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# Community Based Management of Acute Malnutrition (CMAM) Programme Coverage Assessment: Full Report

Rohingya Camps, Cox's Bazar, Bangladesh  
December 2021 – January 2022



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**Canada**



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## CONTENTS

Acknowledgements.....	3
Abbreviations.....	4
Executive Summary.....	4
1. Introduction.....	13
1.1. Background of coverage assessment .....	13
1.2. Context.....	13
1.3. Nutrition situation.....	13
1.4. Acute malnutrition treatment services .....	14
1.5. Adaptations to cmam protocols due to COVID-19 pandemic.....	15
1.6. Results from previous coverage assessments .....	16
1.7. Objectives of assessment.....	19
2. Methodology .....	20
2.1. Introduction to coverage assessments.....	20
2.2. Methods followed in 2018 and 2019.....	20
2.3. 2021 coverage assessment methodology .....	20
3. Results.....	22
3.1. Introduction.....	22
3.2. CMAM Programme data analysis .....	22
3.3. SLEAC survey results.....	38
4. Analysis of findings .....	59
5. Conclusion .....	61
6. Annexes .....	64
Annex 1: Adapted SQUEAC methodology.....	64
Annex 2: SLEAC population and sample size data .....	74
Annex 3: SLEAC team observations report.....	76
Annex 4: Weighting, Chi-squared test and 95% confidence interval calculations .....	79
Annex 5: BSFP coverage estimations by camp (children U5) .....	82
Annex 6: BSFP coverage estimations by camp (PLW) .....	83

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Finally, thanks to the Rohingya communities for participating in the coverage assessment and providing responses and explanations during data collection.

## ABBREVIATIONS

<b>AAH</b>	Action Against Hunger Bangladesh
<b>AIM TWG</b>	Assessment and Information Management Technical Working Group
<b>BSFP</b>	Blanket supplementary feeding programme
<b>Children U5</b>	Children under 5 (i.e. children aged 6-59 months)
<b>CI</b>	Confidence interval
<b>Cin</b>	Case in the programme
<b>Cout</b>	Case not in the programme
<b>CMAM</b>	Community-based management of acute malnutrition
<b>CNV</b>	Community nutrition volunteer
<b>CWW</b>	Concern Worldwide
<b>EPI</b>	Expanded programme of immunisations
<b>GAM</b>	Global acute malnutrition
<b>INF</b>	Integrated nutrition facility
<b>LoS</b>	Length of stay
<b>LQAS</b>	Lot quality assurance sampling
<b>MAM</b>	Moderate acute malnutrition
<b>MUAC</b>	Mid-upper arm circumference
<b>NNS</b>	National nutrition sector
<b>NPM</b>	National population monitoring
<b>OTP</b>	Outpatient therapeutic programme
<b>PLW</b>	Pregnant and lactating women
<b>RC</b>	Registered camp
<b>Rin</b>	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)
<b>Rout</b>	Recovering case not in the programme (i.e. a case that has recovered from SAM/MAM without being admitted to an OTP/TSFP)
<b>RUSF</b>	Ready-to-use supplementary food
<b>RUTF</b>	Ready-to-use therapeutic food
<b>SAM</b>	Severe acute malnutrition
<b>SARPV</b>	Social Assistance and Rehabilitation for the Physically Vulnerable
<b>SD</b>	Standard deviations
<b>SENS</b>	Standardized expanded nutrition survey
<b>SHED</b>	Society for Health Extension and Development
<b>SLEAC</b>	Simplified lot quality assurance sampling evaluation of access and coverage
<b>SPHERE</b>	SPHERE provides the most commonly used and most widely known set of core humanitarian standards
<b>SQUEAC</b>	Semi-quantitative evaluation of access and coverage
<b>TSFP</b>	Targeted supplementary feeding programme
<b>UNHCR</b>	United Nations High Commissioner for Refugees
<b>UNICEF</b>	United Nations Children's Fund
<b>WFH</b>	Weight-for-height
<b>WFP</b>	World Food Programme
<b>WN</b>	Well-nourished



## EXECUTIVE SUMMARY

### Key Highlights

#### PROGRAMME COVERAGE (CHILDREN AGED 6-59 MONTHS):

- **High** blanket supplementary feeding programme (BSFP) coverage (**98 percent**) **for children** exceeding the SPHERE standards (**>90 percent**), **indicating almost all children 6-59 months are accessing BSFP services.**
- Coverage of Outpatient Therapeutic Programme (OTP) (**82.8 percent**) and Targeted Supplementary Feeding Programme (TSFP) (**84.6 percent**) was close to **High coverage classification** based on the expanded Middle Upper Arm Circumference (MUAC) only protocol which was in use as part of COVID-19 programme adaptations, **but still below the SPHERE standards** of 90 percent because children are not being systematically screened during distribution and not being referred to OTP/TSFP if identified as suffering from severe acute malnutrition (SAM) and moderate acute malnutrition (MAM).
- Based on World Health Organisation (WHO) weight-for-height protocols coverage of OTP is while for TSFP it is at 80.4 percent which is lower compared to expanded MUAC-only protocol as children who are SAM or MAM based on weight-for-height (WFH) Z-score, but not based on MUAC, are missed due to lack of systematic screening and excluded from the appropriate programme.

#### PROGRAMME COVERAGE FOR PREGNANT AND LACTATING WOMEN (PLW):

- **High** BSFP programme coverage (**91 percent**) **for PLW** exceeding the SPHERE standards (**90 percent**).
- TSFP programme coverage for PLW is also close to the **High coverage classification (85.9 percent)** but is still **below** the SPHERE standards (**90 percent**).

#### COMMUNITY SCREENING COVERAGE (CHILDREN & PLW):

- Most children were previously screened at the household level (**97 percent**), suggesting that solid outreach activities were established in the camps for wasting case detection.
- Only 51 percent of the PLW were screened **at the household level due to:**
  - The prioritization of MUAC screening for children instead of PLW;
  - Lack of female volunteers at the community and household levels for MUAC screening.

**If the above problems are addressed, coverage could be >90 percent for OTP and TSFP across all camps.**

## Background and Objectives

In 2017, extreme violence in Rakhine State, Myanmar forced an estimated 800,000 Rohingya refugees to flee across the border into Cox's Bazar district in Bangladesh. Since then, the people and Government of Bangladesh have supported them along with the national and international humanitarian community. In October 2021, an estimated 888,000 Rohingya refugees lived in the Cox's Bazar refugee settlements in two registered and 32 makeshift camps. The populations of the camps ranged from 4,000 to 43,000.

In December 2021, the Standardized Expanded Nutrition Survey (SENS) indicated that the prevalence of Global Acute Malnutrition (GAM) by WFH remains "High", in the second-highest category, with an upper confidence level of >15 percent, which is the "Emergency threshold". Chronic malnutrition (or "stunting") prevalence rates were  $\geq 30$  percent, therefore being classified as Very High/Critical based on the WHO/UNICEF standards. The anaemia rates were High (>40 percent) among children and non-pregnant women of reproductive age. However, there has been a significant reduction in the prevalence of wasting among women of reproductive age (<2.0 percent).

The Nutrition Sector of Cox's Bazar supports the management of severe and moderate acute malnutrition in children aged 6-59 months (abbreviated to "children U5" in this report) and in pregnant and lactating women (PLW) in three inpatient SAM treatment facilities and 46 integrated nutrition facilities (INF). INF offer OTP for children U5 suffering from SAM and TSFP for children U5 and PLW suffering from MAM and BSFP for well-nourished children and PLW. In October 2021, these nutrition services were implemented by two national non-governmental organisations (Society for Health Extension and Development (SHED) and SARPV) and three international non-governmental organisations (AAH, CWW and World Concern/Medair), with the support of WFP, UNICEF and UNHCR.

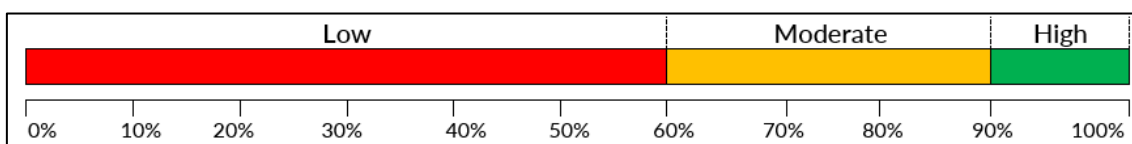
Due to the COVID-19 pandemic that began in March 2020, all Nutrition Sector partners adopted simplified protocols for the admission and treatment of acutely malnourished children and PLW to minimise the risk of transmitting the disease. Simplified protocols included reduced frequencies of visits to INF during treatment (e.g., OTP changed from weekly to once every 2 weeks; TSFP for children U5 and PLW changed from once every two weeks to once per month), and use of expanded MUAC-only admission and discharge criteria for children U5.

In December 2021 and January 2022, the Action Against Hunger Bangladesh Surveillance Team conducted a community-based management of acute malnutrition (CMAM) coverage assessment in the Rohingya refugee settlements. The coverage assessment set out to assess and improve the coverage of SAM and MAM treatment services for children U5 and PLW. Treatment coverage refers to the proportion of a target population (e.g., SAM children) who are enrolled in the

appropriate treatment programme. This was the third CMAM coverage assessment completed in the Rohingya refugee settlements, the previous two having been completed in August 2018 and December 2019.

Using the simplified lot quality assurance sampling for access and coverage (SLEAC) methodology, the survey aimed to assess the coverage of SAM and MAM treatment programmes as well as to identify key barriers and boosters reported by caregivers and PLW accessing treatment services. The assessment monitored the improvement of OTP and TSFP coverage through comparison with the initial August 2018 assessment, and informed a timely and effective humanitarian response to improve the coverage of SAM and MAM treatment services for children and for PLW.

The SPHERE standard for treatment coverage in camp settings is 90 percent. The SLEAC method also enables treatment coverage to be classified by zone or by camp as low, moderate, and high based on the identification of a relatively small sample size (e.g., SAM children and MAM PLW). Using the lot quality assurance sampling (LQAS) classification technique, OTP and TSFP coverage were classified on the scale below.



## Key Findings

### PROGRAMME COVERAGE - OTP (CHILDREN)

OTP programme coverage by zone and camp			
Zone	Camp Name	Coverage status (Expanded MUAC protocol)	Coverage status (WHO protocol)
<b>Zone 1</b>	Kutupalong Registered Camp (KRC), 1E (East), 1W (West), 2E, 2W, 3, 4, 4 Extension (Ext)	<b>Moderate</b>	<b>Moderate</b>
<b>Zone 2</b>	5, 6, 7, 8E, 8W, 9, 10	<b>Moderate</b>	<b>Moderate</b>
<b>Zone 3</b>	11, 12, 13, 17, 18, 19, 20, 20 Ext	<b>Moderate</b>	<b>Low</b>
<b>Zone 4</b>	14, 15, 16	<b>Moderate</b>	<b>Moderate</b>
<b>Zone 5</b>	21, 22, 24, 25, 26, 27, Nayapara RC	<b>Moderate</b>	<b>Moderate</b>
<b>Coverage Estimate for All Camps</b> [95% confidence Interval]		<b>82.8%</b> [78.4-87.2]	<b>69.4%</b> [64.5-74.3]

The SAM treatment programme (OTP) coverage for children 6-59 months is based on the expanded MUAC protocol which was classified as **Moderate** in all

five Zones (Zones 1, 4 and 5 are Moderate, but close to High coverage). However, the **OTP coverage based on WHO protocol was lower** in comparison with OTP coverage based on expanded MUAC-only protocol (**69.4 percent vs 82.8 percent**), as children who were SAM by WFH Z-score but not by MUAC were being missed or enrolled in TSFP as per their MUAC, when they could have been admitted in OTP based on their Z-score. Zone 3 was classified as Low coverage and other zones were Moderate. **However, most non-covered OTP cases were enrolled in the TSFP.**

### PROGRAMME COVERAGE - TSFP (CHILDREN AND PLW)

TSFP coverage for children 6-59 months was classified as **High in 9 camps, Moderate in 23 camps and Low in one camp.**

TSFP coverage for PLW was classified as **Moderate** in Zones 1, 2 and 5 and **High** in Zones 3 and 4.

Coverage of TSFP and BSFP programme for children and PLW				
Type	Low	Moderate	High	Coverage Estimate for All Camps [95% Confidence interval]
TSFP U5 (MUAC protocol)	Camp 18 (1 camp)	Camp 1E, 1W, 2E, 2W, 5, 6, 7, 8W, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 20 EXT, 22, 25, 26, 27 (23 camps)	Kutupalong & Nayapara RC, Camp 3, 4, 4 Ext, 8E, 9, 21, 24 (9 camps)	84.6% [82.5-86.7]
TSFP U5 (WHO protocol)	Camp 25 (1 camp)	Kutupalong & Nayapara RC, Camp 1E, 1W, 2E, 2W, 4, 5, 6, 7, 8E, 8W, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 20 EXT, 22, 24, 26, 27 (29 camps)	Camp 3, 4 Ext, 21 (3 camps)	80.4% [78.1-82.7]
TSFP PLW	Not classified as low coverage	Zone 1, 2 and 5	Zone 3 and 4	85.9% [79.7-92.2]
BSFP U5	Not classified as low coverage	No camp falls under low coverage	All camps	98.0% [97.7-98.2]
BSFP PLW	Not classified as low coverage	Camp 1W, 8W, 9, 11, 12, 15, 19, 21, 26 (9 camps)	Kutupalong & Nayapara RC, Camp 1E, 2E, 2W, 3, 4, 4 Ext, 5, 6, 7, 8E, 10, 13, 14, 16, 17, 18,	91% [89.9-92.1]



			20, 20 Ext, 22, 24, 25, 27 <b>(24 camps)</b>	
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### PROGRAMME COVERAGE - BSFP (CHILDREN AND PLW)

For both children and PLW, the BSFP coverage exceeds SPHERE standards (90 percent). BSFP coverage for children 6-59 months was greater than 95 percent in all camps. BSFP coverage for PLW was greater than 90 percent in 24 camps and 75-89 percent in nine camps.

### COMMUNITY SCREENING COVERAGE (CHILDREN AND PLW)

Confirmation of previous MUAC screening by nutrition workers at home				
Target Group	Low	Moderate	High	Coverage Estimate
Children under 5	-	-	All camps have high coverage	97%
PLW	Camp 1E, 1W, 2W, 4, 4Ext, 5, 9, 11, 12, 18, 19, 20 Ext, 21, 22, 24, 25, 26, 27 <b>(18 camps)</b>	Kutupalong and Nayapara RC, Camp 2E, 3, 6, 7, 8E, 8W, 10, 13, 14, 15, 16, 17, 20 <b>(15 camps)</b>	No camps fall under high coverage	51%

In every camp, more than 90 percent of caregivers confirmed that their children had been screened at home with a MUAC tape by a nutrition worker (97 percent for all camps).

However, only 51 percent of PLW confirmed that they had been screened at home with a MUAC tape; **screening coverage was less than 50 percent in 18 camps** and 60-80 percent in 15 camps.

