AFGHANISTAN

Semi-Quantitative Evaluation of Access and Coverage (SQUEAC)

Final Report

Gardiz District, Paktia Province - Afghanistan
(24th March to 4th April 2020).

Assessment Lead by: Dr. Ahmad Abed Habibi_ SQUEAC PM
Authors: Dr. Ahmad Abed Habibi, Dr. Khalid Zakir and Dr. Sayed Rahim RASTKAR

Funded by

European Union
Humanitarian Aid

ACKNOWLEDGMENT

Action Against Hunger (AAH) international would like to thanks the concerted efforts of the following stakeholders in the successful completion of the coverage assessment.

- ✓ The MoPH/PPHD for fully participating in the planning phase, and for the support provided in the approval and facilitation of the assessment at the provincial level.
- ✓ European Union Humanitarian Aid (ECHO) for their financial support in the survey.
- ✓ Afghanistan Research Development and Health Organization (ARDHO) and the BPHS implementing agency (Hewad Reconstruction, Health and Humanitarian Assistance Committee) for smooth implementation of the assessments in Paktia province.
- ✓ The SQUEAC assessment team for demonstrating a high-level commitment and professionalism throughout the exercise.
- ✓ The community members for providing consent and participating in various stages of the assessment at village and health facility levels.

ACRONYMS

ACF/AAH	Action Contre la Faim / Action Against Hunger
ALCS	Afghanistan Living Condition Survey
ARDHO	Afghanistan Research, Development and Health Organization
ACTD	Afghanistan Center for Training and Development
ARI	Acute Respiratory Infection
BHC	Basic Health Centre
BPHS	Basic Package of Health Service
CBHC	Community Based Health Care
CHC	Comprehensive Health Center
CHS	Community Health Supervisor
CHW	Community Health Worker
CSO	Central Statistics Office
C_{in}	Current SAM cases in the program
C_{out}	Current SAM cases not in the program
DH	District Hospital
FGD	Focus Group Discussion
GAM	Global Acute Malnutrition
HNO	Humanitarian Needs Overview
HSCs	Health Sub-Centres
IMAM	Integrated Management of Acute Malnutrition
IIs	Informal Interviews
IPC	Integrated Food Security Phase Classification
KM	Kilometers
LoS	Length of Stay
LQAS	Lot Quality Assurance Sampling
MAM	Moderate Acute Malnutrition
MM	Millimeter
MoPH	Ministry of Public Health
MRCA	Medical Refresher Courses for Afghans
MUAC	Mid-Upper Arm Circumference
NNS	National Nutrition Survey

OPD	Out-Patient Department
OJT	On-Job Training
PH	Provincial Hospital
PNO	Public Nutrition Officer
PPHD	Provincial Public Health Department
RUTF	Ready to Use Therapeutic Food
Rin	Recovering SAM cases in the program
SAM	Severe Acute Malnutrition
SDG	Sustainable Development Goal
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
SSIs	Semi-Structured Interviews
UNOCHA	United Nation Office for the Coordination of Humanitarian Affairs
WHZ	Weight for Height Z-score

Table of Contents

List of Figures:

List of Table:

Annexes:

EXECUTIVE SUMMARY

Action Against Hunger (AAH) in partnership with Agency for Assistance Research Development and Health Organization (ARDHO) and Ministry of Public Health (MoPH) conducted coverage assessment using SQUEAC methodology in the Gardiz District of Paktia Province. All the study areas in Gardiz district were selected concerning its security situation. The survey was conducted between 24th March to 04th April 2020. There are 26 health facilities with OPD-SAM services out of total 45 health facilities (RH, DH, CHCs, BHCs, and SHCs) and 342 health posts offering BPHS packages in the province. In the surveyed district, only 3 OPD-SAM sites were operating under the BPHS.

The SQUEAC methodology was employed in the assessment to estimate OPD-SAM treatment coverage but due to the Covid-19 virus epidemic sudden outbreak in the country, the assessment was not completed and the overall estimation of OPD- SAM was not identified in the province. However, it still consists of certain qualitative and quantitative techniques and triangulation using various sources and methods to complete the first stage of the assessment. Therefore, the survey teams only relied on bottleneck analysis of the OPD-SAM data form the targeted health facilities, and the qualitative part of the first stage. And were not able to provide coverage estimations as well.

Interviews with key informants including (Key community groups/members, the staff of health facilities in charge, and caregivers of SAM cases in program and caregivers of SAM cases not in the program) revealed varied positive (boosters) and negative (barriers) factors influencing the OPD-SAM coverage.

The Boosters/Positive Factors comprise the presence of active community health workers (CHWs), the announcement on the radio/TV on nutrition, malnutrition is not a stigma, good understanding and perception of the program at the community level, no family and traditional restrictions on mothers. Mothers were allowed to take their children to OPD-SAM sites and were sharing their experience of care-seeking to their malnourished children with others at the community level, which plays a crucial role in drawing the community's attention toward the OPD-SAM services. Meanwhile, Masjids and Community health Shoras are the most appropriate framework for sharing nutrition messages in the community and public awareness-raising sessions at health facilities had a strong influence on making people happy from the services in their neighborhood. In addition, Regular screening of under-five children in the health facilities is also marked as highlighted boosters to the OPD-SAM program in the survey area.

The barriers/negative factors highlighted by this survey consist of RUTF misuse, frequent and prolonged RUTF stock out and over the last one year, insecurity in some parts of the Ibrahim Khil and Mehlan areas, poor supportive supervision and weak monitoring from OPD-SAM site by program staff, the heavy workload on staff coupled with long waiting time, far distance and poor economic status leading to community inability to afford the traveling cost and its opportunity cost, bad behavior of health facility staff and Families are sharing RUTF between malnourished and non-malnourished children and lack of active and regular on the job training at health facility level were the major barriers identified in the program which has been found to be influencing the quality/coverage of nutrition program.

The key recommendations include 1) Conducting on the Job and refresher training on IMAM updates to the current nutrition staff; 2) Motivating the CBHC team and HP workers to have active case finding and community-based screening for suspected malnourished children; 3) Ensuring regular supply of RUTF to health facilities; 4) Expanding nutrition program to lower level HFs.

INTRODUCTION

Paktia is one of the 34 provinces of Afghanistan, located in the east of the country. Forming part of the larger Loya Paktia region, Paktia Province is divided into thirteen districts and has a population of roughly 601,230 which is mostly a tribal society living in rural areas. Pashtuns make up the majority of the population, but a smaller number of Tajiks are also settled in the area. Gardiz city is the capital of the province.

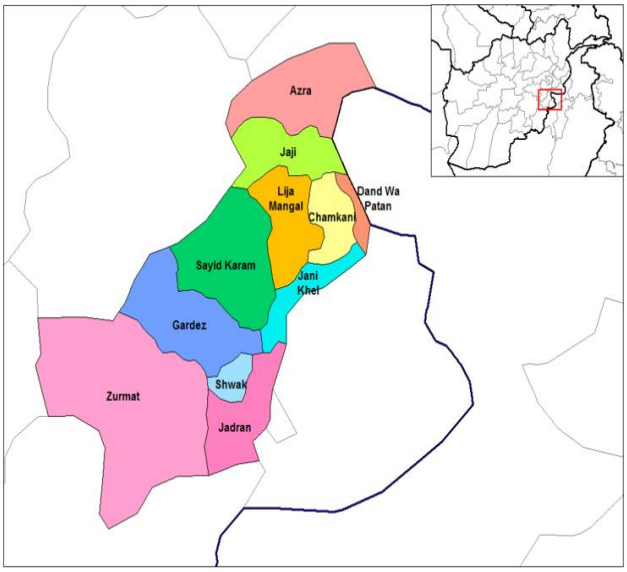


Figure 1: Paktia Province Map

Paktia borders the Pakistani-ruled tribal areas of Kurram Agency to the northeast through the Durand Fictional line. Within Afghanistan, it borders Logar Province, Ghazni Province, Paktika Province, and Khost Province, in counterclockwise order.

Paktia is a largely mountainous province, with most of the population living in the central valley stretching from Ahmad Khel in the east down through Zormat and into neighboring Paktika province. The eastern part of the province, particularly Chamkani and Dand Wa Patan, is a second valley leading into Pakistan.

In March 2015, Health Net TPO and ACTD (Afghanistan Centre for Training and Development), with support from Action Against Hunger Afghanistan, conducted a SQUEAC assessment in Gardiz, Ahmadaba and Chamkani districts of Paktia Province. The assessment estimated a coverage of SAM 53.3% [CI 95%: 42.5% - 64.4%] for the selected districts. The current SQUEAC has been implemented by the Afghanistan Research, Development, and Health Organization (ARDHO) with technical support from AAH.

Coverage assessments allow BPHS implementers to assess the performance of their SAM treatment services, to identify practical steps for reform, and to identify boosters, barriers, and recommendations for strengthening the effectiveness of the nutrition program.

SURVEY JUSTIFICATION

Gardiz district of Paktia province was among the few districts which has very good geographic coverage of the health and nutrition programs, but still, the cure rate was very low for the OPD-

SAM program. There are 3 active OPD-SAM sites in Gardiz District, but the reported cure rate is only 54.9% compare to the national target of >75%.

OBJECTIVES

1.1 Overall Objectives

The overall objective of the assessment was to investigate the OPD-MAM & OPD-SAM program coverage in Gardiz district of Paktia province and providing recommendations to improve program access and uptake.

1.2 Specific Objectives

- To assess the coverage of OPD-SAM, OPD-MAM treatment program in the catchment area of the five health facilities in the Gardiz district of Paktia Province.
- Identify the boosters and barriers affecting the SAM and MAM program coverage.
- To develop recommendations and action plan to improve service uptake/access in collaboration with service implementers, governments and other relevant stakeholders.
- To improve the capacity of implementing partners staff, government and other collaborative partners on the SQUEAC methodology.

SURVEY LIMITATIONS

- This survey unable to produce final OPD-SAM programme coverage due to sudden outbreak of COVID-19 pandemic, impose of lockdown and the team had to pull-off before completing all the survey stages.
- Non-availability of the provincial nutrition officers in the assessment time was one of the main limitations, resulting in a series of problems inaccessibility to the program data and coordination between the assessment leading team and health facilities.
- Due to frequent and long-lasted stock outs and irregular implementation of the MAM program in targeted health facilities. OPD-MAM program was excluded from the assessment.
- One of the main objective beyond implementing an assessment is to make the capacity of the BPHS implementing agencies on coverage assessments, unfortunately, HEWAD the BPHS implementer did not get agreed to participate their staff in the assessments.

- High risk of the COVID-19 spread, the lockdown, and restrictions on the movement made the field-work very difficult, therefore the assessment was stopped at the end of the first stage and not able to complete the remaining stages of the assessment.

3. METHODOLOGY

A Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) methodology was used to estimate the OPD-SAM coverage and uptake at the Gardiz district of the Paktia province. SQUEAC is a semi-structured activity designed to rapidly accumulate new and relevant information about coverage and factors influencing coverage and to develop and test hypotheses about coverage and factors influencing coverage. The SQUEAC method normally using two-stage screening test model, but due to lockdown of COVID-19 we just able to complete stage one.

Stage 1 to identify the area of low and high coverage as well as reasons for coverage failure using routine program data, already available data, quantitative data that was collected with little additional work, and qualitative data. In this stage, the last one-year quantitative data from the OPD-SAM patient's treatment cards, register books, and monthly reports were deeply analyzed to spot the area of bold and/or weak program performance. In the Gardiz district of Paktia province nutrition program of 3 health facilities (1 RH, 2 BHC) was analyzed to identify/to confirm the location of areas of high and low coverage and the reasons for coverage failure identified.

- ## SQUEAC INVESTIGATION TEAM

The core survey team was composed of one Deputy Surveillance Program Manager coached by the SQUEAC Program Manager from Action Against Hunger "AAH" Kabul main office. Data collection was supervised and led by five team supervisors. Five teams, each team composed of one male and one female enumerator, some of the enumerators were mid-level health workers, such as a nurse or midwife.

First, the SQUEAC technical team delivered a two-day training workshop to the 5 team supervisors about the Coverage assessment implementation methodology. This was followed by a two-day training for all the 15 team members on the first stage of the qualitative data collection in the community and an explanation of each of the key stages of a SQUEAC.

- ## CONTEXT

5.1 Description of Area

The health infrastructures in the province include four hospitals (one regional and three district hospitals) which are delivering primary and secondary health care services in the province. Besides these hospitals, BPHS is implementing in 41 other health facilities. That Paktia is one of the coldest provinces from the climate point of view especially during the winter season, harshly affecting access to HFs. upon top of that, ARI, Diarrhea, and measles are the most common seasonal diseases in the province.

