MANDERA EAST AND NORTH SUB-COUNTIES COVERAGE SURVEY

Final Report December, 2013

Survey done by Islamic Relief in collaboration with Ministry of Health Mandera, with funding from DFID and ECHO

Table of Contents

LIST OF TABLES

LIST OF FIGURES

Figure

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Jane Ndung'u,
Consultant

ACRONYMS

ARIs	Acute respiratory tract infections
CM	Community mobilization
CHW	Community health worker
DNO	District Nutrition Officer
GAM	Global Acute Malnutrition
GoK	Government of Kenya
HINI	High Impact Nutrition Interventions
IMAM	Integrated Management of Acute Malnutrition
IRK	Islamic Relief Kenya
KDHS	Kenya demographic health survey
KNBS	Kenya National Bureau of Statistics
LQAS	Lot Quality Assurance Sampling
MoH	Ministry of health
MTMSGs	Mother –to – Mother Support Groups
MUAC	Middle Upper Arm Circumference
NDMA	National drought management authority
NGO	Non-Governmental Organizations
OJT	On job Training
OTP	Outpatient therapeutic program
PAH	Pastoralists Against Hunger
RUSF	Ready to use supplementary food
RUTF	Ready to use therapeutic food
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SFP	Supplementary feeding program
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
TBA	Traditional Birth Attendant
UN	United Nations
UNICEF	United Nations Children's' Fund
WASH	Water, Sanitation and Hygiene
WFP	World Food Program

EXECUTIVE SUMMARY

Mandera County is at present divided into 6 sub-counties namely Mandera East, Mandera North, Mandera South, Mandera West, Lafey and Banissa. Islamic Relief (IRK) is operational in Mandera East, Lafey and Mandera North sub-counties. Mandera is one of the arid counties in Kenya and is challenged by food insecurity and factors that pre-dispose the county to food insecurity include erratic and un-even rain distribution, depletion of pasture and browse, conflict and insecurity. In order to cushion the community against food insecurity, food aid programs are being implemented in the county. The health infrastructure in the Mandera North and East comprises GoK health facilities and private health providers in Mandera East. The health facilities however experience shortage of qualified medical staff who can manage the health facilities particularly in the rural areas. Common diseases in this sub-county are malaria, respiratory infections and diarrhoeal diseases**.**

The County has over the years experienced high rates of malnutrition due to a combination of factors to include food insecurity, high morbidity, poor access to health services and poor infant and young child nutrition (IYCN) practice. To address the nutrition challenges, MoH through the Division of Nutrition in collaboration with UNICEF and implementing partners in the County have been implementing High Impact Nutrition Interventions (HINI) that include management of severe and moderate acute malnutrition. The last Coverage Survey in the IRK operational sub-counties was conducted in May- June 2012 and estimated Point coverage at 58.2% and Period coverage at 75%. A coverage survey to assess the current coverage situation was therefore undertaken between October and November 2013 using the SQUEAC methodology. The coverage survey had the following objectives:

OBJECTIVES OF THE COVERAGE SURVEY/INVESTIGATION

- To map out both Point and Period coverage of Mandera East and North
- To identify factors affecting the uptake of OTP services in Mandera East and North
- To develop in collaboration with Islamic Relief and MoH specific recommendations to improve acceptance and coverage of the program
- To enhance competencies of Islamic Relief and MoH technical teams in the SQUEAC methodology.

Coverage survey estimates

	Mandera East/Lafey	**Mandera North**
Point coverage – BayesSQUEAC	**56.0% (43.14 - 67.9, 95% C.I)**	**63.1% (48.4 - 75.8, 95% C.I)**

SUMMARY OF BOOSTERS

Awareness of program and malnutrition
Availability of Plumpy nut supplies
Integration of management of malnutrition into the health infrastructure
Proximity to outreach sites/health facilities
Waiting time for caretakers in rural sites
Monitoring of children in SFP
Capacity building (OJT)
Facilitation of outreach sessions
Appreciation of partners/MoH implementing IMAM

SPECIFIC TO MANDERA EAST

Presence of SFP for child to transition to
OTP mothers creating awareness on program
Referrals by CHWs at health facility
Health seeking for malnutrition
Collaboration with stakeholders

SPECIFIC TO MANDERA NORTH
Presence of varied active sources of knowledge and referral
Minimal stigma
Positive attitude of the DPHN/ag.DNO

BARRIER	RECOMMENDATION
Reduced mobilization at community level activities	- Strengthen the mobilization strategy and in particular active case finding of malnourished children. The MoH and partners should coordinate and conduct joint monitoring of community mobilisation activities further to monitoring of facility based activities.
Shortage of nurses/inadequate screening at health facility	- Continued advocacy by MoH and partners to ensure staff shortage gap is addressed. - Explore having more CHWs particularly in areas without nurses to allow for community mobilization and adequate screening of beneficiaries at the health facility.
Clan conflicts/tribal differences	- Seek to implement program activities of affected sites during clan and intertribal conflicts from neighbouring proximal sites.
Pastoralism/migration	- Continue community sensitization on the need for child recovery before migrating. - Seek to link program beneficiaries to OTP in areas that pastoral communities move to.
Poor infrastructure during rainy season	- Ensure contingency planning all the way to the health facilities particularly for supplies.
Lack of inclusion of key field sources of referral	- Include key sources of referral namely the pharmacies, traditional healers and TBAs in the mobilization strategy.
Sale of plumpy nut	- Continue sensitization to community that plumpy nut is medicine for severe malnutrition.
Sharing of plumpy nut	- Continue sensitization to community that plumpy nut is medicine for severe malnutrition. - Explore the possibility of protection rations for households with SAM beneficiaries.

SPECIFIC TO MANDERA EAST		
Lack of mosquito nets for OTP mothers	-	Conduct sensitization on the need to have malnutrition managed regardless of whether there are extra incentives.
	-	Explore provision of mosquito nets to new beneficiaries.
Busy schedules of caretakers in town/waiting time for mothers in urban sites	-	Continue sensitization to the community in the town areas on the need to ensure malnutrition is managed and as well the availability of management of malnutrition services throughout the week.
Rumours of demand for payment for program admission	-	Investigate rumours that community has to pay for admission into program.
Stigma	-	Continue educating community on malnutrition and the causes. Incorporate local leaders in the sensitization and encouraging of mothers to take malnourished children to the program.
Insecurity at Somalia border sites/challenges in programming	-	Contingency planning for programming along the Kenya-Somalia border.
	-	Continue having well trained and local staff in-charge of activities along the border.
SPECIFIC TO MANDERA NORTH		
Lack of a DNO in Mandera North	-	Continued advocacy for a DNO in Mandera
	-	Conduct adequate capacity building on all relevant aspects of nutrition programming for acting staffs.
Health seeking behaviour	-	Continue community sensitization and include the key sources of referral on detection of malnutrition and appropriate treatment seeking.
Traditional beliefs	-	Continue community sensitization on malnutrition and the entire management process that has an ultimate being of the well being of a child.
Program rejection of ineligible beneficiaries	-	Continue sensitization on the program admission criteria and the reasons behind the criteria.
Minimal appreciation of program	-	Investigate further the reasons for discontentment with the program and seek to address these.

1. INTRODUCTION

Mandera County borders Ethiopia to the north, Somalia to the east, Wajir to the south and covers an approximate area of 25,992 square kilometres with a total population of 630,663 persons (KNBS, 2009). Mandera County is at present divided into 6 sub-counties namely Mandera East, Mandera North, Mandera South, Mandera West, Lafey and Banissa. Islamic Relief (IRK) is operational in Mandera East, Lafey and Mandera North sub-counties. The County has three main livelihoods; pastoral all species accounting for 28 percent mainly in Mandera east and central sub-counties, Agro Pastoral 40 percent in the western parts and the irrigated cropping zone located along river Daua accounting for 32 percent of the population.

Mandera East sub-county borders Ethiopia to the North and Somalia to the East and the headquarters are in Mandera town. Mandera East comprises 7 divisions namely: Khalalio, Central, Warankara, Fino, Hareri, Lafey, and Libehiya. The sub-county lies within the pastoral economy zone in the East, agro-pastoral in the west and irrigated cropping zone in the north along river Daua. Mandera North consists of 3 divisions namely: Rhamu, Rhamu Dimtu and Ashabito. The sub-county headquarters are Rhamu. The sub-county lies within the agro-pastoral economy zone in the west and irrigated cropping zone in the north along river Daua and borders Ethiopia to the North.

Mandera is one of the arid counties in Kenya and is characterized by low-lying rocky hills, with the plains rising gradually from 400m from the south at Elwak to around 900m in Malkamari area in the North[1]. The sub-county experiences two rain seasons (long rains in mid April - mid May and short rains between October and December). Temperatures in the County tend to be hot throughout the year and daily temperatures are typically above 30 °C (86 °F) while at night, temperatures can fall to 20 °C (68 °F). The county experiences cyclic drought at approximately intervals of every 2 years.

The county generally has a sparse population density except Mandera Central, with the population falling below 35 persons per square kilometre. Three major clans live in the Mandera County namely; Garre in South and West, Murulle in East, Degodia in North of the western part and Mandera Town. Approximately 80% of the populations are pastoralists and the others are agro pastoralists or traders. Due to constant drought lack of market for livestock and unemployment most people are poor and depend entirely on relief food. Following severe droughts experienced over the years, there is a gradual shift from pastoralism with new settlements coming up in various parts of the counties. The county records high poverty levels with 64% of the population living below the poverty line. The county is further characterized by poor infrastructure, marginalization, low literacy levels, poor access to basic amenities and insecurity from the neighbouring Somalia.

The County is challenged by food insecurity and mainly relies on imports of food from Somalia and other Counties. Factors that pre-dispose the county to food insecurity include erratic and un-even rain distribution, depletion of pasture and browse, high livestock prices,

[1] Republic of Kenya (2002a). Mandera Sub-county Development Plan for the period 2002-2008.

increase in commodity prices, conflict and insecurity. In order to cushion the community against food insecurity, food aid programs are being implemented in the county with collaboration of GOK, Arid lands, Co-coop and WFP. The major food aid programs in the county are General Food distribution, food for assets, School feeding program and supplementary feeding.

The health infrastructure in the Mandera North and East comprises GoK health facilities and private health providers in Mandera East. There are three Sub-county hospitals in all the IRK operational sub-counties located in Mandera Central, Rhamu and Lafey. The GoK is further supported by different NGOs particularly in outreach programs. The health facilities however experience shortage of qualified medical staff who can manage the health facilities particularly in the rural areas. Common diseases in this sub-county are malaria, respiratory infections and diarrhoeal diseases**.**

There are various interventions on-going in Mandera North and East sub-counties by different partners further to food aid that include livelihood, education, WASH and nutrition programs by Islamic Relief Kenya (IRK) and nutrition by Pastoralists against Hunger (PAH) in collaboration with UNICEF, health services by APHIA+. The Kenya Red Cross periodically during emergencies continues to implement emergency responses.

1.1 Nutrition Interventions

The County has over the years experienced high rates of malnutrition due to a combination of factors to include food insecurity, high morbidity, poor access to health services and poor infant and young child nutrition (IYCN) practice. The last nutrition surveys conducted in June 2013 revealed rates of: Mandera East - GAM **14.6% (11.8 – 17.9, 95% C.I.)** and SAM **2.7% (1.6 - 4.7, 95% C.I**) and Mandera North GAM **16.8% (11.8 – 17.9, 95% C.I.)** and SAM **2.2% (1.6 - 4.7, 95% C.I)**.

To address the nutrition challenges, MoH through the Division of Nutrition in collaboration with UNICEF and implementing partners in the County have been implementing High Impact Nutrition Interventions (HINI). The interventions include management of severe and moderate acute malnutrition, exclusive breastfeeding, vitamin A supplementation, optimal complementary feeding, de-worming, iron supplementation and hand washing. Management of moderate malnutrition is further implemented in collaboration with WFP under the PRRO. The HINI strategy has encouraged formation of mother-to- mother support groups (MTMSG) for promotion of exclusive breast feeding and optimal complementary feeding. In addition the strategy, offers support to health facilities through mentorships and on-job training (OJT)s on systems strengthening and on a range of livelihood projects amongst various groups to include schools and community groups.

Overall management of malnutrition follows the integrated management of acute malnutrition (IMAM) model where treatment is integrated into the health system (it is important to note that IRK changed from direct implementation of nutrition activities to the integrated model where MOH is supported to provide nutrition services as part of the routine health services). Due to the vastness of the County and the existence of few health

facilities however, the MoH and implementing partners have identified outreach sites and implement services weekly or bi-weekly. The outreach sites form part of the catchment site for respective proximal health facilities. Under the current IRK nutrition programming Lafey sub-county is considered under Mandera East. At present there are a total of 15 health facilities, 27 outreach sites and 3 stabilization centres (within the sub-county hospitals) distributed in the 3 IRK operational sub-counties as outlined in Table 1.

Table 1: Distribution of health facilities, outreaches and stabilization centres

Sub-county	No of Health facilities	No of Outreaches	Stabilization Centres
Mandera East	9	11	1
Lafey	1	4	1
Mandera North	5	11	1
Totals	**15**	**27**	**3**

Management of severe malnutrition with complications is done at the Stabilisation Centres, whilst management of severe acute malnutrition (SAM) without complications and management of moderate malnutrition are implemented through the outpatient treatment programs (OTP) and supplementary feeding program (SFP) respectively either at health facilities or outreach sites. Community mobilisation is conducted through the community health workers CHWs who are under the public health department of the MoH and are supervised by health facility nurses. The CHWs are compensated through different incentives by the partners.

The staffing structure for nutrition activities in the IRK sub-counties comprise the County nutrition officer, sub-county nutrition officer (DNO) in Mandera East/Lafey and IRK nutrition officers (4) and the Co-coop Cooperating partner Nutritionist (CPN). The DPHN in Mandera North has been acting further been acting as the DNO.

IRK has over the past 2 years been engaged in a gradual handover of management of malnutrition activities in the respective operational sub-counties to the MoH. The process has entailed comprehensive OJT on all the technical and operational aspects of management of malnutrition. In September 2013, the program was fully handed over the MoH with IRK at present offering only logistical and technical support.