### KEY BARRIERS TO ACCESSING SERVICES

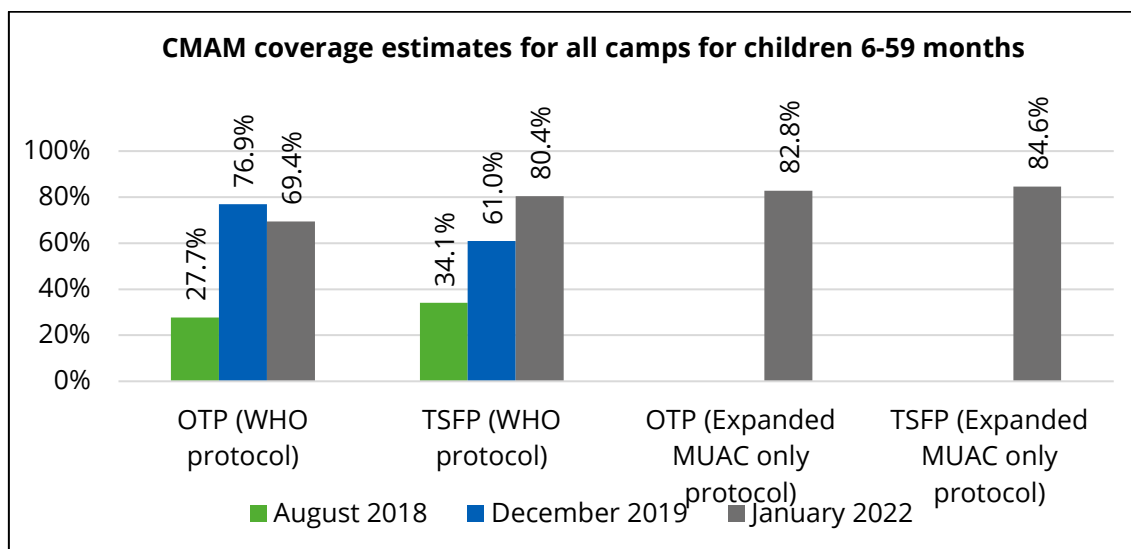
Where non-covered SAM or MAM children 6-59 months were identified, the primary reason for non-attendance was due to children being enrolled in the incorrect programme or not being identified during active screening and therefore not referred to treatment services.

For example, children who were SAM, based on the expanded MUAC-only protocol, were enrolled in the TSFP and children who were MAM were enrolled in the BSFP. **This is attributed to inaccuracies in screening during the bi-monthly (OTP) or monthly (TSFP) child visits to INF.**

Non-covered MAM PLW were identified - the primary reasons were the morbidity of PLW and the PLW not being aware that she was acutely malnourished.

For the OTP and TSFP for children under 5 (children U5), in-community screening by community nutrition volunteers (CNVs) was the primary mechanism by which children entered the relevant programme. This was followed by systematic screening at INF.

## TRENDS OF PROGRAMME COVERAGE



OTP and TSFP coverage for children 6-59 months has increased compared to the last CMAM coverage assessment in December 2019. However, neither programme exceeded SPHERE standards for camps (90 percent). This is probably due to the expanded MUAC protocol being in place since the COVID-19 pandemic. Based on the standard WHO protocols, coverage of both OTP and TSFP is slightly lower indicating that children who are SAM or MAM based on Weight-for-Height Z-score but not by MUAC are being missed, despite the expanded MUAC admission protocols.

The improved OTP and TSFP coverage can be attributed to screening campaigns that took place in the camps following the easing of COVID-19 restrictions in the second half of 2021, and the move from separate OTP and TSFP facilities to INF, managed by the same partner, which delivered all CMAM services in the camps.

## Recommendations and Priorities

Findings of the CMAM coverage assessment were presented to the Nutrition Sector partners on 15 February 2022. Based on the negative factors identified during the survey, partners elaborated the following recommendations to improve coverage based on the results of the assessment. More detailed activities relating to each recommendation are included in the later part of this report.

## Children under 5 years of age

Negative factors	Recommendations
Non-systematic screening by MUAC in some INF leads to some SAM / MAM children being missed	<ul style="list-style-type: none"> <li>• Ensure proper execution of treatment protocols in all INF</li> <li>• Ensure referral mechanism is sound</li> <li>• Community screening should be mandatory every month</li> </ul>
Non-response rate >10% in certain camps	<ul style="list-style-type: none"> <li>• Training &amp; orientation of INF staff</li> <li>• Conduct home visits</li> <li>• Update the child &amp; PLW database monthly along with improved data quality at the source – i.e., UNHCR data and restart growth monitoring promotion activities.</li> <li>• Ensure availability of protocols at the facility level</li> </ul>
Inaccurate ages being recorded on Child Health Cards	<ul style="list-style-type: none"> <li>• Disseminate messages to caregivers to bring enhanced programme of immunization (EPI) cards during admission to OTP and TSFP</li> <li>• Check the EPI card and history with caregivers to ensure the age of children is correct</li> <li>• Maintain a digitized register book to record the date of birth of newborn children in the catchment area</li> </ul>
SAM and MAM children being missed due to use of MUAC only protocol	<ul style="list-style-type: none"> <li>• Advocate to the National Nutrition Sector (NNS) and Nutrition Sector to resume standard WHO protocols</li> <li>• Increase monitoring of anthropometric measurements at the community and facility level</li> <li>• Provide guidance and advice to partners emphasizing the accuracy of anthropometric measurements for the at-risk group (MUAC 13.0 cm to 13.5 cm)</li> <li>• Include OTP cured cases in home visit criteria</li> </ul>

## PLW

Negative factors	Recommendations
Systematic screening of PLW is not taking place in all camps	<ul style="list-style-type: none"> <li>• Increase the percentage of female CNV</li> <li>• Regular screening of PLW followed by outreach supervisors</li> <li>• Ensure active referral of PLW and orient during Mother-to-Mother Support Groups</li> <li>• Introduction of mass screening for PLW along with children U5 mass screening</li> </ul>
Morbidity preventing some PLW from visiting INF	<ul style="list-style-type: none"> <li>• CNV and supervisor should ensure adequate linkage with health facilities</li> </ul>
Acutely malnourished PLW unaware that they are eligible for treatment	<ul style="list-style-type: none"> <li>• Ensure MUAC measurement of PLW both in centres and in communities and adequate sensitization of all PLW during BSFP distributions and IYCF sessions</li> </ul>
Inconsistencies in reporting of PLW exit criteria	<ul style="list-style-type: none"> <li>• Ensure all camps have a harmonized reporting format</li> <li>• Give lessons to all staff about reporting indicators</li> </ul>

# 1. INTRODUCTION

## 1.1. Background of coverage assessment

This is a report summarizing the findings and analysis of a coverage assessment of community-based management of acute malnutrition (CMAM) services for children aged 6-59 months (children U5) and pregnant and lactating women (PLW) in the Rohingya refugee camps. The assessment was conducted in December 2021 and January 2022 and was the third CMAM coverage assessment to be conducted in the camps. Assessments were also conducted in [August 2018](#) and [December 2019](#).

The coverage assessment was implemented with the generous financial support of WFP, Global Affairs Canada (GAC) and European Civil Protection and Humanitarian Aid Operations (ECHO) and was planned and implemented by the AAH Bangladesh Surveillance team with technical support from the AAH UK Nutrition Assessment team.

The assessment was completed on behalf of the Cox's Bazar Nutrition Sector, which is comprised of multiple implementing partners who support the Bangladeshi government with the implementation of SAM and MAM treatment for children U5 and PLW in the refugee settlements. Some of the Nutrition Sector partners (CWW, SARPV and AAH) also provided team members to act as team leaders during the data collection phase of the assessment.

## 1.2. Context

In 2017, extreme violence in Rakhine State, Myanmar, forced an estimated 800,000 Rohingya refugees to flee across the border into Cox's Bazar district in Bangladesh. Since then, the people and Government of Bangladesh have supported them along with the national and international humanitarian community. Based on National Population Monitoring (NPM) data from the "NPM Site Assessment Round 17" conducted in January 2020, 893,299 Rohingya refugees lived in the Cox's Bazar refugee settlements in 2 registered and 33 makeshift camps. Populations of the camps ranged from 7,200 to 43,000. This did not include refugees living in the host communities.

## 1.3. Nutrition situation

A Standardized Expanded Nutrition Survey (SENS) survey was conducted in the registered and makeshift camps from November-December 2021. The estimated rates of moderate and severe acute malnutrition are shown in Table 1.



**Table 1: SAM, MAM and GAM rates, SENS survey, November 2021**

	<b>Makeshift camps</b>	<b>Nayapara Registered Camp</b>	<b>Kutupalong Registered Camp</b>
Severe Acute Malnutrition (based on WHZ score)	<b>1.3%</b> [0.5 - 3.1]	<b>1.6%</b> [0.6 - 3.9]	<b>2.2%</b> [1.0 - 4.8.]
Moderate Acute Malnutrition (based on WHZ score)	<b>12.4%</b> [9.4 - 16.2]	<b>10.9%</b> [7.7 - 15.4]	<b>10%</b> [7.0 - 14.2]
Global Acute Malnutrition (based on WHZ score)	<b>13.7%</b> [10.5 - 17.7]	<b>12.5%</b> [9.0 - 17.1]	<b>12.2%</b> [8.8 - 16.7]

## 1.4. Acute malnutrition treatment services

In December 2021, CMAM programmes for children U5 and PLW were operating in 46 INF. At least one INF operated in each camp.

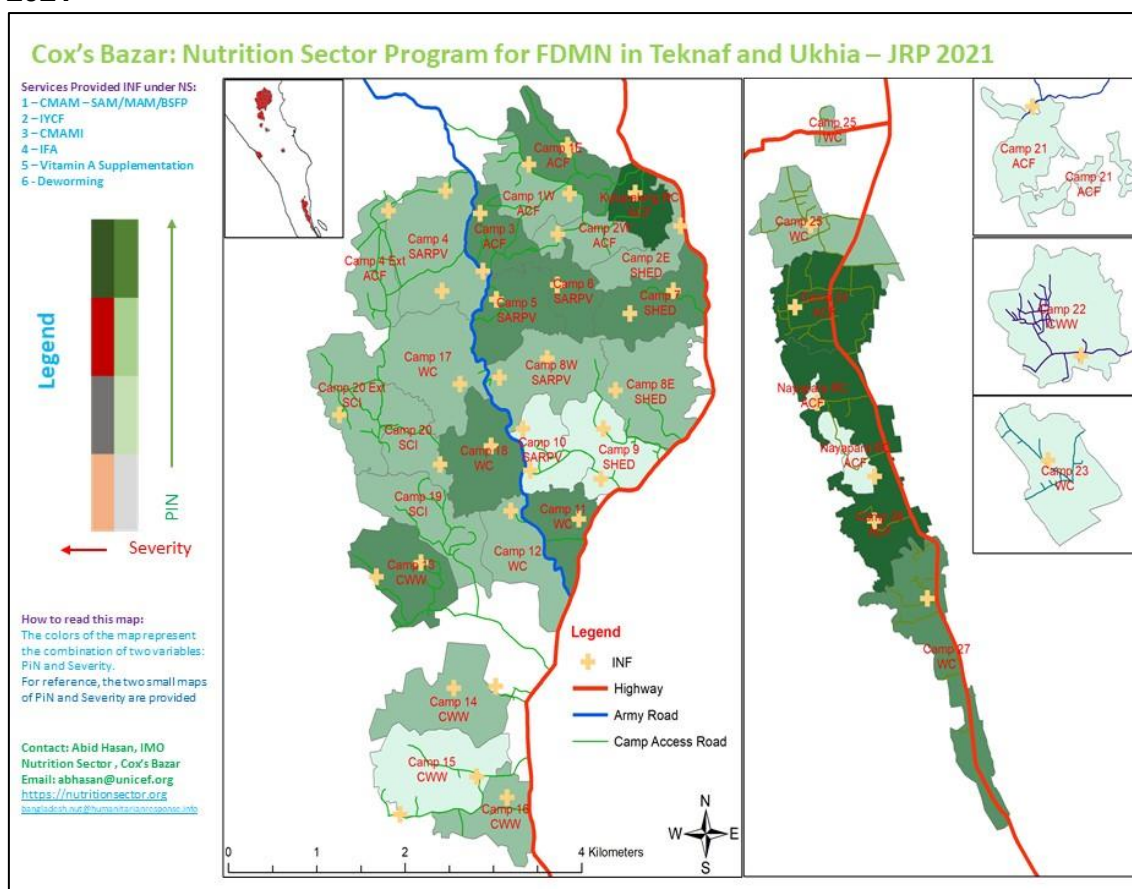
Each INF provides:

- Outpatient therapeutic programme (OTP) for children aged 6-59 months suffering from SAM
- Targeted supplementary feeding programme (TSFP) for children aged 6-59 months and PLW suffering from MAM.
- Blanket supplementary feeding programme (BSFP) for all children aged 6-59 months and PLW.

These nutrition services were implemented by two national non-governmental organisations (SHED and SARPV) and three international non-governmental organisations (AAH, CWW, and World Concern/Medair (WCM)).

Figure 1 indicates the locations of the INF and the implementing agency which is supporting CMAM programme implementation in each camp.

**Figure 1: Map of integrated nutrition facilities in Rohingya refugee camps, 2021**



## 1.5. Adaptations to CMAM protocols due to COVID-19 pandemic

To limit the spread of COVID-19, Nutrition Sector partners adjusted CMAM protocols in April 2020. Those protocols were still in place during the coverage assessment in December 2021.

**For children U5, expanded MUAC-only admission criteria** was put into operation in April 2020. The former and updated admission criteria for children U5 are summarised in Tables 2 and 3.

**Table 2: Pre-pandemic admission criteria for children U5**

Indicator	SAM	MAM	Normal
MUAC	<11.5 cm	≥11.5 to <12.5 cm	MUAC ≥12.5 cm

WFH Z-Score	<-3 standard deviation (SD)	≥-3 to <-2 SD	≥-2 SD
Oedema	Yes/No	No	No

**Table 3: Expanded MUAC only admission criteria for children U5 (in place from April 2020 until December 2021)**

Indicator	SAM	MAM	Normal-U5
MUAC	<12.0 cm	≥12.0 to <13.0 cm	MUAC ≥13.0 cm
Oedema	Yes/No	No	No

Additional adaptations to treatment protocols for children U5 included:

- Reduced frequency of visits made by carers and their children for CMAM services:
  - o SAM treatment distributions reduced from weekly visits to once every two weeks
  - o MAM treatment distributions reduced from every two weeks to once a month
  - o BSFP distributions reduced from once every month to once every two months
- To minimize contact in facilities, INF operated with 50 percent of the standard staff requirement.

The Mother-led MUAC approach was also adopted widely across the camps for screening and detecting acutely malnourished children.

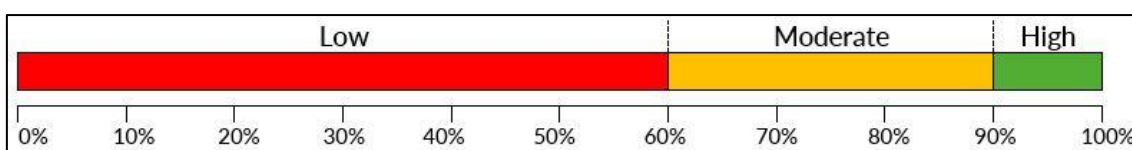
**For PLW**, the admission threshold for the TSFP did not change (admission based only on MUAC <210 mm). The frequency of PLW visits for TSFP and BSFP also remained the same, at once per month.

## 1.6. Results from previous coverage assessments

Two CMAM coverage assessments in the Rohingya refugee camps had been conducted prior to December 2021: August 2018 and December 2019. Both assessments assessed the treatment coverage of CMAM programmes for children U5.

In addition to assessing programme data to identify likely high and low coverage camps, both assessments included SLEAC surveys aiming to classify SAM treatment coverage in each of five SLEAC Zones. The SLEAC Zones consist of multiple neighbouring camps, which were created for the SLEAC surveys owing to the rarity of SAM in the camp and the need to identify a minimum sample size of SAM cases to classify coverage with the resources available for the CMAM coverage assessment (more details in Annex 1).

Where sample sizes of MAM cases were sufficient, it was also possible to classify TSFP coverage on as *High*, *Moderate* or *Low* based on the scale below. Combining the camp and SLEAC Zone results, it was also possible to estimate coverage of OTP and TSFP services for all camps.



