Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) in Mandera County

May 2023

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Presentation Outline

1. METHODOLOGY
2. STAGE ONE
3. STAGE TWO
4. STAGE THREE
5. RECOMMENDATIONS & ACTION PLANS

METHODOLOGY

Background

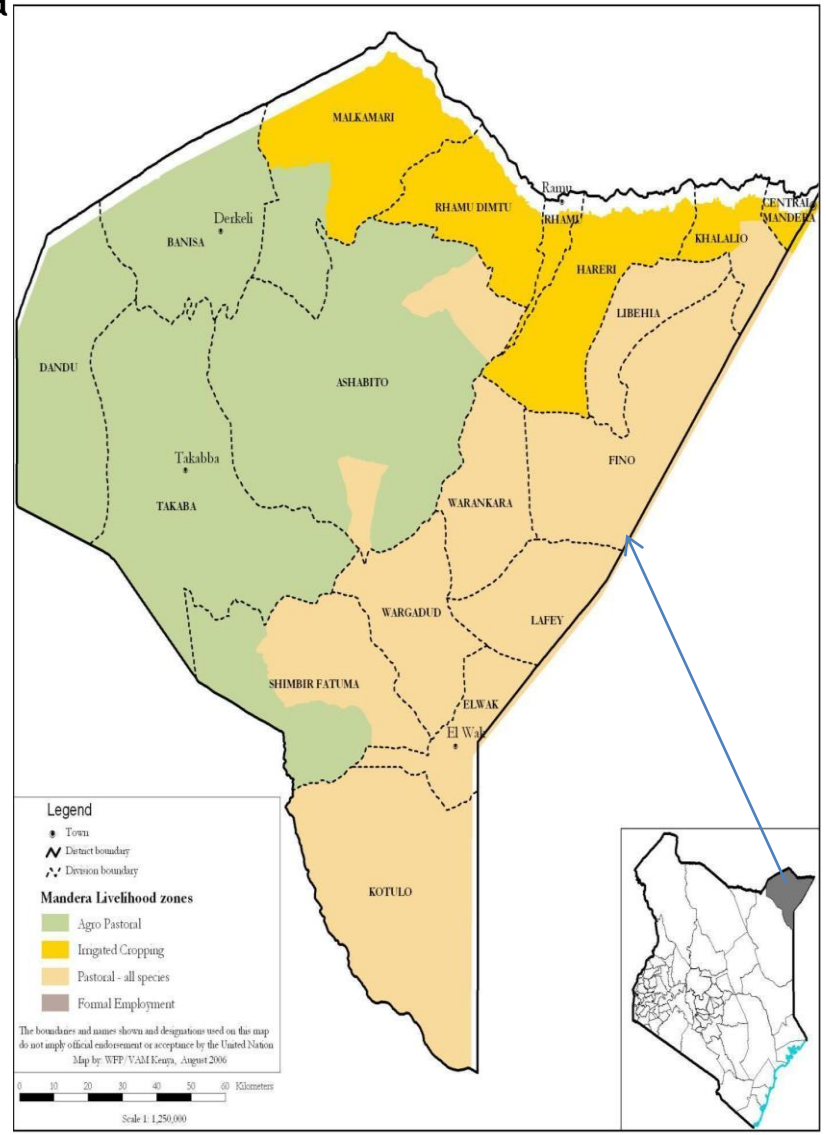
- Mandera County is in the Northeastern part of Kenya, it borders Ethiopia to the North, Somalia Republic to the East, and Wajir County to the South and South West

- It has 9 sub-counties, with an estimated population of **959,236** persons of which **15.5% (148,583)** are children less than 5 years of age (KNBS 2023 population projected)

- The County has three major livelihood zones that include pastoral all species livelihood zone, agro-pastoral livelihood zone and irrigated cropping zone

- According to January 2023 NDMA drought early warning updates, Mandera County is in the alarm drought phase classification with a worsening trend

- Classified as an ASAL, it is a drought prone and experiences recurrent, progressive and persistent drought. In addition, the county face challenges of insecurity threats from porous Somalia boarder.



Nutrition situation

- According to the January 2023 SMART survey, nutrition situation indicates 28.9% GAM and 7.4% SAM prevalence of acute malnutrition based on weight-for-height z-scores. The prevalence remain above 15 percent sphere standards emergency threshold.
- According to the SRA report February 2023, Mandera County nutrition situation among children under five years, remained critical (IPC AMN Phase 4) with a worsening projection to extremely critical phase (IPC AMN phase 5).
- GAM and SAM by MUAC was 8.5% & 0.9% respectively (Integrated SMART survey of January 2023)
- The county was classified as “Crisis” (IPC Phase 3, food security) as per the February 2023 SRA assessment report and projected to emergency phase (IPC phase 4)
- The EWS bulletin March 2023, indicates an ALARM phase and improving in all livelihood zones.

Nutrition situation cont. …

- Mandera County has 1 level V, 6 level IV hospitals, 19 level III health centers, 73 level II dispensaries, 24 Cus, and 38 nursing homes and more than 20 registered private clinics. No health facility run by FBO/missions.
- The county has 96 health facilities offering integrated management of acute malnutrition (IMAM) services that include ten stabilization centers i.e. Mandera county referral hospital, Elwak, Banisa,Takaba, Rhamu, Lafey and Kutulo sub county hospitals as well as Dandu, Kiliwehiri and Eymole health centres.
- In response to drought and to improve access the County has mapped 298 outreach sites of this 295 are supported by partners

Justification

- Since 2019, the county has not experienced a detailed review of IMAM program access and coverage. Therefore, there is need to conduct a suitable assessment . The county has identified a full SQUEAC methodology to be appropriate to provide detailed information on boosters and barriers to program access and coverage.
- Mandera is a drought prone area that experiences frequent, successive and prolonged drought, crops failure and livestock death. As such, the county requires continuous surveillance of nutrition situation
- According to SMART Survey conducted in January 2023, the County Nutrition situation was classified as critical (IPC-Phase 4) and projected to deteriorate to extremely critical (IPC-Phase 5) due to the worsening drought and food insecurity security situation

Justification cont..

- Drought situation is classified as Alarm and worsening in all livelihood zones (NDMA EWB, January 2023)
- The County has experienced five consecutive failed rainfall seasons
- No harvest was reported in agro-pastoral livelihood zones
- Pasture conditions are completely depleted, and the livestock body condition is poor with livestock sales below normal and there are high livestock deaths that were witnessed during the season

SQUEAC Assessment objective

- The main objective of the survey is to ascertain coverage of the IMAM program in Mandera county

Specific Objectives

1. To determine the Single Coverage for SAM and MAM program.
2. To capacity build MOH and key partners on how to conduct SQUEAC survey.
3. To identify boosters and barriers influencing IMAM program access and coverage
4. To compare and monitor progress since the previous SQUEAC was conducted in Mandera County in 2019.
5. To share lessons learnt and develop recommendations based on findings which will be incorporated in IMAM programming

Status of previous recommendations implementation

Program Barrier	Recommendation	Progress
RUTF/RUSF stock outs at the health facilities	• Improve reporting by health facilities. • Preposition of buffer stocks in all Sub Counties.	• Nutrition commodities supply chain was strengthen. LMIS system developed to enhance accountability, monitoring and resupply of RUTF. • 4 main hubs for RUTF buffer stock established to replenish facilities with stock outs. • County trained SCNOs and SCHRIOs on LMIS system
Weak Defaulter tracing mechanisms	• Engage CHVs to conduct defaulters tracing. • Educate the community on the signs and symptoms of malnutrition.	• Routine community awareness and sensitization including malnutrition topics done by CHVs, CMSGs, MSG. • Rollout of family MUAC activities at community enhance early identification and referral of malnourish children to the treatment centers.
Inadequate staff due to turn over	• Train more staff to avert capacity gaps. • Recruitment of more health workers based on need. • Redistribution of staff.	• The County and partners have trained 235 frontline health workers on the new IMAM modular guideline. • Mandera County Government recruited more technical health workers and operationalized critical care services such as 2 ICU/HDU, 1 renal unit and 1 CT centre. • Nutrition and dietetics workforce increased from approximately 60 to 109 nutritionist and dieticians.
Early Defaulting	• Educate community and caregivers on importance of continuing with treatment.	• Six out of seven sub-counties are implementing BFCI activities which emphasizes importance of completing the IMAM treatment for children under five and pregnant, lactating women. there is continuous health education sessions scheduled at facility and outreach sites in all sub-counties.

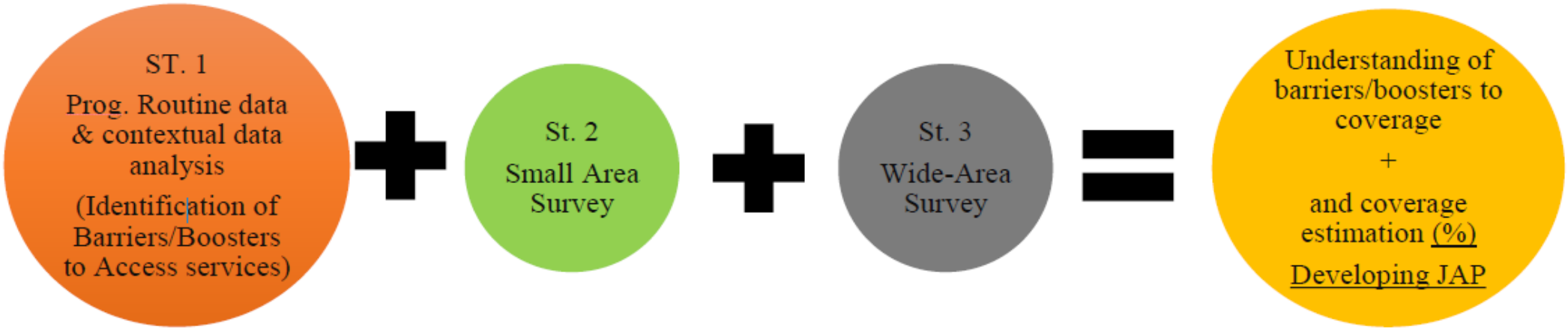
Status of previous recommendations implementation cont.

Program Barrier	Recommendation	Progress
Inadequate community screening and active case findings	• Quarterly mass screening in the County.	• Routine nutrition mass screening, onsite case treatment was conducted in April and another mass screening will be conducted in March, 2023.
Distance	• Operationalize more H/Fs • Establish outreaches in hard to reach areas.	• Mandera County Government, Ministry of Health has operationalized 23 more health facilities from 75 in 2019 to reduce distance health services access.
Migration due to drought	• Develop outreaches in mobile settlement by linking to migration patterns	• There are currently 298 integrated outreaches and 96 static health facilities implementing IMAM in the county. There are 20 mobile community outreaches targeting the nomadic population only.
Lack of knowledge on malnutrition signs	• Educate the community on the signs of the malnutrition. • Establish community units.	• There is continuous health education sessions scheduled at facility and outreach sites in all sub-counties. However, community units are inadequate and no new units operationalized.
Poor health seeking	• Conduct health and nutrition education in the community and H/Fs.	• More health facilities operationalized and 298 active integrated outreaches to increase access of healthcare services. More technical healthcare workers recruited to improve health service quality.
Poor documentation incomplete registers.	• Support capacity development of health workers on health records keeping.	• facilities have been provided with IMAM registers and reporting tools • All the seven sub counties have done quarterly supervision and likewise for the CHMTs who have done several joint supervisory visits.
No incentives for CHVs	• Advocate for allocation of funds to support CHVs incentives.	• CHS bill is at Mandera County assembly for final approval and county will allocate funding for its implementation • Majority of partners supporting CHVs implementing community activities have increased their daily incentives from Ksh.500 to Ksh.1000

Methodology

The SQUEAC investigation process involved **three-stage** techniques namely;

- **Stage 1:** Identification of areas of low and high coverage and reasons for coverage failure using routine program data and qualitative data
- **Stage 2:** In the second stage "small area surveys" was be conducted to confirm areas of high or low coverage. Active case *finding* using Mid Upper Arm Circumference, Weight for Height z-score and Oedema was be done to identify malnourished children.
- **Stage 3:** Provide an overall estimate of the program using Bayesian techniques



Stage 1: Quantitative and Qualitative Data

- The objective of the Stage was to identify areas of high and low coverage
- Triangulation of the quantitative and qualitative data done during the investigation process
- Exhaustive data collected and triangulated by **source** and **method** from the Sampled sites
- Boosters and barriers to IMAM coverage developed through the BBQ (Boosters, Barriers and Questions) tool.
- Several themes were explored including the following:
  - ✓ Understanding of malnutrition and knowledge of the signs of malnutrition
  - ✓ Pathways to health care and Knowledge on the existence of treatment
  - ✓ Appreciation of the service and quality of the care
  - ✓ Community mobilization
  - ✓ Barriers and boosters to access and coverage
  - ✓ Perception of coverage

Stage 2: Formulation and verification of hypothesis

- The objective of this stage was to confirm areas of high and low coverage based on the boosters and barriers identified in Stage one.
- An appropriate method was applied during the small area survey.
- LQAS used to calculate the decision rule

Stage 2 – Data Collection Tools
• Case finding procedure • Questionnaire for covered cases • Questionnaire for non-covered cases • Active case finding data collection form

Stage 3: Developing the prior and conducting a wide area survey

- **The PRIOR** was set based on the findings/ results of Stage One and Stage Two, using Bayesian SQUEAC. The methods involved in the PRIOR Setting was include:
  - A histogram drawn based on the results from Stages 1 &2
  - Unweighted Boosters & Barriers: The Boosters and Barriers was counted
  - Weighted Boosters & Barriers: The Boosters and Barriers was weighted in terms of their relative importance
  - A concept/mind map (either drawn manually or using X mind software) clarifies the interconnections between the barriers and boosters. The -ve and +ve arrows was summed to calculate a mode.
- An average of the 4 methods is the PRIOR, through which the prior estimation template gave **the Sample size**
- **Sample Size Calculation for Wide Area Survey (likelihood survey)**
  - It was use a two-stage sampling procedure:
  - ***1. Selection of the no. of villages for Wide Area Survey using the formula below;***

$$n_{villages} = \left\lceil \frac{n}{\text{average village population}_{\text{all ages}} \times \frac{\text{percentage of population}_{6-59\text{ months}}}{100} \times \frac{\text{SAM prevalence}}{100}} \right\rceil$$

  - ***And sample the required no. of villages using Spatially stratified systematic sampling***
  - ***2. In-community sampling:*** door-to-door case finding and active & adaptive case finding – using MUAC Tapes, weighing scales & Height boards

Stage 3: Developing the prior and conducting wide area survey Cont. …

SINGLE-COVERAGE ESTIMATOR was used to estimate Mandera IMAM Program coverage

Stage 3 - Data Collection Tools

- Prior estimation Template
- Bayes calculator
- Team composition & movement plan
- Case finding procedure
- Referral slip
- Questionnaire for covered cases
- Questionnaire for ***non***-covered cases
- Active case finding data collection form

Geographical Coverage of the survey

- The SQUEAC survey was conducted in the entire Mandera County covering all the seven sub counties.
- This to enable a comparison of the results with the 2019 SQUEAC results.
- Areas with insecurity was excluded from the survey, inaccessible due to the ongoing rains and deserted villages during the drought and the population have not came back.

Team Composition

- The assessment was composed of 8 teams of 3 members each (a team leader and 2 enumerators)
- Other members supporting the coverage assessment
  - CNC– Survey manager
  - CHRIO and SCHRIO – Survey coordinators
  - NITWG – offered remote technical support
  - Partners- Provided financial support
  - SCNOs – Survey team leaders

Quality Checks and Ethical Issues

- Daily Quality Checks daily was conducted for both qualitative and quantitative data.
- Qualitative data was validated by **Method** and **source**.
- For stage 1, Stage 2 and Stage 3, ODK was used to collect Quantitative data to ensure that only data that is required was collected and Skip patterns was placed to minimize Data cleaning.
- The County was ensure that consent is sought at the Household level and at the community level through all the stages.
- COVID-19 Measures was strictly followed of ensuring all enumerators mask up and sanitize at all times.

FIELD ACTIVITIES - MANDERA COUNTY SQUEAC SURVEY IMPLEMENTATION

MARCH to May 2023

TASK	No. of Days	14th March	15th March	16th-22nd	23rd	24th - 26th	27th	28th	29th	30th	31st	1st April	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Resource Mobilization in the counties for funding and capacity Gap	Whole month of Feb and March																				
Presentation of the ROAD MAP (Methodology) to the National SQUEAC Taskforce for Review & Approval	1																				
Facility data collection:- Sensitization of Sub-counties HRIOs and SCNOs on facility level data extraction tools	1																				
Quantitative data collection from 96 health facilities registers and cards, Extraction of IMAM data from KHIS in the last 2 years	7																				
Travel of enumerators, TL and facilitators for training	1																				
Stage One: Training of enumerators and TL on SQUEAC methodology, stages and qualitative data collection tools	3																				
field qualitative data collection	4																				
Stage2: Hypothesis formulation and testing sensitization on the tools SQUEAC team	1																				
Small area survey data collection/hypothesis data collection	2																				
PRESENTATION OF STAGE 1 & 2 FINDINGS TO NATIONAL SQUEAC TASKFORCE FOR APPROVAL BEFORE MOVING TO STAGE 3	2																				
Prior development and prepartion for stage 3 (various methods analysis)	1																				
Stage 3: Wide Survey data collection	5																				
Presentation of prelimenary results at County level	1																				
Writing of final report and Submission to NITWG																					
TOTAL NO. OF DAYS	30																				

FINDINGS

STAGE ONE FINDINGS

1). IMAM PROGRAM QUANTITATIVE DATA ANALYSIS

2). QUALITATIVE DATA ANALYSIS

PROGRAM QUANTITATIVE DATA

Gaps identified in Quantitative Data

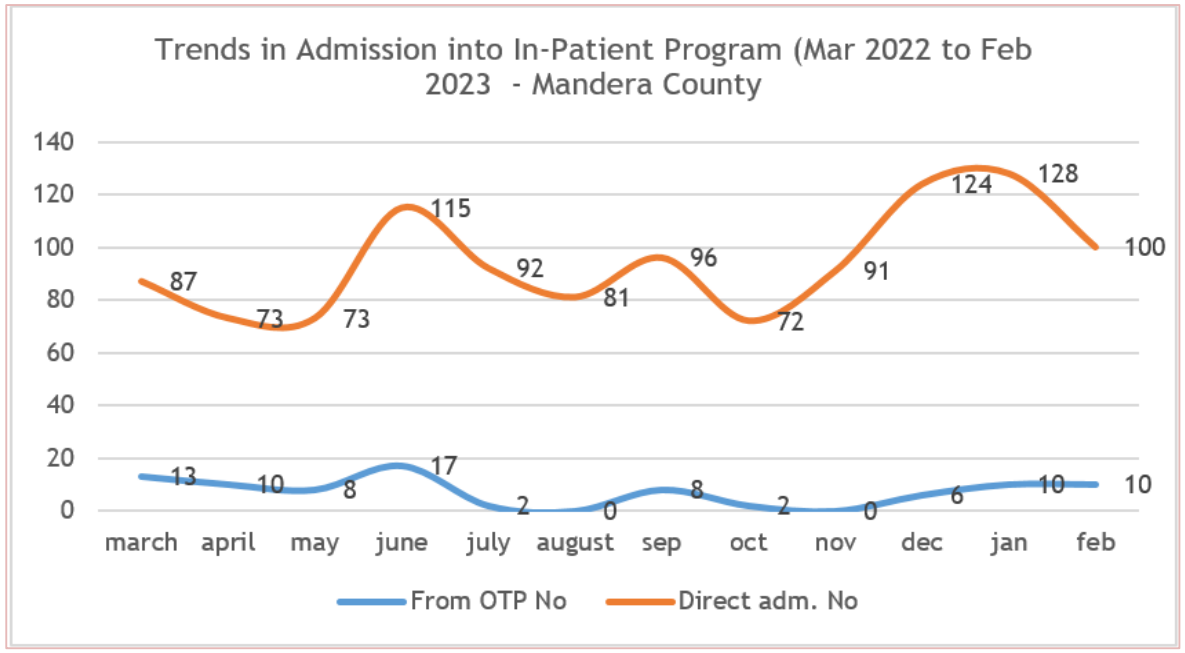
Data Collection method:

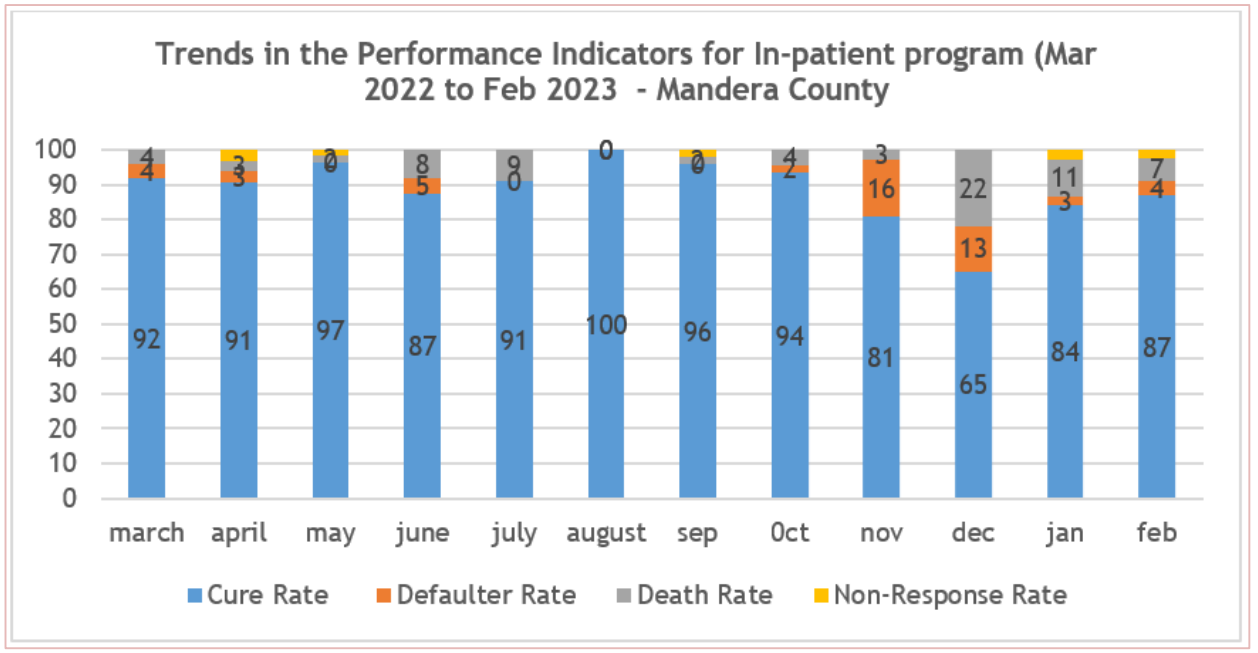
- Quantitative data was obtained from In-patient, Out-patient Therapeutic Program and Supplementary Feeding Program beneficiaries' registers, monthly nutrition program reports, stock bins, stock cards and ration cards from all from all the IMAM implementing health facilities.
- Some of the gaps identified during the investigation included missing discharge criteria, lack of referral slips and lack of ration cards.

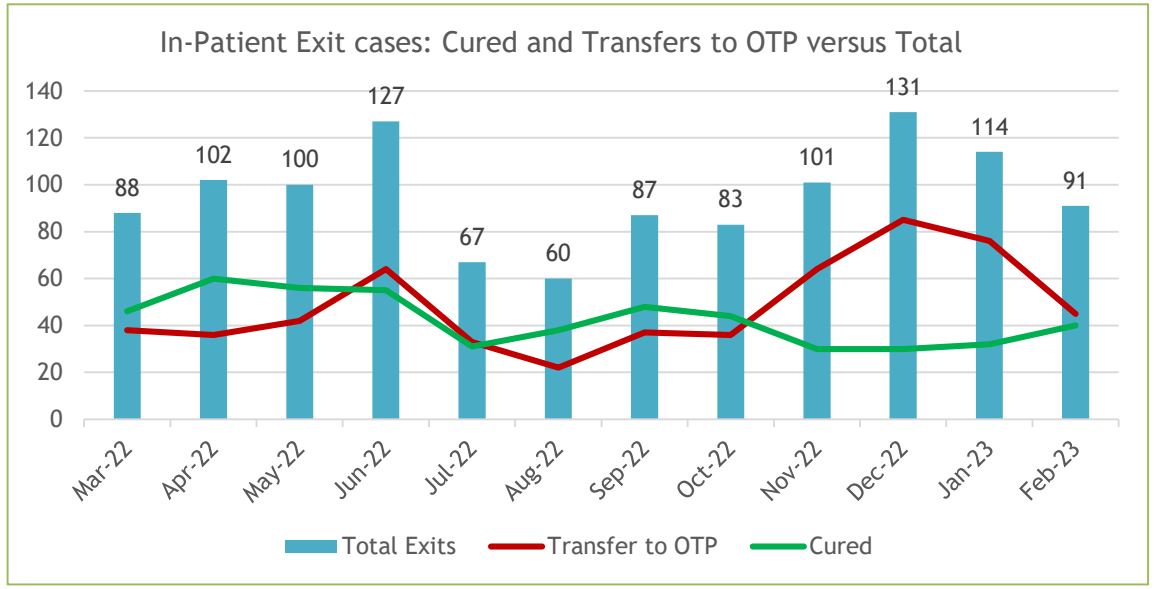
Gaps identified :

- There were missing return (TCA) dates in some registers
- Cure rates were well captured; However, Some defaulters overstayed in the registers without being exited
- In some places, amount of RUTF/RUSF rations issued was not indicated in the client records.
- No beneficiary ration cards and upon enquiry, the county Health Department had not factored in to procure more. Documentation was being done in out-patient treatment booklet or MCH booklets. The CNC could not confirm whether there were plans yet by the county department of health to procure ration cards.
- Admission and discharge criteria in the sampled documents were well recorded according to the IMAM guidelines. However, a lot of mix up in the criteria was observed during quantitative data analysis
- Monthly reports well filled in some facilities although most of them did not tally with the source documents (beneficiary registers).
- In most SDPs there were no CHV activity records; it seemed that there were few cases of referral by CHVs as evidenced by filed MOH 100 referral slips.

Overview of the In-Patient Program – Mandera County



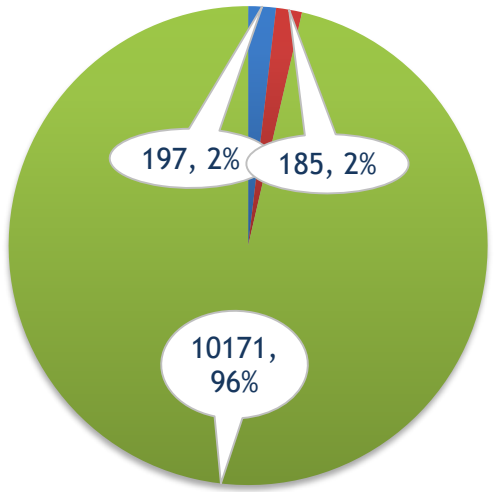




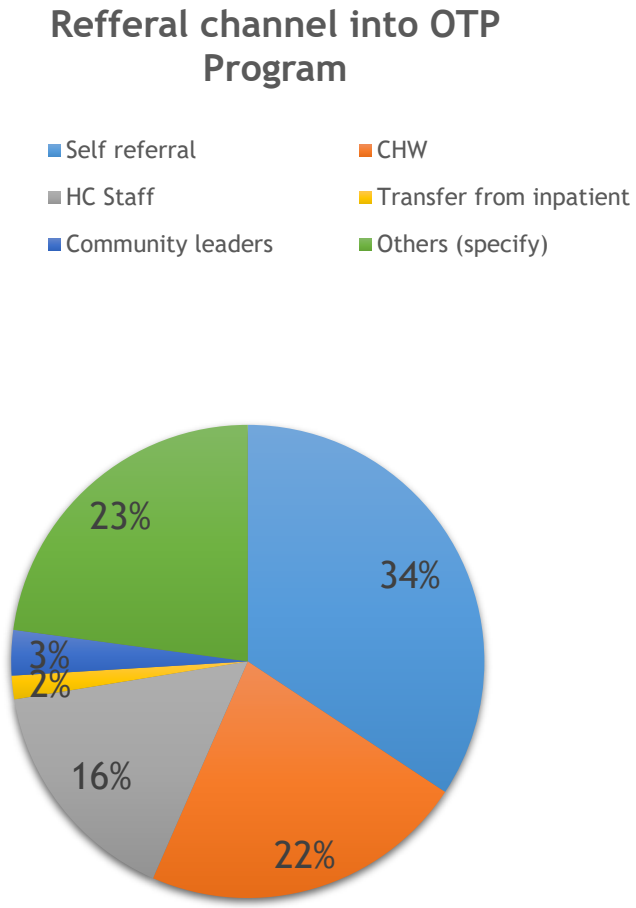
- Most of the admissions were direct; minimal transfers from OTP program indicate minimal cases of deterioration while in outpatient program.
- Main reason for admission was severe diarrhea
- More than 50% of the total exits were transferred to OTP – good transitioning
- Program performing within the SPHERE thresholds except in November & December 2022 and January 2023
- Death attributed to late seeking for medical assistance when the SAM case(s) is critical
- Defaulters refused treatment

Out-Patient Therapeutic Program (OTP) - Mandera County

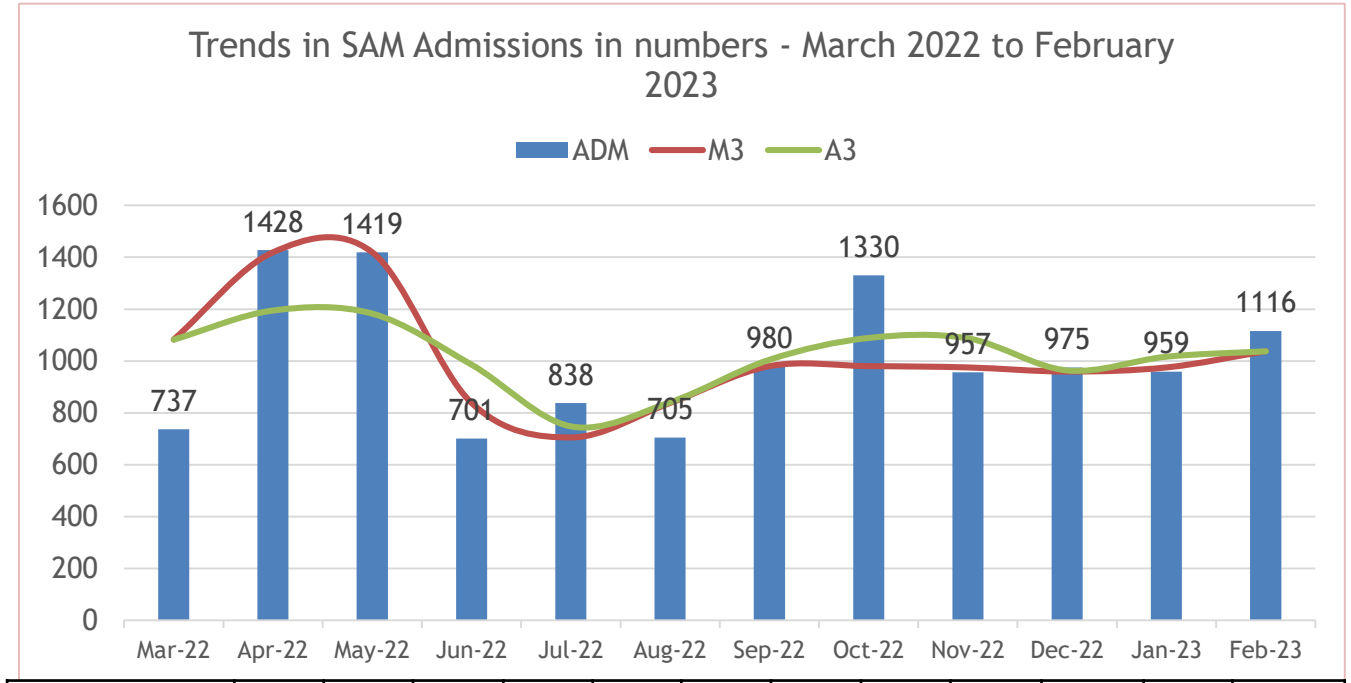
Admission criteria and referral source and channels



