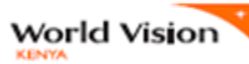




**SEMI QUANTITATIVE EVALUATION
OF ACCESS AND COVERAGE (SQUEAC) SURVEY
FINAL REPORT**

Tiaty Baringo County

MARCH 2023



ACKNOWLEDGMENT

This assessment was carried out with the participation of many partners at different levels who are highly acknowledged.

- Much appreciation goes to the Baringo County Ministry of Health for their direct participation during the entire exercise. Special mention is due to the CHMT, SCHMT and Health and Nutrition Volunteers who were involved during the entire assessment in data collection, compilation and analysis.
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TABLE OF CONTENTS

Contents

ACKNOWLEDGMENT	ii
IDPs Internally Displaced Persons	vi
IGDs Informal Group Discussions	vi
IMAM Integrated Management of Acute Malnutrition	vi
INGO International Non-Governmental Organization	vi
KII Key Informant Interview.....	vi
MAM Moderate Acute Malnutrition	vi
MUAC Mid Upper Arm Circumference.....	vi
OTP Out-patient Therapeutic Program.....	vi
SSI Semi-structured Interview	vi
EXECUTIVE SUMMARY.....	vii
1 INTRODUCTION	1
1.0. Context	1
1.1. Objectives of the Assessment.....	1
THE SQUEAC INVESTIGATION RESULTS AND FINDINGS.....	2
2.0. METHODOLOGY: THE SQUEAC APPROACH	2
2.1. Stage 1: Routine Data and Qualitative data Analysis	3
2.1.1. Quantitative Data Analysis	3
2.1.2. Qualitative Data Analysis (Community Assessment).....	16
2.2. Hypothesis Testing and Small Area Survey.....	18
2.3. Prior Building.....	21
2.3.1. Weighted Barriers and Boosters	21
2.3.2. Unweighted Barriers and Boosters.....	26
2.3.3. OTP and SFP Histogram	26
2.3.4. OTP and SFP Concept Maps	27
2.4. Wide Area (Likelihood) Survey.....	30
2.4.1. Likelihood Survey Sampling	31
2.4.2. Single Coverage Estimate	32
2.4.3. Reasons for Non-Covered Cases	34
2.4.4. Met Need	35
3.0. Conclusion and Recommendations	35

3.1. Conclusion.....	35
3.2. Recommendations.....	36
References.....	38
Annexes	39
Annex 1: List of Coverage Assessment Participants.....	39
Annex 2: Coverage Assessment Chronogram	40
Annex 3: Data Collection Guides	41

LIST OF FIGURES

Figure 1: Map of coverage area	1
Figure 2: Inpatient admission trends	4
Figure 3: OTP admission trends, Tiaty	5
Figure 4: SFP admission trends	5
Figure 5: Admission MUAC for OTP	6
Figure 6: Admission MUAC- SFP	7
Figure 7: OTP Exits: Tiaty	7
Figure 8: OTP exits per sub-County	8
Figure 9: Program exits: OTP	8
Figure 10: Analysis by Sub County program exits	9
Figure 11: OTP MUAC on Discharge for cured	9
Figure 12: Length of stay in the OTP	10
Figure 13: SFP exits, Tiaty	10
Figure 14: Analysis of SFP performance at the Sub County level	11
Figure 15: Exit overtime for SFP	11
Figure 16: SFP MUAC on discharge cured	12
Figure 17: SFP LoS cured	12
Figure 18: OTP defaulting trends in comparison with seasonal calendar	13
Figure 19: MUAC on discharge for defaulters	14
Figure 20: SFP defaulting trends in comparison with seasonal calendar	14
Figure 21: MUAC on discharge for SFP defaulters	15
Figure 22: Stock out analysis	15
Figure 23: OTP and SFP histogram on coverage	27
Figure 24: OTP and SFP concept maps	28
Figure 25: OTP and SFP Excel prior calculator	29
Figure 26: OTP Bayes plot	29
Figure 27: SFP Bayes plot	30
Figure 28: Single coverage Estimate for OTP	33
Figure 29: Single coverage estimate for SFP	34

LIST OF TABLES

Table 1: Small Area Study Results (OTP)	19
Table 2: Small Area Study Results (SFP)	20
Table 3: BBQ legend	21
Table 4: OTP boosters (Weighted and unweighted)	21
Table 5: OTP barriers (Weighted and unweighted)	23
Table 6: SFP Boosters (Weighted and unweighted)	24
Table 7: SFP weighted and unweighted barriers	25
Table 8 Wide area survey sample size	31
Table 9: Wide area survey results	31
Table 10: Reasons for Non-Covered cases	34

ABBREVIATIONS

BBQ	Barriers Boosters and Questions
CHMT	County Health Management Team
CHVs	Community Health Volunteers
CNVs	Community Nutrition Volunteers
EWS	Early Warning System
HCW	Health Care Workers
ICCM	Integrated Community Case Management
IDPs	Internally Displaced Persons
IGDs	Informal Group Discussions
IMAM	Integrated Management of Acute Malnutrition
INGO	International Non-Governmental Organization
KII	Key Informant Interview
KRCS	Kenya Red Cross Society
LQAS	Lot Quality Assurance Sampling
LoS	Length of Stay
MAM	Moderate Acute Malnutrition
MoH	Ministry of Health
MTMSGs	Mother to Mother Support Groups
MUAC	Mid Upper Arm Circumference
OTP	Out-patient Therapeutic Program
RUTF	Ready-to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SCHMT	Sub County Health Management Team
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
SSI	Semi-structured Interview
SFP	Supplementary Feeding Program
TBAs	Traditional Birth Attendants
TCA	To Come Again
UNICEF	United Nations Children's Fund
WFP	World Food Program
WHZ	Weight- for- Height Z scores
WVK	World Vision Kenya

EXECUTIVE SUMMARY

Standardized Monitoring and Assessment of Relief and Transitions (SMART) surveys conducted in 2022 in Baringo County indicated high rates of malnutrition-Global Acute Malnutrition (GAM) rate **26.4% (22.2 - 31.1 95% C.I.)** while 2019 SQUEAC coverage indicator estimated coverage of the program for SAM and MAM at **59.0%** (48.6%- 68.7%) and **56.5%** (50.5%- 62.2%) respectively. There is therefore need to find out if IMAM programs are able to meet the needs of children affected with both SAM and MAM.

This coverage assessment applied the Semi Quantitative Evaluation of Access and Coverage (SQUEAC) Methodology. The methodology is semi-quantitative implying that it uses both qualitative and quantitative approaches. The SQUEAC Methodology is designed to be conducted in three phases which include Stage 1, Stage 2 and Stage 3. Stage 1 involves identifying areas of low and high coverage as well as reasons for coverage failure using routine program data and qualitative data. Stage 2 involves, confirming the location or areas of high and low coverage and the reasons for coverage failure identified in stage 1. This is done using the small studies, small surveys and small-area surveys. Stage 3 involves providing an estimate of overall program coverage using Bayesian techniques. The methodology was designed to be low resource in terms of financial and human resources. The coverage assessment was conducted between 14th March, 2023 and 18th April, 2023.

SQUEAC objective included; assessing single coverage estimate, Identification of factors (boosters and barriers) affecting the access to the IMAM program and developing of specific recommendations to improve acceptance and coverage of the programme. The exercise also resulted in increased capacity of MOH and programme staff in undertaking coverage assessments.

Results

The point coverage of OTP was **60.7%** while that of TSFP was **61.3%** which were higher than the 50% threshold for rural set up for both programs. The major Program boosters established were High awareness and good opinion of the program, Outreaches, Active case finding leading to good referrals, Partners support and CUs with BFCI activities. On the other hand, major Program Barriers were Non optimal childcare practices, Sharing of RUTF/RUSF which is seen as food, Alcoholism, Distance to health facilities, migration, Inadequate health workforce and work-related stress, Poor documentation and Lack of stipend to CHVs.

Conclusions.

The overall coverage for both OTP and SFP has improved compared to the previous coverage evaluation conducted in December 2019. OTP coverage has improved from 59% to 60.7% while SFP has improved from 56.5% to **61.3%**.

Factors promoting accessibility and coverage included program awareness and positive opinion by the community, coordinated outreaches, good Coordination of IMAM services mainly through County

and Sub Counties nutrition technical forums, Presence of support partners who include UNICEF, World Vision Kenya, Kenya Red Cross, Hellen Keller and World Food Program and lastly Community units with BFCI activities.

Factors that negatively affected IMAM coverage included non-optimal childcare practices, Poor health seeking behaviors, Sharing of RUTF/RUSF which is seen as food, Alcoholism, Distance to the service delivery points, migration leading to beneficiaries moving further away from the service delivery points, Inadequate health workforce, Poor documentation, Lack of stipend to CHVs leading to demotivation and thus affecting mobilization, Food insecurity resulting to selling and sharing of RUTF and RUSF and low prioritization of SFP and OTP attendance leading to defaulting and non-compliance/ non adherence of treatment protocols

Key Recommendation

Barrier	Recommendation	Actor(s)	Timeline
Sub-optimal child care practices	<ul style="list-style-type: none"> Community education and information. Sensitize men on their role in child care Establish BFCI in all Community Health Units in the County Advocate for women empowerment through community groups to tackle maternal workload 	BCG/KRC/WFP UNICEF/WVI	Intergrated with ongoing interventions
Health worker's high workload and job stress	<ul style="list-style-type: none"> County to employ nutritionists and other HCW. 	BCG	June-August 2023
Shared and selling of RUTF/RUSF	<ul style="list-style-type: none"> National and County government together with Partners to put more resources on household food production and build the nutrition resilience ACSM activities to be carried out in the two sub counties. Educate caretakers/ mothers on the benefits of RUTF/ RUSF to discourage selling of commodities Sensitize the communities through Local FM radios, Conduct community dialogues through all CUs, Link the vulnerable to social protection/safety net programs to cushion them and avoid misuse of IMAM commodities 	BCG/KRC/WFP/ UNICEF/WVI	Ongoing but need to be scale up from May-July
Lack of stipend to CHVs	<ul style="list-style-type: none"> The CHSF that was passed as a bill at the county assembly to be implemented. 	BCG/MOH	July 2023
Distance	<ul style="list-style-type: none"> County to employ and deploy health care workers to all complete and nonfunctional facilities, Support integrated outreaches Establishment and operationalisation of IMAM sites especially to the far villages. 	BCG/KRC/WFP/ UNICEF/WVI	May –july 2023
Migration	<ul style="list-style-type: none"> Improve on resilience building thr' provision of alternative livelihoods Support mobile nomadic medical outreaches. 	BCG/KRC/WFP/ UNICEF/WVI	May 2023-2024

Poor health seeking behavior	<ul style="list-style-type: none"> • Community Sensitization on Health Seeking Behaviors • Capacity building of CHVs & HCWs • Men involvement. Sensitize men on their role in child care • 	BCG/KRC/WFP/ UNICEF/WVI	May-July 2023
Alcoholism	<ul style="list-style-type: none"> • Sensitization of community on alcoholism • Strengthening community policing –SBCC • Intensify enforcement measures • Improve on resilience building thr' provision of alternative livelihoods • 	BCG/KRC/WFP/ UNICEF/WVI	May-Sept 2023
Inadequate case finding	<ul style="list-style-type: none"> • Stipend to CHVs on regular basis. • Employment of CHVs to the County payroll. • 	BCG	July 2023
Inadequate defaulter tracing	<ul style="list-style-type: none"> • Stipend to CHVs on regular basis. • Employment of CHVs to the County payroll. • Training CHVs on IMAM as well as sensitization on importance of defaulter tracing. • Ensure all HCW have been trained on imam. And MIYCN. • Reporting tools to be constantly availed. • 	BCG/KRC/WFP/ UNICEF/WVI	May-Sept 2023
RUSF stock out	<ul style="list-style-type: none"> • Training HCw on reporting and proper documentation for decision making. • Reducing workload by employing more staff. • Proper documentation • 	BCG/KRC/WFP/ UNICEF/WVI	Ongoing – intergrated with ongoing support supervision and DQA
Poor documentation	<ul style="list-style-type: none"> • Training HCw on reporting and proper documentation for decision making. • Reducing workload by employing more staff. • Train all health workers on IMAM • Upscale support supervision, DQAs and feedback by program officers and SCHMT • 	BCG/KRC/WFP/ UNICEF/WVI	Ongoing
High work load by caregivers	<ul style="list-style-type: none"> • Community education and information. • Men involvement. • Reduce illiteracy level by forced school attendees aged 15 years and below. • Provision of school sponsorship. • Women Empower thr support groups • 	BCG/KRC/WFP/ UNICEF/WVI	May-June 2023

1 INTRODUCTION

1.0. Context

Former Tiaty Sub County is currently composed of Tiaty East and Tiaty West sub counties. The two Sub Counties have a projected population of **185, 629** of which **27,566** are children 6-59 months. In terms of livelihood majority are Pastoral with parts of Churo being agro-pastoral. Nutrition Support Partners on the ground include WVK, UNICEF, WFP and KRCS.

A SMART survey conducted in 2022 in Baringo county established **critical** nutrition status with GAM prevalence by WHZ<-2SD at **26.4%**. From the county's EWS bulletin February 2023, all livelihood zones were classified in Alert phase and worsening especially in the Pastoral areas. Nutrition status of children 6- 59 months at risk of malnutrition by MUAC was at 20.84%. The sub counties have 26 health facilities offering IMAM with 3 stabilization Centre –Kolowa Health Centre, Chemolingot and Tangulbei subcounty hospitals. In addition, the sub-County has 70 mapped outreach sites currently supported by different partners and the County government to offer integrated health and nutrition services on biweekly basis.

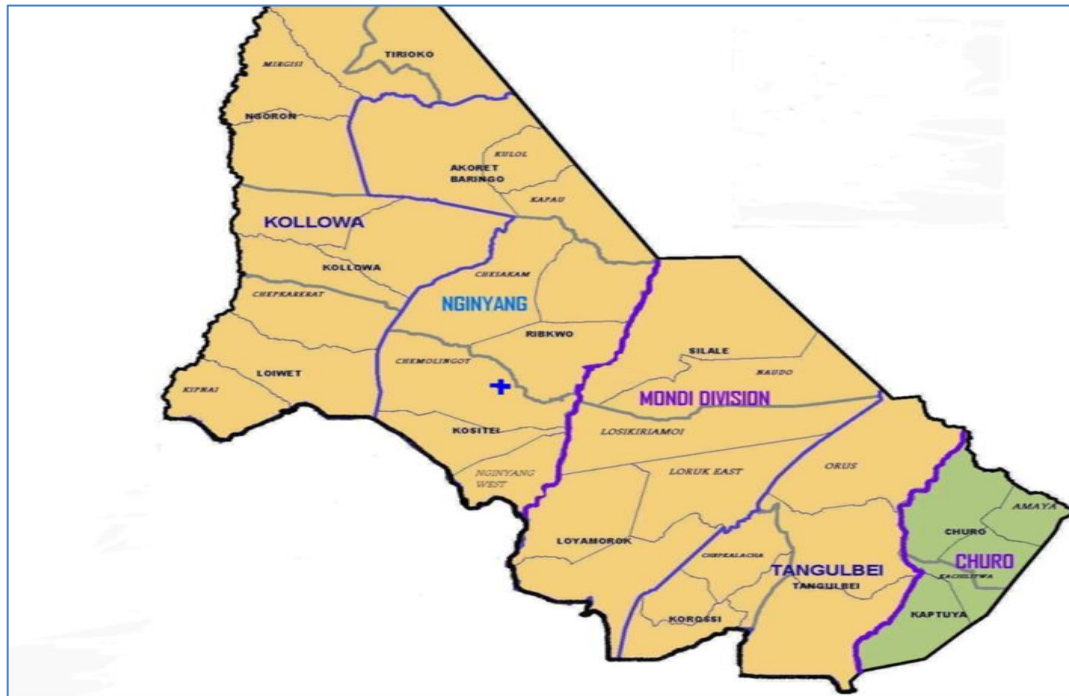


Figure 1: Map of coverage area

1.1. Objectives of the Assessment

The overall objective of the coverage assessment was to estimate the single coverage of IMAM program in Tiaty. Specifically, the assessment aimed at achieving the following specific objectives:

1. To Identify the barriers and boosters for uptake of the SAM and MAM services
2. To review the implementation of the previous SQUEAC findings and recommendations and assess the impact and estimate of IMAM coverage for the targeted two Sub Counties following the expanded IMAM programs and scale up of Emergency Response outreaches
3. To identify and propose actions/recommendations for referral of severely and moderately malnourished children not covered by the current interventions.
4. To generate practical recommendations that would lead to better access and coverage of the nutrition program.
5. To build the capacities of MoH and partners technical persons on SQUEAC methodology

1.2. Justification of the SQUEAC methodology

Being an ASAL Sub- County, Tiaty is a drought prone area that experiences frequent and prolonged drought which leads to losses of crops and livestock, increased food prices, poor terms of trade and low milk production. As such, the sub county requires continuous surveillance of nutrition situation. There is need for new evidence since the last Coverage (SQUEAC) survey was conducted in 2019. The coverage assessment will contribute to emergency response while assisting programmers to understand the effectiveness and efficiency of the program and develop responsive action plan. Furthermore, there is need to find out if IMAM programs are able to meet the needs of children affected with both SAM and MAM. Finally, the assessment will aim to establish an estimate of IMAM coverage at the targeted two Sub Counties following the expanded IMAM programs and scale up of Emergency Response outreaches

THE SQUEAC INVESTIGATION RESULTS AND FINDINGS

2.0. METHODOLOGY: THE SQUEAC APPROACH

SQUEAC investigation allows for the regular monitoring of programs at low cost, helps identify areas of high or low coverage and provides explanations for such situations. This information allows development of specific, time bound and concrete action plan to improve the coverage of programme.