The last Coverage Survey in the IRK operational sub-counties was conducted in May- June 2012 and estimated Point coverage at 58.2% and Period coverage at 75%. The coverage investigation combined both Mandera East/Lafey and North sub-counties.

1.2 OBJECTIVES OF THE COVERAGE SURVEY/INVESTIGATION

- To map out both Point and Period coverage of Mandera East and North
- To identify factors affecting the uptake of OTP services in Mandera East and North
- To develop in collaboration with Islamic Relief and MoH specific recommendations to improve acceptance and coverage of the program
- To enhance competencies of Islamic Relief and MoH technical teams in the SQUEAC methodology.

1.3 METHODOLOGY

The Coverage assessment(s)/investigation(s) were undertaken over the period 1st – 19th November 2013. The assessment covered the period October 2012 – September 2013. SQUEAC Methodology was utilized and applied the three principles of the methodology namely iteration, triangulation and sampling to redundancy. The methodology applied the 3 stages:

Stage 1: Identification of areas of high and low coverage using routine program data; in this stage, triangulation of data was done by various sources and methods as highlighted below:

Sources of data: Quantitative routine program data was obtained from the MoH databases at the Mandera Central and Rhamu sub-county hospitals and the IRK organizational data. Data was in addition collected from different health facilities in the sub-counties. Qualitative information was obtained from various sources to include sub-county health and nutrition officials, Co-coop officer, OTP caregivers, health facility nurses, traditional birth attendants (TBAs), Traditional healers, CHWs, program staff, community members and local chemist attendants.

Methods: informal group discussions, in depth interviews, key informant interviews, simple structured interviews, observation and the semi-structured interviews.

(See annex II for an illustration of the sources and methods)

Stage 2: Hypotheses generated and tested using small area surveys.

The decision rule (50% for rural setups) was applied in classifying coverage using the following formula:

$d = n\ x\ p/\ 100$

where: ***d*** = decision rule (threshold value)

n = number of cases found

p = standard against which coverage is being evaluated

Stage 3: Wide area survey conducted with the overall coverage (posterior) estimated.
To compute the prior mode from the identified barriers and boosters three methods were utilised in all the sub-counties for standardization purposes namely:

Weighted boosters and barriers – Use of scores or weights that reflect the relative importance or likely effect on coverage of each finding scored between 1 and 5. The sum of the positive scores is added to the minimum coverage and the sum of the negative scores is subtracted from 100%. The median value of the two figures is then obtained.

Un-weighted Boosters and Barriers- Mere counting of the boosters and barriers then getting the total of booster values added to minimum coverage and total of barrier values subtracted from the maximum coverage. The median value of the two figures is then obtained.

Histogram – Average of beliefs obtained from the program management team.

The average of the three estimates above was thus used as the prior estimate.

To compute sample size the formula below was used:

$$n = \frac{\text{mode} \times (1 - \text{mode})}{(precision/1.96)^2} - (\alpha + \beta - 2)$$

A precision of 12% - 13% was used in the sub-counties due to decreased rates of malnutrition during the survey period, the presence of scattered populations in some of the divisions and the continuous migration of a few communities.

To compute the number of villages to be sampled the formula below was used:

$$n = \frac{\text{n}}{(average village population \times \%\ \text{of population}(6-59 months) \times prevalence of SAM\ (\%)}$$

The survey utilised spatially stratified sequential sampling in selection of villages. A list of villages in all the divisions was obtained and villages selected accordingly.

To enhance capacities of the staff a 2-day theoretical training was conducted for both the staff and enumerators. Thereafter staff from MoH (2) and Implementing partners (IRK-1, NDMA 1 and Co-coop 1) participated in the investigation.

1.3.1 TEAM COMPOSITION

The data collection teams comprised staff from MoH (2) and implementing partner agencies (IRK-1, Co-coop-1 and NDMA-1). Staff from MoH and implementing partners supervised the investigation process as team leaders as well as participating in the data collection process.

1.3.2 LIMITATIONS OF THE INVESTIGATION

- Delays in provision of data for Mandera North to allow for timely analysis of routine data.
- Unavailability of registers from some health facilities.
- Lack of comprehensive data on the length of stay
- Inability of the consultant to access sites along the Kenya-Somalia border due to insecurity concerns.
- Work delays due to challenges in crossing seasonal rivers and impassable roads in some areas due to rains.
- Vehicle breakdown hampering the field data collection process.
- Lack of timely provision of money for field guides.

2. INVESTIGATION PROCESS

The SQUEAC investigation covered the period October 2012 to September 2013. The investigation process assessed Mandera East and North sub-counties separately considering the separate DHMTs in place. The investigation process however took into consideration the program design that has the recently created sub-county of Lafey still considered under Mandera East sub-county.

2.1 MANDERA EAST SUB-COUNTY

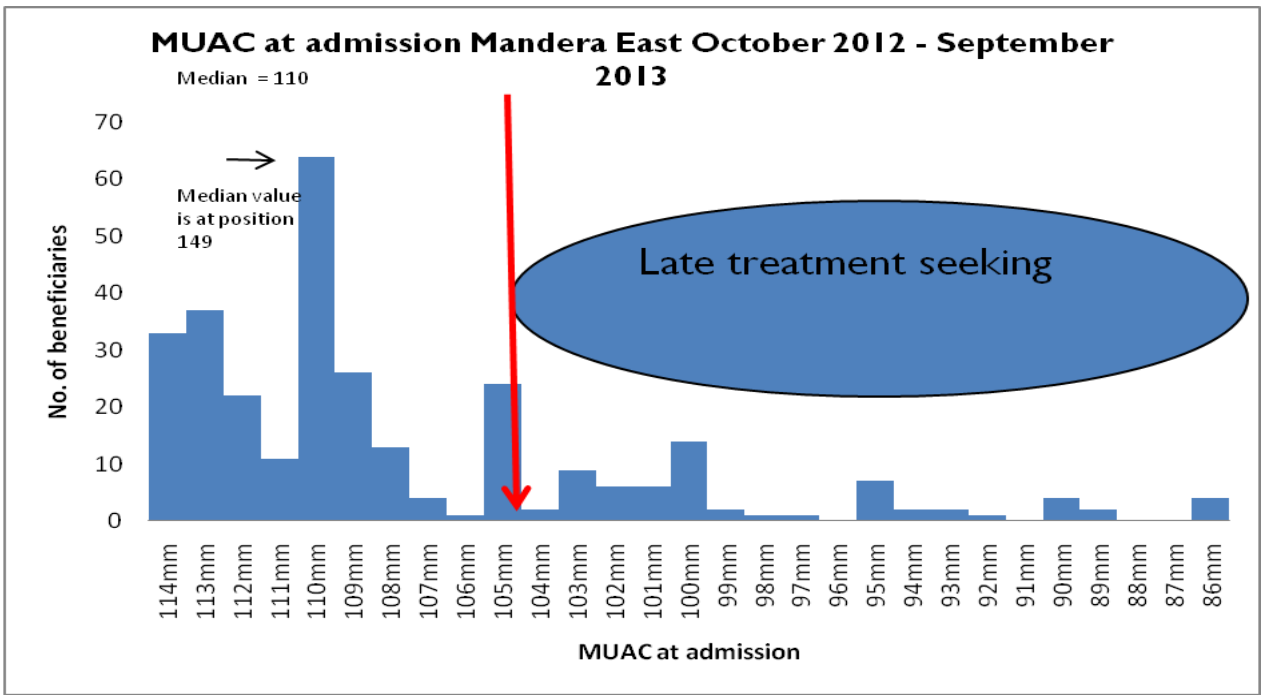
2.1.1 STAGE 1

2.1.1.1 QUANTITATIVE DATA

MUAC AT ADMISSION

MUAC at admission was assessed to investigate timelines of seeking treatment. The median value was 110mm, an indicator of relatively early treatment seeking at the onset of SAM for majority of the beneficiaries. However there was still a proportion of the community that was found to be seeking treatment late at MUAC below 105, figure 1. Late treatment seeking was mainly as a result of lack of awareness by some caretakers and busy schedule of mothers particularly in the town area. Some of the beneficiaries presenting advanced SAM were reported to be from neighbouring Somalia.

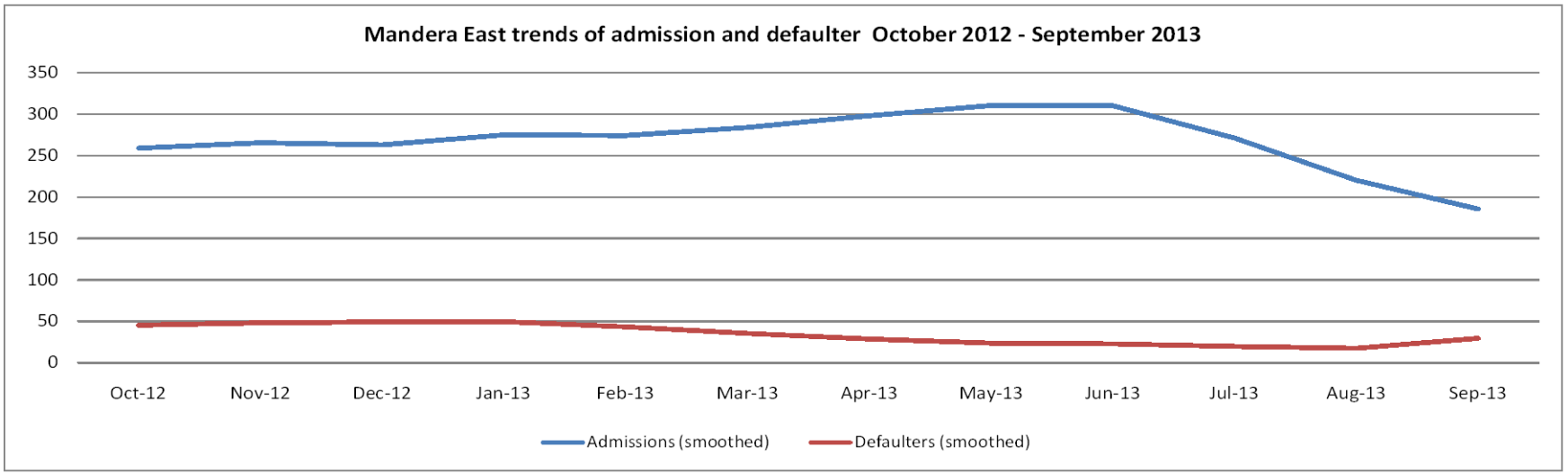
Figure 1: MUAC at admission Mandera East



PROGRAM FIT TO CONTEXT

There has been relatively good response by the program to the context. An increase in admissions and decrease in defaulting was observed when there was an increase in morbidity which was mainly associated with malnutrition as per information gathered by the investigation. Increased defaulting was mainly observed during periods of clan tensions and insecurity, figure 2.

Figure 2: Program fit to context Mandera East



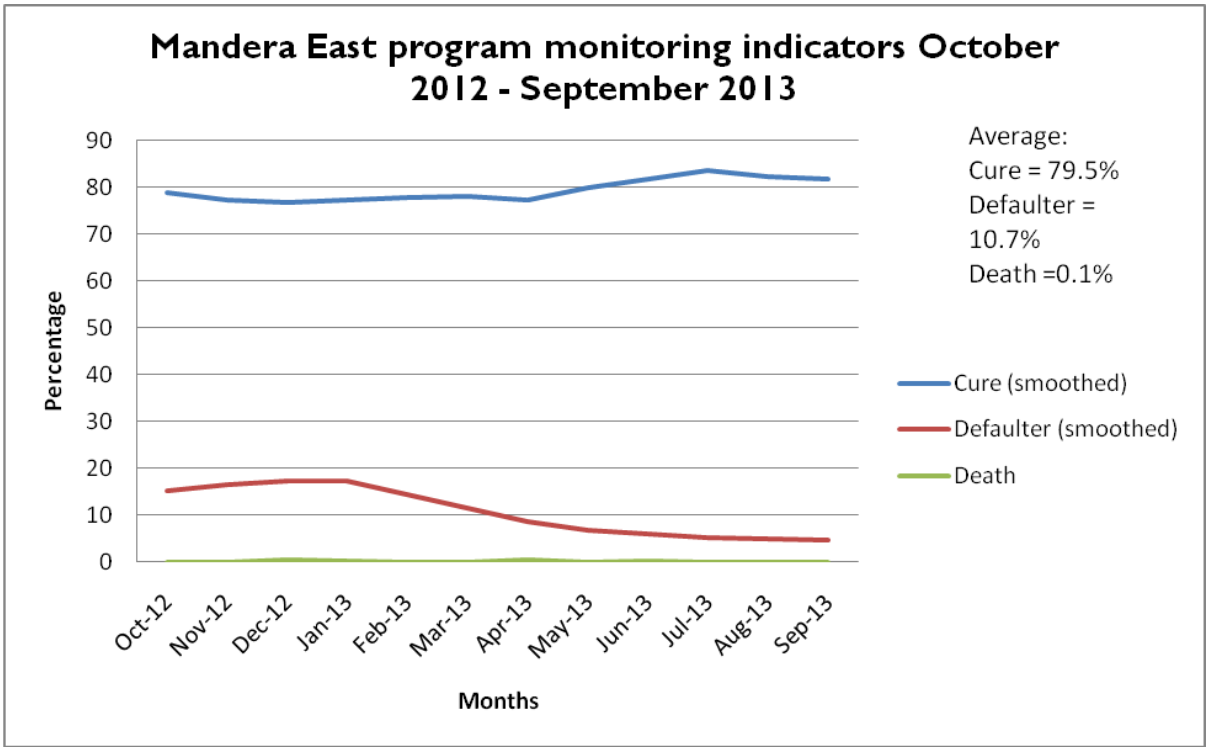
CONTEXUAL CALENDAR OF EVENTS

Context	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Seasons		Rain			Dry			Rain		Dry and Cold		
Agricultur	Continuous activities											
Livestock	High livestock yield		Milk		Low livestock			High livestock products				Low livestock
											Animal disea	Animal disease
Labour	Agricultural labour			Sand harvesting			Agricultural labour			Sand harvesting		
				Construction etc						Construction etc		
Disease	Malaria, Dengue fever			Diarrhoea,				Fever, malaria, ARIs, Diarrhoea				
	Diarrhoea			Malaria, ARIs								
Insecurity	Fear and tension			Clan conflict and Clashes			Fear and tensi	Reducing tension				
	Terrorist attacks			Terrorist	Election tension					Terrorist threat		Terrorist attack AP camp
Migration	In for pastur	In	In	In	Out to vote	Back from vot	Out - resettling of IDPs					

PROGRAM MONITORING INDICATORS (EFFECTIVENESS)

As regards program effectiveness as assessed through program monitoring indicators, the program has on overall performed well over the period having attained average rates of: cure – 79.5%, defaulter – 10.7% and death 0.1% within the recommended SPHERE standard of cure above 75%, defaulting of below 15% and death of below 10% respectively, figure 3.

