



**SEMI QUANTITATIVE EVALUATION OF ACCESS & COVERAGE (SQUEAC)
SURVEY REPORT FOR EU-WINS PROGRAM, DISTRICT THATTA/SUJAWAL,
SINDH PROVINCE- JULY-AUGUST, 2015
MERLIN-PAKISTAN**



EUROPEAN UNION



COVERAGE MONITORING NETWORK

Added Information

Location: Thatta District, Sindh Pakistan

Targeted Program: Out Patient Therapeutic Program for Severe Acute Malnourished Children

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Acronyms

BCC	Behavior Change Communication
CCT	Conditional Cash Transfer
CHC	Community Health Committee
CMAM	Community Based Management of Acute Malnutrition
CMN	Coverage Monitoring Network
CO	Community Organization
CRP	Community Resource Person
DoH	Department of Health
EU	European Union
FGD	Focus Group Discussion
HCP	Health Care Provider/Health Center Person
IYCF	Infant Young Child Feeding
LHW	Lady Health Worker
LoS	Length of Stay
MAM	Moderate Acute Malnutrition
MERLIN	Medical Emergency Relief International
MUAC	Mid Upper Arm Circumference
NNS	National Nutrition Survey
NSC	Nutrition Stabilization Centre
OTP	Out-patient Therapeutic Program
PHC	Primary Health Care
PPHI	People's Primary Health Initiative
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SFP	Supplementary Feeding Program
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
SSI	Semi-Structured Interview
TBA	Traditional Birth Attendant
UC	Union Council
VHC	Village Health Committee
WINS	Women, Infants/Children Improved Nutrition in Sindh

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Executive summary

SQUEAC survey for assessing the program coverage was conducted in districts Thatta and Sujawal from 23rd July to 10th August, 2015. This is the first survey conducted under EU-WINS program. WINS Women & Infant/Children Improved Nutrition is a four years program started in January 2013 for addressing malnutrition in district Thatta with the funding of European Union. Program is based on integrated approach and providing both nutrition specific (CMAM/IYCF) and nutrition sensitive (FSL) services in the targeted areas. The CMAM program has Out-patient Therapeutic Program, Supplementary Feeding Program, Stabilization Center services and community outreach services.

Program activities are implemented in 49 union councils of Thatta & Sujawal. District Thatta was bifurcated during the starting months of 2015 in two districts as Thatta and Sujawal. Thatta district comprises of 05 Talukas (Tehsils) and Sujawal comprises of 04 Taluka (Tehsils). These 09 Taluka have 55 union councils in the area with a population of 1.5 million (approximately) as compared to the 1.1 million in 1998 census with an increase of 36%.

Merlin conducted the coverage assessment survey with the technical support of Coverage Monitoring Network (CMN) in the UCs where CMAM service provision is in progress. Survey aimed to achieve the following objectives;

1. Assessing the coverage of nutrition program in Merlin supported union councils
2. Identifying the barriers and boosters that directly or indirectly affecting the program progress and coverage
3. Come up with the set of recommendations based on survey findings for improving the coverage in the program areas

The assessment was carried out by using the three stage methodology:

Stage: 1 Collect and analyze the qualitative and quantitative data

Stage: 2 develop the hypothesis and test it through small area survey

Stage: 3 Conduct wide area survey to estimate the coverage of the program. Bayesian software was used for analysis,

As per findings of the survey the program coverage in district Thatta and Sujawal is estimated as Point coverage at **38.7%** with credible value of (CI 30.0%-48.2%), P value=0.25 and single coverage is 46.9% (CI 39.4%-54.5%), P value=0.99.

The performance indicators of the program are within the SPHERE standards, as the rates for cured cases, defaulters and deaths are 81.4%, 8.5% and 0.5% respectively,. 90% of total admissions are reported between the age group of 6-23 month's children.

The availability of the essential nutrition supplies, free of cost services, integrated nutrition & PHC services, trained staff, sufficient resources in program and presence of other relevant stakeholders in the area are the potential factors supporting program at present and also can help to increase the coverage for its remaining time period. The LHWs and CRPs are the main forces at grass root level to educate the community on health and nutrition practices, to screen and refer the children to the CMAM sites and to trace the defaulters.

There are misunderstandings about RUTF and its use due to which communities are sharing of the therapeutic food with the siblings and other children. Some other negative factors were also revealed during this investigation which includes: lack of awareness about the program in community, poor

interaction of CMAM staff among community gate keepers and treatment of malnutrition via spiritual or traditional healers exists in the area. The other barriers to the program were the low priority to treatment of malnutrition, non-availability of transportations to reach the health facility, long distances, financial constraints, overcrowded health facilities, supply breaks especially for RUTF and social norms due to which females are not allowed to take the child to the health facility.

Based on the findings of the survey the program team recommends;

- Strengthen community mobilization through, capacitating and involving the Lady Health Workers, Community health Committees and Community Resource Persons for screening, defaulter tracing, ensuring referrals and for creating awareness on health and nutrition practices in the communities
- Strengthen the community outreach component by motivating staff for ensuring frequent visits in the communities for screening, identification and referrals of malnourished cases.
- Ensure quarterly meetings with the members of Community Health Committees, Village Health Committees, Lady Health Workers and Community Resource Persons.
- Dissemination of nutrition education messages by using radio as it is a strong channel for reaching communities in the peripheral areas.
- On job mentoring for nutrition staff by the Nutrition Coordinator, Nutritionists and Supervisors for improving the interaction with the communities in order to reduce the gaps and ensure the proper utilization of RUTF.
- Sessions with the community gate keepers, traditional and spiritual leaders for raising awareness both on prevention and treatment of acute malnutrition.
- Ensure the provision of nutrition services through satellite sites for maximizing the program coverage and also for addressing the transport and distance issues at community levels.
- Ensure the provision of sufficient supplies to all the health facilities in order to avoid any supply break.
- Collection and analysis of data from CMAM sites on regular basis for improving the quality and coverage of the program.

1. Introduction

National Nutrition Survey 2011 revealed that in Pakistan 43 percent of children are suffering from chronic malnutrition and more than 15 percent from acute malnutrition. In Sindh province the GAM rate is recorded as 17.5 percent of which 6.6 percent are severely malnourished. These rates of acute malnutrition exceed the WHO's emergency threshold level of 15% GAM. 49.8 percent of the children in Sindh are stunted. IYCF practices are of vital importance in preventing malnutrition but the rate for exclusive breastfeeding in Pakistan is only 32 percent. For Sindh the rate is much lower and is reported as only 9.6 percent. 50.5 percent of mothers initiated breast feeding within first hour soon after birth, 3.2 percent mothers ensure the minimum diet diversity in the complementary feeding of 6-23 months children. The situation is further exacerbated by the lack of access to both curative and preventive nutritional services in the essential package of health services delivered through the public health system. Merlin implemented an integrated program in district Thatta and Sujawal for addressing acute malnutrition and its underlying causes. Merlin started this 04 years program in January 2013 with the funding of European Union (EU). Merlin is providing CMAM services in 49 union councils through Rural Health Centers, Basic Health Units and Government Dispensaries. The Stabilization centers are located in District Headquarter Hospital Thatta and Taluka Headquarter Hospital Sujawal. The program runs community mobilization activities through LHWs and CRPs for involving the targeted communities and raising awareness regarding causes of malnutrition, its prevention and treatment. In addition, Merlin is also running a nutrition sensitive intervention through provision of Conditional Cash Transfers to the beneficiaries for improving the complimentary feeding practices in order to prevent stunting in the long run.

There are total 55 union councils, while Merlin is providing nutrition services in 49 union councils. The remaining were excluded during the planning phase due to non-availability of infrastructure and for few areas accessibility was the issue. As per census of 1998 the population of the district was estimated as 1.1 million. With the increase of 36 percent population for district was recorded as 1.5 million in 2013. The area suffered from Cyclone Onil (2004), Cyclone 2A (1999), the 2010 Mega floods, 2012 Monsoon rains and drought in hilly terrain area of the Thatta in 2014. The findings of SMART survey conducted by Merlin in 2013 revealed that the GAM and SAM rates for district Thatta were 17.2 percent and 6.9 percent respectively. District Thatta is bifurcated in two districts as Thatta and Sujawal in 2015. Previously, Thatta was administratively managed by 09 Talukas but after bifurcation Thatta comprises of 05 Talukas (Tehsils) and Sujawal comprises of 04 Talukas.

This was a planned and budgeted activity under EU-WINS and conducting in 2015 in order measure the performance and estimating the coverage of the program and also to generate evidences for future planning and decision making.

2. Objectives

The overall objective of the survey was to generate evidence for improving the program quality and maximizing coverage.

Survey aimed to achieve the following specific objectives;

- a. Assessing the coverage of nutrition program in Merlin supported union councils
- b. Identifying the barriers and boosters that directly or indirectly affecting the program progress and coverage
- c. Come up with the set of recommendations based on survey findings and developing action plan for improving the coverage in the program areas

3. Methodology

Prior to the start of the survey, Merlin organized a 02 days training SQUEAC survey methods and data collection tools for the survey teams. The CMN team, provided technical support in the developing the training package. A total of 30 team members including data collectors and Merlin staff were trained. As part of the training exercise, the participants also field tested the data collection tools that were used during the SQUEAC survey. As per standard SQUEAC guidelines the survey was conducted by using three-stage methodology. Details are as under:

3.1 Stage 01

This stage began with the collection of both qualitative and quantitative data. Qualitative data was collected through conducting Focus Group Discussions, Semi Structured Interviews, observations and seasonal calendar. Quantitative data was collected from the health facility records by reviewing the routine program data. Feedback sessions at the end of data collection was ensured on daily basis in order to collect and enlist the boosters, barriers and any other information relevant to program

3.1.1 Quantitative data collection and analysis

The data collected for only Severe Acute Malnourished children without any medical complications registered in OTP component of the CMAM program from July 2014 to June 2015. The analysis of program data is used for assessing the quality of services, for identifying the trends in admissions and performance.

