Community Based Management of Acute Malnutrition (CMAM) **Local Community Coverage Assessment: Full Report**

Ukhiya and Teknaf, Cox's Bazar, Bangladesh

January – February 2022

WFP World Food Programme

SAVING LIVES CHANGING LIVES

ACTION AGAINST HUNGER ACTION CONTRE LA FAIM

National Nutrition Services

Ensuring Nutrition Services to All

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

SHED

Cox's Bazar, Bangladesh NUTRITION SECTOR

CONTENTS

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ABBREVIATIONS

AAH	Action Against Hunger
Children U5	Children under 5 (i.e. children aged 6-59 months)
CI	Confidence interval
Cin	Case in the programme (OTP or TSFP)
Cout	Case not in the programme
CMAM	Community-based management of acute malnutrition
CNC	Community Nutrition Centre
CNR	Child non-respondent
CNV	Community nutrition volunteer
CNW	Community nutrition worker
EPI	Expanded programme of immunisations
FGD	Focus group discussion
FWC	Family welfare clinic
GAM	Global acute malnutrition
IYCF	Infant and young child feeding
LQAS	Lot quality assurance sampling
M3A3	Median three, Average three (method of smoothing data)
MAM	Moderate acute malnutrition
MUAC	Mid-upper arm circumference
OTP	Out-patient therapeutic programme
PLW	Pregnant and lactating woman
Rin	Recovering case (i.e. a case that was SAM/MAM but who is still in the OTP/TSFP programme as they have not yet reached discharge criteria)
Rout	Recovering case not in the programme (i.e. a case that has recovered from SAM / MAM without being admitted to an OTP/TSFP)
RUTF	Ready-to-use therapeutic food
SAM	Severe acute malnutrition
SHED	Society for Health Extension and Development
SMART	Standardised monitoring and assessment of relief and transitions
SQUEAC	Semi-quantitative evaluation of access and coverage
SSI	Semi-structured interview
TSFP	Targeted supplementary feeding programme
UHSC	Union health sub-centre
WFP	World Food Programme
WN	Well-nourished children or women
WSB	Wheat Soya Blend ++ (Supercereal Plus)

EXECUTIVE SUMMARY

Key highlights

Programme coverage (children 6-59 months [children U5]):

- SQUEAC estimates **Outpatient Therapeutic Programme (OTP) coverage** to be **69.5 percent (95% CI: 58.6 - 78.5 percent).** However, true coverage is likely higher (75-85 percent) based on a wide area survey.
- **Targeted Supplementary Feeding Programme (TSFP) coverage** is estimated to be **81.2 percent (95% CI: 76.4 – 86.0 percent)** by a wide area survey.
- These coverage estimates indicate that coverage of Community-based Management of Acute Malnutrition (CMAM) programmes for children is above the **Sphere standard for rural contexts (50 percent) in both Ukhiya and Teknaf upazilas.** This was attributed to screening campaigns from October to November 2021. There were little differences in findings between the two upazilas (sub-districts).

Primary reasons for non-attendance:

- Under OTP, children were enrolled in the TSFP but had not been referred to the OTP.
- Under TSFP, carers and their children were waiting for a referral to the TSFP.

Programme coverage for Pregnant and Lactating Women (PLW):

- **TSFP coverage** was estimated at 70-100 percent based on wide area survey findings. Coverage of the TSFP for PLW **is thus above Sphere standards for rural contexts (50 percent).**
- **The main reason for non-attendance** of non-covered Moderate Acute Malnutrition (MAM) cases was that PLW were unaware that they were MAM.

Community screening coverage (Children & PLW):

- At least 95 percent of PLW and carers confirmed that they or their children had previously been screened at home. More than 90 percent confirmed that screening had taken place in the month preceding the survey.

Background and objectives

The upazilas (sub-districts) of Ukhiya and Teknaf are in Cox's Bazar, southern Bangladesh, one of the country's most disaster-prone coastal districts. The district's rural communities, many of which have low socioeconomic status, are highly vulnerable to tropical cyclones, tidal surges, and flooding, especially during the annual cyclone season which lasts from May to July. In addition, the two upazilas host the overcrowded Rohingya refugee settlements; and, in October 2021, were home to approximately 888,000 Rohingya refugees, the majority of whom had fled from Myanmar in 2017.

The January 2021 SMART nutrition survey indicates that the prevalence of global acute malnutrition by weight for height (WFH) remains at "Medium" (the third-highest category). The

prevalence rates for chronic malnutrition, commonly known as "stunting", was in the "High" category. However, a low prevalence of wasting by middle upper arm circumference (MUAC) was observed among women of reproductive age (<2.0 percent).

Since 2012, the Government of Bangladesh has been running programmes to tackle the high rates of acute malnutrition in the two upazilas with support from the World Food Programme (WFP), AAH Bangladesh and SHED[1]. They have done this through community-based management of acute malnutrition (CMAM) programmes which treat SAM and MAM in children 6-59 months in 54 community nutrition centres (CNCs): 25 in Ukhiya and 29 in Teknaf. The CMAM programmes also work to prevent and treat acute malnutrition in PLW.

In January and February 2022, WFP commissioned a coverage survey of CMAM services for both children under five (children U5) and PLW. Conducted by the AAH Bangladesh nutrition surveillance team, this was the fourth coverage assessment since 2015 and was conducted using the Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) methodology. It sought to assess treatment coverage of CMAM services (both Severe Acute Malnutrition [SAM] treatment in the OTP and MAM treatment in the TSFP) among the local/Bangladeshi communities in Teknaf and Ukhiya. The 2022 assessment set out to assess CMAM coverage of PLW for the first time, in addition to coverage of children U5.

The SQUEAC methodology is an iterative assessment method which uses existing programme data and new survey data to estimate the coverage of SAM and MAM treatment services. The methodology involves three stages of data collection and analysis, including programme data analysis, qualitative data collection and analysis, mind mapping and in-community survey methods.

Key findings

PROGRAMME COVERAGE - OTP (CHILDREN)

Based on three-stage SQUEAC methodology, OTP coverage for SAM children 6-59 months was **69.5 percent (95 percent Confidence Interval, CI: 58.6 - 78.5 percent)**. However, the true OTP coverage estimate is **75 - 85 percent** based on wide-area survey results in Ukhiya and Teknaf.

PROGRAMME COVERAGE - TSFP (CHILDREN AND PLW)

Based on the wide-area survey, the TSFP coverage for MAM children was **81.2 percent (95% CI: 76.4 – 86.0 percent).** The TSFP coverage for PLW was not possible to calculate due to the low number of PLW identified during the survey. However, based on the results of the wide-area survey, it was possible to say that TSFP coverage for **PLW falls between 70 and 100 percent.**

The disaggregated wide-area survey findings indicated that OTP and TSFP coverage for children aged 6-59 months and TSFP coverage for PLW were similar in Ukhiya and Teknaf. **All**

1 Social Health and Education Development

three estimates exceeded the Sphere standard for coverage in rural contexts which is greater than 50 percent. Mass screening activities in October 2021 likely contributed to high coverage levels of children aged 6-59 months and PLW.

COMMUNITY SCREENING COVERAGE (CHILDREN AND PLW)

At least 95 percent of PLW and carers confirmed that they or their child had been screened at home. More than 90 percent confirmed that this had taken place during the month preceding the survey. There was a significant increase in community screening in 2022 compared to 2019, indicating substantial outreach activities happening at the community level.

KEY BARRIERS TO ACCESSING SERVICES

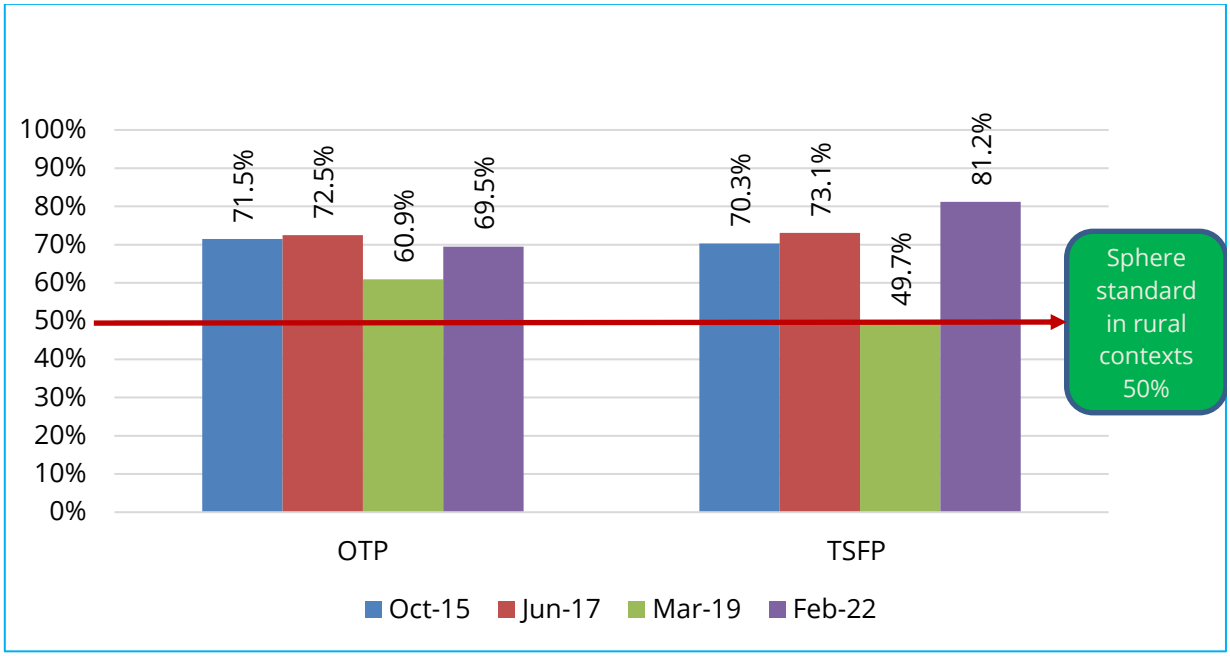
Where non-covered SAM children were identified, children tended to be enrolled in the wrong programme. For example, some children in the TSFP had become SAM whilst receiving treatment and had not been transferred to the OTP.

Where non-covered MAM children were identified, carers were usually waiting for a referral to the TSFP, indicating that they either did not know that they could enrol their child spontaneously at the CNC or that they had been referred but were waiting for the monthly distribution date.

There was also evidence that male community leaders and other men in the community are not targeted by sensitization efforts and therefore lack understanding of malnutrition and the CMAM programme, which may lead to negative perceptions in the community.

Programme coverage trends overtime

Figure 1: Treatment coverage estimates among local/Bangladeshi communities in Ukhiya and Teknaf: CMAM programme for children U5 (2015-2022)



The results from the SQUEAC indicated that coverage estimates for children U5 for both OTP and TSFP increased since the last survey in March 2019, with a significant improvement in TSFP coverage.

Recommendations

The findings of the CMAM coverage assessment in Ukhiya and Teknaf were presented to Nutrition Sector partners on 16 March 2022. Based on the negative factors identified during the survey and assessment results, partners elaborated recommendations to improve coverage. More detailed activities relating to each recommendation are included in the recommendations section.

Table 1: Treatment of acute malnutrition (children U5 and PLW) in Community Nutrition Centres

Negative factor identified	Recommendations
SAM children are not being identified during TSFP distribution days	• OTP distribution should take place at seven-day intervals • TSFP distribution should revert to bi-weekly • CNV/CNW should be increased to meet the need and ensure better screening • Active cases from screening should be admitted to the programme soon possible after referral
Some pregnant women cannot or will not visit the CNC during the third trimester	• Alternative caregiver can attend to receive food • Proper monitoring and tracking • Sensitization to alternative caregivers or other family members

Community outreach

Negative factor identified	Recommendations
Male leaders and community members excluded from sensitisation	• Sensitize a greater number of men on CMAM programmes • Monitor and report male forums reached on a monthly basis
Few referrals from model mothers	• Strengthen model mother activities and modify their responsibilities to include clear demarcation of their working areas • Organise model mother meetings on a monthly basis with incentives for participation
The sale and availability of therapeutic and supplementary food in local markets at cheap rates, leading to non-responders and defaults	• Sensitise caregivers, male forums, and local influencers on the importance of CNC visits and the consumption of therapeutic and supplementary food by intended beneficiaries
Poor hygiene in certain areas leads to high child non-respondent rates	• Conduct sensitisation on proper hygiene during courtyard sessions • Coordinate with other stakeholders who work on WASH components

	• Investigate the feasibility of distributing hygiene kits to malnourished children (OTP and TSFP)
Low screening coverage by CNV/CNWs in remote areas	• Identify remote areas at risk of low screening coverage • Conduct mass screenings in these areas • Consider setting up mobile nutrition teams for those areas to conduct screening and treatment services monthly

1. CONTEXT

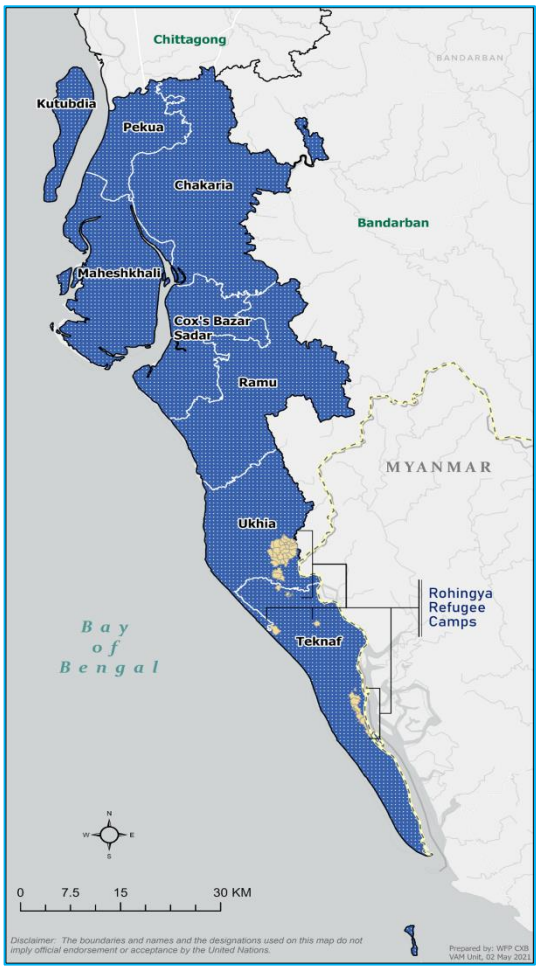
1.1. OVERVIEW

Cox's Bazar District in southern Bangladesh is one of the country's most disaster-prone coastal districts. Containing eight upazilas, the total area of Cox's Bazar District is 2,492 km^2. It is bordered by Chittagong district to the north, the Bay of Bengal to the south and west, and the Bandarban district and Rakhine (Myanmar) to the east.

Located on the shores of the Bay of Bengal and with many coastal areas lying less than three meters above sea level, the district is highly vulnerable to tropical cyclones, tidal surges and flooding, particularly during the cyclone season from May to July each year. Frequent natural disasters often damage infrastructure in the densely populated district and the economic assets of the poor rural population. Many communities have a low socio-economic status and are especially vulnerable to climate shocks.

Ukhiya and Teknaf upazilas are the southernmost upazilas in the district, lying approximately 30 km and 50 km south of Cox's Bazar town, respectively. Based on extrapolated population figures from 2011, the two upazilas had a combined population of approximately 614,000 in 2021; of which 276,000 were in Ukhiya and 338,000 in Teknaf.

To add to the fragile context, the two upazilas are hosting almost one million Rohingya in 33 refugee camps. Approximately 70,000 of the refugees have been living in the district since the 1990s, but an additional 800,000 refugees fled into Bangladesh in August 2017, in the wake of extreme violence in Rakhine State, Myanmar. Makeshift camps were established in and around the existing registered camps to house the new arrivals. By early 2021, the total population of refugees was estimated to be more than 880,000.



Map 1: Map of Cox's Bazar district, Bangladesh

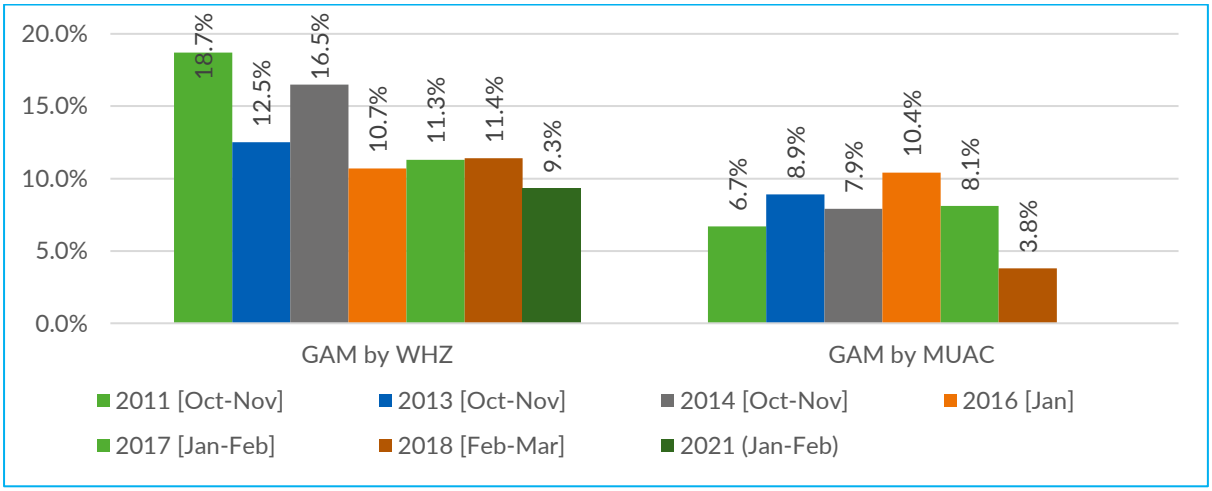
1.2. NUTRITION IN UKHIYA AND TEKNAF

A SMART survey was conducted in the local/Bangladeshi communities of Ukhiya and Teknaf in February 2021. The results are summarised in Table 2.

Table 2: SMART survey results from local/Bangladeshi communities in Ukhiya and Teknaf (February 2021)

	Ukhiya	Teknaf
Prevalence of combined GAM in children 6-59 months [WHZ <-2 SD and/or MUAC < 125 mm and/or oedema]	**9.8%** (7.1-13.4, 95%CI)	**9.9%** (7.7-12.5, 95%CI)
Prevalence of combined SAM in children 6-59 months [WHZ < -3 SD and/or MUAC < 115 mm and/or oedema]	**0.9%** (0.3-2.4, 95%CI)	**0.7%** (0.2-2.2, 95%CI)
Prevalence of low MUAC (<210 mm) in women of reproductive age	**1.9%** (1.2-3, 95%CI)	**1.1%** (0.5-2.2, 95%CI)

Figure 2: GAM Prevalence Trends from 2011 to 2021 SMART survey results in Ukhiya and Teknaf



1.3. NUTRITION SERVICES

With support from World Food Programme, the AAH Bangladesh team has supported the implementation of CMAM services in Teknaf and Ukhiya since 2012. Together with their partners in Ukhiya and Teknaf (WFP and SHED), AAH supports the enrolment of cases into SAM and MAM treatment programmes; the treatment of acute malnutrition; and the treatment of severe acute malnutrition with complications in 'stabilisation centres'. AAH Bangladesh, SHED and WFP also conducts nutrition education and awareness in the community and local schools.

Programmatic adaptations to CMAM programming since the last SQUEAC assessment in 2019

Due to the COVID-19 pandemic and measures instituted to curb its spread, the programme changed the TSFP distribution schedule for children U5 and PLW from once every two weeks to once every four weeks. As COVID-19 restrictions were eased in late summer 2021, visit frequency rolled back to pre-COVID-19 practice.

Table 3 summarises the CMAM admission and discharge criteria for children aged 6-59 months and for PLW.

Table 3: CMAM treatment protocols in place in Ukhiya and Teknaf in January 2022

Target	Programme	Admission criteria	Discharge criteria	Product	Quantity	Frequency
PLW	TSFP	MUAC <210 mm	MUAC ≥210 mm And Infant completed 6 months	Super cereal packet	7.5 kg (1.5 kg* 5 packets)	28 days interval (4 weeks interval)
Children aged 6-59 months	TSFP	MUAC ≥115 to <125 cm	MUAC ≥125 mm for two consecutive visits	WSB ++ packet	6 kg (1.5 kg* 4 packets)	28 days interval (4 weeks interval)
Children aged 6-59 months	OTP	MUAC <115 cm	MUAC ≥ 115 cm for MUAC for Two consecutive visits	RUTF sachets	According to their weight	7 days interval

1.4. PREVIOUS COVERAGE ASSESSMENTS

To determine the coverage of SAM and MAM treatment services, the AAH Bangladesh team and its partners conducted coverage assessments of the Bangladesh community in Cox's Bazar in 2015, 2017 and 2019[2]. The assessments were carried out in both Ukhiya and Teknaf using the SQUEAC methodology. The coverage estimates from these assessments are summarised in the Table 4 below.

