programme. The prior estimate of coverage (from quantitative and qualitative data) and the likelihood (from the wide area survey) were in conflict, and as a result, no coverage estimate could be given. That said, we can say that coverage is highly likely to be low. Although a wide area survey was not conducted for OTC, 15 SAM cases were found; 1 recovering, 5 in the programme and 9 not in the programme.

Recommendations were formulated to address barriers to access and low coverage. It is recommended that to address the poor cohesion and coordination between IMAM components,

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<sup>1</sup>(UNHCR), U. (2015). *UNHCR South Sudan Situation*. [online] UNHCR South Sudan Situation. Available at: <http://data.unhcr.org/SouthSudan/region.php?id=47&country=229> [Accessed 22 Sep. 2015].

<sup>2</sup>Wfp.org, (2015). *Uganda - Food and Nutrition Security Assessment among Refugee Settlements, January 2015 | WFP | United Nations World Food Programme - Fighting Hunger Worldwide*. [online] Available at: <http://www.wfp.org/content/uganda-food-and-nutrition-security-assessment-refugee-settlements-january-2015> [Accessed 30 Sep. 2015].

admission criteria is streamlined and case finding of SAM and MAM is enhanced. Improving the beneficiary experience at health facilities is crucial to recruiting and retaining admissions. Suggestions for improvement include reducing the language barrier, improving organisation of the OTC and increasing the number, and skills and knowledge of health workers.

# 1. Introduction

## 1.1 Context

Bordering South Sudan to the north, Adjumani district is part of the West Nile sub-region of Northern Uganda. Between December 2013, and September 2015, as conflict in South Sudan intensified, almost 90,000 refugees have travelled across the border to Adjumani District. With the 12,000 refugees previously living in Adjumani, this brings the total living in settlements across the district to 100,684<sup>3</sup>. In total there are 11 settlements in Adjumani District. In addition UNHCR maintains a transit centre at Nyumanzi, where refugees are received when they first arrive in country; from here they are relocated to another settlement on a more permanent basis. Olua and Mirieyi are existing settlements, where refugees have not repatriated following the previous conflict in 1983-2005<sup>4</sup>. Settlements are divided into blocks, and blocks are divided into households, whereby each household is given a plot of land, measuring 30 by 30 metres, where they are able to build a house and cultivate crops. The size of the block depends on the available land for establishing the settlement. Refugees are reliant on general food distribution provided by WFP, and they supplement their diet through additional crops grown and through trade at local markets<sup>5</sup>.

The Ugandan refugee policy promotes self-reliance amongst refugees, and they are given the rights to move freely, trade and work. There are refugees also residing in host communities, although data is limited on the precise numbers<sup>6</sup>.

There are a number of different tribes present in the settlements, the majority of refugees are Dinka, however, there are also Nuer and Ma'di tribes<sup>7</sup>. These tribes speak different languages, and translators are present at health centres. The settlements are mixed, which can sometimes lead to conflict amongst the refugees, although the situation has calmed in recent months<sup>8</sup>.

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<sup>3</sup>(UNHCR), (2015). *UNHCR South Sudan Situation*. [online] UNHCR South Sudan Situation. Available at: <http://data.unhcr.org/SouthSudan/region.php?id=47&country=229> [Accessed 22 Sep. 2015].

<sup>4</sup><http://www.bbc.co.uk/news/world-africa-14069082>

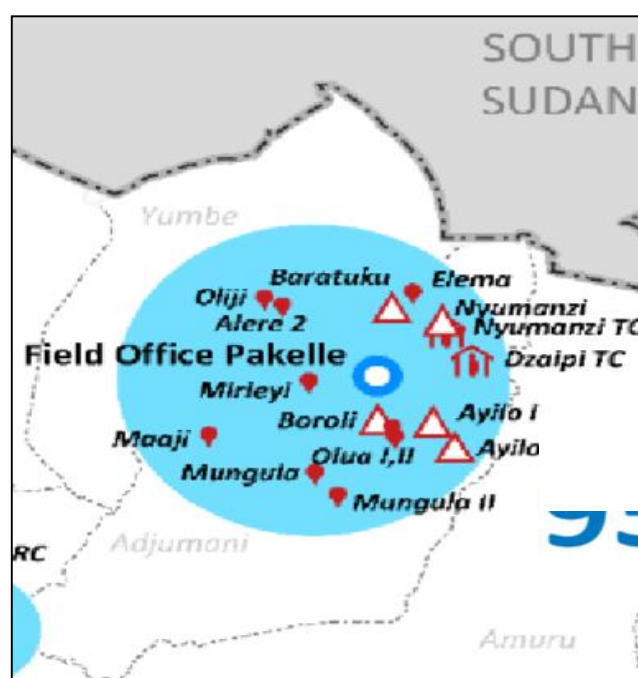
<sup>5</sup>UNHCR, (May, 2015). *Update for the South Sudan Emergency*.

<sup>6</sup>The International Refugee Rights Initiative, (2015). *South Sudanese refugees in Adjumani District, Uganda: Telling a new story?* [online] Available at: <http://reliefweb.int/sites/reliefweb.int/files/resources/TellingADifferentStory.pdf> [Accessed 22 Sep. 2015].

<sup>7</sup>UNHCR, (May, 2015). *Update for the South Sudan Emergency*.

<sup>8</sup>ReliefWeb, (2015). *Violence declines among S. Sudanese refugees in Uganda*. [online] Available at: <http://reliefweb.int/report/uganda/violence-declines-among-s-sudanese-refugees-uganda> [Accessed 25 Sep. 2015].

Figure 1: Map of Adjumani District and refugee settlements (Adjumani District, Uganda, September 2015)



## 1.2 The nutrition response

Following the influx of refugees in December 2013, a food security and nutrition assessment found critical GAM levels at 20.1% in Adjumani district, above emergency thresholds<sup>9</sup>.

In response, various nutrition actors that include WFP, United Nations Children's Fund (UNICEF), ACF, MTI and Concern Worldwide have been implementing emergency nutrition interventions to reduce malnutrition-related morbidity and mortality. There are nine health centres in total providing both OTC to treat SAM cases and SFP to treat MAM cases, with an additional centre (Dzaipi) providing only OTC (see Table 1).

Table 1: Timeline of implementation of SFP and OTC

| Facility/Settlement | SFP | Commencing Date | OTC | Commencing Date |
|---------------------|-----|-----------------|-----|-----------------|
| Nyumanzi H/C III    | SFP | Aug-14          | OTC | May-14          |
| Ayilo 1 H/C III     | SFP | Sep-14          | OTC | Jul-15          |
| Ayilo 2 H/C II      | SFP | Sep-14          | OTC | May-15          |
| Biira H/C III       | SFP | Oct-14          | OTC | July -15        |
| Alere H/C II        | SFP | Oct-14          | OTC | June -15        |

<sup>9</sup>Wfp.org, (2015). *Uganda - Food and Nutrition Security Assessment among Refugee Settlements, January 2015* | WFP | United Nations World Food Programme - Fighting Hunger Worldwide. [online] Available at: <http://www.wfp.org/content/uganda-food-and-nutrition-security-assessment-refugee-settlements-january-2015> [Accessed 30 Sep. 2015].

|                |     |        |     |              |
|----------------|-----|--------|-----|--------------|
| Elema H/C      | SFP | Oct-14 | OTC | Nov-14       |
| Mungula H/C IV | SFP | Oct-14 | OTC | April -14    |
| Ayiri H/C II   | SFP | May-15 | OTC | May-15       |
| Lewa HC II     | SFP | Jan-15 | OTC | July -15     |
| Dzaipi HC III  | -   | -      | OTC | February -15 |

Other nutrition actors including Save the Children, World Vision International (WVI) and Lutheran World Federation (LWF) have implemented programmes that support the SFP and OTC programmes through training Village Health Teams (VHTs). They work in the communities conducting nutrition screening (through MUAC) and disseminating information on Infant and Young Child Feeding (IYCF), optimal nutritional practices and health care. With support from these partners, treatment of both SAM and MAM has been strengthened at the various health facilities and in the community (see table 2).

Prior to May 2015, Médecins Sans Frontières (MSF) were implementing OTC programmes in Ayilo 1 and 2 and Ayiri health centres.

*Table 2: Programme Implementation*

| Organisation                                                                             | SFP/OTC implementation                                                                 | Number of VHTs operating across settlements |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------|
| <b>MTI</b>                                                                               | Community based SFP across all HFs and 4 OTC sites, VHTs. Blanket SFP for all under 2s | 120 (44 until May 2015)                     |
| <b>ACF</b>                                                                               | 4 OTC sites, mother care groups, cash transfers, VHTs                                  | 116                                         |
| <b>Concern</b>                                                                           | 4 OTC sites in refugee communities, remaining OTC sites and ITC sites across Adjumani  | Data not available                          |
| <b>Save the Children (mother care groups and VHTs who screen)</b>                        | N/A                                                                                    | Data not available                          |
| <b>World Vision (mother care groups and VHTs)</b>                                        | N/A                                                                                    | 20                                          |
| <b>LWF (mother care groups, VHTs who are trained to screen), cash transfer programme</b> | N/A                                                                                    | 19                                          |

### 1.3 Methodology

The coverage assessment was necessary to determine the reach of coverage for both SAM and MAM treatment services and the extent to which services are available and accessible to the target population. The assessment was also used to build capacity of Ministry of Health staff (both

national and district) and of nutrition partners working in Adjumani district. In total 15 took part in the training, a full list of participants can be found in appendix 1.

It was proposed that Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) methodology was used. Conducting the coverage assessment would determine whether the current MAM and SAM treatment programmes are were achieving the objective of early case identification and treatment of SAM and MAM in children aged 6-59 months.

The recently updated National IMAM guidelines<sup>10</sup> highlight coverage assessment as one of the evaluation methods to ascertain the extent to which treatment services are available and accessible for the acutely malnourished individuals in a given community. In addition, the planned coverage assessment would foster current efforts by Ministry of Health (MoH) to build capacity at national and district level in order to conduct coverage assessment to improve on monitoring and evaluation of Integrated Management of Acute Malnutrition (IMAM) activities within the country.

Due to time and resource constraints, it was decided that this SQUEAC assessment would focus on the refugee settlements, and not the host community. The recent implementation of the programmes around Maaji settlement also meant that it was decided that the assessment would not include this settlement, as the programme has not had sufficient time to establish here and therefore coverage was likely to be very low. Olua and Mirieyi settlements were also not included in the assessment as these are existing caseloads from 2005, during the previous conflict, and there are no nutrition partners present.

## 1.4 SQUEAC assessment design

A SQUEAC assessment is semi-quantitative, using a mixture of quantitative and qualitative data. Each type of data is collected throughout the assessment in the following three stages (See Figure 1). This culminates in the reliable estimation of coverage and a clear understanding of factors affecting coverage.

Figure 2 Diagram of SQUEAC Stages



### Stage 1:

<sup>10</sup>The Republic of Uganda, Ministry of Health, (2010). *Integrated Management of Acute Malnutrition Guidelines*.

- Quantitative routine programme monitoring data (e.g. trends in admission, exit, recovery, in-programme deaths, and defaulting) and data collected on beneficiary record cards (e.g. MUAC on admission).
- Existing contextual information: Agriculture, labour, disease, food-consumption, which may already be available from sources such as nutritional anthropometry surveys, agricultural assessments, livelihood surveys, food-security assessments.
- Qualitative data collected through informal group discussions and interviews.

#### Stage 2:

- Uses small studies, small surveys, and small-area surveys to confirm or deny hypotheses about programme coverage that arise from the analysis of programme and qualitative data.

#### Stage 3:

- Uses Bayesian techniques to estimate overall programme coverage with a small sample survey<sup>11</sup>.

### 1.5 Challenges/Limitations:

- **Time Constraints:** The timeline of implementation allowed 21 days to conduct the assessment of both SFP and OTC. MAM case finding involves door to door sampling as MAM cases can be more difficult to identify than SAM. In addition, weight for height measurements were taken, which is more time consuming than using MUAC.
- **Incomplete data:** the relative immaturity of the programmes means that the data was also new and often incomplete.
- **Data and availability:** Accurate maps and population data was difficult to obtain, which provided challenges during Stage 3 sampling.

## 2. Stage 1 - Investigation Process

The objective of Stage 1 is to pinpoint areas of possible high and low coverage within the district and identify boosters and barriers affecting both SAM and MAM coverage using easy to collect (or existing) quantitative data and additional qualitative data. Analysis of quantitative data aims to establish trends from routine monitoring data such as: admission rates, MUAC on admission, deaths, cured, defaulters and non-respondents. Whereas the quantitative data tells us what the programme 'thinks' the qualitative data then aims to collect the views and perspectives of programme stakeholders, including both partner staff and members of the community.

### 2.1 Quantitative Data

Data was extracted from the routine monitoring data set for all SFP and OTC sites in the district nutrition database. Additional monitoring data had to be collated by hand from record books kept at health centres and OTC cards where available, including: MUAC on admission, MUAC on cure and MUAC on default, length of stay (LOS) for defaulter and LOS for cured exits. These are

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<sup>11</sup>Adapted from: Myatt.M et al, Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)/ Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) Technical Reference (<http://www.fantaproject.org/publications/squeac-sleac.shtml>)

not collected on a routine basis, but are essential components for a full trend analysis of programme performance.

Data from the 10 health centres providing OTC services, and nine health centres providing SFP services serving the refugee population was selected. Observation studies were conducted of both the SFP and OTC registers and client cards were checked for quality. A sample of approximately 25% of total admissions data was selected and analysed for the supplementary data set (MUAC on admission etc.). This totalled 540 out of 2470 electronically recorded admissions for SFP, and 178 out of 638 electronically recorded admissions for OTC. Data was collected through visiting clinics and taking a random sample over a period of time from record books. On average, 60 admissions were recorded from SFP, and 18 from OTC per health centre. This data includes both host community and refugee clients, as it is not always possible to differentiate between the two communities.

The quality of data varied across health centres, and differences between electronic data and data collected in the health facilities was evident. For instance in the data taken from one of the health centres in one month, 4 defaulters were electronically recorded; analysing the data at the health facility revealed that out of 48 discharges observed, there were 18 defaulters, giving a defaulter rate of 37.5%, above the Sphere threshold of 15%. This highlights discrepancies between what is recorded at clinic level on OTC cards and what is recorded at a district level electronically.

Other notable issues in the data include: missing data from December for one health centre and health centres only began operating services in February and May 2015. Other issues encountered include poor reporting of cured and defaulter cases, whereby defaulters were retrospectively reported as cured several months later. Confusion with discharge criteria was also evident, cases were admitted based on weight-for-height z-scores (W/H), and discharged whilst they still had not reached the target weight following a long stay (above 16 weeks) in the programme.

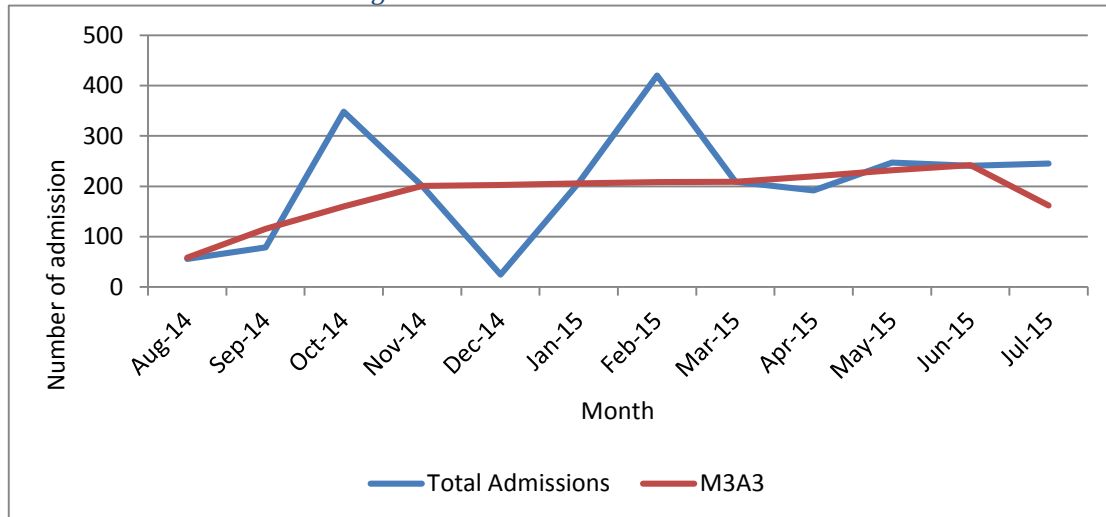
Since July 2015, integrated monitoring records have been implemented, where both SFP and OTC clients are recorded; where put into operation, the quality of data captured is greatly improved. This represents an opportunity for improving data quality across all health centres. Although some trend analysis has been conducted, the level of poor record keeping means this data should be treated with caution.