Admissions

Total 11,065 admissions in OTP program were recorded from July 2014 to June 2015. The record shows the break in RUTF supplies chain for few weeks during August 2014 and number of admissions remained lowest during that period. Admissions were high during September and October due to the monsoon season in which the communities visited health facilities for receiving treatment for malaria and diarrhea. During the month of Ramadan (Fasting), due to the reduced working hours at CMAM site and eid holidays admissions remained low in June 2015. The highest number of admissions were recorded in civil hospital Thatta, RHC VAR and RHC Chuhar Jamali, these facilities are near main markets, towns and main roads. The Lowest admissions were recorded in BHU Sajan Wari, BHU Dhabeji, BHU Jayend Zangijo, BHU Jhampir and RHC Jungshahi, these are the out skirts of the districts and the population very much scattered. The condition of roads is poor or no roads and transportation.

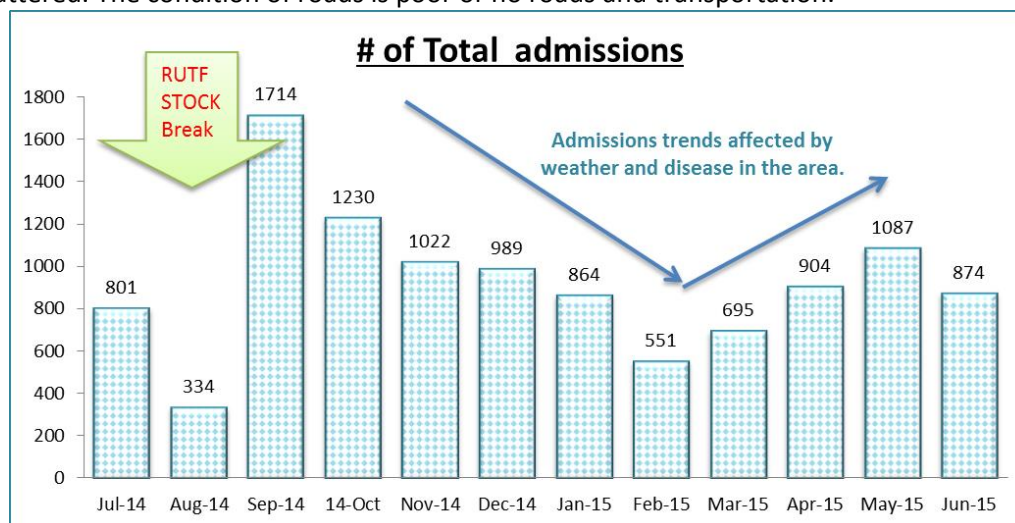


Figure 1 Number of total Admissions

MUAC at Admission

There are ups and downs in the admission trends, but yet the early identified cases are higher in number than the cases identified late as illustrated in Figure 1. The median MUAC is 109/110 mm at the time of admission for both early and late identified cases. This trend for identifying cases at early stages, ensure the short LoS (Length of Stay) in the program. Late identified cases are also of importance and may result in stretched Length of Stay in the OTP. The cases identified late mainly due to less frequent rescreening activities in most of the villages during the last one year. The addition of few villages which were far from the CMAM sites later in the program also contributes towards the late identification of cases in the program.

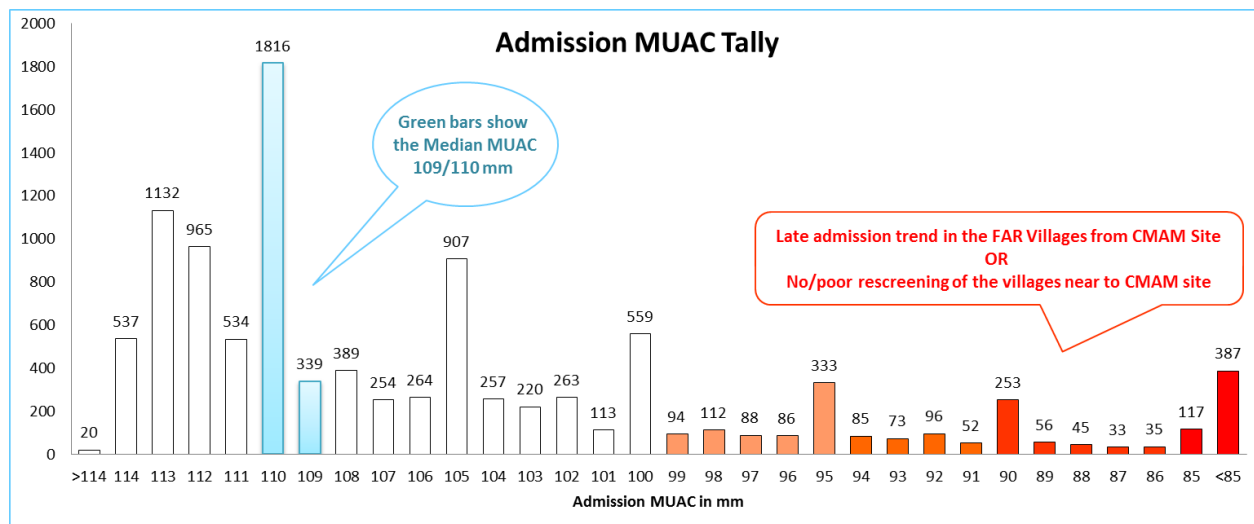


Figure 2 Admission MUAC tally

Performance Indicators

Performance indicators were within the SPHERE indicators. Some variations reported in the data for April and May, 2015 where there was a decline in cure rate well below 75%¹, incline for defaulters and non-respondents. The reasons includes consistent migrations and the hot weather in the area during May 2015; due to which people avoided visiting health facilities for follow ups.

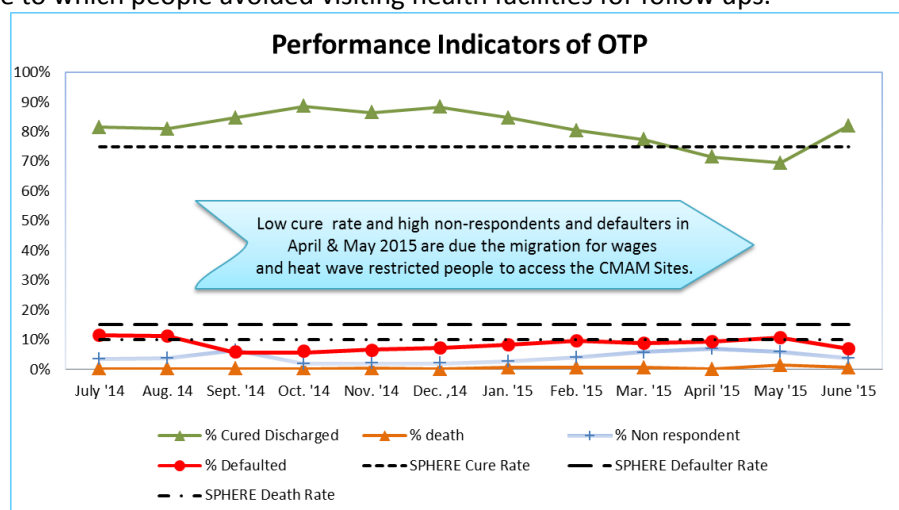


Figure 3 OTP Performance Indicators

¹ The SPHERE Hand Book 2011

Admissions by age group in OTP

During the survey it was revealed that the admissions were higher in 06-23 months children; which constitutes 90 percent of total admissions. Remaining 10 percent admitted children were in 24-59 months age group. This trend is somehow alarming as malnutrition in this age group may lead towards stunting in the long run.

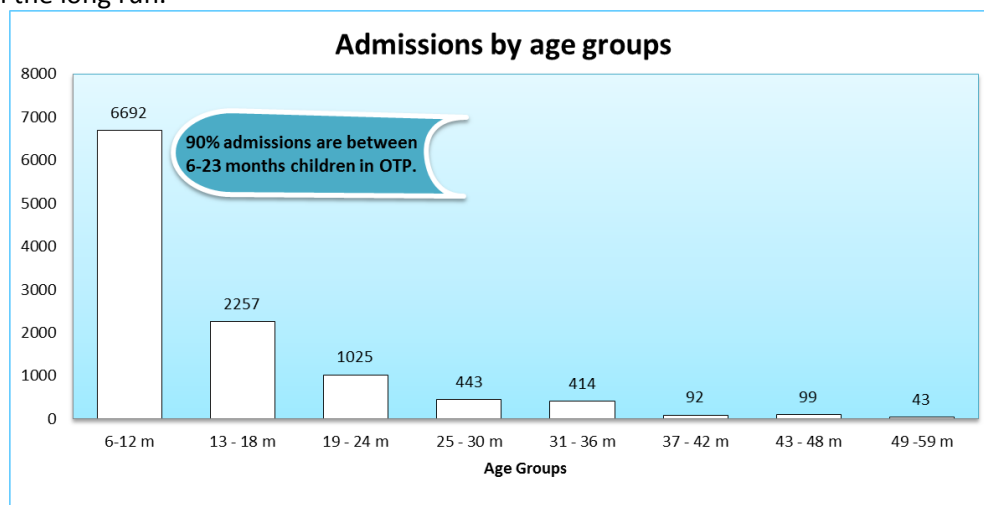


Figure 4 Admissions by Age Group

Length of Stay

The median LoS was recorded as 09 weeks (63 days) in OTP, which is just above the SPHERE standard i.e. <60 days suggesting that that most of the SAM cases were timely discharged after being cured². Early identification of SAM cases, awareness regarding the use of RUTF could be the contributing factors towards short length of stay in the program. Recovering and late identified cases were kept in the program for 10 to 16 weeks and in some cases length of stay was prolonged even after 16 weeks.

