Turkana County

Semi-Quantitative Evaluation of Access and Coverage of Integrated Management of Acute Malnutrition - OTP for SAM and SFP for MAM

Photo: Caregivers and children waiting outside an IMAM Service delivery centre in Turkana County (photo by Save the Children International)

December 2017 – January 2018

Turkana County Department of Health Services

SUPPORTING ORGANISATIONS

Table of Contents

List of Tables

Table of figures

ACKNOWLEDGEMENTS

Turkana County Department of Health Services the lead and partners have successfully concluded SQUEAC assessment. The results of the assessment provide vital information about the coverage of IMAM services a major emergency and developmental service. The generated evidence will be integral in informing and evaluating programming in nutrition specific and sensitive sectors at the county and national levels.

The County department of health services through the Directorate of Family Health would like to take this opportunity to acknowledge effort and support of all those individuals and organizations that supported and participated in the SQUAEC assessment. Specifically, I would like to thank UNICEF Kenya, Save the Children, International Rescue Committee, Afya Timiza, World Vision, WHH, World Food Programme, Action Against Hunger (ACF) and KRCS for their financial, in-kind and technical support.

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I also extend my gratitude to the parents, local leadership, caretakers and community members for providing credible information during the interviews. Lastly, I thank all the survey teams (coordinators, team leaders, enumerators) and all those who gave their valuable time and worked tirelessly to ensure credible and timely results.

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ABBREVIATIONS/ACRONYMS

ASAL	Arid and Semi Arid Lands
BBQ	Boosters Barrier and Questions
BSFP	Blanket Supplementary feeding program
CHEW	Community Health Extension Worker
CHV	Community Health Volunteer
CM	Concept Map
CMAM	Community Management of Acute Malnutrition
CU	Community Unit
CHRIO	District Health and Records Information Officer
CNC	County Nutrition Coordinator
FFA	Food for Assets
GAM	Global Acute Malnutrition
HF	Health Facility
HINI	High Impact Nutrition Interventions
IDP	Internally Displaced Persons
IMAM	Integrated Management of Acute Malnutrition
IRC	International Rescue Committee
LOS	Length of Stay
LQAS	Lot Quality Assurance Sampling
M&E	Monitoring and Evaluation
M0H	Ministry of Health
MAM	Moderate Acute Malnutrition
MCH	Maternal Child Health
MTMSGs	Mother –to – Mother Support Groups
MUAC	Mid upper arm circumference
OJT	On job Training
OTP	Out patient therapeutic feeding program
RUTF	Ready to use therapeutic food
SAM	Severe acute malnutrition
SCHMT	Sub County Health Management Team
SCI	Save the Children
SFP	Supplementary feeding program
SQUEAC	Semi quantitative evaluation of access and coverage

TBA	Traditional birth attendant
UNICEF	United Nations Children's' Fund
URTI	Upper Respiratory tract infections
WFP	World Food Program
WHO	World Health Organization
WVK	World Vision Kenya
WHH	Welt Hunger Hilfe

EXECUTIVE SUMMARY

Turkana County is an arid and semi-arid zone which is situated in North-Western region of Kenya. It borders Ethiopia to North East, South Sudan North and Uganda to the west as well as Baringo County to the South, West Pokot County to the South, Samburu County to the South East and Marsabit County to the East. The County has an estimated total population of 855,399 (1,427,797 pop. of <5s 215,983. Estimate 2017) and cover an area of 77,000km2 (KNBS 2009). Turkana is divided into 7 sub counties which were used to map out the 5 survey zones. These are: Turkana South, Turkana East, Turkana Central/ Loima, Turkana West and Turkana North/ Kibish.

The County Department of health services with support of National Nutrition unit in collaboration with nutrition partners and UN agencies i.e. UNICEF and WFP has been implementing IMAM Program in Turkana County for several years. The intervention includes community screening, identification and management of severe and moderate acute malnutrition of children under five years and pregnant and lactating mothers under the Integrated Management of Acute Malnutrition Program guidelines.

The last coverage survey conducted in Turkana County was carried out in March and May 2013 and covered the entire county broken down to five survey zones. This assessment was done to identify the specific barriers and boosters to access of OTP and SFP programs in Turkana County survey zones (Turkana west, Turkana East, Turkana South, Turkana North/Kibish and Turkana Central/Loima) as well as to assess the achievement of the previous assessment recommendations.

All the three stages of SQUEAC Methodology were employed. Stage 1 involved identifying areas of low and high coverage as well as reasons for coverage failure using routine program data, any other existing data and qualitative data. Stage 2 involved confirming the location of areas of high and low coverage and the reasons for coverage failure identified in stage 1 using the small-area survey. Stage 3 involved providing an estimate of overall program coverage using Bayesian techniques. Both Point and Single coverage estimate were calculated. All the survey zones had similar characteristics in terms of early detections of cases, relatively long length of stay, sharing of commodities by beneficiaries and none beneficiaries, weak case finding among others.

The Turkana county SQUEAC assessment was conducted from 4th December, 2017 to 25th January, 2018. From the Bayesian coverage calculator, the posterior **single** coverage for OTP was estimated at **67.5% (55.4% – 77.0%) P = 0.0856, 59.6% (47.4% – 70.3%) P = 0.1078, 62.2% (50.3% – 72.6%) P = 0.0599, 71.9% (60.5% –80.9%) P=0.0003 and 60.4% (48.3% – 71.6%) P = 0.5726** in Turkana West, Turkana East, Turkana South, Turkana North and Kibish and, Turkana Central and Loima respectively. All the coverage met the SPHERE standards for the rural areas except Turkana East and South. On the other hand, the SFP posterior **Single** coverage from the Bayesian calculator for Turkana East was estimated at **61.0% (49.4% – 71.2%) P = 0.0164**, Turkana West at **66.2% (57.7% – 73.7%) and P = 0.0946,** Turkana South at **81.4% (73.9% – 87.3%) P = 0.0**, Turkana North and Kibish at **64.9% (53.7% –74.8%) P=0.161**and Turkana Central and Loima at **65.9% (55.6% – 74.8%) P = 0.0982**. All the coverage estimates met the SPHERE standards for the rural areas.

Table 1: Major Boosters and Barriers to IMAM Program in Turkana County and possible recommendations to improve coverage

Major Boosters	Major Barriers	Recommendations
○ Awareness of IMAM services by the community; ○ RUFT understood as medicine ○ Capacity of the IMAM Program staff to provide service; ○ A considerable number of health care givers are trained on IMAM ○ Communication system with	○ Sharing of commodities by beneficiaries with non-beneficiaries ○ Migration in search of pasture and water resulting to defaulting ○ Poor adherence to IMAM protocol by service provider: Some CHVs and Health workers are not trained on IMAM ○ Accessibility of service:	○ Empowering communities on the negative and positives impact of nutrition commodities consumption by the healthy populations ○ Frequent support supervision to health facilities implementing IMAM to improve on program monitoring and implementation ○ Strengthening health facility and community linkages through community

the CHVs; Turkana has an elaborate community strategy in place and IMAM review meetings o Appreciation of IMAM Service; good opinion about OTP/SFP program, o Most CHVs doing active case finding to capture cases early o Effectiveness of the program/ children admitted recovering.	beneficiaries travel long distances o Still some perception that RUTF is food and not medicine o Lack of motivation to CHVs o Some health facilities have poor defaulter tracing mechanisms o Poor child caring behaviour i.e. Alcoholism, poor health seeking behavior o Some Poor health facility - community linkage.	health strategy o Re-mapping and carrying out integrated outreach clinics. o Scale up Baby Friendly Community Initiatives to all CUs to improve health seeking behaviour through creation of demand for services o Scale up of IMAM Surge Approach to all health facilities in the county to improve on surveillance o Multi-sectoral approach in managing malnutrition.

1.0 INTRODUCTION

1.1 OVERVIEW OF THE AREA

Turkana County is an arid and semi-arid zone which is situated in North-western region of Kenya. It borders Ethiopia to North East, South Sudan North & Uganda to the west as well as Baringo County to the South, West Pokot County to the South, Samburu County to the South East and Marsabit County to the East. The County has an estimated total population of 855,399 (1,161,197pop. of <5s 151,462. Estimate 2018) and cover an area of 77,000km2 (KNBS 2009). Turkana is divided into 7 sub counties which were used to map out the 5 survey zones. These are: Turkana South, Turkana East, Turkana Central/ Loima, Turkana West and Turkana North/ Kibish. The county has poverty index of 94% contributing 3.13% on national poverty and high illiteracy indices of 75%[1]. It has a total of 9,000 km of road network of which 504.5 km are bitumen whereby three of these roads link the county with neighbouring countries that is Ethiopia, Uganda and South Sudan[2]. A number of these roads are rendered impassable during rainy season.

Turkana County has four main livelihood zones where approximately 60% of the population is considered pastoral, 20% agro-pastoral, 12% fisher folks and 8% are in the urban/peri-urban formal and informal employments[3]. It is a drought prone area that experiences frequent, successive and prolonged drought and cattle rustling resulting to resources based conflict which leads to heavy losses of lives and livestock.

Turkana county population is predominantly Turkana people who are Nilots traditionally pastoralist who focus on nomadic herding of animal. Pokot, Tugen, Samburu and Borana live along the borders. Somalis make an important part of the economy of the county. Other Kenyan ethnic communities have of late been migrating to the major centres of the county especially Lodwar and Lokichar especially after discovery of oil. The county is also host to one of the largest refugee camps in the country- Kakuma refugee camp and Kalobeiyei settlement. The objective of Kalobeiyei Integrated Social and Economic development (KISEDP) is to facilitate collaboration and coordination between different actors to build sustainable services and economic opportunity in Kalobeyei. This will host over 38,000 refugees. Kakuma host about 147,000 refugees from different nationalities.

[1] Population Census KNBS 2009
[2] Turkana County CIDP
[3] Classification of Livelihood Zones by NDMA

Figure 1: Map of Turkana County

Description of the population:

Table 2: Approximate population size (in total and of under-fives)

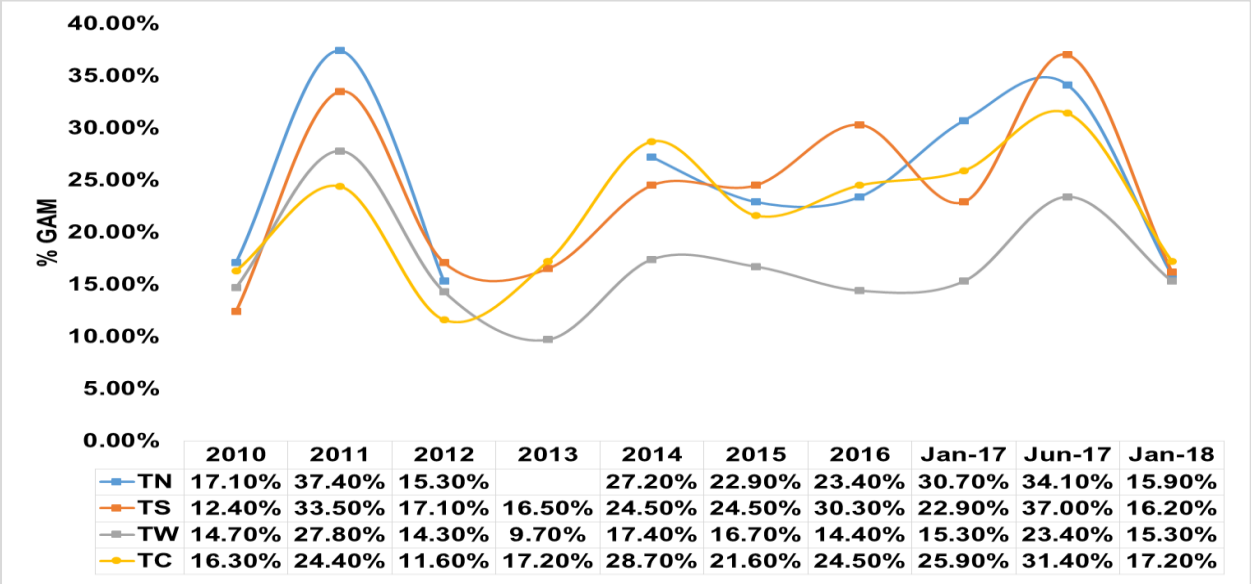
No	Sub-County	Est. Total Population	Pop' under five
1	Loima	162,807	21,236
2	Turkana Central	182,819	23,846
3	Turkana East	122,807	16,018
4	Turkana South	184,501	24,066
5	Turkana North	104,490	13,629
6	Kibish	91,769	21,236
7	Turkana west	312,004	23,846
	County	1,161,197	151,462

SOURCE: @KNBS Analytical Report on Population projections Volume XIV March 2012. (SCHRIO Office 2018)

Nutritional situation:

Turkana County is prone to frequent drought leading to famine which lead to malnutrition emergency among other causes. Wasting is the most prevalent form of malnutrition in the county with Global Acute malnutrition (GAM) exceeding the emergency threshold of 15%. The figure below shows a critical GAM

trend for most of the years for majority of the sub-counties. Several shocks including drought, insecurity/conflict and flash floods among others lead to this scenario.



	2010	2011	2012	2013	2014	2015	2016	Jan-17	Jun-17	Jan-18
TN	17.10%	37.40%	15.30%		27.20%	22.90%	23.40%	30.70%	34.10%	15.90%
TS	12.40%	33.50%	17.10%	16.50%	24.50%	24.50%	30.30%	22.90%	37.00%	16.20%
TW	14.70%	27.80%	14.30%	9.70%	17.40%	16.70%	14.40%	15.30%	23.40%	15.30%
TC	16.30%	24.40%	11.60%	17.20%	28.70%	21.60%	24.50%	25.90%	31.40%	17.20%

Figure 2: Turkana GAM trend since 2010

The graph (*figure 2*) shows a cyclic trend of high GAM of above 15% for most of the sub-counties.

Details of health and nutrition services:

In Turkana, majority of the population (82%) seek health care services when sick from public clinics with nearly 10% seeking services from mobile clinics. Distance to the nearest health facility improved from 50 km in 2013 to 35 km in 2017. Turkana County population is served by 13 hospitals, 19 health centres, 177 dispensaries and 167 Community health units. Out of these 1 hospital, 2 health centres and 5 health clinics serves refuges and host community in Kakuma Camp and Kalobeyei settlement. The health facilities are distributed as shown in *table 3*.

Table 3: Health facilities distribution

Sub-County	Total health facilities	Facilities implementing IMAM	Dispensary	Health Centres	Hospitals
Loima	30	27	25	4	1
Turkana Central	42	38	39	2	1
Turkana East	21	17	14	2	3
Turkana South	31	29	26	3	2
Turkana North	20	20	16	3	1
Kibish	13	11	11	1	1
Turkana west	39	30	32	3	4
County	**194**	**172**	**163**	**18**	**13**

The County department of health services with the support from various partners is the lead implementer of IMAM program. In efforts to scaling up IMAM, the county government through the Ministry of Health provides the human resource, financial resource and health facilities while partners provide technical, nutrition supplies and financial support. IMAM services are offered in both static health facilities and integrated outreach services which link to health facilities. 173 health facilities offer IMAM services in the county.

Protocols for the management of SAM
Severely malnourished children aged 6-59 months that present with medical complications are managed in the in-patient while those without medical complications are managed in the Out-patient.
Case definition
OTP

- Children age between 6-59 months with at least
- A Mid Upper Arm Circumference (MUAC) of <11.5 cm and/or
- Bilateral pitting oedema (grade+ and grade++) with no medical complication
- WFH <-3SD

SFP

- Children age between 6-59 months with at least
- A Mid Upper Arm Circumference (MUAC) of <12.4cm and/or
- Weight For Height <-2SD

1.2 Objectives

Principal Objective

The overall objective of the assessment was to assess the IMAM barriers, boosters and coverage estimates for specific region of Turkana County.

Sub-objectives

- To identify barriers/promoters of access to OTP & SFP.
- To classify a headline coverage of the IMAM program.
- To develop specific recommendation based on findings to improve IMAM program coverage for better outcome.
- To build the capacity of MOH in conducting coverage surveys using Semi Quantitative Evaluation of Access and Coverage.

1.3 Methodology

The assessment applied the SQUEAC methodology where all the three stages of the methodology were applied in all survey zones. **Stage 1** involved identification of areas of low and high coverage and reasons for coverage failure using routine program data and qualitative data. Qualitative data routine program data was obtained from health facility IMAM registers from all sub-counties. Qualitative information was obtained from various sources including health facilities staffs including nutritionists, nurses, facility in-charges, religious leaders, care givers, traditional birth attendance (TBAs), traditional healers, CHV, CHEWs, program staffs, community members and local leaders.

Stage 2 involved confirming the location of areas of high and low coverage and the reasons for coverage failures identified in stage 1. This is done by hypothesis building and testing. This was done through small area studies.

Stage 3 involved providing an estimate of overall program coverage using Bayesian techniques. This was done through developing the prior and conducting the wide area survey to obtain the overall coverage estimate.

In this stage there was calculation of number of children U5 years to be included in the survey and also number of villages for case finding that was to ensure the required number of children U5 were obtained. To calculate the Number of U5 required for both SFP/OTP it involved calculation of the prior, Alfa (α), beta (β) and estimated precision.

The prior mode was computed by taking the average of the total sum of weighted boosters and barriers, un-weighted barriers and boosters, concept map and the belief (histogram).

Alfa $\alpha_{prior} = \mu \times (\frac{\mu \times (1-\mu)}{\sigma^2} - 1)$

Beta $\beta_{Prior} = (1-\mu) \times \left(\frac{\mu \times (1-\mu)}{\sigma^2} - 1\right)$

Where $\mu = (Minimum + 4 \times Mode + Maximum)/6$, $\sigma = (Maximum - Minimum)/6$

Estimated precision between 10% to 15%

The calculated prior mode, Alfa (α), beta (β) and estimated precision was used to estimate the number of children to be included in the survey for both OTP and SFP using Bayes plot.

The number of villages adequate to obtain the required number of U5 was calculated using the formula;

$$n\ villages = \frac{n}{average\ village\ population \times \frac{\%population\ of\ 6\ to\ 59\ months}{100} \times \frac{prevelance}{100}}$$

Where n is the estimated number of children 6-59 months to be obtained in the survey.

Systematic sampling was used to get the villages to be surveyed from a list of villages from the survey zone. Overall program coverage was estimated using Bayesian technique. This was done using calculated prior mode, Alfa (α), beta (β), and precision, calculated Numerator and Calculated denominator.

Numerator = Number of Cases covered in the program + number of cases recovering in the program

$$N = C_{in} + R_{in}$$

Denominator = Number of Cases covered in the program + Number of cases recovering in the program+ Number of cases not covered in the program + Number of recovering cases not in program

$$D = C_{in} + R_{in} + C_{out} + R_{out}$$

Where $R_{out} \approx [\frac{1}{k} \times \left(R_{in} \times \frac{C_{in}+C_{out}+1}{C_{in}+1} - R_{in}\right)]$

Correction factor (k) which is the ratio of the mean length of an untreated episode (average of 7.5 months) to the mean length of a IMAM treatment episode (average of 2.5 months)

Single coverage estimate = numerator ($N = C_{in} + R_{in}$**)/ Denominator (**$D = C_{in} + R_{in} + C_{out} + R_{out}$**)**

Results of previous coverage surveys in Turkana County

The last SQUEAC survey was carried out in March 20th – May 4th 2013. Posterior coverage estimates were used. Like in the current SQUEAC the assessment was done in 5 zones, that is Turkana Central and Loima point coverage 51.9% (39.4% - 64.4%), Turkana West 55.1% (40.8%-68.4%), Turkana North/Kibish 50.7% (37.6%-63.4%), Turkana South 50.2% (37.0% -63.6%), 43.5% (28.4% -59.9%). All these had met SPHERE standards for rural area.

2.0 INVESTIGATION PROCESS

STAGE 1: Identifying Areas of High and Low Coverage

2.1 Quantitative Data

The routine program data was analysed to inform on various indicators which include MUAC on admission, OTP and SFP admission over time and standard program performance data with focus on the defaulters and the in-program deaths. This data was used to show trends on the indicators giving key issues and areas to be investigated further to provide explanation. A calendar of seasonal events for all the Turkana assessment zones was developed and compared with the trend of program data. In particular the relationship between the OTP and SFP admissions, exits and the defaulters with the seasonal calendar was established.

Turkana West

Admission Trends

OTP Program Admissions

There was a decrease in admissions in the months of October and December 2016 due to out-migration that was associated with drought. An increase was noted between February and May 2017 associated to roll out of integrated health and nutrition outreaches during emergency response phase. In June-and-July 2017, a sharp peak was due to referrals associated to mass screening.

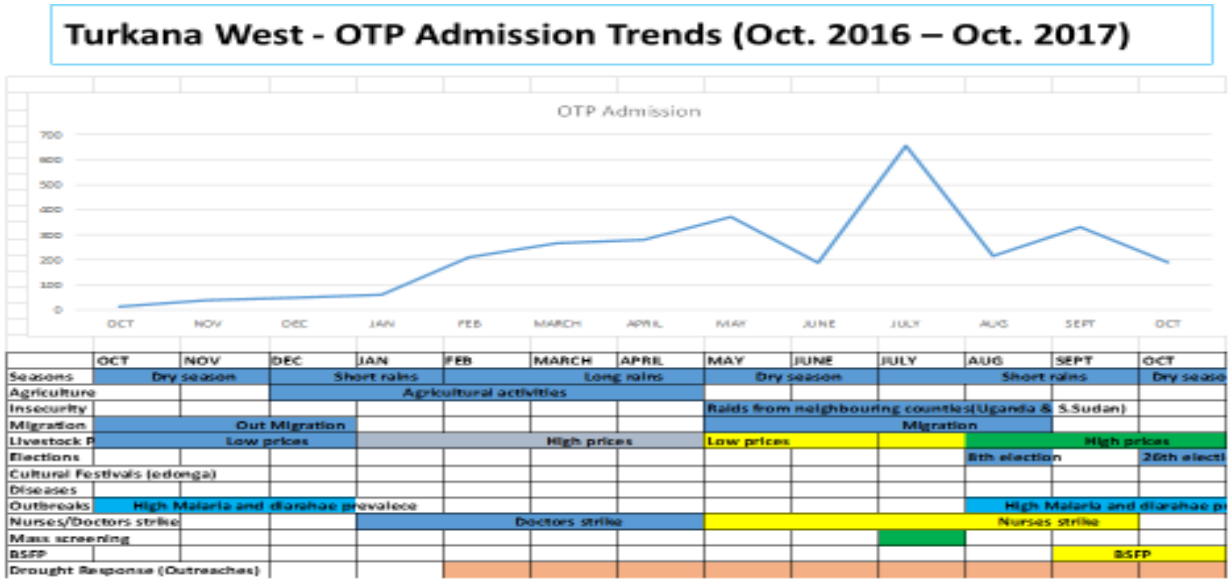


Figure 3: OTP admission trends for Turkana West

SFP Program Admissions

Low admissions were observed between October and December, 2016 attributed to out migration that was associated to drought. In 2017, there was an upward trend between February and May due to scale up of integrated health and nutrition outreaches. A high peak was noted between June and July 2017 attributed to intensified mass screening (*figure 4*).

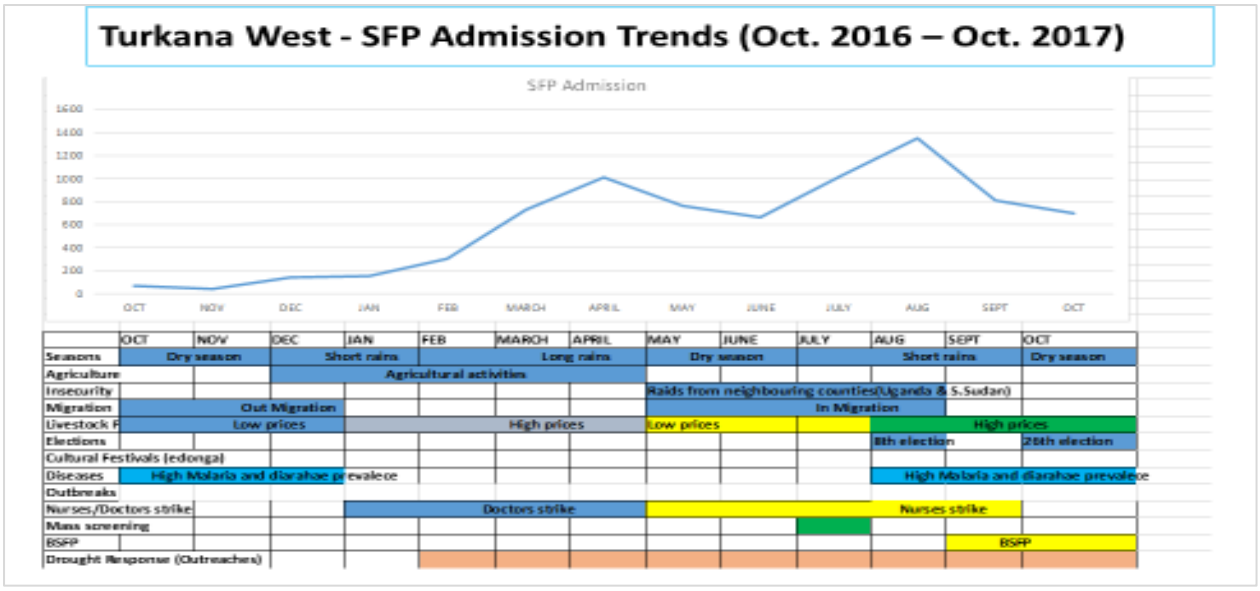


Figure 4: SFP admission trends for Turkana West

MUAC at admission

In OTP, the median MUAC at admission was at 11.1 cm and showed an early detection and enrolment of severely malnourished children into the program. However, some children were noted to be detected very late (MUAC less than 10.5 cm) due to late screening (*figure 5*).

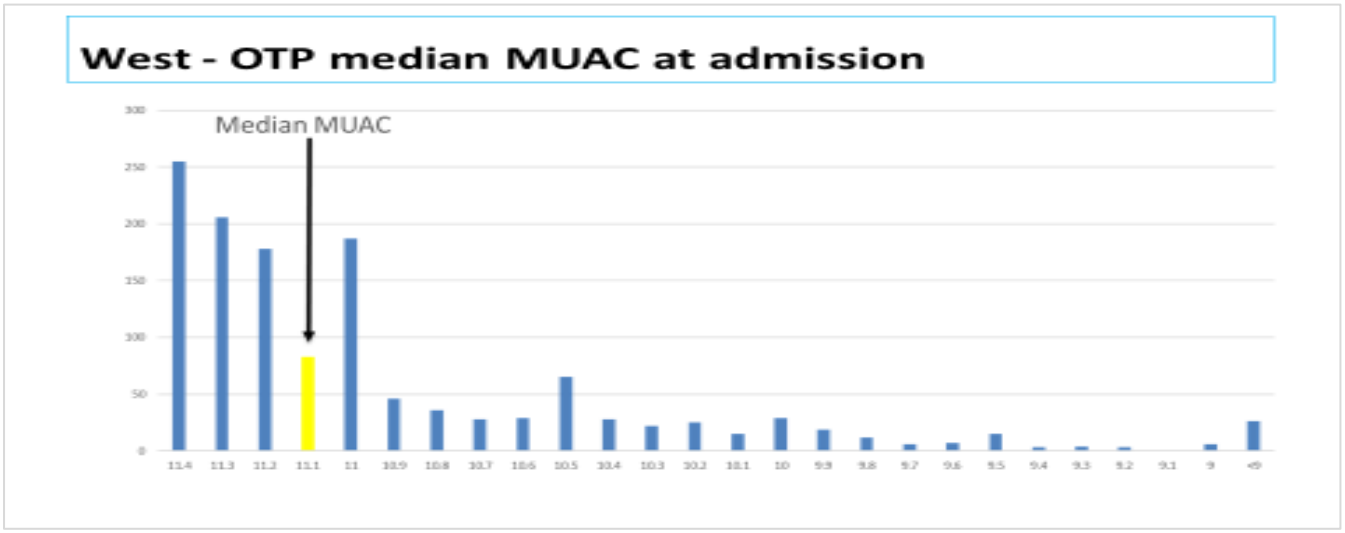


Figure 5: OTP median MUAC of admission measurement for Turkana West

In SFP, the median MUAC at admission was at 12.0 cm and, showed an early detection and recruitment of moderately malnourished children into the program. The team noted wrong admissions (children admitted into SFP with MUAC <11.5 cm) which is against the IMAM admission protocol in health facilities managed by patient attendants.

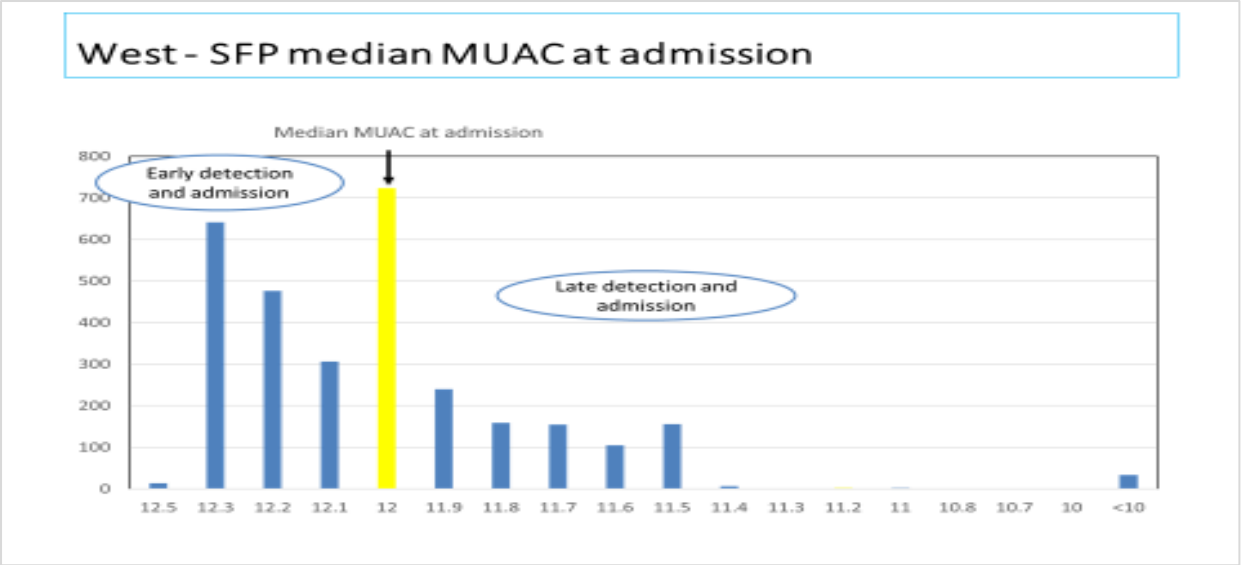


Figure 6: SFP median MUAC of admission measurement for Turkana West

MUAC at discharge

The discharge criterion was adhered to in OTP. The median MUAC of discharge from the program was at 12.0 cm which is higher than IMAM cut off of 11.5 cm for cured. However, both MUAC and WHZ criteria were used by the health facilities thus the higher median MUAC of discharge as cured (*figure 7*).

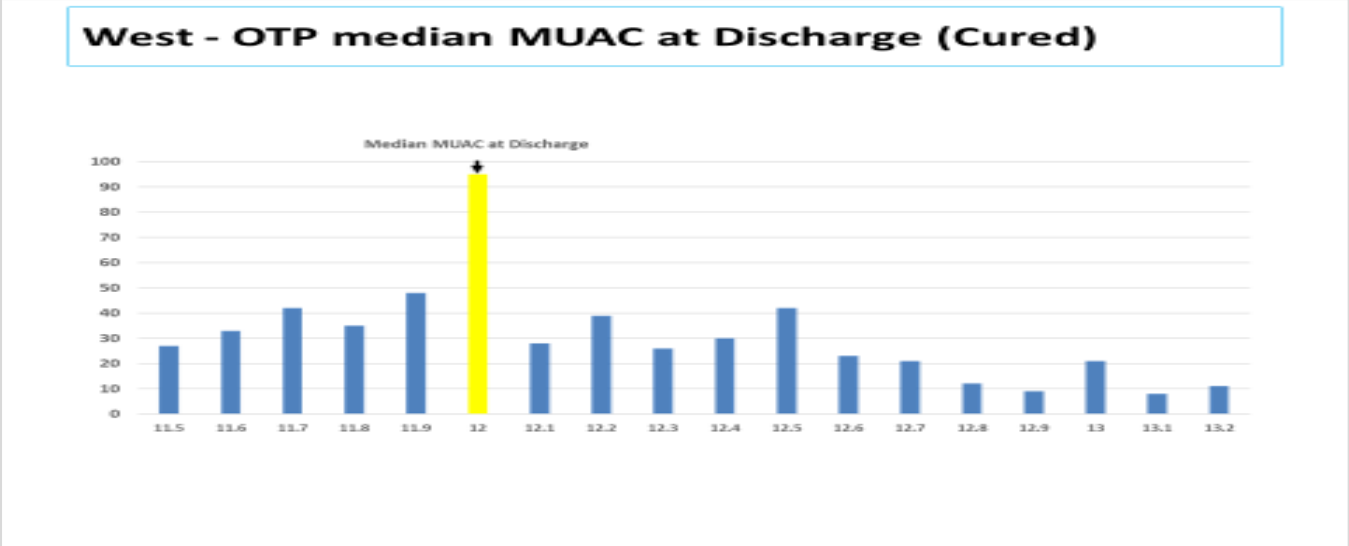


Figure 7: OTP median MUAC of discharge measurement for Turkana West

For SFP, the median MUAC at discharge was at 12.9 cm which is higher than the IMAM guideline cut off of 12.4 cm. However, some children were discharged late even after attaining MUAC higher than 15.5 cm which gives indication of low adherence to exit criteria.

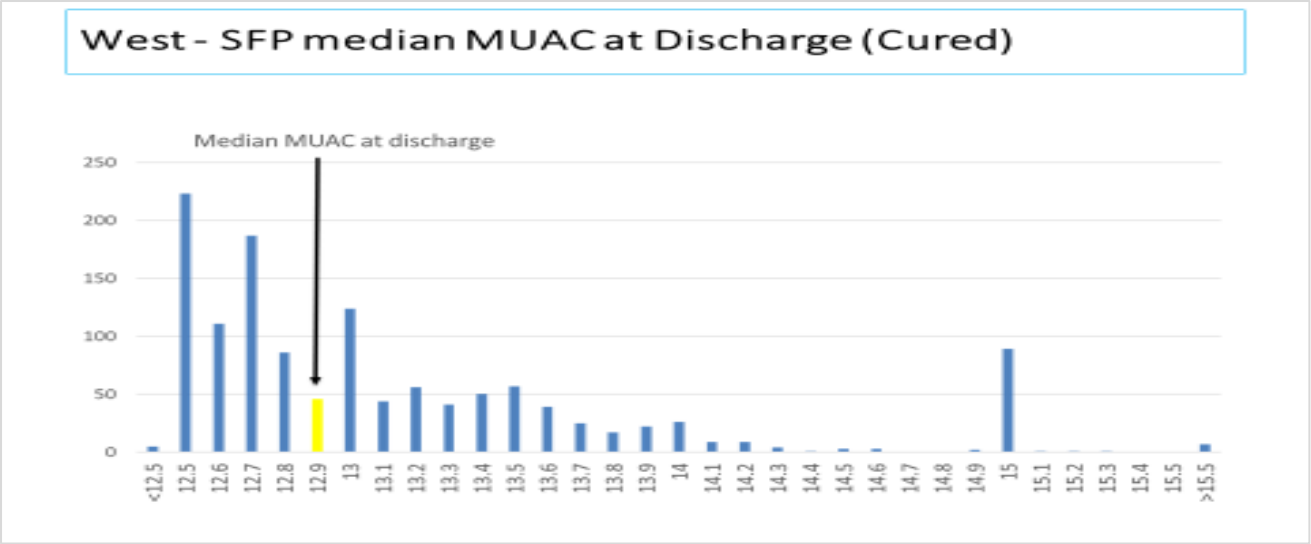


Figure 8: SFP median MUAC of discharge measurement for Turkana West

MUAC at Default

The median of defaulting MUAC was at 11.2 cm which indicates that majority of the children left the program before they get cured. Defaulting was attributed to distance, stock outs and migration. Considering the many integrated outreaches during the study period, out migration could be the major reason.

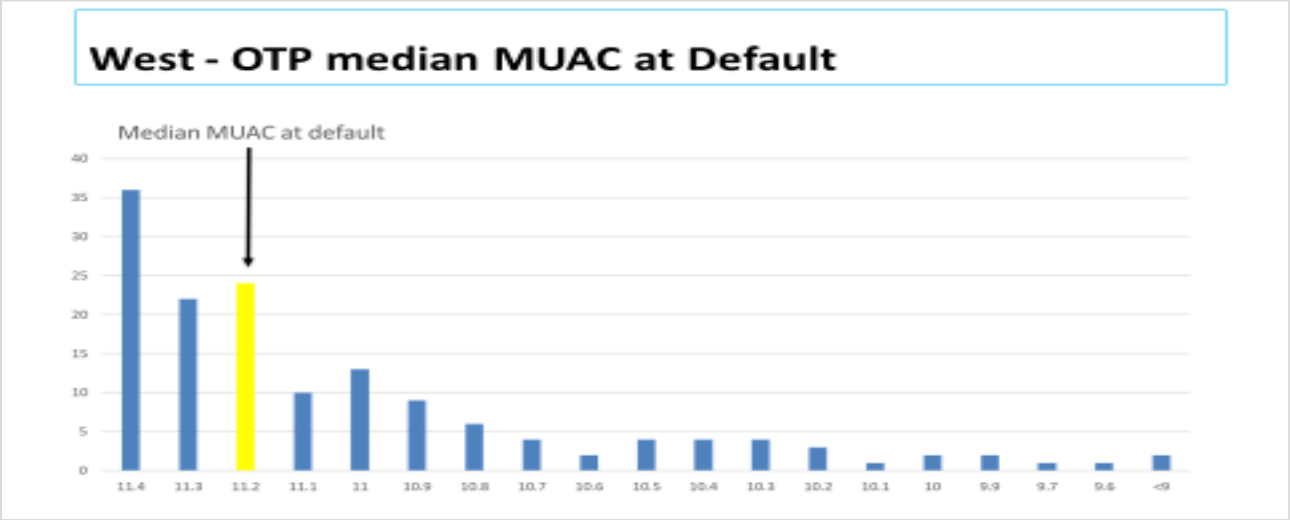


Figure 9: OTP median MUAC of default for Turkana West

Majority of children defaulted in the SFP after attaining MUAC of 12.6 cm which was higher than the cut off of 12.5 cm for discharge according to IMAM guideline. This was associated with poor program monitoring by health workers. A few children left the program with their MUAC recorded at <12.5 cm (defaulted while still active MAM cases).

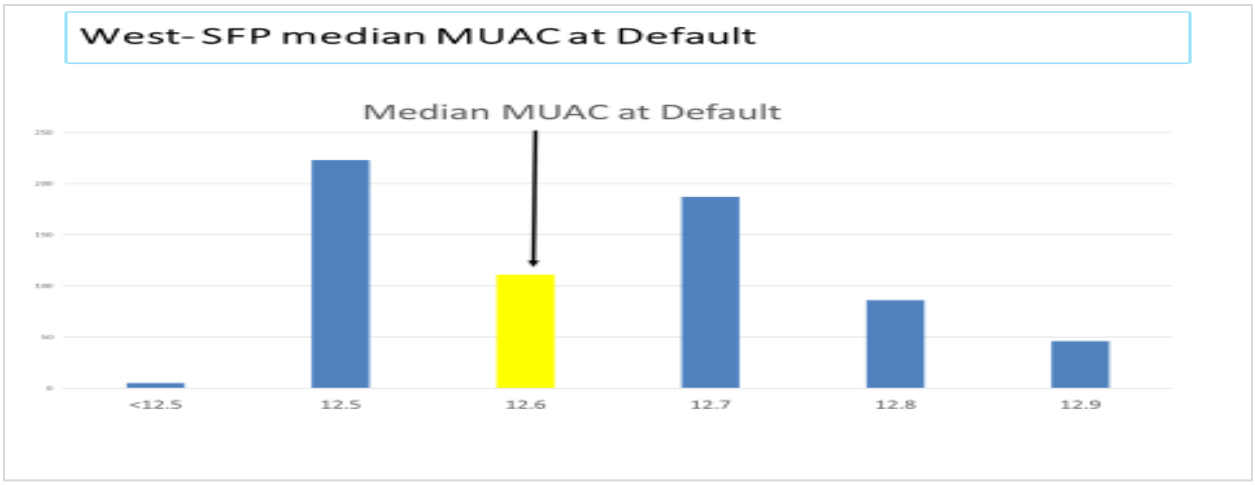


Figure 10: SFP median MUAC at default measurement for Turkana West

Length of Stay (LOS) of defaulters

The average acceptable length of stay in OTP is between 45-60 days; while the average acceptable length of stay for SFP is less than three months according to the IMAM guidelines. Defaulting was early at the second week or second visit. This combined with the median MUAC at default show these could be issues of wrong admissions. However it is important to note both WHZ and MUAC were used as admission criteria.