The investigation process comprises of the following three stages;

Stage 1: Analysis of quantitative data (routine programme monitoring data compared with sphere standards) and qualitative data was conducted. Staff implementing the program were presented with the data from the program and collectively investigated unusual patterns in admissions, defaulting and performance indicators. Additional data included checking on the quality of program records and stock management. Through deep discussions and contextual analysis, the teams identified programme boosters and Barriers and also established the hypothesis to be used during stage 2.

Stage 2: Confirmation of areas of high and low coverage and other hypotheses relating to Coverage identified in stage 1 using small area surveys was done. Reasons for coverage failure were documented to enhance further understanding of the barriers and boosters to program access and uptake identified in stage 1. These barriers and boosters were the basis of development of the prior. Decision rule on hypothesis testing was based on the sphere standard requirement of 50% coverage for rural population. Additional data gap identified in stage 1 were further gathered through interviews with carers of beneficiaries, local leaders, women groups, men groups, M2MSGs and community health workers.

Stage 3: Bayesian techniques were used to estimate overall program coverage with a wide area survey using a sample size generated by Bayes SQUEAC software

2.1. Stage 1: Routine Data and Qualitative data Analysis

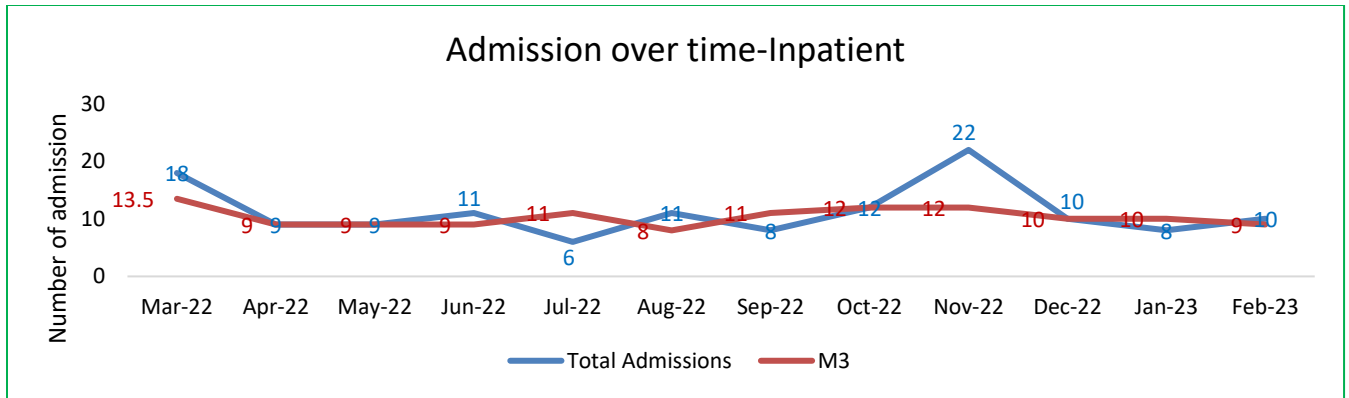
2.1.1. Quantitative Data Analysis

This stage involved quantitative data analysis for Inpatient, OTP and SFP beneficiaries in the program. Data was collected from standard monthly MOH reporting tools as well as the static and outreach registers. The data analyzed covered the period between March 2022 to February 2023.

Program Admission Trends

Analysis for program admission for inpatient, OTP and SFP program from March 2022 to February 2023 was done. A seasonal calendar was developed by the investigation team in order to understand factors that may have contributed to coverage and access to IMAM program. Seasons, migration, morbidity and labour patterns were found to have impacted on the coverage and access to IMAM program.

In the inpatient program, there was a notable spike in March 2022 and November 2022. This was attributed to delayed in long rains in March affecting food security situation and the scaling up of outreaches in November that led to increase in admissions due to increase in referrals from the outreach sites as shown in figure 2 below.



	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	
Dry season	+++				+	+++	+++			+	++	+++	Blank-No +-Low +-Moderate +-Severe
Diarrhoea	++	++	+	+	++	++	++	+	+	+	++	++	
Malaria/URTI	+	+	++		+	+		++	++	+	+	+	
Food prices	++	++	++	+++	+++	+++	+	+	+	+	++	++	
Migration	++	++			++	++	++				++	++	
Insecurity	+++	+++	+	+	++	+++	+++	+	+	+	+++	+++	
Cultural festivals					++	++	++	++	++	++			
Labour demand	+++	++	++			++	++					+++	
Milk availability	+	++	+++	+++	+	+	+++	+++	+++	++	+	+	

Figure 2: Inpatient admission trends

With regards to the OTP admissions, there was admission spike in November 2022. This is attributed to scaling up of outreaches. However, there was decline in admission between May and July which could be attributed to improved food security at the household level especially milk production in the pastoral zone as shown in figure 3 below.

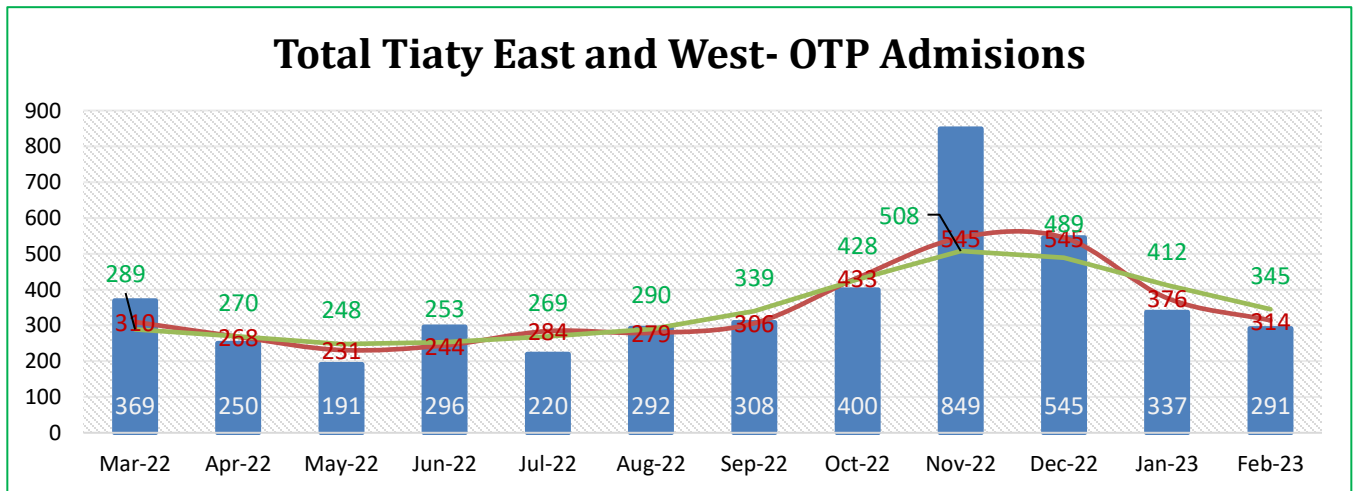


Figure 3: OTP admission trends, Tiaty

	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	
Dry season	+++				+	+++	+++			+	++	+++	Blank-No +-Low ++-Moderate +++-Severe
Diarrhoea	++	++	+	+	++	++	++	+	+	+	++	++	
Malaria/URTI	+	+	++		+	+		++	++	+	+	+	
Food prices	++	++	++	+++	+++	+++	+	+	+	+	++	++	
Migration	++	++			++	++	++				++	++	
Insecurity	+++	+++	+	+	++	+++	+++	+	+	+	+++	+++	
Cultural festivals					++	++	++	++	++	++			
Labour demand	+++	++	++			++	++					+++	
Milk availability	+	++	+++	+++	+	+	+++	+++	+++	++	+	+	

As for the SFP program, there was a huge spike in admission in November which was attributed to scaling up of outreaches. April through June was the long rain season and food security situation might have improved leading to a downward trend in admission from April to June and then upward trend until September coinciding with the dry spell as shown in figure 4 below.

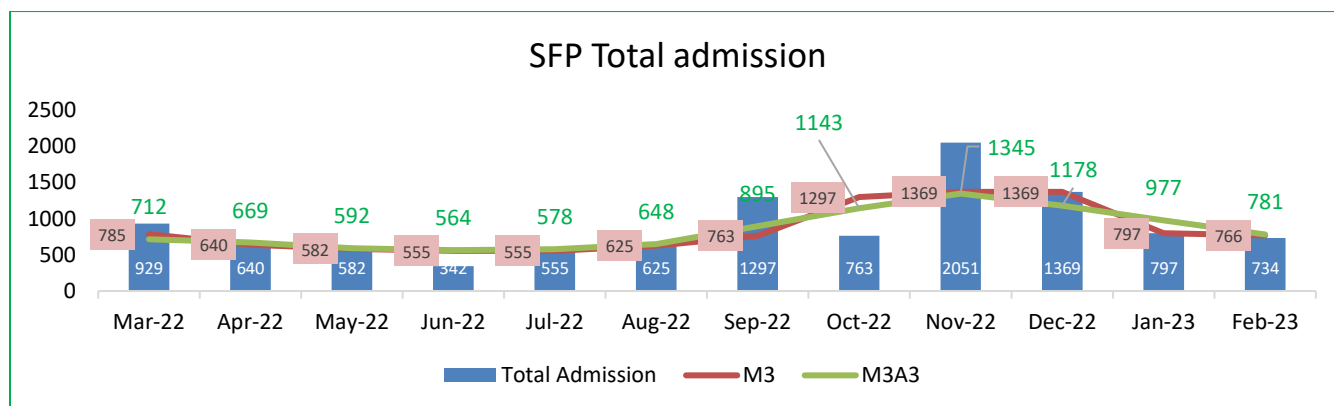


Figure 4: SFP admission trends

	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	
Dry season	+++				+	+++	+++			+	++	+++	Blank-No +-Low ++-Moderate +++-Severe
Diarrhoea	++	++	+	+	++	++	++	+	+	+	++	++	
Malaria/URTI	+	+	++		+	+		++	++	+	+	+	
Food prices	++	++	++	+++	+++	+++	+	+	+	+	++	++	
Migration	++	++			++	++	++				++	++	
Insecurity	+++	+++	+	+	++	+++	+++	+	+	+	+++	+++	
Cultural festivals					++	++	++	++	++	++			
Labour demand	+++	++	++			++	++					+++	
Milk availability	+	++	+++	+++	+	+	+++	+++	+++	++	+	+	

MUAC on Admission

MUAC at admission measures timeliness of admissions. This measure assesses either how early / late beneficiaries seek care for acute malnutrition or how early / late the program is able to find cases of acute malnutrition. Late admissions or those children who are admitted to the program only after they have met admission criteria for a considerable period of time are of particular interest¹.

Analysis of OTP admission indicated that majority of children are admitted in OTP early with the median admission MUAC being 111mm as shown in figure 5 below. However, there were still some late critical admissions which were made with a MUAC of less than 10.5 cm which is evidence for poor health seeking behaviors and inadequate community case finding. Early admissions are associated with good program outcome which translate to good perception of the program by the community and thus a booster to the program.

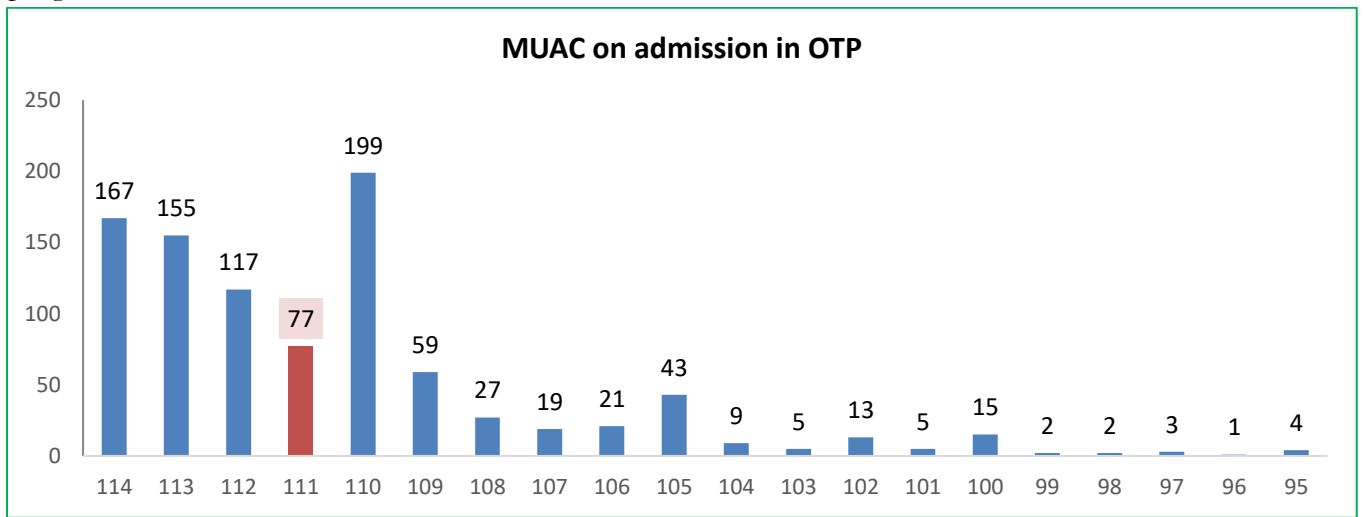


Figure 5: Admission MUAC for OTP

Median admission MUAC for SFP was 120mm again signifying early admission to the program. However, the data also points to some late critical admission which indicates poor health seeking behaviours as shown in figure 6 below.

¹ CMAM coverage monitoring

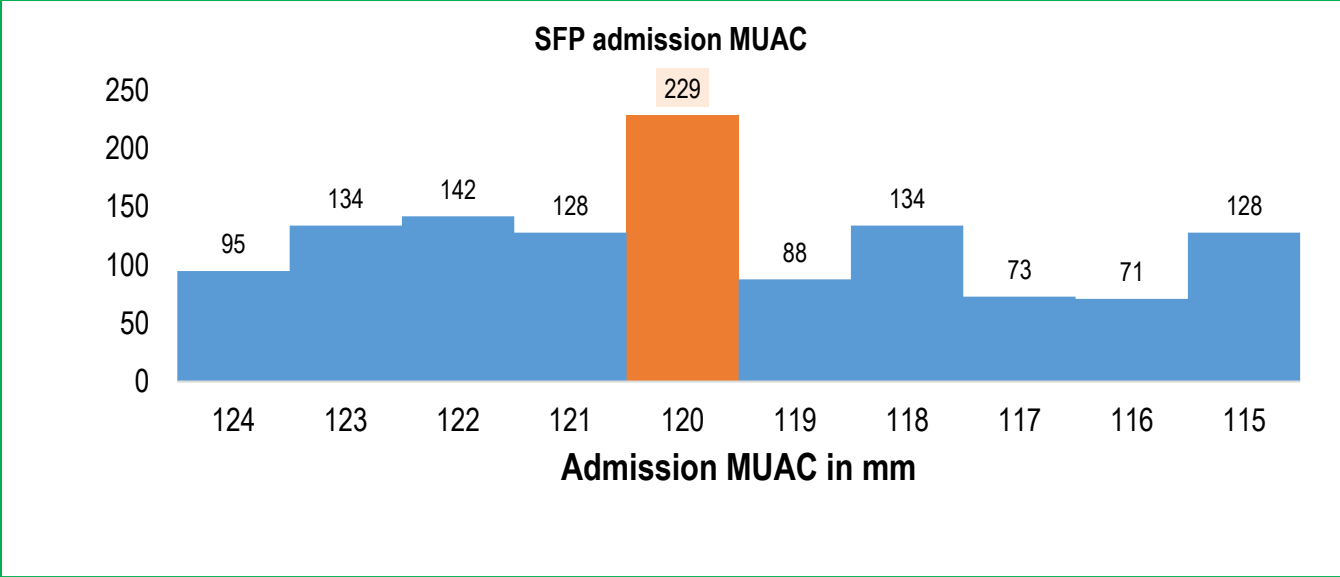


Figure 6: Admission MUAC- SFP

Program Outcome Indicators (OTP Exits)

High admissions alone do not guarantee good coverage. Program coverage should be determined by examination of program exists. High defaulting rate is associated with low program coverage. As such, program outcomes should always be compared with the sphere standards (Cure rate => 75%, default rate <15% and death rate < 10%). In a healthy program and if the sphere standards are being met, the cure line should be along the top of the graph while the defaulter and the death line at the bottom of the graph in a mirror image. If percentage of defaulters is more than 15%, then there is a cause of concern. Cure line should be above 75% while death line should be below 10%.