Table 4: Coverage estimates from previous coverage assessments in Ukhiya and Teknaf

Date	OTP	TSFP
October 2015	69.4%	70.2%
June 2017	72.5%	73.1%
March 2019	60.9%	49.7%

[2] Reports available on request

2. OBJECTIVES

This report outlines the findings of the January 2022 SQUEAC assessment carried out in the local/Bangladeshi communities in Ukhiya and Teknaf. The objectives of the assessment were as follows:

Overall objective

The aim of the 2022 coverage assessment was to assess the coverage of curative CMAM services for Bangladeshi children U5 and PLW in Teknaf and Ukhiya to assess how coverage has evolved since 2019, and to set out recommendations to improve the delivery and uptake of CMAM services.

Specific objectives

- To determine the SAM treatment coverage for children 6-59 months through the community-based OTP program
- To determine the MAM treatment coverage for children 6-59 months and PLW through the community-based Supplementary Feeding Programme (SFP)
- To identify barriers and boosters to programme coverage
- To develop recommendations and an action plan for future programming

3. METHODOLOGY

3.1. OVERVIEW OF SQUEAC

SQUEAC assessments are designed to identify treatment coverage of acute malnutrition programmes around the world. In refugee camps and conflict zones, acute malnutrition can reach high levels among children aged 6-59 months. However, with SAM prevalence rates rarely exceeding one percent, it can be difficult and resource-intensive to find a large enough survey sample to estimate service coverage with an acceptable confidence interval (CI).

The SQUEAC methodology enables assessment teams to use survey data, as well as other data collected and analysed in an intelligent and iterative manner to estimate coverage with a 10-15 percent credibility range. An added benefit of this method is that it enables the assessment team to collect detailed qualitative data relating to the main positive and negative factors affecting coverage. This data can later facilitate the identification of corrective actions to improve service uptake and programme acceptance.

3.2 SQUEAC METHODOLOGY

As SQUEAC assessments had previously been conducted in Ukhiya and Teknaf, the assessment process was adapted slightly from a regular ("baseline") SQUEAC. However, the 2022 assessment did follow the standard SQUEAC process.

STAGE 1: COLLECTION AND ANALYSIS OF QUALITATIVE DATA

A representative sample of CNC and villages was selected in both upazilas. Based on a sampling framework, data collection teams identified key informants or groups of key informants and used five different interview types and focus group discussion guides for data collection.

In this stage, the teams sought to determine the extent to which the negative and positive factors affecting coverage had evolved since the 2019 coverage assessment and to identify new factors likely to affect coverage positively or negatively.

Eight data collection teams conducted 32 semi-structured interviews (SSIs) and focus group discussions (FGDs) over two days.

Table 5 summarises the number of each key informant type reached during data collection.

Table 5: Key informants reached during Stage 1 qualitative data collection

Key informant type	Key informant	Ukhiya	Teknaf	Total
Community health workers	Community Nutrition Volunteer	3	3	**6**
	Model Mother	2	2	**4**
Affected population	MAM/SAM carers	2	2	**4**

Community members	Female community members	1	1	**2**
	Male community members	2	2	**4**
Key community members	Village leader	1	1	**2**
	Pharmacist	1	1	**2**
	Teacher	1	1	**2**
Health centre staff	Community Nutrition Worker	2	2	**4**
Coordination staff	Union Nutrition Supervisor	1	1	**2**
	Total	**16**	**16**	**32**

At the end of each day of data collection, the team collected completed interview guides and reviewed responses to identify positive and negative factors affecting coverage. Each factor was categorized to one of five themes along with the "triangulation" information, including data collection method, type of key informant, and location. If the same or similar factor had previously been noted, the team added only triangulation information.

The five themes were:

- Awareness and understanding of malnutrition
- Awareness and understanding of the CMAM programme
- Outreach activities (including screening, sensitisation and follow up)
- Quality of care in nutrition facilities
- Other factors (e.g. access and time-related factors)

The data collection teams were also tasked with collecting a series of case studies of (a.) children who had been discharged as child non-respondent (CNR) from the OTP or TSFP, and (b.) children who had been readmitted as relapse cases. A total of five CNR case studies and two relapse case studies were collected according to standard templates.

STAGE 2: HYPOTHESIS TESTING

Stage 2 included the development and testing of hypotheses to confirm or deny assumptions related to areas of high or low coverage. Hypotheses were developed based on the findings of Stage 1 And results were analysed using the Lot Quality Assurance Sampling (LQAS) methodology.

In 2022, two hypothesis tests were conducted,

The first hypothesis tested distance between villages and CNCs. The hypothesis set out that:

- Villages located less than 5 km from CNCs would have coverage greater than 60 percent,
- Villages located more than 5 km from CNCs would have coverage less than 60 percent.

To test this hypothesis, four villages less than 5 km from CNCs were selected (two in both Ukhiya and Teknaf) and four villages more than 5 km from CNCs were selected (again two in

each upazila). In each village, exhaustive case finding was completed to identify all OTP and TSFP cases (see *Stage 3: Wide Area Survey* for detailed case definition).

The second hypothesis tested community nutrition volunteer (CNV) workload. The hypothesis set out that:

- In CNCs where CNVs are responsible for sensitising and screening less than 55 clusters (low CNV workload), coverage would be greater than 60 percent
- In CNCs where CNVs are responsible for sensitising and screening more than 55 clusters (high CNV workload), coverage would be less than 60 percent

To test this hypothesis, four CNCs with low CNV workload were selected (two in Teknaf and two in Ukhiya), and four CNCs with high CNV workload were selected (two in Teknaf and two in Ukhiya). Village selection was done according to both the distance from CNC and population size. In Teknaf, identified villages were located from 2-5 km from a CNC with an approximate population of 1,000 to 2,500. In Ukhiya, where village populations were generally higher than Teknaf, identified villages were located from 2-5 km from a CNC with an approximate population of 5,500 to 8,000 people. In each village, exhaustive case finding was completed to identify all OTP and TSFP cases.

The LQAS classification technique was used to analyse results. This involves examining the number of cases found (n) against the number of covered cases found:

- If the number of covered cases found exceeds a threshold value (d), then coverage is classified as satisfactory (i.e. coverage meets or exceeds the standard).
- If the number of covered cases found does not exceed this threshold value (d), then coverage is classified as unsatisfactory (i.e. coverage does not meet or exceed the standard).

The threshold value (d) depends on the number of cases found (*n*) and the standard (*p*) against which coverage is being evaluated. The standard chosen for the tests in Ukhiya and Teknaf, was 60 percent based on previous assessment results.

The decision value was calculated using the following formula:

$$d = \left\lfloor n \times \frac{p}{100} \right\rfloor$$

The results of these tests were incorporated into the finalisation of the prior modes for the OTP and TSFP programmes, i.e. what assessment teams believed coverage to be in the programme based on existing and new data. These were used to calculate the required sample sizes for Stage 3.

STAGE 3: PRIOR BUILDING

All positive and negative factors identified during Stages 1 and 2 were grouped into consolidated lists of barriers (negative factors) and boosters (positive factors). The

triangulation information of each factor (i.e. survey method, type of key informant, and location was also included in the list of barriers and boosters.

The assessment team scored each barrier and booster on a scale of one to four based on their perception of the **impact** that each factor had on coverage across the assessment area and the extent to which that factor had been **triangulated.** The average of each of the teams proposed weights was recorded as the weight for the factor.

With the lists finalised, the assessment team then conducted prior building to estimate the coverage of the CMAM programme. Five prior building methods, summarised in Table 6, were used to calculate prior beliefs about the OTP and TSFP.

Table 6: Prior contributing elements used in the elaboration of priors

Prior contributing element	Description
"Prior" prior	- Each of the assessment team estimated new coverage estimates for OTP and TSFP based on updated context and supply analysis, and quantitative data analysis. - Median value of proposed estimates recorded as "prior" prior
Simple barriers and boosters	- Each barrier and booster was assigned a score between one and four - Barriers and boosters were totalled
Weighted barriers and boosters	- Each barrier and booster was assigned a weighted score using the method described above - Barriers and boosters were totalled
Concept map	- Two concept maps were drawn: one showing links between positive factors and one showing links between negative factors - The positive links and the negative links were totalled
Mind map	- All positive factors identified during Stage 1 were marked with a green tick. - All negative factors were marked with a red cross. - The positive and negative factors were totalled separately

The prior estimates for all of methods apart from the first were calculated using the following formula:

$$Prior\ estimate = \frac{(100 - negative\ factor\ total) + (0 + positive\ factor\ total)}{2} \times 100$$

The average of the five prior estimates was then calculated to find the **prior modes** children U5 and PLW. The assessment team then calculated the prior modes' minimum and maximum probable values using a fixed range of +/-25 percent.

The prior modes and minimum and maximum probable values were then used to calculate Alpha and Beta priors to plot the OTP and TSFP probability curves on the Bayesian calculator. These calculations are shown on page 81 of the SQUEAC technical reference[3]. The assessment team used a Microsoft Excel-based calculator to calculate the Alpha and Beta priors. Once

[3]https://www.fantaproject.org/sites/default/files/resources/SQUEAC-SLEAC-Technical-Reference-Oct2012_0.pdf

entered in the Bayesian calculator, the desired precisions of the final estimates were also entered into the Bayesian calculator to determine the required sample sizes of OTP and TSFP cases for the wide area survey during Stage 4.

STAGE 4: WIDE AREA SURVEY

Introduction

A wide-area survey was conducted in Ukhiya and Teknaf to identify the required OTP and TSFP sample sizes for children 6-59 months and PLW.

The implementation of the wide-area survey involved a two-step sampling technique:

- Step 1: Calculation and selection of primary sampling units
- Step 2: In-community case finding to identify and classify all OTP and TSFP cases

The results of Step 2 were combined with the prior modes of OTP and TSFP coverage using Bayesian techniques to determine overall coverage estimates.

Step 1: Calculation and selection of villages

Calculation of sample size: The first step of the wide area survey was to determine the number of primary sampling units (villages) to be visited. The following calculation was used to calculate the number of villages to be visited to reach the required sample size (n):

$$\left\lceil \frac{n}{average\ sampling\ unit\ population\ all\ ages \times \frac{population\ of\ 6-59\ months}{100} \times SAM\ or\ MAM\ prevalence} \right\rceil$$

The survey team calculated the number of villages to visit based on the combined total population of Ukhiya and Teknaf (614,239) and number of listed villages (207) in the two upazilas. The average village population size using this data was calculated as 2,968. The SAM prevalence by MUAC was estimated to be 0.5 percent at the time of the assessment and the percentage of the population aged 6-59 months was estimated to be 11.7 percent. These figures were based on the most recently completed nutritional survey (Ukhiya and Teknaf SMART survey, January 2021).

Using these figures, the calculation estimated that 20 villages would need to be visited to reach the required sample size. However, given that the village populations were substantial, it would be challenging for one team to sample an entire village in one day. Furthermore, during SQUEAC wide-area surveys, it is preferable to visit at least 25 villages in a survey area to achieve more spatially representative coverage results.

Therefore, the team adjusted the average village size to 1,000 which was the estimated population that could be sampled by one team in one day. This increased the number of villages to visit to 57 villages across both upazilas.

Selection of villages: During a wide area survey, selection of the sampling units can be made using one of two methods.

If a detailed map is available which marks the names of each village in the entire survey area, the centric systematic area sampling method can be used. This involves drawing a grid over the map to create quadrants. The village at or nearest to the centre of each quadrant is then selected as the sub-block to visit.

If no detailed maps are available, then the wide-area survey sample villages can be selected from an exhaustive list of villages using the systematic, stratified sampling method. In this method, all villages are listed alphabetically, stratified by union. The villages to visit are then sampled from the list as follows:

- A sampling interval is calculated by dividing the total number of villages in the survey area by the total number of villages to visit.
- Starting with a random number between one and the sampling interval, the sampling interval is applied systematically to the list of villages until the required number of villages has been selected.

For the 2022 SQUEAC assessment in Ukhiya and Teknaf, the systematic, stratified sampling method was used to select the 57 villages to visit during the wide-area survey.

Step 2: In-community case finding for OTP and TSFP cases (children 6-59 months and PLW)

In Step 2, survey teams visited the selected villages to conduct exhaustive in-community case finding of all eligible cases, recorded their anthropometric details and determined whether they were enrolled in the relevant treatment programme or not.

Target population and case definition:

The target population for the wide-area survey was children 6-59 months and PLW in the selected villages. Teams conducted door-to-door case finding to find children 6-59 months and PLW and to identify if they were classified as cases. The case definitions used were as follows:

Case definition for children 6-59 months

Any child aged 6-59 months that is SAM or MAM at the time of the survey and/or any child that is enrolled in an OTP or TSFP at the time of the survey.

Case definition for PLW

Any PLW with MUAC less than 210 mm at the time of the survey and/or any PLW that is enrolled in TSFP at the time of the survey.

Verification of age: To determine the age of identified children, the survey teams asked if the carer could show them a registration card, ID card, expanded programme of immunisation (EPI) card or nutrition programme treatment card. If the carer could not provide any of these and could not provide an exact age for the child, the survey team used a key events calendar to determine the child's age.

Identification of SAM and MAM cases: SAM and MAM cases were identified by MUAC and the presence of oedema. The case definitions for SAM and MAM cases were as follows:

	Children aged 6-59 months		PLW
	MUAC	**Oedema**	**MUAC**
SAM case (any of)	<115 mm	+, ++, +++	<160 mm
MAM case (any of)	115-124 mm	No oedema	160-210 mm

Confirmation of enrolment in OTP or TSFP: PLW or carers of cases who identified their child as being enrolled in an OTP or TSFP confirmed using the following proof:

OTP	TSFP (Children)	TSFP (PLW)
OTP treatment card OR A full packet of RUTF OR Confirmation from a CNV	TSFP treatment card OR A full or partly full packet of WSB++ and confirmation from the carer that they collect new packets from the nutrition facility every month OR Confirmation from a CNV	TSFP treatment card OR A full or partly full packet of Super cereal and confirmation from the PLW that they collect new packets from the nutrition facility every month OR Confirmation from a CNV

If it was not possible to confirm that the child or PLW is in the relevant programme, then they were considered a non-covered case.

Decision process for children 6-59 months:

Each child in the age range was measured using a MUAC tape and checked for signs of oedema. Based on the measurements, the survey team recorded their details on a data collection summary sheet, classified them as SAM, MAM or well-nourished, and administered the relevant questionnaire.

Children were classified and actions taken as summarised in Table 7. The table also indicates whether the child was referred to the CNC or not.

Table 7: Actions taken during case finding for children U5

Description	Acronym	Action taken Summary sheet	Questionnaire	Referral to CNC
A 6-59 month SAM case in the OTP	OTP Cin	Yes	Yes	No
A 6-59 month SAM case not in the OTP	OTP Cout	Yes	Yes	Yes
A 6-59 month case who was SAM but is still in the OTP programme having not yet reached discharge criteria	OTP Rin	Yes	Yes	No
A 6-59 month MAM case in the TSFP	TSFP Cin	Yes	Yes	No
A 6-59 month MAM case not in the TSFP	TSFP Cout	Yes	Yes	Yes

A 6-59 month case who was MAM but is still in the TSFP programme having not yet reached discharge criteria	TSFP Rin	Yes	Yes	No
A child is found to be well-nourished following measurement	WN Ch	Yes	No	No

The carers of all above cases were interviewed using a questionnaire uploaded to tablets using KoboCollect software to determine the main reason for enrolment to the relevant programme or for non-attendance. These questionnaires closely resembled the questionnaires used during the coverage survey in 2019. During case finding, the results were recorded on data collection summary sheets.

Decision process for PLW:

The MUAC of all PLW with infants younger than six months in the selected villages were measured. Based on the MUAC measurement, the survey team recorded the PLW details on a data collection summary sheet, classified them as acutely malnourished or well-nourished and administered the relevant questionnaire. If they were found to have a MUAC less than 210 mm or if they are enrolled in the TSFP, they were interviewed by data collection teams. PLW case definitions and actions taken are summarised in Table 8:

Table 8: Actions taken during case finding of PLW

		Action taken		
Description	**Acronym**	**Summary sheet**	**Questionnaire**	**Referral to CNC**
An acutely malnourished PLW who is in the TSFP	AM PLW Cin	Yes	Yes	No
An acutely malnourished PLW who is not in the TSFP	AM PLW Cout	Yes	Yes	Yes
A PLW who was SAM or MAM but who is still in the TSFP as they have not yet reached discharge criteria	AM PLW Rin	Yes	Yes	No
A PLW who is found to be well-nourished following measurement	WN PLW	Yes	No	No

At the end of every day of data collection, the team leaders from each team returned to the assessment base in Cox's Bazar to share survey results from the village they visited with the coordination team.

ESTIMATING COVERAGE

The final coverage estimates for CMAM services for children U5 were calculated using the single coverage estimator. More information about the calculator can be found in an article in Field Exchange from 2015[4].

The single coverage estimator includes recovering cases in the programme and those not in the programme (known as *Rout*). Therefore, the Denominator of the coverage calculation for single coverage will include *Cin*, *Cout*, *Rin* AND *Rout,* as shown by the formula below.

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

The survey teams can find recovering cases that are in the programme during case finding. They are classified as SAM Rin or MAM Rin. However, it is not possible to find recovering cases not in the programme. These are SAM or MAM cases which recover naturally without entering a nutrition treatment programme. These can be estimated using *Cin*, *Cout* and *Rin* using the following formula:

$$Rout \cong \frac{1}{3} \times (Rin \times \frac{Cin+Cout+1}{Cin+1} - Rin)$$

Therefore, before estimating coverage, it is necessary to calculate the number of recovering cases NOT in the programme (*Rout*). This can be done using a calculator designed for this specific purpose.

The **Single Coverage Estimator** was developed based on the average lengths of treated and untreated episodes of children U5. This data is not available for PLW; therefore, it was not appropriate to use the Single Coverage Estimator to estimate the coverage of the TSFP for PLW.

Therefore, the **Period Coverage Estimator** was used to classify and estimate the coverage of the TSFP for PLW using the following formula:

$$Period\ Coverage = \frac{Cin + Rin}{Cin + Cout + Rin}$$

ANALYSIS OF QUESTIONNAIRES

When a SAM or MAM case was identified, a structured questionnaire was administered to the carer (or the PLW) to determine why the child or PLW was or was not enrolled in the relevant treatment programme. The questionnaire was administered on tablets using KoboCollect software. The results were then analysed to determine why active cases were NOT in the relevant treatment programme for non-covered cases. The questionnaire also identified why a case was in the programme. Results were then analysed and ranked for the entire survey area.

[4] For more information see Myatt, M et al, (2015) *A single coverage estimator for use in SQUEAC, SLEAC, and other CMAM coverage assessments*, p.81 Field Exchange 49

4. RESULTS

4.1 CONTEXT AND SUPPLY REVIEW

On the first day of SQUEAC assessment training, the trainee team conducted a context and supply review of the CMAM programme in Ukhiya and Teknaf. This assessed how contextual and programme-related changes in 2020 and 2021 had potentially affected coverage. The results are summarised in Table 9, and relevant to the OTP and TSFP in both Ukhiya and Teknaf. Positive changes are marked with a **P,** and negative changes are marked with an **N.**

Table 9: Supply and context review

Determinant	How did factor change in the last two years?	How is this likely to have affected coverage?
Operation of programme	Cluster screening modality, such as courtyard sessions, was not happening due to COVID-19 restrictions, but door to door screening with MUAC tapes was continuing	This may have had a negative impact on coverage **(N)**
	New strategies were introduced for monitoring and supervision, such as follow up via phone calls, cluster follow up and direct supervision of field level	New strategies may have improved overall coverage **(P)**
Stock availability	All commodities such as food and non-food items were available	No effect on coverage **(P)**
CNC staff and volunteer availability	CNC staff such as CNW and CNV were available, although there were shortages of volunteers in some clusters	Limited impact on coverage **(P)**
Sensitisations	Before the COVID-19 pandemic, Antenatal care, and postnatal care (ANC / PNC) counselling was conducted at the nutrition centre level and courtyard sessions were conducted in central locations at the community level. To avoid gatherings and mitigate the spread of COVID-19, sensitisation was conducted at the homes of children and carers during screening	This potentially had a negative impact on coverage **(N)**
Accessibility	To ensure coverage in hilly and hard to reach areas, SHED created a mobile team (5-7 members) to conduct screenings	This mitigated access issues and is likely to have had a positive impact on coverage **(P)**

4.2 QUANTITATIVE DATA ANALYSIS

4.2.1 INTRODUCTION

This section includes a brief analysis of some of the programme data collected and analysed by the SQUEAC team before and during the assessment. Programme data was shared for the OTP and TSFP for children 6-59 months, as well as the TSFP for PLW. Analysing programme

data at the start of a SQUEAC assessment can help the assessment team identify factors which are likely to have impacted CMAM treatment coverage during the assessed periods, and locations of high and low coverage. Analysis was conducted of the following data for all months of 2021 (unless otherwise specified):

- Screening data
- New admission data
- MUAC at admission data
- Length of stay before cure data
- Programme exit data

Data was extracted from the OTP and TSFP databases for 2021 which were shared with the assessment team. Partners also shared some data in the data collection forms prepared by the SQUEAC assessment teams.