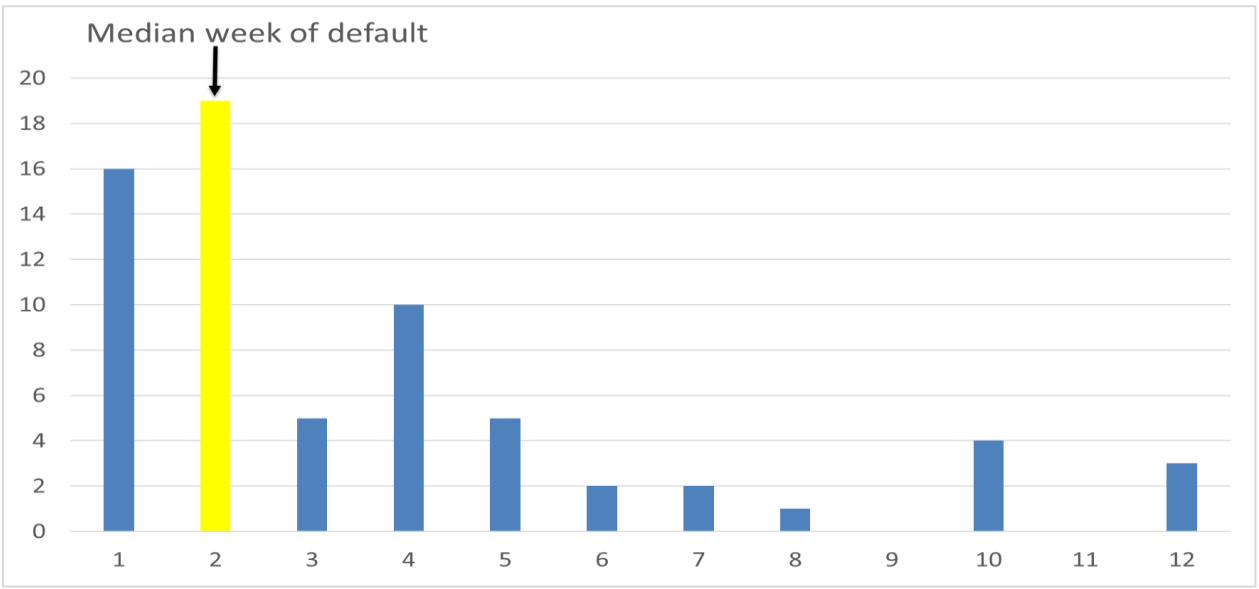
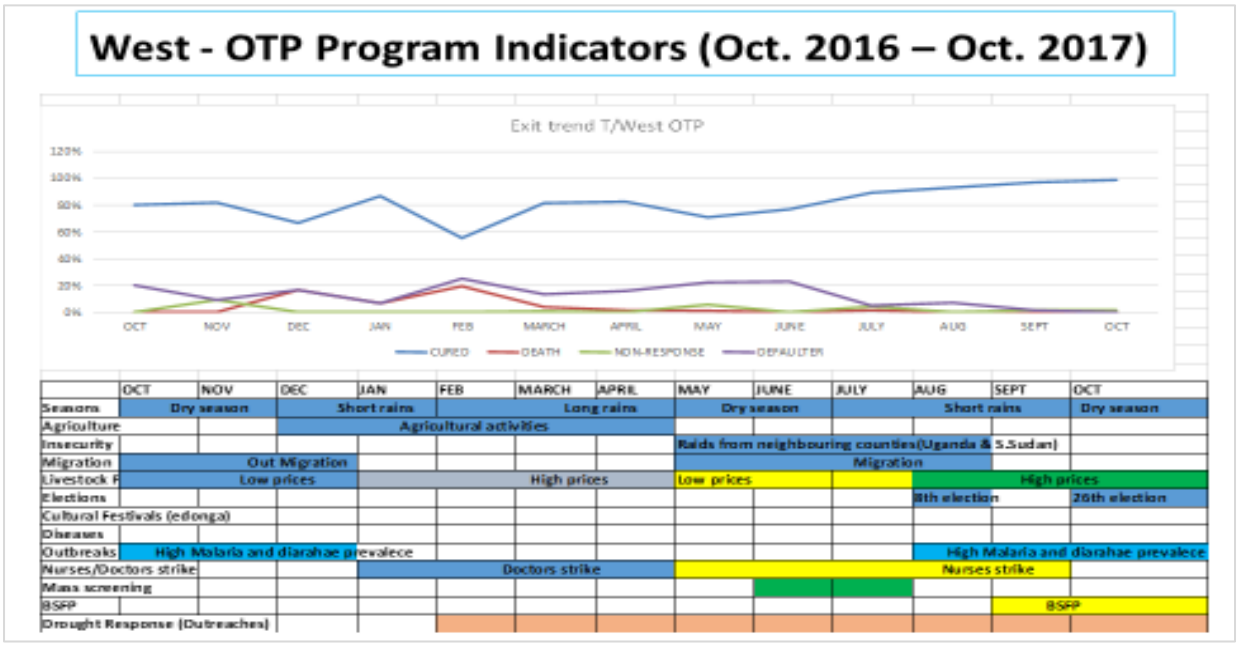


Figure 11: Median Week of default for OTP in Turkana West

Program Performance Indicators

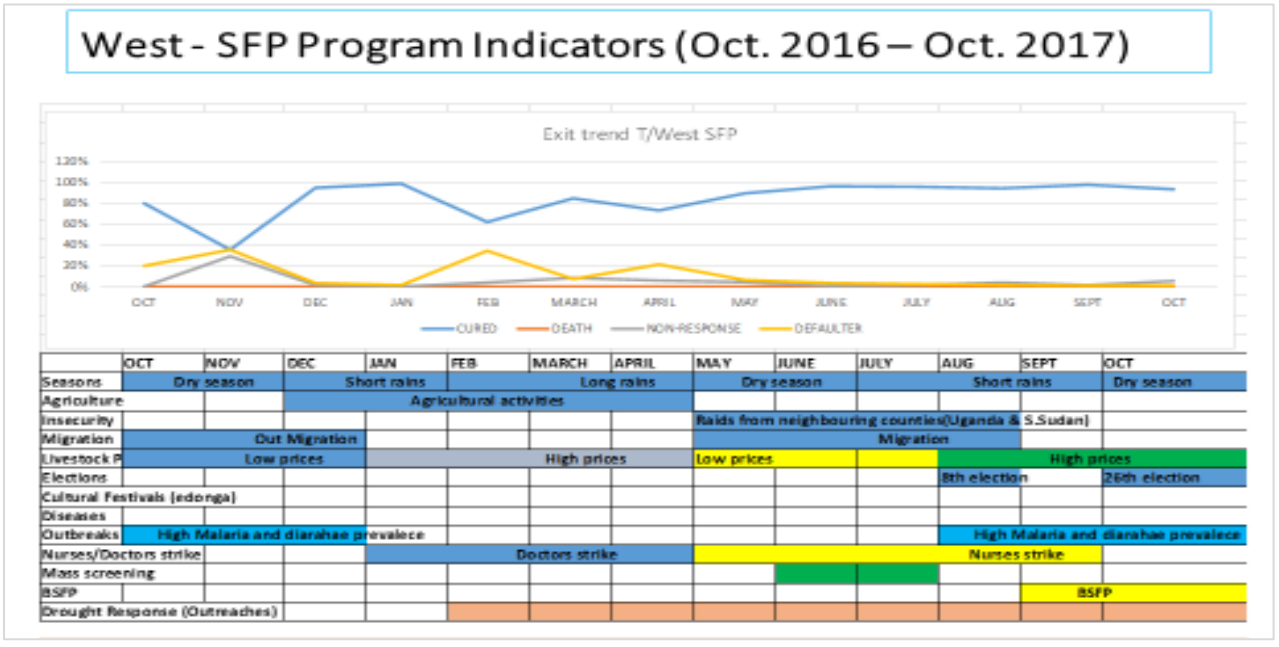
For OTP, the performance was good with all indicators ranging within the SPHERE Standards. In the months of February, May and June 2017 high defaulter rates were recorded attributed to long distance to the service delivery points and migration. One facility i.e. Lomunyanarionok reported one death out of 7 exits hence the high death rate recorded in February 2017.



	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT
Seasons	Dry season		Short rains		Long rains			Dry season			Short rains		Dry season
Agriculture			Agricultural activities										
Insecurity								Raids from neighbouring counties(Uganda & S.Sudan)					
Migration	Out Migration							Migration					
Livestock P	Low prices			High prices				Low prices			High prices		
Elections											8th election		26th election
Cultural Festivals (edonga)													
Diseases													
Outbreaks	High Malaria and diarahae prevalece										High Malaria and diarahae prevalece		
Nurses/Doctors strike				Doctors strike				Nurses strike					
Mass screening													
BSFP												BSFP	
Drought Response (Outreaches)													

Figure 12: OTP programme indicators for Turkana West

In the SFP, the trend analysis of the indicators revealed that overall performance for the period under investigation was good with all indicators within SPHERE Standards. High defaulter rates were reported for the months of February and April 2017. Kakuma Sub-County Hospital, Lokangae and Nanam health centres reported high number of defaulters that was associated with out migration.



	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT
Seasons	Dry season		Short rains		Long rains			Dry season			Short rains		Dry season
Agriculture			Agricultural activities										
Insecurity								Raids from neighbouring counties(Uganda & S.Sudan)					
Migration	Out Migration							Migration					
Livestock P	Low prices			High prices				Low prices			High prices		
Elections											8th election		26th election
Cultural Festivals (edonga)													
Diseases													
Outbreaks	High Malaria and diarahae prevalece										High Malaria and diarahae prevalece		
Nurses/Doctors strike				Doctors strike				Nurses strike					
Mass screening													
BSFP												BSFP	
Drought Response (Outreaches)													

Figure 13: SFP programme indicators for Turkana West

Turkana East

Admission trends

The high peaks for OTP admissions in the months of February and August 2017 was due to the mass screening and scale up of integrated health and nutrition outreaches during emergency response. There were low admissions in December 2016 which was associated with insecurity in the hot spots areas targeted for response.

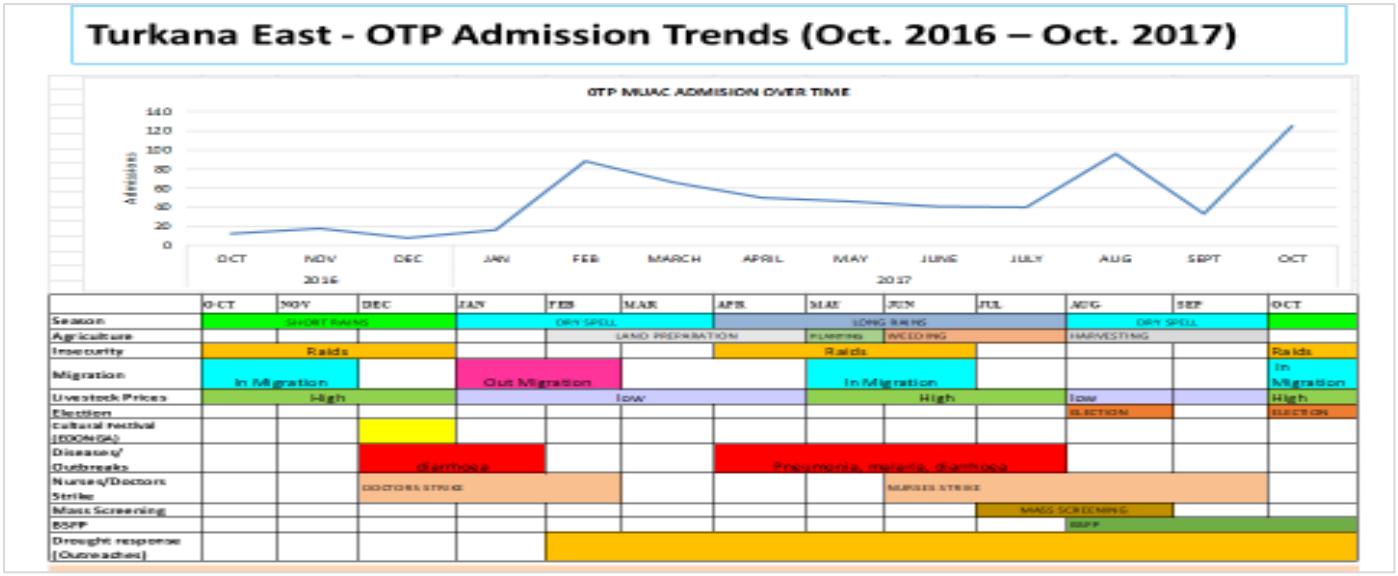


Figure 14: OTP admission trends for Turkana East

The high peaks for SFP admissions in the months of February and August 2017 was due to the mass screening and scale up of integrated health and nutrition outreaches during emergency response. .Low admissions were noted in December 2016 and were associated with insecurity issues caused by cattle raids making most of the hot spots targeted for interventions inaccessible.

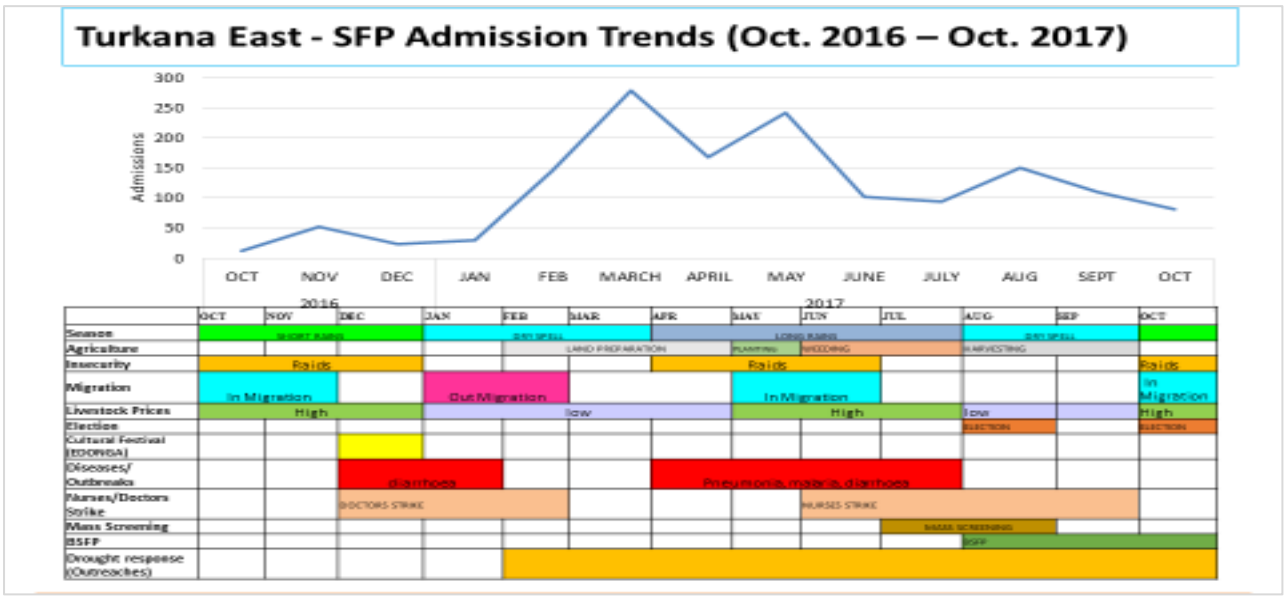


Figure 15: SFP admission trends for Turkana East

MUAC at admission

The median MUAC at admissions for OTP was 11.3 cm which indicated early admissions in most of the health facilities. However, there were late admissions with some of the severely malnourished children detected after they had deteriorated (MUAC <10.5 cm).

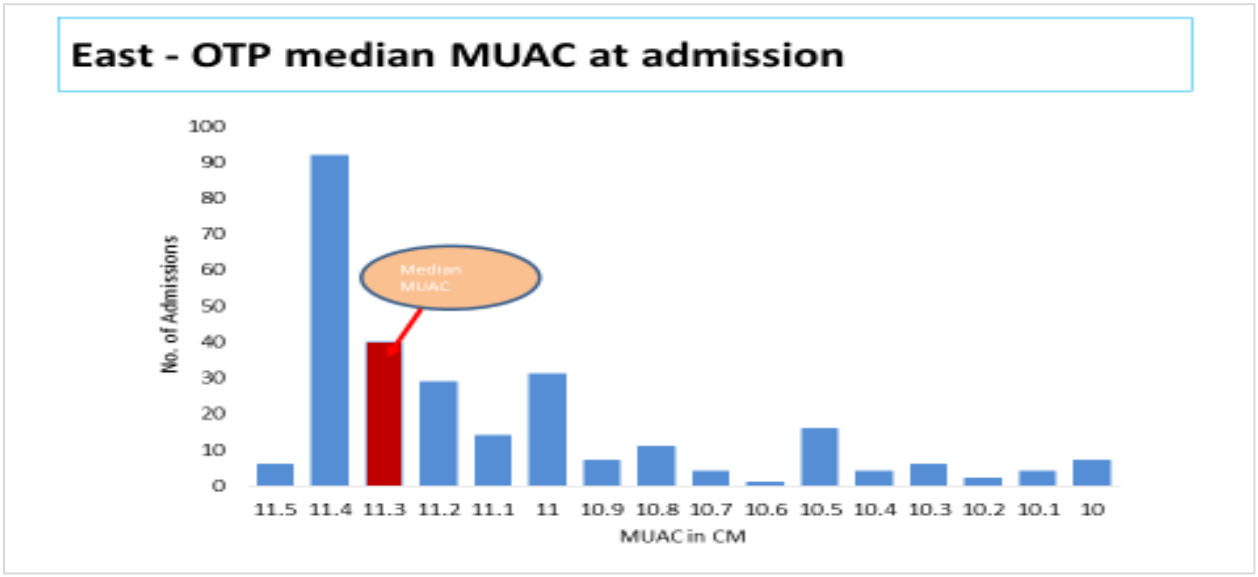


Figure 16: OTP median MUAC of admission measurement for Turkana East

The median MUAC (12.2 cm) at admissions showed that there was early detection and enrolment of moderately malnourished children into SFP. Few cases were admitted with a MUAC of 12.5 cm and above an indication of poor adherence to IMAM protocol however it was noted both MUAC and WHZ were used in health facilities implementing IMAM programme.

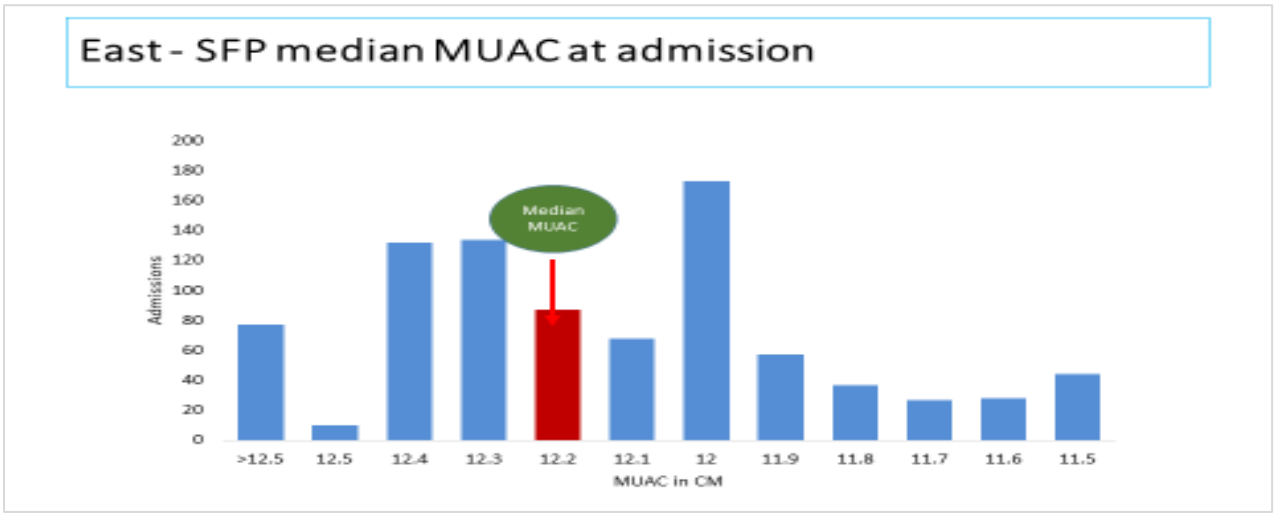


Figure 17: SFP median MUAC of admission measurement for Turkana East

Median Average LOS

Early defaulting noted at the 2nd visit. Reasons for defaulting were migration and mothers' workload during land preparation and harvesting periods.

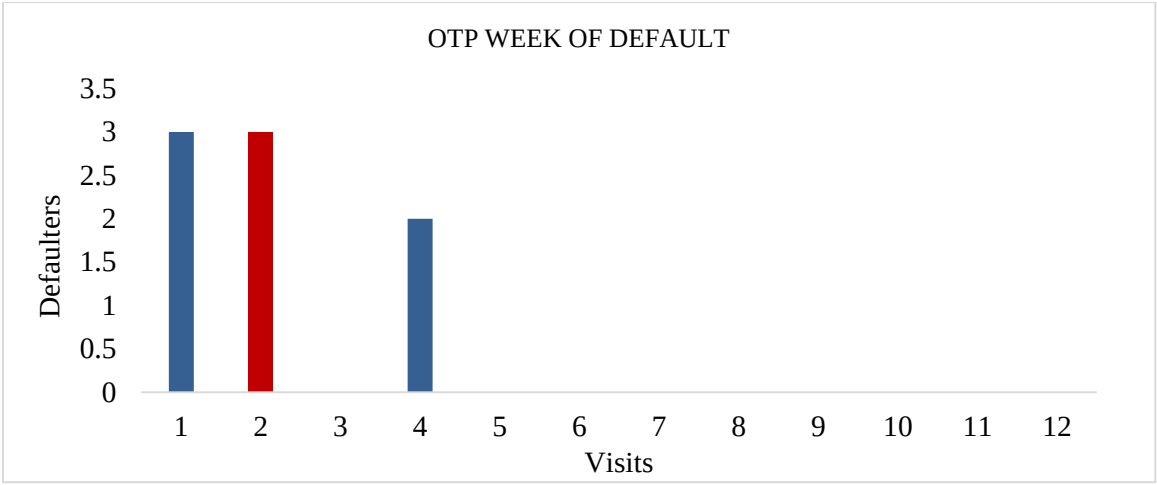


Figure 18: OTP median week of default for Turkana East

Early defaulting noted for SFP at the 2nd visit. Reasons for defaulting were migration and mothers' workload during land preparation and harvesting periods.

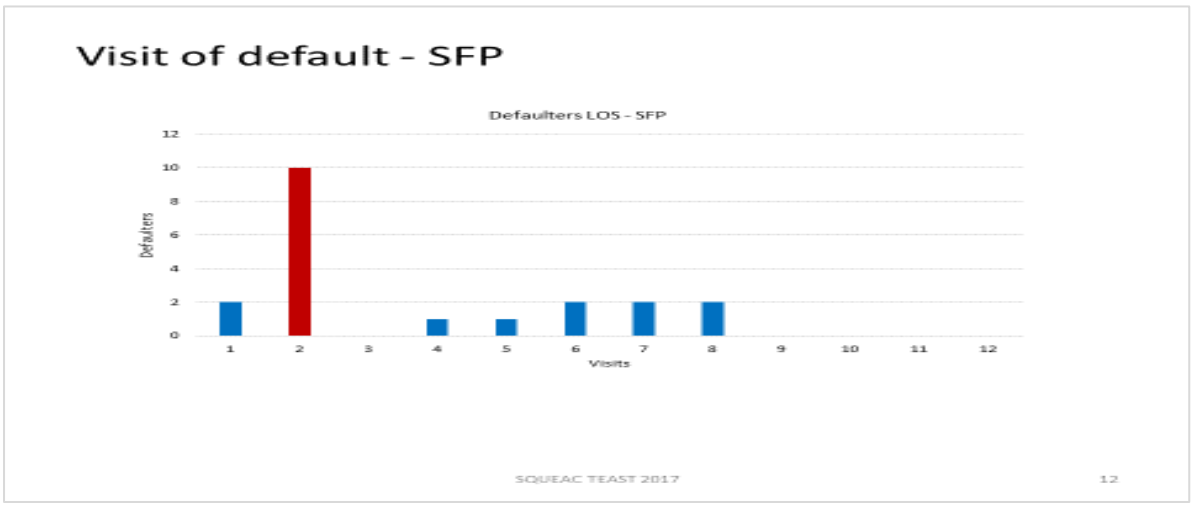


Figure 19: SFP median week of default for Turkana East

MUAC at discharge

The median MUAC of discharge for OTP (12.7cm) showed that children were discharged from the program after they long met the criteria for exit. However, both MUAC and WHZ were used to discharge in most of the health facilities.

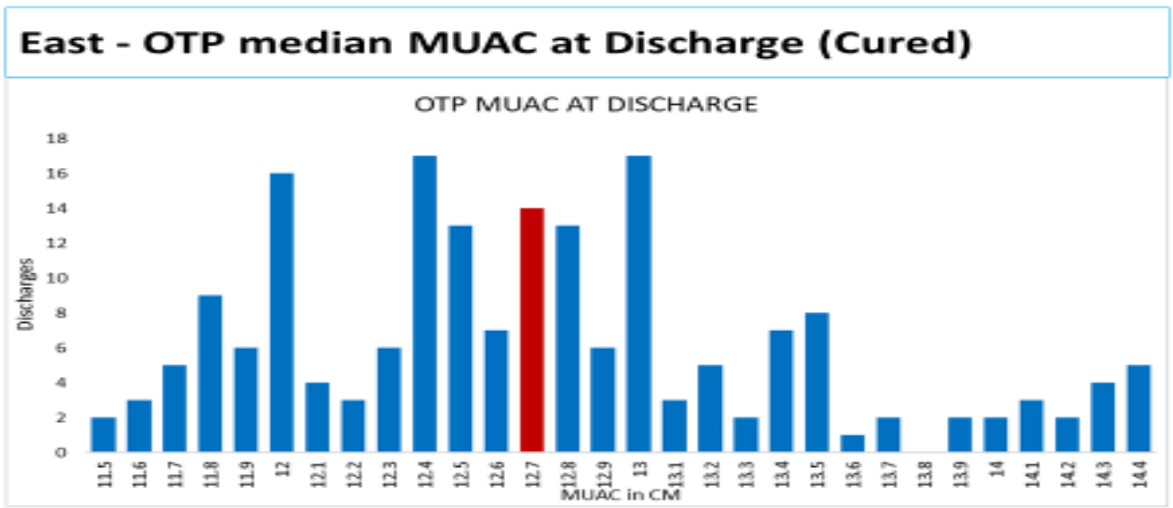


Figure 20: OTP median MUAC of discharge measurement for Turkana East

The SFP median MUAC (13.0cm) at discharge revealed majority of children got cured and exited the SFP with a MUAC higher than that recommended in IMAM protocol.

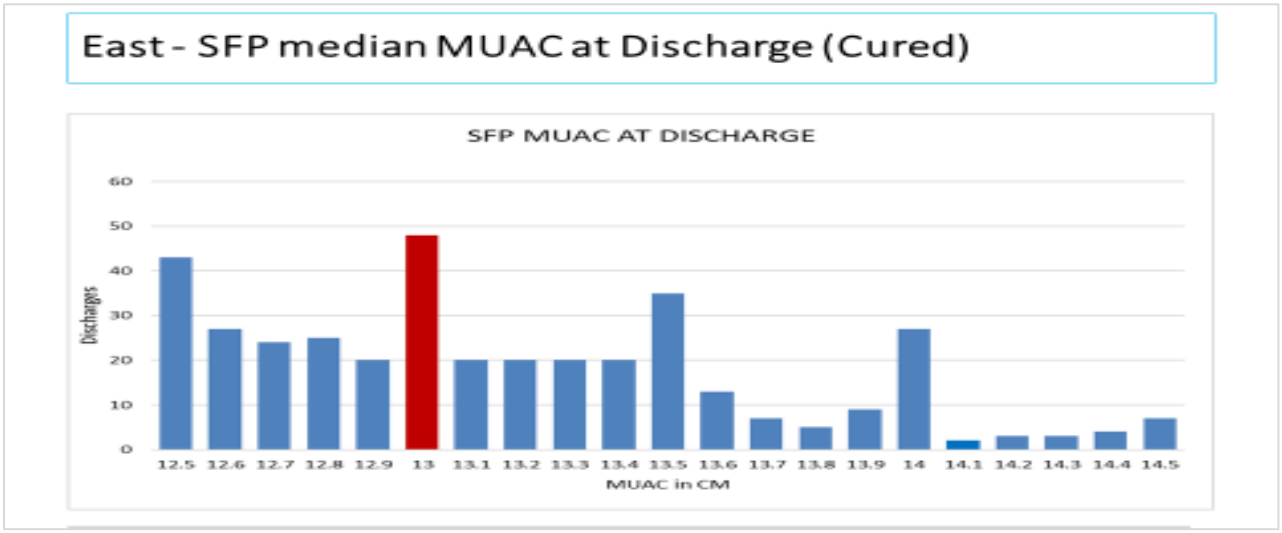


Figure 21: SFP median MUAC of discharge measurement for Turkana East

MUAC at default

Analysis of MUAC measurement at default revealed most clients defaulted with a MUAC of 12.4 cm meaning they defaulted while still being active cases. This was a barrier to programme coverage since clients did not stay in the program until full recovery.

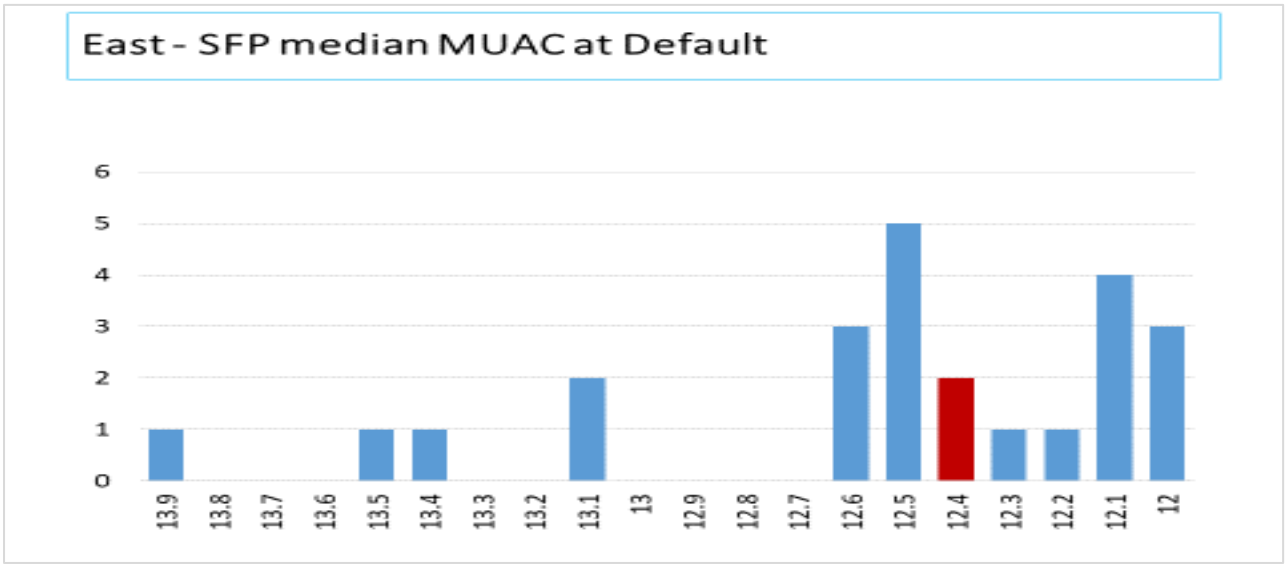


Figure 22: SFP median MUAC of default measurement for Turkana East

Program Indicators

Out migration due to drought was the main cause of high defaulter rate hence low cure rate of OTP cases in January, February and August 2017 in Turkana East sub-county.

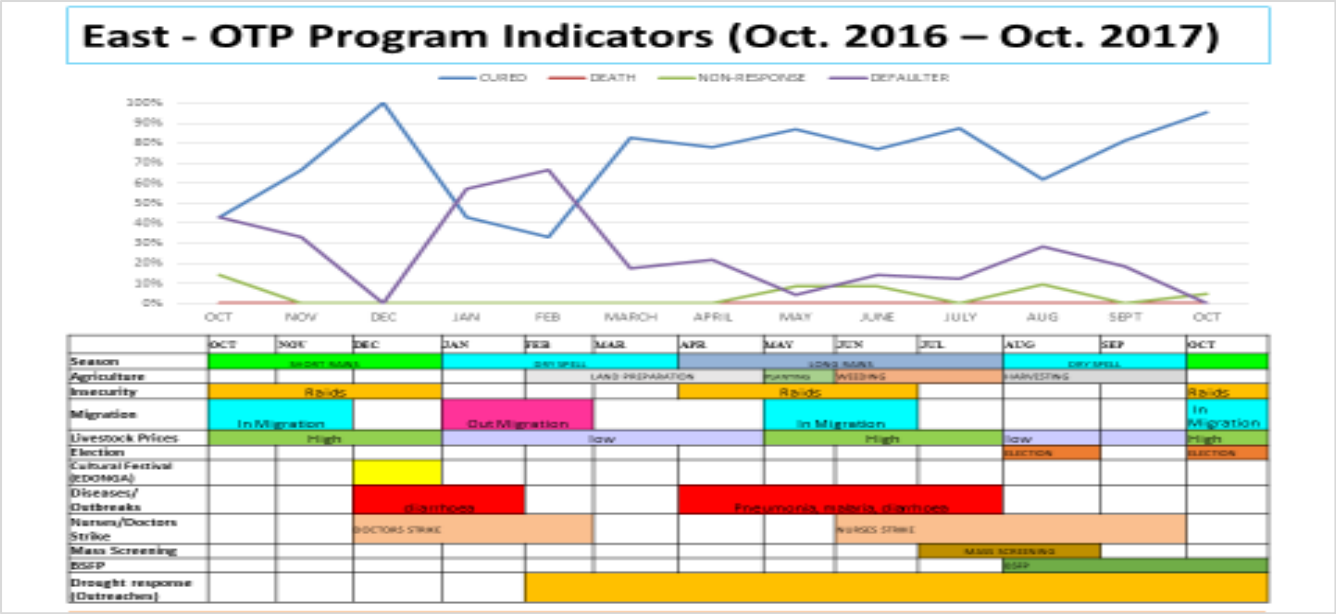


Figure 23: OTP programme indicators for Turkana East

In Turkana East, the SFP program recorded high defaulter rate which led to low cure rate in SFP in the month of August 2017. This was attributed to out migration due to dry spell experienced during the period.

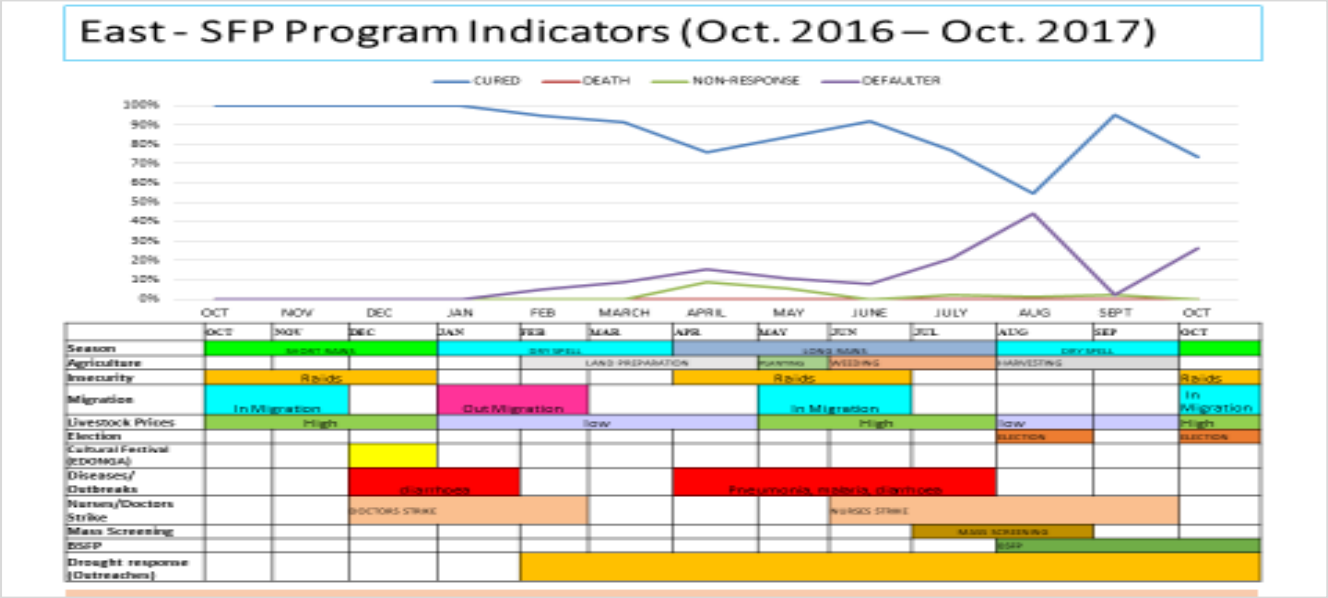


Figure 24: SFP programme indicators in Turkana East

Turkana North

Admission trends

The peak in November 2016 showed increased admissions as a result of mass screening. In February and April 2017, highest peaks were noted which was associated with the mass screening and scale up of integrated health and nutrition outreaches. The lowest peak in July-2017 for some facilities was due to the nurses' strike.

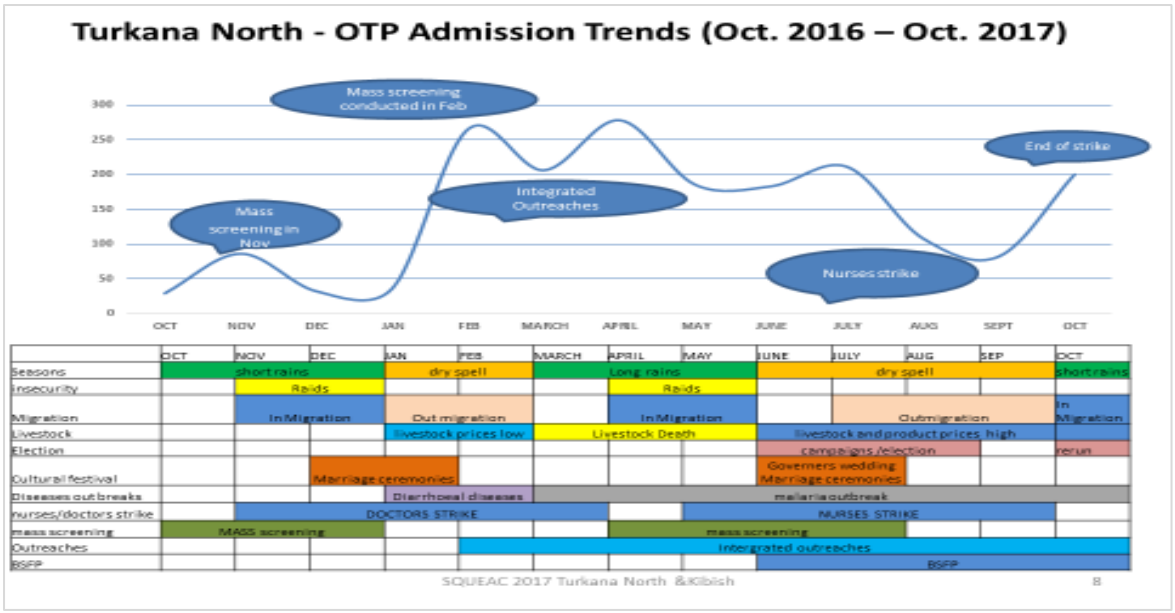


Figure 25: OTP admission trends for Turkana North

In the SFP, there were high admissions in March 2017 which was due to scale up of integrated outreaches after the failure of long rains. Increase in admissions in May was due to integration of nutrition screening and referral through BSFP distributions.

