NORTH HORR SUB COUNTY

Semi Quantitative Evaluation on Access and Coverage Report

March - April 2018

Acknowledgement

North Horr IMAM coverage assessment was made successful through the contribution of a number of partners. The assessment was led by the County Department of Health.

The County government of Marsabit Department of Health Services is indebted by immense contribution by partners who tirelessly made assessment a success. The department wish to appreciate the contribution of Concern worldwide and UNICEF for financial and technical support which ensured the exercise was successfully completed

Special thanks to Marsabit County Nutrition Technical Forum and National Nutrition Information Technical Working group Coverage technical team for their technical guidance during the survey. Last but not least the County government of Marsabit for creating an enabling environment during the qualitative and quantitative data collection exercise and the North horr Sub County community for taking time to provide information which will be of importance in making informed decisions in the nutrition sector programming.

Acronyms and Abbreviations

BBQ	Barrier Booster Question
BSFP	Blanket Supplementary Feeding Program
CC	Community Conversation
CBRAs	Community Based Referral Agents
CHV	Community Health Volunteer
CMAM	Community Management of Acute Malnutrition
CNC	County Nutrition Coordinator
CU	Community Units
IMAM	Integrated Management of Acute Malnutrition
LQAS	Lot quality Assurance Sampling
MAM	Moderate Acute Malnutrition
MUAC	Mid Upper Arm Circumference
OFDA	Office of Foreign Disaster Assistance
OTP	Outpatient Therapeutic Program
SAM	Severe Acute Malnutrition
SFP	Supplementary Feeding Program
SQUEAC	Semi Quantitative Evaluation on Access and Coverage
UNICEF	United Nations Children's Fund

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Executive Summary

Introduction

SQUEAC assessment was carried out in North Horr Sub County which is the largest sub County in Marsabit County. The sub County has over the years suffered the burden of malnutrition. It was worst hit by prolonged drought between 2016 and 2017. Inadequate access to food as well as loss of livelihood (The main source of livelihood is animals) led to the rise of malnutrition level where the sub County was classified as extremely critical phase in June 2017. The Sub County has 16 health facilities, in which 14 of them offer full IMAM services and implement surge model to monitor the performance of both outpatient therapeutic Program (OTP) as well as well as the supplementary feeding program (SFP). Currently there are 6 of partners supporting nutrition program in North Horr Sub County.

The overall objective of the coverage assessment was to estimate the single coverage of IMAM program in North Horr sub County. Specifically the assessment aimed at; estimating the coverage for OTP and SFP program in North Horr Sub County, identifying barriers and boosters to OTP and SFP access and coverage and coming up with action plan on the improvement of OTP and SFP programs coverage as guided by the identified barriers and boosters. It also aimed at building the capacity of County government staff to assess the program access and coverage using SQUEAC methodology.

Methodology and Key Findings

SQUEAC is a 3 stage methodology that combines an array of qualitative information about access and the perception of CMAM program with small sample quantitative surveys. Stage one involved collection of quantitative (routine program data) as well as qualitative data using a number of methods and from several sources including; semi structured interviews which was administered to health workers in the health facilities, program staff (County nutrition coordinators, partners implementing staff, Health facility CHVs as well as carers of children in program), informal group discussions was administered to community leaders, CBRAs, pastoralists and caregivers in the community as well as observations.

Analysis of routine program data as well as qualitative information unveiled a number of program barriers and boosters. Some of the program boosters identified included; Presence of partners to support IMAM program Presence of outreaches, CHVs who relates well with the health workers as well as the community, Early program admissions, as well as positive opinion towards IMAM Program. The major barriers to the program were migration, high workload at the health facilities and staff absenteeism, poor documentation, alcoholism, IMAM program being majorly partners funding dependent, weak defaulter tracing and active case finding at the community.

Stage 2 involved formulation of hypothesis based on the information collected in stage 1. The hypothesis formulated was: *Villages that have high migration have low IMAM coverage while those with low migration have high IMAM coverage* was formulated. This hypothesis was tested using the Simplified LQAS formula; d= In/2I in comparison with 50% SPHERE threshold for rural areas. Through a small area study, the hypothesis was confirmed.

Stage 3 involved likelihood (wide area) survey. Before this stage, prior mode was calculated using weighted barrier and boosters, simple BBQ, histogram method as well as concept map positive and negative linkages. Once the prior mode has been finalized and its shape parameters entered into the Bayes calculator (as a recommended sample size will be generated. This figure is the recommended minimum number of acutely malnourished children which need to be found during the likelihood survey to achieve the desired level of confidence in the posterior, or the overall coverage estimate. From the calculations a total of 42 children were to be actively searched in 22 villages for SAM and 34 cases in 11 villages for MAM. The highest among the two (SAM) was used as the overall assessment sample size i.e. 22 villages.

Two stage sampling was applied in likelihood survey. Stage 1 involved selection of villages (smallest administrative units) based on the health facility catchments. Since a recent village list based on the health facility catchment was available spatially stratified systematic sampling was used in this stage. Each village was linked to a health facility catchment. In stage 2 active case finding was used where MAM and SAM cases were actively searched from the sampled villages. The survey was carried out in 22 villages for 4 days, however due to heavy rain 2 villages were not reached. All children 6 to 59 months had their MUAC measured. Those children who met the admission criteria for SAM (MUAC< 115mm) and MAM (MUAC ≥115mm and < 125mm) and were not in program were referred to the nearest health facility. Four teams each with 2 measurers were involved in the data collection. Fifty nine (59) SAM cases and 90 MAM cases were identified.

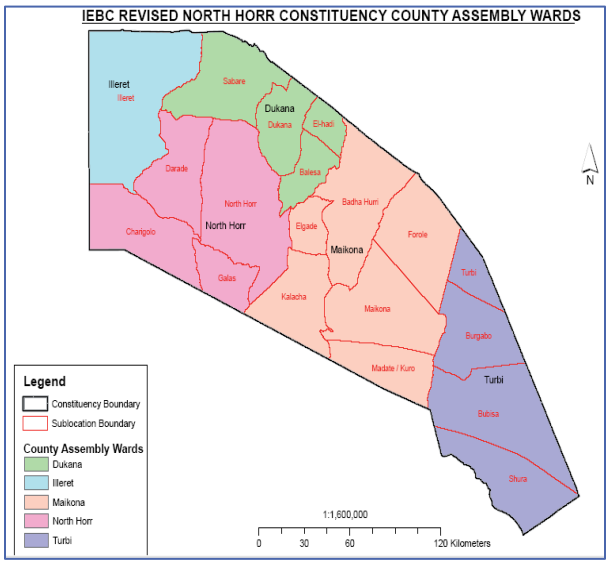
Single coverage estimator was used to estimate the program coverage. Single coverage estimator includes both recovering cases that are admitted and those that are not in the program. Combining prior estimate and likelihood information in the calculator generated a posterior which showed the overall coverage for OTP in North Horr sub County was 60.0% (50.2- 68.6) for OTP and 66.5 %(58.2- 73.7) for SFP.

Context of North Horr Sub County

1.1 Back ground Information

North Horr is one of the sub County in Marsabit County. It is the largest sub County in Marsabit County in terms of geographical size. North Horr sub County borders the republic of Ethiopia to the North, Laisamis Sub County to the Southern Side, Turkana County to the West where it shares Lake Turkana. It also borders Moyale Sub County as well as Wajir County to the Eastern Side

Figure 1: Administrative units for North Horr Sub County



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Administratively, North Horr Sub County is further sub divided in to five wards which include; Illeret, Dukana, North Horr, Maikona and Turbi wards. The Sub County has 16 health facilities, in which 14 of them offer full IMAM services and implement surge model to monitor the performance of both outpatient therapeutic Program (OTP) as well as well as the supplementary feeding program (SFP). Currently there are a number of partners supporting nutrition program in North Horr Sub County. They include; Concern Worldwide, Food for the Hungry, Maltester, GIZ, NHP plus, World Vision among others. Concern Worldwide through an *emergency nutrition response program* funded by OFDA as well as UNICEF funded program referred as "Improving *nutrition status and resilience for vulnerable population in Marsabit County"* is supporting the health system strengthening, community resilience as well as nutrition advocacy component in all the sub Counties in Marsabit County . Under the OFDA funded program, Concern Worldwide supports outreaches in 41 sites in North Horr Sub County from October 2017 in order to bring nutrition services closer to the community and improve nutrition coverage. In addition to BSFP targeting to reach 15,474 children under 5 years as well as 5,602 pregnant and lactating women. Currently the program is in its cycle 8 where 16,305 children under 5 years and 3,178 pregnant and lactating women have been reached.

North Horr Sub County has an estimated population of 82, 109 people, among them, 13,548 are children aged below 5 years representing 16.5% of the population.

North Horr Sub County has the highest prevalence of acute malnutrition in Marsabit County with January 2018 survey, classifying the Sub County in the **critical** (IPC phase 4) with an overall wasting prevalence

of children aged 6 to 59 months being 21.8% with 5.2% of children being severely malnourished. The prevalence of acute malnutrition based on MUAC was 3.4% while severe acute malnutrition was 0.2%. Based on February 2018, NDMA early warning bulletin, Marsabit County drought situation was at **alert** with deteriorating trend, However in March 2018, the situation has improved to the normal situation with improving trend.

1.2. Rationale of Coverage Assessment

Over the years, Marsabit County and in Specific North Horr County has experienced both acute and chronic food insecurity leading to poor nutrition status. A SMART survey conducted in January, showed that the global acute malnutrition was 21.8%, with severe acute malnutrition being 5.2%. Though there was reduction in status of acute malnutrition (GAM) compared to June 2017 SMART survey where the situation was extremely critical with a GAM of 31.0% and SAM of 5.0%, the nutrition status remains at a critical phase. A lot of interventions e.g. integrated outreaches, BSFP and protection ration program has been carried out in the Sub County since October 2017 and it will be prudent to determine whether every targeted child is reached and barriers to the program coverage.

There is no coverage assessment that has been carried out in North Horr as a sub County or Marsabit County. The last coverage assessment was carried out in Chalbi district in 2014 and cannot be extrapolated to determine the overall Sub County. The coverage assessment will also provide the information on the current status as a result of interventions that has taken place since 2014 when the last coverage was done in Chalbi district

Table 1: OTP Recommendations implementation status for 2014 SQUEAC Assessment

Recommendation	Current Status
Provide and strengthen integrated outreach services in the far to reach areas	The outreach support was not provided from June 2015 to November 2016. However, there was minimal support of the outreaches in Dukana , North Horrr and illeret with support from other partners. From Dcember 2016 to date there has been consistent support of outreaches in far to reach areas
Develop and display calendar of cultural festivals at health facility level	Fourteen out of sixteen health facilities offering IMAM services are now implementing IMAM surge. Through this approach facilities have events calendars touching on key drivers of malnutrition
Link households with malnourished children to food security programs	All children with SAM are linked to the cash transfers as well as protection ration done by WFP (From August 2017)
Sensitize the caregivers on the importance of nutrition supplies	Sensitization is going on through health education sessions

Timely incentives when CHWs are involved in extra activities e.g. mass screening and national campaigns	Not Done
Intensify JSS at health facility	Quarterly JSS done consistently in all the facilities

Table 2: SFP Recommendations implementation status

Recommendation	Current Status
Tracking of population movement and mapping	The activity has been done through the IMAM surge – trends and risk analysis done on monthly basis , however it needs to be strengthened
Identify hot spot sites and prioritize them	This has been done through mapping and remapping of outreaches to prioritize needy areas
Selection and training of CHS	Accomplished in all CUs
Selection and training of CHWs in the new CU	More than 10 community units have been established since 2014 and CHVS trained on various aspects
Updating the existing cultural festivals calendar	Accomplished
Develop distribution schedule based on the cultural festivals calendar	Has been implemented in all the outreach sites
Conduct/guide dialogue process to bring out malnutrition as a problem during CC	Discussions ongoing with CDFs to have the discussions in the CC groups
Sensitize/enlighten key community leaders on malnutrition	Ongoing though health educations

1.3. Coverage Objectives

The overall objective of the coverage assessment was to estimate the single coverage of IMAM program in North Horr sub County. Specifically the assessment aimed at achieving the following objectives;

- Estimating the coverage for OTP and SFP program in North Horr Sub County
- Identifying barriers and boosters to OTP and SFP access and coverage
- Come up with action plan on the improvement of OTP and SFP programs coverage as guided by the identified barriers and boosters
- Building the capacity of sub county government staff to assess the program access and coverage using SQUEAC methodology.

2.0. Investigation Process

2.1. Introduction

Semi Quantitative Evaluation on Access and Coverage (SQUEAC) methodology was used in the assessment. SQUEAC method is a comprehensive, iterative tool to analyze the barriers and boosters to coverage and gives estimate coverage. SQUEAC also provides succinct actions for improving access and coverage (CMN). The method is a low resource 3 stage model. It combines an array of qualitative information about access and the perception of CMAM program with small sample quantitative surveys. These surveys test hypotheses generated during the qualitative work and establish levels of program coverage in key geographical areas. This combination both identifies key issues affecting presentation and program uptake real implementation whilst also establishing the actual levels of coverage attained. Vitally, all this can be done in time, allowing the tool to be of immediate practical use to tweak program design and in response to the information obtained (Mark Mayatt 2012).