Tables 4 and 5 summarize the results from 2018 and 2019.

**Table 4: OTP coverage results (children U5) from coverage assessments completed in August 2018 and December 2019**

	August 2018	December 2019
<b>All camps</b>	<b>27.7%</b> (95% CI: 22.5-32.9%)	<b>76.9%</b> (95% CI: 72.1-81.7%)
<b>Zone (Camp name / number)</b>	<b>Coverage classification</b>	
Zone 1 (Kutupalong Camp, 1E, 1W, 2E, 2W, 3, 4)	Low	Moderate
Zone 2 (5, 6, 7, 8E, 8W, 9, 10)	Low	Moderate
Zone 3 (11, 12, 13, 17, 18, 19, 20)	Low	Moderate
Zone 4 (14, 15, 16)	Low	Moderate
Zone 5 (21-27, Nayapara camp)	Low	Moderate

**Table 5: TSFP coverage results (children U5) from coverage assessments completed in August 2018 and December 2019**

	August 2018	December 2019
<b>All camps</b>	<b>34.1%</b> (95% CI: 31.9-36.4)	<b>61%</b> (95% CI: 57.5-64.6)
Number of camps with <i>High</i> coverage	0	1
Number of camps with <i>Moderate</i> coverage	0	15

Number of camps with <i>Low</i> coverage	32	16
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In 2018, Cox’s Bazar refugee settlements presented low coverage results, which were attributed to the recently established nutrition programmes in the camps, inadequate community outreach activities, poor quality of care in nutrition centres, and coordination challenges between nutrition partners. Simultaneously, a relatively low MUAC cut-off of <125 mm was in use<sup>1</sup>. The anthropometric results from the assessment indicated that 29 percent of SAM cases and 65 percent of MAM cases would have been missed during regular screening in communities as their MUACs were equal to or greater than 125 mm.

The follow up CMAM coverage assessment in December 2019 found that coverage of OTP and TSFP had increased significantly. This was attributed to multiple factors.

- CMAM services were more organised and extensive in comparison with mid-2018 (which was less than 12 months after the major influx of Rohingya population into Bangladesh). Partners implementing CMAM services previously had the opportunity to establish quality facilities and to set up effective community outreach services. For example, in 2019 the SLEAC survey indicated that CNVs were conducting door-to-door screening in more than 95 percent of sub-blocks regularly, which was a big increase compared to 2018.
- The vast majority of the Rohingya communities reached during the qualitative investigation could recognise malnutrition and were well familiar with the malnutrition treatment services available at the nutrition facilities. This is evidence of the successful sensitisations completed in communities and was found not only in carers, but also in other key community members and groups.
- In 2019, treatment for MAM children was with Ready to Use Supplementary Food (RUSF) as opposed to Wheat Soya Blend ++ (WSB++), which was found to be much preferred by the children and carers.
- The “MUAC cut-off” used during regular screening increased from 125 mm to 135 mm. All children with a MUAC of less than or equal to 135 mm were referred for full anthropometric measurement, which led to the identification of more SAM and MAM children being identified and admissions to nutrition facilities.
- The baseline coverage assessment was completed in August 2018, soon after the end of the monsoon season. As such, poor access due to muddy paths and roads affected coverage negatively in some camps. In 2019 the assessment was completed in November when journeys and access to the

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<sup>1</sup> The MUAC cut-off refers to the MUAC measurement threshold for GAM community screening. For example, any child identified with a MUAC of less than 125mm would be referred to nutrition facilities by CNVs to have their weight and height measurements recorded and their Weight for Height Z-score calculated.



camps were easier, due to the season and general improvements to the infrastructure in the camps (roads and paths).

## 1.7. Objectives of assessment

### Objective of assessment

The overall objective of the coverage assessment in 2021 was to estimate the coverage of curative and preventive CMAM services in the Rohingya refugee camps in Teknaf and Ukhiya to assess the evolution of coverage since 2019 and set out recommendations to improve the delivery and uptake of CMAM services.

### Specific objectives

- To analyse programme data from all INF and identify camps with potential low and high coverage of CMAM (for children and PLW)
- To classify and estimate the coverage of GAM treatment services (including SAM and MAM treatment) for children aged 6-59 months as *High*, *Moderate* or *Low* at camp-level or across multiple camps based on the **Expanded MUAC-only admission criteria** introduced at the start of the COVID-19 pandemic
- To classify and estimate the coverage of GAM treatment services (including SAM and MAM treatment) for children aged 6-59 months as *High*, *Moderate* or *Low* at camp-level or across multiple camps based on the **WHO admission protocol**
- To classify the coverage of MAM treatment services for PLW as *High*, *Moderate* or *Low* across multiple contiguous camps
- To estimate the coverage of BSFP services for children under 5 and PLW by camp
- To identify and rank the primary reasons for non-attendance preventing carers of SAM or MAM children or acutely malnourished PLW from attending CMAM programmes
- To conduct a qualitative investigation in certain camps and health facilities to examine reasons for high, moderate, and low coverage.

## 2. METHODOLOGY

### 2.1. Introduction to coverage assessments

Coverage assessments are set out to measure the treatment coverage of CMAM programmes. This refers to the proportion of children U5 eligible for SAM treatment and children who are receiving MAM treatment.

Coverage is one of the key principles of the CMAM operating model. If coverage is high, it can indicate that a high proportion of children in the programme are being successfully treated through to being cured, and that effective community outreach is occurring through the CMAM programme. Semi-quantitative evaluation of access and coverage (SQUEAC) and SLEAC are the most used methodologies to assess treatment coverage for nutrition programmes.

### 2.2. Methods followed in 2018 and 2019

During the previous coverage assessments in 2018 and 2019, mixed-methods approaches were used to assess the treatment coverage of CMAM services in the camps. Both assessments included the following:

- **SLEAC surveys in five SLEAC zones** of the Cox's Bazar camps to classify coverage of SAM and MAM treatment services for children 6-59 months (during 2019, sufficient sample sizes of MAM cases were identified to be able to classify coverage *by camp* on a three-tier scale)
- **A qualitative investigation** to gather detailed information from communities on the primary factors influencing CMAM service coverage.

In 2019 an additional stage was included:

- **Collection and analysis of facility-level programme data** from October 2018-September 2019 to identify and map camps with potentially high and low OTP and TSFP coverage.

### 2.3. 2021 coverage assessment methodology

The 2021 coverage assessment included:

- **The collection and analysis of facility-level programme data** for January-September 2021 to identify and map camps with potentially high and low OTP and TSFP coverage. This included treatment programme data from children U5 and PLW.
- **SLEAC surveys in five SLEAC zones** of the Cox's Bazar camps to classify coverage of the SAM treatment for children U5 and MAM treatment for PLW. Given the expected higher sample sizes of MAM cases, the data collected would enable the assessment team to classify coverage of MAM treatment by camp.

- Collection and analysis of qualitative information during SLEAC survey to gather useful barrier information (from the user perspective) to contribute to the coverage assessment findings. The various surveys completed in the camps in 2020 (including the NESS and the J-MSNA) indicated a very good community perception of malnutrition and nutrition services. Therefore, additional qualitative information from the same community was not collected during the 2021 coverage survey.

Detailed methodologies for each of the steps followed, in addition to sample sizes achieved, are included in Annex 1.

## 3. RESULTS

### 3.1. Introduction

The two steps of the 2021 coverage assessment yielded a large amount of data, which are presented below. These are results for all camps and, where relevant, disaggregated by camp level in line with the objectives of this assessment. Further analysis by camp or by facility is possible with the datasets from the assessment which are shareable upon request.

Results and findings are presented in the following order:

1. Programme data analysis findings
2. SLEAC survey results

### 3.2. CMAM Programme data analysis

#### SUMMARY OF FINDINGS FROM CMAM PROGRAMME DATA ANALYSIS

Data type	Children U5	PLW
Stock availability (Oct 2020-Sept 21)	100% availability of ready-to-use therapeutic food (RUTF), RUSF and WSB++ reported	
Human resource availability in INF (Oct 20-Sept 21)	100% human resource availability in INF – however due to COVID-19 restrictions, facilities operated with 50% regular staffing	
Community outreach availability (Children U5: Jan-Sept 21; PLWs: July-Sept 21)	<ul style="list-style-type: none"> <li>- In-community screening reduced slightly by COVID-19 lockdowns in May and June 2021. But monthly targets exceeded overall</li> <li>- All but five camps exceeded monthly screening targets (July-Sept 2021). Discrepancies in some camps seen as previous screening figures were reported in neighbouring camps (e.g. Camp 26 and Nayapara RC)</li> </ul>	<ul style="list-style-type: none"> <li>- No camps reported screening 100% of PLW. Anecdotal information from programme teams, CNVs and PLW indicates that children U5 are prioritised over PLW during screening</li> <li>- There was a shortage of female CNVs who could screen PLW</li> </ul>
<b>New admissions over time and by camp (Jan 20-Sept 21)</b>	<ul style="list-style-type: none"> <li>- In 2020, admissions initially dropped due to COVID-19 pandemic restrictions</li> <li>- Increases in admissions were reported in June 2020 (especially for TSFP) following reintroduction of screening and introduction of Expanded MUAC-only admission criteria</li> <li>- In 2021, TSFP admissions averaged 3,500 per month (with some variance due to lockdowns). OTP</li> </ul>	<ul style="list-style-type: none"> <li>- Admissions varied considerably month to month</li> <li>- In 2021, admissions averaged 300 per month</li> </ul>

	<p>admissions averaged 1,200 per month</p> <ul style="list-style-type: none"> <li>- Admissions per camp generally corresponded to the size of the camp. There was some variance due to the Camp 9 fire and Camp 26 children enrolling in Nayapara RC</li> </ul>	
<p><b>Timeliness of admissions (July-Sept 21)</b></p>	<ul style="list-style-type: none"> <li>- OTP median MUAC at admission: 11.8 cm</li> <li>- TSFP median MUAC at admission: 12.7 cm</li> <li>- Both indicate SAM and MAM cases admitted in a timely manner, indicating effective community outreach</li> <li>- 65 OTP “late” admissions (&lt;10 cm), potentially due to restrictions on screening due to COVID-19</li> </ul>	<ul style="list-style-type: none"> <li>- TSFP median MUAC at admission was 20.5 cm</li> <li>- Less timely admissions were seen, indicating that community outreach for PLW is less effective compared to children U5</li> </ul>
<p><b>Length of stay before cure (July-Sept 21)</b></p>	<ul style="list-style-type: none"> <li>- OTP: Most children discharged as cured after 11 weeks (5-6 visits); 2019 result: 8 weeks</li> <li>- TSFP: Most children discharged as cured after 16-17 weeks (4 visits); 2019 result 8-10 weeks</li> <li>- Longer lengths of stay observed before cure due to reduced frequency of visits due to amended treatment COVID-19 protocols. However, impact on coverage is unlikely to be significant</li> </ul>	<ul style="list-style-type: none"> <li>- Significant variation in reported length of stay before cure</li> <li>- In 40% of facilities, PLW remained in the programme for 16-18 weeks before discharged as cured</li> </ul>
<p><b>Programme exits (Jan-Sept 2021)</b></p>	<ul style="list-style-type: none"> <li>- SPHERE standards exceeded for cured, death and default rates for OTP and TSFP</li> <li>- Some camps reported non-response rate for OTP and TSFP as &gt;10%</li> <li>Possible causes: <ul style="list-style-type: none"> <li>- Events and context (e.g. Camp 9 fire, Camp 23 transit camp and some camps in hilly areas).</li> <li>- Expanded MUAC protocol contributed to longer treatment periods</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- SPHERE standards exceeded for cured, death and default rates for TSFP</li> <li>- But significant variance between camps in recording of programme discharge criteria. “Child became 6 months old” recorded in the absence of “non-response” criteria in some camps</li> </ul>

## INTRODUCTION

Analysis of programme data can indicate where coverage of treatment programmes may be high or low and which events or factors are likely to have impacted coverage during the period.



This section includes an analysis of key trends observed in CMAM programme data for children U5 and PLW over time and by camp. The periods assessed varied depending on data type (more details in Annex 1).

### STOCK AVAILABILITY

Partners reported that during the period assessed (October 2020-September 2021) there was 100 percent availability of RUTF, RUSF and WSB++ in all INF. This is an improvement compared to 2019 when some minor shortages were reported.

### HUMAN RESOURCES AVAILABILITY

Partners also reported 100 percent human resources availability in health facilities over the same period.

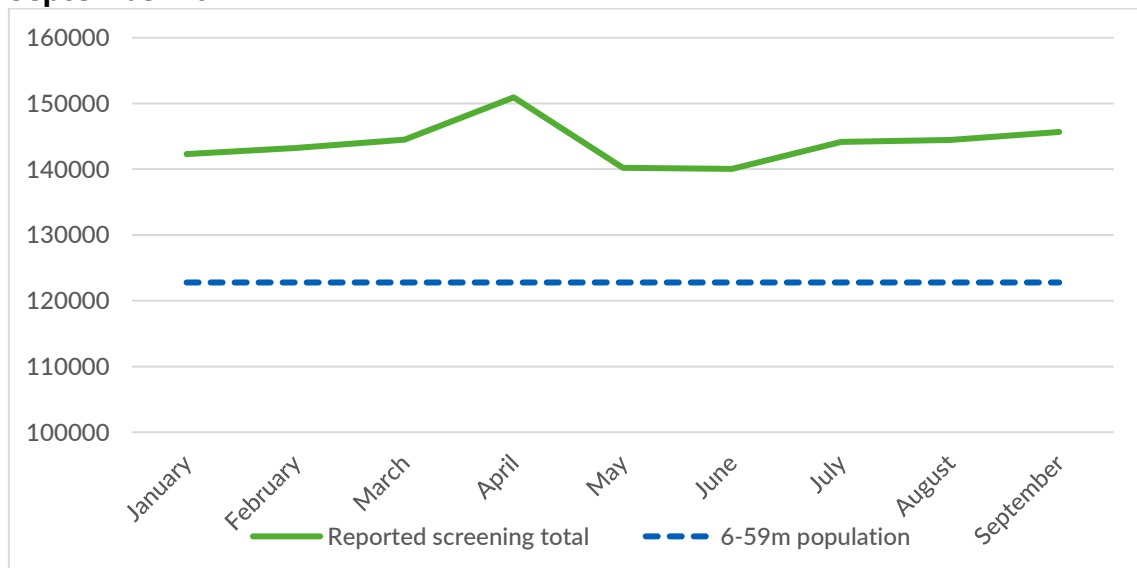
However, this does not reflect alterations to operations due to the COVID-19 pandemic. Facilities operated with 50 percent of their staff from April 2020 due to the need to reduce the number of individuals in INF. Therefore 100 percent of staff permitted to operate were present based on the revised operating protocols in place during the period.

### COMMUNITY OUTREACH AVAILABILITY (CHILDREN U5)

To assess community outreach availability between January and September 2021, implementing partners reported monthly screening totals of children U5 by camp.

Figure 2 shows the reported monthly screening totals for children U5 for this period. The chart indicates that while there was some variation by month (COVID-19 lockdowns affected screening in May and June), the number of children U5 screened monthly exceeds the total population of children U5. This indicates that most children U5 were screened at home by CNVs at least once per month.