## **2.1.1 SFP Data**

### *2.1.1.1 Admissions over time*

Admissions to the SFP were plotted over time in order to determine any abnormal changes and to investigate possible explanations. This was plotted against qualitative information from partner agencies detailing a calendar of events including stock outs and a seasonal calendar. Comparison with previous years was not possible, but the 9 months data available (August 2014-June 2015) allowed for possible seasonal variations to be identified.

Figure 3: SFP Admissions over time

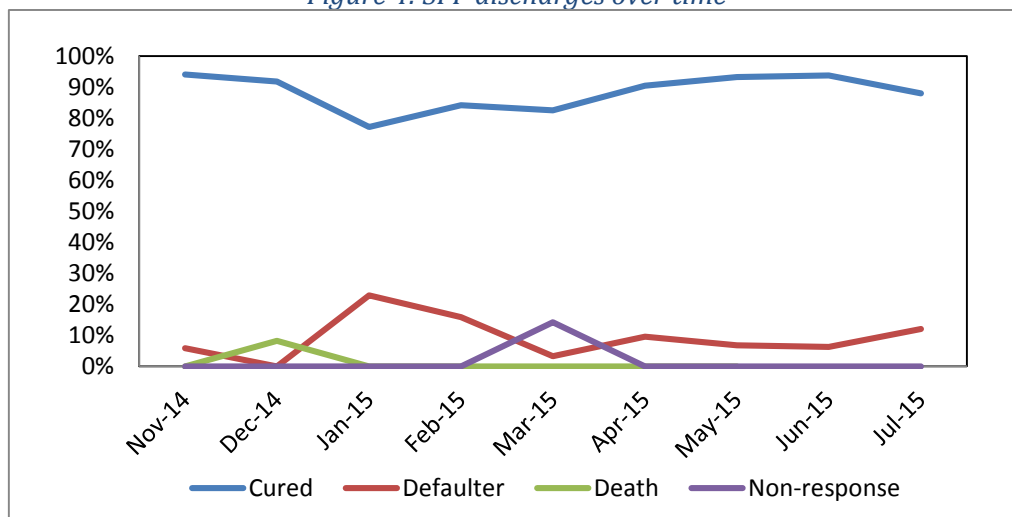


An increase in admissions was seen at the implementation of the programme in August 2014, where existing cases were being captured in the cohort of admissions. A sharp decrease in admissions was seen in November and December, this is due to a lack of reporting of data from 5 health facilities. January 2015 to March 2015 shows a sharp increase in admissions. This is due to the electronic databases being complete and reporting the data collected.

The red line, M3A3, is where medians of sets of three successive data points (M3) have been taken. The results are then smoothed by taking the arithmetic means of sets of three successive smoothed data points (A3). The more times you apply a moving average, the more smoothing is applied to the data. This allows for a greater long term analysis of admissions. This way we can see variations over the data period without the abnormal fluctuations distorting the data set.

The SFP discharge data represents a time period from November 2014 to July 2015.

Figure 4: SFP discharges over time



According to the electronic data, defaulting mostly falls below the Sphere standard of 15%. However, quality checks of data at health centres revealed much higher rates of defaulting across health facilities. Often, despite non-attendance for 2 consecutive weeks, defaulting was not recorded, or defaulters were recorded as cured. The increase in defaulting during January and February was attributed to an effort to remove non active clients from registers by the

implementing nutrition partner, who acknowledged that the registers were previously poorly updated. Therefore, any clients who had not attended facilities were thus recorded as defaulters.

*Figure 5: Discharge outcomes per health centre (SFP)*

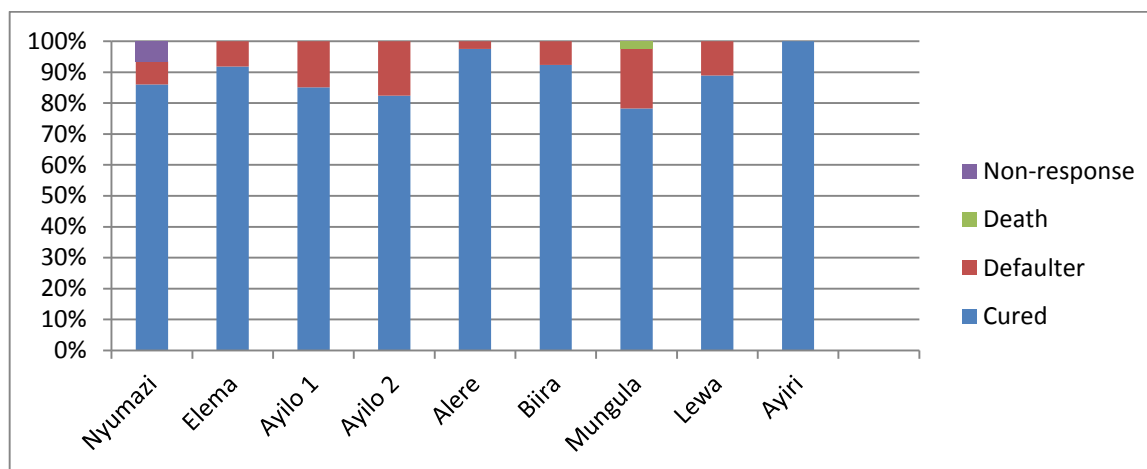
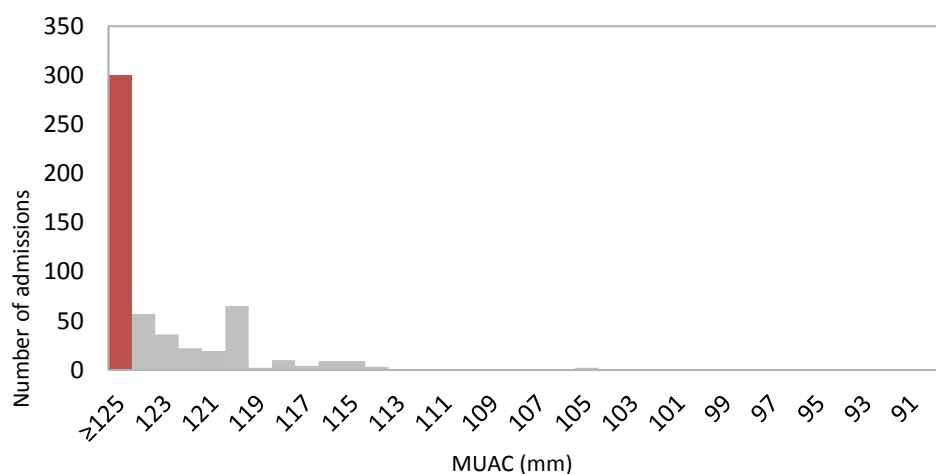


Figure 4 provides a breakdown of discharge outcomes by health centre. The majority of the health centres fall within, or close to the Sphere standard for defaulting. Ayiri has zero defaulting, due to the implementation of SFP programmes in July 2015. Mungula health centre exceeds the Sphere standard for defaulting and four deaths were recorded in December 2014; since it is very unusual to die from MAM, these were probably due to misreporting of data.

#### 2.1.1.2 MUAC on admission:

MUAC on admission was taken from 540 records from health facility record books and client cards where available. Admission to the SFP programme is by W/H Z-scores, whereby a Z score of less than -2SD up to or equal to -3SD results in admission to the programme, or MUAC, whereby a MUAC of <125mm or >115mm. W/H screening is done at contact points within the facility and to some degree within the community by health workers. Therefore admissions by W/H are likely to be self-referrals that have been identified during screening at contact points, and referrals from the community, however due to gaps in data collection, this is not known.

*Figure 6: SFP MUAC at admission*

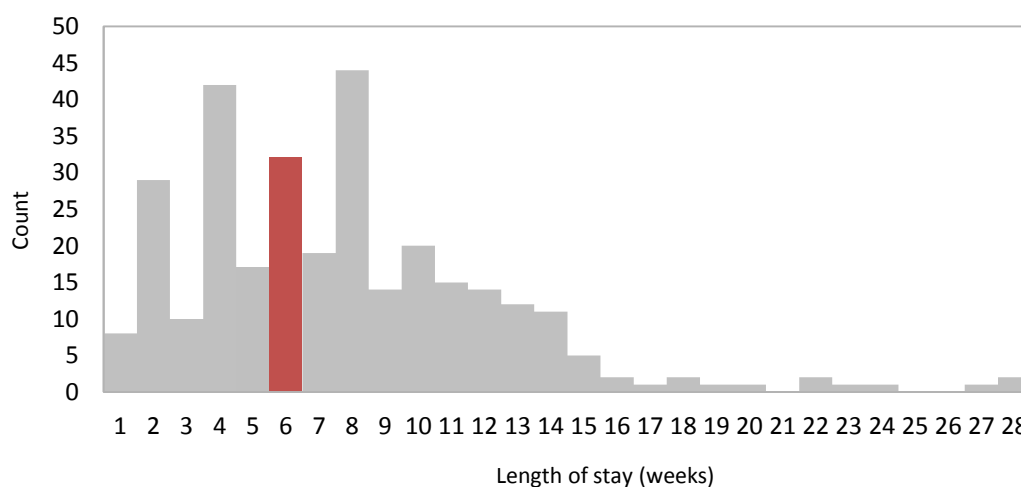


The median MUAC on admission is above 125mm. Such a high median MUAC on admission would usually indicate that a programme is capturing beneficiaries at an early stage, however, in this case, admissions equal to, or above 125mm, are admissions by W/H. Therefore, these admissions are not related to VHT activity, and are most likely due to self-referral at the health facility. That said, the majority of admissions below 125mm are above 120mm, which suggests that VHTs are effective at identifying clients at an early stage of MAM before they become close to becoming SAM. The majority of discharges were at a MUAC of 125mm or higher. There are however, a number that give cause for concern at a MUAC of less than this, which indicates that those who should be classified as a defaulter, are being classed as cured when the MUAC measurement still indicates SAM or MAM. There could also be recording errors, whereby transfers to OTC are recorded as cured discharges.

#### 2.1.1.3 Length of Stay:

Length of stay indicates both whether the programme has timely case finding (since less malnourished children stay in a programme for shorter lengths of time) and compliance in the programme (since adherence to the treatment protocol leads to a better treatment outcome). Length of stay in the SFP programme was analysed from record books in health centres. Data was collected from 12% of the total SFP admissions: the sample included 306 patients who were discharged as cured.

*Figure 7: Weeks in programme before discharge cured*



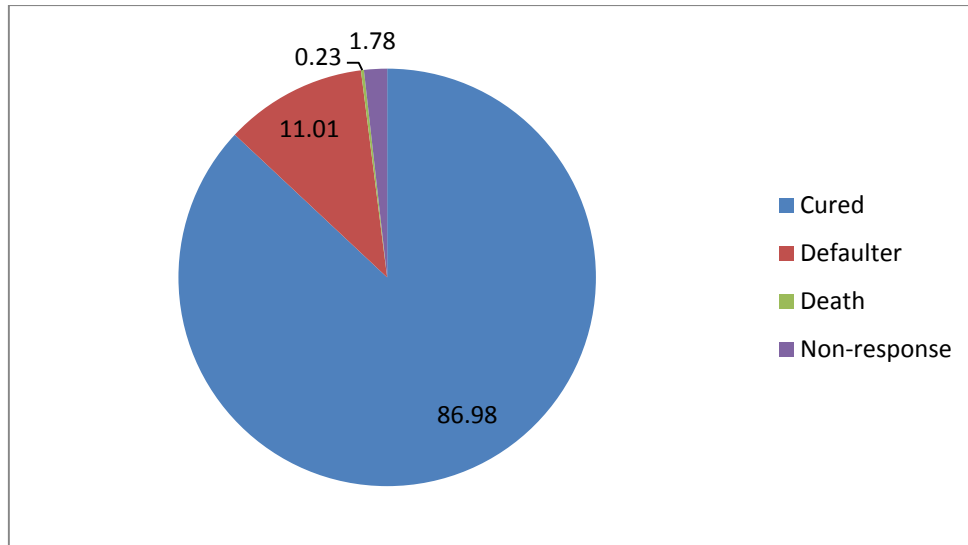
For SFP, the median length of stay is six weeks. Although there is no indication of an appropriate length of stay in the IMAM guidelines, this is low and therefore indicates good compliance to the programme and good case finding. This promotes a 'virtuous' cycle, where children are treated quickly, leading to the programme having a good reputation which in turn encourages further good treatment seeking behaviour.

There are however, several cases where the length of stay is exceedingly long (12-28 weeks). From the records assessed, it appears that these cases are actually defaulters, but have been discharged as cured when the records have been assessed in retrospect.

#### 2.1.1.4 Defaulting

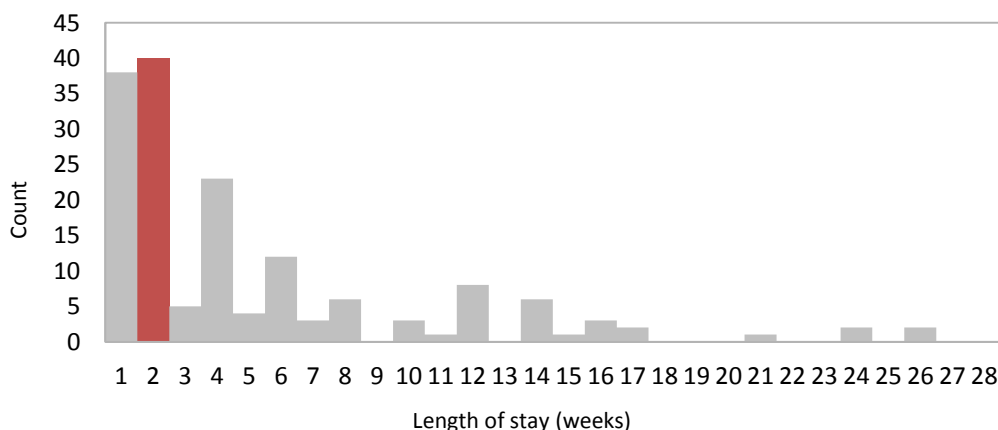
Although defaulting largely remains below the SPHERE standard of 15%, every programme should endeavour to reduce defaulting in order to ensure good coverage of the programme.

Figure 8: Discharge as a percentage



Length of stay for defaulting indicates the amount of time spent in treatment before defaulting. This in turn allows us to identify what the reasons for defaulting might be. The longer the stay in the programme, the more time a child will have had to recover, and the closer they will be to cure. Data was analysed from the record books in the health centres from 160 defaulters.

Figure 9: Weeks in programme before discharged as defaulter (SFP)



The median length of stay before defaulting was 2 weeks. This is a relatively short treatment time, and therefore may not give adequate time for treatment, as opposed to a child who was in the programme for 8 weeks. This also indicates that clients are not aware of the required length of stay for a treatment episode, and therefore default before discharge criteria are met. This indicates the need for better communication between health centre staff and clients.