The most common crops grown in Paktia are wheat, maize, rice, and potato and most people have dairy cows, sheep, goats, and chickens. Forestry is another source of income as people sell the wood to other provinces and to Kabul city - especially during wintertime.

Irrigation system improvement, beekeeping, investment in forest management, financial services for farmers (credit), animal husbandry, value-adding (product processing), and postharvest technology are some potential areas for development. [1]

[1] Paktia - Afghan Agriculture - UC Davis

5.2. Nutritional Situation

The humanitarian consequences of the crisis now affecting every aspect of life in all corners of the country. People's survival and well-being is threatened by ongoing conflict, inflicting high levels of civilian casualties and life-altering traumatic injuries. Hunger and malnutrition remain at dangerously high levels despite the passing of the drought with 14.28 million people [2]forecast to be in crisis or emergency food insecurity in the first months of 2020. According to the latest ICP report, Paktia province is among the few provinces in Phase 2 of food insecurity, but it is projected the situation will worsen during the COVID-19 pandemic. High food prices, reduced employment opportunities and ongoing conflict are the key drivers deteriorates the nutrition and health situation.

The previous SQUEAC assessment which was implemented on Feb- 2015 showed estimation of coverage 53.3% [CI 95%: 42.5% - 64.4%] for the districts of Gardiz and Ahmadaba which was above the SPHERE thresholds for rural settings (>50%).

The latest health and nutrition SMART survey was conducted in the Paktia province in four districts of the province (Chamkani, Ahmad Aba, Said Karam, and Gardiz) in June 2015. Findings showed that the prevalence of Global Acute Malnutrition (GAM) based on WHZ for those 4 districts in Paktia, was 5.2% (95% CI: 4.1- 6.7). GAM based on MUAC was 6.6% (95% CI: 4.8- 9.0). The rate of severe acute malnutrition (WHZ<-3 score and/or oedema) was 0.6% (95% CI: 0.3- 1.3). The prevalence of stunting among children 6-59 months was 31.7% (95% CI: 27.9 - 35.8), out of which, 12.5% (95% CI: 10.1 - 15.4) was severely stunted. [3] Overall, the nutritional status in the province of Paktia is of concern, requiring efforts to improve this situation toward a country with no malnutrition.

A. STAGE ONE

A.1. Identification of areas of low and high coverage

In stage one, the assessment teams used the already existing routine and contextual information both directly and indirectly related to the program. Qualitative information was also collected from

[2] IPC Afghanistan Report- 2020
[3] SMART- MARCH-2015 PAKTIA AFGHANISTAN

the targeted key informants (community members, Mothers, and HF staff) to help achieve the objectives of stage one as well as identifying boosters and barriers to the program.

A.2. Quantitative data analysis

The information on nutrition beneficiaries was collected from 3 Health facilities providing and OPD-SAM services in the selected Gardiz district of Paktia Province. The information collected

Province	District	Facility Name	Facility Code	Facility Type	Coverage Population	Type of Services
PAKTIA-PROVINCE	GARDIZ-DISTRICT	Paktia Regional Hospital	278	RH	71,928	SAM/MAM[4]
		Ibrahim Khil- BHC	2028	BHC	10,630	SAM/MAM
		Mehlan- BHC	2119	BHC	17,516	SAM/MAM

Table 1: list of the health facilities covered in the SQUEAC.

includes admissions over time (all admissions by WHZ, MUAC, and Oedema), admissions per health facility, defaulting, program exits (cured, deaths, defaulters, and non-response), MUAC measurement on admission, returning of the defaulter to the program and average length of stay in the program.

A.2.1. Admissions over time

The assessment team analyzed OPD-SAM data from the Monthly Integrated Activity Reports "MIARs" of 12 months of activities from January to December 2019 and from 1,162 OPD treatment cards of 3 health facilities. This SQUEAC covered 3 health facilities in one district of the Paktia province, the table below illustrates, the HFs covered in the district:

The analysis revealed very high dissimilarities in the number of SAM admissions between OPD-SAM MAIR, Register Book Data and OPD-SAM treatment follow up cards. According to the MIAR reports, the total number of OPD-SAM admissions for a period of 12 months was 1,687 cases, while only 1,162 treatment follow-up cards were available in the health facilities but 1,691 new admissions in the OPD-SAM program according to the register books. A difference of 529 cases between OPD-SAM cards data and the register books possibly because of weak filing/registration

[4] The OPD-MAM program was not regularly imp

system in the health facilities and could be attributed to huge discrepancies in the reports and in particular the lack of capacity of the in-charge/staff to observe optimal quality assurance in following SAM admission protocol. Health facility staff may also intentionally report a high number of SAM admissions to meet the targets and to catch the high-level management attention to the health facility. This hypothesis was not confirmed by the assessment. Figure 4 illustrates the differences between these three sources.

For this reason, the analysis in this SQUEAC assessment is based on OPD-SAM treatment cards since only the cards can prove that indeed OPD-SAM services were offered to the beneficiaries.

The analysis of SAM admissions from OPD-SAM treatment cards shows a clear image of the number of cases admitted within a period of 12 months as highlighted in Figure 3. The analysis of admissions indicated a decreasing trend after November 2019 attributed to the BPHS project handover from MRCA to HEWAD and RUTF stock out during the handover period. This issue draws the implementing agencies' attention from the on-going projects and leads to irregular supply and provision of primary and secondary health care at the provincial level. Our findings show that most of the health facilities faced stock out of RUTF due to delayed supply and therefore had to put on hold any new admissions.

Paktia has long-last cold winter starting from November and continues up to the end of February, the negative trend illustrated in the below figure can be linked with the struggle in access and uptake caused by cold weather pattern and heavy snowfall. Meanwhile, HFs staff and community members frequently stated a very high caseload of diarrhea cases during the summer season. As diarrheal diseases are one of the leading causes of malnutrition, so the high admission over-time in months of July, August, and September may be associated with high diarrheal disease prevalence during this time. Figure 5 portrays this issue and other seasonal facts related to nutrition.

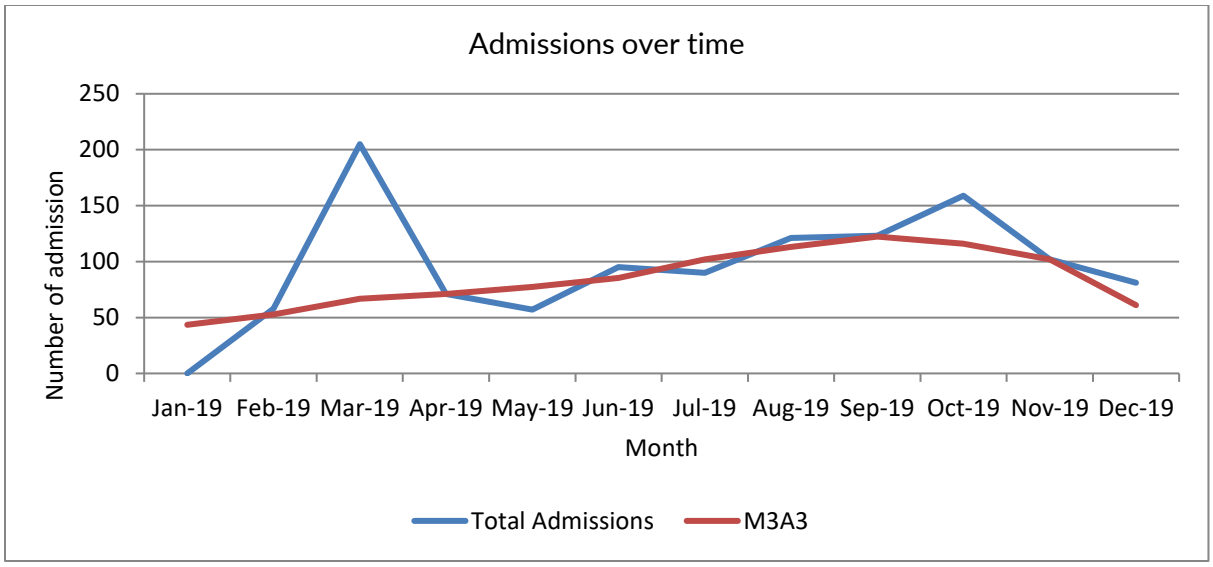


Figure 2: Admissions over time for OPD SAM program from Jan - Dec 2019, Paktia province - (n=4540 SAM Cases)

Note: M3A3 is where medians of sets of three successive data points (M3) have been taken. The results are then smoothed by taking the arithmetic means of sets of three successive smoothed data points (A3). The more times we apply a moving average, the more smoothing applied to the data. This allows for a greater long-term analysis of admissions. This way we can see variations over the data period without the abnormal fluctuations distorting the data set.

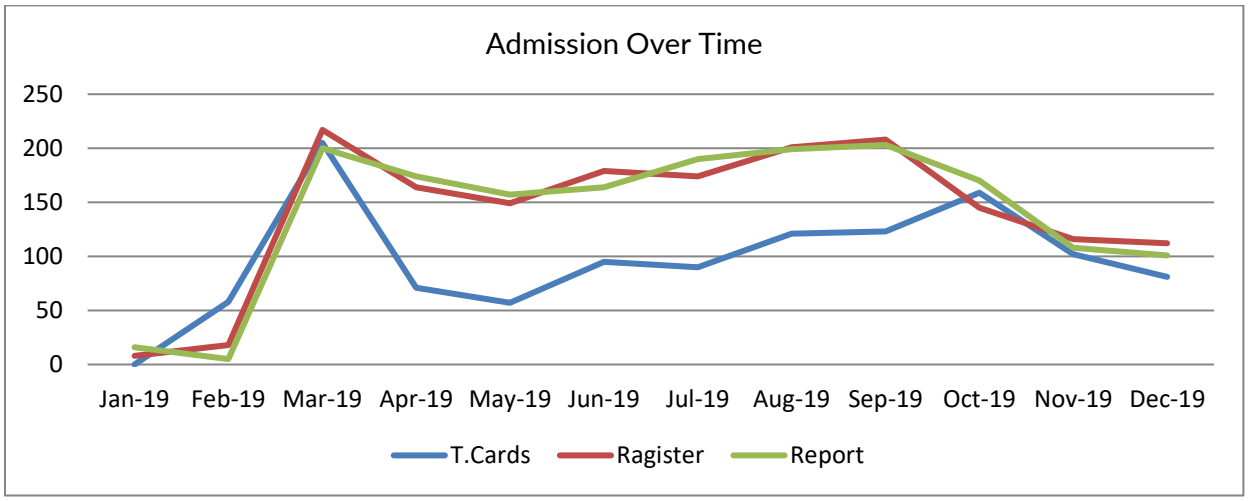


Figure 3: Comparison of admissions over time for OPD SAM program from Jan- Dec- 2019

Seasonal Calender	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NGO Support	HEWAD											
RUTF Supply	RUTF was supplied in a regular base											
Weather Pattern	Very Cold Winter			Warm Spring and summer						Semi-cold		V Cold Winter
Migration In (Kochi/Nomadic)												
Migration Out (Kochi/Nomadic)												
Farm Acitivities	Lean Season					Harvest time					Lean Season	
Security				Ongoing conflict around the Gardiz city								
Diarrhea				Less frequent		High			Less frequent			
Malaria					Sporadic cases malaria							

Figure 4: Seasonal Diseases Calendar Paktia Province

Analysis of OPD-SAM treatment cards revealed that Paktia RH had the highest number of SAM admission over time as highlighted in Figure 6. The uppermost number of admission in the OPD-SAM center of Paktia regional hospital can be originated from the active under-five children screening in the pediatric OPD ward of the hospital, and the absence of the OPD-SAM services in the neighboring SHC. In addition, the regional hospital perceived as more reliable place for the treatment of malnourished children by the local communities comparing to the BHCs, where the OPD-SAM services practice multiple and long last breaks due to RUTF stock-out.

The low admission in Mehlan BHC might be attributed to their small catchment area, close distance to other health facilities, and the one-time RUTF stock out in last year.