Figure 3: Mandera East – program monitoring indicators

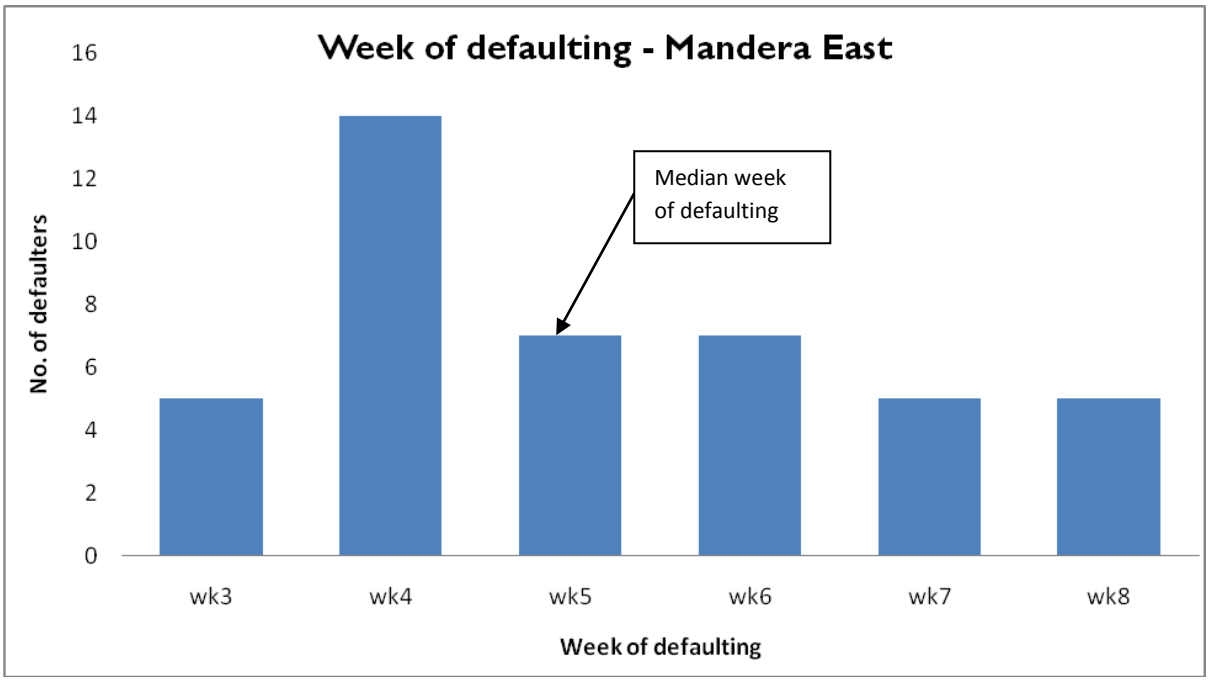


DEFAULTING

Investigation into the period of defaulting revealed that week 5 was the median. Beneficiaries defaulting after week 4 are most likely recovering cases[2]. Over 50% of the beneficiaries defaulted at week 5 and above an indication of recovery past the SAM stage. Defaulting on overall was reported to be mainly due to migration, insecurity and beneficiaries from neighbouring Somalia and Ethiopia who were not consistent. In many of the registers however the reason for defaulting was not recorded, figure 4.

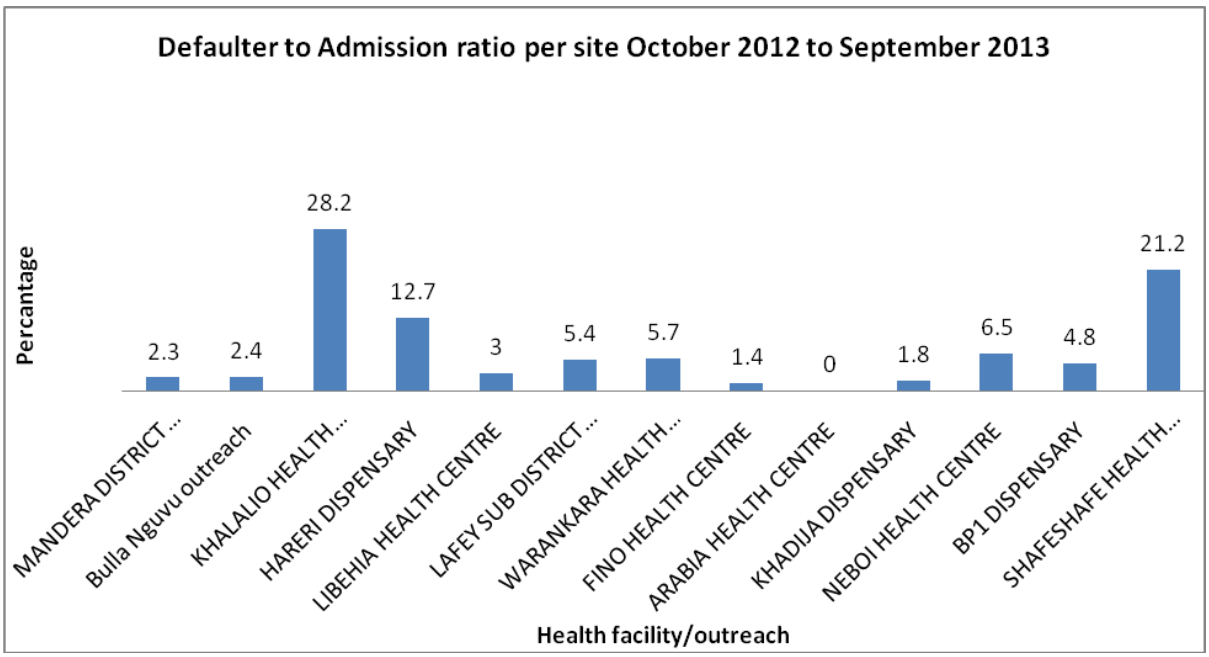
[2] SQUEAC guidelines, October 2012.

Figure 4: Mandera East – Week of defaulting



As regards defaulter to admission ratio per site, Khalalio and Shafeshafe health facilities presented the highest defaulting over the last one year, figure 5. The main reasons for defaulting were beneficiaries from Ethiopia who do not wait to recover in Khalalio health centre and stock outs of plumpy nut at the Shafeshafe health centre.

Figure 5: Defaulter to admission ratio per site



2.1.1.2 SUMMARY OF QUALITATIVE FINDINGS

Table 2: Summary of boosters and barriers – Mandera East

Boosters	
Awareness of program and malnutrition	Many of the community members particularly those living in settlements are aware of the program. Most of pastoral communities have in addition been informed about the program by the local administration. As regards awareness of malnutrition many of the community members were able to cite different signs and symptoms and expressed knowledge of the different causes at different levels to include disease, poverty, poor hygiene and food insecurity.
Plumpy nut supplies	Overall plumpynut supplies were available for most part of the year. Stock outs in some of the health facilities were however experienced for 1-2 weeks and in Shafeshafe health facility there were stock outs from April to June 2013. Lack of timely provision of plumpy nut from the sub-county hospitals to health facilities was occasionally reported.
Integration of management of malnutrition into the health infrastructure	The integration of management of malnutrition has seen more children seeking medical care for other health problems screened and referred accordingly to the nutrition program.
Presence of SFP for child to transition to	The community is motivated by the presence of the SFP into which the OTP beneficiaries transition to thus avoiding the relapse of children into severe malnutrition.
Collaboration with stakeholders	Collaboration of the various stakeholders to include the community, MoH through the CNO and DNO, IRK, UNICEF and WFP has enhanced efficient delivery of services and issues addressed promptly.
Proximity to outreach sites/health facilities	For the communities who are settled most of the sites/health facilities are proximal with most of the caretakers reporting to take 30mins-1hour to access.
Monitoring of children in SFP	There was only one severely malnourished child found in the SFP an indication of enhanced monitoring of the individual status of children in the SFP.
Capacity building (OJT)	The on-going on job training for MoH nurses by IRK has enhanced capacity in management of malnutrition and consequently acceptance of the

	program being under the MoH.
Facilitation of outreach sessions	Availing of logistical support to the MoH to be able to conduct outreach sessions to reach communities in distant sites has enhanced program coverage.
Appreciation of partners/MoH implementing IMAM	The community expressed appreciation of the nutrition program and of both MoH and IRK. In Khalalio site however there were rumours of demand of payment for admission into program.
OTP mothers creating awareness on program	Coverage has been enhanced by caretakers of OTP beneficiaries encouraging other families to seek similar appropriate care.
Referrals by CHWs at health facility	Many of the OTP beneficiary caretakers reported to have been referred by the CHWs. The screening and referrals however were observed to be only at the health facility level.
Waiting time for caretakers in rural sites	The caretakers particularly from the rural areas are encouraged that they do not have to spend too much time waiting for services. Most of the caretakers reported to wait for less than 1 hour to be attended to.
Health seeking for malnutrition	The community presented appropriate health seeking for management of malnutrition with many of the caretakers reporting to have sought assistance from the health facility on detection that the child was malnourished or sick.
Barriers	
Reduced mobilization at community level activities	Overall there are very limited mobilization activities going on at the community level. Active case finding is at present very weak and in most of the areas screening for children and health education at the community level has not been going on.
Lack of mosquito nets for OTP mothers	The community reported that lack of provision of mosquito nets as previously for OTP mothers as having discouraged some mothers from seeking care.
Shortage of nurses	Lack of adequate numbers of nurses has seen the CHWs take up the roles of nurses of many of the health facilities and consequently impacting negatively on the mobilization activities as observed above.
Clan conflicts/tribal differences	Clan conflicts and tribal differences have occasionally affected delivery of services. In Omar Jillow lack of consensus by the community on the choice of CHWs has resulted in lack of provision of services for up to 2 months.

Pastoralism/migration	The pastoral nature of the community has resulted in inadequate coverage of the community and even defaulting of some of those already enrolled in the program.
Poor infrastructure during rainy season	During the rainy season it has been especially difficult to access distant areas due to poor terrain.
Lack of inclusion of key field sources of referral	The program has not adequately included other key sources of referral in its mobilization strategy. In particular the traditional healers, pharmacies and Sheiks whom some of the community members seek assistance from when children are sick have not been included.
Busy schedules of caretakers in town	In Mandera town in particular the busy schedule of most of the mothers hinders appropriate health seeking. The weekly visits to the health facility for management of malnutrition were reported to be a challenge.
Sale of plumpy nut	Sale of plumpy nut is a challenge to coverage as it is an indication that not everyone has understood that it is for curative purposes. In addition child recovery is delayed by provision of inadequate rations.
Sharing of plumpy nut	Sharing of plumpy nut with other family members as above has contributed to delayed child recovery and consequently the effectiveness of the program. A few community members complained to children staying in the program for too long.
Stigma	One-half of the interviewed OTP beneficiary caretakers reported to feel stigmatized by the community because of having malnourished children. The mothers reported to be largely considered as negligent.
Waiting time for mothers in town sites	The community and OTP mothers within the town are sites cited the waiting time (approximately 1 hour) to be too long before being attended too long for their busy schedules.
Insecurity at Somalia border sites/challenges in programming	Insecurity at the Somalia border was reported to occasionally disrupt programming activities with beneficiaries missing on weekly rations and delayed new admissions to program.

2.1.2 STAGE TWO

2.1.2.1 HYPOTHESIS TESTING

Based on the information collected and analyzed in Stage One (both quantitative and qualitative), there were observations of high and low coverage. The investigation concluded that coverage is likely to be relatively low in some sites and high in others.

The hypotheses were therefore that:

- 1: Coverage is low in the town area due to the busy schedule/competing priorities of caretakers and high in the rural areas.
- 2: Coverage is low in areas along the Somalia border largely due to insecurity and programming challenges in the area and high in other non-border areas.

The objective of Stage Two was to confirm the locations of areas of high and low coverage as well as the reasons for coverage failure identified in Stage One (above) using small area surveys. Ten site areas were selected and sampled to test the two hypotheses. Four and six areas were used to test the first and second hypothesis respectively. (See annex III for specific sites and respective findings). Active and adaptive case finding was used in identification of malnourished children.

In the test of hypothesis exercise for high/low coverage areas, the following results were found and calculations made using the decision rule (See section 1.3) in order to classify coverage as presented in table 3 below:

Table 3: Small area survey findings – Mandera East

Site area	SAM not in program	SAM in program	SAM recovering in program	Point coverage	
				d(point coverage)	Point Coverage
Hypothesis 1					
Town	2	0	0	1	<50%
Rural	0	3	4	1	>50%
Hypothesis 2					
Somalia	7	0	8	3	<50%

border					
Non-Somalia border	0	3	11	1	>50%

- Hypothesis # 1 was confirmed; Coverage is low in the urban town area due to the busy schedule/competing priorities and high in the rural areas.
- Hypothesis # 2 was confirmed; Coverage is low in areas along the Somalia border largely due to insecurity and programming challenges in the area and high in other non-border areas.
- Confirmation of the hypotheses has indicated that the barriers identified are valid and need to be addressed in order to obtain a satisfactory OTP coverage.