- Most of the admissions were direct; minimal transfers from SFP program indicate minimal cases of deterioration while in outpatient program.
- The predominant admission criteria into OTP is WHZ score (68% of the total admissions), followed by MUAC criteria (32%).
- Most admissions were self-referrals



Out-Patient Therapeutic Program (OTP) - Mandera County



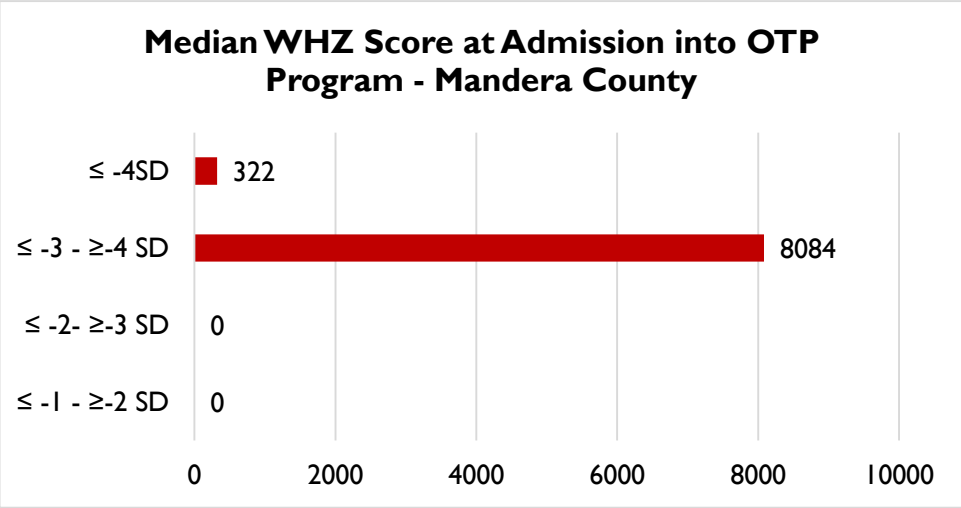
Activity	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23
Food/Milk availability		+	+						+	+		+
Diseases (measles and Diarrhea)	+	+++	+	+++	+++	+		+	+++	+	+	+++
Dry Seasons (severe drought)	+		+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wet Seasons (short rain)		+										
Planting /weeding			+	+								
Long & Short rains harvest						+						
Workload & Land prep		+++	+									
Insecurity		+++								+++	+++	+
Migration (lean period			+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
High Food Prices	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wedding (holidays)		+++				+++				+++		
Campaign			+++	+++	+++	+++	+++					

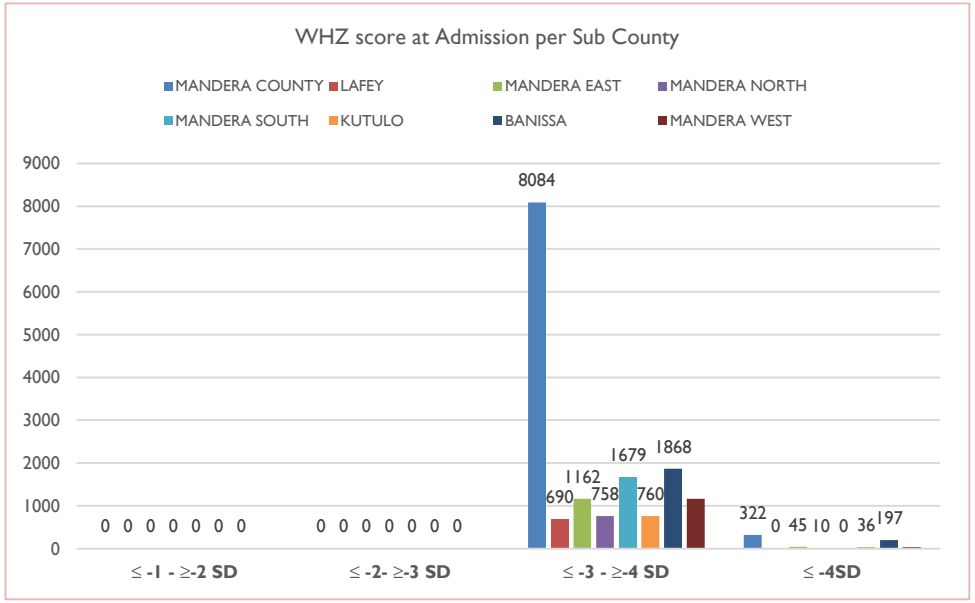
Key: + - low/mild ++ - Moderate +++ - High

- High no. of admissions into OTP observed during the analysis period
- Increase in caseloads coincide with high morbidities, severe drought, influx of the in-migrants and high food prices.
- The highest number of admissions into OTP observed in April, May and October 2022, and February 2023 following exhaustive case-finding activities in malnutrition hotspot areas.

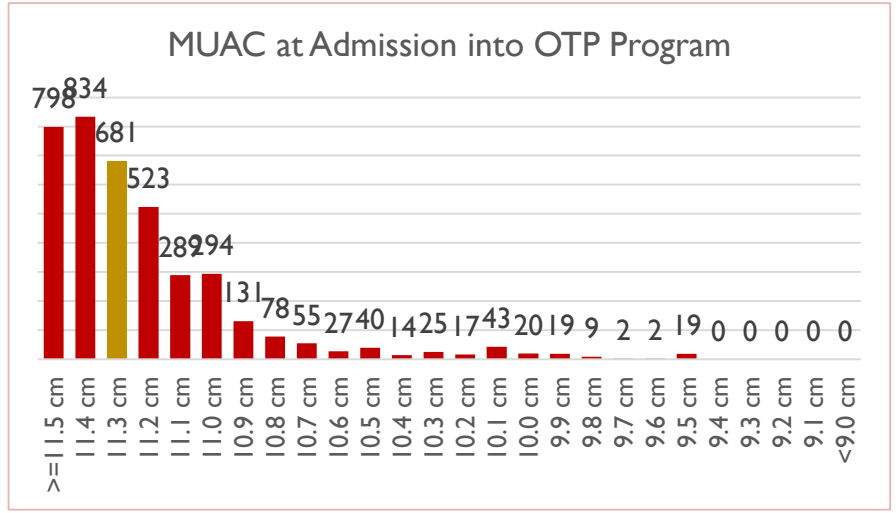
Out-Patient Therapeutic Program (OTP) - Mandera County

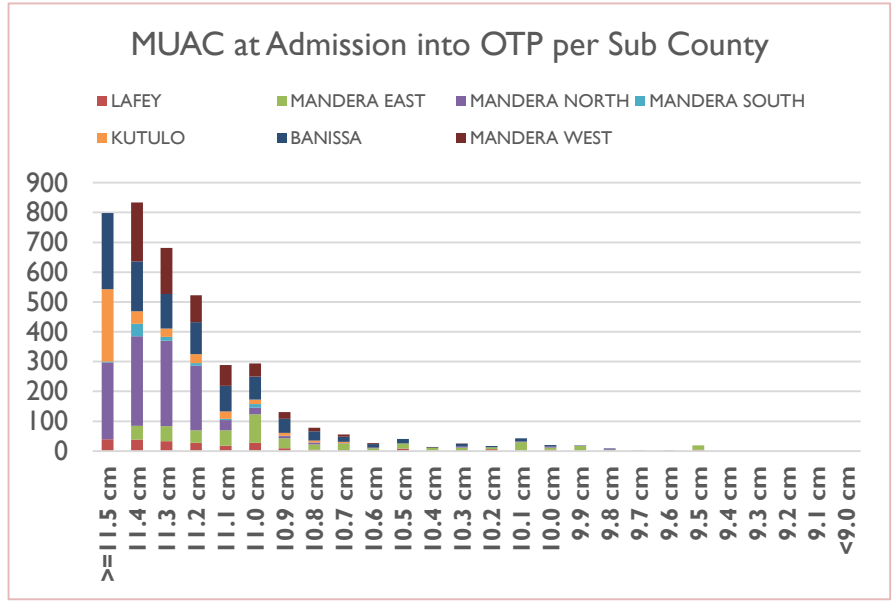
Admission Criteria: WHZ score and MUAC at Admission





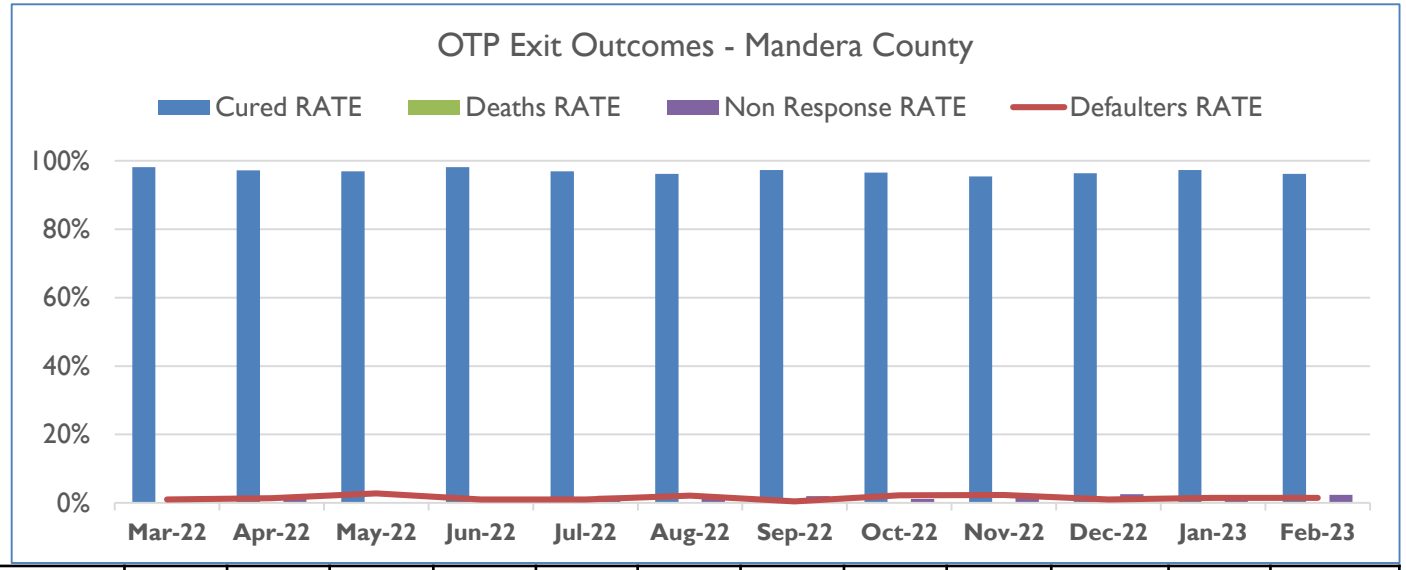
- Most admissions are at <-3SD - ≥-4SD (median value 4,203) across the seven (7) sub counties, indicating timely and correct admission criteria.
- Few late admissions of ≤-4SD (in Banissa, Kotulo, Mandera East) indicating poor health seeking behavior.
- The median MUAC is 11.3cm (median value is 1,960), indicating early admission into Program when cases have not deteriorated.





Out-Patient Therapeutic Program (OTP) - Mandera County

OTP Exit Outcome: Trends

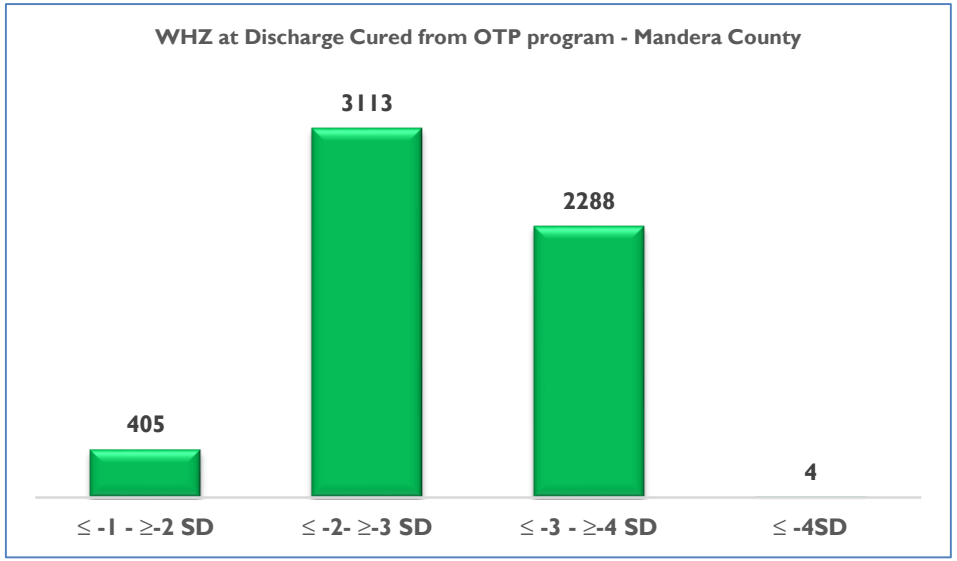


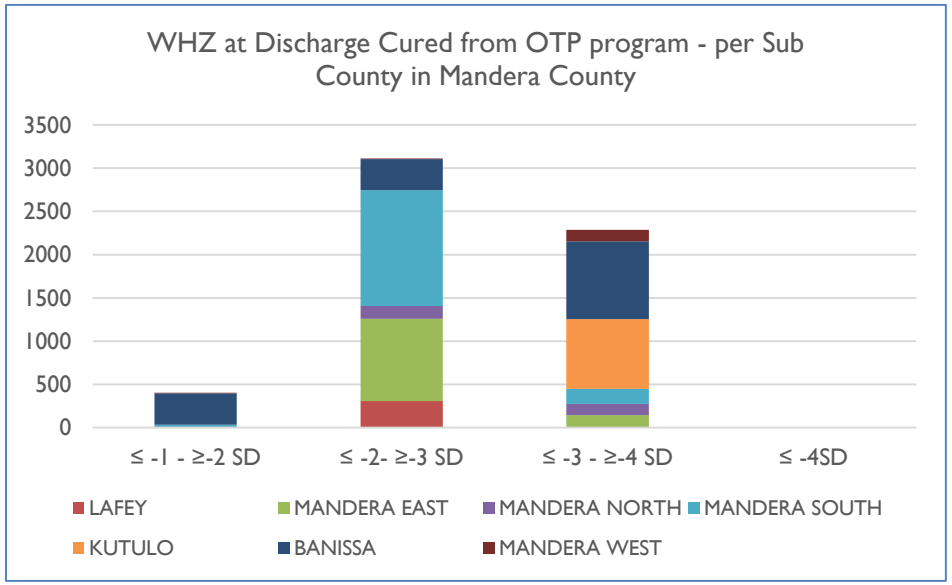
Activity	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23
Food/Milk availability		+	+						+	+		+
Diseases (measles and Diarrhea)	+	+++	+	+++	+++	+		+	+++	+	+	+++
Dry Seasons (severe drought)	+		+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wet Seasons (short rain)		+										
Planting /weeding			+	+								
Long & Short rains harvest						+						
Workload & Land prep		+++	+									
Insecurity		+++								+++	+++	+
Migration (lean period			+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
High Food Prices	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wedding (holidays)		+++				+++				+++		
Campaign			+++	+++	+++	+++	+++					
Key: + - low/mild		++ - Moderate			+++ - High							

- The OTP achieved on average over 90% recovery rate throughout the 12 months under review.
- Indicating good program performance
- Sub counties with high defaulter rates are Mandera West (May & June 2022), Kotulo (November 2022) and Mandera East (August 2022) associated with migration

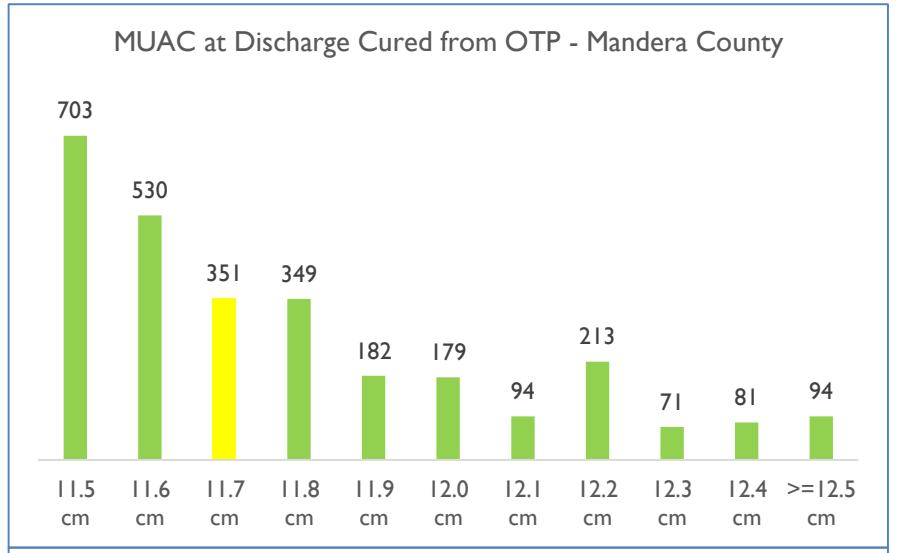
Out-Patient Therapeutic Program (OTP) - Mandera County

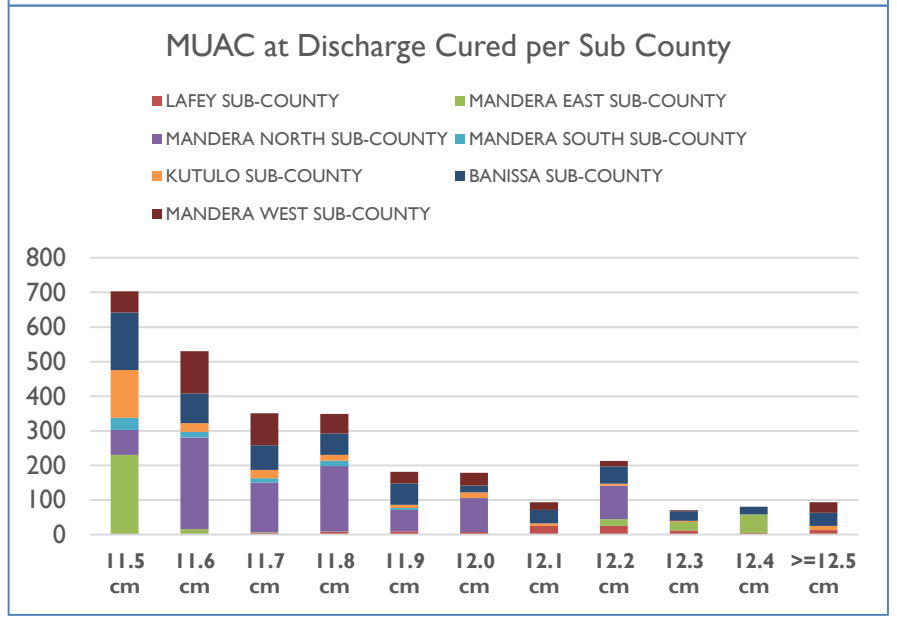
OTP Exit Outcome: MUAC and WHZ score at Discharge CURED





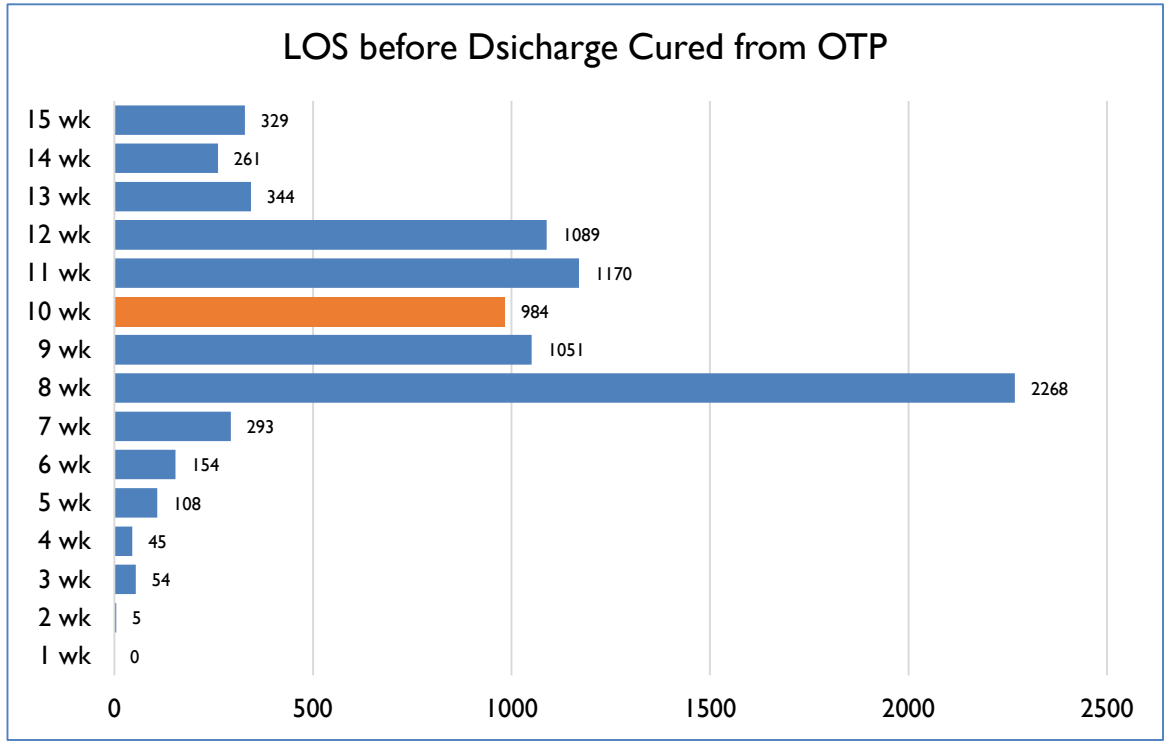
- The median WHZ score at discharge cured being <-2SD - ≥-3SD (median value is 2,905).
- A big no. of discharges while still some indicating poor adherence to treatment protocol (majorly in Banissa and Kotulo)
- The median MUAC at discharge cured from OTP is 11.7cm (median value = 1,424)
- More cases discharged immediately upon reaching the discharge criteria; likely to become relapses in OTP.

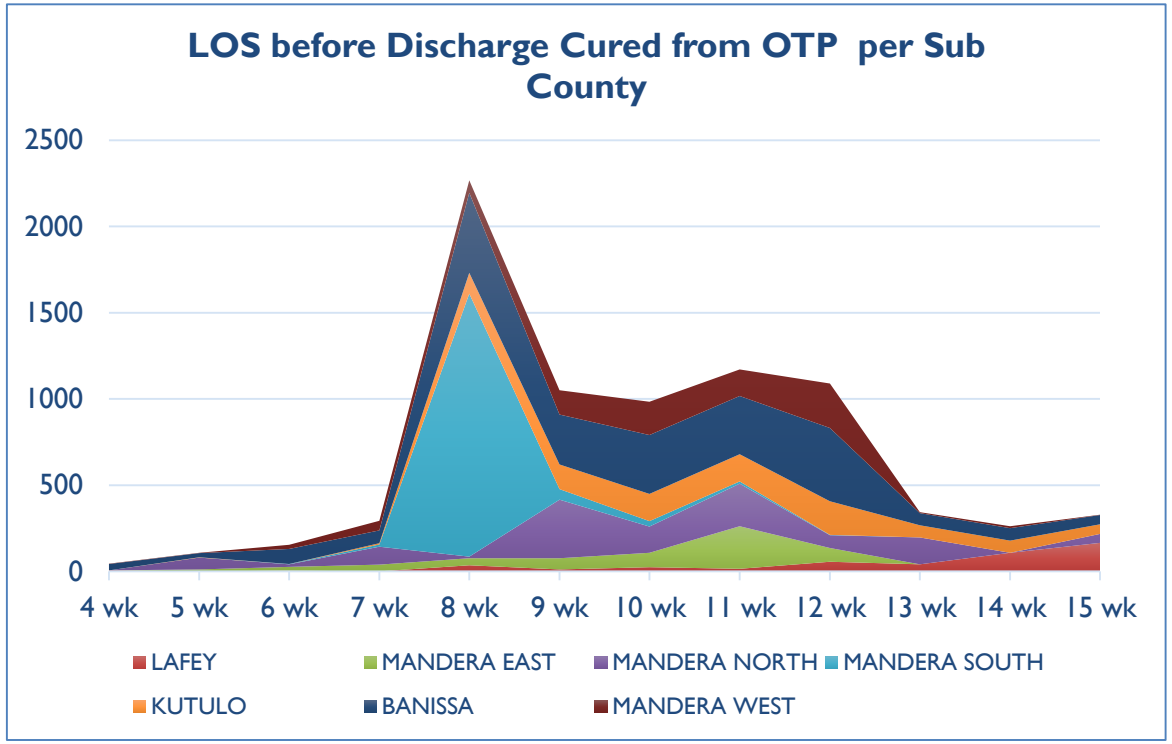




Out-Patient Therapeutic Program (OTP) - Mandera County

OTP Exit Outcome: Average Length of Stay at Discharge CURED

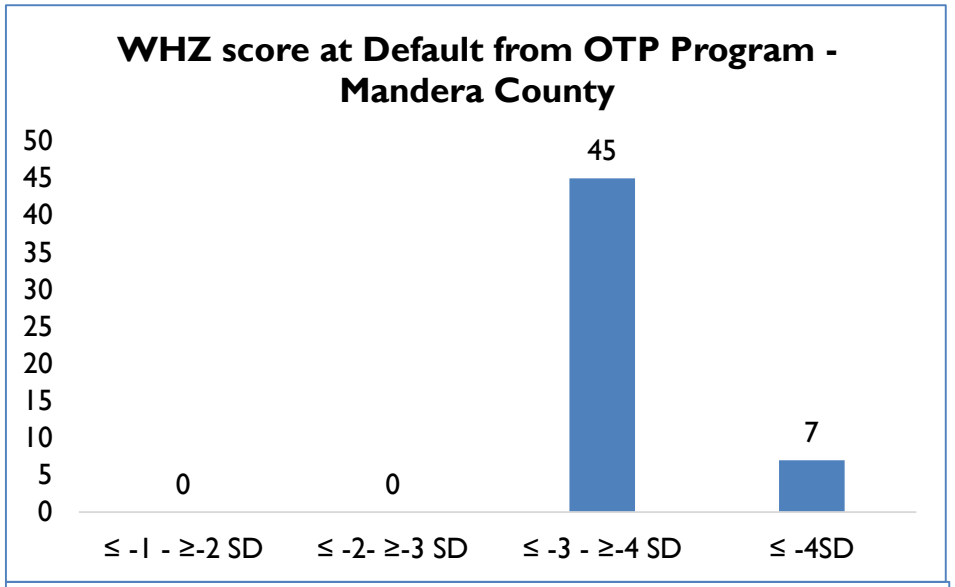


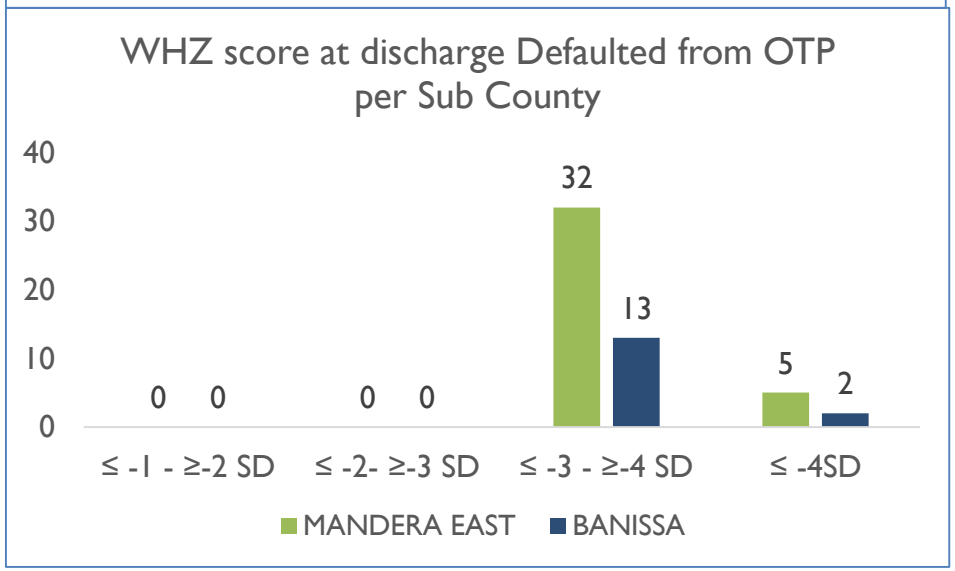


- The Median average LOS in OTP Program before discharge cured was 10 weeks, beyond the recommended 8 weeks
- Very early discharge as cured was observed with cases being discharged in less than 8 weeks (in some H/Fs in Banisa, Mandera West and Mandera North)

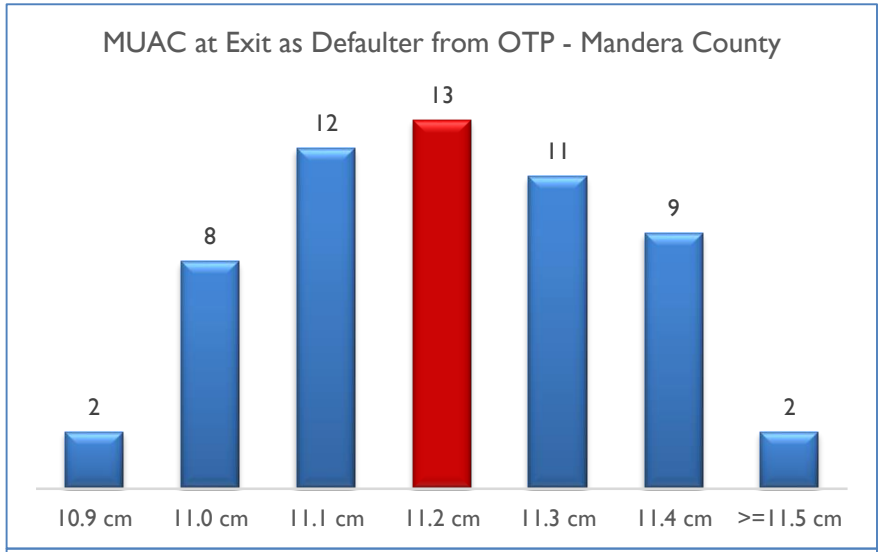
Out-Patient Therapeutic Program (OTP) - Mandera County

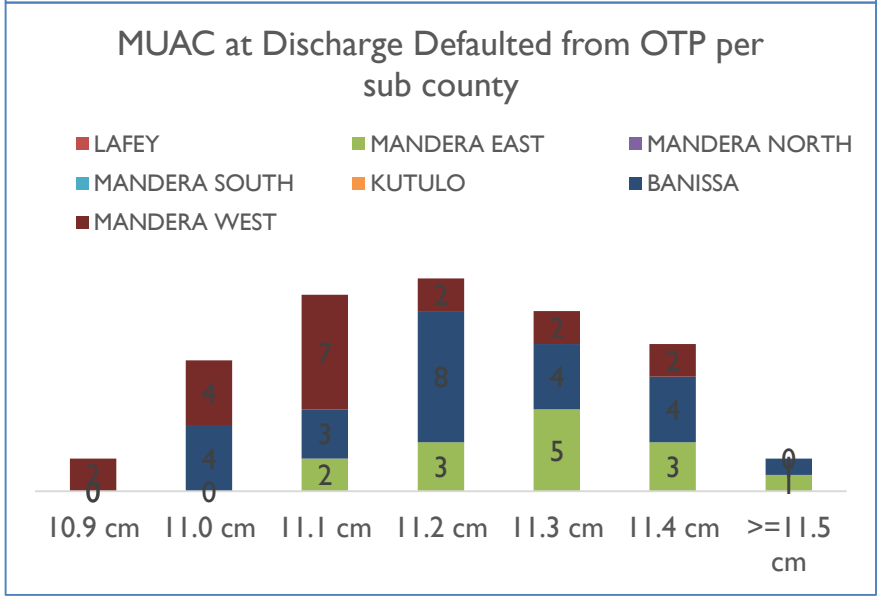
OTP Exit Outcome: MUAC and WHZ score at Discharge DEFAULTED





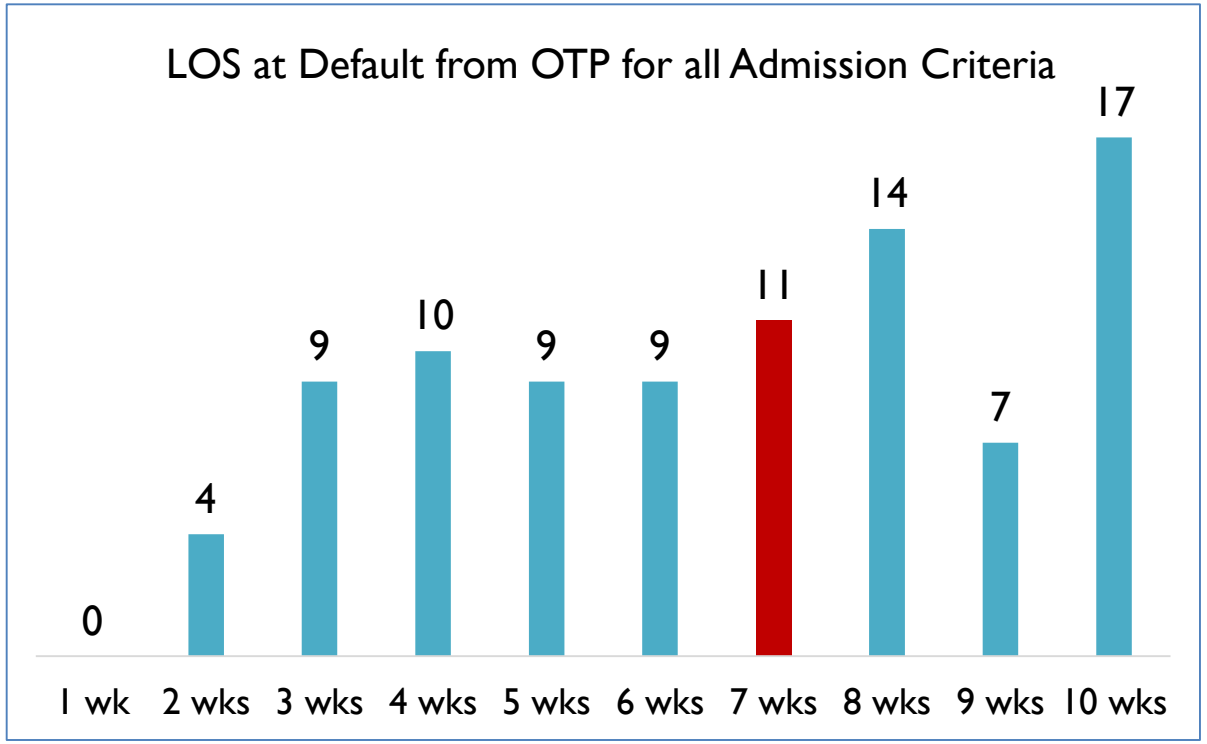
- The median WHZ score at discharge defaulted is <-3SD - ≥-4SD.
- A big no. of discharges while still SAM, indicating poor adherence to treatment protocol (majorly in Banissa and Kotulo)
- The median MUAC at defaulting from OTP program was 11.2cm, indicating that cases were defaulting while still SAM (majorly in Mandera West, Banissa and Mandera East).