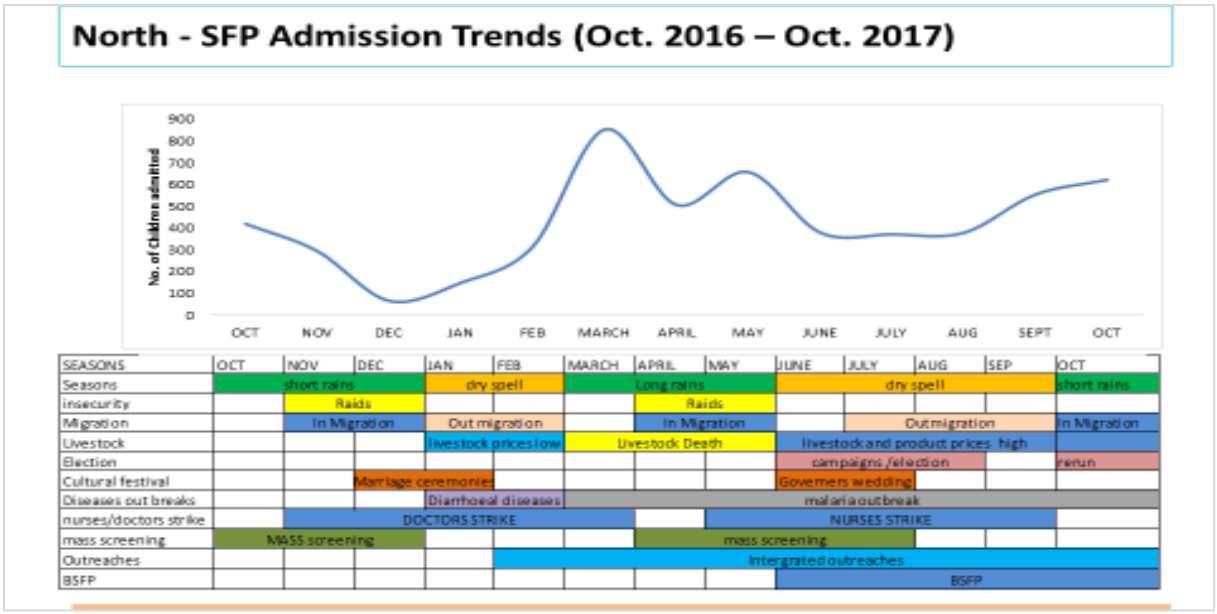


Figure 26: SFP admission trends for Turkana North

MUAC at admission

The median MUAC measurements for OTP in Turkana North sub-county revealed that there was early detection of severely malnourished cases in majority of health facilities for the period under investigation. However, there were some late admissions (Severely malnourished children with MUAC <10.5 cm). It was key to note that both MUAC and WHZ were used thus some high MUAC admissions (>11.5 cm)

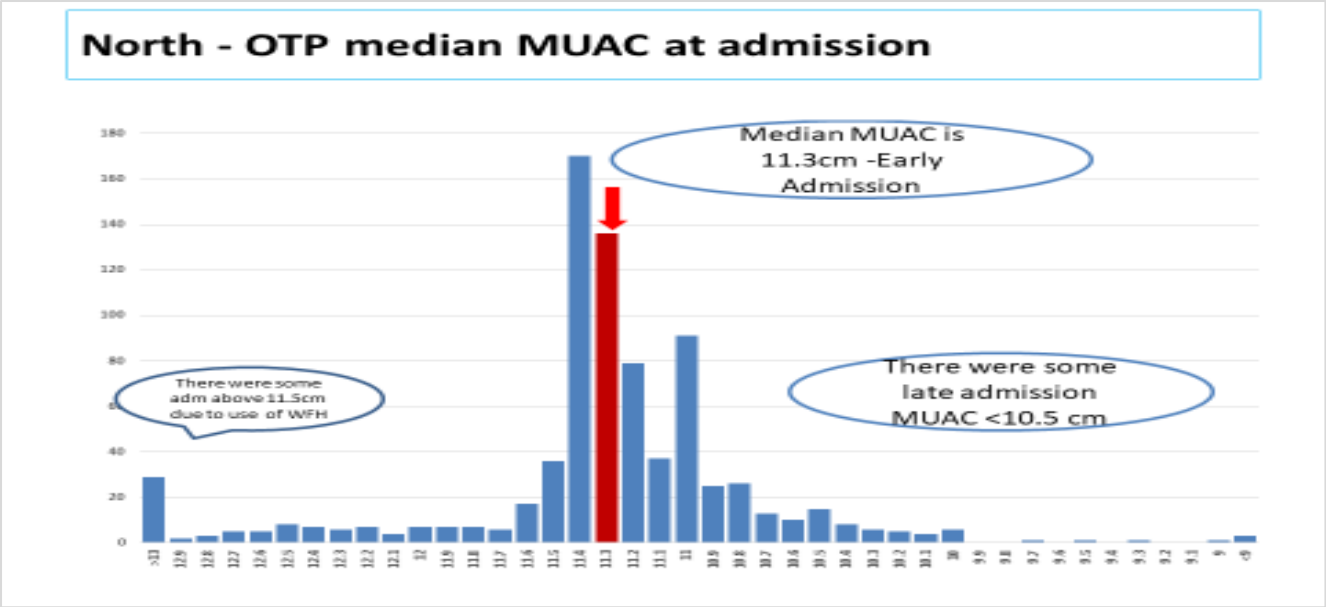


Figure 27: OTP median MUAC of admission measurement for Turkana North

The SFP median MUAC at admission showed early detection of moderately malnourished children (MUAC 12.2 cm) although there were some late admissions (<11.5 cm) noted from the health facilities source documents i.e. SFP register.

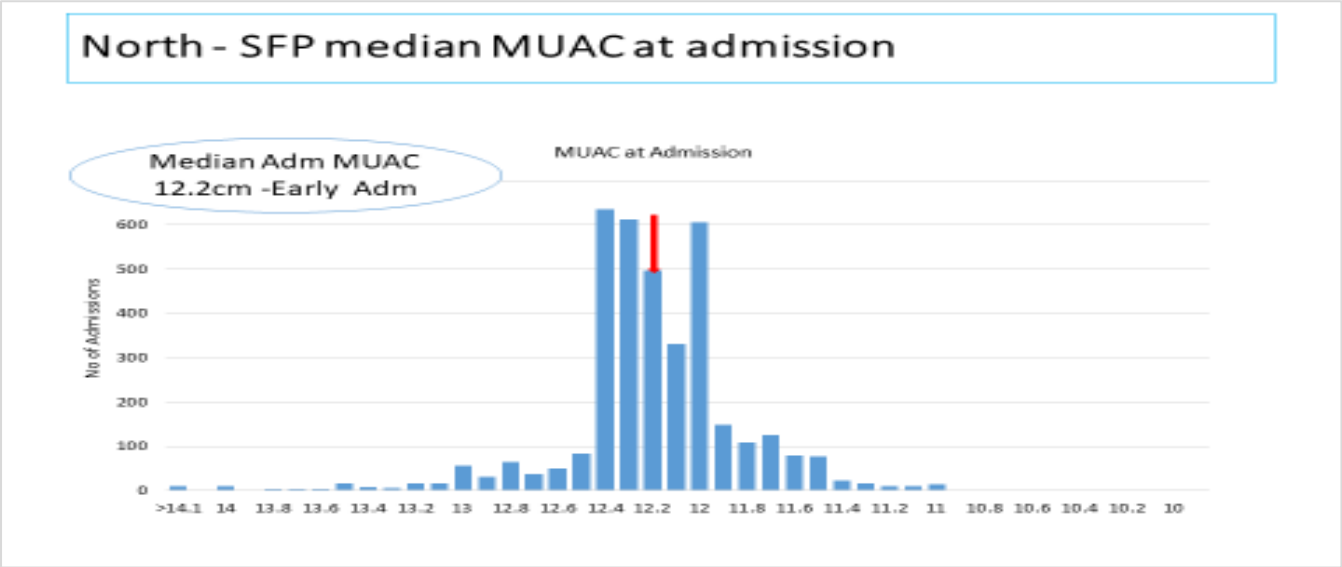


Figure 28: SFP median MUAC of admission measurement for Turkana North

MUAC at discharge

The MUAC measurement showed that majority of children exited the SFP when they were cured evidenced by the median MUAC of 13.2 cm which is higher the 12.5 cm IMAM guideline cut off.

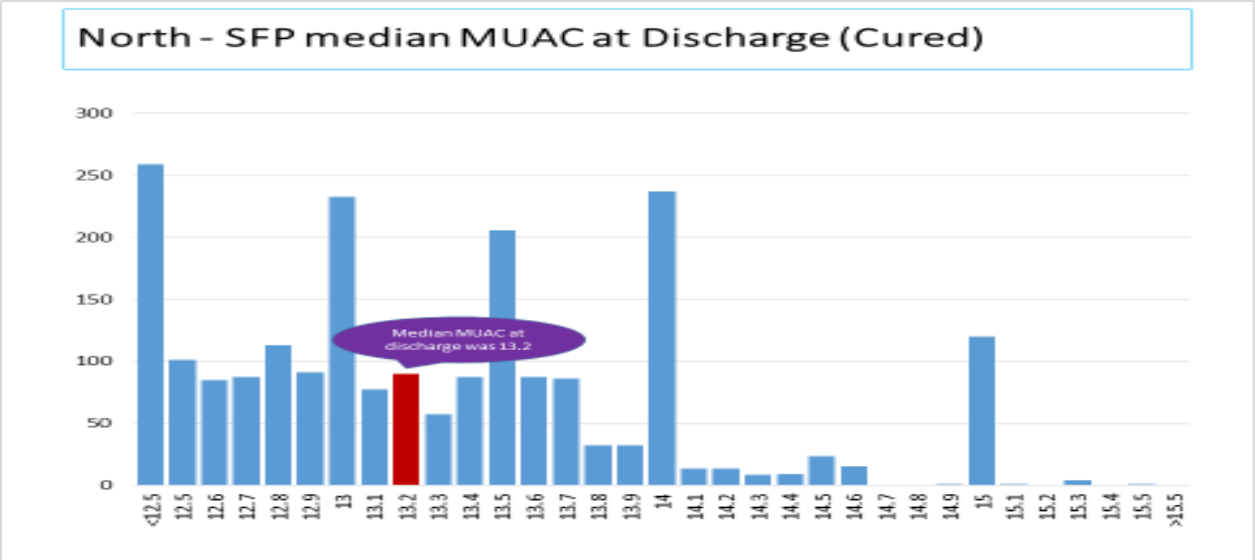


Figure 29: SFP median MUAC of discharge measurement for Turkana North

Median ALOS

The median visit of discharge for the cured was visit 4.Early discharges were noted in visit 1 and 2 which were mainly associated with non-adherence to the criteria that was used for admission at the point of discharge (for instance cases admitted through WFH being discharged through MUAC).Late discharges were also observed in visit 9-12 which was associated with non-adherence to the prescribed ration due to sharing at the household level.

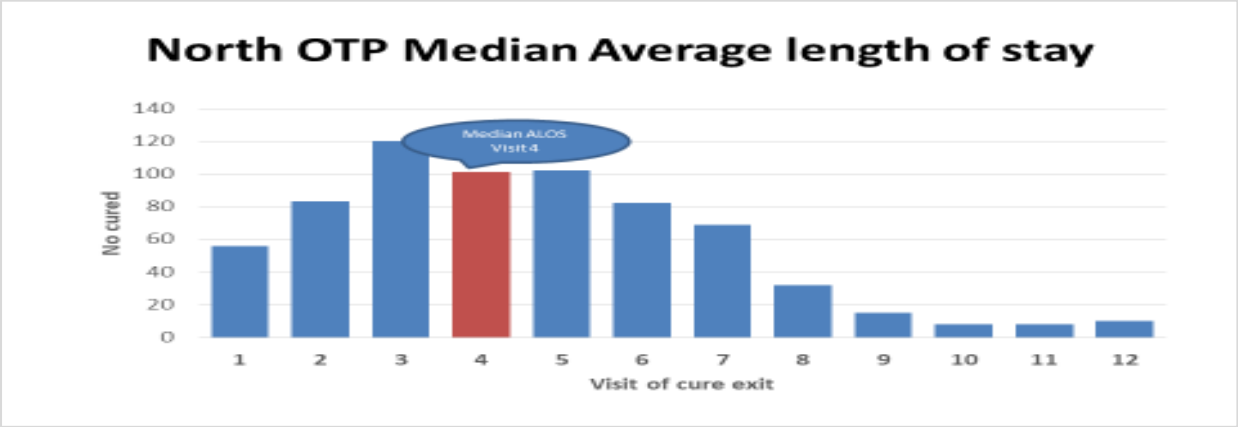


Figure 30: OTP average length of stay for Turkana North

The median length of stay in the SFP was 4 weeks. Some early exits noted (1st -3rd visit) with some overstays in the program also noted (8th -11th visit). Some early exits of week 1 were attributed to not monitoring children through the criteria that was used for admission (for instance children admitted through WFH being discharged through MUAC)

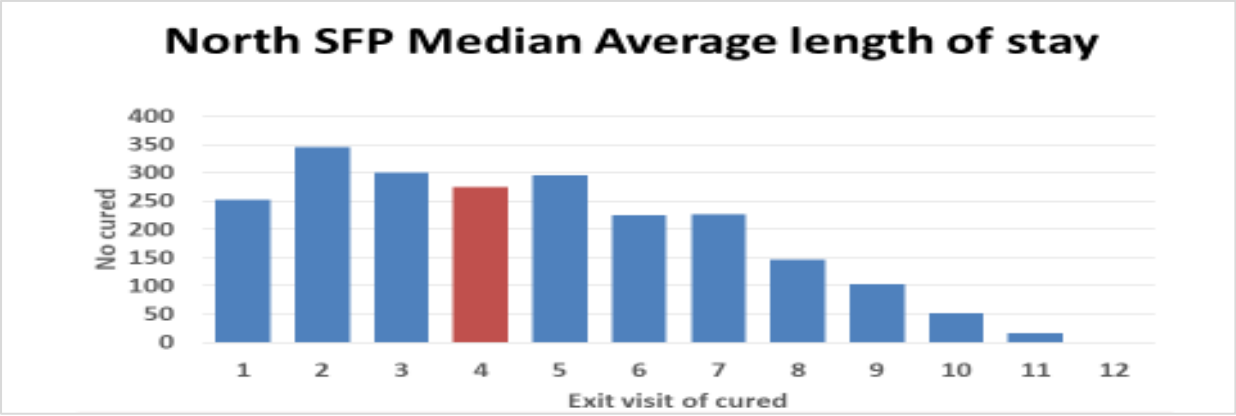


Figure 31: SFP average length of stay for Turkana North

MUAC at default

The median MUAC at default showed children exited programme with a MUAC of 12.8 cm (SAM Cases cured) however some of children defaulted while still active cases (MUAC <11.5 cm). There are elements of poor program monitoring because children were in OTP while they were supposed to be in SFP.

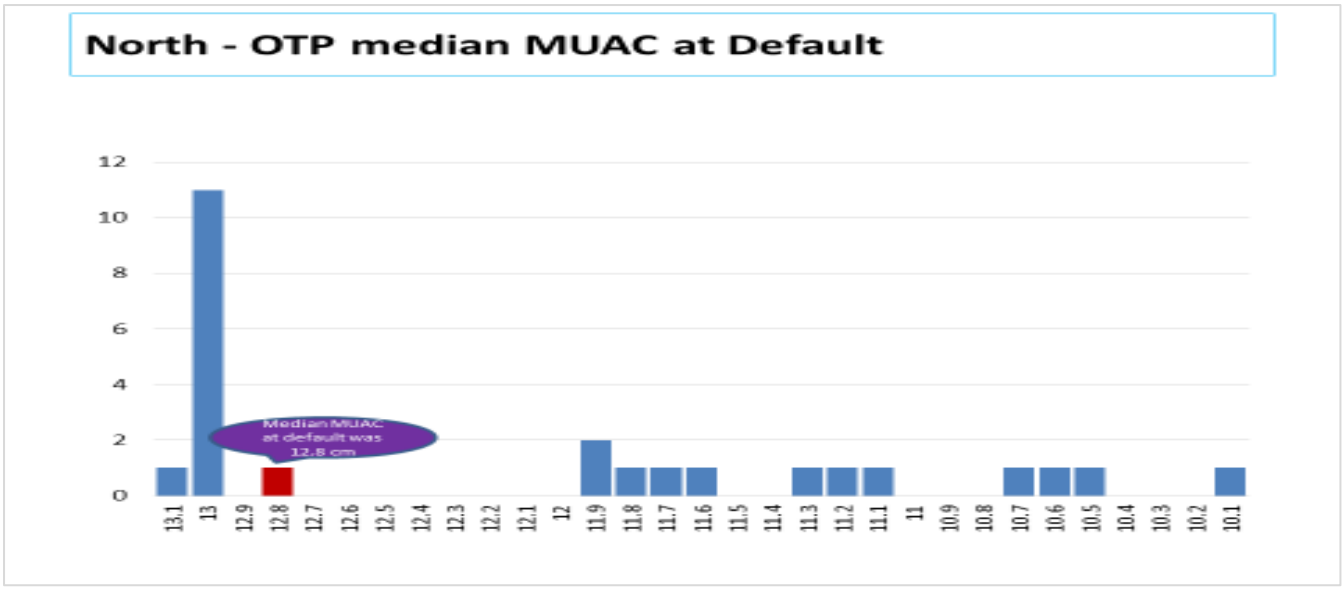


Figure 32: OTP median MUAC of default measurement for Turkana North

Analysis of the SFP MUAC measurements showed moderately malnourished defaulted from the program after reaching a MUAC of 12.8 cm (not MAM cases) which is higher than 12.5 cm (IMAM guidelines). However, there those children that defaulted from programme with MUAC <11.5 cm (SAM cases) an indicative of referral to OTP programmes. It is key to note poor documentation (no outcome recorded) in IMAM registers was identified as a barrier. Poor program monitoring and follow-up of beneficiaries could be another probable cause.

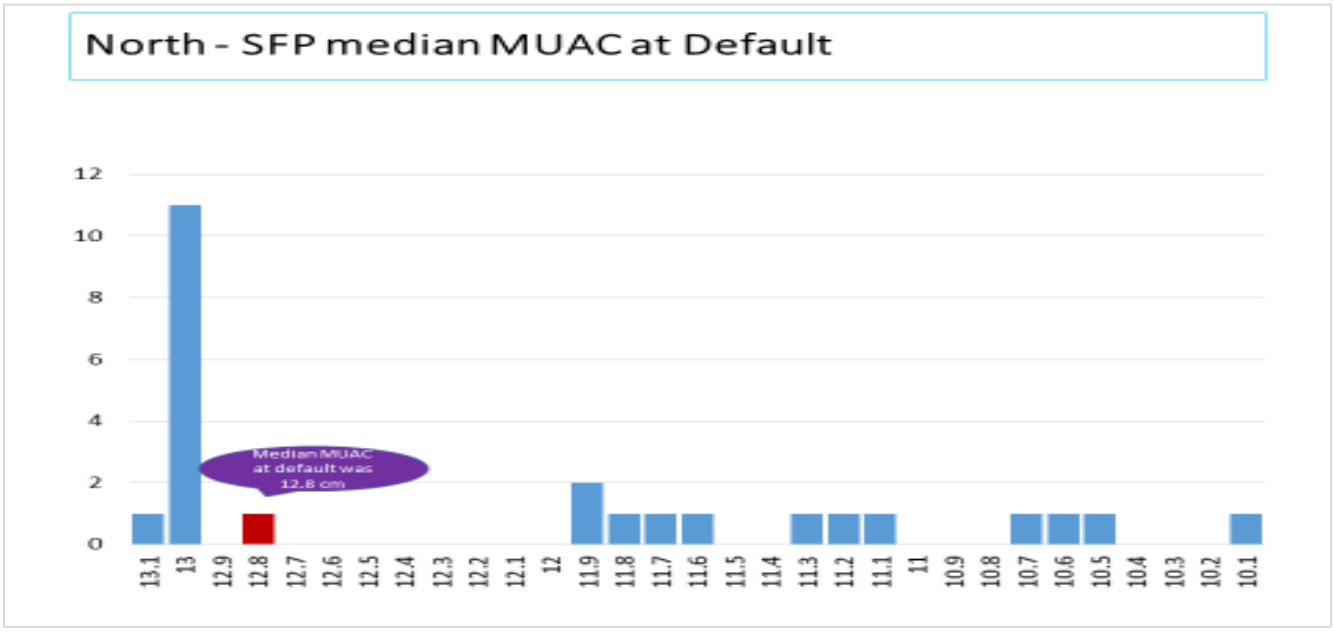


Figure 33: SFP median MUAC of default measurement for Turkana North

Program indicators

Generally, the IMAM outcome indicators consistently remained within the SPHERE standards. The defaulters' peak in January 2017 was associated with out migration that is attributed to the dry spell season.

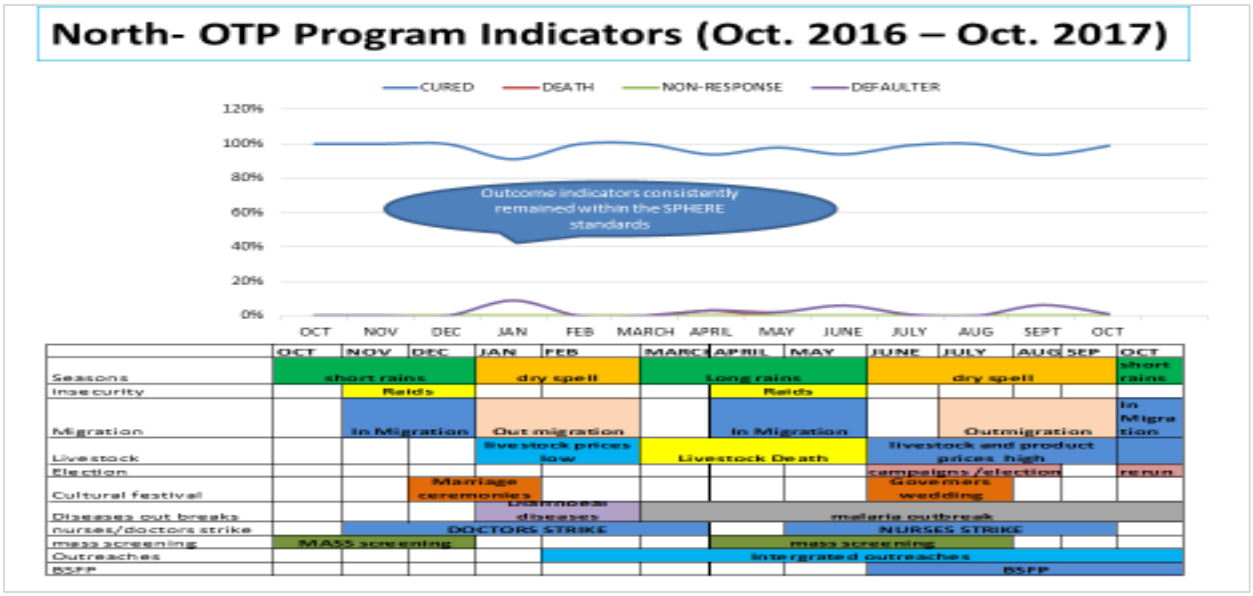


Figure 34: OTP programme indicators for Turkana North

Relatively the IMAM outcome indictors' performance was within the SPHERE standards throughout the period under investigation.

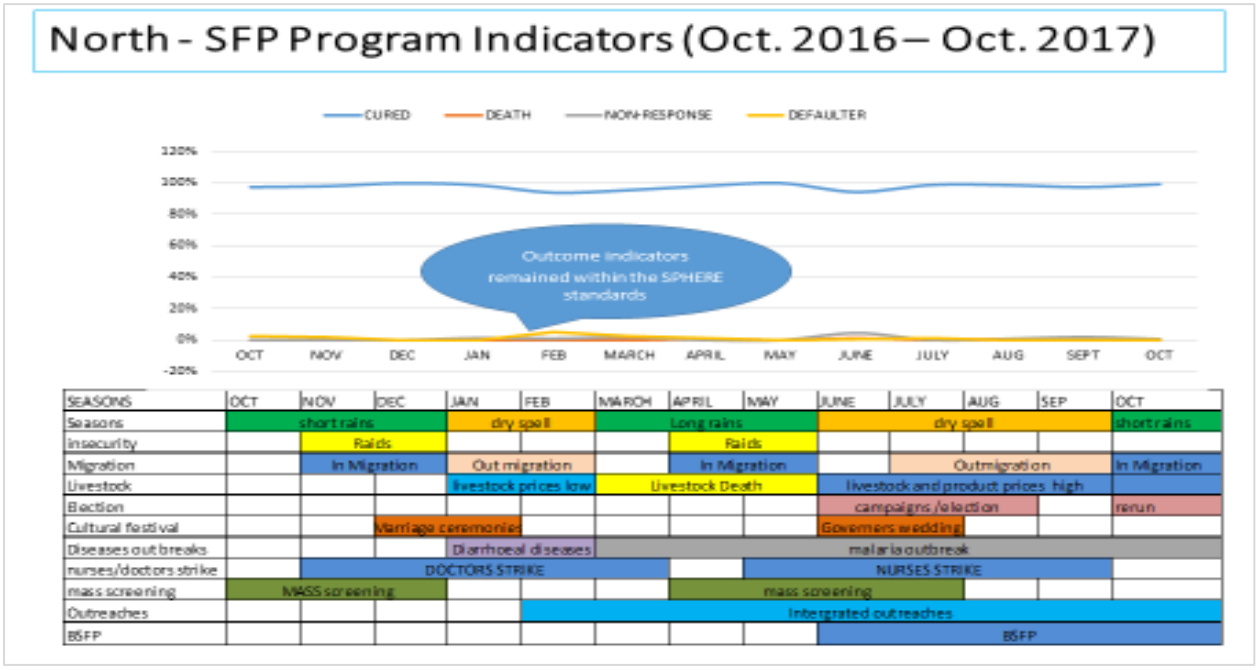


Figure 35: SFP programme indicators for Turkana North

Kibish

Admission trends

The admissions peaks in November-2016 was attributed to mass screening while in March and August 2017 it was attributed to mass screening and roll out of integrated health and nutrition outreaches. The admissions went down between May and August in some facilities due to the nationwide nurses' strike.

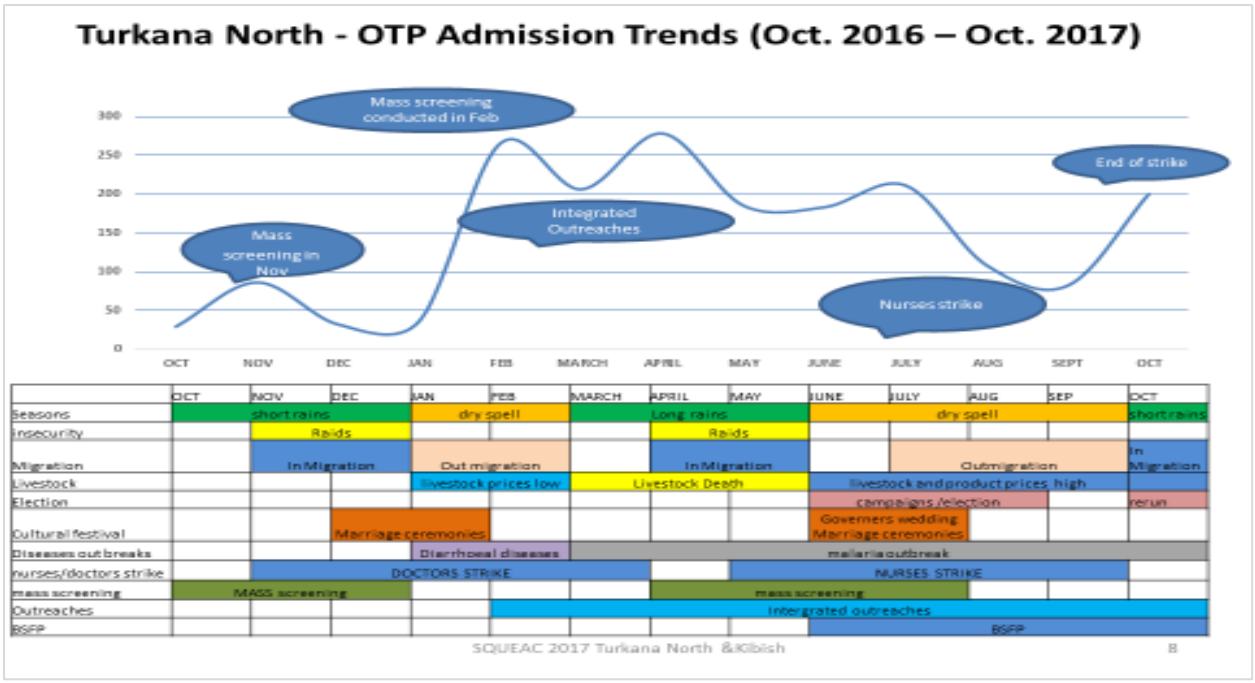


Figure 36: OTP admission trends for Kibish

In 2017, high admissions noted between February and March was mainly due to scale up of IMAM services through mass screening and outreaches. A downward trend was seen between May and August; this was because of nurses from government health facilities who went on strike which was a barrier to uptake of services.

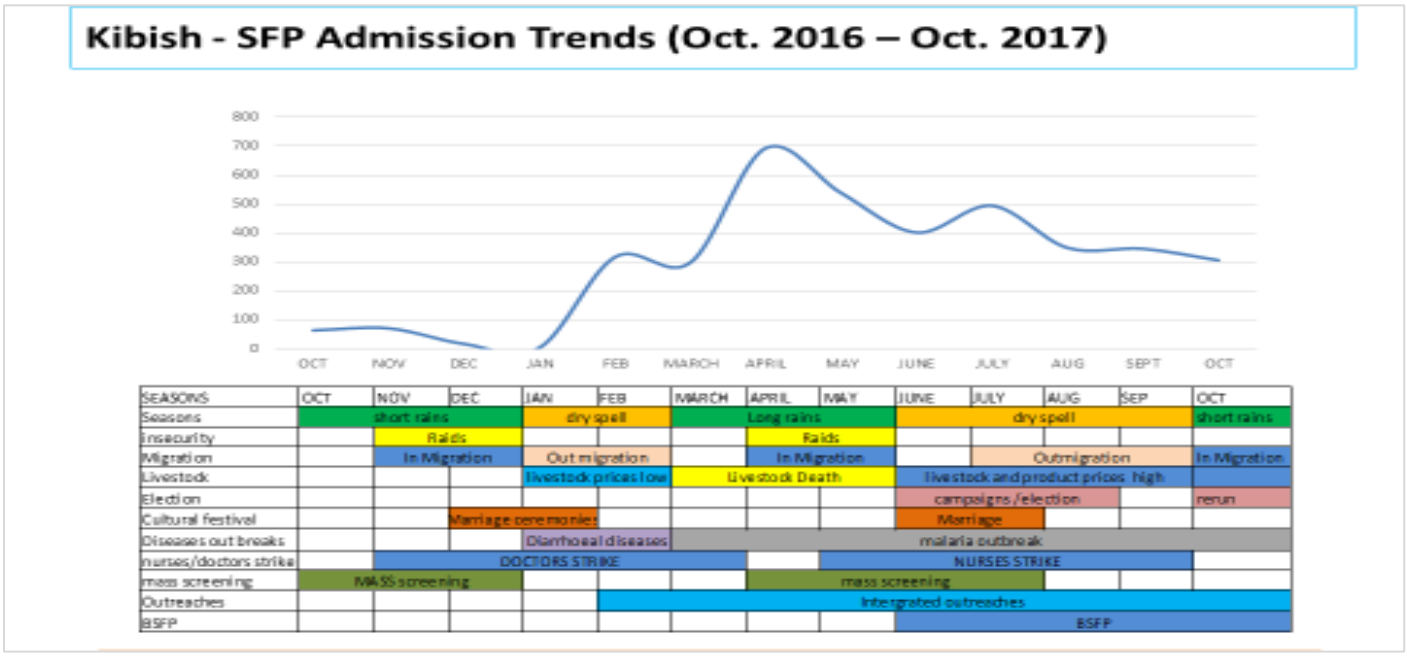


Figure 37: SFP admission trends for Kibish

MUAC at admission

Analysis of OTP median MUAC at admission revealed that there was early detection of malnourished cases (children with MUAC <11.4 cm) into the program. However, some late admissions (MUAC <10.5 cm) were noted in some health facilities.

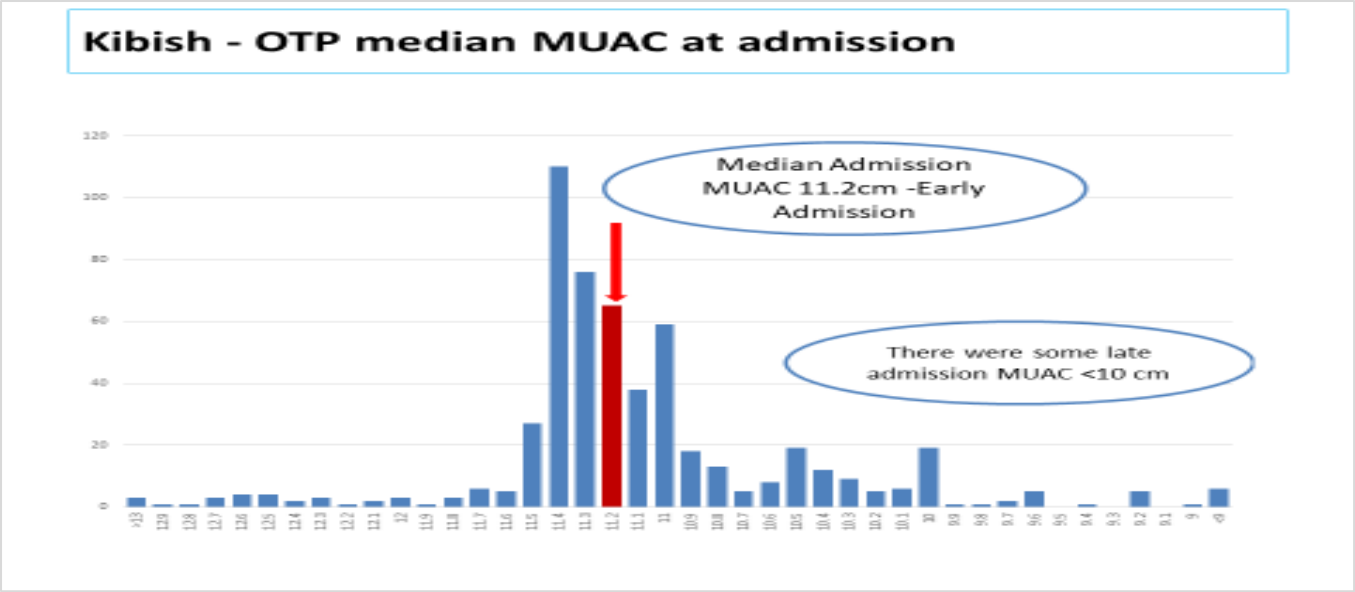


Figure 38: OTP median MUAC of admission measurement for Kibish

The median MUAC at admission showed early detection of MAM cases (Median MUAC 12.2 cm) in health facilities. However, there wrong admissions noted (MUAC <11.5) into the SFP, an indication of poor adherence to IMAM protocol which was a barrier.

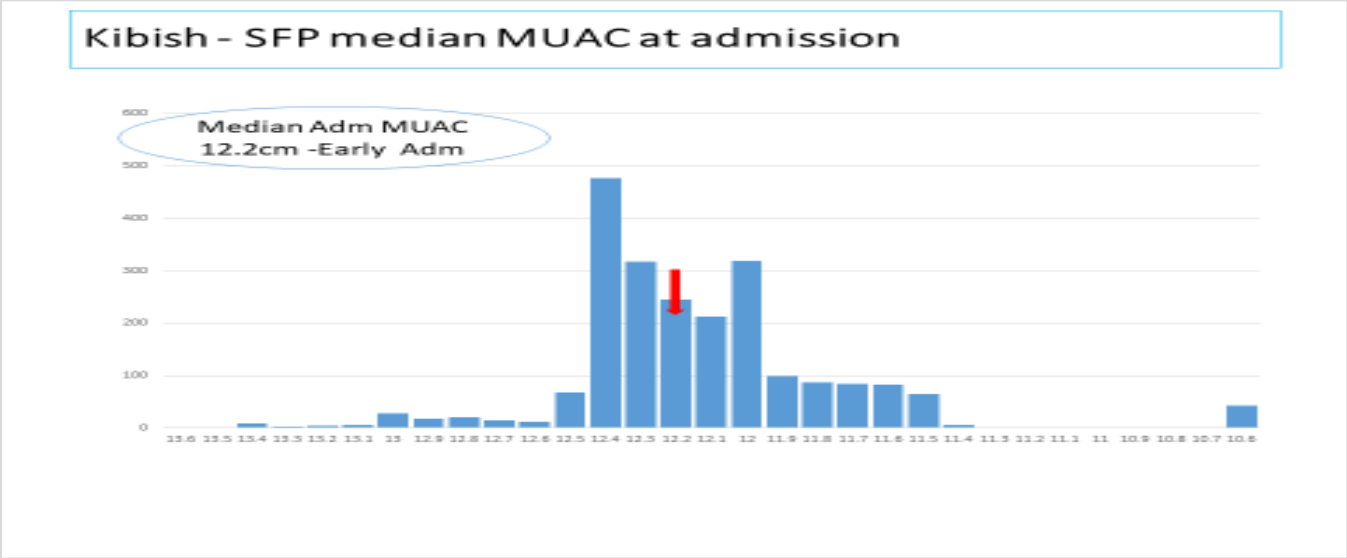


Figure 39: SFP median MUAC of admission measurement for Kibish

MUAC at discharge

Analysis of the MUAC measurement showed children were discharged after they got cured (attained MUAC above 12.5 cm or WHZ > -2). The median MUAC was higher than IMAM guideline cut off points of 12.5 cm.

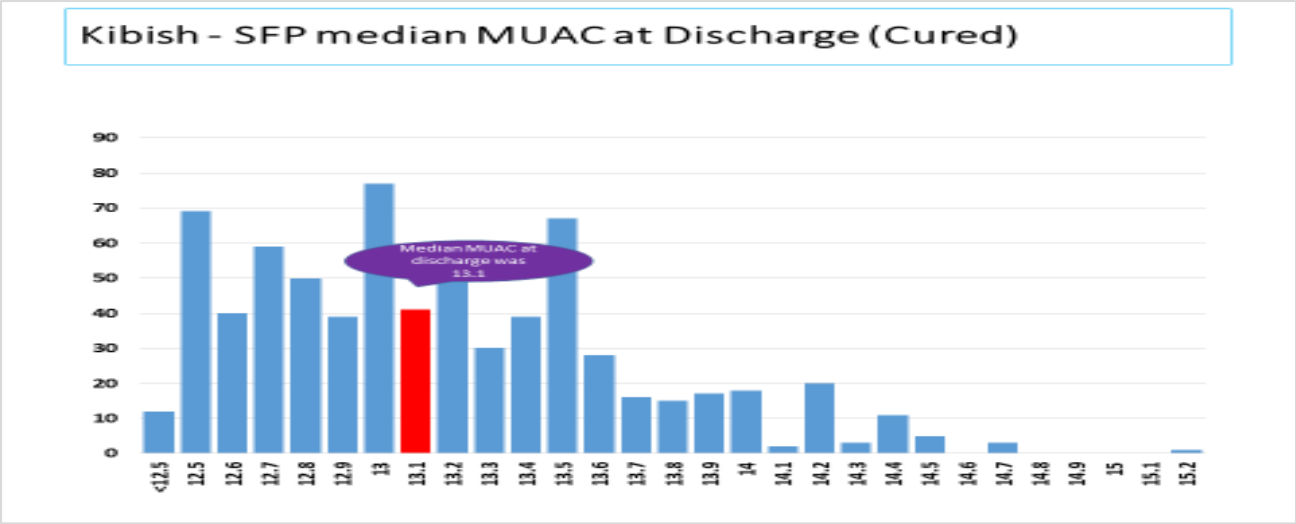


Figure 40: SFP median MUAC of discharge measurement for Kibish

Median Average LOS

The median visit of discharge for the cured was visit 5.Early discharges were noted in visit 1 and 2 which were mainly associated with non-adherence to the criteria that was used for admission at the point of discharge (for instance cases admitted through WFH being discharged through MUAC).Late discharges were also observed in visit 9-12 which was associated with non-adherence to the prescribed ration due to sharing at the household level.