The average cure rate was 68.6% which is below threshold for cure rate for OTP program with high defaulter rate of 25.1% that surpassed 15% threshold. However, death rate was 0.0% which was within the acceptable rate of below 10% as shown in figure 7 below.

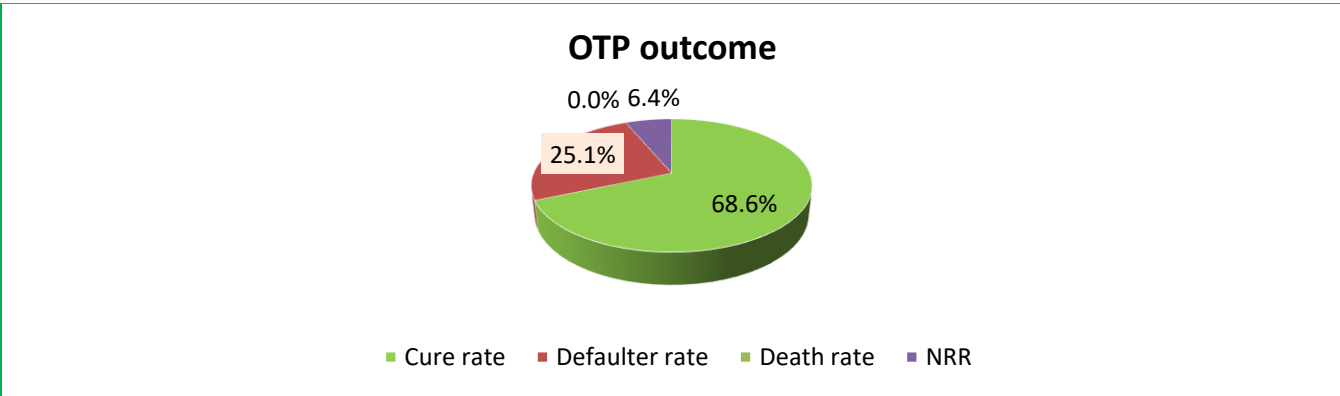


Figure 7: OTP Exits: Tiaty

Analysis per sub-County indicated relatively good performance in Tiaty West Sub County with a cure rate of 71.6% and defaulter rate of 20.4%. This was however short of the sphere minimum standard for both cure rate and default rate. Tiaty East although recorded an improvement from 31.1% cure rate in 2019 to 64.9% in 2023 was far below the sphere standards with default rate of 30.8% as illustrated in figure 8 below.

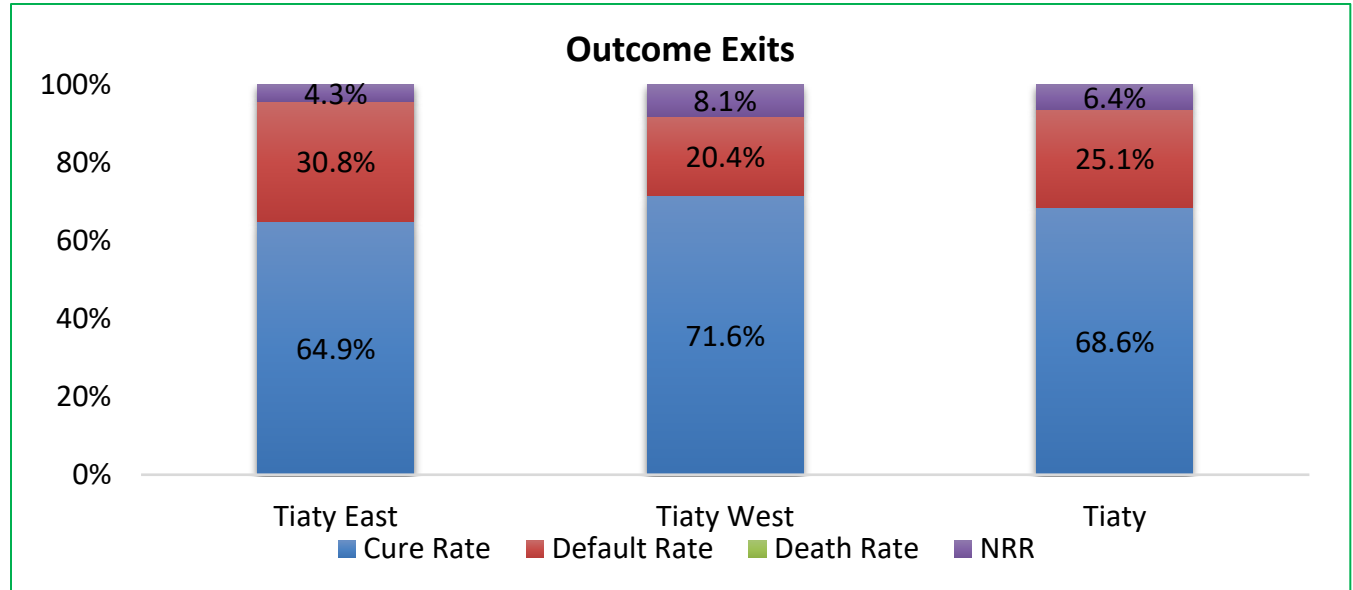


Figure 8: OTP exits per sub-County

Further analysis on exits overtime indicated that the cure rate was below 75% threshold in most of the months except March 2022 and January 2023. Defaulter rate was above 15% in most of the months except October 2022 as shown below.

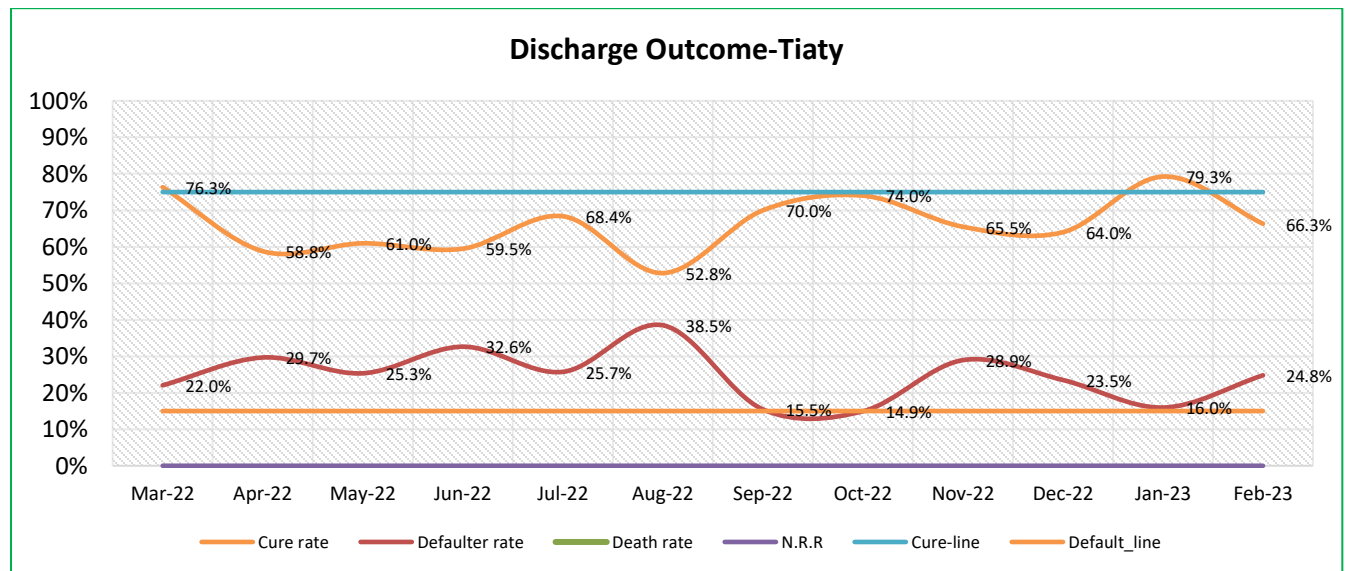


Figure 9: Program exits: OTP

At sub-County level OTP Cure rate in both Tiaty East and Tiaty West remained below the minimum sphere standard of 75% in the majority of the months while default rate remained above the 15% threshold as shown in figure 10 below.

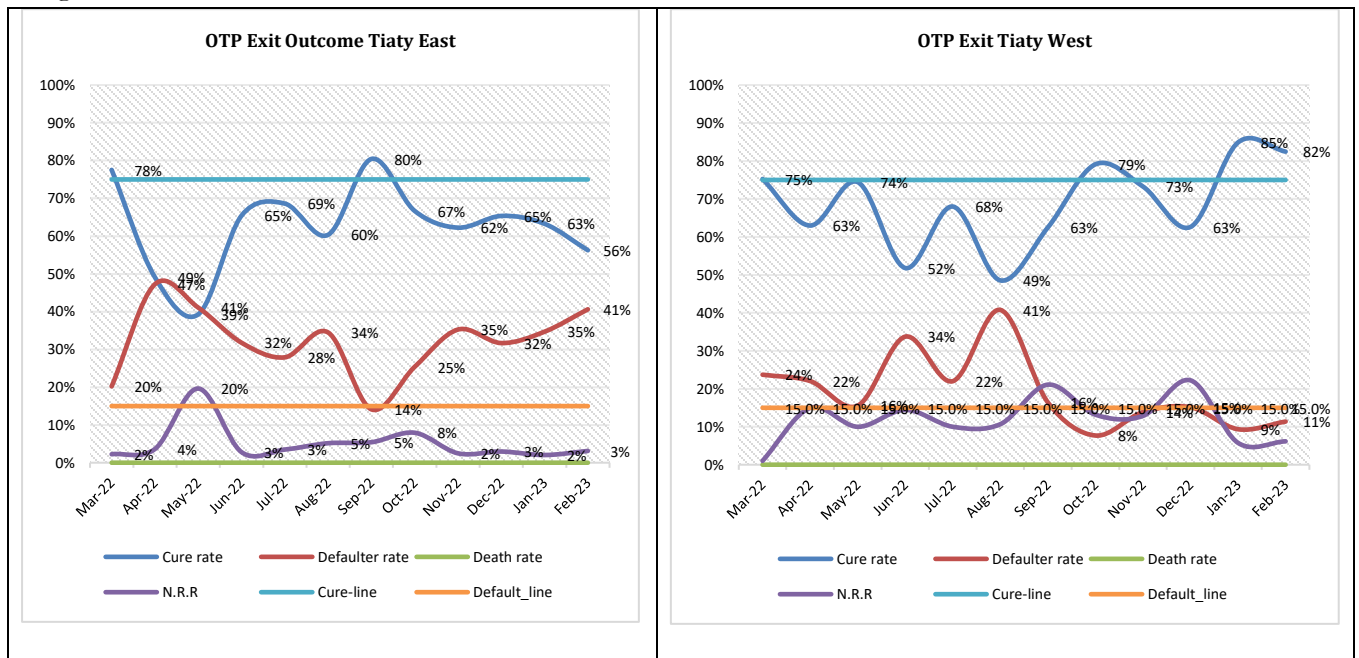


Figure 10: Analysis by Sub County program exits

The median discharge MUAC for cured children for OTP program was 120 mm. This suggest that majority of the children are overstaying in program which may results to a negative perception of the program by the community which may be a barrier to the program as shown in figure 11 below.

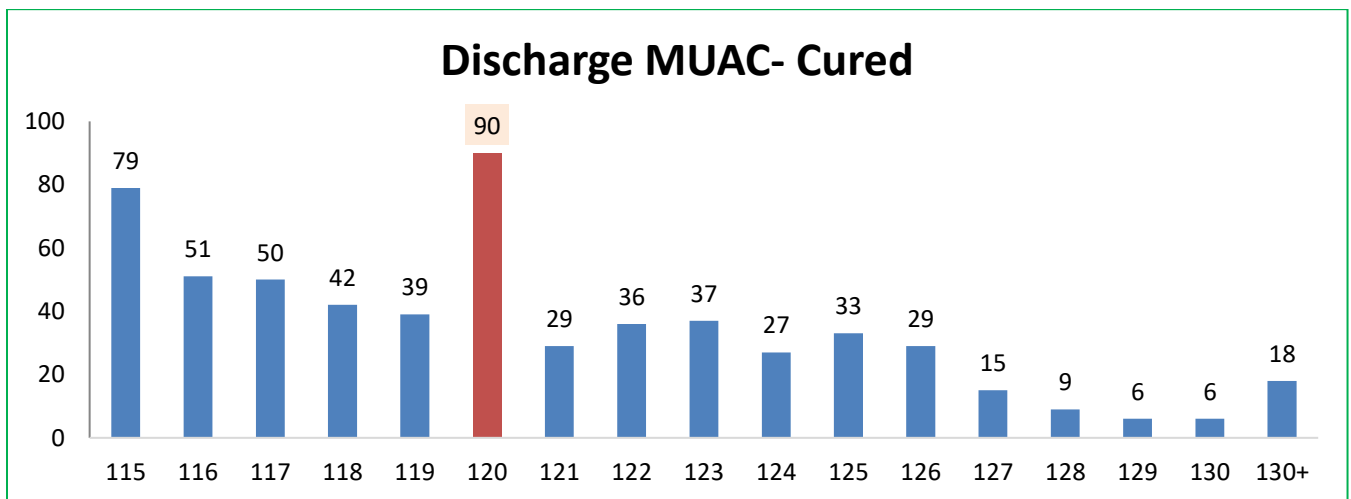


Figure 11: OTP MUAC on Discharge for cured

Media LoS for cured was 7 weeks meaning children were exiting slightly earlier than expected. There is a large number who stays in the program beyond 8 weeks. Long treatment episodes can be attributed to late admission or poor adherence to the treatment protocols. Programs with prolonged length of stay tend to be

unpopular with beneficiaries and tend to suffer from late health seeking behaviors and high defaulting rates. These are key barriers to coverage. Children were also discharged after a week signifying documentation or capacity issue as shown in figure 12 below.

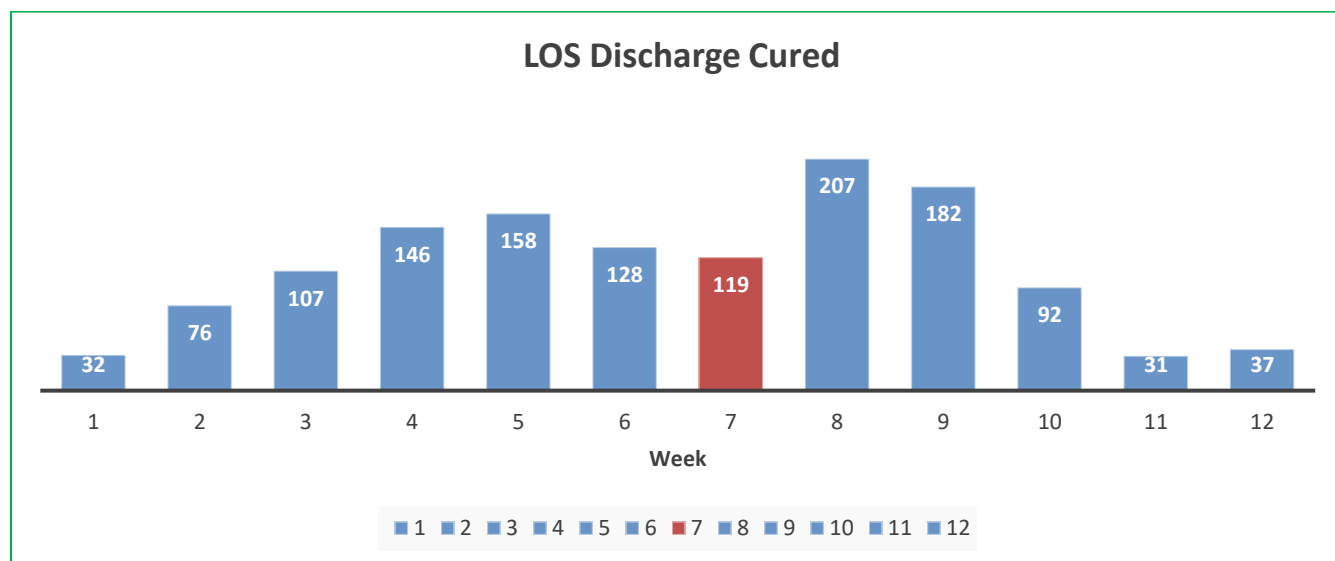


Figure 12: Length of stay in the OTP

Program Outcome Indicators (SFP)

In regard to supplementary feeding program, default rate remains higher above the Sphere threshold of less than 15% and cure rate being below Sphere threshold of $\geq 75\%$ as illustrated in figure 13 below.