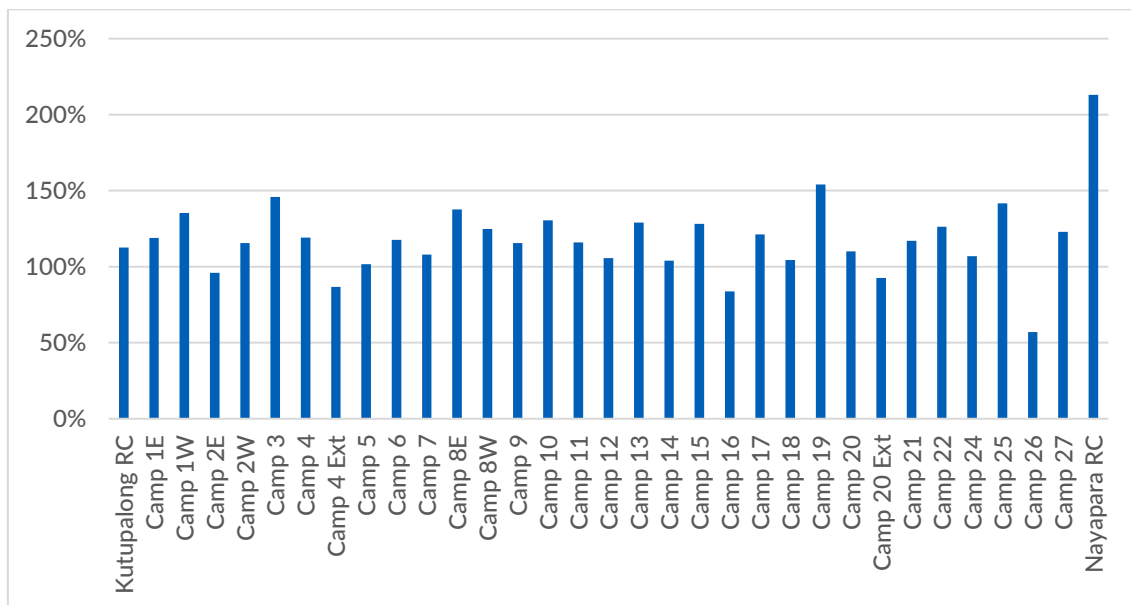
**Figure 2: Monthly screening totals of children 6-59 months, January-September 2021**



Compared to a similar analysis that was done in 2019, 2021 data indicates an improvement in community screening.

Figure 3 disaggregates the screening figures by camp. The data indicates that most camps screened more than 100 percent of children U5 monthly with some exceptions (Camps 2E, 4 Extension, 16, 20 Extension and 26) with Camp 26 reporting particularly low screening performance compared to its size. However, during the data analysis workshop, partners indicated that Camp 26 data may have mistakenly been recorded as being from Nayapara RC. This may explain the high figures reported from Nayapara RC. Partners also hypothesised that the lower screening performance in Camp 20 Extension may have been because many of the households in this camp are in hilly areas which are hard for CNVs to reach.

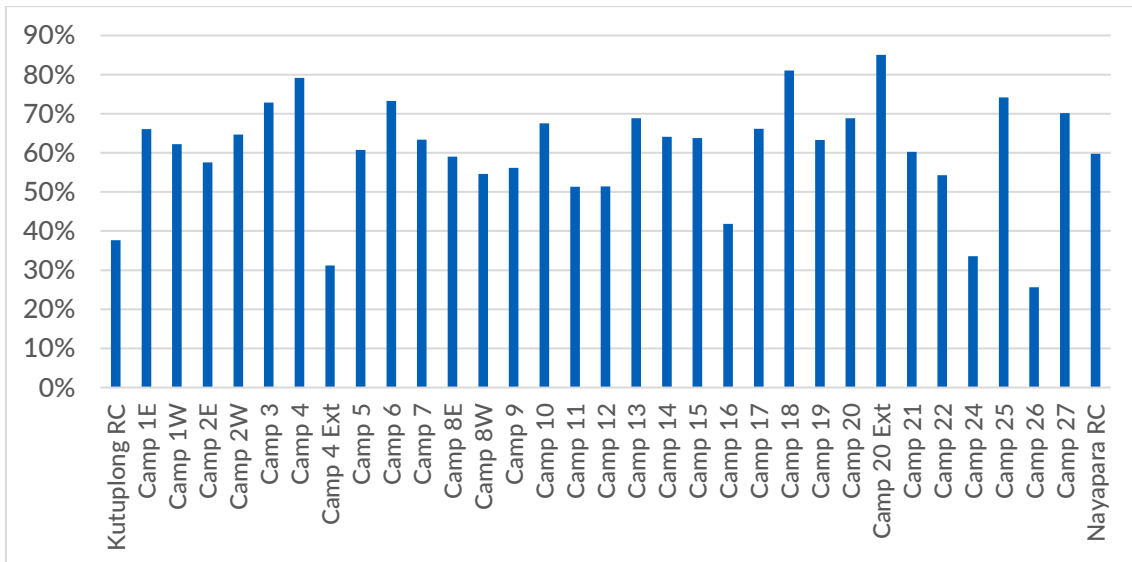
**Figure 3: Average percentage of children U5 screened monthly by camp, July-September 2021**



### COMMUNITY OUTREACH AVAILABILITY (PLW)

Monthly screening totals of PLW were obtained from the Nutrition Sector monthly reports for July-September 2021 and Figure 4 shows the percentage of the PLW population screened monthly by camp.

**Figure 4: Average percentage of PLW screened by month by camp, July-September 2021**



The chart indicates that, compared to screening of children U5, a smaller percentage of the PLW population are being screened monthly. In no camps were 100 percent of PLW screened every month.

During the data analysis workshop, programme teams suggested that the screening of PLW was lower compared to the children because, in general, a greater priority is placed on the treatment of acutely malnourished children compared with acutely malnourished PLW. Therefore, not all CNVs conduct systematic screening of PLW.

### NEW ENROLMENTS OVER TIME (CHILDREN U5)

Figure 5 shows the total new enrolments of children U5 to the OTP and TSFP from January 2020 to September 2021 with data also extracted from Nutrition Sector monthly reports.

**Figure 5: OTP and TSFP admissions (6-59 months) over time (January 2020 to September 2021)**

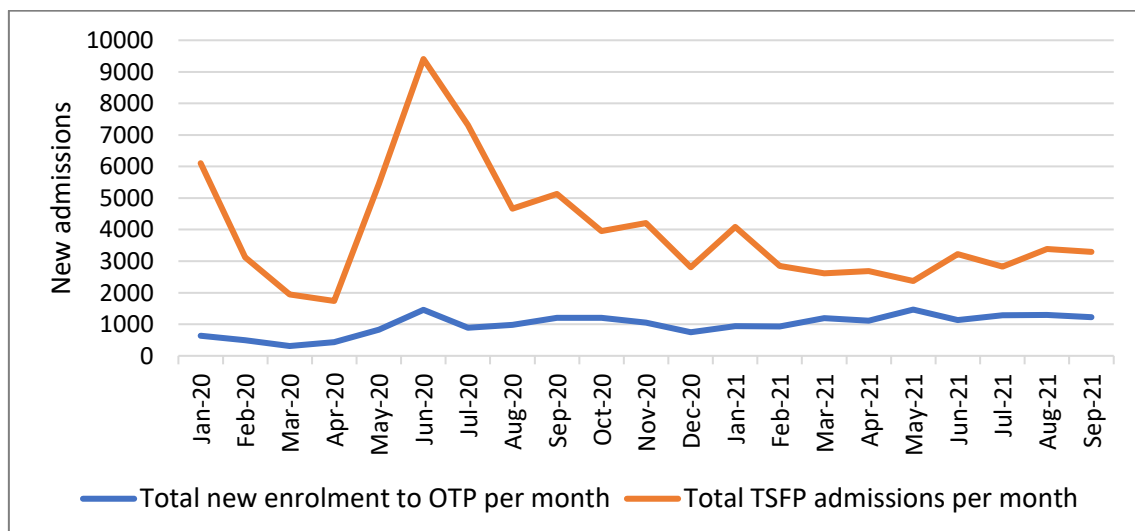


Figure 5 indicates a drop in new admissions to OTP and TSFP in March and April 2020 which coincided with the introduction of COVID-19 prevention measures. Large increases in admissions were evident in June 2020 following the introduction of the expanded MUAC-only criteria. This coincided with a Vitamin A campaign resulting in the highest reported TSFP monthly admissions for children U5 (9,406 admissions) since the Rohingya influx in 2017. TSFP admissions then fell for the remainder of 2020 stabilising at approximately 3,500 admissions per month. During this period OTP admissions remained stable averaging at approximately 1,000 admissions per month.

The April 2021 lockdown caused a reduction in TSFP admissions in April and May 2021. However, admissions increased again in August 2021 as house-to-house screening resumed. OTP admissions were more stable during the same period, with average monthly admissions of approximately 1,200 during 2021.

### NEW ENROLMENTS BY CAMP (CHILDREN U5)

There was significant variation in the camp admissions to OTP and TSFP during January-September 2021. Given that the total populations of camps vary considerably, a variation in the total admissions by camp is to be expected. However other factors may contribute to these differences, including differences in prevalence between camps (this data is unavailable) or coverage (more data will be available later in this report).

**Figure 6: Total admissions of children aged 6-59 months to OTP and TSFP (January-September 2021)**

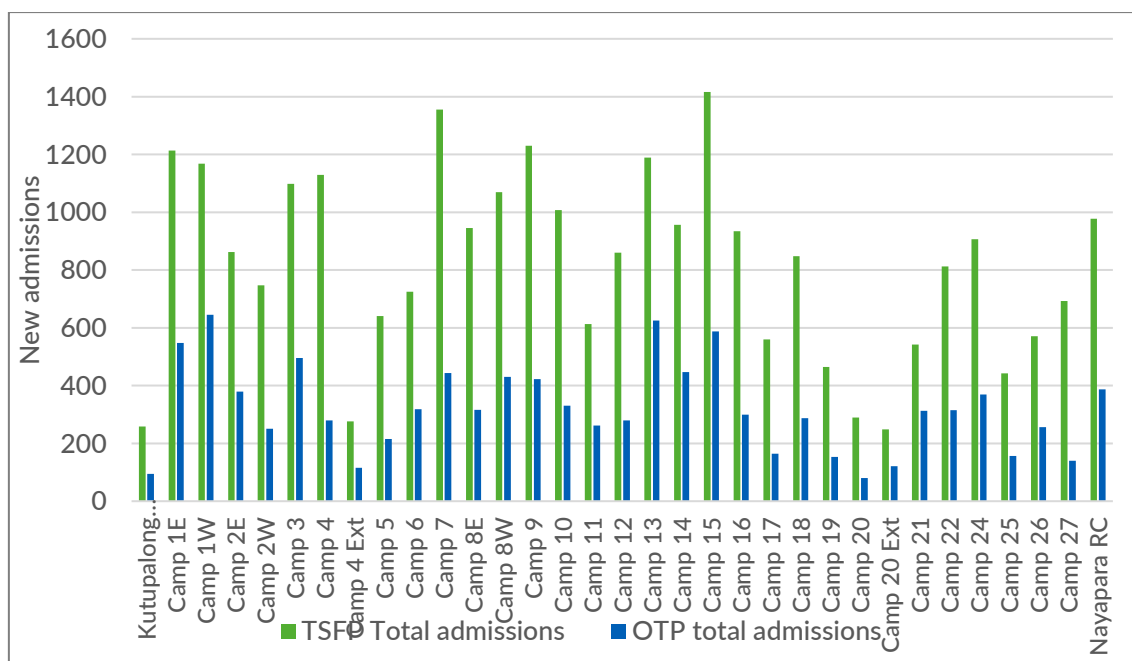


Figure 7 compares actual admissions of children U5 to the TSFP with “expected admissions” based on population data. The data used to calculate “expected admissions” assumes that the prevalence of MAM is the same in all camps (which is highly unlikely to be the case). However, it is a useful method to identify which camps may have *High* coverage and which might have *Low* coverage.

The camps are arranged from left to right on the X-axis, with the largest population camps on the left and the smallest population camps on the right. For example, Camp 15 contains 5.6 percent of the total population of children U5. CMAM services in Camp 15 have admitted 5.3 percent of all OTP and TSFP admissions during the period. Meanwhile, 0.8 percent of the population of children U5 live in Camp 25, and 1.6 percent of all OTP and TSFP admissions are admitted in the INF in this camp.



**Figure 7: Percentage of population of children U5 compared with percentage of total admissions to OTP and TSFP**

(Sources: Admissions data - NS monthly reports; Population data: UNHCR - Government of Bangladesh, September 2021)

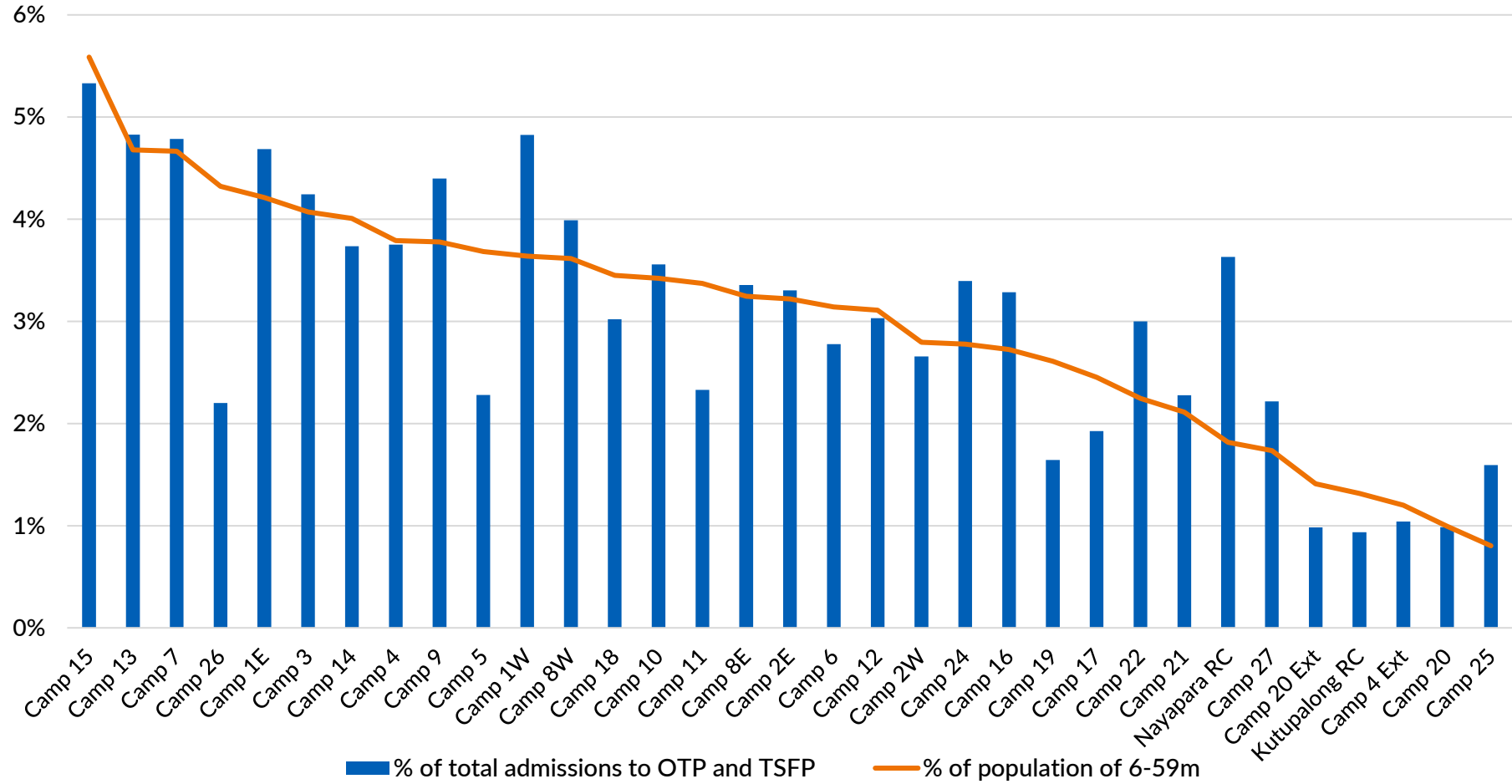


Figure 7 indicates that in most camps, total admissions to the OTP and TSFP reflect the population. However, some exceptions exist: in Camps 5, 11, 19 and 26, admissions are significantly lower than expected. While in Camps 1W, 9, 22 and 25 and Nayapara RC, admissions are considerably higher than expected.