2.1.3 STAGE THREE: WIDE AREA SURVEY

2.1.3.1 Developing the prior

The data gathered in stage one and two were consolidated and grouped into two; boosters and barriers. The prior was developed from the average of the two methods of weighted and simple scoring of boosters and barriers. The scoring process was participatory. A factor was identified and participants gave a score which was then averaged to provide the factor score as shown in the table below. The boosters were thereafter added to the minimum coverage (0.0%) while the barriers deducted from the maximum coverage (100.0%), table 5. A median value was thereafter calculated.

Table 4: Legend of boosters and barriers

SOURCE		METHOD	
Code	**Source**	**Code**	**Method**
1	SAM caretakers	A	Literature review
2	Mother to Mother Support Groups	B	Routine data analysis
3	Traditional healers	C	Semi-structured interviews
4	Sheikhs	D	Observation

5	Pharmacist	E	Key informant interviews
6	Community of men and women	F	Informal group discussions
7	Nurse	G	Active case finding
8	CHW	H	SFP MUAC assessment
9	Community liaison/mobilizer		
10	Partners (NDMA, Co-CooP)		
11	IRK Staff		

Table 5: Synthesis of boosters and barriers – Mandera East

Boosters	Weighted	Simple scoring	Source	Method	
Awareness of program and malnutrition	3.5	5	1,6,7,8,9,13,14	C,E,F	
Plumpy nut supplies	3	5	7,8,11,14	E	
Integration of MoH and IRK	3.5	5	7,8,11,14	E	
Collaboration with stakeholders	3	5	9,10,11,13,14	E	
Presence of SFP for child to transition to	2.5	5	1,6	C,F	
Proximity to sites	4	5	1,6,11,14	C,E,F	
Program response to context	3.5	5	6,7,8,13,14	A,B,E,F	
Program effectiveness (monitoring indicators)	4	5	11,14	A,B	
Monitoring of children in SFP	4	5	7,8,11,14	E,H	
Capacity building (OJT)	4	5	7,8,11,14	A,E	
Facilitation of outreach sessions	4	5	7,8,9,13,14	E	
Appreciation of partners/MoH implementing IMAM	3	5	1,6,7,8,11,14	C,E,F	
OTP mothers creating awareness on program	3.5	5	1,6	C,F	
Referrals by CHWs at health facility	3	5	1,6,7,8	C,E,F	

Waiting time for mothers in rural sites	3	5	1,6,7,8,14	C,E,F	
Health seeking for malnutrition	3	5	1,5,6,7,8,9,13,14	C,E,F	
	54.5	**80**			
Barriers					
Reduced mobilization at community level activities	3	5	6,9,11,12,14	E,F	
Lack of mosquito nets for OTP mothers	2	5	1,6,15	C,E,F	
Shortage of nurses/inadequate screening at health facility	3.5	5	7,8,9,11,14	C,E,F	
Clan conflicts/tribal differences	4	5	6,7,8,9,10,11,14	A,E,F	
Pastoralism/migration	2	5	6,7,8,9,11,13,14	A,E,F	
Poor infrastructure during rainy season	2	5	7,8,10,11,13,15	A,E,F	
Lack of inclusion of key field sources of referral	2	5	2,3,4,5	E	
Busy schedules of caretakers in town	3	5	1,8,9,11,13,14	A,C,E,F,G	
Sale of plumpy nut	3	5	8,9,11,14	D,E,F	
Sharing of plumpy nut	3	5	1,7,8,911,14	C,E,F	
Stigma	3	5	1,6,8	C,E,F	
Waiting time for mothers in urban sites	3	5	1,8,9,14	C,E,F,G	
Insecurity at Somalia border sites/challenges in programming	3	5	6,8,9,11,14	C,E,F	
	36.5	**65**			

1. Scoring of weighted boosters and barriers

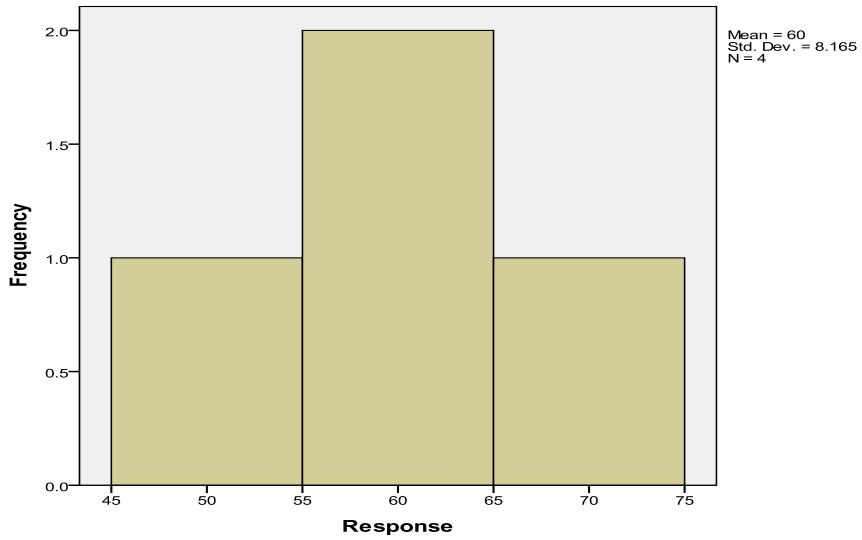
   Prior weighted= ((0%+54.5%) + (100%-36.5%))/2= 59**%**

2. Simple scoring of boosters and barriers

   Prior un-weighted/simple = ((0%+80%) + (100%-65%))/2= **57.5%**

3. **Histogram = 60%** (This an average of beliefs obtained from the program management team that comprised of 4 people), figure 6.

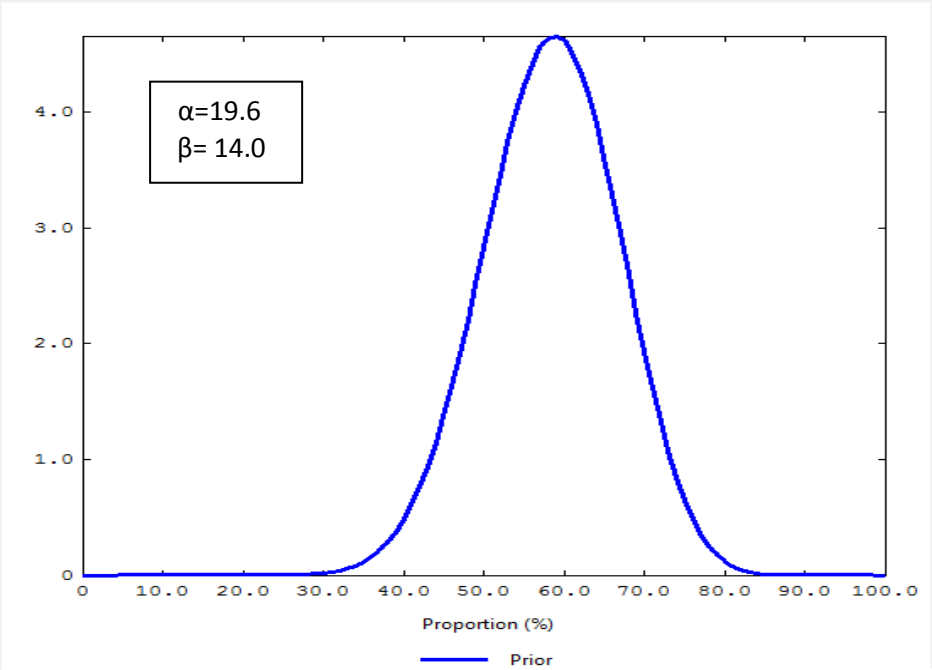
Figure 6: Histogram of beliefs on program coverage



Averaged Prior = (57.5%+59%+60%)/3 = 58.5%

Using the Bayesian Coverage Estimate Calculator, the Prior was set as 58.83% (α=19.6 and β= 14.0) presented in figure 7 below.

Figure 7: Prior estimates Mandera East - BayesSQUEAC



Using the Bayesian Coverage Estimate Calculator, the Prior was set as 59% (**α=19.6 and β= 14.0**)

2.1.3.2 Sampling methodology for wide area survey

Sample size was computed as follows:

$$n = \frac{0.59 \times (1 - 0.59)}{(0.12/1.96)^2} - (19.6 + 14.0 - 2)$$

From the above a sample size of 33 was derived.

Calculations were then undertaken to determine the minimum number of villages to sample as shown in table 6 below:

Minimum number of villages:

Table 6: Computation of required villages Mandera East

Target sample size	**33**
Average village population	2000(Sub-county figures)
Prevalence of SAM	0.4% (Mandera nutrition survey, June 2013)
% of children 6-59 months	20.2%(KDHS)

Using the formula for computing no. of villages:

$$n = \frac{33}{(2000 \times 0.20 \times 0.004)}$$ = 20.6 (21) villages

Sampling of villages

Villages were selected using the spatially stratified sequential sampling (See annex V).

At the community level active and adaptive case finding was used through the local case definition of malnutrition as already established through qualitative data collection. In each village, a key informant/guide was identified and the case definition shared. Children were assessed through MUAC and Oedema.

Wide area survey results

Following the wide area survey a total of 43 cases were found and categorized as follows:

Table 7: Wide area survey summary findings – Mandera East

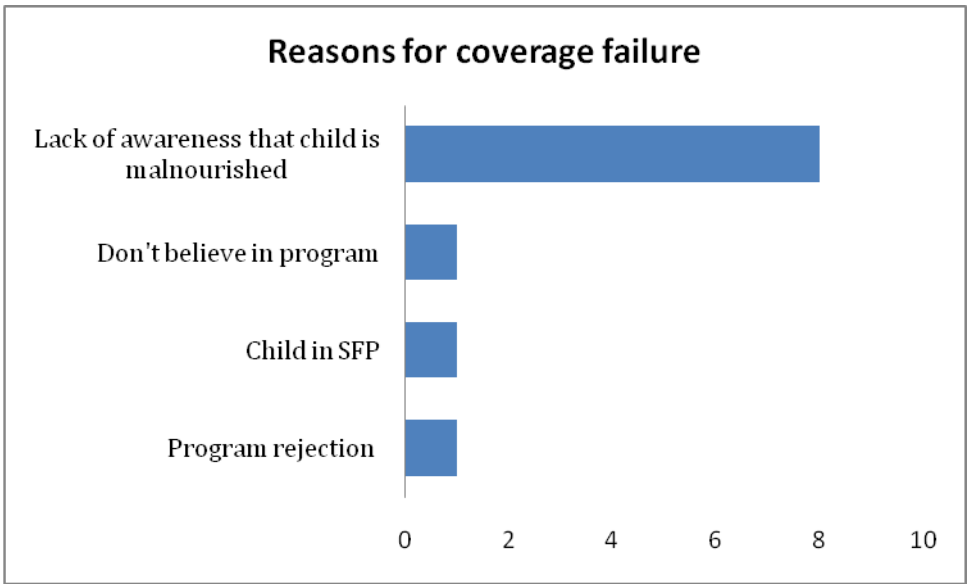
SAM cases not in program	11
SAM cases in program	12
Recovering in program	20
Total	43

(See annex VI for findings per village)

Reasons for coverage failure as per wide area

The reasons for coverage failure as cited by caretakers were lack of awareness that child is malnourished, lack of belief in program, lack of adequate monitoring of child in SFP and discouraged by previous program rejection.

Figure 8: Reasons for coverage failure as per wide area:



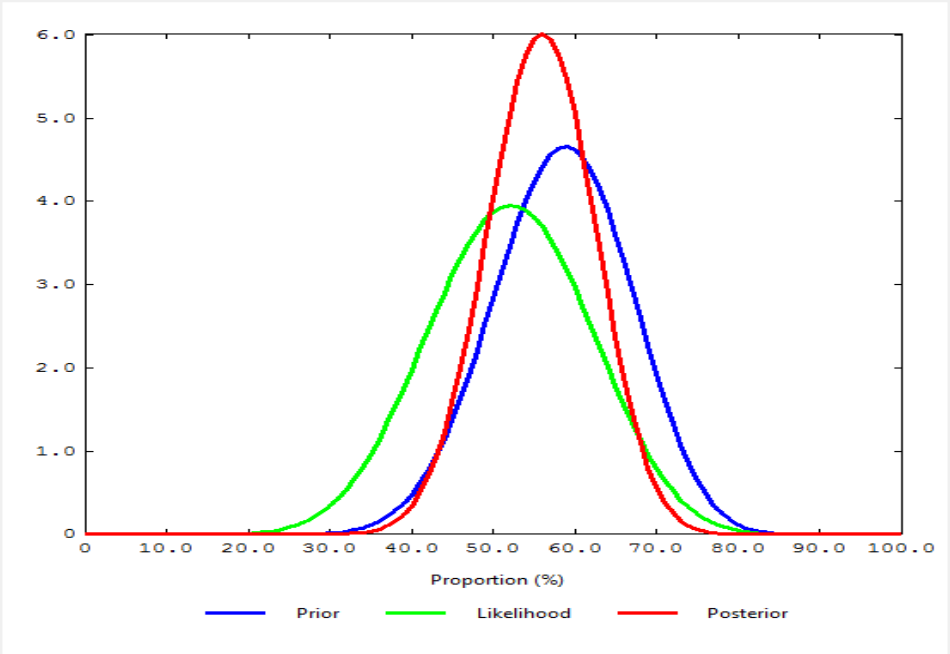
COVERAGE ESTIMATES

This report presents the point coverage as the preferred estimate of the situation as per findings on ground. The rationale is that there is weak case finding and despite lack of comprehensive data on average length of stay, an indicative long length of stay as per the available data and findings on sharing of ration and sale of plumpy nut.

Table 8: Point coverage survey estimates – Mandera East

Likelihood estimates	**52.1%**
Point coverage (BayesSQUEAC - posterior)	**56.0% (43.14% - 67.9%)**

Figure 9: Point coverage estimate Mandera East - BayesSQUEAC



The figure above indicates considerable overlap between the likelihood and prior and therefore results can be utilised.

From the Bayesian coverage calculator, the posterior point coverage is estimated at **56.0% (43.14% - 67.9%)** slightly above the recommended SPHERE standard of 50% in rural areas. Overall coverage of the program is thus acceptable.