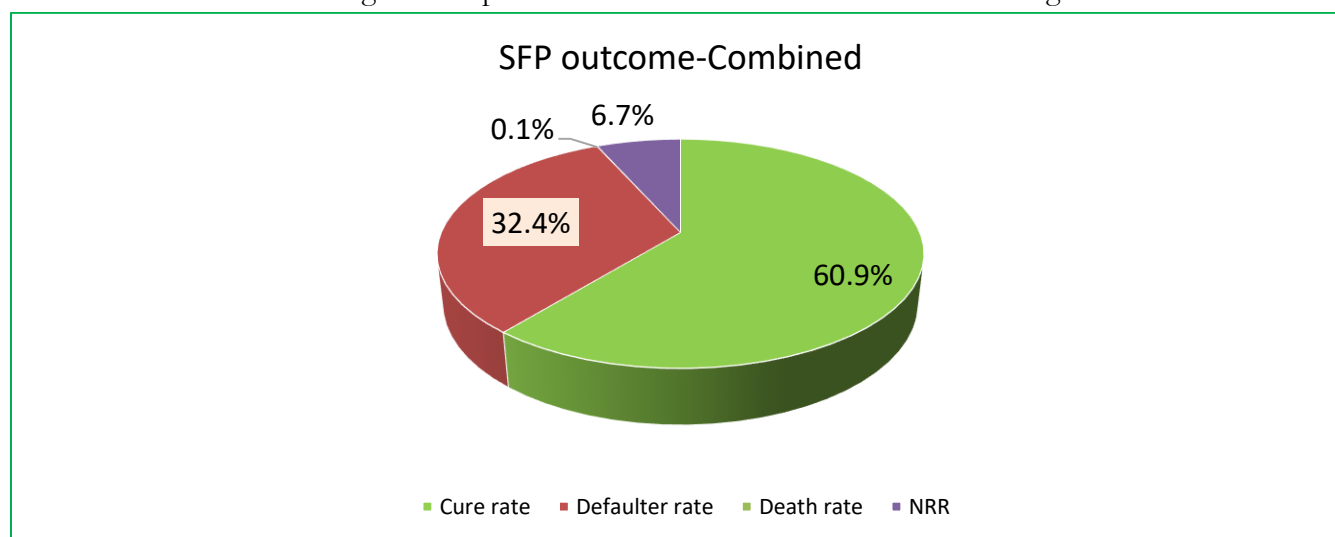


Figure 13: SFP exits, Tiaty

At Sub County level, the analysis showed a relatively good program performance for Tiaty West compared to Tiaty East where cure rate was 65.9% compared to Tiaty East where the cure rate was 56.2%. This however, was a great improvement from 28.5% recorded in 2019 for Tiaty East. Defaulter rate was higher than the 15% sphere threshold across the two sub-counties as illustrated in figure 14 below.

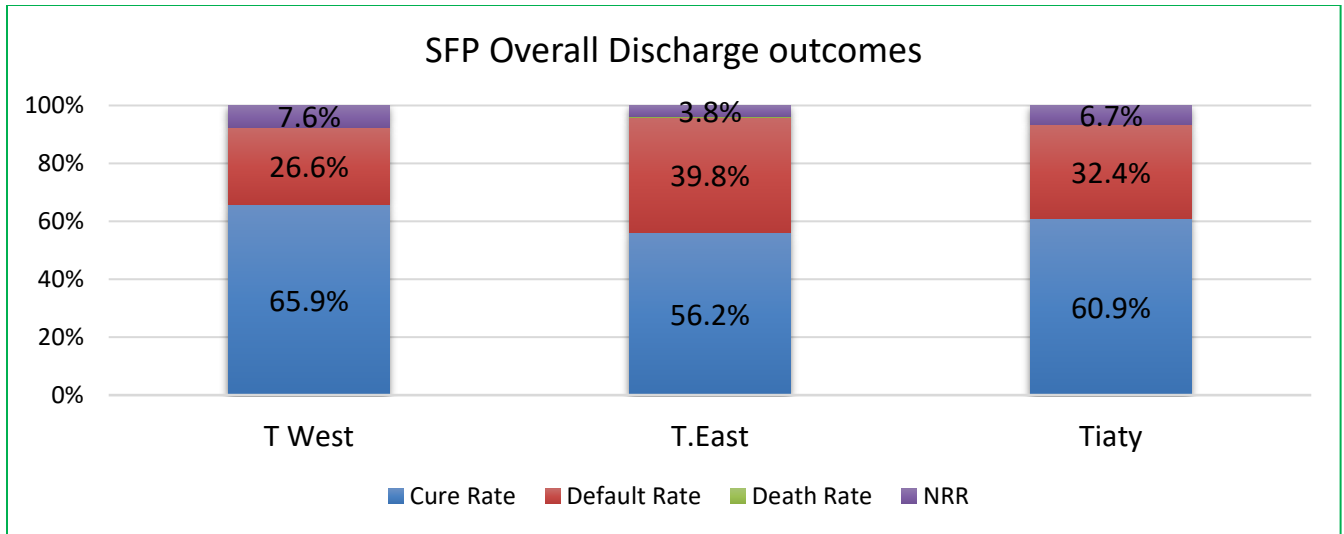


Figure 14: Analysis of SFP performance at the Sub County level.

The trend analysis of program performance indicators showed that cure rate remained below the Sphere threshold of $\geq 75\%$ throughout the analysis period indicating poor program performance. Similarly, the defaulter rate remained above 15% SPHERE threshold across all months as illustrated in figure 15 below.

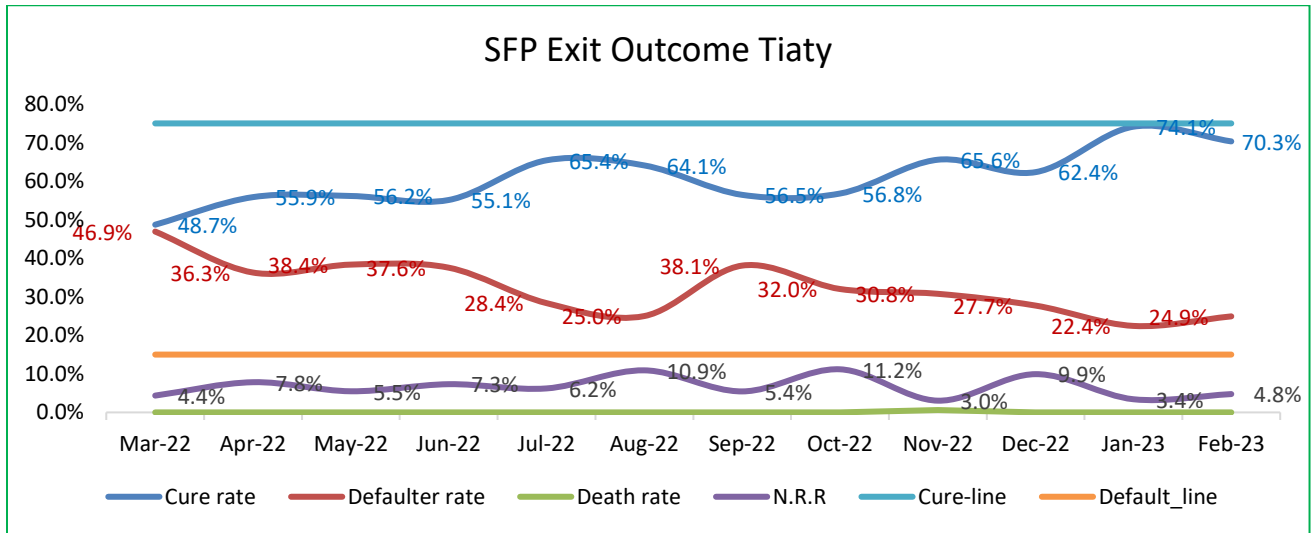


Figure 15: Exit overtime for SFP

Median MUAC on discharge for cured cases was 129 mm signifying that majority of the beneficiaries are overstaying in the program. However few cases were discharged without attaining the target MUAC mainly due to wrong admission and documentation issues as shown in figure 16 below.

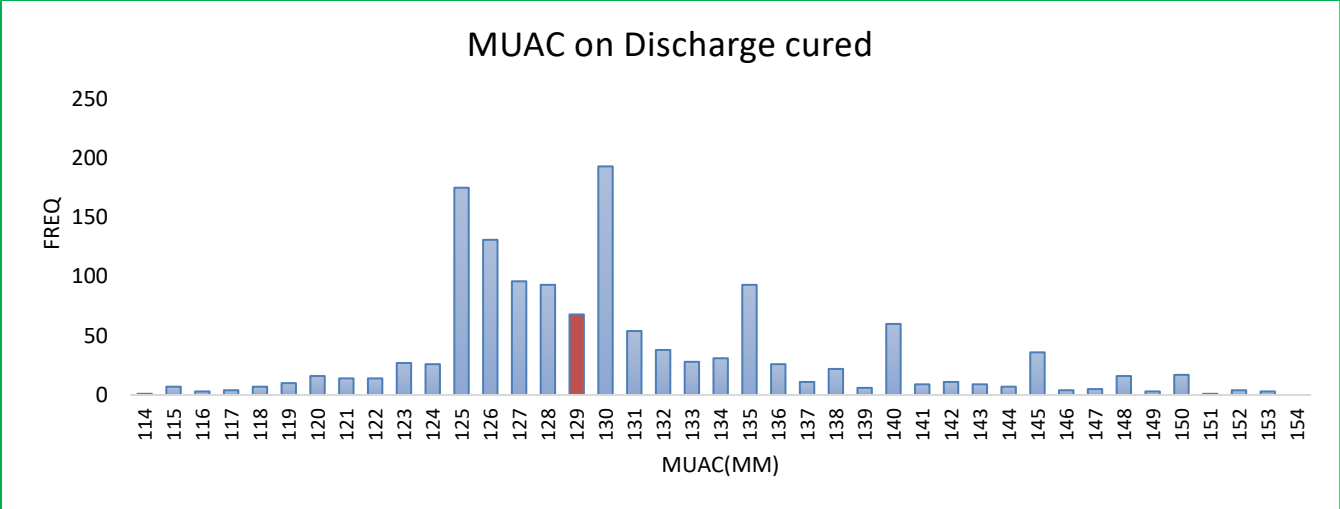


Figure 16: SFP MUAC on discharge cured

Median LoS for SFP cured was 6 weeks an indication of short LoS. This is an indication of existence of early discharged from the program. Early exits may lead to re-admissions which may promote a negative perception of the program in the community

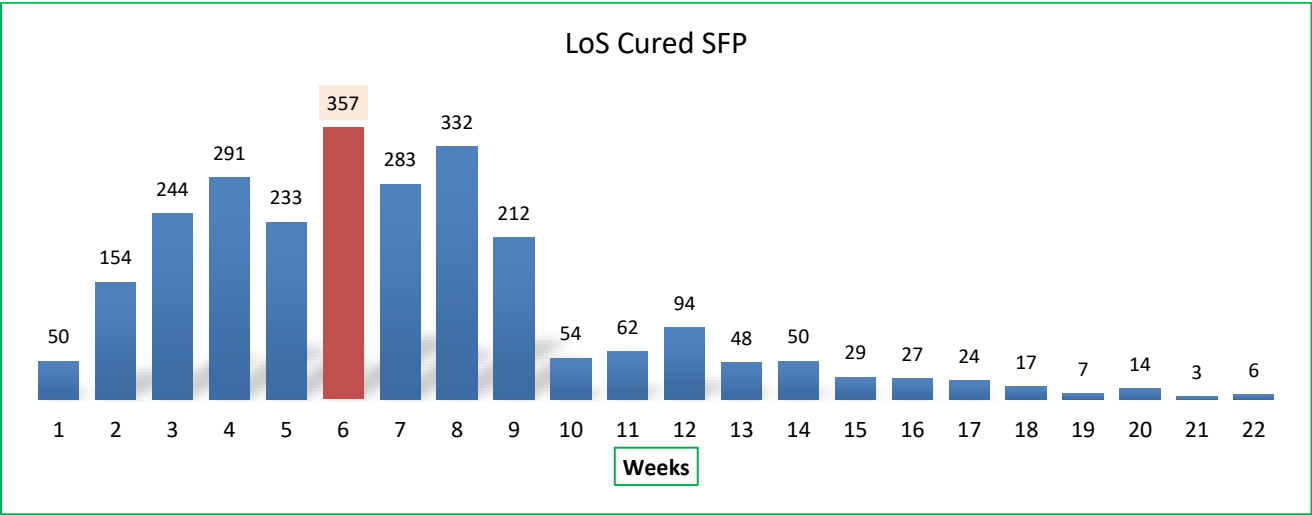


Figure 17: SFP LoS cured

Program Defaulting

The default rate is one of the four core performance indicators of malnutrition treatment programs. It represents the proportion of children discharged from the program who were absent for two consecutive follow-ups. Defaulting is a major barrier to both therapeutic and supplementary feeding programs. High defaulting rates are an indication of poor program coverage. IMAM program indicators should show a consistently low rate of defaulters. Program defaulter rates might vary over time, this might be due to

deterioration in the security situation, leading to reduced access and availability of services, impacts of climatic conditions e.g. droughts, floods etc. that affect how populations can access services or patterns of labor demand. Therefore, the graph of the defaulters should be compared to the seasonal calendar of the region. When the program has a high number of defaulters it will be important to know when the beneficiaries defaulted from the program. Another way of investigating defaulting is totalling or plot the number of visits to the clinic that were made by defaulters. When many children default early (1 to 2 weeks), they are likely to be current SAM/MAM cases. When they default late (6 to 8 weeks) they are likely to be recovering cases.

Defaulting Trends (Outpatient Therapeutic Program)

OTP average default rate for Tiaty was 25.1% an indication of poor program performance although a huge improvement from 43.9% reported in 2019. The most affected Sub County remains Tiaty East where average default rate was 30.8% while Tiaty West recorded a default rate of 20.4%. Comparing defaulting trends with seasonal calendar, defaulting can be attributed to drought resulting to outmigration and this happened in June and August 2022. Scaling up of outreaches in November without proper integration of outreach data and HF's data led to increase in defaulting cases as some beneficiaries exited as defaulters instead of transfers. Lack of clear defaulter tracing mechanism could also be attributed to defaulting. Children discharged after 1 week could be as a documentation issue or knowledge gap on admission criteria. Finally, staff absenteeism leaving the facility closed down or being operated by a facility-based CHV might as well have contributed to high defaulting rate as shown in figure 18 below.

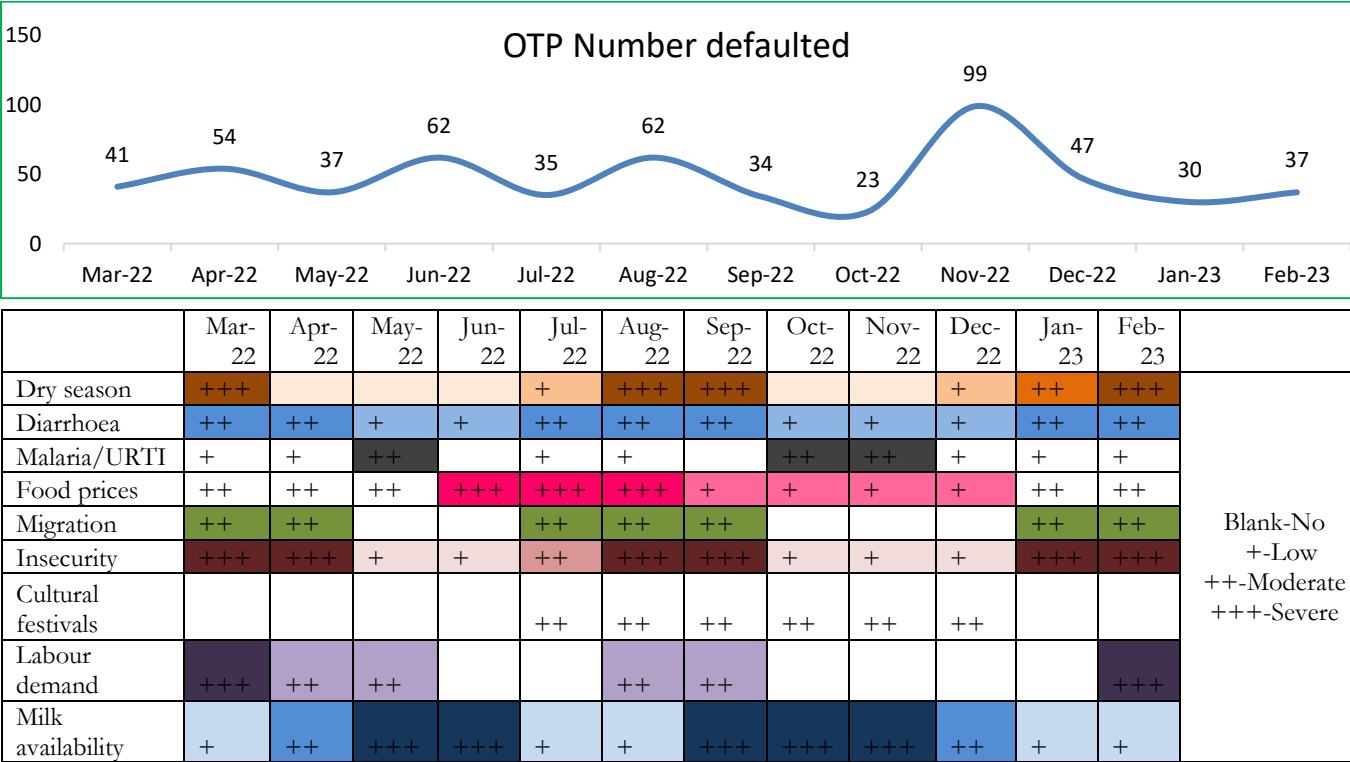


Figure 18: OTP defaulting trends in comparison with seasonal calendar

Median discharge MUAC for those defaulted was 112 mm, meaning a significant number of children defaulted early from the program and could still be current SAM cases. There were also a number of early and critical defaulters from the program and this becomes a barrier to the program.