2.2. Stage One: Identification of Program Low and High Coverage Areas

In order to identify areas of high and low coverage, analysis of routine program data was done. Data was collected in all 16 sites that offer OTP and SFP program in the entire sub county for a period of 17 months (From September 2016 to February 2018). Data collected from the sites included; OTP and SFP admissions per month, admission MUAC , exits (cured, defaulters, deaths, non-responses) on monthly basis, defaulters based on their villages of residence and defaulting visits, disease calendar. Seasonal calendar was also developed by the investigation team during the first stage. Qualitative data was also collected using a number of methods and sources to a point of *sampling redundancy* as it will be described later in the report

2.2.1. Quantitative Data Collection and Analysis

Admission Trends

Analysis was also done for program admission for OTP and SFP program from October 2016, to February 2018. This was plotted as indicated in figures 2 and 3 below. A seasonal and events calendar was developed by the investigation team. The calendar included all the events that may have contributed to coverage and access of IMAM program in North Horr Sub County.

Notable spikes of admission were noted in the months of February and March which could be attributed to the peak of lean season due onset of drought resulting to low milk production among the pastoralists which forms a large proportion of livelihood source in North Horr Sub County. The spikes are also attributed to diseases outbreaks. However, there was late manifestation of malnutrition as a result of diseases. The disease included, diarrhea and malaria. There was a decline in OTP admission from May to September 2017, from the seasonal and events calendar, this period was characterized by health workers

strike that meant quite a number of health facilities remained closed as they are manned by a single health worker especially a nurse who were involved in the strike. Another surge in admissions was realized in October 2017 which can be attributed to resumption of health workers after settlement of the trade dispute between them and the government. During the same month, there was an upscale of outreaches in North Horr sub County. Finally the period is the peak lean season before the onset of short rain. The rest of the period had low admissions attributed to high admissions in October 2017.

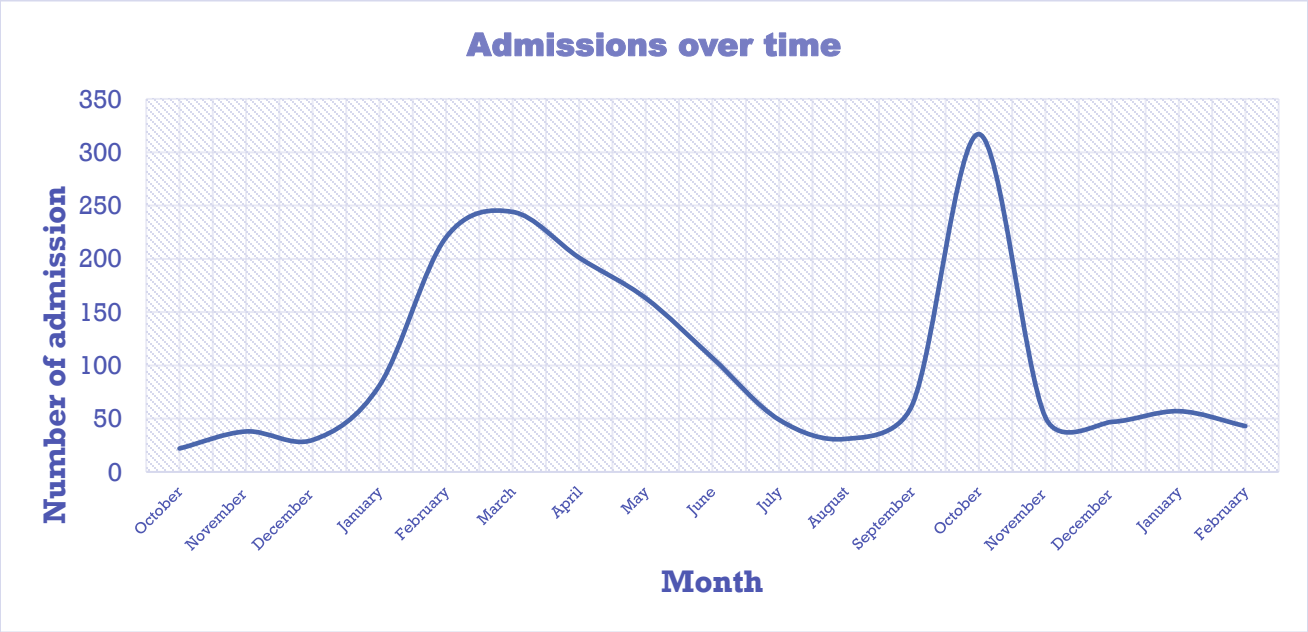

Figure 2: Admission over time for OTP (October 2016 to Febrruary 2018)

Table 3: Season and Events calendar

	2016			2017												2018	
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Milk availability																	
Rains																	
Lean Season																	
Sorio																	
Disease out breaks																	
Health worker's strike																	
Migration																	
Outreaches																	

Analysis of SFP admission revealed the same trends as OTP as illustrated in figure 3 below, with admission spikes being noted in February and March 2017 as well as October 2017 with similar explanations as the one provided for OTP program. This included, peak of drought season as well as outbreak of diseases which included malaria and diarrhea.

	2016			2017												2018	
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Milk availability																	
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Figure 3: Admission trends; SFP

MUAC on Admission

Plotting admission overtime is useful but ignores the issue of timeliness of admission. Children with MUAC below the admission criteria (<11.5cm or 115mm), or with nutrition odema should be in the program. If many of these are not in program, then program coverage is low. Children who are admitted to the program after they have met program criteria after a considerable period of time are said to be late admissions. Late admission is associated with the need for inpatient care, longer treatment, defaulting and

poor treatment out comes (including death). These can lead to poor program opinion by the host community leading to late presentation and program admission in a negative feedback cycle.

Analysis of OTP admission time indicated that majority of children are admitted in OTP early with the mean median admission MUAC being 113mm as illustrated in figure 4 below. In this regard, children admitted in OTP program are likely to have good outcome (cure). They are also unlikely to develop complications, default and take a shorter period in the program. As such, the community is likely to have a positive program opinion and hence early presentation in the program. Early admission was therefore one of the program booster in this program.

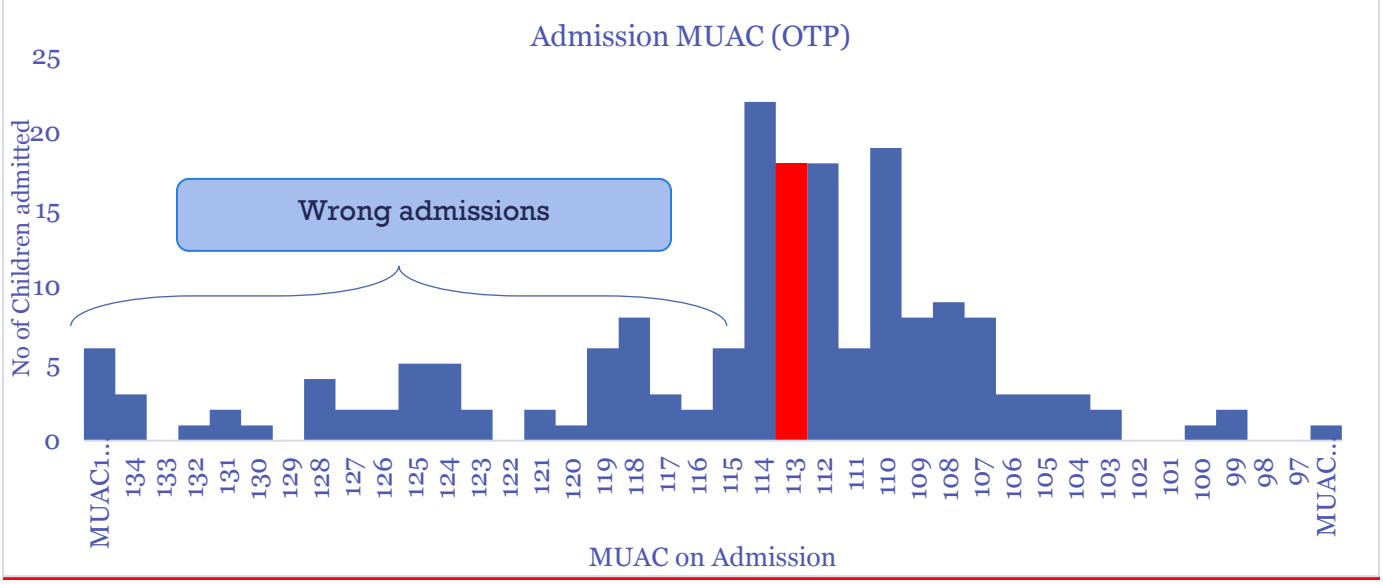


Figure 4: MUAC on Admission OTP

Similarly early admission was also noted in SFP program where the median admission MUAC was 124mm. In case of SFP the admission where MUAC is the criteria should be 125mm. similar benefits as described in OTP will be accrued in case of SFP, ultimately leading to positive opinion by the community.

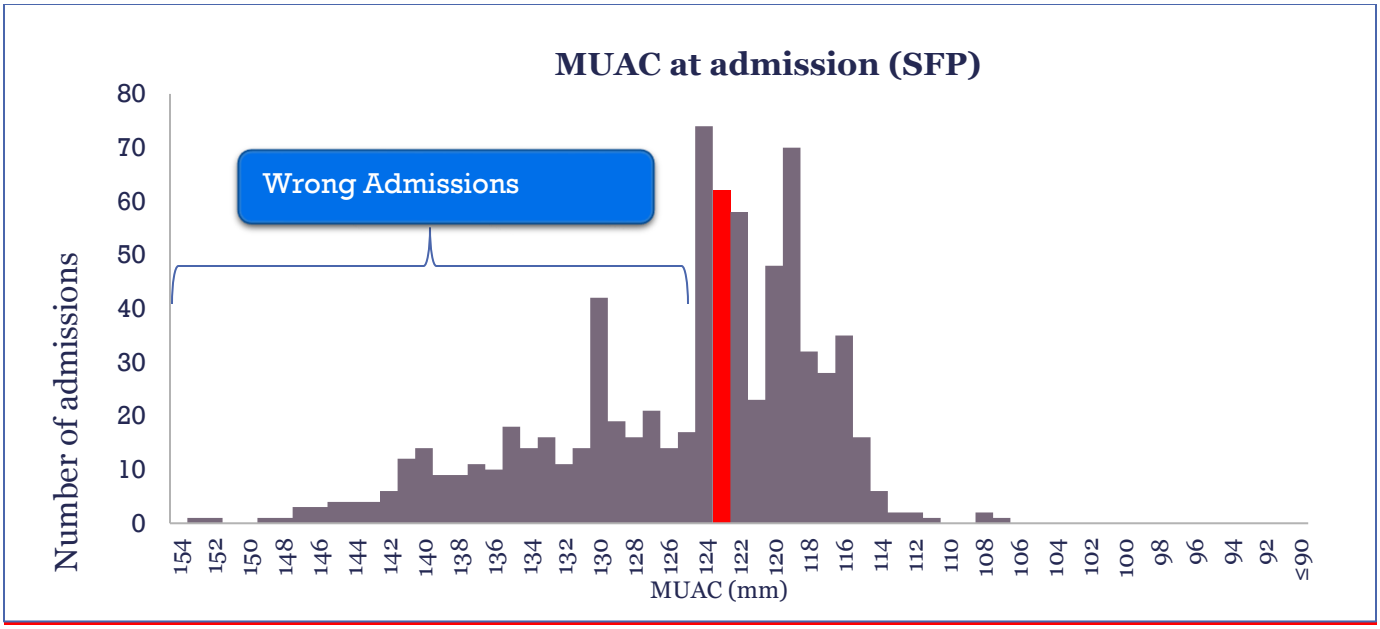


Figure 5: MUAC on admission SFP

Standard Program Indicators (Outpatient Therapeutic Program)

High number of admissions does not guarantee a good coverage. Program coverage should be determined by examination of program exists. High defaulting rate is associated with low program coverage. When plotted overtime, a healthy program in which the sphere standards are being met have the cure line along the top of the graph while the defaulter and the death line at the bottom of the graph in a mirror image. In case the percentage of defaulters is more than 15%, then there is a cause of concern. Cure line should be above 75% while death line should be below 10%.

As illustrated in figure 5 below, the OTP program cure rate surpassed the 75% threshold. The average cure rate was 82% while the defaulter rate was 12%. This was slightly below 15% threshold.