As mentioned previously, in Nayapara RC and Camp 26, this may be because children identified as SAM or MAM in Camp 26 are referred to the INF in Nayapara RC as the nearest INF is in Nayapara RC.

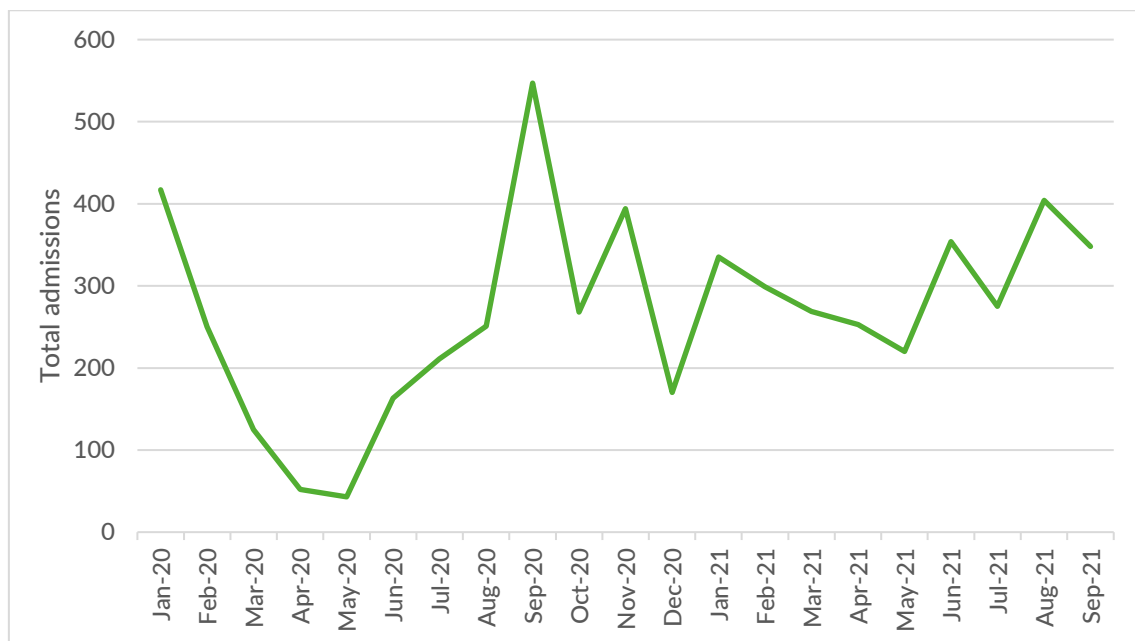
In Camp 9, higher admissions were attributed to the fact that the fire in the camp destroyed all registers and all SAM and MAM children in the OTP and TSFP had to be readmitted to the relevant programme.

Partners could not determine the reasons for the significant variations seen in the other camps.

### NEW ENROLMENTS OVER TIME (PLW)

Figure 8 shows new admissions over time of PLW to the TSFP for all camps. PLW admissions to the TSFP varied considerably monthly, with the highest admissions reported in September 2020. In 2021, admissions averaged about 300 per month, with the lowest admissions in May 2021, likely due to the reduction in screening following the COVID-19 lockdown.

**Figure 8: TSFP for PLW, total admissions over time from January 2020 to September 2021**



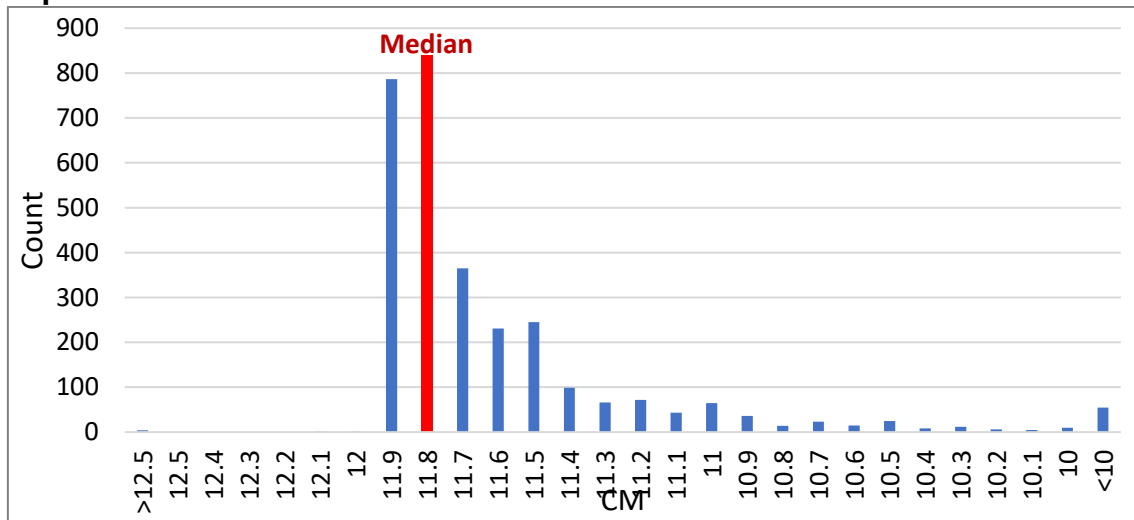
During the data analysis workshop, unpredictable admission trends seen in the PLW programme were attributed to the outreach teams' lack of priority on the TSFP PLW programme. As mentioned previously, the CMAM programme for children is regarded as the priority programme by CMAM partners.

## MUAC MEASUREMENTS AT ADMISSION (CHILDREN U5 AND PLW)

The MUAC measurements of children U5 and PLW at admission were analysed to assess admission timeliness. If the majority of children U5 admitted to an OTP or TSFP are admitted close to the admission criteria for the programme (<120 mm for OTP and <130 mm for TSFP), this indicates that cases are identified and referred and admitted early in the onset of SAM or MAM.

For the 2021 CMAM coverage assessment, the period assessed was July to September 2021. Figures 9 and 10 show the admissions of children U5 to OTP and TSFP, respectively with the median value is indicated in red.

**Figure 9: Child MUAC measurements at admission to OTPs in all camps, July-September 2021**



**Figure 10: Child MUAC measurements at admission to TSFPs in all camps, July-September 2021**

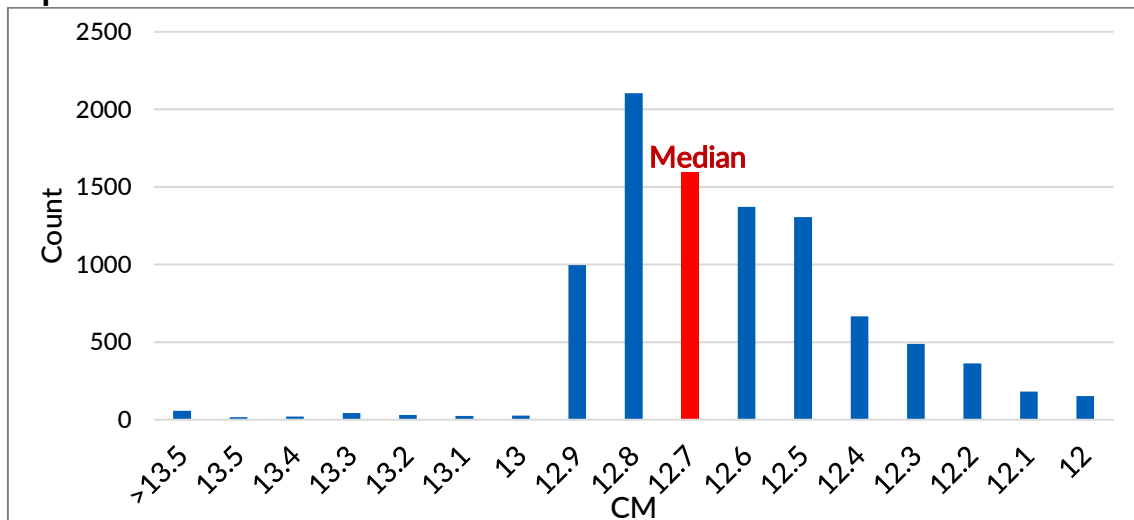


Figure 9 shows that, during the three months assessed, the most common MUAC measurement at admission recorded for children admitted to OTPs was 11.8 cm. In addition, as the median measurement was 11.8 cm, approximately half of admissions were recorded with MUAC measurements less than 11.8 cm and half

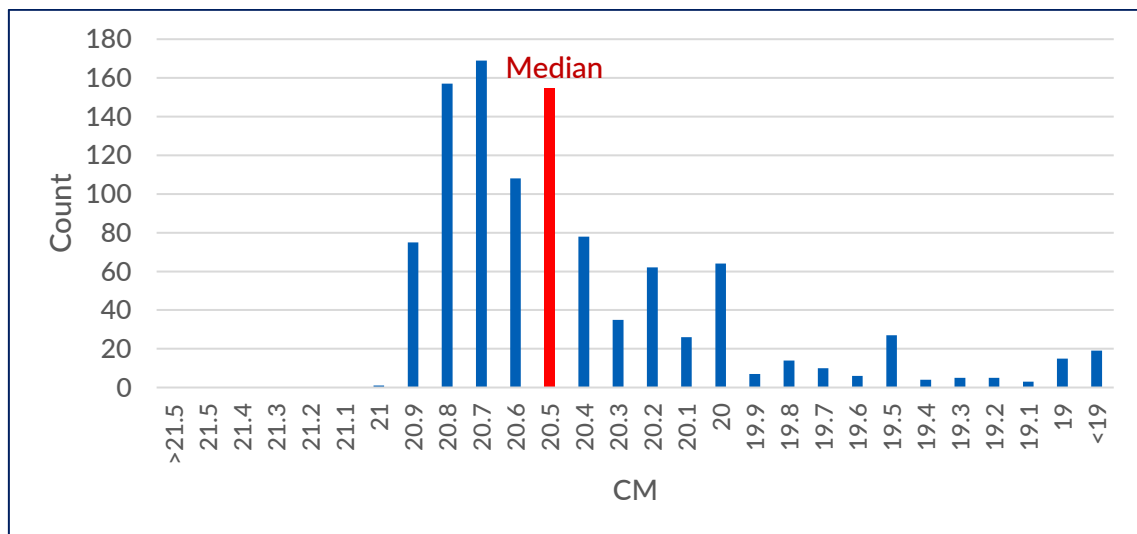
with measurements greater than 11.8 cm. As the median value is close to the admission criteria (12 cm), it is evident that community outreach effectively identified and referred SAM cases. Programme teams attributed this success to the likelihood that many SAM children are transferred directly to the OTP from the BSFP or TSFP.

That said, 65 cases were admitted with MUAC measurements of 10 cm or less, which can be considered “late admissions”. During data analysis, programme teams attributed these late admissions to reduced screening activities during the COVID-19 pandemic.

Meanwhile, Figure 10 shows that the 12.8 cm was the most common MUAC measurement at admission for TSFP cases and that the median value was 12.7 cm. This indicates that MAM children are also identified early in the onset of MAM due to effective case-finding activities during the period assessed. Relatively low numbers of late admissions (at 12 or 12.1 cm) were found which is also positive.

Figure 11 presents the MUAC measurements at admission for PLW to the TSFP from July-September 2021.

**Figure 11: PLW MUAC measurement at admission to TSFP in all camps (July-September 2021)**



The median MUAC at admission to the TSFP for PLW was 20.5 cm during the period assessed. This indicates that the timeliness of admissions was moderate for PLW, as approximately 50 percent of MAM PLW were admitted with a MUAC of 20.5 cm or less. This reflects the erratic nature of admissions noted in Figure 7 and indicates that case finding and referral of acutely malnourished PLW are not as effective as that of acutely malnourished children U5.

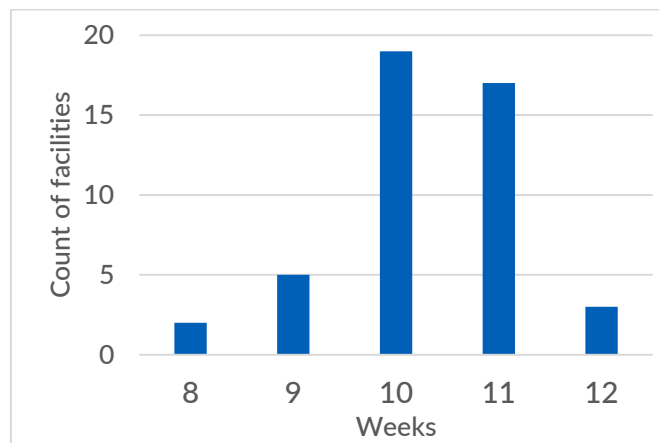
Another observation from Figure 11 is that admissions were mostly entered with round numbers for PLW (e.g., more admissions at 19.5 cm, 20 cm, and 20.5 cm than at the integers between these values). This suggests that the quality of care of PLW in INF is at a weaker level than the quality of care of children U5.

### LENGTH OF STAY BEFORE CURE (CHILDREN U5)

Length of stay (LoS) before cure can be a useful indicator for identifying areas with high or low coverage. Where LoS before a cure is low, coverage is likely higher as carers are more likely to be satisfied with a shorter treatment period. However, if LoS before a cure is longer, carers may be unhappy with the need to continue visiting with their child, and so coverage may be lower.

Implementing partners reported, by INF, the average LoS before a cure for children discharged from the OTP and TSFP for July-September 2021. The average of these three months was then calculated, and the result was recalculated as weeks. Figures 12 and 13 plot the number of facilities reporting different LoS before cure for OTP and TSFP respectively.

**Figure 12: Average length of stay before cure, OTP for children U5, July-September 2021** (Source: Implementing partners)



**Figure 13: Average length of stay before cure, TSFP for children U5, July-September 2021** (Source: Implementing partners)

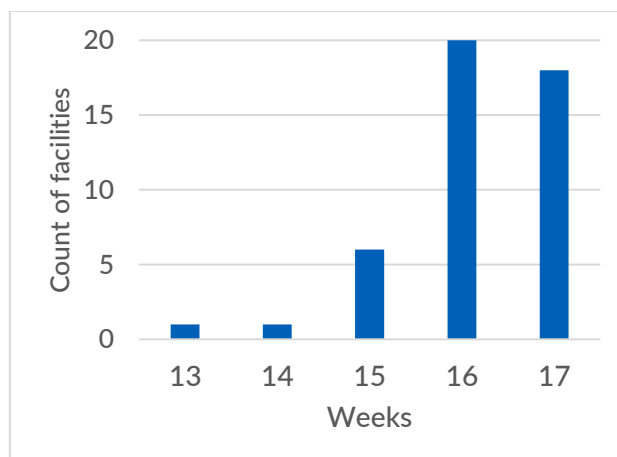


Figure 12 indicates that most children entering the OTP were discharged as cured after 11 weeks (5-6 visits). This is an increase of 2-3 weeks compared with the average LoS for SAM children in 2019 (8 weeks) and is likely due to the reduced frequency of visits introduced during the COVID-19 pandemic. However, given that

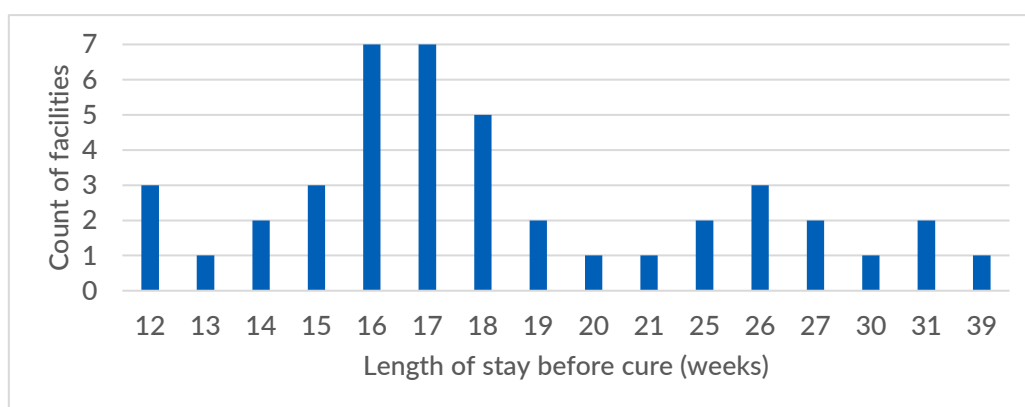
the default rates have not increased since 2019, it does not appear that the longer LoS before cure have impacted the willingness of carers to continue treatment through to cure.

