Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) & Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC)

Maungdaw and Buthidaung Townships
Maungdaw District

MYANMAR

Final report November-December 2014

Funded by

Sida

ACKNOWLEDGEMENTS

ACF would like to express great appreciation to all those who made the coverage assessment the nutrition programs in Maungdaw and Buthidaung Townships possible. The team extends grateful thanks for the continued collaboration, partnership, and support of the State Health Department. Particular thanks are extended to the Township Medical officer from Maungdaw and Buthidaung.

The survey would not have been possible without the support and funding of SIDA, which has contributed to building capacity in Rakhine State and carrying out this evaluation.

Thanks to all the participants of the SQUEAC survey, in particular to the Head of Project and the 4 Team Leaders. for their effort, high level of engagement and for the quality of their work. Grateful thanks are extended to the Nutrition Program Managers Marie Petry and Elisa Marino and to the staff at the two ACF bases, for handling all the necessary preparations for the start-up and during the investigation. Also, thank you to Saul Guerrero from ACF-UK headquarters Evaluation, Learning, & Accountabilities Unit, for his constructive and helpful on-line support.

Finally, a very special thanks goes to the families and community members in the villages visited, for their hospitality, time and cooperation; and particularly to the mothers and children who took part in the evaluation.

ACRONYMS

ACF	Action Contre la Faim
ACS	Active Community Screening
BBQ	Barriers, Boosters and Questions
BTD	Buthidaung
CT	Caretaker
CHW	Community health Worker
LQAS	Lot Quality Assurance Sampling
MAM	Moderate Acute Malnutrition
MGD	Maungdaw
MUAC	Mid-Upper Arm Circumference
NGO	Non-Governmental Organization
OTP	Outpatient Therapeutic Program
PM	Program Manager
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SCCT	Super Community Caretaker
SFP	Supplementary Feeding Program
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
SMART	Standard Monitoring & Assessment of Relief and Transitions
SLEAC	Simplified LQAS Evaluation of Access and Coverage
TFP	Therapeutic Feeding Program
TBA	Traditional Birth Attendant
THP	Traditional Health Practitioner
VT	Village Tract
WFP	World Food Program
W/H	Weight-for-height Z-score

EXECUTIVE SUMMARY

Two independent coverage assessments took place between November and December 2014 to assess coverage of Severe Acute Malnutrition (SAM) treatment in Maungdaw (MGD) and Buthidaung (BTD) Townships. Both studies aimed to assess the coverage of Action Contre la Faim (ACF) Therapeutic Feeding Programs (TFP) and to understand the barriers to accessing health care in the areas of intervention. The exercise also resulted in built capacity of program staff in undertaking coverage assessments.

The results of the MGD´s evaluation, which was based on the SQUEAC (*Semi-Quantitative Evaluation of Access and Coverage*) methodology reflect an estimate of period coverage of 35,3% [95% CI: 27,7% - 43,8%] of ACF program in the Township – with the exception of 10 village tracts that were not assessed due to a lack of access. Coverage is globally low compared to the SPHERE standard of coverage for rural areas (50%). Period estimate tends to be more representative of program coverage as analysis showed adequate self-referral and timeliness of treatment. Main barriers identified and recommendations to improve coverage are described below.

While awareness about the existence of ACF nutrition program is acceptable, awareness about malnutrition and stigma are two of the main barriers to coverage in MGD Township. Distance to travel and security problems, mainly meaning fear for checkpoints remain as major barriers to access in MGD Township, especially in certain locations of Outpatient Therapeutic Program (OTP) as OTP-1-DT and OTP-6-ALTK catchment areas in which coverage has confirmed to be extremely low. Another group of key barriers are those directly related to the role of mother, often being the main caregiver: lack of caretakers (CT), cost-opportunity (the CT being busy with other activities), not being able to travel and husband refusal. The program is highly appreciated by the community; however rejection has a negative impact on coverage. Poor levels of compliance to treatment due to confirmed sharing and selling of RUTF are related to high rates of non-responder and defaulting cases pushing coverage down.

For the assessment in BTD Township, following the recommendation of the previous coverage assessment, SLEAC (*Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage*) method was selected as the most appropriate survey method to assess coverage in BTD. The result of using different surveys to provide a coverage classification by service delivery (OTP) reflect that coverage is moderate (between 30% and 70%) in OTP-3-BTD, OTP-4-TBZ, OTP-5-PPAP and high (above 70%) in OTP-8-PNL. Additionally, and given the fact that coverage was found to be more homogeneous among OTPs than initially expected, an estimate of overall period coverage for BTD Township was calculated (53, 13% [95% CI 44,7 - 61,6], above the SPHERE standard of 50% for rural areas) in order to provide an overall picture of the whole intervention area - period estimate also tends to be more representative of the coverage program performance in BTD Township.

Awareness about malnutrition and about the existence of ACF nutrition program is acceptable but low in OTP-4-TBZ catchment area. Distance to travel is the main barrier to access in BTD Township, especially in OTP-4-TBZ; other associated barriers linked to the trip to the distribution point such as transportation costs, travel authorizations and checkpoints are, in a smaller degree, still reasons for non-attendance. As in MGD, all the barriers linked to the role

of the mother constitute major barriers to access across the whole township, while rejection has been identified a barrier in OTP-5-PPAP.

It must be noted that in both townships, an almost complete lack of awareness about malnutrition and about the program was confirmed in Rakhine hamlets, however have not been identified as barriers to access to treatment but instead reflect the different context of these communities which, in general, do not suffer from malnutrition

Common recommendations to improve coverage emerged from the assessments are: 1) to reinforce the Community Awareness (CA) strategy already implemented and systematically include key community figures such as local authorities and religious leaders as well as with community health actors (CHW, THP, TBA) to facilitate the recognition and acceptance of malnutrition as a major public health concern in their communities and to use their influential community-based voice; 2) to continue promoting initiatives already in place like giving priority to beneficiaries coming from far locations at all distribution points; 3) to introduce a gender and family planning approach in the community awareness strategy to overcome cultural barriers influencing program coverage related to the lack of decision making power of women as main caregivers; 4) to increase active screening by ACF team and by Super Community caretakers (SCCTs) in the communities, which should be strongly supervised and receive proper periodic training in MUAC measurements; 5) to clarify with the community entry criteria and to continue giving clear explanation and encouragement to rejected cases; 6) to reinforce sensitization by CA team about proper use of ready to Use Therapeutic Food (RUTF) among community key figures and SCCT; 7) to integrate active data analysis of reliable indicators on program coverage as a monitoring tool to identify possible barriers and potential opportunities on a regular basis.

Additionally, the specific recommendation for MGD program would be: 1) to open a new distribution point in the area between OTP-1-DT and OTP-6-ALTK. For BTD: 1) to strengthen outreach activities including sensitization activities in OTP-4-TBZ catchment area; 2) to specifically clarify program procedures and entry criteria with the community and SCCT in OTP-5-PPAP to decrease rejection.

A specific recommendation for BtG program would be: to open a new distribution point in the area between OTP-3 and OTP-4 and to open a new distribution point in the area between OTP-3 and OTP 5.

TABLE OF CONTENTS

INTRODUCTION

The Townships of Maungdaw (MGD) and Buthidaung (BTD) are part of Maungdaw District, 1 of the 4 composing Rakhine State. Located in western Myanmar bordering with Bay of Bengal and separated from the rest of the country by the Arakan Mountains, Rakhine State has an overall estimated population of 3, 3 million and is one of the least developed parts of Myanmar: high population density, acute and chronic malnutrition, low income, poverty and weak infrastructure. Moreover, in recent times, the tensions that flared from June 2012 have exacerbated these challenges. In terms of ethnic composition, MGD and BTD Townships are different from the other parts of the state: there is a large percentage of Muslim population, followed by Rakhine population. Others ethnical groups are Mro, Chin, Khami, Kaman, Dyet and Marmagri, all mainly of Buddhist faith while a minority of population is hindu.

The adverse political and socio-economic environment is reflected in nutrition-related indicators, especially for acute malnutrition, which is higher than in other parts of the country. According to the most recent SMART nutrition surveys[1] conducted by ACF in December 2013, Global Acute Malnutrition (GAM) prevalence remained high and at critical levels according to WHO standards: GAM 20% (15,1 – 26,1 95%CI) in MGD and 21,4% (17,9 - 25,3 95% CI) in BTD.

ACF is the only actor working in the treatment of malnutrition in Maungdaw District where nutrition activities started in 2003 in MGD and BTD Townships. The Therapeutic Feeding Program (TFP) for the treatment of Severe Acute Malnutrition (SAM) is based both at inpatient and outpatient level: ACF has 7 Outpatient Therapeutic Programs (OTP) with 11 distribution points treating SAM children from 6-59 months without complications; and 2 stabilization centers (SC) treating infants and SAM children with medical complications. However, the findings from coverage assessment carried out in 2011[2] showed an alarming proportion of SAM children who cannot get treatment due to different barriers to access. Supplementary Feeding Programs (SFP) for children and, since October 2014, for pregnant and lactating woman are also ran by ACF concurrently at the distribution points. Mental and Health Care Practices (MHCP) activities are integrated in the nutrition centers. In parallel, the Community Awareness (CA) component involves the training of Super Community CareTakers (SCCT) who provides health education and does screening activities at community level. Market awareness activities and community leaders meetings also take place to sensitize communities about ACF activities and promote adherence to the nutrition treatment.

OBJECTIVES AND OPERATIONS

Three years after the previous coverage assessments, the objectives of these studies are to assess the current coverage of ACF TFP and to understand the barriers to accessing health care

[1] Nutrition Surveys of 6-59 months children. Maungdaw and Buthidaung Townships, Nov.-Dec. 2013. Rakhine State, Republic of the Union of Myanmar. Action Contre la Faim–ACF International, March 2014.
[2] Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)., Maungdaw and Buthidaung Townships, Myanmar. November-December 2011.

in MGD[3] and BTD Townships for children aged between 6 to 59 months, based on the Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) and on the Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) methodologies[4]. Specific objectives are the following:

- Assess the global estimation of coverage of SAM treatment in MGD and BTD Townships.
- Identify high and low coverage areas within the intervention areas.
- Identify barriers to access to treatment of SAM based on information collected from mothers/caretakers (CT) of SAM children identified during the investigations and who are not enrolled in the program.
- Make recommendations based on the results of the evaluations to improve the access to treatment of SAM and increase the level of coverage in both Townships.

The organization and actual development of these coverage assessments involved different phases. In a first phase, technical support was provided remotely through exchanges between Beatriz Pérez Bernabé (coverage expert) and Celine Lasaevre (Nutrition Head of Department) for the planning and preparation of the evaluations. For technical support in the field, the expert was deployed to MGD and BTD to recruit and train the teams and to carry out the assessments. The coordination during field stage was done with the support of Elisa Marino (Nutrition PM in MGD) and Marie Petry (Nutrition PM in BTD).

An investigation team composed by 1 head of project and 4 team leaders (all of them ACF staff) were trained to lead and conduct both BTD and MGD assessments. Additionally, local data collectors were recruited and trained to participate in the investigations (8 respectively). For each of the assessments, the group was organized into 4 teams of 3 members (1 team leader and 2 data collectors per team).

The coverage assessments took place in BTD from November 13th to December 1st 2014 and from December 3rd to 18th in MGD. At the beginning of the process, 2 days of introductory theoretical sessions concentrated on the importance of assessing coverage and the basics of SQUEAC/SLEAC methodologies took place, after which the first investigation began in earnest. The training process was then run concurrently with the investigation: in-classroom sessions for each key stage of the studies were alternated with guided practical implementation in the field, all framed with iterative briefing and debriefing sessions. The development of the second evaluation (MGD) took the advantage of the experience the investigation team had acquired along the previous one (BTD). However, 2 different practical sessions on the assessment of nutritional status (by MUAC oedema check) in both programs´ OTPs were done to ensure all of the members of the teams –specially those data collectors recruited for the survey- were able to perform accurate measurements both in MGD and BTD.

[3] With the exception of the following village tracts (all in OTP-7-TMT catchment area) that were not included in the study due to security constraints: Bauk Shu Phwai Yah; Cah Lah Day Phatt; Hlaing Thi; In Tu Lah; Kyaung Na Phay; Nan Yar Gaing; Tut Chaung; Ye Aung San Yah Phwai; Ye Nauk Ngar Thar; Ngar Yant Chaung.

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

I. MAUNGDAW

METHODOLOGY: SQUEAC, Semi-Quantitative Evaluation of Access and Coverage

General approach

The coverage assessment tool, SQUEAC, was developed by Valid International, FANTA, Brixton Health, Concern Worldwide, ACF and World Vision in order to provide an efficient and accurate method of identifying barriers to service access and to estimate the coverage of nutrition programs.

SQUEAC is an interactive, informal and intelligent investigation that collects a large amount of data from different sources (i.e. using routine data as well as additional data collected in the field), using a wide variety of methods and providing the means to organize the data. It is a semi-quantitative assessment as it combines both quantitative and qualitative data.

The analysis of these data is guided by the two fundamental principles of exhaustiveness (of information up to the point of saturation) and triangulation (information is collected from different sources using alternative methods, cross checking data until findings become redundant before being validated). By focusing on the collection and intelligent analysis of data during the field phase, the investigation sheds light on the operation of the service whilst simultaneously providing an educated guess on coverage which allows for a smaller sample size to be used in the final stage.

Stages

SQUEAC allows for the regular monitoring of programs at low cost, helps identify areas of high or low coverage and provides explanations for such situations. All of this information allows the planning for specific and concrete actions in order to improve the coverage of programs.

The SQUEAC methodology consists of three main stages:

STAGE 1: Identification of high and low coverage areas and barriers and boosters to access

This stage is based on the analysis of both quantitative data (already available) and qualitative information (collected during the investigation) in order to understand the various factors influencing coverage, some of which have a positive effect and some a negative effect on coverage. The SQUEAC approach helps to identify and understand these relevant factors and their effects. The evaluation of these factors helps to develop a trend in the coverage rates prior to conducting a field investigation in well-defined areas.

- **Analysis of quantitative program data**: routine data (monthly reports) and records of individual monitoring (register book and individual cards). The analysis of program data is used to assess the overall quality of services, to identify trends in admissions and performance, and to determine if the program meets needs. This stage also helps to identify potential problems related to the identification and admission of beneficiaries as well as problems related to their treatment. Information such as MUAC measurements at admission and numbers of defaulters can be used to assess

early detection, recruitment and effective communication channels. It also provides information on differences in raw performance between different health facilities.

- **Collection and analysis of qualitative data** through meetings in the community and health facilities with those involved directly or indirectly in the program[5]. This phase of the investigation is twofold: it serves to better inform and explain the results of the analysis of routine data and it also helps to understand the knowledge, opinions and experiences of all people concerned as well as to identify potential barriers to access.

Interview guides were used to orientate the process of obtaining information on coverage. These interview guides were developed based on guides already used in other SQUEAC investigations but also adapted to the context and modified/upgraded by the investigation team.

The following methods to gather information were used:

- Focus Group Discussions
- Semi-structured interviews
- Case studies
- Observation

These interviews were conducted with the following sources of information:

- OTP staff
- SCCT volunteers
- Mothers/caretakers of children in the program/defaulters
- Local authorities
- Religious leaders
- Traditional Health Practitioners (THP)
- Traditional Birth Attendants (TBA)
- Men of the community
- Women of the community

The ethnic group of the hamlet visited was also taken into consideration to be able to identify differences regarding program coverage between the two populations if there were any:

- Rakhine
- Muslim

A total number of 12 hamlets in different village tracts spread all across MGD Township were visited for the collection of qualitative information.

The different people encountered and the various methods used allowed the investigation team to collect information about the barriers and boosters to coverage of the TFP program. The data gathered was recorded on a daily basis using the tool called **BBQ (*Barriers, Boosters***

[5] The team took advantage of these meetings in the community and OTP centers to identify the local terminology used to describe acute malnutrition (Rakhine language and the language spoken by the Muslim community) and the key informants in the community. This preliminary research is essential to facilitate the active and adaptive case-finding methodology used as part of stages 2 and 3.

***and Questions*)**. This tool not only allows for the organizing of information on a daily basis, to continue with the research of qualitative information in an interactive and directed manner, but also ensures the triangulation of information. To guarantee the exhaustiveness of the process, the research of information continued until saturation - until the same findings were obtained from different sources, using different methods.

Altogether, the findings from the quantitative analysis and the conclusions from the qualitative research on the field and investigation team´s discussions were triangulated to set the knowledge around barriers and boosters to coverage in MGD Township. Based on the evaluation of these positive and negative factors, identification of potentially high or satisfactory and low or unsatisfactory coverage areas and formulation of a hypothesis on coverage is done - Depending on the barriers and boosters found, the hypotheses on "satisfactory" or "unsatisfactory" coverage areas are developed: the hypothesis about heterogeneity of coverage are based on the identification of areas of "good" and "less good" coverage. Then, small-area surveys are conducted to confirm or refute these hypotheses.

STAGE 2: High and low coverage areas hypothesis testing through small-area surveys

The objective of the second stage of the investigation is to confirm or reject, through small-area surveys, the assumptions on areas of satisfactory or unsatisfactory coverage as well as the barriers to access as identified in the previous stages of analysis.

The **small-area survey** method was used to test the assumption of geographical heterogeneity of coverage. A number of hamlets (half of them in which coverage is potentially satisfactory and half in which coverage is potentially unsatisfactory) were selected taking into account the criteria identified to be the most relevant according to the findings from the previous stage.

Sample size of the small-area survey is not calculated in advance, but rather is based on the number of cases (SAM and recovering cases) found.

Cases were searched using the **active and adaptive case finding** method (i.e visiting households of potential cases based on key informants´ information to find all severely malnourished children). The **case definition** used was "all children aged 6-59 months with the following characteristics: MUAC <115 mm and/or presence of bilateral oedema, or who were currently in the TFP program for the treatment of SAM".

Throughout the small-area survey, two different questionnaires (annex 3 and 4) were distributed to all mothers or other caretakers of the cases detected: one to covered cases (both SAM and recovering cases currently admitted in the program) – in order to find out if they were former beneficiaries of the program as well as to understand how they were referred to the program; another one to the non-covered SAM cases – in order to further understand the reasons that these children had not received treatment, as this allows for the identification of barriers to access. All "non-covered" children found (also MAM) during the study were referred to OTP-SFP centers for treatment.