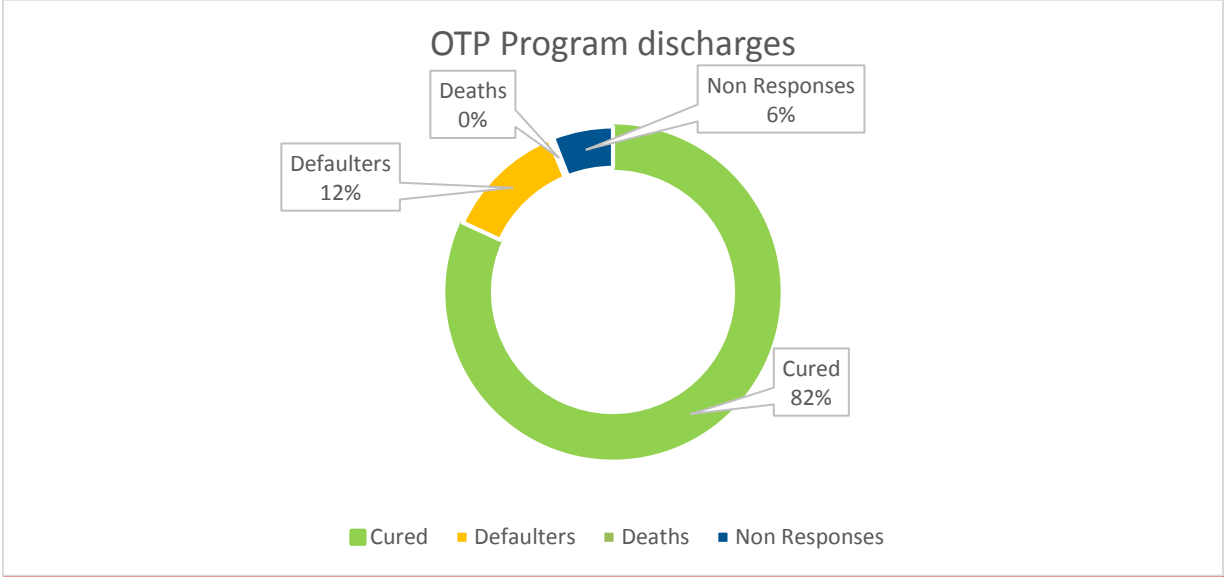


Figure 6: Program Outcome_OTP

Further analysis on exits overtime indicated that the cure late was not uniformly above the 75% cureline as illustrated in figure 6 below. The most affected period was between May and September 2017 where even the non-responses increased. This can be majorly attributed to the health workers strike that made majority of the health facilities nonfunctional due to absence of the health workers.

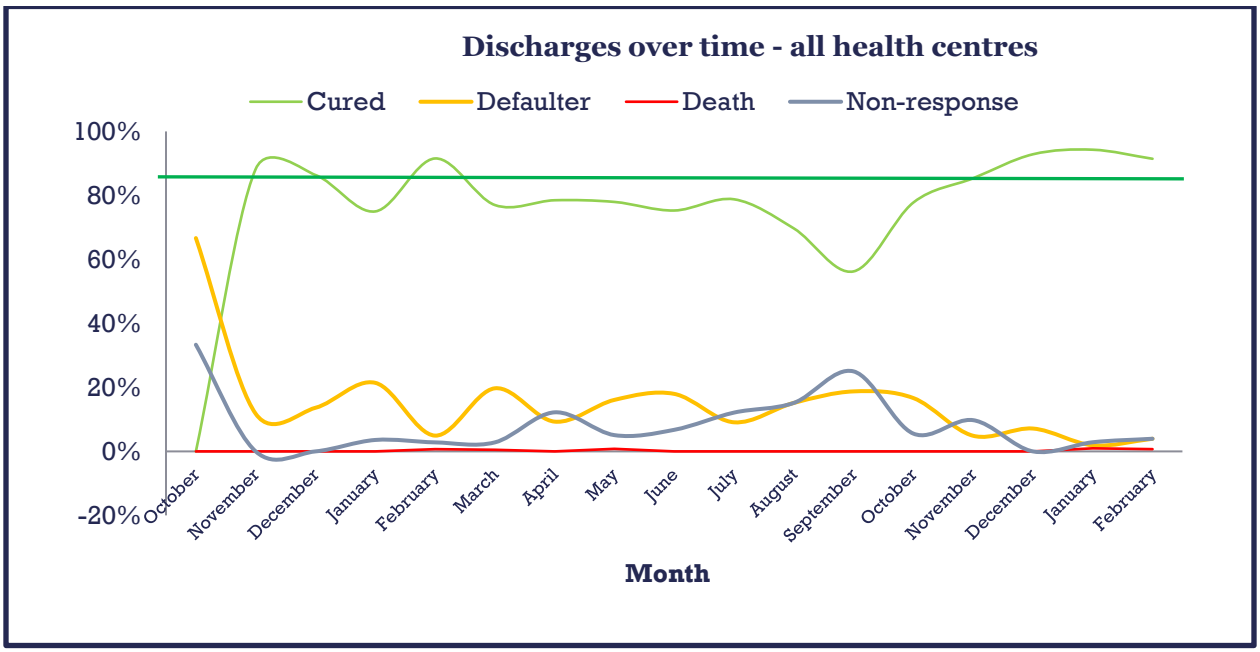


Figure 7: Program Exits- OTP

Program Exits (Supplementary Feeding Program)

In case of supplementary feeding program, the program performed below the SPHERE threshold with average cure rate being 58%. Defaulting was a major program where it surpassed 15% threshold as shown in figure 7 below. The non-response rate was equally high at 15%. Defaulter rate was quite high in June to October 2018 which was the peak of health workers strike.

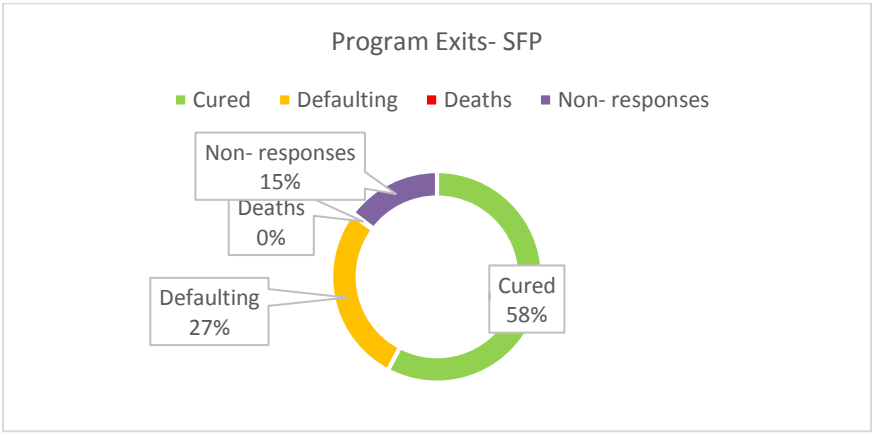


Figure 8: Program exits (SFP)

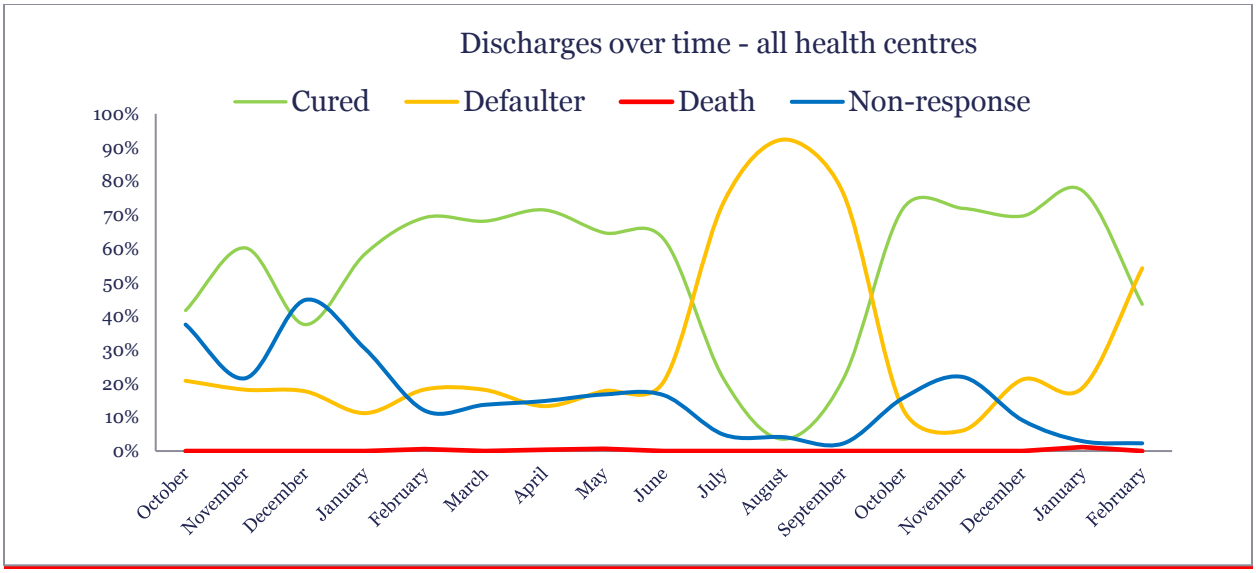


Figure 9: Program discharges Oct 2016 to Feb 2018 (SFP)

Program Defaulting

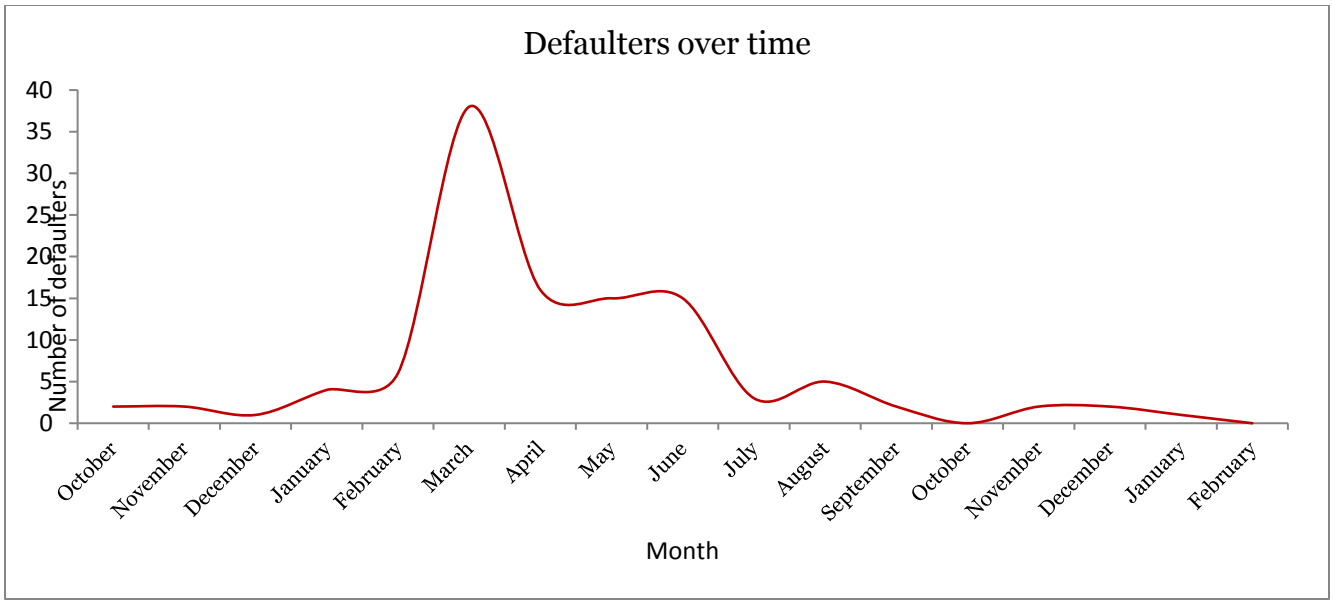
Program defaulting is a major barrier to both therapeutic and supplementary feeding programs. Defaulting interferes with program effectiveness as well as contact coverage (people that use a service). Defaulters are children who were enrolled into the programme, but have missed two consecutive visits. High defaulting rates are an indication of poor program coverage. IMAM program indicators should show a consistently low rate of defaulters. Program defaulter rates might vary over time, this might be due to deterioration in the security situation, leading to reduced access and availability of services, impacts of climatic conditions e.g. droughts, floods etc. that affect how populations can access services or patterns of labor demand. Therefore, the graph of the defaulters should be compared to the seasonal calendar of the region.

When the program has a high number of defaulters it will be important to know when the beneficiaries defaulted from the program. Another way of investigating defaulting is totally or plot the number of visits to the clinic that were made by defaulters. When many children default early (1 to 2 weeks), they are likely to be current SAM/MAM cases. When they default late (6 to 8 weeks) signifying low coverage, they are likely to be recovering cases.