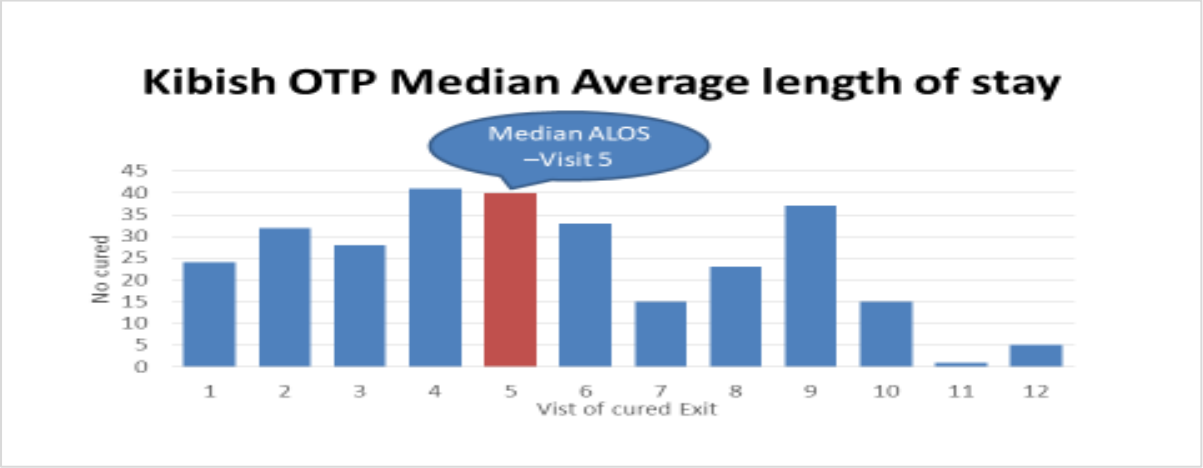


Figure 41: OTP average length of stay for Kibish

The median length of stay in the program was 5 weeks .Some early exits noted (1-3rd visit) with some overstays in the program also noted (8th -12th visit. The late exist was associated with non-adherence to prescribed ration during administration at the household level due to sharing of RUTF commodities.

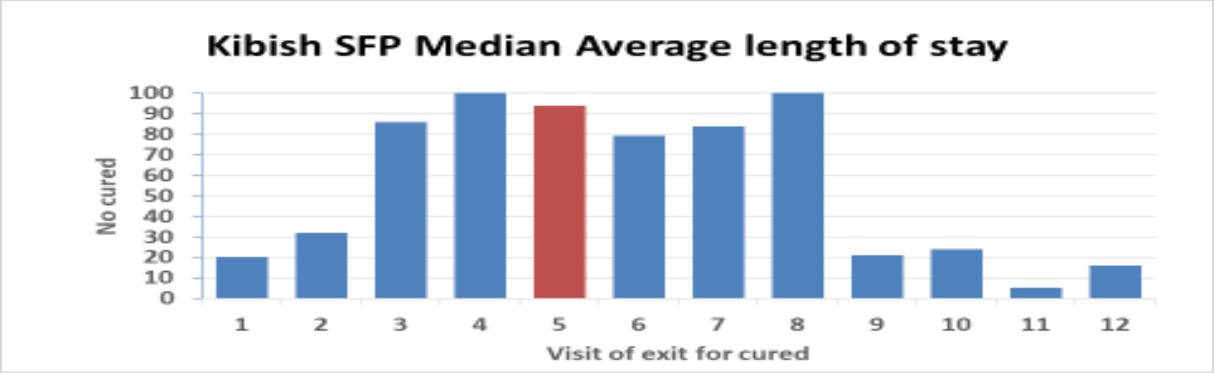


Figure 42: SFP average length of stay for Kibish

MUAC at default

The median MUAC showed that children defaulted from the program while still eligible cases (MUAC 12.2 cm). Although there were few that defaulted with a MUAC of 13.2 cm (higher than the 12.5 cm cut off points).

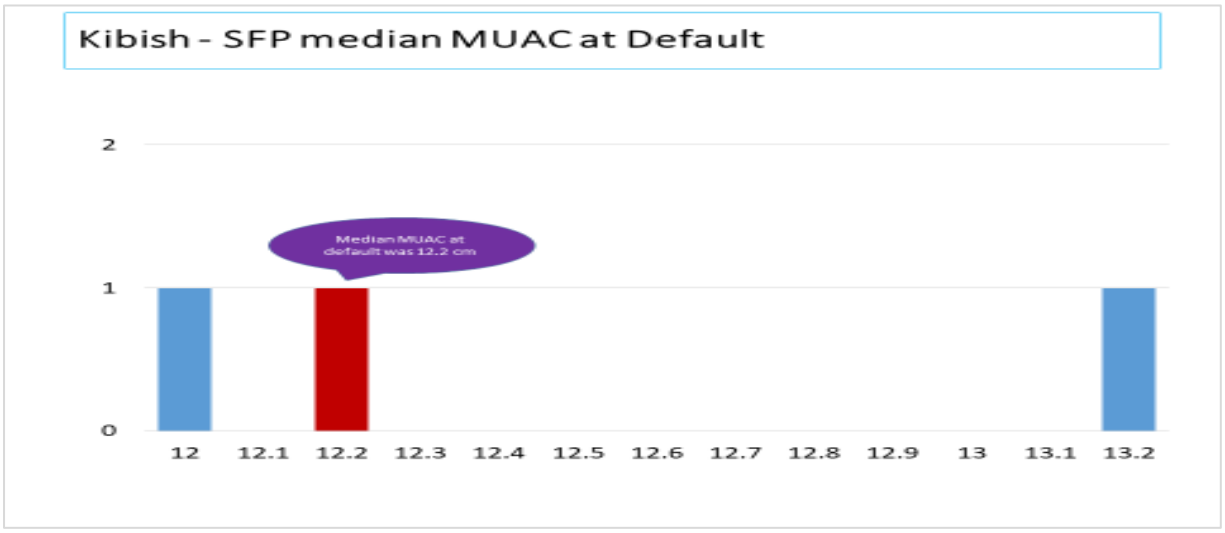


Figure 43: SFP median MUAC at default measurement for Kibish

Performance indicators

All indicators were within SPHERE standards except defaulter rate where there was an upsurge in the months of April 2017 due to out migration associated with dry spell period.

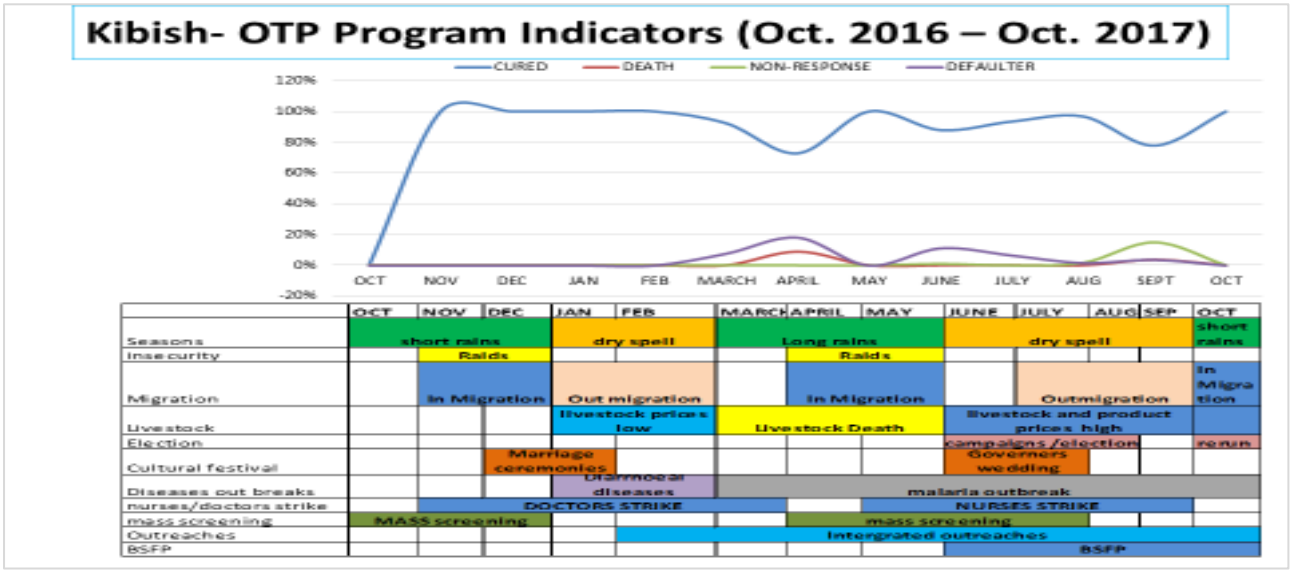


Figure 44: OTP programme indicators for Kibish

The performance indicators were all within SPHERE Standard. High defaulter rates were reported in the month of December-2016, June and September 2017 due to out migration and long distance to the IMAM sites.

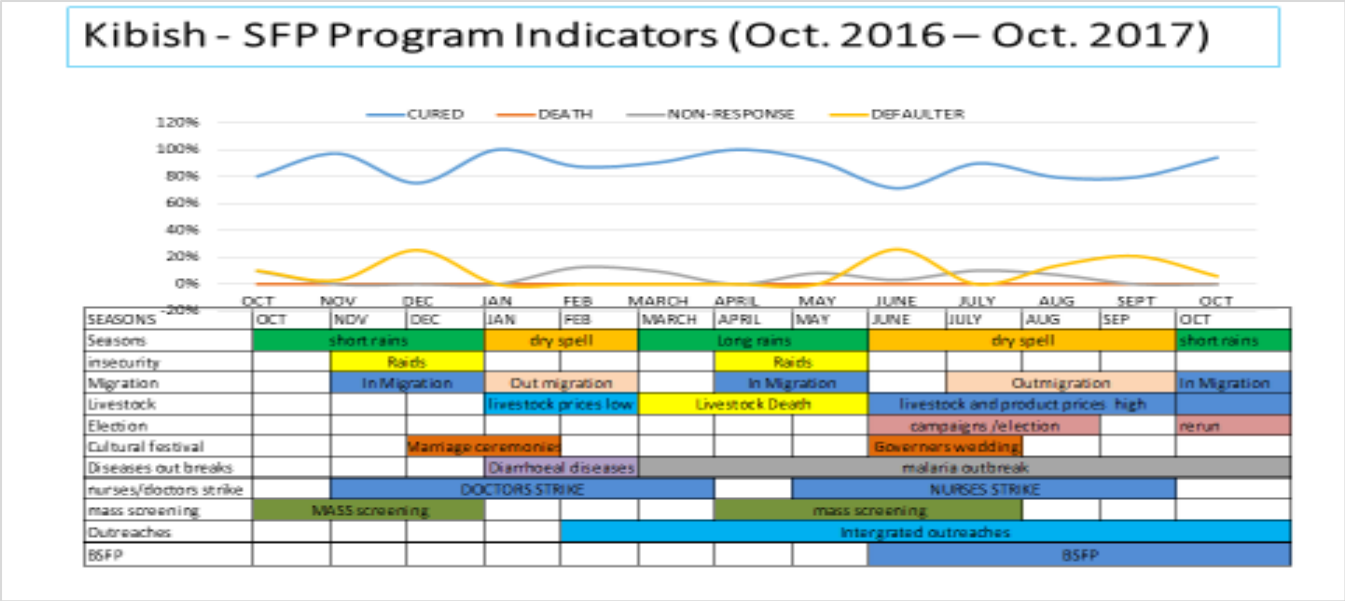


Figure 45: SFP programme indicators for Kibish

Turkana South

Admission trends

There were low admission noted between October and December 2016 associated to out migration. There was increase in admissions between April and June 2017 due to mass screening. Admission rose consistently from August to October 2017 due to BSFP screening.

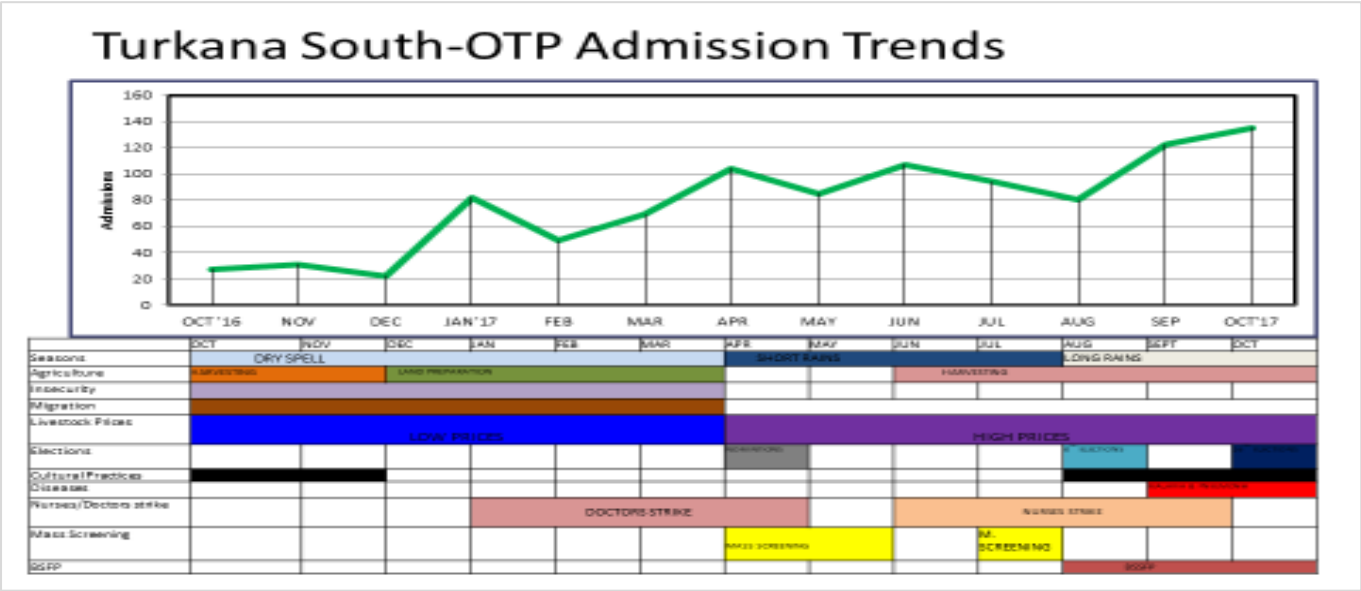


Figure 46: OTP admission trends for Turkana South

In 2017, SFP admission trend showed an increase in admissions between February and April due to scale up of integrated health and nutrition outreaches which were part of emergency response. Upward trend noted between June and August 2017 was due to mass screening and in migration (people from other parts of sub-county seeking health and nutrition services). Low admission in October – December 2016 was due to out migration due to drought.

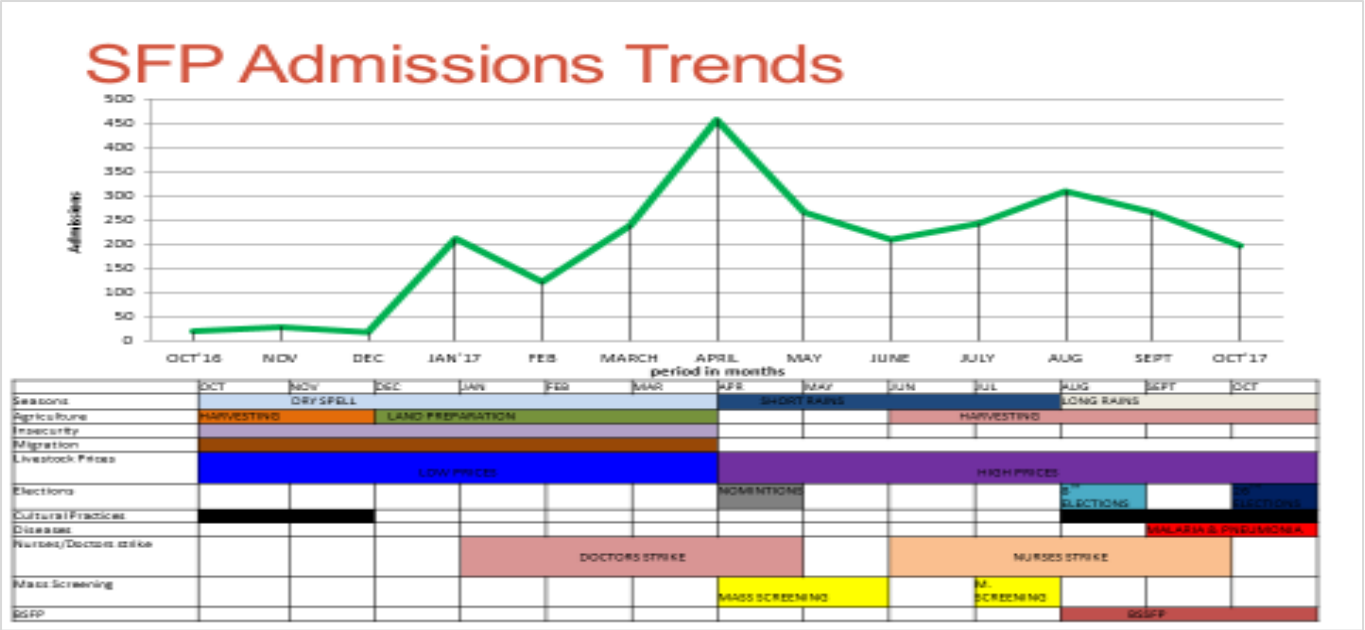


Figure 47: SFP admission trends for Turkana South

MUAC at admission

The MUAC measurement showed that there was early detection of severely malnourished (median MUAC 11.2 cm) but still some data showed there was still late admissions (children admitted into the program with a MUAC <10.5 cm).

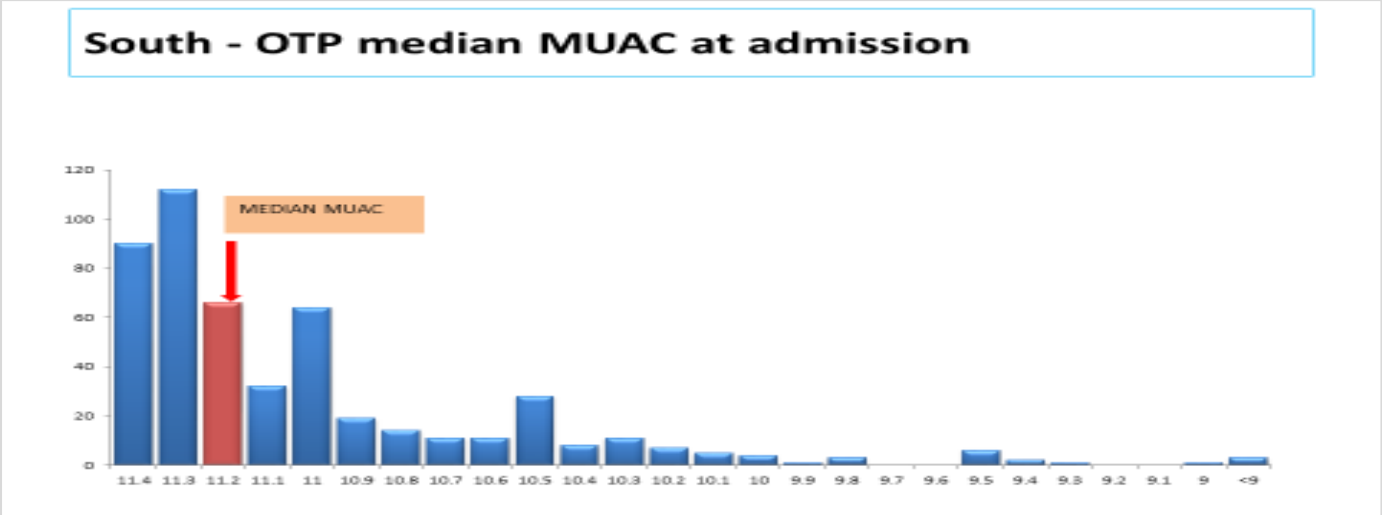


Figure 48: OTP median MUAC of admission measurement for Turkana South

For SFP, there was early detection of cases (MAM Cases). Further analysis showed the median MUAC at 12.1 cm which met the criteria for SFP admissions (MUAC between 11.5-<12.5 cm). There were few cases which were noted to have been admitted with MUAC >12.5 cm and <11.5 cm an indication of non-adherence to IMAM protocol.

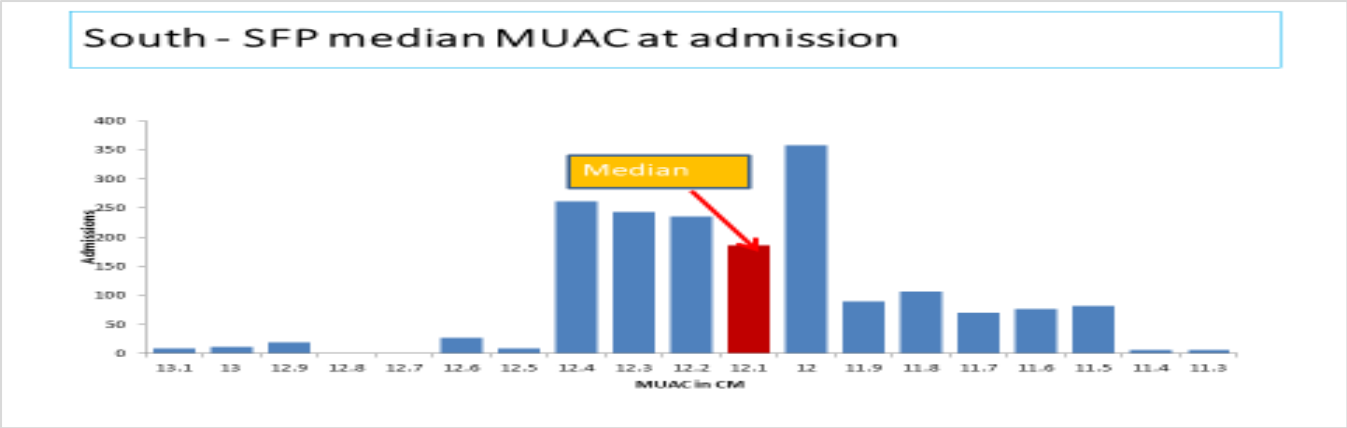


Figure 49: SFP median MUAC of admission measurement for Turkana South

MUAC at discharge

The OTP MUAC measurements showed that the exit protocol was not well followed (majority of children were discharged after attaining MUAC of 12.8 cm) which is higher than 11.5 cm (IMAM guidelines cut off). Both MUAC and WHZ criteria was used by majority of health facilities which could be the cause.

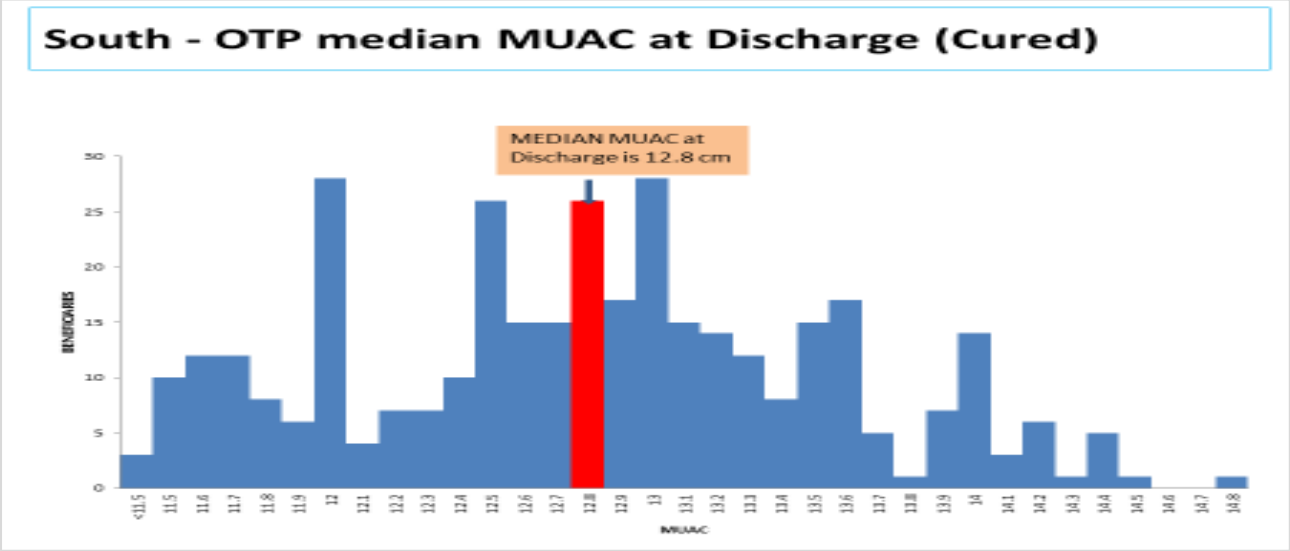


Figure 50: OTP median MUAC at discharge measurement for Turkana South

Analyses showed moderately malnourished children were cured before discharge (discharged at MUAC of 13.0 cm). However, some health facilities discharged children during early visits (discharges done evidenced by MUAC <12.5 cm).

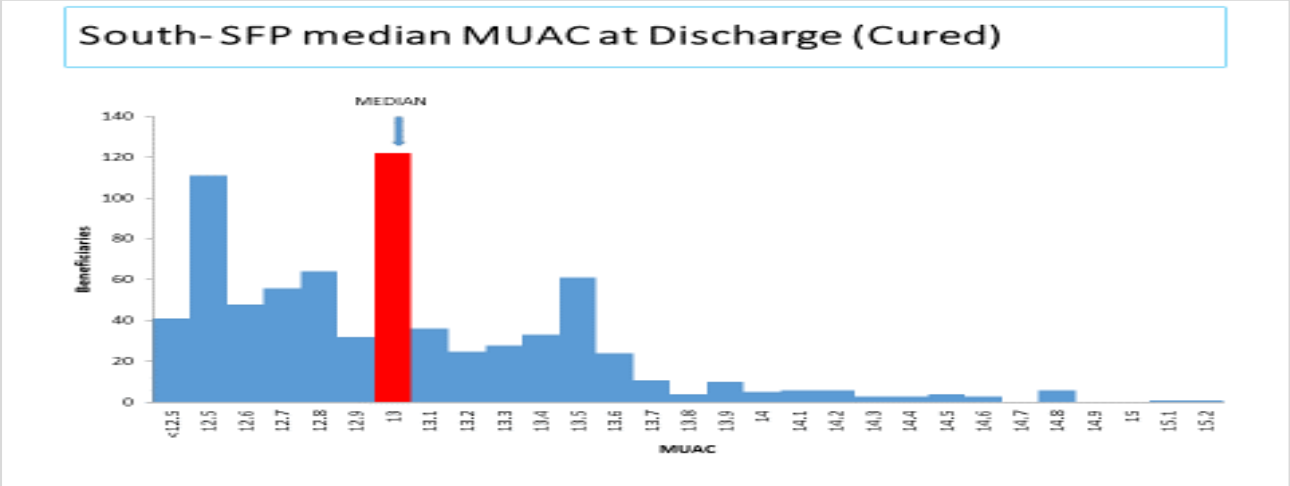


Figure 51: SFP median MUAC at discharge for Turkana South

Most beneficiaries were being cured at visit 6 indicating the program was responding to the needs

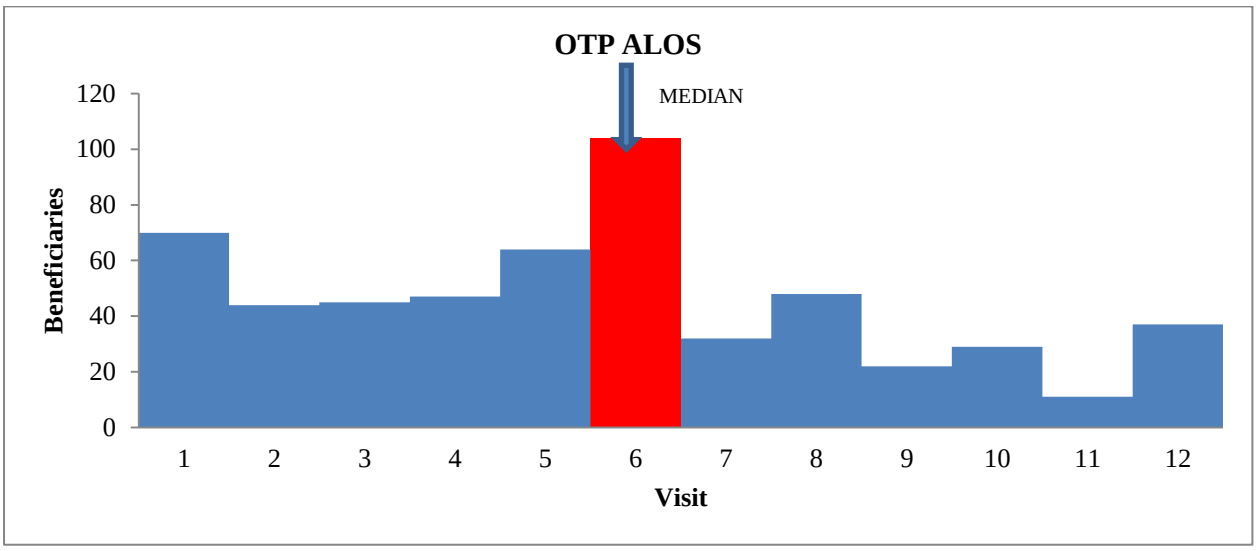


Figure 52: Average length of stay for Turkana South

According to the IMAM guidelines a child should stay in the program for about 90-120 days. The median ALOS noted at visit six (approximately 84 days), and that means SFP was responding to the needs.

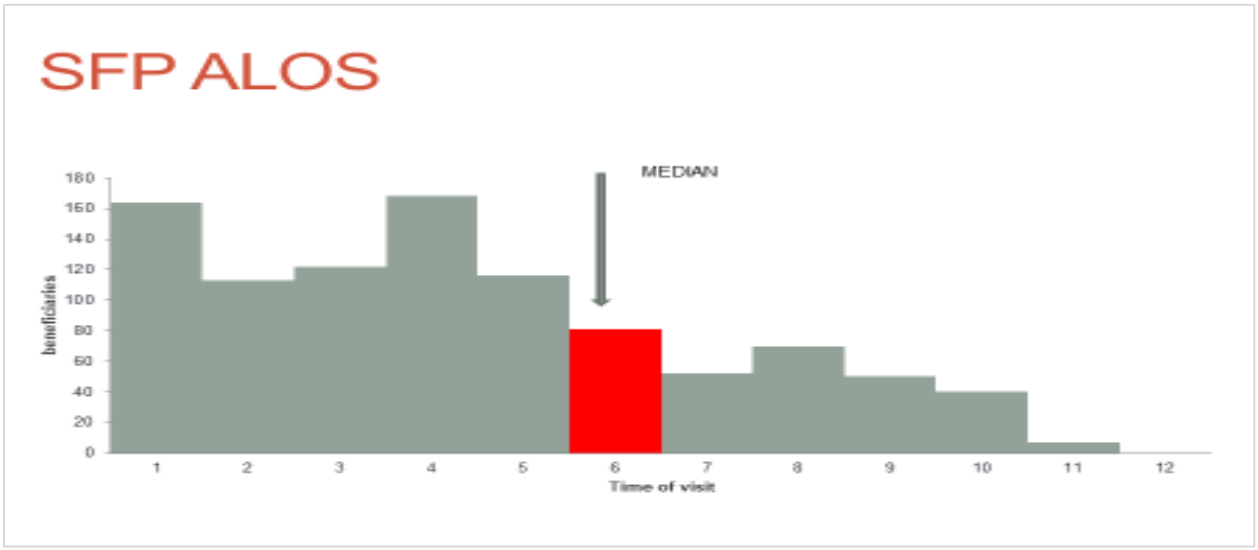


Figure 53: SFP average length of stay for Turkana South

MUAC at Default

MUAC for SFP analysis showed a considerable number of children defaulted before reaching a MUAC above 12.5 cm (meaning they disappeared while still MAM cases).

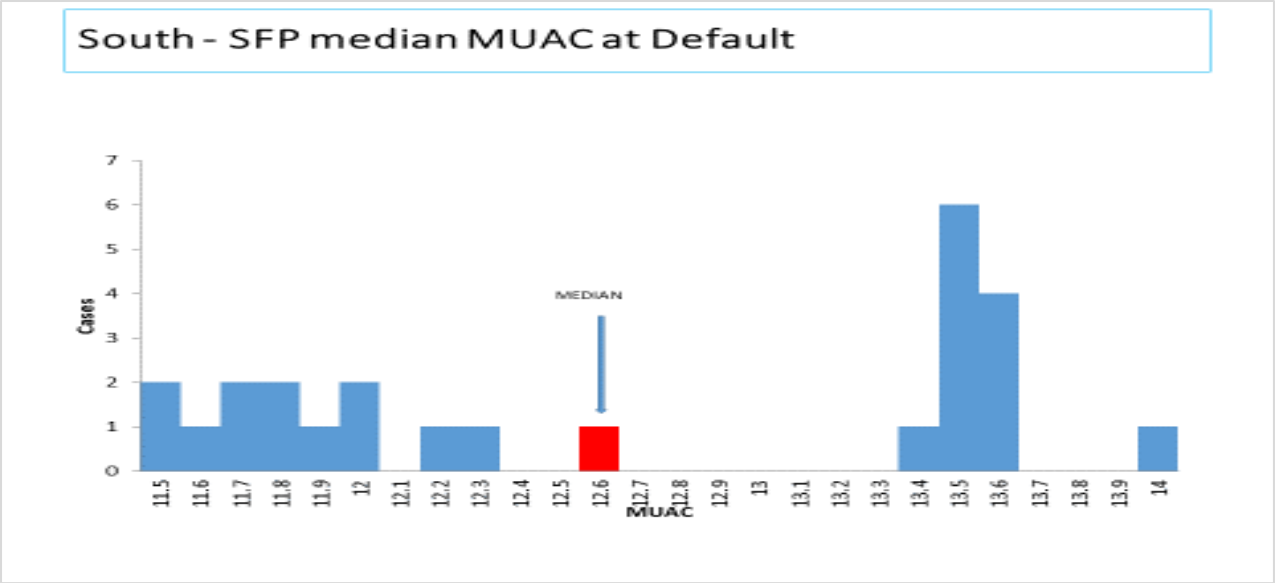


Figure 54: SFP median MUAC at default measurement for Turkana South

Program Indicators

In 2016 there was high defaulting and drop of cure rates between October and December due to out migration associated with dry spell season. Afterwards, performance indicators were within the SPHERE standards.

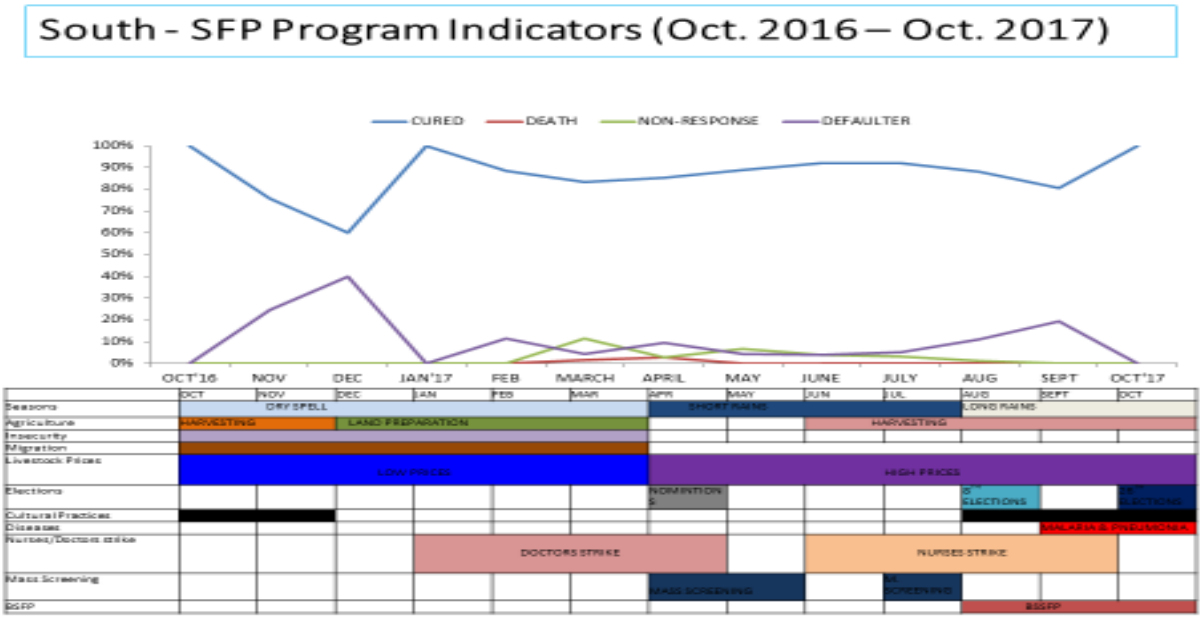


Figure 55: SFP programme indicators for Turkana South

LOIMA

Admission trends

There was an upward trend in admissions from the month of February 2017 attributed to drought emergency response (outreaches). In July 2017 there were heightened response activities (mass screening and scale up of outreaches) which lead to increase in admissions. There were low admissions recorded in the month of January 2017 due to onset of nurses' strike.

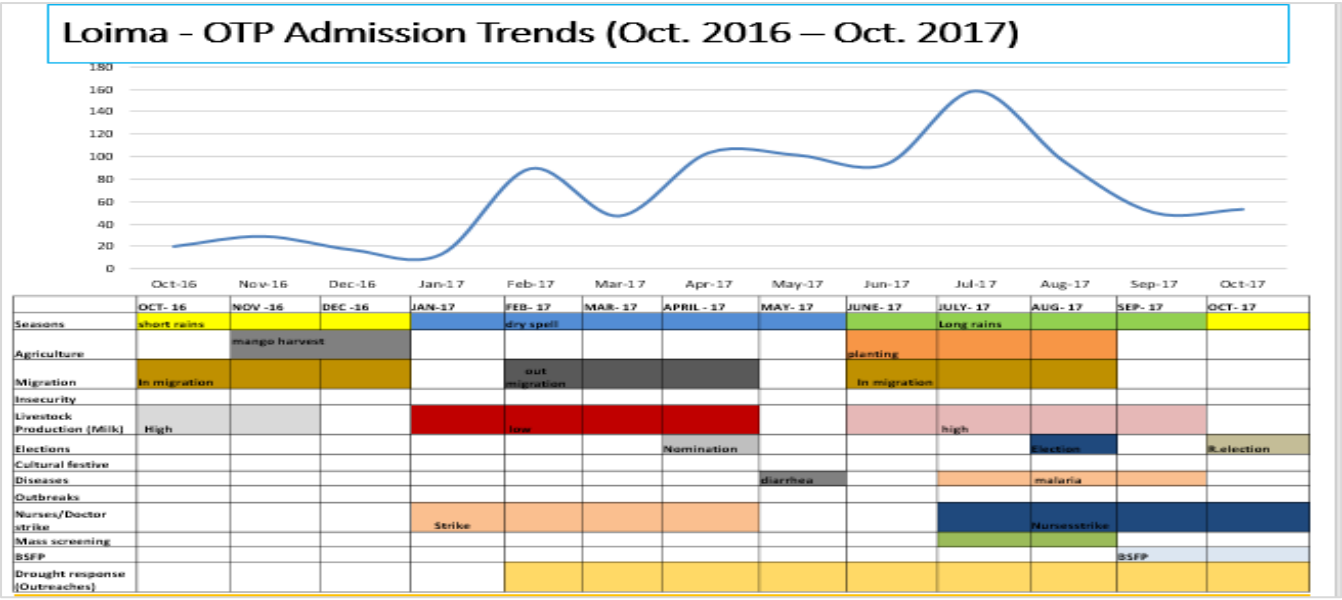


Figure 56: OTP admission trends for Loima

For SFP, there was an upward trend in admissions from the month of Feb. 2017 attributed to drought emergency response (outreaches). In July 2017 there was heightened response activities (mass screening and scale up of outreaches) hence increase in admissions.