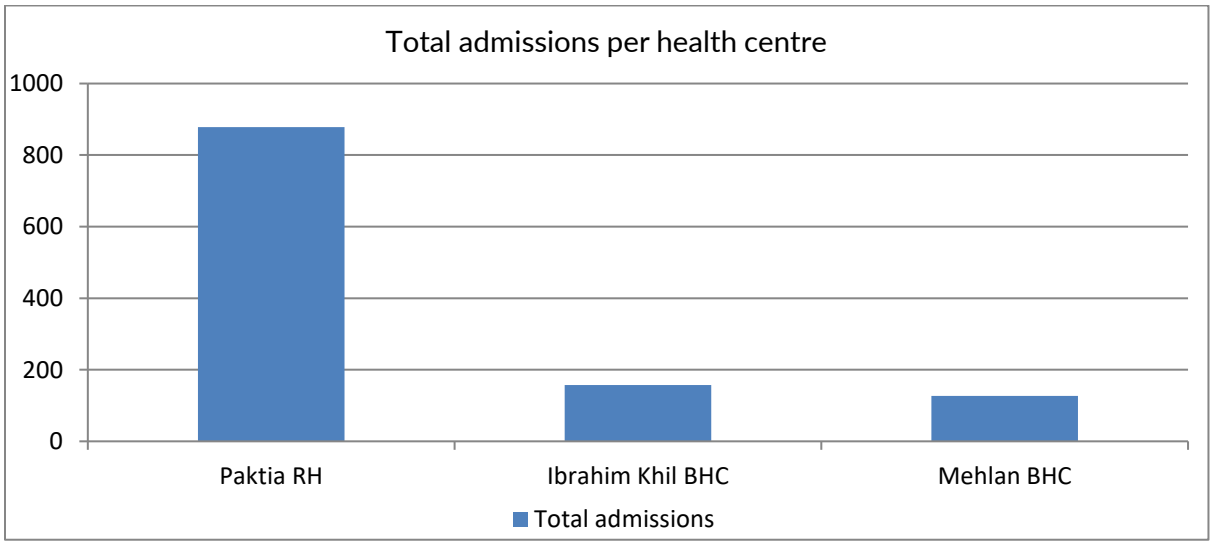


Figure 5: Admissions over time per health facility, Jan - Dec 2019, Paktia province

A.2.2. MUAC at admission

According to the IMAM guideline of Afghanistan, admissions for SAM treatment can be done in OPD-SAM center with any of the three criteria; WHZ (<-3SD), MUAC (<115mm), or Oedema (+ or ++). At Paktia province, most of the children 78.1% (908 out of the total 1,162 SAM cases) were admitted to OPD-SAM using MUAC. And 0.8% (9 out of 1162 SAM cases) were admitted into the program using WHZ, just eight Edematous cases were registered in the last 12 months in the targeted 3 health facilities. The reason for higher MUAC based admission and lower WHZ based admission is possibly due to MUAC only screening and referral (MUAC <12.5 cm) at the community level as well as in some health centers. The majority of SAM children (647 cases=55.7%) were admitted with MUAC measure between 110mm and 114mm, revealing early admission of SAM cases to the program. Early admission to the program can be in direct relationship with active screening, case finding and outreach activity of the community health worker, health and nutrition mobile team's activities in the field, and strong community mobilization and sensitization programs at the provincial level.

Wrong admissions of 2.4% (28 out of the total) SAM cases with a MUAC >114mm were also observed in the OPD-SAM treatment card. Even children with MUAC≥12.5 were also admitted to the OPD-SAM, such a problem shows a lack of adherence to admission criteria and the overall IMAM guideline. Figure 7 below depicts it graphically.

The median MUAC was 110 mm illustrating an early admission of SAM cases to OPD-SAM programs.

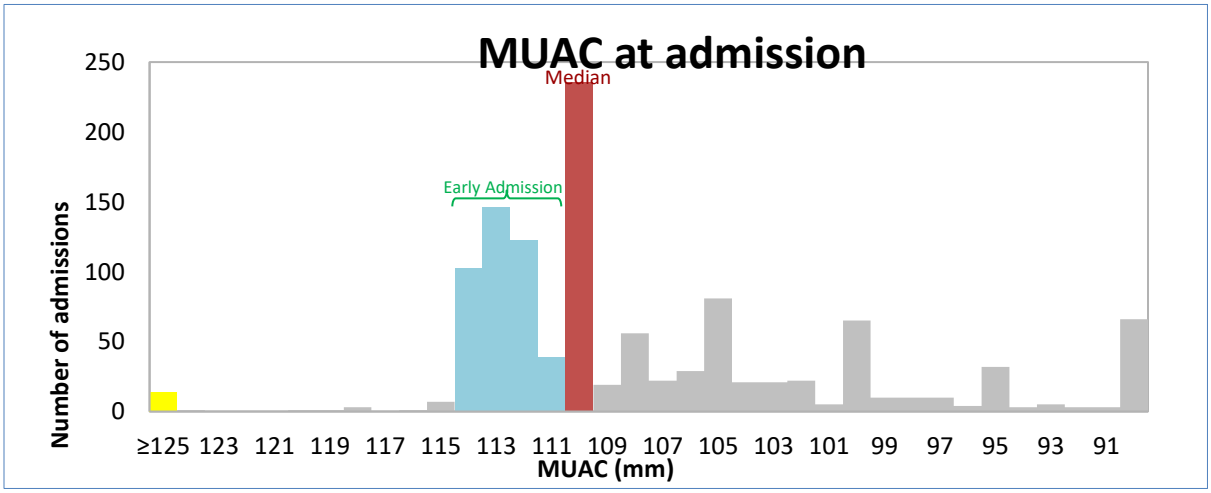


Figure 6: MUAC at admission, 3 OPD SAM sites, Jan - Dec 2019 (n=1162 cases)

A.2.3. Discharge outcomes

The discharge outcomes include cured, default, death and non-response rates. The SPHERE threshold for cure rate in OPD SAM is >75%, while death, and defaulter rate are <10% and <15% respectively.[5]

Defaulter rate: 37.14% (384 cases) which is double above the SPHERE threshold of <15% in the reporting period from Jan 2019 to Dec 2019.

Cured rates: 57.25% (592 cases) which was below the SPHERE threshold in the reporting period from Jan 2019 to Dec 2019. The beneficiary cards were analyzed to determine the status of each beneficiary as the discharge outcome was not notified in most of the beneficiaries' cards of all included three health facilities (Paktia RH, Ibrahim Khil BHC, and Mehlan BHC).

Non-Response: an overall 5.61% non-response rate was observed in treatment card data. There were 58 non-response cases, most of them were recorded in Paktia RH.

Defaulting seems to be a major challenge to the program as the rate is extremely high. After searching on the causes for defaulting cases from the mothers of defaulted children showed that the major reasons mentioned are the disruption of RUTF supplies and poor economic condition (people are not able to pay transportation) and insecurity (ongoing clashes) among receiving health/Nutrition cares.

The high defaulter rate in Paktia Province may have been intimately linked to the RUTF stock-outs at the end and beginning of each year. Mothers of the defaulted SAM children complained that they had not been given MAWAD [Local term for RUTF] in addition to repeated visits from health facilities. On the other hand, during the qualitative data collection, the program staff also stated that they faced frequent RUTF shortages at the end of 2019 and the beginning of 2020.

As shown in Figure 8, Paktia province faced a wide-ranging RUTF shortage at the beginning and end of 2019, leading to the descending trend of cured rate and increased defaulter rate.

[5] Sphere Handbook , 2011

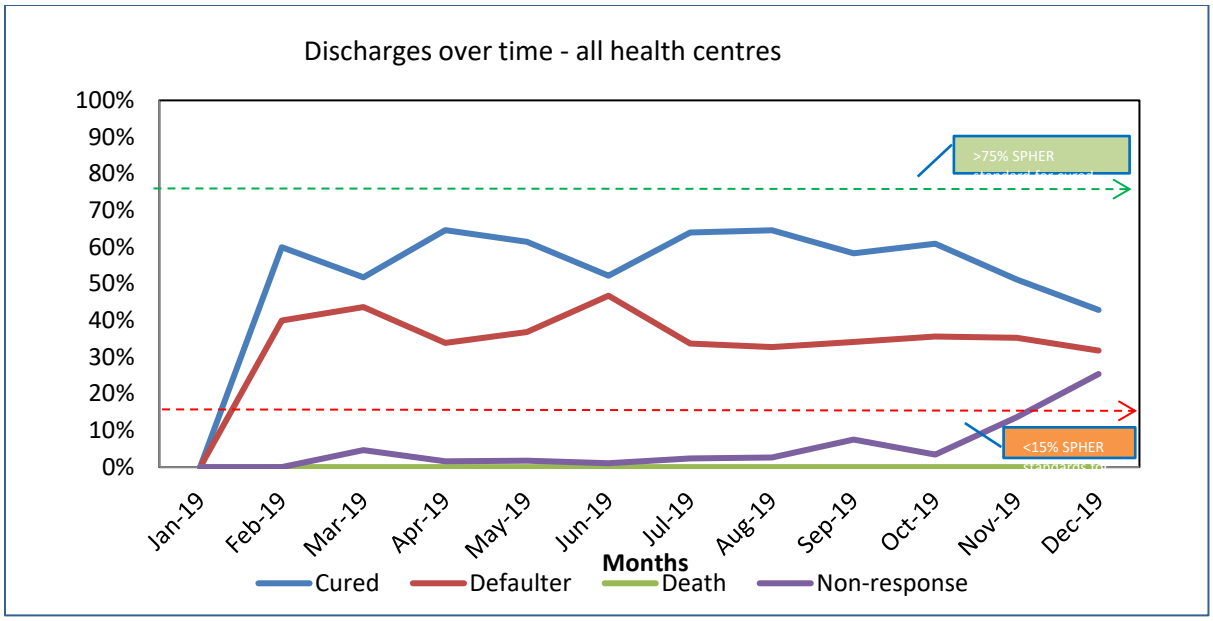


Figure 7: Discharge overtime, Treatment Cards Data - 3 OPD SAM sites, Jan - Dec 2019 (n=1,162 cases)

The weather gets cold in Gardiz during January but it is even colder in February, March, and up to the middle of April. Over the course of these months, people cannot get their malnourished children to health facilities because of the snow falling in some remote areas. Additionally, the RUTF stock out at the end of the year was another issue which is highly affecting the program coverage, resulting in a high rate of defaulters (>15%) and a low rate of cured (<75%).

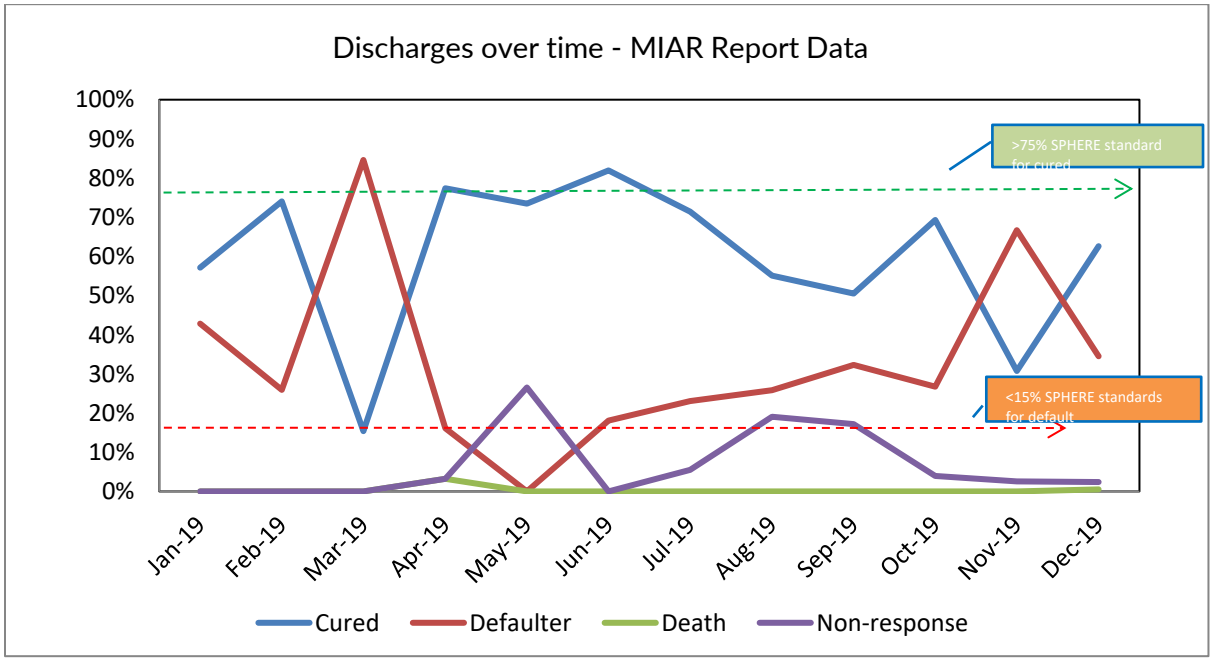


Figure 8: Discharge overtime- MIAR Report Data - 3 OPD SAM sites, Jan - Dec 2019 (n=1162 cases

These explanations are based on an analysis of OPD-SAM treatment follow-up cards from 3 health facilities located in Gardiz district. It revealed that the health facilities located in the suburb of the capital city of Gardiz had the lowest cure rate, as people who live close to the city or regional hospital can easily go to downtown and use the services available in Regional Hospital "RH" and other private health care centres. This can affect the effectiveness of the program by increasing the number of defaulters and also contribute to reducing the cured rate.