2.2 MANDERA NORTH SUB-COUNTY

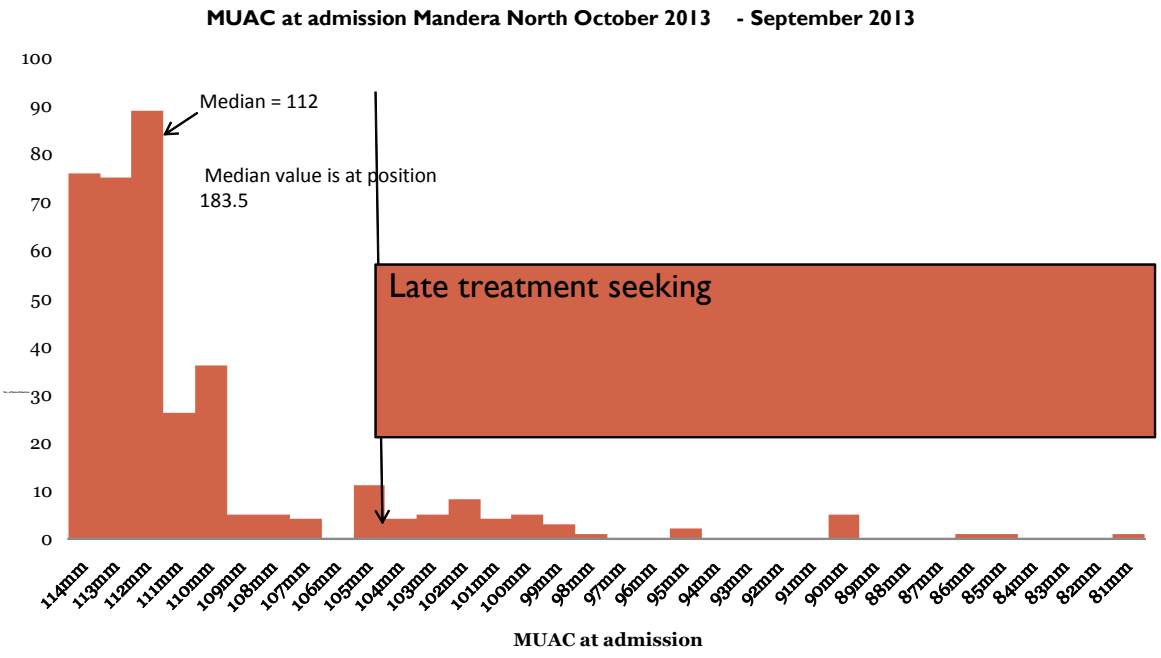
2.2.1 STAGE 1

2.2.1.1 QUANTITATIVE DATA

MUAC AT ADMISSION

An investigation of MUAC at admission to assess timelines of seeking treatment revealed a median value of 112mm, an indicator of early treatment seeking for majority of the beneficiaries. However a proportion of the community was found to be seeking treatment late at MUAC below 105, figure 10. Late treatment seeking for malnutrition in Mandera North sub-county is largely as a result of poor health seeking with many caretakers reported to initially seek alternative sources e.g. pharmacies and traditional healers, before going to the health facility.

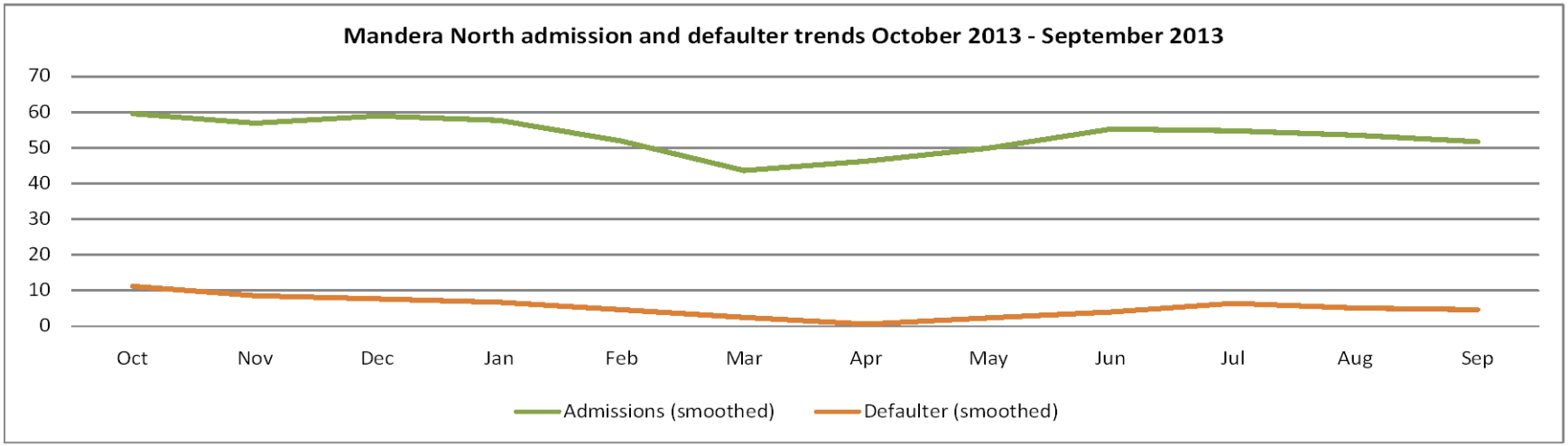
Figure 10: Mandera North sub-county MUAC at admission



PROGRAM FIT TO CONTEXT

There was relatively good response of program to context with an increase in admissions observed when there was an increase in morbidity and during the dry seasons. Clan conflicts and tensions over the period particularly in Rhamu division were however noted to have reduced admissions and increased defaulting. In addition, migration contributed to the increase in defaulting, figure 11.

Figure 11: Mandera North Program Response to Context



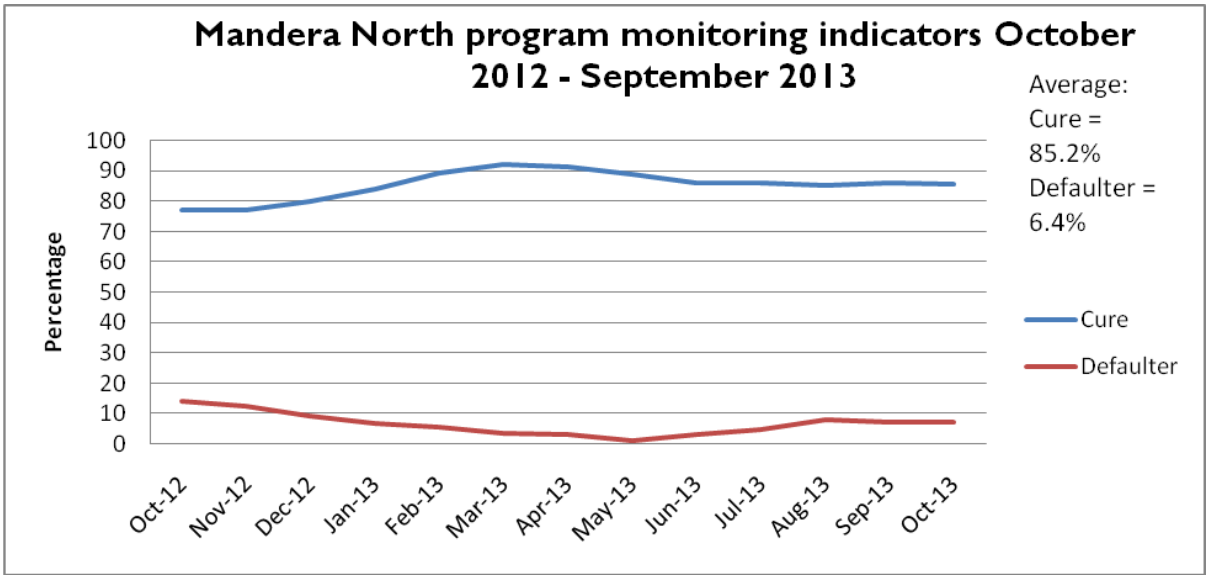
CONTEXUAL CALENDAR OF EVENTS

OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Rain		Dry				Rain			Dry		
								Dry			
Land preparation, planting, weeding and harvesting				No activity		Land preparati	Planting	Weeding	Harvesting	Harvesting	Land preparatio
Milk availability				Low livestock				Livestock bre	High livestocl	Low livestock	
						Low livestck products				Animal disease	
Agricultural activities											
	Diarrhoea, Malaria & ARIs					Diarrhoea, Malaria and ARIs					
Fear and tension			Clan conflict and Clashes	Fear and tension			Reducing tension				
	Yabicho-out				Girissa - out						
	Olla, Kubi-in					In and out					

PROGRAM MONITORING INDICATORS (EFFECTIVENESS)

As regards program effectiveness as assessed through program monitoring indicators, the program has on overall performed well over the period having attained average rates of: cure – 85.2% and defaulter – 6.4% within the recommended SPHERE standard of cure above 75% and defaulting of below 15%. There were no deaths recorded over the period, figure 12.

Figure 12: Mandera North Program monitoring indicators

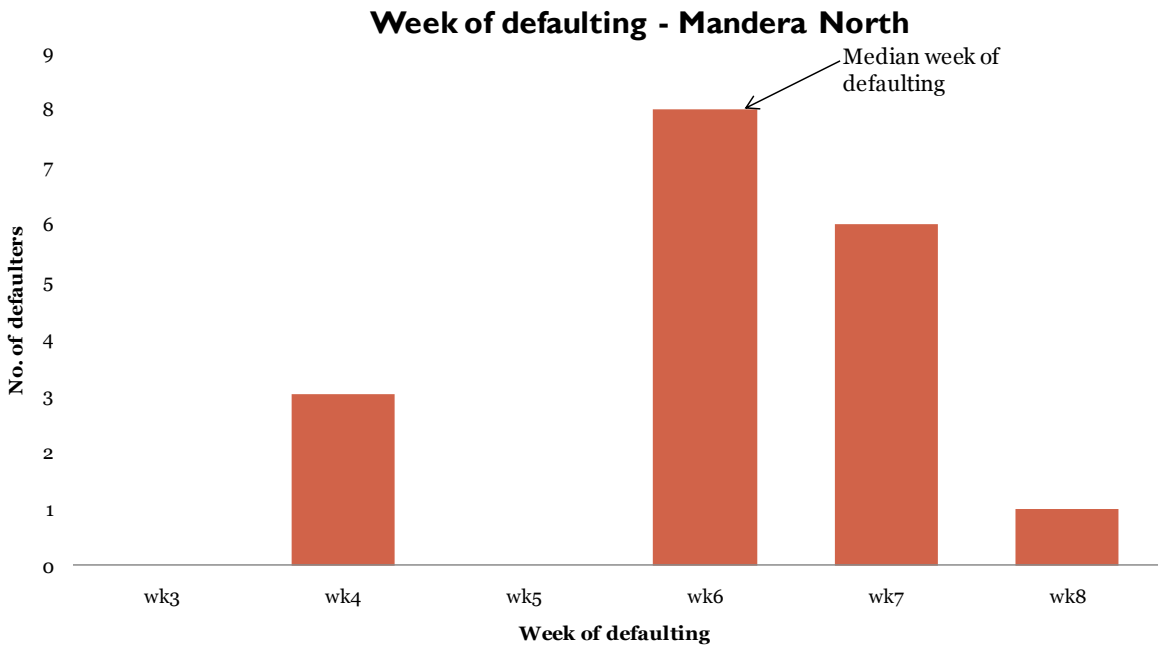


DEFAULTING

An investigation on the time of defaulting from the program revealed that median defaulting period was at week 6. Beneficiaries defaulting after week 4 are most likely recovered from SAM[3]. Defaulting on overall was reported to be mainly due to migration and lack of access to program particularly in the rainy season. The reason of defaulting was however not recorded consistently, figure 13.

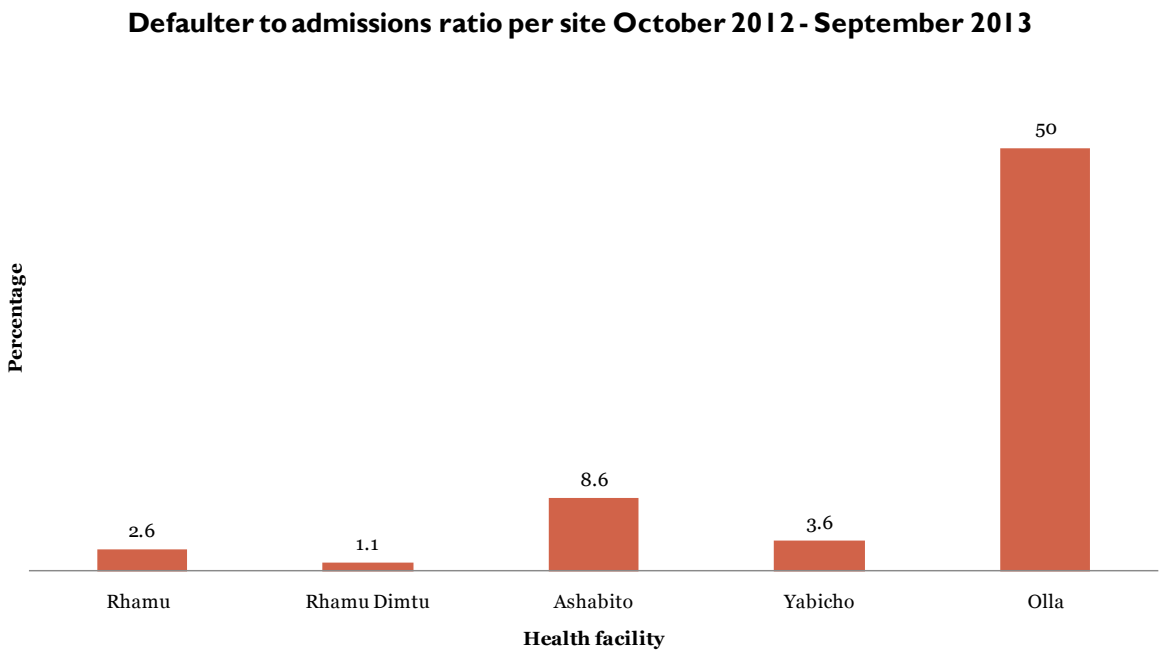
[3] SQUEAC guidelines

Figure 13: Mandera North – Week of defaulting



In regard to defaulters per site, Olla recorded the highest defaulter to admission ratio, figure 14. This was mainly attributed to displacements due to clan clashes in Olla.