4.2.2 ADMISSIONS DATA

How have admissions changed between January and December 2021? What were the possible reasons for the changes?

Total admissions to the OTP and TSFP for children U5 and PLW in Ukhiya and Teknaf are shown in Table 10. They show that total admissions for all three programmes were slightly higher in Ukhiya than Teknaf even though the children U5 and PLW populations are slightly higher in Teknaf, and SAM and MAM prevalence is similar. This indicates that a greater proportion of the targeted GAM children U5 and MAM PLW population accessed the CMAM programme in Ukhiya throughout 2021. However, this data does not indicate that treatment coverage of the three programmes is higher in Ukhiya than in Teknaf, as treatment coverage estimates assess coverage at a single point in time.

Table 10: Total CMAM programme admissions in 2021 in Ukhiya and Teknaf (Sources: OTP and TSFP databases)

Target	Programme	Ukhiya	Teknaf
Children U5	OTP	481	420
	TSFP	3,265	2,810
PLW	TSFP	1,744	1,017

Figures 3 and 4 show OTP and TSFP new admissions overtime for children U5 during 2021. The charts show monthly admissions as well as "smoothed" admissions (using the medians-of-three followed by running averages-of-three (M3A3) smoothing technique[5]).

[5] https://www.coverage-monitoring.org/squeac-2/stage-1-quantitative-data-collection/admissions-over-time-2/tutorial-smoothing-time-series-data-using-moving-averages/

Figure 3: OTP for children U5 monthly admissions in Ukhiya and Teknaf, December 2020 to October 2021 (Source: OTP database)

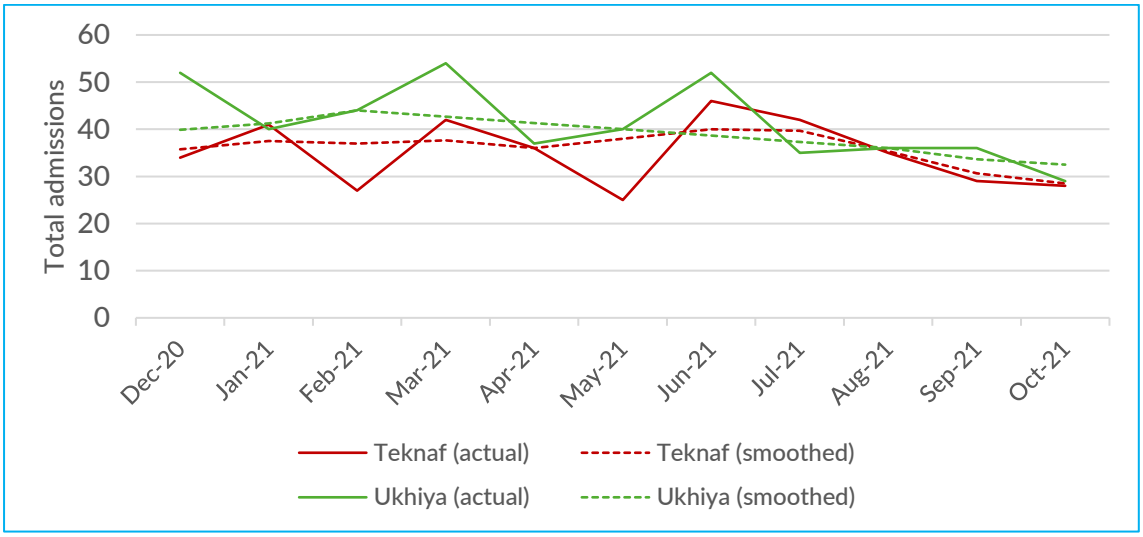
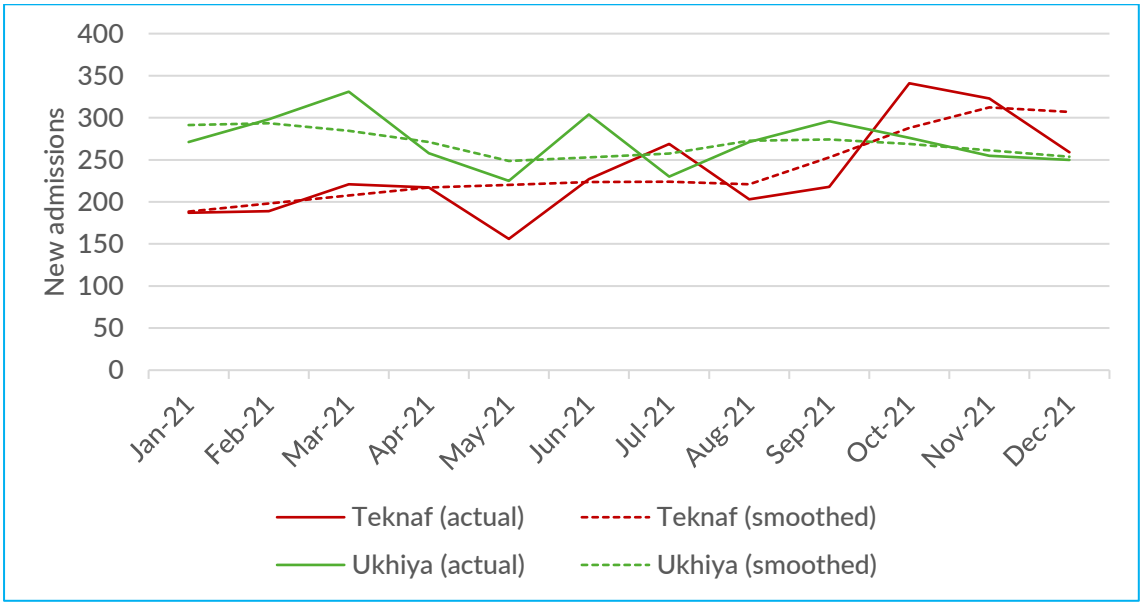


Figure 4: TSFP for children U5 monthly admissions in Ukhiya and Teknaf, January-December 2021 (Source: TSFP database)



In the OTP there were on average 40 monthly admissions in each upazila reported in the first half of 2021. This average then fell to about 30 monthly admissions in September and October 2021. In the TSFP, average monthly admissions were 250-300 in Ukhiya; while in Teknaf, average monthly admissions began at approximately 200 per month and increased to 300 per month by October/November 2021. Both programmes saw peaks in admissions in March and June 2021.

During the data analysis workshop at the start of the SQUEAC training, the assessment team attributed the peak in March to the mass recruitment of CNV leading to a surge in screening and referrals. COVID-19 restrictions in April and May 2021 caused a reduction in admissions. The easing of restrictions in June 2021 then explains the second peak. Subsequently a mass

screening in Teknaf in October caused a large increase in admissions in that month. Therefore, the fluctuations in monthly admissions in both upazilas were mostly attributed to screening campaigns and 2021 lockdowns, and not to seasonal weather events and their effect on activities at the household level. This is a similar finding to analyses conducted during previous SQUEAC surveys in Ukhiya and Teknaf, including the 2019 assessment. The reported monthly screening totals shown in Figure 5 provide further evidence to support this.

Figure 5: Reported monthly screening totals of children U5 in Ukhiya and Teknaf, December 2020-November 2021 (Source: TSFP database)

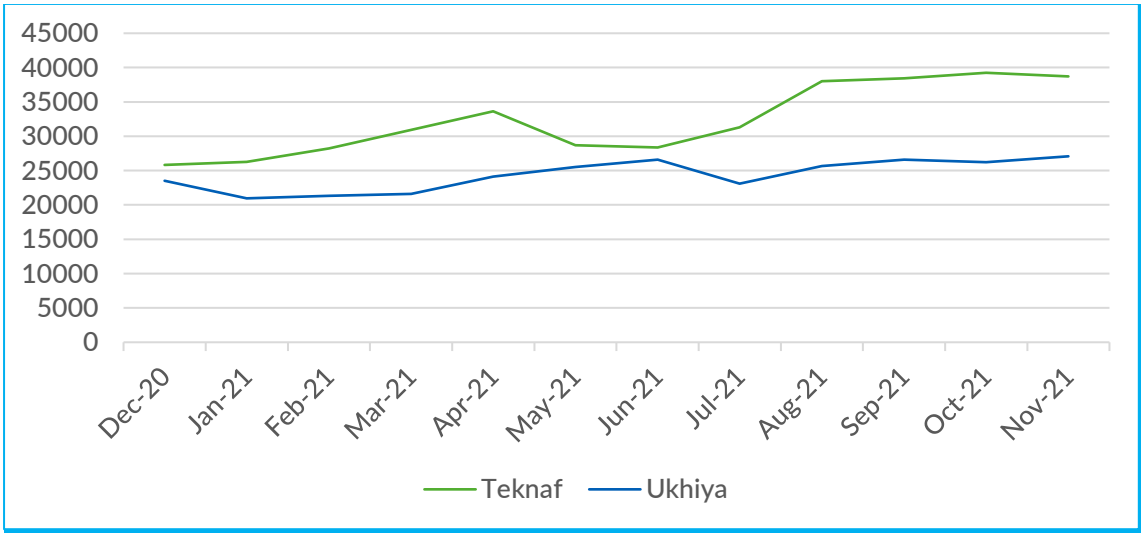
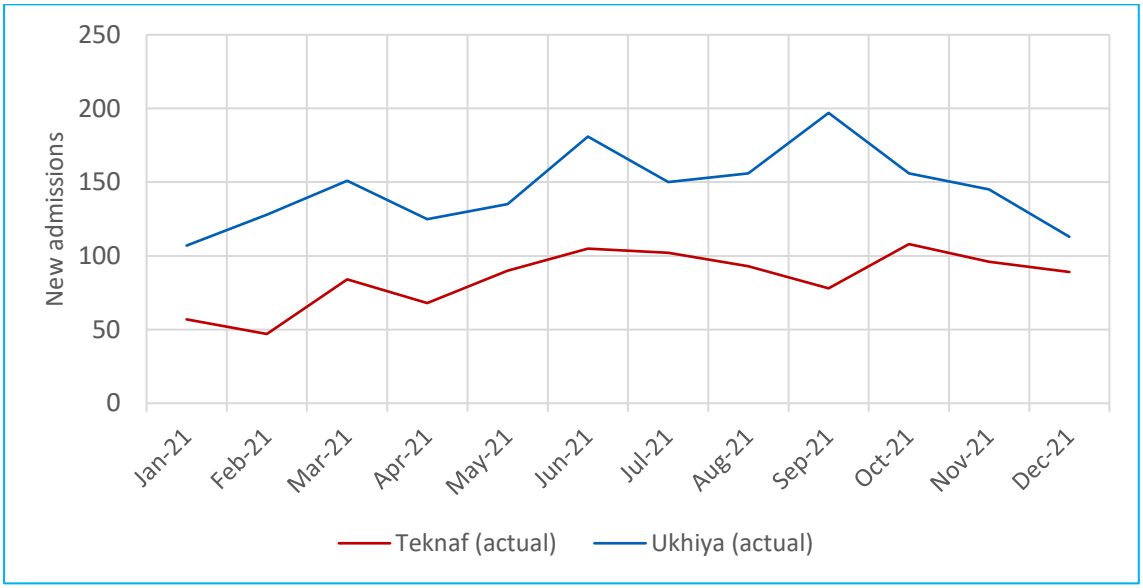


Figure 6 shows new monthly TSFP admissions among PLW in Ukhiya and Teknaf in 2021. The trend indicates similar peaks in March and June as the children U5 programmes, suggesting CNV recruitment in March and the easing of COVID-19 restrictions in June also caused this uptick. It is unclear what caused an admissions peak in Ukhiya in September 2021, but this is most likely the result of a PLW screening campaign at that time.

Figure 6: Monthly TSFP admissions for PLW in Ukhiya and Teknaf, January-December 2021 (Source: TSFP database)



Where were most SAM and MAM cases admitted? Where were least SAM and MAM cases admitted? Why?

Reviewing CNC admissions can indicate whether treatment coverage may be high or low. If the proportion of children U5 and prevalence of acute malnutrition were consistent throughout all unions in Ukhiya and Teknaf in 2021, one can assume that the percentage of total admissions to a CNC would be similar to that of the total population in a CNC catchment area. Therefore, if there is a discrepancy within a union, this can indicate where coverage is high or low. This analysis was done based on the OTP admissions in 2021 for each upazila in Figures 7 and 8.

Figure 7: Percentage of OTP admissions per union compared to percentage of population in Ukhiya, January-December 2021 (Source: OTP database)

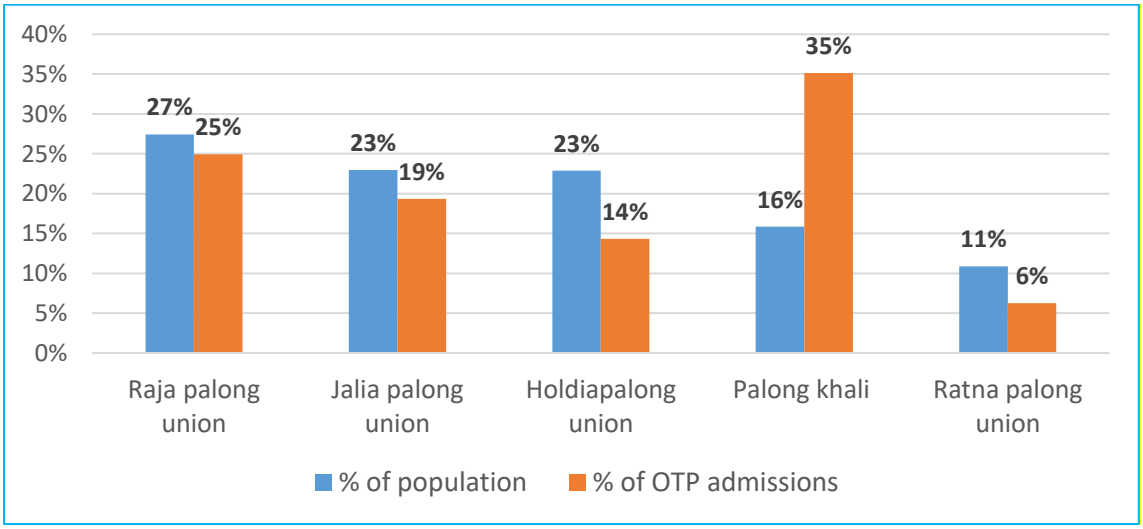


Figure 8: Percentage of OTP admissions per union compared to percentage of population in Teknaf, January-December 2021 (Source: OTP database)

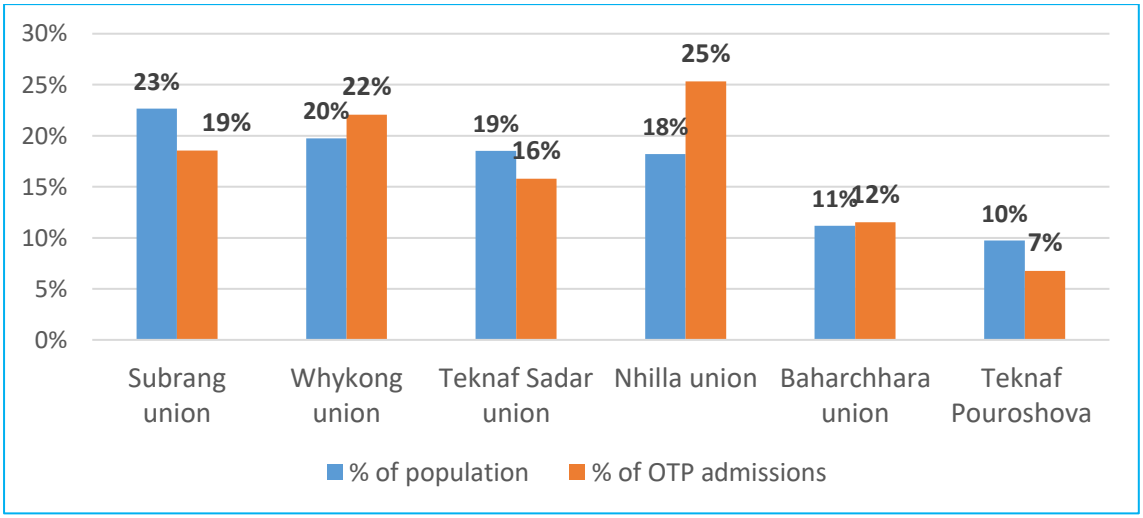


Figure 7 shows that in Ukhiya, the Palongkhali union saw a high percentage of overall admissions (35 percent) despite having a relatively small percentage of the population living in the union (16 percent). Similar findings were seen in the Nhilla union in Teknaf and

Whykong. The SQUEAC team felt that these unions might be admitting a larger than expected percentage of admissions since they border the Rohingya refugee settlements and contain small populations of refugees which are not counted in the Bangladeshi population figures. The team hypothesised that carers with SAM children in the camps *might* be enrolling in both the refugee and Bangladeshi nutrition programmes or enrolling in the Bangladeshi community programme instead of using camp services. However, the assessment team did not feel that the data in Figures 9 and 10 indicated that treatment coverage was higher in some unions than others.

Total TSFP admissions by CNC for children U5 and for PLW are shown in the following two figures with disaggregation by upazila.