Analysis of the results was done using **LQAS (Lot Quality Assurance Sampling)** in order to obtain a classification of coverage compared to a specific threshold. The value was set at 30% as the SPHERE minimum standard for rural contexts (50%) was considered very unlikely based on the information collected during stage 1 and discussions with the team. The decision rule was calculated using the following formula:

$$d = n \times \frac{p}{100}$$

n: number of cases found
p: standard coverage defined for the area

The number of cases found and the number of cases covered was examined (see annex 2 for form to gather the data in the field):

- If the number of cases covered was higher than the threshold value (d), then coverage was classified as satisfactory (coverage meets or exceeded the standard).
- If the number of cases covered was lower than the threshold value (d), then coverage was classified as unsatisfactory (coverage did not meet, neither exceeded the standard).

Results from analysis of cases found as well as all the information obtained by the questionnaires of covered and non-covered cases, were added and triangulated with all the barriers and boosters previously identified to complete the global knowledge about factors influencing program coverage.

To show this triangulation process and conclusions from stages 1 and 2, the software XMind was used: a powerful tool capable of organizing and displaying results of the SQUEAC investigation in a visual and orderly manner. Mind-mapping method allows modifications according to findings along the process.

STAGE 3: Estimation of global coverage

The estimate of the overall coverage is obtained by taking the following steps:

I. Developing the *Prior Probability* by using the software "Bayes Calculator"[6] to create a curve that represents our belief on coverage.
II. Building the *Likelihood* by conducting a survey in a defined area in order to know the total number of children that need to be in the program for treatment of severe acute malnutrition and the number of cases covered. A random sampling method based on the geographical distribution of villages is used.
III. Producing the *Posterior Probability* (the estimate of the overall coverage). The process of synthesizing the Priori Probability and the Likelihood to produce the overall estimate is called conjugated analysis.

[6] SQUEAC Coverage Estimate Calculator (Version 3.01) - *BayesSQUEAC*

I. Developing Prior Probability

Prior Probability is the formulation of the belief about coverage. This belief is built from the evaluation of factors with a positive or negative impact on coverage resulted from the analysis of quantitative and qualitative data collected in stages 1 and 2. Bayesian theory is used to translate our belief about coverage into a numeric value and to express it as a percentage.

To calculate the *Prior Probability*, boosters and barriers have been weighted according to their perceived impact on coverage. A weight from 1 to 5 (being 1 the minimum and 5 the maximum) was assigned to each barrier/booster. Then, the sum of the points corresponding to the boosters was added to the minimum coverage value (0%), the sum of the points corresponding to the barriers was subtracted from the maximum coverage value (100%) and the average of the two values was calculated. The value of the coverage estimates[7] resulted from the previous SQUEAC carried out in the area was also used in the same way to obtain and modulate the final value of the mode of *Prior* probability.

Priori Probability was thus produced and then described as a curve using the Bayes Calculator. The parameters of the shape of the curve (the distribution of the *Prior Probability*), α and β, were calculated using a degree of certainty of ± 20% and introducing the mode value of *Prior Probability* in the formulas below. The mode corresponds to the value of Prior Probability expressed as a proportion.

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

$$\sigma = \frac{maximum - minimum}{6}$$

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

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

II. Building the Likelihood

The aim of this stage was to enrich the a *Prior Probability* with "extra" information by conducting a survey in the area of intervention to obtain the more likely evidence represented by the total number of SAM cases that should be under treatment for severe acute malnutrition in area, and among them, the number of SAM cases covered.

SAM cases were searched, as in stage 2, by using the same case definition and by applying active and adaptive case-finding method. The questionnaires for covered and non-covered SAM cases were also filled in.

[7] 40.7% (33.7% - 48.2%). SQUEAC Maungdaw and Buthidaung Townships, Maungdaw District, Myanmar. ACF, November-December 2011

The **target sample size (n)** -minimum number of children needed- used was the suggested sample size resulted from introducing the parameters α and β (the values defining *Prior* Probability distribution) and the desired precision of 10% in the Bayes Calculator. The **number of hamlets** (H) to investigate was determined using the formula below, being "n" the target sample (minimum number of children needed according to the result from the above calculations):

$$H = \frac{n}{\begin{pmatrix} Mean \\ population \\ by \\ hamlet \end{pmatrix} * \frac{(\text{Population 6 - 59 months})}{100} * \frac{(SAMprevalence)}{100}}$$

It should be noted that in general, with this methodology, desired sample size is already much smaller than that required by other methods for assessing coverage (ESZC/CSAS) where no data analysis is made in advance and there is any belief about the coverage prior conducting the survey where children are screened.

Since only a map containing all VT of MGD Township was available, but not a map containing the hamlets in each VT, in order to ensure randomness and spatial representativeness a combination of two selection methods was used: VT were selected using the map by means of the *centric systematic area sampling* or *quadrat sampling* method; subsequently hamlets within the selected VT were systematically selected using a sampling interval from a complete list of hamlets sorted by VT.

III. Producing *Posterior Probability*

The synthesis of the *Priori Probability* (the belief about coverage) and the Likelihood (results from the wide-area survey) allows to produce the *Posterior Probability* or the overall estimate of coverage. This estimate and the curve of the *Posterior Probability* are calculated using the Bayes calculator with a credible interval of 95%.

Two measures, the **Point Coverage** and the **Period Coverage** can be used to express the results of coverage assessments of nutrition programs:

- Point Coverage represents the level of coverage at the time that the survey was being conducted and only includes children with severe acute malnutrition criteria.
- Period Coverage takes into account all children receiving treatment at the time of the survey, irrespective of their nutritional status (current severely malnourished children and recovering children).

SQUEAC methodology recommends using just one of the two measures for the calculation of coverage. The choice of coverage estimate must be guided by the characteristics of the program.

RESULTS

According to the methodology explained above we present here the main results emerging from our investigation:

STAGE 1: IDENTIFICATION OF AREAS OF LOW AND HIGH COVERAGE AND BARRIERS AND BOOSTERS TO ACCESS

The objective of this stage was to identify areas of high and low coverage and to have an initial understanding regarding the reasons for poor access to treatment, using the program´s existing quantitative data, together with qualitative information collected from the various stakeholders.

I. Analysis of quantitative program data

Routine program data was extracted from monthly reports and analyzed from December 2011 –the moment in which the previous coverage assessment took place- until September 2014. Individual records were analyzed for the whole year 2014 (January – September) and extracted from the very complete program´s monitoring database. Unfortunately, information about distance/time to travel between beneficiaries´ home and the nutrition facility was not available so the possible influence of this factor on the number of admissions and defaulters (and therefore on program coverage) could not be analyze at this point – however, this specific lack of information was taken into account as a main factor to look at during the collection of qualitative data in the field.

A. Program admissions: overall numbers and admissions vs. needs

Since December 2011, a total of 9.089 SAM children have been admitted to nutrition facilities of ACF´s TFP in MGD Township (93, 5% in OTP centers and 6, 5% in SC) . Figure 1 below shows the evolution of overall admissions. Although program data does not show a regular trend during the analyzed period, globally it fits the expected pattern of a changing environment suggesting the program adapts to context needs.

Yearly, in Maungdaw District, the months between May and October, coinciding with the rainy season, are the ones of greatest need (lean period) – not only the incidence of childhood diseases like diarrhea and malaria increases but also food availability is reduced due to low stocks and job opportunities combined with increased food prices.

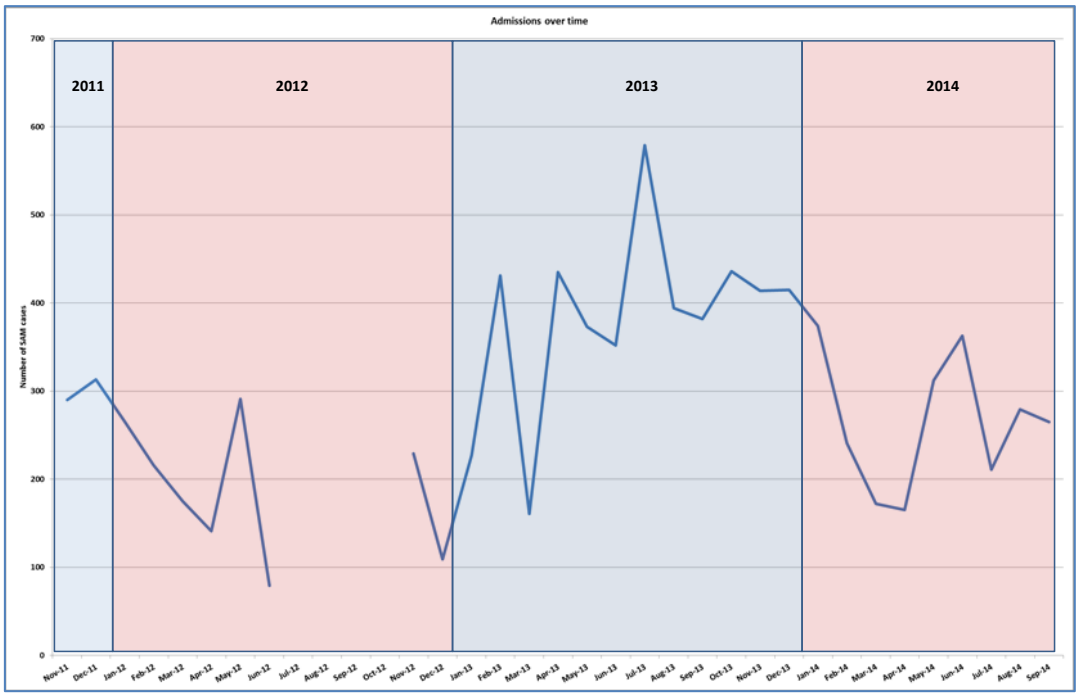


Figure 1. Admissions trend of TFP in MGD Township from December 2011 to September 2014 (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

After a sustained decrease of the number of admissions since December 2011, program data shows a peak in admissions in April-May 2012 happening at the initiation of the lean period (responding to the need). Although the beginning of SPF took place in May, which probably had an impact on the decrease in the number of severe cases admitted, the interruption of both OTP and SFP activities between July and November 2012 due to political events explains the complete absence of data during this period. From December 2012 to February 2013 the number of admissions increases as consequence of the resuming of activities. During the lean period of 2013, data shows a lot of non-regular fluctuation the drastic decrease in March previous to the expected increase in April-May could be related to the frequent demonstrations that took place at this time of the year and made people to be afraid to travel to the nutrition facilities. Again, seasonal SFP started in May and Community Awareness activities in June, which could explain the drastic increase of admissions at this time of the year. Ramadan in July together with the heavy rains and the consequent impaired access by road explain the decrease in the number of admissions even at this time of need. The decrease begins to be sustained from October 2013 and follows the expected pattern until April 2014 when admissions start increasing due to the beginning of lean period. Again, there is a decrease in July due to Ramadan.

B. Admissions by nutrition facility

ACF runs 4 OTPs in 7 distribution points plus 1 SC and the total number of admissions was 2.655 in 2014 for TFP: 94, 1% in OTP and 5,9% in SC. In order to identify potential disparities in admissions across the different OTP distribution points the analysis has been done for the present year (January to September 2014; n = 2.499).

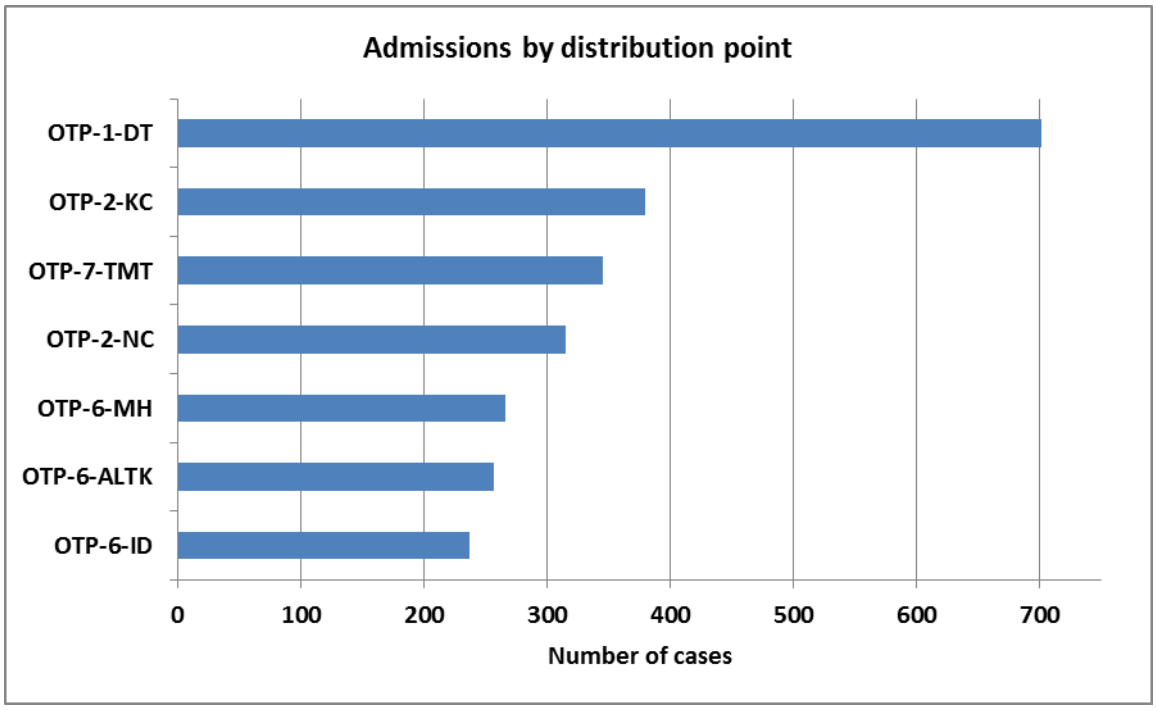


Figure 2. Number of admissions by distribution point between January and September 2014 (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

Among the OTP centers (see figure 2 above), OTP-1-DT accounts with great difference, for the highest number of admissions probably due to the fact that is located in MGD downtown and also because it opens five days a week (fixed center). In the other hand, the catchment area for this nutrition facility is quite big and populated. OTP-7-TMT, the most recently opened center also receives a high number of admissions although community outreach activities (screening, home visits, CA) do not take place in several VTs located further north to the nutrition facility due to security constraints which suggests needs in this area may be important. The lowest number of cases corresponds to the 3 distribution points of OTP 6 (MH, ALTK and ID), may be related to the fact that each of them is not open every day (the same team is working in all 3 distribution points) and to the smaller number of hamlets in the different catchment areas

C. Referral mechanism

According to the information from program´s individual records database analyzed for the year 2014 (n = 2.655), the great majority of beneficiaries arrived to nutrition facilities spontaneously (54,4%) and 21,3% were referred by the community (SCCT). The remaining 24,6% of admissions come from different sources in the following order: 9% relapsed cases identified during SFP; 7,6% children readmitted after being discharged as NR; 4,4% relapsed cases identified during the Follow-Up phase; only 3% were identified by ACF team during active Screening; finally 5 cases were referred by other NGO and 3 by health structure. Although this information suggests a good seeking behavior from the community which may also imply timely treatment seeking, it also reveals weak active screening by SCCT. Also by ACF team, which given the high case load at OTP level, mainly focus their efforts at the centers and only do active screening in the community when possible.

When looking deeply at the distribution of SCCT by OTP catchment area relating the number of active SCCT to the number of hamlets, program data shows that OTP-6-ID and OTP-6-MH have the greater proportions of active SCCT. In the other side, OTP-2-KC and specially OTP-7-TMT, show the lower proportions.

D. MUAC at admission

In order to further understand whether the program is reaching SAM children early, the MUAC at admission was plotted for recorded all beneficiaries whose admission criteria was MUAC (n= 2.272) during 2014. The results are found in figure 3 below. The median MUAC at admission was 112 mm which shows that overall, children are admitted early. Also, the proportion of critical cases (PB <= 90mm) 1,1%, is low meaning that few cases initiate treatment with an advanced degree of severity – in fact, it is very likely that most of these children fall into the category of under 65 cm.

This result goes in line with the conclusions obtained through the analysis of referral information that suggest both a positive health seeking behavior of caretakers. Most cases are reached and admitted in the program early the process of the disease which certainly has a positive impact on program coverage.

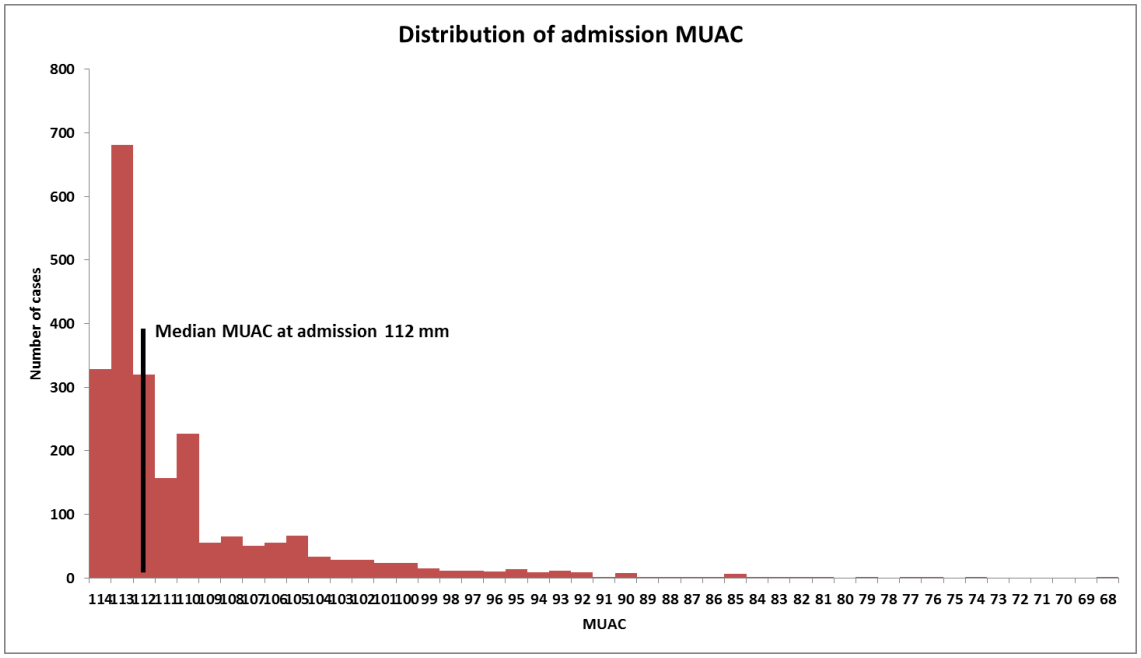


Figure 3. Distribution of MUAC at admissions for SAM cases admitted in the program between January and September 2014 (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

E. Program exits: performance Indicators

The table 1 below shows program indicators for the period January to December 2014 (exits n = 1.954[8]). Comparing to SPHERE minimum standards, program data shows that cured (60, 6%) and defaulter rate (22, 6%) are not meet by far. Non-responder rate is globally high (16, 3%). Results for OTP and SC are similar for cured, defaulter and death rate when analyzed separately but quite different for non-responder rate, being the proportion of NR quite higher in OTP (16, 7%) compared to SC (8,5%)

	Program outcomes	SHPERE standards
Cure rate % (n)	60,6% (1.184)	75%
Defaulter rate[9] % (n)	22,6% (442)	15%
Death rate % (n)	0,5% (10)	10%
Non responder/non-recover rate % (n)	16,3% (318)	

Table 1. Performance indicators for the period from January and September 2014 (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

F. Defaulters

When looking at number of defaulters by OTP in order to identify potential disparities across the different distribution points during the year 2014 (n = 418), data reveals that the higher proportion of defaulters in found in the OTP-1-DT and OTP-6-ALTK.