Defaulting Trends

Outpatient Therapeutic Program (OTP)

As indicated in program exits section, the average defaulting for OTP was 12.0%. Though it was slightly below the 15% SPHERE threshold, defaulting was noted to be one of the program barrier. Comparing the defaulting trends with seasonal and events calendar shows that there was a defaulting spike in March and April 2017. During this season, there were traditional ceremonies commonly known as *sorio*. During the ceremonies, migration is experienced leading to defaulting as illustrated in figure 9 below. The most affected sites included Balesa, Elhadi and Illeret health facilities. The median defaulting time was 8 weeks this means majority of the OTP defaulted while almost recovering, this is relatively positive to the program as the children are likely to cure leading to positive opinion towards the program.



	2016			2017												2018	
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Milk availability																	
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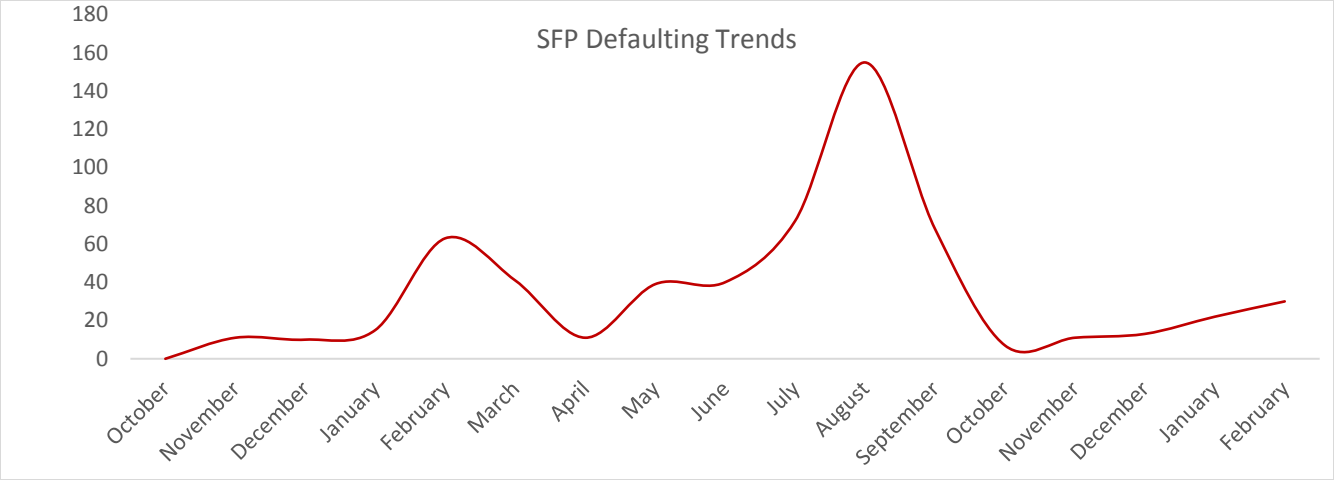
Migration																	
Outreaches																	

Figure 10: Defaulting trends in relation to seasonal and events calendar

Supplementary Feeding Program (SFP)

Defaulting was a major challenge in SFP program. The average default rate for the assessment period was 27% which was way above the minimum SPHERE threshold (15%). Defaulting spikes were noted in February to April 2017. This can be attributed to traditional ceremonies just like in the case of OTP program. Further, there was a great spike in July to September which can be attributed to prolonged drought where the community migrated in search of pasture as well as health workers strike. The trend resumed to normal after health workers resumed their work. There was also scale up of outreaches from October 2017 which contributed to reduction in defaulting cases in the sub county as illustrated in figure 11 below.



	2016			2017												2018	
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Figure 11: Defaulting trends in relation to seasonal and events calendar

Length of Stay

Length of stay refers to the duration between the admission and discharge from the program. It is the duration of treatment episode (Mark Mayatt 2011). Long treatment episodes can be attributed to late admission or poor adherence to the treatment protocols. Programs with long treatment episodes tend to be unpopular with beneficiaries and tend to suffer from late treatment seeking and high defaulting rates.

The duration of treatment episode can be investigated using a tally plot. The tally plot makes it easier to see the distribution of the duration of treatment episodes and to calculate the median duration of treatment episodes. The *median* is the value that divides the distribution into two equally sized parts. It is not appropriate to use the arithmetic mean to summarize the duration of treatment episodes, since the arithmetic mean is strongly influenced by extreme values. Higher coverage programs tend to have a median duration of treatment episodes of less than or equal to about 8 weeks.

Length of Stay (Outpatient Therapeutic Program/Supplementary Feeding Program)

Analysis of length of stay for OTP indicated that the median length of stay for the program was 8 weeks which is appropriate for OTP. Quite a number of children stayed in the program for 12 weeks or more as illustrated in figure 11 below. Similarly for SFP program, the length of stay was 8 weeks. This is also positive to the program as the program length of stay should be 16 weeks. Analysis of defaulting cases

also showed that the median length of stay before defaulting was also 8 weeks. This is positive and a booster to the program coverage as such cases are likely to be recovering cases as opposed to those who default early in the program who are likely to be active cases. In case of SFP, the median length of stay was 6 weeks indicating early defaulting which is negative to SFP.

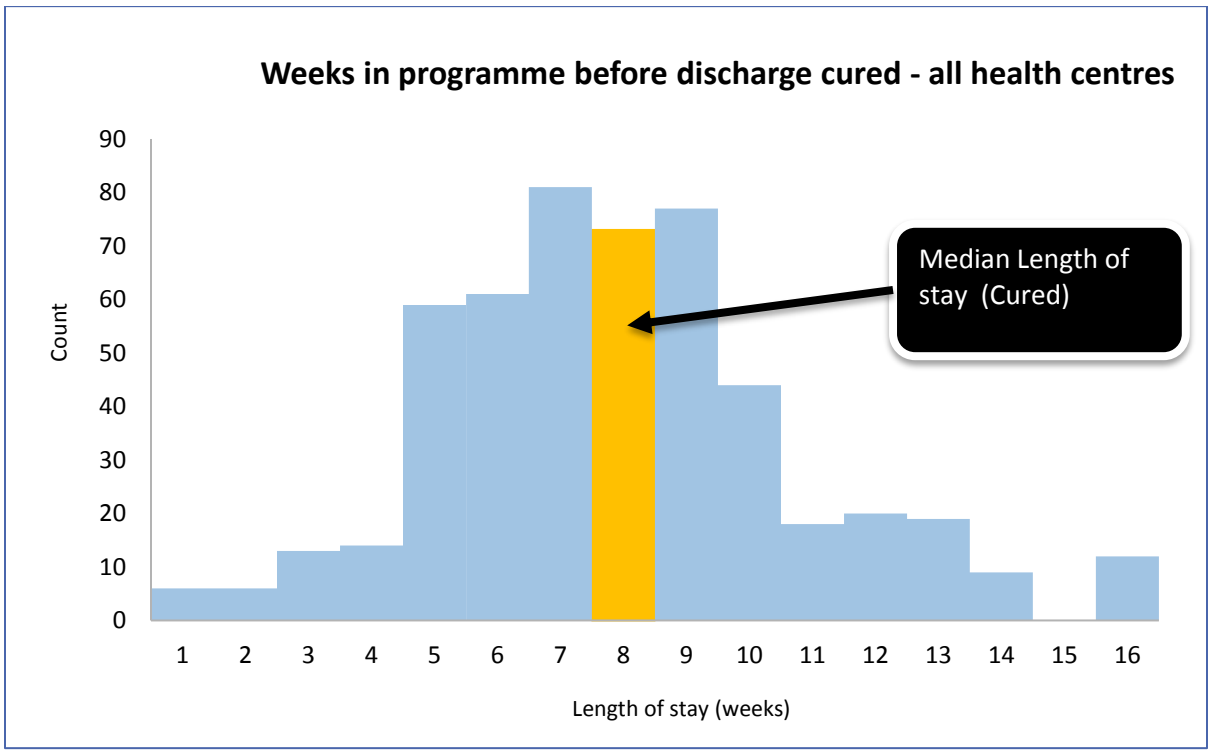


Figure 12: Length of stay for OTP

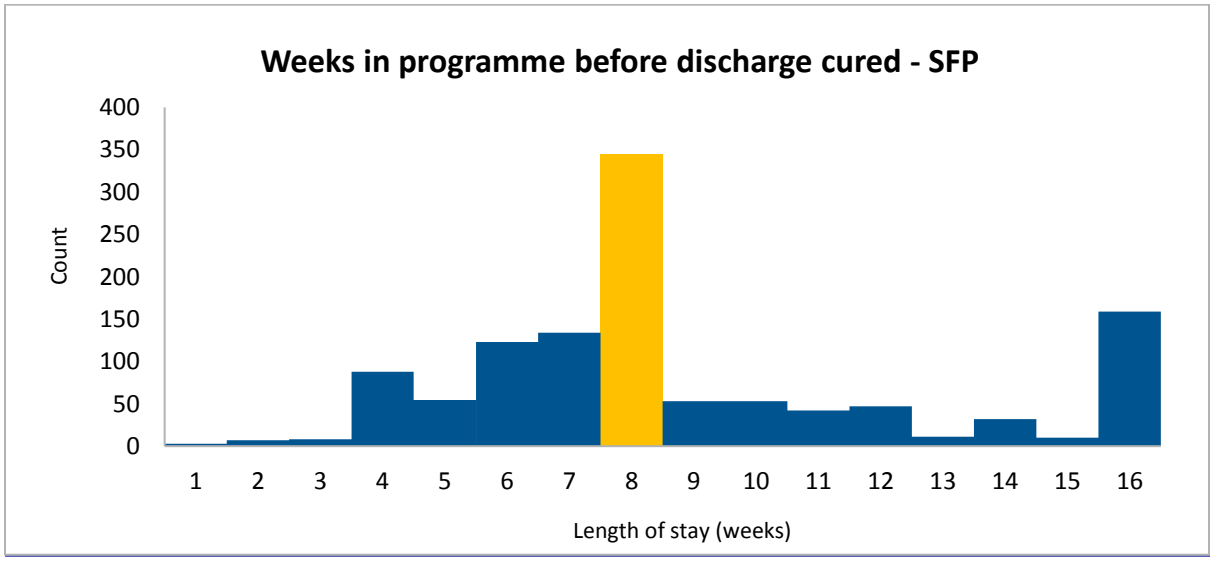


Figure 13: Length of stay (SFP)

Program Documentation

Program documentation is one of the factors that affect coverage. When properly done it is a booster to the program as it assist the program staff to keep track of children admitted in the program and informs them as to whether the program is achieving its objectives (good program outcomes i.e. children get cured with minimal defaulting or death within the shortest time) or not. During the assessment, program documents were interrogated to establish whether there were documentation gaps. From the analysis the gaps that were identified included; missing data in the primary data sources (OTP and SFP registers) especially the discharge information. In such cases, it was a bit difficult to establish how such children exited the program. In one of the health facility, admission date was not chronologically arranged as it should be. For example, children admitted in the program in October 2017 appeared in the register before those admitted in August 2017. In some cases admission criteria at the registers was indicated as MUAC whereas the MUAC taken at admission was more than 12.4 cm for SFP and 11.4cm for OTP indicating wrong admission as illustrated in figures 4 and 5 (MUAC on admission). Finally in a number of health facilities, length of stay was calculated for children who left the program as defaulters or non-responses. This should be calculated for cured children only.

Outreach Coverage

North Horr Sub County has 61 outreach sites supported by 4 nutrition partners. The partners supporting nutrition outreaches include; Concern Worldwide, Food for the hungry Kenya, Kenya Red Cross, Malteser and NDMA. The longest distance from the health facility to the outeach site was 100 km, while the shortest distance was 6 km. Annex I shows the outreached supported by the County government and partners in North Horr Sub County as mapped in March 2017. It also shows the distances from the health facilities to the outreach sites.

2.2.2. Qualitative Data (Community Assessment)

Four survey teams collected qualitative data from the community level. Each team comprised of 2 members. Three methods were used to collect qualitative information. Qualitative information collected was triangulated using different sources. The methods used to collect qualitative information included;

Semi structured interviews: where the facilitators engaged one on one with the respondents using interview guide that were prepared in advance. Initially the facilitators were trained on how to probe the information from the respondents. Semi structured interviews were used to identify individual thoughts perceptions and feelings towards topics such as health workers views on IMAM services, disease calendar, defaulting information, opinion on program including challenges and ways to improve on IMAM program The respondents included; health facility in charge/program staff, carers of children in program, NGO agents and program staff.

Informal group discussions: The facilitators engaged groups of people who included separate and mixed groups of men and women, community leaders, carers of program beneficiaries, CBRAs and community leaders. The facilitators deeply probed the respondents on a given topic until no more information came. If new information came around, it formed the basis of questioning in the next group of respondents. Triangulation was done with other methods and sources

Observations: An observation is a process of systematically observing objects, events, people and/or relationships. It is an essential qualitative data collection tool on the community behaviour, which cannot be collected otherwise. It allows for a more complete understanding of the community and its context. In The observation at health facilities focused on the quality of service, the availability of RUTF, client

interactions, etc. An observation checklist was also used to collect information regarding; the presence of IEC materials, RUTF stock, OTP registers and ration cards and also program organization.