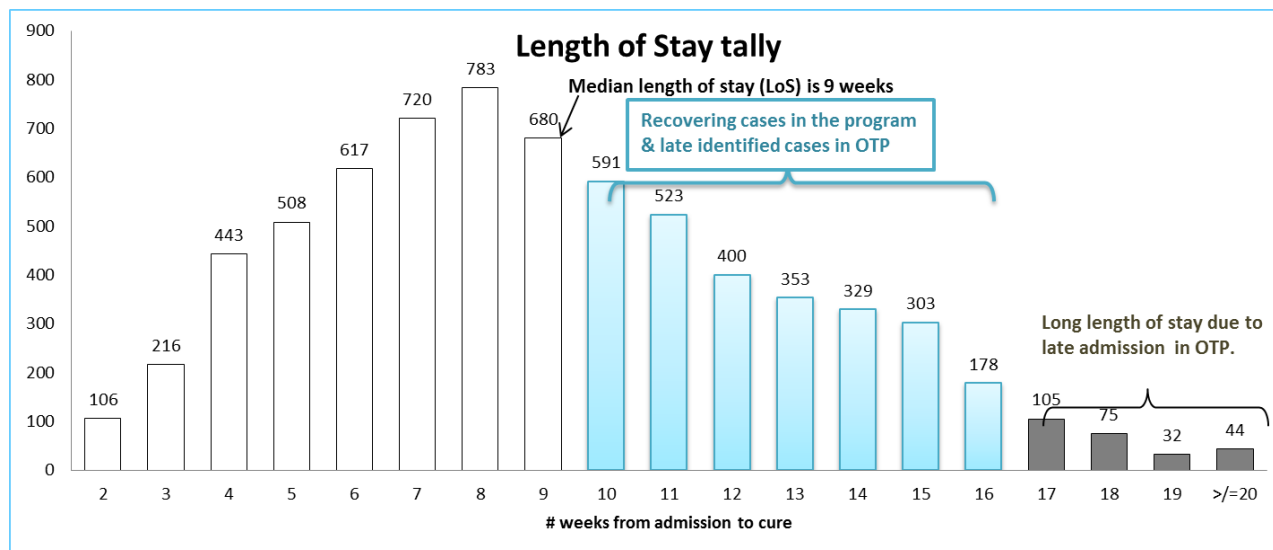


Figure 5 Length of Stay Tally

²http://www.unicef.org/evaluation/files/Pakistan_CMAM_final_report_11oct2012.pdf

Travel time to OTP site

Most of the admissions in the OTP were reported of the villages nearer to the health facilities or on the walking distance of <60 minutes. A reasonable number of the beneficiaries were also identified from the villages at a long distance. The caretakers from the long distance villages have to travel >60 minutes by walk to the OTP centers as there were no transport facilities in few villages, secondly most of the caretakers were not able to afford the transport expenses. For some cases, travel time exceeds than two hours.

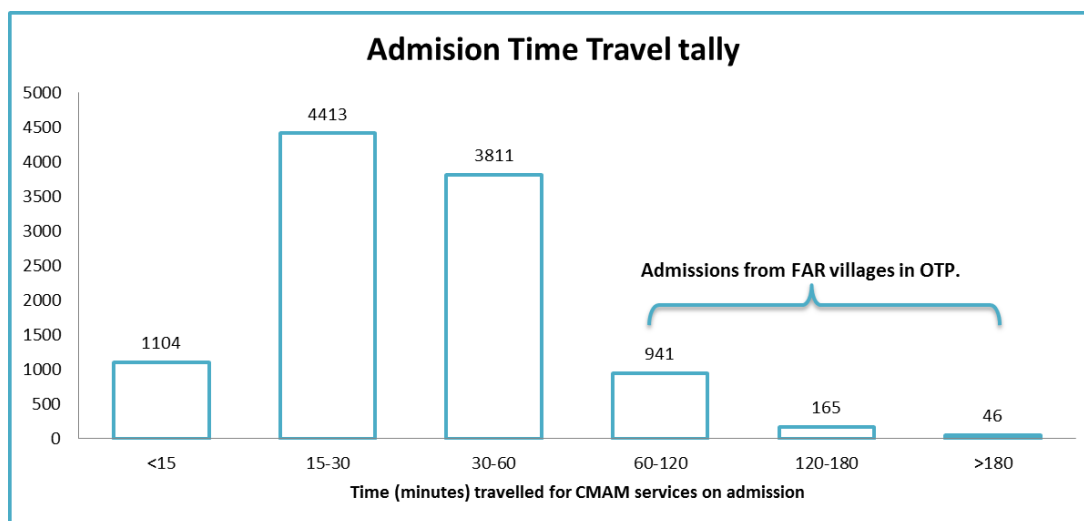


Figure 6 Admission Time Travel tally

Travel time for defaulters in OTP

Rate for defaulters was found higher in the farthest villages. 18.1% cases were reported as defaulters against the 10.2% in the near villages. The total admissions from far villages were 1,152 and out of them 209 were defaulters. 9,328 admissions were recorded from near villages out of which 955 were defaulters.

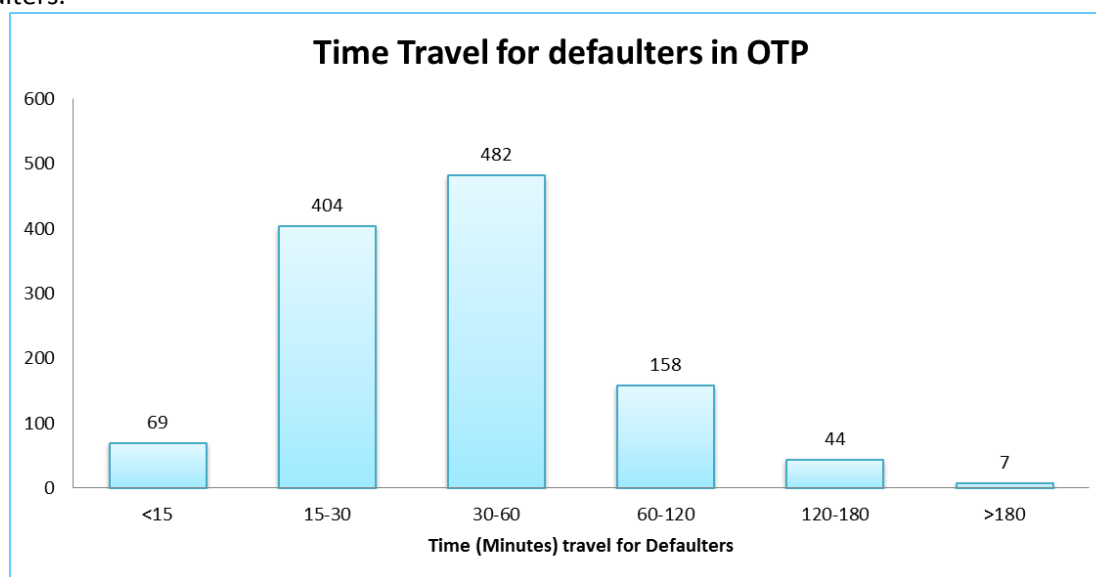


Figure 7 Time Travel for Defaulter in OTP

Number of Weeks in OTP before getting defaulter

Most of the defaulters failed to continue the treatment in OTP after week 1 to 5. The teams during data collection found some potential reasons for the defaulters including migration, hot weather, long distances, non-availability of transport and no company to female caregivers during travel to health facilities.

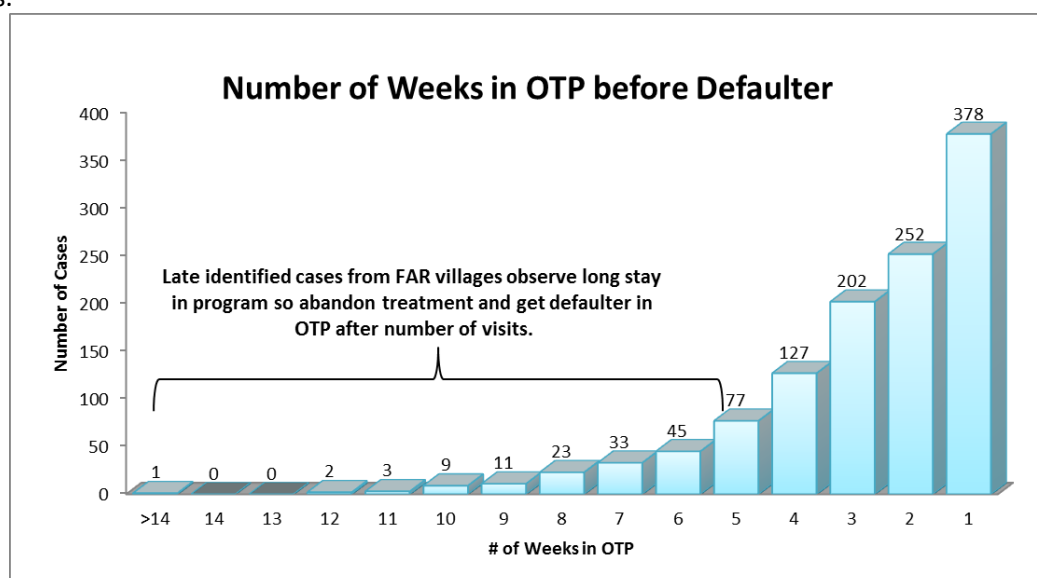


Figure 8 Number of weeks in OTP before Defaulter

Reasons for defaulting

The reasons for defaulters from the program data are given in the graph below. The program data is validated by the barriers extracted from qualitative data. Seasonal migration, distance and parents' refusal are the main reasons for the defaulter cases in the OTP as per program data. During data collection the survey teams identified high rates of defaulters. The seasonal calendar is attached as the ANNEX-I of the report for further details on the seasonal engagements and events.