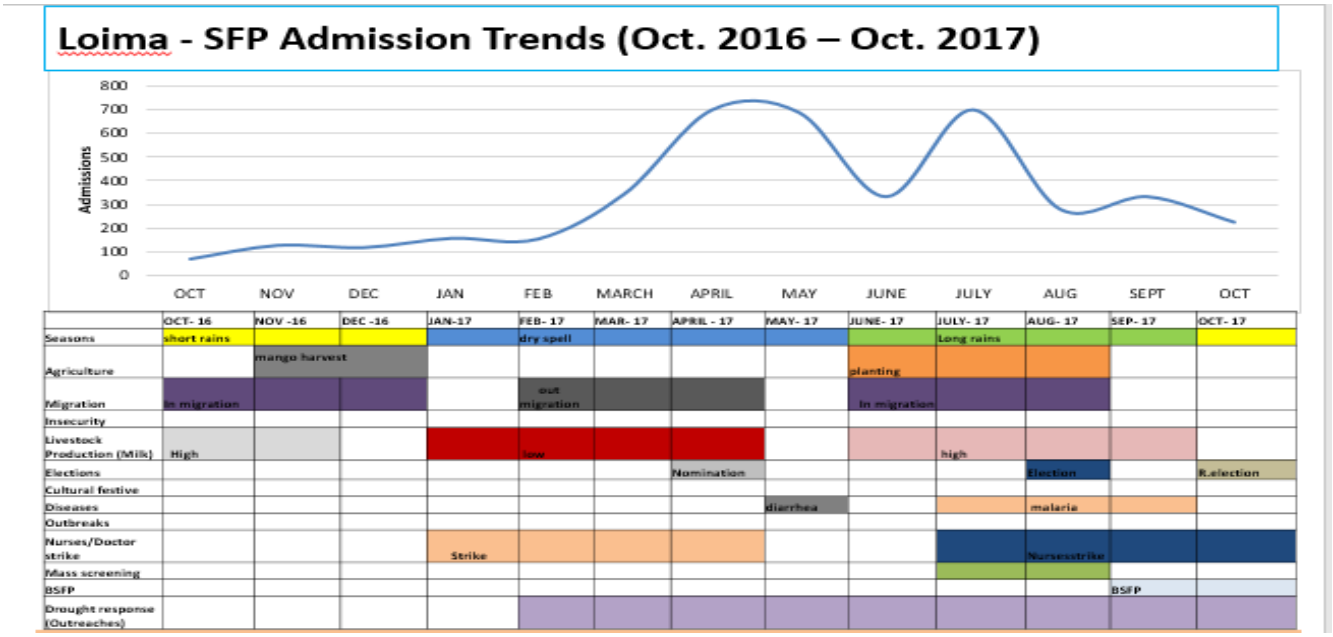


Figure 57: SFP admission trends for Loima

MUAC at admission

The median MUAC at admission (11.2cm) shows early admission of the new caseloads into the program.

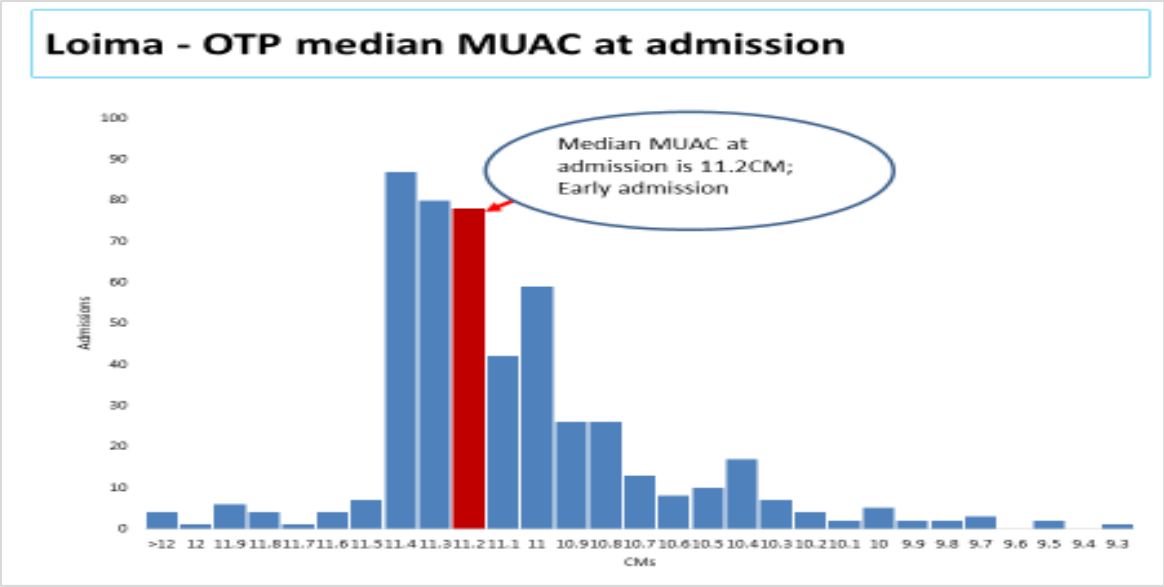


Figure 58: OTP median MUAC at admission measurement for Loima

For Supplementary Feeding Programme (SFP) it is clear that there was an early admission into the programme as indicated by the median MUAC of 12.1 cm.

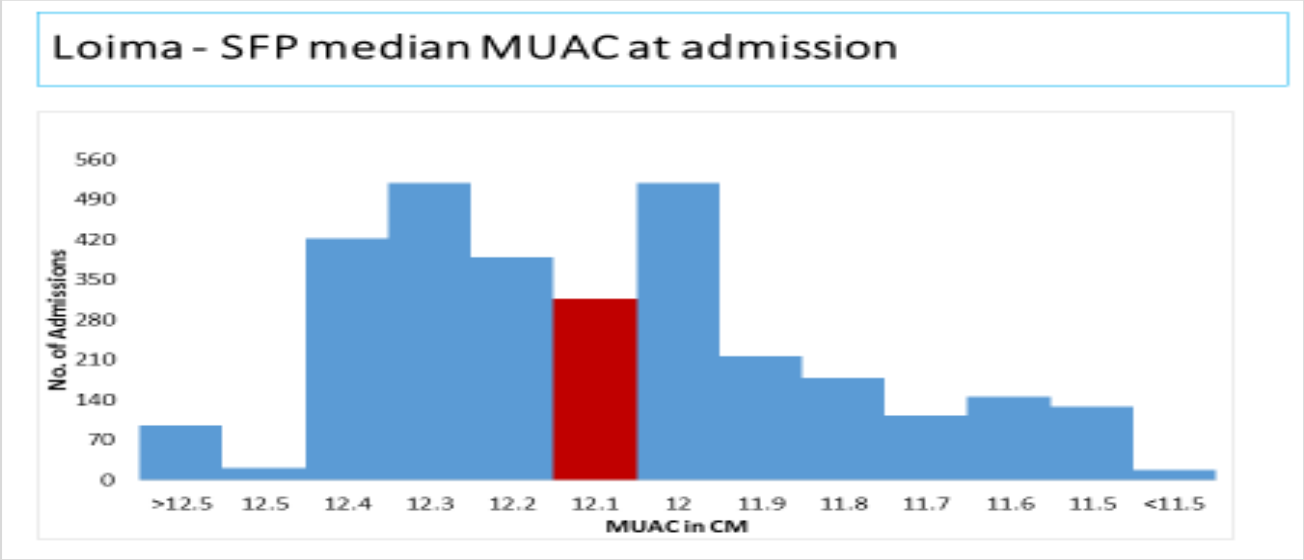


Figure 59: SFP median MUAC at admission measurement for Loima

MUAC at Discharge

Most children / beneficiaries were discharged at 12cm MUAC, though some children were discharged at 14cm MUAC. This could mean that during the admission, some children were enrolled into the program by weight for Height Z-score.

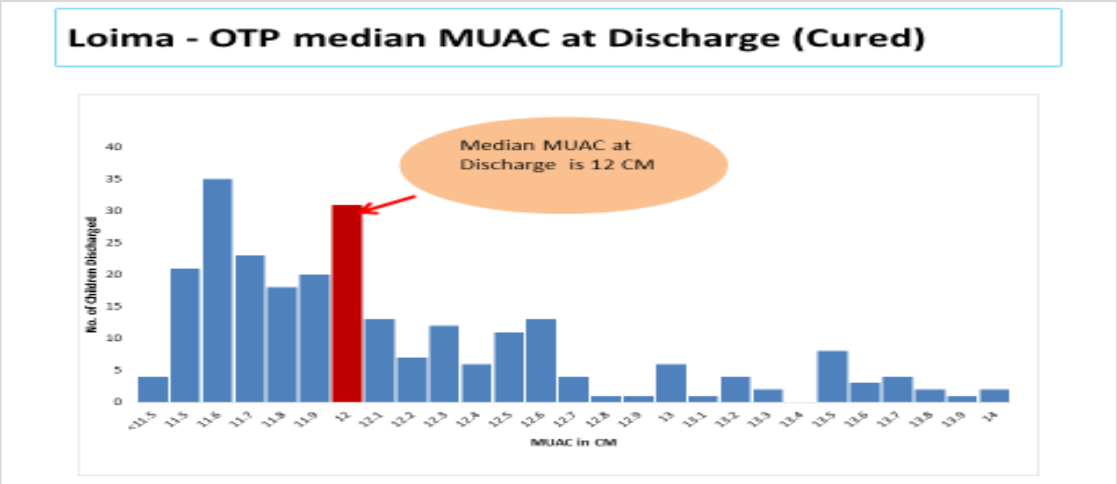


Figure 60: OTP median MUAC at discharge for Loima

Most cases at supplementary program were discharged cured at a MUAC of 13cm which is the median discharge. Some children were also discharged with a MUAC of 14cm and could lead to children overstaying into the program

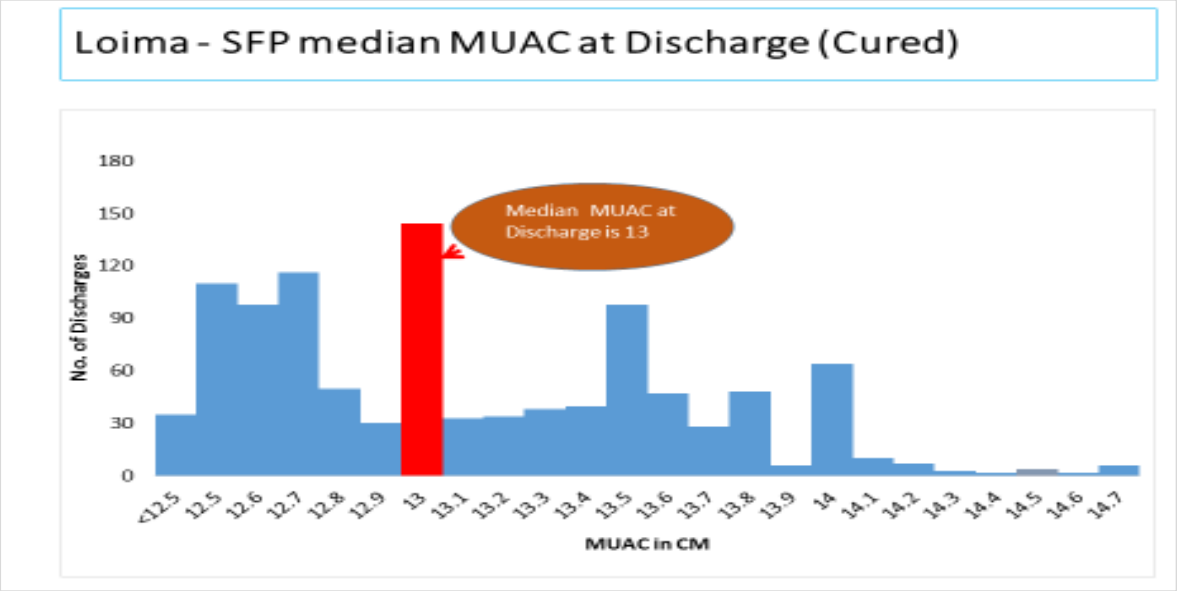


Figure 61: SFP median MUAC at discharge for Loima

LOS for defaulters

The median LOS for OTP in Loima was 3rd visit which is the same as 3rd week. Some children defaulted in the first week while others stayed up to 12 week.

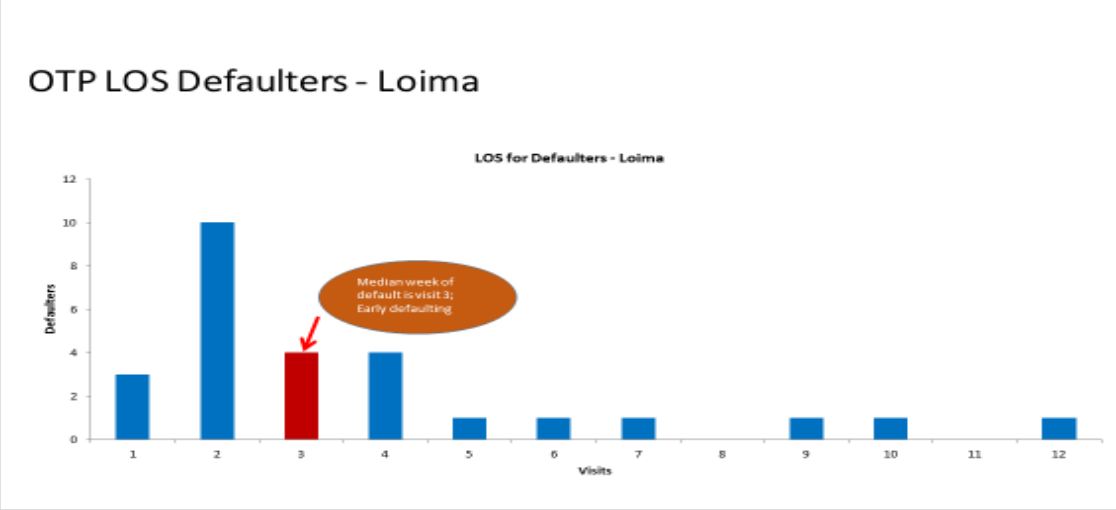


Figure 62: OTP median week of default for Loima

There was early defaulting in SFP in Loima sub-county i.e. at 4th visit.

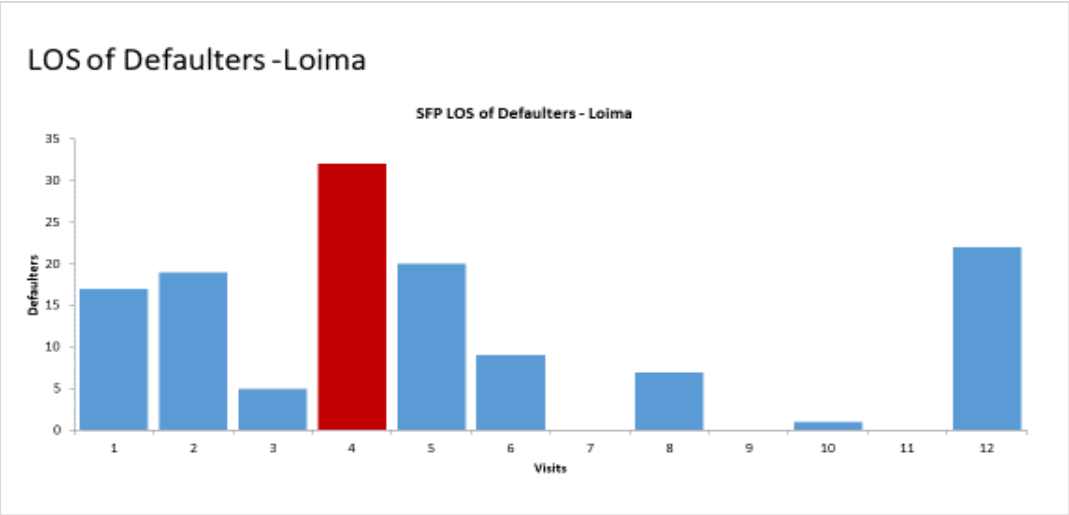


Figure 63: SFP median week of default for Loima

MUAC at Default

A significant number of children defaulted with a MUAC of 11.3cm and within the third week of admission which was witnessed as early defaulting. This is means there was a problem that could be caused with a number of factors.

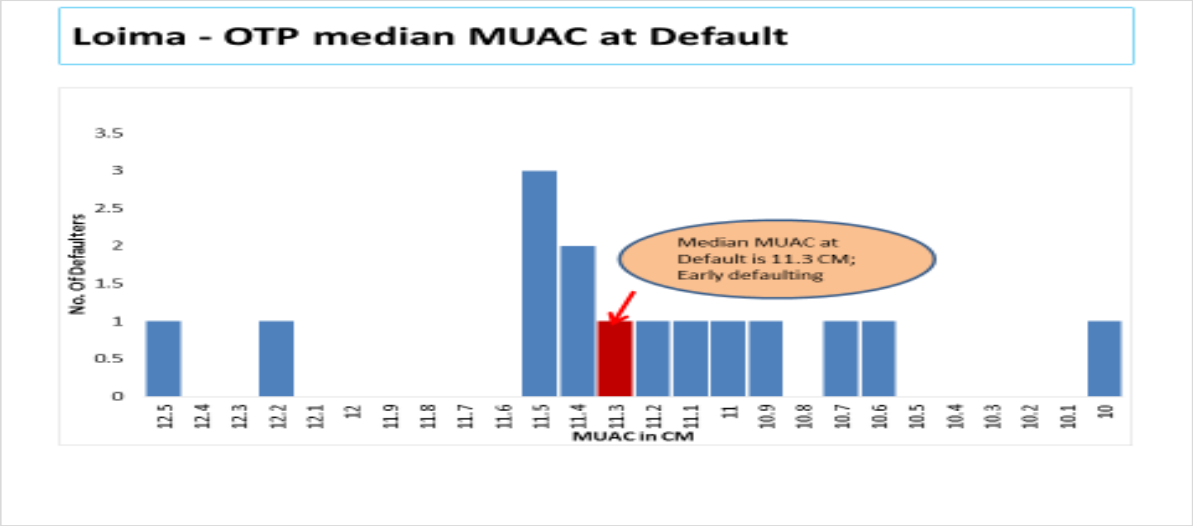


Figure 64: OTP median MUAC at default measurement for Loima

Most children default with a MUAC of 12.3cm and at the 4th visit.

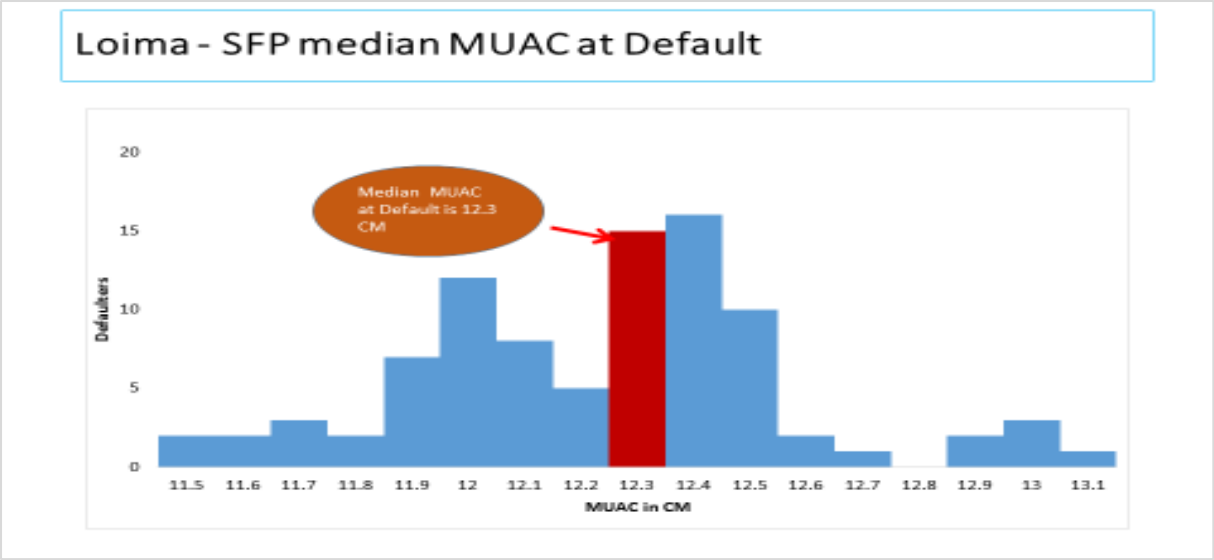


Figure 65: SFP median MUAC at default measurement for Loima

OTP Program Indicator

High defaulting was reported in the months of February and September 2017.Reasons for defaulting was long distance and Migration. Low cure rate of 50% was reported in December 2016.

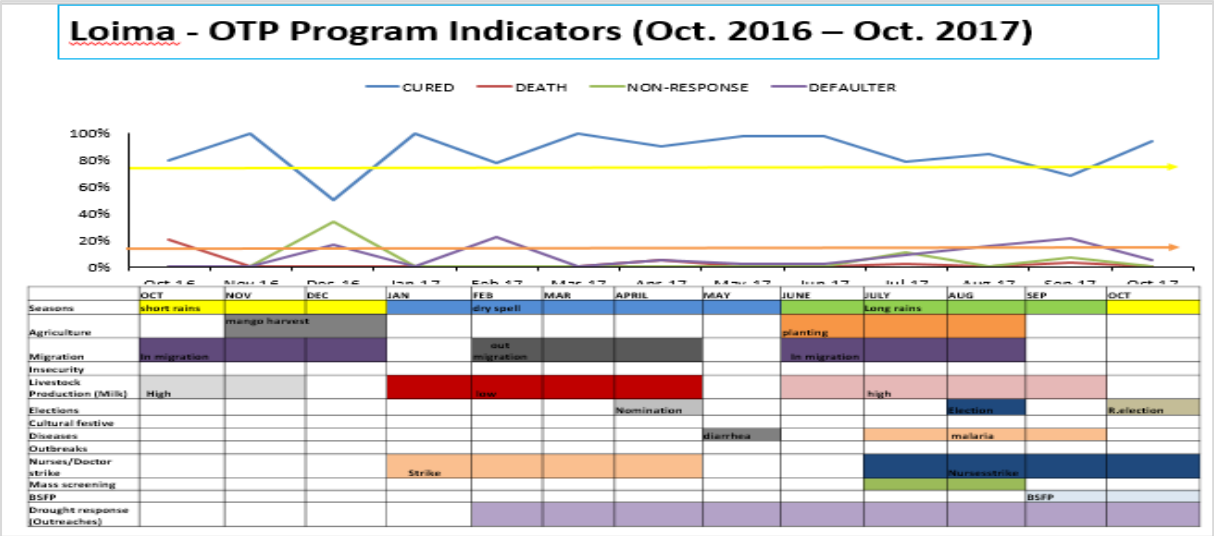


Figure 66: OTP programme indicators for Loima

Overall performance was good with all indicators within SPHERE standards in most months. High defaulting was reported in the month of January 2017.Reasons for defaulting were long distance to IMAM sites and out migration due to dry spell.

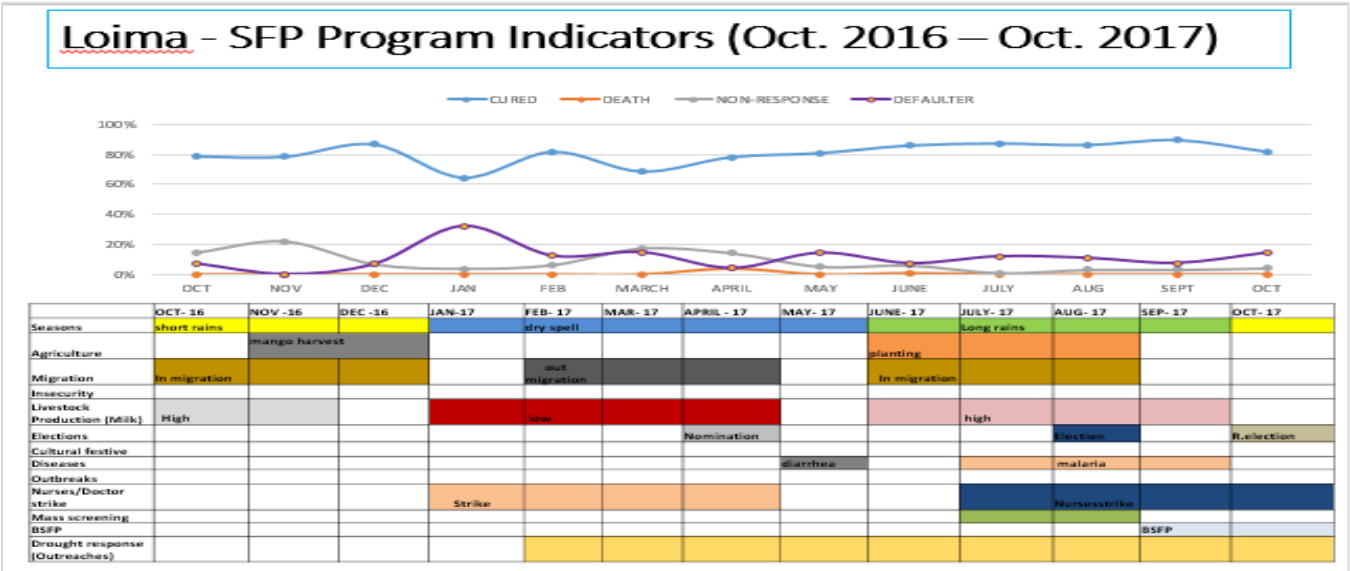


Figure 67: SFP programme indicators for Loima

Turkana Central

Admissions Trend

From the analysis, the admission trend for Turkana Central was similar to that of Loima whereby there was an upward trend in admission in the month of February 2017 attributed to drought emergency response. Mass screening and scale up of outreaches was heightened, which led to increase in admission. Low admission was also experienced due to onset of nurses' strike in the month of January 2017.

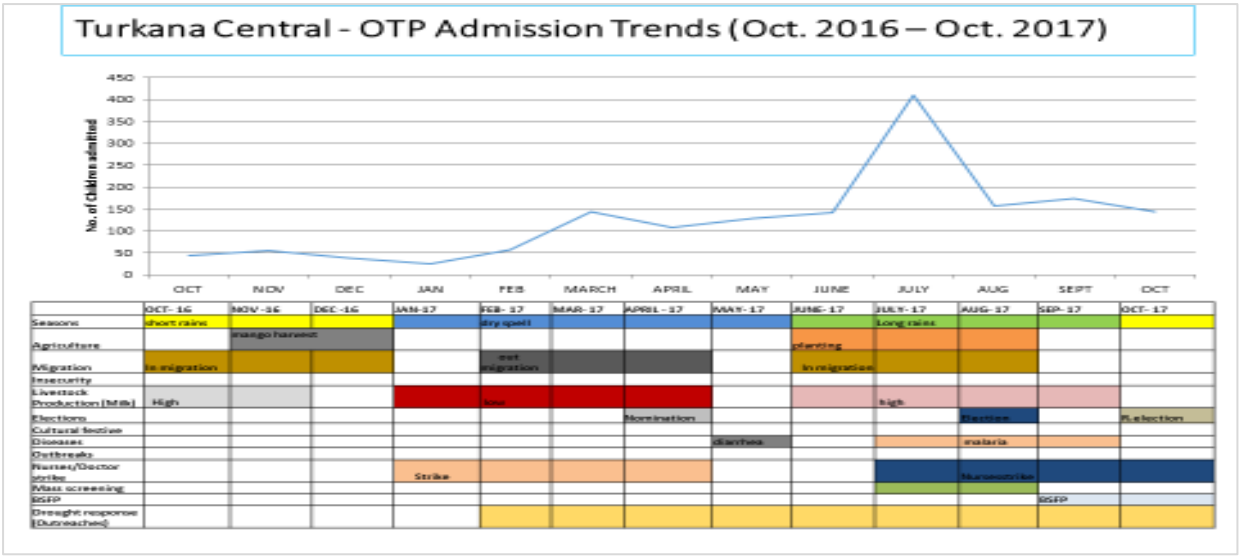


Figure 68: OTP admission trends for Turkana Central

There was an upward trend in admissions from the month of March 2017 attributed to drought emergency response (outreaches). In July 2017 there was heightened response activities (mass screening and scale up of outreaches) hence increase in admissions.

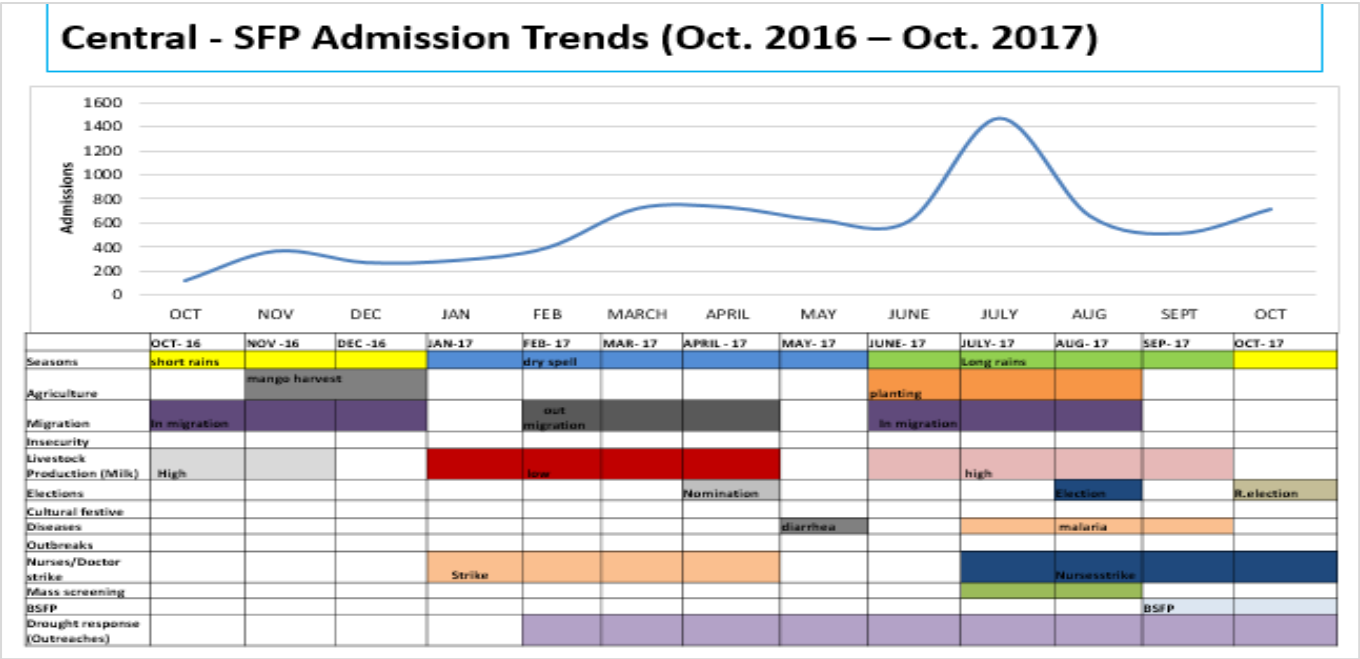


Figure 69: SFP admission trends for Turkana Central

MUAC at admission

The median MUAC at admission in the OTP 11.0 cm indicated early admission. Slightly a few late admissions at the MUAC of less than 9cm were noted.

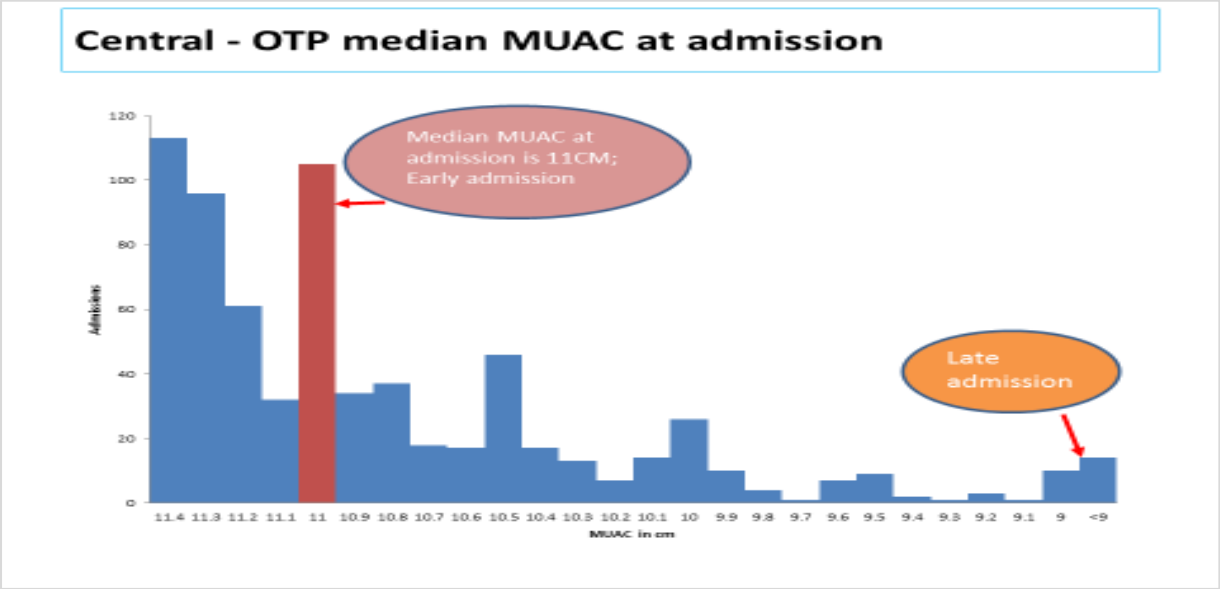


Figure 70: OTP median MUAC at admission for Turkana Central

MUAC at admission for SFP in Turkana Central sub-county was 12.2 cm indicating early admission to Supplementary Feeding Program. Some few cases were noted to have been admitted into the program with MUAC above 12. 5cm.This indicated non-adherence to IMAM protocol. The analysis shows that some caseloads were admitted into the program through weight for height z-score.

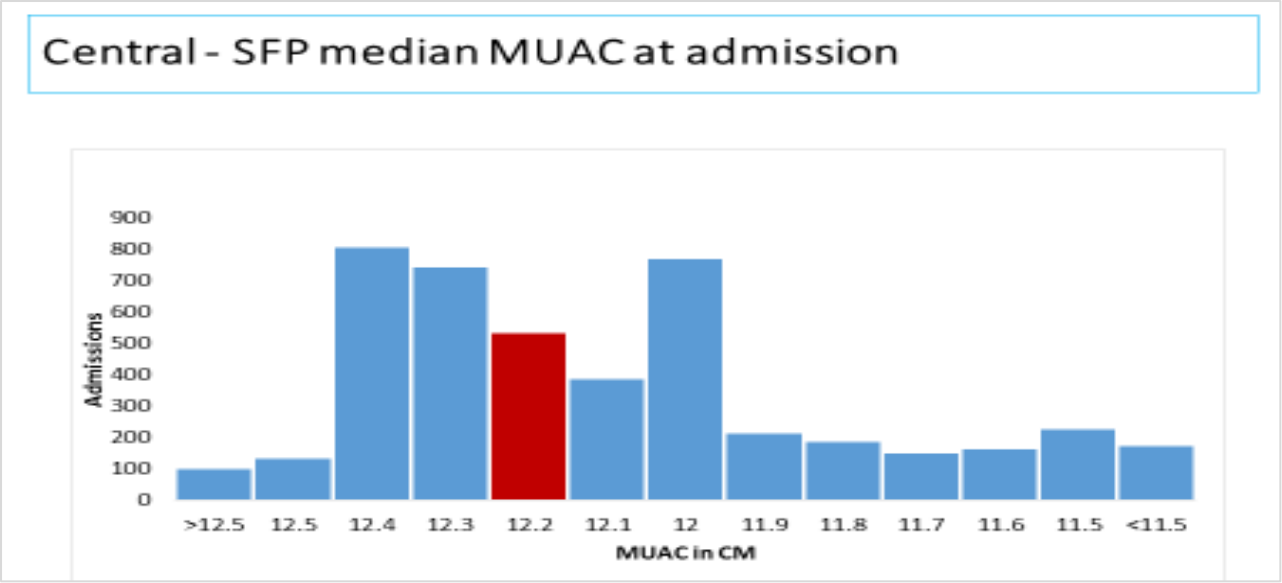


Figure 71: SFP median MUAC at admission for Turkana Central

MUAC at discharge

The median MUAC of 12.4cm at discharge for OTP indicated many children were discharged with a MUAC above 11.5cm. These children were discharge long after they were cured.

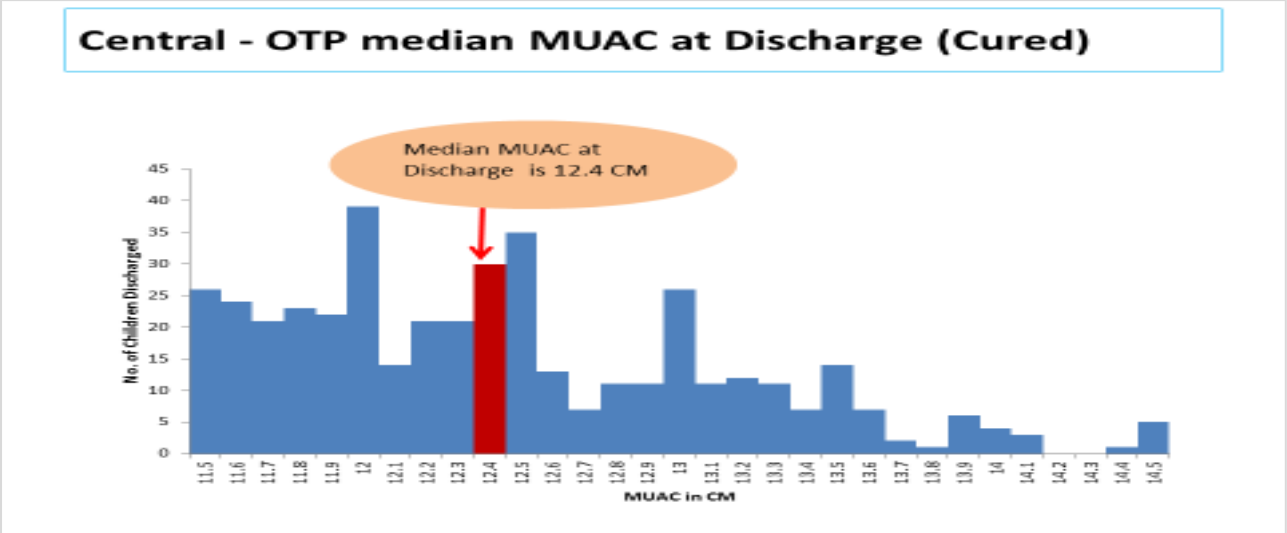


Figure 72: OTP median MUAC at discharge measurement for Turkana Central

Although the median MUAC of discharge for SFP was at 13.4 cm there were cases that exited the programme having a MUAC of less than 12.5 cm i.e. having not been cured. This could have been brought by non-adherence to IMAM protocols.

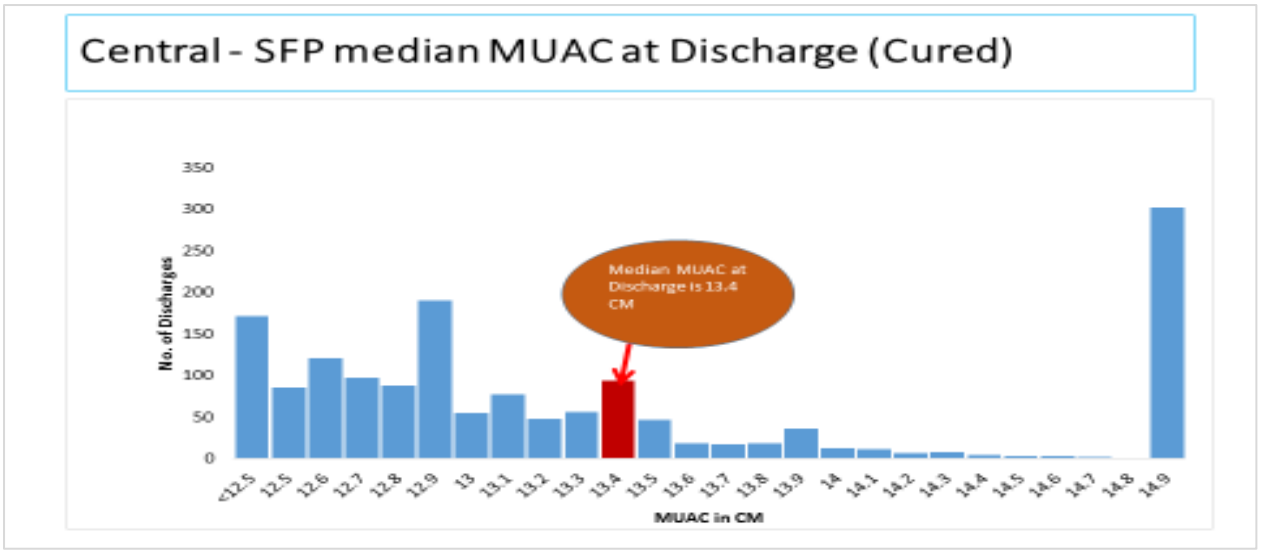


Figure 73: SFP median MUAC at discharge measurement for Turkana Central

Median ALOS

Median week of default in OTP was week four or 4th visit.