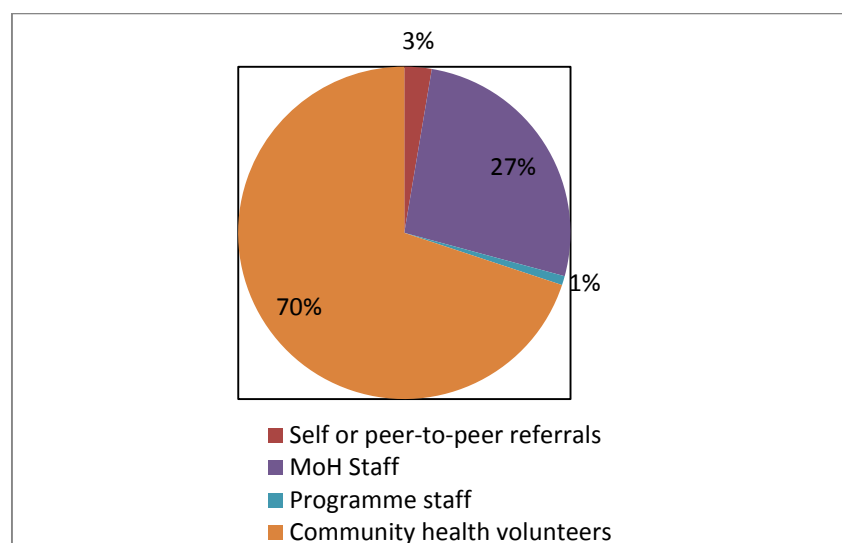
There are also a number of cases where there is an exceedingly long length of stay before default. There are several possible reasons for this. Firstly, these cases are non-responders, and that protocols are not being followed. Reasons for non-response could be lack of compliance, for example, sharing of CSB. Secondly, and a more probable suggestion, is, as already ascertained, records are not being updated frequently. A defaulter is recorded as a defaulter in retrospect, when records are checked, and the time between the last visit and being recorded as a defaulter is counted in the recording. Thirdly, as beneficiaries are being discharged based on Z score, they have to reach a target weight. Where the exit criterion is on weight gain, the required length of

stay can be exceedingly long to meet the discharge criteria, particularly in those who are least wasted<sup>12</sup>.

#### 2.1.1.5 Referral by Source:

Data indicating the source of referral was limited, and not routinely collected at all health centres. However, from combined data of SFP and OTC programmes, referral by source indicates that 70% of referrals are made by VHTs. All available data was analysed; a total of 265 (out of 2700) records were from record books and cards. This however conflicts with the MUAC on admission data, where the median is over 125mm. If 70% of referrals are made by VHTs, it would be expected that more admissions would be lower than 125mm as they are only equipped to screen through MUAC in the community. Therefore, this data is not entirely representative of what is being observed at programme level and should be treated with caution.

*Figure 10: Referrals by source pie chart (%) for both SFP and OTC programmes*

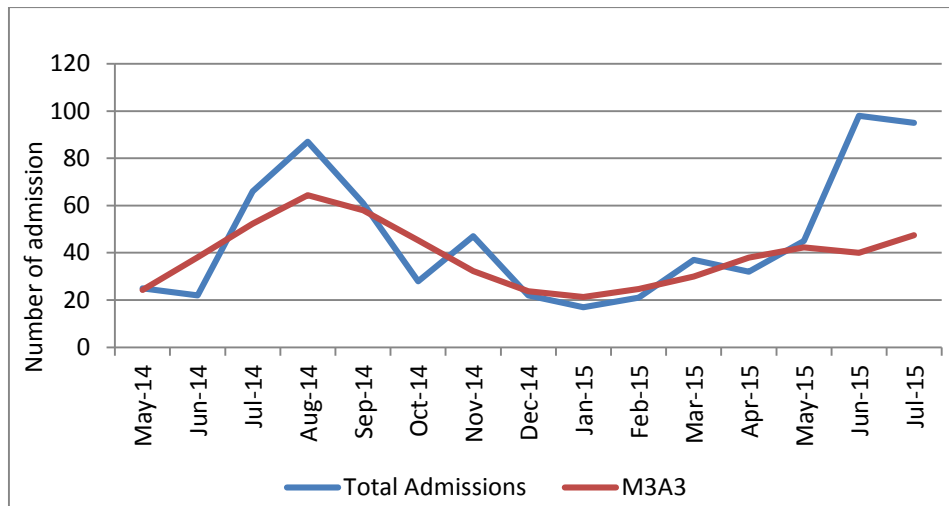


#### 2.1.2 OTC data:

Admissions to the OTC programme were plotted over time in order to determine any abnormal changes and to investigate possible explanations. Comparison with previous years was not possible, but the 13 months data available (May 2014-July 2015) allowed for possible seasonal variations to be identified.

<sup>12</sup>Brixton Health, (2015). *Safety of using mid-upper arm circumference as a discharge criterion in community-based management of severe acute malnutrition in children aged between 6 and 59 months*. [online] Available at: <http://tng.brixtonhealth.com/sites/default/files/protocolMUACstudy.pdf> [Accessed 28 Sep. 2015].

Figure 11: Admissions over time (OTC).

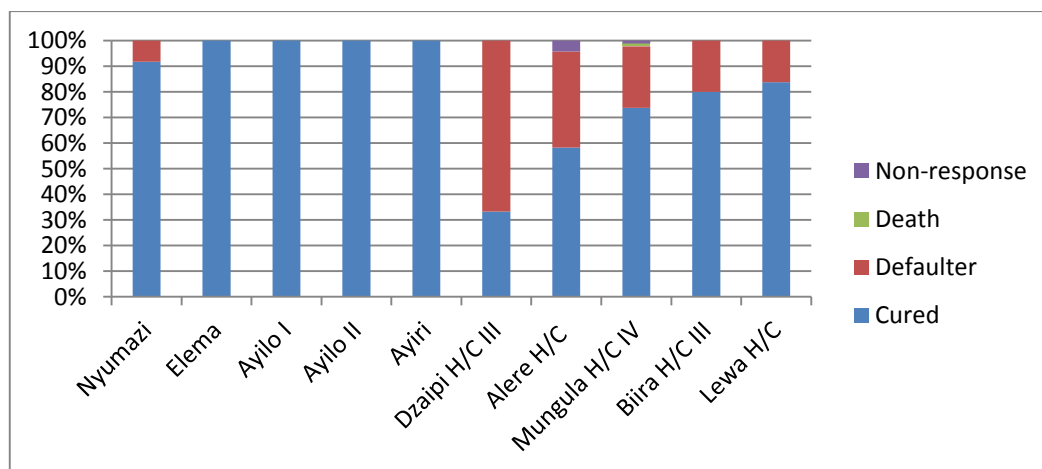


A spike in admissions can be seen in June, July and August 2014, when the initial programme was implemented. An additional spike can be noted in May 2015, when three more health centres began implementing OTC services.

#### 2.1.2.1 Discharge Outcomes per Health Centre:

Discharges per health centre was analysed from data sets provided by MTI, Concern Worldwide and ACF-Ug.

Figure 12: Discharge outcomes per health centre (OTC)

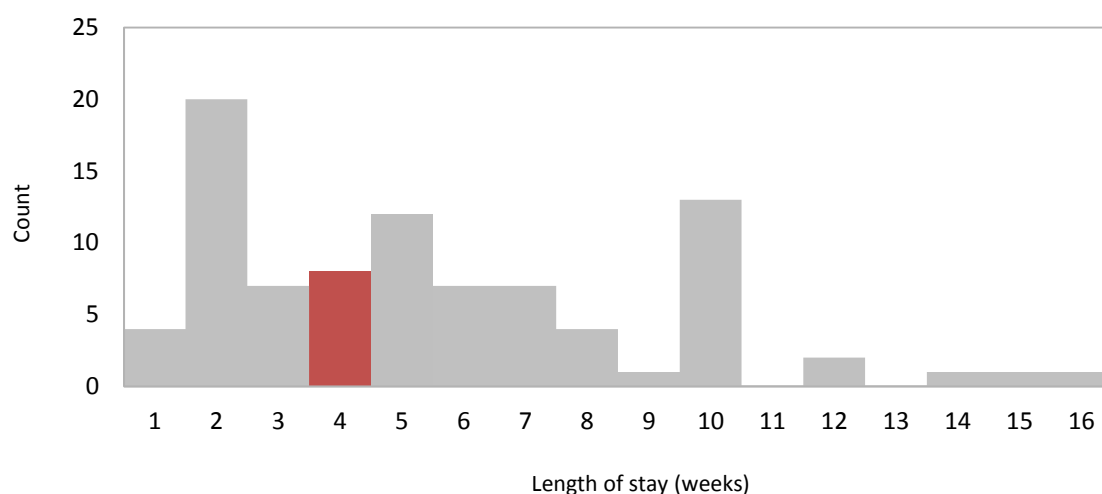


Discharge outcomes vary greatly depending on health centre. Dzaipi Health centre is based in a settlement which previously served as a transit centre for new arrivals from South Sudan, and so the high levels of defaulting can be explained by the movement and resettlement of refugees out of these settlements. From the data provided, there are issues with defaulting in Mungula, Biira and Lewa health centres, with defaulting rates exceeding the 15% Sphere guideline for defaulting. Zero defaulting is reported in Elema, Ayilo 1 and 2, and Ayiri, the programmes were implemented in May and July 2015 by MTI and so low defaulting is expected, however, not necessarily zero. Previously, there was no reporting from MSF, the prior implementing partners.

#### 2.1.2.2 Length of Stay:

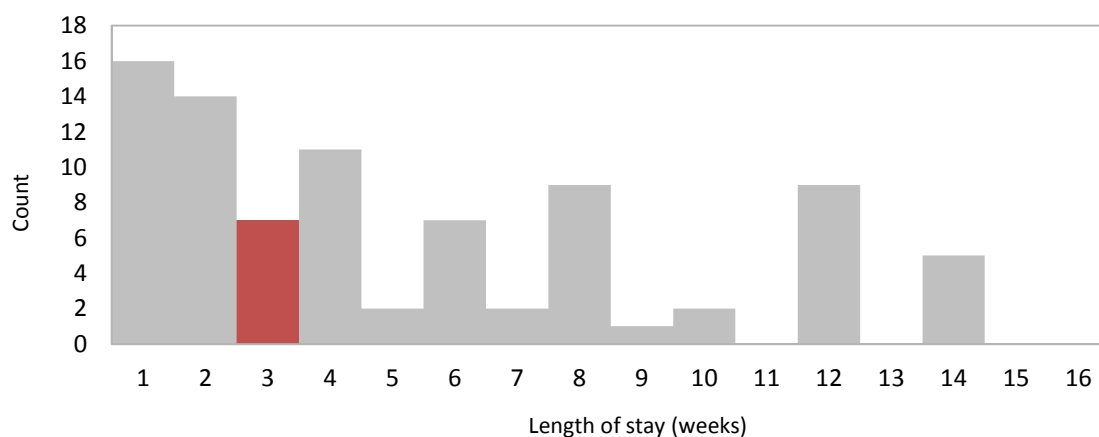
Data was collected by hand from all 10 health centres, in total, 178 records were analysed.

*Figure 13: Weeks in programme before discharge cured (OTC).*



The median LOS before cure is 4 weeks. This is indicative of compliance within beneficiaries and carers, and will also promote a good opinion of the programme. The short length of stay also indicates that cases are being found early (and therefore in a less developed stage of SAM) and therefore being cured quickly. However, there are a number of cases that have a far higher stay than normal. This could be due to severe cases being admitted, poor compliance or to incorrect reporting of cure dates.

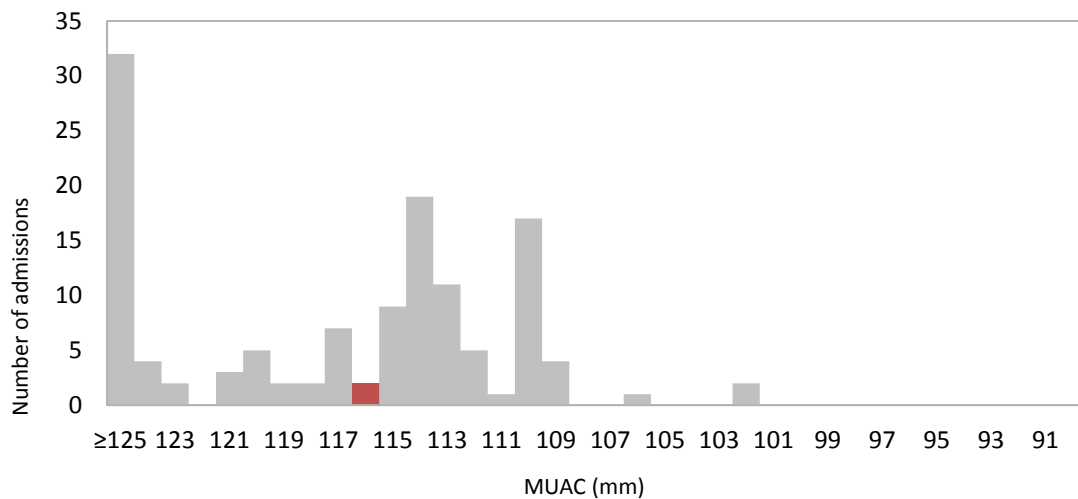
*Figure 14: Weeks in programme before discharged as defaulter (OTC)*



Length of stay as a defaulter gives further insight into the movement between settlements. Although indicative of poor compliance within beneficiaries and poor information given to beneficiaries, in this instance, length of stay of one and two weeks can be also explained through movement between transit centres and settlements.

### *2.1.2.3 MUAC at admission:*

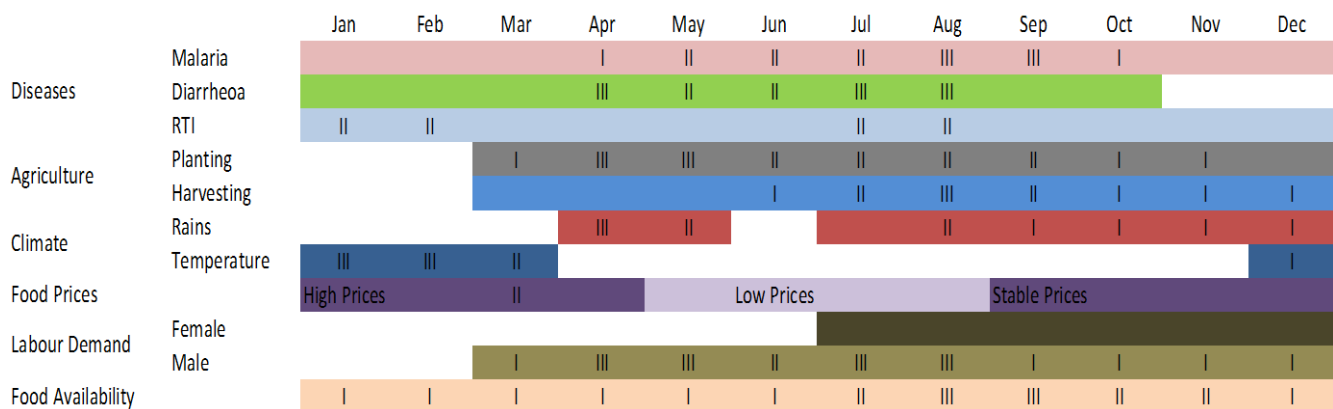
Figure 15: MUAC at admission



The median MUAC at admission for OTC admissions is 116mm. This is higher than the admission criteria for MUAC at OTC. Previously, before the introduction of SFP, when RUTF supplies permitted, all children with a MUAC of less than 125mm were admitted into the Concern OTC programme. It also indicates that children are being admitted based on Z score. There are also a high proportion of admissions at a MUAC measurement of more than 125mm, again demonstrating that a high number of admissions are based on Z score. It could also indicate that cases are being admitted early into the programme, before their condition deteriorates.

## 2.2 Seasonal Calendar

Figure 16: Seasonal Calendar



Information on the seasonal calendar was gathered during qualitative data collection with the intensity levels being recorded for certain times of the year.

The seasonal calendar can identify trends, which correspond to certain events during the year, such as the lean season corresponding with an increase in admissions to the programmes. However, in this instance, there was no relationship between admissions and seasonal changes. This can be explained through a number of factors. Firstly, the relative prematurity of the programmes means a pattern of admissions has not been established. In addition, the unique context of the refugee settlements, results in movement of populations in and out of settlements which can affect admissions. Moreover, the general food distribution, and blanket supplementary feeding in place for under 2s will mean that communities will be less vulnerable

to seasonal changes. However, the seasonal calendar tool indicates the knowledge of the communities about nutrition, agriculture and common diseases.