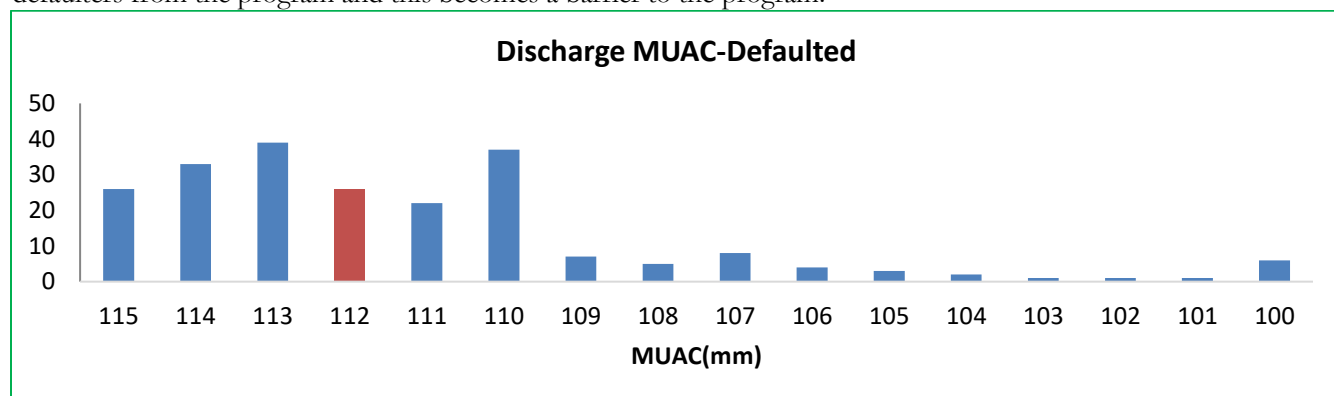
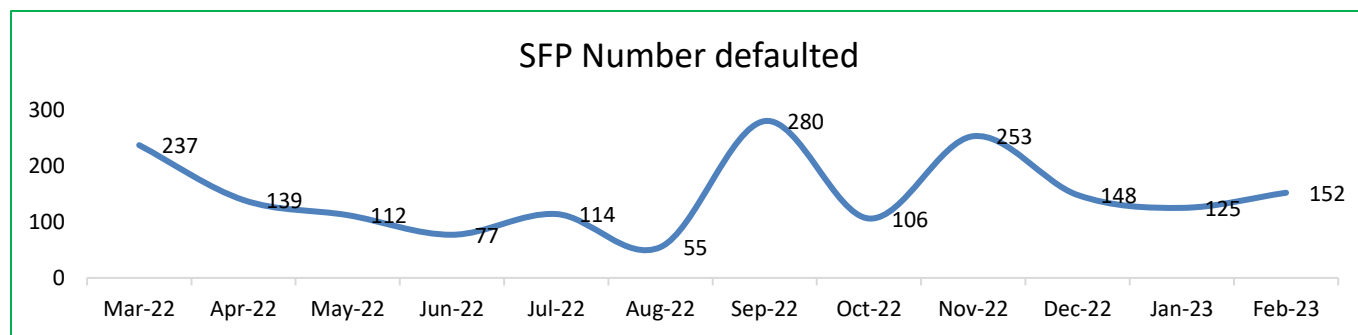


Figure 19: MUAC on discharge for defaulters

Defaulting Trends (Supplementary Feeding Program)

SFP average defaulting was 32.4% an indication of poor program performance. Tiaty East was more affected by defaulting and this can be attributed to poor documentation. Defaulting spikes in the month of March and September can be attributed to draught resulting to outmigration due to poor performance of both short and long rains. Defaulting could also be attributed to lack of integration of outreach data and HF's data especially in November 2022 and Stock outs of RUSF.



	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	
Dry season	+++				+	+++	+++			+	++	+++	Blank-No +-Low ++-Moderate +++ -Severe
Diarrhoea	++	++	+	+	++	++	++	+	+	+	++	++	
Malaria/URTI	+	+	++		+	+		++	++	+	+	+	
Food prices	++	++	++	+++	+++	+++	+	+	+	+	++	++	
Migration	+++	++			++	++	+++				++	++	
Insecurity	+++	+++	+	+	++	+++	+++	+	+	+	+++	+++	
Cultural festivals					++	++	++	++	++	++			
Labour demand	+++	++	++			++	++					+++	
Milk availability	+	++	+++	+++	+	+	+++	+++	+++	++	+	+	

Figure 20: SFP defaulting trends in comparison with seasonal calendar

Median defaulting MUAC was 121mm. This is an indication of late defaulting and majority of these beneficiaries are likely to be recovering cases of MAM. However, there were also a number of early and critical defaulters which is a barrier to the SFP programme.

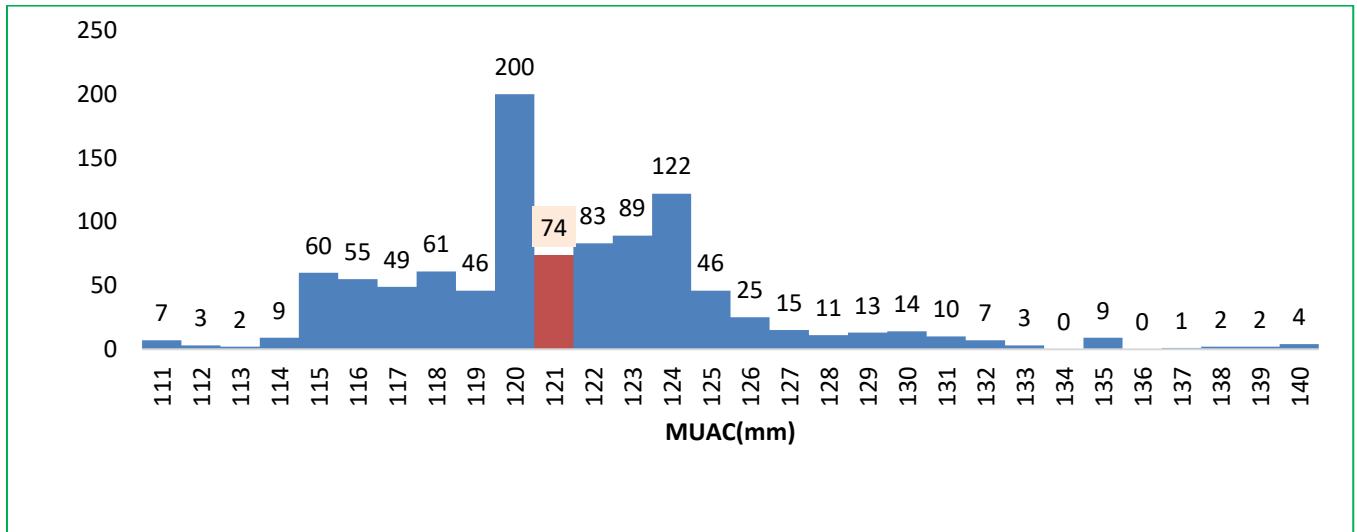


Figure 21: MUAC on discharge for SFP defaulters

Stock Data Analysis

Analysis of stock data revealed stock out of RUSF in several facilities especially in the month of August 2022 and February 2023. This may have impacted on both default rate and Non response rate.

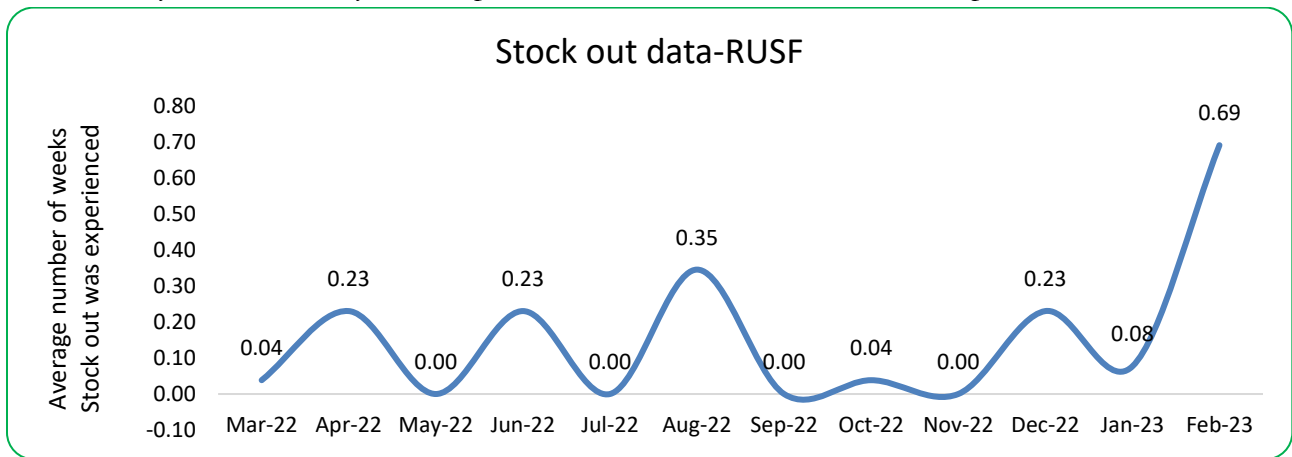


Figure 22: Stock out analysis

2.1.2. Qualitative Data Analysis (Community Assessment)

Qualitative data was collected from different sources using various methods. These methods included; Informal Group discussions (IGDs), semi structured interviews (SSI), In-depth interviews and Observation. The data was collected from Community Leader, Community Health worker, Carers of children not in Programme, Carers of beneficiaries, Health Workers, Program Staff, Observation, TBAs/Traditional Healers, Religious Leaders, Carers of defaulters, lay people and Mother to Mother support groups. Qualitative information collected was triangulated using different method and sources. Purposive sampling was done adhering to the principle of triangulation and sampling to redundancy. Emerging issues were either categorized as a booster or a barrier to the program.

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.

Key Coverage Issues based on Qualitative Data

Demand side driven barriers

1. Geographical barriers

a. Distance

Long distances between community HHs and the nearest IMAM center often leads to skipping of TCA by caregivers which results to poor health seeking behaviors as they will opt to other non-recommended traditional methods of treatment.

b. Migration

Prolonged drought experienced since early last year and frequent insecurity in Kerio-valley contributed to migration in search of water and pasture for domestic animals and safety. This led to high defaulter rate and low coverage in cases where the HHs moved to areas with no IMAM centers and also to double registration where HHs moved to areas where they could access multiple IMAM centers for services.

2. Lack of information

a. **Lack of community mobilization and sensitization:** Poor communication between key community leaders and HCW has led to poor sensitization and mobilization in the community.

b. **Poor referrals from the Community (CHVs):** Lack of CHV stipend and continuous training on IMAM program coupled with inadequate referral tools (MOH100) at the community has led to poor or low referrals from the community.

c. **Inadequate number of HCW:** Lack of enough HCW leads to establishment of few OTP and SFP sites hence low coverage and poor quality service provision. Partners only support but for short durations and covers small areas with the outreaches.

d. **Inadequate number of active CHV's:** This leads to information delay and sometimes to total lack of communication to community members about their health and services they should seek since there are no CHVs to conduct the activity. Or the CHVs doesn't feel motivated hence deliberately decide not to engage.

3. Household food insecurity

- a. **Selling of RUTF and RUSF:** Household with low income tend to sell the commodities so that they can use the money raised to purchase other food items like *maize flour, sugar, tea leave* etc. Due to ignorance, others exchange RUTF/RUSF with alcohol (locally brewed changaa and busaa).
- b. **Sharing of RUTF and RUSF:** Food insecurity at household level has contributed to sharing of nutrition supplements in the entire household hence children on program are not recovering.
- c. **RUSF/RUTF seen on food:** Lack of knowledge by the caregivers about the products makes them think that it is food other than treatment products. Perception of RUSF/RUTF as food has contributed to sharing of the commodities which has led to non-response and also low recovery rate.

4. Social- cultural barriers

a. Alcoholism

A significant proportion of care givers are users of local brewed alcohol. Alcoholism may lead to domestic conflicts hence can cause migration of families from nearest health care facilities around the locality rendering clients/ patients uncovered. Alcoholic caregivers may skip T.C.A visits or may be forced to sell supplements so as to obtain moneys to purchase alcohol drinks. Defaulters and non-responding patients are the end results.

b. Poor health seeking behaviors

Some HHs still prefer traditional methods of treatment over the conventional and will only visit facility when their conditions are severe. Others due to ignorance and lack of adequate information, fails to adhere to their TCA and medication prescription. Some caregivers also deliberately stop attending their IMAM sessions due to harassment by the facility HCW and opt for traditional methods.

c. Stigma

This is any attribute/ behavior which causes an individual to be mentally classified by others in an undesirable way hence leading to poor health seeking behaviors. Stigma may lead to caregiver(s) to hide their malnourished or sick children avoid shame from the society. Some members of the society relate malnutrition with poverty or having some other underlying conditions such as (TB or HIV) which may not be the case.

d. High workload by caregivers

Caretakers e.g. women are the one 'supposed' to perform all the community activities like farming, looking after domestic animals, fetching (water, firewood) looking after the children etcetera. This makes them unable to have adequate time to take their children for any IMAM service as scheduled hence defaulting, non-response or even opting to nearest and readily available traditional options.

e. Domestic violence

Physical fights between spouses in households which might cause separation or migration of one the partners can lead to child/children not receiving proper care which could have been provided by both parents. Children who are in program may end up defaulting after separation.

5. Cost of access

These are charges one does incur when accessing IMAM services.

Some caregivers, especially the less fortunate are unable to access the service they need in any health Care facility due to lack of transport. Consequently, they seek the readily available non-conventional methods near them like use of traditional herbals. The high transport cost is mainly due to poor road networks which makes it a barrier to coverage

Supply driven side barriers

1. **RUTF/RUSF stock out:** Poor documentation is major contributor to commodities stock out since discrepancies in data affects the commodities resupply hence frequent stockouts.
2. **Poor/inadequate Active case finding:** Lack of stipend for CHVs and heavy workload in facilities leads to poor active case findings hence low coverage.
3. **Low program awareness/wrong admission and discharge by HCWs:** Lack of community awareness and advocacy leads to low coverage of IMAM since community may not be aware of the program. Inadequate knowledge by HCWs on IMAM admission and discharge criteria leads to wrong admission into the program.
4. **Previous rejection from the program:** Inadequate knowledge by CHVs leads to wrong referral /measurements and also showing up early before the intended T.C.A. date leads to rejection by Health Care Worker.
5. **Lack of stipend for CHVs:** Lack of CHVs motivation leads to low defaulters tracing hence high defaulters in the IMAM program.
6. **Poor documentation:** It contributes to wrong cases of defaulters, cured, discharged, non-response etc. Children referred to outreach site from facility are not documented.
7. **Negative attitude of health workers-**This can result to poor documentation, misuse of commodities and lack of accountability. Staff attitude can also lead to patients not accessing the facility especially if harassed by the health worker, hence leading to poor coverage and high defaulting rate.
8. **Lack of capacity to handle stocks-**Stock records revealed knowledge gaps in handling commodity stock control and requisition hence cases of stock out. Some centers were found to lack proper storage facilities, hence cannot store adequate commodities.
9. **Poor defaulter tracing mechanism:** Due to migration, insecurity, no stipend for CHVs, poor communication between health worker and carer of beneficiary and unfunctional community units has led to poor defaulter tracing.
10. **Inadequate Nutritionists/HCWs and absenteeism:** Majority of the facilities/sites are manned by nurses who perceive IMAM services as an additional burden as they are preoccupied by other services such as immunization, deliveries and attending sick clients. Absenteeism has led to IMAM services being left in the hands of a CHW who may lack the capacity to offer services.