Qualitative information was analyzed to identify program barriers and boosters as well as areas of high and low coverage.

2.2.3. Booster, Barrier and Question (BBQ) Development

The BBQ is a simple tool, which allows the assessment team to organize key elements, representing factors with a positive or negative effect on access and coverage, in a table format and triangulate each by source and method. It helps the team to visualize the problematic and its recurrence in key informants' answers. In consequent stages, the factors with the highest periodicity are weighted higher than elements mentioned occasionally.

The use of the BBQ tool was be initiated on the first day of the community assessment, revised and modified each following day. BBQ listing was done on daily basis. Upon arrival of all teams from the field, all identified barriers and boosters were presented and discussed during a feedback session facilitated by the team leader. The BBQ is a very organic tool, demanding constant redrafting as teams add new data, combine it or discard invalidated findings. Once the final list of barriers and boosters is established and all sources, methods and demographic information are noted, the team can proceed with the weighting of individual elements in order to prioritise which are the most important barriers and boosters impacting on coverage, which comes at the end of Stage 2

Simultaneously, the team leader copied each barrier and booster onto a flipchart paper, adding sources and methods every time they are mentioned by the teams. Owing to the fact that certain barriers and boosters are likely to be cited numerous times, a legend of barrier, booster methods and sources was developed as illustrated in table 4 below. If, at the end of the day, certain barriers and boosters were mentioned only once, they were shifted to another flipchart entitled Questions. These points were further investigated and should be kept in mind for the next day's data collection.

Table 4: BBQ Legend

Source	Symbol	Method	Symbol
CHV	A	Informal group discussion	@
Nutritionist	B	Semi structured Interviews	&
Health worker	C	Observation	*
Lay people	D		
Health Facility data[1]	E		
Community leaders	F		
Carers of beneficiaries	G		
CBRAs	H		
Religious Leaders	J		
NGO agent	K		

Outpatient Therapeutic Program (OTP) Barriers and Boosters

Table 5: OTP Boosters

Booster	Sources	Methods	Weight

[1] Health facility data is quantitative and not one of the qualitative data source. It was however used for BBQ development

Presence of outreaches	A(2), C,D,G	@,&	5
Wholesome IMAM services	A(2)	@	2
Good CHVs and Health workers relationship	A(3), C, G, F, K	@,&	1
Feed backing to the CHVs by the health workers	A(2)	@	1
Positive opinion on IMAM Program	A (2), B,F(2), G(4), J	@,&,	4
No selling or Sharing of RUTF	A,F,G	@,&	2
CHVs and HWs have been trained on IMAM	A, C (2), K	@,&,	2
Presence of partners to support IMAM program	B,G, K	&	3
Cash transfers programs going and protection ratio	B,G,F,J	&	3
Mass screening going on	C,F (2)	@,&!	3
Good Health seeking practices	D,F,G	@,&	3
Good understanding of malnutrition signs	D,G	@	1
Awareness of IMAM Services	F(2),G(3), H	@,&	2
No Stock outs	D(2), F(3)G(2)	@,&	2
Measures in place to prevent selling or misuse of RUTF/RUSF	G,C	@,!	1
Defaulter follow ups	A(3), K	@	1
Incentives for CHVs (Payments, community appreciation and trainings)	A (4),C,K	@	3
Active case findings in the community	G,C,A(2),K,D	@,&,!	1
Short waiting time at the health facility	G(3)	@,&	2
No stigma attached to IMAM	D,G,J	@,&	2
Linkage of OTP to BSFP	K	!	1
Early program admission	E	*	2
Good length of Stay	E	*	2
Total			**50**

Outpatient Therapeutic Program Barriers (With Weights)

Table 6: OTP Barriers

Program Barriers	Source	Method	Weighted Score[2]
No routine case findings	A(2), C(3),D(2),G	@,&	2
Migration (which leads to defaulting)	A(4), B,D,G(2), C(2)	@,&	4
Distance to the IMAM sites	A(2), G,F	@	3
No incentives for CHVs (some have dropped)	A	@	1
Difficulty in travelling to outreach sites during rain seasons	A	@	2
Alcoholism (leads to poor child care and misuse of RUTF)	A, B, C	@,&	2
Food insecurity (Leading to sharing of RUTF	B,C(2),G	@,&	2
Sharing of RUTF	B,C,G,F	@,&	2
Selling of RUTF	B	&	1
High workload at the health facilities and staff absenteeism	B, C(2), G, K	!,@,&	4
Stabilization center not equipped where it is needed	C	&	1
Health workers not trained on inpatient management of acute malnutrition	C	&	1

[2] Weighting done based on the strength of barrier to impact on coverage. Highest value (5) was given to the barrier perceived by the investigators to have the highest impact while the lowest value (1) given to the barrier perceived to have least impact to the program coverage

IMAM services are majorly partners dependent	C	&	4
Poor documentation	E,K,	*!	5
Poor usage of RUTF	D	@	1
Inadequate services to the clients e.g long waiting time and lack of counselling	G(3)	@	2
Referral slips, MUAC tapes are not provided to CHVs for screening and referral at the community level	A(2), C	@,&	2
Negative opinion towards IMAM program	A, C	@,&	2
Lack of Knowledge on IMAM documentation by CHVs	A	@	2
Competing activities for the CHVs (Personal issues)	A	@	1
Lack of IMAM services knowledge by CBRAs	H, A, J	@,&	1
Negative opinion towards RUTF	G, C	@, &	1
Little and delayed CHVs Payment	A(2), C	@,&	2
Irregular OJTs	C	!	1
No defaulter tracing is done	C	!	2
Poor documentation in most of the health facilities	E	*	3
Total			**54**

SFP Boosters (with weights)

Table 7: SFP Boosters

Booster	Source	Method	Weight
Presence of outreaches	A(2), C,D,G	@,&	5
Wholesome IMAM services	A(2)	@	2
Good CHVs and Health workers relationship	A(3), C, G	@,&	1
Feed backing to the CHVs by the health workers	A(2)	@	1
Positive opinion on IMAM Program	A (2), B,F(2), G(4), J	@,&,!	4
No selling or Sharing of RUSF	A,F,G	@,&	2
CHVs and HWs have been trained on IMAM	A, C	@,&	2
Presence of partners to support IMAM program	B,G	&	3
Cash transfers programs going on	B,G,F,J	&	3
Mass screening going on	C,F	@,&	3
Good Health seeking practices	D,F,G	@,&	3
Awareness of IMAM Services	F(2),G(3), H	@,&	2
Presence of protection ration	D	@	1
No Stock outs	D, G(3)	@,&	2
Defaulter follow ups	A(2)	@	1
Incentives for CHVs (Payments, community appreciation and trainings)	A (2)	@	2
Active case findings in the community	G,C,A(2),K,D	@,&,!	1
Short waiting time at the health facility	G(3)	@,&	2
No stigma attached to IMAM	D,G,J	@,&	2
Linkage of SFP to BSFP	K	!	1

Early program admission	E	*	2
Good length of Stay	E	*	2
Total			**46**

SFP Barriers (With weights)

Table 8: SFP Barriers

Program Barriers	Source	Method	Weighted Score
No routine case findings	A(2), C(3),D(2),G	@,&	2
Migration (which leads to defaulting)	A(4), B,D,G(2), C(2)	@,&	4
Distance to the IMAM sites	A(2), G,F		3
No incentives for CHVs (some have dropped)	A	@	1
Difficulty in travelling to outreach sites during rain seasons	A	@	2
Alcoholism (leads to poor child care and misuse of RUSF)	A, B, C	@,&	2
Food insecurity (Leading to sharing of RUSF	B,C(2),G	@,&	2
Sharing of RUSF	B,C,G,F	@,&	2
High workload at the health facilities and staff absenteeism	B, C(2), G, K	!,@,&	4
IMAM services are majorly partners dependent	C	&	4
Poor documentation	E,K	*,!	5
Inadequate services to the clients e.g long waiting time and lack of counselling	G(3)	@	2
Referral slips, MUAC tapes are not provided to CHVs for screening and referral at the community level	A(2), C	@,&	2
Negative opinion towards IMAM program	A, C	@,&	2
Lack of Knowledge on IMAM documentation by CHVs	A	@	2
Competing activities for the CHVs (Personal issues)	A	@	1
Lack of IMAM services knowledge by CBRAs	H, A, J	@,&	1
Little and delayed CHVs Payment	A(2), C	@,&	2
Irregular OJTs	C	!	1
No defaulter tracing is done	C	!	2
Poor program outcomes (With low cure rate and very high defaulting rate	E	*	3
Total			50

2.2.4. Program Concept Maps

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 (Mark Mayyat 2011). Qualitative and quantitative data collected was further analyzed and organized in a concept map as shown in figures 13 and 14 below. The investigation team linked barriers and boosters in to 2 concepts maps i.e. OTP and SFP

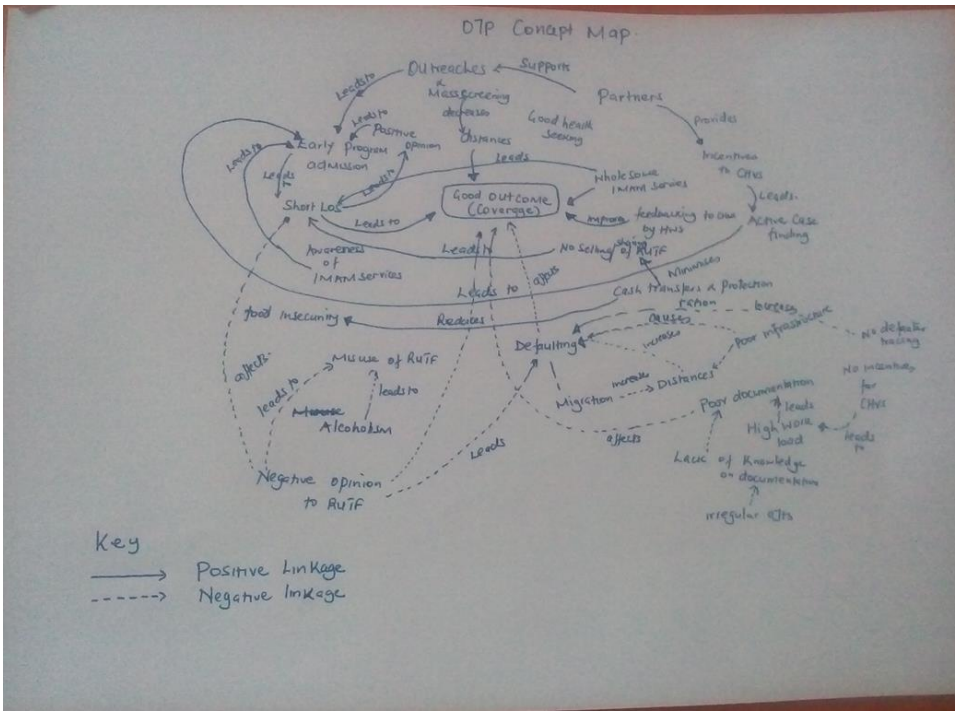


Figure 14: OTP Concept map

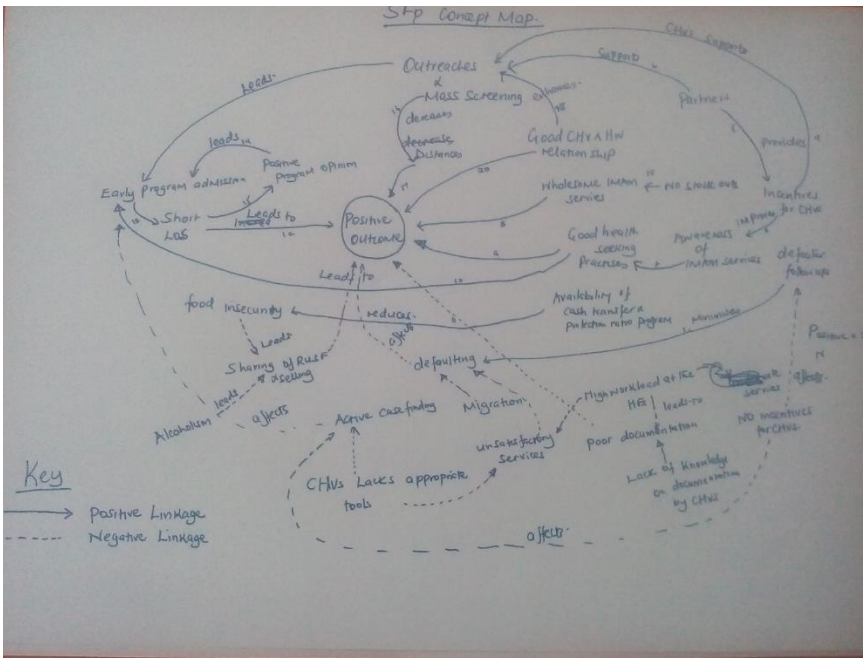


Figure 15: SFP Concept Map

2.3. Stage 2: Coverage Hypothesis formulation and Testing

The objective of this stage was to confirm areas of high and low coverage based on the data collected from stage 1.