Figure 14: Defaulter to admissions ratio per site



2.2.1.2 SUMMARY OF QUALITATIVE FINDINGS

Table 9: Mandera North summary of boosters and barriers

Boosters	
Integration of program into MoH system	The integration of management of malnutrition has seen more children seeking other medical care be screened and referred accordingly to the nutrition program.
Plumpy nut availability	Plumpynut supplies were available for most part of the year. Stock outs in some of the health facilities were experienced for 1-2 weeks which was attributed to occasionally lack of timely provision of plumpy nut from the Rhamu sub-county hospital to health facilities.
Capacity building (OJT)	The on-going on job training for MoH nurses by IRK has enhanced capacity in management of malnutrition and as well acceptance of the program.
Facilitation of outreach sessions	Availing of logistical support to the MoH to be able to conduct outreach sessions to reach communities in distant sites has enhanced program coverage.
Community awareness of malnutrition	Many of the community members particularly those living in settlements are aware of the program. Most of pastoral communities have in addition been informed about the program by the local administration. Regarding awareness of malnutrition many of the community members were able to cite different signs and symptoms and expressed knowledge of the different causes to include disease and food insecurity.
Monitoring of children in SFP	There was no severely malnourished child found in the SFP an indication of adequate monitoring of the individual status of children in the SFP.
Proximity to sites	For the communities who are settled most of the sites/health facilities are proximal with most of the caretakers reporting to take 30mins-1hour to access.
Presence of varied active sources of knowledge and referral	The program has many varied sources of knowledge about program and referral. The OTP beneficiary caretakers reported to have been referred by various sources to include self, CHWs, community members, local administration and IRK staff.

Minimal stigma	There was very minimal stigma reported with less than 10% of interviewed OTP beneficiary caretakers reporting to feel stigmatized. On the contrary most of the community members were reported to be quite supportive.
Waiting time in program	The caretakers are encouraged by the short waiting time in program for services. Most of the caretakers reported to wait for less than approximately 30minutes to be attended to.
Positive attitude of the DPHN/ag.DNO	The attitude and support for management of malnutrition activities in the sub-county by the DPHN has enhanced efficient delivery of services.
Barriers	
Lack of a DNO	Despite the support by the DPHN/ag.DNO, lack of a focal person for nutrition related activities has resulted in some challenges to include timely reporting on program activities and consequently delayed re-stocking of health facilities in some instances.
Community mobilization	Overall there are very limited mobilization activities going on at the community level. There is weak active case finding and in most of the areas screening for children and health education at the community level has not been going on.
Health seeking behaviour	Health seeking for management of malnutrition was found to be inadequate with many of the OTP beneficiary caretakers reporting to have initially sought assistance from the traditional healers, pharmacies and sheiks on detection that the child was malnourished or sick.
Shortage of staff at health facility	Lack of adequate numbers of nurses has seen the CHWs take up the roles of nurses in many of the health facilities and consequently impacting negatively on the mobilization activities as observed above.
Pastoralism/migration	The pastoral nature of the community has resulted in inadequate coverage of the community and even defaulting of some of those already enrolled in the program.
Inter-clan differences/conflicts	Clan conflicts and tribal differences have seen occasionally affected delivery of services. Rhamu area in particular experienced serious clashes between two communities over the January - May period resulting in displacements of some community members.
Traditional beliefs	Various traditional beliefs to include negative outcomes on removal of child clothing for weighing have contributed to coverage failure.

Program rejection of ineligible	Due to low literacy levels and understanding of program eligibility criteria, some community members felt discouraged from taking their children for screening due to previous lack of admission/rejection.
Lack of inclusion of key field sources of referral	The program has not adequately included other key sources of referral in its mobilization strategy. In particular the traditional healers, pharmacies and Sheiks whom some of the community members seek assistance from when children are sick have not been included.
Sharing of plumpynut	Sale of plumpy nut is a challenge to coverage as it is an indication that not everyone has understood that it is for curative purposes. In addition child recovery is delayed by provision of inadequate rations.
Sale of plumpy nut	Sharing of plumpy nut with other family members as above has contributed to delayed child recovery and consequently the effectiveness of the program. A few community members complained to children staying in the program for too long.
Minimal appreciation of program	In many of the areas the community expressed dissatisfaction with the provision of services and especially after the program has been integrated into the health system. The community complained about lack of adequate screening of children and efficient delivery of services.
Poor infrastructure during rains	During the rainy season it is especially difficult to access distant areas due to poor terrain.

2.2.2 STAGE TWO

2.2.2.1 HYPOTHESIS TESTING

Based on the information collected (both quantitative and qualitative) and analyzed in Stage One, there were observations of high and low coverage. The investigation concluded that coverage is likely to be relatively low in some sites and high in others.

The hypotheses were therefore that:

- The Coverage is low in areas distant sites to Rhamu town and high in areas proximal to Rhamu town due to easier access and monitoring.
- Coverage is low in urban areas due to competing priorities/busy schedule of caretakers and high in rural areas.

Eight site areas in total were selected and sampled to test the two hypotheses. Four sites were assessed to test proximity versus distance to Rhamu town whereas another four sites were assessed to test coverage in town versus the rural areas. (See annex VI for findings per site).

The following results were found and calculations made using the decision rule (See section 1.3) in order to classify coverage as presented in table 10:

Table 10: Small area survey findings – Mandera North

Sub-county/region	SAM not in program	SAM in program	SAM recovering in program	Point coverage	
				d(point coverage)	Point Coverage
Hypothesis 1					
Proximal	0	1	4	0	>50%
Distant	2	2	7	0	>50%
Hypothesis 2					
Town	2	2	4	1	>50%
Rural	1	1	9	0	>50%

As per the findings above:

- Hypothesis # 1 was denied; there is no difference in coverage in the distant and proximal sites to Rhamu town.
- Hypothesis # 2 was denied: There is no difference in coverage between the town area and rural areas.

2.2.3 WIDE AREA SURVEY

2.2.3.1 Developing the prior

The data gathered in stage one and two were consolidated and grouped into two; boosters and barriers. The prior was developed from the average of the two methods of weighted and simple scoring of boosters and barriers. The scoring process was participatory. A factor was identified and participants gave a score which was then averaged to provide the factor score as shown in the table below. The boosters were thereafter added to the minimum coverage (0.0%) while the barriers deducted from the maximum coverage (100.0%), table 12. A median value was thereafter calculated.

Table 11: Legend of boosters and barriers

SOURCE		METHOD	
Code	**Source**	**Code**	**Method**
1	SAM Caretakers	A	Literature review
2	Mother to Mother Support Groups	B	Routine data analysis
3	Traditional healers	C	Semi-structured interviews
4	Sheikhs	D	Observation
5	Pharmacist	E	Key informant interviews
6	Community of men and women	F	Informal group discussions
7	Nurse	G	Active case finding
8	CHW	H	SFP MUAC assessment
9	Community liaison/mobilizer		
10	Partners (NDMA, COCOP,)		
11	IRK Staff		

Table 12: Synthesis of boosters and barriers – Mandera North

Boosters	Weighted score	Simple score	Source	Method
Integration of program into MoH system	3.5	5	12	E
Plumpy nut availability	3	5	11,12	E
Capacity building (OJT)	4	5	7,11. 12	E
Facilitation of outreach sessions	4	5	7,11,12	E
Community awareness of malnutrition	4	5	1,2.3,4,5,6	C,D, E
Program response to context	3.5	5	6, 12,13	A,B,E,F
Program monitoring indicators	4.5	5	12	A,B
Monitoring of children in SFP	4	5	1	H
Proximity to sites	4	5	1,6,	C,F
Presence of varied active sources of referral	4.5	5	2,3,6,8,9	C,E,F
Referrals by CHWs			1, 8,13	C,E,F
Minimal stigma	4	5	1,6	C,F
Waiting time in program	3	5	1,6	C,F
Positive attitude of the DHMT	3	5	7,8,9,10,11,12, 13,14	C,D,E
	53	**70**		
Barriers				
Lack of a DNO	3	5	9,11,12,14	E
Reduced community mobilization	2	5	1,6,8,9,11,13,14	C,E,F
Health seeking behaviour	3.5	5	1,6,8,9,13,14	C,E,F,
Shortage of staff at health facility	2.5	5	6,7,8,11,13,14	C,E
Pastoralism/migration	2	5	6,7,8,9,13	A,C,E,F
Inter-clan differences/conflicts	3	5	6,7,8,9,11,13,14	A,C,E,F
Traditional beliefs	2	5	6,7,8,9,13	C,E,F
Program rejection of ineligible	1.5	5	1,6	C,F
Lack of inclusion of key field sources of referral	2	5	3,4,5	E
Sharing of plumpynut	3	5	1,6,7,8,9,11,12,14	C,E,F
Sale of plumpy nut	3	5	7,11,14	C,D,E,F
Minimal appreciation of program	2	5	1,6,8	C,E,F
Poor infrastructure during rains	2	5	7,8,10,11	A,C,D,E,F
	31.5	**65**		

1. Scoring of weighted boosters and barriers

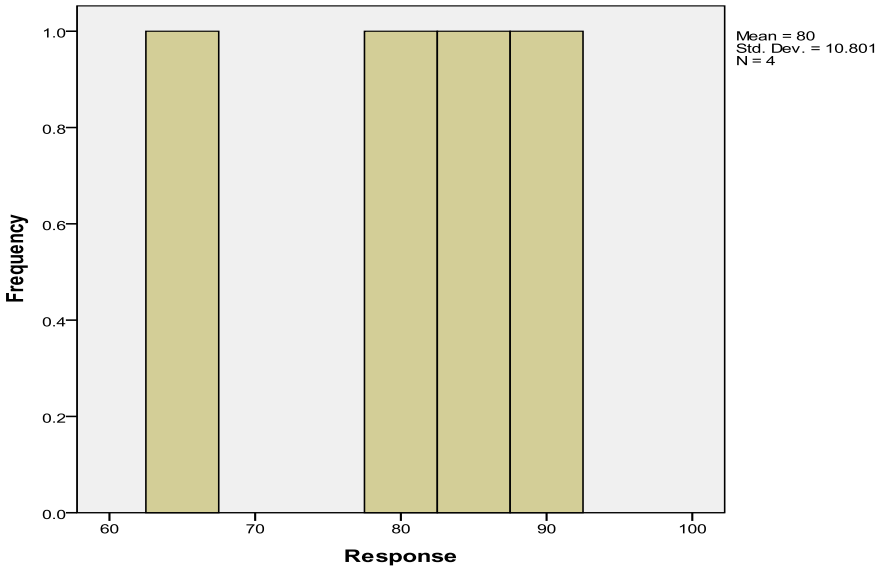
   Prior weighted= ((0%+53%) + (100%-31.5%))/2= 60.75%

2. Simple scoring of boosters and barriers

   Prior un-weighted/simple = ((0%+70%) + (100%-65%))/2= 52.5%

3. Histogram = 80% (this an average of beliefs obtained from program management team that comprised of 4 people), figure 15.

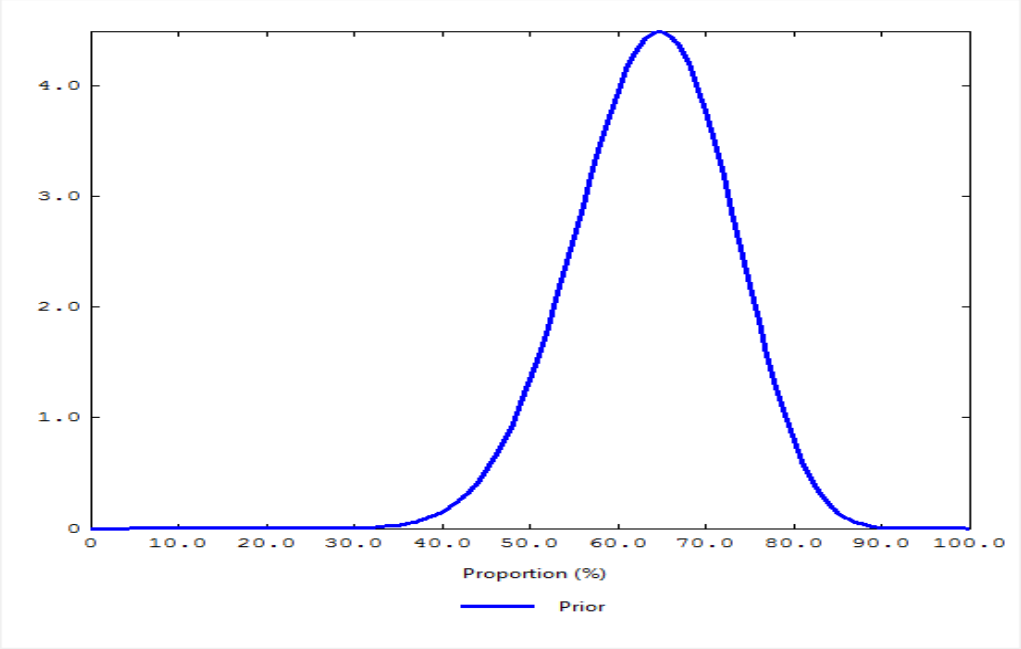
Figure 15: Histogram of beliefs on program coverage – Mandera North



Averaged Prior = (60.75%+ 52.5% + 80%)/3 =64.4%

Using the Bayesian Coverage Estimate Calculator, the Prior was set as 64.4% (α=18.8 and β= 10.7) presented in figure 16 below.

Figure 16: Prior estimates Mandera North - BayesSQUEAC



2.2.3.2 Sampling methodology for wide area survey

Sample size was computed as follows:

$$n = \frac{0.64 \times (1 - 0.64)}{(0.13/1.96)^2} - (18.8 + 10.7 - 2) \quad = 24.8\ (25)$$

From the above a sample size of 25 was derived.