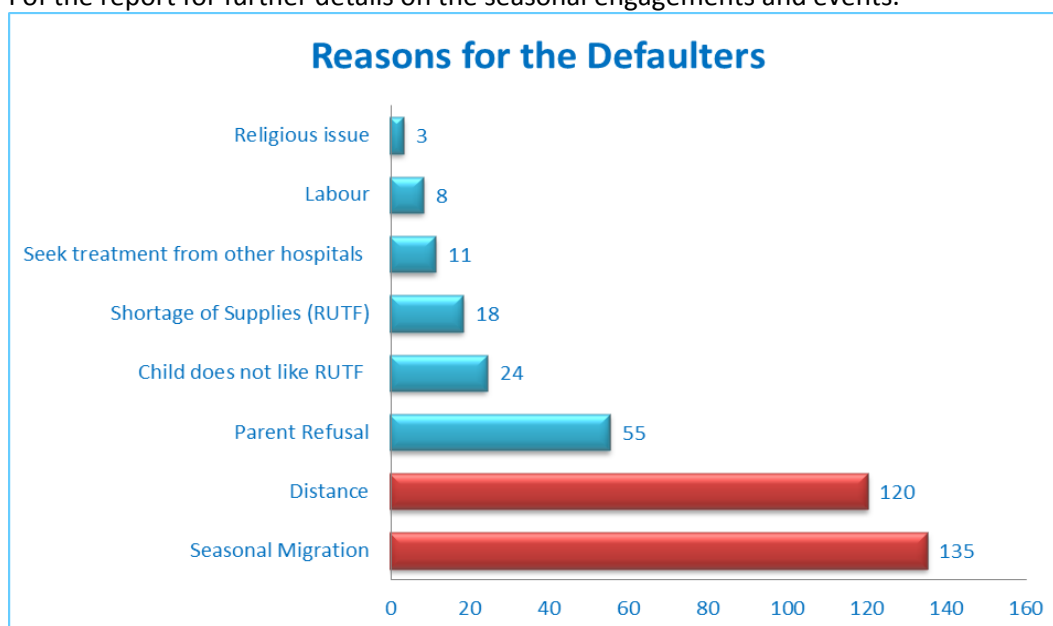


Figure 9 Reasons for Defaulter

3.1.2 Qualitative data Collection and analysis

The qualitative data collection was carried out according to the “qualitative sampling matrix” (please refer to Annex II), developed in collaboration with key members of the assessment team. In order to assure the representativeness of all zones as well as the unbiased participation of all key informants, a unique tool was developed allowing to take into consideration all factors, visualize them and transcribe them into a planning calendar. Zone of intervention was divided into four zones including Hilly, Riverine, Coastal and Urban areas. Five union councils from each zone and a total of 20 union councils were selected to collect data for understanding the problems in accessing the CMAM services. Qualitative data was gathered by conducting Key Informant Interviews and Focus Group Discussions by using developed interview guides. A minimum of four interviews or focus group discussions per sampled union council were conducted. The use of the qualitative sampling matrix allowed achieving the exhaustively of data and their triangulation by method, source and ethnic group. Additional one UC from urban zone was included in the simulation exercise during data collection.

Following table is showing the breakup of data collection.

Table 1 Qualitative Sampling Frame Work

Methods/Sources	Male	Female	Total
Focus Group Discussions	8	8	16
Key Informant Interviews			
Lady Health Workers	0	4	4
Community Resource Persons	6	0	6
Child Caregivers	4	4	8
Community Leaders	3	3	6
Religious Leaders	5	0	5
Traditional Birth Attendants	0	5	5
Traditional Healers	4	0	4
Health Care Providers/Health Center Persons	4	4	8
Merlin Nutrition Staff	0	8	8
Community Organization Representatives	8	0	8
Department of Health Representatives	3	1	4
I/NGO Focal Persons	3	1	4
Total	48	38	86
Percentage	56%	44%	100%

Findings of the qualitative data are as under:

Understanding of Malnutrition

Overall 14 local terms were deployed for conducting the interviews and group discussion. The most frequently used and known terms for malnutrition or wasting were “Kangi”, “Kamzor” and “Sukal”.

Table 2 Local terms for malnutrition

Local terms used for Malnutrition	Meaning
Kanngi	Weakness
Kamzor	Weak
Thadro	Cold/Lazy
Suka/Suki	Dry (no flesh only bones)
Giza G Kami	Lack of nutrition
Sukal	Dried/Weak
Sokra/Sukalro	Getting dried
CharheNatho	No improvement
SuthreNatho	Not improving
JairoJanazo	So thin and lethargic
Barani/Barano	Child disease (Chest in drawing)
Lukwa	Weak
Kanglo	Empty or very thin
Barhal	Weak

Interviews from the key informants unveiled the facts that community knew about the causes of the malnutrition and the responses explored the immediate, underlying and basic causes of the malnutrition. Medical complications, diseases, worm infestations and poor health care were enlisted as the causes of the malnutrition by the respondents during key informant interviews.

Lack of access/available food and unsafe food were highlighted as causes of the malnutrition in some responses.

“Lack of the food is the cause of the malnutrition.”

(Community organization member male, UC Haji Ghirano)

“Imbalanced diet and unhygienic food are causes of the malnutrition.”

(Community organization member, UC Khaan)

“TB, Sawak³, Fever, Motion and Vomiting making are child weak day by day and finally malnourished.”

(Group Discussion Female, UC Bijora, KT Bunbar)

“Malnutrition is caused due to cough, fever and diarrhea.”

(Group Discussion Male, UC Laikpur)

“The worms cause weakness in the children and they eat clay and unhygienic foods.”

(Department of Health personal, UC Makli)

“Poor hygiene and poor information on improving hygiene practices are the causes of the malnutrition.”

(TBA interview, UC Chatto Chand)

Beside this, few responses on stigmatization of malnourished cases were also recorded.

(Lady Health Worker, UC Makli)

“We think seriously about this disease and keep away other children from the malnourished child.”

(Lady Health Worker, UC Haji Khan Ghirano)

³Hepatitis is known as Sawak locally which means “Green”

Perceptions regarding CMAM program

The findings of the interviews and the discussions revealed that average people from the community had poor knowledge about program, types of services, eligibility criteria to be in the program, target population and understanding for proper usage of therapeutic food.

However, health care providers, department of health, Merlin nutrition staff and some community organization persons' revealed the understanding of the CMAM program, its strengths and weaknesses.

"Malnourished children are getting treatment through the support of Merlin and effective counseling is carried out for the care givers."

(Health facility staff, UC Jhampir)

"CMAM program reduces malnutrition and death ratio in the children, however farthest districts are still uncovered due to lack of transportation to a health facility."

(DoH focal person Male, UC Makli)

"CMAM is a beneficial program for community, it's free of the cost, reduces morbidity and mortality ratio of the children."

(Nutrition staff, UC Tando Hafiz Shah)

The strong boosters, which enhance the coverage of the program, are *"integration of the CMAM services in the health facilities"*. Comparatively to other community structures, health facility is well known, public property, with an easy access through roads, others health services and the market available in area. *"The strong referral mechanism"* is the other top positive factor in the program as community resource persons, peers, LHWs, Doctors and EPI staff refer children to enroll in the program. The other factors include the availability of the RUTF, free of cost CMAM services and the positive attitude/behavior of the staff, which leaves a positive impression on the community about services and acceptance of the CMAM.

While *"the appreciation of the CMAM program"* among parents and the communities of cured children is motivated by the results of the program and the regular services from the professional staff, it is tarnished by *reservation on usage of RUTF by the community*", which made its way onto a list of programme's barriers. The community retains a false perception that RUTF causes diarrhea, it makes children ill or that it is not the treatment of the malnutrition in children. So some community members abandon CMAM services on such grounds. In addition, the community does not seem to understand well what RUTF really is, which results in its selling or sharing with other family members.

Beside above mentioned barriers, other negative factors include the lack of understanding of CMAM, lack of education and key messages at health facilities and community, traditional healing methods, RUTF stock outs, lack of the program resources (Human and transport) and the negative impact due to limited CCT (conditional cash transfer) coverage in the area.

Having not yet mentioned *"distance"*, this may be one of the potential reasons for low coverage as it has a considerable impact on travel to/from CMAM sites in terms of time and/or the availability of transport means. In addition, different crops, unseen disasters and labor demand cause massive *"seasonal migration"*, during which the whole family temporarily displaces. In some cases, only fathers migrate to earn important wages for the family. However, in a culture where a mother needs husband or family elder's approval to undertake child's treatment and or she needs to be accompanied on her journey to the health facility, this represents a serious roadblock for CMAM programming.

“The establishment of satellite sites” has partially remedied this situation and creates a great opportunity for malnourished children from distant villages to enroll in the program. The satellite sites are functional on a weekly/bi-weekly basis based on the availability of the program resources.

Community Mobilization

The formalized networks of sensitization; LHWs, LHVs and Midwife at community/Health facility level and LHWs out of them is more frequent and sustained network for the purpose. LHWs manual includes the screening of the PLWs and Children and referral to the nearest accessible CMAM site, LHWs has to form IYCF groups in their catchment population and carry on education session on IYCF, health and nutrition. PPHI (people’s primary health initiative) and government health has number of vaccinators, they are engaged in national immunization days to vaccinate the children specifically. However, both districts have around 34% population covered by the LHWs. The urban areas have high coverage for LHWs and rural areas have low coverage in general. Some Union Councils are completely uncovered by the LHWs.

Other Merlin supported informal or volunteer networks are the community resource persons, TBAs, CHCs and community organization persons. These networks cover population in their respective villages. Community leader, religious leader, teacher, traditional healer and social activists are sources of the volunteer network.

The community mobilizers from Merlin, LHWs and CRPs are main actors who do active screening in the villages and refer the identified cases to the respective CMAM sites. The actors have formats for reporting, MUAC tapes and referral slips for the screening and referrals of the identified cases. They produce reports on the monthly reporting format for their monthly progress.

Merlin mobilization staff, LHWs, TBAs and CRP is the main source of the sensitization in the program, they educate community on the health, hygiene and nutrition practices, screen the population and refer them to CMAM centers and follow the absentees or defaulters in the community. The religious leader, community leader, teacher and community organization persons are partially involved in the sensitization process. For the successful behavior change activities mentioned gate keeper are the key to focus on sensitization process. Their acceptance and acknowledgement will boost up the sensitization process in the community.

Communication Channels

The formal channels of communication include mobile phones, radio, local TV channels, health management committees, IEC activities and community meetings by NGOs/CBOs.

“Electronic media like radio and cable network, mobile phone and IEC material are channels of the communication in our communities.

(NGO worker interview, UC Thatta)

The informal channels of communication enlisted are otaq (Guest house in a village)⁴, hotel, mosque, on wah (water canal)⁵, bus stop and under the tree during day time. The mentioned places were famous for the daily community talk on several issues related to health, livelihood, education and entertainment.

⁴ The place in village, where community people meet regularly and this place is managed by the community leaders.