The hypothesis formulated:

Villages that have high migration have low IMAM coverage while those with low migration have high IMAM coverage
The rationale for this hypothesis was;

- ✓ Defaulting was a major barrier especially in SFP program
- ✓ Migration was cited as a major contribution to defaulting in both OTP and SFP program.
- ✓ Even though outreaches were frequently done in most health facilities, active case finding was not adequate based on qualitative information collected.

This hypothesis was tested using the Simplified LQAS formula; d= In/2I in comparison with 50% SPHERE threshold for rural areas.

2.3.1. Small Area Study

A small area study was conducted in two purposively selected villages; one which was affected by migration (Manyatta Father). This village was classified as low coverage village. The second village (Malabot) was less affected by migration and was classified as high coverage village. Two teams (each with 4 members), visited the two villages. Each team was provided with a MUAC tape and a packets of RUTF and RUSF. When they reached the village, they looked for a key informant who lead them to household of caregivers of children under five years of age where they asked whether they were aware of any program that treat malnutrition. They confirmed by showing them MUAC and RUTF.

Small area Study Results

Table 9 and 10 below summarizes the small area study results

Table 9: Small Area Study Results (OTP)

Purposively sampled villages	**Characteristic(s)**	**No of SAM cases in program**	**No. of SAM cases not in program**	**Total SAM Cases**
High coverage village (Malabot)	Village not affected by in or out migration	1	0	1
Low coverage village (Mayatta Father)	Village affected by migration	1	4	5
Purposively sampled village	**LQAS Survey parameters**	**LQAS Analysis**	**Conclusion**	
High coverage village (Malabot)	Program coverage standard (p)	50%	No of SAM cases in program = 1. 1>0	Hypothesis is confirmed that Malabot is a high coverage village
	Decision rule (d)	d= [1/2]= 0.5 = 0		
	No of SAM cases in program	1		
Low coverage village (Mayatta Father)	Program coverage standard (p)	50%	Number of SAM caes in program is 1 1<2	The hypothesis is confirmed that Manyatta Father is a low coverage village
	Decision rule (d)	d= [5/2] = 2.5 =2		
	No of SAM cases in program	1		

Table 10: Small Area Study Results (SFP)

Purposively sampled villages	Characteristic(s)	No of MAM cases in program	No. of MAM cases not in program	Total MAM Cases
High coverage village (Malabot)	Village not affected by in or out migration	3	1	4
Low coverage village (Mayatta Father)	Village affected by migration	2	3	5
Purposively sampled village	**LQAS Survey parameters**	**LQAS Analysis**	**Conclusion**	
High coverage village (Malabot)	Program coverage standard (p)	50%	No of MAM cases in program = 3. 3>2	Hypothesis is confirmed that Malabot is a high coverage village
	Decision rule (d)	d= [4/2]= 2		
	No of MAM cases in program	3		
Low coverage village (Mayatta Father)	Program coverage standard (p)	50%	Number of MAM caes in program is 2 2 = 2	The hypothesis is not confirmed that Manyatta Father is a low coverage village
	Decision rule (d)	d=[5/2]= 2.5= 2		
	No of MAM cases in program	2		

2.4. Prior Development

The analysis of routine program data (quantitative), qualitative data and the findings of small area survey provided a numerical representation of a belief about the program coverage (prior). Program barriers and boosters were organized and weighted based on the number of sources. Qualitative data was categorized as booster (positives) or a barrier (negatives) to the program. The prior mode was determined as an average of boosters (build up from 0%) and barriers (knock downs form 100%) as shown in the table below. Four Methods were used to determine the prior mode. They included; simple barriers and boosters, weighted barriers and boosters and concept map which were described earlier. Histogram which method was also used. This is a "best" coverage estimate by the investigators as illustrated in figure 15 below.

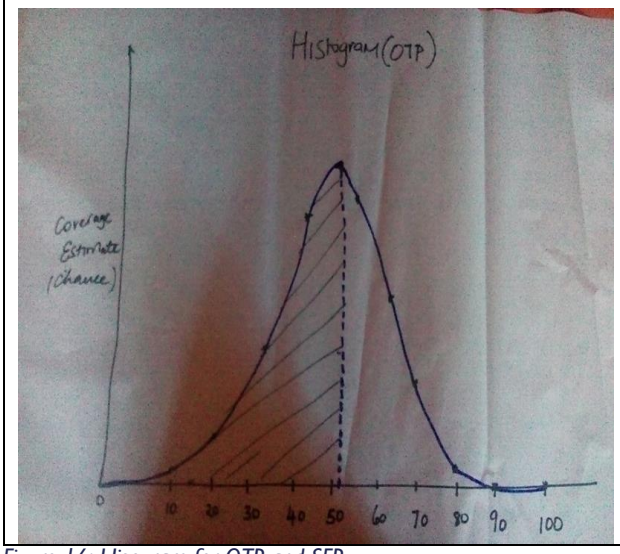
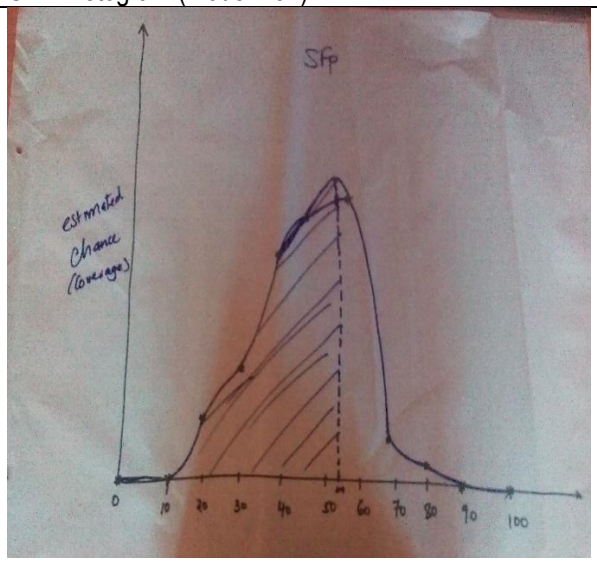
OTP Histogram (Mode= 52)	SFP Histogram (Mode = 54)
	

Figure 16: Hisogram for OTP and SFP

Table 11: OTP prior mode calculation

	BOOSTERS	BARRIERS	Prior mode (%)
Simple BBQ	23	26	48.5
Weighted BBQ	50	54	48.0
Community BBQ			
Concept map	18	17	50.5
Histogram			52.0
Averaged Prior mode			**49.8**

Table 12: SFP prior mode calculation

	BOOSTERS	BARRIERS	Prior mode (%)
Simple BBQ	22	21	50.5
Weighted BBQ	50	54	48.0
Community BBQ			50.0
Concept map	22	16	53.0
Histogram			54.0
Averaged Prior mode			**51.1**

The above information was fed in SQUEAC bayes calculator to come up with Bayes plots. This was done by adjusting the α and the ß values of Bayes calculator until the prior mode (49.8 and 51.1) was achieved.

Figures 16 and 17 below illustrates the Bayes plots for SFP and OTP. The plots are graphical representation of estimated coverages based on the information so far collected in stage 1 and 2.

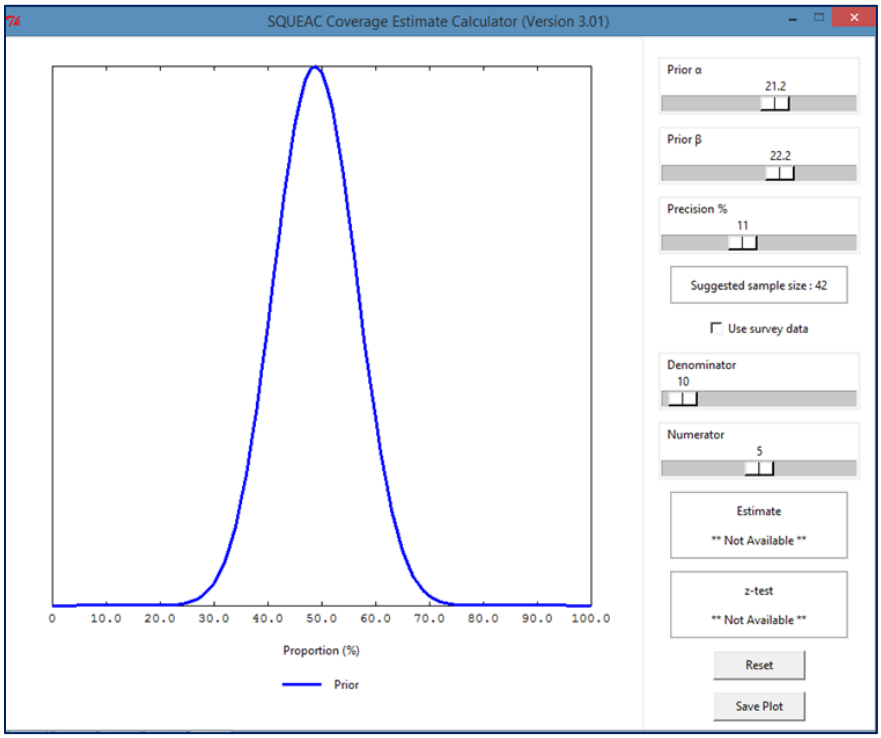


Figure 17: Bayes plot; OTP

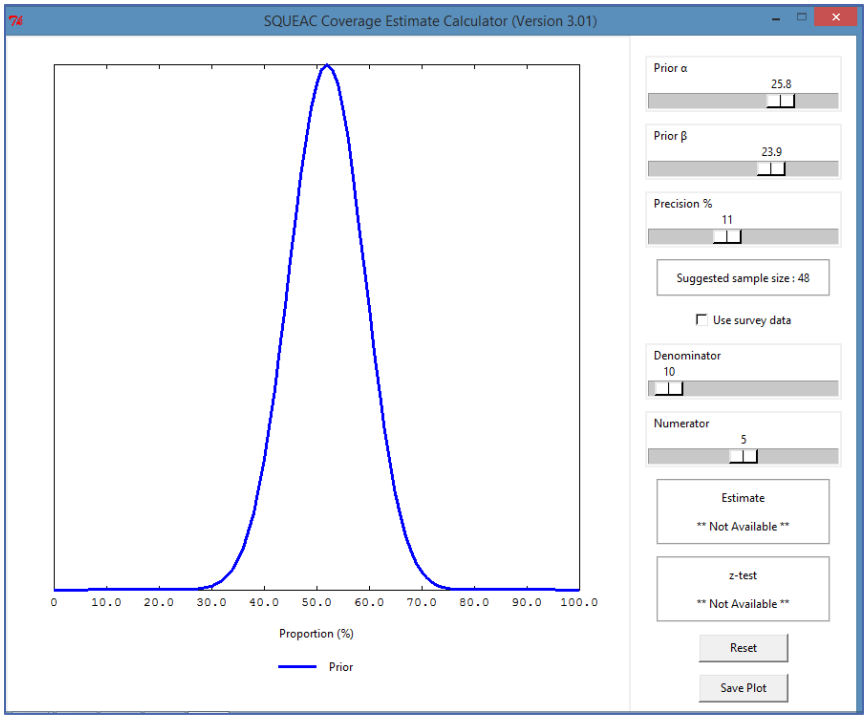


Figure 18: Bayes plot (SFP)

2.5. Wide Area (Likelihood) Survey)

Once the prior mode had been finalized and its shape parameters entered into the Bayes calculator (a recommended sample size was be generated. This figure is the recommended minimum number of acutely malnourished children which need to be found during the likelihood survey to achieve the desired level of confidence in the posterior, or the overall coverage estimate.