Calculations were then undertaken to determine the minimum number of villages to sample as shown in table 13 below:

Minimum number of villages:

Table 13: Computation of required villages – Mandera North

Target sample size	**25**
Average village population	1600
Prevalence of SAM	0.4% (Integrated health and nutrition survey 2012)
% of children 6-59 months	20.2%(KDHS)

Using the formula for computing no. of villages:

$$n = \frac{25}{(1600 \times 0.2 \times 0.004} \quad = 19.3\ (20)\ \text{villages}$$

Sampling of villages

Villages were selected using the spatially stratified sequential sampling (See annex VI).

At the community level active and adaptive case finding was used through the local case definition of malnutrition as already established through qualitative data collection. In each village, a key informant was identified and the case definition shared.

Wide area survey results

Following the wide area survey, a total of 45 cases were found and categorized as follows:

Table 14: Wide area survey summary findings Mandera North

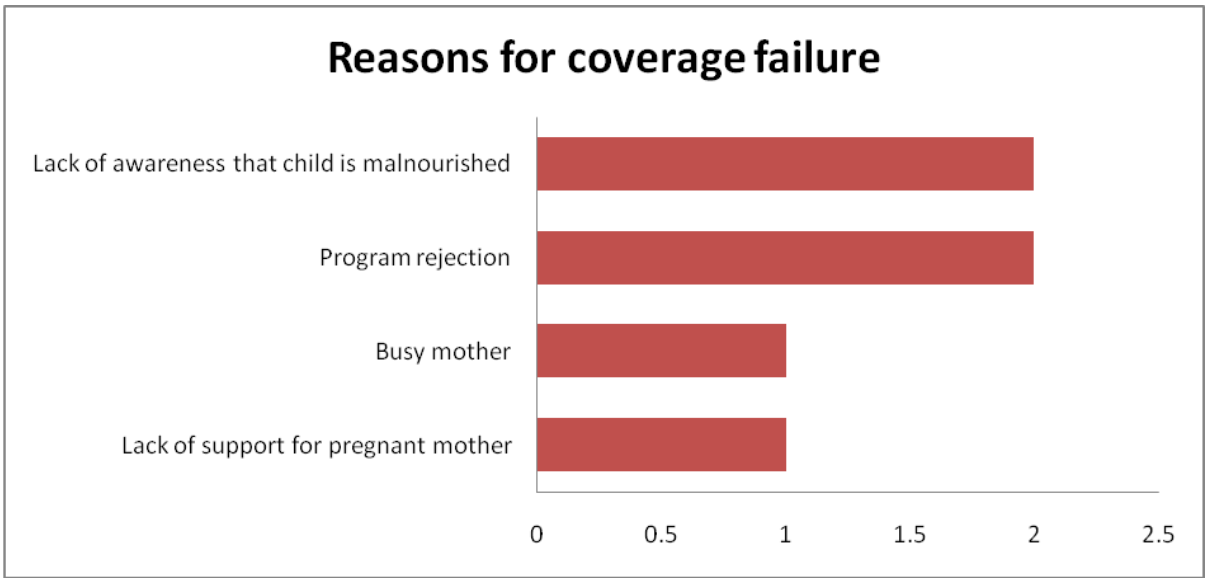
SAM cases not in program	6
SAM cases in program	9
Recovering in program	30
Total	45

(See annex VIII for findings per village)

Reasons for coverage failure as per wide area

The reasons for coverage failure were cited by the caretakers as being lack of awareness that child is malnourished, discouraged by previous program rejection, busy workload and lack of support for pregnant mother to take child to program.

Figure 17: Reasons for coverage failure



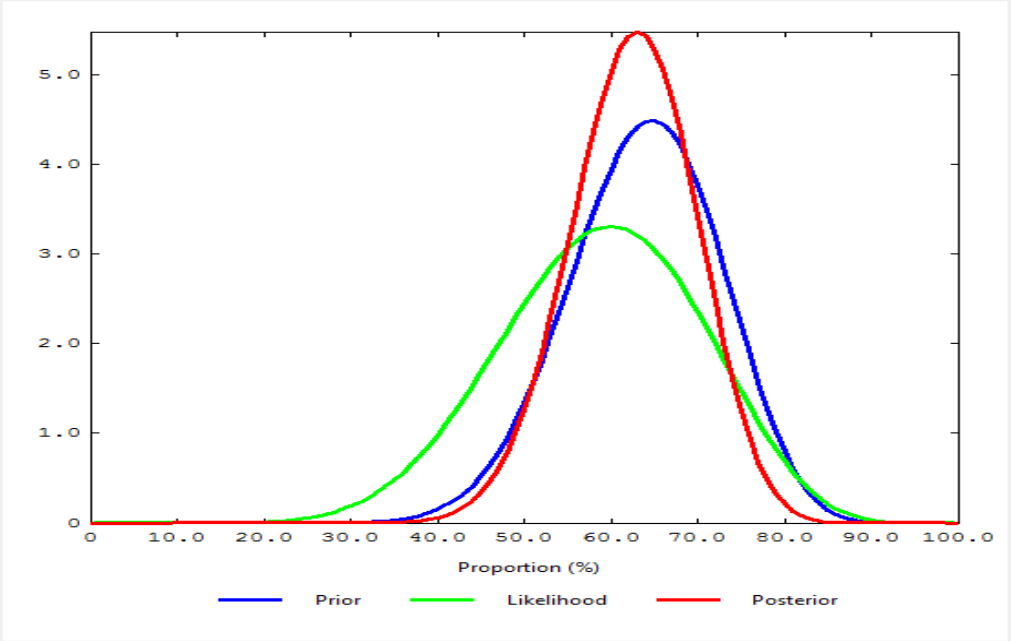
COVERAGE ESTIMATES

Point coverage is presented as the preferred estimate of the situation as per findings on ground. The rationale is that there is weak case finding and despite lack of comprehensive data on average length of stay, there is indicative prolonged length of stay as per the available data and findings on sharing of ration and sale of plumpy nut.

Table 15: Coverage estimates Mandera North

Likelihood estimates	**60%**
Point coverage (BayesSQUEAC - posterior)	**63.1% (48.4% - 75.8%)**

Figure 18: Point coverage BayesSQUEAC



The figure above indicates strong overlap between the likelihood and prior.

From the Bayesian coverage calculator, the posterior point coverage is estimated at **63.1% (48.4% - 75.8%)** above the recommended SPHERE standard of 50% in rural areas. Overall coverage of the program is thus acceptable.

CONCLUSION

The Mandera East/Lafey and North programs have achieved period coverage estimates of **56.0% (43.14% - 67.9%)** and **63.1% (48.4% - 75.8%)** respectively**.** Both programs have achieved acceptable coverage above 50% as per the SPHERE standards for rural setups. In Mandera East however there is patchy coverage with investigations at the second stage revealing low coverage in Mandera town and in areas along the Kenya-Somalia border. In Mandera North the coverage is uniform.

There are relatively similar boosters and barriers across the two sub-counties. The main barrier to coverage is generally weak community mobilization to include active case finding. In Mandera East the impact of the Kenya-Somalia border on security and the presence of a higher population in Mandera town that requires more staffing and time for mobilization activities have further contributed to decreased coverage. In Mandera North the escalated clashes that were recorded early in the year in Rhamu division and periodic clan tensions have further been found to have reduced program coverage.

3.0 RECOMMENDATIONS

Following the identification of various barriers to optimal coverage by the nutrition program in Mandera East and North sub-counties several recommendations are proposed as presented in table 16 below.

Table 16: Overall summary of barrier and recommendations

BARRIER	RECOMMENDATION
Reduced mobilization at community level activities	- Strengthen the mobilization strategy and in particular active case finding of malnourished children. The MoH and partners should coordinate and conduct joint monitoring of community mobilisation activities further to monitoring of facility based activities.
Shortage of nurses/inadequate screening at health facility	- Continued advocacy by MoH and partners to ensure staff shortage gap is addressed. - Explore having more CHWs particularly in areas without nurses to allow for community mobilization and adequate screening of beneficiaries at the health facility.
Clan conflicts/tribal differences	- Seek to implement program activities of affected sites during clan and intertribal conflicts from neighbouring proximal sites.
Pastoralism/migration	- Continue community sensitization on the need for child recovery before migrating. - Seek to link program beneficiaries to OTP in areas that pastoral communities move to.

Poor infrastructure during rainy season	- Ensure contingency planning all the way to the health facilities particularly for supplies.
Lack of inclusion of key field sources of referral	- Include key sources of referral namely the pharmacies, traditional healers and TBAs in the mobilization strategy.
Sale of plumpy nut	- Continue sensitization to community that plumpy nut is medicine for severe malnutrition.
Sharing of plumpy nut	- Continue sensitization to community that plumpy nut is medicine for severe malnutrition. - Explore the possibility of protection rations for households with SAM beneficiaries.
SPECIFIC TO MANDERA EAST	
Lack of mosquito nets for OTP mothers	- Conduct sensitization on the need to have malnutrition managed regardless of whether there are extra incentives. - Explore provision of mosquito nets to new beneficiaries.
Busy schedules of caretakers in town/waiting time for mothers in urban sites	- Continue sensitization to the community in the town areas on the need to ensure malnutrition is managed and as well the availability of management of malnutrition services throughout the week.
Rumours of demand for payment for program admission	- Investigate rumours that community has to pay for admission into program.
Stigma	- Continue educating community on malnutrition and the causes. Incorporate local leaders in the sensitization and encouraging of mothers to take malnourished

	children to the program.
Insecurity at Somalia border sites/challenges in programming	- Contingency planning for programming along the Kenya-Somalia border. - Continue having well trained and local staff in-charge of activities along the border.
SPECIFIC TO MANDERA NORTH	
Lack of a DNO in Mandera North	- Continued advocacy for a DNO in Mandera - Conduct adequate capacity building on all relevant aspects of nutrition programming for acting staffs.
Health seeking behaviour	- Continue community sensitization and include the key sources of referral on detection of malnutrition and appropriate treatment seeking.
Traditional beliefs	- Continue community sensitization on malnutrition and the entire management process that has an ultimate being of the well being of a child.
Program rejection of ineligible beneficiaries	- Continue sensitization on the program admission criteria and the reasons behind the criteria.
Minimal appreciation of program	- Investigate further the reasons for discontentment with the program and seek to address these.

3.1 Review of uptake of 2012 recommendations

A review of the uptake of recommendations done in 2012 revealed that most have been partially undertaken, table 17.

Table 17: Review of uptake of 2012 recommendations

Recommendation 2012	Achievement of recommendations				
	Fully	**Partially**	**Not taken up (Repeated in 2013)**	**N/A**	**Comment**
1. Community mobilisation: **a. Strengthen active case finding and timely screening of all new arrivals.** **b. Inclusion of all key field sources of referral namely the Traditional healers, TBAs, pharmacies and Sheiks.**		√ √			Community mobilization to include active case finding is at present weak.
2. Community sensitization: **There is need to strengthen the health education component of the program through allocating adequate time for health education by the outreach teams in collaboration with the CHW or adequate supervision of the CHWs. The health education should seek to address:** **a. Sale of plumpy nut** **b. Child care** **c. Cultural taboos**		√			Community sensitization on malnutrition is at present weak.

d. Program screening and admission					
3. Monitoring and evaluation **a. Continue monitoring community movements during insecurity and migration to ensure adequate coverage** **b. Enhance availability of timely, comprehensive and accurate data.**		√ √			On-going On-going
4. Program **a. Investigate all claims of demand for payment for admission into program** **b. Seek to enhance efficiency to reduce program waiting time in all sites.**		√ √			Claims of demand of payment of admission reported in only one site (Khalalio). Done in most of the sites. Long waiting time was only reported in the town sites.
5. Collaboration **a. IRK should continue offering support to MoH in management of malnutrition as well as reporting.**	√				On-going
6. Advocacy **a. Continue advocacy on road improvement particularly along where program sites are situated.**		√			On-going

Table 18: Log frame of recommendations

BARRIER	RECOMMENDATION	INDICATOR	PERIOD OF MEASUREMENT	RESPONSIBLE
Reduced mobilization at community level activities	- Strengthen the mobilization strategy and in particular active case finding of malnourished children. - The MoH and partners should coordinate and conduct joint monitoring of community mobilisation activities further to monitoring of facility based activities.	-Presence of an updated mobilization strategy -No. of monitoring visits conducted	- Annually - Quarterly	MoH (PHO) and partners MoH (PHO) and partners
Shortage of nurses/inadequate screening at health facility	- Continued advocacy by MoH and partners to ensure staff shortage gap is addressed. - Explore having more CHWs particularly in areas without nurses to allow for community mobilization and adequate screening of beneficiaries at the health facility.	No of nurses available No. of CHWs available	- Quarterly - Quarterly	County health management /MoH County health management /MoH
Clan conflicts/tribal differences	- Seek to implement program activities of affected sites during clan and intertribal conflicts from neighbouring proximal sites.	-No. of sites supporting affected sites during clashes/insecurity. -No. of beneficiaries receiving nutrition care	- Periodically (during clashes/insecurity) - Periodically (during	CNO/DNO

		through proximal sites to those affected by clashes/insecurity	clashes/insecurity	
Pastoralism/migration	- Continue community sensitization on the need for child recovery before migrating. - Seek to link program beneficiaries to OTP in areas that pastoral communities move to.	-No. of community sensitization sessions addressing respective aspect held -No. of beneficiaries linked to sites in migratory areas	- Monthly - Monthly	- PHO/CNO/DNO and partners - DNO
Poor infrastructure during rainy season	- Ensure contingency planning all the way to the health facilities particularly for supplies.	-Availability of adequate supplies consistently - On-going management of malnutrition activities	- Monthly - Monthly	- DNO and partners - DNO and partners
Lack of inclusion of key field sources of referral	- Include key sources of referral namely the pharmacies, traditional healers and TBAs in the mobilization strategy.	-No. of referrals conducted by field sources of referral	- Monthly	- PHO/ CNO/DNO and partners
Sale of plumpy nut	- Continue sensitization to community that plumpy nut is medicine for severe malnutrition.	-No. of community sensitization sessions addressing respective aspect held	- Monthly	- PHO/CNO/DNO and partners
Sharing of plumpy nut	- Continue sensitization to community that plumpy nut is medicine for severe malnutrition.	-No. of community sensitization sessions addressing respective	- Monthly	- PHO/CNO/DNO and partners