⁵ Water canal/source where a lot of women meet on location to wash clothes or fetch water.

“The announcement made through mosque is highly effective and acceptable to community due to its religious sacred place call.”

(Religious leader male, UC DaulatPur)

“The mosque and mobile phone are efficient channels of communications.”

(Community leader Female, UC Gul Muhammad Baran)

“Hotel, house, school otaq and mosques are appropriate places to meet with the communities.”

(Community organization member interview, UC Kalri)

3.2 Stage II, Small Area Survey

In second stage of SQUEAC assessment, utilises the data (qualitative and quantitative) that was gathered and analysed in stage one. The assumption and/or question that generate sometime needs further investigation to better understand and to validate the findings of stage one. SQUEAC assessment in districts Thatta/Sujawal has generated one question from the stage one data: “Does the areas near (i.e. within 01hour walking distance) to CMAM service delivery point have high coverage (>50%) and farthest areas (more than 01hour walking distance) from CMAM service delivery point have low coverage (<50%).

For validating the set hypothesis, two CMAM sites of two union councils were selected one site with high number of admissions and the other one with low number of admissions. Four villages were selected per union council, of which two were nearer (within 01 hour travelling time/<5 km distance) to the CMAM site and the other two were far (>01 hour travelling time/> 5 km distance) from the CMAM site. Total eight villages from two union councils were selected for small area survey. From the selected villages total 20 cases were identified and out of them 04 are in the program.

Sample size & case findings:

The sample size was not necessary to calculate in advance for small area survey. The survey sample size was the number of SAM children found in the survey in the selected villages by one day; as in this stage programme coverage is not calculating rather testing a hypothesis.

The data was collected using active & adaptive case-finding methods to find current cases of SAM as well as recovering cases in OTP. Pre-designed questionnaires were used to record SAM current cases and recovering cases (Annex-III). A semi structured interview was carried out using separate questionnaires for the mothers/caregivers of malnourished children not attending the programme to find out and record the reasons for ‘not attending the programme’ (Annex-IV).

Case Definition

- Children 06-59 months;
- For SAM, MUAC <11.5, and/or Bilateral pitting oedema
- Recovering OTP cases with MUAC >11.4 still admitted in OTP

Small Area Survey Findings

Of the selected areas total 20 SAM cases were detected out of which only 04 were found in the program, whereas the remaining 16 cases were recorded as not in program.

The details are as under:

Union council	Distance	SAM in program	SAM not in program	Total
Dhabeji	Near Villages ⁶	1	1	2
Khaan	Near Villages	0	7	7
Subtotal of SAM identified cases		1	8	9
Dhabeji	Far Villages ⁷	2	3	5
Khaan	Far Villages	1	5	6
Subtotal of SAM identified cases		3	8	11

Decision rule for OTP coverage

- Coverage threshold for Rural: ≥50%
- Hypothesis part 1 : In villages nearer by CMAM service delivery point have high coverage
- Number of Children meeting case definition=9

$$d = \left\lfloor n * \frac{p}{100} \right\rfloor = 9 * \frac{50}{100} = 4.5$$

→ 1 child enrolled, so, part 1 of hypothesis is not confirmed (>4 cases need to be in programme. to qualify as high coverage), villages close by CMAM service point may not have high coverage rate.

- Hypothesis Part 2: In villages far away from CMAM service delivery point have low coverage
- Number of Children meeting case definition= 11

$$d = \left\lfloor n * \frac{p}{100} \right\rfloor = 11 * \frac{50}{100} = 5.5$$

→ 3 children enrolled, so part 2 of hypothesis confirmed (<5 cases need to be in programme. to qualify as low coverage), therefore, villages far away from CMAM service point have low coverage rate.

3.3 Stage III, Wide Area Survey

Data collection under this stage was carried out with the objective for estimating the overall program coverage by conducting a wide area survey and using the Bayesian technique.

The prior is developed by using the weightage of the barriers and boosters. Alpha (α) and Beta (β) values were set and by using the Bayesian software, calculations were done for the minimum number of cases to be identified in the wide area survey. The number of the identified cases in wide area survey was used to calculate the coverage of the program.

Barriers and Boosters

The findings from the stage 1 & 2 revealed some adverse barriers and affirmative boosters' factors which are affecting the overall coverage of the program. Based on the evidence and impact on the coverage the barriers and boosters are marked from 1 to 6. The scores were given by the 14 externally hired enumerators involved in the survey. As the individual scores vary for the barriers and boosters, so the average score is considered. The total score of the booster is added to "zero" (i.e. lowest possible coverage) and the total scores of the barriers are subtracted from the 100% (i.e. highest possible coverage).

Weightage for barriers and boosters is mentioned in the following table:

⁶Villages within 01hour walking distance or less than 05 kilometres from the CMAM site

⁷Villages more than 01 hour walking distance or more than 05 kilometers from the CMAM site

Table 3 Barrier Booster Score

Boosters	Weight	Weight	Barriers
Trained CRPs	4	5	Distance
Integration of CMAM services into PHC at HF	4	5	Seasonal Inaccessibility
Awareness of malnutrition	4	4	Incorrect understanding of RUTF
Strong referral Mechanism	4	4	Sharing of therapeutic food
Good quality sensitization/IEC Material	4	4	Treatment of Malnutrition by spiritual healers
Awareness about CMAM program	4	4	Poor defaulter tracing mechanism
Appreciation of CMAM	4	4	Negative impact of CMAM in adjacent uncovered villages to CCT covered UCs.
Establishment of satellite sites	4	4	Lack of the resources (Human & Transport)
Strong linkages of community with program in CCT covered area	4	4	Poor interaction of CMAM program among community influential and members
Correct understanding of Plumpy Nut	4	4	Cultural practices/decision making by male
Availability of PPN and Systematic treatment	4	3	Lack of nutrition education & key messages at HF/community
Free of cost CMAM services	4	3	Lack of awareness about CMAM program
Functional defaulter tracing Mechanism	3	3	Low priority to treatment of malnutrition
Positive behavior/attitude of the staff	3	3	Stigmatization
		3	RUTF stock out at HF
		3	Reservation on usage of RUTF in Community
Added to the “zero” (minimum) coverage	0+54=54	100-60=40	Subtracted from “100%”(maximum) coverage
Prior/Mode	54+40/2=47%		

Forming of the Prior

The “prior” or “Mode” for the wide area survey is generally estimated on the available information from the stage one and two of the survey. This helps to assume possible coverage of the program and then it is expressed as a probability density. On the basis of findings in barriers and boosters by giving weightage, it was assumed that the coverage for the program is 47% and the sample size was calculated for the wide area survey.

There is always uncertainty in the value of the prior. The amount of uncertainty about the prior is same as the probable range of the values (minimum and maximum) of the coverage and that is constant with the prior information⁸. Following are the minimum and maximum probable values through considering ± 25 uncertainty value in assumed 47% coverage.

⁸http://www.fantaproject.org/sites/default/files/resources/SQUEAC-SLEAC-Technical-Reference-Oct2012_0.pdf

- The minimum probable value of the coverage is = 47%-25% = 22%
- The maximum probable value of the coverage is =47%+25% = 72%.

The uncertainty lower than ± 25 , usually enhance the chances for inappropriate results and seldom appropriate results are observed in first time SQUEAC in the area.

The alpha and beta priors were calculated using the following formulae

$$\mu = \frac{\text{minimum} + 4 \times \text{Mode} + \text{maximum}}{6}$$

$$\sigma = \frac{\text{Maximum} - \text{Minimum}}{6}$$

$$\alpha_{\text{prior}} = \mu \times \left[\frac{\mu \times (1 - \mu)}{\sigma^2} - 1 \right]$$

$$\beta_{\text{prior}} = (1 - \mu) \times \left[\frac{\mu \times (1 - \mu)}{\sigma^2} - 1 \right]$$

The values in the percentages were converted into the proportion for using them in formulae mentioned above.

$$\text{Proportion} = \frac{\text{Percentage}}{100}$$

By using above formulae the prior is calculated α **16.4** and **18.5** as a β prior. These values α prior, β prior and ± 10 precision were used in Bayesian Software; the sample size was calculated as **56**. Minimum 56 SAM cases (In program and not in program) needs to be identified in the wide area survey for the estimation of coverage.

The sample of minimum 56 SAM children between 6-59 months age was generated by using Bayesian software and the probability sampling method was to select the villages for active case finding from the 3,144 villages in total. Through Equal Probability Sampling (EPS) each village had an opportunity to be selected in the sample.

The average population in a village was 276, calculated by dividing total population by number of villages. The 15% of the total population is considered as a population between 6-59 months. The prevalence of the SAM children between 6-59 months is 6.6% as per the baseline assessment conducted during 2013⁹.

The 20 number of villages for the identification of the cases in the wide area survey were calculated by dividing the total sample cases by the average prevalence cases in a village. The reserved number of the 4 villages (20% of the identified villages) was included in the sample to make 24 villages based on the following assumptions:

- Inaccessibility in any village due to the security reasons, recent monsoon rains or any other unseen incident in area.
- Possible reduction in the prevalence of the SAM due to the implementation of CMAM services in since 2013.