Although the median number of weeks in the program before of defaulting is 5 weeks (50% of defaulting occurring at 5 weeks or later) meaning late defaulting and usually indicative of a shift in the cost-opportunity decision to stay in treatment (the child recovered although he/she has not reached yet the criteria of program discharge and self-discharged himself/herself), the analysis of the MUAC at last visit (113 mm as median) reveals results suggesting of low coverage: 68,4% of defaulters are still SAM cases (MUAC <115) when abandon the program; 26,1% are recovering cases (not SAM anymore but who have not yet reached the discharged criteria 120 mm); and only 5,6% are recovered cases (>119 mm).

G. Length of stay of discharged cured

For those discharged-cured at OTP level during 2014 (n = 1.113) the result of plotting the number of weeks of treatment (see figure 4 below) shows that the median length of stay was 9 weeks, not too far from the recommended average duration of 8 weeks of treatment according to different studies SAM treatment. Long lengths of stay may lead to bad opinions and even higher defaulting rates.

[8] Additionally to this data, 79 program exits correspond to admission mistakes and 74 to medical transfers.

[9] Calculation resulted from merging he categories of "Defaulter" (n=248) with "Unknown" (n=194) (e.g. the patient has not returned for 2 consecutive visits and no home visit has been performed - due to high number of cases and limited human resources, many follow up visits were not conducted and children remained classified as unknown) together as ACF is well aware that all 'unknown' children are defaulters.

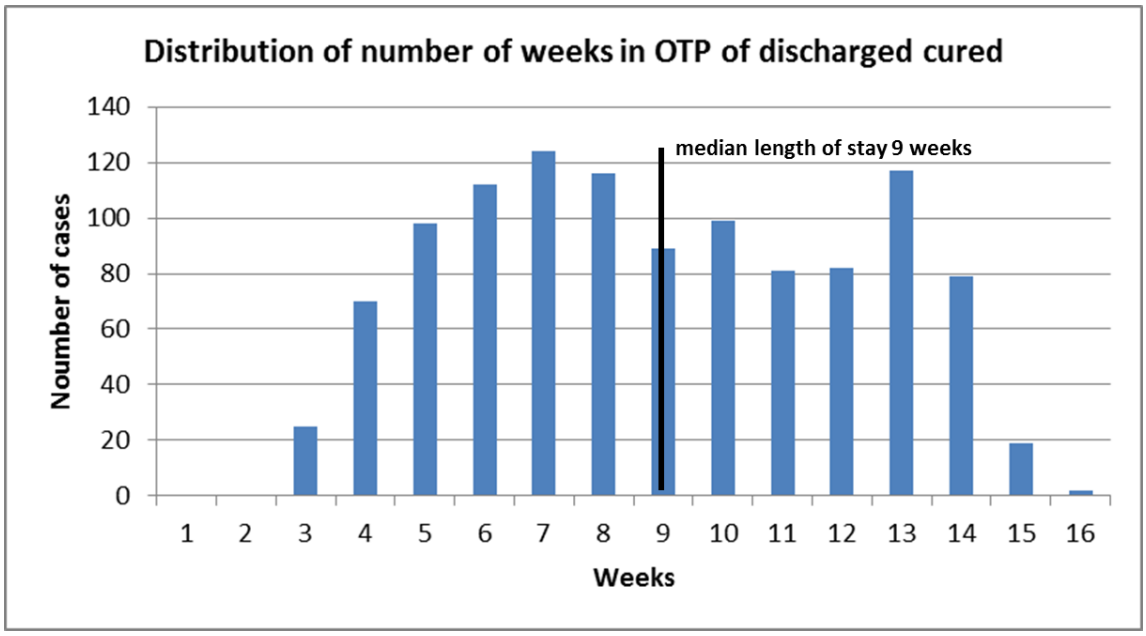


Figure 4. Number of weeks of treatment before being discharged-cured for SAM cases admitted in OTP between January and September 2014 (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

H. Additional data

No stock breakout was reported between December 2011 and September 2014.

Nutrition surveys: table 2 below shows the results of the most recent anthropometric survey conducted in MGD Township.

	Prevalence of acute malnutrition based on WHZ and/or oedema		Prevalence on acute malnutrition based on MUAC and/or oedema	
	GAM	**SAM**	**GAM**	**SAM**
Nutrition survey 2013[1]	20% (15,1 – 26,1)	3% (1,5 - 6,0)	17,9% (13,7 – 23,2)	5,8% (3,6 – 9,3)

Table 2. Nutrition survey 2013 results for GAM and SAM based on WHZ and MUAC in MGD Township (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

I. Analysis of qualitative data

The qualitative data was collected in 12 hamlets spread throughout the Township. The methods and sources of information used were those described in the methodology section and findings were triangulated using the BBQ on a daily basis – see annex 1 for specific information about triangulation by source, method and ethnic group for each of the factors identified as well as the legend used for the process.

Table 3 below describes main boosters and barriers to access found through the completion of qualitative work in the field and the subsequent triangulation and analysis of information.

BARRIERS	
Lack of awareness about malnutrition	Knowledge about causes and recognition of signs of malnutrition was found to be insufficient though the completion of interviews with different members of the community during the qualitative research. Children suffering from Marasmus (especially those very severe cases) are often not even considered as sick but instead having been "touched" by the devil or other kind of spirit/angel that is suckling their blood. In these cases, traditional healers prepare an amulet called "tabis" with written verses from the Koran inside. Religious leaders also prepare this kind of amulet as a protection. In the other hand, awareness about malnutrition was also found to be lacking in all the Rahkine hamlets visited – however this seems not to be a barrier to access to treatment but to be linked to the absence of malnutrition in this communities.
Distance	Distance from home to the OTP was one of the most reported barriers to access – repeatedly by almost all sources of information. The maximum acceptable time to travel was reported to be 2 hours but anyhow, the time invested in each weekly visit, due to the length of the trip, was reported to be too much for beneficiaries from distant locations.
Transportation costs	Taxi and/or trickshaw fees need to be weekly paid by beneficiaries to arrive to the nutrition facilities. The price for one way ranges from 1.000 to 2.000 MMK (up and down) which constitutes a major barrier – linked to the previously mentioned of distance- to access the program.
Security problems /Checkpoints/ Travel authorizations	In terms of security, fear for checkpoints or fear to get out of the hamlet was the main issue highly reported by caretakers of beneficiaries. These fears prevent many beneficiaries from going to the OTP.
Seasonal access	Mainly due to floods during rainy season - from May to October.
Late presentation	Although according to the beneficiaries interviewed many cases arrive to the program spontaneously and CT also ask SCCT for measurements, the arrival is often delayed by a previous visit to a local doctor, TH or TBA. Traditional healers have been found to treat both at the beginning of the condition but also to those cases that do not get cured. Some of the TH encountered were participating in Direct Approach activities and still treating children.
Cost-opportunity	The cost of attending the OTP weekly visits and having to leave aside the gain provided by activities that provide an income such as winter crops or daily work, or even activities that just make the CT busy often represents too much of a loss preventing the children to receive their treatment.
Lack of caretaker	Not having anybody one to take care of other children at home was reported by different stakeholders, mainly mothers, all around the Township as an important barrier to attend the program: they face many difficulties when having to leave the other children (usually several) at home. In the case of the SC, refuse to attend is often linked to this barrier, which gets greater when comes to cases such as of twins for which 1 CT per child admitted is needed. Also, being unable to travel with more than one child was reported.
Mother´s condition	Being sick, pregnant or having had a recent delivery were reasons reported all around the Township including mothers of current beneficiaries as frequent situations for not attending the program.

Stigma	Most sources of information, including mothers of beneficiaries, have informed about some kind of stigma towards malnutrition. Religious people believe they "lose their dignity" having a child in such condition Also, most wealthy community members of the community feel ashamed to receive treatment and to look as "poor "to the others.
Husband refusal and other gender barriers	Beliefs and traditions linked to the power of decision women have in their household remain as barriers to access to treatment in Muslim communities. As in general, "women should stay in their home as much as possible", women need the agreement of their husband to attend the OTP – not only that refusal often occurs (reported by several many sources of information including mothers of current beneficiaries and defaulters) but also that sometimes –when the man is working or away for any other reason- she cannot take the decision to go by herself. Women SCCT reported difficulties to get engagement/trust from key community figures due to the fact that they were females.
Rejection	Rejection of referrals at the nutrition facility (mainly by SCCT), was reported by community stakeholders as well as OTP staff for which discontent and/or fear feeling was expressed by the community. Rejections of young CT if they are the ones coming regularly or men going to the OTP were specifically pointed out as reasons for rejection[10].
Insufficient community mobilization activities	The absence of community mobilization including both Community Awareness as well as SCCT activities, which appears to have a negative impact on coverage, has been found in different hamlets visited. Also, in those hamlets where there was at least one SCCT, the regularity and exhaustiveness of their screening activity was observed to remain low: screening is not done door-by-door and frequently only if beneficiaries ask for it at SCCT´s house; rejections from SCCT referrals due to imprecise measurements were reported by OTP staff; often SCCT do not have referral slips. The level of motivation and engagement greatly varies between SCCT (some OTP staff have put in relevance the job some SCCT do for the refusal cases), however difficulties to carry out their work without any source of income or being busy with family responsibilities was reported.
Nutrition facility service provision and staff attitude	Although general satisfaction with the program was reported and positive points such as the presence of female staff were mentioned, several negative issues about the service provided at the nutrition facility and the attitude of the staff came out of the research. On the one side the communication with nurses –mainly due to the language barrier- but also related to the amount/quality of time spent was considered as negative and insufficient by some beneficiaries. Also, communication with OTP staff when it comes to static/decreasing weight cases or if the children have diarrhea/vomiting in which beneficiaries reported being grounded. Some mothers complained about priorities to be attended not being respected (most severe cases, those coming from distant locations or those referred by SCCT) and about not getting incentives? or support from the program for them as CT; OTP staff complained about the nutrition facility not being comfortable.
RUTF sharing/selling	Although key messages to avoid these barriers are given are OTP level, sharing RUTF as a way of paying a fake CT to go to the OTP (linked to the shame of rich people to attend the program) was reported by different members of the community. Also, selling RUTF in hamlets

[10] According to ACF staff, young CT and men are not rejected.

	market/shops was identified as happening and observed by the team in the field.
Beliefs around RUTF	Such as it causes diarrhea, vomiting as well as the quantity provided as a treatment is not enough to get the child cured.
BOOSTERS	
Nutrition program awareness	The existence of ACF nutrition program is well known all around the Township, including both Muslim and Rakhine communities. However, some specific information such as OTP days and more important, about admission criteria, are often not well understood, leading to potential false expectations and increasing the risk of rejection. In the case of Rakhine hamlets, this lack of specific information is higher (not even recognizing RUTF) as they are not frequent users of the program.
Service free	The fact that the treatment is free is well known and constitutes a major booster to program coverage as confirmed by the stakeholders encountered.
Peer-to-peer influence	Caretakers that currently are/have been in the program pass the message to other members of the community.
Good opinion	Both Muslim and Rakhine communities reported a positive opinion of the nutrition program. Muslim community reported being satisfied with the service provided and the efficacy of the treatment as well as being grateful for it and to have a good image of ACF. Rakhine communities, although not using the service, reported to be willing to use it in case of need and to think it was a good thing for those who may need it.
Home visits	Home visits by OTP staff, often joint with SCCT in the village –if any- represent a booster to coverage by decreasing the risk of absences becoming defaulters. This was confirmed not only by OTP staff but also by community members and directly observed by the SQUEAC team in the field. It must be noted however, that distant places are often not visited or not visited at all.

Table 3. Boosters and barriers to access emerged from the qualitative research (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

II. Triangulation of information – high and low coverage zones

The findings regarding coverage in the MGD Township identified along the first stage of investigation allow to stablish potentially satisfactory and unsatisfactory coverage areas and to formulate hypothesis around coverage according to the evaluation of positive and negative factors identified: conclusions from the analysis of quantitative and qualitative data have been combined and triangulated to stablish hypothesis.

Number of admissions and defaulters by home location were analyzed as part of the study of the spatial distribution of coverage. Although the analysis of distribution of admissions/defaulters related to distance from home to OTP center could not been done due to the lack of this information (as initially explained), frequentation data by OTP catchment area was examined in order to understand the possible influence of the size of the catchment area –and therefore distance- on coverage. Also, given the findings from previous SQUEAC

assessment, qualitative research in the field looked into this factor with detail. The number of active SCCTs related to the number of hamlets of the catchment area was also examined.

Indeed, distance from home to the distribution points as well as the presence of checkpoints appeared to be factors having a great influence on the coverage pattern in MGD:

- Big catchment areas (having many hamlets located distant from the OTP centers) such as OTP-1-DT and OTP-6-ALTK, which also face strong checkpoints for many of the hamlets, reveal high numbers of defaulters while smaller catchment areas like OTP-6-MH and OTP-6-ID show lower rates of defaulting.
- Both OTP-6-ID and OTP-6-MH have the highest proportions of active SCCTs in their hamlets.
- The qualitative research conducted by the SQUEAC team on the field identified both distance and the fear for checkpoints as main barriers strongly influencing access (highly reported by most stakeholders and including defaulting cases).
- Lack of community mobilization activities, including the absence of SCCTs in the hamlet was found to be a potential factor negatively influencing on coverage.

It was thus decided to test the following hypothesis regarding the potential areas of high and low coverage:

- Coverage is potentially satisfactory in hamlets in which there are active SCCTs and Community Awareness activities taking place and that are located near to the OTP center and having few checkpoints in between home and the OTP.
- Coverage is potentially unsatisfactory in hamlets in which there is no active SCCT neither Community Awareness activities taking place and that are located far from the OTP center and having many checkpoints in between home and the OTP.

STAGE 2: VERIFICATION OF HIGH AND LOW COVERAGE AREAS HYPOTHESIS – SMALL AREA SURVEY

In order to be able to confirm or reject the assumptions on areas of high/satisfactory and low/unsatisfactory coverage as well as the barriers to access as identified in the previous stage of analysis, a total of 8 hamlets (4 in which coverage is potentially satisfactory and 4 in which coverage is potentially unsatisfactory – see table 4 below) were selected according to the criteria identified:

	Hamlet, Village Tract	Catchment area	Criteria		
			Active SCCT/ CA activities	Distance to OTP	Presence of checkpoints
Satisfactory coverage area	Ywa Gyi, Kyauk Pan Dhu Tha Win Chaung, Tha Win Chaung Zone Kara, Myinn Hlut Zone Kara, Tha Pay Taw	OTP-6-ID OTP-6-ID OTP-6-MH OTP-6-MH	Yes	Near (<2 hours)	Few
Unsatisfactory coverage area	Ywa Thit Kay, Gaw Dhu Thar Ya Kyauk Hlai Khar, Kyauk Hlai Khar Tha Yai Gone Tan east, Tha Yai Kone Tan Duti ya, Than Da	OTP-1-DT OTP-1-DT OTP-6-ALTK OTP-6-ALTK	No	Far (>2 hours)	Many

Table 4. Hamlets in potentially satisfactory and unsatisfactory coverage areas according to the selected criteria (*Maungdaw Township, Maungdaw District , Myanmar, December 2014*)

Results from the case-finding of the small-area survey are presented in table 5 below.

Satisfactory coverage area	Total number of SAM cases	24
	Covered SAM cases	12
	Non-covered SAM cases	11
	Recovering cases	6
Unsatisfactory coverage area	Total number of SAM cases	25
	Covered SAM cases	1
	Non-covered SAM cases	21
	Recovering cases	3

Table 5. Results from case-finding - small-area survey (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

Based on the information collected and discussions with the team, the most likely coverage was classified as satisfactory or unsatisfactory against a threshold of 30% - the SPHERE minimum standard for rural contexts (50%) was considered very unlikely.

The hypothesis of heterogeneity therefore confirmed both for the satisfactory and non-satisfactory coverage area suggesting that distance, presence of checkpoints and SCCT community mobilization activities are factors that do have an influence in the spatial distribution of coverage. The analysis of the results was done as follows:

	Calculation of decision rule/results		Deductions
Satisfactory coverage area	Target coverage	30%	Number of covered cases (18) > decision rule (9) **Period coverage > 30%** **Satisfactory coverage hypothesis CONFIRMED**
	n	30	
	Decision rule (d)	= n * (30/100)	
	d	= 30 * 0.30	
	d	= 9	
	SAM covered cases and recovering cases	18	
Unsatisfactory coverage area	Target coverage	30%	Number of covered cases (4) < decision rule (8) **Period coverage < 30%** **Unsatisfactory coverage hypothesis CONFIRMED**
	n	28	
	Decision rule (d)	= n * (30/100)	
	d	= 28 * 0.30	
	d	= 8,4	
	d	= 8	
	SAM covered cases and recovering cases	4	

Table 6. Analysis of survey results of the small-area survey – Classification of coverage (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

The reasons given by the mothers/CT of the high number of non-covered cases found (32 in total) provide an insight and valuable information about the barriers to access. The table below shows the barriers reported by the CT of the 21 non-covered cases found in the non-satisfactory coverage area and those reported by the CT of the 11 from the satisfactory coverage area.