The data is similar for the TSFP for children U5. From July-September 2021, most MAM children remained in the programme for 16-17 weeks as opposed to 8-10 weeks in 2019. Again, this is mainly due to the reduced frequency of visits. Given that carers are coming to INF to receive their BSFP rations on a monthly basis, it is unlikely they would mind attending with their MAM child (potentially at the same time). So, the longer LoS before cure is unlikely to significantly impact treatment adherence and, therefore, levels of treatment coverage.

### LENGTH OF STAY BEFORE CURE (PLW)

Figure 14 summarises the LoS before cure for PLW which was shared by partners from July-September 2021.

**Figure 14: Average length of stay for PLW discharged as cured from TSFP, July-September 2021 (Source: Implementing partners)**



It is difficult to assess trends in the LoS before cure data is shared for the TSFP for PLW as there is much variation between facilities. In some sites, PLW are discharged after 12 weeks, while others PLW remain in the TSFP for 39 weeks. Like the programme discharge criteria, there is inconsistency in the recording of data for PLW. In 19 facilities (approximately 40 percent of all sites), PLW remain in the programme for 16-18 weeks before being discharged as cured.

The impact of a longer LoS on the willingness of a PLW to continue treatment may be minimal as she is likely to continue to want to come to the INF to receive her BSFP ration. However, during the data analysis workshop, partners felt it was important to investigate further INF with an average LoS of less than 13 weeks or more than 23 weeks.

### PROGRAMME DISCHARGE CRITERIA (CHILDREN U5)

Programme discharge data was extracted from the 2021 Nutrition Sector monthly reports from January-September 2021. Where CMAM programmes are performing poorly (i.e., where the cure rate is less than 75 percent, the default rate is greater

than 15 percent, and the death rate greater than 5 percent), it is highly likely that coverage will be low in this area.

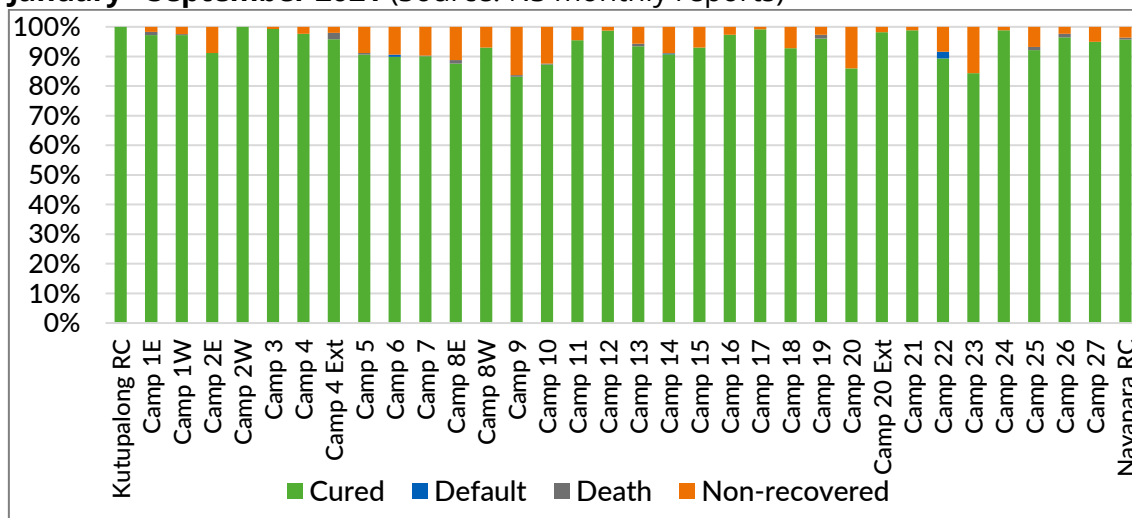
Table 6 summarises the programme discharge results from January-September 2021 for the OTP and TSFP for children U5 for all INF in all Rohingya refugee settlements in Cox’s Bazar.

**Table 6: Programme discharge rates for OTP and TSFP for children U5, all INF in Rohingya refugee settlements in Cox’s Bazar, January-September 2021**

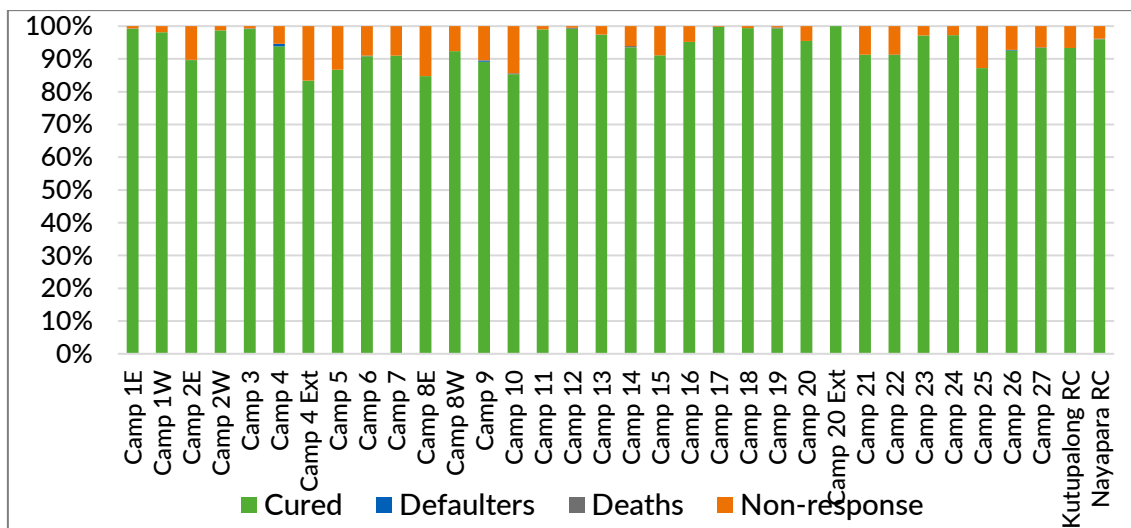
	OTP	TSFP
<b>Cure rate</b>	93.5%	93.8%
<b>Default rate</b>	0.1%	0.1%
<b>Death rate</b>	0.6%	0.1%
<b>Non-response rate</b>	6.1%	6.1%

Both the OTP and TSFP for children U5 performed very well, with the cure, default and death rates falling well within SPHERE standards.

**Figure 15: OTP for children U5 programme discharge rates for all camps, January - September 2021** (Source: NS monthly reports)



**Figure 16: TSFP for children U5 programme discharge rates for all camps, January - September 2021** (Source: NS monthly reports)



Further disaggregation of data by camp in Figures 15 and 16 indicates that, in some camps, non-response rates in the OTP and TSFP were above 10 percent. Seven camps reported OTP and TSFP non-response rates greater than 10 percent (the highest for OTP included Camps 9, 10, 20 and 23; the highest for TSFP included Camps 2E, 4 Ext, 5, 8E, 9, 10 and 25).

This was partly attributed to the following events and conditions:

- In Camp 9, a fire destroyed OTP and TSFP registers and therefore enrolled children were discharged as non-responders.
- Camp 23 children may have exited treatment early and been recorded as non-responders due to relocation of HHs either to Basanchar or other camps in Cox's Bazar.
- Certain camps (e.g., Camp 4 Ext and 20) are located in hilly areas, so poor follow-up by carers and CNVs may have contributed to higher rates of non-response.

During data analysis, programme teams hypothesised that expanded MUAC-only criteria may have driven the higher non-response rates. SAM and MAM children are required to remain in the OTP and TSFP, respectively, for extended periods as the MUAC discharge threshold increased to 12.5 cm (for OTP) and 13.5 cm (for TSFP). In addition, carers were required to visit less frequently; OTP increased from once a week to once every two weeks, and TSFP increased from once every two weeks to once a month. These factors may have contributed to higher non-response rates as some children took longer to recover and were discharged as non-responders.

### PROGRAMME DISCHARGE CRITERIA (PLW)

Table 7 summarises the programme discharge criteria for PLW enrolled in the TSFP in all camps from January-September 2021, during which time programme performance criteria exceeded SPHERE standards.

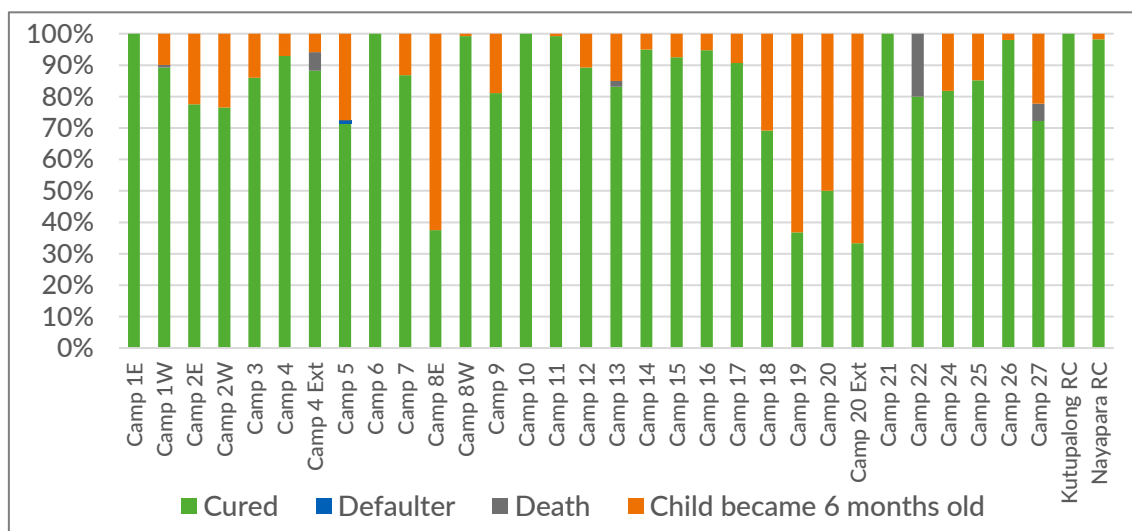
**Table 7: Programme discharge rates for TSFP for PLW, all INF in Rohingya refugee settlements in Cox's Bazar, January-September 2021**



	<b>TSFP</b>
<b>Cure rate</b>	89.9%
<b>Default rate</b>	0%
<b>Death rate</b>	0.3%
<b>Child became 6 months old</b>	9.8%

When disaggregated by camps, however, greater variance is observed, especially in the reporting of PLW exit criteria as shown in Figure 17.

**Figure 17: TSFP for PLW programme discharge rates for all camps, January-September 2021** (Source: NS monthly reports)



While there are no non-response exit criteria for PLW exiting the TSFP, many INF staff reported “Child became 6 months old” as a proxy for “Non-response”. However, this does not appear to be consistent across all camps.

### 3.3. SLEAC SURVEY RESULTS

#### Summary of results

	Children U5	PLW
<b>OTP coverage results</b>	<p><b>Expanded MUAC-only admission criteria (MUAC only):</b></p> <ul style="list-style-type: none"> <li>- All SLEAC Zones classified as <i>Moderate</i> (60-90% coverage)</li> <li>- All camps combined: <b>82.8%</b> (95% CI: 78.4-87.2%)</li> </ul> <p><b>WHO admission criteria:</b></p> <ul style="list-style-type: none"> <li>- 4 SLEAC zones <i>Moderate</i> (60-90%), 1 SLEAC zone <i>Low</i> (&lt;60%)</li> <li>- All camps combined: <b>69.4%</b> (95% CI: 78.4-87.2%)</li> </ul>	
<b>TSFP coverage results</b>	<p><b>MUAC only:</b></p> <ul style="list-style-type: none"> <li>- 9 camps <i>High</i></li> <li>- 23 camps <i>Moderate</i></li> <li>- 1 camp <i>Low</i></li> <li>- All camps combined: <b>84.6%</b> (95% CI: 82.5-86.7%)</li> </ul> <p><b>WHO admission criteria:</b></p> <ul style="list-style-type: none"> <li>- 3 camps <i>High</i></li> <li>- 29 camps <i>Moderate</i></li> <li>- 1 camp <i>Low</i></li> <li>- All camps combined: <b>80.4%</b> (95% CI: 78.1-82.7%)</li> </ul>	<ul style="list-style-type: none"> <li>- 3 SLEAC Zones classified as <i>Moderate</i> coverage</li> <li>- 2 SLEAC Zones classified as <i>High</i> coverage</li> <li>- All camps combined: <b>85.9%</b> (95% CI: 79.7-92.2%)</li> </ul>
<b>Qualitative findings from SLEAC</b>	<ul style="list-style-type: none"> <li>- 95% of covered cases identified following referral by CNVs or screening at INF.</li> </ul> <p><u>Primary reasons for non-attendance:</u></p> <ul style="list-style-type: none"> <li>- SAM children enrolled in TSFP and not identified, or MAM children enrolled in BSFP and not identified</li> <li>- Delays in admission due to reduced frequency of visits as a result of adapted protocols</li> <li>- Lack of regular community outreach in some areas</li> </ul>	<ul style="list-style-type: none"> <li>- All MAM PLW were identified following referral by CNVs or screening at INF.</li> </ul> <p><u>Primary reasons for non-attendance:</u></p> <ul style="list-style-type: none"> <li>- Morbidity of PLW prevents them from visiting INF to receive treatment</li> <li>- Gaps in community screening for PLW in some camps</li> </ul>
<b>Screening coverage</b>	<ul style="list-style-type: none"> <li>- All camps reported high screening coverage; more than 90% of carers confirmed that their child had been screened at home previously</li> <li>- 97% screening coverage for all camps combined</li> </ul>	<p>Screening coverage for PLW patchy.</p> <ul style="list-style-type: none"> <li>- 61-90% in 15 camps;</li> <li>- &lt;61% in 18 camps;</li> <li>- 51% for all camps combined</li> </ul>

	- 93% of carers confirmed screening during previous month	
<b>BSFP coverage</b>	- High BSFP coverage (>90%) found in all camps - 97% coverage for all camps combined	- Moderate coverage in 9 camps (61-90%) - High coverage in 24 camps - 91% for all camps combined

## INTRODUCTION

This section summarises the results and qualitative findings from the SLEAC surveys conducted in the 33 camps.