## 2.3 Qualitative Data

Qualitative data was collected through focus group discussions, individual semi-structured interviews, informal interviews and observational studies. Interview and focus group guides that had been adapted from CMN resources<sup>13</sup> were used, and these were adapted to the local context. The main themes investigated were as follows:

- Aetiology and terminologies of SAM and MAM
- Awareness of SFP and OTC programmes
- Perceptions and opinions of SFP and OTC programmes
- Pathways to treatment
- Case finding volunteer activity
- Reasons for covered and uncovered cases

The key principles of **triangulation by source and method** and **sampling to redundancy** were followed.

Data was collected through identified key informants and sampled across the refugee settlements and health facilities serving those settlements. A total of 25 focus groups, 47 key informant interviews, 13 informal interviews and 16 observations were conducted, with almost 300 subjects during the qualitative data gathering stage.

The BBQ approach was used to organise data. At the end of each day of qualitative data collection, the team returned to base to discuss findings. These were identified and listed as either boosters or barriers to coverage for SFP, OTC or both programmes, with questions arising incorporated into the next day's data collection. Data collection continued until sampling to redundancy was achieved, i.e. no new data was collected.

*Table 3* shows the sources of qualitative data collection and the methods used to obtain this information.

*Table 3: Source and Method Codes.*

| Source                      | Method                     |
|-----------------------------|----------------------------|
| 1. Religious Leaders        | a) Key Informant Interview |
| 2. IMAM Beneficiaries       | b) Focus Group Discussion  |
| 3. CHW/VHTs                 | c) Informal Interview      |
| 4. TBAs                     | d) Observation             |
| 5. Health workers           |                            |
| 6. Block/Cluster Leaders    |                            |
| 7. Elders (male and female) |                            |
| 8. Men                      |                            |
| 9. Implementing Partners    |                            |
| 10. Nutrition Partners      |                            |
| 11. OPM Representatives     |                            |
| 12. School Teachers         |                            |

<sup>13</sup><http://www.coverage-monitoring.org/training-centre/>

|                                                    |
|----------------------------------------------------|
| <b>13. Traditional Healers</b>                     |
| <b>14. DHO</b>                                     |
| <b>15. Children</b>                                |
| <b>16. Carers of Children in the Programme</b>     |
| <b>17. Carers of Children not in the Programme</b> |
| <b>18. Women (from the community)</b>              |
| <b>19. Men (from the community)</b>                |

Ultimately, 11 barriers and 10 boosters to access were identified during the qualitative research. These boosters and barriers apply to both SFP and OTC, considering the integrated nature of the programmes. These are listed in Table 4 and 5 with an explanation for each and indication of the sources from which the finding was made.

Table 4: Barriers to coverage

|    | Barrier                                                                                                                     | OTC or SFP  | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Sources and Triangulation                                          |
|----|-----------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| 1. | Long distance to the facility                                                                                               | SFP and OTC | Long distances to the health facility can prevent carers taking children to access services. It can lead to an increase in defaulting as distance discourages carers from accessing services. The situation worsens during rainy season.                                                                                                                                                                                                                                                                                                                                                                                                          | Carers of children in the programme, VHTs, block leaders, HWs      |
| 2. | Sharing and incorrect use of CSB and RUTF                                                                                   | SFP and OTC | Sharing of both CSB and RUTF is present. CSB is rationed to allow for some sharing, however, RUTF is not. There were reports of incorrect use of CSB, where preparation instructions had not been followed. Sharing and incorrect use of therapeutic foods will prolong the stay in the programme; a longer stay in the programme will increase defaulting levels and decrease coverage. In addition, longer lengths of stay and incorrect use of CSB/RUTF makes the programme less efficient and therefore limiting is ability to cover more cases.                                                                                              | HWs, children, women from the community                            |
| 3. | Poor organization of health facility leading to long waiting times                                                          | SFP and OTC | Poor organization of queuing systems in the health system results in unfair queuing times. Those who arrived first can be seen last when the pile of client cards is turned upside down. Dissatisfaction with health facilities will increase defaulting and decrease coverage.                                                                                                                                                                                                                                                                                                                                                                   | Carers of children in programme, women in community, block leaders |
| 4. | Bad experience at the health facility due to impolite staff, lack of information given to mothers and tribal discrimination | SFP and OTC | There was reporting amongst mothers, VHTs and camp leaders of the health staff having a discourteous manner. There were reported incidences of mothers in labour being turned away from health facilities. Tribal discrimination was also reported, with favouritism being shown to nationals from the host community, or specific tribes from the refugee community. Translators also show favouritism to those from their own tribes. As well as those affected by these factors, in communities such as these, reports of poor attitudes of staff will travel, and prevent mothers from using services. This will decrease programme coverage. | HWs, block leaders, VHTs, women                                    |
| 5. | Poor coordination and cohesion among IMAM implementing partners leads to gaps in screening and sensitization activities.    | SFP and OTC | IMAM partners have different operating activities and procedures. These include a lack of cohesion in VHT training, supervision and payment, which results in unhappiness among VHTs. The admission criterion into the programmes also varies depending on the agency (MUAC only, and Weight for height and MUAC) and can result in confusion in the communities. VHTs are not equipped to screen for weight for height, resulting in screening gaps in the community. Coverage is affected as those who are malnourished are unaware, and so remain uncovered cases.                                                                             | Nutrition partners, CHWs                                           |
| 6. | Poor knowledge of admission and discharge criteria                                                                          | SFP and OTC | The operation of a blanket SFP programme for all children under 2 can result in confusion of admission criteria amongst beneficiaries. Lack of understanding of admission criteria, and MAM children appearing to be healthy can lead to                                                                                                                                                                                                                                                                                                                                                                                                          | Carers of children in the programme, women from the                |

|     |                                                                                 |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |
|-----|---------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|     |                                                                                 |             | misunderstanding and unhappiness in the communities. The reputation of programmes can also be damaged. As understanding of admission criteria decreases, access to the programme will also reduce, and so will coverage.                                                                                                                                                                                                                                                 | community, nutrition partners                                                  |
| 7.  | Poor interface between health facilities and between health facility and ITC    | SFP and OTC | It is difficult to trace beneficiaries that are relocated, or choose to relocate to other settlements. It is unclear if they have moved and continued treatment at another health facility, or if their treatment ends. This could also lead to the false reporting of defaulters. This means tracking of treatment is not consistent and also patients risk not being able to continue treatment in their new location.                                                 | HWs, nutrition partners. Short LOS for defaulters also triangulates with this. |
| 8.  | Language barrier – leading to poor experience at health centre                  | SFP and OTC | There is a language barrier between refugees who do not speak English or the local language. Although translators are in place, it remains difficult to retain them, and find translators who are able to speak all of the required languages. This can increase the chance of not understanding treatment protocols and defaulting.                                                                                                                                     | Nutrition partners, block leaders, VHTs, carers of children in the programme   |
| 9.  | CSB, RUTF and essential drug stock outs                                         | OTC and SFP | Poor coordination between nutrition partners, inadequate storage facilities at health facilities and logistical problems lead to stock outs of RUTF and essential drugs at health facilities. The primary effect of this is that there is no treatment available at the health facilities. A secondary effect is that this lead to a poor opinion of the programme in the community having a negative effect on the reputation of the programme and ultimately coverage. | HWs, block leaders, elders, men and women from community                       |
| 10. | Mothers of children with malnutrition and malnourished children are stigmatized | OTC and SFP | There is a strong link between family planning and stigma of malnutrition. Cultural traditions amongst the Dinka tribe dictate that child spacing should be every 2 years. It is believed that malnutrition stems from not following this spacing pattern and therefore stigma and family planning are closely related. Stigma and feeling ashamed are factors which can prevent mothers from accessing treatment.                                                       | Block leader, HWs, elders, children                                            |
| 11. | Poor record keeping                                                             | OTC and SFP | Poor record keeping is evident at nearly all health centres and also in the electronic SFP data. Misreporting of cured and defaulting is common place and confusion between admission criteria is also present. Whilst not directly impacting coverage among beneficiaries, incorrect recording of cured, default and death rates will give an incorrect impression of the programme, and therefore limiting the ability of the partners to take remedial action.        | Observation, HWs.                                                              |

Table 5: Boosters to Coverage

|    | Booster                                                                                                                                                                                                                 | OTC or SFP  | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                            | Sources and Triangulation                                                                   |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1. | Health facility staff screen children systematically                                                                                                                                                                    | SFP and OTC | All children that come into the HF are screened for malnutrition, regardless of the initial reason for attendance. This captures children who would not otherwise be admitted as they are not displaying obvious signs of malnutrition, and therefore, coverage is increased.                                                                                                                                                                          | HWs, carers of children in the programme, block leaders.                                    |
| 2. | Presence of active VHTs                                                                                                                                                                                                 | OTC and SFP | Trained, knowledgeable and motivated VHTs are actively involved in community sensitization, screening and referral. Nutrition outreach results in good community sensitization and a lack of stigma for malnourished children increasing awareness of malnutrition and the programme amongst the community. Effective community sensitization and a lack of stigma improves positive treatment seeking behaviour, and will lead to increased coverage. | Block leaders, carers of children in the programme, HWs, VHTs                               |
| 3. | Good opinion of the programme within the community                                                                                                                                                                      | SFP and OTC | There is a positive opinion of programmes within the community, and beneficiaries feel that the programmes are effective and beneficial to them. Good opinions will filter through communities and encourage treatment seeking behaviour towards the health facility.                                                                                                                                                                                  | Carers of children in the programme, block leaders, women, men, HWs.                        |
| 4. | Good coordination between IMAM partners and other interventions                                                                                                                                                         | SFP and OTC | There is a presence of other partners running programmes that support IMAM, through approaches such as promoting dietary diversity, adoption of agriculture and psychosocial support. Whilst not having a direct impact on coverage, these interventions will decrease the prevalence of malnutrition and also increase awareness of programmes, and treatment seeking behaviour.                                                                      | HWs, nutrition partners, VHTs.                                                              |
| 5. | Good knowledge of treatment protocols leading to limited sharing of RUTF and CSB, respect of treatment protocols (dose per day, washing of hands and packet etc.) and understanding of admission and discharge criteria | OTC and SFP | There is a good knowledge of treatment protocols within the communities. This will lead to a reduced length of stay in the programmes, since carers are less likely to share the products and children will be discharged as soon as possible. Defaulting will also decrease since carers are more aware that they need to stay in the programme until cure.                                                                                           | Carers of children in the programme, block leaders, children, women from the community      |
| 6. | Regular nutrition and health education sessions at community and health facility level                                                                                                                                  | OTC and SFP | VHTs conduct health and nutrition education sessions in the community and at health facilities. A high awareness of health and nutrition amongst communities will increase treatment seeking behaviour and thus, coverage.                                                                                                                                                                                                                             | HWs, block leaders, carers of children in the programme, women from the community, teachers |

|     |                                                                                        |             |                                                                                                                                                                                                                          |                                                                                                  |
|-----|----------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 7.  | Good organization of health facility and treatment days leading to short waiting times | OTC and SFP | Treatment days of health facilities are well organized which leads to short waiting times, positive opinions of the programme and increase in access and coverage.                                                       | Carers of children in the programme, HWs, observations.                                          |
| 8.  | Good coordination between SFP and OTC treatment                                        | SFP and OTC | Coordination between SFP and OTC generates a smooth transition for beneficiaries transferring between programmes. Beneficiaries are unlikely to default through transition, and therefore coverage will not be affected. | VHTs, HWs, nutrition partners                                                                    |
| 9.  | Good awareness and understanding of malnutrition in community                          | OTC and SFP | Through VHT activity, there is a good awareness and understanding of malnutrition in the community leading to less stigma and good treatment seeking behaviour and improved coverage.                                    | Women from the community, block leaders, carers of children in the programme                     |
| 10. | Good awareness of the existence of treatment services for malnutrition                 | OTC and SFP | A variety of community members were able to talk about the programmes available to SAM and MAM children, and how access is gained. This awareness will foster access to treatment and programme coverage.                | Women from the community, block leaders, carers of children in the programme, religious leaders. |

**Concept mapping** is a graphical data-analysis technique that is useful for representing relationships between findings. Concept-maps show findings and the connections (relationships) between findings in terms of **boosters** and **barriers** affecting coverage and are used to organise and analyse data. Terms such as ‘increases/decreases, leads to, results in’ are used to show positive and negative connections between factors that influence coverage.

Figure 17: Concept map for SFP programme



In order to validate findings in Stage 1, and provide a greater insight into programme activities, a hypothesis was constructed and tested. Stage 1 data collection identified several factors that act as boosters and barriers to coverage, however one factor stood out. The team identified VHTs as having the greatest impact on coverage across refugee settlements in Adjumani. Based on this, the hypothesis was to test the impact that VHTs have on coverage. The same hypothesis was used for both SAM and MAM coverage, given the similarities and the integration of the programmes.

1. Settlements with good VHT activity will have high coverage.
2. Settlements with poor VHT activity will have low coverage.

In order to test this hypothesis, settlements with both good and poor VHT activity were selected based on the knowledge gained during Stage 1. Two survey methodologies were used; small area survey and small study.

### 3.1.2 Small Area Survey

During Stage 1 data collection, the network of VHTs across the partner nutrition agencies was recorded. Despite the presence of VHTs across settlements, there were differences noted in the activity, motivation and knowledge of the VHTs. Activity, motivation and knowledge was determined as followed:

- Activity- The amount of work being undertaken by VHTs in the community. The number of hours committed to nutrition activity per week.
- Motivation- The level of motivation VHTs have towards their work. This is due to the presence of a financial (or material) contribution towards their work. In places of low motivation, no contribution is made.
- Knowledge- The amount of training received and if VHTs are able to use this effectively.

Based on Stage 1 it was found that in two of the settlements, there are good VHTs who are active, motivated and knowledgeable, and thus, the coverage is likely to be high. In another two settlements, it was deemed that the VHTs are less active, motivated and knowledgeable, and thus, the coverage is likely to be low.

*Table 6: Selected settlements*

| <b>Good VHT activity</b> | <b>Poor VHT activity</b> |
|--------------------------|--------------------------|
| Boroli                   | Baratuku                 |
| Nyumanzi                 | Alere                    |

In total, 200 households were sampled in the small area survey. This involved conducting a house to house survey of 50 households. The sample was divided into 2 sections of 25 in each settlement to ensure a likely probability that a cross sectional sample of differing tribes would be included. A household census was taken at each household to gain an understanding of the number of children aged 6-59 months and to prevent cases of malnutrition being concealed. Children were measured using MUAC, if the measurement was below 125mm to 115mm, it was recorded as MAM. If it was below 115mm it was recorded as SAM. If the MUAC measurement was above 125mm, weight for height was recorded and the Z score calculated using Z score charts. MAM was classified as  $\leq -2$  to  $-3SD$  below the median, and SAM was classified as  $< -3SD$  below the median. If suspected of having bilateral pitting oedema, children were checked through applying pressure using thumbs to the tops of the feet for three seconds. If the marks remained for more than a few seconds, the child would have been recorded as having oedema. No children presented with oedema.

### 3.1.3 Results

**SAM:** There were no SAM cases found across the settlements through either MUAC or WZH.

## MAM:

Table 7: Identification of MAM children

| Settlement | MAM<br>identified<br>by MUAC | MAM<br>identified<br>by Z<br>score |
|------------|------------------------------|------------------------------------|
| Boroli     | 0                            | 6                                  |
| Alere      | 0                            | 5                                  |
| Baratuku   | 1                            | 3                                  |
| Nyumanzi   | 0                            | 6                                  |

The Sphere standards for coverage in a refugee camp setting are 90%<sup>14</sup>. However, given that the refugees in Adjumani district are housed in settlements, which are semi-rural, and lack the structure that a traditional camp setting may have. Therefore 70% coverage, the standard used in urban settings, was used.

Threshold values for coverage proportion were calculated using the formula:

$$d = n \times \frac{p}{100}$$

As the standard of coverage we are using in this SQUEAC assessment is 70%, this can be translated as:

$$d = n \times \frac{70}{100}$$

It is also important to highlight that, out of 200 HHs sampled, there were 21 MAM cases. Out of these 21, one presented as MAM through a MUAC measurement of <12.5cm (and also qualified on Z score); the remaining 20 cases were through a Z score of between -2SD and -3SD. Within this sample size, there were no cases of SAM.