Barriers to access	Non-satisfactory coverage area	Satisfactory coverage area
Distance	7	4
Security – checkpoints	6	
Lack of awareness about malnutrition	5	
The CT is sick/pregnant/recent delivery	4	2
Lack of CT	3	3
The child has previously been rejected	3	1
RUTF selling/sharing	3	1
Cost-opportunity	2	3
The mother/CT does not believe the child is sick	2	3
Transportation costs	1	2
Beliefs around RUTF	1	
Total number of reported barriers	**37**	**19**

Table 7. Barriers to access identified in satisfactory and non-satisfactory coverage areas during the small area survey (*Maungdaw Township, Maungdaw District, December 2014*)

In the unsatisfactory coverage area hamlets, distance (more than 2 hours) and security problems linked to the presence of checkpoints were indeed reported as the most important barriers preventing access to treatment. Lack of awareness about malnutrition was also identified in these hamlets without neither SCCT nor CA activities have been carried out.

Rejection was reported by 3 mothers and in all cases was because the children were less than 6 months at that time. The absence of another person within the family to take care of the other children was reported in 2 occasions, and 1 mother (a defaulter case) reported that she was not bringing the child to the OTP anymore because RUTF caused diarrhea previous time. The rest of the barriers found also came out in those hamlets identified as satisfactory coverage areas: the CT being sick (including the mother being pregnant or having had a recent delivery), cost-opportunity (meaning having no time/being too busy with domestic, field or other kind of daily work to attend the program) and the CT cannot travel with more than one child. In both kinds of locations (2 times in the non-satisfactory and 3 times in the satisfactory coverage area) several mothers responded that, not only that the child was not malnourished, but the child was not sick at all. Distance also appeared as a barrier in these areas that were classified as "close" to the OTP centers because they are at a distance of less than 2 hours – however, some mothers reported that 1h30 was already too much for them to travel. RUTF sharing or selling was identified in both areas: 4 children that were still wearing the red bracelet that all SAM beneficiaries have while they are in the program but whose mother/CT was not able to show any or sufficient (according to the day of last OTP visit) amount of RUTF were found. In all cases the fact that the quantity of RUTF was not enough and the child had already eaten all was reported as the reason for not having any RUTF left- in one of the households the team even had the chance to see a sibling of the SAM case eating RUTF.

In the unsatisfactory coverage areas, only 5 out of the 21 non-covered cases found were in the program before, having all of them abandoned[11] before being discharged. In the satisfactory coverage areas, 4 out of 7 were in the program before: 3 defaulters[12] and 1 NR.

From the total 18 cases found to be currently in the program (covered SAM cases or recovering) in the satisfactory coverage area, 7 were in the program before (only 1 time) from which: 3 of them relapsed into SAM after being discharged cured, 1 was discharged NR and 3 were returned defaulters[13]. Regarding how these children arrived to the program, 44, 44% of them were referred by ACF team; 44, 44% by the SCCT and 11, 11% went spontaneously to the OTP (2 out of these 8 cases were recommended by neighbors). In unsatisfactory coverage areas, none of the 4 covered cases found (SAM or recovering) had been in the program before. Half of them were referred by Community Health Worker (CHW) of other organizations (Maltezer and former MSF) and the other half went to the OTP spontaneously.

The conclusion from the results of the small-area survey as well as the information obtained through the questionnaires answered by the caretakers of the cases found were triangulated with the barriers and boosters previously identified to put together all the knowledge about coverage in Maugndaw Township up to the moment - The Mind Map of figure 5 shows the triangulation process and conclusions of stages 1 and 2 of the investigation.

[11] Distance, transportation costs, checkpoints, mother sick and RUTF gave diarrhea to the child.
[12] No other person can take care of other children (2), mother sick.
[13] Mother sick/pregnant at that time for the 3 cases.

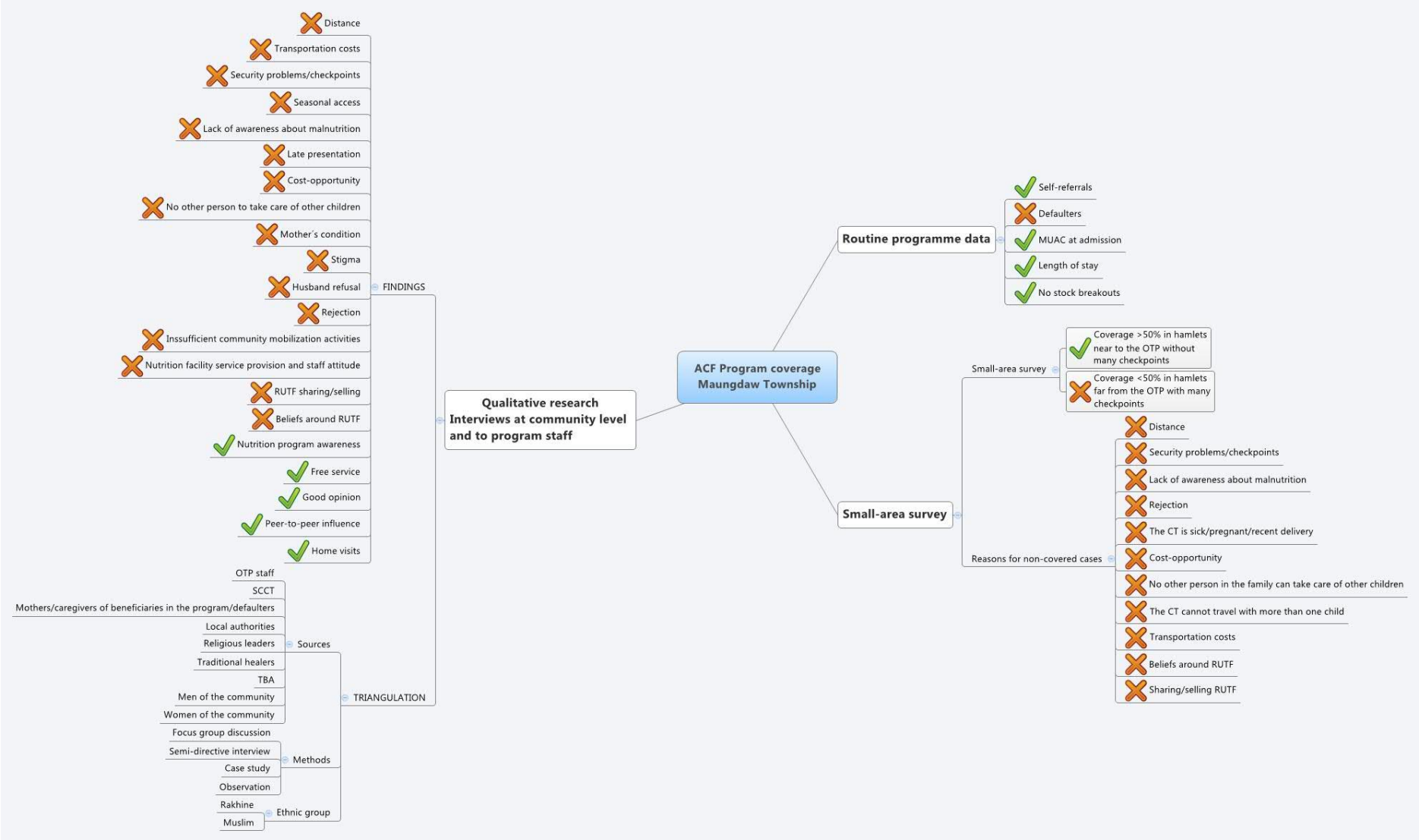


Figure 5. Mind Map of the findings of the first two stages of the SQUEAC investigation of MGD Township (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

STAGE 3: ESTIMATION OF OVERALL COVERAGE

The objective of this third stage of the investigation is to provide an estimate of the program coverage by applying Bayesian theory of probabilities.

I. Developing Prior Probability

Finally, a *Priori Probability* is developed: a statistical representation of the "belief" about the level of coverage that the investigation team was able to develop based on the findings from the previous stages. As explained in the methodology section, *Prior Probability* results using the method of "Barriers and Boosters weighted" and taking into account the Point Period coverage estimate resulted from the previous coverage assessment. The final result of the *Prior Probability* is 36,1% - table 8 below shows the weight given to each barrier and booster:

Positive factors	VALUE		Negative factors
Community level			
Self-referrals	5	5	Distance
Nutrition program awareness	4	5	Security problems/checkpoints
Peer-to-peer influence	2	5	Lack of CT
		4	Insufficient community mobilization activities
		4	Stigma
		4	Husband refusal and other gender barriers
		3	Lack of awareness about malnutrition
		3	Economic barrier/transportation costs
		3	Mother sick/pregnant/recent delivery
		2	Late presentation
		2	RUTF sharing/selling
		1	No active screening in remote areas
		1	Seasonal access
		1	No trust on RUTF
Service delivery			
Good opinion	5	3	Rejection
Free service	4	2	Nutrition facility service provision and staff attitude
Home visits	3		
Increased nutrition facilities in the north	2		
***Posterior* Probability 2011** **Point: 40,7% / Period: 56,1%**			
Points to add	52	25	Points to subtract
***Prior Probability* 36,1%**			
α value	18,4	32,5	β value

Table 8. Positive and negative factors to program coverage and *Prior Probability* calculation (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

The distribution of Priori Probability was described as a curve using the Bayes calculator software: the mode (36, 1%) and the distribution (α = 18,4, β = 32,5) of *Prior Probability* are represented by curve showed in Figure 6. The parameters of the shape (α and β) of *Prior Probability* curve were calculated through the formulas previously presented.

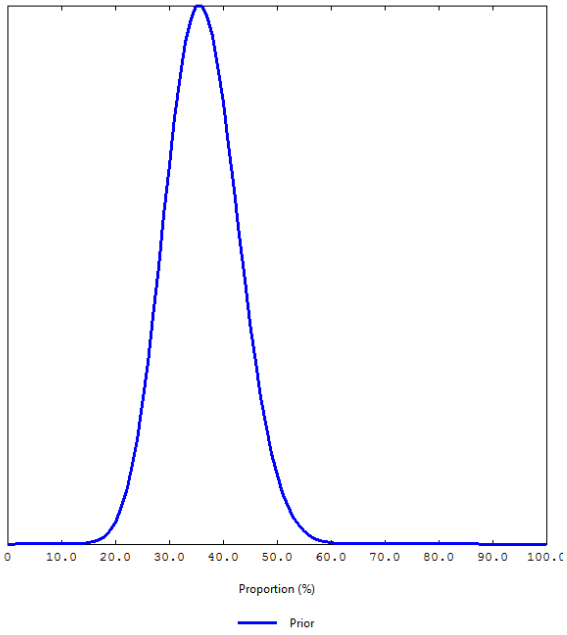


Figure 6. Graphical representation of *Prior Probability* (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

II. Building the *Likelihood*: wide-area survey

In addition to the analysis of quantitative and qualitative data, a survey in the whole program catchment area (except for those VT excluded from the study for security reasons) was conducted using the active and adaptive case-finding method. The target sample size according to the Bayes calculator was 49 children, therefore 7 hamlets was the minimum number of hamlets to visit as a result of applying the formulas previously described in the methodology section and using the following parameters:

- mode: the value of *Prior Probability* expressed as a proportion (0.361).
- α et β: values defining Prior Probability distribution (α= 18,4 and β= 32,5).
- Precision: 10%.
- Mean population by location: 1.172 based on the most recent and reliable program data.
- Population 6-59 months: 18%.
- SAM prevalence (by MUAC and/or oedema): 3,6% which is the lower 95% confidence limit for SAM prevalence (5,8% [IC95% 3,6-9,3]) according to the results found in the most recent SMART survey carried out by ACF during the same period of the year as the present study.

Given the availability of time and resources, finally a total number of 16 hamlets were visited to guarantee the minimum sample size would be reached and to improve the spatial representation of results.

In order to randomly select 16 hamlets across MGD Township, a map containing all VT in the catchment area was divided into quadrats of the same size (10x10 km) (see annex 5): in total, 11 quadrats were selected to cover all the areas, excluding quadrats that we made up of less than 50% land mass. The center of the quadrat was then identified, and the closest VT to the center of each quadrat selected in the sampling process. Subsequently, one hamlet from each of the selected VT was systematically selected using a sampling interval from a complete list of hamlets sorted by VT.

Type of case	Number of cases
Total number of SAM cases	67
Number of covered SAM cases	17
Number of non-covered SAM cases	50
Number of recovering cases	10

Table 9. Results from the wide-area survey (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

Out of the total of 27 cases found to be covered by the program, only 2 of them had already been one time in the program before: 1 had been discharged cured and the other was a defaulter that abandoned the program because the child had lost the bracelet and the CT was afraid to be grounded by OTP staff. Regarding how these children arrived to the program, 51,85% went spontaneously (in 4 out of the 14 cases it was suggested by another member of the community) and 48,15% were referred by the SCCT at community level. For the 50 non-covered cases, only 8 of them had been in the program before: 1 discharged cured, 2 of them discharged NR and 5 that abandoned the program[14].

The analysis of the reasons reported by the caretakers of non-covered SAM children found during the wide-area survey brings light to the global understanding of the main barriers to access in MGD Township (see figure 7 below).

[14] The mother was sick/pregnant (2 cases), husband refusal (2 cases) and CT busy with winter crops (1 case).

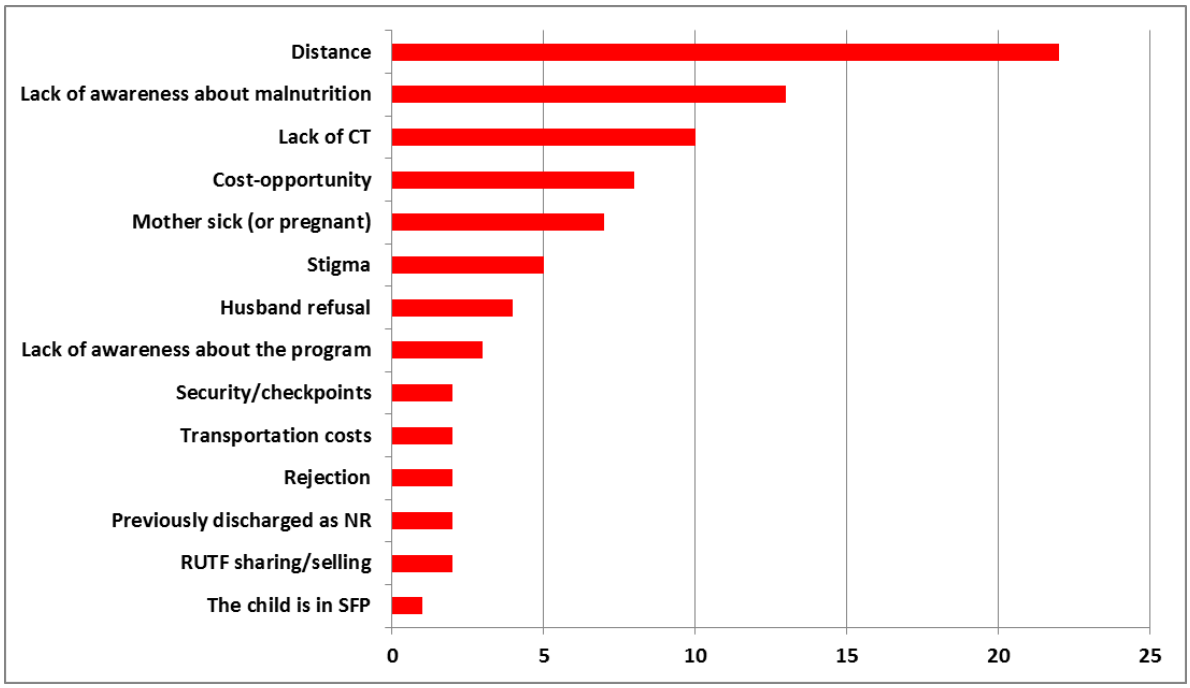


Figure 7. Non-covered cases – Barriers to access to treatment (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

Long distance from home to the OTP and lack of awareness about malnutrition have been found to be the most common reasons for not being in the program. The mothers/CT of the non-covered cases have also highly reported barriers related with the role of the women: lack of other person in the family to take care of other children (including not being able to alternatively travel to the OTP with them), followed by being busy with different activities (domestic, field or daily work – cost-opportunity) and followed by the mother being sick or pregnant. Cultural barriers such as stigma (being ashamed to attend the program) and husband refusal appear in next position. Lack of awareness about the program was found 3 times. Transportation costs –related to the distance barrier- has only came out 2 times as well as the presence of checkpoints, much fewer than in the second stage. Other barriers directly linked to the service delivery such as rejection, NR and being in the wrong program (SFP) have also resorted at this stage of the analysis (1 or 2 times). Inappropriate use of RUTF was confirmed in 2 cases.

III. Estimation of overall coverage: Posteriori

Global coverage is the *Posterior Probability* which represents the combination of the *Prior Probability*, enriched by the wide-area survey data (*Likelihood*).

As part of this investigation, the insight provided by the quantitative and qualitative data on program performance suggests the use of Period Coverage as the most appropriate indicator to reflect the overall program coverage. The early recruitment of cases and the short length of stay have been the program´s characteristics suggesting the use of Period Coverage as estimation of overall coverage.

Therefore, the calculation of the Likelihood uses the wide-area survey data according to the following formula:

$$\frac{\text{Number of SAM cases in the program + Number of recovering cases}}{\text{Total number of SAM cases (covered and non-covered) + Number of recovering cases}}$$

The numerator (27) and the denominator (77) are entered into the Bayes calculator to achieve the estimate of Point Coverage and based on the *Prior* and these wide-area survey data (*Likelihood*), Period Coverage is estimated to be at **35,3% [95% CI: 27,7% - 43,8%]**[15]. The graphical representation of period coverage is presented in the following graph (Figure 8).

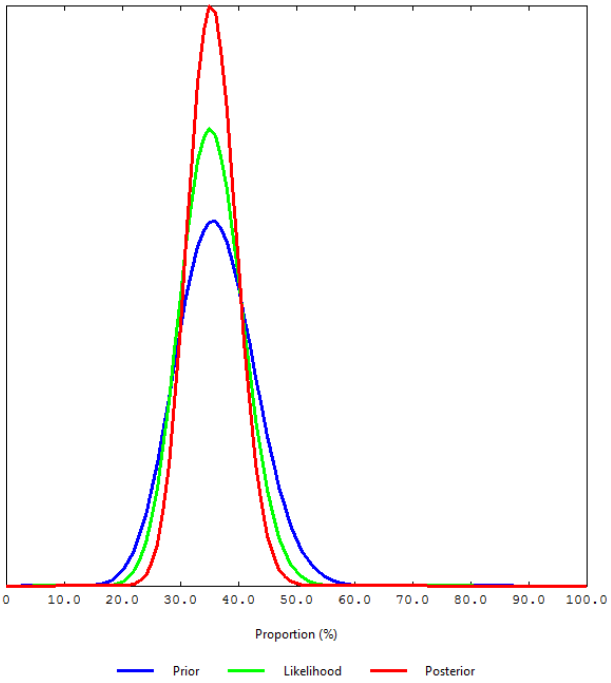


Figure 8. Graphical representation of Period Coverage – Prior, Likelihood and Posterior (*Maungdaw Township, Maungdaw District, Myanmar, December 2014*)

[15] The p-value of the Z-test (Z = 0,06) performed by the Bayes Calculator is 0.9527 which reflects the absence of conflict between the Prior and the Likelihood and therefore, the reliability of the study.