2.5.1. SAM Sample size calculation

The following formula was used for sample size calculation

$$n = \left(\frac{mode\ (1 - mode)}{\frac{(Precision)^2}{1.96}} \right) - (\alpha - ß - 2)$$

Where n = Sample size (No of SAM/MAM cases)

Mode = 49.8

Precision = 11% (Recommended by Fanta SQUEAC technical guide

α = 21.2 (from bayes plot

ß= 22.2 (From bayes plot)

Therefore;

$$n = \left(\frac{0.498\ (1 - 0.498)}{\frac{(0.11)^2}{1.96}} \right) - (21.2 - 22.2 - 2)$$

$n = 41.9 \approx$ 42 SAM cases

Since it was logistically impossible to search the cases in the entire sub county, it was prudent to randomly sample a number of villages where such cases were to be found. The number of villages was depended on the number of cases, average population per village, proportion of children 6- 59 months in the population as well as the current estimate of SAM prevalence by MUAC as summarized in the formula below.

$$n\ villages = \frac{n}{[average\ village\ population * (\%Children\ 6 - 59m) * \%\ SAM\ Prevalence\ by\ MUAC}$$

Where n = 42

Average village population = 570

% children 6 – 59 m = 16.5

SAM prevalence by MUAC = 0.2%

Therefore;

$$n\ villages = \frac{42}{[570 * (0.165) * 0.02}$$

$$n\ villages = 22$$

The same formula was used in calculation of MAM sample size as follows;

$$n = \left(\frac{mode\ (1 - mode)}{\frac{(Precision)^2}{1.96}} \right) - (\alpha - ß - 2)$$

Where mode= 51.1%, Precision = 11%, α= 26.1 and ß= 20.8

$$n = \left(\frac{0.51(1-0.51)}{\frac{(0.11)^2}{1.96}} \right) - (26.1 - 20.8 - 2)$$

n= 33.4 ≈34 MAM cases

In case of MAM;

$n\ villages = \frac{34}{[507*(0.165)*0.032}$ = 11 villages

2.5.2. Sampling Method

Two stage sampling was applied in likelihood survey. Stage 1 involved selection of villages (smallest administrative units) based on the health facility catchments. Since a recent village list based on the health facility catchment was available spatially stratified systematic sampling was used in this stage. Each village was linked to a health facility catchment. In Total there were 160 villages in North Horr Sub County. This was divided by the number of villages calculated in section 2.5.1. That is 22 (The highest among SAM and MAM) villages to obtain a sampling interval of 7. The first village was randomly selected between 1 and 7. In this case the first village was village 1 (Diba Okotu) from the list. The 2nd village was sampled as 7th village from village 1 and that continued until the 22nd village was sampled.

In stage 2 active case finding was used where MAM and SAM cases were actively searched from the sampled villages. The survey was carried out in 22 villages for 4 days, however due to heavy rains 2 villages were not reached. All children 6 to 59 months had their MUAC measured. Those children who met the admission criteria for SAM (MUAC< 115mm) and MAM (MUAC ≥115mm and < 125mm) and were not in program were referred to the nearest health facility. Four teams each with 2 measurers were involved in the data collection. Fifty nine (59) SAM cases and 90 MAM cases were identified as summarized in table 13 below.

Table 13: Likelihood survey Results

SAM Cases	Number	MAM Cases	Number
SAM cases in program (Ci)	28	SAM cases in program (Ci)	56
SAM cases not in program (Cout)	17	SAM cases not in program (Cout)	24
Recovering cases in program (Rin)	12	Recovering cases in program (Rin)	10
Recovering cases not in Program (Rout)	2	Recovering cases not in Program (Rout)	0
Total	**59**		**90**

2.6. Single Coverage Estimate

Single coverage estimator was used to estimate the program coverage. Single coverage estimator includes both recovering cases that are admitted and those that are not in the program as illustrated below.

$$Single\ Coverage = \frac{Ci + Ri}{Ci + Ri + Cout + Rout}$$

Where Ci= Active cases in program

Cout= Active cases not in program

Ri= Active cases not in program

Rout = Active cases not in program

Sum of Active and recovering cases in program was used as the numerator (40 for SAM and 66 for MAM) while Active and recovering cases in and out of OTP program (59 for SAM and 90 for MAM) was used as a denominator. This information was fed in a Bayes Coverage Estimator Calculator. Combining prior estimate and likelihood information in the calculator generated a posterior which showed the overall coverage for OTP in North Horr Sub County as 60.0% (50.2- 68.6) for OTP and 66.5 %(58.2- 73.7) for SFP as illustrated in figure 18 and 19 below.

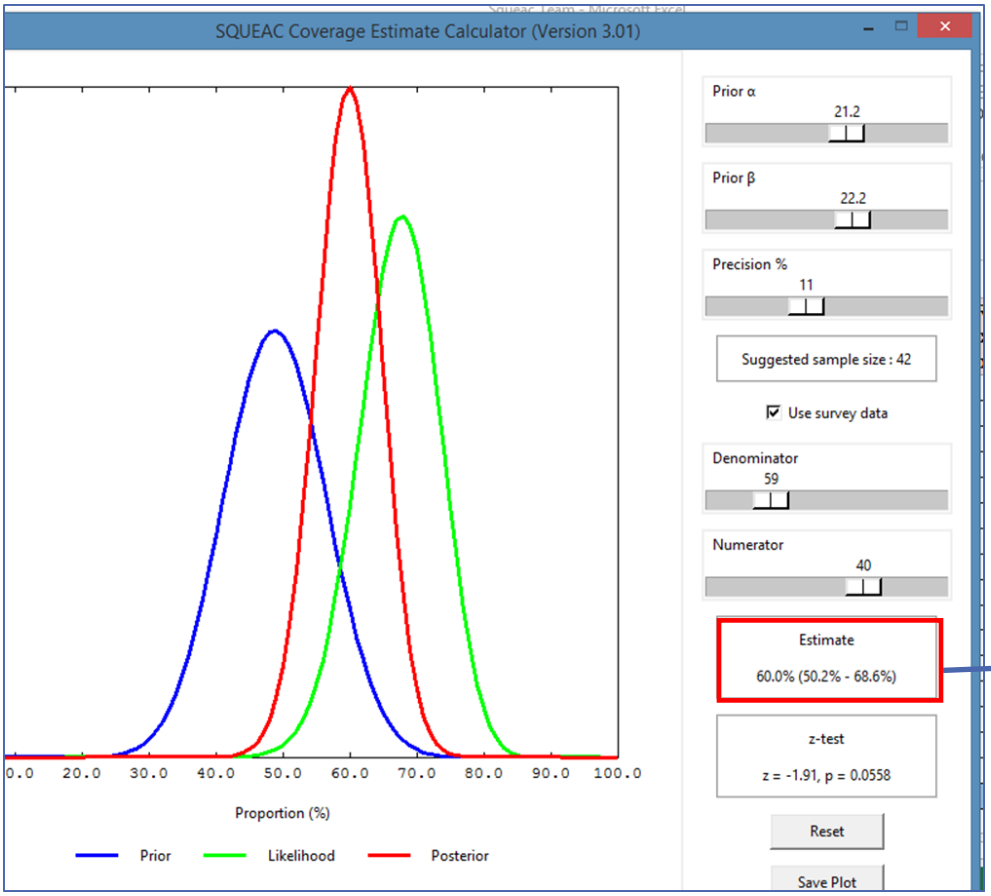


Figure 19: Single Coverage Estimate for OTP

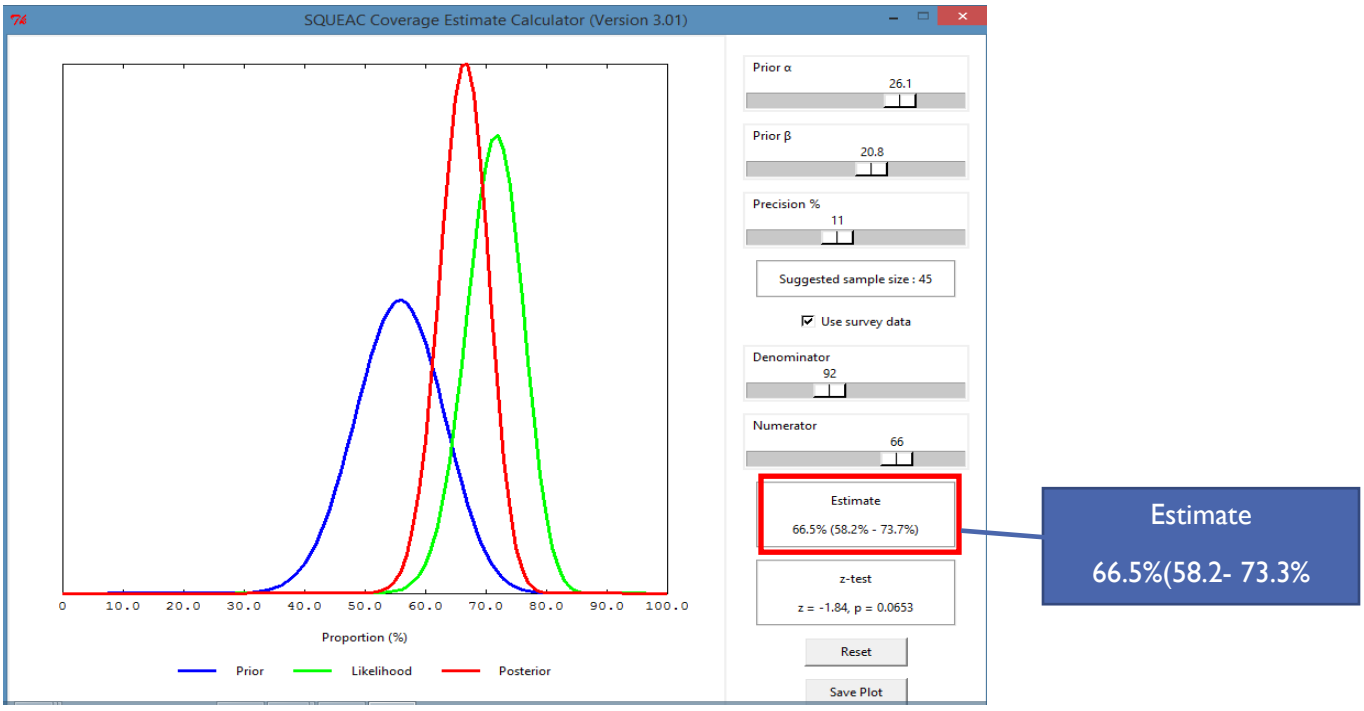


Figure 20: Single Coverage Estimate (SFP)

2.7 Reasons for Non Attendance

For those children who were not admitted in the program, a questionnaire was administered to the caregivers to establish why they were not admitted in the program. Lack of awareness that their children was suffering from any illness was mentioned by a majority of the caregivers (7) whose children had SAM followed by distance and the feeling that the child was not ill as well as the distance to the health facilitie as illustrated in table 14 below.

Table 14: Reasons for Non attendance (OTP)

Reasons for Nonattendance (OTP)	Number of caregivers
Did not know of the program that treat Malnutrition	7
Think Child is not ill	5
Distance to the Health Facility	5
Lack of conviction that the child was likely to get help	2

As far as SFP is concerned, quite a number of caregivers thought their children were not ill (6), followed by lack of information that the child was sick were mentioned as reason why children were not enrolled in the program as illustrated in table 15 below.

Table 15: Reasons for Nonattendance (SFP)

Reasons for Non Attendance (SFP)	No of Caregivers
Think the child was not ill	8
Lack of program awareness	6
Non availability of means of transportation	4
Work load	4
Distance to the health facility	1

Migrated to community away from the community far away from the health facility	1

3.0. Discussion and Recommendations

3.1. Discussion

Overall the IMAM coverage was above 50% SPHERE threshold in North Horr sub County. This was the baseline results for North Horr Sub County as no other IMAM coverage was carried before in the entire sub County. The overall coverage was 60% and 66.5% for OTP and SFP respectively. From Bayes calculator, the p value for OTP and SFP was 0.0653 and 0.0558 meaning there was no conflict between the prior and the posterior

The main program boosters that contribute to a relative high coverage included; the presence of outreaches as all IMAM sites had at least 2 outreaches which were linked to them. In all the outreach sites, IMAM services were offered to children under 5 years as well as pregnant and lactating women. The presence of partners to support outreach services was also a booster to IMAM program. Five partners who included Concern Worldwide, Food for the Hungry Kenya, Malteser Interantional, Beyond Zero and NDMA had made financial commitment to support the 61outeaches in North Horr Sub County. However, the support for the outreaches by the partners is under the current emergency program, while some of the sites are as far as 50 to 100km. In such as case there is need to have nomadic clinics or long term outreaches in order to reach out the communities leaving in those areas. Establishment of nomadic clinics as well as non-emergency outreaches will go along in addressing the barrier of migration which greatly affected the program access and coverage.

CHVs support came out as a strong program booster. In this regard, there was good relationship between CHVs and the health workers and the community and CHVs. The community appreciated the CHVs and even sought assistance for their health related needs as the community attested during the informal group discussions with the community laymen and women as well as with CHVs. The CHVs also received support in terms of cash (for facilitation- lunches and transport) from the partners supporting IMAM program in North Horr. However, a few of them indicated that the facilitation has stopped which made it difficult for them do their work at the community.

Positive opinion towards the IMAM program was also cited as a strong program booster. From the community perspective, IMAM program "works". And probably this is one of the reason why, children are admitted in IMAM program when they have just met the admission criteria where the median MUAC on admission was 113mm and 124mm for OTP and SFP respectively. Program length of stay was equally short at 8 weeks for both OTP and SFP.

The major barriers to the program were migration, high workload at the health facilities and staff absenteeism. Despite IMAM surge initiatives, the County did not have adequate health workers to support some of the health facilities when thresholds were surpassed. In most cases, the health facilities had to do staff reorganization in order for them to handle the situation during such periods. In addition, support partners supported the deployment of health workers temporary when the facilities surpassed the thresholds. Poor documentation, alcoholism, IMAM program being majorly partners funding dependent, weak defaulter tracing and active case finding at the community were also notable barriers to the IMAM program.