Ibrahim Khil BHC, Mehlan BHC are among the health facilities that have the lowest cured and the high defaulter rates. The Qualitative data stated from these areas shown; there is no restriction on mothers to take their malnourished children to health facilities, all the villages in the catchment area of these health facilities had active male and female CHWs.

As per the qualitative data findings we are observing many cases of non-response in Paktia province, while a child was not responding to the treatment in the first 3-4 weeks of attending OPD-SAM program, many families were preferring to send their children to private hospitals available in cities, not in the rural area, or sometimes families were trying to find alternative care procedures to their malnourished children. This issue was highlighted as key factors while constructing the health care seeking behavior of the local people. In some villages, non-response to the treatment has been reported as a factor effective in shaping negative opinions regarding the effectiveness of the IMAM program in the community.

Figure 10 depicts discharge outcomes of OPD-SAM services in the targeted 3 health facilities.

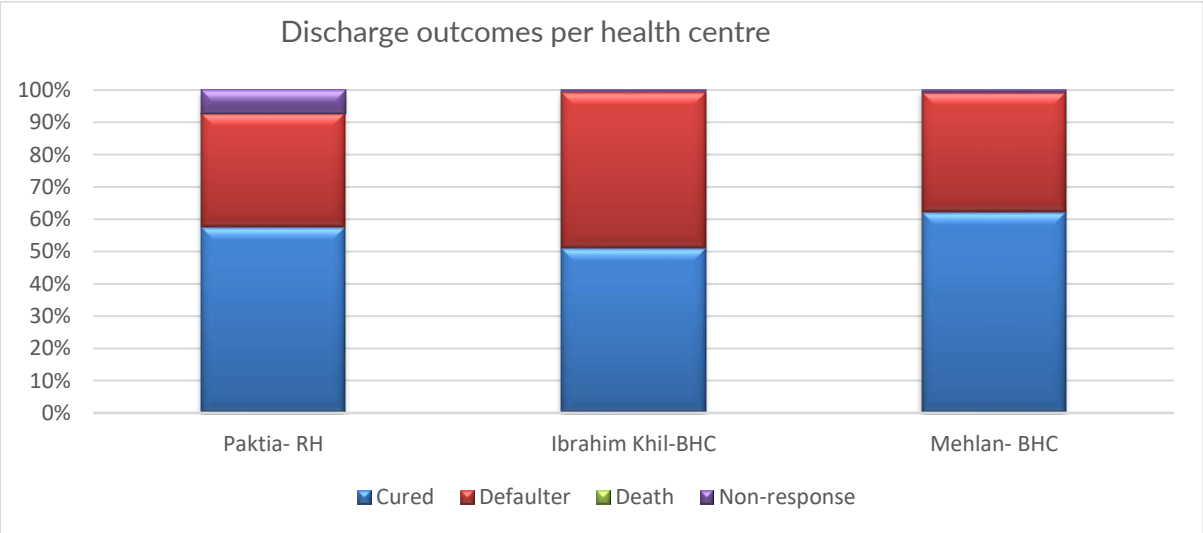


Figure 9: Discharge overtime per HFs - 3 OPD SAM sites, Jan- Dec 2019 (n=1162 cases)

Nutrition programs documents

Despite the qualitative issues, all the 3 health facilities whose nutrition program documents were checked and analysed in the first stage of this SQUEAC assessment, had register books for OPD-SAM and a less quality filing/registration system. The national IMAM guidelines specify that routine visits in OPD-SAM should be weekly or biweekly. Typically, a weekly-based arrangement was being used in Paktia province. The majority of health facilities had a specified day for accepting OPD-SAM follow up visits, doing growth monitoring of the malnourished children, and the RUTF distribution, but new SAM cases admissions were on all days of the week. *Table 2*, below illustrates the most common problem of the existing nutrition program in Paktia province.

Table 2: Common errors in nutrition program documents, 3 OPD SAM sites, Jan- Dec 2019, Paktia province.

No	Common Errors in the Documents	Description
1	Wrong Admission	The admitted children were not fulfilling the admission criteria of the OPD-SAM program, It means that some health facilities treated MAM cases in the OPD-SAM program. 2.40% (28 Cards) of the overall cases were admitted with MUAC >115mm, observation is done from the OPD-SAM treatment card. Meanwhile, some non-malnourished or normal children were also admitted to the program. On the other hand, 1.20% (14 cards) with MUAC >12.5 was also admitted to the program. Which indicates the non-compliance of the IMAM protocol. The discrepancy between Registration books 1,691 cases, Reported data 1,687 cases and treatment cards 1,162 cases was also a big problem in an admission it shows there were many defaulters or hidden to default cases.
2	Unmarked Admission Criteria and Wrong cured	In all health facilities, 20.39% (237 cards) out of 1,162 treatment cards - the admission criteria were not marked, which made it hard to know the exact admission criteria by which the children were admitted into the program. In the meantime, the Inexistence of Z-Score information in almost all of the treatment follows up cards was the biggest admission criteria missing. Marking non-cured malnourished children as cured in their recovering phase was also among the common mistakes present in a big number of malnourished children follow up cards. This shows an inappropriate

		application of the IMAM guideline. For instance; there were children marked cured with a MUAC<=11.3mm or less.
3	Hidden Defaults	Hidden defaulters who came back to the program continued on their previous treatment not recorded as a "defaulter" or not admitted as "return default", these errors were frequently repeated in 20.4% (238 cards) in Paktia province. It means that the staff in charge of the nutrition program at the health facility level continue to use for the defaulted children the same treatment follow up card, which was allocated to them at the time of admission. As a result, this will cause less reported default cases in comparison to what is accurate. Out of the total 1,162, nutrition program documents from 3 health facilities checked in this assessment, 20.4% (238 OPD-SAM Cards) were recognized as hidden default cases. Hidden Default is a serious problem that can reduce the overall effectiveness of the nutrition program, can increase the number of non-cured malnourished children in the community, and can expand the average length of stay.
4	Unmarked Discharge Criteria	Unmarked discharge criteria are among the common missing in Gardiz district of Paktia province nutrition program documents. In a big number of treatment follow-up cards, discharge criteria were not marked or it was marked wrong. the number of unmarked cured and default/hidden defaults was very high in all included health facilities. The errors in marking of discharge criteria were another problem, such in most of the cards they marked it as cured and was discharged but still now the MUAC of the child was less than 12.5 cm which is not cured and not eligible to be discharged from the program. Such a long-term problem is talking the story of a series of problems in the implementation and monitoring of nutrition programs in both managerial and health facility levels. This problem indicates a lower capacity of the nutrition staff in health facilitates and on the other hand, it makes doubts on the quality of the supervision practicing by the implementer. It means the supervisor is not actively monitoring the quality of program data, not giving

		on-the-job training to the nutrition counsellors to resolve their problems and to enhance the quality of daily work.
5	Same MUAC at Discharge	A considerable number 13.2% (154) of children who are admitted to the program using MUAC indicator had the same MUAC during discharge as well, as it has to be marked cured once they are reaching the optimal range of MUAC. However, when a specific figure is very repetitive can raise doubts about how the nutrition program staff monitor/register. This problem was repeatedly visible in the Gardiz district nutrition program's documents. Such a problem may be the result of an inaccurate measurement or maybe because of any fixed activity that may provide evidence of misuse of the program.
6	Poor understanding and utilization of MAYO card (Z-score Card)	In most of the HFs which observed by the AAH technical team, the employees did not have appropriate knowledge in nutrition program especially in screening and anthropometric measurements or example, the staff who was responsible to deliver nutrition services in Ibrahim Khil BHC did not know about using of Z-score table, he was not able to use it accordingly, it means there is a big challenge about identifying the malnourished children and most of the malnourished children may not be covered if they are malnourished by Z-score.
7	Inappropriate filing system and problematic data management	The filling system in all the HFs included in the assessment was not good, whereas it must be separately determined by month or discharge criteria in the cards. It means it will make difficult the follow up of cases and reporting as well, therefore it is a big challenge to avoid duplication and missing in data.
8	Writing errors	Improper handwriting, Lack of attention and inaccuracy in writing of the date, lack of attention to use the same format of data (solar/Gregorian) and most of the dates and other phrases were not readable, these were the major problem that made it hard to understand and interpret the information.

A.2.4. Length of stay

The length of stay until discharge as cured refers to the total treatment duration (number of days) a beneficiary stays in the program until completely cured. The average length of stay in the OPD-SAM program in Afghanistan is 56 days[6]. As highlighted in Figure 11, the exit criteria used for the discharge were either wrong or outdated, and therefore a child exiting with a MUAC of 115 mm expected to take a shorter time in the program as compared to exit criteria of 125 mm as recommended in the guideline.

The average length of stay in the program was 9 weeks (63 days). In comparison with the 16 weeks (112 days), the maximum length of stay in Afghanistan all indications show the beneficiaries would have stayed longer in the program if the admission and exit criteria as cured were respected. The analysis of malnourished children's treatment follow-up cards shows that a high number (566 out of 1,162) of children were marked cured before reaching MUAC >= 115 mm. They may have stayed longer in the program to reach the correct (>125 mm) MUAC discharge criteria. The LoS for discharge-cured cases shows a situation where SAM cases stayed longer in the program. In most cases in Paktia province, lack of adherence to IMAM admission and discharge cut off and high hidden defaulter explained the long length of stay before the child was discharged as cured.

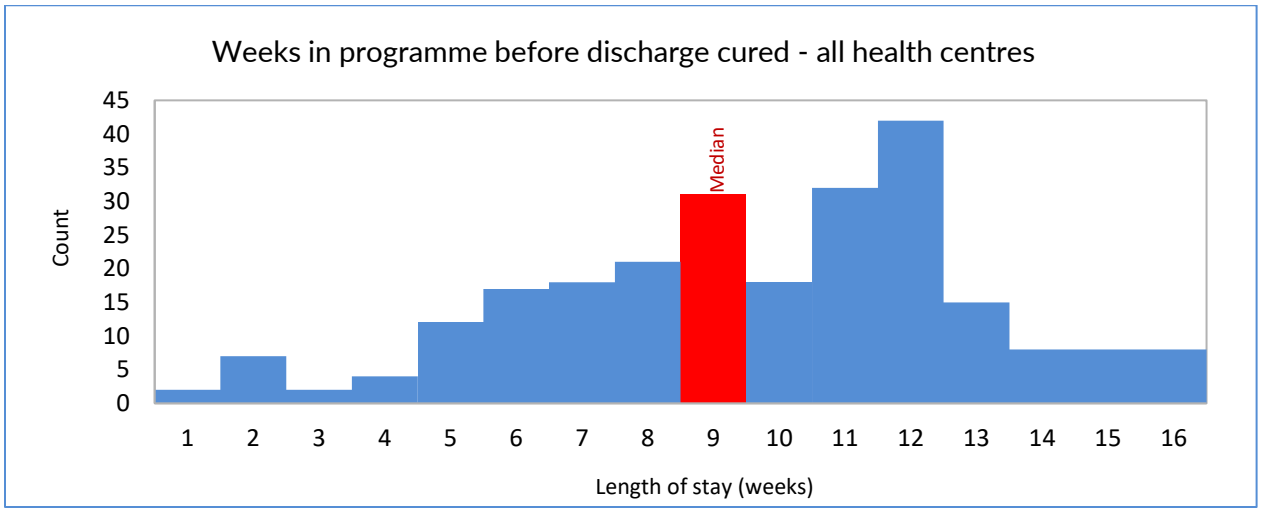


Figure 10: Weeks in program before discharge cured - all health centers

A.2.5. Defaulters over time

In accordance with the IMAM guideline of Afghanistan, the children absent from the treatment for three consecutive visits are called defaulters. Defaulting is known as a massive barrier to

[6] National IMAM Guideline- Afghanistan- 2020

maintain the program coverage efficiently and within the standard threshold. The Program's inability to retain the beneficiaries in the program will have a negative effect, as the cases will worsen or even die in the community. And so the target beneficiaries of the program will therefore have a negative opinion towards the program.

As portrayed in *Figure 12* below, the program staffs were unable to use monthly defaulter data for reducing or controlling the defaulter trends. Defaulting over the past 12 months showed an upward trend with elevated peaks, which reported to be linked with supply mismanagement and some seasonal trends, such as RUTF supply chain breakdown and very cold weather during the winter especially in months of February and March which showed the maximum peaks of defaulting.