Table 8: Stage 2 SFP results

| Settlement | VHT<br>activity | MAM<br>Covered | MAM<br>uncovered | TOTAL | Calculation<br>(round<br>down) | Coverage<br>Classification |
|------------|-----------------|----------------|------------------|-------|--------------------------------|----------------------------|
| Boroli     | Good            | 3              | 3                | 6     | d=4                            | Low                        |
| Alere      | Poor            | 0              | 5                | 5     | d=3                            | Low                        |
| Baratuku   | Poor            | 1              | 3                | 4     | d=2                            | Low                        |
| Nyumanzi   | Good            | 2              | 4                | 6     | d=4                            | Low                        |

### 3.1.4 Conclusion

The results of stage 2 were not as predicted. Areas which had been predicted as having high coverage, had low coverage for the SFP programme. Therefore, the first hypothesis is rejected, since those areas where it was determined that VHT activity was good did not have acceptable

<sup>14</sup>Spherehandbook.org, (2015). *The Sphere Handbook | Management of acute malnutrition and micronutrient deficiencies standard 1: Moderate acute malnutrition*. [online] Available at: <http://www.spherehandbook.org/en/management-of-acute-malnutrition-and-micronutrient-deficiencies-standard-1-moderate-acute-malnutrition/> [Accessed 28 Sep. 2015].

coverage. The second hypothesis however is accepted, as those areas where it was determined there was poor VHT activity did not have low coverage. In summary, we can conclude that according to this survey, VHT activity does not have a strong bearing on coverage and therefore coverage is likely to be unacceptable across the survey area.

### 3.2 Small Study

A small study was used to incorporate some qualitative analysis in to the same hypothesis. It involved interviewing 1-2 VHTs in each settlement sampled for the small area survey. An interview guide was developed and administered to VHTs, this is in Appendix 2. Each interview aimed to collate the following information:

- The level of training received (which was verified by asking the methodology behind screening for malnutrition and through observation)
- Activity in the settlement (How many hours per week, how many children screened)
- Support (The amount of supervision received and if this is adequate)
- Motivation (Positive and negative experience of being a VHT)
- Facilitation (The incentives they receive and if this is adequate)

9 VHTs were interviewed from 4 settlements, and from 4 nutrition partners: LWF, MTI, Save the Children and Concern Worldwide.

#### 3.2.2 Results

**Training:** All VHTs, apart from two untrained VHT demonstrated their training through observation and description. They were all able to take MUAC measurements and identify cases of malnutrition. Most VHTs named other training courses they had received on differing aspects of nutrition, which complement the IMAM training.

**Activity:** Levels of activity varied between VHTs, but all stated that their activity levels were above 20 hours a week. Numbers of children screened per week also varied, from between 50-100, and one stated that the method of selective screening was utilised. Although answers were mostly similar, some of the interviewers questioned the respondents' responses.

**Support:** All VHTs had received a supervisory session within the same week. Perception of the support given depended on the VHT and on the partner agency. The number of VHTs interviewed, and the absence of interviews from ACF supported VHTs means that a comparison of this data is unfair.

**Motivation:** Motivation varied across VHTs and across agencies. Motivation was difficult to assess, and so has been inferred from other answers given, for example, activities levels and the amount of detail given when describing support or training. On the whole, most VHTs were deemed to be motivated.

**Facilitation:** Facilitation varies from zero to UGX 300,000 (approx. \$80) per month. Opinions on facilitation were mixed, with some at the higher end of the facilitation bracket complaining about facilitation being inadequate. There were also requests for wet weather equipment, bicycles and food.

On the whole however, VHTs were deemed to be knowledgeable, active and motivated. See Appendix 3 for the full results.

### 3.2.3 Conclusion

The results of the small study on VHTs were not as predicted in the hypothesis, when we reflect on the findings from the small-area survey as well. Across all settlements, VHTs displayed knowledge, motivation and adequate activity that did not change based on the settlement. VHTs in settlements that were predicted to have low coverage due to poor activity, motivation and support levels, had similar activity levels to those in predicted areas of high coverage.

### 3.3 Stage 2 Conclusion

The overall conclusion from the Stage 2 investigations is that coverage throughout the assessment area is likely to be universally low for the treatment of MAM. This is because it was determined that VHT activity (the most likely factor to vary coverage) firstly did not vary across the assessment area, and in any case, does not have the anticipated effect on coverage. It was concluded that VHT motivation, activity and training was good throughout the district (through the small study) but that coverage was low throughout the district (through the small area survey). Therefore coverage is low due to other factors despite good VHT activity.

The small area survey also found no SAM cases in the 200 households sampled (whereas 21 MAM cases were found). Therefore the team decided that for the OTC programmes, it would not be possible to assess the coverage of SAM treatment since it would require too many resources to meet the minimum sample of SAM children to assess coverage. It was decided, however, to conduct a small study on SAM admissions in health centres which serve both the host community and refugees, to ascertain the levels of admissions from both groups. This could then offer possible explanations to why there are few cases of SAM in the refugee settlements.

The wide area survey would therefore be conducted for the SFP programme alone.

#### 3.3.2 Note on admission criteria used

Admission into the SFP programme implemented with MTI is through both MUAC and Z score.

At community level only MUAC is used by the VHTs. That said, MTI insist that in theory they should be doing W/H screening at community level as well to ensure all children categorised as MAM by W/H are admitted. In practice only children with a MUAC of under 125mm are referred to the health centre by VHTs. At the health centre, weight for height and MUAC is taken for all children. Both those referred by VHTs with MUAC under 125mm and those children that come to the clinic for another reason (self-referrals).

The other implementing partners of the OTC sites (ACF and Concern) use solely MUAC in the community, and MUAC and Z scoring for admission into SAM programmes at the health centre. All VHTs are trained to do both MUAC and Z score; however difficulties in interpreting Z scores result in fewer admissions on Z score being made.

Since MTI were of the opinion that nutrition partners *should* be doing W/H at community level to ensure that all SAM/MAM children (by MUAC or W/H) are admitted, they felt that the programme should be evaluated against that assumption, and therefore that during Stage 3 case-finding should be done using W/H and MUAC.

## 4. Establishing the Prior

The SQUEAC method uses a Bayesian technique (Beta-Binomial Conjugate Analysis) to estimate programme coverage. The prior probability density (the *prior*) is created by qualitative and quantitative information collected during Stage 1 and 2.

The process of defining the prior starts with a uniform probability for all coverage proportions between 20% - 80% e.g. the range of typical coverage proportions on the majority of IMAM programmes. The prior is then shaped by considering both the routine and qualitative data collected, working up from 20% and down from 80% with limits defined by the team's "informed belief" about the programme. The **prior** was established from an average of four priors using four different methods: histogram of belief, unweighted boosters and barriers, weighted boosters and barriers and concept map scores. A prior was determined for the SFP programme and not OTC due to not proceeding to the wide area survey for OTC.

### 4.1 Weighted Boosters and Barriers

The investigation team went through the boosters and barriers (identified during Stage 1) and scored each one according to their relative impact on coverage. A score of between 1 and 5 (low and high effect) was allocated to each barrier and booster. This ensures that the prior is influenced by the relative importance of each barrier. Table 9 and 10 illustrate the sources and methods used to support the weighting given to each booster and barrier.

*Table 9: Weighted boosters to coverage*

| <b>Positive Factors (Boosters)</b>                                                                                                                                                                           | <b>Triangulation</b>                                                                                                                     |                           | <b>Additional Sources</b>                                                                                      | <b>Weighting</b> |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------|------------------|-----------------|
|                                                                                                                                                                                                              | <b>Sources</b>                                                                                                                           | <b>Method</b>             |                                                                                                                | <b>Simple</b>    | <b>Weighted</b> |
| Health facility staff screen children systematically                                                                                                                                                         | HWs, Carers of children in/out of the programme, nutrition partners, teachers                                                            | Observation, KII, FGD, II | Stage 1: Median MUAC on admission shows majority admitted on Z score                                           | 1                | 5               |
| Good organisation of health facility and treatment days leading to short waiting times                                                                                                                       | Carers of children in the programme, HWs, VHTs                                                                                           | KII, FGD, II              | Observation                                                                                                    | 2                | 3               |
| Good knowledge of treatment protocols leading to limited sharing of RUTF and CSB, respect of protocols (dose per day, washing of hands and packet etc) and understanding of admission and discharge criteria | Block leaders, VHTs, Carers of children in/not in the programme, children                                                                | KII, FGD, II              | Stage 1- median LOS is short                                                                                   | 3                | 5               |
| Regular nutrition and health education sessions at community and health facility level                                                                                                                       | HWs, women in the community, VHTs, block leaders, School teachers                                                                        | KII, FGD, II              |                                                                                                                | 4                | 4               |
| Good awareness and understanding of malnutrition in the community                                                                                                                                            | Women in the community, HWs, Carers of children in/out of the programme, block leaders                                                   | KII, FGD, II              |                                                                                                                | 5                | 5               |
| Good awareness of the existence of treatment services for malnutrition                                                                                                                                       | Women in the community, carers of children in/not in the programme, VHTs, block leaders                                                  | KII, FGD, II              |                                                                                                                | 6                | 5               |
| Good coordination between SFP and OTC treatment                                                                                                                                                              | HWs, nutrition partners, block leaders                                                                                                   | KII, II                   | Observation of updated integrated record books                                                                 | 7                | 3               |
| Good coordination between IMAM partners and other interventions                                                                                                                                              | VHTs, HWs, block leaders, women in the community                                                                                         | KII, FGD, observation     |                                                                                                                | 8                | 2               |
| Presence of active VHTs                                                                                                                                                                                      | block leaders, women from the community, VHTs, HWs, carers of children in the programme, nutrition partners, children, children, elders. | KII, FGD, II              | Stage 1 data shows high proportion of referrals are by VHT. Stage 2 small study- VHTs active and knowledgeable | 9                | 5               |
| Good opinion of the programme within the community                                                                                                                                                           | Nutrition Partners                                                                                                                       | KII                       |                                                                                                                | 10               | 4               |
| <b>Totals</b>                                                                                                                                                                                                |                                                                                                                                          |                           |                                                                                                                | <b>55</b>        | <b>41</b>       |
|                                                                                                                                                                                                              |                                                                                                                                          |                           |                                                                                                                | 55               | 41              |

*Table 10: Weighted barriers to coverage*

| Negative Factors (Barriers)                                                                                             | Triangulation                                                                                                         |                           | Additional Sources                                                                                                             | Weighting |          |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------|----------|
|                                                                                                                         | Sources                                                                                                               | Method                    |                                                                                                                                | Simple    | Weighted |
| Poor organisation of health facility leading to long waiting times                                                      | HWs, VHTs, carers of children, women and men from the community, nutrition partners, elders                           | Observation, KII, FGD, II | Stage 1 quantitative data showing high levels of defaulting                                                                    | 1         | 3        |
| Poor record keeping                                                                                                     | VHTs, block leaders, OPM representatives                                                                              | Observation, HWs          | Stage 1: quantitative data collection: poor quality of accurate data available both electronically and in HFs                  | 2         | 5        |
| Bad experience at the health facility due to rude staff, lack of information given to mothers and tribal discrimination | Women in the community, block leaders, men from the community                                                         | KII, FGD, II              | Stage 1: quantitative data showing high levels of defaulting                                                                   | 3         | 3        |
| Long distance to the facility                                                                                           | Women from the community, VHTs, nutrition partners, HWs, block leaders, children, carers of children in the programem | KII, FGD, II              | Observation of team during stage 1 qualitative data collection                                                                 | 4         | 4        |
| Sharing and incorrect use of CSB and RUTF                                                                               | VHTs, HWs, carers of children in the programme, children, women and men from the community                            | KII, FGD, II              | Stage 1: Very long LOSs despite the median LOS being short                                                                     | 5         | 2        |
| Poor coordination and cohesion among IMAM implementing partners leads to gaps in screening and sensitisation activities | HWs, VHTs, school teachers, block leaders                                                                             | KII, FGD, II              | Stage 1: cooverage lower than expected due to W/H screening in community                                                       | 6         | 3        |
| Poor interface between health facilities and between health facility and ITC                                            | HWs, VHT, block leader                                                                                                | KII, II                   | Stage 1: Short LOS for defaulters                                                                                              | 7         | 3        |
| CSB, RUTF and essential drug stock outs                                                                                 | Nutrition partners, HWs, block leaders, elders, carers of children in the programme, women in the community           | KII, FGD, II, observation | Stage 1: quantitative data collection shows high levels fo defaulting in some centres, and admissions into programme prevented | 8         | 2        |
| Poor knowledge of admission and discharge criteria                                                                      | Carers of children in the programme, VHTs, elders, block leaders, women from the community, school teachers, HWs      | KII, FGD, II              | Stage 2 data collection demonstrated confusion amongst mothers regarding admission criteria                                    | 9         | 1        |
| Mothers of children with malnutrition and malnourished children are stigmatised                                         | block leaders, women in the community, elders, HWs, children                                                          | KII, FGD                  |                                                                                                                                | 10        | 2        |
| Language barrier                                                                                                        | HWs, block leaders, carers of children not in the programme, men, nutrition partners, VHTs                            | KII, FGD, II, observation |                                                                                                                                | 11        | 1        |
|                                                                                                                         |                                                                                                                       |                           |                                                                                                                                | 66        | 29       |

The sum of the scores given to the boosters and barriers is then calculated and the following formula used to calculate the prior mode:

$$BBQ \text{ weighted} = \frac{(boosters - barriers) + 100}{2}$$

$$= \frac{(55 + 100) - 66}{2} = 56\%$$

## 4.2 Unweighted Boosters and Barriers

The unweighted boosters and barriers method allocates the same score to each booster and barrier. This means that the only the quantity of each booster and barrier influences the prior. The sum of the scores for the boosters and the barriers are calculated and the same formula used to calculate the prior mode.

$$\frac{(10 + 100) - 11}{2} = 44.5\%$$

## 4.3 Concept Map Scoring

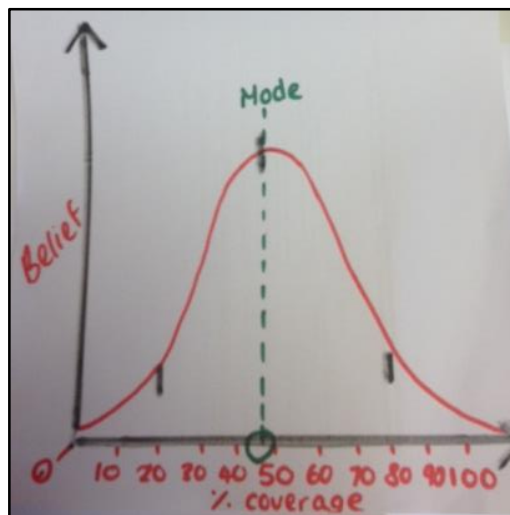
Concept maps are scored through analysing each connection between positive and negative factors. A positive connection is given a +1 value, and each negative connection is given a -1 value. These values are then added together to a total number of positive factors and a total number of negative factors. The same formula is followed for the scoring of the concept maps, and then averaged.

$$= \frac{47.5 + 59.5}{2} = 53.5$$

## 4.4 Histogram of belief

A histogram prior was developed for the SFP programme based on the team's prior knowledge of the programme from stage 1 and 2. The SQUEAC training participants discussed the highest and lowest values that coverage could possibly be. The highest value was 80% and the lowest was 20%. From these values, we then worked inwards to the prior mode of 45%.

Figure 18: Histogram of belief



The mode of the histogram was 45%.