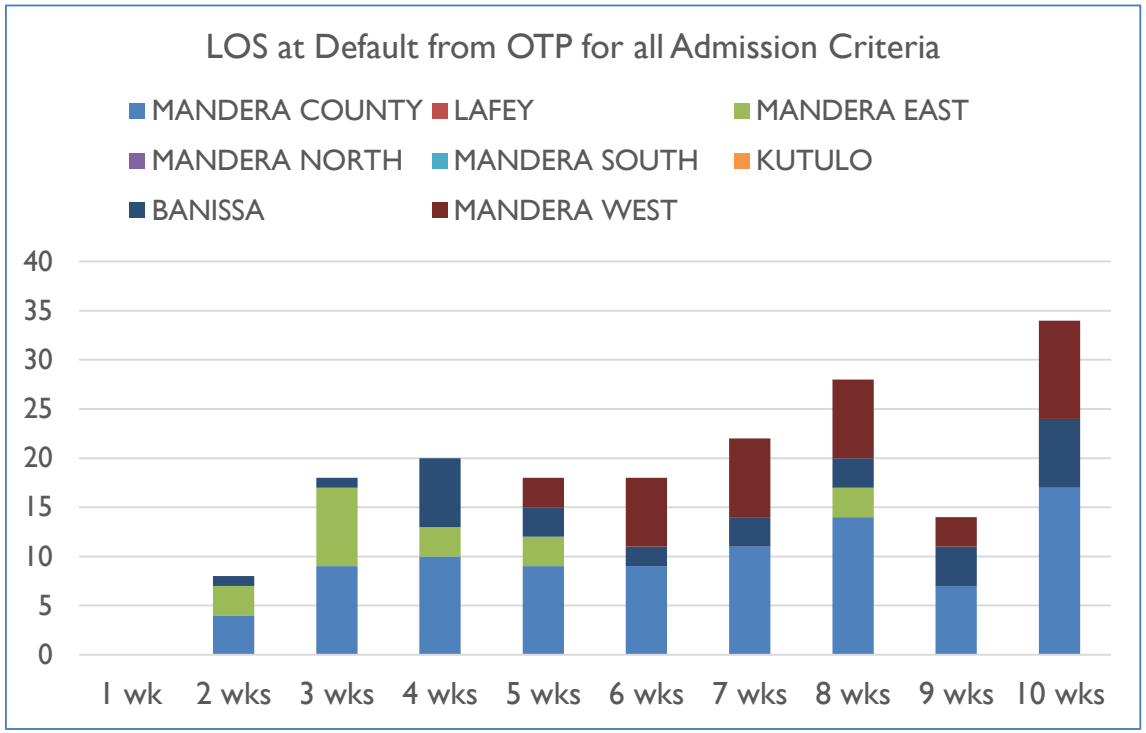




Out-Patient Therapeutic Program (OTP) - Mandera County

OTP Exit Outcome: Average Length of Stay at Discharge DEFAULTED

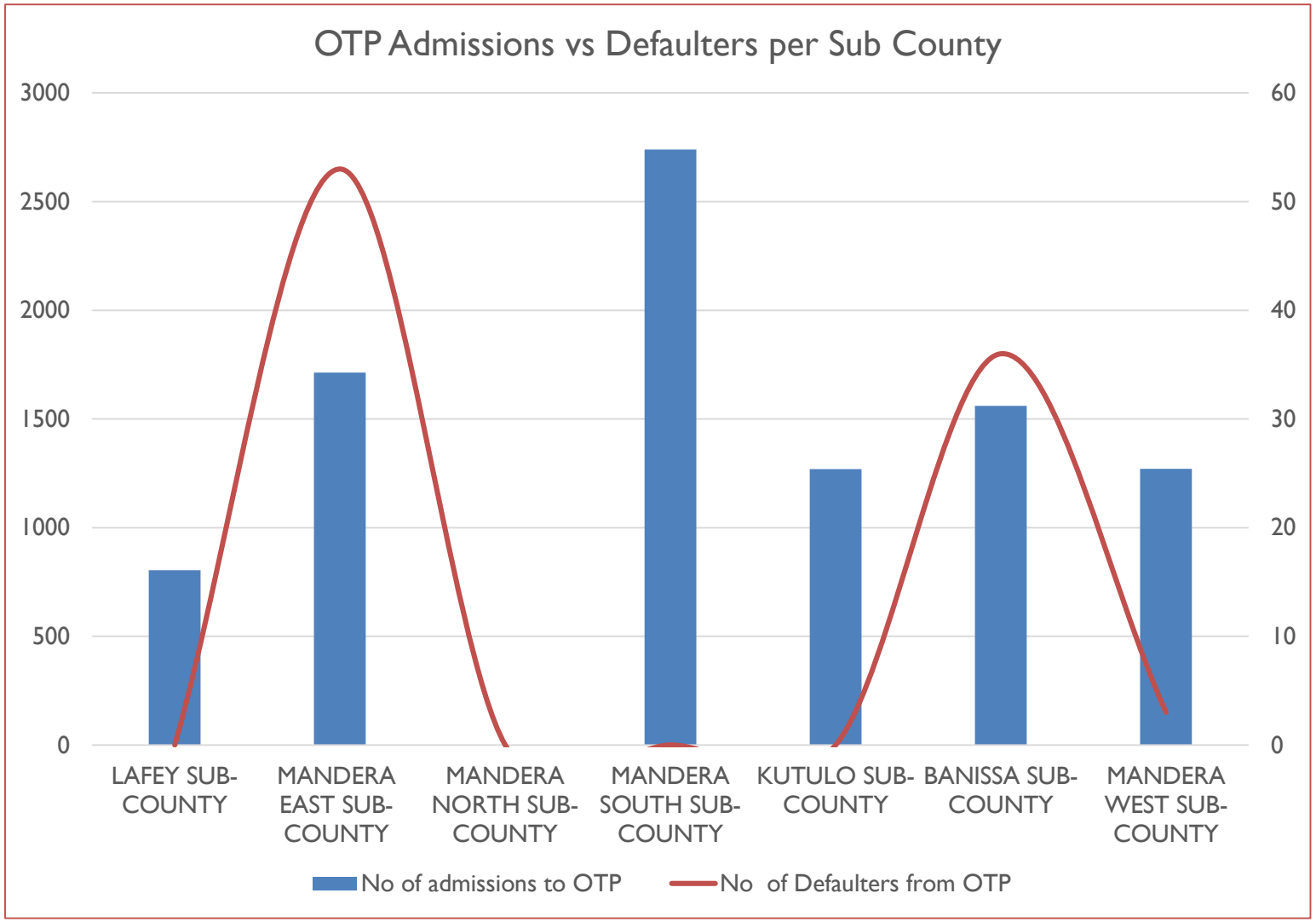




- The Median average LOS in OTP Program before discharge defaulted was 7 weeks, indicating early discharge from program
- Very early default from OTP is observed with cases defaulting as early as the 2nd week; early default observed in some H/Fs in Banisa, Mandera West and Mandera North.

Out-Patient Therapeutic Program (OTP) - Mandera County

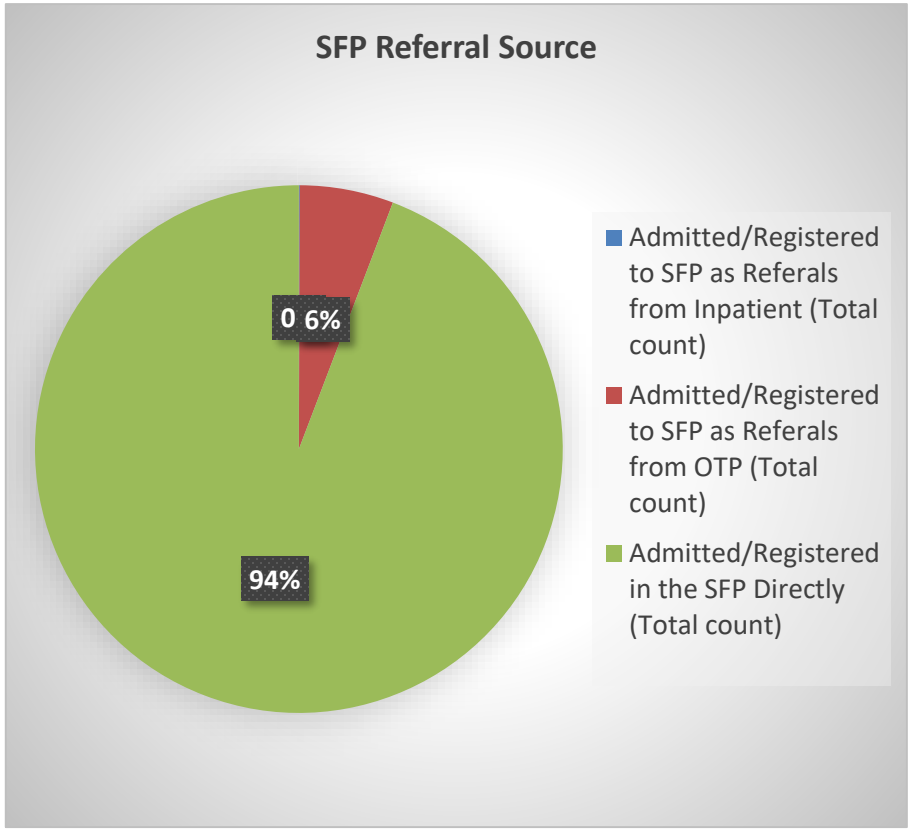
OTP Admissions versus Defaulters



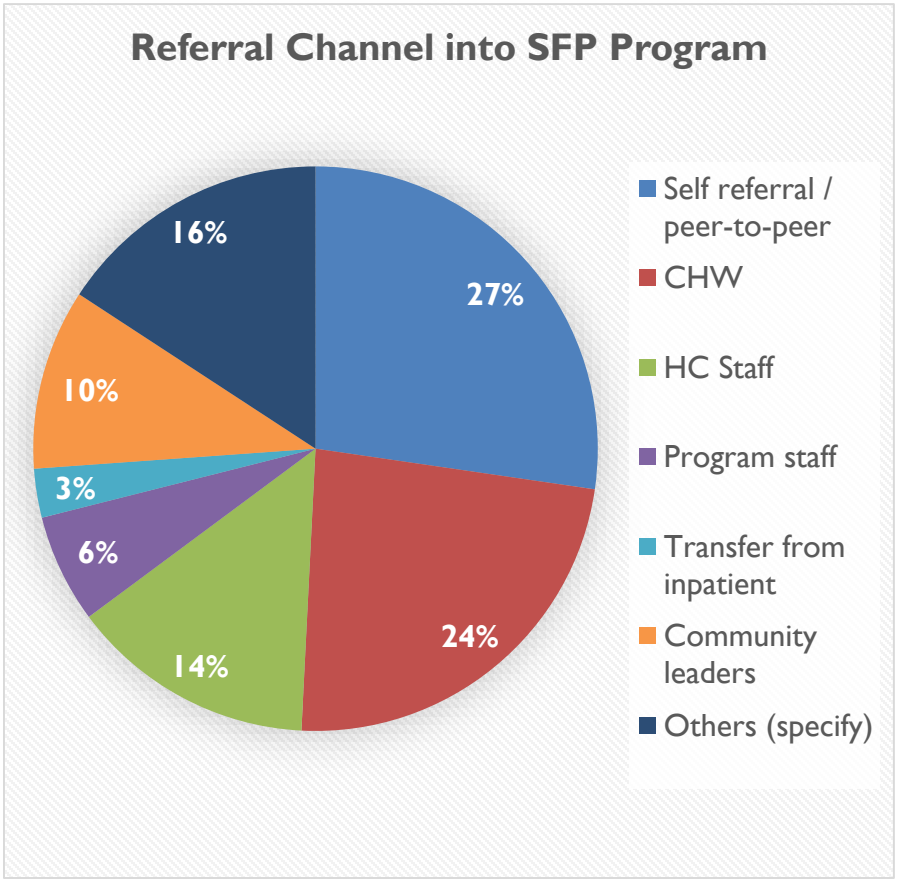
- Fewer cases of defaulters reported against the total admissions per Sub County.
- Most OTP defaulters observed in Kadija dispensary, Koromey (from a village with <1km from the H/F), Mandera Referral Hospital, Neboi dispensary, Shafshafey dispensary in Mandera East, and Kiliweheri H/C, Guba dispensary, Malkamari H/C in Banissa.

Supplementary Feeding Program (SFP) - Mandera County

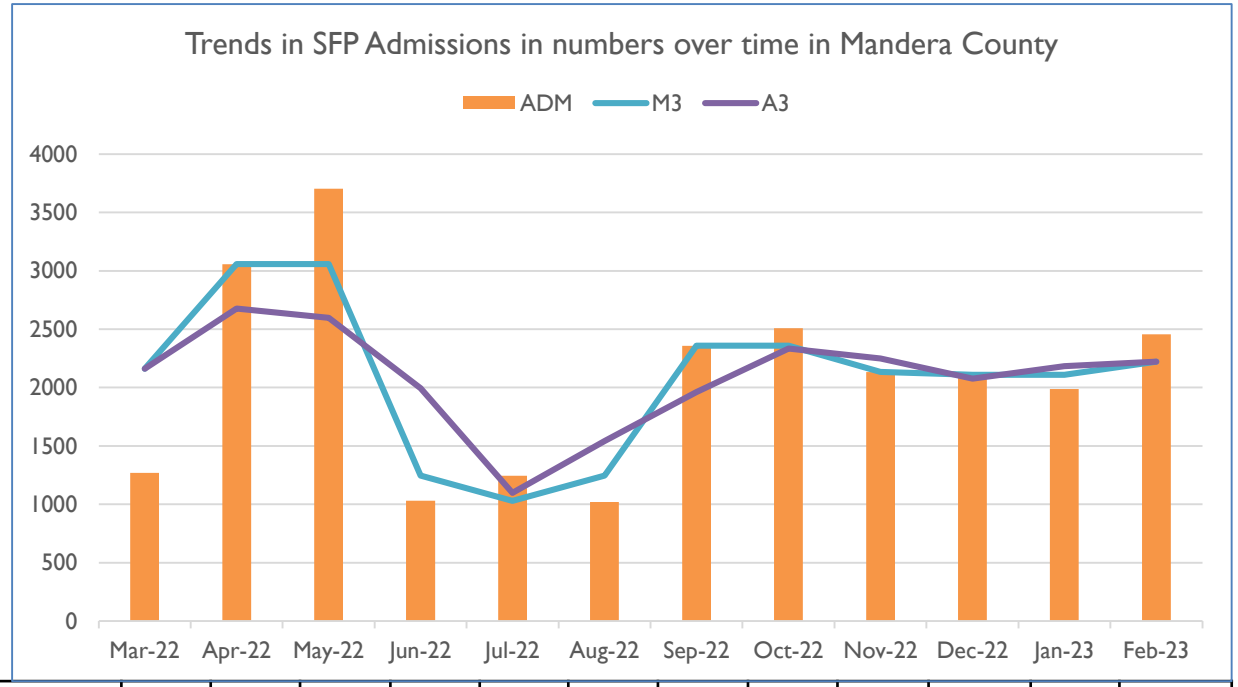
SFP Admission criteria and referral source and channels

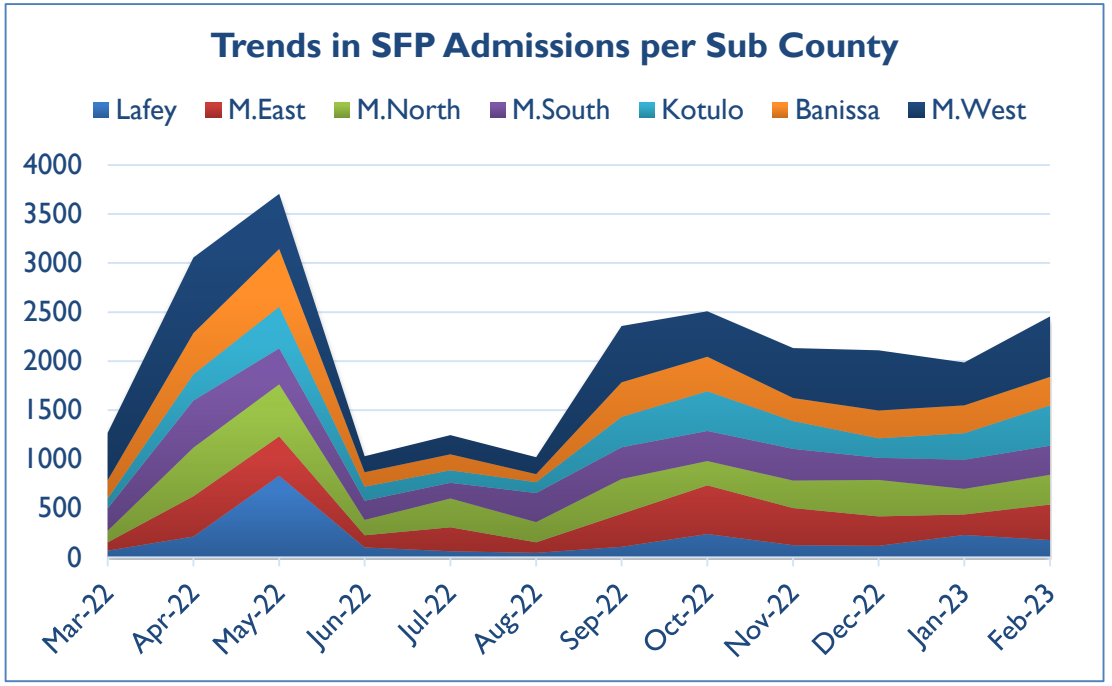


- Predominant referral source was direct admissions into SFP (94%); with referrals from OTP being 6%.
- Self-referrals and referrals by the CHVs are the most common referral channels into SFP
- the predominant admission criteria into SFP is WHZ score (69%), followed by MUAC (31%)



Supplementary Feeding Program (SFP) - Mandera County





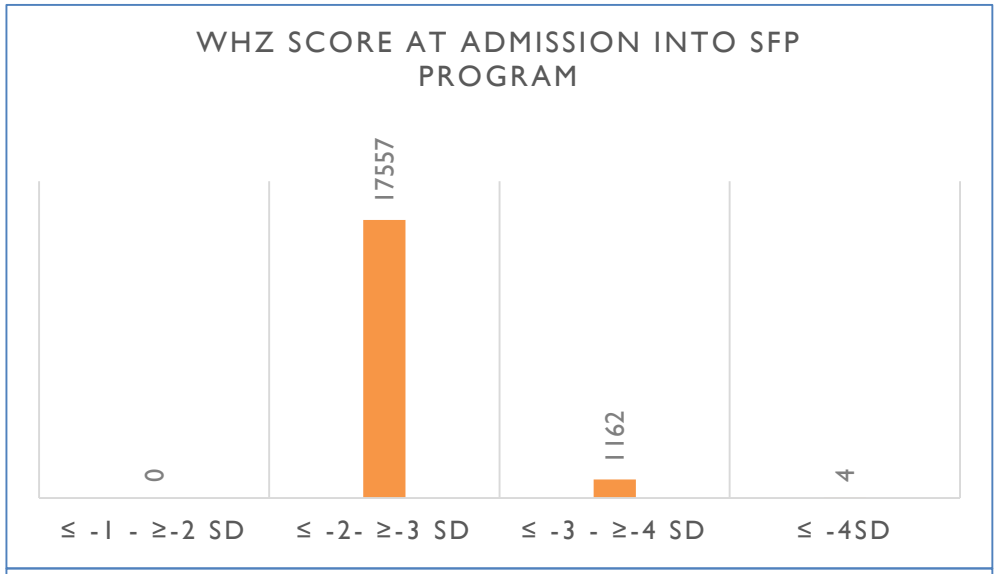
Activity	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23
Food/Milk availability		+	+						+	+		+
Diseases (measles and Diarrhea)	+	+++	+	+++	+++	+		+	+++	+	+	+++
Dry Seasons (severe drought)	+		+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wet Seasons (short rain)		+										
Planting /weeding			+	+								
Long & Short rains harvest						+						
Workload & Land prep		+++	+									
Insecurity		+++								+++	+++	+
Migration (lean period			+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
High Food Prices	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wedding (holidays)		+++				+++				+++		
Campaign			+++	+++	+++	+++	+++					

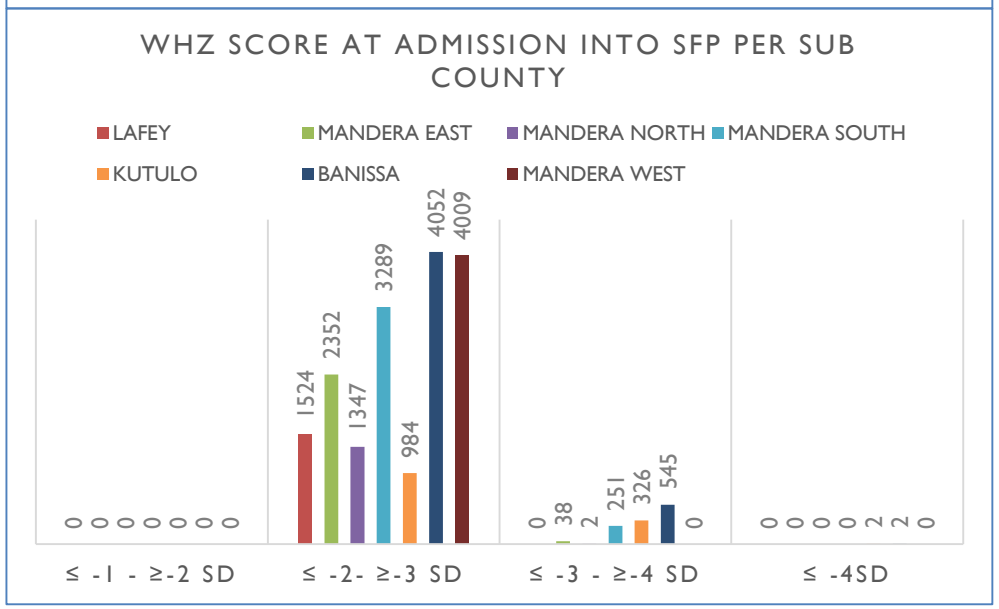
Key: + - low/mild ++ - Moderate +++ - High

- High no. of admissions into SFP observed during the analysis period
- Increase in caseloads coincide with high morbidities, severe drought, influx of the in-migrants and high food prices.
- The highest number of admissions into SFP observed in April, May, September and October 2022, and February 2023 following exhaustive case-finding activities in malnutrition hotspot areas.

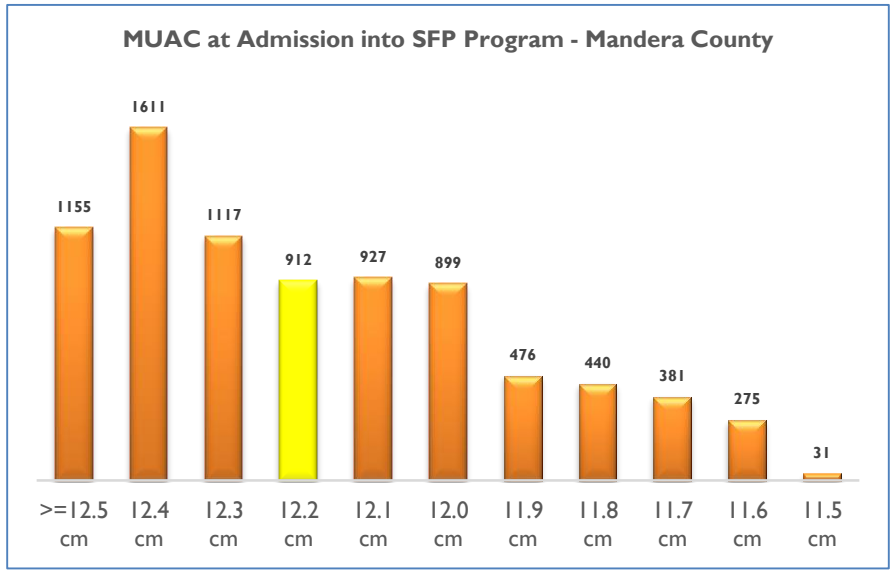
Supplementary Feeding Program (SFP) - Mandera County

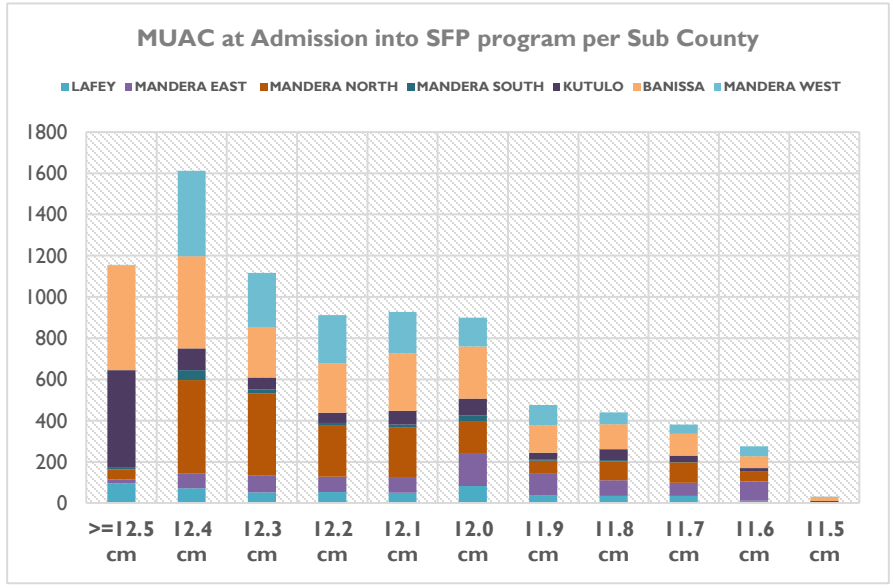
Admission Criteria: WHZ score and MUAC at Admission





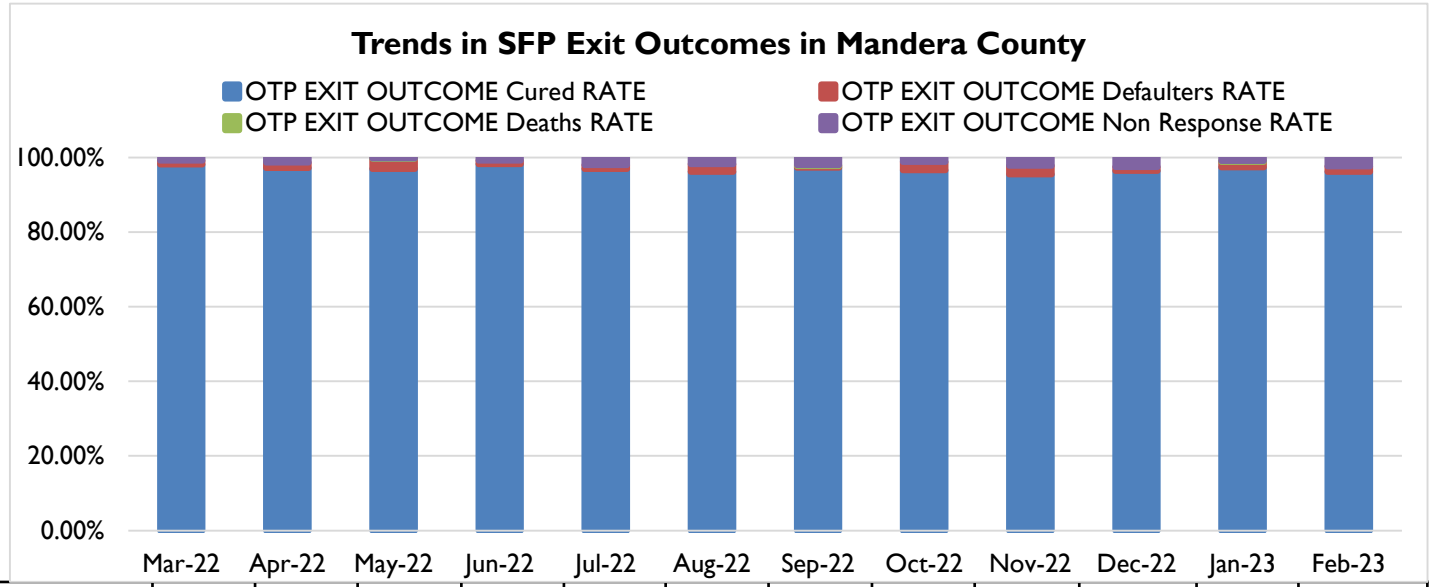
- Most admissions are at <-2SD - ≥-3SD (median value 9,362) across the seven (7) sub counties, indicating following up of the admission criteria.
- Few wrong admissions of <-3SD - ≥-4SD (in Mandera South, Kotulo and Banissa) due to mix up of admission criteria.
- The median MUAC is 12.2cm (median value is 4,112), indicating early admission into Program when cases have not deteriorated.