CONCLUSIONS AND RECOMMENDATIONS

- The results of the SQUEAC coverage assessment reflect an estimate of period coverage of 35, 3% [95% CI: 27, 7% - 43, 8%] of ACF program in MGD Township. Coverage is globally low compared to the SPHERE standard of coverage for rural areas (50%). Period estimate tends to be more representative of the coverage program performance as analysis showed adequate self-referral and timeliness of treatment.
- The evaluation was not able to assess coverage in 10 VTs of OTP-7-TMT catchment area due to a lack of access; however the lack of outreach activities in these locations and the high proportion of admissions coming to the distribution point suggest coverage may be probably low in those locations.
- While awareness about the existence ACF nutrition program is acceptable, awareness about malnutrition is one of the main barriers to a greater coverage in MGD Township - many of the non-covered cases identified along the survey were not enrolled in the program because their CT would not believe their child was malnourished or even sick, often relating their condition to spiritual causes. Also, the population is often ashamed to suffer malnutrition and therefore to attend the nutrition facilities, especially those better-off members of the community and those who are part of the family of religious leaders. Therefore, the CA strategy should be reinforced and systematically include key community figures such as local authorities and religious leaders as well as community health actors (CHWTHP, TBA) to facilitate both recognition and acceptance of malnutrition as a major public health concern in their communities and to use their influential community-based voice to increase coverage.
- Distance to travel and security problems, mainly meaning fear for checkpoints have been identified as major barriers to access in MGD Township, but especially in certain locations of OTP-1DT and OTP-6-ALTK catchment areas in which coverage has confirmed to be extremely low. Other associated barriers linked to the trip to the distribution point such as the transportation costs constitute a reason for non-attendance. Initiatives that already take place in some OTP centers like giving priority to be attended to those beneficiaries coming from far locations should be promoted and implemented in all facilities. However, the opening of a new distribution point in this particular area facing great impairments to access (between OTP-1-DT and OTP-6-ALTK) would be highly recommended to increase program coverage in the Township.
- In this context, many of the main barriers to access identified along the study are related to the role of women and gender inequality at household level and in the community, which often suffer big pressure. In one side, men are often obliged to be away leaving the woman with all domestic work and responsibilities of usually, quite a large family: the lack of CT, cost-opportunity, the mother not being fit to travel (because she is sick or pregnant) have been found to be major reasons for non-attendance. In the other, the low power of decision, translated into husband refusal or needing permission to bring the children to the nutrition facility, directly impacts coverage. Therefore, a gender approach and family planning sensitization would be highly desirable to be included within the community awareness strategy in order to overcome, not only the barriers to coverage, but also to prevent malnutrition taking into account these context specific factors. At OTP level, increasing the number of

female staff would probably be highly appreciated by beneficiaries and partially mitigate the refusal of husbands to attend the centers.

- The program is highly appreciated by the community which, besides others, is translated into the great proportion of self-referrals arriving to the nutrition facilities. However, active screening by ACF team should be increased as well as screening at community level by SCCTs in the communities, not only to increase coverage directly by identifying SAM cases at early stages, but also to minimize rejection and the risk of developing negative perceptions about the program Although rejection, which has been confirmed to happen frequently both from spontaneous referrals as well as from SCCTs, has not been identified as one of the main barriers to access, it has resorted in isolated cases. Therefore, entry criteria should be clarified with the community and SCCTs must be strongly supervised and receive proper periodic training in MUAC measurements. All rejected cases should continue to be given clear explanation and encouragement to avoid impact on program coverage. Nevertheless, the policy of non-admitting children that have already been discharged twice as NR (designed prevent he families from keeping children malnourished to benefit from the program) clearly has a negative impact on coverage - especially given the high proportion of children discharged as NR.
- In order to improve program performance indicators targeting barriers to access is essential: cured and defaulter rate do not meet SPHERE standards. Low cured and high non-responder rate may be partially explained by non-compliance to the treatment confirmed by RUTF sharing and selling observed in the field by the investigation team. Sensitization about proper use of RUTF should be done by CA team to community key figures and SCCTs.
- To conduct another SQUEAC survey in two years during the same season to assess coverage and to be able to evaluate the impact of the implemented recommendations presented here, some of which require some time to make a change. Meanwhile, integrate active data analysis of reliable indicators on program coverage as a monitoring tool to identify possible barriers and potential opportunities on a regular basis.

II. BUTHIDAUNG

METHODOLOGY: SLEAC, Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage

Findings and recommendations from the previous coverage assessment, which was not able to present a reliable estimate of overall program coverage, were key and taken into account for the design of this investigation to avoid the same situation. At that time, coverage was identified to be globally patchy, however the reasons behind this patchiness were identified not to be related to poor spatial OTP distribution or program´s failure but to the particular context of BTD: to the uneven distribution of caseload in the Township linked to the variation in SAM incidence between the two major ethnic groups (Muslim and Rakhine – being much lower or almost inexistent in Rakhine). Therefore, it was concluded that an overall estimate of program coverage held little value and could not be provided. Instead, it was recommended that, in future assessments efforts should focus on identifying different levels of coverage in smaller geographical areas such as OTP catchment areas.

In this context, the SLEAC method was selected as the most appropriate survey method to assess coverage in BTD. SLEAC is designed to classify and estimate coverage of TFP programs delivering services over many service delivery units. In the case of BTD Township´s program delivering TFP services through OTP centers, the service delivery unit was the OTP center and coverage was classified for each OTP's catchment area using separate SLEAC surveys.

A SLEAC survey identifies the category of coverage (e.g., "low coverage", "medium coverage" or "high coverage") that describes the coverage of the service delivery unit being assessed. The classification method is derived from a simplified LQAS classification technique that provides two-tier or three-tier classifications. In this survey, a three-tier classification method was used in an effort to distinguish very high coverage service deliver units from very low coverage service delivery units. The advantage of this approach is that relatively small sample sizes are required to make an accurate and reliable classification. SLEAC can also estimate coverage over several service delivery units. When this is possible (if n>96 and coverage is homogeneous), data from the individual service delivery units are combined and coverage for wider area is estimated from this combined sample.

However, SLEAC usually returns limited information on barriers to service access and uptake neither as well as on boosters to coverage. So for the current investigation it was decided to conduct, prior to the actual implementation of the several SLEAC surveys in BTD Township, a preliminary stage (equivalent to stage 1 in SQUEAC methodology) to analyze the already available quantitative routine program data and to carry out qualitative research on the field and subsequent analysis of information to better understand the various, negative and positive, factors influencing coverage (barriers and boosters).

For the collection of qualitative information of this preliminary stage, a total number of 12 hamlets in different village tracts spread across the Township –from all 4 OTPs catchment areas- were visited by the teams. Same interview guides as well as sources of information and methods applied in MGD were used (described in MGD´s methodology section). Mainly Muslim, but also Rakhine and Dyne hamlets were visited - given the particularities of the

context and the recommendations from previous coverage assessment, the variables ethnicity of the population in the hamlet as well as the nutrition facility catchment area were taken into consideration in the analysis of findings to better understand the particularities of the Township. Again, the BBQ tool ensured the triangulation of information collected and facilitated the daily recording and organization of data collected.

Altogether, the findings from the quantitative analysis and the conclusions from the qualitative research on the field and investigation team´s discussions were triangulated to set the preliminary knowledge around barriers and boosters to coverage in BTD Township.

Sampling frame, design and selection scheme

As in SQUEAC likelihood surveys, two stage stratified cluster sample design was used to select the sample. The first stage sampling method should be a spatial sampling method that yields a reasonably even spatial sample from the entire program catchment area. The sample unit used was hamlet, the smallest administrative division in the Township. In the present case, since a complete map containing all hamlets of BTD Township was not available, the alternative approach of stratifying by OTP catchment area was used: hamlets were systematically selected from an updated and complete list of hamlets sorted by OTP catchment area and village tract (VT). The second stage of sampling, within the community, uses active and adaptive case finding method to find all current and recovering SAM cases in each hamlet.

The *target sample size* (*n*, minimum number of cases needed to provide a statistically significant result) for each service delivery unit in which coverage is classified is usually 40 (n = 40) for most SLEAC applications. However, in settings where the service delivery unit is small as in this case (an OTP, not a district as it would be in a regional SLEAC survey, for instance) is possible to use smaller sample size without increasing error – the table below, extracted from the SQUEAC/SLEAC Technical Reference[4], shows target sample sizes to be used when surveying in small delivery units.

	Target sample size for …	
Total number of cases in the service delivery unit*	**50% standard**	**70% standard or 30%/70% class thresholds**
500	37	33
250	35	32
125	31	29
100	29	26
80	27	26
60	25	25
50	23	22
40	21	19
30	17	18
20	15	15

* This is an estimate of the number of SAM cases in a service delivery unit at the time of the survey:

$$\left\lfloor Population_{all\ ages} \times \frac{percentage\ \ of\ \ population_{6-59months}}{100} \times \frac{SAM\ prevalence}{100} \right\rfloor$$

The total number of cases in each service delivery unit/OTP (N) was calculated using the following parameters:

- Population of all ages: total population in the OTP´s catchment area extracted from ACF´s most recent and updated database of population by hamlet/VT/OTP.
- Percentage of population 6-59 months: 18%[16]
- SAM prevalence (by MUAC and/or oedema): 2,8% according to the results found in the most recent SMART survey carried out during the same period of the year as the present study (2,8% [IC95% 1,6-4,8])[1].

To decide the number of hamlets (H) that should be sampled to achieve the target sample size (n) SLEAC also uses population and prevalence of SAM data applying the following formula:

$$H = \left(\frac{Target\ sample\ size\ (n)}{Average\ hamlet\ population \times \frac{Percentage\ of\ population\ (6-59\ months)}{100} \times \frac{SAM\ prevalence}{100}} \right)$$

- Average hamlet population: 695[17]
- Percentage of population 6-59 months: 18%
- SAM prevalence (by MUAC and/or oedema): 2,8%

Table 10 below shows the target size (n) and number of hamlets (H) to survey by OTP resulting from applying the parameters and formulas described.

OTP	Total population	Total number of SAM cases (N)	Target sample size (n)[18]	No. of hamlets (H)	No. of hamlets to survey
BTD	87.803	443	32	9,1	10
TBZ	68.945	348	32	9,1	10
PNL	32.369	164	29	8,3	9
PPAP	52.540	265	32	9,1	10
Total	241.657	1.220	125		39

Table 10. Description of parameters used for calculation of target size (n) and number of hamlets to survey by OTP (H) and results (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

Based on this, hamlets were selected using a systematic random sampling procedure for each OTP:

1. The list of hamlets was sorted by OTP and VT.
2. A sampling interval was calculated using the following formula:

[16] Only the proportion of population from 0 to 5 years was available from WFP area profile (January 2013): 18,97%. For children from 6 to 59 months it was thus decided to use the lower percentage of 18% which was used in the previous coverage assessment in BTD.

[17] Although ACF´s population database showed an average population by hamlet of 999, it was decided to use the smaller average population that the previous assessment used in order to be more conservative (visit more hamlets) and therefore have more possibilities of reaching target sample size.

[18] For the present investigation, the 30%/70% class thresholds were used to be able to provide a three-tier classification of coverage by service delivery unit.

$$\text{Sampling interval} = \frac{Total\ number\ of\ hamlets\ in\ the\ OTP\ catchment\ area}{Number\ of\ hamlets\ to\ be\ sampled}$$

3. A random starting hamlet from the top of the list was selected using a random number between 1 and the sampling interval.

A total number of 39 hamlets (plus 4 reserved hamlets per OTP) were selected out of an exhaustive list of 242 hamlets. From the reserved hamlets, finally only 1 had to be used: in BTD OTP (final N = 11). From the total 40 hamlets visited, 2 of them were Dynet, being the rest Muslim hamlets.

Since coverage was found to be not as heterogeneous throughout the Township as initially expected and the final overall sample size was over 96 (which is usually sufficient for a 95% confidence interval of ±10 percentage points or better), an overall coverage estimate was possible to be calculated for BTD Township. However, in SLEAC surveys, as the number of cases varies among service delivery units in the program area, results from each service delivery unit need to be weighted by the number of cases in that service delivery unit. The weighting factor for each survey is:

$$w = \frac{N}{\sum N}$$

- N: Estimated number of cases in a surveyed service delivery unit
- $\sum N$: The sum of n over all surveyed service delivery unit

Period coverage is estimated as:

$$Coverage = \sum \left(w \times \frac{c}{n} \right)$$

- w: weighting factor w=N/∑N for each survey
- c: number of current and recovering cases attending the program found in each survey
- n: number of current and recovering cases attending the program plus the number of current cases not attending the program found in each survey

RESULTS

PRELIMINARY STAGE: IDENTIFICATION OF BARRIERS AND BOOSTERS TO ACCESS

The objective of this stage was to have an initial understanding of the reasons for poor access to treatment as well as the positive factors influencing coverage, using the program´s existing quantitative data, together with qualitative information collected from the various stakeholders in the field.

Analysis of quantitative program data

As for MGD coverage assessment, routine program data was extracted from monthly reports and analyzed from December 2011 –the moment in which the previous coverage assessment took place- until the September 2014. Individual records were analyzed for the whole year 2014 (January – September) and extracted from the very complete program´s monitoring

database. Information about distance/time to travel between beneficiaries´ home and the nutrition facility was neither available so the possible influence of this factor on the number of admissions and defaulters (and therefore on program coverage) could not be analyze at this point but was investigated at the qualitative research phase.

A. Program admissions: overall numbers and admissions vs. needs

Since December 2011, a total of 7.152 SAM children have been admitted to nutrition facilities of ACF´s TFP in BTD Township (92, 6% in OTP centers and 7,4% in SC) . Figure 9 below shows the evolution of overall admissions.

As previously explained, yearly in Maungdaw District the months between May and October, coinciding with the rainy season, are the ones of greatest need (lean period) – not only the incidence of childhood diseases like diarrhea and malaria increases but also food availability is reduced due to low stocks and job opportunities combined with increased food prices.

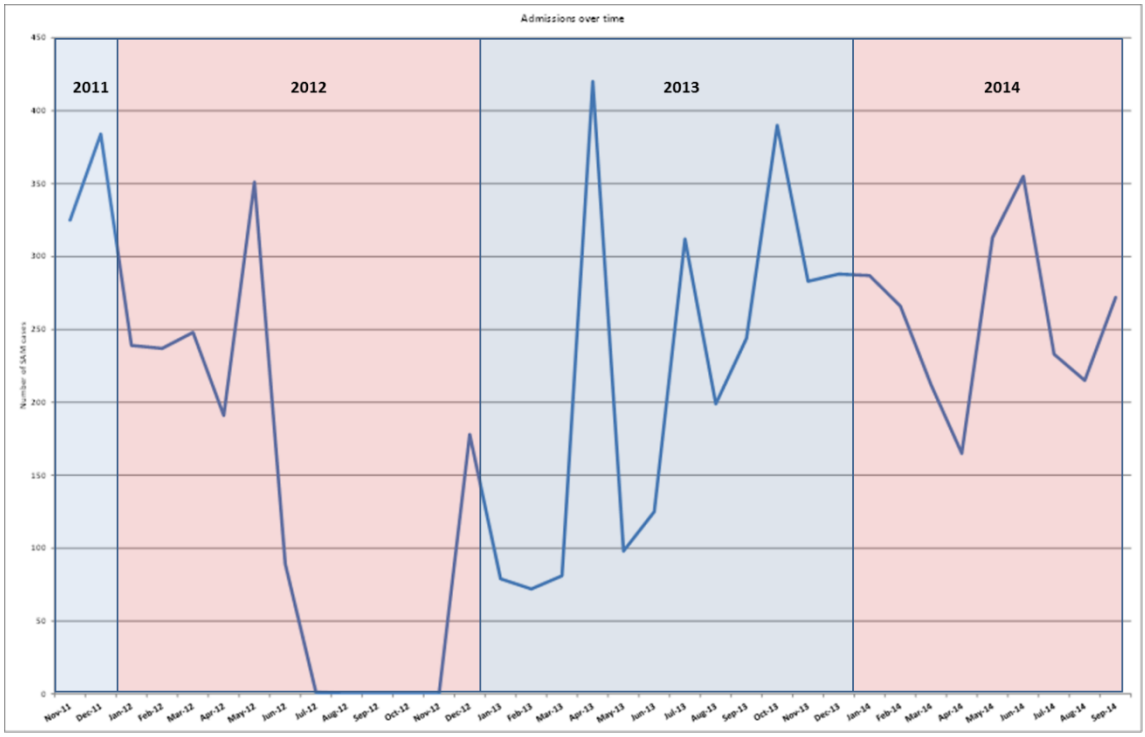


Figure 9. Admissions trend of TFP in BTD Township from December 2011 to September 2014 (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

The curve shows a decreasing trend from the end of 2011 until the months of April-May 2012, when the lean period begins and the number of new admissions starts to rise. However, a rapid decrease followed by no data appears due to the arrest of activities in June 2012. Although most of the OTP distribution points launched their activities in December, which explains the increase in the number of admissions, only OTP-3-DT and SC (facilities with high a high volume of cases) started again in April 2013. The trend of admissions is again globally high during the lean seasons –end of October 2013- but with fluctuations caused by the month of Ramadan, families busy with sowing in the field and the added difficulties to move during the rainy season. During 2014, reduction of ACF activities during three weeks in April contributed

to a continuous decrease in the number of admissions. However, in May, together with the initiation of seasonal SFP, the number of admissions in TFP starts increasing again (more children come to the center for screening) as a consequence of the increased need at this time of the year. The analysis shows of that although the number of admissions data does not perform a regular and totally predictable curve yearly, it fits the expected seasonal pattern and adjusts to the changing environment, which suggests that program adapts to context needs.