#### 4.5 Calculation of the prior

The four prior modes results are taken from each exercise:

**Boosters and Barriers weighted: 56%**

**Boosters and Barriers Unweighted: 44.5%**

**Concept Maps: 53.5**

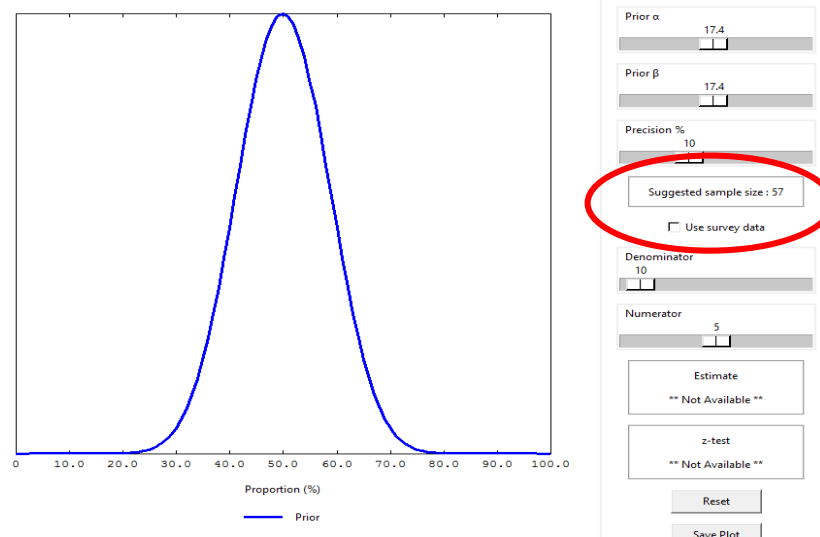
**Histogram of Belief: 45**

$$= \frac{56 + 44.5 + 53.5 + 45}{4} = 49.75\%$$

## 5. Stage 3: Wide Area Survey

The principal objective for stage 3 is to provide an estimate for coverage across 7 out of 11 settlements in Adjumani. This requires the development of a *likelihood* by way of a wide area survey, and then through Bayesian conjugate analysis, combining the prior and the likelihood to produce the posterior coverage estimate. Using the Prior given at the beginning of stage 3, the Bayesian SQUEAC calculator established a suggested sample size for the large area survey. Using the Bayesian Coverage Estimate Calculator, the **prior estimate** is established at **50%** (alpha 17.5, beta 17.5)<sup>15</sup>.

Figure 19: Prior mode



<sup>15</sup>Myatt.M et al, Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)/ Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) Technical Reference (<http://www.fantaproject.org/publications/squeac-sleac.shtml>). p .83

## 5.1 Sampling for Stage 3

The number of blocks (n blocks) to sample in the given area to reach the target sample size, n = 57, is calculated using estimated population size, population structure and prevalence of MAM using the following formula:

$$n_{blocks} = \left\lceil \frac{n}{\text{average block population}_{all\ ages} \times \frac{\% \text{ of population}_{6-59\ months}}{100} \times \frac{MAM\ prevalence}{100}} \right\rceil$$

- There was no access to under 5 population data, and so a standard of 20% was used<sup>16</sup>.
- Following the stage 2 data collection it was deemed that prevalence rates of both SAM and MAM were lower than reported in the January 2015 food and nutrition survey (1.7% SAM, 7.3% MAM). In this case, it is advisable to use an estimation that is 50% of the confidence interval below the existing prevalence to ensure the sampling yields sufficient MAM cases (n= 57). The MAM prevalence was recalculated using the following formula<sup>17</sup>:

$$MAM\ prevalence\ rate = 7.3\ (95\%\ CI\ 7.0 - 11.5)$$

$$7.3 - \frac{11.5 - 7.0}{2} = 5.05\%$$

- The Average block population was calculated through dividing the settlement population from OPM data, by the number of blocks, either provided by UNHCR or ACF.

$$n_{blocks} = \left\lceil \frac{57}{951 \times \frac{20}{100} \times \frac{5.05}{100}} \right\rceil = 6$$

In the absence of reliable, good quality maps of the settlements, a systematic stratified sampling method was used to select the blocks. In this method, blocks are ordered by settlement to ensure a spatial representation.

Settlement and population data was taken from UNHCR data, Office of the Prime minister (OPM) data and from data of the blocks provided by ACF. This was further checked for accuracy against maps of the settlements provided by UNHCR. In addition, the list was checked by staff working in the region for accuracy, as the maps were drafts of the settlements and not consistent with the data given.

Organising the blocks by settlement ensures spatial representation of the settlements during sampling. In Ayilo 1, Ayilo 2 and Nyumanzi, the large block size meant that when the sampling frame was applied, only 2 blocks would have been selected throughout all settlements. To overcome this, each block in Ayilo 1, Ayilo 2 and Nyumanzi was divided into 4 on the list, and

<sup>16</sup>Myatt.M et al, Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)/ Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) Technical Reference (<http://www.fantaproject.org/publications/squeac-sleac.shtml>).

p.100

<sup>17</sup>ibid

when the teams were on the ground, they sampled  $\frac{1}{4}$  of the block. Settlements with smaller block sizes or that are less uniform in structure were left as complete blocks.

The sampling interval was 15; this was calculated by dividing the total number of sampling units (92 blocks) by the number of blocks which needed to be sampled (6). Every 15<sup>th</sup> block was taken throughout the list, starting at a random point, generated by the [RANDBETWEEN] function using Excel, see appendix 4 for the sampling frame.

Six blocks were systematically sampled from a total of 92 blocks across 4 of the 7 settlements, and an estimated population of 87,451 refugees. In the case of Nyumanzi, Block D came up twice on the sampling list, and so C, the next geographical block was taken.

On arrival at Alere, the team discovered through discussion with the settlement leader, that Block E did not exist. The settlement is divided into 2 blocks; A and B. In response, the blocks were changed to A1, A2, B1, B2, and then randomly sampled by using the [RANDBETWEEN] function in excel (1=A, 2=B). They therefore sampled the whole of block B, which covered half of the settlement.

After 2 days of conducting the wide area survey, the sample size of 57 cases had not been met, and so another 6 blocks were sampled using the same method outlined above. In total, 12 blocks were sampled from 6 settlements. *Table 11* shows the sampling list.

*Table 11: Stage 3 sampling list*

| Settlement | Block                                |
|------------|--------------------------------------|
| Nyumanzi   | A, D, C (1/4 of each block taken)    |
| Ayilo 1    | B, F, E, A (1/4 of each block taken) |
| Ayilo 2    | D, C (1/4 of each block taken)       |
| Baratuku   | A                                    |
| Mungula    | B                                    |
| Alere      | B                                    |

### 5.1.2 House to House Screening

MAM is more difficult to identify in a child than SAM, and therefore, active and adaptive case finding is untenable. As a result, the team conducted house to house screening; the same case definitions as in stage 2 were used.

If cases were found and they were uncovered, i.e. not in the programme, a questionnaire was given to assess the main barriers to access. See Appendix 5 for this.

## 5.2 Results

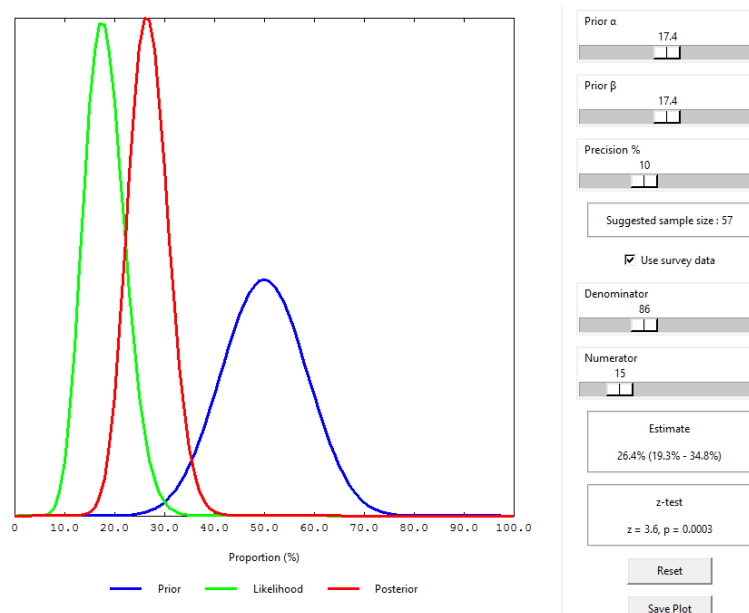
*Table 12: Stage 3 results*

| Settlement | Block | Recovering MAM child in the programme | MAM child in the programme | MAM child not in the programme | TOTAL MAM |
|------------|-------|---------------------------------------|----------------------------|--------------------------------|-----------|
| Ayilo2     | D     |                                       | 4                          | 14                             | 18        |
| Ayilo 1    | B     |                                       | 0                          | 3                              | 3         |
| Ayilo 1    | F     |                                       | 1                          | 5                              | 6         |

|          |   |   |    |    |    |
|----------|---|---|----|----|----|
| Nyumanzi | D | 1 | 1  | 7  | 9  |
| Baratuku | A |   |    | 1  | 1  |
| Nyumanzi | A |   |    | 5  | 5  |
| Nyumanzi | C |   | 1  | 2  | 3  |
| Mungula  | B |   |    | 5  | 5  |
| Alere    | B | 1 | 2  | 10 | 13 |
| Ayilo 1  | E |   |    | 16 | 16 |
| Ayilo 1  | A |   | 2  |    | 2  |
| Ayilo 2  | C | 2 | 4  |    | 6  |
| TOTAL    |   | 4 | 15 | 68 | 87 |

The results of stage 3, were fed into the Bayesian SQUEAC calculator to provide a coverage estimate.

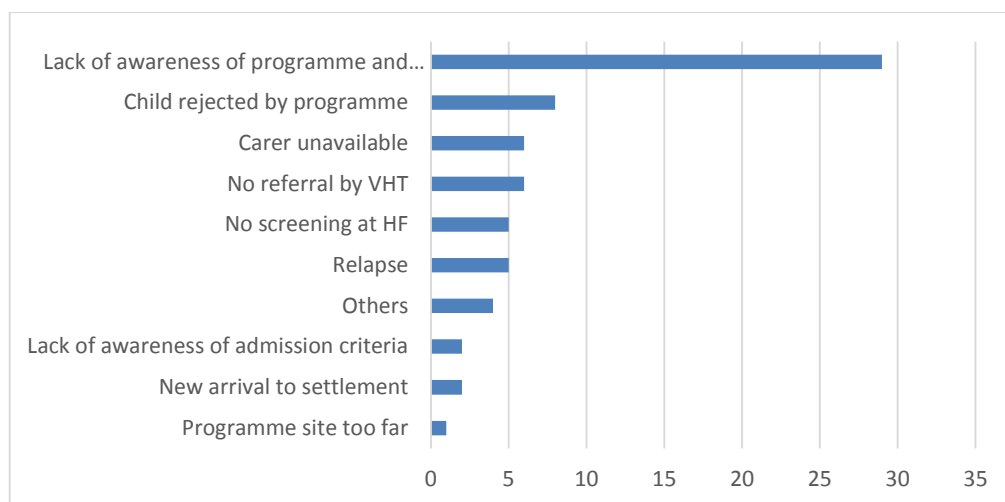
Figure 20: Bayesian Plot of results



Results of the wide area survey were entered into the Bayesian SQUEAC calculator. **Posterior** coverage is calculated using both **prior** and **likelihood** data and results in the estimated **posterior** coverage using a Bayesian technique (Beta-Binomial Conjugate Analysis). The team's prior belief of 50% coverage of the SFP programme, taken from their findings in stage 1 and 2 was much higher than the reading given following stage 3 wide area survey. A P value of 0.0003 was produced. When below  $<0.05$ , the prior and likelihood are too dissimilar and therefore invalidate the posterior. The analysis using the team's *Beta* prior shows no overlap between the prior and the likelihood, the prior and likelihood **conflict**. Despite this conflict resulting in a coverage result that cannot be used, the questionnaires administer to the carers of uncovered cases provides further insight and detail into the barriers to access of coverage, which will prove useful to inform remedial action.

The questionnaire that was given to carers of uncovered children yielded the following results:

Figure 21: Barriers to SFP coverage



‘Others’ include:

- Mother had returned to South Sudan and left other children caring for MAM child.
- Poor attitude of health workers has deterred mother from seeking treatment.
- No health workers were available on day of referral, so mother waiting for a clinic day.
- Child’s age doubted as child is tall for age.

### 5.3 Analysis of data collected in stage 3

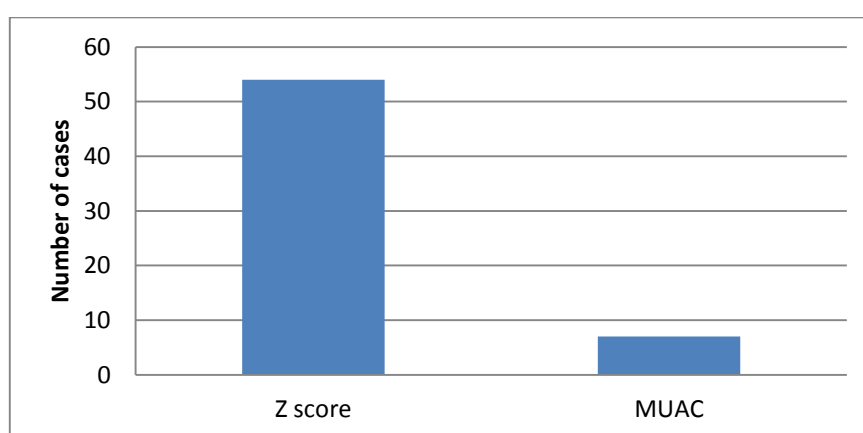
The most common barrier was **‘lack of awareness of the programme and malnutrition’**, this was recorded when carers of malnourished children were not aware of the MAM programmes in place or aware that their child was malnourished. This indicates several factors; in conflict with stage 1 data collection, where our findings suggested that VHT community sensitisation and mobilisation were effective, mothers are still unaware of treatment services available. An additional factor is new arrivals; those who have arrived at the settlement who either are unregistered, or simply have not had meetings with a VHT. When asked about barriers to access of services, mothers were often aware of malnutrition, but not in their own child. In one sense, this conflicts with data collected during stage 1, where awareness of malnutrition was high across all sectors of communities. However in line with the barrier of screening gaps in the community, an explanation for this could be that, a child presenting as MAM through weight-for-height assessment will appear to be normal and healthy, and so the mother will not suspect malnutrition. In addition, when screened for malnutrition by a VHT using MUAC, the child presents as healthy and so the mother is unaware of the child’s MAM status.

**No W/H screening by VHTs-** Similarly to a lack of awareness of malnutrition, screening gaps in the community result in VHTs screening using MUAC, as opposed to weight-for-height which is the admission criteria. A healthy MUAC reading results in no referral by VHTs, despite the child as being MAM through Z score.

**Previous rejection by programme**—There are two explanations for this barrier. In conflict with stage 1 data collection, where it was recorded that all children at the health facility were screened for malnutrition, it could be that children are not being screened using both MUAC and weight-for-height, and so are being rejected on MUAC alone. Secondly, the nutritional status of the child could have deteriorated between the time of assessment at the health facility and assessment for stage 3 of the SQUEAC. This does indicate that health workers have not successfully explained how to detect malnutrition to carers of the children.

**Analysis of MUAC vs. Weight-for-Height Admissions:** An analysis of the number of cases identified through MUAC and the number of cases identified through Weight for Height during the wide area survey was also conducted. Of 58 of 68 uncovered cases, where both methods were used to assess the child, 7 children displayed a MUAC reading of less than 125mm. The remaining 51 children displayed a MUAC of above 125mm.

*Figure 22: Cases identified through MUAC and weight for height*



## 6. Further analysis of OTC Programme

As previously explained, it was deemed untenable to conduct a wide area survey into the coverage of SAM due to the number of SAM cases presenting in stage 2. It was considered more appropriate and insightful to conduct a small study into those accessing SAM treatment at health centres that are serving both refugee and also host communities.

### 6.1 Evidence to Indicate need for small study:

The food and nutrition survey conducted in 2015 indicated SAM levels to be at 1.7%<sup>18</sup>. During Stage 2 of the SQUEAC investigation, during case finding, where 200 households were sampled, and zero SAM cases were found.

In addition, qualitative data collected suggested that malnutrition is a greater problem in the host community, and more admissions come from the host community, even in health centres that are directly next to, or inside a settlement.