Figure 9: Total TSFP admissions by CNC for children U5 and PLW, Ukhiya, January-December 2021

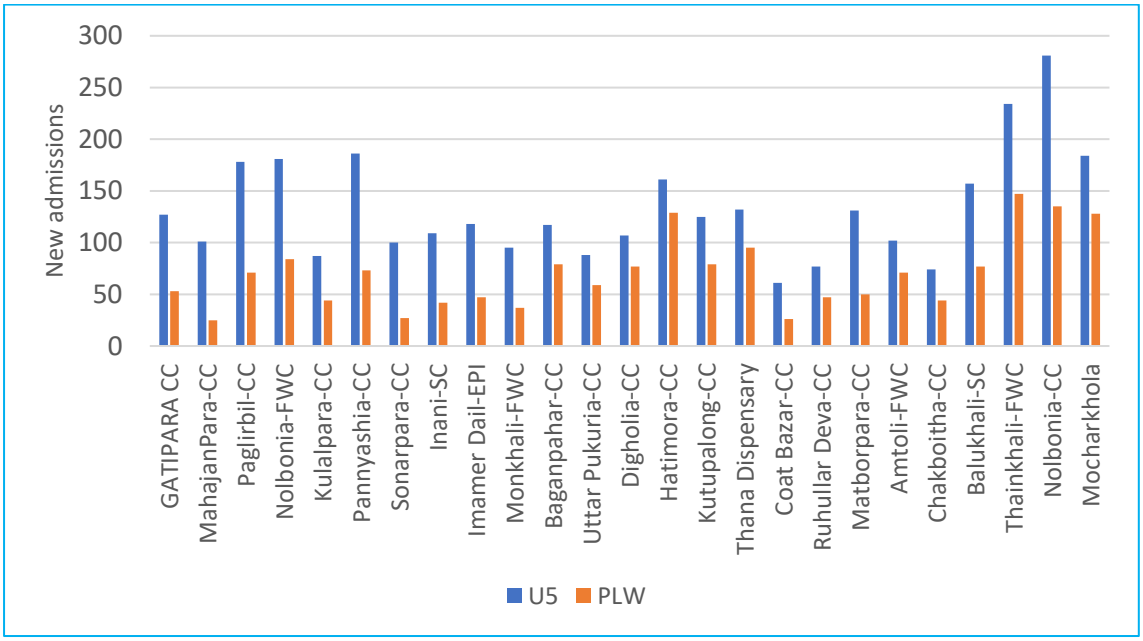
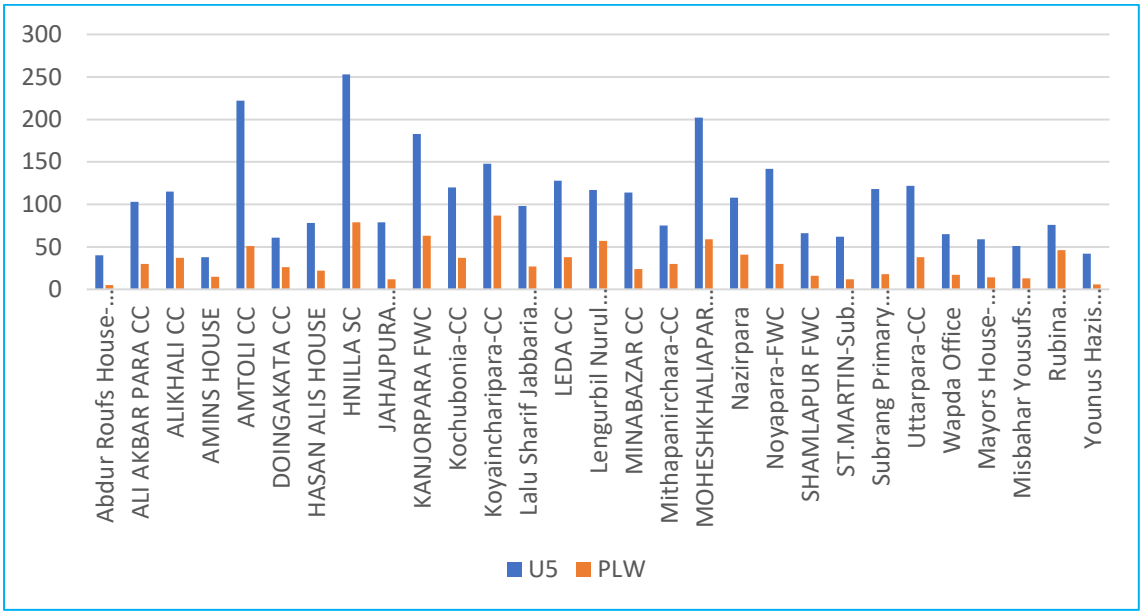


Figure 10: Total TSFP admissions by CNC for children U5 and PLW, Teknaf, January-December 2021



SQUEAC teams attributed the variation in admissions between CNC in Ukhiya to poor living conditions in the Nolbonia and Thainkhali CNC catchment areas, causing higher GAM prevalence in children U5 and PLW. Meanwhile the opposite was suggested in Coat Bazar and Chakboitha, where comparatively better living conditions lead to lower incidence of GAM. Also, PLW admissions in Ukhiya followed similar admissions trend of children U5 indicating that the screening of children U5 and PLW was consistent in all CNCs during the period assessed.

Figure 10 shows that in Teknaf, the highest admissions were recorded in Nhilla, Amtoli and Moheshkhali CNC. In the Nhilla CNC catchment area, the assessment team surmised that the high admissions resulted from particularly strong community outreach activities. However, this can also be explained by the CNC's proximity of the CNC to the camps.

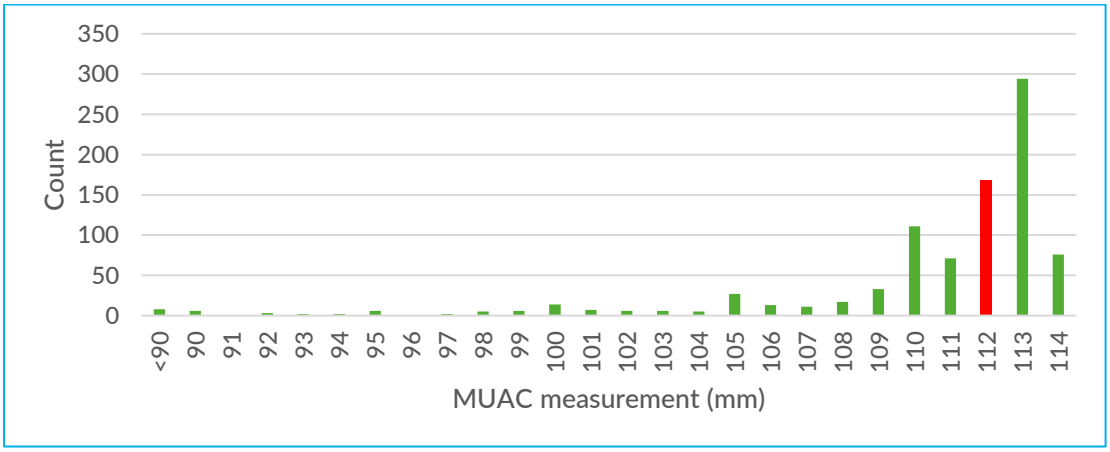
In contrast to the findings from Ukhiya, PLW admissions in Teknaf did not appear to tally closely with TSFP admissions of children U5. This suggests that PLW screening was not as consistent as the screening of children U5 in all CNC catchments in Teknaf, which indicate poorer TSFP coverage for PLW in that period.

How early were SAM and MAM children U5 and PLW admitted to the OTP and TSFP?

The timeliness of admissions can be measured by analysing the MUAC measurements at admission over a specific time period. The closer the median of admissions falls against the admission criteria, the earlier cases were admitted.

Figure 11 shows the MUAC measurements at OTP admission in Ukhiya and Teknaf in 2021. Results from Ukhiya and Teknaf have been merged as MUAC at admission data demonstrated similar trends in both upazilas.

Figure 11: MUAC at admission to OTP in Ukhiya and Teknaf, October 2020-November 2021 (Source: OTP database)



The most common MUAC measurement at admission for children entering the OTP was 113 mm. The median value was 112 mm – therefore, half of admissions were more than or equal to 112 mm, and half were less than or equal to that. This indicates that admissions are timely in both upazilas, suggesting that case finding for SAM cases is effective.

The TSFP for children U5 MUAC at admission data shows similar trends (Figure 12). Again, data from Teknaf and Ukhiya has been merged as the data was similar. However, this data only shows admissions during the September-November 2021 period.

Figure 12: MUAC at admission, Ukhiya and Teknaf TSFP for children U5, September-November 2021 (Source: SHED CMAM teams)

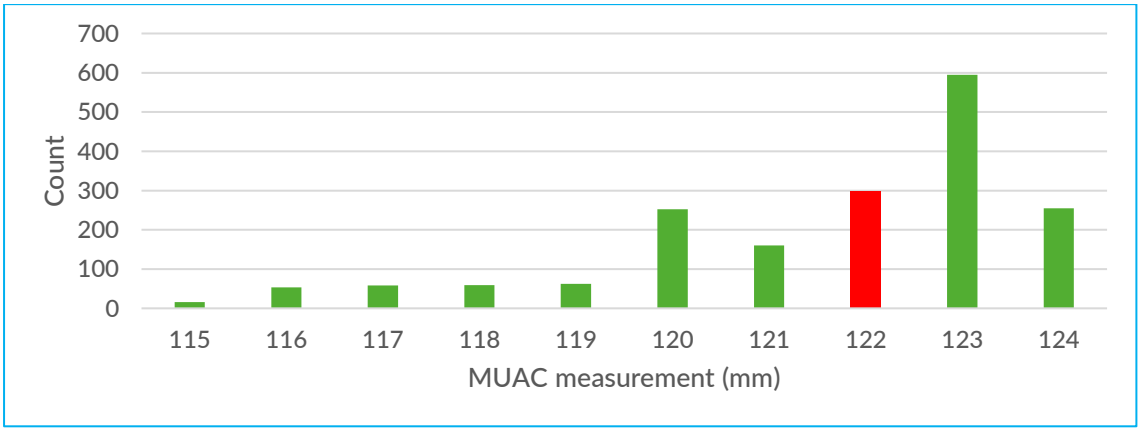


Figure 13: MUAC at admission, Ukhiya and Teknaf TSFP for PLW, September-November 2021 (Source: SHED CMAM teams)

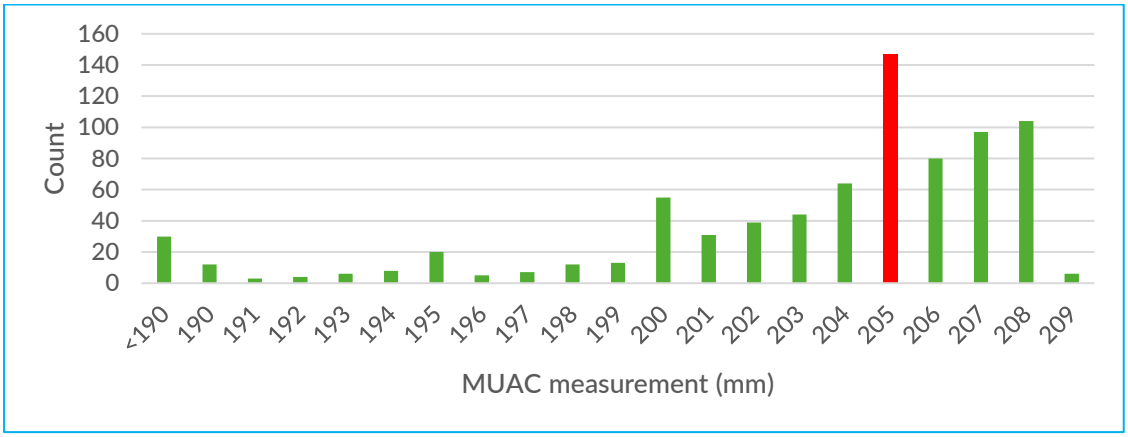


Figure 13 indicates the range of MUAC measurements at admission for TSFP for PLW in Ukhiya and Teknaf from September to November 2021. The figure indicates that MAM PLW are admitted to the TSFP slightly later in the MAM onset compared to children U5. Most PLW are admitted at 205 mm. This is also the median value. This data suggests that case finding for MAM PLW is less effective than that of children U5 and that, therefore, coverage of the TSFP for PLW may be lower. Similar results were found for Ukhiya and Teknaf. The data also demonstrates strong evidence of heaping of round values (e.g. 205 mm, 200 mm and 195 mm), suggesting that CNC nutrition teams do not demonstrate the same degree of precision when admitting MAM PLW to the programme as compared to children U5.

4.2.3 LENGTH OF STAY BEFORE CURE

How long did cases stay in the programme before being discharged as cured?

Length of stay before cure data can also indicate the effectiveness of case findings. Children or PLW that stay in the programme for longer are likely to have entered the programme at a later stage of the onset of disease, which can indicate poor case finding.

Figures 14 and 15 show the lengths of stay before cure for all children discharged from Ukhiya and Teknaf OTP (October 2020-November 2021) and TSFP (September-November 2021).

Figure 14: Weeks in programme before discharge as cured, Ukhiya and Teknaf OTP, October 2020-November 2021

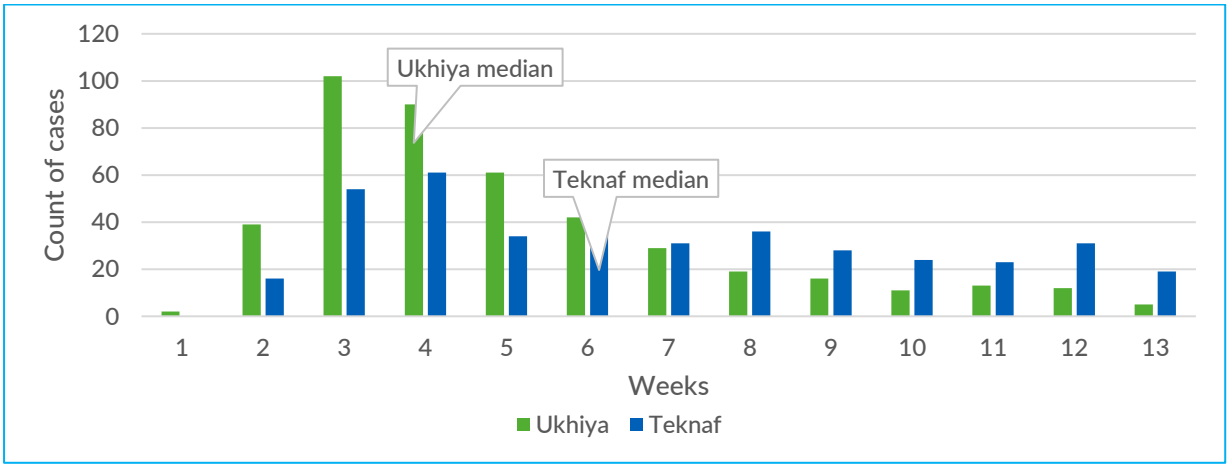
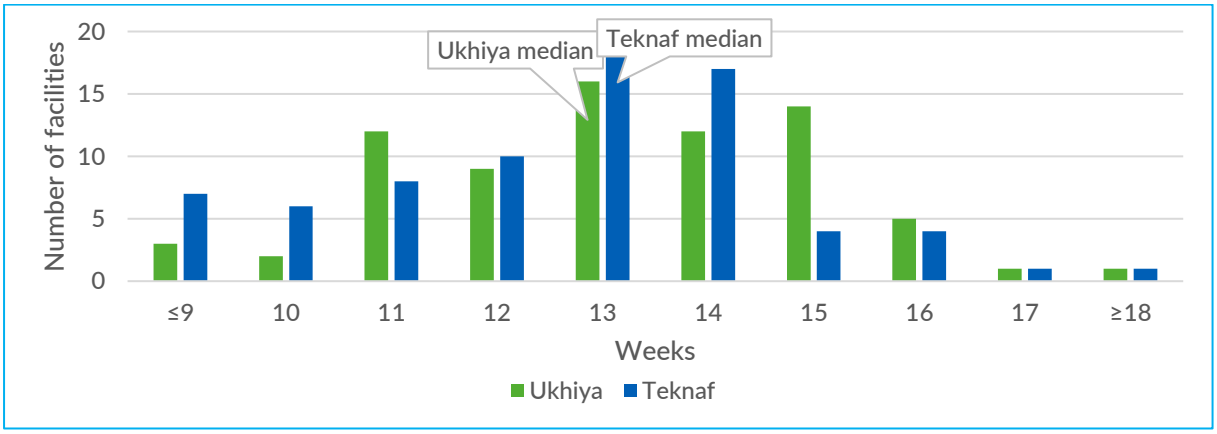


Figure 15: Average weeks in programme before discharge as cured, Ukhiya and Teknaf TSFP for children U5, September-November 2021



The median weeks of stay in the OTP programme before cure were four and six weeks for Ukhiya and Teknaf, respectively. This indicates short lengths of stay in both upazilas with a very short length of stay in Ukhiya. In Ukhiya most children were discharged after three weeks in the programme. The three weeks inferred that carer of SAM children were not sharing RUTF with other household members and are reserving it only for the SAM child, and that there are generally good infant and young child feeding (IYCF) practices being followed at the household level. However, four weeks does seem to be a very short median length of stay and could warrant further investigation.

For the TSFP for children U5, the median length of stay before cure was 13 weeks in both upazilas. Given that the frequency of distributions to children enrolled in the TSFP decreased from bi-monthly to monthly during the pandemic, this indicates that most children are being discharged soon after their third visit to the programme (12 weeks). This reflects the same lengths of stay before cure data as reported in the last SQUEAC assessment in 2019, suggesting that the reduced frequency of visits is not necessarily leading to longer lengths of stay before cure.

4.2.4 PROGRAMME EXIT ANALYSIS

How have programme exits evolved over time?

CMAM programme performance is closely linked with programme coverage. If poor performance is reported in a CNC, indicated by defaulter and CNR rates greater than 15 percent, this indicates that coverage may be low in the catchment area. If many children are exiting the programme as defaulters or CNR, the community will likely perceive the programme negatively.

Table 11 shows the total programme performance criteria for all three CMAM programmes assessed for all months of 2021.

Table 11: Programme performance criteria, OTP and TSFP for children U5 and TSFP for PLW, January-December 2021 (Sources: OTP and TSFP databases)

Programme target	Children U5				PLW	
Programme	OTP		TSFP		TSFP	
	Ukhiya	Teknaf	Ukhiya	Teknaf	Ukhiya	Teknaf
Cure rate	91.7%	93.6%	95.2%	94.6%	97.6%	96.6%
Defaulter rate	1.0%	1.9%	0.4%	0.6%	0.9%	1.6%
Death rate	0.2%	1.7%	0.1%	0%	0.1%	0.1%
CNR rate (children U5) / Unexpected discontinuation (PLW)	7.1%	2.9%	4.3%	4.8%	1.4%	1.6%

For the CMAM programmes serving children U5, cure rates for OTP and TSFP in both upazilas were reported as greater than 90 percent which is far greater than the Sphere standard for CMAM cure rates (75 percent). When compared to the cure rates reported in 2017 and 2018 from the previous SQUEAC assessment in 2019 (Table 12), it is evident that CMAM performance has continued to increase, despite the COVID-19 pandemic.

Table 12: Ukhiya and Teknaf OTP programme exits, 2017 and 2018 (Source: APR data)

	2017	2018
Cured	82.8%	86.7%
Defaulter	9.7%	4.7%
Death	0.7%	0.4%
CNR	6.7%	8.2%

Further analysis of the 2021 OTP data indicates periodic spikes in the CNR rate in Ukhiya in May and September 2021 when CNR increased to 12 percent and 14 percent, respectively. A similar spike in the CNR rate was seen in the TSFP in Teknaf in August 2021. The SQUEAC team was unable to identify the reason for this and might require further investigation.

The performance criteria of the PLW programme were even higher than those targeting children, indicating that the TSFP for PLW is popular with PLW, the vast majority of whom remained in the programme until being discharged as cured in 2021.

Further analysis of programme performance criteria by CNC revealed that, for the programmes targeted at children U5, performance was similar across all CNCs in Ukhiya and Teknaf. One exception was Amin's House in Teknaf, which recorded 22 percent of discharges from the TSFP as non-responders. This suggests that CNV are not conducting effective follow-ups of MAM cases enrolled in the TSFP in this CNC which may also be an indicator of low coverage. However, this appears to be an exception in otherwise exceptionally good performance discharge criteria.

4.3 QUALITATIVE DATA

4.3.1. INTRODUCTION

These qualitative findings relate to both Ukhiya and Teknaf and, unless stated otherwise, related to the OTP and TSFP for children U5, and the TSFP for PLW. Detailed positive and negative factors affecting coverage are shown in Table 13.

Many of the findings from the qualitative investigation reflect similar findings to those identified during the SQUEAC assessment in 2019. The 2019 report presents a more comprehensive analysis of findings than those presented below. This section indicates how community perceptions of CMAM have evolved since 2019 and highlights new factors.

Table 13: Summary of positive and negative factors relating to CMAM identified during qualitative investigation, Ukhiya and Teknaf, January 2022

	POSITIVE	NEGATIVE
Knowledge about malnutrition and about CMAM programme	**Knowledge about malnutrition** - Good knowledge about causes of malnutrition - Malnutrition recognised as a disease - Malnutrition not stigmatised by most key informants **Perception of programme** - Positive perception of programme among carers and other community members - Understanding of difference between RUTF and WSB++	**Understanding of malnutrition** - Some evidence of lack of understanding about malnutrition leading to stigmatisation of the disease and other childhood diseases **Knowledge about programme** - Some community leaders and carers of well-nourished children not aware about the programme and/or do not understand difference between treatment products - Few male community members can recognise MUAC tapes
Outreach services	**Sensitisation** - Effective courtyard sessions happening extensively which inform community members about malnutrition and CMAM - Sensitisations appreciated as conducted by local women **Screening and follow up**	**Sensitisation** - Village leaders, imams, teachers, and men not involved in sensitisations leading to negative perceptions of activities **Screening and follow up** - Infrequent screening in some locations due to absence of senior staff in the field

	- Regular screening in most locations conducted by CNV and Model Mothers - Good availability of MUAC tapes and correct referral procedures followed	- Lack of incentives at sensitisations leads to defaulters, CNR and relapse - Reduction in screening and sensitisations due to COVID-19 pandemic
Quality of care and other factors	**Treatment products** - Children like RUTF and WSB++ **Quality of service at facilities** - Positive behaviour of staff in facilities confirmed by carers - Short waiting time, no stock-outs; improvements to services since Rohingya response. **Training and support for staff** - Effective, regular training and supervision provided to CNC staff **Access** - All carers confirm that CNC is easily accessible	**Quality of nutrition facilities** - Some carers frustrated to wait for TSFP distribution day when referred from OTP - Some carers complain about staff not opening CNCs on time leading to long waiting times **Access related challenges** - Some PLW unable to visit CNC for last trimester of pregnancy leading to default - Distance and access related factors lead to some defaults (hilly areas, bad roads) **Other** - Carers reluctant to go to facilities due to availability of cheap treatment products in market (from Rohingya refugee communities)

4.3.2. KNOWLEDGE AND PERCEPTION OF MALNUTRITION AND CMAM PROGRAMME

Community knowledge and understanding of malnutrition, particularly in children U5, remains good in Ukhiya and Teknaf.