Supplementary Feeding Program (SFP) - Mandera County

SFP Exit Outcome: Trends

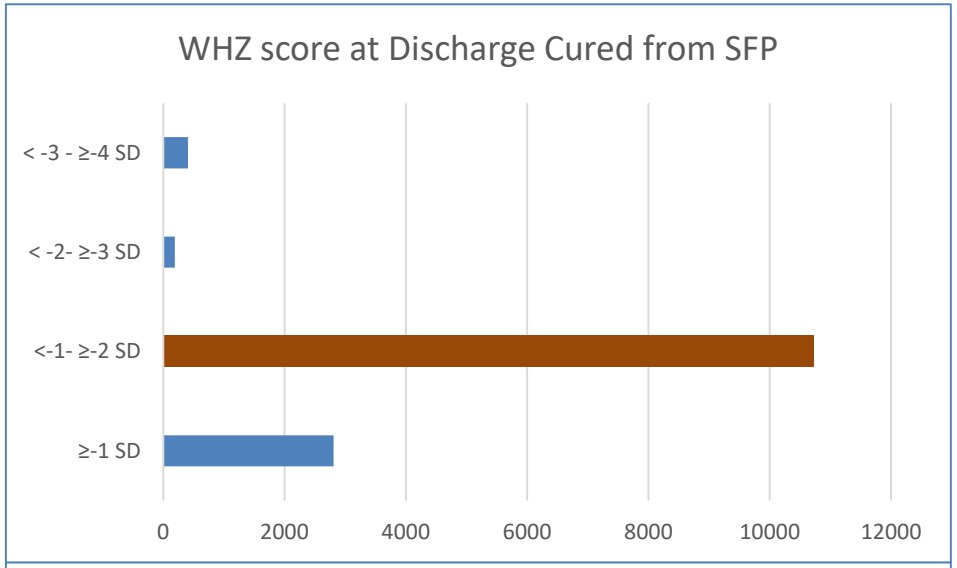


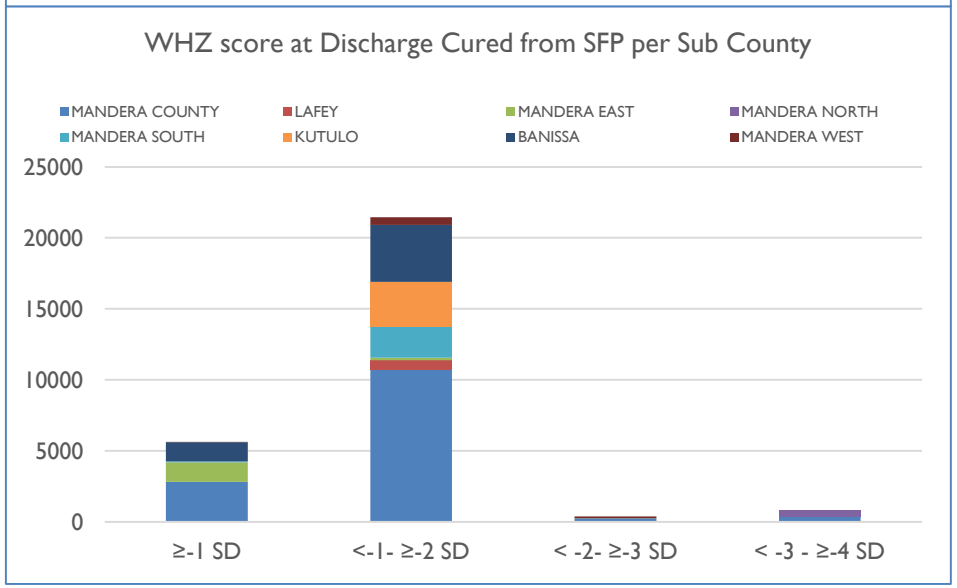
Activity	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23
Food/Milk availability		+	+						+	+		+
Diseases (measles and Diarrhea)	+	+++	+	+++	+++	+		+	+++	+	+	+++
Dry Seasons (severe drought)	+		+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wet Seasons (short rain)		+										
Planting /weeding			+	+								
Long & Short rains harvest						+						
Workload & Land prep		+++	+									
Insecurity		+++								+++	+++	+
Migration (lean period			+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
High Food Prices	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Wedding (holidays)		+++				+++				+++		
Campaign			+++	+++	+++	+++	+++					
Key: + - low/mild		++ - Moderate			+++ - High							

- The SFP program achieved on average over 90% recovery rate throughout the 12 months under review.
- Indicating good program performance
- Sub counties with high defaulter rates are Mandera West (May & June 2022), Kotulo (November 2022) and Mandera East (August 2022) associated with migration

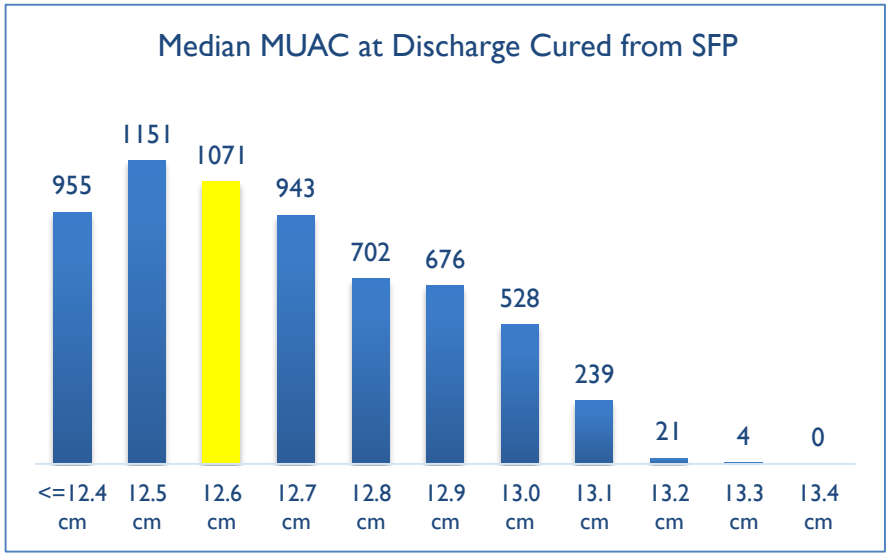
Supplementary Feeding Program (SFP) - Mandera County

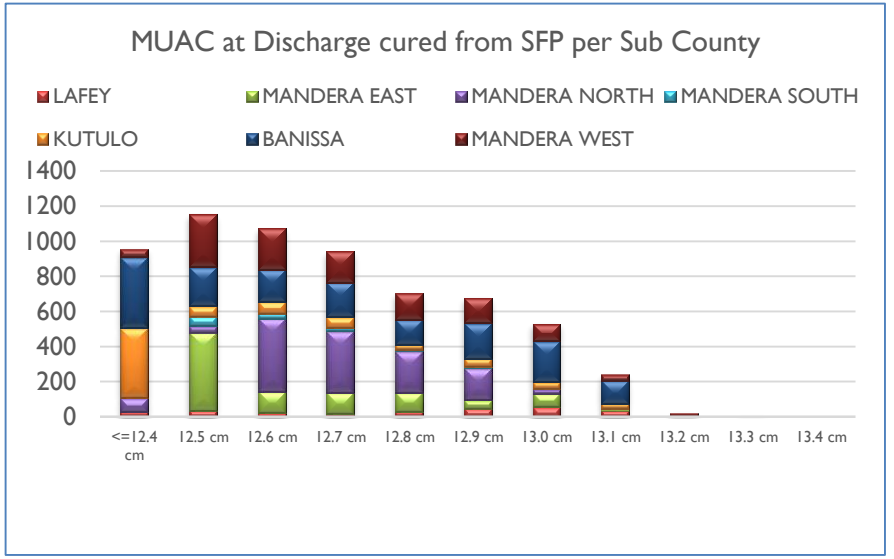
SFP Exit Outcome: MUAC and WHZ score at Discharge CURED





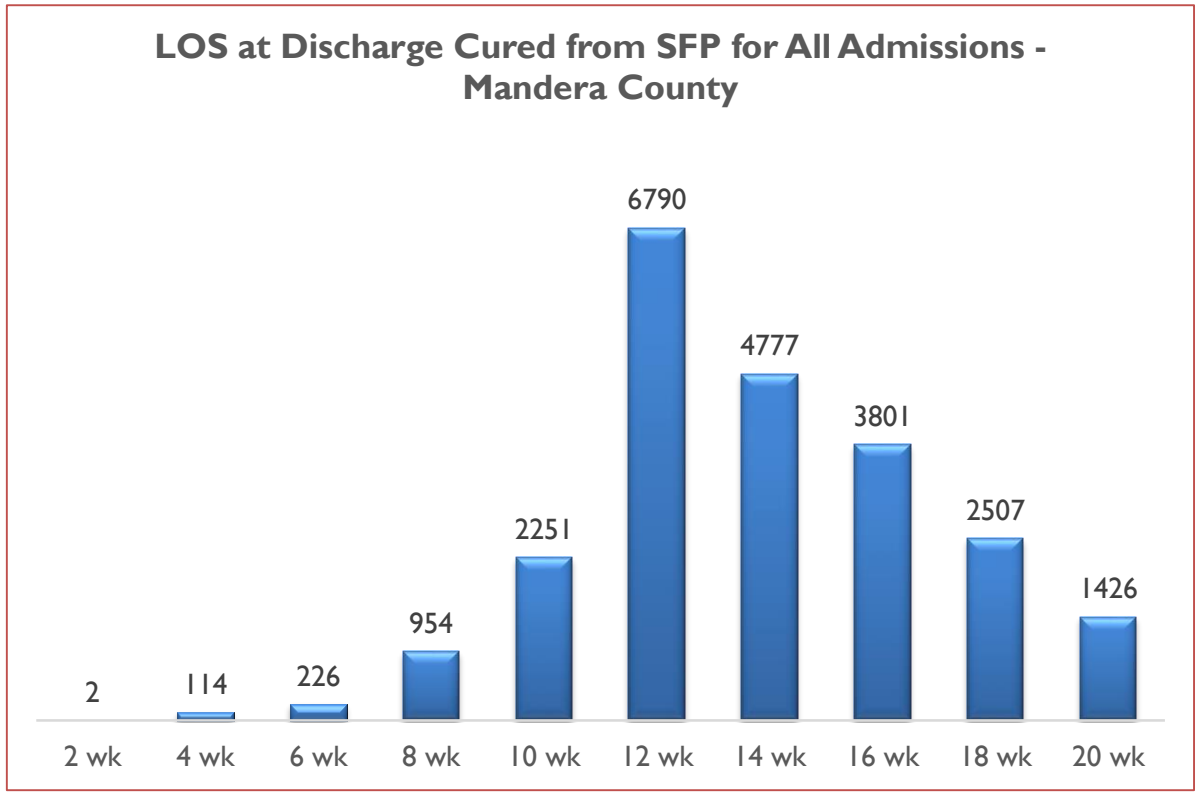
- The median WHZ score at discharge cured being <-1- ≥-2 SD (median value is 7,068).
- A big no. of discharges while still MAM indicating poor adherence to treatment protocol (majorly in Banissa and Kotulo)
- The median MUAC at discharge cured from SFP is 12.6cm (median value = 3,145)
- More cases discharged immediately upon reaching the discharge criteria; likely to become relapses into SFP.

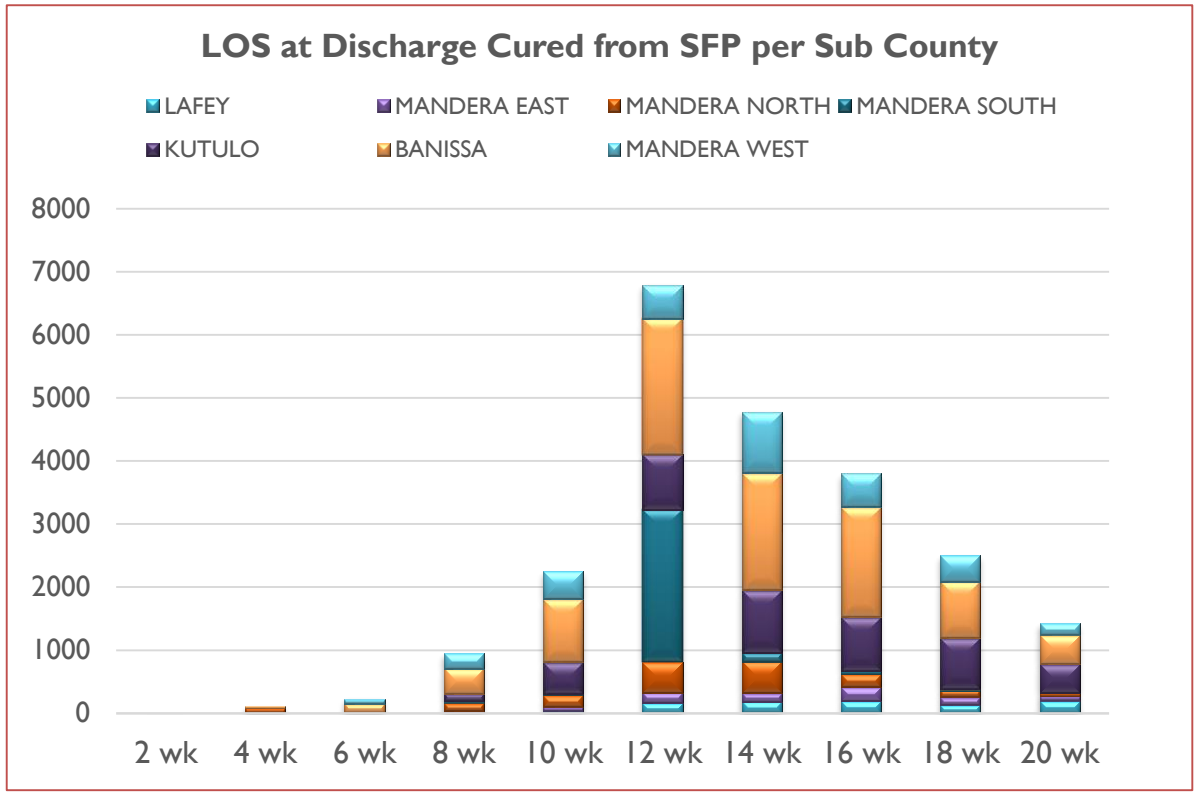




Supplementary Feeding Program (SFP) - Mandera County

SFP Exit Outcome: Average Length of Stay at Discharge CURED

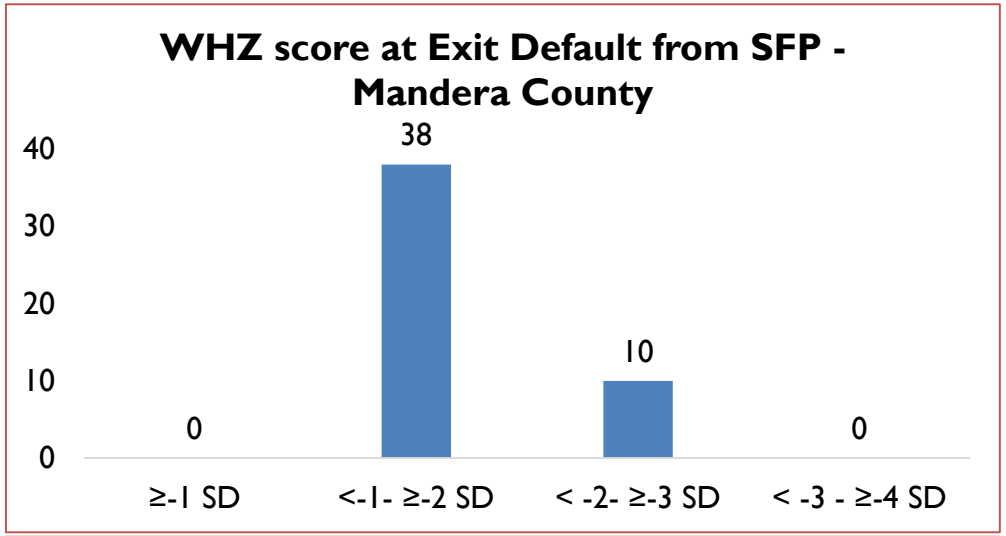


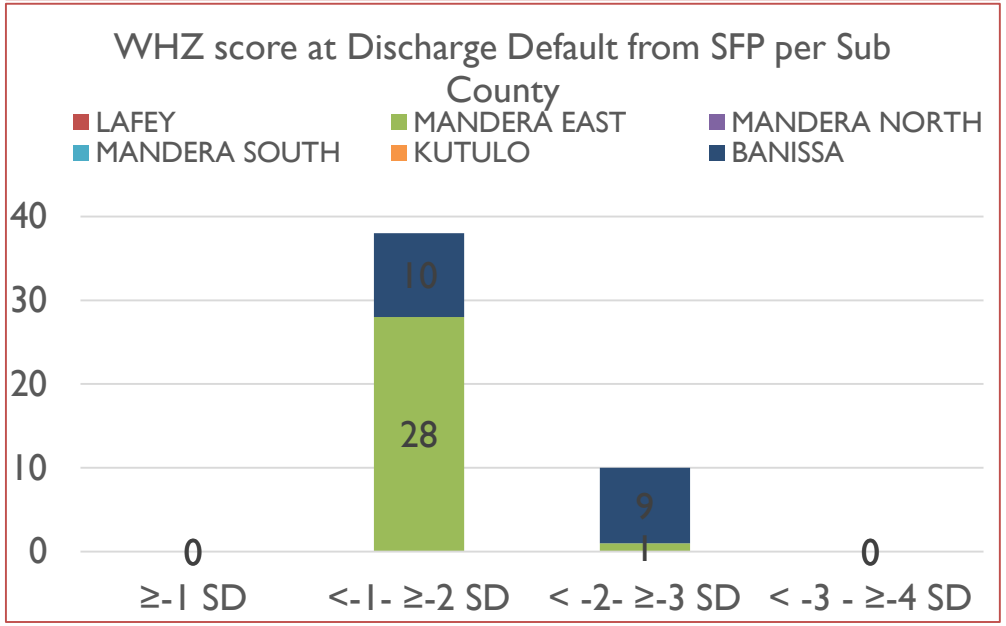


- The LOS before discharge from SFP program as cured is 14 weeks (7 visits, median value 11,424) for all the admissions criteria. Long LOS in SFP are also observed as long as beyond 16 weeks, majorly in Banissa, Kotulo and Mandera West.
- More than 50% of the cases are overstaying in the program

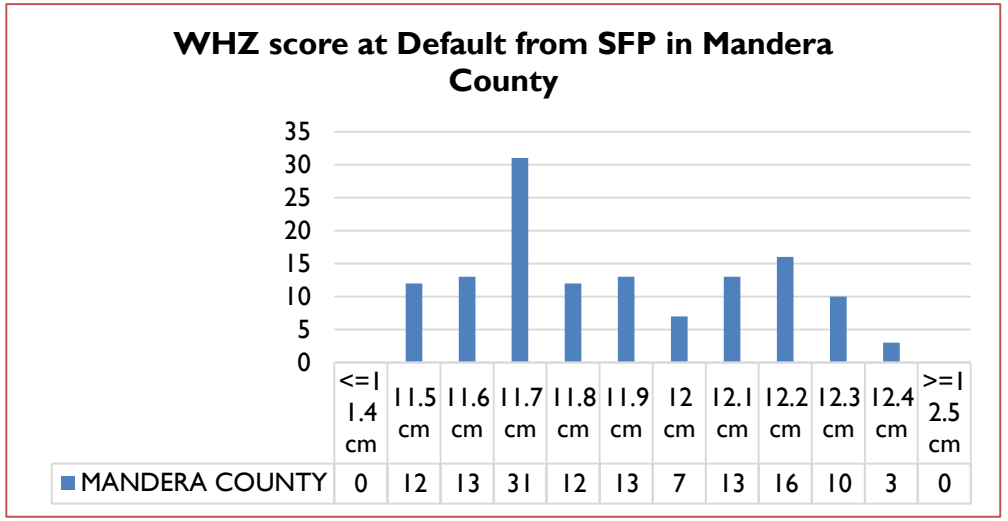
Supplementary Feeding Program (SFP) - Mandera County

SFP Exit Outcome: MUAC and WHZ score at Discharge DEFAULTED

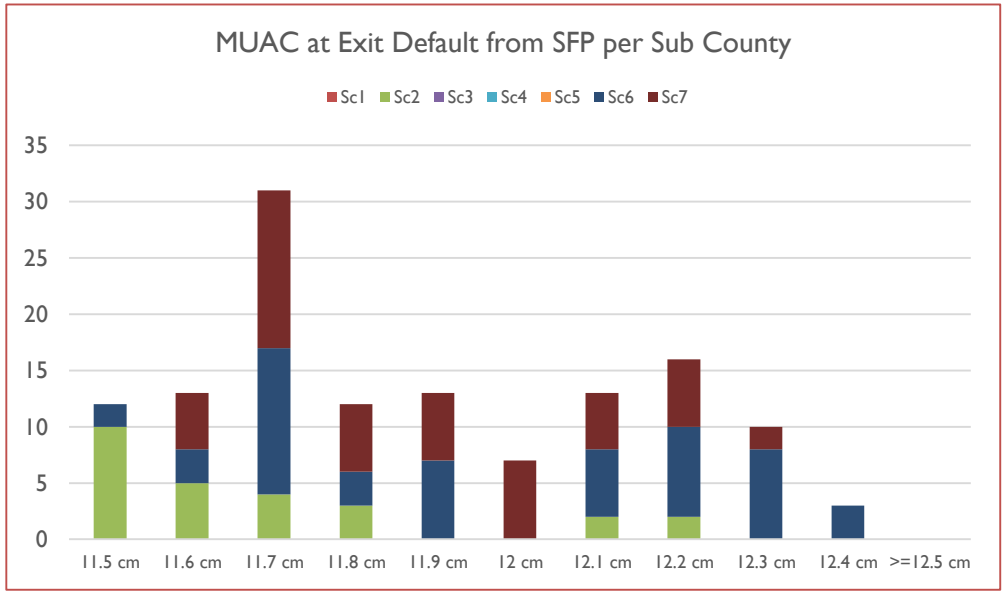




- The median WHZ score at discharge defaulted is <-1SD - ≥-2SD; cases defaulted while already cured.
- Most defaulters came from Banissa and Kotulo)
- The median MUAC at defaulting from SFP was 11.8cm, indicating that cases were defaulting while cured, though no proof-of-cure given

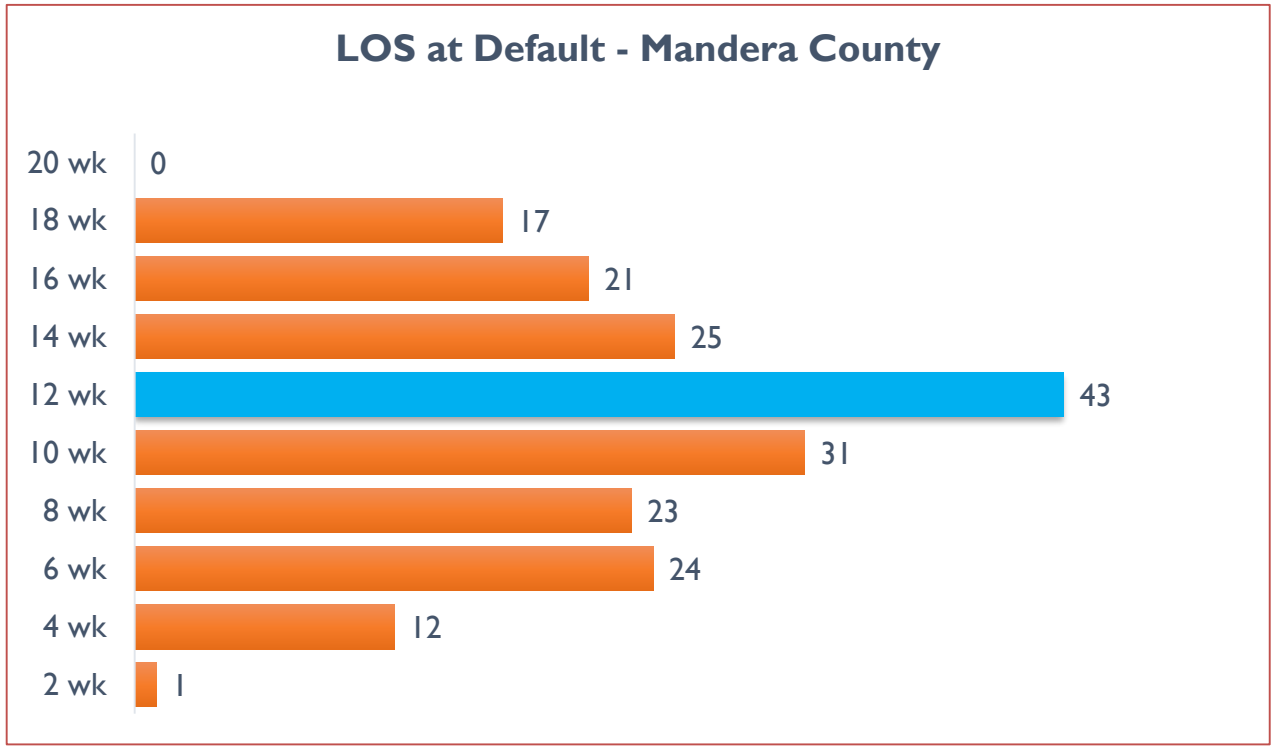


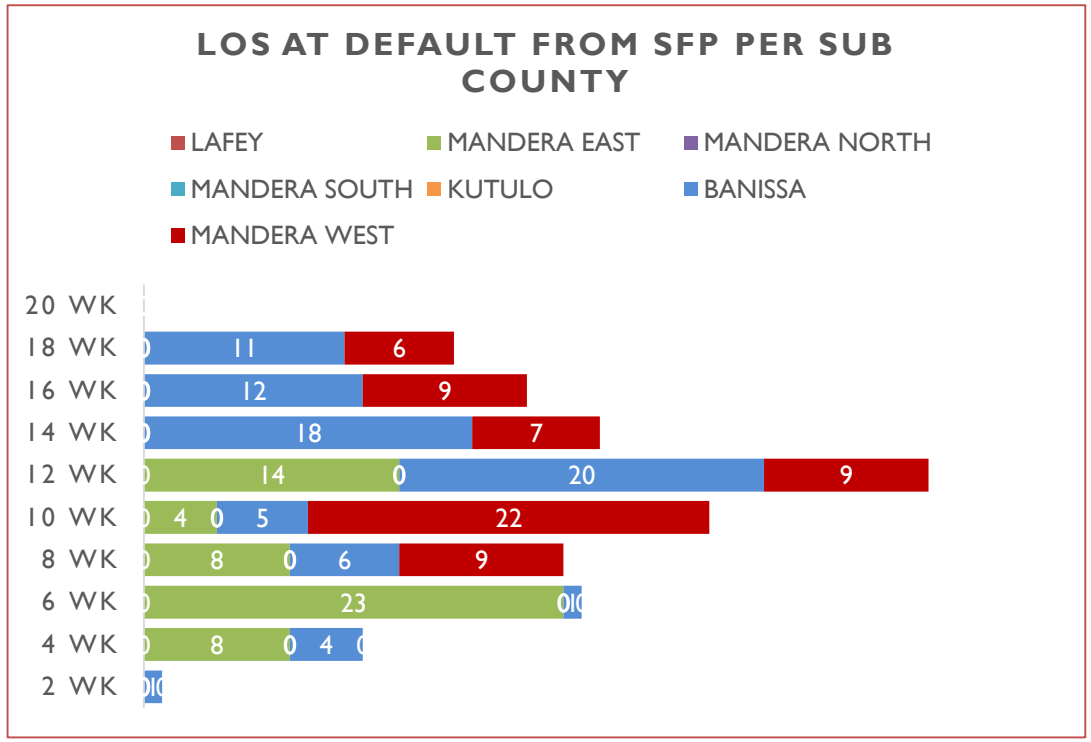
	<=11.4 cm	11.5 cm	11.6 cm	11.7 cm	11.8 cm	11.9 cm	12 cm	12.1 cm	12.2 cm	12.3 cm	12.4 cm	>=12.5 cm
MANDERA COUNTY	0	12	13	31	12	13	7	13	16	10	3	0



Supplementary Feeding Program (SFP) - Mandera County

SFP Exit Outcome: Average Length of Stay at Discharge DEFAULTED

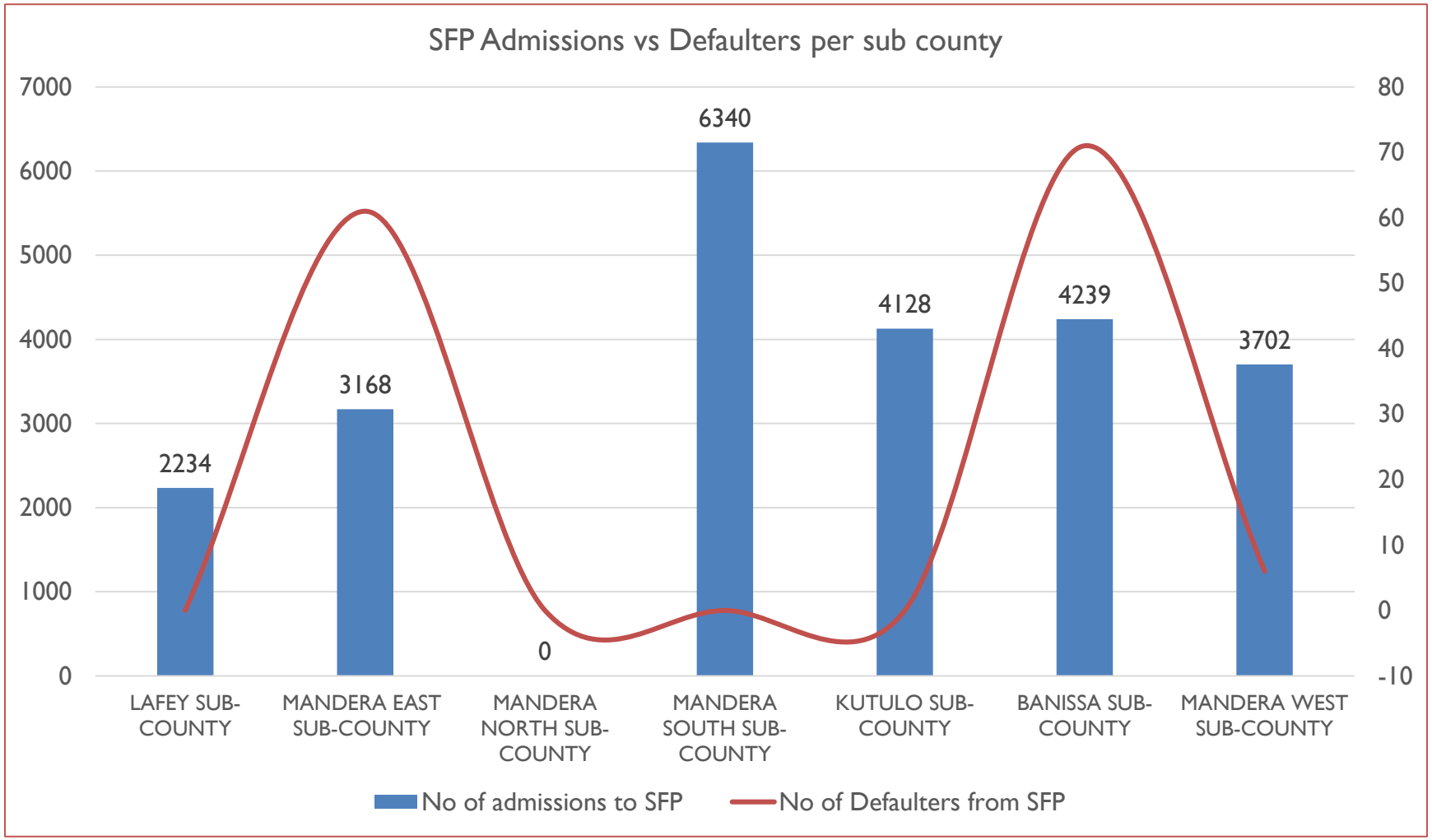




- The median LOS at default was 12 weeks (6th visit). A look into the sub counties showed that most SFP cases were defaulting early in Banissa, Mandera East and Mandera West.