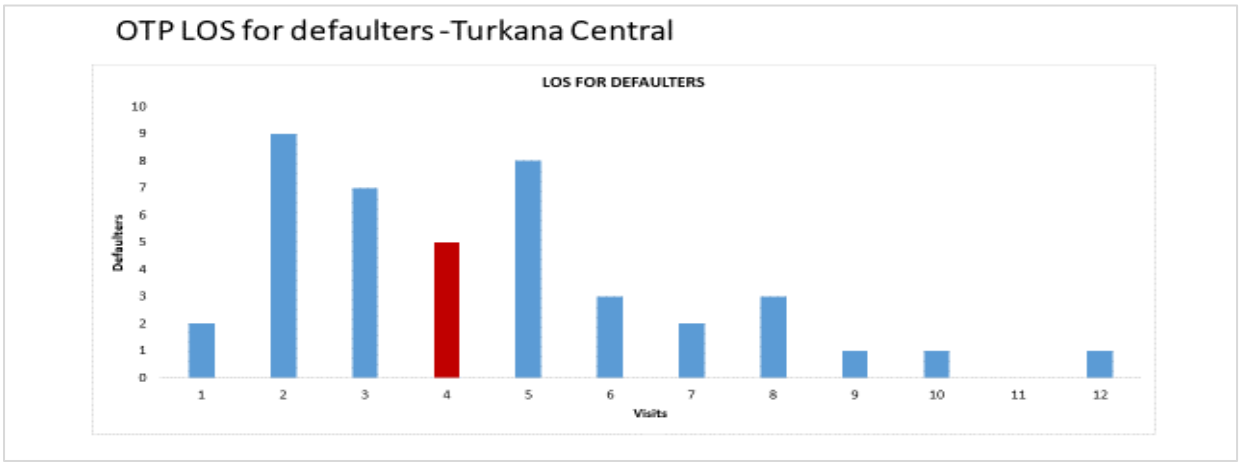


Figure 74: OTP average length of stay at default for Turkana Central

In the SFP, most children defaulted at 4th visit as indicated in the figure below.

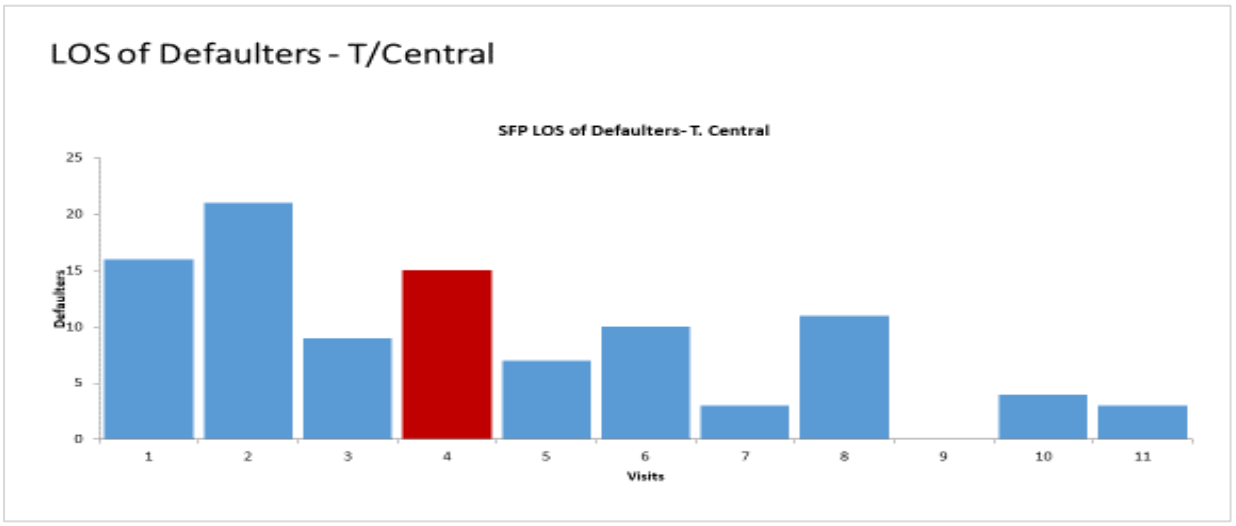


Figure 75: SFP average length of stay at default for Turkana Central

MUAC at Default

Median MUAC at default was 11.6cm slightly above 11.5cm the discharge criteria for severely malnourished children. This brings in the elements of poor program monitoring though it is important to note both WHZ and MUAC were used.

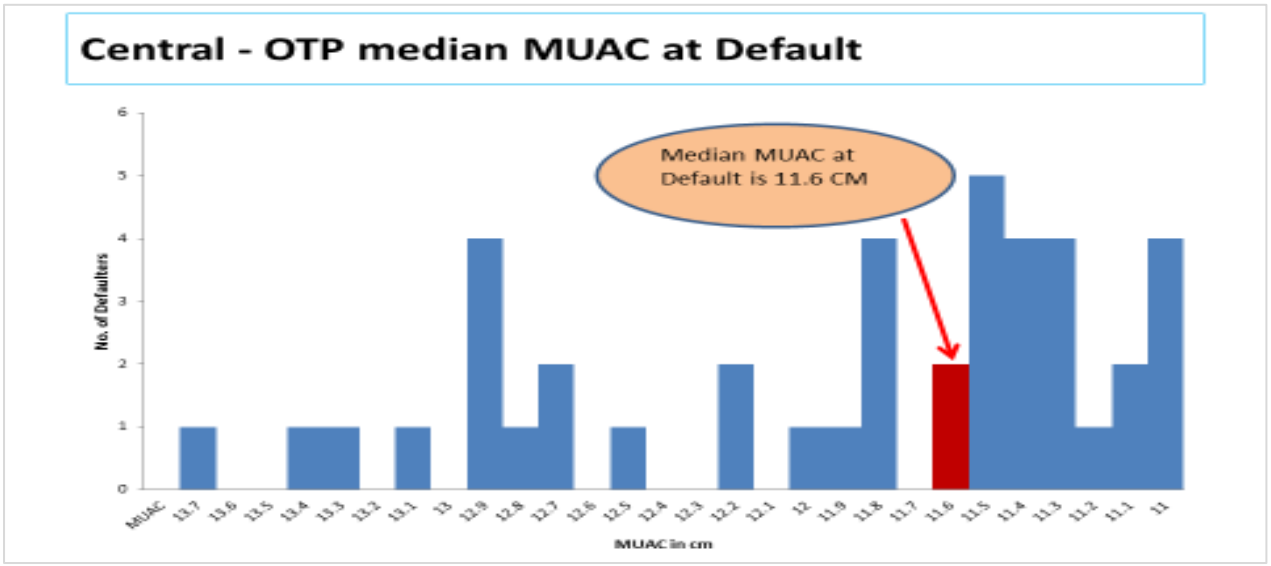


Figure 76: OTP median MUAC of default measurement for Turkana Central

Most children were defaulting with a MUAC of 12.4cm and at the 4th visit.

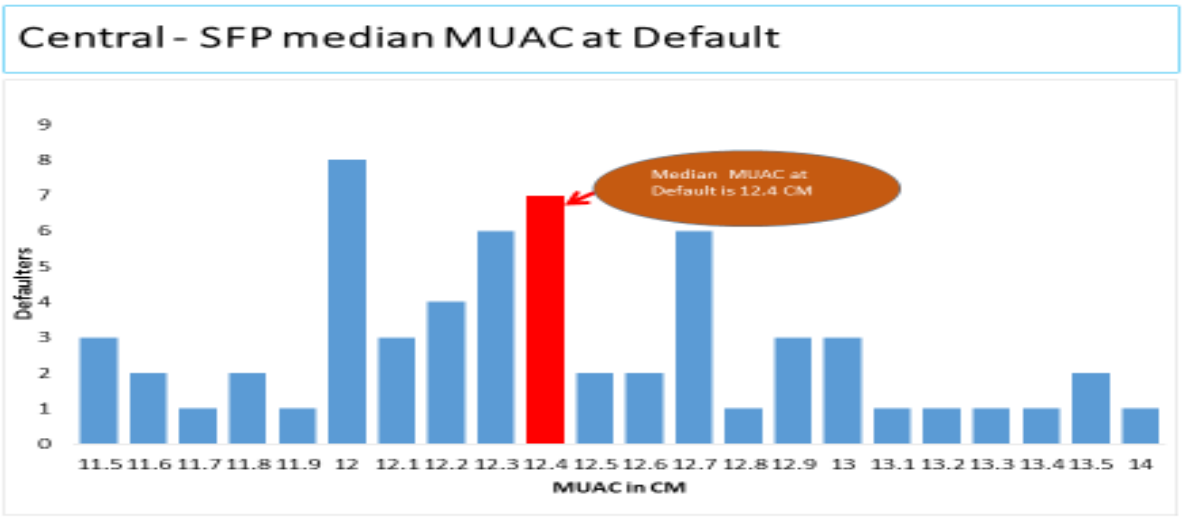


Figure 77: SFP median MUAC of default measurement for Turkana Central

Program indicator

The analysis shows that; overall outpatient program indicators performance was good for Turkana Central with all indicators within SPHERE standards for the period under review.

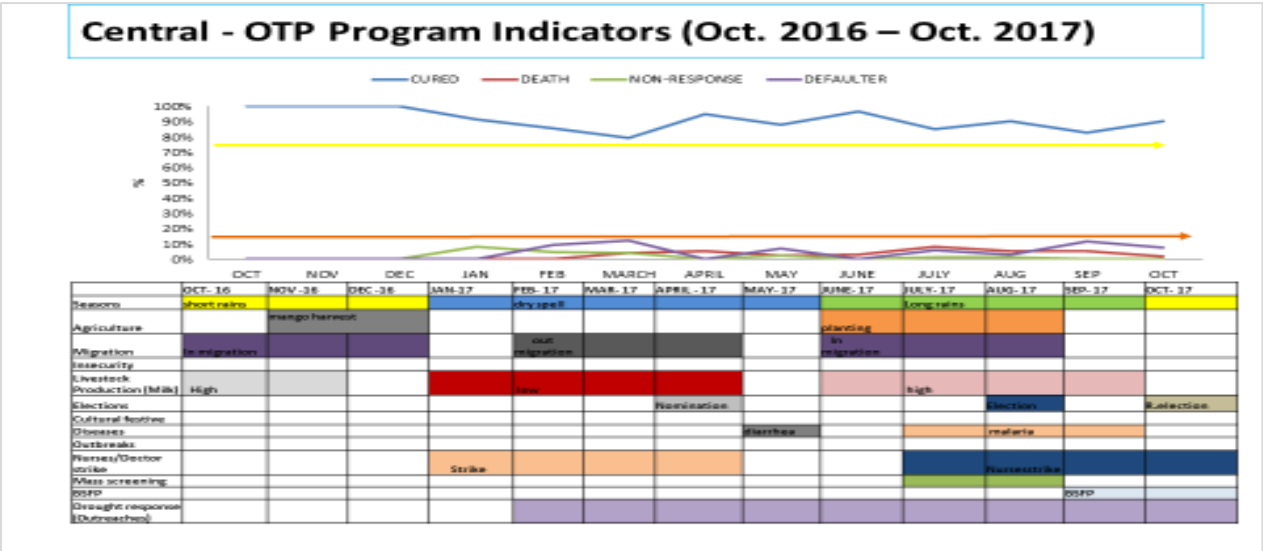


Figure 78: OTP programme indicators for Turkana Central

The outcome indicators remained within SPHERE standards for the period under review.

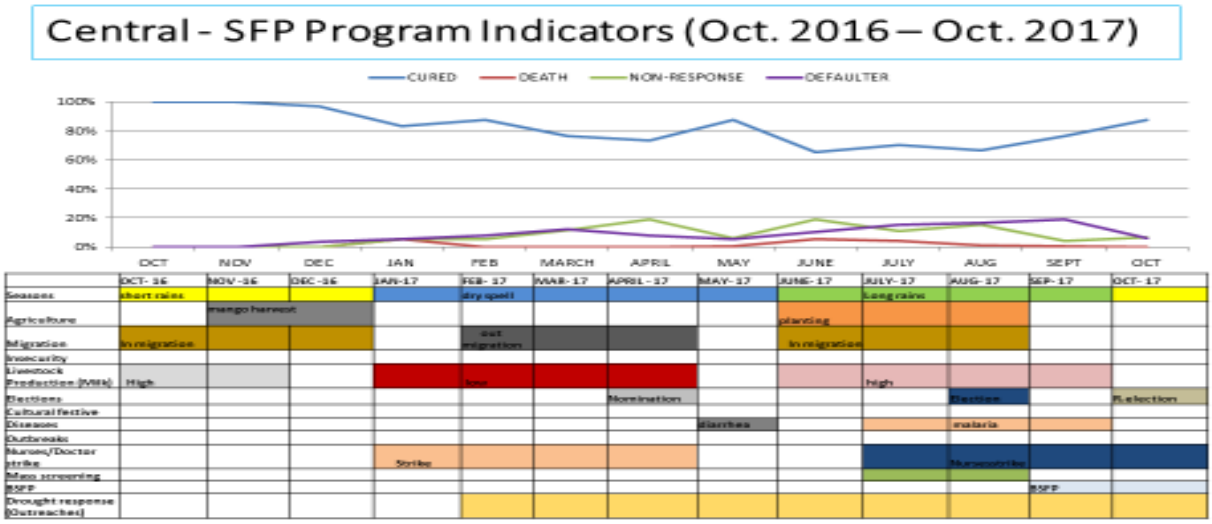


Figure 79: SFP programme indicators for Turkana Central

2.2 Qualitative data (Boosters, Barriers and Questions Analysis)

In all the survey zones qualitative data was collected from different sources using various methods. The methods included; Informal Group discussions, Semi structured interviews, In-depth interviews and Observation. The data sources included Community Leader, Community Health worker, Care givers of children not in Programme, Care givers, Health Workers, Program Staff, Chief/Administration, Observation, TBAs/Traditional Healers, Religious Leaders, care givers of defaulters, Program data, Pastoralists and Teachers.

The qualitative data led to identification of several factors as either promoters or barriers to the access of OT or SFP as see below:

Barriers were defined as factors that contributed to poor/low coverage for OTP/SFP.

Boosters were defined as factors that contributed to good/high coverage for OTP/SFP.

Table 4: OTP Boosters Turkana West

OTP BOOSTER	SOURCE	METHOD	BBQ SIMPLE	BBQ WEIGHT
1. Health staffs capacity build on IMAM	1,3	B(2)	**1**	3

2. Awareness on nutrition program	1,2,3(1)	A(1),B(2)	**1**	4
3. Active case finding and referrals	2,3,5(1),7,8,9	A,B(5),A	**1**	4
4. Good follow up & defaulter of clients by the facility staff	3,7	B(2)	**1**	2
5. Consistent supply of RUTF	3,5,9	B(2), A	**1**	4.5
6. RUTF considered as medicine	5	B	**1**	2
7. CHV capacity building	8	B	**1**	2.5
8. Integration of services	5,7	B(2)	**1**	5
9. Community involved	3,7	A,B	**1**	4
10. Provision of food (milk, meat, cereals)	1	B	**1**	1
11. Less waiting time (30mins) before being attended to	5	B	**1**	4
12. Positive attitude to clients	5,8(1)	B(3)	**1**	5
13. Community sensitized on IMAM program	9	A	**1**	3
14. Proximity to service delivery	9	A	**1**	4
15. Integrated outreaches	8	B	**1**	5
16. Beneficiaries cured	2,5,3,7,8,9	A,B(4).A	**1**	3
			16	59

Table 5: OTP Barriers Turkana West

OTP BARRIER	SOURCE	METHOD	BBQ SIMPLE	BBQ WEIGHT
1. Inconsistent OJT on IMAM	3	B	**1**	4
2. Understaffing at facility leading to high workload	3	B	**1**	4
3. Long waiting hours	3	B	**1**	2
4. RUTF considered as food & not medicine	3	B	**1**	3
5. Wrong admission criteria by CHVs	3	B	**1**	3
6. Poor health seeking behavior	3	B	**1**	2
7. Lack of defaulter tracing of cases	3	B	**1**	2
8. Distance to service delivery points	3,7	B(2)	**1**	1
9. Double dipping of beneficiaries	2,3,5,7	A,B(3)	**1**	3
10. Long length of stay in the stabilization center	3	B	**1**	1
11. Disconnect between health facility staff & the SCHMT	3	B	**1**	3
12. Food insecurity at household	3	B	**1**	4.5
13. Demotivation of CHVs	3	B	**1**	5

14. Facility staff not motivated	3(1),5,7	A,B(3)	**1**	1
15. Poor linkage of beneficiaries to other program	3	B	**1**	1
16. Diseases	1,2,3,5	B,(2)A(1)	**1**	4
17. Migration	8	B	**1**	3
			17	46.5

Table 6: SFP Boosters Turkana West

SFP Booster	Source	Method	BBQ SIMPLE	BBQ WEIGHT
1. Health staffs capacity build on IMAM	1,3	B(2)	**1**	3
2. Awareness on nutrition program	1,2,3(1)	A(1),B(2)	**1**	4
3. Active case finding and referrals	2,3,5(1),7,8,9	A,B(5),A	**1**	4
4. Good follow up & defaulter of clients by the facility staff	3,7	B(2)	**1**	2
5. RUSF considered as medicine	5	B	**1**	2
6. CHV capacity building	8	B	**1**	2.5
7. Integration of services	5,7	B(2)	**1**	5
8. Community involved	3,7	A,B	**1**	4
9. Less waiting time (30mins) before being attended to	5	B	**1**	1
10. Positive attitude to clients	5,8(1)	B(3)	**1**	4
11. Community sensitized on IMAM program	9	A	**1**	5
12. Proximity to service delivery	9	A	**1**	3
13. Integrated outreaches	8	B	**1**	4
14. Good communication	8	B	**1**	5
Total			**14**	51.5

Table 7: SFP Barriers Turkana West

SFP BARRIERS	SOURCE	METHOD	BBQ SIMPLE	BBQ WEIGHT
1. Inconsistent OJT on IMAM	3	B	1	4
2. Understaffing at facility leading to high workload	3	B	1	4
3. Long waiting hours	3	B	1	2

4. RUSF considered as food & not medicine	3	B	1	3
5. Wrong admission criteria by CHVs	3	B	1	3
6. Poor health seeking behavior	3	B	1	2
7. Lack of defaulter tracing of cases	3	B	1	2
8. Distance to service delivery	3,7	B(2)	1	1
9. Double dipping of beneficiaries	2,3,5,7	A,B(3)	1	3
10. Disconnect between health facility staff & the SCHMT	3	B	1	3
11. Food security at household	3	B	1	4.5
12. Demotivation of CHVs	3	B	1	5
13. Facility staff not motivated	3(1),5,7	A,B(3)	1	1
14. Poor linkage of beneficiaries to other program	3	B	1	1
15. Diseases	1,2,3,5	B,(2)A(1)	1	4
16. Migration	8	B	1	3
17. Inconsistent supply of RUSF	4	B	1	5
Total			17	50.5

Table 8: OTP Boosters Turkana East

BOOSTER	SOURCE	METHOD	BBQ SIMPLE	BBQ WEIGHT
1.0.Health seeking behaviour 1.1.Good Health Seeking behaviour on other illnesses	6,4	B^{2}	1	2
2.0.Awareness about Malnutrition 2.1 Knowledge of case identification 2.2.Mothers recognise their children are sick	4,6	B^{2}	1	3
3.0 Awareness of IMAM services 3.1. Awareness of IMAM service 3.2.RUFT understood as medicine 3.3.Understand the treatment of malnutrition	$4,6^{4}$,5,8,10,11,12,	A ,B^{9}	1	4
4.0. Capacity to provide service 4.1Aware of screening tools 4.2.Staffs trained on IMAM] 4.3.Support Supervision done by SCHMT 4.4.Staffs are flexible on schedules 4.5.CHVs done monthly reports 4.6.No stock outs experienced	$6,11^{4},12^{10},13^{2}$	B^{17}	1	5
5.0.Accessibility of service 5.1.Service at health centre integrated	6	B	1	2
6.0.Communication system with the CHV 6.1 Availability of CHVs in Sensitization	6,11	B	1	2
7.0.Appreciation of service 7.1. Good Perception of IMAM 7.2.Good opinion about OTP	$4,6,12^{3}$	B^{5}	1	2

8.0.Identification/Strategy/Enrolment 8.1. CHVs do ACF	6,11,12	B[3]	1	2
9.0. Referral/Transfer and Follow-up strategy 9.1.Good feedback mechanism from health centre staff to the community 9.2. CHVs conduct home visits. 9.3. CHVs do follow-ups	11[2],12	B[3]	1	4
TOTAL			20	26

Table 9: OTP Barriers Turkana East

BARRIERS	SOURCE	METHOD	BBQ SIMPLE	BBQ WEIGHT
1.0.Awareness about Malnutrition 1.1 Lack of knowledge on symptoms of malnutrition	6	B	1	2
2.0 Awareness of IMAM services 2.1. No knowledge on IMAM service days 2.2. Caretakers are un-ware of discharge and admission criteria 2.2.Sharing of commodities by beneficiaries to non-beneficiaries 2.3.No regular updates on IMAM 2.4. There is migration in search of pasture and water 2.5.No adherence to the program by school going children	4[8],5[1,],6,11,12[4],13	B[17]	1	5
3.0. Capacity to provide service 3.01. Some CHVs not trained on IMAM 3.2.No timely fresher done on OTP STAFF 3.3.Poor record keeping of Program documents 3.4.They experience commodity stock-outs 3.5.No regular meetings with CHVs by program staffs 3.6.No regular support supervision 3.7.Workload due to understaffing 3.8.Discharge criteria not well understood 3.9. No active CHVs in some villages 4.0. Treatment days take too long 4.1. Some weighing scales are faulty and lack batteries	5,10,12[15]	B[17]	1	5
4.0.Accessibility of service 4.1.Beneficiaries travel long distances 4.2.Beneficiaries occasionally cut off from outreach locations by flooding rivers 4.3. Single mothers concentrate on other families chores side-lining treatment 4.4. Insecurity 4.5. Food insecurity at house hold level	4[5],5,6[5],10,11[2],12[4],13	A,B[18],	1	5
5.0.Referral, transfer and follow-up strategy 5.1.Some villages do not refer because they lack CHVs 5.2.No proper follow-up mechanism	5,10,11[2],12	B[5]	1	2
6.0.Appreciation of the service 6.1.Ther is perception that RUTF is food and not medicine 6.2.RUTF causes Diarrhoea 6.3. CHVs complain that no motivation 6.4.Some beneficiaries are stigmatised in some villages	8,11[2],12[2]	B[5]	1	2
7.0.Identification/Strategy/Enrolment 7.1.Wrong diagnosis by the CHVs	11,12[2]	B[3]	1	3
8.0. Retention Strategy 8.1.No network connectivity to facilitate defaulter tracing in some areas	8,11,12	B[3]	1	3
9.0. Communication system with community 9.1.Some caretakers forget TCAs	4,8	B[2]	1	2
TOTAL			20	29

Table 10: SFP Boosters Turkana East

BOOSTER	SOURCE	METHOD	BBQ SIMPLE	BBQ WEIGHT
1.0.Health seeking behaviour 1.1.Good HSK behaviour on other illnesses	6,4	B[2]	1	2
2.0.Awareness about Malnutrition 2.1 Knowledge of case identification 2.2.Mothers recognise their children are sick	4,6	B[2]	1 1	3
3.0 Awareness of IMAM services 3.1. Awareness of IMAM service 3.2.RUFT understood as medicine 3.3.Understand the treatment of malnutrition	4,6[4] ,5,8,10,11,12,	A ,B[9]	1 1 1	4
4.0. Capacity to provide service 4.1Aware of screening tools 4.2.Staffs trained on IMAM] 4.3.Support Supervision done by SCHMT 4.4.Staffs are flexible on schedules 4.5.CHVs done monthly reports 4.6.No stock outs experienced	6,11[4] ,12[10] ,13[2]	B[17]	1 1 1 1 1 1	5
5.0.Accessibility of service 5.1.Service at health centre integrated	6	B	1	2
6.0.Communication system with the CHV 6.1 Availability of CHVs in Sensitization	6,11	B	1	2
7.0.Appreciation of service 7.1. Good Perception of IMAM 7.2.Good opinion about OTP	4,6,12[3]	B[5]	1 1	2
8.0.Identification/Strategy/Enrolment 8.1. CHVs do ACF	6,11,12	B[3]	1	2
9.0. Referral/Transfer and Follow-up strategy 9.1.Good feedback mechanism from health centre staff to the community 9.2.CHVs conduct home visits. 9.3. CHVs do follow-ups	11[2] ,12	B[3]	1 1 1	4
TOTAL			20	26

Table 11: SFP Barriers Turkana East

BARRIERS	SOURCE	METHOD	BBQ SIMPLE	BBQ WEIGHT
1.0.Awareness about Malnutrition 1.1 Lack of knowledge on symptoms of malnutrition	6	B	1	2
2.0 Awareness of IMAM services 2.1. No knowledge on IMAM service days 2.2. Caretakers are un-ware of discharge and admission criteria 2.3.Sharing of commodities by beneficiaries to non-beneficiaries 2.4.No regular updates on IMAM 2.5. There is migration in search of pasture and water 2.6.No adherence to the program by school going children	4[8] ,5[1,] ,6,11,12[4] ,13	B[17]	1 1 1 1 1 1	5
3.0. Capacity to provide service 3.01. Some CHVs not trained on IMAM 3.2.No timely fresher done on OTP STAFF 3.3.Poor record keeping of Program documents 3.4.They experience commodity stock-outs 3.5.No regular meetings with CHVs by program	5,10,12[15]	B[17]	1 1 1 1 1	5

staffs 3.6.No regular support supervision 3.7.Workload due to understaffing 3.8.Discharge criteria not well understood 3.9. No active CHVs in some villages 4.0. Treatment days take too long 4.1. Some weighing scales are faulty and lack batteries			1 1 1 1 1 1	
4.0.Accessibility of service 4.1.Beneficiaries travel long distances 4.2.Beneficiaries occasionally cut off from outreach locations by flooding rivers 4.3. Single mothers concentrate on other families chores side-lining treatment 4.4. Insecurity 4.5. Food insecurity at house hold level	4[5],5,6[5],10,11[2],12[4],13	A,B[18],	1 1 1 1 1	5
5.0.Referral, transfer and follow-up strategy 5.1.Some villages do not refer because they lack CHVs 5.2.No proper follow-up mechanism	5,10,11[2],12	B[5]	1 1	2
6.0.Appreciation of the service 6.1.Ther is perception that RUTF is food and not medicine 6.2.RUTF causes Diarrhoea 6.3. CHVs complain that no motivation 6.4.Some beneficiaries are stigmatised in some villages	8,11[2],12[2]	B[5]	1 1 1 1	2
7.0.Identification/Strategy/Enrolment 7.1.Wrong diagnosis by the CHVs	11,12[2]	B[3]	1	3
8.0. Retention Strategy 8.1.No network connectivity to facilitate defaulter tracing in some areas	8,11,12	B[3]	1	3
9.0. Communication system with community 9.1.Some caretakers forget TCAs	4,8	B[2]	1	2
TOTAL			31	29

Table 12: OTP Boosters Turkana North/Kibish

	OTP Booster	Key Informants Source	Methods	Simple BBQ	Weighted BBQ
1	Mobilization and Referral of malnourished cases by volunteers and TBAs during HH visits	3"5"1",4",6",7,9""	B"""""""""",A"'	1	4
2	Nutrition screening ongoing (mass and routine at service points)	1,5',3	A',B"	1	3
3	Malnourished cases come with referral slips from the CHV and monthly CHV reports	3',5"",10',9	B"""",A	1	2
4	Frequent meetings by with CHV by OTP staff to discuss programme progress	3"',5,6	B""	1	1
5	Visits by sub county team	3	B	1	1
6	Good programme exit indicators	3	B	1	1
7	Community able to identify malnutrition	2,5,1",4,6',9"',12",14,7,	B"""""",A"'	1	4
8	Community seek treatment for malaria and malnutrition from the health facilty	2,14	B,A	1	2

9	Community is able to identify nutrition programs that exist for malnourished children	2'",1",4",6'",9"",5',12	B"""""""""""",A'",	1	4
10	Community consults CHVs on health & nutrition issues	5',1	B'A	1	1
11	Malnutrition issues part of chief`s Baraza meetings agenda /Discussions	5,6,11,12'	B""	1	3
12	Community aware of causes of malnutrition and health education exists	1,6',12	A,B"	1	3
13	Outreaches exist	6,12	B'	1	4
14	Positive staff attitude	9'	B'	1	2
15	No stock outs	9,	B	1	3
16	Carers prefer going to OTP clinics than other HH activities	9	A	1	4
				16	42

Table 13: OTP Barriers Turkana North/Kibish

	OTP Barriers	Key Informants Source	Methods	Simple BBQ	Weighted BBQ
1	Staff not trained on IMAM	3'	B'	1	3
2	OTP stock outs(2 months)	3,2,5'	B""	1	2
3	Distance limit access to IMAM program	2,6',10,12",11	B"""""	1	2
4	Fixed OTP days	9	B	1	3
5	staff absence affecting nutrition programme	5	B	1	3
6	Long waiting time at health facility	9,12'	B"	1	4
7	Negative attitude of female HW towards carers	12	B	1	2
8	Payment of service fee by client in FBO facilities	1,4,6	A,B'	1	4
9	Community view OTP commodities as foods as such they are shared or sold	2',5",1,11',12""14'	B""""""""",A',	1	5
10	Community do not understand IMAM programme	2,9,12,7'	B"	1	3
11	Mothers not able to identify signs of malnutrition and low knowledge among men	9',11,14	B",A	1	4
12	Cultural beliefs e.g. Oedema treated by pouring goats blood on the child and cutting of the swollen parts	2,4,9,12'	B""	1	4
13	Some mothers are stigmatized to bring their children to IMAM programme	5,6,9,14	B",A	1	2
14	No regular discussions between clinic staff and CHVs on the program progress(cured, defaulter)	5",6	B"'	1	3
15	No CHV kit, Identification and gears, Low motivation for CHVs-	5"	B"	1	3
16	Limited home visits and mobilization by Implementing Partner staff &CHVs(CHVs staying far away from the village they are expected to cover), Referral slips not in use	6',9",12",5"""",11'	B"""""""""""""	1	4
17	Absenteeism from OTP clinics while visiting relatives	5',9	B"	1	3

18	HH food insecurity (including long search for wild foods)	9',8',12"	B"",A'	1	4
19	Alcoholism	11,14	B,A	1	4
				19	62

Table 14: SFP Boosters Turkana North/Kibish

	SFP Booster	Key Informants Source	Methods	Simple BBQ	Weighted BBQ
1	Mothers/community able to identify signs of malnutrition	8,14,6,13	B",A	1	4
2	Self-referrals and community seeks health care at HFs	8"13',15,14	B"",A'	1	4
3	Malnutrition part of chief`s baraza discussions	8',6'	B",A	1	2
4	Good rapport between the SFP mother and health staff	8,13,6	B"	1	2
5	No stock outs	8',15,13	B",A	1	2
6	Community aware of SFP services	8,13"',5,6"	A, B’’’’’’.	1	4
7	Feedback on programme outcome to the CHVs by clinic staff and by CHVs to the community	10,5,6	B"	1	2
8	Training of CHVs on screening	10,5	B'	1	3
9	Stipends to CHVs	10,	B	1	1
10	CHVs reporting (monthly)	10,5	B'	1	2
11	Mobilization ,sensitization and referrals by CHWs	5',8"',13,6'	B"", A'	1	3
12	Some mothers treat RUSF as medicine	8	A	1	1
13	Existing outreach	11,13	B'	1	4
14	Support supervisions from the sub county	15	B	1	2
15	community appreciates the programme	15,13,6	B"	1	3
16	Quick service delivery for SFP	13	B	1	1
	TOTAL			**16**	**40**

Table 15: SFP barriers Turkana North/Kibish

	SFP Barriers	Key Informant Source	Methods	Simple BBQ	Weighted BBQ
1	High staff workload and absence	15,5	B'	1	3
2	Long waiting time for SFP services	8'	B, A	1	3
3	Fixed SFP days	8	B	1	4
4	Community not well informed on the programme	8,14	B, A	1	2
5	Identification and referral (No stipend for CHVs and long distance by CHVS)	5'	B'	1	3
7	Stock outs of SFP commodities	8	A	1	3
8	Low appreciation of SFP commodities (Some mothers view RUSF as food hence sharing of RUSF and sale at HH level and sale)	8",13,14	A"',B	1	5
9	Distance to health Facility limiting access and No outreaches in some areas	8',13"6	A',B""	1	2
10	Stigma for mothers with malnourished children	8,14,6	A',B	1	1
12	Poor mobilization and referral system	11,13,8,15	B"',A	1	3
13	Alcoholism	14,13	A	1	3
14	HH food insecurity	15	B	1	4
15	Absenteeism due to visiting relatives	15	B	1	2

16	Poor outcome indicators & No mechanism for tracing defaulters	15'8	B',A	1	4
	TOTAL			**14**	**42**

Table 16: OTP Boosters Turkana South

Boosters	Key Informant Sources	Method	Un-weighted	Weighted
1. Presence of outreaches	1,2,4,12	SSI,FGD, Obs,	1	3
2. Strong supply chain e.g. IMAM supplies	1,4,12	SSI, SSI, Obs,	1	4
3. Screening and referrals to HF by CHVs	1,3,4,12,10	SSI, Obs, FGD	1	2
4. Availability of trained staff on IMAM	1,4,11	SSI	1	3
5. OJT through joint support supervision	1,11	SSI	1	3
6. Self-referral	2,1,10,12	SSI, FGD, Obs	1	2
7. Passive screening at the HF	1,2	SSI	1	4
8. Mothers are aware and appreciate the IMAM program	2,5,6,7,9,	FGD, SSI	1	3
9. Incentives to CHVs	4	SSI	1	1
10. Good relationship between community and facility staffs	4,3,2	SSI,FGD	1	3
11. Health education (Nutrition education)	4,12	SSI, Obs	1	3
TOTAL			11	31

Table 17: OTP Barriers Turkana South

Barriers	Sources	Method	Un-weighted	Weighted
1) Distance to service delivery	1,5,2,3,6,7	SSI, FGD	1	3
2) Sharing and selling of RUTF	1,2,3,10,	SSI, FGD	1	4
3) Lack of a tool to confirm that a referred child has appeared at HF/stabilization center	1,6,3	SSI	1	2
4) Inconsistent outreaches	1	SSI,	1	2
5) High maternal workload (conflicting responsibilities among mothers)	1,2,10,	SSI, FGD	1	4
6) Migration	1	SSI,	1	1
7) Poor health seeking behavior	6,7,10	SSI, FGD	1	3
8) Treatment of oedema by traditional healer	4,7	SSI	1	3
9) Failure of men involvement in IMAM	9,12	FGD, Obs	1	4
TOTAL			10	29

Table 18: SFP Boosters Turkana South

Booster	Sources	Method	Unweighted	Weighted
Presence of outreaches	1,2,4,12	SSI,FGD, Obs,	1	3
Strong supply chain e.g IMAM supplies	1,4,12	SSI,Obs	1	4
Screening and referrals to HF by CHV's	1,3,4,12,10	SSI,Obs,FGD	1	2
Availability of trained staff on IMAM	4,1,	SSI,	1	3
Joint support supervision	1,11	SSI,	1	3
Self-referral	2,1,10,12	SSI, FGD, Obs	1	2
Passive screening at the HF	1,2	SSI,	1	4
Mothers are aware and appreciate the IMAM program	2,9,5	FGD,	1	3
Incentives to CHVs	4	SSI	1	1

Good relationship between community and facility staffs	4,3,2	SSI,FGD	1	2
Health education(Nutrition education)	4,12	SSI,Obs	1	3
TOTAL			**11**	**31**

Table 19: SFP Barriers Turkana South

Barriers	Sources	Method	Unweighted	Weighted
Distance to service delivery point	1,5,2,3,6,7	SSI,FGD	1	3
Sharing and selling of RUSF	1,2,3,10,	SSI,FGD	1	3
Lack of a tool to confirm that a referred child has appeared at HF/stabilization center	1,6,3	SSI	1	2
Inconsistent outreaches	1	SSI,	1	2
High maternal workload (conflicting responsibilities among mothers)	1,2,10,	SSI,FGD	1	3
Migration	1	SSI,	1	1
Poor health seeking behavior	6,7,10	SSI,FGD	1	3
Perception of RUSF as food that contributes to sharing	5,6,	SSI	1	3
Failure of men involvement in IMAM	9,12	Obs	1	4
TOTAL			**9**	**24**

Table 20: OTP Boosters Turkana Central/Loima

OTP BOOSTERS	SOURCE	METHOD	Unweighted	Weighted
Availability of tools (referral slips, MUAC tapes)	chv	iii	1	2
community appreciation of the program	hw",lp,chv, Rl, lp	iii'"	1	4
good documentation	hw,ps	iii"	1	2
Awareness of the program by the Community Members	rl,cfout",tba,tba,chv,	iii	1	3
Free IMAM services	cfin	i	1	1
consistence of outreaches	cfin,chin	iii"	1	3
early mobilization/ active case finding	cfin,cfout,ps	I,I,iii	1	3
self-referral by mothers/ mothers encourage others to seek health services	cfin,hw,chin	I,ii,iii	1	4
Effectiveness of the program/ children admitted recover	chin,lp,ad,hw	ii,iv,iii	1	3
friendly health workers/ health worker give adequate time to serve the client	chin	ii	1	2
no stigma	cfout,ad	I,v	1	2
not selling of commodities (RUTF)/ no sharing of commodities	lp, Rl, cfout,	iv, i	1	2
motivation of chv through recognition	chv	iii	1	2
IMAM review meetings/ communication of chvs and health workers	hw,chv	iii"	1	3
training of health workers/ CHVs	hw, chv	iii	1	4
defaulter tracing/follow up of cases	hw,chv	iii"	1	2
No stock out	hw	iii	1	4
Total			**17**	**46**

Table 21: OTP Barriers Turkana Central/Loima

OTP BARRIERS	SOURCE	METHOD	Unweighted	Weighted
Stock out	ps	iii	1	1
Long distance	cf out,	I,I,iii""	1	3

	cfout,hw,chv,rl,hw			
No chvs	cfin,chin, cfout, ps	iii,I,iii,iii	1	2
Poor health seeking behaviour (visiting traditional healers)	cfin,chin, cfout, ps	i,ii	1	1
Men not involved in IMAM	cfin	i	1	1
lack of program awareness by community members	cfin,	i	1	2
No active case finding	ad,ps	v,iii	1	2
Selling of RUTF/ Sharing of therapeutic feeds	ad,ps", hw",tba	v,iii"	1	3
lack of referral slips, muac tapes, z-score	hw	iii	1	2
Alcoholism	chv,hw,tba,ps	iii""	1	4
Staff shortage/ high workload for Health Worker/ CHVs	hw",ha	iii	1	3
Poor documentation	hw'	iii"	1	3
Fear of being tested for HIV/AIDS	hw	iii	1	2
Lack of incentives/ Facilitation for CHVs	chv	iii	1	2
Poor integration between IMAM and other health services	hw	iii	1	2
stigma to those in program	rl,tba	iii"	1	2
wrong referrals by chvs/ no feedback to chv to confirm if the referral was considered	hw	iii	1	1
program staff not trained on IMAM	ps	iii	1	2
Workload for mothers/ negligence by young mothers	ps, hw	iii	1	3
insecurity	ps	iii	1	1
Total			**20**	**42**

Table 22: SFP Boosters Turkana Central/Loima

SFP BOOSTERS	SOURCE	METHOD	Unweighted	Weighted
Program awareness by community members	cfin,cfout,tba, Rl,hw	iii"'	1	4
Program effectiveness /Child admitted recover	cfin,tba,ad,lp	iii"iv"	1	3
No stigma in children in program	cfin,cfout,ad	iii"iv"	1	3
Health workers sharing information about the program	chv	iii	1	2
Active case finding / Early mobilization of community members for IMAM program	lp,hw",chv,TBA,RL	iv,iii"	1	3
Not selling of commodities/ Not sharing commodities	lp,hw,chv,Rl, cfin,chin,cfout	iv,iii"	1	3
chvs motivation	chv	iii	1	2
IMAM review meetings/ communication between health facility staffs and chvs	chv,hw	iii	1	2
Training of the health workers/ CHVs	hw	iii	1	4
Defaulter tracing/ Follow up of IMAM Beneficiaries	ps, hw,chv	iii	1	2
Availability of Tools (referral slips, MUAC tapes)	chv	iii	1	2
Community appreciative of the program	hw,chv,Rl	iii	1	3
Good documentation	hw, ps	iii	1	2
Self referral to IMAM	hw	iii	1	3
No stock out	hw	iii	1	3
Total			**15**	**41**

Table 23: SFP Barriers Turkana Central/Loima

SFP Barriers	Method	Source	Unweighted	Weighted
Stigma for those in program.	iii"	Tba,rl	1	2

Lack of training for program staff	iii	ps	1	2
Mothers' workload/ Negligence among young mothers	iii	ps, hw	1	3
Insecurity	iii	ps	1	1
Long waiting hours	i	Cf_{in},	1	3
Long Distance	iii	Hw	1	3
Stock shortage	Ii	$ch_{in, CFin}$	1	2
No active case finding	iv, iii	ad, ps	1	2
Lack of Tools (referral forms, Z Score tables)	iii	chv	1	1
Alcoholism	iii""	chv,hw,tba,ps	1	4
Fear of being tested for HIV status	iii	hw	1	2
Lack of incentives/ facilitation for CHVs	iii	chv	1	3
Sharing of commodities/ RUTF used as snack	iii	hw	1	2
Staff shortage/ Health Workers workload	iii	hw	1	3
No chvs	iii"',i	cfin,chin, cfout, ps	1	2
Poor documentation	iii"	hw'	1	3
Poor integration between IMAM and other health services	iii	hw	1	2
lack of program awareness by community members	i	cfin,	1	1
			18	**41**

STAGE 2: Hypothesis Formulation and Testing

2.3 Hypothesis formulation and testing Turkana East

From the previous stage, both qualitative and quantitative data were analysed to identify the area of low and high program coverage. There were indication of low coverage in some areas and high coverage in others. Hypotheses were set for all survey zones for both OTP and SFP. The hypotheses were tested by applying simplified LQAS formula d= (n/2) against the 50% SPHERE standard for Coverage in Rural Areas. That is:

$$d=\left\lfloor n\ X\frac{p}{100}\right\rfloor$$

Where

n=sample size
p = 50% - SPHERE Standards Threshold for Rural
d=decision rule

Hypothesis statement Turkana East

Program coverage is high (>50%) in villages with functional community unit and low (<50%) in villages with NO or inactive community units. To confirm the hypothesis villages with functional community units Lokamusio, Bondeni and Nakukulas were selected and villages with inactive Community units Kidewa, Naukotlem and Kakurio were selected. Results were analysed as shown in the *tables 24* and *25*:

Table 24: Small survey results – OTP

Purposively Sampled Villages	**Total SAM + Rec SAM**	**Total covered SAM or Rec**
Villages with Active CU(Community unit) Lokamusio, Bondeni, Nakukulas	3	2
Villages with NO or inactivate CU Kidewa, Naukotlem, Kakurio	0	0

Villages with Active CU: Lokamusio, Bondeni, Nakukulas	Program coverage Standard (p)	50%	d = 3/2= 1.5 (Round down) Number of SAM cases covered is 2. **Since 2>1; Hypothesis was confirmed**
	Decision rule (d)	d= n * (p/100)	
	Number of SAM cases covered and recovering	2	
Villages with NO or inactive CU: Kidewa, Naukotlem, Kakurio	Program coverage Standard (p)	50%	d = 0/2= 0 Number of SAM cases NOT in program = 0 **Since 0=0; Hypothesis was confirmed**
	Decision rule (d)	d= n * (p/100)	
	Number of SAM cases NOT in program	0	

Table 25: Small survey results – SFP

Purposively Sampled Villages	**Total covered MAM or Recovering**	**Total MAM NOT in the Program**
Areas with active CHVs: (Lokamusio, Bondeni and Nakukulas)	13	11

Areas without active CHVs: (Kidewa, Naukotlem, Kakurio)		20	29
Villages with Active CU: Lokamusio, Bondeni, Nakukulas	Program coverage Standard (p)	50%	d = 24/2 = 12 (Round down) Number of MAM cases covered is 13. **Since 13>12; Hypothesis was confirmed**
	Decision rule (d)	d= n * (p/100)	
	Number of MAM cases covered and recovering	13	
Villages with NO or inactive CU Kidewa, Naukotlem,Kakurio	Program coverage Standard (p)	50%	d = 49/2 = 24.5 (Round down) Number of MAM cases NOT in program = 29 **Since 29 >24; Hypothesis was confirmed**
	Decision rule (d)	d= n * (p/100)	
	Number of MAM cases covered and recovering	13	

2.4 Hypothesis formulation and testing Turkana Central/Loima

There was relative homogeneity in barriers and boosters reported by various respondents across the facilities. The team developed the following hypothesis on probable areas of high and low coverage based on qualitative and quantitative data:

Hypothesis statement Turkana Central/Loima

There is high coverage in areas with active community health volunteers (CHVs)/community units (CUs) and low in areas with inactive CHVs/no CUs. Active CHVs was defined as those submitting monthly reports, monthly meetings, doing active case findings and referrals.