⁹Baseline SMART Survey, District Thatta-Merlin Pakistan 2013

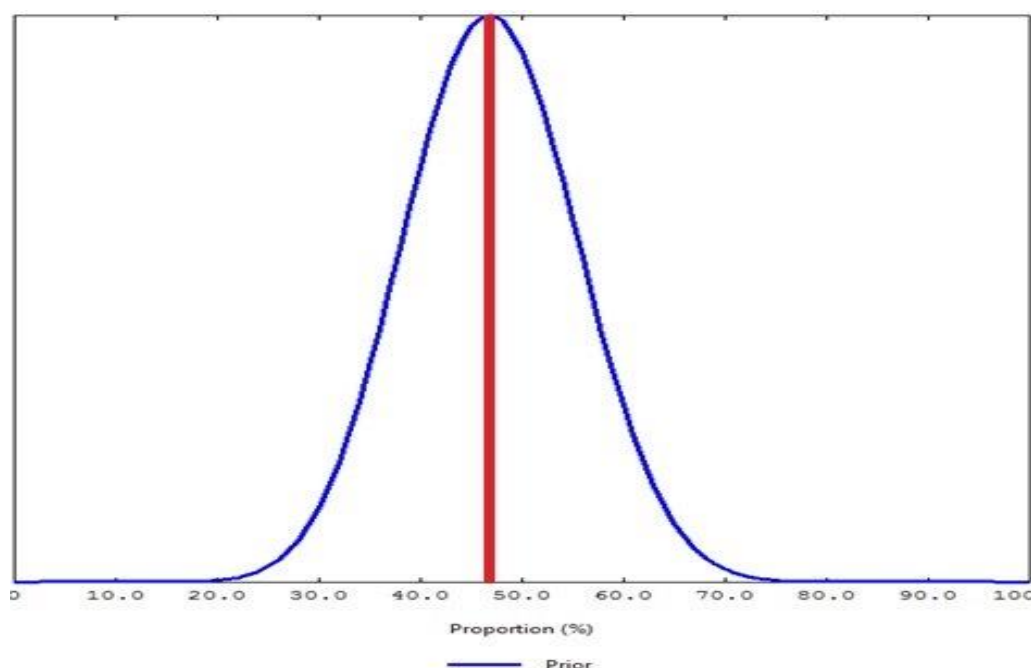


Figure 10 Prior of the SQUEAC according to Bayesian Software

The sample of minimum 56 SAM children between 6-59 months age was generated by using Bayesian software and the probability sampling method was to select the villages for active case finding from the 3,144 villages in total. Through Equal Probability Sampling (EPS) each village had an opportunity to be selected in the sample.

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The 20 number of villages for the identification of the cases in the wide area survey were calculated by dividing the total sample cases by the average prevalence cases in a village. The reserved number of the 4 villages (20% of the identified villages) was included in the sample to make 24 villages based on the following assumptions:

- Inaccessibility in any village due to the security reasons, recent monsoon rains or any other unseen incident in area.
- Possible reduction in the prevalence of the SAM due to the implementation of CMAM services in since 2013.

The sample interval (131) was taken by dividing total number of villages (3144) with 24 (sample number of villages). First village (39th) was selected randomly and later every 131st village was selected as a sample village for the active identification of SAM cases from Thatta and Sujawal districts.

All children in 23 villages and its nearby settlements were screened and in one village the population was inaccessible due to a social event. Total 74 SAM cases identified and 48 not in the program were referred to the nearest CMAM sites for further management.

¹⁰Baseline SMART Survey, District Thatta-Merlin Pakistan 2013

Findings of the Wide area survey

In wide area survey total 74 SAM and 07 recovering cases were identified from 21 villages. Of these cases, 26 covered were in the program (07 recovering/ongoing in addition) and 48 were not registered in the program. Zero cases were identified in two villages.

Table 4 SAM cases identified during the wide area survey

S#	Union Council	Village	Distance	Covered	Non Covered	Recovering	Total
1	Begna	Uris Hingorio	Near	6	1	1	8
2	Darro	SherWah	Near	0	5	0	5
3	Daulatpur	WaliMohdChachar	Near	1	1	0	2
4	Ali Bahar	LateefBhan	Near	2	3	1	6
5	Buhara	AaguSoomro	Near	2	1	0	3
6	Domani	Haji LalaMemon	Near	1	1	1	3
7	Jungshahi	Peer MohdGajjan	Near	1	3	1	5
8	Makli	Abdul NabiBrohi	Near	6	6	0	12
9	Kothi	PakhaliMallah	Far	0	1	0	1
10	Bano	SoofPallijo	Far	5	0	0	5
11	Laikpur	UsmanBrohi	Far	0	2	0	2
12	Bello	LadhoMallah	Far	0	5	0	5
13	MureedKhoso	MohdSoomarBurgari	Far	0	2	0	2
14	KAR Shah	Umaid Ali Chandio	Far	1	0	2	3
15	Mehar	Mohd Khan Umrani	Far	0	5	0	5
16	KharoChan	NathoGambeer	Far	0	1	0	1
17	Dhabeji	PanonPanhwar	Far	0	0	1	1
18	Ghulamullah	SoomarPanhwar	Far	0	5	0	5
19	Gujjo	Haji ShaikhTurabi	Far	0	2	0	2
20	Chatto Chand	EssaManchhario	Far	1	3	0	4
21	Tando Hafiz Shah	ZubairSiddique Form	Far	0	1	0	1
Total				26	48	7	81

The program coverage rate was calculated from the data of wide area survey through the pre-set Bayesian software. The point and single coverage was considered and reported. The point coverage has 95% CI (credible interval) with 10% precision. Alpha, beta prior values and precision was used in Bayesian software.

Point coverage

The denominator (74 total current SAM cases) and numerator (26 SAM cases in program) were inserted to Bayesian software already having (α prior 16.4 and β prior 18.5) with $\pm 10\%$ precision values from pre-set prior.

The “Point” coverage is estimated at **38.7%** with credible value of (30.0%-48.2%) and P-Value=0.25.

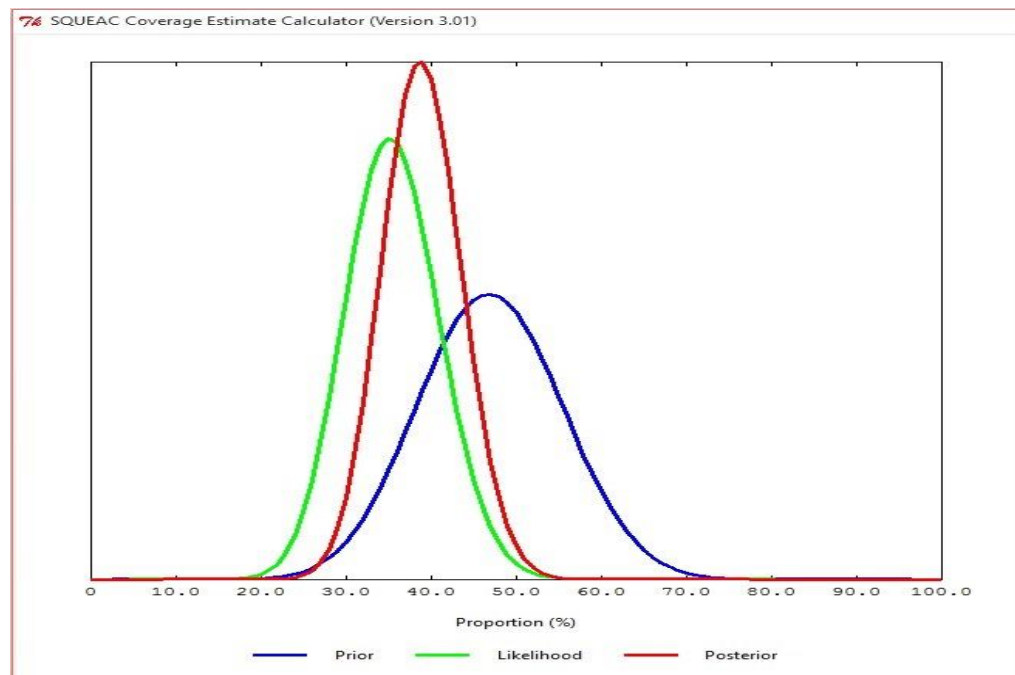


Figure 11 Point Coverage of Program

Single coverage

To calculate the single coverage below equation was used:

$$\text{Single Coverage} = \frac{\text{\# of current cases} + \text{\# of recovery cases that attending the programme}}{\text{of current cases} + \text{recovery cases that attending the programme} + \text{of current cases and recovering cases that NOT attending the programme}}$$

Following equation was used to calculate recovering cases that not attending program

$$\text{Recovery case}_{out} \approx \frac{1}{3} \times [\text{Recovery case}_{in} \times \left(\frac{\text{Active cases}_{in} + \text{Active case}_{out} + 1}{C_{in} + 1} \right) - \text{Recovery}_{in}]$$

$$\text{Recovery case}_{out} \approx \frac{1}{3} \times \left[35 \times \left(\frac{26 + 48 + 1}{26 + 1} \right) - 35 \right] = R_{out} \approx 21$$

Table 5 Description of Wide Area Survey

Description of Wide area survey	SAM	Denominator ($C_{in} + C_{out} + R_{in} + R_{out}$)	Numerator ($C_{in} + R_{in}$)
K = a correction factor	3	26+48+35+21=130	26+35=61
C_{in} = Current SAM cases in the program	26		
C_{out} = Current SAM cases not in the program	48		
R_{in} = Recovering SAM cases in the program	35		
R_{out} = Recovering SAM cases not in the program	21		

The denominator 130 and numerator 61 were inserted in Bayesian SQUEAC software with α prior 16.4, β prior 18.5 and $\pm 10\%$ precision values.

The “Single” coverage of the program is **46.9%** with credible value of (CI 39.4% - 54.5%) at $\pm 10\%$ precision and P-value= 0.99.