<sup>18</sup>Wfp.org, (2015). *Uganda - Food and Nutrition Security Assessment among Refugee Settlements, January 2015* | WFP | United Nations World Food Programme - Fighting Hunger Worldwide. [online] Available at: <http://www.wfp.org/content/uganda-food-and-nutrition-security-assessment-refugee-settlements-january-2015> [Accessed 30 Sep. 2015].

## 6.2 Research Question

- Do more SAM cases treated in health facilities come from the host community than from the refugee community?

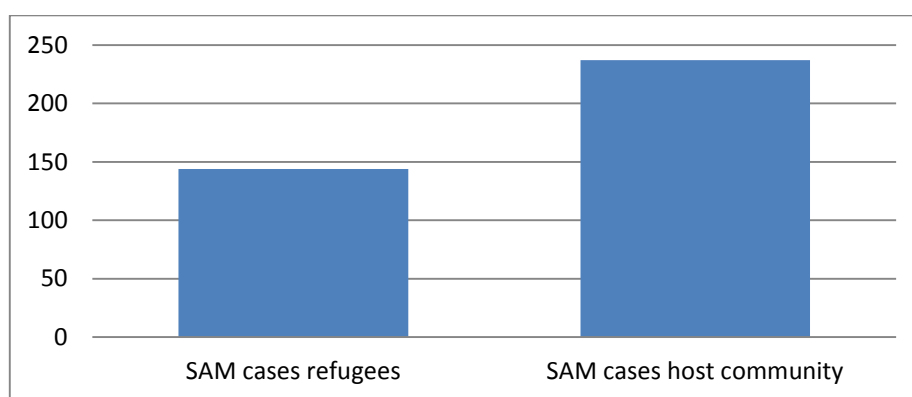
## 6.3 Methodology

Nine health facilities were visited and records were accessed from January to August 2015. All records of children in OTC were checked and tallied according to whether they were refugees or from the host community. Informal interviews were also conducted with health workers to ascertain their perceptions of admissions into the programme.

## 6.4 Results

A total of 381 records were accessed, 144 were refugees and 237 from the host community. This has been represented graphically in *Figure 21*.

*Figure 23: SAM cases from the refugee community and from the host community.*



The informal interviews conducted in the health facilities with health workers triangulates this data:

- Health workers stated that there were more SAM admissions from the host community than from the refugee community.
- Health workers believed that rates of SAM were higher in the host community than in the refugee community.

## 6.5 Analysis

The health centres accessed are based in areas where there are high numbers of refugees and geographically located next to settlements or inside them. Prior to Stage 1 and 2, it would be presumed that these health facilities would be predominantly utilised by refugees, given their location. However, concurrent with our findings from stage 1 and 2, the majority of cases (approximately 60%) are from the host community, who are outside of our target population for this assessment. This suggests that the SAM rates in the refugee community are lower than suggested in the 2015 survey.

## 6.6 Stage 3: Wide Area Survey

Through undertaking the wide area survey for the SFP programme in stage 3, both covered and uncovered SAM cases were identified.

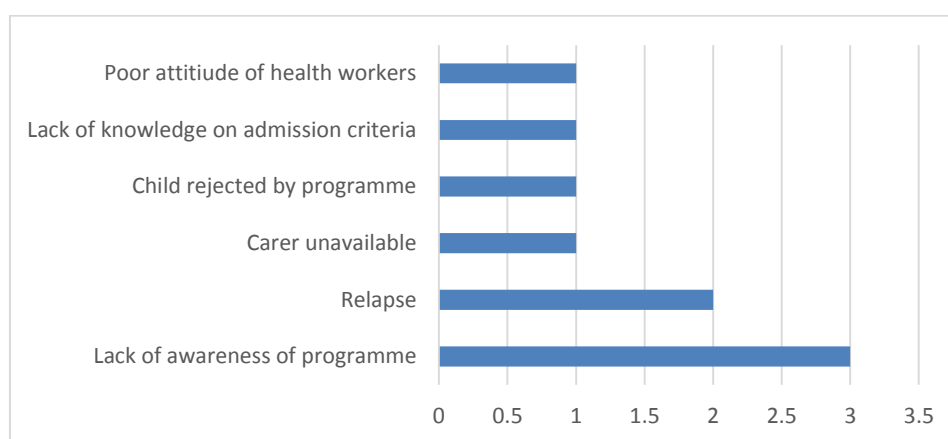
Table 13: SAM cases

| Recovering SAM child in the programme | SAM child in the programme | SAM child not in the programme | TOTAL SAM |
|---------------------------------------|----------------------------|--------------------------------|-----------|
| 1                                     | 5                          | 9                              | 15        |

The number of cases found in 12 blocks of 6 settlements is low, and therefore, this confirms the team's belief that SAM is low in the refugee community and finding a sufficient sample size to estimate coverage would have been impractical.

Barriers to access in the uncovered cases are represented in Figure 17:

Figure 24: Barriers to OTC coverage



### 6.6.2 Further analysis of barriers to coverage

The barriers to coverage found in SAM cases were similar to those found in SFP, which is of no great surprise given the integration of the SFP and OTC programmes. A lack of awareness of the programme was recorded in 3 out of 9 uncovered cases, again suggesting that VHT activity is lacking with these cases. Two cases were relapses, signifying that there was no follow up after discharge, either by health workers or by VHTs. An additional barrier to emerge from OTC data is 'poor attitude of health workers'. Despite not seeking treatment for SAM, the mother of the child expressed concern about taking her child to the health facility as she believed they would be rude to her.

Of 9 uncovered cases, 7 presented on a Z score of  $<-3SDs$  from the median, and 2 with MUAC readings of 100mm and 110mm. Four out of 10 OTC programmes operating in the assessment area admit only on MUAC, the remainder admit on WZH. If the 7 cases that presented on MUAC were in areas that are served by HFs that only use MUAC, then they would not be classed as SAM. This provides further evidence to suggest that conducting stage 3 of the survey would not have been a worthwhile step to have taken.

## 7. Conclusions

The findings from all three stages of this SQUEAC assessment provide a clear picture of the factors affecting the coverage of both SFP and OTC programmes. The integration of the programmes results in a strong similarity in the boosters and barriers of SFP and OTC.

Stage 1 activities demonstrated the weaknesses in the monitoring data collected by both the partner agencies and at the health facilities. Incorrect reporting, inadequate reporting and missing data provided a data set that was difficult to interpret and not reliable as a source of information. Zero defaulting was seen in the OTC electronic data of Elema, Ayilo 1 and 2 and Ayiri, despite record books displaying defaulting. MUAC on admission analysis provided insight into the disparities in admission criteria used and implemented in health facilities. The median MUAC on admission was more than 125mm, and so indicates that the majority of admissions are through self-referral at health facilities. An improvement in data collection was seen at Mungula health centre, where the integrated reporting tools have been implemented in the last 2 months. The new data collection book assisted the well trained health worker to provide up to date and concise data, it is recommended that in facilities where these books are not implemented, that this is done immediately to assist with data collection.

Qualitative data collection revealed the strength of community mobilisation in the settlements, in particular, the activeness of VHTs in screening and providing nutrition education. There was a generally high awareness of the aetiology, prevention and treatment of malnutrition in the communities.

Testing the hypothesis in stage 2 provided an insight into the barrier between screening criteria (MUAC) and the admission criteria (MUAC and Z score); areas of predicted high coverage had low coverage. Children who had been screened using MUAC in the community, presented as normal, yet on screening with W/H, they are classified as MAM. Stage 2 indicated that the prevalence of SAM in refugee communities is likely to be lower than the survey value of 1.7%. Stage 1 data collected from women in the community, health workers and nutrition partners suggests that levels of SAM and MAM are higher in the host community. Additional data collected from admission records, and from health workers in the small study conducted in stage 3, signifies that the prevalence of SAM is higher in the host community. This requires additional exploration and it is further suggested that coverage in host communities is assessed through a SQUEAC investigation.

The Stage 3 Wide Area Survey conducted for MAM revealed that the difference in MUAC and W/H measurements are an underlying issue across all the settlements assessed. Despite all nutrition partners having, on the whole, trained, active and motivated VHTs, the screening tool used by the VHTs means that children who are classified as SAM or MAM through Z score, are being passed as healthy in the community, and failing to access programmes at the health facilities.

## **7.2 Using both MUAC and Weight for Height as admission criteria:**

A main finding from the SQUEAC assessment conducted in Adjumani district is the lack of cohesion among implementing IMAM partners regarding the admission criteria for SAM and MAM patients (see table 14). In the community, all partners have VHTs who are equipped to screen children using MUAC only, with very few, if any community outreach screenings using weight for height. It should also be noted that community screening outreaches using W/H are at static points in the community, where only those with good health seeking behaviours are likely to bring their children for screening. Therefore, for malnourished children who present on weight-for-height to be identified, they have to be screened at the health facility where they have normally been taken for another reason. From our findings, and as is usual when

identifying malnutrition through both MUAC and weight for height, less children presented as malnourished through MUAC than weight for height.

*Table 14: Screening Protocol*

| <b>Organisation</b>      | <b>Active screening (in community)</b>                                            | <b>Systematic screening (in health centres)</b>                                 |
|--------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>MTI</b>               | MUAC. All <12.5cm referred to health centre<br>W/H screening in some settlements. | Self-referrals: all children W/H + MUAC<br><br>Referrals from VHT: W/H          |
| <b>ACF</b>               | MUAC. All <12.5 = referred to health centre                                       | Self-referrals: all children MUAC and W/H<br><br>Referrals: MUAC and some W/H   |
| <b>Concern</b>           | MUAC. All <12.5 = referred to health centre                                       | Self-referrals: all children W/H + MUAC<br><br>Referrals from VHT (<12.5) = W/H |
| <b>Save the Children</b> | MUAC. All <12.5 = referred to health centre                                       | N/A                                                                             |
| <b>World Vision</b>      | MUAC. All <12.5 = referred to health centre                                       | N/A                                                                             |
| <b>LWF</b>               | MUAC. All <12.5 = referred to health centre                                       | N/A                                                                             |

These gaps in screening and admission criteria greatly impact coverage. If MUAC was solely used for screening and as the admission criteria, then the MAM case-load would be lower. However, due to the admission criteria being based on weight for height for MAM, the SQUEAC assessment included weight for height as the screening criteria.

The debate of MUAC and weight for height continues, and it is not within the mandate of this report to dictate which method of admission is used. However it is clear that the implementing partners need to; a) decide on which method of admission they will all use, or alternatively adopt the finalised IMAM guidelines once released, and b) ensure that the screening method used is coherent with the method of admission.

The most important factor to consider, is the acceptability of screening methods at community level. It is widely acknowledged that MUAC is an easy to use, sensitive, accurate and accepted method of screening for MAM and SAM. The simplicity of the method means that health workers, VHTs and mothers can be easily trained to use it in identifying children with malnutrition<sup>19,20</sup>. From experiences in this SQUEAC assessment, weight for height measurements

<sup>19</sup>Mogendi JB, e. (2015). *Efficacy of mid-upper arm circumference in identification, follow-up and discharge of malnourished children during nutrition rehabilitation*. - PubMed - NCBI. [online] Ncbi.nlm.nih.gov. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/26060539> [Accessed 5 Oct. 2015].

<sup>20</sup>Blackwell, N., Myatt, M., Allafort-Duverger, T., Balogoun, A., Ibrahim, A. and Briend, A. (2015). Mothers Understand And Can do it (MUAC): a comparison of mothers and community health workers

on the other hand are time consuming, resource intensive and the equipment needed is heavy to carry, especially as every household has to be visited. In addition, weight for height screening can be complicated, confusing and difficult to understand, especially with VHTs and mothers<sup>21</sup>.

The appropriateness of using W/H in a population which on the whole, are long limbed should also be considered. W/H can overestimate the levels of acute malnutrition in these populations, whereby ethnic differences in sitting-to-standing height ratio might influence the diagnosis on W/H without indicating acute malnutrition<sup>22</sup>.

Another factor to consider, is the prediction of mortality risk using MUAC, as opposed to W/H and also the impact of long term nutritional status on children's development. MUAC is able to predict the risk of mortality better than or at least as well as weight for height<sup>23</sup>. However preventing the mortality of children through screening with MUAC does not necessarily prevent an impact on a child's development. There is evidence to suggest that wasting is linked to poor school performance and deficits in psychomotor and mental development<sup>24</sup>.

## 8. Recommendations

The SQUEAC team and the attendees of the preliminary results dissemination held in Adjumani town formulated a set of recommendations based on the findings of the SQUEAC. These are integrated recommendations, for both SFP and OTC programmes. Priority is based on both the importance of the recommendation to coverage, and also the feasibility of implementing the recommendations.

Activities 5.2 and 12.1 are italicised, these activities were recommended by participants of the SQUEAC and of the preliminary results dissemination. Given the discussion in the conclusion, until the method of screening and admission has streamlined, it is recommended that the implementation of these activities are given further consideration.

*Table 15: Recommendations formulated by the SQUEAC team*

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determining mid-upper arm circumference in 103 children aged from 6 months to 5 years. *Arch Public Health*, 73(1).

<sup>21</sup>Myatt, M., Khara, T. and Collins, S. (2006). A review of methods to detect cases of severely malnourished children in the community for their admission into community-based therapeutic care programmes. *Food and Nutrition Bulletin*, 27(S3), pp.7-23.

<sup>22</sup>Roberfroid, D., Huybregts, L., Lachat, C., Vrijens, F., Kolsteren, P. and Guesdon, B. (2015). Inconsistent diagnosis of acute malnutrition by weight-for-height and mid-upper arm circumference: contributors in 16 cross-sectional surveys from South Sudan, the Philippines, Chad, and Bangladesh. *Nutrition Journal*, 14(1).

<sup>23</sup>CMAM Forum, (2012). *Use of MUAC for Severe Acute Malnutrition*. [online] Available at: [http://www.cmamforum.org/Pool/Resources/FAQ-1-Use-of-MUAC-Briend-Eng-June-2012\(1\).pdf](http://www.cmamforum.org/Pool/Resources/FAQ-1-Use-of-MUAC-Briend-Eng-June-2012(1).pdf) [Accessed 9 Oct. 2015].