Although the outreach coverage was high, defaulting was high in two occasions, during the drought peak season, during the traditional cerebrations commonly known as s*orio* as well as during the health workers' strike. The major factors in this case was migration or movement of the communities to places where there were pastures and water as well as to areas where traditional ceremonies were conducted. As such, they could not be reached by the health workers and since there was no proper defaulter tracing initiatives in place, it resulted to surge in the number of defaulters recorded. Defaulting was also common at a time when the health workers went on strike between May and October 2017. Since majority of the health facilities were managed by nurses who participated in over 100 day strike, key services including IMAM were affected in that period.

Semi structured interviews with health facility staff, nutritionists, NGO agent as well as informal group discussion with carers of children in program indicated that, high work load at the health facilities was a major barrier to the IMAM program. High work load lead to inadequate service to the clients which included long waiting time as well as lack of counselling by the health workers. This could also be the reason for poor documentation in a number of health facilities.

Alcoholism was also mentioned as a barrier to the coverage especially in Illeret ward. This came out during the informal group discussion with the CHVs and triangulated by semi structured interviews with the health workers and nutritionists. While alcoholism was cited as a reason for poor child care, it was the reason why some caregivers failed to attend the treatment for their children. In some cases, the affected carers misused the protection ration money and in the worst case sold RUTF as well as RUSF in order to meet their alcohol demands.

Finally, IMAM Program was majorly dependent on donor funding that compromises the sustainability of the program. Most of the outreaches were donor funded, the distribution of IMAM commodities also depended on partners as well as payment of CHVs.

3.2. Recommendations

Table 16: Recommendations

Program Barrier	Recommendation	Responsible persons	Timelines
Geographical Barriers			
Distance to the IMAM sites	Establish the nomadic health facilities in the sub county	County government of Marsabit Department of Health Services and partners such as Beyond Zero	
Migration to areas not covered by IMAM Difficulty to travel to IMAM sites during rainy season	Re- develop the seasonal calendar and migration pattern guide. This will help to track the community movements and take outreaches to where the communities are in a particular moment	County government of Marsabit and Support partners	July 2018
Temporal Barriers			
No routine case findings at the community	Actively engage CHVs to do active case search as part of their routine activities	County government of Marsabit department of Health Services (CHSFP, CNC, SCNC) and support partners (Concern	From May 2018

	Provide CHVs with necessary tools e.g. MUAC tapes and referral slips in their daily activities Engage CHAs to actively monitor the CHVs and ensure case finding at the community level is correctly done	Worldwide, FHK, NDMA etc)	
Inadequate services to the client due to long waiting time, and lack of time for counselling	Increase the number of Health workers (Nutritionist) at the health facilities Train the health workers on IMAM Strengthen IMAM surge activities	County government of Marsabit	Was done in April 2018
Referral slips and MUAC tapes are not provided to the CHVs for community screening	Provide CHVs with necessary tools e.g. MUAC tapes and referral slips in their daily activities Engage CHAs to actively monitor the CHVs and ensure case finding at the community level is correctly done	County government of Marsabit department of Health Services (CHSFP, CNC, SCNC) and support partners (Concern Worldwide, FHK, NDMA etc)	From May 2018
No defaulter tracing mechanism in place	Strengthen defaulter tracing mechanism by actively involving community units and CHVs Use local chiefs/elders in defaulter tracing strategies	County government of Marsabit department of Health Services (CHSFP, CNC, SCNC) and support partners (Concern Worldwide, FHK, NDMA etc)	By December 2018
Social Cultural Barriers			
Alcoholism	Home visits by the CHVs to ensure children are given RUTF and RUSF Adopt direct observation of treatment (DOT) management	CHSFP, CHAs, CHVs, Health workers	Immediately (From May 2018)
Negative opinion towards IMAM program	Educate the care givers and the community on the purpose of IMAM program	CHAs, CHVs and Health facility Health workers	Immediately (From May 2018)
	Employ more health workers (especially nutritionists) so that the quality of care is improved	County government of Marsabit	Done in April 2018
CBRAs have little or no knowledge on IMAM services	Include some components of IMAM in the basic CBRAs Training	CNC, SCNC, Reproductive Health focal person	From May 2018
Negative opinion towards RUTF and RUSF	Educate the caregivers on the usage of RUTF and RUSF	CNC/SCNC to take leadership. Health workers especially nutritionists at the health facilities	Immediately (May 2018)
	Train the caregivers on the importance of following up on treatment protocol for maximum RUTF/RUSF benefits		
Financial Barriers			
Food Insecurity	Implementation of livelihood program in the sub County to boost food availability and accessibility	Multi- sectoral Coordination forum to take up this initiative	December 2018

IMAM services is partners dependent	Advocate for increment on nutrition budgetary allocation by the County government	Multi sectoral coordination forum	December 2018
Quality of Care			
Sharing of RUSF/RUTF	Train the caregivers on the importance of following up on treatment protocol for maximum RUTF/RUSF benefits	CNC/SCNC to take leadership. Health workers especially nutritionists at the health facilities	Immediately (May 2018)
Selling of RUTF/RUSF	Train the caregivers on the importance of following up on treatment protocol for maximum RUTF/RUSF benefits	CNC/SCNC to take leadership. Health workers especially nutritionists at the health facilities	Immediately (May 2018
	Liase with the public health department and engage the local chiefs to take action on those caught selling RUTF/RUSF	CNC/SCNC, C(S)PHO	From May 2018
High workload at the health facilities	Increase the number of Health workers at the health facilities Support the training of Health workers on documentation and records management Conduct regular support supervision in the health facilities	County government of Marsabit	50 nutritionists were employed in April 2018 and trained on IMAM in the same month
Poor documentation	Increase the number of Health workers at the health facilities	County government of Marsabit	50 nutritionists were employed in April 2018 and trained on IMAM in the same month
Lack of IMAM documentation knowledge by CHVs	Involve the CHVs who are based at the health facilities during OJTs	CNC, County Nursing Officer and partners supporting IMAM program	By June 2018

Annexes

Annex I: List of SQUEAC assessment Participants

Name	Gender	Position	Organisation
Charity Adho	F	Nursing Officer	Kalacha Level 4 Hospital
Cecilia Ramata	F	Nursing Officer	Maikonal Health Centre
Arbe Yattani	F	Nursing Officer	Kalacha Level 4 Hospital
Samuel Durito Duba	M	Nutrition Officer	Gus Dispensary
Carol Maina	F	Nursing Officer	Burgabo Dispensary
Hache Abdub	M	Nutrition Officer	Kalacha Level 4 Hospital
Eutychus Khisa	M	Nursing Officer	Elhadi Dispensary
Christopher Muia	M	Sub County Nutrition Coordinator	North Horr Sub County
Kibet Chirchir	M	Nutrition Support Officer (Information)	UNICEF
Mark Murage Gathii	M	Manager Health and Nutrition	Concern Worldwide

Annex II: Chronogram of Training and Assessment

SQUEAC CHRONOGRAM			Before investigation		During Investigation																				After investigation	
			WK 2	Wk 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Wk 1 to Wk 4	
PREPARATION PHASE		Logistical and financial planning																								
		Review of available qualitative data																								
		Review of quantitative data																								
		Selection and recruitment of investigation teams																								
		Procurement of materials																								
	Training	Training on SQUEAC Methodology																								
INVESTIGATION	Stage 1	Quantitative data collection																								
		Qualitative data collection +BBQ																								
		Data synthesis and hypothesis formulation																								
	Stage 2	Preparation and field testing																								
		Small Area Survey																								
		Community BBQ weighting exercise																								
	Stage 3	Formulation of the Prior																								
		Bayes Calculation + Wide area survey Sampling																								
		Wide Area Survey																								
		Analysis of Result + Posterior calculation																								
		Formulation of recommendations																								
Report Writing																										
Finalization and validation																										

Annex III: Data Collection Tools

EN Qualitative Questions.doc

Annex III: List of Outreaches in North Horr Sub County

SUB-COUNTY	SNO	NAME OF THE HOTSPOT SITE	NAME OF LINK FACILITY	Distance from the link facility (Km)	Estimated population in the outreach site	PRIORITY RANK (1st priority/ 2nd priority/ 3rd priority)	Partners supporting	
							1	2
North Horr	1	Barambate 1	Gus	15	1	1st	Concern	Concern
	2	Wano/Elgufu		25	2	1st	Concern	Concern
	3	Elboru magadho		10	3	1st	Concern	Concern
	4	Barambate 2/Umbathe		15	4	2nd	Concern	Concern
North Horr	5	Elbuka/Wormo	Malabot	40	2	2nd	FHK	FHK
	6	chorte/korbo/Qanchora		11	1	1st	FHK	FHK
North Horr	7	Kilkile/Yaalgana	Balesa	28	1	1st	Concern	Concern
	8	Kalesa/Yaasharbana		12	2	1st	Concern	Concern
	9	Barambate		10	3			
	10	Marime	Elhadi	25	1	1st	Concern	Concern
	11	Kasa Birchabiss/Burra		15	3	2nd	Concern	Concern
	12	Arkol			2	2nd	Concern	Concern
North Horr	13	El Boji/Elguracha	El gade	10	1	1st	Concern	Concern
	14	Yaa Mangutho		14	2	1st	Concern	Concern
	15	Dakane		30	3	2nd	Concern	concern
North Horr	16	Araqesa/Kutur	Kalacha	10	1	1st	Concern	Concern
	17	Rage/Ararite		16	2	1st	Concern	Concern
	18	Olom		35	3	1st	Concern	Concern
	19	Boqe/Tullu dimtu		25	5	2nd	Concern	Concern
	20	Kurawa /Rangi		25	4	2nd	Concern	Concern

North Horr	21	Toricha /	Maikona	45	1	1st	Concern	Concern
	22	Iyole/Wara		17	2	2nd	Concern	Concern
	23	Gamura		8	3	2nd	Concern	Concern
	24	Basbalesa		10	3	1st	Concern	Concern
North Horr								
North Horr	25	Koronder/Tigo	Turbi	15	1	1st	Concern	Concern
	26	Roba umuro/diba doti		18	3	2nd	Concern	Concern
	27	Yaa Galbo		45	2	1st	Concern	Concern
North Horr	28	Irinda/Wario wato/Kambi Nyoka	Bubisa	18	5	2nd	Concern	Concern
	29	Dadach manye		20	5	3rd	Concern	Concern
	30	Yaa odhola		30	3	1st	Concern	Concern
	31	Demo		100	2	1st	Concern	Concern
	32	Mudhe/Oronderi		17	4	2nd	Concern	Concern
	33	Segel		15	1	1st	Concern	Concern
North Horr	34	Katamura	Burgabo	15	3	1st	Concern	Concern
	35	Jiba Adhele (6 Manayattas)		22	1	1st	Concern	Concern
	36	Lag Wachu (5 Manyattas)		25	2	1st	Concern	Concern
North Horr								
North Horr	37	Saru	Dukana	32	1	1st	FHK	FHK
	38	Gof Dukana		22	6	2nd	FHK	FHK
	39	konye		50	2	1st	FHK	FHK
	40	Garwole/Guba yibo		44	3	1st	FHK	FHK
	41	Diid Gola 1		20	4	1st	FHK	FHK
	42	Diid Gola 2		20	4	1st	FHK	FHK
	43	Lag Wata		30	5	2nd	FHK	FHK
	44	kubi adhii		72	7	2nd	FHK	FHK
North Horr	45	Dulte/kabdhoo	North horr	17	5	2nd	FHK	FHK
	46	Qorqa/Lag saden		52	1	1st	FHK	FHK
	47	Elbesso		30	3	1st	FHK	FHK
	48	Qoricha/El sako malla		15	2	1st	FHK	FHK
	49	Bura/Boji		70	6	2nd	FHK	FHK
	50	Uran Ura		72	4	1st	FHK	FHK
North Horr	51	Lomadung/Ilolo	Illeret	24		1st	FHK	Malteser/TBI
	52	Elmaasich /Aiybete		49		1st	FHK	Malteser/TBI
	53	Guoro		6		1st	FHK	Malteser/TBI

	54	Elbokoch		6		1st	FHK	Malteser/TBI
	55	Ilgele/Sabarei		10		1st	FHK	Malteser/TBI
	56	Telesgey		12		1st	FHK	Malteser/TBI
	57	selicho		12		1st	FHK	Malteser/TBI
North Horr	58	Shankera	Hurri hills	20	1	1st	Concern	Concern
	59	Old Yagara		35	2	3rd	Concern	Concern
	60	Baqaqa		6	1	4th	Concern	Concern
	61	Bori/Kubi Koti		15	3	2nd	Concern	Concern
North Horr	62	Idido	Forolle	40	2	1st	Concern	Concern
	63	yaa Gara		20	1	1st	Concern	Concern
	64	Wario Yara/Kosobora		20	3	2nd	Concern	Concern