B. Admissions by nutrition facility

ACF runs in BTD 4 OTPs and 1 SC, for which the proportion of inpatient admissions correspond to 9, 84% of total number of admissions in TFP. The analysis of the number of admissions across the different OTP distribution points has been done for the year 2014 (December to September; n = 2.408) in order to identify potential disparities – see figure 10 below.

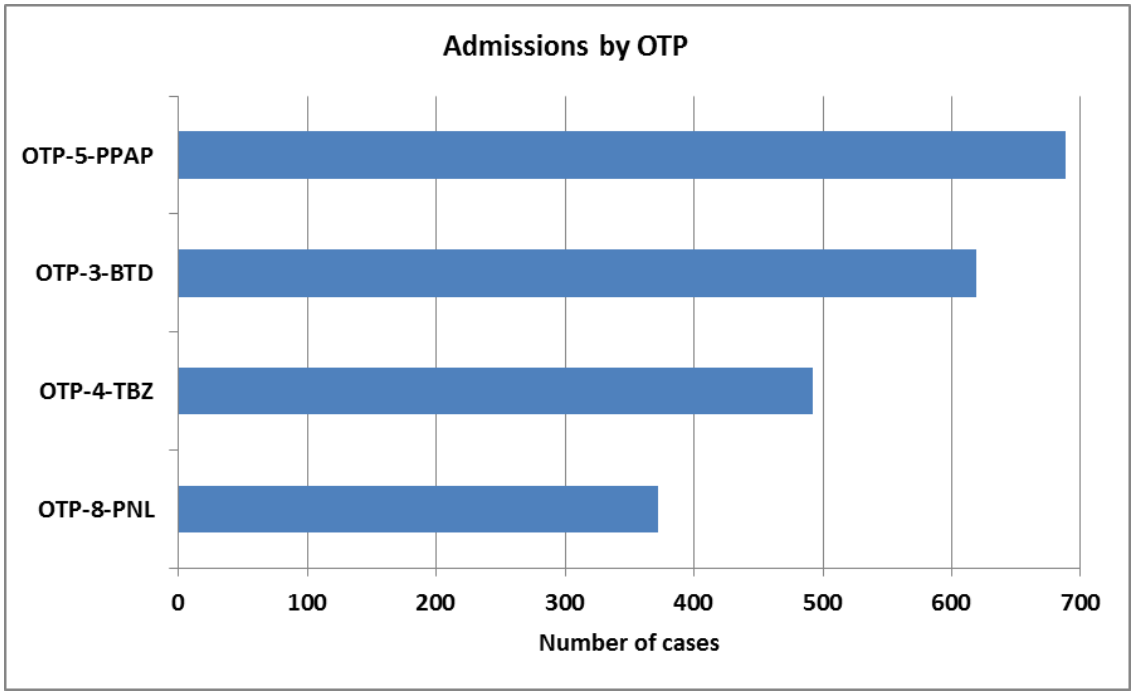


Figure 10. Number of admissions by OTP between January and September 2014 (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

PPAP followed by BTD OTP account for the greatest numbers of admissions probably due to their location, in highly populated areas, and the long term implementation of activities. OTP-5-PPAP, even receives admissions from the neighboring Township, Rathedaung. TBZ, the only nutrition facility in the northern area of the Township, receives 22,7% of the total admissions in OTP, quite an important proportion considering the difficulties of access in this area and the fact that this is the most recently opened center and therefore, not so well-known by the population.

C. Referral mechanism

According to the information from program´s individual records database analyzed for the year 2014 (n = 2.408), the great majority of beneficiaries arrived to nutrition facilities spontaneously (69, 35%) and only 16,15% were referred by SCCT. The remaining 15% (351) of admissions

come from different minor sources: 114 cases were referred from SFP; 93 by ACF team during active Screening; 75 NR cases from TFP; 63 from Follow-Up phase; 2 by MSF; 1 by OTP MGD and 1 by the TMO.

Although this information suggests a good seeking behavior from the community which may also imply timely treatment seeking, it also reveals very week active screening by SCCT. Also by ACF team, which given the high case load at OTP level, mainly focus their efforts at the centers and only do active screening in the community when possible.

D. MUAC at admission

In order to further understand whether the program is reaching SAM children early, the MUAC at admission was plotted for recorded beneficiaries whose admission criteria was MUAC (n= 1.567) and MUAC and W/H (n = 104) during 2014 (total n = 1.671). The results are found in figure 11 below. The median MUAC at admission was 112 mm which shows that overall, children are admitted early. Also, the proportion of critical cases (PB <= 90mm) 1, 32% (likely to be under 65 cm), is low meaning that few cases initiate treatment with an advanced degree of severity.

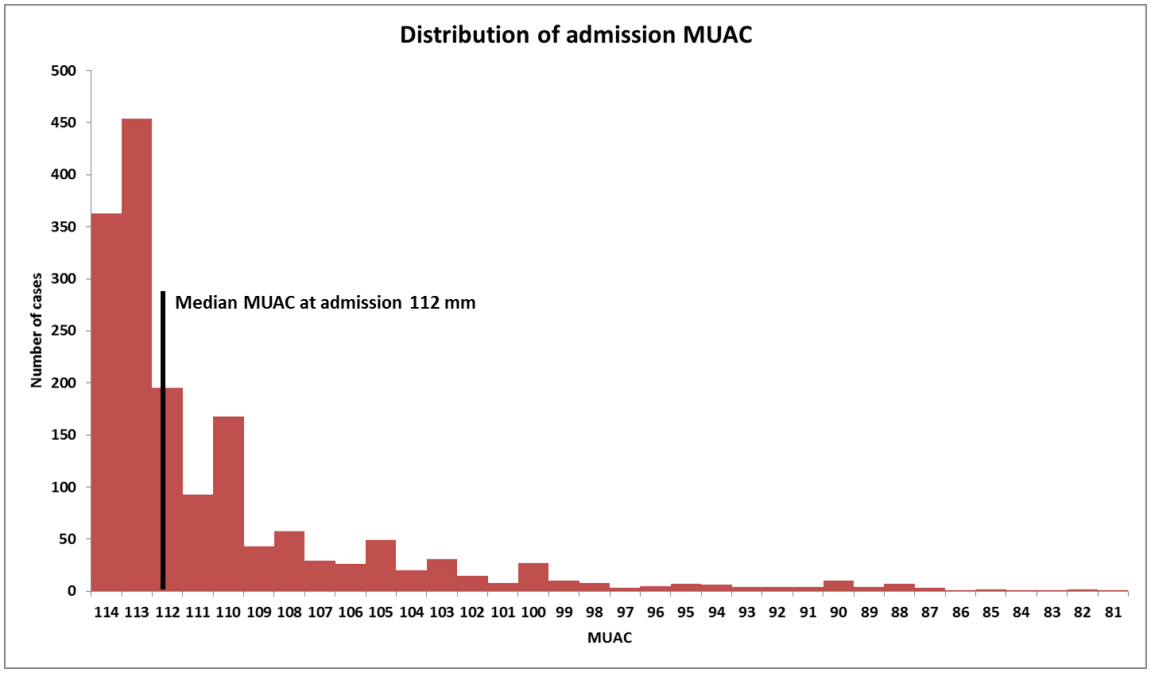


Figure 11. Distribution of MUAC at admissions for SAM cases admitted in the program between January and September 2014 (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

This result goes in line with the conclusions obtained through the analysis of referral information that suggest both a positive health seeking behavior of caretakers. Most cases are reached and admitted in the program early the process of the disease which certainly has a positive impact on program coverage.

E. Program exits: performance Indicators

The table 11 below shows program indicators for the period January to December 2014 (exits n = 1.726[19]). Cured rate (69, 5%) is the only indicator not met when compared to the SPHERE standards but non-responder rate is very high. Results for OTP and SC are similar for cured, defaulter and death rate when analyzed separately but quite different for non-responder rate, being the proportion of NR quite higher in OTP (19, 3%) compared to SC (12%).

	Program outcomes	SHPERE standards
Cure rate % (n)	69,5% (1.199)	75%
Defaulter rate % (n)	11% (190)	15%
Death rate[9] % (n)	0,9% (15)	10%
Non responder/non-recover rate % (n)	18,7% (322)	

Table 11. Performance indicators for the period from January and September 2014 (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

F. Length of stay of discharged cured

For those discharged-cured at OTP level during 2014 (n = 1.085) the result of plotting the number of weeks of treatment (see figure 12 below) shows that the median and also the most frequent length of stay was 10 weeks, somehow above the recommended average duration of 8 weeks of treatment according to different studies SAM treatment. Long lengths of stay may lead to bad opinions and even higher defaulting rates.

Length of stay for defaulter was 7 weeks

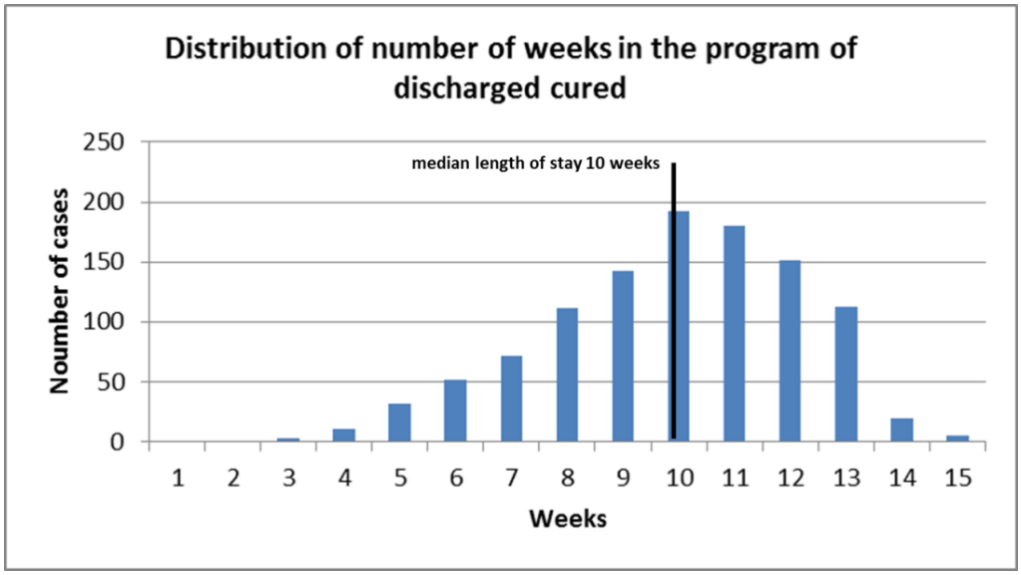


Figure 12. Number of weeks of treatment before being discharged-cured for SAM cases admitted in OTP between January and September 2014 (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

[19] Additionally to this data, 100 program exits correspond to medical transfers and 58 to admission mistakes.

G. ADDITIONAL DATA

No stock breakout was reported between December 2011 and September 2014.

Nutrition surveys: table 12 below shows the results of the most recent anthropometric survey conducted in the BTD Township.

	Prevalence of acute malnutrition based on WHZ and/or oedema		Prevalence on acute malnutrition based on MUAC and/or oedema	
	GAM	**SAM**	**GAM**	**SAM**
Nutrition survey 2013[1]	21,4% (17,9 – 25,3)	3,7% (2,3 - 6,0)	14,2% (11,3 - 17,7)	2,8% (1,6 - 4,8)

Table 12. Nutrition survey 2013 results for GAM and SAM based on WHZ and MUAC in BTD Township (*Buthidaung Township, Maungdaw District, December 2014*)

Analysis of qualitative data

Table 13 below describes main boosters and barriers to access found through the completion of qualitative work in the field and the subsequent triangulation and analysis of information. See annex 6 for specific information about triangulation by source, method, ethnic group and nutrition facility for each of the factors identified as well as the legend used for the process.

BARRIERS	
Distance	Distance from home to the OTP was the most reported barrier to access – repeatedly by all sources of information and from hamlets in catchment areas of all OTPs. The time invested in each weekly visit, due to the length of the trip, was reported to be too much for beneficiaries: in some locations (TBZ) this includes the need to spend overnight to go to the OTP. Not only in Muslim communities, but also in Rakhine hamlets, distance was mentioned as a barrier to access any kind of health care in BTD.
Physical access	Mainly due to the difficulties to cross the river during rainy season –from May to October- (especially traveling with little children on the boat) and/or due to the poor condition of bridges and roads.
Security problems /Checkpoints/ Travel authorizations	Being afraid of having to cross through checkpoints to get treatment was reported by caretakers of current beneficiaries. Caretakers requiere a travel authorization to arrive at OTPs.
Transportation costs	Boat (and sometimes also motorbike) fees need to be weekly paid by beneficiaries to arrive to the nutrition facilities. The price for one way ranges from 500 to 1500 MMK which constitutes a major barrier to access the program – sometimes, CT give half of the amount of the RUTF received to boat drivers to "pay" for the ride. This economic barrier was reported by all sources of information in all areas. Also, the non-availability of the boats was highly mentioned by respondents.
Lack of caretaker	Family responsibilities were reported by different stakeholders including mothers all around the Township as a major barrier to attend the program: mothers are busy at home and face many difficulties when having to leave the other children (usually several) at home – they reported to not have anyone else to feed or "control" them. Men, who may have migrated or be busy at daily or forced work was also mentioned as an impediment to respect the weekly appointments at the OTP. In the case of the SC, refusal

	to attend is often linked to this barrier, which gets greater when it comes to cases such as twins for which 1 CT per child admitted is needed.
Mother´s condition	Being sick, pregnant or having delivered recently was also reported all around the Township by mothers of current beneficiaries and defaulters as a main reason for not attending the program.
Visit other hamlets	Temporally visits to other areas for family reasons have been reported by community members in TBZ catchment area as a reason for abandon the program.
Stigma	Most sources of information, including mothers of beneficiaries, all over the Township have informed about some kind of stigma towards malnutrition. Most wealthy community members of the community feel ashamed to receive treatment and to look as "poor "to the others. It was even reported the possibility of "borrowing" a CT to go to the OTP with the child not to be identified – after, the RUTF is shared between the real CT and the fake one. Teenage or young mothers are the most ashamed ones to attend to the program. Also, religious people believe they "lose their dignity" having a children in such condition. Some mothers have also reported people make fun of them.
Husband refusal and other gender barriers	Beliefs and traditions linked to the power of decision women have in their household remain as barriers to access to treatment in Muslim communities. As in general, "women should stay in their home as much possible", women need the agreement of their husband to attend the OTP – not only that refusal often occurs (reported by several different sources of information) but also that sometimes –when the man is working or away for any reason- she cannot take the decision to go by herself. According to some religious leaders, the fact that sometimes nutrition facilities are placed near the markets –and therefore, exposing women to more visibility - makes it more difficult for husbands to let them go.
Rejection	Rejection of referrals at the nutrition facility (mainly self-referrals/spontaneous, but also referred by SCCT), was highly reported by community stakeholders as well as OTP staff in all 4 OTP´s catchment areas. Although explanations about the reason of rejection –not fitting the admission criteria- are given in these situations and soap is provided to cases referred by an SCCT to minimize the negative impact of the rejection, the community expressed their discontent and/or fear feeling. Rejections due to lack of birth certificate and of those who had been two times non-respondent were specifically appointed as reasons for rejection.
Sharing/selling RUTF	Sharing and selling RUTF has been recognized by a number of stakeholders in the community and observed by the team in the field during the qualitative research. Lack of food/income in families with quite a high number of members makes that they often share the treatment with the other children to feed them. Also, RUTF is often perceived as a source of income itself being sold to more wealthy families (as explained before, sometimes RUTF is shared with boat owners as a payment for the ride to the OTP).

Insufficient community mobilization activities and coordination	Lack of SCCT in different hamlets visited has been reported by a number of stakeholders. In those hamlets where there was at least one SCCT, the regularity and exhaustiveness of their activity was observed to remain low: screening is not done door-by-door and frequently only if beneficiaries ask for it at SCCT´s house; screening is often done only done when ACF supervision takes place; rejections from SCCTs referrals due to imprecise measurements were reported by OTP staff; often SCCTs cannot write so cannot use referral slips. The level of motivation and engagement greatly varies between SCCTs, however difficulties to carry out their work without any source of income and lack of equipment (umbrellas for rainy season) was frequently reported. Also, complaints about insufficient feedback from ACF program staff regarding referred cases and not enough support from community authorities or leaders.
Nutrition facility service provision and staff attitude	Although a good welcoming at the nutrition facility was described by some of the current beneficiaries encountered in the communities, the communication with OTP staff was considered as negative by many stakeholders – especially when it comes to static/decreasing weight cases or if the children have diarrhea/vomiting in which beneficiaries reported being grounded. Also, beneficiaries reported as a main inconvenience (linked with the cost/opportunity barrier) that young CT do not receive RUTF when they go to the OTP. OTP staff pointed out their concerns about the difficulties of spending enough quality time with beneficiaries due to the high numbers in relation to the amount of available staff at the nutrition facilities
BOOSTERS	
Awareness about malnutrition	Knowledge about causes and recognition of signs of malnutrition by the community were confirmed during the qualitative research in most Muslim and Dyne hamlets visited: except for those in TBZ catchment area – far in which not many activities take place. In the other hand, awareness about malnutrition was also found to be lacking in all the Rahkine hamlets visited – however this seems not to be a barrier to access to treatment but to be linked to the absence of malnutrition in this communities.
Nutrition program awareness	The existence of the ACF nutrition program is well known within Muslim and Dyne communities all around the Township, even the difference between TFP and SFP is recognized. However, admission criteria are often not well understood, leading to potential false expectations and increasing the risk of rejection – some SCCTs reported that some CT ask for weight and height measurements at community level as they do not trust MUAC anymore. Again, as in the case of malnutrition, a complete lack of awareness about the nutrition program (not only the existence of the program but even not being able to recognize RUTF and/or MUAC tapes) was found in TBZ catchment area and in Rakhine hamlets.
Service free	The fact that the treatment is free is well known and constitutes a major booster to program coverage as confirmed by the stakeholders encountered in all areas of the Township.
Good opinion	Both Muslim and Dyne communities reported a positive opinion of the nutrition program as well as of ACF in general. The efficacy of the treatment is confirmed by community members and the fact that "all needs are covered" at the SC is highly appreciated by beneficiaries. In those hamlets visited in TBZ catchment area, the community showed great gratitude to have ACF´s team visiting. However in some of the Rakhine hamlets villages, key figures such as local authorities and religious leaders as well as lay men of the community (not the women) reported not to be willing to use the service.
Peer-to-peer influence	Caretakers that currently are/have been in the program pass the message to other members of the community.