Supplementary Feeding Program (SFP) - Mandera County

SFP Admissions versus Defaulters



- Fewer cases of defaulters reported against the total admissions per sub county
- More number of defaulted cases observed in Banissa and Mandera East

QUALITATIVE DATA

Sampling _ Quantitative & Qualitative Data Review (SDP with IMAM services)

Level/Sub county	Mandera South	Mandera East	Mandera West	Mandera North	Banisa	Lafey	Kutulo	Arabia	Total	Sampled for Qualitative	Sampling method
Level 5	0	1	0	0	0	0	0	0	1	1-GoK	Census
Level 4	1	0	1	1	1	1	1	0	6	6- Gok	Purposive
Level 3	3	2	3	3	3	3	1	1	19	6- Gok	Purposive
Level 2	10	9	15	9	10	6	7	5	70	19-Gok	Purposive Randomization
Grand Total	14	12	19	13		10	9	6	96	32	

Qualitative Data Collection Schedule

	Day 1	Day 2	Day 3	Day 4
Team No.	Key Informant	Key Informant	Key Informant	Key Informant
Team 1	1. OTP Mothers (FGD)	1. Group of SFP Caregivers	1.Health Facility Management Committee (HFMC))	CHV
	2. OTP Staffs (HF)	2. Community lay men	2. Community Figures (Sheikhs, Chiefs and Village Elders)	OTP mother individual
	3. CHV	3. Caregiver of defaulter child	3. OTP Mother outreach	Traditional healer
	4. Coverage team/Observation	4. TBA/Lead mother	4. Community lay women	OTP Staff (HF)
	5. Community lay men		5. Coverage Team/Observation	
Team 2	1. OTP Mothers (FGD)	1. Group of SFP Caregivers	1. Health Facility Management Committee (HFMC)	CHV
	2. OTP Staffs (HF)	2. MTMSG	2. community lay women	OTP mother individual
	3. CHV	3. Caregiver of defaulter child	3. Caregiver of defaulter	SFP mother Individual
	4. Coverage team/Observation	4. TBA/Traditional healer	4. Caregiver of SC child	OTP Staff (HF)
	5. Community lay men		5. Coverage Team/Observation	Caregiver of Non-response (Individual)
Team 3	1. OTP Mothers (FGD)	1.Group of SFP Caregivers	1.Health Facility Management Committee (HFMC)	CHV
	2. OTP Staffs (HF)	2. MTMSG	2. OTP Mother Outreach	SFP mother Individual
	3. CHV	3. Caregiver of defaulter child	3. OTP Mother (individual)	Community Figures (Sheikhs, Chiefs and Village Elders)
	4. Coverage team/Observation	4. TBA/Traditional healer	4. Community lay women	OTP Staff (HF)
	5. Community lay men		5. Coverage Team/Observation	Caregiver of Non-response (Individual)
Team 4	1. OTP Mothers (FGD)	1. Group of SFP Caregivers	1. Health Facility Management Committee (HFMC)	OTP Staff (HF)
	2. OTP Staffs (HF)	2. MTMSG	2. Caregiver of SC child	SFP mother Individual
	3. CHV	3. Caregiver of defaulter child	3. OTP Mother (Individual)	CHV
	4. Coverage team/Observation	4. TBA/Traditional healer	4. Key community Figure	Community lay women
	5. Community lay men	5. CHV	5. Coverage Team/Observation	Caregiver of Non-response (Individual)
Team 5	1. Group of SFP caregivers (FGD)	1. OTP Mothers (FGD)	1. Health Facility Management Committee (HFMC)	CHV
	2. OTP Staffs (HF)	2. Traditional healer	2. Caregiver of defaulter child	TBA/Lead mother
	3. CHV	3. OTP mother (individual)	3. Community lay men	OTP Staff (HF)
	4. Coverage team/Observation	4. MTMSG	4. SFP mother (individual)	MTMSG
	5. Community lay women		5. Coverage Team/Observation	Caregiver of Non-response (Individual)

Qualitative Data Collection Schedule … Cont.

	Day 1	Day 2	Day 3	Day 4
Team No.	Key Informant	Key Informant	Key Informant	Key Informant
Team 6	1. Group of SFP caregivers (FGD)	1 OTP Mothers (FGD)	1. SFP mother (Individual)	CHV
	2. OTP Staffs (HF)	2. TBA/Lead mother	2. Community lay men	Traditional healer
	3. CHV	3. Community Figures (Sheikhs, Chiefs and Village Elders)	3. Pastoralist community/TBA	OTP mother individual
	4. Coverage team/Observation	4. MTMSG	4. OTP Staff (HF)	Caregiver of defaulter child
	5. Community lay women		5. Coverage Team/Observation	Caregiver of Non-response (Individual)
Team 7	1. OTP Mother (Individual)	1.Family MUAC mothers (group)	1. SFP mother (Individual)	CHV
	2. Group of SFP caregivers (FGD)	2. OTP Mothers (FGD)	2. Community lay men	Caregiver of defaulter child
	3.Community lay women	3. Community Figures (Sheikhs, Chiefs and Village Elders)	3. Pastoralist community	OTP mother outreah
	4. Traditional Healer	4. TBA/Lead mother	4. OTP Staff (HF))	TBA/Lead mother
	5. CHV	5. OTP staff (HF)	5. Coverage Team/Observation	
Team 8	1. Traditional Healer	1. Family MUAC mothers (group)	1. SFP mother outreach (Individual)	CHV
	2. Community lay women	2. OTP Mothers (FGD)	2.Health Facility Management Committee (HFMC)	Caregiver of defaulter child
	3. OTP Mother (Individual)	3. Community Figures (Sheikhs, Chiefs and Village Elders)	3. OTP Staff (HF)	OTP mother outreah
	4. Group of SFP caregivers (FGD)	4. OTP staff (HF)	4. TBA/Lead Mother	TBA/Lead mother
	CHV		5. Coverage Team/Observation	

Qualitative collection (Methods & Sources)

#	Methods	#	Sources
A	Focus Group Discussion	1	OTP Mothers (individual)
B	Semi- structured interview	2	Community Lay Men
C	Structured interview	3	Community lay Women
D	Observation	4	Community Figures (Sheikhs, Chiefs and Village Elders)
E	Primary Data Analysis	5	CHV
F	Defaulter tracing	6	OTP staff (HF)
G	Small Area Survey	7	OTP mothers (FGD)
		8	MTMSG
		9	TBA/Lead mother
		10	Programm Key stakeholders (NGO)
		11	OTP mother outreach
		12	Caregiver of SC child
		13	Pastoralist community
		14	Caregiver of Defaulter
		15	Primary Data
		16	Coverage Team
		17	Traditional healers
		18	Group of SFP Caregivers
		19	Family MUAC mothers (gropu)
		20	SFP mother (Individual)
		21	Health Facility Management Committee (HFMC)
		22	SFP mother outreach (Individual)
		23	Non-response

Boosters to SAM treatment program

NO	BOOSTERS	SOURCES	METHOD
1	Good health seeking behavior-carers take their children to HF for treatment when the child is sick	3[3],7[1],2[3],4,1[1],9, 12,14,21[1],13,23[1]	B[10],A[8],F
2	Some Recognition of Malnutrition by community members as a disease	2[3],3[2],6[3],8,7,4,9[2],21,11	B[10],A[6]
3	Community know Signs of Malnutrition	17,2[1],3,1,9,11,14,23[2],1	B[8],A[2]
4	Community understand causes of malnutrition	6[1],17[1],7,9[2],14,5[1],11	B[9],F
5	High awareness of IMAM program and services among Community members; sites where malnutrition can be managed, SAM cases in program/community, continouse awareness creation by CHV	5[6],1[5],17[2],3[4],10,7[5],6[3],2[2],4[5],8[3],19,21[1],9[7], 12,14,21[1],8,23[2],11[2]	B[44],C,A[17],F
6	Community perceive RUTF as Medicine	7[1], 1[3],19,8[2],21[2],9[3],2[2],23[2],3[1],6	A[13],B[11]
7	Caregivers given information on IMAM services – why child admitted, treatment protocol and ration, follow up visits	5[4],10,2,3,6[2],4[1]19, 8,9[2],17,21[1],14,1,23	B[17] ,C,A[4]
8	Availability of outreach sites in some of the hard-to-reach areas	19,17,22,11,2,13	A[1],B[3]
9	RUTF stock outs are rare or short-lived	7,1,6	A,B[1]
10	Free OTP services	3[1],2[1],5[2],7,6,9,8,23[1],1[1],11,21,	B[11],A[5]
11	Availability of anthropometric equipment	6[2],5,16	B[2],D
12	Close proximity to the service (HF)	6,2[1],7[2], 5,9,8[1],23[1],3,1,21,4	B[8],A[5]
13	Early identification and referral of SAM cases through CHVs and family MUAC, mass screening	7[1],10,6,5,4[1],19[1],8,9,12	A[4],C,B[4]
14	CHVs continuously conducting active case finding at the community and referral of SAM cases to HF	5[7],3,10,6[3],4[1],19,8[1],1,21[1],14[1],11,1,23[1]	B[20],C,A[5],F
15	Follow-up & home visits by CHVs & HCW	10,5[4],6[1],23	C,B[8],3,A[4]

Boosters to SAM treatment program

16	Routine nutrition screening done at HF	6^{1},4,14	B^{2},F
17	Proper Community referral system	17^{1},6,9^{3},14^{1},3,21, 5^{2}	B^{10},F,A^{1}
18	Some regular contact between the CHVs and the health facility; regular meetings & feedbacks	6^{8},5^{9},4^{4},8^{2},9,12,14,11^{1},21,2,13,23^{2}, 1^{1},17	B^{32},A^{4},F
19	Good communication between CHVs,community and key community leaders.	1,3^{1},10,7^{1},5^{1},2,4^{1},19,6^{2},12,21^{1},9^{1},11,14,23	B^{16},C,A^{4}
20	Regular (quarterly) Supportive supervision from the S/CHMT	6^{2},5	B^{4}
21	Great appreciation of IMAM services by the stakeholders	2^{4},7^{4},1^{6},$5'^{4}$,3^{3},6^{3},8^{4},9^{3},4^{2},21^{3},12^{1},11^{1},23^{1},17	B^{37},A^{16}
22	Appreciation of the work done by the CHVs and MTMSG	7,2,3	B, C
23	Good perception about the program by the community	12^{1},21,11,14,1^{1},6,3,9	B^{5},A
24	Some defaulter tracing mechanism and follow-up of absenteeism in H/Fs with active communication with CHVs	5^{5},10,7,6^{4}	B^{5},C,A
25	Most HCWs are trained and have experience on IMAM	6^{15},10,4,16	B^{16},C,D
26	Most CHVs are sensitized on IMAM services and have experience on community services	5^{2},9^{3},8	B^{6},A
27	97 out of 104 Health facilities offering IMAM with majority integrated outreach services	15	E
28	Proper documentation and update of IMAM registers	6^{2},16^{4},10,23	B^{2},D^{4},C

Barriers to SAM treatment program

NO	BARRIERS	SOURCES	METHOD
1	Poor health seeking behavior- some mothers seek treatment from traditional and spiritual healers first before taking the child to HF	1,6[1],8,21,23,17	B[4],A[1]
2	Stigma associated with malnutrition leading to failure to seek proper help	7[1],8,4[1],12	A[2], B[2]
3	High maternal workload limiting time to seek health services	7, 19[1],14,8[1],3,5,9,3,4,23[1],1,21	B[7], A[5],F
4	Malnutrition not recognized as a disease by some community members and does not understand signs & symptom	3,9,4	B[2]
5	Most community members lack basic information on IMAM services; not aware of the target group, treatment protocols	6,7[1],2,3[1],4,8,21[2],12,14,11	B[4],A[7],F
6	Poor terrain and long distance to the Service deliver points	6[2],7[2],3[2],54,1[2],4[3],8[3],2,12,21[1],14[2],13,11[1],20,23	B[23],A[13],F
7	Fixed IMAM service days (once week) and Long waiting time (after other services) for IMAM services at the facility	7[2],6[1],5,8[3],9,3,23[3],11,1	A[7],B[10]
8	Migration among nomadics and insecurity in some areas especially along the borders.	1,3[2],8[1],6[2],9,11,14[1],5[3],23	B[12],A[2]
9	Misuse of RUTF; Sharing or exchange for money and household food	17,6,5[1],23,8,21	B[4],A[1]
10	Periodic Stock out of RUTF commodities leading to disruption of SAM services	7[4],1[5],5[4],3[3],6[8],2[1],4[3],19,9[4],8[1],21[1],14[2],23[3],11[2],16[1]	A[12],B[39],F,D[1]
11	Some CHVs not trained on IMAM hence refers wrong admission criteria cases.	5[2],6[2],9,21,10	B[6],A,C

Barriers to SAM treatment program

12	Low CHVs motivation for IMAM program and other activities at the community level leading to reduced active case finding and defaulter tracing.	5^{12},1,10,8^{1},4,6^{1},9^{6},3,17	B^{23},C,A^{2}
13	Limited established community units leading to no CHVs at community to conduct IMAM activities	6^{1},7^{1},3,1,4,21,11	B^{6},A^{2}
14	Influx of unplanned cross border populations	6^{3},22	B^{4}
15	In some areas there is no regular communication between the CHVs and the health facility.	5^{1}, 21^{1} ,	B^{1},A^{1}
16	Poor perception of IMAM program; perceive RUTF as food	17^{1},3,14,5,2	B^{4},A^{1}
17	Limited defaulter tracing mechanism in most health facilities; no list of defaulters & no follow-up	6^{3},5^{1},14	B^{6},F
18	Early defaulting from OTP program in some facilities	15	E
19	Poor staff attitude -Closed H/Fs during working hours due to Staff absenteeism or late reproting to duties	5,9	B^{1}
20	Staff shortage- some H/Fs, IMAM program is only managed by CHVs due to staff turnover coupled with high facility workload at the facility	6^{8},8,7,4^{3},9^{1},1^{2},5^{2},2,23^{1},3	B^{22},A^{3}
21	Lack of documentation; incomplete / contradicting data between documents	6^{1},5^{2}	B^{4}
22	Inadequate established CUs to implement BFCI,MIYCN and Family MUAC activities	6^{2},5,16	B^{2},D

Boosters to MAM treatment program

NO	BOOSTERS	SOURCES	METHOD
1	Good health seeking behavior-carers take their children to HF for treatment when the child is sick	18[1],3[3],2[3],4,20[4],9,12,21[1],13,14	B[13],A[8]
2	Some Recognition of Malnutrition by community members as a disease and understand signs of malnutrition	17,22,9[3],2[1],3[3], 14,20,21[1],6[3],8,18,4	B[13],A[6]
3	Community understand causes of malnutrition	6[1],17[1],18,22,9[1],20,5[1]	B[8],A
4	High awareness of IMAM program and services among Community members; sites where malnutrition can be managed, MAM cases in program/community, continouse awareness creation by CHV	5[5],18[3],9[7],17[2],3[4],6[3],2',4[6],19,8[1],14[3],22,21[2],20[4],12,8,2	B[41],A[15],F
5	Caregivers given information on IMAM services – why child admitted, treatment protocol and ration, follow up visits	10,1,3[1],18,5[2],2,4[1],6[2],19,21[1],9[1],20	C,B[12],A[4]
6	Community preserved RUSF as a medicine	9[4],19,8[2],4,21[2],22,2[2],20[3],3[1]	B[8],A[13]
7	Availability of outreach sites in some of the hard-to-reach areas	19,17,22,2,13	A[1],B[2]
8	No stock out	6,20	B[1]
9	Free SFP services	2[1],5[2],9,20[2],8,3,21,4	A[5],B[6]
10	Availability of anthropometric equipment	6[1],16	B[1],D
11	Close proximity to the service (HF)	6,2[1] 18,5,9,20[1],8[1],3,21,4	B[7], A[5]
12	Early identification and referral of MAM cases through CHVs and family MUAC, mass screening	5[3],4[1],8,19[1], 18,9[4],17[1],12,3,21,20	B[15], A[4]
13	CHVs continously conducting active case finding at the community and referal of MAM cases to HF	5[7],10,6[3],4[1],19, 8,12,22,21[1],20	B[16],C, A[4]
14	Follow-up & home visits by CHVs & HCW	10,5[3],6[1]	C,B[4]
15	Routine nutrition screening done at HF	6[1],4,14	B[2],F

Boosters to MAM treatment program

16	Proper Community referral system	17^{1},6,9^{3},14^{1},3,21, 5^{2}	B^{10},F,A^{1}
17	Some regular contact between the CHVs and the health facility; regular meetings & feedbacks	6^{6},5^{8},4^{4},8^{2},9,20^{2},18,12,21,2,13,14,17	B^{28},A^{4}
18	Good communication between CHVs,community and key community leaders.	6^{6},5^{8},4^{4},8^{2},9,20^{2},18,12,21,2,13,14,17	B^{28},A^{4}
19	Regular (quarterly) Supportive supervision from the S/CHMT	6^{2},5	B^{4}
20	Great appreciation of IMAM services by the stakeholders	2^{4},5^{6},3^{2},6^{3},18,8^{4},9^{4},14^{1},4^{2},21^{3},22,20^{2},17	B^{23},A^{14},F
21	Appreciation of the work done by the CHVs and MTMSG	7,2,3	B, C
22	Good perception about the program by the community	12,3,21,20,9,14,20,6	B^{5},A^{1}
23	Some defaulter tracing mechanism and follow-up with CHVs	5^{8},10,18,6^{3}	B^{13},C,A
24	Most HCWs are trained and have experience on IMAM	6^{14},10,4,16,20	B^{16},C,D
25	Most CHVs are sensitized on IMAM services and have experience on community services	5^{2},9^{2},8	B^{4},A
26	97 out of 104 Health facilities offering IMAM with majority integrated outreach services	15	E
27	Proper documentation and update of IMAM registers	6^{2},16^{4},10,23	B^{2},D^{4},C

Barriers to SAM treatment program

NO	BARRIERS	SOURCES	METHOD
1	Poor health seeking behavior- some mothers seek treatment from traditional and spritual healers first before taking the child to HF	6^{1},21,17,20	B^{3},A
2	Stigma associated with malnutrition leading to failer to seek proper help	8,4^{1},12	A,B^{2}
3	High maternal workload limiting time to seek health services	19^{2},14^{1},18,8,3^{1},5,9,20,4,21	A^{5},F,B^{5}
4	Malnutrition not recognized as a disease by some community members and does not understand sign of malnutrition	3,9,4,20	B^{4}
5	Most community members lack basic information on IMAM services; not aware of the target group, treatment protocols	6,2,4^{1},8,212,12,14^{1},3,20	B^{5},A^{6}
6	Poor terrain and long distance to the Service deliver points	6^{2},3^{4},5^{2},$18^{1'}$,4^{3},8^{3},14^{2},2,21^{1},13,20^{1}, 8	B^{14},F,A^{9}
7	Fixed IMAM service days (once week) and Long waiting time (after other services) for IMAM services at the facility	7^{2},6^{1},5,8^{3},9,3,23^{3},11,1	B^{11},A^{6},
8	Migration among nomadics and insecurity in some areas especially along the borders.	1,3^{2},8^{1},6^{2},9,11,14^{1},5^{3},23	A,B^{8}
9	Misuse of RUSF; Sharing or exchange for money and household food	17,6,5^{1},23,8,21	B^{12},A^{2}
10	Periodic Stock out of RUSF commodities leading to disruption of MAM services	7^{4},1^{5},5^{4},3^{3},6^{8},2^{1},4^{3},19,9^{4},8^{1},21^{1},14^{2}, 23^{3},11^{2},16^{1}	B^{28},A^{12},D^{1}
11	Some CHVs not trained on IMAM hence refers wrong admission criteria cases.	5^{2},6^{1},9,21	B^{5},A

Barriers to SAM treatment program

12	Low CHVs motivation for IMAM program and other activities at the community level leading to reduced active case finding and defaulter tracing.	5^{12},1,10,8^{1},4,6^{1},9^{6},3,17	B^{23},C,A^{2}
13	Limited established community units leading to no CHVs at community to conduct IMAM activities	6^{1},7^{1},3,1,4,21,11	B^{6},A^{2}
14	Influx of unplanned cross border populations	6^{3},22	B^{4}
15	In some areas there is no regular communication between the CHVs and the health facility.	5^{1}, 21^{1} ,	B^{1},A^{1}
16	Poor perception of IMAM program; percieve RUSF as food	2,3^{1},6^{1},4,9,19,22,21^{1},13,11,20,4	B^{12},A^{2}
17	Limited defaulter tracing mechanism in most health facilities; no list of defaulters & no follow-up	6^{3},5^{1},14	B^{6},F
18	Early defaulting from SFP program	15	E
19	Poor staff attitude -Closed H/Fs during working hours due to Staff absenteeism or late reproting to duties	5,9	B^{1}
20	Staff shortage- some H/Fs, IMAM program is only managed by CHVs due to staff turnover coupled with high facility workload at the facility	6^{8},8,7,4^{3},9^{1},1^{2},5^{2},2,23^{1},3	B^{22},A^{3}
21	Inadequate established CUs to implement BFCI,MIYCN and Family MUAC activities	6^{2},5,16	B^{2},D
22	Lack of documentation; incomplete / contradicting data between documents	6^{1},5^{2}	B^{4}

STAGE TWO FINDINGS

1). HYPOTHESIS FORMULATION

2). HYPOTHESIS VERIFICATION

STAGE 2: FORMULATING AND TESTING OF HYPOTHESIS

Hypothesis Formulation

- Done using evidence collected and analyzed through health facility data and community assessments.
- Case identification, referral into IMAM program, enrolment and follow up of clients found to majorly impact on IMAM coverage in Mandera County.

Hypothesis 1: *"Villages with active family MUAC activities have high IMAM coverage, while those with no active family MUAC activities have low IMAM coverage."*

Rationale for the Hypothesis:

- Villages with active *family MUAC* have well trained mothers who do regular screening and good active case finding.
- Villages with active *family MUAC* have high level of program awareness due to community dialogues and sensitization on IMAM services.
- Villages with active *family MUAC* have well established community referral system and early identification of malnourished children.

HYPOTHESIS Testing and Verification

Testing done using simplified LQAS, formula d= [n/2] in comparison with 50% threshold set as the best possible coverage for IMAM program in Mandera, agreed upon by the SQUEAC Survey analysts.

d=[n*p/100)

Where:

d = threshold value (round down)

n = sample size

p = standard set (50%)

Small area survey: conducted in ten (10) purposively selected villages; five (5) villages within CUs with active family MUAC activities and five (5) villages in areas without.

- The data collection teams were split into two, five teams covered the villages perceived to be of high IMAM coverage and the other five covered areas perceived to be of low IMAM coverage.
- The teams were fully trained and issued with appropriate assessment tools to carry out the small area survey.
- Once in the villages, the teams conducted exhaustive house-to-house screening of all children 6 to 59 months, to locate all SAM and MAM cases to determine if they were covered SAM/MAM cases (Cin), non-covered SAM/MAM cases (Cout) and recovering SAM/MAM cases (Rin).

SAM Hypothesis of high coverage: Areas with active family MUAC

THRESHOLD = 50%	Hypothesis of high coverage: Areas with active family MUAC						
Village	No. of children screened	SAM Case	SAM Case covered	SAM Case NOT covered	Recovering SAM	Total SAM + recovering SAM	Total covered (SAM or recovering)
Qarsadamu (Bula Tangi)	36	6	4	2	0	6	4
Kubihalo	83	6	4	2	0	6	4
Safo (Wrankara)	114	4	4	0	0	4	4
Borehole 11 (Gode)	180	16	12	4	0	16	12
Total		**32**	**24**	**8**	**0**	**32**	**24**
d= n * (p/100)		d =	32*(50/100)	16	round down		

since 24 > 16, the hypothesis of high coverage is satisfactory thus hypothesis of high coverage validated

SAM Hypothesis of low coverage: Areas without family MUAC

THRESHOLD = 50%	Hypothesis of high coverage: Areas with active family MUAC						
Village	No. of children screened	SAM Case	SAM Case covered	SAM Case NOT covered	Recovering SAM	Total SAM + recovering SAM	Total covered (SAM or recovering)
Daka Dudubata (Takaba)	58	0	0	0	0	0	0
Afgoye	40	3	1	2	0	3	1
Walmura (Ashabito)	65	4	0	4	0	4	0
Qabri saqir (Arabia)	28	4	1	3	0	4	1
Total	**191**	**11**	**2**	**9**	**0**	**11**	**2**
d= n * (p/100)		d =	11*(50/100)	5	round down		

Since 2<5, the hypothesis of low coverage is unsatisfactory thus hypothesis of low coverage validated

MAM Hypothesis of High coverage: Areas with Active family MUAC

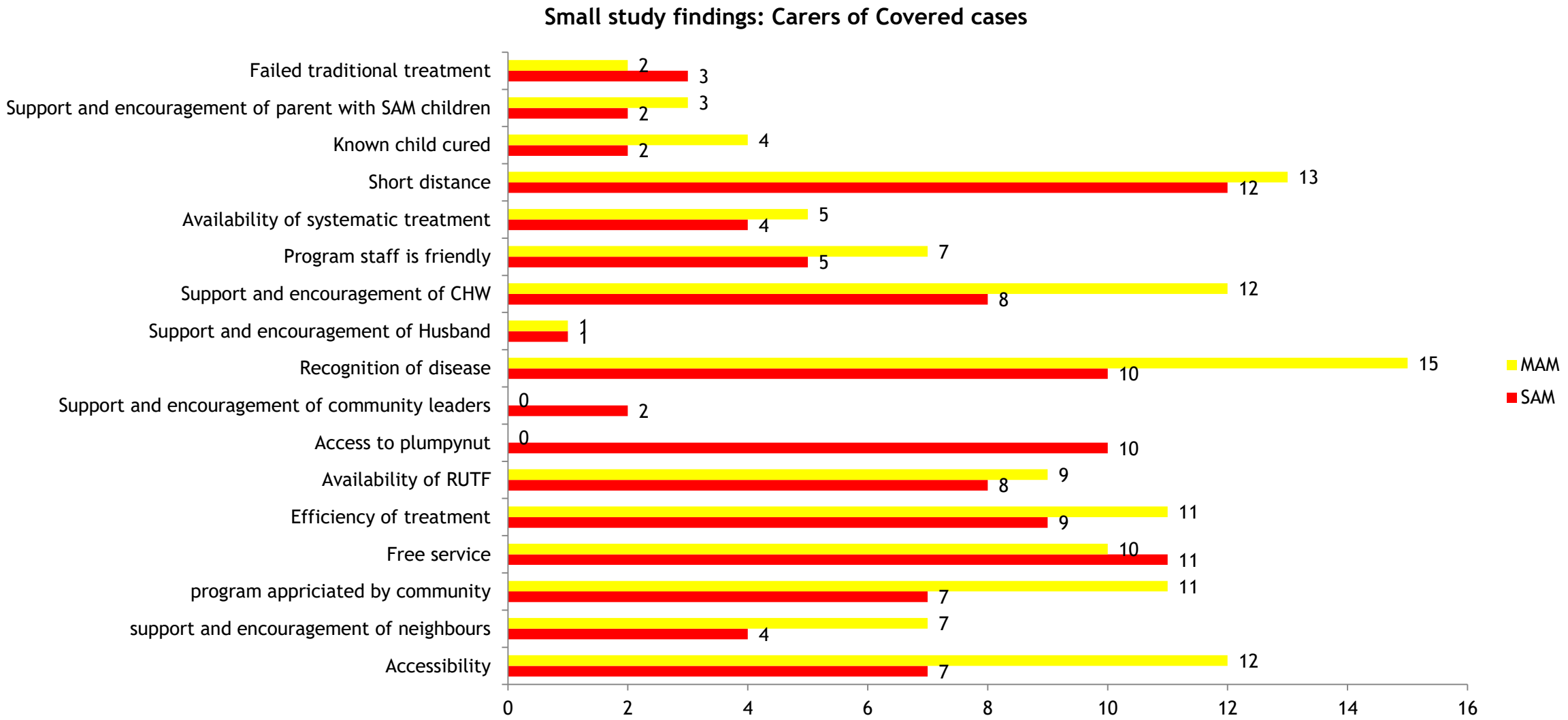
THRESHOLD = 50%	Hypothesis of high coverage: Areas with active family MUAC						
Village	**No. of children screened**	**MAM Case**	**MAM Case covered**	**MAM Case NOT covered**	**Recovering MAM**	**Total MAM + recovering MAM**	**Total covered (MAM or recovering)**
Qarsadamu (Bula Tangi)	36	4	3	1	0	4	3
Kubihalo	83	13	12	1	0	13	12
Safo (Wrankara)	114	26	19	7	0	26	19
Borehole 11 (Gode)	180	33	26	7	0	33	26
Total	**413**	**76**	**60**	**16**	**0**	**76**	**60**
d= n * (p/100)		d =	76*(50/100)	38	round down		
Since 60 > 38, the hypothesis of high coverage is satisfactory thus hypothesis of high coverage validated							