The majority of key informants (70 percent) in the two upazilas were able to identify the causes of malnutrition (e.g. lack of hygiene, lack of breastfeeding, poor care practices, lack of food intake, diseases) and knew that it is a disease treated in health facilities. Where there were gaps in knowledge, it was generally men, including community and religious leaders, who did not know and who, in some cases, still associated acute malnutrition in children with superstitions, leading to stigmatisation of GAM cases.

Similarly, approximately 70 percent of community members knew about the CMAM programme, including its targets, and had a positive perception of the treatment programme. All carers of children enrolled in the OTP and TSFP who were interviewed said they intended to continue treatment through to cure.

Again, where there were gaps in knowledge and understanding of the CMAM programme, it was mostly with male community members. A few were completely unaware of the programme; most had some awareness but could not differentiate between the various treatment products or did not associate nutrition programmes with health issues. Some male

community members also had never seen a MUAC tape. Female community members all had good knowledge of the difference between treatment products for children (WSB++ and RUTF)

Compared with previous SQUEAC findings, 2022 findings indicate that community understanding of malnutrition in children U5 has increased over time. For example, based purely on the percentage of carers who correctly identified malnutrition as a disease, awareness improved between 2015 and 2019. In 2015, 50 percent of carers identified malnutrition as a disease; in 2019 this had increased to 73 percent. However, since 2019, there was still evidence of gaps in knowledge as one out of three carers still could not identify acute malnutrition as a disease.

4.3.3. COMMUNITY OUTREACH ACTIVITIES

The majority (70 percent) of community members interviewed (e.g. key community leaders, men, and women and carers of SAM and MAM cases) confirmed that outreach staff were conducting screening of children in the community on a regular basis. This is similar to findings from 2019. Those who said that regular screenings were NOT taking place included a traditional healer, a carer and two groups of male community members. This suggests that some community members may not be aware of screenings or there are some locations where screening is patchy.

Most female community members confirmed that sensitizations were taking place and appreciated sensitizations they had participated in. However, like in 2019, there was also strong evidence that the sensitizations are not targeting male community members. This was mentioned by most male community members interviewed during qualitative data collection and was confirmed by many CNVs. This may be driven by the fact that sensitisations at community level are mostly carried out by female community members, but also the lack of targeting of men.

Five out of six carers of SAM and MAM cases confirmed that they receive regular follow-up visits by CNV at their homes. This reflects consistency with findings from 2019 when 10 out of 12 carers confirmed that follow-up visits occurred while their child was receiving treatment.

4.3.4. QUALITY OF CARE IN NUTRITION FACILITIES

Three out of four carers interviewed shared positive feedback about the quality of care provided in the nutrition facilities, emphasising that there were never stockouts of treatment products, that waiting times were short and that all necessary equipment was available. All carers also said that their child liked consuming RUTF or WSB++ and that the CNC staff provided regular sensitizations at the point of distribution.

Some negative findings about the quality of care did emerge. CNC staff said that carers were unhappy to wait for the TSFP distribution day when being transferred from OTP to TSFP, which moved from bi-monthly to monthly due to COVID-19. One carer also complained that government staff do not open the CNC on time.

Finally, some key informants expressed frustration felt by PLW that they are required to visit the CNC during their final trimester of pregnancy when many would be unwilling or unable to do so.

4.3.5. ACCESS-RELATED FACTORS AND OTHER FACTORS

All Government of Bangladesh facility staff and community nutrition staff (CNW and CNV) interviewed stated that they receive effective and regular training and supervision to fulfil their duties within the CMAM programme. A similar finding was reported in 2019.

In addition, all carers interviewed confirmed that their nutrition facility was easily accessible. Only one CNC staff member said that there were quality challenges relating to the delivery of CMAM services due to the poor quality of CNC facilities, as compared to nine CNC personnel in 2019.

Multiple key informants, including all male community members and key community personnel, confirmed that carers were often reluctant to travel to nutrition facilities due to the availability of cheap nutrition treatment products (including RUTF, Super Cereal and Super Cereal Plus) in local markets. This finding was also reported in the qualitative investigation in 2019 when community members indicated that it was nearly always refugee communities who were selling these products.

Some CNC staff and CNV indicated that programme activities had been hampered during the COVID-19 lockdowns. However, programme data indicates that since the end of the lockdowns, sensitizations had returned to normal.

4.4 STAGE 2 RESULTS AND ANALYSIS

4.4.1. INTRODUCTION

The methodology for the two hypotheses tested during Stage 2 were set out in Section 2.2. Results from the Stage 2 hypotheses, and an interpretation of findings are outlined in this section.

4.4.2. HYPOTHESIS 1 – DISTANCE TEST

To test this hypothesis, four villages with suspected high coverage and four villages with suspected low coverage were selected as shown in Table 14.

Table 14: Villages selected to test Hypothesis 1

	Upazila	Union	Nearest CNC	Village name	Approx. distance to CNC
High coverage villages	Ukhiya	Ratna palong	Chakboitha CC	Chakbaita	**<1 km**
		Holdiapalong	Mohajon Para CC	Mahajan Para	
	Teknaf	Subrang	Uttarpara CC	Paschim Uttar Para	

		Teknaf Pouroshova	Rubina CNC	Puran Pollan Para	
Low coverage villages	Ukhiya	Palongkhali	Thangkhali FWC	Telkhola	**6-10 km**
		Jalia Palong	Inani UHSC	Mohd. Shafrir Bil	
	Teknaf	Whykong	Amtoli CC	Keruntoli	
		Baharchara	Morzina House CNC	Noakhali	
		Holdiapalong	Mohajon Para CC	Mahajan Para	

Based on the case definitions included in the methodology, case finding was conducted for SAM and MAM children U5, and MAM PLW. The analysis of results is shown in Table 15 for children U5 and in Table 16 for PLW. SAM and MAM cases were combined into 'Total cases.'

Table 15: Children U5 results from hypothesis test 1 – distance test

	High coverage villages	**Low coverage villages**
	<1km from CNC	**6-10 km from CNC**
Total cases found (*n)*	8	12
Coverage standard (*p)*	60%	60%
Decision rule (*d*)	4	7
Covered cases found	6	8
Interpretation	Covered cases exceeds *d*. Hypothesis proven	Covered cases exceeds *d.* Hypothesis **not** proven

Table 16: PLW results from hypothesis test 1 – distance test

	High coverage villages	**Low coverage villages**
Criteria for defining coverage	**<1 km from CNC**	**6-10 km from CNC**
Total cases found (*n)*	4	8
Coverage standard (*p)*	50%	50%
Decision rule (*d*)	2	4
Covered cases found	4	6
Interpretation	Covered cases exceeds *d*. Hypothesis proven	Covered cases exceeds *d.* Hypothesis **not** proven

Hypothesis test 1 was partly proven for children U5 and PLW. In villages located close to CNCs, coverage was found to be higher than the decision rules for both (60 percent for children U5; 50 percent for PLW). In villages located more than 5 km from the nearest CNC, coverage was also found to be higher than the decision rules.

However, nearer villages appeared to have only *marginally* higher coverage than those located further away. If the coverage standard had been set higher (for example, at 70 percent), the hypothesis would have been proven.

4.4.3. HYPOTHESIS 2 – CNV WORKLOAD

To test hypothesis 2, eight villages were selected: four with suspected high coverage where CNV workload was low and four with suspected low coverage where CNV workload was high. The selected villages are shown in Table 17.

Table 17: Villages selected to test Hypothesis 2

	Upazila	Union	Nearest CNC	Village name	No. of clusters by CNV
High coverage villages	Ukhiya	Jalia Palong	Painnasia CC	Pannyasia	More than 55 clusters by CNV
		Holdiapalong	Paglirbil CC	Paglir Bil	
	Teknaf	Teknaf Sadar	Nazipara CC	Nazipara	
		Teknaf Pouroshova	Mayor House	Uttar Jalia Para	
Low coverage villages	Ukhiya	Jalia Palong	Imamerdail CC	Chenchori	Less than 55 clusters by CNV
		Holdiapalong	Nolbonia UHSC	Paschim Holdia	
	Teknaf	Whykong	Moheshkhalia Para CC	Poschim Satgaria Para	
		Teknaf Pouroshova	Misbahar CNC	Purbo Godarbil	

The analysis of the results for children U5 and for PLW are shown in Tables 18 and 19.

Table 18: Children U5 results from hypothesis test 2 – CNV workload test

	High coverage villages	Low coverage villages
Criteria for defining coverage	Less than 55 clusters by CNV	More than 55 clusters by CNV
Total cases found (*n*)	20	20
Coverage standard (*p*)	60%	60%
Decision rule (*d*)	12	12
Covered cases found	14	16
Interpretation	Covered cases exceeds *d.* Hypothesis proven	Covered cases exceeds *d.* Hypothesis **not** proven

Table 19: PLW results from hypothesis test 2 – CNV workload test

	High coverage villages	Low coverage villages
Criteria for defining coverage	Less than 55 clusters by CNV	More than 55 clusters by CNV
Total cases found (*n*)	6	3
Coverage standard (*p*)	50%	50%
Decision rule (*d*)	3	1
Covered cases found	5	2
Interpretation	Covered cases exceeds *d.* Hypothesis proven	Covered cases exceeds *d.* Hypothesis **not** proven

Hypothesis test 2 was also partly proven. Coverage was found to be greater than the decision rule in all villages visited (60 percent for children U5; 50 percent for PLW). Unlike the distance

hypothesis test, however, those CNC catchment areas which had a lower CNV workload did not have higher coverage than catchment areas with a higher CNV workload.

4.4.4. STAGE 2 ANALYSIS

The results of the two hypothesis tests partly confirmed the assessment team's beliefs about coverage. Coverage was generally found to be higher than expected, and so in future it would be better to design coverage standards more appropriate for the context.

There does still appear to be a correlation between distance and coverage as was partly proven in 2019. However, for CNV workload, there seems to be no correlation. Even in catchment areas with presumably low coverage, i.e. where CNVs have many households to visit, coverage still appears to be high.

These results were communicated to the assessment team and the evidence was added to the team's final barrier and booster lists as additional evidence.

4.5 PRIOR BUILDING

4.5.1. INTRODUCTION

The assessment team completed the prior building following the analysis of Stage 2 findings. The objective of the prior building process was to estimate prior beliefs of coverage in the OTP for children U5, and in the TSFP for both children U5 and PLW. With this information, the team could calculate the required sample sizes for Stage 3 (wide area survey).

The methodology section explained the process and calculations used in greater detail. This below section presents the prior building results.

4.5.2. BARRIERS AND BOOSTERS FOR THE OTP AND TSFP

The final list of barriers and boosters is available in Annex 1. Where relevant, attention is drawn to barriers or boosters specific only to the OTP or to either the TSFP for children U5 or PLW. However, most factors apply to all CMAM programmes.

4.5.3 PRIOR ESTIMATES

The "prior contributing elements" contributed to the elaboration of three prior estimates, one for each of the programmes. This was done by calculating the average of the prior contributing elements to find the "Prior mode".

The prior contributing elements for each of the methods used and prior modes are shown in Table 20.

Table 20: Prior contributing elements, OTP for children U5 in Ukhiya and Teknaf

	Children U5		PLW
	OTP	**TSFP**	**TSFP**
"Prior" prior	70.0%	60.0%	60.0%
Simple barriers and boosters	44.0%	44.0%	44.0%
Weighted barriers and boosters	55.5%	55.0%	56.5%
Concept Map	47.5%	47.5%	48.5%
Mind Map	53.5%	52.5%	50.0%

4.5.4. CALCULATION OF WIDE-AREA SURVEY SAMPLE SIZE

As described in the methodology section, the minimum and maximum prior values for the prior estimates were calculated by adding and subtracting a fixed range of +/- 25 percent. This information was then entered into the Excel-based SQUEAC tool to calculate the alpha and beta priors. Finally, the alpha and beta priors were added to the Bayesian SQUEAC calculator to calculate the required sample sizes for the wide area survey (Stage 3 of SQUEAC).

The estimated values, precisions and required sample sizes are shown in Table 21.

Table 21: Prior modes, minimum and maximum probable values and Stage 3 sample sizes

	Children U5		PLW
	OTP	**TSFP**	**TSFP**
Prior mode	54%	52%	52%
Minimum probable value	29%	27%	27%
Maximum probable value	79%	77%	77%
Alpha prior	18.8	18.2	18.2
Beta prior	16.0	16.8	16.8
Precision	12%	10%	10%
Wide area survey sample size	**33**	**56**	**56**

Once the wide area survey sample sizes had been calculated, the team could plan Stage 3 data collection. Wide area survey planning was based on achieving the OTP sample size as SAM in children U5 was the rarest disease of the three. Based on the OTP sample size, the assessment team calculated they would need to visit 57 villages as explained in the methodology.

4.6 WIDE-AREA SURVEY RESULTS

4.6.1. INTRODUCTION

The wide area survey took eight data collection teams in seven days to complete. The teams succeeded in visiting all 57 villages. In total, 6,267 children were measured by MUAC. The village-by-village results are shown in Annex 3. This section summarises the wide area survey findings and outlines the final steps to calculate the overall coverage estimates for OTP and TSFP for children U5 and TSFP for PLW.

4.6.2 WIDE AREA SURVEY SUMMARY

Tables 22 and 23 show the cases found during the wide-area survey for children U5 and PLW respectively. These results are combined for Ukhiya and Teknaf. For children U5, *Rout* was calculated using the formula included in the methodology section.

Table 22: Summary of wide area survey results for children U5, Ukhiya and Teknaf

	OTP	TSFP
Cin (Cases in the programme)	30	149
Cout (Cases not in the programme)	9	47
Rin (Recovering cases still in the programme)	7	83
Rout (Cases that have recovered naturally not in the programme [estimated figure])	0	8
Total	**46**	**287**

Table 23: Summary of wide area survey results for PLW, Ukhiya and Teknaf

Cin	43
Cout	10
Rin	23
Total	**66**

For children U5, the required sample size for OTP was 33 cases. A total sample of 46 OTP cases had been identified by the end of the wide-area survey.

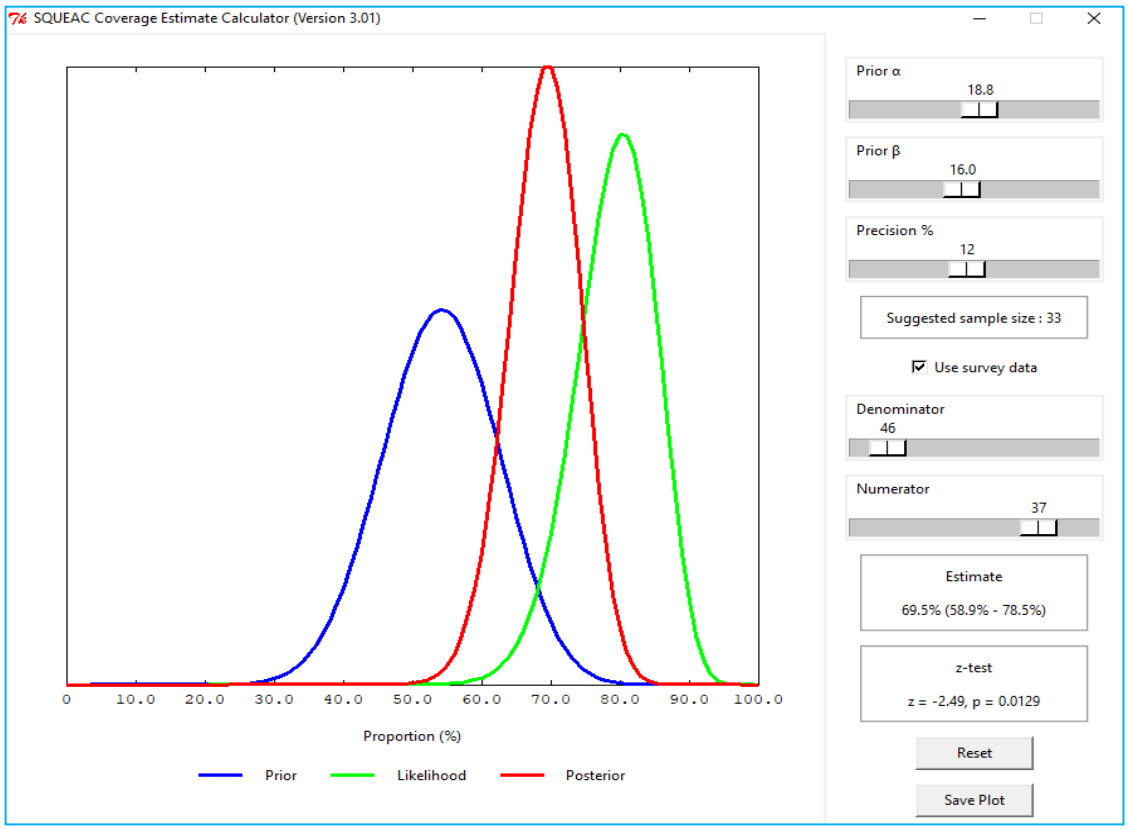
A total of 231 TSFP cases among children U5 were identified during the wide-area survey. Using the calculation for *Rout*, it was possible to estimate that eight recovering MAM cases had recovered without participating in the TSFP.

For PLW, 66 cases were identified, of which 39 were pregnant women and 37 lactating women.

4.6.3. OTP FOR CHILDREN U5 COVERAGE ESTIMATE

The target sample size of OTP for children U5 cases was exceeded. Therefore, it was possible to add the survey results to the Bayesian SQUEAC calculator as shown in Figure 16.

Figure 16: Conjugate analysis of OTP coverage, Ukhiya and Teknaf, January 2022



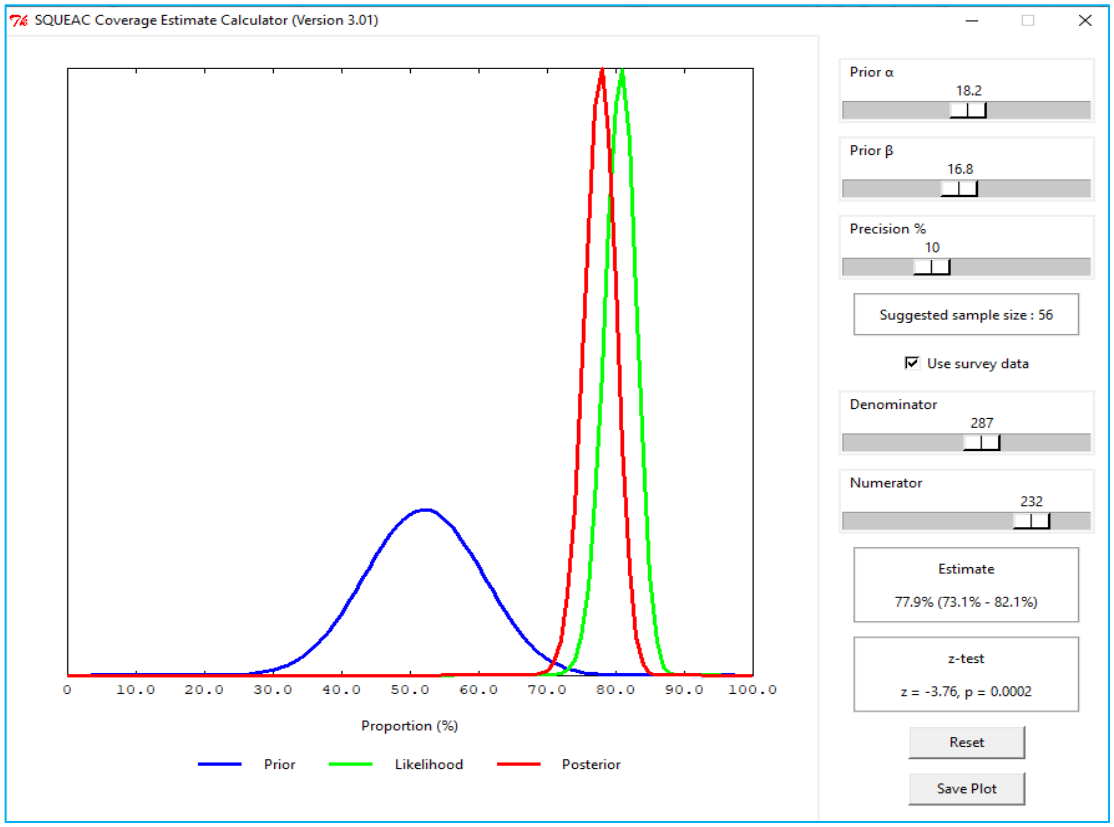
The Z-test result in the bottom right of Figure 16 indicates that there is no conflict between the prior and likelihood estimates. This is because the p-value is greater than 0.01 (p=0.0129). Therefore, the final coverage estimate for OTP for children U5 is **69.5 percent (95% CI: 58.6 - 78.5 percent)** with a precision of 12 percent.