Timely treatment seeking	Many cases of self-referrals were identified during the case studies carried out with mothers/CT of current beneficiaries or program defaulters when understanding their therapeutic itinerary. Also SCCTs confirmed that caretakers often actively ask to get their children measured. This goes in line with the fact that malnutrition is well known as a health condition and also the service provided by ACF. Few specific cases of religious leaders, traditional healers and TBA referring cases to nutrition facilities were reported.
No stock breakout	Confirmed by program staff as well as by a number of stakeholders in the communities all over the 4 OTP catchment areas.

Table 13. Boosters and barriers to access emerged from the qualitative research (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

SURVEY STAGE: CLASSIFICATION OF COVERAGE BY OTP CATCHEMENT AREA

Coverage thresholds and overall estimate

As explained in the methodology, in order to be able to provide a three-tier classification of coverage by service delivery unit, the following coverage thresholds were defined:

- Low coverage: below 30%
- Moderate coverage: between 30% and 70%
- High coverage: above 70%

These standards were used to create decision rules using the rule-of thumb formulae:

$$d_1 = n \times p1 = n \times \frac{30}{100} \qquad d_2 = n \times p2 = n \times \frac{70}{100}$$

Where n is the sample size achieved by the survey, p_1 is the lower coverage threshold (i.e. 30%), and p_2 is the upper coverage threshold (i.e. 70%). Coverage rate was calculated for the entire program area at Township level and classified for each OTP separately.

Classifications and overall estimate are presented for period coverage estimators. The period coverage estimator includes recovering cases: children that are still in the program because they have not yet met program discharge criteria. As the program data shows early presentation of cases and acceptable lengths of stay, the period coverage estimator was chosen as appropriate and sensible.

Teams identified a total of 150 children between the age of 6 to 59 months who were SAM (MUAC <115mm or/and edematous) or recovering cases. Table 14 below shows some characteristics of the cases found.

Characteristics	Characteristics category	Number	Percentage
Gender	*Total*	*150*	
	Male	44	29,3%
	Female	106	70,7%
Age	*Total*	*150*	
	6 to 23 months	99	66,0%
	24 to 59 months	51	34,0%
Nutritional status (MUAC level)	*Total*	*150*	
	< 100mm	8	5,3%
	≥100mm and <115mm	84	56,0%
	≥115mm	58	38,7%
Oedema	*Total*	*150*	
	Oedema +	0	0%
	Oedema ++	0	0%
	Oedema +++	0	0%

Table 14. Characteristics of the cases found during the surveys by OTP catchment area (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

From the 150 cases found, it is remarkable the fact that more than 70% of them were girls. That corresponds to the admission trend in TFP center. Moreover the last SMART survey show higher rate of GAM among girls (20%) compared to boys (8%) with MUAC

Regarding the age, as expected, the majority of cases (66%) were in the younger group of age, from 6 to 23 months, when children are at a highest risk of developing malnutrition if non appropriate complementary feeding practices are applied. Most of the cases identified (61, 3%) were current SAM cases (MUAC >115mm; no oedema found) from which 5,3% had a very low MUAC (<100mm); the remaining 38,7%, were recovering cases (MUAC ≥115mm).

From the total 150 cases, 85 children were in the program at the time of the survey and 65 were cases that were not enrolled in the program at the time of the survey - see table 15 below for the results of the 4 independent surveys conducted by service delivery unit/OTP.

OTP	Total number of SAM cases	Number of SAM cases covered	Number of SAM cases non-covered	Number of recovering cases
3-BTD	24	5	19	8
4-TBZ	20	5	15	20
5-PPAP	25	4	21	17
8-PNL	22	12	10	14
Total[20]	***91***	***26***	***65***	***59***

Table 15. Results from surveys by OTP catchment area - number of cases found (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

[20] Note that within these results, findings for the 2 Dynet hamlets are follow: 1 SAM case non-covered in one of them and 0 cases in the other.

Results were analyzed as follow resulting in coverage classifications by service delivery unit:

OTP	Total cases found	No. of cases covered	Lower decision threshold (d1)	*Is c > d1?*	Upper decision threshold (d2)	*Is c > d2?*	Coverage classification
	N	C	$\mathbf{d_1}=\lfloor \boldsymbol{n} \times \frac{\mathbf{30}}{\mathbf{100}} \rfloor$		$d_2=\lfloor n \times \frac{70}{100} \rfloor$		
3-BTD	32	13	9,6	*Yes*	22,4	*No*	**Moderate**
4-TBZ	40	25	12	*Yes*	28	*No*	**Moderate**
5-PPAP	42	21	12,6	*Yes*	29,4	*No*	**Moderate**
8-PNL	36	26	10,8	*Yes*	25,2	*Yes*	**High**

Table 16. Coverage classification by service delivery unit (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

Despite the fact that coverage is not completely homogeneous in the Township, it was considered still possible and valuable to report on the coverage rate at a global level in order to give an overview of the coverage in the whole intervention area. Therefore, an aggregate estimate of coverage was calculated for BTD Township using standard weighted estimation of proportions techniques used for a stratified sample as described in the SQUEAC/SLEAC Technical Reference[4]: the overall period coverage estimate in BTD Township was found to be **53,13% (95% CI 44,7% - 61,6%)**.

As in SQUEAC, throughout the surveys, two different questionnaires (annex 3 and 4) were distributed to all mothers or other CT the cases detected: one to covered cases (both SAM and recovering cases currently admitted in the program) in order to find out if they were former beneficiaries of the program as well as to understand how they were referred to the program; another one to the non-covered SAM cases, to further understand the reasons that these children had not received any treatment. Again, all "non-covered" children found (including MAM) during the study were referred to OTP centers for treatment. The findings extracted of these questionnaires are described below.

a. COVERED CASES

Means of referral

Regarding the means of referral (see table 23), more than 50% of the cases arrived spontaneously to the nutrition facilities followed by SCCTs as the second most important source of referral accounting for 36,5% of the cases. From the self-referrals, 25,8% (n= 8) were suggested by neighbors or other members of the community to attend the program; 4,5% (n = 2) by other CT of current or former beneficiaries. Referrals from ACF Team only account for 10,6% (n = 18) of the total. 1 case was referred by the TBA.

	BTD	TBZ	PNL	PPAP	Total	Percentage
Spontaneously	8	15	11	10	44	**51,8%**
SCCT	3	10	15	3	31	**36,5%**
ACF Active Screening team	1	0	0	8	9	**10,6%**
TBA	1	0	0	0	1	**1,2%**
Total	**13**	**25**	**26**	**21**	85	

Table 23. Means of referral of covered cases in BTD (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

Relapse, NR and defaulting

Out of the total 85 covered cases found (26 current SAM cases plus 59 recovering), 78, 8% reported to not have previously been in the program. From the 21, 2% that reported to had been enrolled in the program before, none mentioned to had abandoned and only 1 reported to have been discharged as NR, all the rest reported to had been discharged as cured.

OTP	In the program before			Not in the program before
	Defaulter	NR	Discharged-cured	
3-BTD	0	0	2	14
4-TBZ	0	1	5	19
5-PPAP	0	0	7	14
8-PNL	0	0	3	20
Total	**0**	**0**	**18**	**67**

Table 22. Relapse, default and NR for covered cases in BTD (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

b. NON COVERED CASES

Relapse, NR and defaulting

For the 65 SAM cases found not to be in the program, 75,4% had never been in the program before while 24,6% had been enrolled previously but not at the moment of the survey. Among those cases that were in the program before, 37,5% (n = 6) reported to had abandoned for the following reasons: security problems (n = 1); distance (TBZ) (n = 2); transportation costs (n = 1); travel authorization (n = 1) and diarrhea of the child (n = 1). 31,5% were discharged as non-responders and another 31,5% were discharged cured and the child now relapsed into SAM.

OTP	In the program before			Not in the program before
	Defaulter	NR	Discharged-cured	
3-BTD	2	3	0	14
4-TBZ	2	0	3	10
5-PPAP	2	1	2	16
8-PNL	0	1	0	9
Total	**6**	**5**	**5**	**49**

Table 21. Relapse, default and NR for non-covered cases in BTD (*Buthidaung Towns, Maungdaw District, Myanmar, December 2014*)

Barriers to treatment

The same as in SQUEAC methodology, the analysis of the reasons reported by the CTs of non-covered SAM children found during the SLEAC surveys brings light to the global understanding of the main barriers to access in BTD Township. As described in table 15, the total number of SAM cases non-covered found in the Township were 65. However, most of the CT who

answered the questionnaire for non-covered cases appointed more than one reason for not having their child in the program making a total of 125 barriers to access to treatment – the reasons are summarized in the following graph.

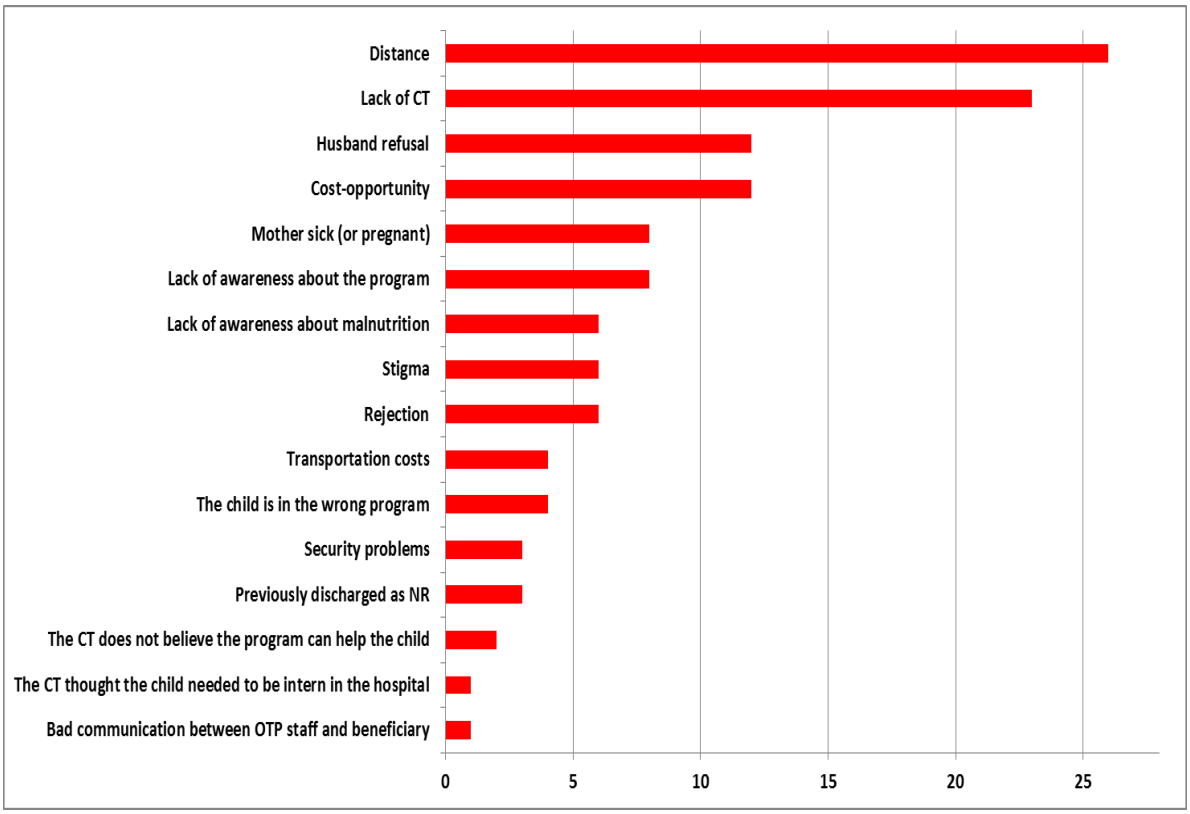


Figure 13. Non-covered cases – Overall barriers to access to treatment in BTD *(Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

If looking at the barriers found from the double perspective of the beneficiary and the provider, we can classify them in 2 different groups and globally we can say that most reported barriers are at the demand side level.

Distance, closely followed by the lack of CT are the most reported demand side (and overall) barriers. It must be noted that both barriers are also linked, as the lack of CT implies having no other person available in the family to take care of the rest of the children (frequently numerous) as well as the impossibility to travel with more than 1 child – what becomes more difficult when distances are long. Husband refusal is the third most frequently mentioned reasons for non-attending the program. In fact, as qualitative research had already identified this barrier together with other gender issues to be likely to have an important impact on coverage, the proportion of female non-covered cases was analyzed and was found to be quite high: 72,3% of non-covered SAM children identified during the surveys were girls. Cost-opportunity, meaning that the mother is busy with other activities/responsibilities and the cost benefit of leaving them aside from nutrition program is higher than the opportunity that represents to take their malnourished child to the nutrition facility, was highly mentioned as a reason for non-attending the program. This barrier together with the mother being sick,

pregnant or having had a recent delivery (situations that happen quite often given the high number of children per family) are closely related to the lack of support (lack of CT) from other family members and represent very important deterrents to access in the whole Township. Not being aware about the existence of the program and not being aware that their child was malnourished (or even sick) of the program resorted as reasons for not attending the program in a proportion of 11,2% of the total answers. Being ashamed of attending the program (stigma), usually not an easy answer to obtain, was also reported by a number of CTs. Transportation costs, security problems and not believing the program can help the child were other reasons reported in a minor degree but still barriers to access treatment.

At program level -organization/quality-, rejection was found to be the most repeated reason for not bringing the children to the program. A number of non-covered children were found to be enrolled in the nutrition program but in the wrong program/phase (2 in the follow-up phase and 1 in SFP). Having been previously in the program but not getting cred (discharged as NR) was also a reason reported by CTs. Finally, 1 CT reported bad communication with OTP staff and another one though the child needed to be intern in hospital to be admitted (lack of program information).

Following, the barriers to access identified by service delivery unit/OTP are described.

OTP-3-BTD

The number of SAM cases non-covered found in the hamlets visited in OTP BTD catchment area was 19 providing a total of 42 the reasons for not being in the program (33,6% of the total barriers).

Barriers to access	Number of times mentioned
Distance	8
Cost-opportunity	8
Lack of CT	7
Husband refusal	6
Transportation costs	4
Stigma	3
Mother sick	2
Security problems	1
The CT does not believe the program can help the child	1
Previously discharged as NR	1
The child is in the wrong program	1

Table 17. Non-covered cases: barriers to access to treatment in BTD OTP catchment area (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

Distance (being the time to travel from 1 and a half to three hours) and no having time/being too busy to attend the program were the reasons more frequently reported – CT are mainly mentioned domestic work but also daily field work and running their own business came out. Lack of CT because there is no other person in the family that can take care of other children or the CT is not able to travel with more than one child was also named a number of times out

of which one had been specifically referred to SC. Other brought up the fact that her husband was away (emigration). Transportation costs, a barrier related to the major problem of distance came out often. For those that recognized to be ashamed to attend the program (stigma), 1 was due to the family being one of the wealthiest within the hamlet and the other because of her young age. Security problems were reported in one occasion, referring to the fact that having to cross a Rakhine hamlet to go to the OTP was needed; also the child being previously NR (was in the program but did not get cured). Finally one of the SAM non-covered cases found happened to be in the follow-up phase of the TFP.

OTP-4-TBZ

The number of SAM cases non-covered found was 15 and the total number of reasons for not attending the program reported by CT, 29, which accounts for 23,1% of the total barriers identified in BTD.

Barriers to access	Number of times mentioned
Distance	9
Lack of CT	5
Husband refusal	3
Mother is sick	3
Lack of awareness about the program	2
Security problems	2
The child is in the wrong program	2
The child is not considered to be sick	1
Cost-opportunity	1
Rejection	1

Table 18. Non-covered cases: barriers to access to treatment in TBZ OTP catchment area (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

Distance was bar far the most reported barrier in TBZ (from 1 to 4 hours to travel). The fact that the husband was not at home, was again explained by one of the various CT that reported that no one else in the family can take care of other children neither travel with more than one child. The CT being sick and husband refusal also came out a number of times as barriers to treatment – again, one of the CT explained her husband refuses to let her attend the program because they are considered as a “rich” family in the community (linked to stigma) and other reported her husband was religious leader and does not accept her going out of the house so much. Security problems in 2 occasions and also 2 children were found to be in the wrong program (again in the follow-up phase of TFP). Not considering was sick at all (not even malnourished) was identified for one of the cases found, being busy with other activities and to have been previously rejected (the child was < 6 months).

OTP-5-PPAP

The number of SAM cases non-covered found was 21 from which 39 barriers to access were extracted accounting for 31,2% of the overall barriers described.

Barriers to access	Number of times mentioned
Lack of CT	8
Distance	6
Rejection	5
Lack of awareness about the program	3
Cost-opportunity	3
Stigma	3
Husband refusal	3
Lack of awareness about malnutrition	2
The child is not considered to be sick	1
Mother sick	1
The CT thought the child needed to be intern in the hospital	1
The CT does not believe the program can help the child	1
Previously discharged as NR	1
Bad communication between OTP staff and beneficiary	1

Table 20. Non-covered cases: barriers to access to treatment in PPAP OTP catchment area (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

Lack of CT followed by distance, were the most reported reasons by CT for not attending the program. In third position appears rejection, mentioned 5 times out of the 6 in the whole Township (being the other case in TBZ) - 3 out of the 5 cases explained that the child was rejected at the OTP because was <6 months at that time, however they did not know they could attend the program later on. For the other 2 cases, 1 had previously NR 2 times and the other had a mental problem. Lack of awareness about the program, cost-opportunity, stigma and husband refusal, were also frequently reported. In 2 occasions, the CT was not aware the child was malnourished and in 1 case, the CT was not even aware the child was sick at all, was considered healthy. The rest of the reasons were reported 1 time coming some of them from the demand side (such as the mother being sick or the CT not believing that the program can help the child) but most from the provider/program side (such as rejection): lack of information about the program (the CT thought the child needed to be intern in the hospital), the child was previously discharged as NR and bad communication between the OTP staff and the beneficiary.

OTP-8-PNL

The number of SAM cases non-covered found was 10 from which 15 barriers to access were extracted, which only corresponds to 12% of the total barriers.

Barriers to access	Number of times mentioned
Lack of awareness about the program	3

Distance	3
Lack of CT	3
Mother sick	2
The child is not considered to be sick	1
Lack of awareness about malnutrition	1
Previously discharged as NR	1
The child is in the wrong program	1

Table 19. Non-covered cases: barriers to access to treatment in PNL OTP catchment area (*Buthidaung Township, Maungdaw District, Myanmar, December 2014*)

Lack of awareness about the existence of the program together with distance (being the reported time to travel from 1.45 to 2 hours) and lack of CT the most reported barriers followed by the mother being sick. In 1 case the child was not even considered to be sick and in another one, the child was recognized as sick but not as malnourished. To have previously been discharged as NR was reported as a mother for the reason to be in the program. Finally, 1 SAM case was classified as non-covered since was enrolled in the SFP at the time of the survey.