The section includes the following sub-sections:

- Child anthropometric, age and gender results
- PLW nutrition status

### Coverage results (children U5)

- OTP coverage classifications by zone and for all camps combined based on expanded MUAC-only admission criteria and WHO admission criteria
- TSFP coverage classifications by camp and for all camps combined based on expanded MUAC-only admission criteria and WHO admission criteria

### Qualitative findings from SLEAC (children U5):

- Positive factors influencing coverage of OTP and TSFP
- Reasons for non-attendance to OTP and TSFP
- Previous participation in treatment programmes

### Coverage results (PLW)

- TSFP coverage classifications by zone and for all camps combined

### Qualitative findings from SLEAC (PLW)

- Positive factors influencing coverage of TSFP
- Reasons for non-attendance to TSFP

### Screening coverage

- Confirmation of previous screening by MUAC at home for children U5 and PLW

### BSFP for children U5 and PLW:

- BSFP coverage estimated by camp and for all camps combined

## ANTHROPOMETRIC RESULTS FOR ALL CAMPS (CHILDREN U5)

During the SLEAC surveys in selected sub-blocks, data collection teams screened all children U5 with MUAC tapes by checking for oedema. This included a total of **12,002 children** in all sub-blocks.

If a child was found to have a MUAC of less than 13.5 cm, if they had oedema or if they were identified as being enrolled in the OTP or TSFP, data collectors recorded their weight and height measurements, calculated their WFH Z-scores and recorded all their anthropometric measurements on Kobo tablets. Using this information, they were then able to determine the child's nutrition status based on:

1. The expanded MUAC-only admission criteria, which were introduced in April 2020;
2. The WHO admission criteria that was in place before April 2020.

Tables 8 and 9 include the number and percentages of well-nourished, GAM, MAM and SAM children identified based on the expanded MUAC-only admission criteria and WHO admission criteria.

**Table 8: Child status totals and percentages based on Expanded MUAC-only admission criteria** (Source: SLEAC surveys, December 2021)

Child status	Admission criteria	No. of children	Percentage
Well nourished	≥13 cm + no oedema	10,981	91.5%
GAM	<13 cm	1,021	8.5%
MAM	12 to 12.9 cm	883	7.4%
SAM	<12 cm <b>or</b> oedema	138	1.1%

**Table 9: Child status totals and percentages based on WHO admission criteria** (Source: SLEAC surveys, December 2021)

Child status	Admission criteria	No. of children	Percentage
Well nourished	≥12.5 cm + ≥-2Z-score + No oedema	11,116	93%
GAM	<12.5 cm <b>or</b> <-2 Z-score <b>or</b> oedema	836	7%
MAM	11.5-12.4 cm <b>or</b> -3 to <-2 Z-score	733	6.1%
SAM	<11.5 cm <b>or</b> <-3 Z-scores <b>or</b> oedema	103	0.9%

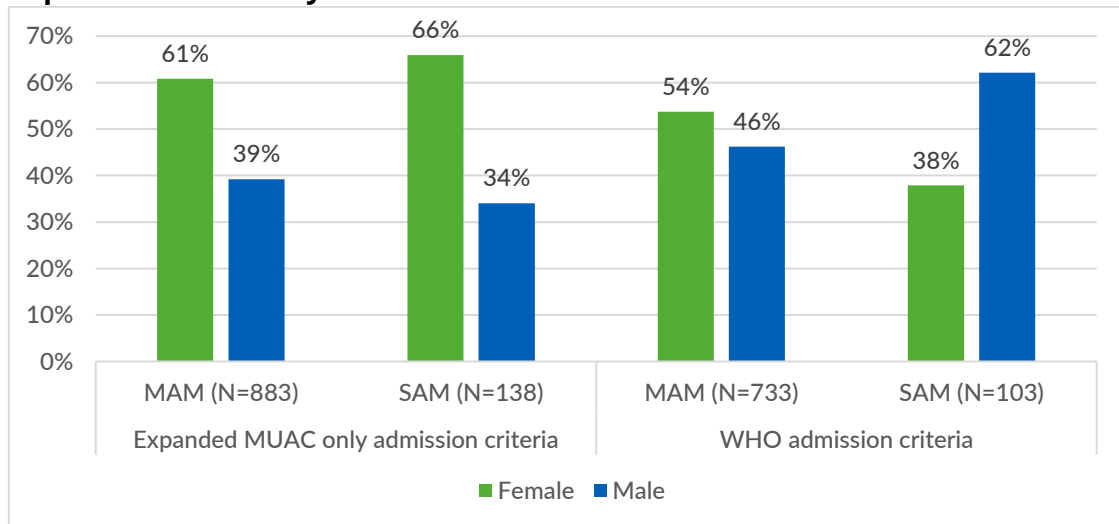
The tables show that during the SLEAC surveys, more GAM cases were identified based on expanded MUAC-only admission than WHO admission criteria. However, it should be noted that there is a chance that children who were GAM based on the WHO admission criteria may have been missed during the survey as only children with a MUAC of <13.5 cm were assessed for their WFH Z-scores. Standardised monitoring and assessment of relief and transitions (SMART) survey data from previous surveys in the Rohingya camps between 2017 and 2020 indicate that 34 percent of children have a MUAC greater than or equal to 13.5 cm but are still GAM based on WFH Z-scores.

This is a limitation of the SLEAC survey methodology. However, resources were unavailable during this assessment to record weight and height measurements and calculate WFH Z-scores for all children in the selected sub-blocks. Therefore, a MUAC cut-off of 13.5 cm was set to ensure that teams could complete data collection in the sub-blocks chosen in the time available for the survey.

### AGE AND GENDER OF CASES IDENTIFIED (CHILDREN U5)

Figures 18 and 19 show the genders and age ranges of the children identified during the SLEAC surveys as SAM and MAM based on the expanded MUAC-only admission criteria and WHO admission criteria.

**Figure 18: Genders of children identified as SAM and MAM based on the expanded MUAC-only criteria and WHO criteria**



**Figure 19: Age ranges of children identified as SAM and MAM based on the expanded MUAC-only criteria and WHO criteria**

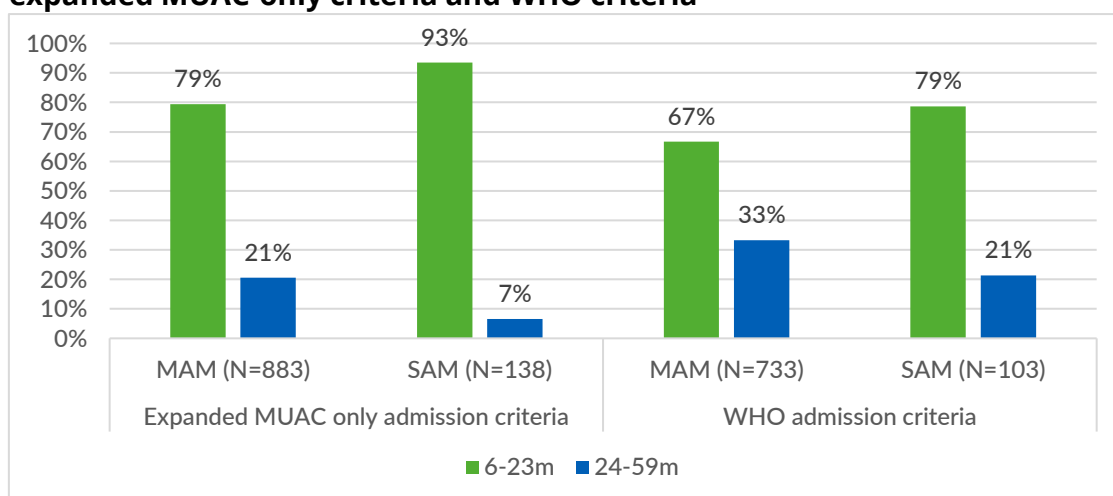


Figure 18 indicates that a greater percentage of girls are SAM and MAM based on the expanded MUAC-only admission criteria compared to boys. However, when considering the WHO admission criteria, there is a more parity for MAM cases, with a greater percentage of boys being classified as SAM.

Figure 19 demonstrates that the Expanded MUAC only admission criteria are more likely to identify SAM and MAM cases in the younger age range of 6-23 months compared to the WHO admission criteria.

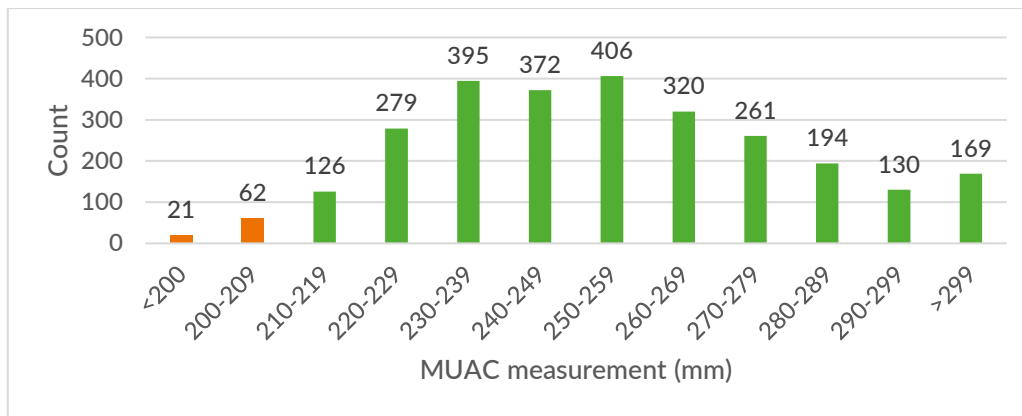
### PLW NUTRITION STATUS

During the SLEAC surveys in selected sub-blocks, data collection teams screened all PLW with MUAC tapes. This included **2,735 PLW**; of these, **1,421 (52 percent)** were **pregnant**, and **1,314 (48 percent)** were **lactating** with a child less than six months old.

Figure 20 shows the distribution of MUAC measurements for PLW. The first two columns (<200 and 200-209 mm) in orange include PLW who were classified as MAM during the SLEAC surveys (83 cases total).

Out of the 83 MAM cases identified, 53 women (64 percent) were pregnant, and 30 women (36 percent) were lactating.

**Figure 20: MUAC measurements of PLW** (Source: SLEAC surveys Rohingya refugee camps, December 2021)



### COVERAGE RESULTS (OTP FOR CHILDREN U5)

Coverage results for the OTP are classified by SLEAC Zone. The SLEAC Zones were formed for the purpose of the SLEAC survey in 2018 and used again in 2019. Each zone included groups of neighbouring camps and comprised varying numbers of camps and populations. The map in Figure 21 indicates the zones used during the 2019 and 2021 SLEAC surveys.

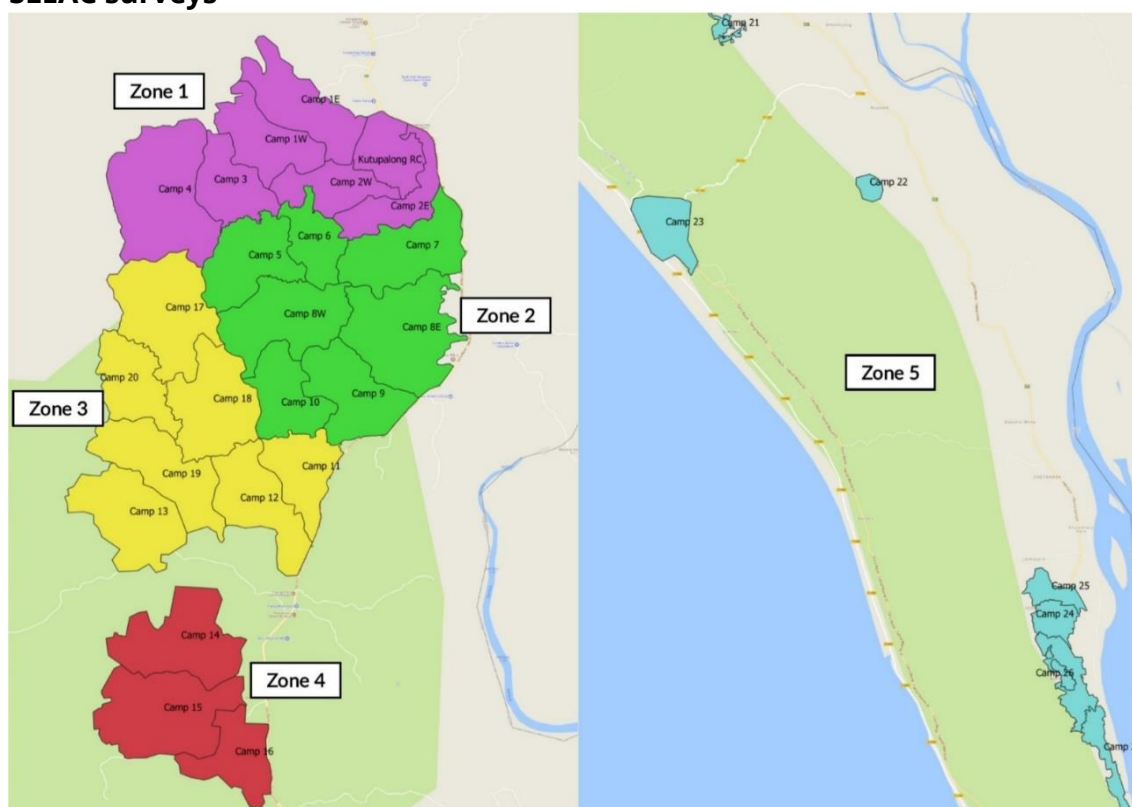
In 2021, some minor changes were made to Zones 1, 3 and 5:

- Zone 1: Camp 4 Extension was included
- Zone 3: Camp 20 Extension was included
- Zone 5: Camp 23 was excluded

Therefore, the updated list of camps by zone is as follows:

- Zone 1: Kutupalong Registered Camp, Camps 1 East, 1 West, 2 East, 2 West, 3, 4 and 4 Extension
- Zone 2: Camps 5, 6, 7, 8 East, 8 West, 9 and 10
- Zone 3: Camps 11, 12, 13, 17, 18, 19, 20 and 20 Extension
- Zone 4: Camps 14, 15 and 16
- Zone 5: Camps 21, 22, 24, 25, 26, 27 and Nayapara Registered Camp

**Figure 21: Five SLEAC zones used for OTP coverage classification during 2019 SLEAC surveys**



By the end of data collection, enough OTP cases had been identified to classify OTP coverage by SLEAC zone based on both the expanded MUAC-only admission criteria in use at the time of the survey and on the WHO admission criteria.

Tables 10 and 11 summarise the results by zone for each admission criteria. As the Single coverage estimator was used for coverage calculations, *Rout* (Recovering cases OUT of the programme) was calculated for each zone. The calculation used to estimate *Rout* is included in Annex 1.

**Table 10: OTP SLEAC survey results by zone based on the expanded MUAC-only admission criteria**

Case definition	OTP Cin	OTP Cout	OTP Rin	OTP Rout	TOTAL
Description	SAM cases in the OTP	SAM cases not in the OTP	OTP recovering cases	Recovering cases not in the programme (calculated)	<b>Cin + Cout + Rin + Rout</b>
Zone 1	27	6	34	2	69
Zone 2	19	8	34	4	65
Zone 3	20	13	28	5	66
Zone 4	14	3	9	0	26
Zone 5	22	6	21	1	50
<b>All zones</b>	<b>102</b>	<b>36</b>	<b>126</b>	<b>12</b>	<b>276</b>



**Table 11: OTP SLEAC survey results by zone based on WHO admission criteria**

Case definition	OTP Cin	OTP Cout	OTP Rin	OTP Rout	TOTAL
Description	SAM cases in the OTP	SAM cases not in the OTP	OTP recovering cases	Recovering cases not in the programme (calculated)	<b>Cin + Cout + Rin + Rout</b>
Zone 1	13	8	48	9	78
Zone 2	11	10	43	11	75
Zone 3	11	19	37	19	86
Zone 4	4	5	19	6	34
Zone 5	12	10	31	7	60
<b>All zones</b>	<b>51</b>	<b>52</b>	<b>178</b>	<b>52</b>	<b>333</b>

Once the cases were totalled by zones, it is possible to calculate the 60 percent and 90 percent decision rules for each zone using the LQAS technique. The number of covered cases found was and compared with the decision rules to classify coverage on a three-tiered scale. This is shown in Tables 12 and 13.