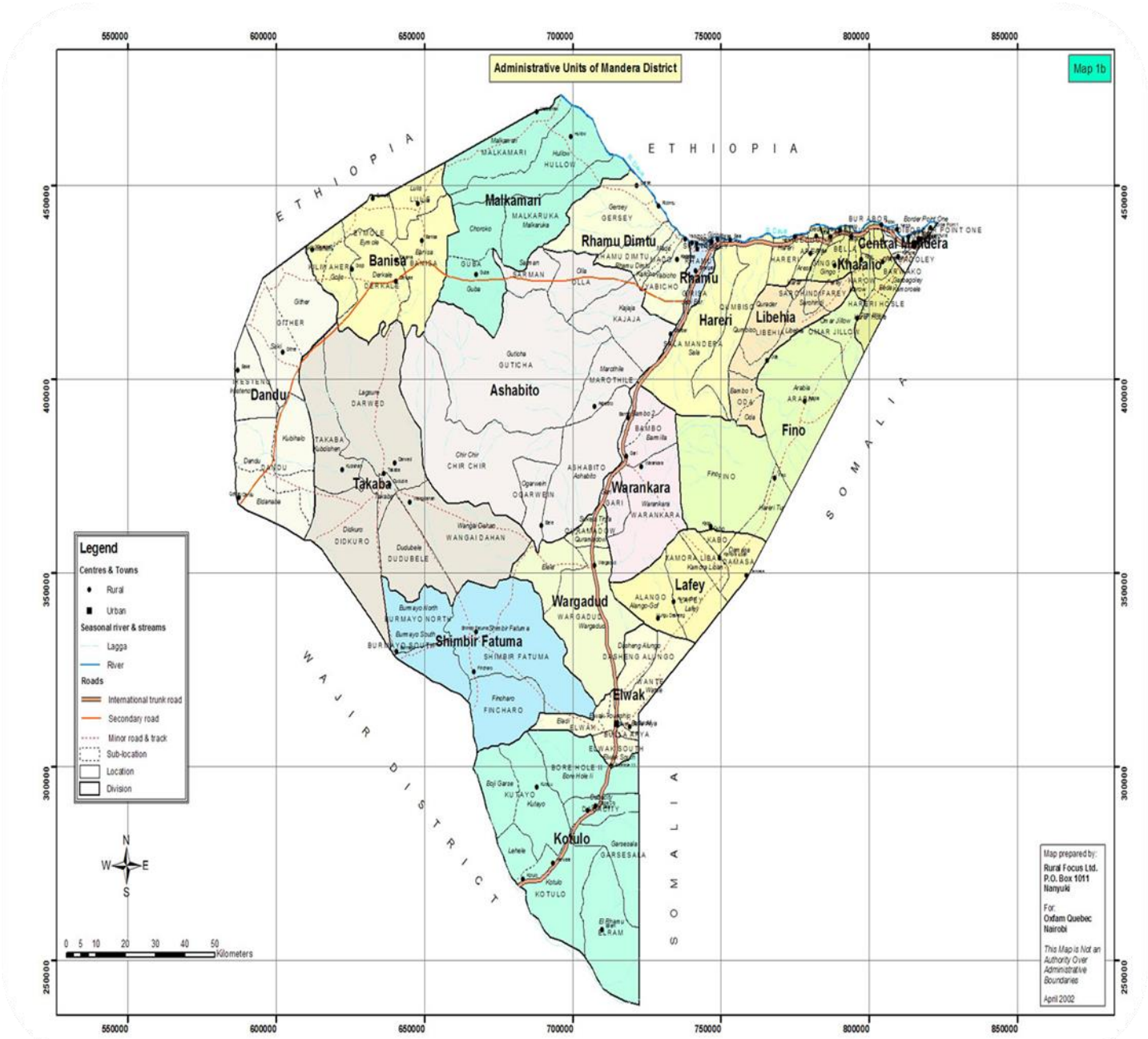
	- Explore the possibility of protection rations for households with SAM beneficiaries.	aspect held -Availability of protection ration	- Periodically	- CNO/UNICEF/WFP and implementing partners
SPECIFIC TO MANDERA EAST				
Lack of mosquito nets for OTP mothers	- Conduct sensitization on the need to have malnutrition managed regardless of whether there are extra incentives. - Explore provision of mosquito nets to new beneficiaries.	-No. of community sensitization sessions addressing respective aspect held -No. of new beneficiaries receiving mosquito nets	- Monthly - Monthly	- PHO/DNO and partners - CNO/DNO and implementing partners
Busy schedules of caretakers in town/waiting time for mothers in urban sites	- Continue sensitization to the community in the town areas on the need to ensure malnutrition is managed and as well the availability of management of malnutrition services throughout the week.	No. of community sensitization sessions addressing respective aspect held	- Monthly	- PHO/CNO/DNO and partners
Rumours of demand for payment for program admission	- Investigate rumours that community has to pay for admission into program.	-Report on investigations	- Periodic	- CNO/DNO

Stigma	- Continue educating community on malnutrition and the causes. - -Incorporate local leaders in the sensitization and encouraging of mothers to take malnourished children to the program.	No. of community sensitization sessions addressing respective aspect held No. of local leaders participation in sensitization sessions	- Monthly - Monthly	- PHO/CNO/DNO and partners - PHO/CNO/DNO and partners
Insecurity at Somalia border sites/challenges in programming	- Contingency planning for programming along the Kenya-Somalia border. - Continue having well trained and local staff in-charge of activities along the border.	-Program activities along border implemented - Presence of local staff mandated to oversee activities along the border	- Monthly - Monthly	- County health management team and partners
SPECIFIC TO MANDERA NORTH				
Lack of a DNO in Mandera North	- Continued advocacy for a DNO in Mandera North - Conduct adequate capacity building on all relevant aspects of nutrition programming for acting staffs.	-Presence of a DNO in Mandera - No. of capacity building sessions held	- Monthly - Monthly	- County health management team/MoH/partners - Partners/CNO
Health seeking behaviour	- Continue community sensitization and include the key sources of referral on detection of malnutrition and appropriate treatment seeking.	-No. of community sensitization sessions addressing respective aspect held	- Monthly	- PHO/CNO/DNO and partner

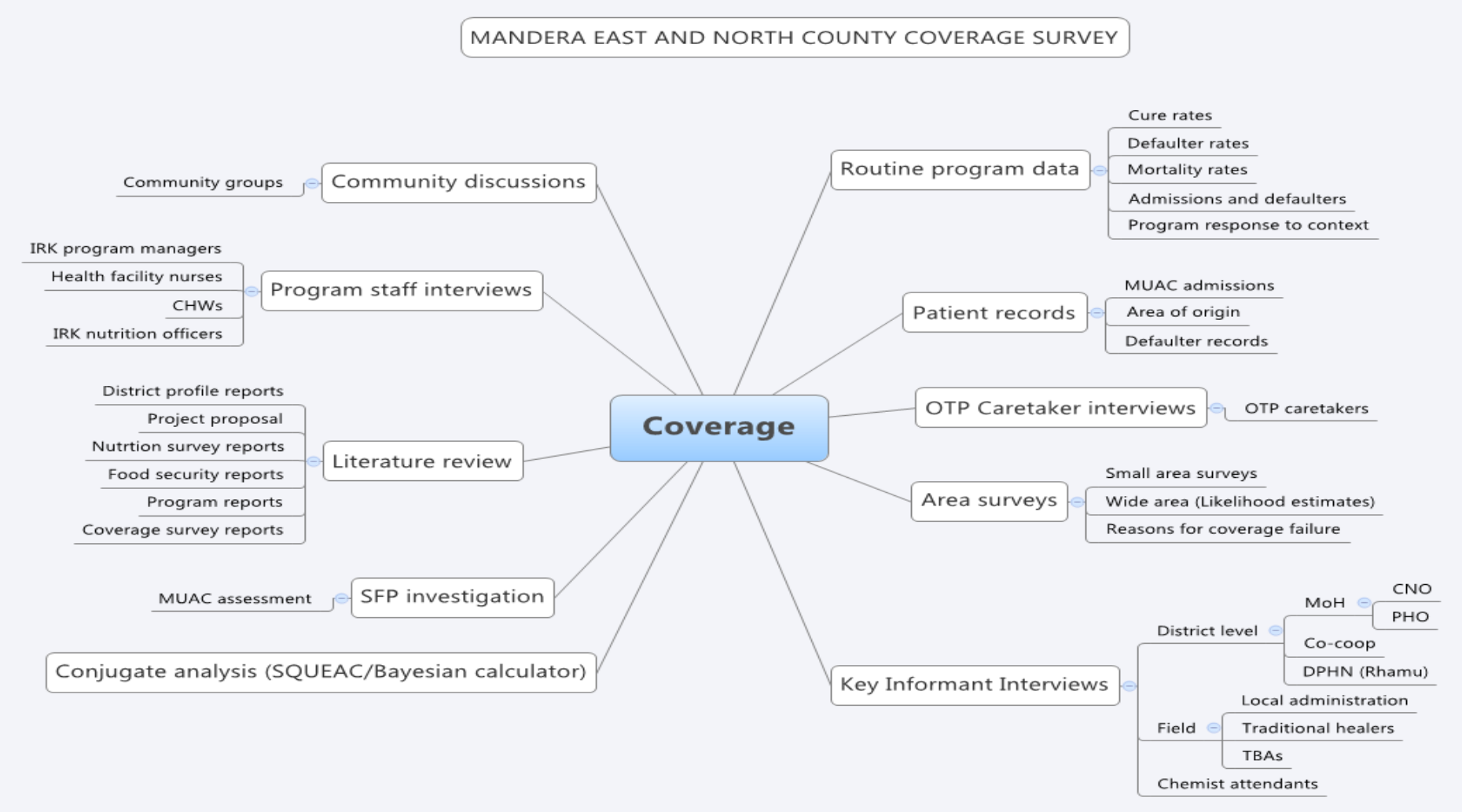
		-No. of key field sources of referral included in the sensitization sessions		
Traditional beliefs	- Continue community sensitization on malnutrition and the entire management process that has an ultimate being of the well being of a child.	-No. of community sensitization sessions addressing respective aspect held	- Monthly	- PHO/CNO/DNO and partners
Program rejection of ineligible beneficiaries	- Continue sensitization on the program admission criteria and the reasons behind the criteria.	-No. of community sensitization sessions addressing respective aspect held	- Monthly	- PHO/CNO/DNO and partners
Minimal appreciation of program	- Investigate further the reasons for discontentment with the program and seek to address these.	-Report on investigations	- Periodic	- CNO/DNO and partners

ANNEXES

Annex I: Map of Mandera County



Annex II: Data collection methodology



Annex III: Small area survey findings – Mandera East

	SAM not in program	SAM in program	SAM recovering in program
Town			
Mandera DH	2	0	0
Old town	0	0	0
	2	**0**	**0**
Rural			
Libeihya	0	3	4
Khalalio (Haji)	0	0	0
	0	**3**	**4**
Somalia border			
Fino	3	0	0
Omar Jillow	2	0	8
Arabia	2	0	0
	7	**0**	**8**
Non-Somalia border			
Hareri/Otha	0	0	3
Khalalio (Centre 1)	0	0	4
Libeihya	0	3	4
	0	**3**	**11**

Annex IV: Sampling of sites wide area survey – Mandera East

MDR East sampling of sites.xls

Annex V: Wide area survey findings – Mandera East

Village	SAM in program	SAM not in program	Recovering in program
Handadu	1	2	1
Halashid	0	1	0
Duse	0	0	0
Takwa	0	1	2
Kamor	1	1	2
Township	1	0	5
Bulla D	2	1	0
Bulla F	1	0	0
Qumbiso	0	1	1
Sarohindi	0	2	2
Karo	1	0	2
Aresa	0	0	0
Gingo	0	0	0
Fikow	0	0	0
Alungu	0	1	2
Lafey IDPs	0	2	2
Tawakaal 1&2	0	0	1
Jamhuria	1	0	0
Hidaya/hospital/water	0	0	0
Geneva 1	3	0	0
Warta'ad	0	0	0
Hegallow	0	0	0
Tawakaal1/Towfiq	0	0	0
Handadu	1	2	1
Total	**11**	**12**	**20**

Annex VI: Small area survey findings – Mandera North

	SAM not in program	SAM in program	Recovering in program
Proximal			
Rhamu dimtu	0	1	4
Quorahey	0	0	0
	0	**1**	**4**
Distant			
Harsabley	0	0	2
Shirshir	0	2	5
	0	**2**	**7**
Town			
Rhamu	2	2	3
Darika A	0	0	0
	2	**2**	**3**
Rural			
Yabicho B	0	0	0
Yabicho C	1	1	9
	1	**1**	**9**

Annex VII: Sampling of sites wide area survey – Mandera North

MDR North sampling of sites.xls

Annex VIII: Wide area survey findings – Mandera North

Village	SAM in program	SAM not in program	SAM recovering in program
Kubi	0	1	1
Gari	0	0	0
Morothile	0	0	2
Sarman 1	0	0	2
Sarman 2	0	1	1
Wagberi	0	1	1
Homaaq	0	0	1
Ogorwein	0	0	1
Dirib Athi	0	0	0
Burjoon	1	0	0
Garse	1	1	5
Rhamu dimtu centre	0	1	2
Qorahey	0	1	1
Lagathi A,B,C	1	0	0
Bulla Jogoo	0	0	0
Kalicha	1	1	4
Awara	0	0	0
Nguvu South	0	0	0
Shantoley centre	0	1	1
Rhamu Town	1	1	5
Barwako	1	0	0
Towfiq	0	0	1
Hargesa	0	0	2
Qodi	0	0	0
Totals	**6**	**9**	**30**