MAM Hypothesis of Low coverage: Areas without family MUAC

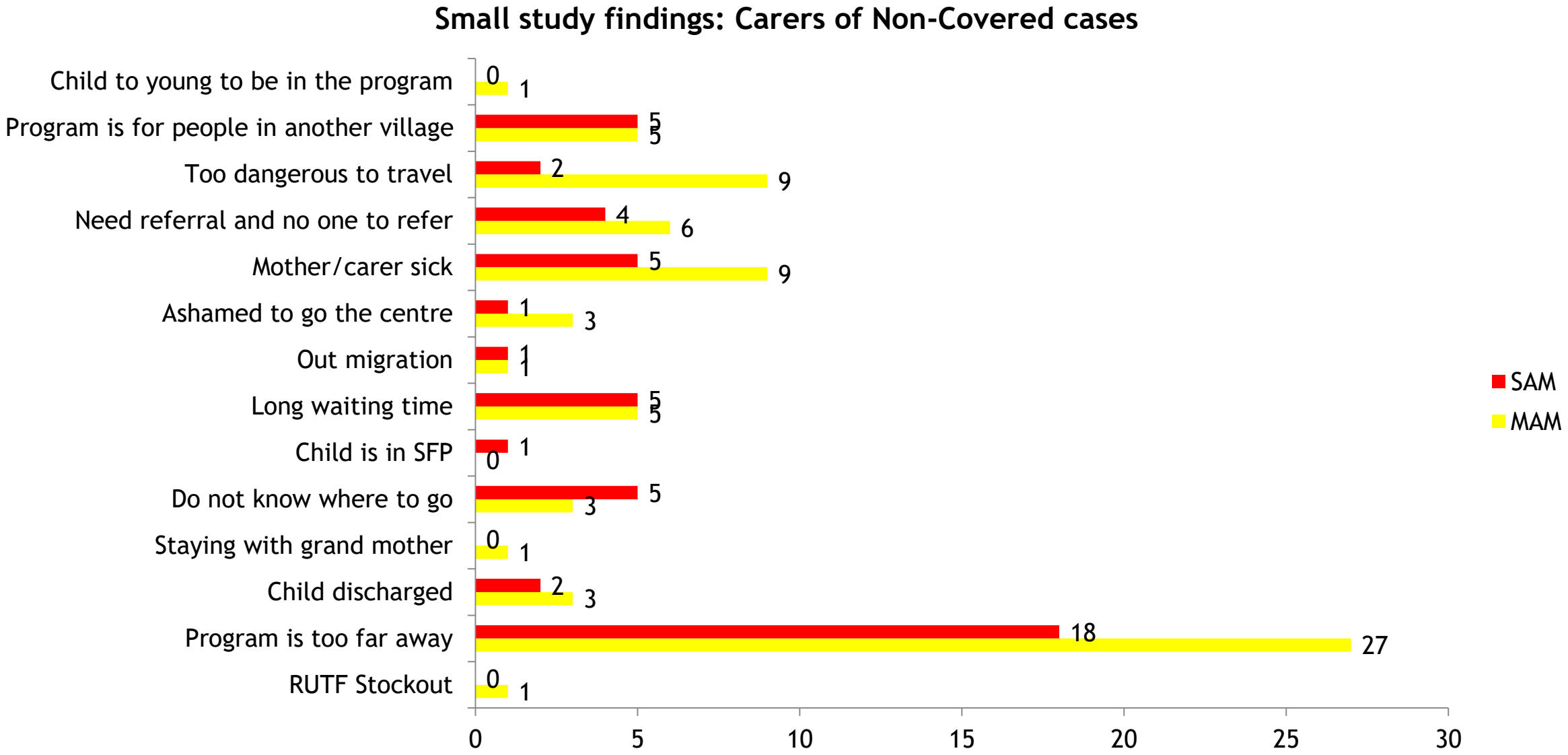
THRESHOLD = 50%	Hypothesis of high coverage: Areas with active family MUAC						
Village	**No. of children screened**	**MAM Case**	**MAM Case covered**	**MAM Case NOT covered**	**Recovering MAM**	**Total MAM + recovering MAM**	**Total covered (MAM or recovering)**
Daka Dudubata (Takaba)	58	12	1	11	0	12	1
Afgoye	40	9	0	9	0	9	0
Walmura (Ashabito)	65	15	0	15	0	15	0
Qabri saqir (Arabia)	28	9	2	7	0	9	2
Total	**191**	**45**	**3**	**42**	**0**	**45**	3
d= n * (p/100)		d =	45*(50/100)	22	round down		

Since 3< 22, the hypothesis of low coverage is unsatisfactory thus hypothesis of low coverage validated

Small Study findings: Carers of Covered Cases



Small Study findings: Carers of Non-Covered Cases



Prior Development

Forming the PRIOR:

The PRIOR was Derived from;

1. **Simple barriers & boosters:** Listing of Boosters and Barriers arising/derived from triangulated evidence in Stage One
2. **Weighted Barriers & Boosters:** Weights of BBs derived from well-triangulated evidence in stages 1 & 2
3. **Histogram:** software generated with Credible coverage limits derived from triangulated evidence by four (5) analysis teams
4. **Concept Notes: Listing of the positive and negative contributors to IMAM coverage**

- An Average of the four (4) methods was done to estimate the prior
- **Prior Plot:** The Bayes calculator was used to develop both OTP and SFP Bayes prior plots
- The α and ß shape parameters were obtained from Bayes Calculator

SAM Boosters simple and weighted score

NO	BOOSTERS	SOURCES	METHOD	Simple	Weighted
1	Good health seeking behavior-carers take their children to HF for treatment when the child is sick	3[3],7[1],2[3],4,1[1],9, 12,14,21[1],13,23[1]	B[10],A[8],F	1	**3**
2	Some Recognition of Malnutrition by community members as a disease	2[3],3[2],6[3],8,7,4,9[2],21,11	B[10],A[6]	1	2.5
3	Community know Signs of Malnutrition	17,2[1],3,1,9,11,14,23[2],1	B[8],A[2]	1	2
4	Community understand causes of malnutrition	6[1],17[1],7,9[2],14,5[1],11	B[9],F	1	1.5
5	High awareness of IMAM program and services among Community members; sites where malnutrition can be managed, SAM cases in program/community, continouse awareness creation by CHV	5[6],1[5],17[2],3[4],10,7[5],6[3],2[2],4[5],8[3],19,21[1],9[7],12,14,21[1],8,23[2],11[2]	B[44],C,A[17],F	1	3.5
6	Community perceive RUTF as Medicine	7[1], 1[3],19,8[2],21[2],9[3],2[2],23[2],3[1],6	A[13],B[11]	1	2.5
7	Caregivers given information on IMAM services – why child admitted, treatment protocol and ration, follow up visits	5[4],10,2,3,6[2],4[1]19, 8,9[2],17,21[1],14,1,23	B[17] ,C,A[4]	1	3
8	Availability of outreach sites in some of the hard-to-reach areas	19,17,22,11,2,13	A[1],B[3]	1	2
9	RUTF stock outs are rare or short-lived	7,1,6	A,B[1]	1	1
10	Free OTP services	3[1],2[1],5[2],7,6,9,8,23[1],1[1],11,21,	B[11],A[5]	1	2.5
11	Availability of anthropometric equipment	6[2],5,16	B[2],D	1	1
12	Close proximity to the service (HF)	6,2[1],7[2], 5,9,8[1],23[1],3,1,21,4	B[8],A[5]	1	2
13	Early identification and referral of SAM cases through CHVs and family MUAC, mass screening	7[1],10,6,5,4[1],19[1],8,9,12	A[4],C,B[4]	1	2
14	CHVs continously conducting active case finding at the community and referal of SAM cases to HF	5[7],3,10,6[3],4[1],19,8[1],1,21[1],14[1],11,1,23[1]	B[20],C,A[5],F	1	3
15	Follow-up & home visits by CHVs & HCW	10,5[4],6[1],23	C,B[8],3,A[4]	1	1

SAM Boosters simple and weighted score

16	Routine nutrition screening done at HF	6^{1},4,14	B^{2},F	1	1
17	Proper Community referral system	17^{1},6,9^{3},14^{1},3,21, 5^{2}	B^{10},F,A^{1}	1	2.2
18	Some regular contact between the CHVs and the health facility; regular meetings & feedbacks	6^{8},5^{9},4^{4},8^{2},9,12,14,11^{1},21,2,13,23^{2},1^{1} ,17	B^{32},A^{4},F	1	3
19	Good communication between CHVs, community and key community leaders.	1,3^{1},10,7^{1},5^{1},2,4^{1},19,6^{2},12,21^{1},9^{1},11, 14,23	B^{16},C,A^{4}	1	3.5
20	Regular (quarterly) Supportive supervision from the S/CHMT	6^{2},5	B^{4}	1	1
21	Great appreciation of IMAM services by the stakeholders	2^{4},7^{4},1^{6},$5^{'4}$,3^{3},6^{3},8^{4},9^{3},4^{2},21^{3},12^{1},11^{1}, 23^{1},17	B^{37},A^{16}	1	3.5
22	Appreciation of the work done by the CHVs and MTMSG	7,2,3	B, C	1	3
23	Good perception about the program by the community	12^{1},21,11,14,1^{1},6,3,9	B^{5},A	1	2.5
24	Some defaulter tracing mechanism and follow-up of absenteesim in H/Fs with active communication with CHVs	5^{5},10,7,6^{4}	B^{5},C,A	1	1.6
25	Most HCWs are trained and have experience on IMAM	6^{15},10,4,16	B^{16},C,D	1	2.6
26	Most CHVs are sensitized on IMAM services and have experience on community services	5^{2},9^{3},8	B^{6},A	1	2.5
27	97 out of 104 Health facilities offering IMAM with majority integrated outreach services	15	E	1	2
28	Proper documentation and update of IMAM registers	6^{2},16^{4},10,23	B^{2},D^{4},C	1	1.5
	TOTAL			28	62.4

SAM Barriers simple and weighted score

NO	BARRIERS	SOURCES	METHOD	SIMPLE	WEIGHTED
1	Poor health seeking behavior- some mothers seek treatment from traditional and spritual healers first before taking the child to HF	1,6[1],8,21,23,17	B[4],A[1]	1	3.0
2	Stigma associated with malnutrition leading to failer to seek proper help	7[1],8,4[1],12	A[2], B[2]	1	2.0
3	High maternal workload limiting time to seek health services	7, 19[1],14,8[1],3,5,9,3,4,23[1],1,21	B[7], A[5],F	1	3.5
4	Malnutrition not recognized as a disease by some community members and does not understand signs & symptom	3,9,4	B[2]	1	1.0
5	Most community members lack basic information on IMAM services; not aware of the target group, treatment protocoles	6,7[1],2,3[1],4,8,21[2],12,14,11	B[4],A[7],F	1	2.8
6	Poor terrain and long distance to the Service deliver points	6[2],7[2],3[2],54,1[2],4[3],8[3],2,12,21[1],14[2],13,11[1],20, 23	B[23],A[13],F	1	4.0
7	Fixed IMAM service days (once week) and Long waiting time (after other services) for IMAM services at the facility	7[2],6[1],5,8[3],9,3,23[3],11,1	A[7],B[10]	1	3.2
8	Migration among nomadics and insecurity in some areas especially along the borders.	1,3[2],8[1],6[2],9,11,14[1],5[3],23	B[12],A[2]	1	3.4
9	Misuse of RUTF; Sharing or exchange for money and household food	17,6,5[1],23,8,21	B[4],A[1]	1	3.0
10	Periodic Stock out of RUTF commodities leading to disruption of SAM services	7[4],1[5],5[4],3[3],6[8],2[1],4[3],19,9[4],8[1],21[1],14[2],23[3],11[2] ,16[1]	A[12],B[39],F,D[1]	1	2.3
11	Some CHVs not trained on IMAM hence refers wrong admission criteria cases.	5[2],6[2],9,21,10	B[6],A,C	1	2.5
12	Low CHVs motivation for IMAM program and other activities at the community level leading to reduced active case finding and defaulter tracing.	5[12],1,10,8[1],4,6[1],9[6],3,17	B[23],C,A[2]	1	3.0
13	Limited established community units leading to no CHVs at community to conduct IMAM activities	6[1],7[1],3,1,4,21,11	B[6],A[2]	1	3.0

SAM Barriers simple and weighted score

14	Influx of unplanned cross border populations	6^{3},22	B^{4}	1	1.5
15	In some areas there is no regular communication between the CHVs and the health facility.	5^{1}, 21^{1} ,	B^{1},A^{1}	1	1.3
16	Poor perception of IMAM program; perceive RUTF as food	17^{1},3,14,5,2	B^{4},A^{1}	1	2.0
17	Limited defaulter tracing mechanism in most health facilities; no list of defaulters & no follow-up	6^{3},5^{1},14	B^{6},F	1	2.2
18	Early defaulting from OTP program in some facilities	15	E	1	2.0
19	Poor staff attitude -Closed H/Fs during working hours due to Staff absenteeism or late reproting to duties	5,9	B^{1}	1	1.0
20	Staff shortage- some H/Fs, IMAM program is only managed by CHVs due to staff turnover coupled with high facility workload at the facility	6^{8},8,7,4^{3},9^{1},1^{2},5^{2},2,23^{1},3	B^{22},A^{3}	1	3.5
21	Lack of documentation; incomplete / contradicting data between documents	6^{1},5^{2}	B^{4}	1	1.5
22	Inadequate established CUs to implement BFCI,MIYCN and Family MUAC activities	6^{2},5,16	B^{2},D	1	2.0
	TOTAL			22	53.7

MAM Boosters simple and weighted score

NO	BOOSTERS	SOURCES	METHOD	SIMPLE	WEIGHTED
1	Good health seeking behavior-carers take their children to HF for treatment when the child is sick	18[1],3[3],2[3],4,20[4],9,12,21[1],13,14	B[13],A[8]	1	**3.2**
2	Some Recognition of Malnutrition by community members as a disease and understand signs of malnutrition	17,22,9[3],2[1],3[3], 14,20,21[1],6[3],8,18,4	B[13],A[6]	1	2.5
3	Community understand causes of malnutrition	6[1],17[1],18,22,9[1],20,5[1]	B[8],A	1	2
4	High awareness of IMAM program and services among Community members; sites where malnutrition can be managed, MAM cases in program/community, continouse awareness creation by CHV	5[5],18[3],9[7],17[2],3[4],6[3],2',4[6],19,8[1],14[3],22,21[2],20[4],12,8,2	B[41],A[15],F	1	3.7
5	Caregivers given information on IMAM services – why child admitted, treatment protocol and ration, follow up visits	10,1,3[1],18,5[2],2,4[1],6[2],19,21[1],9[1],20	C,B[12],A[4]	1	3.7
6	Community preserved RUSF as a medicine	9[4],19,8[2],4,21[2],22,2[2],20[3],3[1]	B[8],A[13]	1	3
7	Availability of outreach sites in some of the hard-to-reach areas	19,17,22,2,13	A[1],B[2]	1	3
8	No stock out	6,20	B[1]		1
9	Free SFP services	2[1],5[2],9,20[2],8,3,21,4	A[5],B[6]	1	2.5
10	Availability of anthropometric equipment	6[1],16	B[1],D	1	1
11	Close proximity to the service (HF)	6,2[1] 18,5,9,20[1],8[1],3,21,4	B[7], A[5]	1	2.5
12	Early identification and referral of MAM cases through CHVs and family MUAC, mass screening	5[3],4[1],8,19[1], 18,9[4],17[1],12,3,21,20	B[15], A[4]	1	3
13	CHVs continously conducting active case finding at the community and referal of MAM cases to HF	5[7],10,6[3],4[1],19, 8,12,22,21[1],20	B[16],C, A[4]	1	3
14	Follow-up & home visits by CHVs & HCW	10,5[3],6[1]	C,B[4]	1	1
15	Routine nutrition screening done at HF	6[1],4,14	B[2],F	1	1

MAM Boosters simple and weighted score

16	Proper Community referral system	17^{1},6,9^{3},14^{1},3,21, 5^{2}	B^{10},F,A^{1}	1	2.4
17	Some regular contact between the CHVs and the health facility; regular meetings & feedbacks	6^{6},5^{8},4^{4},8^{2},9,20^{2},18,12,21,2,13,14,17	B^{28},A^{4}	1	3.7
18	Good communication between CHVs,community and key community leaders.	6^{6},5^{8},4^{4},8^{2},9,20^{2},18,12,21,2,13,14,17	B^{28},A^{4}	1	3.5
19	Regular (quarterly) Supportive supervision from the S/CHMT	6^{2},5	B^{4}	1	1
20	Great appreciation of IMAM services by the stakeholders	2^{4},5^{6},3^{2},6^{3},18,8^{4},9^{4},14^{1},4^{2},21^{3},22,20^{2},17	B^{23},A^{14},F	1	3.5
21	Appreciation of the work done by the CHVs and MTMSG	7,2,3	B, C	1	2
22	Good perception about the program by the community	12,3,21,20,9,14,20,6	B^{5},A^{1}	1	2.5
23	Some defaulter tracing mechanism and follow-up with CHVs	5^{8},10,18,6^{3}	B^{13},C,A	1	2
24	Most HCWs are trained and have experience on IMAM	6^{14},10,4,16,20	B^{16},C,D	1	2.5
25	Most CHVs are sensitized on IMAM services and have experience on community services	5^{2},9^{2},8	B^{4},A	1	2
26	97 out of 104 Health facilities offering IMAM with majority integrated outreach services	15	E	1	2
27	Proper documentation and update of IMAM registers	6^{2},16^{4},10,23	B^{2},D^{4},C	1	1.5
	TOTAL			**26**	**64.7**

MAM Barriers simple and weighted score

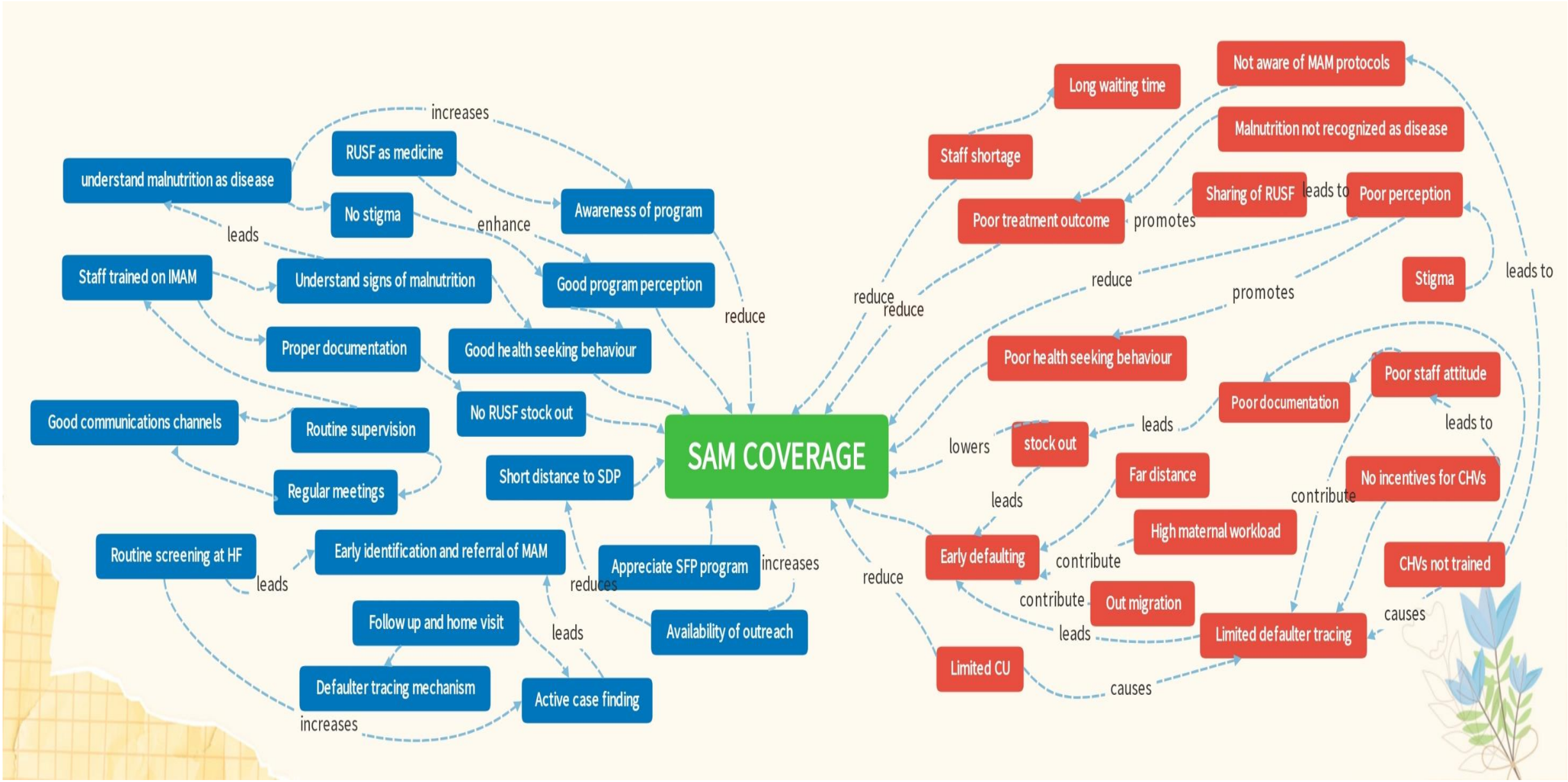
NO	BARRIERS	SOURCES	METHOD	SIMPLE	WEIGHTED
1	Poor health seeking behavior- some mothers seek treatment from traditional and spritual healers first before taking the child to HF	6[1],21,17,20	B[3],A	1	3.0
2	Stigma associated with malnutrition leading to failer to seek proper help	8,4[1],12	A,B[2]	1	2.0
3	High maternal workload limiting time to seek health services	19[2],14[1],18,8,3[1],5,9,20,4,21	A[5],F,B[5]	1	3.5
4	Malnutrition not recognized as a disease by some community members and does not understand sign of malnutrition	3,9,4,20	B[4]	1	1.0
5	Most community members lack basic information on IMAM services; not aware of the target group, treatment protocoles	6,2,4[1],8,212,12,14[1],3,20	B[5],A[6]	1	2.8
6	Poor terrain and long distance to the Service deliver points	6[2],3[4],5[2],18[1'],4[3],8[3],14[2],2,21[1],13,20[1],8	B[14],F,A[9]	1	4.5
7	Fixed IMAM service days (once week) and Long waiting time (after other services) for IMAM services at the facility	7[2],6[1],5,8[3],9,3,23[3],11,1	B[11],A[6],	1	3.2
8	Migration among nomadics and insecurity in some areas especially along the borders.	1,3[2],8[1],6[2],9,11,14[1],5[3],23	A,B[8]	1	3.5
9	Misuse of RUSF; Sharing or exchange for money and household food	17,6,5[1],23,8,21	B[12],A[2]	1	3.0
10	Periodic Stock out of RUSF commodities leading to disruption of MAM services	7[4],1[5],5[4],3[3],6[8],2[1],4[3],19,9[4],8[1],21[1],14[2],23[3],11[2],16[1]	B[28],A[12],D[1]	1	3.5
11	Some CHVs not trained on IMAM hence refers wrong admission criteria cases.	5[2],6[1],9,21	B[5],A	1	2.5
12	Low CHVs motivation for IMAM program and other activities at the community level leading to reduced active case finding and defaulter tracing.	5[12],1,10,8[1],4,6[1],9[6],3,17	B[23],C,A[2]	1	3.0
13	Limited established community units leading to no CHVs at community to conduct IMAM activities	6[1],7[1],3,1,4,21,11	B[6],A[2]	1	3.0
14	Influx of unplanned cross border populations	6[3],22	B[4]	1	2.0

MAM Barriers simple and weighted score

NO	BARRIERS	SOURCES	METHOD	SIMPLE	WEIGHTED
15	In some areas there is no regular communication between the CHVs and the health facility.	5^{1}, 21^{1} ,	B^{1},A^{1}	1	1.5
16	Poor perception of IMAM program; percieve RUSF as food	2,3^{1},6^{1},4,9,19,22,21^{1},13,11,20,4	B^{12},A^{2}	1	2.0
17	Limited defaulter tracing mechanism in most health facilities; no list of defaulters & no follow-up	6^{3},5^{1},14	B^{6},F	1	2.2
18	Early defaulting from SFP program	15	E	1	2.0
19	Poor staff attitude -Closed H/Fs during working hours due to Staff absenteeism or late reproting to duties	5,9	B^{1}	1	1.0
20	Staff shortage- some H/Fs, IMAM program is only managed by CHVs due to staff turnover coupled with high facility workload at the facility	6^{8},8,7,4^{3},9^{1},1^{2},5^{2},2,23^{1},3	B^{22},A^{3}	1	3.5
21	Inadequate established CUs to implement BFCI,MIYCN and Family MUAC activities	6^{2},5,16	B^{2},D	1	2.0
22	Lack of documentation; incomplete / contradicting data between documents	6^{1},5^{2}	B^{4}	1	2.0
	TOTAL			22	56.7

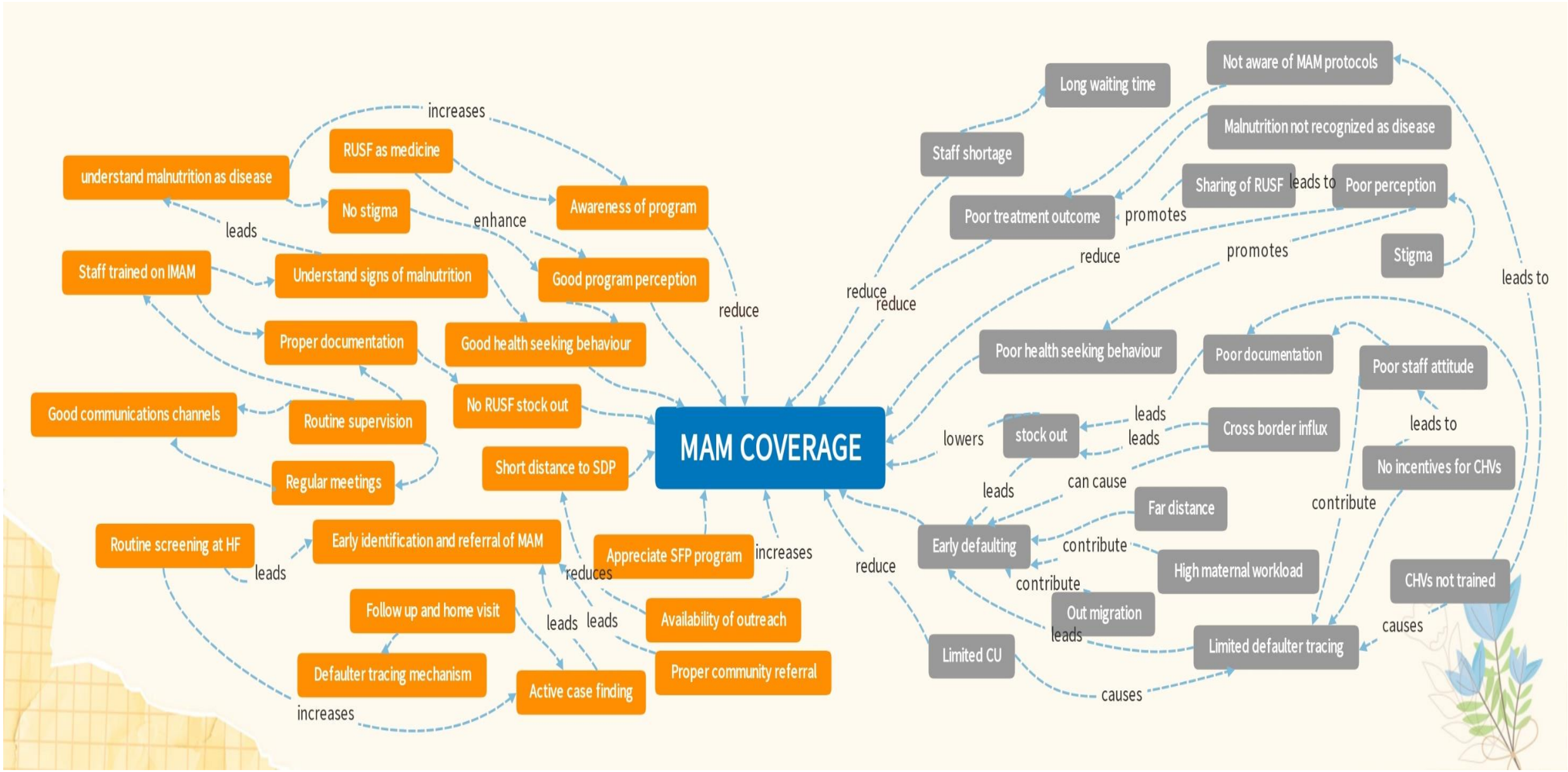
OTP Concept map

28 POSITIVE AND 27 NEGATIVE CONNECTIONS WERE IDENTIFIED



SFP Concept map

30 POSITIVE AND 29 NEGATIVE CONNECTIONS WERE IDENTIFIED



Histogram (Belief)

Developed from an average of low and coverage beliefs from the SQUEAC analysts

	SAM HISTOGRAM		MAM HISTOGRAM	
	BOOSTER	BARRIER	BOOSTER	BARRIER
AVERAGE HISTOGRAM	66.2	40.2	64.4	37.2
Analysts 1	70	45	65	33
Analysts 2	60	44	67	43
Analysts 3	59	40	54	34
Analysts 4	62	46	57	46
Analysts 5	80	26	79	30

SAM PRIOR ESTIMATION

METHODS	Boosters total	Barriers total		Formulae	Prior mode
Simple barrier and booster prior mode	28	22		(BST + (100-BRR)) / 2	53.0
Weighted Barrier and booster prior mode	55.7	49.2		(BST + (100-BRR)) / 2	53.3
Concept map prior mode	28	27		(BST + (100-BRR)) / 2	50.5
Histogram	66.2	40.2		(BST + (100-BRR)) / 2	63.0

MAM PRIOR ESTIMATION

METHODS	Boosters total	Barriers total		Formulae	Prior mode
Simple barrier and booster prior mode	27	22		(BST + (100-BRR)) / 2	52.5
Weighted Barrier and booster prior mode	54.8	51.7		(BST + (100-BRR)) / 2	51.6
Concept map prior mode	30	29		(BST + (100-BRR)) / 2	50.5
Histogram	64.4	37.2		(BST + (100-BRR)) / 2	63.6

MANDERA PRIOR MODE ESTIMATION (SAM / MAM)