CONCLUSIONS AND RECOMMENDATIONS

- Following the recommendation of the previous coverage assessment2, SLEAC method was selected as the most appropriate survey method to assess coverage in BTD. The result of using different surveys to provide a coverage classification by service delivery (OTP) reflect that coverage is moderate (between 30% and 70%) in OTP-3-BTD, OTP-4-TBZ, OTP-5-PPAP and high (above 70%) in OTP-8-PNL. A specific recommendation for BtG program would be: to open a new distribution point in the area between OTP-3 and OTP-4 Dar Paing Sa Yar villages track) and to open a new distribution point in the area between OTP-3 and OTP 5 (Sein Hnyin Pyar village track).
- Additionally, and given the fact that coverage was found to be more homogeneous among OTPs than initially expected, an estimate of overall period coverage for BTD Township was calculated (53,13% [95% CI 44,7 - 61,6]) in order to provide an overall picture of the whole intervention area. Period estimate tends to be more representative of the coverage program performance as analysis showed adequate self-referral and timeliness of treatment.
- Awareness about malnutrition and about the existence ACF nutrition program is acceptable and rather good in OTP-3-BTD catchment area but should still be strengthened in the rest of the Township (specially in OTP-4-TBZ catchment area) as many of the non-covered cases identified along the surveys were not enrolled in the program due to lack of information of one of these two basic components of sensitization. Also, the population is often ashamed to suffer malnutrition and therefore to attend the nutrition facilities, especially those better-off members of the community and those who are part of the family of religious leaders. Therefore, the CA strategy should be reinforced and systematically include key community figures such as local authorities and religious leaders as well as with community health actors

(CHW, THP, TBA) to facilitate the recognition and acceptance of malnutrition as a major public health concern in their communities and to use their influential community-based voice.

- The program is highly appreciated by the community which, besides others, is translated into the great proportion of self-referrals arriving to the nutrition facilities. However, active screening by ACF team should be increased as well as screening at community level by SCCTs in the communities, not only to increase coverage directly by identifying SAM cases at early stages but also to minimize rejection and the risk of developing negative perceptions about the program. Previous rejection has appeared as a barrier mainly in the case of children <6 months at OTP level (most of the cases found in OTP-5-PPAP), which confused the mothers who would not attend the SC and not understand their children could be admitted later on – program procedures and entry criteria should be clarified with the community and SCCTs must be strongly supervised and receive proper periodic training in MUAC measurements. All rejected cases should continue to be given clear explanation and encouragement to avoid impact on program coverage. Nevertheless, the policy of non-admitting children that have already been discharged 2 times as NR (designed to avoid the families keeping children malnourished to benefit from the program) clearly has a negative impact on coverage - especially given the high proportion of children discharged as NR.
- Distance to travel is the main barrier to access in BTD Township, especially in OTP-3 and 4-TBZ where outreach activities do not take place in the most distant locations. Other associated barriers linked to the trip to the distribution point such as transportation costs, travel authorizations and checkpoints are, in a smaller degree, still reasons for non-attendance. Initiatives that already take place in some OTP centers like giving priority to be attended to those beneficiaries coming from far locations should be promoted and implemented in all facilities.
- In this context, many of the main barriers to access identified along the study are related to the role of women and gender inequality at household level and in the community, which often suffer big pressure. On the one side, men are often obliged to be away leaving the woman with all domestic work and responsibilities of usually, quite a large family: the lack of CT, cost-opportunity, the mother not being fit to travel (because she is sick or pregnant) have been found to be major reasons for non-attendance. On the other side, the low power of decision, translated into husband refusal or needing permission to bring the children to the nutrition facility, directly impacts coverage. Besides, the survey found a higher proportion of female children suffering from SAM and moreover, that more than 70% of those SAM cases being non-covered were girls. Therefore, a gender approach and family planning would be highly desirable to be included within the community awareness strategy in order to overcome, not only the barriers to coverage, but also to prevent malnutrition taking into account these context specific factors. At OTP level, increasing the number of female staff would probably be highly appreciated by beneficiaries and partially mitigate the refusal of husbands to attend the centers.
- To conduct other coverage assessment in 2 years during the same season to assess coverage and to be able to evaluate the impact of the implemented recommendations presented here, some of which require some time to make a change time during the

same season to evaluate coverage and the impact of the implemented recommendations presented here – given the results obtained in the resent evaluation, SQUEAC method seems appropriate to be used. However, a preliminary stage should be carried out to assess the patchiness of coverage in the intervention area at the time of the survey to take a decision on the methodology. Meanwhile, integrate active data analysis of reliable indicators on program coverage as a monitoring tool to identify possible barriers and potential opportunities on a regular basis.

ANNEX 1: MGD - Qualitative research. Boosters and barriers to access and triangulation by source, method and ethnic group.

SOURCES		METHODS		ETHNIC	
OTP staff	1	Focus Group Discussion	FG	Rakhine	R
SCCT	2	Semi-structured Interview	SI	Muslim	M
Caregivers of children in the program	3	Case study	CS		
Caregivers of defaulters	3D	Observation	O		
Local authorities	4				
Religious leaders	5				
Traditional healers	6				
Traditional Birth Attendants (TBA)	7				
Men of the community	8				
Women of the community	9				

BARRIERS	SOURCE	METHOD	ETHNIC
Lack of awareness about malnutrition	1, 3*, 4**, 5, 6***, 7, 8***, 9*****	FG, SI, CS	M, R
Distance	1*, 2****, 3***, 5, 7, 8, 9	FG, SI, CS	M
Transportation costs	1, 2*, 3***, 5, 9	FG, SI, CS	M
Checkpoints/TA/Security problems	1, 2*, 3**, 4, 5, 8, 9**	FG, SI, CS, O	M
Seasonal access	2, 3*, 8	FG, SI, CS	M
Late presentation	1, 3****, 4, 5, 6******, 8, 9	FG, SI, CS	M
Cost-opportunity	3, 5, 9	FG, SI, CS	M
Lack of CT	1, 2*, 3****, 3D, 6, 8	FG, SI, CS	M
Mother´s condition	1, 2*, 3*	FG, SI, CS	M
Stigma	1, 2*, 3, 4, 8, 9	FG, SI, CS	M
Husband refusal and other gender-related barriers	1*, 2***, 3**, 3D*, 5, 6, 8, 9	FG, SI, CS	M
Rejection	1**, 2*, 3*, 6	FG, SI, CS	M
Insufficient community mobilization activities	1, 2*, 3, 4*, 5*, 7*, 8***, 9*****	FG, SI, CS, O	M, R
Nutrition facility service provision and staff attitude	1*, 2**, 3*****	FG, SI, CS, O	M
RUTF sharing and selling	4, 5, 8	FG, SI	M, R
Beliefs around RUTF	3, 8	SI, CS	M

BOOSTERS	SOURCE	METHOD	ETHNIC
Nutrition program awareness	3***, 4, 5*, 6*, 8*, 9*	FG, SI, CS	M, R
Service free	3*, 4, 5, 8, 9	FG, SI, CS	M, R
Peer-to-peer influence	1, 3***	FG, CS	M
Good opinion	2, 3**********, 3D**, 4**, 5****, 6****, 7, 8****, 9*****	FG, SI, CS	M, R
Home visits	1*, 3*, 5, 8*, 9	FG, SI, CS, O	M

ANNEX 2: Case finding form

Data collection form Team: _____ Date: _____

OTP: _____ Village Tract: _____ Hamlet name and ID number: _____

Child´s name and surname	Age (months)	MUAC (mm)	Oedema (+, ++, +++)	SAM case	SAM case Non-covered (not in the program)	SAM case Covered (in the program)	Recovering child	Verification: RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
								☐ RUTF
TOTAL								

ANNEX 3: Questionnaire for non-covered cases

Questionnaire for caretakers of SAM cases NOT in the program (NON-COVERED cases)

OTP: _____ Village Tract: _____

Hamlet name & ID number: _____ Name & surname of the child: _____

1. DO YOU THINK THAT THIS CHILD IS SICK?

☐ YES ☐ NO ➡ **STOP!**

2. DO YOU THINK THAT THIS CHILD IS MALNOURISHED?

☐ YES ☐ NO ➡ **STOP!**

3. DO YOU KNOW A PROGRAM/PLACE THAT CAN TREAT MALNOURISHED CHILDREN?

☐ IF YES

☐ IF NO ➡ **STOP!**

4. WHAT IS THE NAME/WHERE IS THIS PROGRAM? _____

5. WHY THIS CHILD IS NOT IN THE PROGRAM?

☐ Too far ➡ What distance do you have to walk? _____ How many hours? _____

☐ No time/too busy to attend de program ➡ Which activity keeps the caregiver busy?_____

☐ The caregiver is sick

☐ The caregiver cannot travel with more than one child

☐ The caregiver is ashamed to attend the program

☐ Security problems

☐ No other person in the family can take care of the other children

☐ The amount of RUTF given is not enough

☐ The child has previously been rejected ➡ When? (approximate period) _____

☐ The child has previously in the program but did not get cured

☐ Other people´s child has been rejected

☐ The husband has refused

☐ The caregiver though the child needed to be intern in the hospital

☐ The caregiver does not believes that the program can help the child (prefers traditional healers, etc.)

☐ Other reasons: _____

6. HAS THE CHILD ALREADY BEEN IN A PROGRAM FOR THE TREATMENT OF MALNUTRITION?

☐ YES ☐ NO ➡ **STOP!**

If yes, why the child is not enrolled currently?

☐ Defaulter, when? _____ Why? _____

☐ Cured and discharged ➡ When? _____

☐ Discharged because there no cured ➡ When? _____

☐ Others:_____ _____

Thank the caregiver

ANNEX 4: Questionnaire for covered cases

Questionnaire for caretakers of SAM cases in the program (COVERED cases)

OTP: _____ Village Tract: _____

Hamlet name & ID number: _____ Name & surname of the child: _____

1. HAS BENN YOUR CHILD HAS ADMITTED TO THE PROGRAMME BEFORE?

☐ YES ☐ NO ➡ Q5!

2. HOW MANY TIMES THE CHILD HAS BEEN IN THE PROGRAMME BEFORE? _____

3. WHY DO YOU THINK THE CHILD HAS BEEN RE-ADMITTED TO THE PROGRAM?

☐ RETURNED DEFAULTER – What is the reason? _____

☐ RELAPSED INTO SEVERE MALNUTRITION – What is the reason? _____

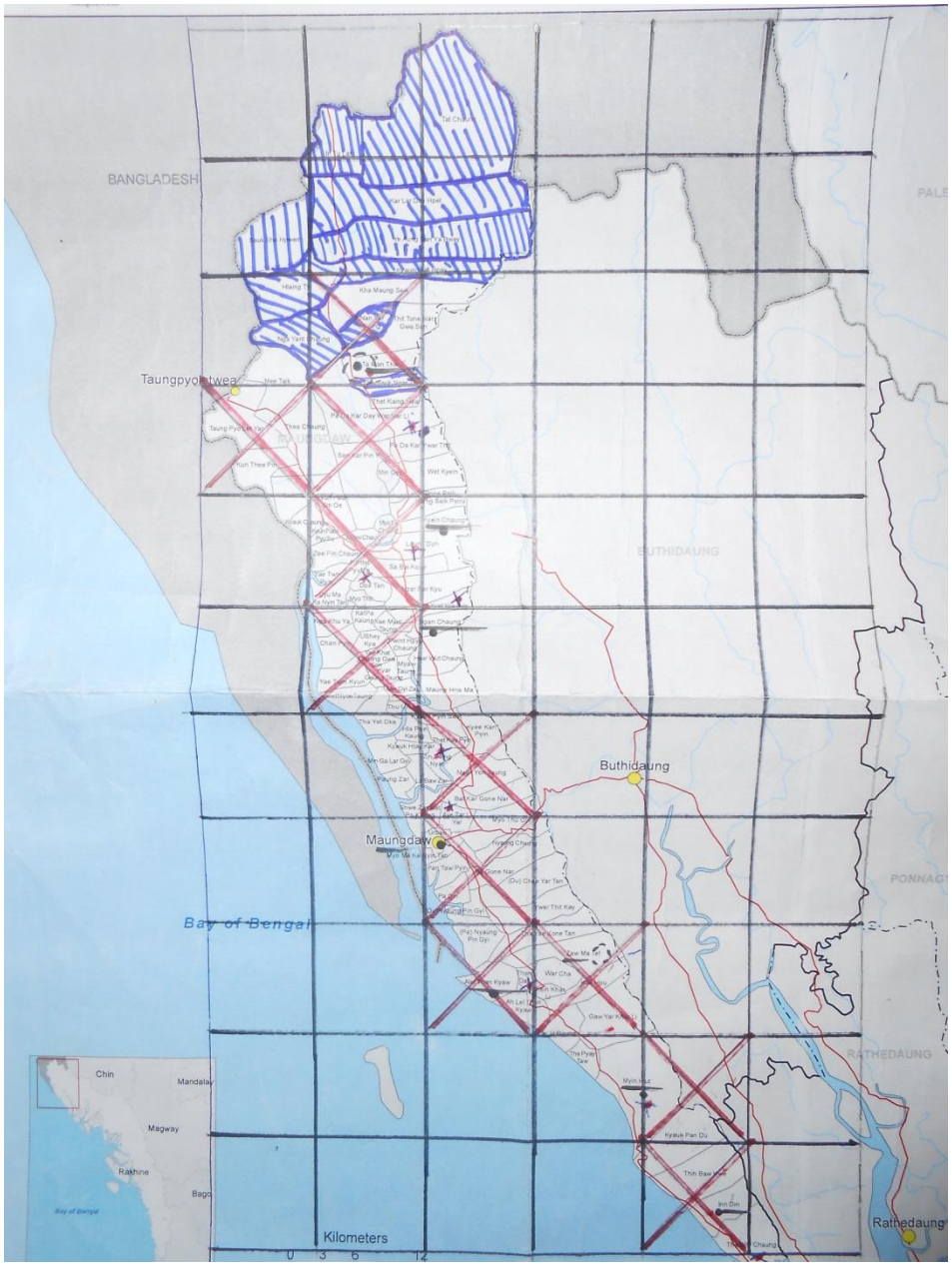
4. DO YOU HAVE ANY OTHER CHILDREN ENROLLED IN THE PROGRAMME?

☐ NO ☐ YES ➡ HOW MANY? _____

5. WHAT MADE YOU COME TO THE OTP? _____

Thank the caregiver

ANNEX 5: MGD - Map of sampling areas of wide-area survey



ANNEX 6: BTD - Qualitative research. Boosters and barriers to access and triangulation by source, method, ethnic and nutrition facility.

LEGEND							
SOURCES		**METHODS**		**ETHNIC**		**NUTRITION FACILITY**	
OTP and SC staff	1	Focus Group Discussion	FG	Rakhine	R	OTP BTD	BTD
SCCT	2	Semi-structured Interview	SI	Muslim	M	OTP TBZ	TBZ
Caregivers of children in the program	3	Case study	CS	Dyne	D	OTP PNL	PNL
Caregivers of defaulters	3D	Observation	O			OTP PPAP	PPAP
Local authorities	4					SC BTD	SC
Religious leaders	5						
Traditional healers	6						
Traditional Birth Attendants (TBA)	7						
Men of the community	8						
Women of the community	9						

BARRIERS	SOURCE	METHOD	ETHNIC	NUTRITION FACILITY
Distance	1, 2, 3, 3D, 4, 5, 7, 8, 9	FG, SI, CS, O	M, D, R	BTD, TBZ, PNL, PPAP
Physical access	1, 2, 3, 4	FG, SI, CS	M, D, R	BTD, TBZ, PNL, PPAP
Travel Authorizations	3D, 5, 7, 8	FG, SI, CS	M	BTD, TBZ, PNL, PPAP
Transport costs	1, 2, 3, 3D, 4, 5, 6, 7, 8, 9	FG, SI, CS	M, D, R	BTD, TBZ, PNL, PPAP
Security	2, 3, 8	FG, SI, CS	M	BTD, TBZ, PNL, PPAP
Cost/opportunity	1, 2, 3, 3D, 5, 8, 9	FG, SI, CS	M	BTD, TBZ, PNL, PPAP, SC
Mother´s condition	2, 3, 3D	SI, CS	M, D	BTD, TBZ, PNL, PPAP
Visit other hamlets	3, 5	SI, CS	M	TBZ
Stigma	2, 3, 3D, 4, 5, 6, 7, 8, 9	FG, SI, CS	M	BTD, TBZ, PNL, PPAP
Cultural barriers	1, 3, 5, 9	FG, SI, CS	M	BTD, TBZ, PNL, PPAP
Rejection	1, 2, 3, 5, 6, 8, 9	FG, SI, CS	M	BTD, TBZ, PNL, PPAP, SC
Sharing/selling RUTF	2, 5, 6, 9	FG, SI	M	BTD, TBZ, PNL, PPAP
Insufficient community mobilization activities	1, 2, 3, 4, 5, 6, 7, 8, 9	FG, SI, CS	M, R	BTD, TBZ, PNL, PPAP
Nutrition facility service provision and staff attitude	1, 2, 3, 5, 9	FG, SI, CS	M	BTD, TBZ, PNL, PPAP

BOOSTERS	SOURCE	METHOD	ETHNIC	NUTRITION FACILITY
Awareness about malnutrition	3, 4, 6, 7, 8	FG, SI, CS	M, D	BTD, PNL, PPAP
Nutrition program awareness	3, 3D, 4, 5, 6, 7, 8, 9	FG, SI, CS	M, D	BTD, PNL, PPAP
Service free	2, 3, 5, 7	FG, SI, CS	M, D	BTD, TBZ, PNL, PPAP
Good opinion about program and ACF	1, 2, 3, 4, 5, 6, 7, 8, 9	FG, SI, CS	M, D	BTD, TBZ, PNL, PPAP
Peer-to-peer influence	3, 5, 8	FG, CS	M, D	BTD, PNL, PPAP
Timely treatment seeking	2, 3, 3D, 5, 6, 7, 8	FG, SI, CS	M, D	BTD, PNL, PPAP
No stock breakout	1, 3	SI, CS	M	BTD, SC