2.2. Hypothesis Testing and Small Area Survey

The objective of this stage was to confirm areas of high and low coverage based on the analysis of both quantitative and qualitative data from stage 1. The following hypothesis was formulated;

Hypothesis: *Villages within an active CUs are highly covered by IMAM, while those outside active CUs have low IMAM coverage.*

Rationale:

- *Villages within active CUs are well covered by CHVs and hence active case finding leading to high admission and good defaulter tracing*

- *Villages outside active CUs and away from an outreach site are not covered by CHVs and hence no active case finding and no defaulter tracing.*

The hypothesis was tested using simplified LQAS formula $d = \lceil n/2 \rceil$ in comparison with the sphere minimum standard relating to coverage of 50% for rural set-ups. Small Sample Size survey was used to test the hypothesis since the hypothesis focused on spatial distribution of coverage in Tiaty.

A small sample size survey was conducted in two purposively selected set of villages; one set which were within active CUs (Nginyang, Chemakit and Ngoron). These village were classified as **high coverage village**. The second set of villages were outside active CUs and away from outreach sites (Tilingwo, Chepelow and Losikiriami) classified as **low coverage village**.

Case definition: SAM cases and Recovering SAM

Child aged between 6 – 59 months with:

- **MUAC <115mm**

and/or

- **Bilateral Edema**

SUCH CHILD IS A SAM CASE

- Child aged between 6 – 59 months:
 - **Presently in OTP (verified with RUTF)**
 - **MUAC ≥ 115mm**
 - **No Bilateral Edema**

SUCH CHILD IS RECOVERING FROM SAM

Case definition: MAM cases and Recovering MAM

Child aged between 6 – 59 months with:

- **MUAC ≥115 - <125mm**
- **SUCH CHILD IS A MAM CASE**

Child aged between 6 – 59 months:

- **Presently in SFP (verified with RUSF)**
- **MUAC ≥ 125mm**

SUCH CHILD IS RECOVERING FROM MAM

Active case finding was used to look for the defined cases where each household with a child 6- 59 was visited and all eligible children were measured using a MUAC tape.

Table 1: Small Area Study Results (OTP)

Purposively sampled villages	Characteristic (s)	No of SAM cases in program	No of SAM cases not in program	Total
High Coverage: Nginyang, Chemakit and Ngoron	Communities within active CUs	40	6	46
Low coverage-Tilingwo, Chepelow and Losikiriami	Communities outside active CUs and not covered by an outreach site	0	4	4
High Coverage: Nginyang, Chemakit and Ngoron	Program coverage Standard (p)	50%	Number of SAM cases in program = 40 which is more than 23.	The hypothesis is confirmed that the communities have high coverage.
	Decision rule (d)	$d = [46/2] = 23$		
	Number of SAM cases in program	40		
Low coverage-Tilingwo, Chepelow and Losikiriami	Program coverage standard p	50%	Number of SAM cases in program is 0 which is less than 2	The hypothesis is confirmed that these communities have low coverage.
	Decision rule d	$d = [4/2] = 2$		
	No of SAM Cases in program	0		

Table 2: Small Area Study Results (SFP)

Purposively sampled villages	Characteristic (s)	No of MAM cases in program	No of MAM cases not in program	Total
High Coverage: Nginyang, Chemakit and Ngoron	Communities within active CUs	82	15	97
Low coverage-Tilingwo, Chepelow and Losikiriami	Communities outside active CUs	12	14	26
High Coverage: Nginyang, Chemakit and Ngoron	Program coverage Standard) p	50%	Number of MAM cases in program = 82 which is greater than 48.	The hypothesis is confirmed since the coverage has attained 50% for rural threshold
	Decision rule (d)	$d = [97/2] = 48.5 = 48$		
	Number of MAM cases in program	82		
Low coverage-Tilingwo, Chepelow and Losikiriami	Program coverage standard p	50%	Number of MAM cases in program is 12 which is less than 13	The hypothesis is confirmed that the communities have low coverage
	Decision rule d	$d = [26/2] = 13$		
	No of MAM Cases in program	12		

2.3. Prior Building

Before proceeding to the wide area survey, the team developed the prior distribution for both SAM and MAM. Four Methods were used to determine the prior mode. They included; simple barriers and boosters, weighted barriers and boosters, Concept map and Histogram.

2.3.1. Weighted Barriers and Boosters

In this method, all the barriers and boosters which were identified in stage 1 and 2 were weighted such that every barrier was given a percentage in which the participant thought that it affected the program. In the same was each booster was also given a score depending on how the participant thought that the booster impacted on the program. The scale which was used ranged between 1% and 5% where 5% was the highest score and 1% was the least score. The table below presents the weighted barriers and boosters for both the OTP and SFP programs.

Table 3: BBQ legend

Source	Symbol	Method	Symbol
CHV	A	Semi structured interviews	1
Health worker	B	Informal group discussion	2
Carers of beneficiaries	C	Program data/Quantitative analysis	3
Community leaders	D	Document review	4
TBAs/THP/Herbalist	E	Observation	5
Community lay people	F		
Program staff	G		
M2MSG	H		
OTP/SFP Registers	I		

Outpatient Therapeutic Program boosters (Weighted and Unweighted BBQ)

Table 4: OTP boosters (Weighted and unweighted)

Booster	Source	Method	Unweighted	Weighted
Aware of importance of nutrition supplements	H2,F5,D2,E3,A1	2(8),1(10)	1	3
Presence of outreaches	D5,B2,F3,E2,A1,C5	1(11),2 (9)	1	4
Health workers trained on IMAM program	B9	19	1	3
Good health seeking behavior	H2,F5,E1	2(7),19(1)	1	2
Good perception of IMAM program	H4,F8,C8,D7,E5	2(19),1(6)	1	4
Good linkage between TBA/THP and HCW	E4	1(4)	1	1
Active case finding leading to good referrals	B4,A1,H1	1(5),2(1)	1	2
No stigmatization	E1,D1	1(2)	1	3
Good outcome of the program/effective case management	D5,C6,F5,B8,G2,E1,A1,H5	2(10),1(11)	1	3
Awareness of IMAM program	C5,D8,F10,H14,B7,E9	2(32),1(21)	1	4
Presence of defaulter tracing	B6,A1,H1	1(7),2(1)	1	2
Good identification and enrollment	F5,A1,H3	2(8),1(1)	1	3
Awareness of existence of CHVs	C4,F8,B9,E2,H10,G1	2(26),1(13)	1	4
Knowledge of malnutrition	H6,D5,F8,C4,E7,A1	2(24)1(13)	1	4
Good coordination between HCW and CHVs	B5,H1,A1	1(5),2(1)	1	3
Good relations between partners and HCWs	G3	1(3)	1	4
Good coordination between community leaders and HCWs	D5	2(3)1(2)	1	3
No rejection	B4, C5	1(6),2(3)	1	4
No stock outs	I	3	1	5
Good coordination between HCWs and SCHMT	B7	1(7)	1	3
Totals			20	64

OTP Barriers (Weighted and Unweighted)

Table 5: OTP barriers (Weighted and unweighted)

Barrier	Source	Method	Unweighted	Weighted
Poor/low health seeking behavior	H(6) F(7) C(2)	2(18) 1((7)	1	2
Distance to the facility(High cost	C(7) F(13) B(3) E(3) D(4) H(11) G(3)	2(31) 1(15)	1	2
Migration	C(4) F(5) (B(9),A(3) B(2) D(2)	2(7) 1(18)	1	2
Selling of RUTF	F(3) B(2) A(2) C(5) D(4)	2(14) 1(2)	1	1
Alcoholism	F(6) B(2) A(4) H(6) C(2) D(3)	2(19) 1(4)	1	4
High workload for women	F(2) B(7) H(3) C(6)	2(11) 1(7)	1	2
Sharing of RUTF due to household food insecurity	F(4) B(2) A(3) G(4) H(4) C(2)	2(10) 1(9)	1	4
Perceptions of RUTF as food	F(5) B(5) E(2) A(2) H(6)	2(12) 1(8)	1	3
Inaccessibility due to poor roads	F(2) G(3)	2(2) 1(3)	1	3
Bad weather	F(3) B(3)	2(3) 1(3)	1	2
Insecurity	F(2) B(4) A(2)	2(3) 1(4)	1	2
Knowledge gap on admissions criteria	F(2) B(7)	2(2) 1(7)	1	2
Unfriendly health worker	F(2) H(3)	2(9)	1	1
Stigmatization (HIV,TB and Poverty)	F(2) A(2) H(3) C(5) D(8)	2(15) 1(5)	1	2
Ignorance of the mother	F(3) B(5) A(2) C(7) D(9) H(6)	2(19) 1(12)	1	1
High defaulting rates	B(6) A(2) G(3) D(2)	1(13)	1	3
Absence of health worker	B(3) D(2)	1(3) 2(2)	1	1
Inadequate CHVs	B(2) G(2)	1(6) 2(4)	1	2
Poor/ lack of storage facilities/Inadequate capacity to handle stock	B(2) C(2) D(6)	1(2) 2(2)	1	3
Poor documentation	B(2)	1(2)	1	3
Non- functional defaulter system mechanism	B(4)	1(4)	1	3
Children failing to respond to treatment	H(2) C(4)	2(6)	1	2
Inadequate active case finding	H(1) C(2) D(2)	2(7)	1	2
Domestic conflicts	C(2)	1(2)	1	1
Lack of stipend for CHVs	G(4) D(2)	1(4) 2(2)	1	3
Over reliance of NGOs by MOH	G(4)	1(4)	1	1
Poor Key community leaders involvement in IMAM Program	D(3)	2(3)	1	2
Double registration and rationing of commodities	D(2)	2(2)	1	1
Inadequate community mobilization	D(2)	2(2)	1	2
Total			29	62

SFP Boosters (Weighted and Unweighted)

Table 6: SFP Boosters (Weighted and unweighted)

Booster	Source	Method	Unweighted	Weighted
Good health seeking behavior	H(2), F(5)'E(1)	2(7),1(1)	1	2
Knowledge of malnutrition	D(5),H(9),F(9),C(4),E(7),A(4)	2(25), 1(13)	1	4
Program awareness	H(8),F(8),B(1)C(4),D(8),E(5).	2(25), 1(11)	1	4
The community are aware of importance of supplements	H(3),F(5),D(2)E(3)A(1)	2(8), 1(6)	1	3
There is good perception of IMAM programs.	H(4),F(8)C(8),D(7),E(5),	2(27), 1(5)	1	4
Awareness of CHWs responsibilities	C(4)F(8)B(9),D(5),E(2),H(10),G(1)	2(25), 1(14)	1	4
Active case findings and good referrals	F(4),B(2),A(2),D(2),H(3),	2(7),1(6)	1	2
Effective case management	F(3),C(4)	2(7)	1	3
Good outcome of the program	C(6),D(5),B(8)G(2),E(2),A(1),H(5),F(5)	2(21) 1(13)	1	3
Good identification and enrollment	F(5),A(1),H(3)	2(8), 1(1)	1	3
Presence of outreach sites	C(3),D(5)F(3)B(2),H(4),E(2),A(1)	2(9), 1(11)	1	4
Health care workers trained on IMAM	B(8)	1(1)	1	3
Good coordination between health workers, CHVs, Community leaders, SCHMT and NGO staffs.	E(1),B(12),H(1),C(1),A(2),G(3),D(5)	1(20), 2(5)	1	3
No rejection	B(4),A(1),H(1)	2(1)1(5)	1	4
Good defaulter tracing mechanism	B(2),	1(2)	1	2
There is linkage between TBAs and HW	E(4)	1(4)	1	1
No stigmatization	D(1),E(1)	1(2)	1	3
Quality service provision	C(1)	2(1)	1	3
Presence of CHWs	F(2)B(6),H(6),E(4)C(1)	2(9), 1(10)	1	3
Total			19	58

SFP Barriers (Weighted and Unweighted)

Table 7: SFP weighted and unweighted barriers

Barrier	Source	Method	Unweighted	Weighted
Poor health seeking behavior	H(7),F(6),B(1),E(5)	2(14),1(5)	1	3
Distance to health facility	C(5),F(11),B(7),E(2),D(7),H(11),G(2)	2(28),1(13)	1	4
Migration	C(2),F(4),B(9)	1(12),2(8)	1	2
Selling of RUSF	F(2),B(1),A(1),C(4),D(3)	2(9),1(2)	1	1
Alcoholism	F(5),B(1),A(2),C(1),D(3),E(1),H(6)	2(17),1(2)	1	4
Workload for women	F(1),B(6),H(2),C(4)	2(7),1(6)	1	2
Sharing if RUSF	F(3),B(1),A(2),G(3),C(1),H(3)	2(7),1(6)	1	4
Perception of RUSF as food	F(4),B(4),E(1),A(1),H(5)	2(9),1(6)	1	3
Stock out of RUSF	F(4),B(5),G(1),E(1),H(3),C(7)	2(14),1(7)	1	1
Inaccessibility due to poor road	F(1),G(2)	2(1),1(2)	1	1
Staff workload	F(3),B(10),H(1),C(3),D(1)	2(8),1(10)	1	3
Bad weather	F(4),B(2),	2(2),1(2)	1	1
Insecurity	F(1),B(3),A(1)	2(2),1(3)	1	2
Knowledge gap on admission criteria	F(1),B(6),	2(1),1(6)	1	2
Unfriendly health workers	F(1),H(2),C(1),D(1)	2(5)	1	1
Stigmatization	F(1),A(1),H(2),C(4),D(6)	2(11),1(3)	1	2
Ignorance of the mother	F(2),B(4),A(1),C(6),D(6),H(5)	2(16),1(8)	1	1
High defaults rate	B(5),A(1),G(2),D(1)	1(9)	1	3
Absents of health care worker	B(2),D(1),	1(2),2(1)	1	1
Inadequate CHV	B(1),G(1),D(4)	2(3),1(3)	1	2
Lack/poor storage at facility	B(1),C(1)	1(1),2(1)	1	3
Poor documentation	B(1),	1(1)	1	3
Non functional defaulting system mechanism	B(3),	1(3)	1	1
Children failure to respond	H(1),C(3)	2(4)	1	3
Inadequate active case finding	H(1),C(1),D(1)	2(3)	1	2
Domestic conflict	C(1)	1(1)	1	1
Lack of stipend for CHVs	G(3),D(1)	1(3),2(1)	1	3
Key community leaders not involved in IMAM program	D(2),	2(2)	1	2
Double registration	D(1)	2(1)	1	1
Poor community mobilization	D(1)	2(1)	1	1
Total			30	64

The above tables list all the barriers and boosters which were identified during the coverage assessment. Each barrier has been given a score which it was thought to affect the program. The process of scoring the barriers and boosters was exhaustive as the program staff, program implementers, and the SCHMT's members were all involved in this process.

Using the weighted barriers and boosters, the estimated prior for OTP and SFP was determined as 51.0% and 47.5% respectively. This was done as shown below;

$$\text{OTP Prior Mode (Weighted)} = \frac{(0+64)+(100-62)}{2} = 51.0\%$$

$$\text{SFP Prior Mode (Weighted)} = \frac{(0+58)+(100-63)}{2} = 47.5\%$$

2.3.2. Unweighted Barriers and Boosters

In this method, all the barriers and boosters were listed and each given an equal score of 1%. This implies that all the barriers were countered as were the boosters. In this case, for OTP there were 29 barriers and 20 boosters while for SFP there were 30 barriers and 19 boosters. Using this method, the total number of barriers was subtracted from 100% and then the total number of boosters was added on 0%. The barriers were subtracted from 100% since that's the optimal coverage a program can reach while the boosters were added to 0% since that the least a program can reach.

Using unweighted barriers and boosters, the estimated prior mode for OTP and SFP was determined as 45.5% and 44.5% respectively. This was done as shown below;

$$\text{OTP Prior Mode (Unweighted)} = \frac{(0+20)+(100-29)}{2} = 45.5\%$$

$$\text{SFP Prior Mode (Unweighted)} = \frac{(0+19)+(100-30)}{2} = 44.5\%$$

2.3.3. OTP and SFP Histogram

In this method, the assessment participants who included the program staff, program implementers, and members of the SCHMT's were asked to develop the most probable histogram that would reflect the OTP and SFP program. The following was developed.