However, as the figure shows, the prior estimate (blue curve) estimated that treatment coverage would be 54 percent while the likelihood estimate (green curve) estimated that coverage was approximately 80 percent. Therefore, it is likely that the true coverage estimate is closer to 75-80 percent.

4.6.4. TSFP FOR CHILDREN U5 COVERAGE ESTIMATE

Figure 17 shows the conjugate analysis for the TSFP for children U5. The conjugate analysis for the TSFP for children did not yield a valid result. The p-value was 0.0002 which is well below the 0.01 threshold. This is because the prior estimate (blue curve) estimated coverage to be 52 percent which was excessively different to the likelihood estimate (green curve).

Figure 17: Conjugate analysis of TSFP for children U5 coverage, Ukhiya and Teknaf, January 2022

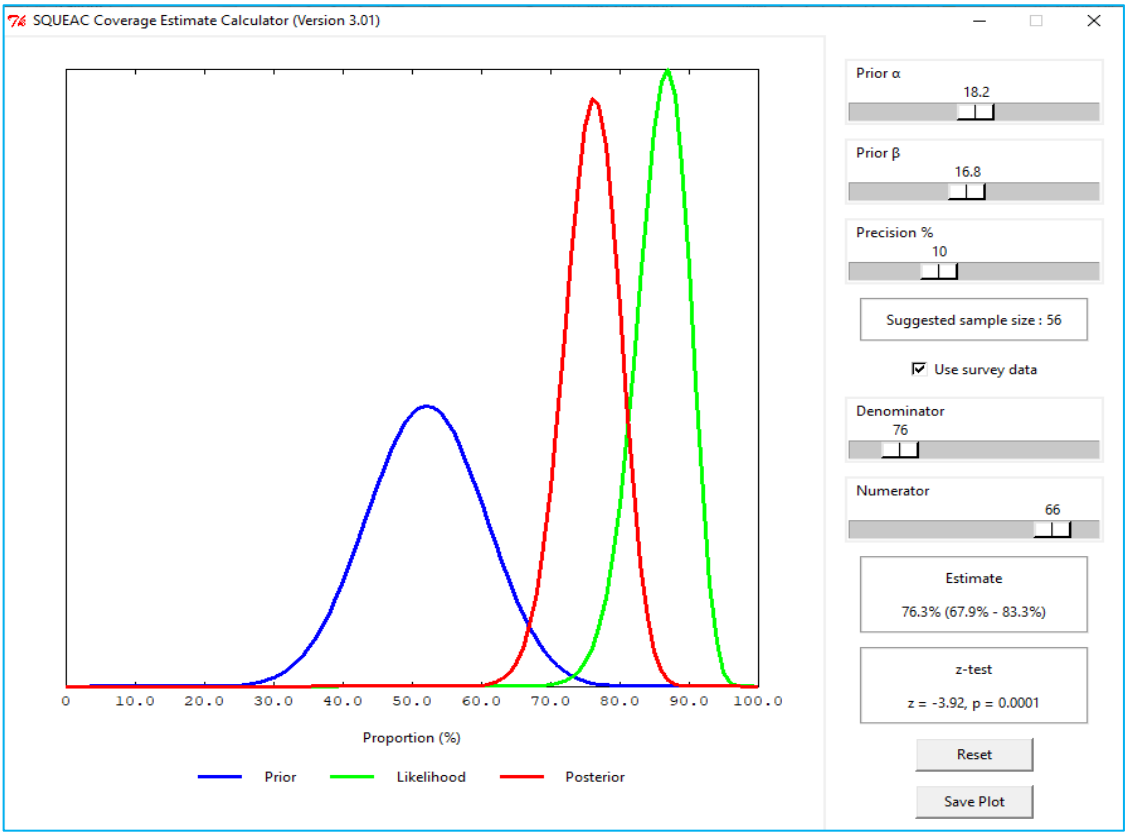


However, as the number of TSFP children U5 exceeded 96 (279 cases found), it is possible to estimate the coverage of TSFP for children U5 based on the wide-area survey findings to be at **81.2 percent (95% CI: 76.4 – 86.0 percent)** with a precision of 5 percent. This estimate has been weighted based on the populations of Teknaf and Ukhiya.

4.6.5. TSFP FOR PLW COVERAGE ESTIMATE

Figure 18 shows the conjugate analysis for the TSFP for PLW. The conjugate analysis for the TSFP for PLW also did not yield a valid result. The p-value was 0.0001 which is below the 0.01 threshold. Again, the prior estimate (blue curve) estimated coverage to be 52 percent which was excessively different to the likelihood estimate (green curve) which estimated coverage to be closer to 85 percent.

Figure 18: Conjugate analysis of TSFP for PLW coverage, Ukhiya and Teknaf, January 2022



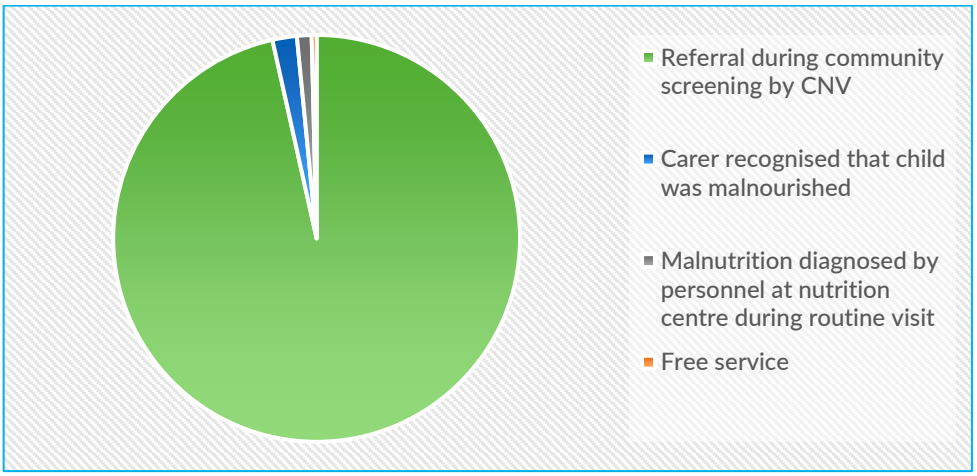
It is not possible to estimate coverage for the TSFP for PLW based on wide-area survey data alone as an insufficient number of cases were identified during the wide-area survey (76). However, based on the wide area survey results, it is possible to say that coverage fell in the **range of 70-100 percent.**

4.6.6 QUALITATIVE FINDINGS FROM A SURVEY CONDUCTED WITH CHILDREN U5

How did children U5 come to be enrolled in the OTP or TSFP?

Carers of OTP and TSFP cases enrolled in the relevant programme were asked how or why they had decided to take their child to the CNC for treatment. The responses from OTP and TSFP covered cases are summarised in Figure 19.

Figure 19: Reasons for enrolment in OTP and TSFP provided by carers of covered cases



The majority (97 percent) of SAM and MAM children who had enrolled in the OTP and TSFP had done so following a community screening by a CNV. This information, and the high coverage estimates seen in the previous section, strongly suggest that during the months before the January 2022 coverage assessment, community screening for SAM and MAM cases was regular and extensive in most of Ukhiya and Teknaf.

What was the primary reason for the non-attendance of SAM and MAM children not enrolling in the relevant treatment programme?

Carers of non-covered SAM and MAM cases completed directive questionnaires with interviewers to confirm why their child was not enrolled in the relevant treatment programme. Based on the responses, it was possible to identify the primary reason for non-attendance to the appropriate programme for each non-covered case. Reasons are ranked from most to least common in Figures 20 and 21 for OTP and TSFP, respectively.

Figure 20: Reasons for non-attendance to OTP for non-covered SAM children U5, Ukhiya and Teknaf, January 2022 SQUEAC (n=9)

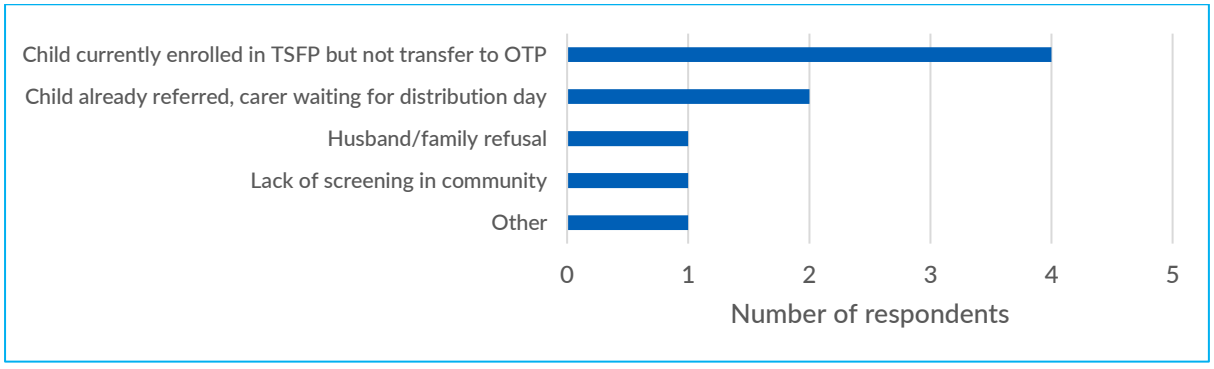
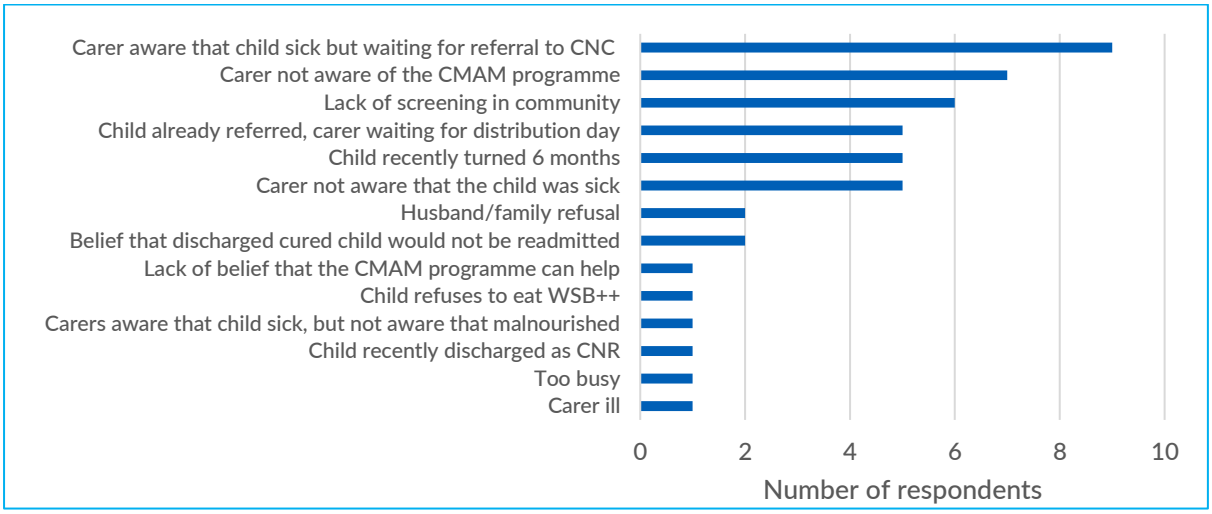


Figure 21: Reasons for non-attendance to TSFP for non-covered MAM children U5, Ukhiya and Teknaf, January 2022 SQUEAC (n=47)



For non-covered OTP cases, the most common reason for non-attendance was that the child had not been referred from the TSFP to the OTP. Therefore, while it is positive that the child was enrolled in a treatment programme, results indicate that MAM children are becoming SAM while receiving treatment in the TSFP. This may be for several reasons:

1. In the extended period between TSFP distributions (4 weeks), the child becomes MAM;
2. CNC staff are not conducting systematic screening of MAM children enrolled in the TSFP;
3. CNC staff are not following protocol and are referring SAM children to the OTP when they become SAM in the TSFP;
4. CNC staff are conducting poor quality MUAC measurements.

Further analysis of the MUAC measurements of these children indicates that all four had MUAC measurements within 1-3 mm of the SAM MUAC threshold. Hence, it is likely that reasons one or four explain why these children were missed by CNC staff.

For TSFP non-covered cases, the most common reasons for non-attendance were attributed to carers waiting for their child to be referred to the CNC (i.e. an absence of screening) or to the carer waiting for the distribution day for their child to be admitted.

The first could indicate that screening is not taking place in all villages in Ukhiya and Teknaf on a regular basis. While the reasons for enrolment (analysed in the previous section) suggest that most cases are admitted following community screening, there may be gaps in community screening in some areas.

The second indicates that MAM children have been identified as MAM but must wait to be admitted. Given that TSFP distribution days were monthly at the time of data collection, it is possible that a carer and child would have to wait for up to four weeks between being referred and receiving treatment. This is a long time and could place the child at risk.

Previous participation in the CMAM programme

Approximately 30 percent of all OTP and TSFP cases identified (including covered and non-covered cases) had been enrolled in the CMAM programme (OTP or TSFP) previously.

Of these, the majority (91 percent) had either been discharged as cured and had relapsed into SAM or MAM or were discharged as CNR and readmitted. The remainder had defaulted from treatment.

This reflects similar results to the 2019 SQUEAC assessment in which a slightly lower percentage of cases (24 percent) were identified to have been enrolled in the OTP or TSFP previously. The new findings indicate that there is quite a high rate of readmission to the CMAM programme for children U5 in Ukhiya and Teknaf.

During analysis of the 2022 SQUEAC, it was hard to identify the primary causes of children relapsing to SAM or MAM following successful treatment. But based on the information gathered during CNR case studies and the data collection team's feedback, it is likely that the poor sanitary conditions and contaminated food preparation areas in many households were contributing to the high relapse rates.

4.6.7 QUALITATIVE FINDINGS FROM SURVEY CONDUCTED WITH PLW

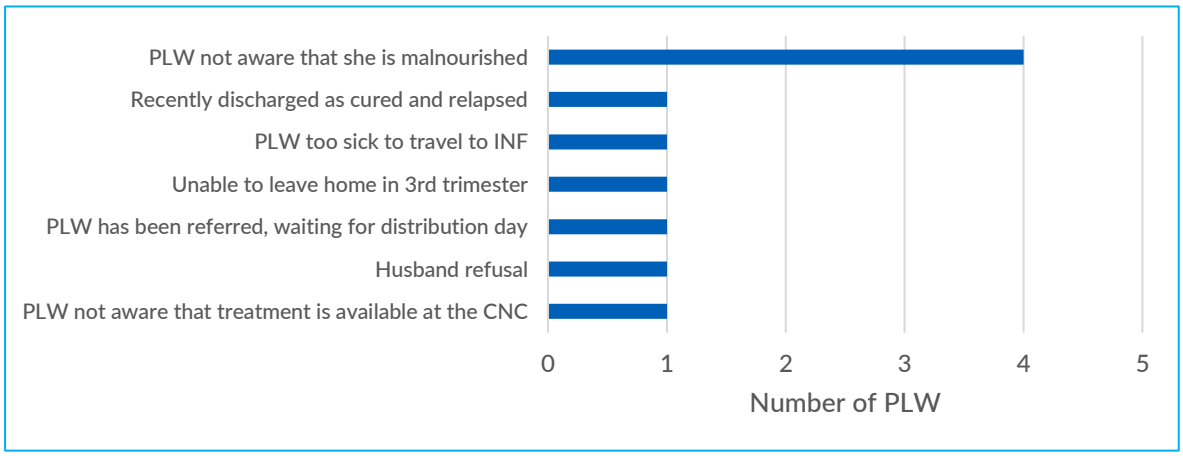
Reasons for enrolment in the TSFP

PLW in the TSFP were asked how they had come to join the treatment programme. Ninety-five percent said that they had enrolled following a community screening by a CNV which indicates that community screening for PLW in the Bangladeshi communities is as effective and widespread as that of children U5.

What was the primary reason for non-attendance among MAM PLW not enrolled in the TSFP?

Ten MAM PLW were identified who were not enrolled in the TSFP; the primary reasons for their non-attendance to the TSFP are summarised in Figure 22 below.

Figure 22: Reasons for non-attendance to TSFP for non-covered MAM PLW, Ukhiya and Teknaf, January 2022 SQUEAC (n=10)



The most common reason for non-attendance was that the PLW was unaware that she was malnourished. This suggests that exhaustive community screening is not taking place in some communities visited. PLW were not asked any questions about their previous enrolment in the CMAM programme.

4.6.8. SPATIAL DISTRIBUTION OF COVERAGE OF CHILDREN U5

Based on the wide-area survey results, it is possible to combine the results by union and identify potentially high and low coverage unions in Ukhiya and Teknaf. It is also possible to establish approximate coverage estimates by upazila.

Table 24 shows the combined OTP and TSFP covered and non-covered cases by union and the coverage estimate by union (NB: this is a proxy coverage estimate only).

Table 24: Covered and non-covered cases by union, Ukhiya and Teknaf, January 2022

Upazila	Union	Villages visited	Children screened	Total cases identified	Covered cases	Non-covered cases	Proxy coverage estimate	
							2022	2019
Ukhiya	Palong khali union	4	441	**28**	25	3	**89%**	**61%**
	Jalia palong union	2	244	**17**	11	6	**65%**	**36%**
	Raja palong union	4	380	**21**	16	5	**75%**	**86%**
	Ratna palong union	1	71	**31**	2	0	**100%**	**n/a**
	Holdiapalong union	4	429	**2**	29	2	**94%**	**75%**
Teknaf	Subrang union	13	1420	**58**	48	10	**83%**	**47%**
	Nhilla union	8	928	**55**	45	10	**82%**	**29%**
	Teknaf Pouroshova	4	384	**12**	9	3	**75%**	**38%**
	Teknaf Sadar union	8	887	**45**	33	12	**73%**	**58%**
	Baharchara Union	3	391	**16**	15	1	**94%**	**33%**
	Whykong union	6	692	**40**	36	4	**90%**	**61%**

As shown by the union-by-union wide area survey results, there is variation in the coverage between unions. Again in 2022, Jalia Palong union reported the lowest coverage of all unions in Ukhiya as it did in 2019.

The data shows that, compared to 2019 SQUEAC assessment findings, coverage has improved in nine out of ten unions. This is evident from the proxy coverage estimates reported in Teknaf in 2022, which showed significant improvement since the last coverage assessment in 2019. It should be noted, however, that the union-level results should be interpreted with caution as the achieved sample sizes in some unions were very low.

Based on the wide area survey results, the proxy coverage estimates for the CMAM programme for children U5 (including OTP and TSFP) in:

Ukhiya is:

$$Ukhiya\ proxy\ coverage\ estimate = \frac{83}{99} \times 100 = 84\%$$

Teknaf's is:

$$Teknaf\ proxy\ coverage\ estimate = \frac{186}{226} \times 100 = 82\%$$

Coverage of the CMAM programme for children is very similar in Ukhiya and Teknaf, with approximately four out of five GAM children accessing treatment services in both upazilas. In Teknaf, the 2022 results indicate a significant improvement in coverage compared to the 2019 results which estimated coverage based on the wide-area survey results as only 48 Percent.

4.6.9 ESTIMATION OF OTP AND TSFP "MET NEED"

It is possible to calculate the "Met Need" for the OTP and TSFP in Ukhiya and Teknaf based on reported cure rates in 2021 and January 2022 coverage results. The results are shown in Table 25. Also included in the table are the estimated "Met Need" of both programmes in 2015, 2017 and 2019.