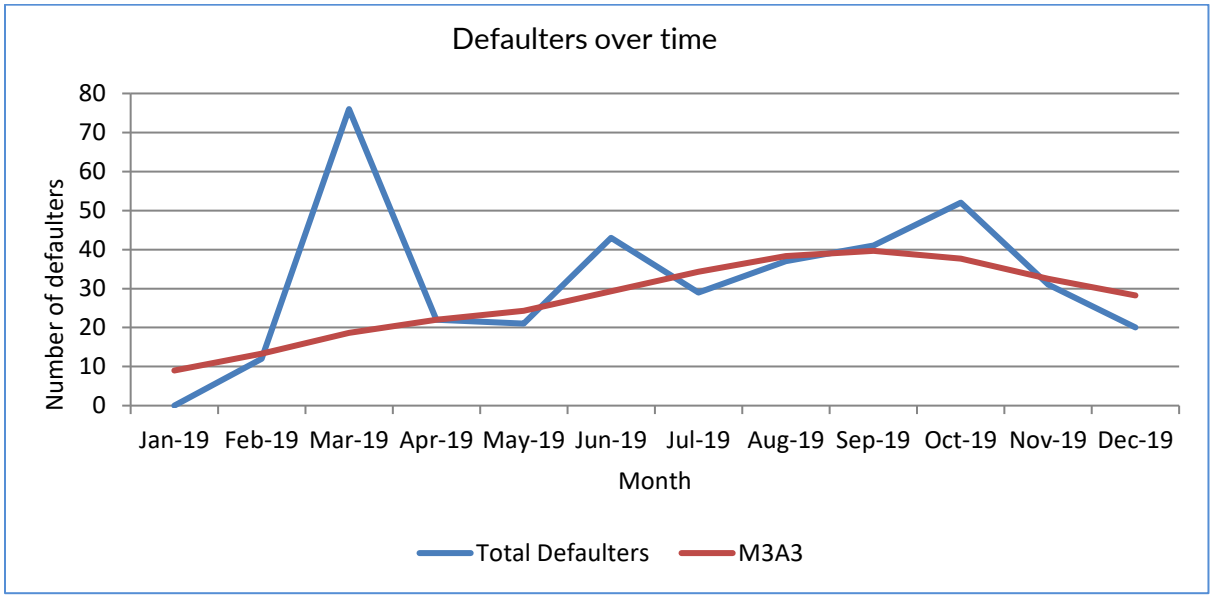


Figure 11: Trends in defaulting, data from beneficiary treatment cards in 3 OPD SAM sites, Jan - Dec 2019 (n=1162 cases)

A.2.6. Time to default

The median length of stay in the OPD-SAM program for defaulters' case was 2 weeks as illustrated in Figure 13. The analysis of the defaulters' data showed a high number of children defaulting early in the program, with a great number of children defaulting after the first three visits. Mothers of the defaulted children cited insecurity (ongoing clashes), poor economic situation, lack of the Nutrition counsellors in most of the HFs, rejection by the health facility staff due to unavailability of RUTF as reasons for defaulting and bad behaviour of the HFs staff, community mobilization is also not done effectively as most of the mothers reported not to be fully aware of the return date

and end up defaulting. Lack of a dynamic mechanism to track and follow up the defaulted children in the community is even making the number of defaulters higher.

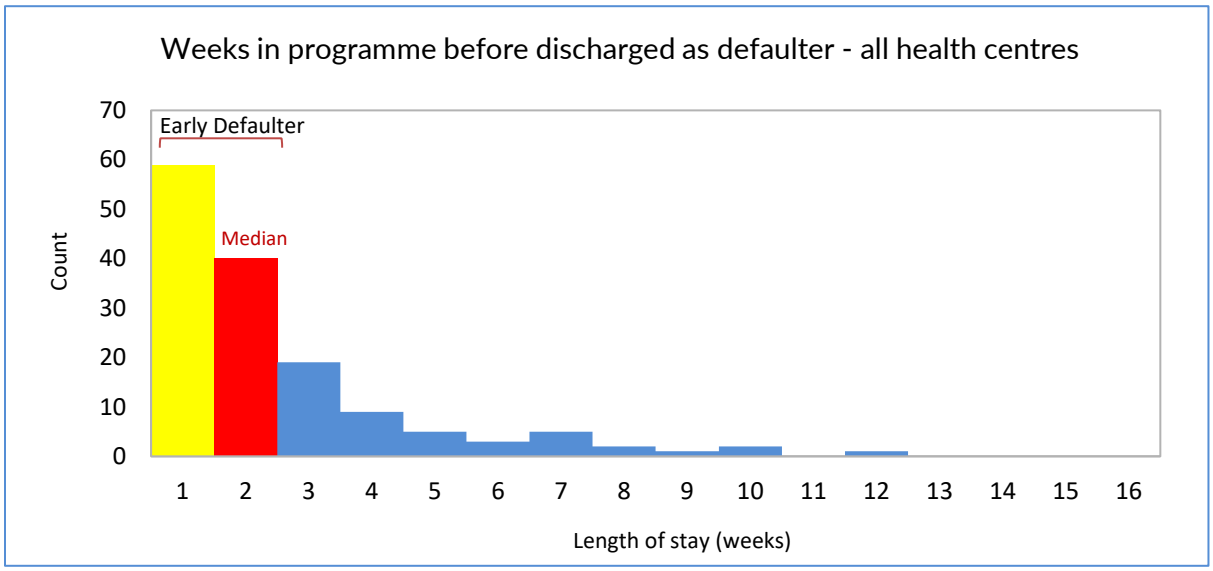


Figure 12: Time to default, 3 OPD SAM sites, Jan – Dec 2019 (n=1162cases)

A.2.7. Median MUAC upon Default

The median MUAC upon default was 112 mm. As illustrated in Figure 14, Most of defaulter cases exit OPD-SAM program with MUAC cut off below 125mm. Factors linked to interrupted accessibility of beneficiaries to health centre coupled with poor case finding and defaulter tracing are linked to high number of defaulters exiting the OPD-SAM program without attaining the discharge protocols of MUAC >125mm.

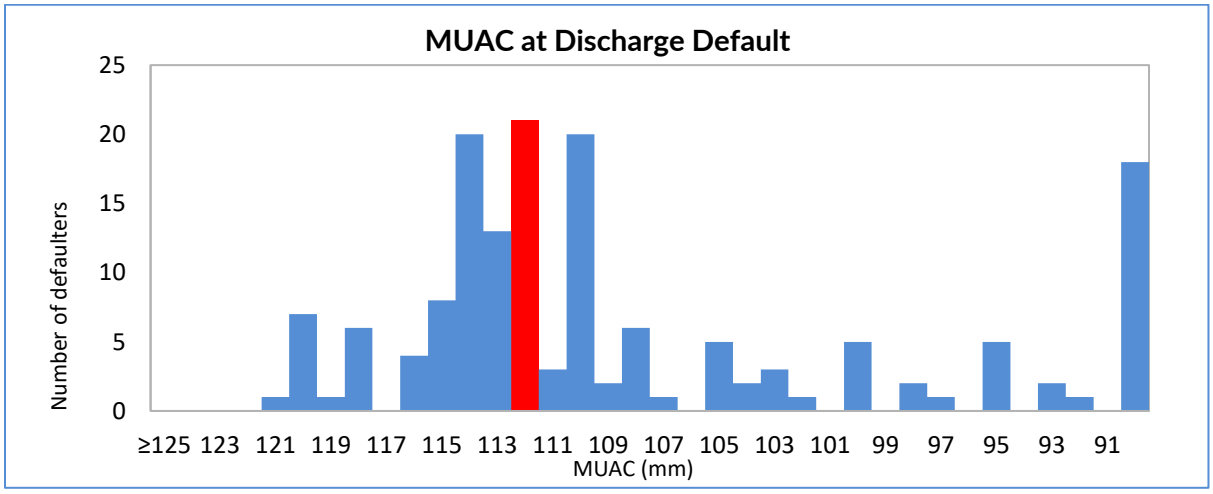


Figure 13: Median MUAC upon the default

A.1. Qualitative data collection and analysis

A.1.1. Introduction

Five teams, each team consisted of one supervisor and two enumerators [one Male & one Female] collected the qualitative data. This was done in three days in 3 OPD-SAM sites as well as in 15 purposively selected villages within the health facilities' catchment areas of the Gardiz district. Villages were chosen based on distance from the OPD-SAM site (both far and close). Additionally, geographical differences were also respected for semi-urban, and rural villages.

EPI villages list was used to sort all the villages in three categories; Secured, Semi-secured and Unsecured. All the unsecured areas were omitted at the beginning of the assessment.

The techniques used include Semi-Structured Interviews (SSI), Focus Group Discussions (FGD), Observation and Key Informant Interviews (KIIs) The standardized SSI questionnaires were translated to local Languages Pashto for better performance and guidance of the teams. During the three days for qualitative data collection, assessment teams did 57 SSIs, 27 FGDs, and 11 KIIs.

For SSIs and FGDs, the teams focused on caregivers of defaulted children, "Malik", "Mullah", caregivers of children in/out program, men, and women, teachers, head of health "Shura", CHS, CHWs, Nutrition Counsellors and health facility/Doctor in charge of the nutrition programs. The term "Mullah" refers to the religious leader while "Malik" refers to the village elder. Both Mullah and Malik are members of the community health Shuras in the CBHC program. A couple of the KII and observation were conducted with health facility staff including HF in-charges, Nutrition staff as counselors.

The two principles of SQUEAC, 1) triangulation, and 2) sampling to redundancy were applied. At the end of each day of data collection, all information was discussed, analyzed, and classified as booster or barrier, and the sources that reported the information were notified. To verify the information as a true barrier or booster, it needed to be verified by several sources and methods. The Boosters, Barriers, and Questions (BBQ) tools were also employed to enable investigation of more information, which came up as questions after each day analysis.

A.1.2. Data compilation and analysis

The triangulated findings of the qualitative investigation were arranged in an overall list of barriers and boosters and organized by theme. The key observations are summarized below.

Table 3: Explanation of Boosters

BOOSTERS	EXPLANATION
Radio/TV announcement, Knowledge of nutrition and program, and caretaker perception on malnutrition.	The qualitative data collected from numerous key informants in the community level, shows that the public has a good perception/information about the nutrition program existence in their neighborhood, they know what the malnutrition is? Which program is being run in their community? They know where to look for malnourished children's treatment? They know what are the common sign and symptoms of malnutrition? The key informants know about the unpleasant consequences of malnutrition on the community although, they have a good understanding of the major causes of malnutrition. They know that, not breastfeeding children and not giving them complementary food after month 6 and not taking simple illnesses seriously can lead their children to malnutrition immediately. They understand the lifelong dangerous consequences of malnutrition and collaborate with each other to get access to services.
Positive opinion about the program and mothers sharing the information with others about the program	As the nutrition program is implementing for the last few years in the province. Locals have been witnessing the successful treatment of numerous malnourished children for many years. That way, now what they say about the program is on the positive side. Most of the inhabitants are very pleased with the nature of the program and its effectiveness, with the exception of the limited number of people who have believed in non-medical and traditional therapies and do not want their children treated in health facilities. The rest of the public seems to be happy with the program and seeks to go to health centers for the better and effective treatment of their malnourished children. As the strongest booster, Mothers and other caregivers are sharing their own optimistic experiences of getting access to nutrition programs with other mothers at the community level, and directly asking them to take their malnourished children to OPD-SAM sites. Mothers who received health educations in health facilities are sharing their knowledge and understanding from malnutrition with other mothers, which can better help mothers to know about the basics of malnutrition and get aware of the existed program in their neighborhood.
Health Education and Screening of <5 children at HF level	The regular health education at health facilities was helpful to increase the general awareness at the community level, On the other part a program of health education and increasing public awareness was implemented at the community level and it was very useful to enhance the positive perception of common people regarding health/ nutrition services. Furthermore, our team also observed that health facilities staff were using the IEC materials in their daily health education sessions. Mehlan and Ibrahim Khil BHCs in Paktia province had a comprehensive timetable to

	manage their health educations at health facility level; AAH team observed the timetable and it was including different messages of health and nutrition as IYCF messages. Having such systematic procedure for raising public awareness can lead the program to very high access and uptake rate and early admission as well, which is directly linked with a short length of stay because in such informative sessions mothers learn a lot about the malnutrition and then sharing their knowledge with others in communities. Additionally, the health facilities staff were actively screening all the U5 children and were looking for any suspicious malnourished children, if a suspicious case was confirmed as SAM or MAM case, they were referring the child to nutrition room, and other key informants confirm these evidence. Mothers and caregivers of malnourished children were raising the same evidence, they were gratified towards the health facility staff to screen their children and admit him/her to the program. It is a very good practice that helps to identify all those malnourished children admitted to health facilities for other purposes except malnutrition.
CHWs, and community key informants referring children to HFs for the treatment	Community elders in collaboration with Community Health Workers "CHW" were refereeing suspected malnourished children to the health facilities in some villages and the CHWs were also doing screening at the community level to confirm, whether the child is malnourished or eligible to be referred or no? And Numerous mothers confirmed that their children were referred to health facilities by CHWs but some of the mothers also confirmed when their children were getting sick and they were referring to private HFs if the child became malnourished or needs nutritional services, it was referred by the private sector as well. This was a great collaboration, which can help the program to maximize its coverage and can lead the communities to have timely access to the program.
No serious restrictions for mothers to go to health Facility for the treatment of their malnourished children	Paktia, such as many other provinces in Afghanistan has a multicultural community, which hosts different ethnic groups. Pashtun is the leading ethnic majorities in this province, following by Tajik and Shaya. Most of them were allowing their women and caretakers of a sick child to take out the child to get health cares and it was confirmed by many mothers. That's way, there were no significant limitations and restrictions for women in the majority areas of the district to affect their access to primary health care. Having such a big booster can directly affect the access and uptake of the nutrition program, more and more mothers enrolled their children in the program and the program is going to cover remoted and hard to reach areas. Furthermore, it can help to minimize late admission and complicated SAM cases.