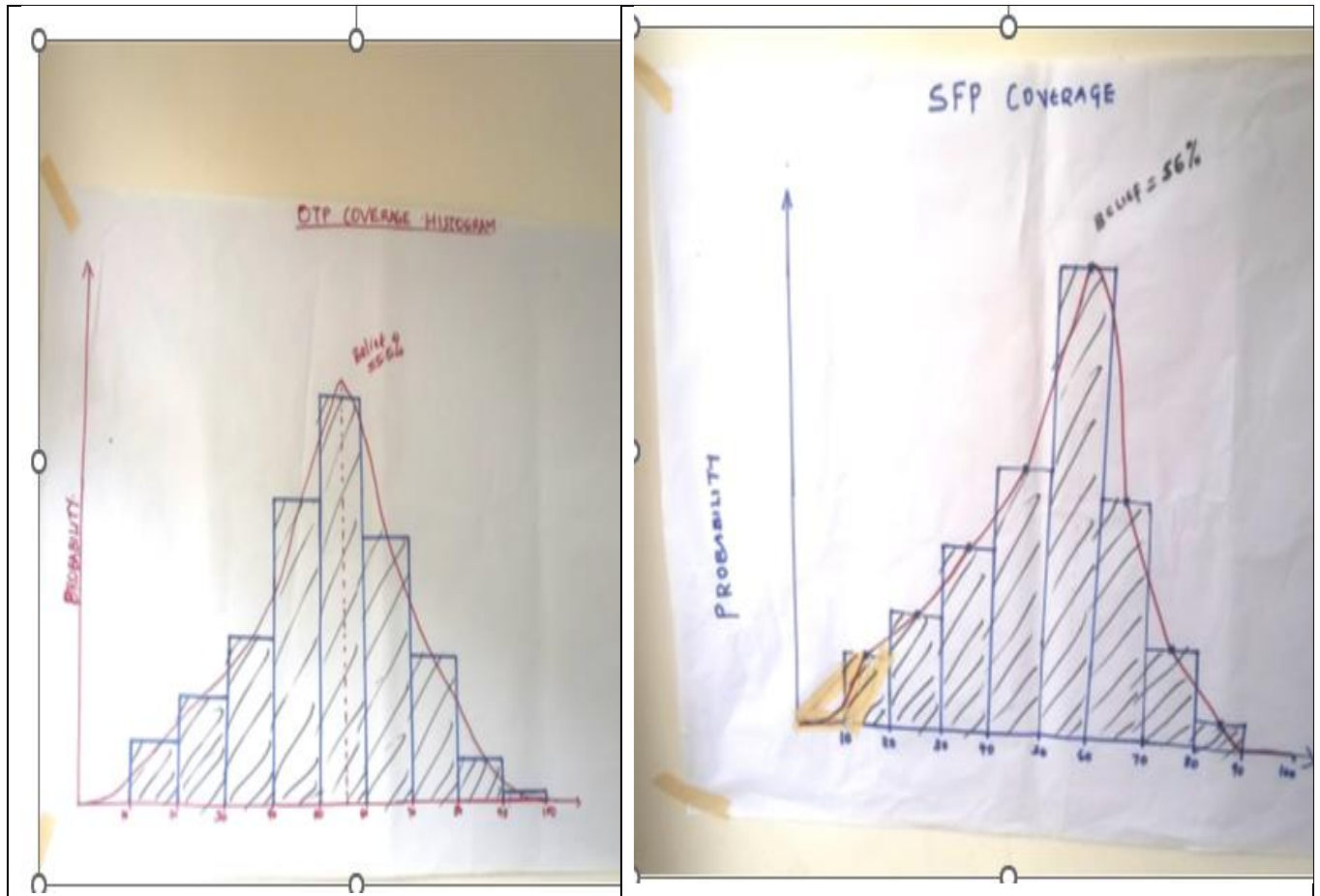


Figure 23: OTP and SFP histogram on coverage

2.3.4. OTP and SFP Concept Maps

The final method involved developing a concept map which tried to relate the barriers and boosters as obtained in stage 1 and 2 of this process. Using the concept map the number of positives and negatives were counted and then the total number of positive was added to 0% and the number of negatives were subtracted from 100% and the average determined. OTP (positives=35, Negatives=42) while SFP (Positives=37, Negatives=39). The following are snapshots of the OTP and SFP Concept Maps:

Using concept maps the estimated prior mode for OTP and SFP was determined as 46.5% and 49.0% respectively. This was done as shown in figure 24 below.

$$\text{OTP Prior Mode (Concept map)} = \frac{(0+35)+(100-42)}{2} = 46.5\%$$

$$\text{SFP Prior Mode (Concept map)} = \frac{(0+37)+(100-39)}{2} = 49.0\%$$

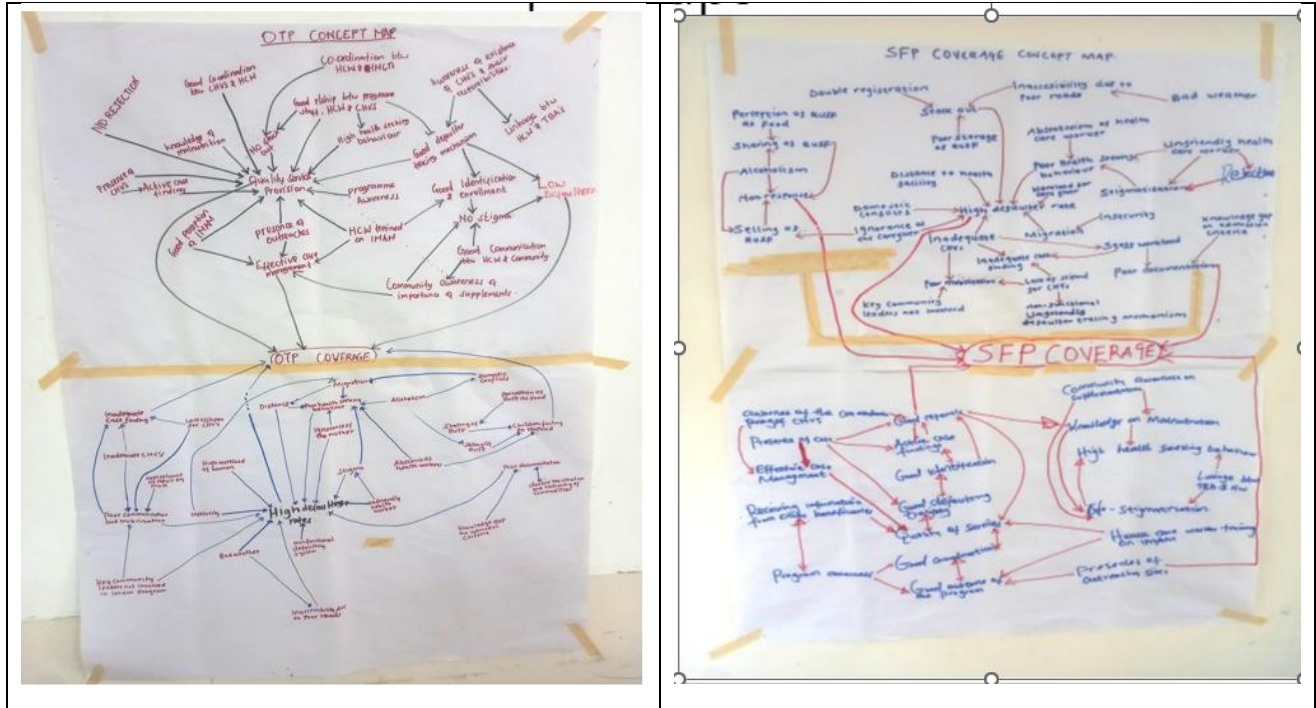


Figure 24: OTP and SFP concept maps

Using the above four methods, the overall OTP prior mode was determined as **49.6%** while the overall SFP prior mode was determined as **49.3%** as shown below.

OTP Average Prior mode = $(45.5\% + 51.0\% + 46.5\% + 55.5\% / 4) = 49.6\%$

SFP Average Prior mode = $(44.5\% + 47.5\% + 49.0\% + 56.0\% / 4) = 49.3\%$

OTP and SFP EXCEL Prior Calculator

Using the Excel prior calculator and using the above average prior modes an alfa of **14.9** and a betta of **16.3** were determined as shown in figure 25 below

OTP Excel prior calculator		SFP Excel prior calculator	
Data		Data	
Mode	0.496	Mode	0.493
Minimum	0.256	Minimum	0.256
Maximum	0.656	Maximum	0.656
Precision	0.13	Precision	0.10
	Usually 0.10 (10%) but can go up to 0.15 (15%)		Usually 0.10 (10%) but can go up to 0.15 (15%)
L	0.1792	L	0.1802
U	0.7072	U	0.7082
μ	0.48	μ	0.48
σ	0.09	σ	0.09
Alfa (α)	14.9	Alfa (α)	14.9
Beta (β)	16.3	Beta (β)	16.3

Figure 25: OTP and SFP Excel prior calculator

The above information was fed in SQUEAC bayes calculator to come up with Bayes plots for OTP and SFP as shown in figure 26 and 27 below.

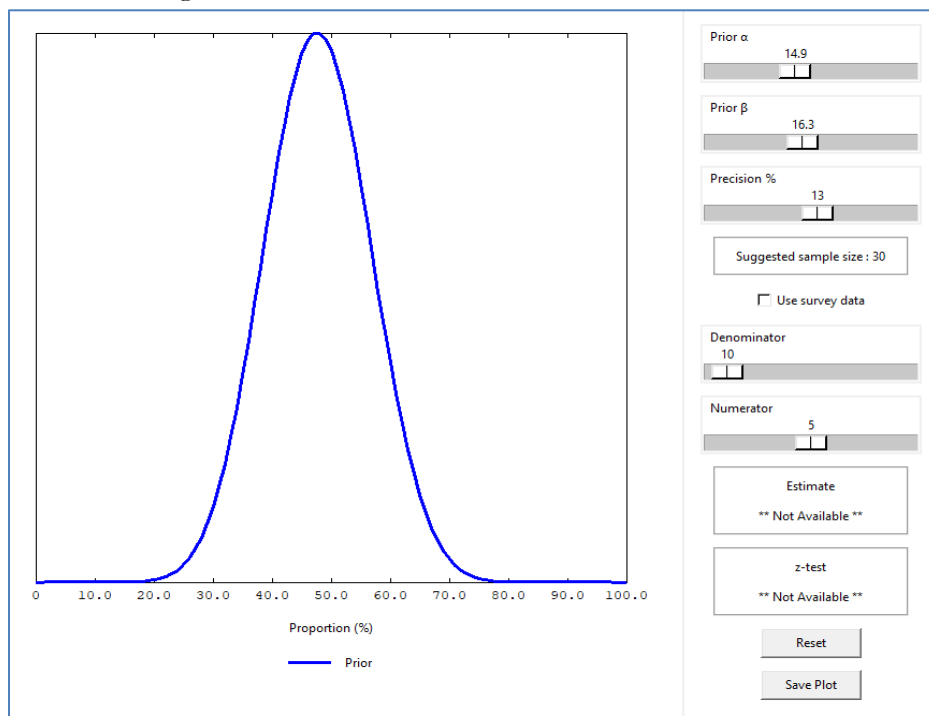


Figure 26: OTP Bayes plot

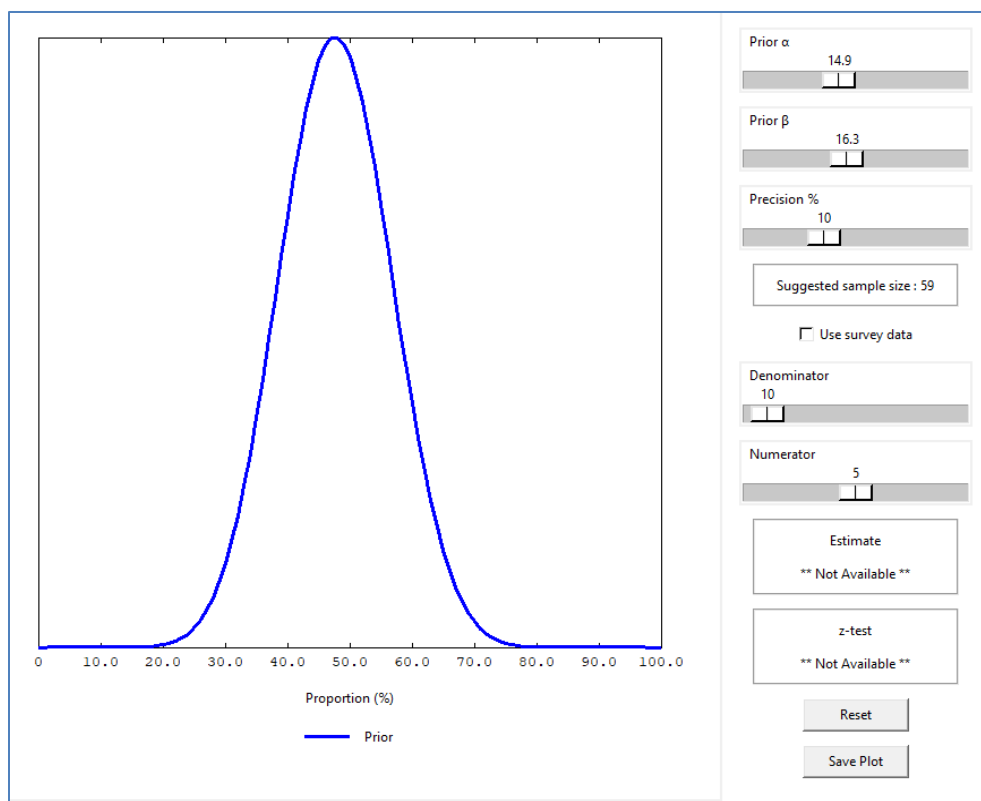


Figure 27: SFP Bayes plot

2.4. Wide Area (Likelihood) Survey

Once the prior mode was achieved and its shape parameters entered into the Bayes calculator a recommended sample size was generated as **30** for OTP and **59** for SFP. These were the recommended minimum number of wasted children for both SAM and MAM to be found during the likelihood survey to achieve the desired level of confidence in the posterior. Further, in order to determine the number of villages which would yield the required sample size for both programs, the following formula was used

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

For SAM, the number of villages was calculated as follows

Number of SAM cases, $n = 30$

Average village population = 473

% of children 6- 59m = 14.85% (which is 90% of children under 5)

SAM prevalence by MUAC = 0.8%

Therefore,

$$villages = \frac{30}{[473 * 0.1485 * 0.008]} = 54\ villages$$

For MAM, the sample size was calculated as follows

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

Number of MAM cases, n= 59 cases

Average village population = 473

% children 6- 59m = 14.85%

% MAM prevalence by MUAC= 11.2%

Therefore,

$$villages = \frac{59}{[473*(0.1485)*0.112]} = 8\ villages$$

Table 8 Wide area survey sample size

	OTP	SFP
Average Prior Mode	49.6%	49.3%
Alfa	14.9	14.9
Beta	16.3	16.3
Precision	13%	10%
Sample size	30	59
Prevalence by MUAC	0.8%	11.2%
Average village population	473	473
Proportion of under 5	14.85%	14.85%
Number of villages	54	8

The highest among SAM and MAM sample sizes as used as the overall sample size.

Therefore, the sample size for likelihood survey was 54 villages.

2.4.1. Likelihood Survey Sampling

Two stage sampling was applied in likelihood survey. Stage 1 involved selection of villages based on the health facility catchments. Since a recent village list based on the health facility catchment was available **spatially stratified systematic sampling** was used in this stage. Each village was linked to a health facility catchment. In total there were 392 villages in East Pokot and Tiaty East. This was divided by 54 (The highest among SAM and MAM villages) to obtain a sampling interval of 7.3. The first village was randomly selected between 1 and 7. In this case the first village was village 3 (Sismim) from the list. The rest of the villages were selected by alternating 7 and 8 until the 54th village was sampled.

In the second stage sampling, a complete enumeration of the sampled village was done. This involved screening of all the children aged above 6 months and below 5 years. This was done in order to capture nearly all or all the active SAM and MAM cases in the sampled villages. This method worked well particularly for the MAM cases who would be hard to identify through active case finding. The screening of the under-five was done through the MAUC tape and pitying of oedema. At the end of the wide area survey, no oedema case was found and hence all the active cases found during this exercise were through the MUAC measurement. The following is the results of the wide area survey. A total of **1947** children were screened out of which **79** met the criteria for SAM cases and **243** met the criteria for MAM summarized in table 9 below.

Table 9: Wide area survey results

SAM Cases	Number	MAM Cases	Number
SAM cases in program (Ci)	44	MAM cases in program (Ci)	125
SAM cases not in program (Cout)	26	MAM cases not in program (Cout)	87
Recovering cases in program (Rin)	9	Recovering cases in program (Rin)	36
Total Cases	79	Total Cases	243
Recovering cases not in Program (Rout)	2	Recovering cases not in Program (Rout)	8
Total	81		256

Recovering cases out of program were calculated as follows,

$$R_{out} = \frac{1}{3} \left[R_{in} * \left(\frac{C_{in} + C_{out} + 1}{C_{in} + 1} - R_{in} \right) \right]$$

For OTP

$$R_{out} \approx \left[\frac{1}{3} * \left(9 * \left(\frac{44 + 26 + 1}{44 + 1} \right) - 9 \right) \right] = 2$$

For SFP

$$R_{out} \approx \left[\frac{1}{3} * \left(36 * \left(\frac{125 + 87 + 1}{125 + 1} \right) - 36 \right) \right] = 8$$

2.4.2. Single Coverage Estimate

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

$$\text{Single Coverage} = \frac{C_i + R_i}{C_i + R_i + C_{out} + R_{out}}$$

Where C_i = Active cases in program

C_{out} = Active cases not in program

R_i = Active cases in program

R_{out} = Active cases not in program

Therefore;

$$\text{OTP Single Coverage (Likelihood)} = \frac{44 + 9}{44 + 26 + 9 + 2} = \frac{53}{81} = 65.4\%$$

$$\text{SFP Single Coverage (Likelihood)} = \frac{125 + 36}{125 + 87 + 36 + 8} = \frac{161}{256} = 62.9\%$$

Combining the results of the prior distribution and the likelihood distribution using conjugate analysis, a posterior estimate of **60.7% (51.6%- 69.4%)** for OTP and **61.3% (55.7%- 66.8%)** for SFP was obtained. This implies that the overall OTP coverage was 60.7% while the overall SFP coverage was 61.3%. The graphical representation of the coverage is shown below: There was no significant conflict between the prior and the likelihood in both OTP and SFP with a z value of -1.69, $p= 0.0909$ for OTP and z value of -1.61, $p= 0.1081$ for SFP.