<sup>24</sup>Khara, T., & Dolan, C. (2014). Technical Briefing Paper: Associations between Wasting and Stunting, policy, programming and research implications. Emergency Nutrition Network (ENN) June 2014

| Barrier                                                                                                                  | Recommendation                                                                                                                    | Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Priority |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Long distance to the facility                                                                                            | 1) Strengthen accessibility                                                                                                       | 1.1 Set budget aside to upscale outreaches and mobile clinics.                                                                                                                                                                                                                                                                                                                                                                                                                 | Moderate |
| Sharing and incorrect use of CSB and RUTF                                                                                | 2) Discourage sharing of RUTF                                                                                                     | 2.1 Strengthen sensitisation that RUTF is medicine not food and is only for the malnourished children through counselling sessions both from HWs and VHTs, and through mass- reach approaches such as street dramas/performances and mass media campaigns.                                                                                                                                                                                                                     | Moderate |
| Poor organisation of health facility leading to long waiting times                                                       | 3) Improve organisation of health facility                                                                                        | 3.1 Deliver training to HWs outlining changes to be made to systems, to ensure waiting times are limited and clinic flow is efficient. E.g. Not turning OTC cards upside down so the 'first' in the queue becomes the last.<br>3.2 HF with long waiting times can learn from HF that have effective systems, e.g. Mungula HF.<br>3.3 Where caseload is high, increase the number of clinic days to reduce waiting times for patients and workload for attending health workers | High     |
| Bad experience at the health facility due to rude staff, lack of information given to mothers and tribal discrimination. | 4) Increase numbers of health workers, improve capacity of existing HWs on IMAM and provide guidance on behavioural expectations. | 4.1 On job mentorship of HWs with continuous support and supervision.<br>4.2 Train HWs on expectations of them; e.g. mothers to be respected regardless of tribe.<br>4.3 Consider implementation of beneficiary feedback mechanism for mothers, for example a system of texting/calling to give feedback.                                                                                                                                                                      | Moderate |
| Poor coordination and cohesion among IMAM implementing partners leads to gaps in screening and sensitisation activities  | 5) Streamline admission criteria and improve case finding of MAM and SAM.                                                         | 5.1 Partners streamline admission criteria so it is uniform across all partners and IMAM components.<br>5.2 <i>Improve case finding for MAM and SAM through regular mass screening using both MUAC and WFH.</i><br>5.3 Foster integration of nutrition into routine health service points.<br>5.4 Advocate for the new IMAM guideline to be passed<br>5.5 Strengthen coordination of nutrition working groups through monthly meetings and joint work plans.                   | High     |

|                                                                                 |                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                              |          |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                                                                                 |                                                                                                                                               | 5.6 Bringing up of all working tools in line with the new guidelines like height boards, referral slips and data recording.                                                                                                                                                                                                                                                  |          |
| Poor knowledge of admission and discharge criteria                              | 6) Improve sensitisation and mobilisation of community.                                                                                       | 6.1 Top up training for VHTs and HWs on admission and discharge criteria, particularly regarding differences between MUAC and WZH, and how to explain this to carers of children.<br>6.2 VHTs and HWs to offer counselling sessions to mothers at the HF and in the community about admission criteria, answering any questions and queries that may arise.                  | High     |
| Poor interface between health facilities and between health facilities and ITC  | 7) Improve interface between HFs, between HFs and ITC and strengthen referral system                                                          | 7.1 HWs trained on the protocol regarding transfers between HFs and between HF to ITC.<br>7.2 Provide carers with information regarding transfers, if they are moving away/ to a new settlement, they should tell HWs who can then refer them to a new centre and record the transfer.<br>7.3 Follow up of transferred cases through the system- phone call between centres. | Moderate |
| Language barrier- leading to poor experience at health facility                 | 8) Reduce the language barrier at health facilities                                                                                           | 8.1 Recruitment of more translators and retain existing translators.<br>8.2 Provide more incentives and offer health care capacity building to improve motivation.                                                                                                                                                                                                           | High     |
| CSB, RUTF and essential drug stock outs                                         | 9) Prevent stock outs through coordination                                                                                                    | 9.1 Improve coordination and communication between implementing partners and HFs, e.g. ensure that bi-weekly phone calls/visits are scheduled.<br>9.2 Improve coordination and communication between responsible partners for procuring drugs.                                                                                                                               | Moderate |
| Mothers of children with malnutrition and malnourished children are stigmatised | 10) Community sensitisation and education sessions and the involvement of all stakeholders, such as local leaders into nutrition programming. | 10.1 Sensitisation and training of local leaders with regular forum and specific nutrition meetings.<br>10.2 Use VHTs to offer individual and group counselling sessions and use mass-reach approaches through street drama and performances and/or mass media.                                                                                                              | Moderate |

|                                                                 |                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Poor record keeping                                             | 11) Improve record keeping through streamlining reporting tools and providing training. | 11.1 Adopt new IMAM reporting tools.<br>11.2 Train HWs on how to use reporting tools, with clarification of aspects such as patients transferring from OTC to SFP should be recorded as a new client.<br>11.3 Partners should support the district to procure reporting tools for all HFs.<br>11.4 Regular on-job mentorship and support for all HWs.<br>11.5 DHT to conduct quarterly review of IMAM reports.<br>Immediate use of the new IMAM guidelines. | High     |
| Poor Case Finding using current MUAC screening criteria by VHTs | 12) Improve case finding through training and better equipped VHTs.                     | 12.1 <i>Train HWs/VHTs about the use/interpretation of W/H and provide tools to do it effectively.</i><br>12.2 Motivate VHTs through monitoring incentives which are harmonised across partners.<br>12.3 Integrate nutrition assessment into health system.                                                                                                                                                                                                 | Moderate |

As well as providing recommendations to address the main barriers found in the assessment, the stakeholders who attended the preliminary results dissemination meeting provided additional recommendations based on the presentations from the SQUEAC participants:

*Table 16: Further recommendations*

| Recommendation                                                                          | Action Plan                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Strengthen gaps between host community, health service delivery and refugee settlements | Carry out SQUEAC assessment in host community<br>Strengthen host VHTs on nutrition programmes by supervision<br>Bridge information gap through sensitisation for the host community |
| Strengthen lead mother concept                                                          | Train lead mothers on nutrition screening<br>Train lead mothers on health sensitisation                                                                                             |
| Encouraging nutrition livelihood projects                                               | Boost kitchen gardening projects<br>Open income generating small projects, salons, bakeries                                                                                         |
| Strengthening male involvement in child care                                            | Sensitise males about their roles in child care through dialogue, talk shows and home visits                                                                                        |
| Create awareness that promote early health seeking behaviour                            | Health education at facility and community, use of mass media<br>Use of regular child growth monitoring                                                                             |
| Encourage family planning                                                               | Health Education (ANC, PNC) antenatal class, post-natal class                                                                                                                       |

# Appendix 1.

| Name                  | Agency       | Designation                 | Email Address                   |
|-----------------------|--------------|-----------------------------|---------------------------------|
| Aliga Stephen Bandan  | ADLG         | Nutritionist                | Aligavini2013@gmail.com         |
| Awor Immaculate Fiona | WORLD VISION | Nutrition assistant         | Immaculatefiona@gmail.com       |
| Naluswata Susan       | LWF          | Nutrition assistant         | susan.lugajju@gmail.com         |
| Alwori Robinah        | MTI          | Clinical Nutritionist       | robinahalwori@gmail.com         |
| Peter Kamau           | MTI          | P.O. Nutrition              | kamaupeter116@yahoo.com         |
| Kenyi Julius Samson   | ACF          | VHT                         | -                               |
| Mathew Mach           | ACF          | VHT                         | -                               |
| Bumba Erinest         | MoH          | Nutritionist                | bumbaerinest@gmail.com          |
| Gerald Onyango        | IBFAN Uganda | M&E Specialist              | gponyango@gmail.com             |
| Francisco Drakonya    | ADLG         | Enrolled Nurse              | franciscodrakonya@gmail.com     |
| John Makuol           | ACF          | VHT                         | -                               |
| Josephine Awori       | ACF          | VHT                         | -                               |
| Claire Kimurahebwe    | ACF          | Nutrition Coordinator       | nutco.ug@acf-international.org  |
| Eric Ssebunnya        | ACF          | Programme Manager           | nut-kb.ug@acf-international.org |
| Linda Akello Tina     | ACF          | Assistant Programme Manager | alindatina@gmail.com            |

## Appendix 2

### Small Study: VHTs

***Record the name of the settlement and which organisation the VHT is associated with.***

How many hours a week do you go out and screen for SAM and MAM cases?

What is your process/system (get them to detailed a typical day)

How many kids do you screen per week?

What indicators do you use to find a SAM or MAM child?

If you find a SAM or MAM child, what are the next steps?

What training have you received?

When was the training?

What did it consist of?

How long was the training for?

When was the last time you saw a supervisor?

What did they do?

How did your work change?

When will the next time be?

Do you feel like this is enough support?

What facilitation do you receive?

Is this enough?

What do you like about being a VHT?

How would you improve your experience of being a VHT?

## Appendix 3.

| VHT | Settlement | Nutrition Partner | Number of active hours per week | Number of children screened with MUAC per week | Correct process followed according to training? | Training received                                                  | Most recent supervisi on meeting          | Adequacy of support according to VHT                                      | Facilitation | Other comments                                                                                            |
|-----|------------|-------------------|---------------------------------|------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------|
| 1   | Boroli     | LWF               | 30                              | 100                                            | yes                                             | Use of MUAC, referral of cases, convincing mechanisms              | 2 days previous (although this was brief) | Inadequate, would like more knowledge on techniques to convince referrals | UGX 300,000  |                                                                                                           |
| 2   | Boroli     | LWF               | 22.5                            | 100-120                                        | yes                                             | IYCF, nutrition, kitchen gardening, nutrition assessments (3 days) | Previous week                             | Adequate support, through demonstrati on and learning                     | UGX 300,000  | Level of detail provided demonstrates motivation of VHT. LWF VHTs also organise their own monthly meeting |
| 3   | Alere      | MTI               | Assesses from the HF            | Selective assessment based on observatio n     | (not yet trained as a new VHT)                  |                                                                    | Previous day                              | Inadequate support                                                        | 0            | Motivated to help community members as they don't know the language                                       |
| 4   | Baratuku   | Save the Children | 32 hours                        | 10 homes per day                               | yes                                             | IYCF, assessing malnutrition,                                      | Same week                                 | Adequate support                                                          | UGX 200,000  | Believes facilitation is inadequate, would like                                                           |

|   |          |               |          |           |                                         |                                                                           |           |                                                                    |                                    |                                                                                                                                                              |
|---|----------|---------------|----------|-----------|-----------------------------------------|---------------------------------------------------------------------------|-----------|--------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |          |               |          |           |                                         | referral criteria (5 days)                                                |           |                                                                    |                                    | more training and more facilitation                                                                                                                          |
| 5 | Nyumanzi | LWF           | 20 hours | 100-150   | yes                                     | VHT training, nutrition training, identifying malnutrition                | Everyday  | Adequate support (lists the ways in which the supervisor supports) | UGX 300,000                        | Requests for bicycle, t-shirts, height boards and weighing scales                                                                                            |
| 6 | Baratuku | LWF           | 25 hours | Approx 50 | yes                                     | Nutrition, kitchen gardening (6 days)                                     | Everyday  | Adequate support (lists the ways in which the supervisor supports) | UGX 300,000                        | Requests for more training, more VHTs, wet weather equipment, t-shirts and bag                                                                               |
| 7 | Nyumanzi | LWF           | 25 hours | Approx 60 | yes                                     | Malnutrition, breastfeeding                                               | Same week |                                                                    | UGX 300,000                        | States that the facilitation is not adequate, and it doesn't arrive in time. Provision of transport, lunch, breakfast and water would improve VHT experience |
| 8 | Alere    | MTI & Concern | 4 days   | 20        | yes                                     | ICCM (1 day training)                                                     | 2 weeks   | Inadequate support                                                 | MTI UGX 70 000, Concern UGX 70 000 | VHT activity supports the community and the individual.                                                                                                      |
| 9 | Alere    | MTI           | -        | -         | No (Does not refer on red MUAC reading) | No training in screening, however conducts community screening using W/H. | 1 month   | Needs further training and support                                 | UGX 200 000                        | Would like further facilitation and support but enjoys being a VHT as is able to help other members of the community                                         |

## Appendix 4.

| Settlement | Blocks | Population | Average Population |
|------------|--------|------------|--------------------|
| Nyumanzi   | A.1    | 29037      | 1210               |
|            | A.2    | 29037      | 1210               |
|            | A.3    | 29037      | 1210               |
|            | A.4    | 29037      | 1210               |
|            | B.1    | 29037      | 1210               |
|            | B.2    | 29037      | 1210               |
|            | B.3    | 29037      | 1210               |
|            | B.4    | 29037      | 1210               |
|            | C.1    | 29037      | 1210               |
|            | C.2    | 29037      | 1210               |
|            | C.3    | 29037      | 1210               |
|            | C.4    | 29037      | 1210               |
|            | D.1    | 29037      | 1210               |
|            | D.2    | 29037      | 1210               |
|            | D.3    | 29037      | 1210               |
|            | D.4    | 29037      | 1210               |
|            | E.1    | 29037      | 1210               |
|            | E.2    | 29037      | 1210               |
|            | E.3    | 29037      | 1210               |
|            | E.4    | 29037      | 1210               |
|            | F.1    | 29037      | 1210               |
|            | F.2    | 29037      | 1210               |
|            | F.3    | 29037      | 1210               |
|            | F.4    | 29037      | 1210               |
| Ayilo 1    | A.1    | 25701      | 1071               |
|            | A.2    | 25701      | 1071               |
|            | A.3    | 25701      | 1071               |
|            | A.4    | 25701      | 1071               |
|            | B.1    | 25701      | 1071               |
|            | B.2    | 25701      | 1071               |
|            | B.3    | 25701      | 1071               |
|            | B.4    | 25701      | 1071               |
|            | C.1    | 25701      | 1071               |
|            | C.2    | 25701      | 1071               |
|            | C.3    | 25701      | 1071               |
|            | C.4    | 25701      | 1071               |
|            | D.1    | 25701      | 1071               |
|            | D.2    | 25701      | 1071               |
|            | D.3    | 25701      | 1071               |
|            | D.4    | 25701      | 1071               |
|            | E.1    | 25701      | 1071               |
|            | E.2    | 25701      | 1071               |
|            | E.3    | 25701      | 1071               |
|            | E.4    | 25701      | 1071               |
|            | F.1    | 25701      | 1071               |
|            | F.2    | 25701      | 1071               |
|            | F.3    | 25701      | 1071               |
|            | F.4    | 25701      | 1071               |

|                    |     |       |      |
|--------------------|-----|-------|------|
| Ayilo 2            | A.1 | 12837 | 535  |
|                    | A.2 | 12837 | 535  |
|                    | A.3 | 12837 | 535  |
|                    | A.4 | 12837 | 535  |
|                    | B.1 | 12837 | 535  |
|                    | B.2 | 12837 | 535  |
|                    | B.3 | 12837 | 535  |
|                    | B.4 | 12837 | 535  |
|                    | C.1 | 12837 | 535  |
|                    | C.2 | 12837 | 535  |
|                    | C.3 | 12837 | 535  |
|                    | C.4 | 12837 | 535  |
|                    | D.1 | 12837 | 535  |
|                    | D.2 | 12837 | 535  |
|                    | D.3 | 12837 | 535  |
|                    | D.4 | 12837 | 535  |
|                    | E.1 | 12837 | 535  |
|                    | E.2 | 12837 | 535  |
|                    | E.3 | 12837 | 535  |
|                    | E.4 | 12837 | 535  |
|                    | F.1 | 12837 | 535  |
|                    | F.2 | 12837 | 535  |
|                    | F.3 | 12837 | 535  |
|                    | F.4 | 12837 | 535  |
| Baratuku           | A   | 5406  | 1802 |
|                    | B   | 5406  | 1802 |
|                    | C   | 5406  | 1802 |
| Mungula            | A   | 3753  | 626  |
|                    | B   | 3753  | 626  |
|                    | C   | 3753  | 626  |
|                    | D   | 3753  | 626  |
|                    | E   | 3753  | 626  |
|                    | F   | 3753  | 626  |
| Boroli             | A   | 8838  | 1473 |
|                    | B   | 8838  | 1473 |
|                    | C   | 8838  | 1473 |
|                    | D   | 8838  | 1473 |
|                    | E   | 8838  | 1473 |
|                    | F   | 8838  | 1473 |
| Alere              | A1  | 2255  | 376  |
|                    | A2  | 2255  | 376  |
|                    | B1  | 2255  | 376  |
|                    | B2  | 2255  | 376  |
| E                  |     | 2255  | 376  |
| AVERAGE BLOCK SIZE |     |       | 951  |

#### Coding

|  |                |
|--|----------------|
|  | First sample   |
|  | Second sample  |
|  | Does not exist |

# Appendix 5.

1. Do you think that this child is malnourished?

☐

If YES.....

2. Do you know of a programme that can treat malnourished children?

☐

If YES....

3. What is the name of this programme?

.....

4. Where is this programme?

.....

5. Why is this child not attending the programme?

Do NOT prompt. Probe 'Any other reasons?'

|                          |                                              |
|--------------------------|----------------------------------------------|
| <input type="checkbox"/> | Programme site is too far away               |
| <input type="checkbox"/> | No time/too busy to attend the programme     |
| <input type="checkbox"/> | Carer cannot travel with more than one child |
| <input type="checkbox"/> | Carer is ashamed to attend the programme     |
| <input type="checkbox"/> | Difficulty with childcare                    |
| <input type="checkbox"/> | The child has been rejected by the programme |

Record any other reasons...

.....

.....

6. Has this child ever been to the programme site or examined by programme staff?

☐

If YES....

7. Why is this child not in the programme now?

|                          |                         |
|--------------------------|-------------------------|
| <input type="checkbox"/> | Previously Rejected     |
| <input type="checkbox"/> | Defaulted               |
| <input type="checkbox"/> | Discharged as cured     |
| <input type="checkbox"/> | Discharged as not cured |

Thank carer