To test the hypothesis eight villages were selected, 4 for areas with active CHVs (Nakechichok, Natapar, Nakwapoo, Lomunyenakwaan) and 4 for areas with inactive CHVs/no CUs (Lotira, Kaikir, Kodopa, Nagis) and tested.

The hypotheses were tested by applying the simplified LQAS formula d= (n/2) against the 50% SPHERE standard for Coverage in Rural Areas.

Table 26: OTP Hypothesis Testing Results- Turkana Central/Loima

CHVs Active	Sub County	H/F	Village	SAM Case covered	SAM Case Not covered	Recovering SAM	Hypothesis Result
Yes	T. Central	Nakechichok	Nakechichok	1	0	0	d=1/2
Yes	T. Central	Nakwamekwi	Natapar	0	0	0	1>0
Yes	Loima	Kaitese	Nakwapoo	0	0	0	Hypothesis Confirmed
Yes	Loima	Napeililim	Lomunyenakwaan	0	0	0	
Total				**1**	**0**	**0**	
No	T. Central	Naoros	Lotira	0	1	0	d=5/2
No	T. Central	Loturerei	Kaikir	1	0	1	2=2
No	Loima	Napeikar	Kodopa	0	1	0	Hypothesis Confirmed
No	Loima	Nadapal	Nagis	0	0	1	
Total				**1**	**2**	**2**	

All hypothesized statement were Confirmed.

Table 27: SFP Hypothesis Testing Results - Turkana Central/Loima

CHVs Active	Sub County	H/F	Village	SAM Case covered	SAM Case Not covered	Recovering SAM	Hypothesis result

Yes	T. Central	Nakechichok	Nakechichok	1	1	1	d=27/2
Yes	T. Central	Nakwamekwi	Natapar	3	0	1	25>13
Yes	Loima	Kaitese	Nakwapoo	4		6	Hypothesis Confirmed
Yes	Loima	Napeililim	Lomunyenakwaan	2	1	7	
Total				**10**	**2**	**15**	
No	T. Central	Naoros	Lotira	1	1	1	d=15/2
No	T. Central	Loturerei	Kaikir	0	0	1	6<7
No	Loima	Napeikar	Kodopa	1	3	2	Hypothesis Confirmed
No	Loima	Nadapal	Nagis	0	2	3	
Total				**2**	**6**	**7**	

All hypothesized statement were Confirmed.

2.5 Hypothesis formulation and testing Turkana North/Kibish

The previous stage showed there were areas with low coverage and other with high coverage. Hypotheses were set for both OTP and SFP. The hypotheses were tested by applying simplified LQAS formula d= (n/2) against the 50% SPHERE standard for Coverage in Rural Areas.

Hypothesis statement Turkana North/Kibish

There is high (>50%) coverage in areas near IMAM site (<7Kms) and Low coverage in areas far from IMAM site (>7Kms). To confirm the hypothesis villages far from IMAM sites Loitanit, Kaituko, Ekiongot and Nayenaikabai were selected and villages near IMAM sites Natebus, Rukruk, Kayasa and Ngikujui were selected.

Results were analysed as shown in the tables below:

Table 28: OTP Hypothesis test results- Turkana North/Kibish

Hypothesis of high coverage in village near(<7KM) IMAM functional health facility										
SUB-COUNTY	H/F	VILLAGE	DISTANCE	SAM CASE	SAM CASE COVERED	SAM NOT COVERED	SAM RECOVERING	TOTAL SAM+RECOVERING	Total covered(SAM CASES COVERED+RECOVERING	HYPOTHESIS
NORTH	KANAKURUDIO	NATEBUS	0.5	0	0	0	1	1	1	
NORTH	LOARENGAK	RUKRUK	0.7	2	2	0	1	3	3	Accepted
KIBISH	KOYASA	KOYASA	0.2	0	0	0	1	1	1	
KIBISH	EKICHELES	NGIKUJUI	0.7	1	1	0	1	0	2	
								5	7	
			5*50/100=2			Since 7>2	Hypothesis of high coverage in villages near functional IMAM health facility is accepted			
Hypothesis of low coverage in village far (>7KM) from IMAM functional health facility										
SUB-COUNTY	H/F	OUTREACH	DISTANCE	SAM CASE	SAM COVERED	SAM NOT COVERED	SAM RECOVERING	TOTAL SAM+ RECOVERING	TOTAL COVERED(SAM CASES COVERED+RECOVERING	HYPOTHESIS
KIBISH	KAIKOR	LOITANIT	38	0	0	0	0	0	0	
NORTH	KANAKURUDIO	KAITUKO	12	1	0	1	0	1	0	
KIBISH	EKICHELES	EKIONGOT	21	0	0	0	0	0	0	Accepted
NORTH	LOARENGAK	NAYENAIKABAI	15	2	1	1	1	3	2	
						2		4	2	
					4*50/100=2	not covered=2	SINCE 2=2	Hypothesis of low coverage in villages far(>7 KM) from IMAM functional health facility is accepted		

Hypothesis of heterogeneity was confirmed.

Table 29: SFP Hypothesis test results –Turkana North/Kibish

Hypothesis of high coverage in village near(<7KM) IMAM functional health facility										
Sub coounty	H/F	VILLAGE	DISTANCE	MAM CASE	MAM CASE COVERED	MAM CASE NOT COVERED	MAM RECOVERING	TOTAL M AM+RECOVERING	Total covered(MAM CASES COVERED+RECOVERING	Hypothesis
North	KANAKURUDIO	NATEBUS		2	2	0	4	6	6	
North	LOARENGAK	RUKRUK		13	7	6	9	22	16	
Kibish	KOYASA	KOYASA		7	6	1	13	20	19	Hypothesis
Kibish	EKICHELES	NGIKUJUI		1	1	0	14	15	15	confirmed
								63	56	
		d=n * (p/100)	63*50/100=31			since 56>31	Hypothesis of high coverage in villages near functional IMAM health facility is confirmed			

Hypothesis of low coverage in village far (>7KM) from IMAM functional health facility										
Subcounty	H/F	OUTREACH	DISTANCE	MAM CASE	MAM COVERED	MAM NOT COVERED	MAM RECOVERING	TOTAL MAM+ RECOVERING	TOTAL COVERED(MAM CASES COVERED+RECOVERING	Hypothesis
Kibish	KAIKOR	LOITANIT	38	4	3	1	20	24	23	
North	KANAKURUDIO	KAITUKO	12	9	5	4	46	55	51	
Kibish	EKICHELES	EKIONGOT	21	1	0	1	4	5	4	Hypothesis
North	LOARENGAK	NAYENAIKABARAN	15	12	12	0	8	20	20	Rejected
								104	98	
			d=n * (p/100)		104*50/100=52	since 98>6	Hypothesis of low coverage in villages far(>7 KM) from functional health facility is rejected			
					not covered=6					

2.6 Hypothesis formulation and testing Turkana South

The previous stage showed there were areas with low coverage and other with high coverage. Hypotheses were set for both OTP and SFP. The hypotheses were tested by applying simplified LQAS formula d= (n/2) against the 50% SPHERE standard for Coverage in Rural Areas.

Hypothesis statement Turkana South

Hypothesis 1-Health seeking behaviour in urban setting is high. Rationale for this hypothesis was:

- In areas near shopping centres, heath seeking behaviour was high as cited during qualitative data collection.
- Presence of CHVs for screening.

Hypothesis 2-Health seeking behaviour was low in the rural area. While rationale for the second hypothesis was:

- In the rural setting, malnutrition (oedema) is presumed to be treated by the traditional healers
- Inadequate staffing in some of the rural health facility
- Presence of traditional healers in the rural settings

To confirm the hypothesis villages far from IMAM sites Loitanit, Kaituko, Ekiongot and Nayenaikabai were selected and villages near IMAM sites Natebus, Rukruk, Kayasa and Ngikujui were selected.

Results were analysed as shown in the tables below:

Hypothesis 1- Health seeking behaviour is high in the urban area

Table 30: Health seeking behaviour is high in the urban area

Village	Geographic placement	n	Sought THP	Sought HF
Nalemsekon	Urban	10	2	8
Tonyoutu	Urban	10	1	9
Total		20	3	17

d=n*(p/100) d=20*(50/100) =10 (round down)

Since 17>10, the hypotheses of high coverage is confirmed

NB: MUAC Tape, RUTF and Marasmic-Kwarsh Pictorials, Local terminologies of SAM Case were used to confirm awareness for treatment of malnutrition.

Hypothesis 2- Health seeking behavior is low in the rural area

Table 31: Health seeking behavior is low in the rural area

Village	Geographical placement	N	Sought THP	Sought H/F
Awarnaparan	Rural	7	5	2
Kaikol	Rural	10	8	2
Total		17	13	4

d=n*(p/100) d=17*(50/100) =8.5 (round down)

Since 13>8, the hypotheses of low coverage is confirmed

NB: MUAC tape, RUTF, Marasmic-Kwarsh Pictorials, Local terminologies of SAM Case were used to confirm awareness for treatment of malnutrition.

2.7 Hypothesis Development and Testing Turkana West

There was elative homogeneity in barriers and boosters reported by various respondents across the facilities. The team developed the following hypothesis on probable areas of high and low coverage based on qualitative and quantitative data.

Hypothesis statement for Turkana West

There is high coverage in areas with active community health volunteers (CHVs)/community units (CUs) and low in areas with inactive CHVs/no CUs. Active CHVs was defined as those submitting monthly reports, monthly meetings, doing active case findings and referral

Rationale for the hypothesis was:

- Program data indicated that coverage was high in health facilities with villages having active CHVs
- Defaulting was noted in health facilities that did not have active CHVs in comparison to those that were health facilities that had active CHVs/CUs.
- Interviews with program staff and HWs pointed that active case findings boost the program coverage

To test the hypothesis, 6 villages were selected. Three for areas with active CHVs (Lopidingi, Locherekal and Lokitela) and 3 for areas with inactive CHVs/no CUs (Wapet, Epong and Lokwanya) and tested. The results are shown in the *table 32*.

Table 32: Test results for Turkana West Hypothesis

CHVs Active	Village	SAM/OTP			Hypothesis result	MAM/SFP			Hypothesis Result
		Covered	Not covered	Recovering		Covered	Not covered	Recovering	
Yes	Lopidingi	5	1	1	D= 7	8	19	7	D=40
Yes	Locherekal	2	3	0	9>7	5	11	9	41>40
Yes	Lokitela	1	1	0	Hypothesis validated	8	9	4	Hypothesis validated
Total		**8**	**5**	**1**		**21**	**39**	**20**	
No	Wapet	0	0	0	D= 1	3	0	6	Hypothesis validated
No	Epong	0	2	0	0<1	0	9	0	
No	Lokwanya	0	0	0	Hypothesis validated	1	1	6	D= 10 10=10
Total		**0**	**2**	**0**		**4**	**10**	**12**	

All hypothesized statement were validated.

2.8 FORMING THE PRIOR:

Four methods were used to develop the prior;

1. Un-weighted barriers and boosters - Counting of number of barriers and boosters in OTP and SFP (score of 5 each)
2. Weighted barriers and boosters – Weighted based on extend they affect the program and evidence collected
3. Histogram prior – Developed through the best probable belief based on the sub county and health facility team
4. Concept map for both SFP and OTP: Developed by counting positive and negative links based on barriers and boosters

The average of the above was used to set the prior mode in the Bayes SQUEAC calculator.

Un-Weighted barriers and Booster

The sum of boosters added to a minimum coverage (0%) and the sum of barriers subtracted from a maximum coverage (100%) was computed. The results of the two were then added to un-weighted prior calculated.

Weighted barriers and boosters

All boosters and barriers identified in the first and second stage were weighted by giving a score. The score was based on how much effect it would have increased decreased coverage. The scores were done using a scale of 1 to 5 where 5 gave a maximum effect and 1 represented a minimum effect.

Histogram prior or Community belief

Here participants were asked to estimate the coverage based on their belief of the most probable value that would affect the programs (OTP/SFP). The estimated values from the program staffs were used to calculate the prior.

Concept Map

This involved developing a concept map. The number of positive links was added to the minimum coverage of 0% and the number of negative links was subtracted from the maximum coverage of 100% then the average done.

2.8.1 Establishing the prior for Turkana East

The average prior was calculated by taking the total of the three priors as shown below:

Table 33: Prior calculation Turkana East

	Un-Weighted BBQ	**Weighted BBQ**	**Histogram**	**Concept Map**
OTP	((0%+20%) + (100%-20%))/2=50%	((0%+26%) + (100%-29%))/2=48.5%	48%	
SFP	((0%+20%) + (100%-26%))/2=47%	((0%+31%) + (100%-51%))/2= 40%	46%	

For OTP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 48.8% (α=15.3 and β=16.0)

For SFP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 47% (α=13.7 and β=17.2)

The team did not use concept map for prior calculation.

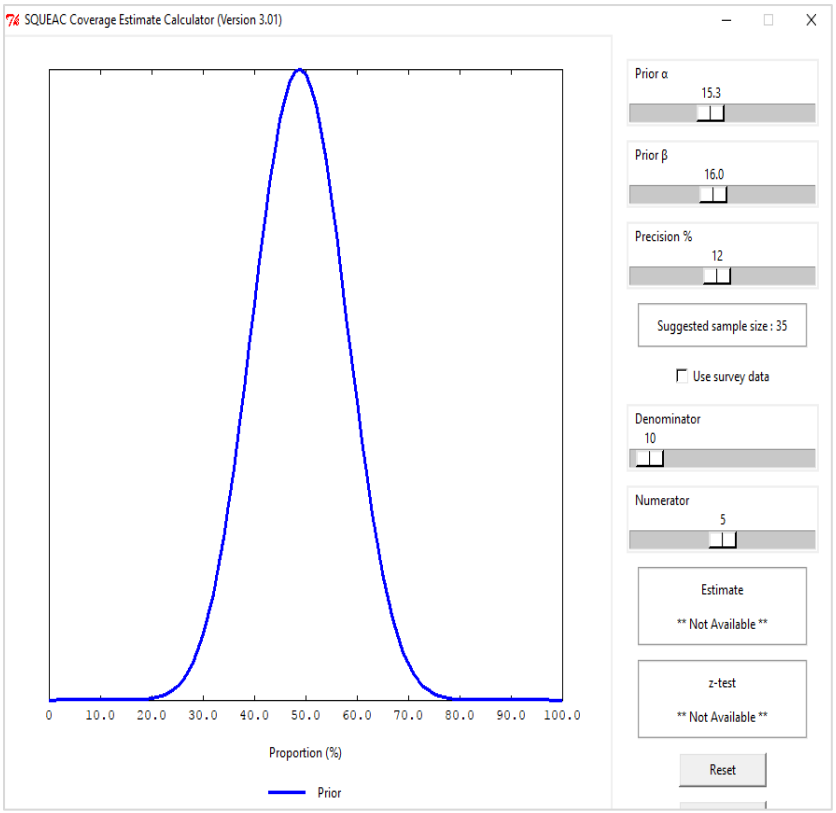


Figure 80: Turkana East OTP Prior

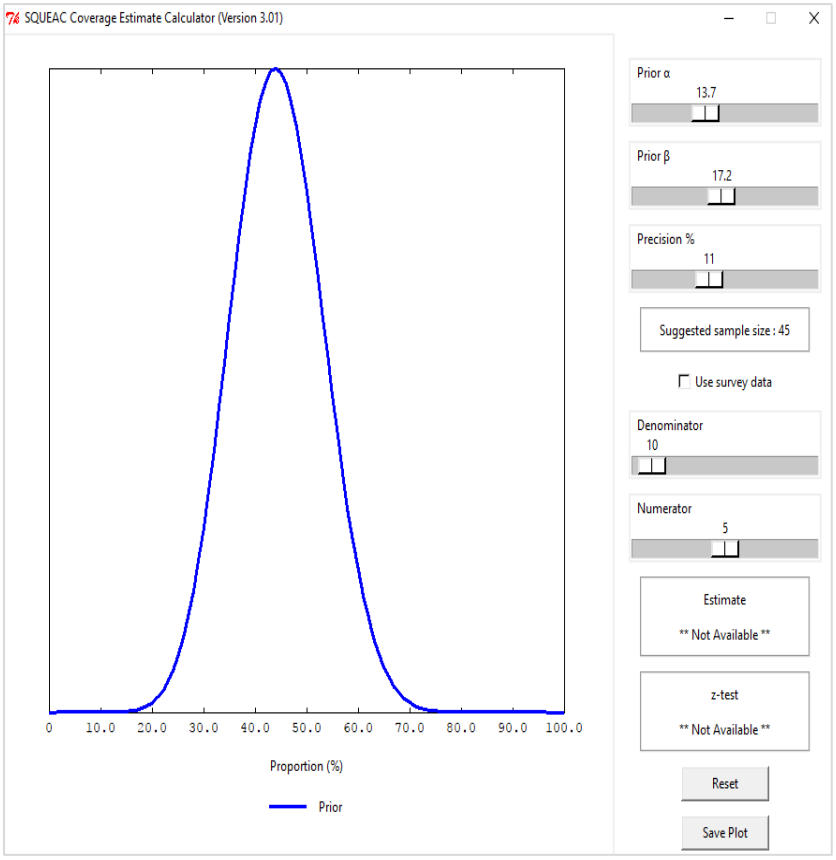


Figure 81: Turkana East SFP Prior

2.8.2 Establishing the prior for Turkana Central and Loima

The average prior was calculated by taking the total of the three priors as shown below:

Table 34: Prior calculation Turkana Central and Loima

	Un-Weighted BBQ	Weighted BBQ	Histogram	Concept Map

OTP	((0+17)+(100-20))/2=48.5%	((0+46)+(100-43))/2=52%	68%	
SFP	((0+15)+(100-18))/2=48.5%	((0+41)+(100-41))/2=50%	63%	

For OTP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 56.2% (α=17.3 and β=13.5)

For SFP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 47% (α=16.7 and β=14.4)

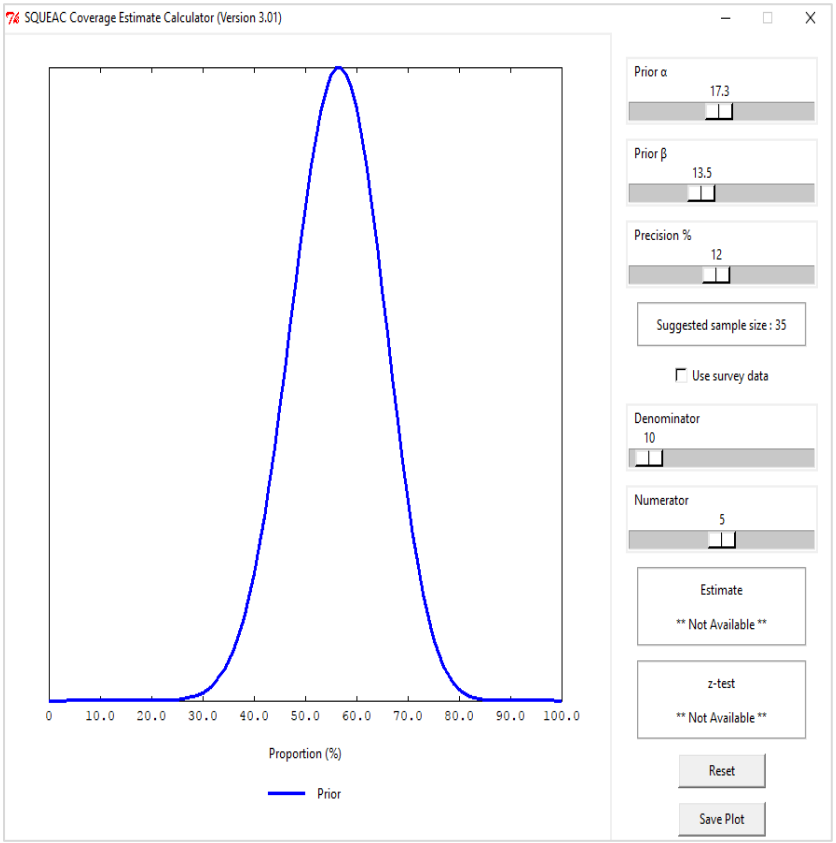


Figure 82: Turkana Central/Loima OTP Prior

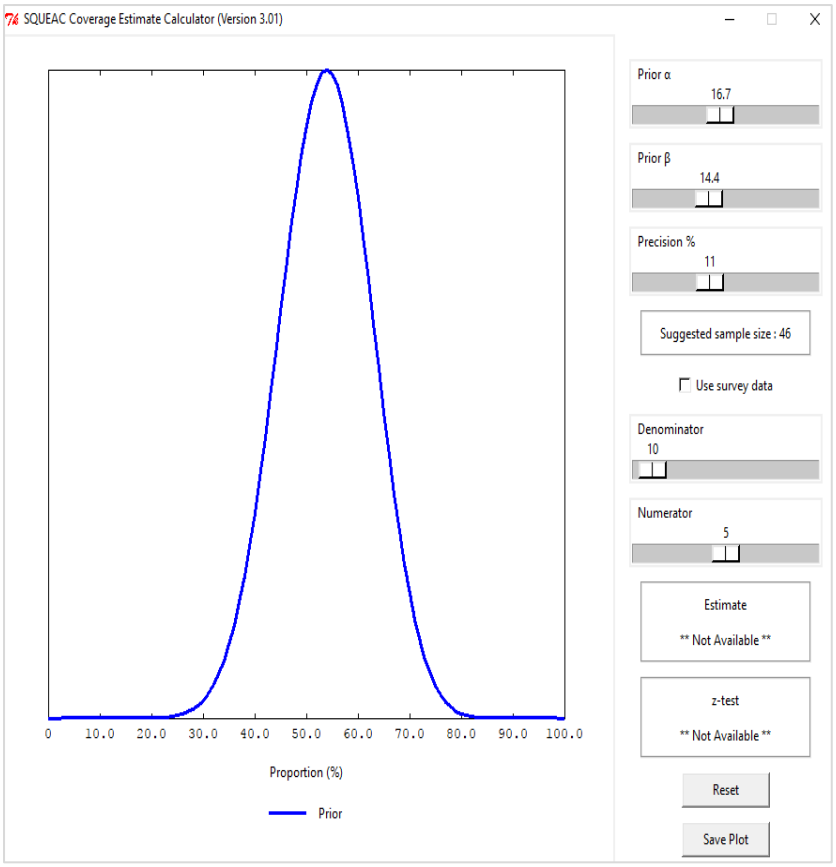


Figure 83: Turkana Central/Loima SFP Prior

2.8.3 Establishing the prior for Turkana North and Kibish

The average prior was calculated by taking the total of the three priors as shown below:

Table 35: Prior calculation Turkana North and Kibish

	Un-Weighted BBQ	Weighted BBQ	Histogram	Concept Map
OTP	((0+16)+(100-19))/2=48.5%	((0+42)+(100-62))/2=40%	58%	
SFP	((0+16)+(100-14))/2=51%	((0+40)+(100-42))/2=49%	64%	

For OTP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 48.8% (α=15.3 and β=16.0) precision 12

For SFP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 54.7% (α=17 and β=14), precision 12.

The team did not use concept map for prior calculation.

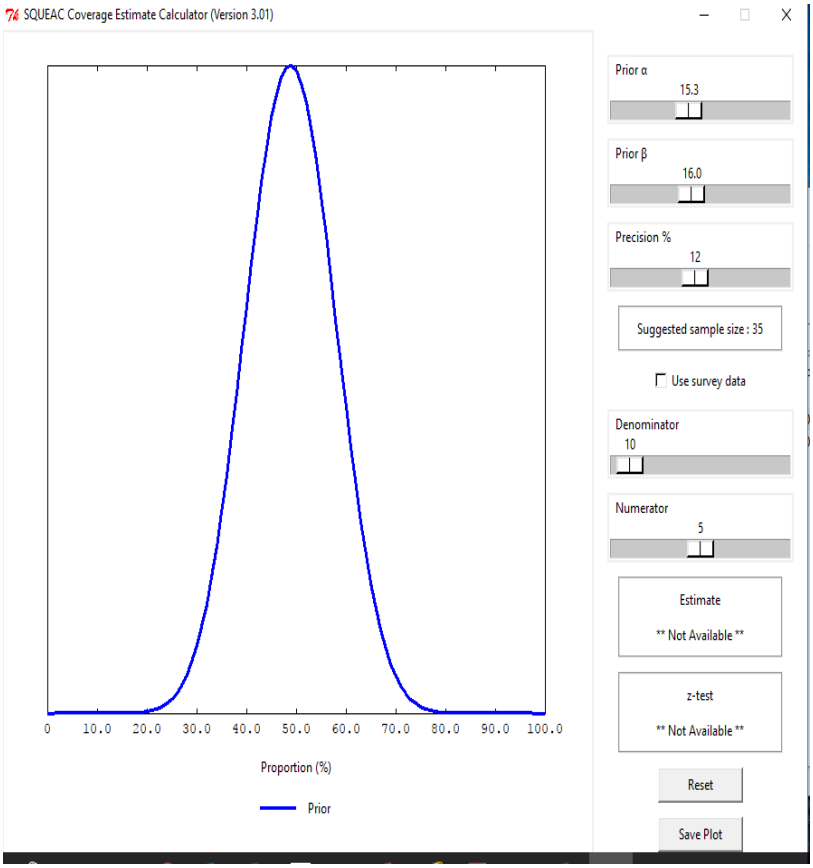


Figure 84: Turkana North/Kibish OTP Prior

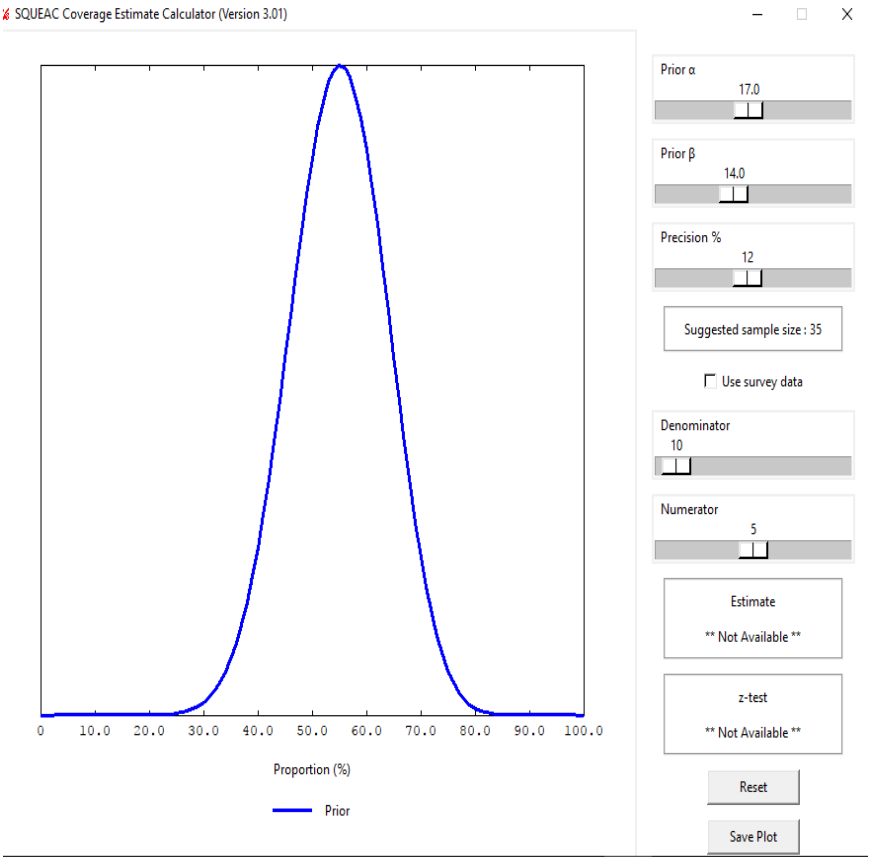


Figure 85: Turkana North/Kibish SFP Prior

2.8.4 Establishing the prior for Turkana South

The average prior was calculated by taking the total of the three priors as shown below:

Table 36: Prior calculation Turkana South

	Un-Weighted BBQ	Weighted BBQ	Histogram	Concept Map
OTP	((0+15)+(100-9))/2=53.0%	((0+31)+(100-24))/2=53.5%	55.0%	
SFP	((0+11)+(100-10))/2=50.2%	(()+31)+(100-29))/2=51.0%	47.0%	

For OTP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 53.8%% (α=16.7 and β=14.4) precision 11

For SFP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 49.5% (α=15.5 and β=15.8), precision 12.

The team did not use concept map for prior calculation.

2.8.5 Establishing the prior for Turkana West

The average prior was calculated by taking the total of the three priors as shown below:

Table 37: Prior Calculation Turkana West

	Un-Weighted BBQ	Weighted BBQ	Histogram	Concept Map
OTP	((0+85)+(100-85))/2=50.0%	(()+59)+(100-46.5))/2=56.25%	70.0%	((0+21(positive links))+((100-18(negative links))/2=46.6%
SFP	((0+75)+(100-85))/2=45%	((0+51.5)+(100-50.5))/2=50.5%	68%	((0+19(positive links))+((100-21(negative links))/2=49%

For OTP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 55.7%% (α=17.2 and β=13.7) precision 12

For SFP, using the Bayesian Coverage Estimate Calculator, the Prior Mode was set as 53.13% (α=16.5 and β=14.6), precision 11.

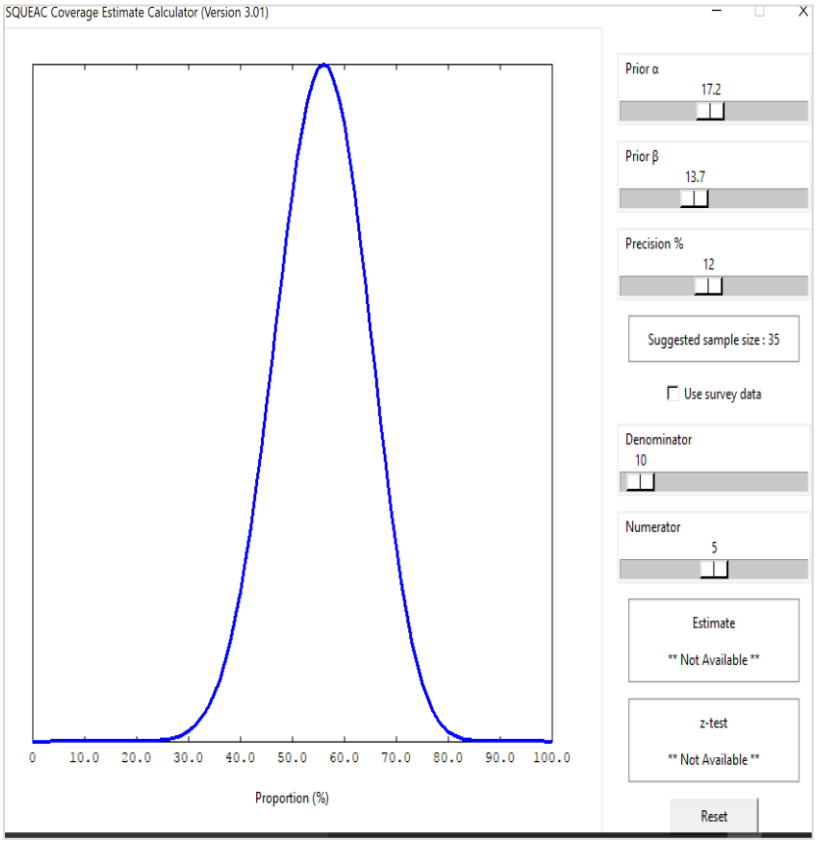


Figure 86: Turkana West OTP Prior

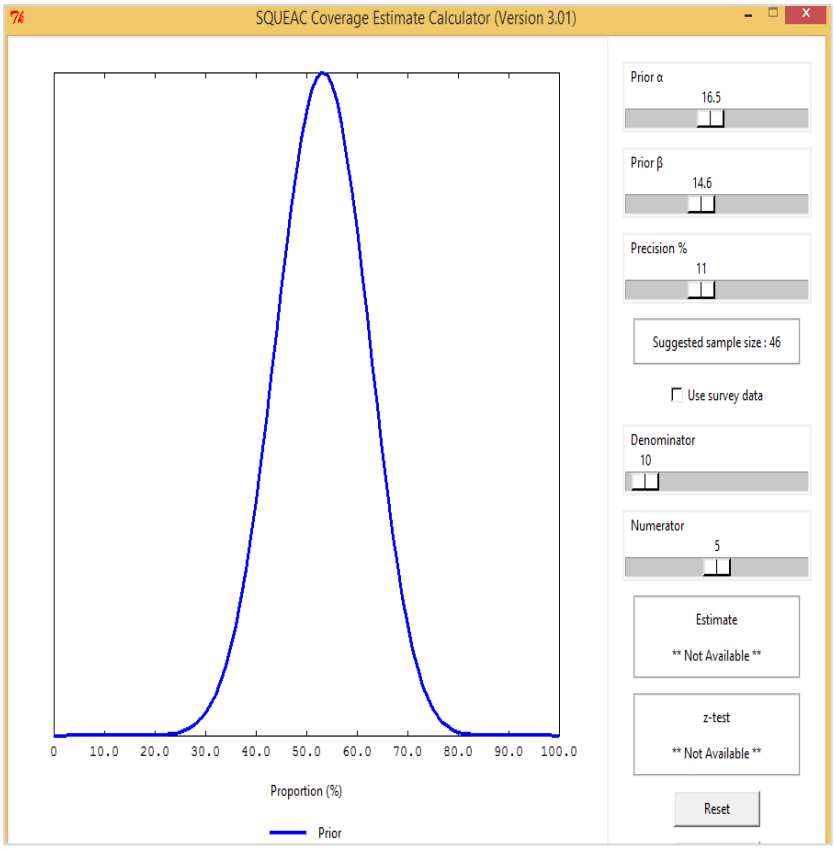


Figure 87: Turkana West SFP Prior

STAGE 3: Wide Area Survey

2.9 Sample Size Calculation and Data Collection

This is the third stage of an OTP/SFP coverage assessment. From the first and second stage i.e. analysis of the quantitative and qualitative information obtained and confirmation of the hypotheses tested, this stage establishes the coverage of the IMAM intervention within the area under investigation. The stage gives consideration to how boosters and barriers (BB) affect the coverage of the intervention being assessed.

In establishing the coverage for SFP in the assessment zones, the assessment teams first developing the PRIOR. Prior is an estimate of the actual coverage that considers Boosters and Barriers Questioning (BBQ) process.

In order to determine the number of villages which would yield the required sample size for both programs, the following formula was used;

$$\boldsymbol{n}\ villages = \frac{n}{average\ village\ population \times \frac{\%population\ of\ 6\ to\ 59\ months}{100} \times \frac{prevelance}{100}}$$

2.9.1 Turkana West: Sample Size Calculation and Wide Area Survey Results

OTP/SAM

Average village population 408, Under-fives (6-59 months) population of 40,471,

Percentages of children (6-59) months = 12.8% and precision of 11%

Number of SAM cases = 35

SAM Prevalence = 3.4%

35/408*12.8/100*3.4/100=20 the number of villages to sample

SFP/MAM

MAM prevalence = 8.8%

46/408*12.8/100*8.8/100= 10 villages to be sampled

Table 38: Wide Area Survey Results for West

program	Villages	#SAM/MAM cases in program	#SAM/MAM cases not in program	#SAM/MAM cases recovering
OTP	20	16	8	15
SFP	10			

During wide area survey 20 villages were visited, 16 case of SAM were identified and were in program, another 8 were identified and were not in program, and 15 cases were recovering.

2.9.2 Turkana East: Sample Size Calculation and Wide Area Survey Results

OTP/SAM

Average Village Population = 685,

Proportion of children 6-59 months = 15.2%

Prevalence of SAM by MUAC =1.9% (2017 July, SMART Survey)

35/685*15.2/100*1.9/100=18 villages sampled

SFP/MAM

Prevalence of MAM by MUAC =11.2% (2017 July, SMART Survey)

=45/685*15.2/100*11.2/100=4 villages sampled

Table 39: Wide Area Survey Results for EAST

Program	Villages	#SAM/MAM cases in program	#SAM/MAM cases not in program	#SAM/MAM cases recovering
OTP	18	4	5	20
SFP	4	24	12	9

In Turkana East 18 villages were sampled for SAM, 4 cases were found to be in program, 5 cases were not in program and 20 cases were recovering.