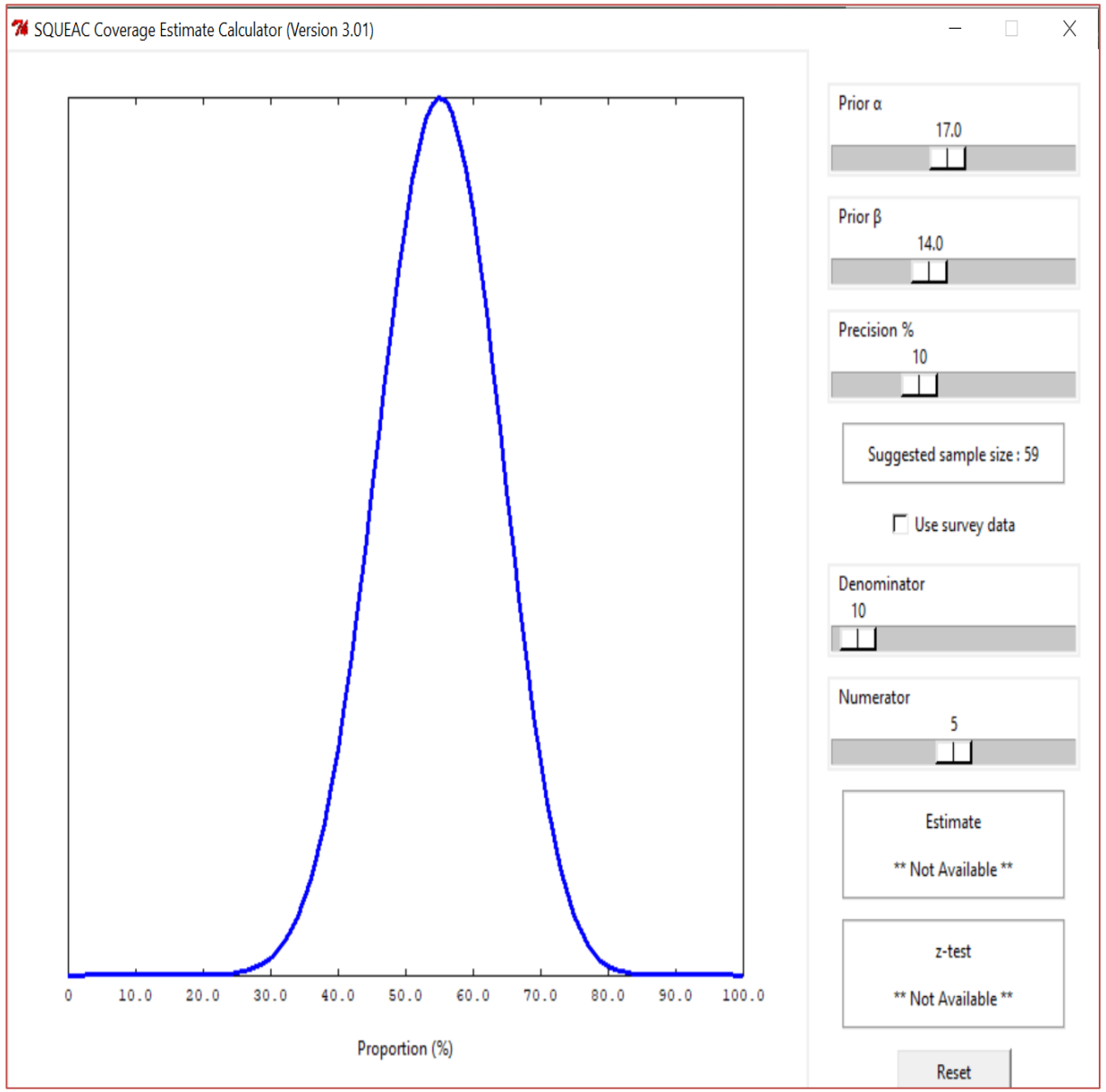
SAM PRIOR ESTIMATION

METHODS	Boosters total	Barriers total	Formulae	Prior mode
Simple barrier and booster prior mode	28	22	(BST + (100-BRR)) / 2	53.0
Weighted Barrier and booster prior mode	55.7	49.2	(BST + (100-BRR)) / 2	53.3
Concept map prior mode	28	27	(BST + (100-BRR)) / 2	50.5
Mind map prior mode			(BST + (100-BRR)) / 2	
Small area survey				
Histogram	66.2	40.2	(BST + (100-BRR)) / 2	63.0
FINAL PRIOR MODE				**54.9**
Use +/- 25% range of probable values				0.549
Minimum (Minus 20% or 25% of the Mode)				0.35
Maximum (Minus 20% or 25% of the Mode)				0.75
Precision Usually 0.10 (10%) but can go up to 0.15 (15%)				0.10
L				0.29
U				0.81
μ				0.55
σ				0.09
Alfa (α)				17.0
Beta (β)				14.0
SUGGESTED SAMPLE SIZE FOR STAGE 3 (Bayes SQUEAC Plot)				59

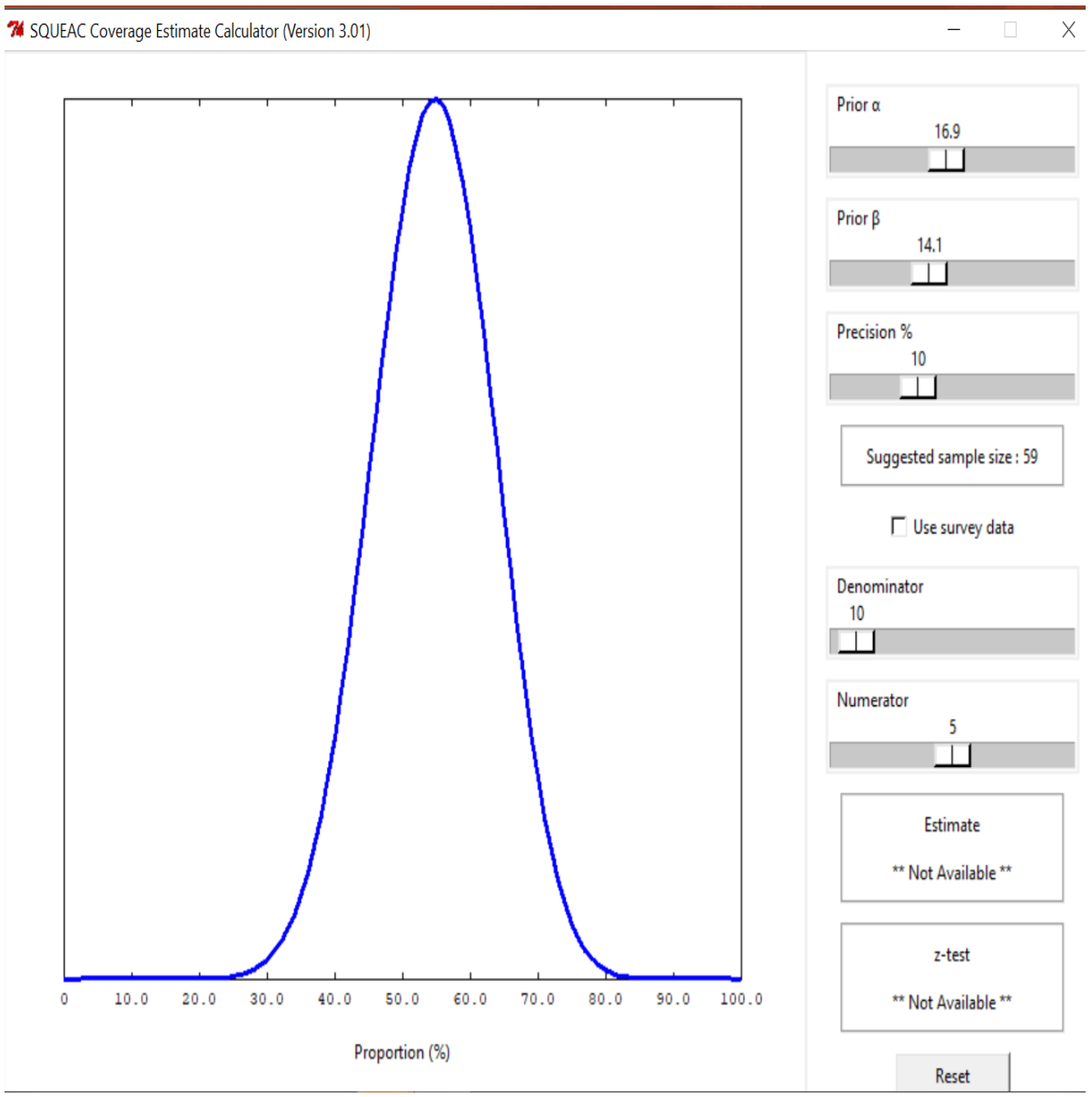
MAM PRIOR ESTIMATION

METHODS	Boosters total	Barriers total	Formulae	Prior mode
Simple barrier and booster prior mode	27	22	(BST + (100-BRR)) / 2	52.5
Weighted Barrier and booster prior mode	54.8	51.7	(BST + (100-BRR)) / 2	51.6
Concept map prior mode	30	29	(BST + (100-BRR)) / 2	50.5
Mind map prior mode			(BST + (100-BRR)) / 2	
Small area survey				
Histogram	64.4	37.2	(BST + (100-BRR)) / 2	63.6
FINAL PRIOR MODE				**54.5**
Use +/- 25% range of probable values				0.545
Minimum (Minus 20% or 25% of the Mode)				0.35
Maximum (Minus 20% or 25% of the Mode)				0.75
Precision Usually 0.10 (10%) but can go up to 0.15 (15%)				0.10
L				0.28
U				0.81
μ				0.55
σ				0.09
Alfa (α)				16.9
Beta (β)				14.1
SUGGESTED SAMPLE SIZE FOR STAGE 3 (Bayes SQUEAC Plot)				59

OTP PRIOR MODE



SFP PRIOR MODE



STAGE THREE (WIDE AREA SURVEY)

1). SAMPLING FOR WIDE AREA SURVEY

2). CASE-FINDING

PLANNING FOR WIDE AREA SURVEY

Calculating the number of villages to Visit

- The Bayes calculator was used to develop both OTP and SFP Bayes prior plots.
- The alpha (α) and beta (β) shape parameters were obtained from Bayes Calculator. This in turn helped calculate the required sample size for both SAM and MAM cases for the wide area survey (Stage 3). The sample sizes calculated for SAM and MAM cases were 59 each.

The number of villages needed to be visited to reach the required SAM/MAM sample size (calculated through the Prior plot) were calculated using the formula below;

$$n_{villages} = \left\lceil \frac{n}{average\ village\ population_{\ all\ ages} \times \frac{percentage\ of\ population\ 6-59_{\ months}}{100} \times \frac{SAM or\ MAM\ prevalence}{100}} \right\rceil$$

PLANNING FOR WIDE AREA SURVEY

Calculating the number of villages to Visit …

Parameter	Value
Mandera County Population =	917,886
Total no. of villages in Mandera County =	580
Average pop. for Mandera County (County pop ÷ Total villages) =	1583
SAM Prevalence by MUAC (January 2023 SMART) = 0.9 % (0.4 - 1.9 95% C.I.)	0.0115
Mandera SQUEAC Analysts Preferred SAM Prevalence by MUAC for the Wide Area Survey sample size calculation over SAM by WHZ (7.4%), since a low SAM Estimate would help ensure that the survey will achieve the Target Sample size. A mid-way value between the point estimate & the lower 95% confidence limit (0.4% - 1.9 %)÷2 = 2.3%	0.0115
MAM Prevalence by MUAC (January 2023 SMART) = 7.6% (5.7-10.3 95% CI)	0.08
Percentage (%) of U5 children in Mandera (KNBS 2022 Projections) = 15.5%	0.155
Suggested Sample size for SAM Wide Area Survey	59
Suggested Sample size for MAM Wide Area Survey	59
Formula for N villages =	SAM or MAM sample Size as Bayes Calculator ÷ by (average village pop. * Proportion of U5s from county pop. (15.5%) * %SAM OR MAM Prevalence)
N Villages for SAM =	27 Villages
N Villages for MAM =	3 villages
Systematic Sampling to be Applied for Village/Cluster Sampling	
Sampling Interval (Total no. of villages ÷ N villages for SAM)	22

The Wide Area Survey in Mandera County will be conducted in **27 villages,** since **SAM** has the largest village sample. In sampling the villages to visit, the sampling interval will be applied until the end of list of the sampling frame, with the rounding up and rounding down being applied alternately.

Sampling Interval

Cluster to sample per Sub-County

SUB-COUNTY	Total villages	Average Village Pop	SAMPLE	INTERVAL
MANDERA SOUTH	92	251	4	22
MANDERA EAST	81	221	4	22
BANISA	134	366	6	22
MANDERA NORTH	87	237	4	22
MANDERA WEST	62	169	3	22
LAFEY	81	221	4	22
KUTULO	43	117	2	22
Total	580	1583	27	22

- All villages with insecurity issues were removed from the sampling frame

Sampled Villages

S NO.	SUB-COUNTY	No. Sampled	VILLAGE NAME
1	MANDERA WEST	6	ALOKONA
2	MANDERA WEST	28	DANDU BULA MPYA A
3	MANDERA WEST	50	LAGSURE A TAKABA
4	KUTULO	2	BOJIGARSE B
5	KUTULO	24	DIMU A
6	MANDERA NORTH	7	Bilaley (OLLA)
7	MANDERA NORTH	29	Bulla Qodi(Rhamu town)
8	MANDERA NORTH	51	Issack Kora(Rhamu)
9	MANDERA NORTH	73	Sarman (Olla)
10	LAFEY	1	ALUNGU GOF
11	LAFEY	23	KEISANEY
12	LAFEY	45	B/BOREHOLE
13	LAFEY	67	B/TOWN
14	MANDERA SOUTH	14	Bulla Ayo Elwak A
15	MANDERA SOUTH	36	EGU Dam
16	MANDERA SOUTH	58	HARADI
17	MANDERA SOUTH	80	South C Shimbir
18	BANISA	2	AFAR
19	BANISA	24	Bulla dadacha chiracha
20	BANISA	46	Bulla IDPs lulis
21	BANISA	68	Bulla tank birkan
22	BANISA	90	GESREBKY
23	BANISA	112	QATIS
24	MANDERA EAST	10	B/centre sarohindi
25	MANDERA EAST	32	B/shamba bp1
26	MANDERA EAST	54	Cereal board centre central mdr town
27	MANDERA EAST	76	Neboi centre neboi town

Organization of the Wide Area Survey and Case finding methodology:

- The wide area survey to be conducted for four (6) days by eight (8) teams.
- The following tools used by each team during data collection;
  - Paediatric MUAC Strap
  - A height board and Weighing scale
  - Samples of RUTF & RUSF
  - Photos of SAM Cases
  - Screening Tally sheet
  - Summary of screening
  - Blank form for covered and Non-covered cases
  - Referral slips
- Having been trained on how to conduct anthropometric measurements, the teams will be released for data collection.
- The wide area will adopt all the three criteria used in admission in the County (MUAC, Z-scores and/or bilateral oedema) in screening children for acute malnutrition.
- Exhaustive screening of all children 6 to 59 months will be done to locate ALL SAM and MAM cases and to determine if they are:
  - Covered SAM/MAM cases *(Cin)*
  - Non-covered SAM/MAM cases *(Cout)*
  - Recovering cases *(Rin)*.
- All responses and measurements will be recorded into a tablet/phone with wide area survey data collection tool coded into Kobo collect platform.

Wide Area Survey Results: Cases Identified

SAM							
Sub County	Team No.	Village	No. of Children Screened	SAM cases	SAM Covered (C-in)	SAM NOT covered (C-out)	Recovering (R-in)
Mandera South	1	Bula Ayo	35	**2**	2	0	0
		Egu Dam	47	**3**	2	1	0
		Haradi	29	**2**	2	0	0
Mandera East	2	Lulis	25	**1**	1	0	0
		Sarman	45	**9**	0	9	0
		Sarohindi	67	**7**	4	3	0
Banissa	3	Chiracha	85	**7**	5	0	2
		Gesirebki	127	**10**	6	1	3
		Bula Tangi	120	**0**	0	0	0
		Afar	38	**0**	0	0	0
Mandera North	4	Bilaley	8	**0**	0	0	0
		Issack Kora	54	**0**	0	0	0
		Bula Qodi	100	**4**	3	1	0
Mandera West	5	Bula Mpya Dandu	93	**4**	1	3	0
		Lagsure A (Takaba)	59	**3**	2	1	0
		Alokona	220	**14**	5	9	0
		Qatis	149	**4**	2	2	0
Lafey	6	Keisaney	87	**3**	2	1	0
		Bula Borehole	112	**6**	2	4	0
		Bula Town	121	**2**	2	0	0
		Alungu Gof	89	**7**	5	2	0
Kutulo	7	Bula South C (Shimbir)	95	**3**	0	3	0
		Dimu	120	**5**	4	1	0
		Bojigarse	90	**0**	0	0	0
Arabia	8	Bula Shamba	52	**7**	7	0	0
		Bula Cereal board	40	**5**	5	0	0
		Upper Neboi	40	**13**	6	7	0
TOTAL			**2147**	**121**	**68**	**48**	**5**

MAM							
Sub County	Team No.	Village	No. of Children Screened	MAM cases	MAM Covered (C-in)	MAM NOT covered (C-out)	Recovering (R-in)
Mandera South	1	Bula Ayo	35	3	3	0	0
		Egu Dam	47	4	4	0	0
		Haradi	29	3	3	0	0
Mandera East	2	Lulis	25	9	5	4	0
		Sarman	45	17	0	17	0
		Sarohindi	67	16	9	7	0
Banissa	3	Chiracha	85	23	10	10	3
		Gesirebki	127	28	11	11	6
		Bula Tangi	120	27	14	11	2
		Afar	38	10	3	5	2
Mandera North	4	Bilaley	8	8	4	4	0
		Issack Kora	54	9	3	6	0
		Bula Qodi	100	14	2	12	0
Mandera West	5	Bula Mpya Dandu	93	15	4	11	0
		Lagsure A (Takaba)	59	11	5	5	1
		Alokona	220	30	12	18	0
		Qatis	149	20	7	13	0
Lafey	6	Keisaney	87	23	16	7	0
		Bula Borehole	112	38	4	34	0
		Bula Town (Damasa)	121	34	16	18	0
		Alungu Gof	89	22	6	16	0
Kutulo	7	Bula South C (Shimbir)	95	14	1	13	0
		Dimu	120	13	9	4	0
		Bojigarse	90	9	1	8	0
Arabia	8	Bula Shamba	52	14	6	8	0
		Bula Cereal board	40	8	8	0	0
		Upper Neboi	40	15	10	5	0
TOTAL			**2147**	**437**	**176**	**247**	**14**

Wide Area Survey Results: Estimating Coverage

A Summary of SAM and MAM cases Identified during the Wide Area Survey

	SAM Cases (OTP Programme)	MAM Cases (SFP Programme)
C-in Programme	68	176
C-out of Programme	48	247
R-in Recovering	5	14

Coverage Estimator

The final coverage estimates for IMAM program in Mandera County was estimated using;

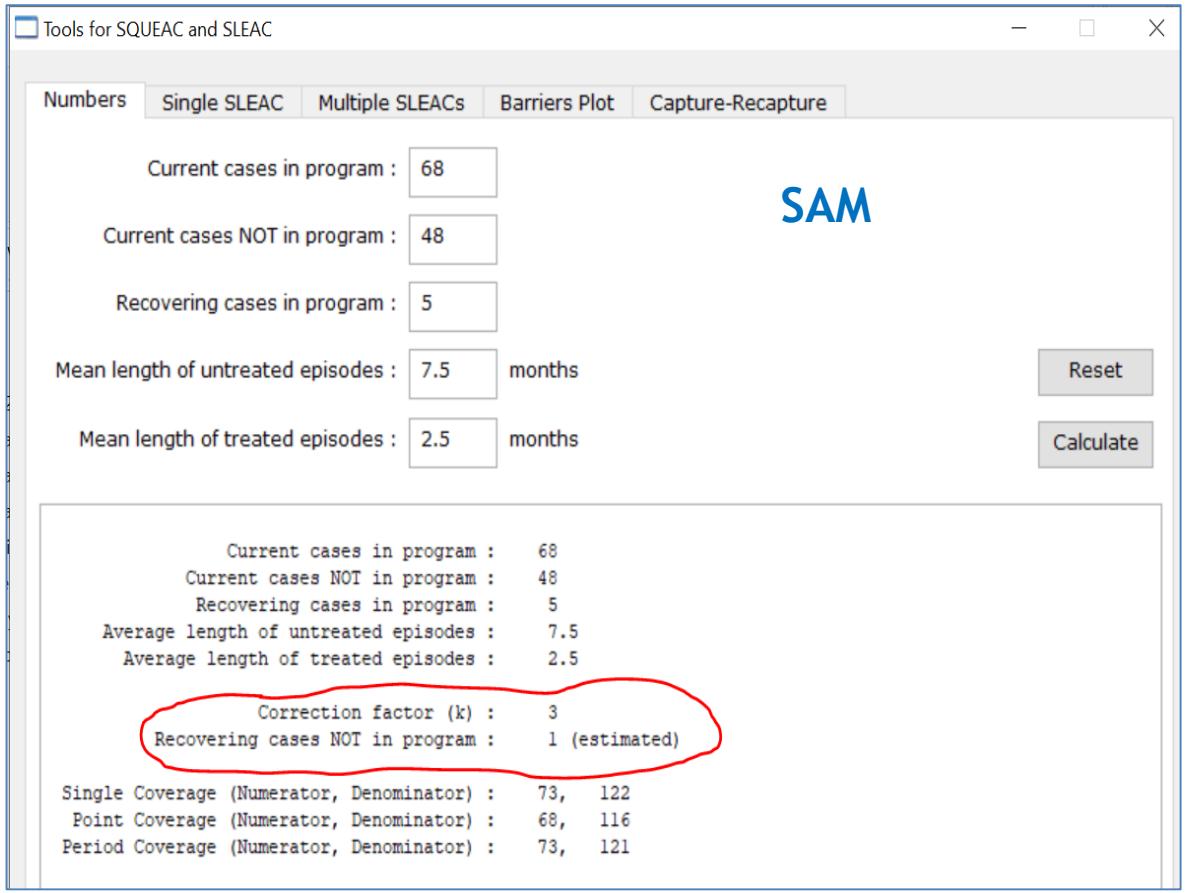
- Single Coverage Estimator
- Effectiveness of timely case-finding and recruitment indicator

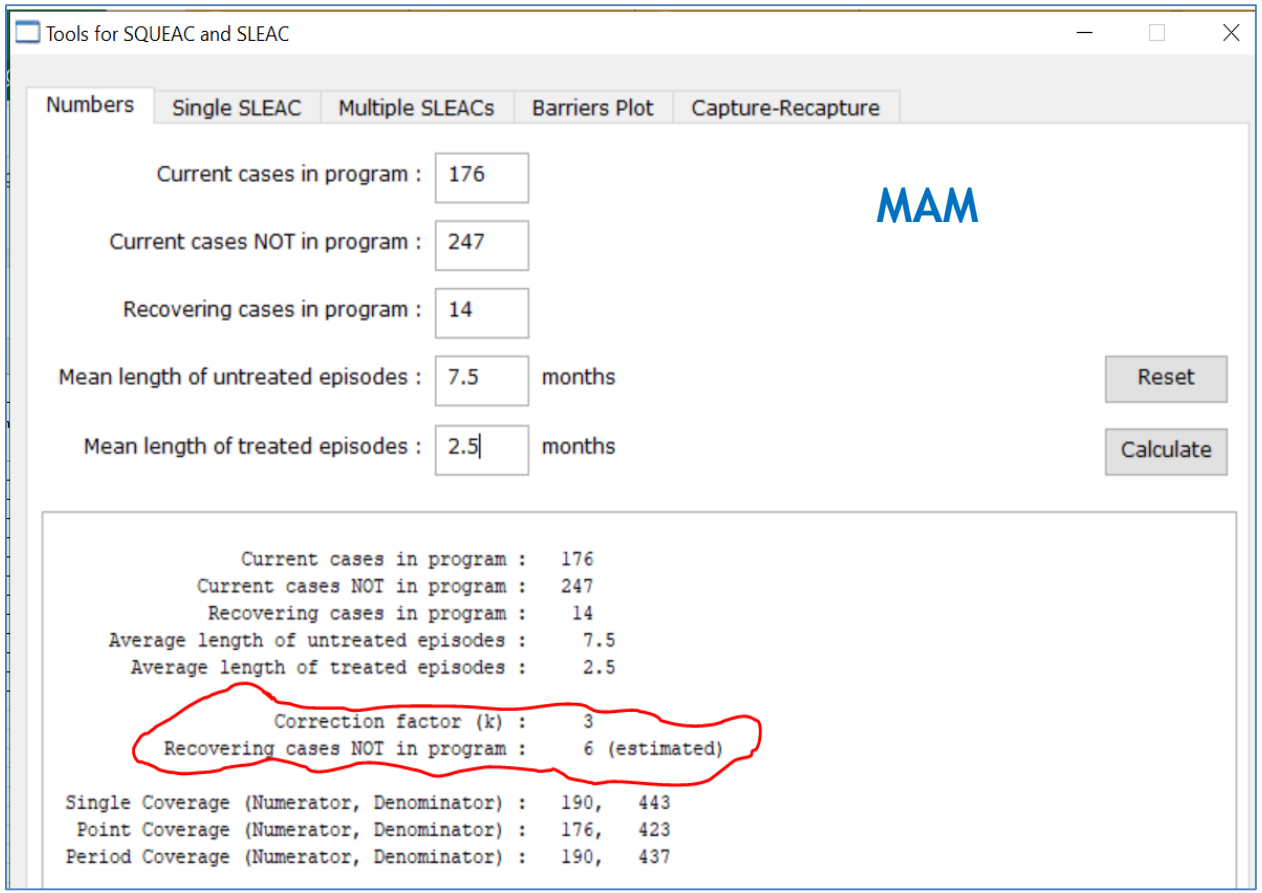
Calculating Cases Recovering Out of IMAM Programme (Rout):

$$Rout = \frac{1}{k} \times \left(Rin \times \frac{Cin + Cout + 1}{Cin + 1} - Rin\right)$$

Where ***k*** is a correction factor calculated as;

$$k = \frac{Mean\ length\ of\ an\ untreated\ episode\ (7.5\ months)}{Mean\ length\ of\ a\ treated\ episode\ (2.5\ months)} = 3$$





Calculating Cases Recovering Out of IMAM Programme (Rout): Cont.

$$Rout = \frac{1}{k} \times \left(Rin \times \frac{Cin + Cout + 1}{Cin + 1} - Rin\right)$$

Where ***k*** is a correction factor calculated as;

$$k = \frac{Mean\ length\ of\ an\ untreated\ episode\ (7.5\ months)}{Mean\ length\ of\ a\ treated\ episode\ (2.5\ months)} = 3$$

	SAM Cases (OTP Programme)	MAM Cases (SFP Programme)
C-in Programme	68	176
C-out of Programme	48	247
R-in Recovering in Programme	5	14
R-out Recovering out of Programme	1	6

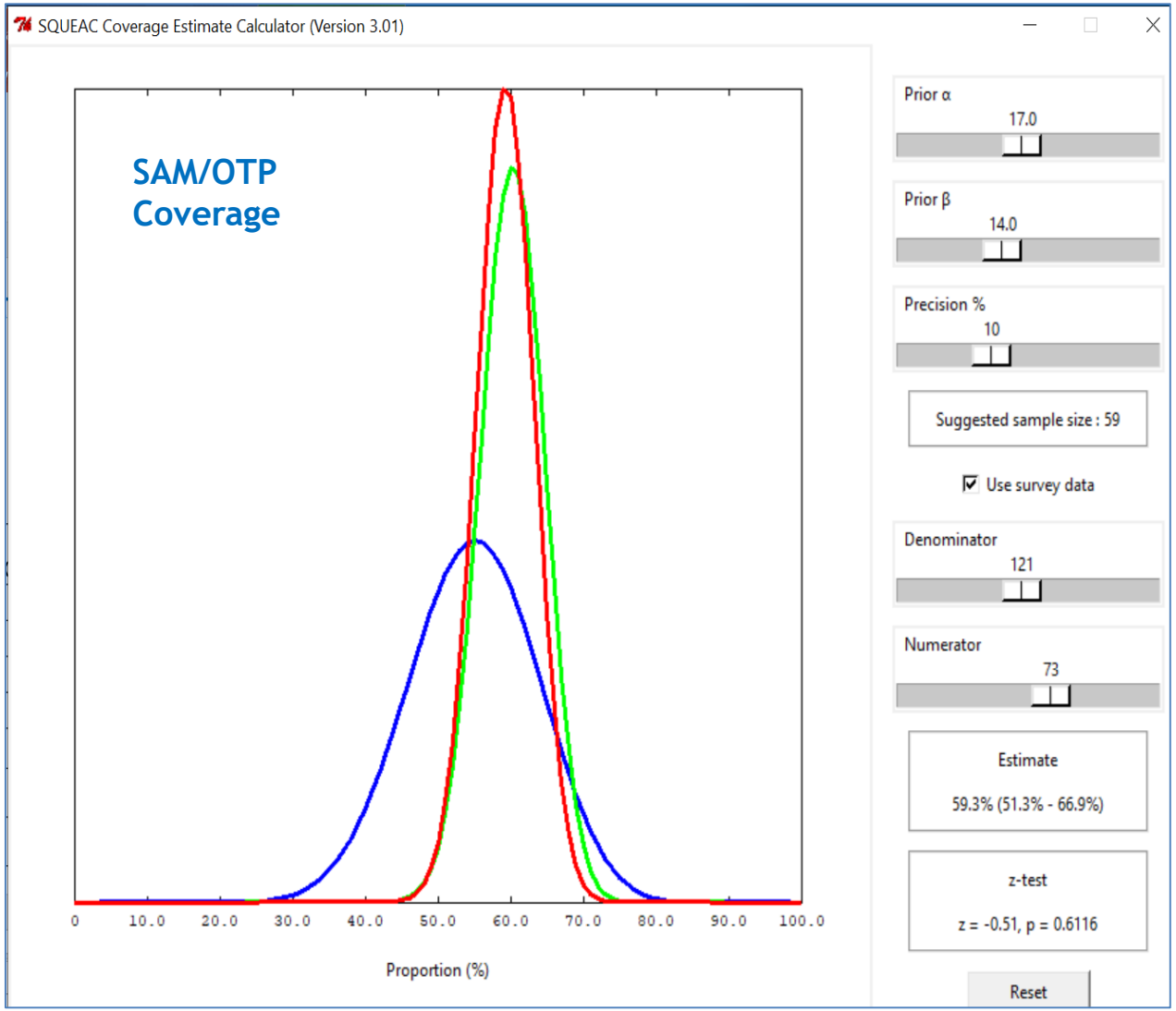
Estimating Coverage: SINGLE COVERAGE ESTIMATOR

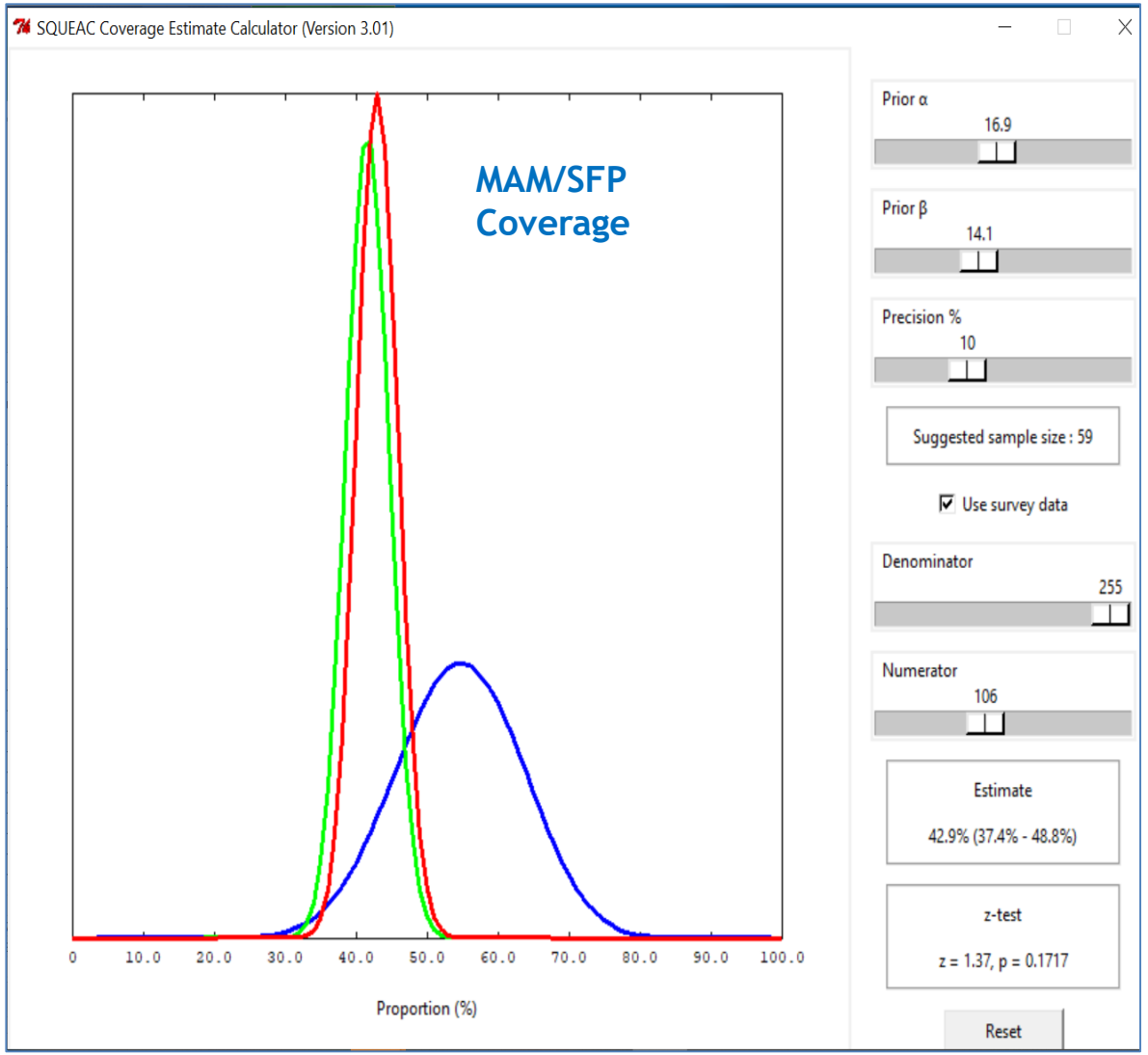
The **Single Coverage Estimator** was estimated as shown in the formula below;

$$\boldsymbol{Single\ Coverage\ Estimate} = \frac{\boldsymbol{Cin} + \boldsymbol{Rin}}{\boldsymbol{Cin} + \boldsymbol{Cout} + \boldsymbol{Rin} + \boldsymbol{Rout}}$$