Table 25: Met Need of OTP and TSFP for children U5 in Ukhiya and Teknaf for 2015, 2017, 2019 and 2022

	OTP	TSFP
Overall cure rate (2021)	92.6%	94.9%
Coverage estimates (March 2019)	69.5%	81.2%
Met Need 2022	64.4%	77.1%
Met Need 2019	52.8%	42.9%
Met Need 2017	63.8%	65.2%
Met Need 2015	63.6%	65.9%

This shows that the OTP for children U5 is meeting the needs of approximately 64 percent of SAM children in Ukhiya and Teknaf (i.e. approximately 64 percent of SAM cases in the upazilas are being admitted and discharged as cured from the OTP). However, as mentioned earlier in this section, the true coverage estimate is likely higher than 69.5 percent. Therefore, the actual met need for OTP may be in the range of 70-75 percent. Despite this, this is the highest met need achieved by the OTP since the SQUEAC assessments have been carried out.

For the TSFP for children U5, the estimated met need is 77.1 percent, representing a major increase compared to 2019 and achieving the highest met need to date.

5 DISCUSSION

In January 2022, the fourth SQUEAC assessment of CMAM programmes for children U5 was completed by the AAH Bangladesh Nutrition Surveillance team. The coverage assessment set out to evaluate how treatment coverage has evolved since the previous 2019 assessment, following various changes to the delivery of the CMAM programme and the wider context. Also, for the first time, the SQUEAC assessment set out to estimate TSFP coverage for PLW.

The process followed the three stages of a SQUEAC assessment: 1. quantitative and qualitative data collection and analysis; 2. hypothesis testing and prior building; and 3. wide area survey. The previous SQUEAC assessments completed in Ukhiya and Teknaf were combined into one assessment area; however, wherever possible, the results from the present assessment were disaggregated by upazila and union.

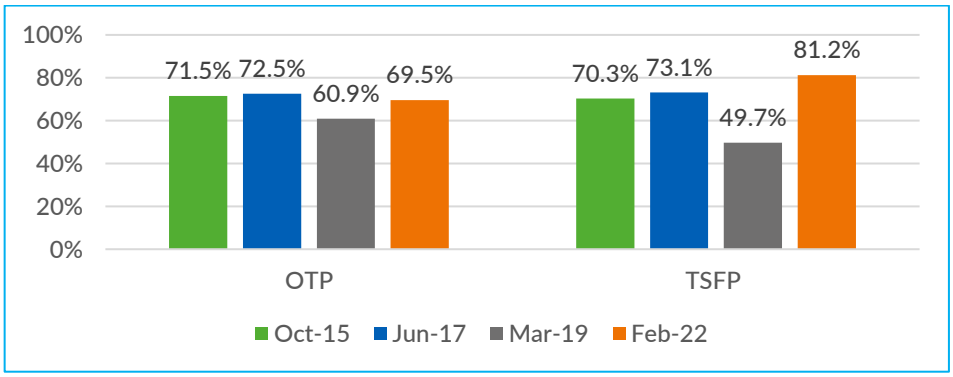
CMAM programme for children U5:

Compared to 2019, the 2022 coverage assessment showed that coverage of the CMAM programme for children U5 had improved:

- Based on the SQUEAC methodology, **OTP coverage** was estimated to be **69.5 percent (95% CI: 58.6 - 78.5 percent)**
- Based on wide area survey results, **TSFP coverage** was estimated to be **81.2 percent (95% CI: 76.4 - 86.0 percent)**

The CMAM coverage estimates for children U5 from 2015 to 2022 are summarised in Figure 23.

Figure 23: Treatment coverage estimates in Ukhiya and Teknaf CMAM programme for children U5 (2015-2022)



By 2022, treatment coverage of the CMAM programme for children U5 had recovered following the negative impacts of the Rohingya influx seen in the March 2019 SQUEAC assessment. In 2022, coverage estimates remained well above the 50 percent Sphere standard for CMAM treatment coverage in rural contexts.

The OTP coverage result was likely underestimated due to a low prior being set by the assessment team. Wide area survey data indicated that the true coverage estimate for the OTP programme was 75 - 85 percent.

Like the refugee settlements, the COVID-19 pandemic led to some alterations to CMAM treatment protocols in the Bangladeshi communities. While OTP treatment protocols were unaffected, from April 2020 MAM children U5 and PLW enrolled in the TSFP visited CNCs on a monthly rather than bi-weekly basis to receive their rations. The implications of this are discussed later in this section.

Community outreach was also reduced due to the pandemic which affected programme activities at certain points of 2021. However, following a recruitment drive for CNV in July-September 2021, regular house-to-house screening resumed in the last few months of 2021 leading to peaks in admissions in September (Ukhiya) and October (Teknaf). Qualitative findings collected during the wide-area survey indicated that this contributed to the high coverage estimates found in 2022. Most covered cases confirmed that they had come to the OTP or TSFP after being screened in the community by CNV at or near their homes.

Programme data also indicated that community screening was taking place regularly during 2021; OTP and TSFP MUAC at admission data indicated that admissions were timely, which suggests that children were identified by CNVs early in the onset of SAM or MAM. The median lengths of stay before cure for OTP also indicated that most SAM children are admitted and discharged within six weeks.

Other key observations of children U5 programme data include:

- Most TSFP children remained in the programme for <13 weeks before discharge as cured. In 2019 the median value was only slightly lower at 12 weeks. Less frequent distributions implemented due to COVID-19 prevention measures therefore did not significantly increases in length of stay.
- Cure rates for all programmes were greater than 90 percent; however, there were some CNR hot spots, most likely caused by unhygienic conditions in different communities. However, this does not appear to have affected coverage.

Qualitative findings indicate that the COVID-19 pandemic does not appear to have affected community health seeking behaviours in Ukhiya and Teknaf.

SAM and MAM in children continue to be a disease recognised and understood by most community members. However, as in 2019, there are groups of men and some male community leaders who are unaware of the disease or treatment programmes. This is primarily due to these community members not being targeted by community sensitisations conducted by CNV, most of whom are female. Despite this, the coverage of the programme does not appear to be negatively affected.

To increase coverage to even higher levels, programme teams would need to continue to maintain regular screening activities and focus on the most common reasons for non-attendance identified during the wide-area survey:

- Wide area survey qualitative findings found that some SAM children were enrolled in the TSFP and had not been identified and transferred to the OTP.
- Non-covered MAM cases were identified in some communities, suggesting some gaps in screening in specific communities.
- The reduced frequency of visits was found to impact coverage. Some non-covered MAM children were identified who were waiting to be admitted to the TSFP. While it is positive that they had been identified and referred based on the adapted COVID-19 protocols, there is a chance they would have to wait up to four weeks before admission to the programme, which would lead to longer treatment times and risk of these children slipping into SAM.

Programme data and coverage data indicated some variations in CMAM coverage between unions. Unions bordering the camps, such as Palongkhali in Ukhiya and Nhilla in Teknaf, appeared to have high admissions for their populations, which programme teams suspected was due to children from camps enrolling in programmes for Bangladeshis. Jaliapalong union in Ukhiya was found to have the lowest coverage of OTP and TSFP combined of all unions at 65 percent while others reported coverage estimates greater than 90 Percent, like Holdiapalong Union in Ukhiya, and Baharchara and Whykong in Teknaf.

CMAM programme coverage for PLW:

It was not possible to estimate the coverage of the TSFP for PLW during the 2022 survey. The difference between the prior estimate (52 percent) and the likelihood survey (85 percent) was too large, leading to a conflict between the prior and likelihood. However, based on the wide-area survey result, it is possible to say that TSFP for PLW coverage ranged from 70-100 percent. Given that this is the first time the coverage of the TSFP for the PLW programme has been assessed in any community in Bangladesh, it will provide useful information for future coverage surveys.

For the following reasons, TSFP programme data for PLW indicated that coverage was likely to be lower than that of CMAM programmes for children U5:

- Admissions were lower in Teknaf than in Ukhiya despite the larger population in Teknaf,
- Teknaf admissions by CNC also indicated that PLW admissions were significantly lower than that of children U5,
- PLW admissions were less timely with median MUAC at admissions falling at 205 mm, i.e. 5 mm below admission criteria,
- PLW programme exit data was inconsistently reported in some CNCs.

However, relatively few non-covered MAM PLW were identified, despite assessment teams screening more than 1,400 PLW in Ukhiya and Teknaf during the wide-area survey.

Qualitative data from the wide-area survey did indicate that there were gaps in screening of PLW in some areas as the primary reason for non-attendance of non-covered MAM PLW was

that they were unaware that they were malnourished. There was also some indication that PLW were unable or unwilling to travel to CNCs during the final trimester of pregnancy.

6 RECOMMENDATIONS

A dissemination workshop was held on 16 March 2022 to present the results and findings of the SQUEAC assessment and to formulate recommendations and activities to improve CMAM service uptake. Participants included members of the Nutrition Sector, the SQUEAC assessment team and implementing partners.

Participants split into two groups and developed recommendations to improve service uptake, summarised below. The proposed activities all apply to both Ukhiya and Teknaf.

Theme: Treatment of acute malnutrition (children U5 and PLW) at CNC level and in communities

Challenge identified during SQUEAC	Recommendations to address challenge	Location/s	Progress indicator	Source of verification	Responsible party/ies	Timeframe
SAM children are not being identified during TSFP distribution days due to a lack of systematic screening and/or TSFP days only occurring once a month	• OTP distribution should maintain a seven-day interval • TSFP distribution should revert to bi-weekly • CNV/CNW should be increased to meet the need • Active cases from screening should be admitted to the programme as soon as possible after referral	CC/CNC of Ukhiya and Teknaf	- Staff capacity building - Additional CNV/CNW recruitment - Proper monitoring & follow ups	- Longevity of trained staff - Maintaining register accordingly - Sustainability of plan and working modality	Donors, implementing partners	2022
Some pregnant women can't or won't visit the CNC during the third trimester	• Alternative caregiver can attend to receive food • Proper monitoring and tracking • Sensitization to alternative caregivers or other family members	CC/CNC of Ukhiya and Teknaf	- Number of staff trained - Number of PLW treated during the third trimester	- Register of PLW - Proper tracking of PLW in the third trimester -Proper home visits	Donors, implementing partners, local stakeholders	2022

Theme: Community outreach

Challenge identified during SQUEAC	Activities to address challenge	Location/s	Progress indicator	Source of verification	Responsible party/ies	Timeframe
Key community members excluded from sensitizations (e.g. village leaders, imams, teachers, pharmacists, village doctors)	• Effectively sensitize more men on CMAM programmes • Monitor and report male forums reached monthly	CNC level, community level, mosque, school	Monthly meeting, messaging	Reports, Knowledge of the participants	UOS, UNS, UNC, WFP, ACF, government Staff	By 2022
Very few referrals from Model Mothers	• Strengthen model mother activities with some modification of their responsibilities including clear demarcation of their working area. • Organise model mother meetings monthly with incentives for participation	CNC level, community	Monthly meeting	Register, reports, knowledge of the participants	UOS, UNS, UNC	By 2022
The sale of therapeutic and supplementary food in local markets at cheap rates leads to CNR and default	• Sensitize caregivers, male forums, and local influencers on the importance of CNC visits, and consumption of therapeutic and supplementary food by intended beneficiaries	CNC level, community	Monthly quarterly meetings, messaging	Perceptions of participants	UOS, UNS, UNC, WFP, ACF	ASAP
Poor hygiene in certain areas leads to high CNR rate	• Sensitization on proper hygiene during courtyard sessions	Community	Monthly meetings, messaging	Registers, reports, knowledge of the participants	UOS, UNS, UNC, other stakeholders	ASAP

	• Coordination with other stakeholders who work on WASH components • Investigate the feasibility of distributing hygiene kits to malnourished children (OTP and TSFP)					
Less coverage of remote areas by CNV/CNW for screening and treatment	• Identify remote areas at risk of low screening coverage • Conduct mass screenings in these areas • Consider setting up mobile nutrition teams for those areas to conduct screening and treatment services monthly	Community	Monthly reports	Screening reports, register	UOS, UNS, UNC, WFP, ACF, government staff	ASAP

7 ANNEXES

ANNEX 1: BARRIER AND BOOSTER TABLE AND WEIGHTING

The triangulation information for each factor is displayed in the below table along with the average weight attributed to the factor by the teams. The number following the abbreviation indicates the number of times the relevant factor was mentioned by the key informants (e.g. KCP[3] indicates that the factor was mentioned during interviews with three Key community personnel). Table A1 contains an explanation of the abbreviations.

Table A1: Key for triangulation in barriers and boosters table

Abbreviation	Full meaning	Description
METHODS		
S	Semi structured interview	Interview conducted with maximum two people using interview guide
C	Case study	Case study with defaulter or CNR case
F	Focus group discussion	Discussions conducted with three or more people using interview guide
KEY INFORMANTS		
CF	Female community members	Group of female community members
CM	Male community members	Group of male community members
CMP	Community medical personnel	Including traditional healers, pharmacists, traditional birth attendants and village doctors
CNS	Community nutrition staff	Including CNW and CNV
CR	SAM or MAM carers	Groups of three or more SAM or MAM carers
KCP	Key community person	Includes village leaders, religious leaders, and teachers
NC	Nutrition coordinators	Technical and implementing partner nutrition programme coordinators
NFS	Nutrition facility staff	Includes Community Health Care Provider (CHCP), health assistants, family welfare advisors and Sub Assistant Community Medical Officer (SACMO)

Table A2: Boosters

NO	Theme	Boosters	Method	Key Informant	Location	Unions	WEIGHTED BOOSTERS				
							1	2	3	4	Average
1	Knowledge and awareness of malnutrition	Malnutrition is a disease which requires medical treatment.	S[6] FGD[10]	KCP[5] CLP[1] CM[6] CR[4]	TK[8] UK[8]	(P[2],SR[2],H[1],W[1],B[1],SA[1]) (J[1],RJ[4],RT[1],P[2])	3	3	3	3	**3**
2		Good knowledge about the causes of malnutrition. Malnutrition caused by: lack of hygiene, lack of breastfeeding, care of mothers, lack of food intake, diarrhoea, fever, vomiting. Malnutrition is not stigmatized.	S[7] FGD[6]	KCP[4] CMP[1] CM[4] CR[2] NFS[2]	TK[6] UK[7]	(SR[2],SA[1],P[1],H[1],B[1]) (J[1],RJ[4],P[1],RT[1])	3	2	2	3	**3**
3	Knowledge, awareness, and perception of CMAM programme	Mother key decision maker in the family (in some cases husband encourages CU5/PLW admissions)	S[10] FGD[4]	CNS[10] CR[4]	TK[7] UK[7]	(SA[1],SR[2],P[3],B[1]) (J[2],RJ3,P[2])	2	2	3	2	**2**
4		Positive perception of CMAM programme among caregivers (carers see improvement in children and intend to continue to cure, carers of cured cases promote programme to others), and key community members have general ideas regarding nutrition activities.	S[28] FGD[10]	CNS[10] NFS[12] KCP[5] CM[6] CR[4] CMP[1]	TK[18] UK[20]	(SR[4],SA[2],P[5],W[3],B[3],H[1]) (J3,RJ8,RT3,P6)	4	4	4	4	**4**
5		Good understanding of	S[1] FGD[5]	KCP[1] CM[5]	TK[2] UK[4]	(P[1],SR[1]) (J[1],RJ[1],RT[1],P[1])	3	3	3	3	**3**

		the programme in community (they understand difference between WSB++ and RUTF).									
6		Good knowledge on their duty.	S[13]	CNS[7] NFS[6]	TK[6] UK[7]	(SA[1],P[2],SR[1],B[1],H[1]) (J[2],P[1],RJ[3],RT[1])	3	3	3	3	**3**
7	Community outreach activities	Effective sensitization took place in coordination with other agencies which inform community members about CMAM and acute malnutrition (sensitizations tools available and sensitizations completed by local women).	S[24] FGD[3]	CNS[8] NFS[11] KCP[5] CM[3]	TK[13] UK[14]	(SR[2],SA[2],P[3],H[2],B[2],W[2]) (RJ[6],J[3],RT[2],P[3])	4	3	3	3	**3**
8		Screening conducted regularly in communities and timely admissions in OTP (tools available, CNV and model mothers refer correctly (both children and PLW)	S[19] FGD[8]	CNS[10] NFS[6] KCP[3] CM[4] CR[4]	TK[14] UK[13]	(SR[3],SA[2],P[4],W[1],H[2],B[2]) (J[3],P[3],RJ[6],RT[1])	3	3	3	3	**3**
9		Regular sensitization and follow up of special cases (e.g.: defaulter, CNR, relapse)	C[5]	CR[5]	TK[2] UK[3]	(P[1],SR[1]) (P[1],RJ[1],RT[1])	2	2	2	2	**2**
10	Quality of CMAM programme	Child likes the taste of WSB++ (TSFP)	FGD[4]	CR[4]	TK[2] UK[2]	(B[1],P[1]) (RJ[2])	3	2	1	2	**2**
11		Child likes the taste of RUTF (OTP)	FGD[4]	CR[4]	TK[2] UK[2]	(B[1],P[1]) (RJ[2])	3	3	3	3	**3**
12		CNC staff demonstrate positive	FGD[4]	CR[4]	TK[2] UK[2]	(B[1],P[1]) (RJ[2])	3	2	3	2	**3**

		behaviour during sensitization and share correct information (e.g. limit product consumption to the intended case)									
13		Good quality of service at CNC (all necessary equipment's available, no stock outs, short waiting time, improved availability of services after Rohingya response) leading to good performance	FGD[3]	CR[3]	TK[1] UK[2]	(P[1]) (RJ[2])	4	3	3	3	**3**
14		Effective, regular training, supervision and follow up for CNC staff by experienced staff.	S[14]	CNS[10] NFS[4]	TK[7] UK[7]	(SA[1],P[2],SR[2],B[1],H[1]) (J[3],P[1],RJ[3])	3	3	4	3	**3**
15	Other booster to access	Nutrition facility easily accessible.	FGD[4]	CR[4]	TK[2] UK[2]	(B[1],P[1]) (RJ[2])	3	2	2	3	**3**
					Total weighted score						**43**

Table A3: Barriers

No	Theme	Barriers	Method	Key Informant	Upazila	Union	WEIGHTED BOOSTERS				
							1	2	3	4	Average
1	Knowledge and awareness of malnutrition	Lack of knowledge and awareness about malnutrition leads to misconceptions about malnutrition, stigmatization and prolong superstitions associated with common childhood disease	S[1], FGD5	KCP[1], CR[2], CM3	TEK4, UK 2	B[1], P[1], W[1], Sr1, Rj1, Pk1	1	1	2	1	**1.25**
2		Sharing of foods with other family members	FGD[2]	CR[2]	TEK[1], UK[1]	B[1], Rj[1]	2	3	2	3	**2.5**
3	Knowledge, awareness, and perception of the CMAM Programme	Lack of knowledge, awareness, and perception about CMAM programmes among caregivers of well-nourished children and community leaders (e.g.: cannot differentiate different types of nutritional products [RUTF, Super Cereal, Super Cereal Plus], cannot differentiate between health and nutrition case, some male community members are not aware about use of a MUAC tape)	S[5], FGD[1]	NFS[1], KCP[3], CM[1], CNS[1]	TEK[4], UK[2]	Sr[1], Sa[1], H[1], W[1], Rj[2],	3	3	3	3	**3**
4	Community outreach activities	Key community members (male groups, religious leaders, teachers) and family members (father, grandfather, grandmother) are not included in sensitization	S[10], FGD[2]	CSN[7], KCP[2], CMP[1], CM[2]	TEK[8], UK[4]	Sr[3], Sa[2], H[1], W[1], P[1], J[2], Pk[2]	2	2	2	2	**2**

		activities which leads to negative perceptions about community outreach activities (e.g. female workers engagement may be considered as a negative from a religious standpoint)									
5		Infrequent screening; irregular field monitoring and follow up; and less sensitization activities occur due to less senior staff present in the field and lack of incentives to participate in the sensitization, leading to defaulters, CNR, relapse etc.	S[2], FGD[2], C[1]	CMP[1], CM[2], NFS[1], CR[1]	TEK[2], UK[3]	Sr[1], H[1], Rt[2], Pk[1],	1	1	1	1	**1**
6	Quality of the CMAM programme	Quality challenges related to staff (staff not trained, inappropriate behaviour, protocol followed incorrectly, etc.)	S[1]	NFS[1]	UK[1]	Rj[1]	1	1	1	1	**1**
7		Improper maintenance of supply chain (RUTF, Super Cereal, Super Cereal Plus) and other logistics-related issues	S[2]	NFS[2]	UK[2]	Rj[2]	1	1	2	1	**1.25**
8		Some beneficiaries are demotivated after being turned away on distribution days due to improved MUAC score	S[6]	NFS[6]	UK[3], TEK[3]	H[1], P[1], B[1], Rj[2], Rt[1]	1	1	1	1	**1**
9		Medical complications (heart diseases, diarrhoea,	C[7]	CR[7]	TEK[3], UK[4]	P[1], H[1], Sr[1], Pk[2], Rj[1], Rt[1]	1	1	2	1	**1.25**

		infection, fever etc.) **[Child]**									
10		PLW cannot visit the CNC during the last trimester of pregnancy and lacks home delivery services. **[PLW]**	S[3], FGD[1]	CNS[2], NFS[1], CM1	TEK[4],	W[1], Sr[2], P[1]	2	2	3	2	**2.25**
11		Delayed admission of referred and recovered SAM child to TSFP (as beneficiaries must await a fixed admission date) **[Child]**	S1, O8	NFS9	TEK5, UK 4	H1, P1, B1, Rj1, Rt1, SR1, PK1;J 1, W1;	3	3	3	3	**3**
12		Government staff of CC do not open the centre on time and leave the centre early. Beneficiaries are demotivated about MAM services or must wait a long time for services	S[1, FGD1]	NFS[1, CR1]	UK[1, TEK1]	Rt[1, B1]	2	2	2	2	**2**
13	Other barriers to access	Distance and access issues increase the number of defaulters/CNRs (hilly areas, bad roads, lack of funds for transport, etc).	S[11], FGD[3]	CNS[5], NFS[4], KCP[2], CM[3]	TEK[6], UK[8]	Sr[1], W[2], H[2], P[1], Rj[5], J[1],Pk[1], Rt[1]	2	2	2	2	**2**
14		Father/Mother-in-law are the key decision makers for childhood diseases (husband's refusal to permit use of CMAM services leads to defaulters)	S[3]	NFS[2], KCP[1]	TEK[1], UK[2]	P[1], Rj[1],J[1]	1	1	1	1	**1**
15		Quality challenges related to CNC structure (lack of covered waiting space, poor storage facilities, no water supply, or toilets)	S[1]	CNS[1]	UK[1]	PK[1]	1	1	1	1	**1**