Malnutrition is not a stigma in the community	Based on our experiences from Afghan societies, it is a stigma if someone has any malnourished child and this refers to their dislike culture. But fortunately, most of the observed common people in Gardiz declared and confirmed that the malnutrition is not a stigma in their society. This booster is making easier the referral system and early admission of malnourished children as well.
Good treatment seeking behaviors and common people are helping the program	Most of the community elders and influenced people are helping the health program and nutrition services as well, they are satisfied with health services and support the smooth implementation of such projects, and they know where to get the right service is an amazing booster that affects both access and uptake of the nutrition program. Here in Paktia, more people are aware of where to go to treat their malnourished children. They have kin awareness about malnutrition and are aware of the existence of a malnutrition rehabilitation program near to their residential area. More people are convinced that malnourished children should be taken to health centers to be treated. They understand that clinics are the right place for treating malnutrition.
Believe on health professionals and believe in self-prevention and Hygiene as well	Most of the people had believed on health workers and health professionals in their community. These are good perception which is leading community toward health facilities for getting the primary health cares, which can accelerate early admission and reduced length of stay in the program, and some of the people had believed on personal hygiene and prevention of malnutrition. They mentioned the causes of malnutrition if they remove it and support their mothers during pregnancy and breastfeeding children at the beginning of life, then no child will be malnourished in the community.
Home-based treatment of the malnutrition using local foods	Most of the key informants and mother declare that, if a child becomes malnourished then they are helping and mostly caring about this malnourished child, and they are trying to give Foods rich in nutrients, increasing the frequency of meal and using local nutritious food for this child as well.

Table 4: Explanation of the Barriers

BARRIERS	EXPLANATION
RUTF Stock out, Shortage and High Defaulters	RUTF stock out was the strongest barrier and interrupting the normal treatment stream of malnourished children in the month of Dec 2019 when the project was handed over from MRCA to HEWAD in Paktia province. In accordance with the information derivate from OPD-SAM registers and malnourished children, treatment follow up cards. Despite all the other barriers, the RUTF shortage is directly associated with a very high defaulter rate. So, it can be inferences from the Paktia province data that the first

	stock break arose for more than one month, where all SAM children attending the program were forced toward defaulting. RUTF shortage can seriously affect program coverage and access. Meanwhile, RUTF shortage leads the communities to have a negative perception regarding the program and the high defaulter/hidden to default rate triggered by RUTF shortage can lead the program to inefficiency, low cure rate and long length of stay "LoS".
Far Distance and poor economic status of the communities	Living in remote and hard to reach areas with poor economic status for some families were the main barriers have been mentioned by most of the key informants and community members as well, during the qualitative interviews of this SQUEAC Assessment. As most of the interviewed people reported that, they are not able to pay transportation cost or rent of car when they are referring to HFs, therefore people with poor economic status, living far from the health facilities were more likely to have less access to the program and weak awareness regarding the malnutrition program. That way, both far distance, and poor economic status are associated with less and late admission, increasing uncovered cases and lack of information regarding the program and defaulting. On the other hand, the poor economy was keeping people locked to their villages with no or less access to the program, because the travel and its opportunity costs were not affordable to the inhabitants of remote areas.
Work load on HFs staff, No specific staff for nutrition activities, Bad Behavior of HF staff and Long waiting time of patients at HF to receive the services	Evidence from HFs staff and key informants' interviews and also the SQUEAC assessment technical team's observations have unveiled that health facility staff in-charge of the nutrition program is overload because of high patient flow and having two or more parallel responsibilities in the same health facilities. For example, a CHS in Ibrahim Khil BHC has responsibility for more than three tasks such as giving health education, providing nutrition services including screening of U5 children, measurement and registration of malnourished children and working as CHS, it is effecting directly the quality of services and increasing waiting time as well. Afghanistan's Ministry of Public Health has recently allocated a special position for nutrition program as nutrition consular in each HF but currently, there was no specific employee to deliver nutrition services in the Mehlan and Ibrahim Khil BHCs. Furthermore, Inhabitants in Paktia province complained about the often bad or unsuitable behavior of the medical staff during their visits from the health facilities. beneficiaries also complained that they are beaten by the health workers among receiving the cares as well. Moreover, sometimes they deny giving them RUTF and do not take turns for them that forces all the care seekers to wait for a long time in line at health facilities to receive the services.

	All these barriers together with drawing the beneficiaries' opinion about the dissatisfaction towards IMAM program causing negativity and may cause the program toward failure in gaining the optimal cure rate.
Insecurity	Many beneficiaries and HFs staff also complained about the insecurity and ongoing clashes in the area when the people are going to receive health care. Many time they faced with security problems. From one point of view, insecurity always increasing the default rates, and from other parts, it is directly affecting access of the local people to health facilities. People sometimes cannot go to health facilities for fear of being wounded/killed in the ongoing clashes, the qualitative data indicate that most of the mothers were not able to take their malnourished children to health facilities because of insecurity, Evidence shows that insecurity can affect the total admission, enhance defaulting and is able to affect the cure rate negatively.
Poor supportive supervision and on the job training	Delayed, poor and non-supportive supervision from the nutrition staff in health facilities in the last two years and lack of qualified On the Job Training were the biggest barriers that have been reported in qualitative data, both the health facility staff and observations of the SQUEAC team confirm these evidences. Lack of or inactive supervision from health staff especially nutrition workers are making their mistakes hidden and allows them to repeat the same mistake over and over again. Meanwhile, on the job training is the best way to raise the staff's professional capacity. On the job training makes the ready to accept new challenges in the workplace and adapt to new tasks. Therefore, poor supportive supervision that affects the quality of the program can prevent common working mistake, selection and measurement biases such we observed in admission and discharge criteria in treatment cards, and is the best way to raise staff working capacity in their working sites. All these are essential to launching an effective program and quality assurance.
misuse of RUTF	The misuse such as selling of RUTF in the market, sharing RUTF with other children in the home is a big challenge for the program. Some of the people reported during the interviews that, they are buying RUTF from Khost province in the Bazar if they needed RUTF for their children. Therefore if someone is misusing and giving to other children who are not eligible for taking the RUTF, this is actually reducing the prescribed doses of RUTF during the treatment period of the malnourished children and this can directly affect the response and cured rate of the malnourished children.
No nutrition counselors in the health facilities, and there is no	As Paktia is one of the traditional conservative society in Afghanistan, malnourished children are being referred by both male and female, so there is need to have a separate waiting room, this means the male and female should wait and receive cares separately, therefore most of the mothers/caretaker of the malnourished children suggested that they do not

separate places for female.	have separate places for the screening of their children which can prevent a mother from HFs. Form the other hand, the female nutrition counselor is available in many HFs especially in Mehlan and Ibrahim Khil BHC, both of the mentioned factors are directly affecting coverage and access to health facilities and the can increase the uncovered case in the area.
Traditional healing believes in some families	Traditional healers such as (Mulla, Ziarat) is another barrier in the way to treat malnourished children because many people believe in traditional healers especially on Mulla Mangal who is the famous person in all the province of Paktia. Most of the common people believed that the malnourished children should be treated by Mulas (religious leader) which caused late admission and increasing length of stay at health facilities.
Lack of mobile health and nutrition team to delivered nutrition services in the remote area	As most of the villages are located far from HFs, and they are not able to visit the HF regularly for the treatment of their malnourished children, high defaulter were also caused by this barrier. The community recommendation was to provide nutrition program by Mobile teams to the community, As currently there was no Mobile team at the province to support nutrition program at the community level.
Referral of malnourished children to private health centers/clinics.	Although the private hospitals are not able to provide services and support malnourished children accordingly, the bad habits of community key informants have led people toward private hospitals, which is directly leading malnourished children toward late admission and high LoS in the program.

Table 5: First list of the positive factors Qualitative Data

S/ No	Boosters	Location	Sources	Methods	No of responses
1	The announcement on the radio/TV on nutrition.	MH-BHC, IB- BHC, RH, Zh-SHC	A,I,E, J, F, I	SSI,FGD	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
2	The community had enough information about malnutrition and the existing program.	MH-BHC, BD-SHC,RH, IB-BHC	A, G,I,K	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
3	Mother know sign and symptoms of malnutrition	MH-BHC, IB- BHC,RH	A,C,D,E,G,F,I,B ,K	SSI, FGD	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
4	Mothers are sharing program-related information with each other, which play a crucial role in having more malnourished children in the program	BD-SHC, Zh-SHC, RH, IB-BHC, MH-BHC	A,I,B,G,D,C	SSI, FGD, SI	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
5	Mothers are well aware of the breastfeeding advantages and techniques	MH-BHC, IB- BHC,RH, Zh-SHC	A, B, J, C,E	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
6	Health education in the community by HF staff	MH-BHC,RH, IB-BHC	E,I,A,B,C,D,E	SSI, FGD, SI, II	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
7	Regular screening of under-five children in the health facilities.	MH-BHC, RH, BD-SHC, IB-BHC	A,D,E,B,C,L	SSI, FGD, Obs, II	1,1, 1, 1, 1,1,1,1
8	CHWs are active in the community, they are doing regular screening and referring children to the health facilities, they had the program basic knowledge, and are sharing program-related messages in the communities.	BD-SHC,IB-BHC, Zh-SHC	A,H, J, G,I,L	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
9	Masjids and Community health Shuras are the most appropriate framework for sharing nutrition messages in the community.	MH-BHC, IB- BHC,RH	A,I,K, F, J, G	SSI, FGD,II	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
10	No problem for mothers to take their children to health facilities.	MH-BHC,RH , BD, SHC, IB-BHC	A, G,I,K, B, C,L	SSI,FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,

11	Malnutrition is not a stigma	Zh-SHC, RH, IB-BHC, MH-BHC, BD-SHC	H, G, I , J,A,B,K,L	SSI, FGD,II, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,
12	Community members are well satisfied with the nutrition program in their communities and provide enough support to the program.	MH-BHC, BD-SHC,RH, IB-BHC	H, G, I , J,A,B,K,L	FGD, Obs, SSI	1,1,1,1,,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,
13	Community leader, teachers and Mulla are the most effective people to make the people aware of the program	MH-BHC,RH, IB-BHC	F,G,E,I,J,K	SSI, FGDs, II	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,
14	Home-based treatment of the malnutrition using local foods	MH-BHC,IB-BHC,RH	A,B,I,G,J,I	SSI,FGD	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,,1,1,1,1,

Table 6: First list of the negative factors Qualitative Data

S/No	Barriers	Location	Sources	Methods	No of responses
1	Irregular RUTF supply and Stock Out in HFs	MH-BHC, BD-SHC,RH, IB-BHC	D,E,L,G	SSI, FGD,II	1,1,1,1,1,1,1,1,1,1,1
2	Far Distance; [People who are living in hard to reach areas, like 1 hour and more walking distance have more difficulties to attend the program]	MH-BHC, BD-SHC,RH, IB-BHC	C, A,B,F,I,J,G,E	SSI, FGD,II, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,,1,1,1, 1,1,1,1,1,1,1
3	The poor economic situation of the communities to afford transportation costs from home to health facilities to fulfill the treatment cycle of their malnourished children.	BD-SHC, Zh-SHC, RH, IB-BHC, MH-BHC	D,E,K,I,G,H,B, A, C	SSI,FGD, SI	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1
4	Mothers are not satisfied with the services provided in the health facilities because of the long waiting times, stock-out and bad behavior of health facility staff.	BD-SHC,IB-BHC, Zh-SHC	A, B, J, D, C,E	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1