	SAM Cases (OTP Programme)	MAM Cases (SFP Programme)
C-in Programme	68	176
C-out of Programme	48	247
R-in Recovering in Programme	5	14
R-out Recovering out of Programme	**1**	6
Single Coverage Estimator - Numerator	73	190
Single Coverage Estimator - Denominator	**121**	**443**
SINGLE COVERAGE ESTIMATOR	**60.3%**	**42.9%**

Posterior (Coverage) Estimation using BAYES Calculator: SINGLE COVERAGE ESTIMATOR





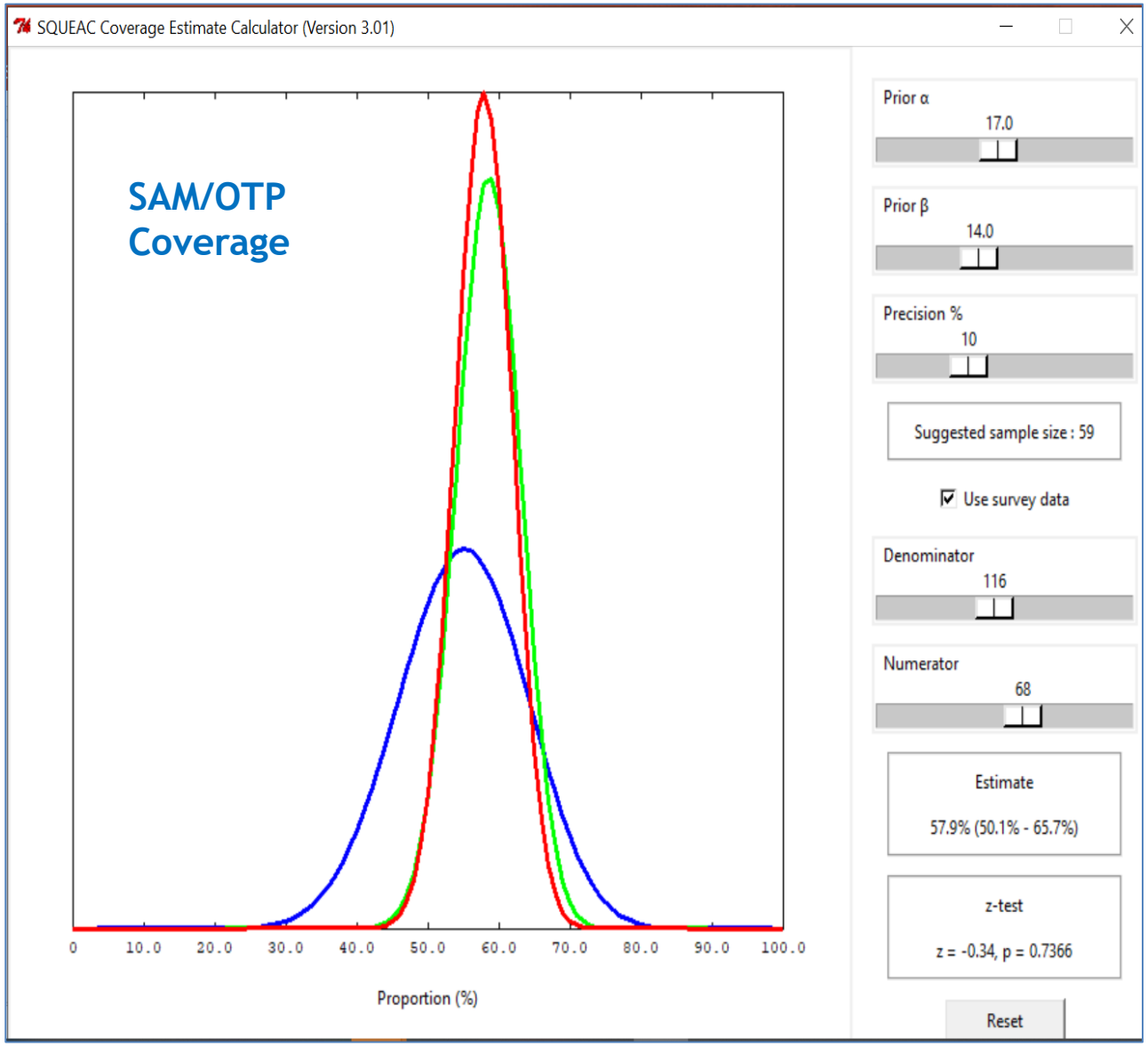
Estimating Coverage: EFFECTIVENESS COVERAGE

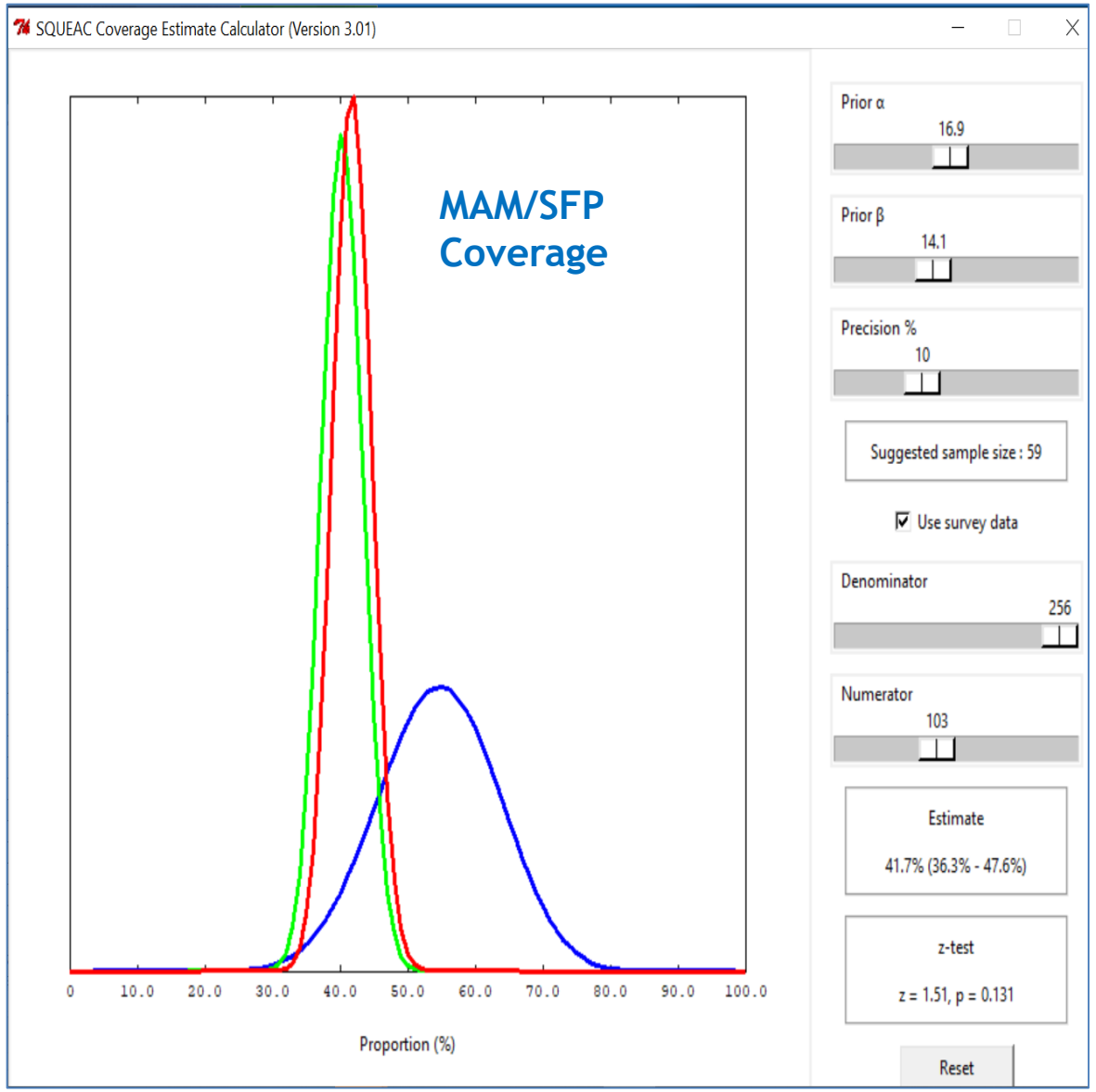
The **Effectiveness of Timely case-finding and recruitment indicator** was estimated as shown in the formula below;

$$\boldsymbol{Effectiveness\ Coverage} = \frac{\boldsymbol{Cin}}{\boldsymbol{Cin} + \boldsymbol{Cout}}$$

	SAM Cases (OTP Programme)	MAM Cases (SFP Programme)
C-in Programme	68	176
C-out of Programme	48	247
Effectiveness Coverage - Numerator	68	176
Effectiveness Coverage - Denominator	**116**	**423**
EFFECTIVENESS COVERAGE ESTIMATE (%)	**58.6%**	**41.6%**

Posterior (Coverage) Estimation using BAYES Calculator: EFFECTIVENESS COVERAGE

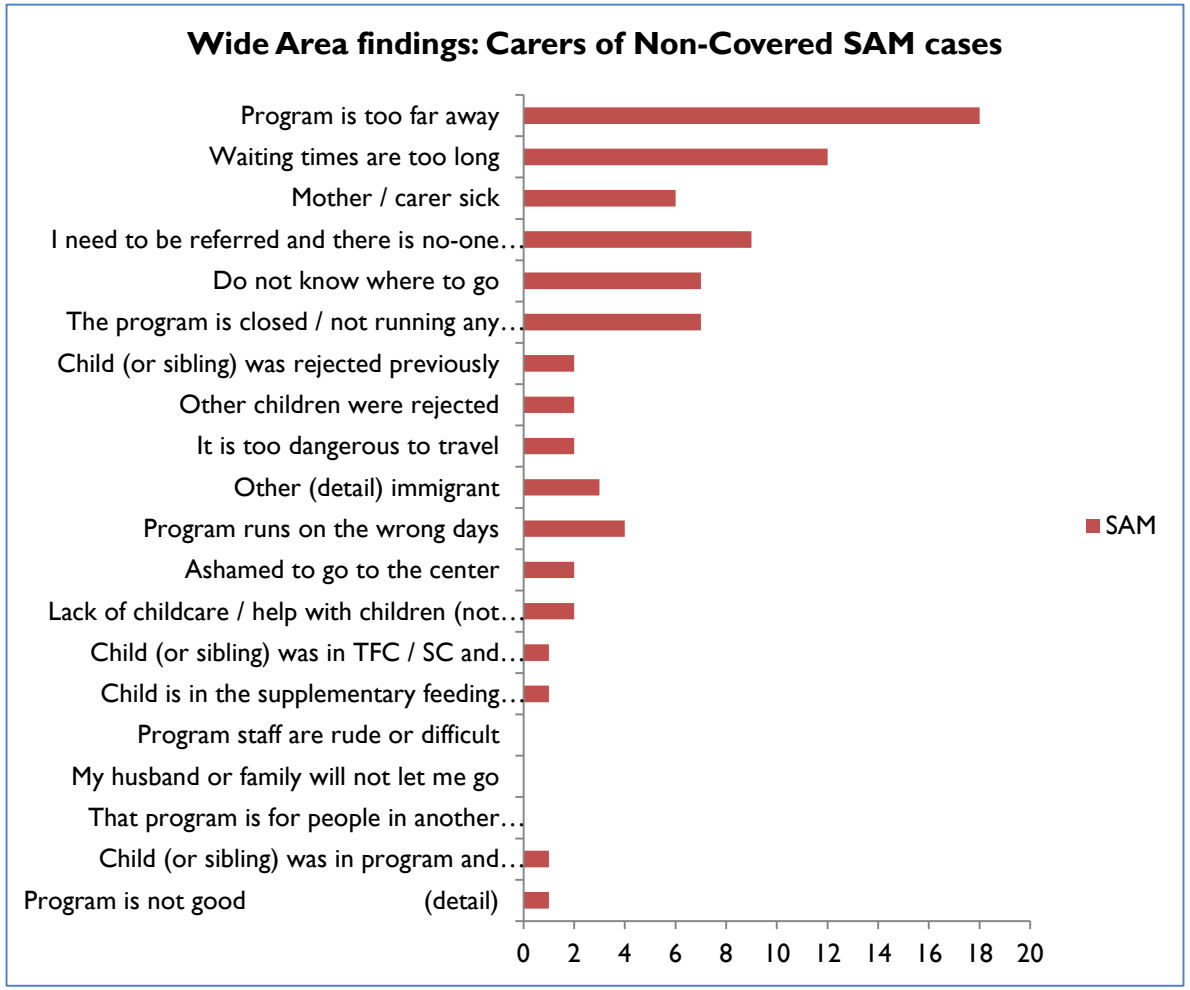


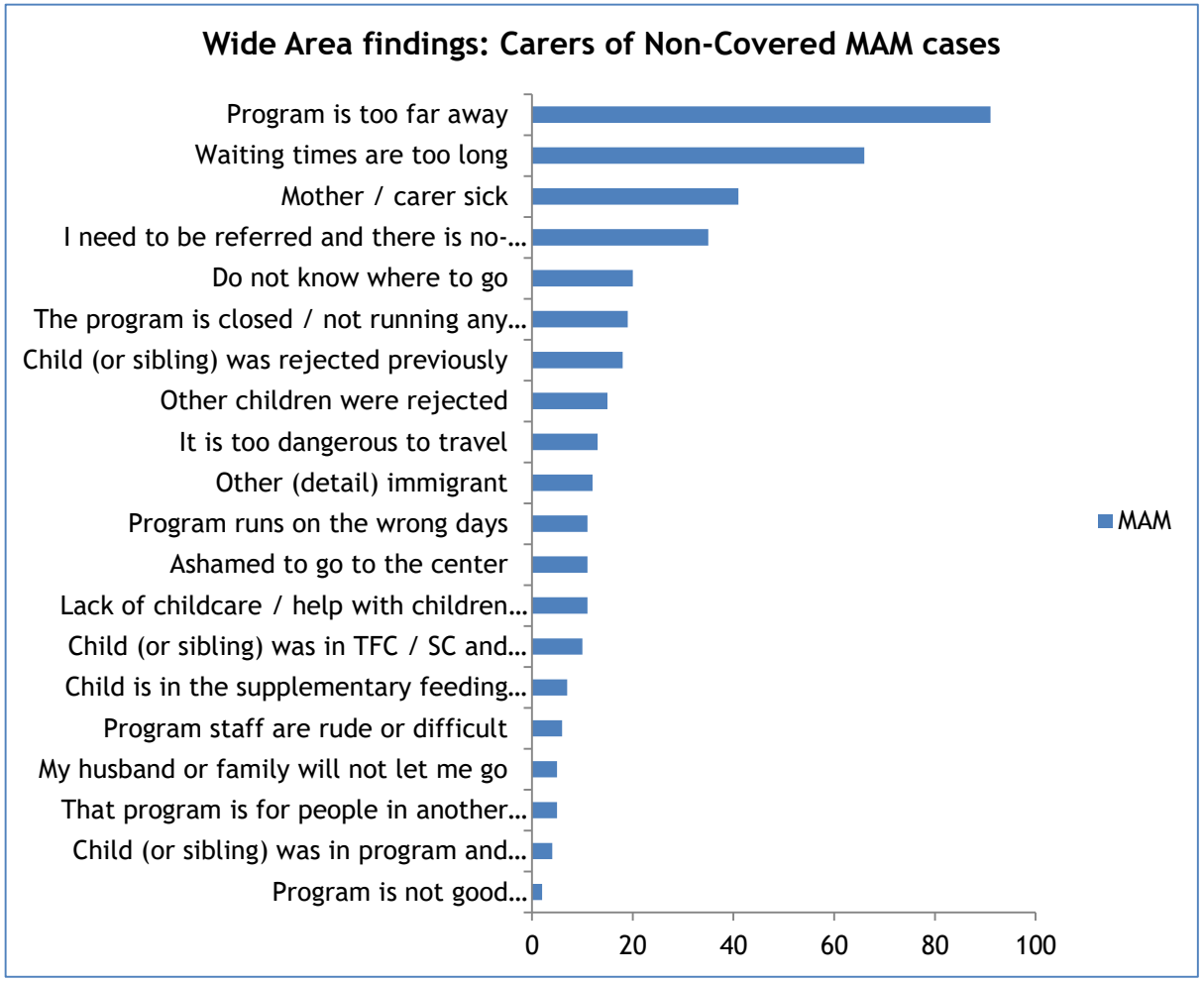


DISCUSSION: Validity of the Coverage Results - Bayes Plot

- The ***Single Coverage estimate*** for OTP in Mandera County was **59.3% (51.3%-66.9% at 95% credible interval)** with a **P value of 0.6116** indicating that there is **no Prior-Likelihood conflict** and hence the **results are valid**
- The ***effectiveness of coverage*** for OTP in Mandera County was **57.9% (50.1%-65.7% at 95% credible interval)** with a **P value of 0.7366** indicating that there is **no Prior-Likelihood conflict** and hence the **results are valid**
- The ***Single Coverage estimate*** for SFP in Mandera County was **42.9% (37.4%-48.8% at 95% credible interval)** with a **P value of 0.1717** indicating that there is **no Prior-Likelihood conflict** and hence the **results are valid**
- The ***effectiveness of coverage*** for SFP in Mandera County was **41.7% (36.3%-47.6% at 95% credible interval)** with a **P value of 0.131** indicating that there is **no Prior-Likelihood conflict** and hence the **results are valid**

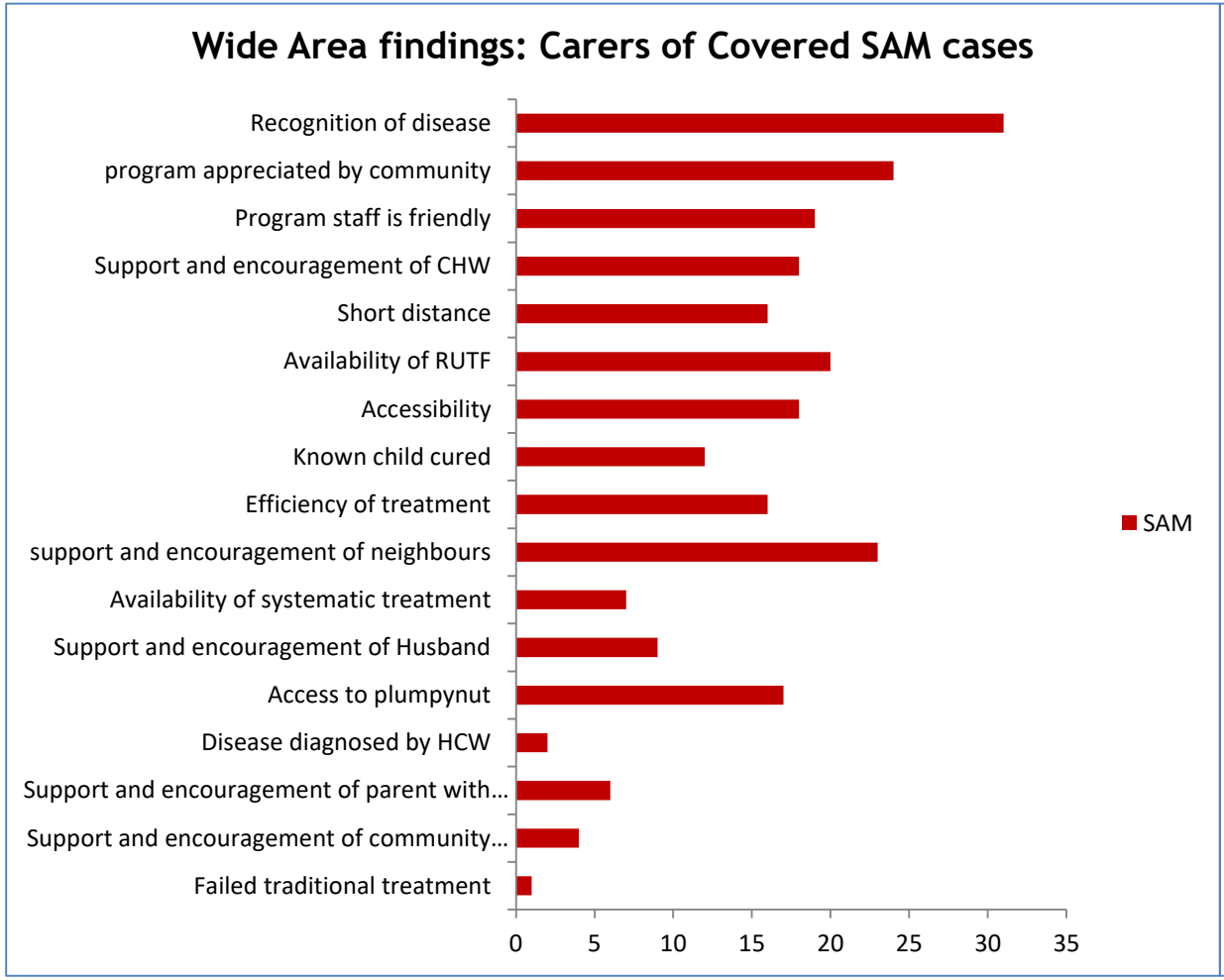
Reasons NOT Covered

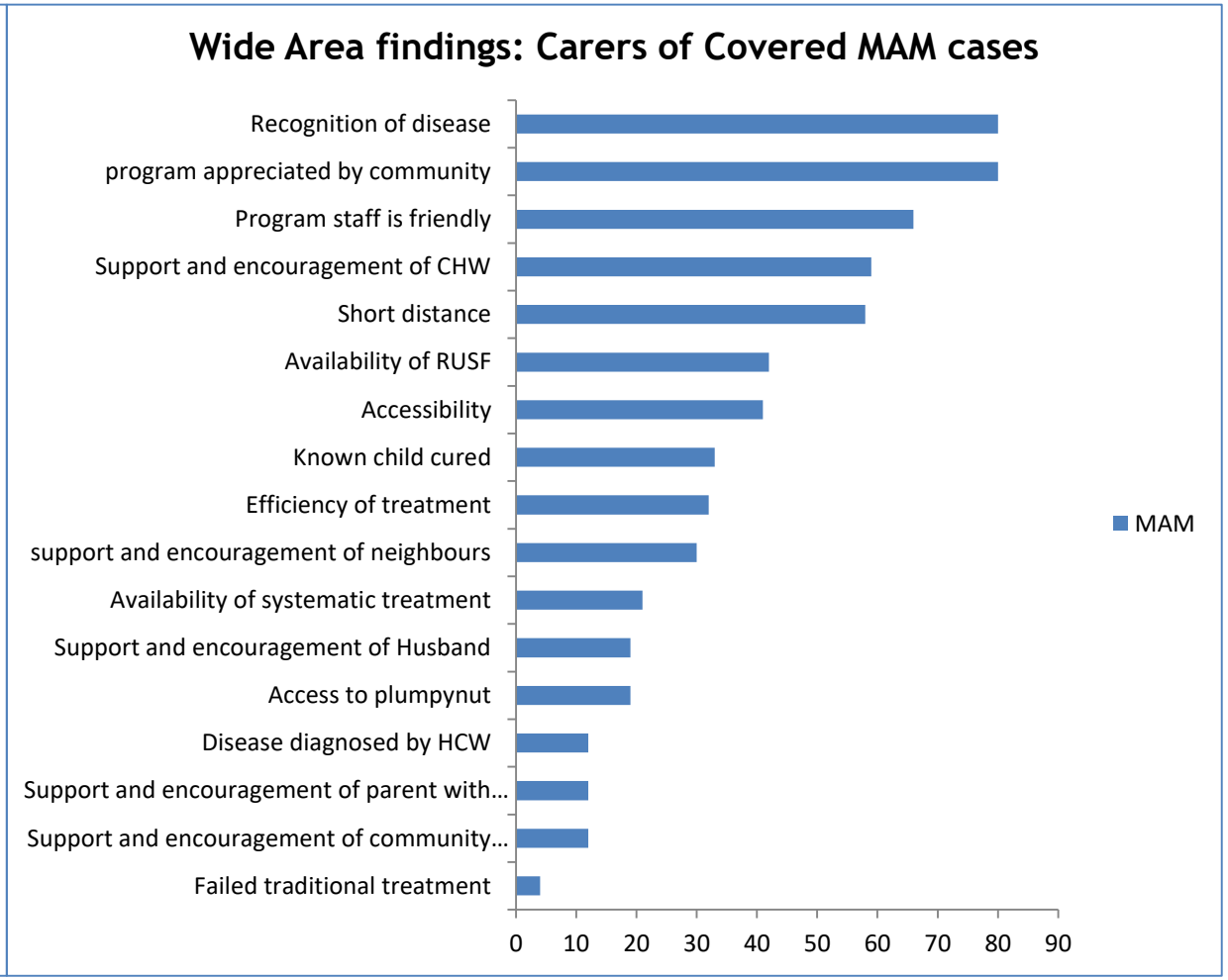




- Distance to the program site, long waiting hours to be served and lack of someone to refer them to the H/F were the major reasons given by caregivers of cases not covered

Reasons Covered





- Recognition of malnutrition, appreciation of IMAM program by the community, support and encouragement by CHVs/neighbors, and availability of RUTF/RUSF contributed to having covered cases.

Calculating MET NEED

Met Need = Coverage*Average Cure rate

	OTP Program	SFP Program
Single coverage Estimate =	59.3%	41.7%
Average Cure rate (Mar 2022 – Feb 2023) =	96.9%	97.7%
Therefore, Met Need =	=0.593*0.969 = 0.5747 **=57.5%**	=0.417*0.977 =0.4074 **=40.7%**

CONCLUSION

- The ***Single Coverage estimate*** and ***effectiveness of coverage*** for OTP in Mandera County were **59.3% (51.3%-66.9% at 95% credible interval)** and **57.9% (50.1%-65.7% at 95% credible interval)** respectively, above the SPHERE threshold (50%) for IMAM coverage in rural areas.
- The ***Single Coverage estimate*** and ***effectiveness of coverage*** for SFP in Mandera County were **42.9% (37.4%-48.8% at 95% credible interval)** and **41.7% (36.3%-47.6% at 95% credible interval),** respectively, below the SPHERE threshold (50%) for IMAM coverage in rural areas.
- Single coverage 2019 which was 70.4% and 65.5% for OTP and SFP respectively. Compared to 2019 single coverage has reduced to 59.3% and 42.9% for OTP and SFP program.

CONCLUSION Cont..

The major Boosters were:

- **High awareness of IMAM program and services among Community members; sites where malnutrition can be managed, SAM cases in program/community**
- **Some Recognition of Malnutrition by community members as a disease**
- **Great appreciation of IMAM services by the stakeholders**
- **Free IMAM services**
- **Caregivers given information on IMAM services – why child admitted, treatment protocol and ration, follow up visits**

The major Barriers were:

- **Poor terrain and long distance to the Service deliver points**
- **Low CHVs motivation for IMAM program and other activities at the community level leading to reduced active case finding and defaulter tracing.**
- **Periodic Stock out of IMAM commodities leading to disruption of SAM services**
- **Limited established community units leading to no CHVs at community to conduct IMAM activities**
- **Influx of unplanned cross border populations**

RECOMMENDATIONS

Barrier	Recommendation	Responsible	Timeline
The Single Coverage estimate and effectiveness of coverage for OTP in Mandera County were 59.3% and 57.9% respectively, above the SPHERE threshold (50%) for IMAM coverage in rural areas.	Maximize linkage during Mass screening to increase covered cases Strengthen SBCC in regards to IMAM service to enhance uptake. Increase active case findings through CHVs especially in towns Establish CUs in towns and motivate CHVS. Programming that target town areas instead of only focusing in rural setups. Proper recording, reporting, DQA Strengthening the integration of nutrition in to other health services i.e referral to GMP Routine Nutrition screening and assessment during every TCA at health facilities and outreaches. Establish and strengthen defaulter tracing mechanisms	S/CHMTC, Partners, HF staff, CHVs	Immediately
The Single Coverage estimate and effectiveness of coverage for SFP in Mandera County were 42.9% and 41.7% respectively, below the SPHERE threshold (50%) for IMAM coverage in rural areas.	Same as above recommendation of OTP	S/CHMTC, Partners, HF staff, CHVs	Immediately
Limited established community units leading to no CHVs at community to conduct IMAM activities	Establish more CUs and identify more CHVs in line with County government priorities.	S/CHMTC, Partners, HF staff, CHVs	Immediately
Poor terrain and long	Establish public dispensaries and health facilities	S/CHMTC,	Immediately

RECOMMENDATIONS

Barrier	Recommendation	Responsible	Timeline
More than 50% of the cases are overstaying in the program	Continuous nutrition assessments across all facilities Capacity building of staffs Strengthen existing hubs to minimize stock outs that may lead to caregivers defaulting due to shortages Conduct quarterly data quality audits in the HFs Screen for other co-morbidity in admitted children and refer accordingly	S/CHMTC, Partners, HF staff, CHVs	Immediately
Influx of unplanned cross border populations	Strengthen IMAM surge at facility level that will help them manage surges due to in and out migration Cross-border coordination for MOH for Mandera-border Triangle. Establishment of supplies hubs targeting the cross-border HFs. HFs to factor in buffer stocks in their monthly/quarterly requests. Intense mass screening at the border facilities in cases of identified influx. Strengthen surveillance of acute malnutrition at the HFs.	S/CHMTC, Partners, HF staff, CHVs	Immediately
long waiting hours to be served and lack of someone to refer them to the H/F	Routine nutrition services Staffing- Redistribution/redeployment Strict observation of staff working hours Strengthen triage system at the HFs	S/CHMTC, Partners, HF staff, CHVs	Immediately
Staff shortage-	Recruitment Redistribution/redeployment	S/CHMTC	
Misuse of commodities; Sharing or exchange for money and household food	SBCC to make the community understand that SNFs are treatment drugs. Put in place and strengthen accountability in of SNFs at the facility level Involvement of community opinion leaders' i.e chiefs, religious to health educate the community on nutrition commodities. Enforce through security agencies on selling of nutrition commodities in shops.	S/CHMTC, Partners, HF staff, CHVs	Immediately
Poor perception of IMAM program; perceive RUSF and RUTF as food	Involvement of community opinion leaders' e.g Religious leaders, Chiefs, to educate the community on nutrition commodities as a medicine	S/CHMTC, Partners, HF staff, CHVs	Immediately

THANK YOU