2.9.3 Turkana South: Sample Size Calculation and Wide Area Survey Results

OTP/SAM

Number of SAM cases = 35,

Average village population = 451 people

Under Fives (6-59) percentage = 15.2%

SAM Prevalence = 1.9%

N=35/451*15.2/100*1.9=27 Villages to sample

SFP/MAM

Number of MAM cases = 46,

Average village population = 451 people,

Under-fives (6-59) percentage = 15.2%

MAM Prevalence = 8.2%

N=46/451*15.2/100*8.2/100= 9 villages to sampled

Table 40: Wide Area Survey Results for Turkana South

Program	Village	#SAM/MAM cases in program	#SAM/MAM cases not in program	#SAM/MAM cases recovering
OTP	27	5	5	23
SFP	9	10	3	77

2.9.4 Turkana North and Kibish: Sample Size Calculation and Wide Area Survey Results

OTP/SAM

Number of SAM cases=35,

Average village population =557,

Proportion of population 6-59 months=13.68%

SAM prevalence by MUAC=2.5%

=35/556.41*13.68/100*2.5/100=19 Villages were to be sampled

SFP/MAM

Number of SAM cases=35,

Average village population =557,

Proportion of population 6-59 months=13.68%

MAM prevalence by MUAC 12.6%

=35/556.41*13.68/100*12.6/100=5 villages were sampled

Table 41: Wide Area Survey Results for North and Kibish

Program	Village	#SAM/MAM cases in program	#SAM/MAM cases not in program	#SAM/MAM cases recovering
OTP	19	5	2	32
SFP	5	6	6	26

2.9.5 Turkana Central and Loima: Sample Size Calculation and Wide Area Survey Results

OTP/SAM

Average village population = 685 people,

Under-fives (6-59) percentage = 15.2%

Number of SAM cases = 35,

SAM Prevalence = 1.7%;

35/685*15.2/100*1.7/100= 24 Villages were sampled

Simple stratified method was used to sample the villages

SFP/MAM

Number of MAM cases = 46,

MAM Prevalence = 10.7%;

46/685*15.2/100*10.7/100= 5 Villages sampled

Simple stratified method was used to sample the villages

Table 42: Wide Area Survey Results for Central and Loima

Program	Village	#SAM/MAM cases in program	#SAM/MAM cases not in program	#SAM/MAM cases recovering
OTP	24	9	9	12
SFP	5	18	12	25

2.10 Coverage Estimation

To estimate the program coverage rate, data from the 'Wide Area Survey' and the pre-set Bayesian SQUEAC prior was used. For this survey, both Point and Single coverage were estimated, but single coverage estimate was given prevalence in reporting. The Coverage Monitoring Network **recommends** a **single coverage estimator** instead of the previously used point or period coverage estimators due to the challenge in choosing the context under which to use either point or period coverage estimate. The single coverage estimator includes recovering cases that are admitted and not admitted to the program.

Calculating single Coverage- OTP&SFP

The following formula was used to calculate OTP/SFP single coverage

Single coverage estimate = Numerator $(N = C_{in} + R_{in})$/ Denominator $(D = C_{in} + R_{in} + C_{out} + R_{out})$

- C_{in} is number of Cases covered in the program
- R_{in} is number of cases recovering in the program
- C_{out} is number of cases not covered in the program
- R_{out} is number of recovering cases not in program

Table 43: Turkana West OTP Coverage Estimate Calculation

			Single Coverage			Point Coverage	
SAM covered	C-in	16	Numerator	**31**		Numerator	**16**
SAM not covered	C-out	8	Denominator	**41**		Denominator	**24**
Recovering SAM	R-in	15					
	R-out	2					

- Alpha value (α) = 17.2
- Beta value (β) = 13.7
- Precision = 12

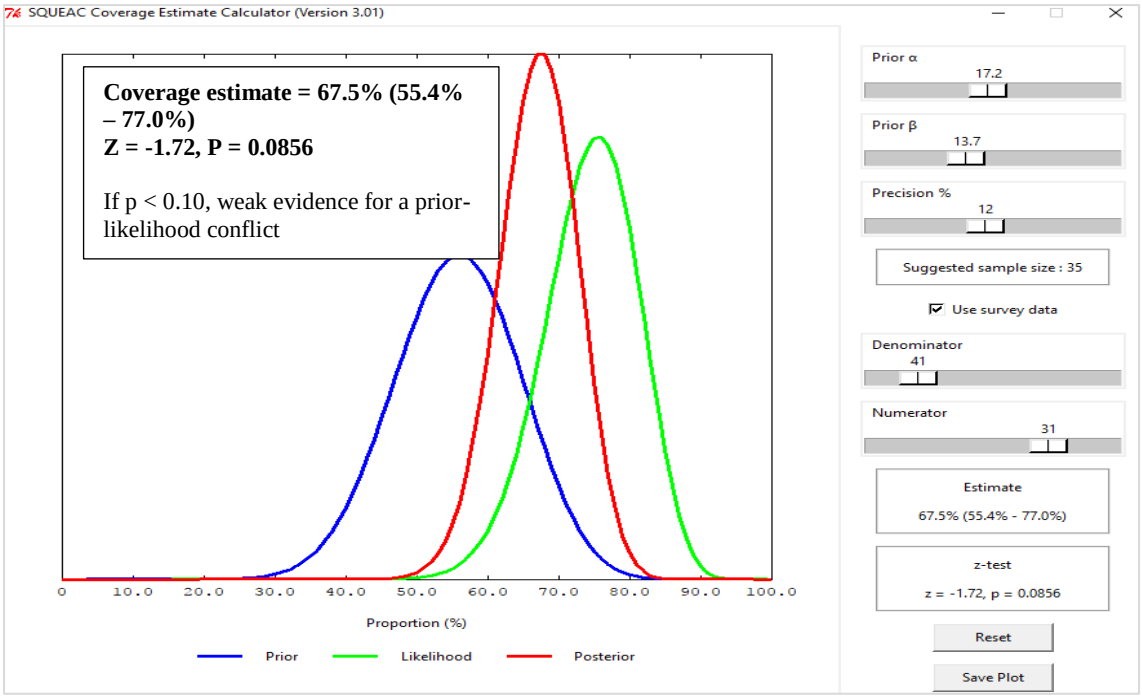


Figure 88: Turkana West OTP Single Coverage Estimate

Table 44: Turkana West SFP Coverage Estimate Calculation

			Single Coverage			Point Coverage	
MAM covered	C-in	16	Numerator	74		Numerator	17
MAM not covered	C-out	8	Denominator	106		Denominator	33
Recovering MAM	R-in	15					
	R-out	2					

- Alpha value (α) = 16.5
- Beta value (β) = 14.6
- Precision = 11

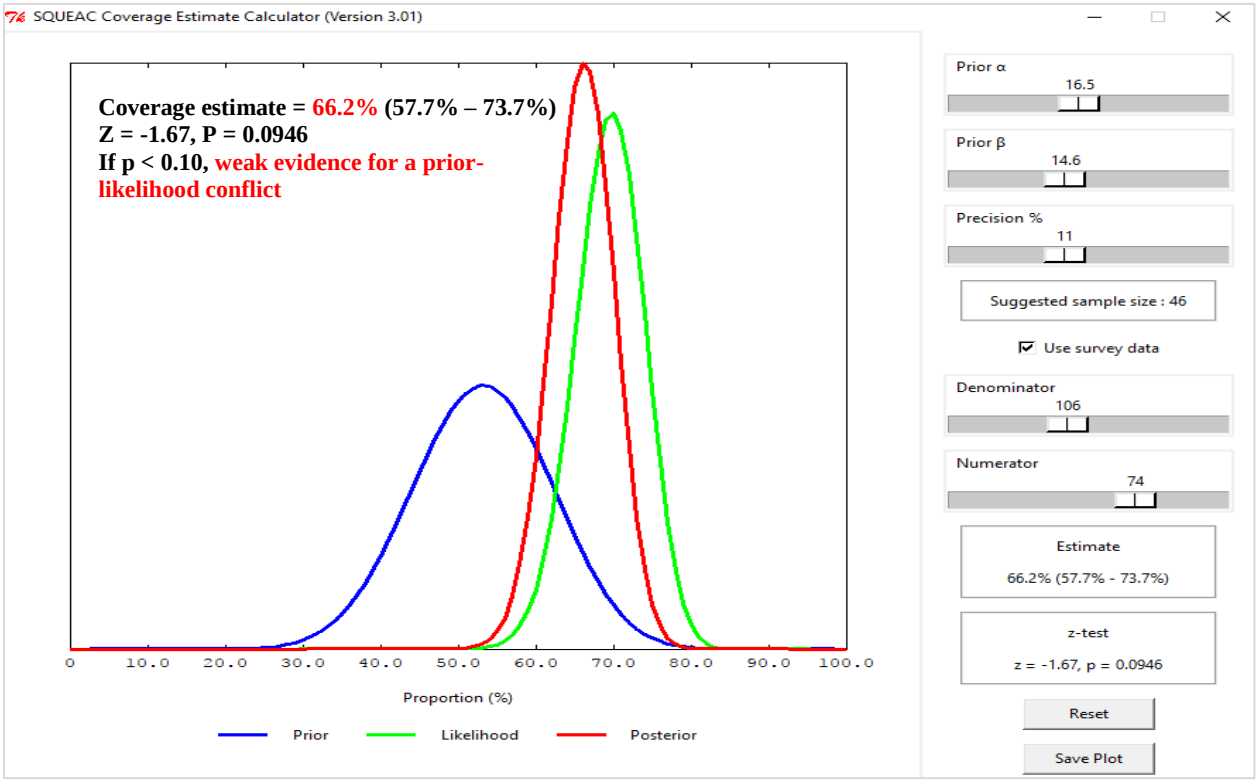


Figure 89: Turkana West SFP Single Coverage Estimate

Table 45: Turkana Central/Loima OTP Coverage Estimate Calculation

			Single Coverage			Point Coverage	
SAM covered	C-in	9	Numerator	21		Numerator	9
SAM not covered	C-out	9	Denominator	33		Denominator	18
Recovering SAM	R-in	12					
	R-out	3					

- Alpha value (α) = 17.3
- Beta value (β) = 13.5
- Precision = 12

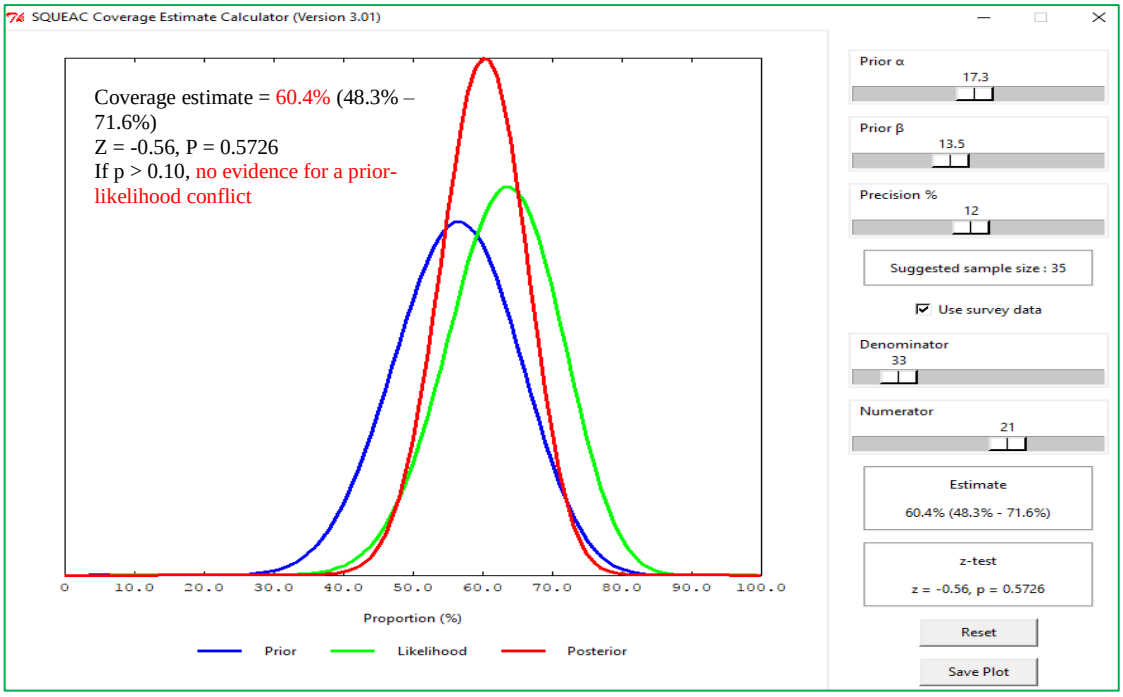


Figure 90: Turkana Central/Loima OTP Single Coverage Estimate

Table 46: Turkana Central/Loima SFP Coverage Estimate calculations

			Single Coverage			Point Coverage	
MAM covered	C-in	18	Numerator	43		Numerator	18
MAM not covered	C-out	12	Denominator	60		Denominator	30
Recovering MAM	R-in	25					
	R-out	5					
• Alpha value (α) = 16.7 • Beta value (β) = 14.4 • Precision = 11							

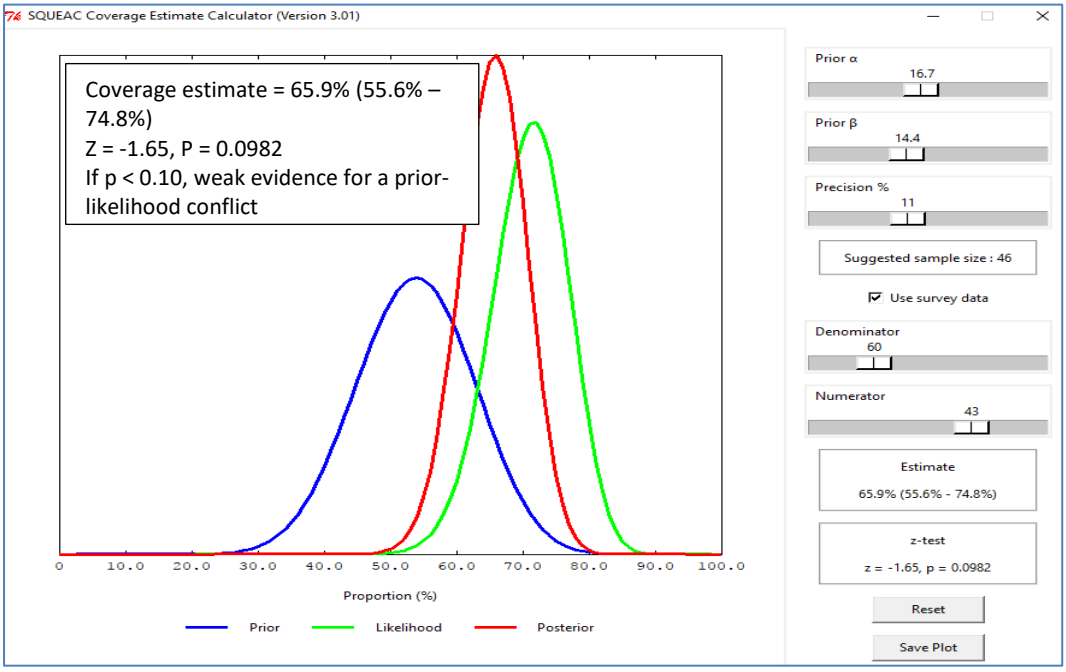


Figure 91: Turkana Central/Loima SFP Single Coverage Estimate

Table 47: Turkana East SFP Coverage Estimate calculations

			Single Coverage		Point Coverage

MAM covered	C-in	24	Numerator	33		Numerator	24
MAM not covered	C-out	12	Denominator	46		Denominator	36
Recovering MAM	R-in	9					
	R-out	1					
	•Alpha value (α) = 13.7 •Beta value (β) = 17.2 •Precision = 11						

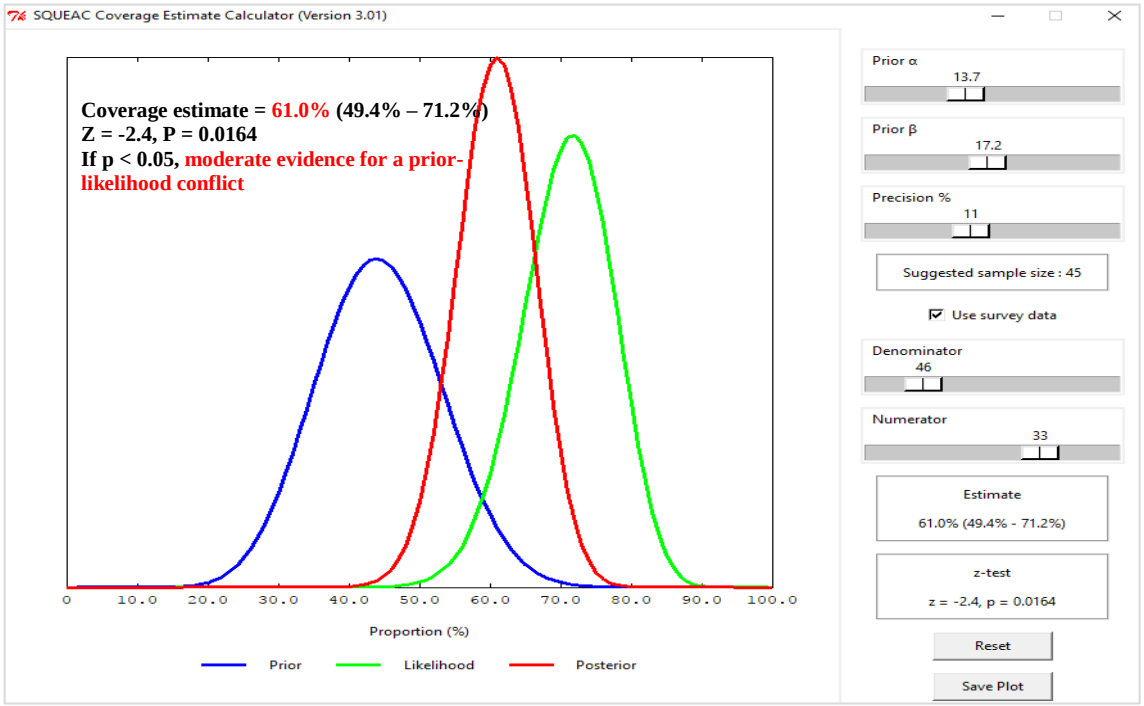


Figure 92: Turkana East SFP Single Coverage Estimate

Table 48: Turkana East OTP Coverage Estimate Calculation

			Single Coverage			Point Coverage	
SAM covered	C-in	4	Numerator	24		Numerator	4
SAM not covered	C-out	5	Denominator	35		Denominator	9
Recovering SAM	R-in	20					
	R-out	6					
	• Alpha value (α) = 15.3 • Beta value (β) = 16.0 • Precision = 12						

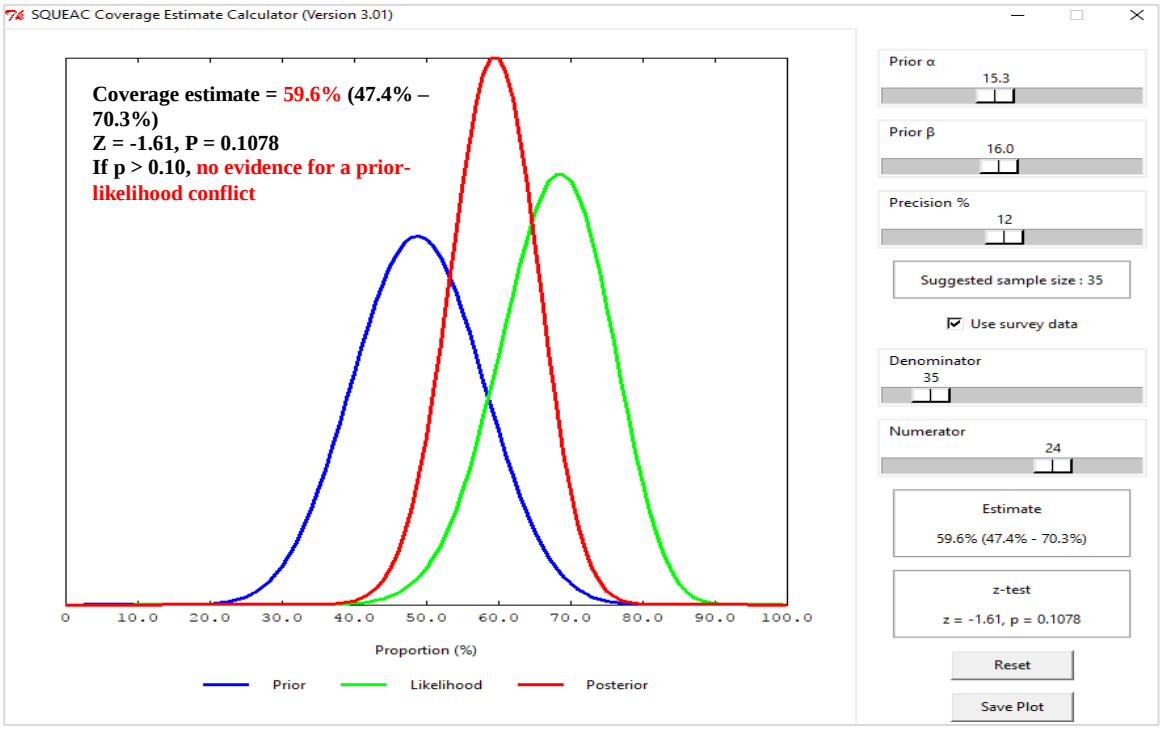


Figure 93: Turkana East OTP Coverage Estimate

Table 49: Turkana South SFP Coverage Estimate Calculation

			Single Coverage			Point Coverage	
MAM covered	C-in	10	Numerator	87		Numerator	10
MAM not covered	C-out	3	Denominator	97		Denominator	13
Recovering MAM	R-in	77					
	R-out	7					

- Alpha value (α) = 16.7
- Beta value (β) = 14.4
- Precision = 11

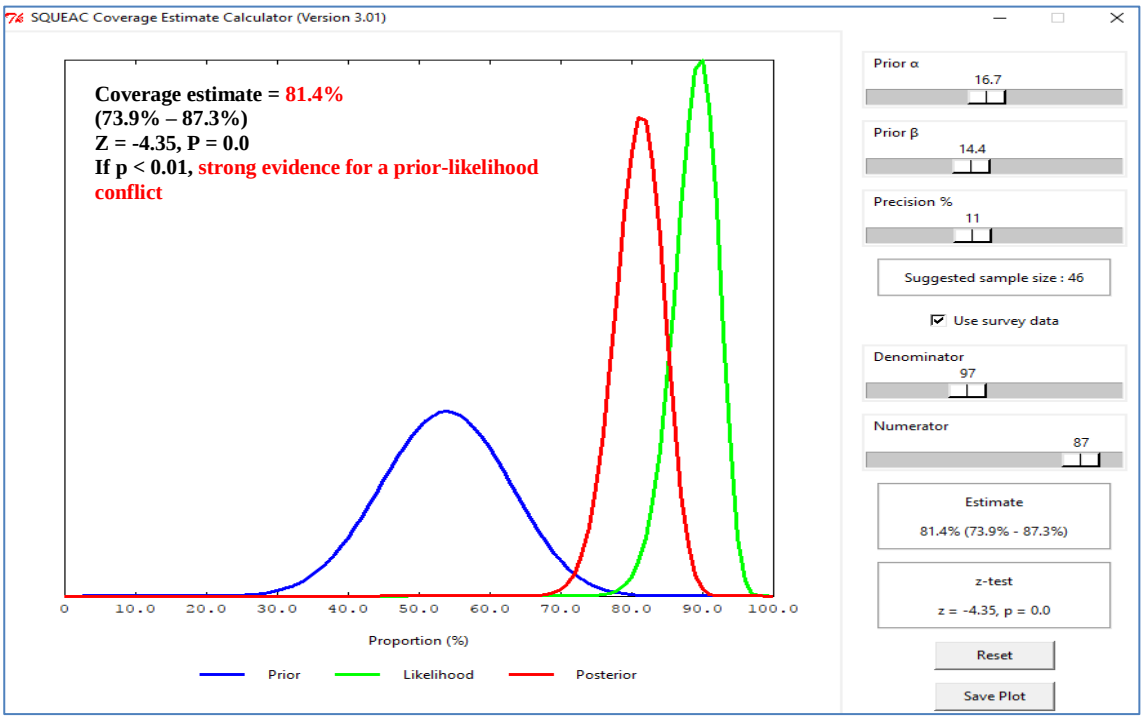


Figure 94: Turkana South SFP Coverage Estimate

Table 50: Turkana South OTP Coverage Estimate Calculation

			Single Coverage			Point Coverage	
SAM covered	C-in	5	Numerator	28		Numerator	5
SAM not covered	C-out	5	Denominator	39		Denominator	10
Recovering SAM	R-in	23					
	R-out	6					

- Alpha value (α) = 15.5
- Beta value (β) = 15.8
- Precision = 12

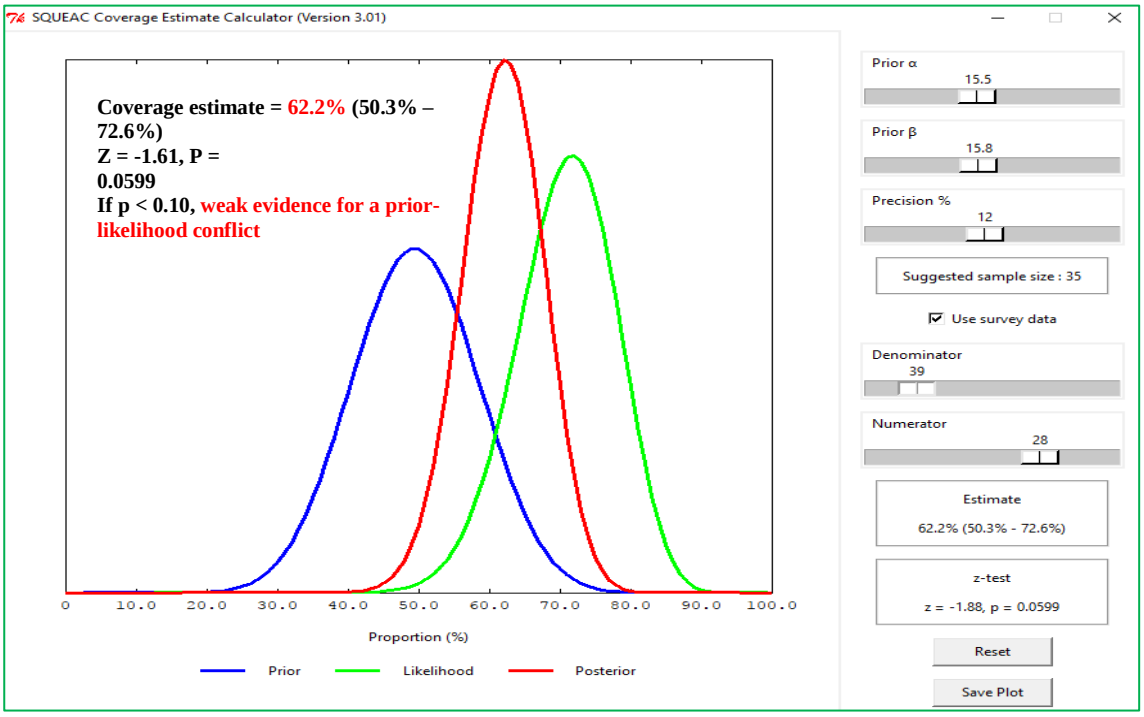


Figure 95: Turkana South OTP Coverage Estimate

Table 51: Turkana North/Kibish SFP Coverage Estimate Calculation

			Single Coverage Estimate		Point Coverage	
MAM covered	Cin	6	Numerator	32	Numerator	6
MAM not covered	Cout	6	Denominator	45	Denominator	12
Recovering MAM	Rin	26				
	Rout	7				

- Alpha value (α) = 17
- Beta value (β) = 14
- Precision = 12

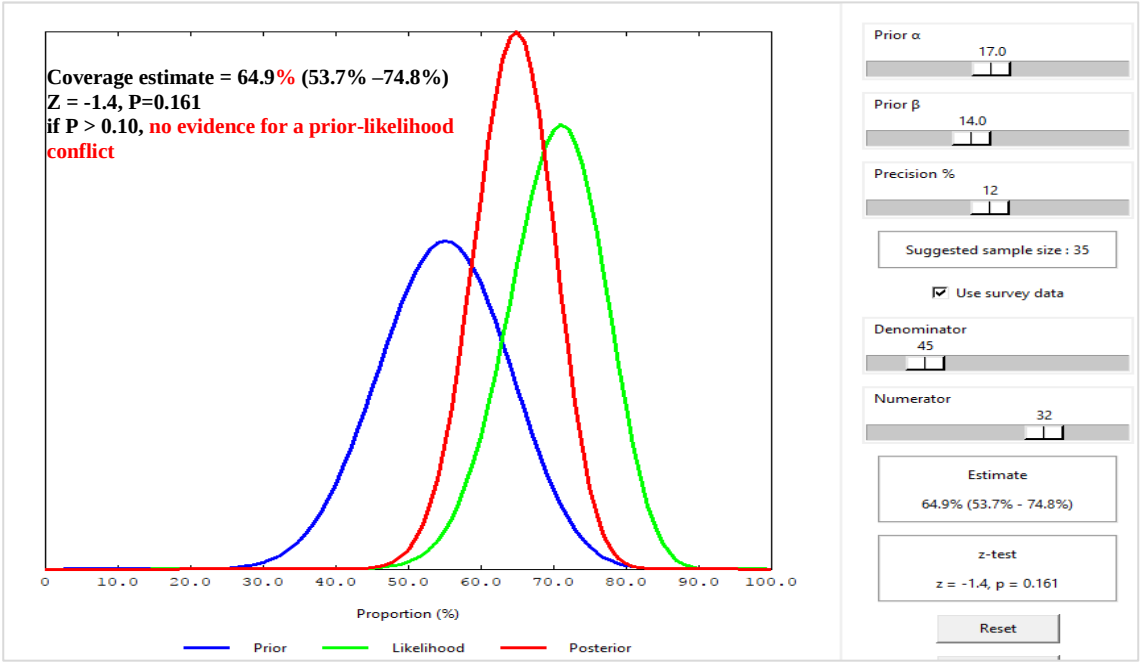


Figure 96: Turkana North/Kibish SFP Coverage Estimate

Table 52: Turkana North/Kibish OTP Coverage Estimate Calculation

			Single Coverage		Point Coverage	
SAM covered	Cin	5	Numerator	37	Numerator	5
SAM not covered	Cout	2	Denominator	42	Denominator	7
Recovering SAM	Rin	32				
	Rout	3				

- Alpha value (α) = 15.3
- Beta value (β) = 16.0
- Precision = 12

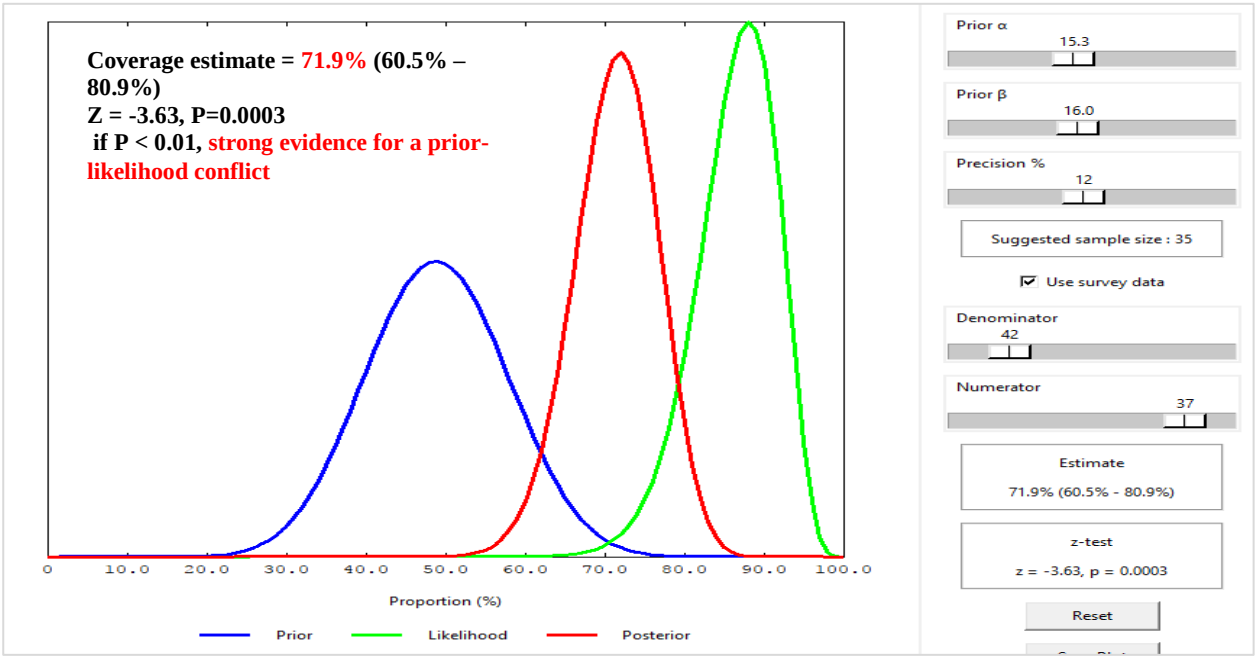


Figure 97: Turkana North/Kibish OTP Coverage Estimate

3.0 CONCLUSSION

From the Bayesian coverage calculator, the posterior 'point coverage' for OTP and SFP in the five assessment areas were as follows. In OTP West, North/Kibish and Central/Loima were above the recommended SPHERE standards of 50% and East and South were below the recommended SPHERE standards of 50%. In SFP South, East, North, and Central they were above the recommended SPHERE standards of 50%.

Below is the summary table of point coverage

Table 53: Summary of Single Coverage Estimate for all the Survey Zones

Program/Area	WEST	EAST	SOUTH	NORTH/KIBISH	CENTRAL/LOIMA
OTP	**67.5%** (55.4% – 77.0%)	**59.6%** (47.4% – 70.3%)	**62.2%** (50.3% – 72.6%)	**71.9%** (60.5% –80.9%)	**60.4%** (48.3% – 71.6%)
SFP	**66.2%** (57.7% – 73.7%)	**61.0%** (49.4% – 71.2%)	**81.4%** (73.9% – 87.3%	**64.9%** (53.7% –74.8%)	**65.9%** (55.6% – 74.8%)

RECOMMENDATIONS

Barriers/Boosters	Recommendations	Objectives (for specific recommendations)	Strategy	Activity	Monitoring	Evaluation	Frequency	Responsibility
-Sharing and selling of nutrition commodities. -Perception of nutrition commodities as food	Empowering communities on the negative and positives impact of nutrition commodities on normal populations.	To .reduce length of stay among SAM/MAM beneficiaries	Link/ Integrate health education to existing groups in the community	-Do h/education in MTMSG -DO H/education in chief barazas -Do h/education in livelihood projects -Do h/education in male psychosocial groups	Supervisory checklist and back up from county team on quarterly basis	IMAM performance indicators	Quarterly	Partner/MOH
Adherence to IMAM protocol.	Frequent support supervision in health facilities implementing IMAM	To ensure accurate admission and discharge criteria	-Mentorship	-Frequent OJTs for health workers -Training CHVs on IMAM module	Data Quality Assurance (DQA)	IMAM performance indicators	Quarterly	MOH/Partner
Poor defaulter tracing mechanism	Strengthening facility and community linkages	To ensure retention in the program	-Community dialogue days	-Facilities to generate defaulter list and share with CHVs	Monthly reports	Defaulter rates	Weekly	MOH
Disease	Multidisciplinary approach in managing malnutrition	To increase recovery rates among IMAM beneficiaries		-Appropriate referrals -Strengthening disease surveillance	-Surveillance	IMAM Performance Indicators	Monthly	MOH
Distance to the nearest health facility	Innovative and more stainable ways of making the community access health and services easily	Increase access and utilization of health and nutrition services	Coordination and Joint workplanning	-Remap and carry out integrated outreach clinic -Build more health facilities -Operationalize dormant health facilities -Scale up IMAM services to all health facilities	-Mapped out reach sites list -Number of health facilities implementing IMAM -		Quarterly/ Annually	MOH/Partners
Poor health seeking behaviour	Engaging community members in health-related issues	To increase the work load in the health facilities in the rural areas	Awareness/Sensitisations	-Community feedback meetings/sessions -Community dialogue meetings	-Minutes of the meetings	IMAM Performance Indicators	Monthly	MOH

ANNEXES

ANNEX 1: LIST OF PEOPLE TRAINED DURING SQUEAC

NAME	GENDER (M/F)	POSITION	ORGANISATION
Sammy Aemun	M	Nutrition Officer	MOH
Awoi Topos	M	Nutrition Officer	MOH
Eipa James	M	Nutrition Officer	MOH
Matilda Lokidor	F	Nutrition Volunteer	MOH
Rose Namong'o	F	Nutrition Volunteer	MOH
Beatrice Elimlim	F	Nutrition Officer	MOH
Erupe Winny Ekusi	F	Nutrition Volunteer	MOH
Aimata Fredrick	M	Nutrition Officer	MOH
Isaiah Tioko	M	Nutrition Volunteer	MOH
Kamais Peninah	F	Nutrition Officer	MOH
Pulkol Elizabeth	F	Nutrition Officer	MOH
Peter Muthui	M	HRIO	MOH
Akal Alice Ebei	F	Nutrition Officer	MOH
James Arii	M	Nutrition Officer	MOH

ANNEX 2: CHRONOGRAME OF TRAINING AND ASSESSMENT

	TIMEFRAME FOR SQUEAC ASSESSMENT IN TURKANA COUNTY FOR THE YEAR 2017													
	IMPLEMENTATION MONTHS: Nov 2017 to Jan 2018													
NO	ACTIVITIES	Nov. 2017		Dec-17						Jan-18				
				4th to 7th	8th to 9th	10th	11th to 18th	19th to 21st	23rd to 31st	1st to7th	8th to 12th	15th to 19th	23rd	25th
1	SQUEAC assessment planning													
2	SQUEAC survey proposal approval/validation													
3	Pleriminary data extraction													
4	Training of SQUEAC survey team													
6	Departure of teams for data collection													
7	Stage 1 and 2 Data collection and analysis													
8	Stage 1 and 2 Data Validation								Break for Holidays					
9	Stage 3 data collection													
10	Report writting													
11	Discussion of draft report at the county													
12	Validation at the national Level													
13	Disemination of results at the County level													

ANNEX 3 : Questionnaires used for non covered SAM or MAM cases found during small and wide surveys Survey Questionnaire for caretakers with cases NOT in the programme – OTP / SFP (circle)

Team No: _____

Sub-county: _____ HF: _____ Village: _____

Child Name: _____

1a.. DO YOU THINK YOUR CHILD IS SICK? IF YES, WHAT IS HE/SHE SUFFERING FROM? _____

_____

1. DO YOU THINK YOUR CHILD IS MALNOURISHED?
   □ YES □ NO

2. DO YOU KNOW IF THERE IS A TREATMENT FOR MALNOURISHED CHILDREN AT THE HEALTH CENTRE?
   □ YES □ NO (stop)

3. WHY DID YOU NOT TAKE YOUR CHILD TO THE HEALTH CENTRE?
   □ Too far (How long to walk? ……..hours)

   □ No time / too busy

   Specify the activity that makes them busy this season _____

   □ The mother is sick

   □ The mother cannot carry more than one child

   □ The mother feels ashamed or shy about coming

   □ No other person who can take care of the other siblings

   □ Service delivery issues (specify …….)

   □ The amount of food was too little to justify coming

□ The child has been rejected. When? (This week, last month etc)_____

□ The children of the others have been rejected

□ My husband refused

□ The mother thought it was necessary to be enrolled at the hospital first

□ The mother does not think the programme can help her child (prefers traditional healer, etc.)

□ Other reasons: _____

4. WAS YOUR CHILD PREVIOUSLY TREATED FOR MALNUTRITION AT THE HC? Which programme? SFP OTP/SC (circle)
□ YES □ NO (=> stop!)

If yes, why is he/she not treated now?

□ Defaulted, When?.....Why?.....

□ Discharged cured (when? .....)

□ Discharged non-cured (when? .....)

□ Other:_____

(Thank the mother/carer)