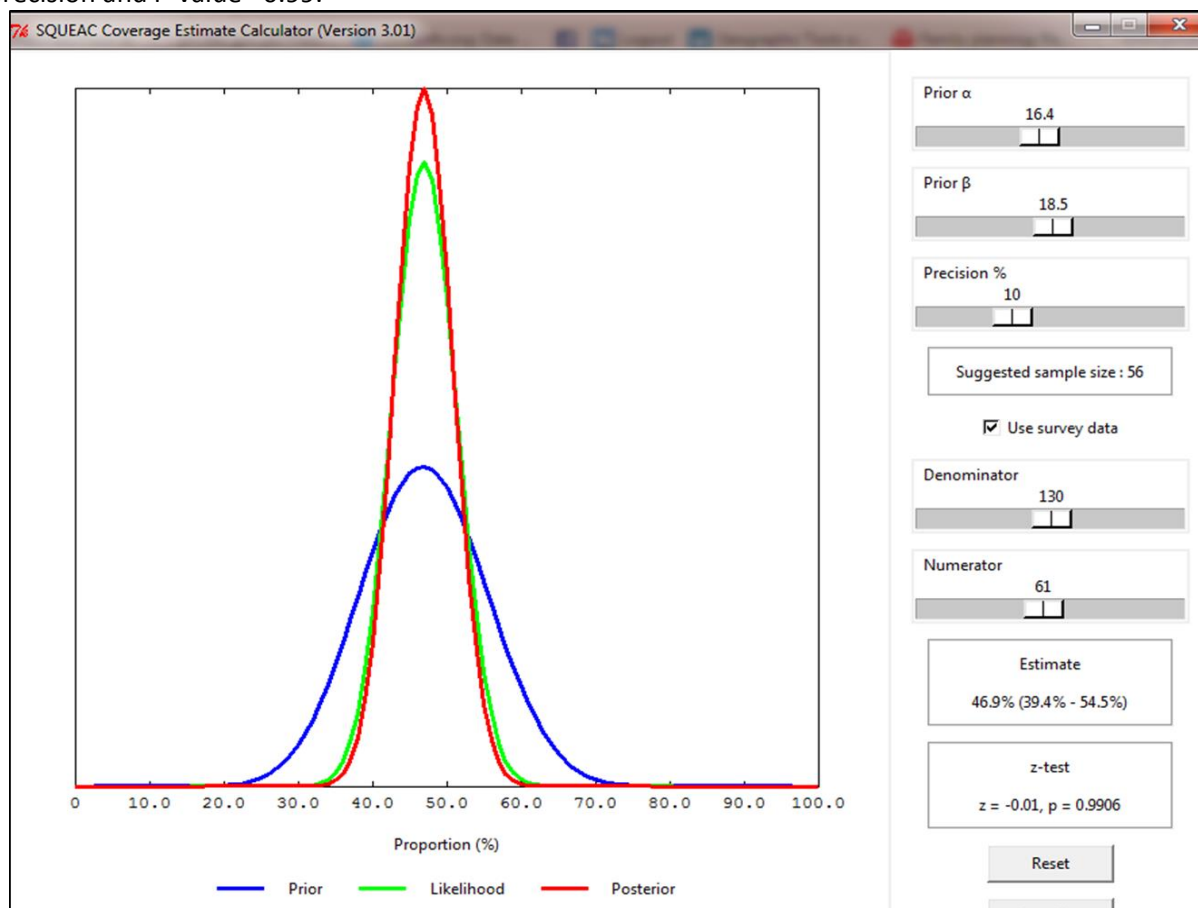


Figure 12 Single Coverage of Program

Barriers & Boosters identified in the wide area survey.

Barriers identified in wide area survey

48 SAM cases not in program identified during wide area survey. Care givers were interviewed and the responses were analyzed to know the barriers. They were asked about the child health status, program awareness and the admission status of the child in the program. Responses received from the caregivers are mentioned below:

Table 6 Barriers identified in Wide area survey

Question	Yes	No
Do you think your child is ill?	28 (58.3%)	20 (41.7%)
Do you Know a program that can help your child?	18 (37.5%)	30 (62.5%)
Has your child been already enrolled in CMAM program?	14 (29.2%)	34 (70.8%)

The respondents could enlist the symptoms of the illness and responses of child caregivers are given in the figure below:

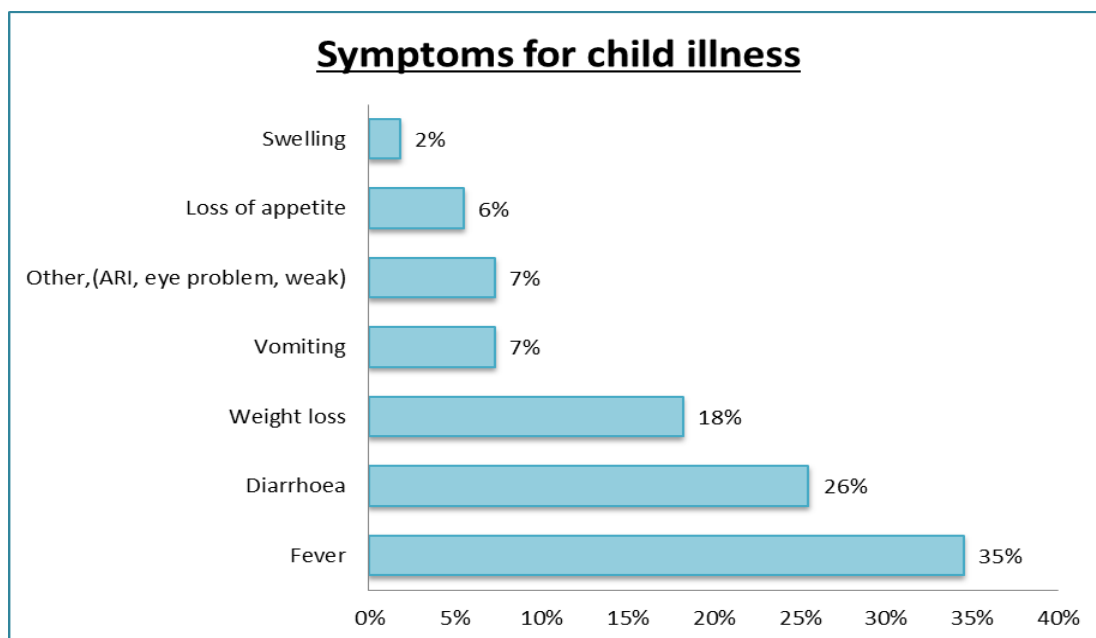


Figure 13 Symptoms of illness

Causes of the Symptoms

The below figure interprets the responses against the causes of the symptoms (in fig: 13)

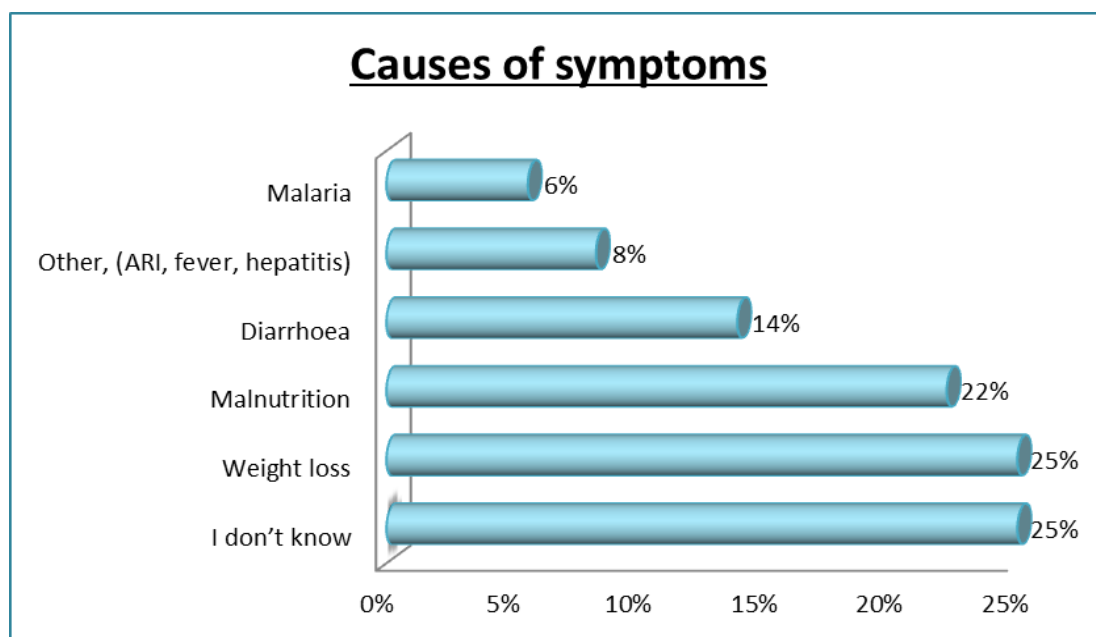


Figure 14 Causes of the Symptoms

Reasons for NOT in program

Below graph shows the reasons for the children identified as SAM during wide area survey who are not admitted in the program.

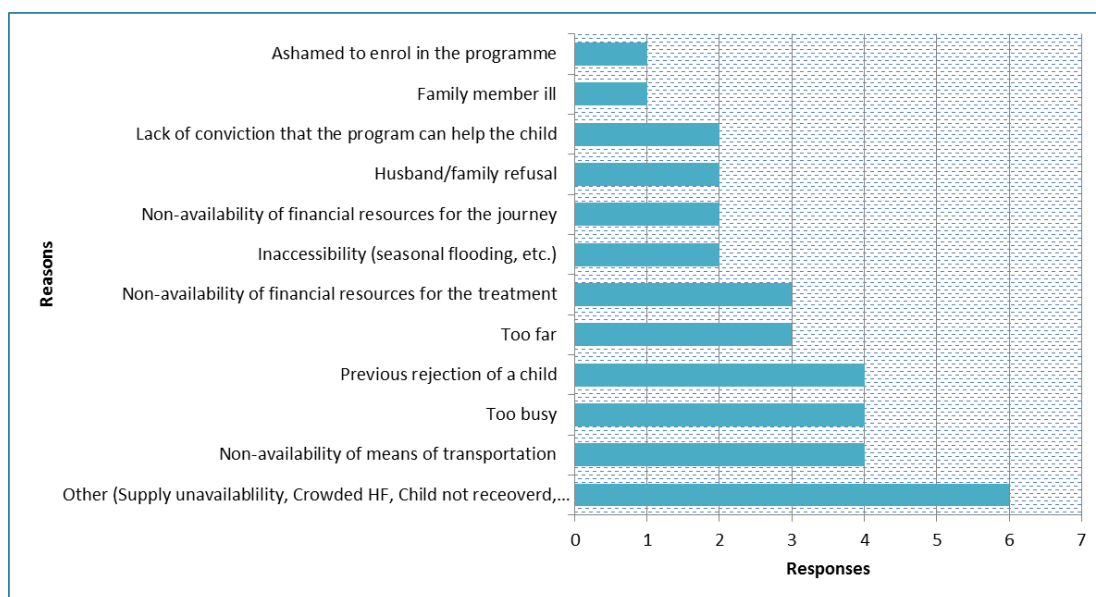


Figure 15 Reasons for Not In Program

Boosters identified in wide area survey

26 SAM cases were identified and enrolled in the program and 7 cases were recorded as recovering (ongoing) in OTP. 33 children's caretakers were interviewed to know the number of times the child enrolled in program and reasons for the enrollment in the program.