16		Beneficiaries are reluctant to go to facilities since nutrition products (RUTF, Super Cereal, and Super Cereal Plus) are available in the local market at a cheap rate.	S[16], FGD[5]	CNS[9], NFS[2], KCP[4], CMP[1], CM[5]	UK[11], TEK[10]	Sr[4], Sa[1], W[2], P2, H1, J3, Pk3, Rj4, Rt1	1	1	1	1	**1**
17		Programme activity is hampered due to COVID-19 adaptations (screening, courtyard session, food distribution, uncomfortable follow infection prevention and control rules, etc.)	S[15]	CNS[9], NFS[6]	TEK7, UK[8]	Sr[1], Sa[1], P[2], W[1], B[1], H[1], J[2], Rj3, Pk1, Rt2	3	3	3	3	**3**
18		Poor economic status, unhygienic conditions, intake of low quality and cheap processed foods (eg. chips, biscuits, chocolates etc.) leads to high CNR, relapse cases and different diseases. **[Child]**	C[4]	CR[4]	TEK[2], UK[2]	P[1], Sr[1], Rj[1], Rt[1]	2	2	4	3	**2.75**
			Total weighted score								**32**

ANNEX 2: SUMMARY OF CASE STUDIES IN UKHIYA AND TEKNAF, JANUARY 2022

OTP CNR Case Study Summary: 01					
Team No	**Upazila**	**Union**	**Name of CNC**	**Date of Admission & Discharge**	**Reason for CNR**
04	Ukhiya	Palongkhali	Balukhali UHSC	• Admission: 9 February 2021 • Discharge: 11 May 2021 • Length of Stay: 91 Days	• Heart defects (Congenital). • Poor appetite. • Frequent diarrhoea and fever. • Delaying of physical growth in accordance with age.

OTP CNR Case Study Summary: 02					
Team No	**Upazila**	**Union**	**Name of CNC**	**Date of Admission & Discharge**	**Reason for CNR**
02	Ukhiya	Rajapalong	Thana Dispensary	• Admission: 27 January 2021 • Discharge: 27 April 2021 • Length of Stay: 91 Days	• Heart defects (Congenital). • Poor appetite. • Frequent diarrhoea • Poor hygienic environment • Poor economic status
03	Ukhiya	Palong Khali	Nolbonia CC	• Admission: 5 October 2021 • Discharge: 4 January 2022 • Length of Stay: 91 days	• The child was reluctant to eat RUTF as well as family foods • The child got diarrheal disease after eating RUTF

OTP Relapse Case Study Summary: 03					
SL	Upazila	Union	Name of CNC	**Date of Admission & Discharge**	**Reason for Defaulter**
07	Teknaf	Hnilla	Hnilla SC	• Admission: 22 November 2021 • Discharge: 03 January 2022 • Length of Stay: 44 days	• The child was suffering from diarrhoea and fever before admission for the second time
05	Teknaf	Subring	Wada Office CNC	• Admission: 9 January 2021 • Discharge: 8 December 2021 • Length of Stay: six months	• The child was suffering from diarrhoea, fever, cough, and pneumonia • Caregivers did not maintain hygiene while feeding

TSFP CNR Case Study Summary: 04					
Team	**Upazila**	**Union**	**Name of CNC**	**Date of Admission & Discharge**	**Reason for CNR**
06	Teknaf	Pourosova	Rubina Commissioner	• Admission: 17 October 2021 • Discharge: 23 January 2022 • Length of Stay: 98 days	• Severe vomiting, cough, high temperature for 6 -7 days. • Poor hygiene conditions • Preference for processed food/beverages over nutritious food • Poor economic status
03	Ukhiya	Ratnapalong	Matborpara CC	• Admission: 8 August 2021 • Discharge: 28 November 2021 • Length of Stay: 112 days	• Caregivers don't have enough time to take care of the child properly because she had seven children. • Caregivers do not maintain hygiene while feeding • Shared super Cereal Plus/WSB++ with other members of the family • Child was suffering from fever, cough, and the common cold

ANNEX 3: LIST OF VILLAGES VISITED AND CASE FINDING RESULTS (CHILDREN U5)

UNION	Village	CC	Total children screened (MUAC)	SAM By MUAC	SAM by oedema	TOTAL SAM	MAM by MUAC	TOTAL MAM	OTP Cin	OTP Cout	OTP Rin	TSFP Cin	TSFP Cout	TSFP Rin
Baharchhara union	Bara Dail	(Md. Amin's house) Morzina House CNC	**152**	0	0	0	7	**7**	**0**	**0**	**1**	**6**	**0**	**2**
Baharchhara union	Jahajpura	Hazampara (Barek house) CNC	**136**	1	0	1	3	**3**	**1**	**0**	**0**	**3**	**0**	**1**
Baharchhara union	Mathabhanga	Hazampara (Barek house) CNC	**103**	0	0	0	2	**2**	**0**	**0**	**0**	**1**	**1**	**0**
Nhilla union	Ali Akbar Para	Ali Akbar Para CC	**114**	0	0	0	5	**5**	**0**	**0**	**0**	**4**	**1**	**3**
Nhilla union	Fullerdail	Nhila UHSC	**115**	3	0	3	6	**6**	2	1	0	5	1	0
Nhilla union	Jadimura	Leda CC	**179**	1	0	1	3	**3**	0	1	0	3	0	3
Nhilla union	Leda Para	Leda CC	**124**	0	0	0	2	**2**	0	0	0	1	1	0
Nhilla union	Naikhangkhali	Ali Akbar Para CC	**87**	1	0	1	7	**7**	1	0	0	7	0	1
Nhilla union	Pankhali	Nhila UHSC	**106**	0	0	0	1	**1**	**0**	**0**	**0**	**1**	**0**	**7**
Nhilla union	Rojarghona	Ali Akbar Para CC	**94**	0	0	0	2	**2**	**0**	**0**	**0**	**2**	**0**	**1**
Nhilla union	Nhilla Bazar (Bazar Para)	Nhila UHSC	**109**	1	0	1	6	**6**	**1**	**0**	**0**	**3**	**3**	**0**
Subrang union	Bazar Para	WAPDA Office(Shah parir Dip)	**131**	0	0	0	2	**2**	**0**	**0**	**0**	**1**	**1**	**1**
Subrang union	Dailpara	Noyapara FWC	**131**	0	0	0	0	**0**	0	0	0	0	0	5
Subrang union	Dangor Para	Uttarpara CC	**91**	1	0	1	6	**6**	1	0	0	5	1	1
Subrang union	Guchha Gram	Koainchari Para CC	**102**	0	0	0	1	**1**	0	0	0	1	0	2
Subrang union	Hariakhali	Noyapara FWC	**114**	1	0	1	6	**6**	1	0	0	5	1	2
Subrang union	Karachi Para	Koainchari Para CC	**101**	0	0	0	0	**0**	**0**	**0**	**0**	**1**	**0**	**0**
Subrang union	Koanchhari Para	Koainchari Para CC	**92**	0	0	0	2	**2**	**0**	**0**	**0**	**2**	**0**	**1**
Subrang union	Lafarghona	Noyapara FWC	**103**	0	0	0	2	**2**	**0**	**0**	**0**	**1**	**1**	**0**
Subrang union	Majher Para	Uttarpara CC	**155**	1	0	1	8	**8**	**0**	**1**	**1**	**3**	**4**	**0**
Subrang union	Mundar Dail	Subrang Primary School	**104**	0	0	0	4	**4**	0	0	0	3	1	3
Subrang union	Paschim Uttar Para	Uttarpara CC	**93**	0	0	0	2	**2**	0	0	0	2	0	0
Subrang union	Rullher Depa	Koainchari Para CC	**103**	0	0	0	1	**1**	0	0	0	1	0	2
Subrang union	Jalia gota	Uttarpara CC	**100**	1	0	1	4	**4**	0	1	0	3	1	0
Teknaf Pouroshova	Dail Para(Part)	Misbahar CNC	**104**	0	0	0	2	**2**	**0**	**0**	**0**	**1**	**1**	**2**
Teknaf Pouroshova	Kaikkali Para(Part)	Rubina CNC	**115**	1	0	1	2	**2**	**0**	**1**	**1**	**1**	**0**	**1**
Teknaf Pouroshova	Kulal Para (Part)	Mayor House	**91**	0	0	0	2	**2**	**0**	**0**	**0**	**1**	**1**	**0**
Teknaf Pouroshova	Oliabad (Part)	Misbahar CNC	**74**	0	0	0	1	**1**	**0**	**0**	**0**	**1**	**0**	**1**
Teknaf Sadar union	Baraitali	Hazi Yunus House CNC	**134**	0	0	0	6	**6**	0	0	0	3	3	2
Teknaf Sadar union	Dargachhara	Mitha Panirchara CC	**95**	2	0	2	3	**3**	2	0	0	1	2	1
Teknaf Sadar union	Hajam Para	Kachubania CC	**89**	1	0	1	7	**7**	1	0	1	5	1	0
Teknaf Sadar union	Kachubunia	Kachubania CC	**115**	2	0	2	1	**1**	1	1	0	1	0	1
Teknaf Sadar union	Lambori	Lengurbil CNC	**117**	0	0	0	2	**2**	**0**	**0**	**0**	**1**	**1**	**1**
Teknaf Sadar union	Moulvi Para	Nazir Para CC	**143**	0	0	0	2	**2**	**0**	**0**	**0**	**0**	**2**	**3**
Teknaf Sadar union	Nazir Para	Nazir Para CC	**116**	0	0	0	7	**7**	**0**	**0**	**0**	**6**	**1**	**2**
Teknaf Sadar union	Tulatali	Lengurbil CNC	**78**	1	0	1	1	**1**	**1**	**0**	**0**	**0**	**1**	**0**
Whykong union	Ghilatali	Amtali CC	**96**	0	0	0	1	**1**	0	0	0	1	0	2
Whykong union	Kanjer Para	Kanzorpara FWC	**101**	3	0	3	9	**9**	2	1	0	9	0	1
Whykong union	Kharang Khali	Moheshkhalia Para CC	**135**	0	0	0	4	**4**	0	0	0	3	1	2
Whykong union	Lambaghona	Dengakata CC	**114**	1	0	1	1	**1**	1	0	0	1	0	3
Whykong union	Nasor Para	Moheshkhalia Para CC	**88**	1	0	1	3	**3**	**1**	**0**	**0**	**1**	**2**	**1**
Whykong union	Satgharia Para	Moheshkhalia Para CC	**158**	0	0	0	3	**3**	**0**	**0**	**0**	**3**	**0**	**5**
Holdiapalong union	Haldia Palong	Nolbonia UHSC	**119**	1	0	1	6	**6**	**1**	**0**	**0**	**4**	**2**	**3**
Holdiapalong union	Maricha Palong	Nolbonia UHSC & Mohajon Para CC	**118**	1	0	1	9	**9**	**1**	**0**	**0**	**9**	**0**	**0**
Holdiapalong union	Rumkha Bara Bil	Kulalpara CC	**92**	0	0	0	3	**3**	0	0	0	3	0	1
Holdiapalong union	Uttar Bara Bil	Paglirbil CC	**100**	1	0	1	5	**5**	1	0	0	5	0	1
Jalia palong union	Mankhali	Monkhali FWC	**106**	2	0	2	5	**5**	0	2	1	4	1	2
Jalia palong union	Sonar Para	Sonarpara CC	**138**	2	0	2	3	**3**	2	0	0	0	3	2
Palong khali	Dhamankhali	Balukhali UHSC	**107**	1	0	1	4	**4**	**1**	**0**	**1**	**1**	**2**	**2**
Palong khali	Paschim Balukhali	Balukhali UHSC	**104**	1	0	1	4	**4**	**1**	**0**	**0**	**4**	**0**	**2**
Palong khali	Rahmater Bil	Thaingkhali FWC	**109**	2	0	2	1	**1**	2	0	0	1	0	2
Palong khali	Thaingkhali	Thaingkhali FWC	**121**	2	0	2	7	**7**	2	0	1	5	1	0
Raja palong union	Dargah Bil	Hatimura CC	**97**	0	0	0	5	**5**	**0**	**0**	**0**	**3**	**2**	**1**
Raja palong union	Haji Para	Baganpara CC	**89**	0	0	0	4	**4**	**0**	**0**	**0**	**2**	**2**	**1**
Raja palong union	Madhya Paschim Dighalia	Digolia CC	**106**	1	0	1	4	**4**	1	0	0	3	1	2
Raja palong union	Tutur Bil	Court Bazar CC	**88**	1	0	1	1	**1**	1	0	0	1	0	1
Ratna palong union	Chakbaita	Chakboitha CC	**71**	1	0	1	1	**1**	**1**	**0**	**0**	**1**	**0**	**0**
	TOTAL		**6267**	**39**	**0**	**39**	**201**	**201**	**30**	**9**	**7**	**149**	**47**	**83**

ANNEX 4: LIST OF VILLAGES VISITED AND CASE FINDING RESULTS (PLW)

Upazila	UNION	Village	CC	Total PLW screened (MUAC)	TSFP Cin	TSFP Cout	TSFP Rin
Teknaf	Baharchhara union	Bara Dail	(Md. Amin's house) Morzina House CNC	29	3	1	0
Teknaf	Baharchhara union	Jahajpura	Hazampara (Barek house) CNC	37	0	0	0
Teknaf	Baharchhara union	Mathabhanga	Hazampara (Barek house) CNC	16	0	0	0
Teknaf	Nhilla union	Ali Akbar Para	Ali Akbar Para CC	26	2	0	1
Teknaf	Nhilla union	Fullerdail	Nhila UHSC	23	0	0	1
Teknaf	Nhilla union	Jadimura	Leda CC	27	2	0	1
Teknaf	Nhilla union	Leda Para	Leda CC	49		1	
Teknaf	Nhilla union	Naikhangkhali	Ali Akbar Para CC	34	0	0	0
Teknaf	Nhilla union	Pankhali	Nhila UHSC	20	1	0	2
Teknaf	Nhilla union	Rojarghona	Ali Akbar Para CC	22	3	0	2
Teknaf	Nhilla union	Nhilla Bazar (Bazar Para)	Nhila UHSC	19	0	0	0
Teknaf	Subrang union	Bazar Para	WAPDA Office(Shah parir Dip)	23	0	0	0
Teknaf	Subrang union	Dailpara	Noyapara FWC	26	0	0	1
Teknaf	Subrang union	Dangor Para	Uttarpara CC	17	0	0	0
Teknaf	Subrang union	Guchha Gram	Koainchari Para CC	26	1	0	0
Teknaf	Subrang union	Hariakhali	Noyapara FWC	28	0	0	0
Teknaf	Subrang union	Karachi Para	Koainchari Para CC	21	0	0	0
Teknaf	Subrang union	Koanchhari Para	Koainchari Para CC	21	0	0	1
Teknaf	Subrang union	Lafarghona	Noyapara FWC	33	1	0	0
Teknaf	Subrang union	Majher Para	Uttarpara CC	33	0	0	1
Teknaf	Subrang union	Mundar Dail	Subrang Primary School	25	1	0	1
Teknaf	Subrang union	Paschim Uttar Para	Uttarpara CC	25	1	0	0
Teknaf	Subrang union	Rullher Depa	Koainchari Para CC	24	0	1	0
Teknaf	Subrang union	Jalia gota	Uttarpara CC	31	2	1	0
Teknaf	Teknaf Pouroshova	Dail Para(Part)	Misbahar CNC	14	1	0	0
Teknaf	Teknaf Pouroshova	Kaikkali Para(Part)	Rubina CNC	15	1	0	0
Teknaf	Teknaf Pouroshova	Kulal Para (Part)	Mayor House	37	0	0	1
Teknaf	Teknaf Pouroshova	Oliabad (Part)	Misbahar CNC	23	0	1	1
Teknaf	Teknaf Sadar union	Baraitali	Hazi Yunus House CNC	24	0	0	0
Teknaf	Teknaf Sadar union	Dargachhara	Mitha Panirchara CC	21	0	0	0
Teknaf	Teknaf Sadar union	Hajam Para	Kachubania CC	20	1	0	0
Teknaf	Teknaf Sadar union	Kachubunia	Kachubania CC	31	1	0	0
Teknaf	Teknaf Sadar union	Lambori	Lengurbil CNC	25	0	0	1
Teknaf	Teknaf Sadar union	Moulvi Para	Nazir Para CC	33	1	0	1
Teknaf	Teknaf Sadar union	Nazir Para	Nazir Para CC	38	1	0	0
Teknaf	Teknaf Sadar union	Tulatali	Lengurbil CNC	20	0	1	1
Teknaf	Whykong union	Ghilatali	Amtali CC	27	2	0	0
Teknaf	Whykong union	Kanjer Para	Kanzorpara FWC	21	2	0	0
Teknaf	Whykong union	Kharang Khali	Moheshkhalia Para CC	33	2	0	0
Teknaf	Whykong union	Lambaghona	Dengakata CC	23	2	0	2
Teknaf	Whykong union	Nasor Para	Moheshkhalia Para CC	35	1	0	0
Teknaf	Whykong union	Satgharia Para	Moheshkhalia Para CC	34	1	0	0
Ukhia	Holdiapalong union	Haldia Palong	Nolbonia UHSC	37	2	0	0
Ukhia	Holdiapalong union	Maricha Palong	Nolbonia UHSC & Mohajon Para CC	18	0	0	0
Ukhia	Holdiapalong union	Rumkha Bara Bil	Kulalpara CC	29	0	0	0
Ukhia	Holdiapalong union	Uttar Bara Bil	Paglirbil CC	16	0	0	0
Ukhia	Jalia palong union	Mankhali	Monkhali FWC	25	2	1	0
Ukhia	Jalia palong union	Sonar Para	Sonarpara CC	27	0	0	0
Ukhia	Palong khali	Dhamankhali	Balukhali UHSC	9	0	0	0
Ukhia	Palong khali	Paschim Balukhali	Balukhali UHSC	24	1	1	0
Ukhia	Palong khali	Rahmater Bil	Thaingkhali FWC	35	1	0	2
Ukhia	Palong khali	Thaingkhali	Thaingkhali FWC	26	2	0	0
Ukhia	Raja palong union	Dargah Bil	Hatimura CC	20	2	1	1
Ukhia	Raja palong union	Haji Para	Baganpara CC	23	0	1	0
Ukhia	Raja palong union	Madhya Paschim Dighalia	Digolia CC	26	0	0	1
Ukhia	Raja palong union	Tutur Bil	Court Bazar CC	25	0	0	0
Ukhia	Ratna palong union	Chakbaita	Chakboitha CC	13	0	0	1
		TOTAL		**1462**	**43**	**10**	**23**

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