5	Due to insecurity, people have poor access to health facilities and OPD-SAM sites for the treatment of their children, especially in the catchment area of Ibrahim Khil BHC	BD-SHC, Zh-SHC, RH, IB-BHC, MH-BHC	D,A,B,F,I,J,G,E	SSI, FGDs, II	1,1,1,1,1,1,1,1,1,1,1,1,1,,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,
6	Poor supportive supervision and monitoring	MH-BHC,IB-BHC,RH	E,D,F,G	SSI, FGD, SI	1,1,1,1,1,1
7	Lack of on the job training and some of the health facilities are not trained in the nutrition programs.	MH-BHC,RH, IB-BHC	D,E,L,G	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1
8	Misuse of RUTF Such selling of RUTF in the Bazar.	MH-BHC, IB- BHC,RH	C,A,K,H,I,D,B, E,J	SSI, FGD, II	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1
9	Families are sharing RUTF between malnourished and non-malnourished children	MH-BHC, RH, BD-SHC, IB-BHC	A,B,F,I,J,G,E	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,,1,1,1, 1,1,1,1,1,1,1,1,1,1,,1,1,1,1,1,1, 1,1,1,1,1,1,1
10	No nutrition counselors in the health facilities. They are not hired for the last 2 years.	MH-BHC,RH , BD, SHC, IB-BHC	E,D,A,B,G,I,F	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1
11	Traditional healing believes in some families	Zh-SHC, RH, IB-BHC, MH-BHC, BD-SHC	E,A,I,C,F,G,H, D	SSI,FGD, II	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,
12	Lack of mobile health and nutrition team to delivered nutrition services in the remote area	MH-BHC,RH, IB-BHC	D, E,C,J,F,G,I	SSI, FGD, Obs	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1
13	People believe in the clinical care of malnourished children, but due to long stock-out in the public health facilities, most of the people are taking their malnourished children to the private health centers in the city.	MH-BHC, IB- BHC, RH, Zh-SHC	A,I,G, B, J, E,D,F,I	SSI, FGD, SI	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,1,1

Table 7: Quantitative data Sources, Methods and Location

Location[7]	Symbols	Methods	Symbols	Sources	Symbols
Mehlan BHC	MH-BHC	Focus Group Discussion	FGD	Care taker of Malnourished children in the program	A
Ibrahim Khil BHC	IB-BHC	Semi-Structured Interview	SSI	Care taker of Malnourished children not in the program	B
Regional Hospital	RH	Observation	Obs	Care taker of defaulter children	C
Baladeh SHC	BD-SHC	Informal Interview	II	Heath Facilities Staff	D
Zaho SHC	ZH-SHC	Structure Interview	SI	CHW (M/F)	E
Local Terms for Malnutrition				Mulla	F
1	Khwar or Danghar			Malik	G
2	Kamzorai			Teachers	H
3	Wachmorai			Community members	I
4	Torangai			Dahia	J
RUTF	MAWAD			Village elder	K
MUAC	PATA			AAH Technical Team	L

Due to the community level transmission of the COVID-19, the lockdown of the Gardiz city, and restrictions on movement from villages to the city and from city to the villages, we were not allowed to continue the second and third stages of the SQUEAC. Hence it was decided that, we could continue this survey if movement restrictions are lifted in the next two months (by the end of May) and will complete the next two stages of the current SQUEAC. But the situation continued in the same circumference and the risk of transmitting Covid-19 remained high. Therefore, we relied on reporting only the first stage plus a prior building, to provide a proxy of the current OPD-SAM program coverage.

[7] PH,BHC, CHC and DH are Health facilities and others are villages

B. Prior building

B.1. Introduction

One important aspect of SQUEAC is the ability to combine the existing information with a small sample to get the coverage estimate. The existing information collected in the survey gave just a feeling of how coverage was likely to be. The **Bayesian technique** is used to correctly represent the belief about coverage. The 'Prior' (the *mode* of the probability density) was developed based on findings of Stage One and Stage Two, to assume the most likely coverage rate that the OPD-SAM program expects.

To develop the prior in Paktia SQUEAC assessment, five methods were used to ensure triangulation, which is an important principle in SQUEAC methodology: the average of the simple scores, the average of the weighted scores, the medium of the Histogram believe, the average of Mind map and the concept map. The investigation team went through the boosters and barriers (identified during Stage 1) and scored each one according to their relative impact on coverage. A score between 1 and 7.1 (low and high effect) was allocated to each barrier and booster (100/the maximum list of barriers (14) = 7.1). This shows that prior generated from the simple and weighted scores is by the equal importance of each barrier. The process of scoring of boosters and barriers is shown in the table below:

Table 8: Simple and weighted scores of Boosters and Barriers

#	Boosters	S-Score	W- Score	Barriers	S-Score	W- Score
1	The announcement on the radio/TV on nutrition.	7.1	4	Irregular RUTF supply and Stock Out in HFs	7.1	7
2	The community had enough information about malnutrition and the existing program.	7.1	6.5	Far Distance; [People who are living in hard to reach areas, like 1 hour and more walking distance have more difficulties to attend the program]	7.1	6.5
3	Mother know sign and symptoms of malnutrition	7.1	6	The poor economic situation of the communities to afford transportation costs from home to health facilities to fulfill the treatment cycle of their malnourished children.	7.1	7

4	Mothers are sharing program-related information with each other, which play a crucial role in having more malnourished children in the program	7.1	6.5	Mothers are not satisfied with the services provided in the health facilities because of the long waiting times, stock-out and bad behavior of health facility staff.	7.1	5
5	Mothers are well aware of the breastfeeding advantages and techniques	7.1	5.7	Due to insecurity, people have poor access to health facilities and OPD-SAM sites for the treatment of their children, especially in the catchment area of Ibrahim Khil BHC	7.1	7.1
6	Health education in the community by HF staff	7.1	5.5	Poor supportive supervision and monitoring	7.1	7.1
7	Regular screening of under-five children in the health facilities.	7.1	5.5	Lack of on the job training and some of the health facilities are not trained in the nutrition programs.	7.1	5
8	CHWs are active in the community, they are doing regular screening and referring children to the health facilities, they had the program basic knowledge, and are sharing program-related messages in the communities.	7.1	3.5	Misuse of RUTF Such selling of RUTF in the Bazar.	7.1	6
9	Masjids and Community health Shuras are the most appropriate framework for sharing nutrition messages in the community.	7.1	4.6	Families are sharing RUTF between malnourished and non-malnourished children	7.1	4
10	No problem for mothers to take their children to health facilities.	7.1	6.8	No nutrition counselors in the health facilities. They are not hired for the last 2 years.	7.1	3
11	Malnutrition is not a stigma	7.1	5	Traditional healing believes in some families	7.1	4.5
12	Community members are well satisfied with the nutrition program in their communities and provide enough support to the program.	7.1	5.5	Lack of mobile health and nutrition team to delivered nutrition services in the remote area	7.1	7

13	Community leader, teachers and Mula are the most effective people to make the people aware of the program	7.1	4.6	People believe in the clinical care of malnourished children, but due to long stock-out in the public health facilities, most of the people are taking their malnourished children to the private health centers in the city.	7.1	5
14	Home-based treatment of the malnutrition using local foods	7.1	4			
Calculation of the prior mode		100	73.7		92.9	74.2

For both the simple and weighted scores, the following calculation was then used to calculate the simple and weighted prior estimations:

Prior Estimation $= \frac{(Sum\ of\ booster+0)+(100-Sum\ of\ Barriers)}{2}$

B.3.2 Weighted score

The scores given to each factor depends on the number of "confirmed" qualification stated by the different sources, methods, locations, and the potential impact it had on coverage. To estimate the possible significance of boosters and barriers, it is considered that by which methods and from how many sources it is confirmed. A factor confirmed by fewer sources and a few methods, with a low weighted score is accepted to have low significance, while those confirmed by several sources, methods, locations, and with a high weighted score is accepted to have a high significance. Each booster and barrier was given a score ranging from 1 to 7.1.

The total sum of the boosters was added to the lowest possible coverage (0 + 73.7) **= 73.7%**

The total sum of the barriers was subtracted from the highest possible coverage (100–74.2) **=25.8%**

Prior mode; from the weighted boosters and barriers (73.7% + 25.8%)/2 = **49.75%.**

B.3.3. Simple score

All factors were given a score ranging from 1 to 7.1 based on the assumption of impact on coverage.

The total sum of the simple boosters was added to the lowest possible coverage (0 + 100) = 100%.

The total sum of the simple barriers was subtracted from the highest possible coverage (100 – 92.9) = 7.1

Prior mode; from the simple boosters and barriers (100% +7.1%)/2 = **53.55%**

B.3.5. Mind Map

Another method which can be used to estimate a prior is to count the total number of positive and negative factors on the mind map constructed during Stage 1 of the SQUEAC. This includes observations made during the quantitative data analysis and all of the positive and negative factors identified during the qualitative data investigation. A total of 29 positive and 37 negative factors were identified.

Prior mode from the Mind Map is $\frac{29\%+(100-37\%)}{2} = 46.0\%$

B.3.6. Concept Map

Following the finalization of the barrier and booster table, the teams worked together to draw concept maps for barriers and boosters to illustrate the links between factors and how they link to the coverage.

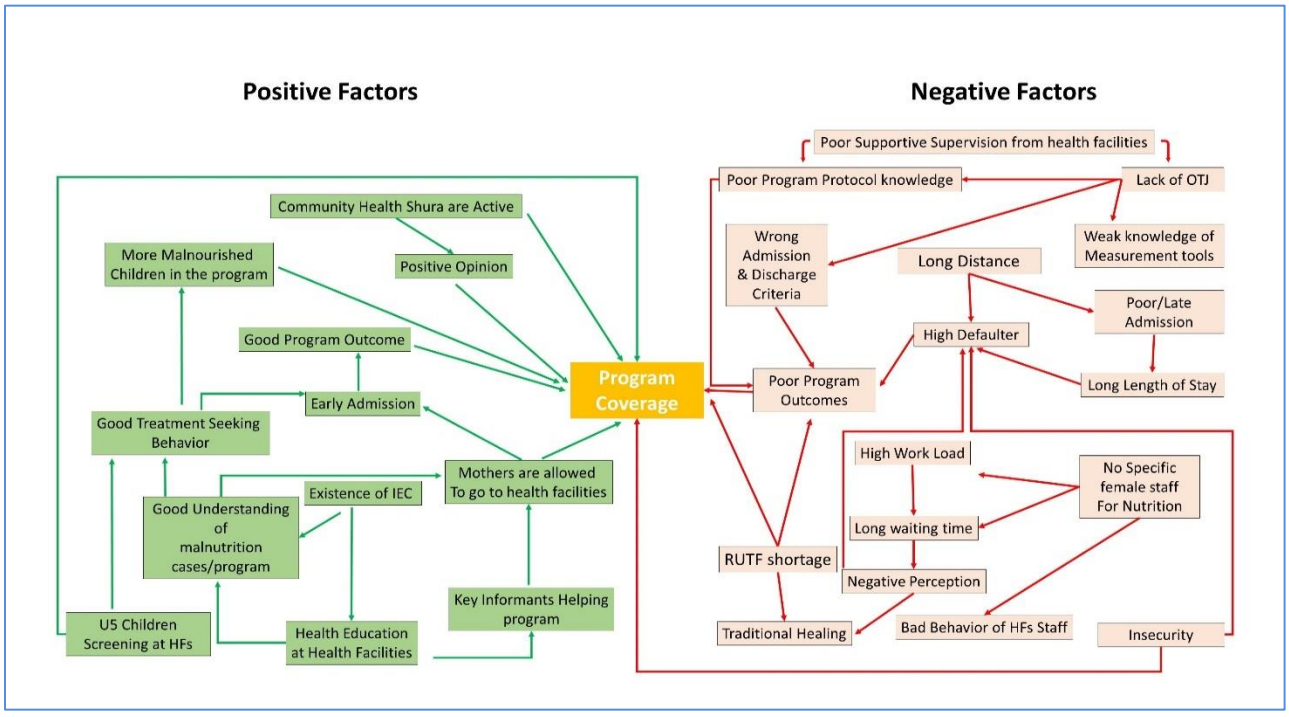


Figure 14: concept Map of Paktia SQUEAC

By counting the links between boosters and barriers, it was possible to calculate another prior estimation; it was possible to identify 15 positive and 37 negative links:

- Concept map prior estimation for OPD SAM = $\frac{(0+19)+(100-25)}{2} = 47\%$

B.3.7. Prior mode

The average of these prior estimates for the OPD SAM program was calculated to produce an average prior mode (see Table 9).