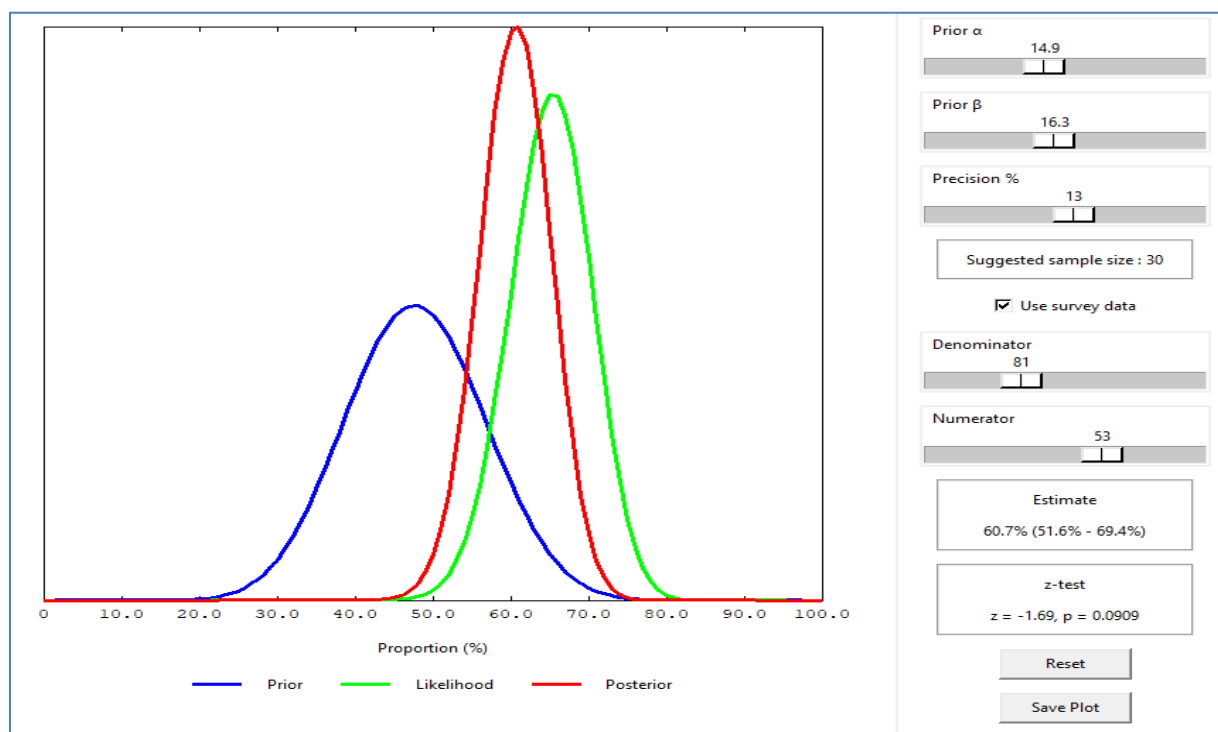


Figure 28: Single coverage Estimate for OTP

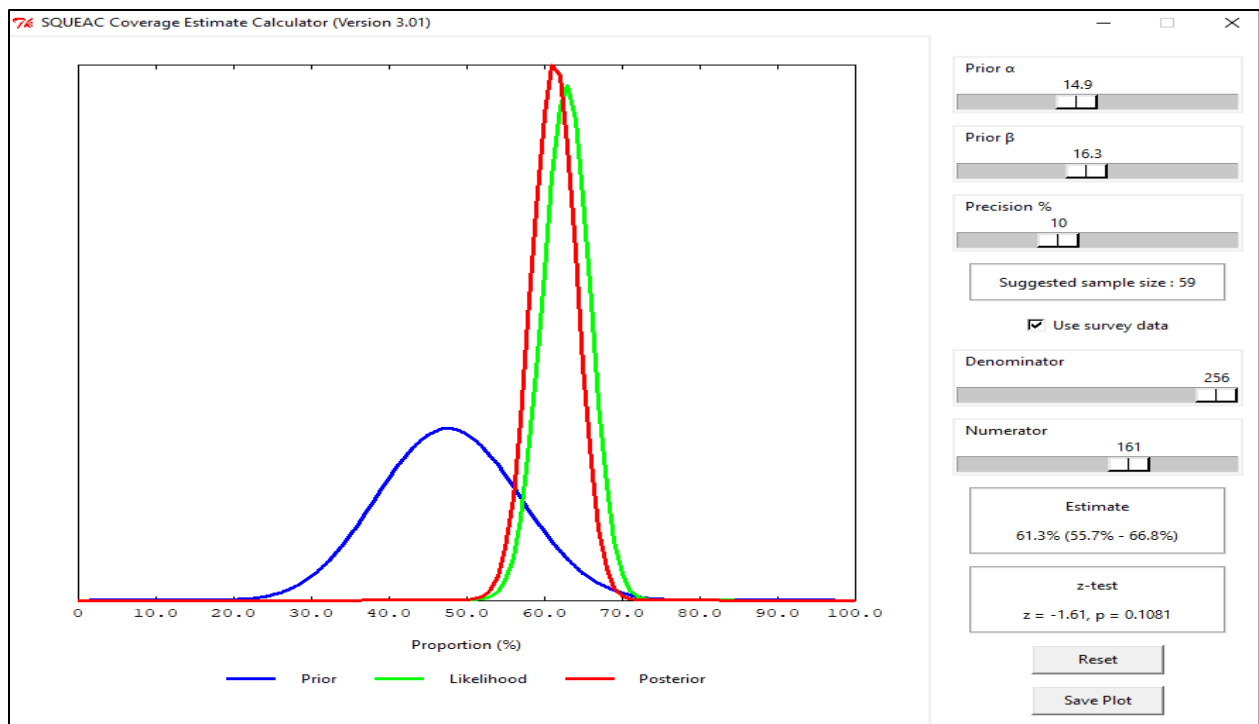


Figure 29: Single coverage estimate for SFP

2.4.3. Reasons for Non-Covered Cases

Table 10: Reasons for Non-Covered cases

Total number of children not enrolled in IMAM program	113	
		Percent
Awareness of the program by those not Enrolled	92	81.0%

Reasons for not bringing the child to the facility

Distance	53	57.6%
Too busy	9	9.9%
Inaccessibility	4	4.3%
Previous rejection	3	3.4%
Non-availability of means of transport	2	3.0%
Non-availability of financial resources for the journey	2	2.2%
Ashamed to enroll in the program	1	1.1%
The quantity of service too poor to justify to go	2	2.2%
The mother cannot travel with more than one child	1	1.10%
The guardian do not believe that the program can help the child	1	1.10%
The child was not given TCA date	2	2.20%
The child was below 6 months	3	3.30%

2.4.4. Met Need

Met Need OTP = Coverage (OTP)* Cure rate (OTP)

Coverage= 60.7% (0.607) while Average Cure rate= 68.6% (0.686)

Therefore,

$$\text{Met Need (OTP)} = (0.607 * 0.686) = 0.416 \text{ (41.6\%)}$$

Met Need SFP = coverage (SFP)* average cure rate for SFP

Coverage =61.3% (0.613) while Average Cure rate=60.9% (0.609)

Therefore,

$$\text{Met Need (SFP)} = 0.613 * 0.609 = 0.373 \text{ (37.3\%)}$$

3.0. Conclusion and Recommendations

3.1. Conclusion

The overall coverage for both OTP and SFP has improved compared to the previous coverage evaluation conducted in December 2019. OTP coverage has improved from 59% to 60.7% while SFP has improved from 56.5% to 61.3%.

Factors promoting accessibility and coverage included program awareness and positive opinion by the community, coordinated outreaches, good Coordination of IMAM services mainly through County and Sub Counties nutrition technical forums, Presence of support partners who include UNICEF, World Vision Kenya, Kenya Red Cross, Hellen Keller and World Food Program and lastly Community units with BFCI activities.

Factors that negatively affected IMAM coverage included non-optimal childcare practices, Poor health seeking behaviors, Sharing of RUTF/RUSF which is seen as food, Alcoholism, Distance to the service points, migration leading to beneficiaries moving further away from the service points, Inadequate health workforce, Poor documentation, Lack of stipend to CHVs leading to demotivation and thus affecting mobilization, Food insecurity resulting to selling and sharing of RUTF and RUSF and low prioritization of SFP and OTP attendance leading to defaulting and non-compliance/ non adherence of treatment protocols

3.2. Recommendations

To improve on the coverage, the following actions were recommended;

Barrier	Recommendation	Actor(s)	Timeline
Sub-optimal child care practices	<ul style="list-style-type: none"> Community education and information. Sensitize men on their role in child care Establish BFCI in all Community Health Units in the County Advocate for women empowerment through community groups to tackle maternal workload 	BCG/KRC/WFP UNICEF/WVI	Intergrated with ongoing interventions
Health worker's high workload and job stress	<ul style="list-style-type: none"> County to employ nutritionists and other HCW. 	BCG	June-August 2023
Shared and selling of RUTF/RUSF	<ul style="list-style-type: none"> National and County government together with Partners to put more resources on household food production and build the nutrition resilience ACSM activities to be carried out in the two sub counties. Educate caretakers/ mothers on the benefits of RUTF/ RUSF to discourage selling of commodities Sensitize the communities through Local FM radios, Conduct community dialogues through all CUs, Link the vulnerable to social protection/safety net programs to cushion them and avoid misuse of IMAM commodities 	BCG/KRC/WFP/ UNICEF/WVI	Ongoing but need to be scale up from May-July
Lack of stipend to CHVs	<ul style="list-style-type: none"> The CHSF that was passed as a bill at the county assembly to be implemented. 	BCG/MOH	July 2023
Distance	<ul style="list-style-type: none"> County to employ and deploy health care workers to all complete and nonfunctional facilities, Support integrated outreaches Establishment and operationalisation of IMAM sites especially to the far villages. 	BCG/KRC/WFP/ UNICEF/WVI	May –july 2023
Migration	<ul style="list-style-type: none"> Improve on resilience building thr' provision of alternative livelihoods Support mobile nomadic medical outreaches. 	BCG/KRC/WFP/ UNICEF/WVI	May 2023-2024
Poor health seeking ehavior	<ul style="list-style-type: none"> Community Sensitization on Health Seeking Behaviors Capacity building of CHVs & HCWs Men involvement. Sensitize men on their role in child care. 	BCG/KRC/WFP/ UNICEF/WVI	May-July 2023
Alcoholism	<ul style="list-style-type: none"> Sensitization of community on alcoholism Strengthening community policing –SBCC Intensify enforcement measures Improve on resilience building thr' provision of alternative livelihoods. 	BCG/KRC/WFP/ UNICEF/WVI	May-Sept 2023
Inadequate case finding	<ul style="list-style-type: none"> Stipend to CHVs on regular basis. Employment of CHVs to the County payroll. 	BCG	July 2023
Inadequate defaulter tracing	<ul style="list-style-type: none"> Stipend to CHVs on regular basis. Employment of CHVs to the County payroll. Training CHVs om IMAM as well as sensitization on importance of defaulter tracing. Ensure all HCW have been trained on imam. And MIYCN. Reporting tools to be constantly availed. 	BCG/KRC/WFP/ UNICEF/WVI	May-Sept 2023

RUSF stock out	<ul style="list-style-type: none"> • Training HCw on reporting and proper documentation for decision making. • Reducing workload by employing more staff. • Proper documentation. 	BCG/KRC/WFP/ UNICEF/WVI	Ongoing intergrated supervision and DQA – with ongoing support and
Poor documentation	<ul style="list-style-type: none"> • Training HCw on reporting and proper documentation for decision making. • Reducing workload by employing more staff. • Train all health workers on IMAM • Upscale support supervision, DQAs and feedback by program officers and SCHMT. 	BCG/KRC/WFP/ UNICEF/WVI	Ongoing
High work load by caregivers	<ul style="list-style-type: none"> • Community education and information. • Men involvement. • Reduce illiteracy level by forced school attendees aged 15 years and below. • Provision of school sponsorship. • Women Empower thr support groups. 	BCG/KRC/WFP/ UNICEF/WVI	May-June 2023

References

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

<http://www.coverage-monitoring.org/squeac-2/stage-2-analysis-of-findings/>

Annexes

Annex 1: List of Coverage Assessment Participants

#	Name	SQUEAC Designation	Cadre
1	JUDITH LONYANGAPETA	Enumerator	MOH Nutritionist-volunteer
2	DAICY LOLIMA	Enumerator	MOH Nutritionist-volunteer
3	NACHALE BETTY	Enumerator	MOH Nutritionist-volunteer
4	STEVE KEMOI KASES	Enumerator	MOH Nutritionist-volunteer
5	STELLAH CHEROP	Enumerator	MOH Nutritionist-volunteer
6	MALEKAT BARBEL	Team Lead	MOH Nutritionist-volunteer
7	SHARLINE CHEMWANDA ARUDE	Enumerator	MOH Nutritionist-volunteer
8	ERASTUS LOPENYO NAMUDET	Enumerator	MOH Nutritionist-volunteer
9	KELLY KIPLOMA LOTUW	Enumerator	MOH Nutritionist-volunteer
10	NANCY JEMATIA BOIYWO	Team Lead	MOH Nutritionist-volunteer
11	VALARIA CHEPKOPUS PEMBEE	Enumerator	MOH Nutritionist-volunteer
12	MESHACK LOHWALEE	Enumerator	MOH Nutritionist-volunteer
13	JOAN KAPKAYO	Enumerator	MOH Nutritionist-volunteer
14	ANGELA CHEROP	Enumerator	MOH Nutritionist-volunteer
15	BERNICE LORANGI	Enumerator	MOH Nutritionist-volunteer
16	KUKET GLADYS	Team Lead	MOH Nutritionist-volunteer
17	FAITH YATOR	Enumerator	MOH Nutritionist-volunteer
18	KROP JONATHAN LOKWIALUK	Team Lead	MOH Nutritionist-volunteer
19	MOSES LOSUTE	Enumerator	MOH Nutritionist-volunteer
20	FESTUS KIBET CHELIMO	Enumerator	MOH Nutritionist-volunteer
21	GLADYS CHEPKISUR SIANGIRO	Enumerator	MOH Nutritionist-volunteer
22	JUNE CHEMOSOP SAMALI	Enumerator	MOH Nutritionist-volunteer
23	GIDEON MURLEM	Team Lead	MOH Nutritionist-volunteer
24	JULIUS MENGICH	Enumerator	MOH Nutritionist-volunteer
25	MICAH KABANGA	Enumerator	MOH Nutritionist-volunteer
26	NANCY MAKAL	Team Lead	MOH Nutritionist-volunteer
27	ELIAS MARU	Team Lead	MOH Nutritionist-volunteer
28	STEPHEN SAPAN	Team Lead	MOH Nutritionist-volunteer
29	HEZRON LOMANY	Enumerator	MOH Nutritionist-volunteer
30	VIVIAN NGELEYO	Team Lead	MOH Nutritionist-volunteer
31	ANNE KIMWA	Supervisor	MOH-CNC
32	SIMON TUITOEK	Supervisor	MOH-CPHN
33	HOSEA K. SERECH	Supervisor	MOH-County Epidemiologist
34	KOCHONG JERUTO	Supervisor	MOH-SCHRIO
35	JANE AREKAI	Supervisor	MOH-SCNC
36	IRENE KIBET	Supervisor	MOH-SCHRIO
37	JOSEPH NAKOPIR	Supervisor	MOH-SCHSC
38	JANE SARICH	Supervisor	MOH- SCHSC
39	DAN NYAMBAJA	Supervisor	MOH-SCNC
40	JOSEPH NJUGUNA	Support Team	NITWG
41	CHIDA JABEZ	Support Team	Supporting Partner-WVK

Annex 2: Coverage Assessment Chronogram

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

Annex 3: Data Collection Guides

Active cases not in the program



Active%20cases%20n
ot%20in%20the%20p

Covered MAM and SAM cases



Covered%20MAM%2
0and%20SAM%20cas

Qualitative Questions



Qualitative%20Quest
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SAM and MAM cases Tally sheet



SAM%20and%20MA
M%20cases%20Tally%