Table 7 Boosters identified in Wide area survey

Question	Yes	No
Is this the first time that your child has been enrolled in CMAM program?	24 (72.7%)	9 (27.3%)
Do you have other children enrolled in CMAM program?	1 (11.1%)	8 (88.9%)

Reasons for IN program

Below graph shows the reasons for the children identified as SAM and recovering during wide area survey and who are admitted in the program.

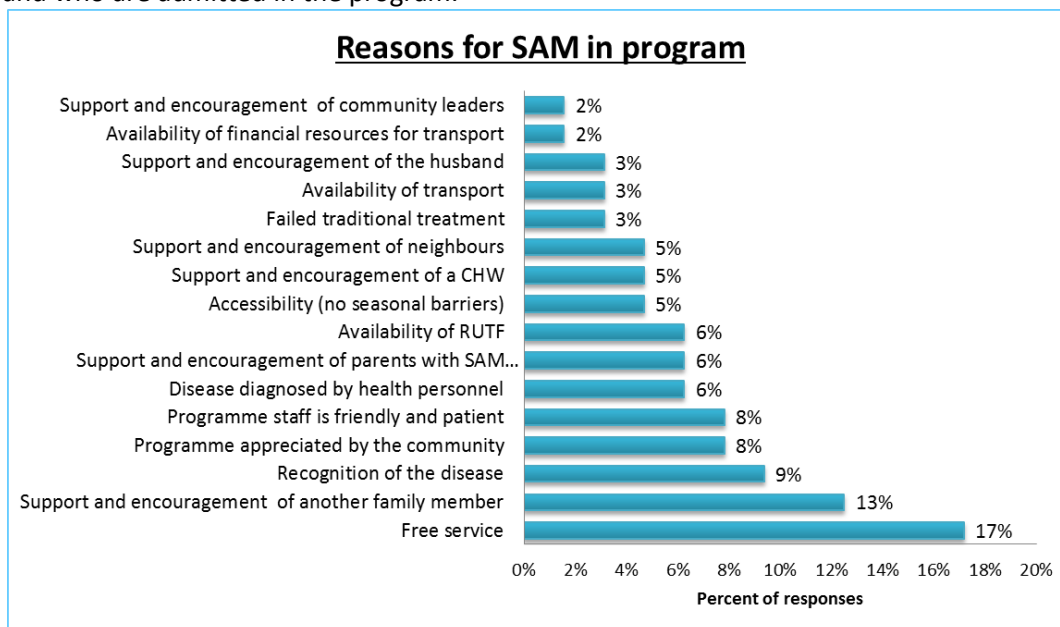


Figure 16 Reasons for In Program

4. Conclusion & Recommendations

The results of the SQUEAC coverage assessment revealed an estimate of point coverage of **38.7%** with (CI 30.0%-48.2%), and single coverage of **46.9%** (CI 39.4%-54.5%), in the areas supported by the program. Overall findings from the SQUEAC assessment are:

- The performance indicators of the program are within the SPHERE standards, as the rates for cured cases, defaulters and deaths are 81.4%, 8.5% and 0.5% respectively,. 90% of total admissions are reported between the age group of 6-23 months children.
- The availability of the essential nutrition supplies, free of cost services, integrated nutrition & PHC services, trained staff, sufficient resources in program and presence of other relevant stakeholders in the area are the potential factors supporting program at present and also can help to increase the coverage for its remaining time period. The LHWs and CRPs are the main forces at grass root level to educate the community on health and nutrition practices, to screen and refer the children to the CMAM sites and to trace the defaulters.
- There are misunderstandings about RUTF and its use due to which communities are sharing of the therapeutic food with the siblings and other children. Some other negative factors were also revealed during this investigation which includes: lack of awareness about the program in community, poor interaction of CMAM staff among community gate keepers and treatment of malnutrition via spiritual or traditional healers exists in the area.
- The other barriers to the program were the low priority to treatment of malnutrition, non-availability of transportations to reach the health facility, long distances, financial constraints, overcrowded health facilities, supply breaks especially for RUTF and social norms due to which females are not allowed to take the child to the health facility.

Based on the findings of the survey the program team recommends;

- Strengthen community mobilization through, capacitating and involving the Lady Health Workers, Community health Committees and Community Resource Persons for screening, defaulter tracing, ensuring referrals and for creating awareness on health and nutrition practices in the communities
- Strengthen the community outreach component by motivating staff for ensuring frequent visits in the communities for screening, identification and referrals of malnourished cases.
- Ensure quarterly meetings with the members of Community Health Committees, Village Health Committees, Lady Health Workers and Community Resource Persons.
- Dissemination of nutrition education messages by using radio as it is a strong channel for reaching communities in the peripheral areas.
- On job mentoring for nutrition staff by the Nutrition Coordinator, Nutritionists and Supervisors for improving the interaction with the communities in order to reduce the gaps and ensure the proper utilization of RUTF.
- Sessions with the community gate keepers, traditional and spiritual leaders for raising awareness both on prevention and treatment of acute malnutrition.
- Ensure the provision of nutrition services through satellite sites for maximizing the program coverage and also for addressing the transport and distance issues at community levels.
- Ensure the provision of sufficient supplies to all the health facilities in order to avoid any supply break.
- Collection and analysis of data from CMAM sites on regular basis for improving the quality and coverage of the program.

5. Detail Action Plan

S#	Activity/Strategy	Performance Indicators	Target	Location/Source	Time	Responsibility
I	Community Mobilization					
1	Community Participation					
1.1	Train the community gate keepers (Community notables, Religious leaders, Teachers, Traditional Healers, Traditional Birth Attendants, CHCs and IYCF group members) on their role in screening and sensitization.	Number of community gate keepers trained and involved	98*25 =2,450	All Union Councils (02 trainings in each UC)	Nov-15 -Jan 16	BCC, M&E and Nutrition team.
1.2	Involve CHC members, CRPs & LHWs through regular meetings for addressing the barriers	Number of monthly meetings and reports	Monthly 49 LHWs, CRPs & CHCs	Community	Nov-15 -Jan-16	BCC, M&E and Nutrition team
1.3	Strengthen community mobilization, screening referrals, defaulter tracing and sensitize community to stop Sell/Share RUTF by engaging community leaders	- Number of children screened - Number of cases referred - Number of defaulters traced/readmitted	490 (10 leaders per UC)	Village level	Nov-15 -Feb-16	BCC/Nutrition team
2	Outreach activities					
2.1	Awareness of communities by disseminating key messages on correct identification and use of RUTF	Number of sessions to use RUTF		District Thatta/Sujawal via FM 92 (Radio)	Nov-15 -Jun-16	BCC/Nutrition team
2.2	Awareness sessions on Malnutrition its causes, symptoms, effects in communities during door to door screening and referrals by the outreach staff.	Number of sessions conducted	196 (4 sessions/UC/ month)	Community level	Nov-15 -Jun-16	Outreach staff, LHWs, CRPs & CHC members
2.3	Train and involve LHWs for strengthening community mobilization	Number of LHWs trained and involved		District Sujawal & Thatta	Nov-15 -Jun-16	BCC/Nutrition team/LHWs
2.4	Involve Merlin outreach staff, LHWs, CRPs and CHC members on screening of targeted population after every six months in all the villages.	% villages covered twice in a year.	50% villages/UC	District Sujawal & Thatta	Nov-15 -Jun-16	Outreach staff, LHWs, CRPs and CHC members
3	Technical support/ Monitoring & Evaluation					
3.1	Standardize the screening register for LHWs and CRPs to capture the data.	Number of LHWs and CRPs receive the registers.	100%	District Sujawal & Thatta	Dec-2015	BCC/Nutrition team
3.2	Monthly reports analysis of the LHWs & CRPs and provide feedback for improvement.	Number of LHWs and CRPs get feedback	75%	District Sujawal & Thatta	Nov-15 -Jun-16	BCC and M&E.

3.3	Strengthen the support supervision to LHWs, CRP and CHCs member by health and Merlin staff	% LHWs, CRPs & CHC monthly supervised.	33%	District Sujawal & Thatta	Nov-15 -Jun-16	BCC, M&E, DoH.
3.4	Quarterly performance review of the action plan implementation.	Number of meetings held on performance	3	District Sujawal & Thatta	Nov-15 -Jun-16	BCC, M&E, Nutrition and DoH.
II	OTP Services					
1	Train CMAM staff on counseling techniques and CMAM protocols.	Number of staff trained	49	CMAM sites	Nov-15 -Jun-16	Nutrition team & PNC
2	Provide counseling to caretakers on admission, discharge and complicated cases at health facility.	Number of care takers receive counseling	75%	CMAM sites	Nov-15 -Jun-16	Nutrition Team & HF Staff
3	Strengthen the education/ awareness activities at health facilities/community on malnutrition, CMAM program and usage of the RUTF.	# of sessions conducted/month/UC # of caretakers covered	4 80/UC/ Month	CMAM sites and community of 49 UCs	Nov-15 -Jun-16	OTP team and Outreach staff
4	Strengthen screening and referral mechanism by involving all relevant people DoH, PPHI staff, Merlin staff and other organizations.	- Number of stakeholders involved - Number of children screened - Number of identified cases referred	75%	CMAM sites/Catchments	Nov-15 -Jun-16	DoH, PPHI, Merlin & other organizations
5	Tracking of new cases and those who were not admitted in the program	- Number of cases identified - Number of cases admitted		All CMAM sites	Nov-15 -Jun-16	OTP & outreach staff.
6	Strengthen the satellite sites by allocating adequate resources to cover long distance villages from the health facilities.	Number of satellite sites established	2 per union council	49 UCs Sujawal and Thatta	Nov-15 -Jun-16	CMAM & BCC team
7	Collect the OTP data on essential indicators during monitoring visits to analyze the gaps and improve the coverage.	# of times data collection # of times analysis & feedback	Quarterly collection, analysis & feedback	All OTP centers	Nov-15 -Jun-16	M&E and nutrition team