Table 9: Prior Mode Calculation

Prior contributing element	OPD SAM program
Prior From Simple Scores	53.55%
Prior From Weighted Score	49.75%
Mind Map	46.00%
Concept Map	47.00%
Average / Prior mode	53.55+49.75+46.0+47.0/4= **49.08%**

The prior mode value of 49.08% plotted for the OPD-SAM program using **Bayes SQUEAC Coverage Estimate Calculator** (version 3.01). For choosing uncertainty value there is two way based on SQUEAC guideline:

A; if there is greater uncertainty about the value of the prior mode, then ±25% should be used.

B; if there is very little uncertainty about the value of the prior mode, then ±20% might be used. It is never appropriate to use an uncertainty range of less than ±20%. In Paktia province, the range of certainty was less and there was not available any update data of coverage in the province therefore the appropriate uncertainty value of ±20% was used for this calculation.

Therefore, for OPD SAM, with a prior mode of 49.08 the minimum probable value was 29.08% (49.08-20), and the maximum probable value 69.08% (49.08+20).

The conjugate analysis method used in SQUEAC requires the prior distribution to be summarized by two numbers called **shape parameters**, **αprior and βprior**. These are calculated using the mode and the minimum and maximum probable prior values as follows:

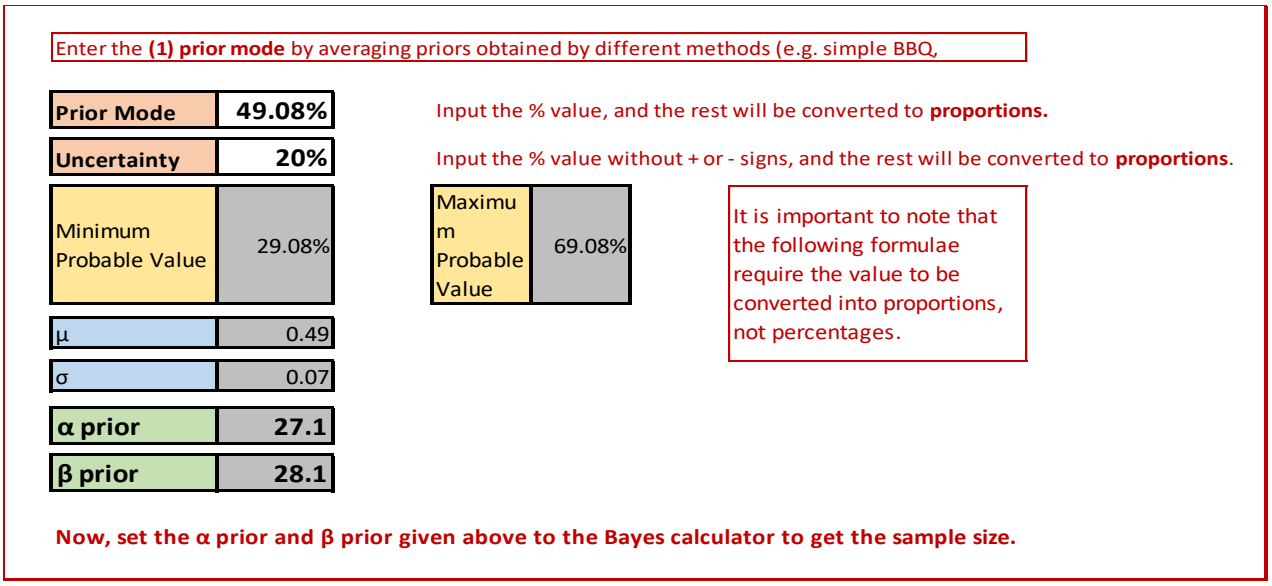


Figure 15: Bayes SQUEAC Coverage Estimate Calculator

Note: Enter the **(1) prior mode** by averaging priors obtained by different methods (e.g. simple BBQ, weighted BBQ, histogram, etc.) and **(2) level of uncertainty**. Conventional value of uncertainty is +/- 25%. In this case, input 25% in the second cell below. If you have a good prior knowledge about the coverage, +/- 20% can be used. The cells highlighted in grey will be automatically calculated.

Table 10: for OPD SAM Prior Mode

	For OPD SAM prior mode
α Prior	**27.1**
β Prior	**28.1**

Table 11: Joint Action Plan for the Nutrition program coverage and access improvement

Recommendation	Findings	Actions to be taken	Responsible people	When to do it	Level of priority
To improve the capacity of the HFs worker about anthropometric measurement and documentation.	**1.** Based on our direct observation from Mehlan and Ibrahim khil BHCs, the Nutrition worker did have enough knowledge for screening especially in taking of W/H Z-score. **2.** The admitted children were not fulfilling the admission criteria of the OPD-SAM program, It means that some health facilities treated MAM cases in the OPD-SAM program. **3.** Some non-malnourished or normal children were also admitted to the program. **4.** In all health facilities, 20.39% (237 cards) out of 1162 treatment cards the admission criteria were not marked, which made it hard to know the exact admission criteria by which the children were admitted to the program.	**1.** Refresher on new nutrition guideline to all HFs staff. **2.** On the job training to all the nutrition workers especially on anthropometric measurement. **3.** Regular supportive supervision.	HEWAD Nutrition office, PNO, Nut-Extender	Aug-20	High

Recruitment of staff for Nutrition consular and food distributer position	**1.** Workload on HFs staff especially in BHC clinics. **2.** Long time waiting for patients to receive the nutrition services. **3.** Bad behavior of HFs staff due to high workload. **4.** Poor documentation /filling system. **5.** Poor consoling to the caregivers	**1.** Nutrition counselor must be hired for each of the HF and the equity for hiring must be considered. **2.** Strengthening of supervision from HFs and follow up from the given feedbacks.	AAH, BPHS IP & PPHD	Aug-20	High
Improve nutrition program outreach activities at community leave and nutrition education at HFs and community level	**1.** In FGDs and KIIs interviews with key informants showed that most of the people were not sensitized about the malnutrition and the obscene habits are still available in the community. **2.** As the plan for health education was available on the board of HFs but it was not practicing and applying for the beneficiaries on regular base. **3.** Poor referral from the community to the program. **4.** Late admission in the program	**1.** Each HF need to add nutrition activities in HF outreach monthly plan. **2.** Training on community mobilization and sensation for the CHW. **3.** Under five children screening at community level and refer the malnourished children to HFs. **4.** Nutrition program education through radios or TV channels.	Nutrition Nurse, CHS, CHW, HF in-charge and nutrition officer	Aug-20	medium

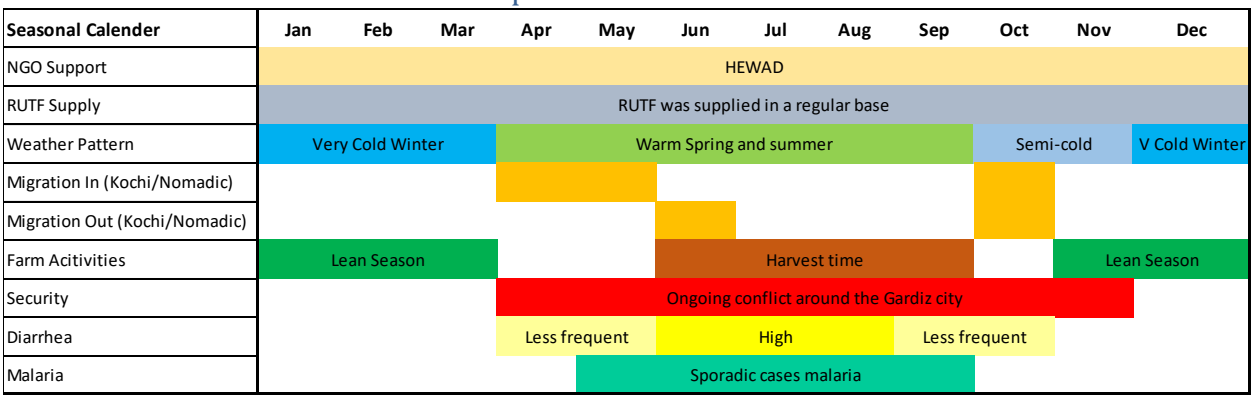
Improve the nutrition program coverage	**1.** A Strict culture where some women are not allowed out of the home to go to Clinics without Mahram. **2.** The common people of Paktia are poor and living remotely from the HFs **3.** Most of the people were not able to pay the transportation cost to regularly visit HF according the program protocol. **4.** High defaulter in the program **5.** Insecurity	**1.** Implementation of mother MUAC approach at community level. **2.** Implementation of the nutrition program through Mobile team (HNMT) at remote areas. **3.** Health education and screening session by CHWs at community. **4.** To expand the nutrition program to lower level HFs, and to start Nut-program in the Bala Deh SHC and Zahu SHC and etc.	BPHS IP, PPHD, IRC and UNICEF	Oct-20	High

Annexes

Annex 1. Participants list of Paktia SQUEAC assessment.

	Name	Position	Responsibility in SQUEAC
1	Dr. Ahmad Abed Habibi	Surveillance SQUEAC PM	Leading SQUEAC assessment
2	Dr. Muhammad Khalid Zakir	Nut-Surveillance SMART PM	Leading SQUEAC assessment
3	Mr. Farid Ahmad		Supervisor
4	Mr. Abdul Raoof		Supervisor
5	Dr. Habiburahman		Supervisor
6	Dr. Samiullah		Supervisor
7	Mr. M. Naeem	Survey Focal Point- ARDHO	Supervisor
8	Mr. Abdul Rahman		Enumerator
9	Ms. Jamila		Enumerator
10	Ms. Muslima		Enumerator
11	Ms. Sabrina		Enumerator
12	Dr. Qudratullah		Enumerator
13	Eng. Ahmad Atiq		Enumerator
14	Mr. Rahmatullah		Enumerator
15	Mr. Lotfullah		Enumerator
16	Ms. Karima		Enumerator
17	Ms. Sohaila		Enumerator

Annex 2. Seasonal Calendar of Paktia province



Annex 3: HFs list of Paktia province

District	HF Name	HF Type	HF ID	Nutrition Services
Gardiz	Mehaln	BHC	2119	OPD-SAM
	Reional Hospital	RH		IPD-SAM & OPD-SAM
	Ibrahim khil	BHC	2028	OPD-SAM
	Balada	HSC	281	N/A
	Sepaikhil	HSC	2475	N/A

Ahmad Aba	Machalgho	CHC	1520	OPD-SAM
	Surki malang	BHC	2192	OPD-SAM
Zurmat	Tameer	DH	282	OPD-SAM
	Sahak	CHC	1518	OPD-SAM
	Kulalgo	CHC	1718	OPD-SAM
	Mamozi	BHC	1719	OPD-SAM
	Surki	BHC	2081	OPD-SAM
	Arma	BHC	2082	OPD-SAM
	Haybatkhil	HSC	4425	N/A
Said karam	Saidkaram	CHC	1594	OPD-SAM
	Kohseen	BHC	1734	OPD-SAM
	Jahad kali	BHC	2083	OPD-SAM
Ahmad Khil	Gulzar ziarmal	BHC	1038	OPD-SAM
	Sekandar khil	HSC	3207	N/A
	Shawat	HSC	3413	N/A
	Mushaka	HSC	2305	N/A
	Sabat khil	HSC	2543	N/A
Zazi Aryoub	Zazi aryoub	DH	293	IPD-SAM & OPD-SAM
	Gul Ghondi	HSC	3702	N/A
	Swanikhil	HSC	3409	N/A
	Drikholi	HSC	2306	N/A
	Petla	HSC	3415	N/A
	Roqyan	HSC	2977	N/A
Laja Mangal	Laja mangal	CHC	1728	OPD-SAM
	Toshnak	BHC	2084	OPD-SAM
	Khirani	HSC	3414	N/A
Chamkani	Chamkani	DH	239	IPD-SAM & OPD-SAM
	Lawari	BHC	2303	OPD-SAM
	Manda khil	HSC	3412	N/A
	Nurgasy	HSC	3411	N/A
Jani Khil	Janikhel	CHC	287	OPD-SAM
	Tonga parokhil	HSC	2540	N/A
Danda Patan	Danda wa patan	BHC	288	OPD-SAM
	Qimaty	HSC	2542	N/A
	Muqble	HSC	3410	N/A
Merzaka	Merzaka	BHC	2085	OPD-SAM
	Indowam	HSC	2085	N/A
Shwak	Shawak	BHC	1725	OPD-SAM
Garda Sery	Garda seery	BHC	2304	OPD-SAM
Wazi zadran	Wazi zadran	CHC	1730	OPD-SAM