**Table 12: OTP coverage classifications by zone based on the Expanded MUAC-only admission criteria**

	TOTAL (n)	Covered cases (c)	Decision rule 1 (d <sub>1</sub> )	c>d <sub>1</sub> ?	Decision rule 2 (d <sub>2</sub> )	c>d <sub>2</sub> ?	Coverage classification
	Cin+Cout+Rin+Rout	Covered cases (Cin+Rin)	$d_1 = n \times \left(\frac{60}{100}\right)$		$d_2 = n \times \left(\frac{90}{100}\right)$		
Zone 1	69	61	41	Yes	62	No	Moderate
Zone 2	65	53	39	Yes	58	No	Moderate
Zone 3	66	48	39	Yes	59	No	Moderate
Zone 4	26	23	15	Yes	23	No	Moderate
Zone 5	50	43	30	Yes	45	No	Moderate

**Table 13: OTP coverage classifications by zone based on the WHO admission criteria**

	TOTAL (n)	Covered cases (c)	Decision rule 1 (d <sub>1</sub> )	c>d <sub>1</sub> ?	Decision rule 2 (d <sub>2</sub> )	c>d <sub>2</sub> ?	Coverage classification
	Cin+Cout+Rin+Rout	Covered cases (Cin+Rin)	$d_1 = n \times \left(\frac{60}{100}\right)$		$d_2 = n \times \left(\frac{90}{100}\right)$		
Zone 1	78	61	46	Yes	70	No	Moderate
Zone 2	75	54	45	Yes	67	No	Moderate
Zone 3	86	48	51	No	77	No	Low
Zone 4	34	23	20	Yes	30	No	Moderate
Zone 5	60	43	36	Yes	54	No	Moderate

Based on the **Expanded MUAC only admission criteria**, all zones classified coverage as *Moderate* (60-90 percent). Zone 4 recorded the highest coverage of the five zones, with 23 out of 26 OTP cases enrolled in the OTP. However, as 23 did not exceed  $d_2$ , it was impossible to classify this as *High* coverage (91-100 percent coverage).

Based on the **WHO admission criteria** (the same criteria used in the 2019 survey), four Zones were classified as *Moderate* and one as *Low* (0-60 percent coverage). 2019 found all Zones to be *Moderate* coverage.

By combining the totals of *Cin*, *Cout* and *Rin* across all the SLEAC Zones, it is possible to estimate OTP coverage with a 95 percent confidence interval for all camps.

Three steps were followed to do this:

1. The coverage results in each SLEAC Zone were weighted based on population, and an overall coverage estimate was calculated based on the weightings;
2. To test for “patchiness” (i.e., to ensure that the coverage results in each SLEAC Zone were not too different to be able to combine into an overall coverage estimate), a Chi-squared test was completed;
3. The upper and lower 95 percent confidence intervals were calculated.

The calculations for these steps for the expanded MUAC-only criteria and the WHO criteria results are included in Annex 4.

The OTP coverage estimates based on the two admission criteria are summarised in Table 14. These estimates are calculated using the **Single Coverage Estimator** and the **Point Coverage Estimator**. The latter excludes recovering cases (including *Rin* and *Rout*) from the calculations.

**Table 14: OTP coverage estimates (Single and Point coverage estimators) based on expanded MUAC-only admission criteria and WHO admission criteria**  
December 2021

<b>Admission criteria</b>	<b>Single Coverage Estimate</b> (95% confidence interval)	<b>Point Coverage Estimate</b> (95% confidence interval)
<b>Expanded MUAC-only admission criteria</b>	<b>82.8%</b> (95% CI: 78.4-87.2%)	<b>73.8%</b> (95% CI: 66.4-81.1%)
<b>WHO admission criteria</b>	<b>69.4%</b> (95% CI: 64.5-74.3%)	<b>50.6%</b> (95% CI: 40.8-60.4%)

Based on the admission criteria in use at the time of the survey (expanded MUAC-only protocol), OTP coverage was **83 percent**. In other words, approximately 8 out of 10 children who were SAM (based on the expanded MUAC only protocol) are accessing treatment. Compared with 2019, this represents a slight improvement

(the 2019 OTP estimate was **77 percent**). The 10 percent difference between the point coverage and single coverage estimates also indicates that many children who are enrolled in the OTP are on the path to recovery, which is also positive.

However, the WHO admission criteria were in place during the 2019 coverage assessment. Therefore, when considering the WHO admission criteria, overall coverage has reduced from **77 percent** in 2019 to **69 percent** in 2021. This indicates that children who are SAM based on WFH Z-score and not MUAC are being missed. However nearly the non-covered SAM cases (based on WFH Z-score) were enrolled in the TSFP. More analysis of the reasons for non-attendance follows later in this report.

### COVERAGE RESULTS (TSFP FOR CHILDREN U5)

By the end of data collection, target sample sizes had been reached or exceeded in 19 of 33 camps. In camps where target sample sizes were not reached, a sufficient number of cases had been identified to enable the classification coverage as *Low* (0-60 percent), *Moderate* (61-90 percent) or *High* (91-100 percent).

Coverage classifications are established using the same LQAS technique to classify OTP coverage per SLEAC Zone.

First, the totals of each case (*TSFP Cin*, *TSFP Cout* and *TSFP Rin*) are summed by camp. Then, *TSFP Rout* is calculated for the camp using the formula included in the methodology (Annex 1). The total cases for each camp are then summed, and the decision rules for each total are calculated. Finally, the number of covered cases found (*Cin+Rin*) is compared with the decision rules to determine if coverage falls into the *Low*, *Moderate* or *High* brackets. The classifications for all camps are listed by expanded MUAC-only admission criteria and by WHO admission criteria in Table 15.

**Table 15: Coverage classifications by camp for TSFP for children U5, Rohingya refugee settlements, December 2021**

Camp	Expanded MUAC only admission criteria	WHO admission criteria
Kutupalong RC	High	Moderate
Camp 1 East	Moderate	Moderate
Camp 1 West	Moderate	Moderate
Camp 2 East	Moderate	Moderate
Camp 2 West	Moderate	Moderate
Camp 3	High	High
Camp 4	High	Moderate
Camp 4 Extension	High	High
Camp 5	Moderate	Moderate
Camp 6	Moderate	Moderate

Camp 7	Moderate	Moderate
Camp 8 East	High	Moderate
Camp 8 West	Moderate	Moderate
Camp 9	High	Moderate
Camp 10	Moderate	Moderate
Camp 11	Moderate	Moderate
Camp 12	Moderate	Moderate
Camp 13	Moderate	Moderate
Camp 14 (Hakimpara)	Moderate	Moderate
Camp 15 (Jamtoli)	Moderate	Moderate
Camp 16 (Potibonia)	Moderate	Moderate
Camp 17	Moderate	Moderate
Camp 18	Low	Moderate
Camp 19	Moderate	Moderate
Camp 20	Moderate	Moderate
Camp 20 Extension	Moderate	Moderate
Camp 21 (Chakmarkul)	High	High
Camp 22 (Unchiprang)	Moderate	Moderate
Camp 24 (Leda)	High	Moderate
Camp 25 (Ali Khali)	Moderate	Low
Camp 26 (Nayapara)	Moderate	Moderate
Camp 27 (Jadimura)	Moderate	Moderate
Nayapara RC	High	Moderate

Figure 22 summarises the number of camps classified as *High*, *Moderate* and *Low* coverage in 2019 and 2021.

**Figure 22: Numbers of camps classified as *High*, *Moderate* or *Low* coverage in 2019 and 2021 coverage assessments**

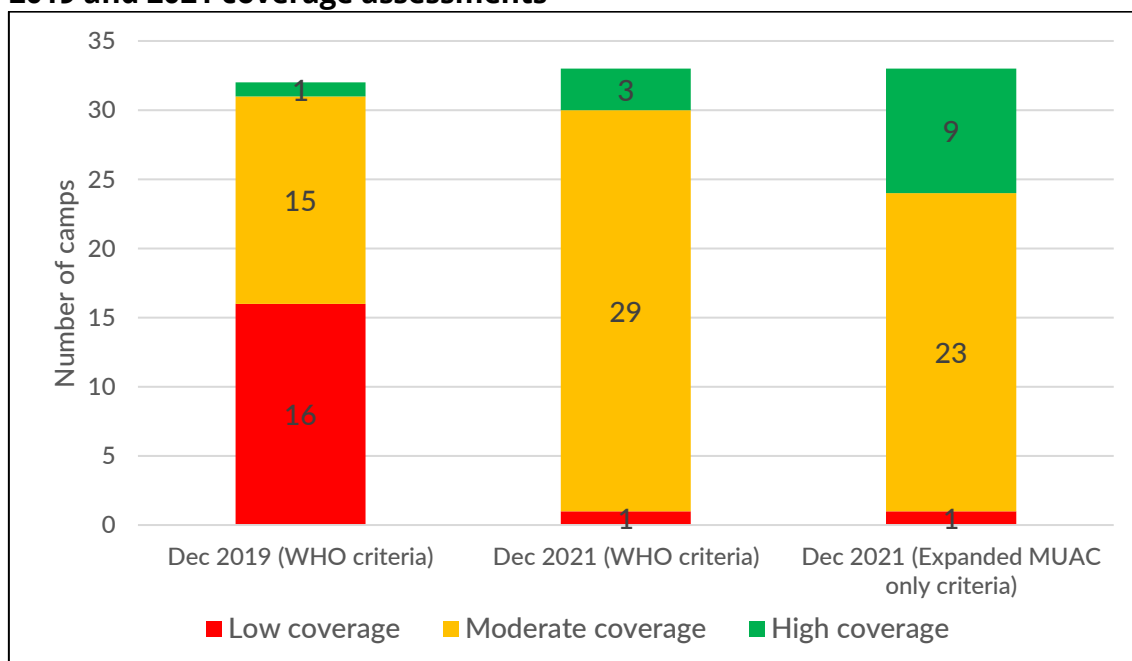


Table 15 and Figure 20 show that, based the 2021 CMAM coverage assessment, coverage of TSFP services has increased since 2019. 32 out of 33 camps were classified as *Moderate* or *High* in December 2021 based on both the Expanded MUAC-only and WHO admission criteria. This compares with 16 out of the 32 camps assessed in 2019. This indicates that, at the time of the 2021 SLEAC surveys, community outreach activities were effective despite the impact that COVID-19 was having on case-finding activities.

It was also possible to estimate the coverage of the TSFP for children overall by combining the results from all camps. As with the OTP coverage, the results were weighted based on the populations of each of the camps. Chi-squared tests were also completed to check that the coverage estimates were not excessively patchy, and the 95 percent confidence intervals were calculated. These calculations were all done in an Excel spreadsheet and are available on request.

The TSFP coverage estimates are summarised in Table 16.

**Table 16: TSFP coverage estimates for children U5 (single and point coverage estimators) based on expanded MUAC-only admission criteria and WHO admission criteria, December 2021**

<b>Admission criteria</b>	<b>Single Coverage Estimate</b> (95% confidence interval)	<b>Point Coverage Estimate</b> (95% confidence interval)
<b>Expanded MUAC-only admission criteria</b>	<b>84.6%</b> (95% CI: 82.5-86.7%)	<b>78.2%</b> (95% CI: 75.2-81.3%)
<b>WHO admission criteria</b>	<b>80.4%</b> (95% CI: 78.1-82.7%)	<b>68.5%</b> (95% CI: 64.3-72.7%)

The TSFP for children U5 across all camps was estimated to be approximately **85 percent**. This indicates a marked increase in coverage compared to the SLEAC surveys in November 2019, when coverage was estimated to be **61 percent**. Even based on the WHO admission criteria, coverage was estimated to be 80 percent. Given the context, and the number of children likely to be suffering from MAM at a given time in the camps, this result is impressive and demonstrates that community screening is active following the easing of COVID-19 restrictions.

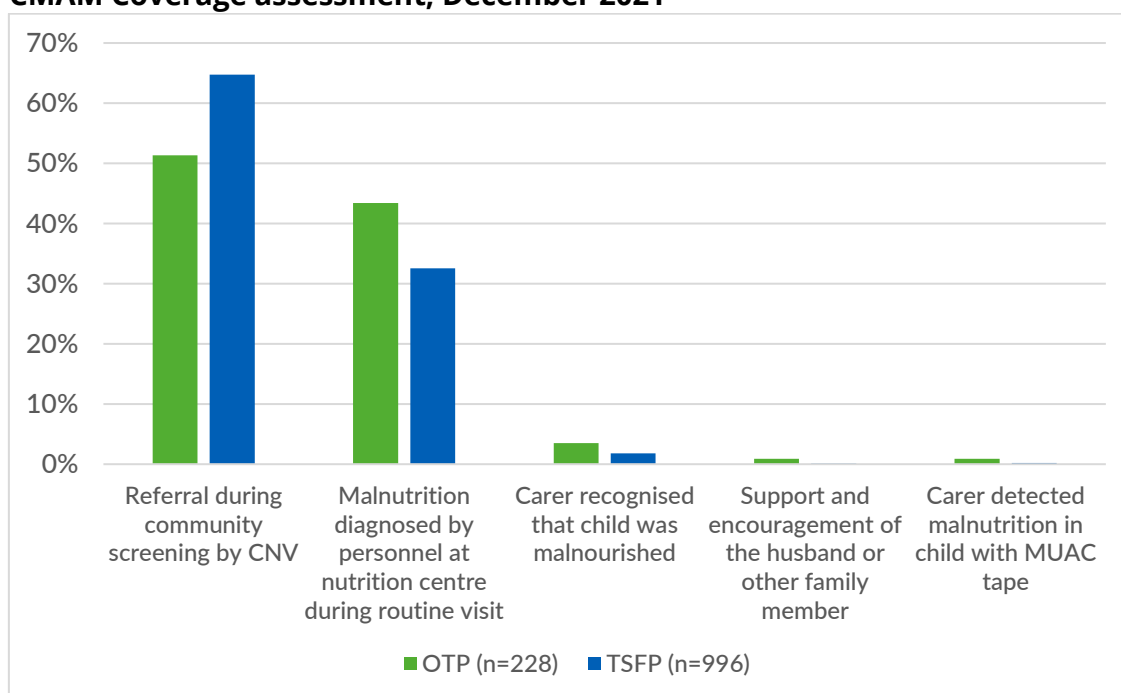
## **QUALITATIVE FINDINGS FROM SLEAC (CHILDREN U5)**

### **Positive factors influencing coverage of OTP and TSFP**

During data collection, if teams identified a child enrolled in the OTP or TSFP, they conducted a short questionnaire to identify why the carer had visited the nutrition facility to admit their child.

A total of 228 OTP and 996 TSFP carers were interviewed. The main reasons provided by carers for attending the programme are summarised in Figure 23.

**Figure 23: Primary reasons for enrolment in OTP and TSFP (for children U5), CMAM Coverage assessment, December 2021**



Ninety-five percent and 97 percent of OTP and TSFP cases, respectively were admitted by referral from community screenings or during routine visits to INF during the months preceding the coverage assessment in December 2021. These results reflect the results from the 2019 coverage assessment and confirm the effectiveness and systematic nature of screening by CNVs in the INF. While this is positive, the results also suggest that identification of GAM cases is heavily reliant on screening by nutrition staff and volunteers. Only a fraction of cases were enrolled in the relevant programme following recognition by a carer that their child was malnourished. This questions the effectiveness of mother MUAC training across the camps during the COVID-19 pandemic.

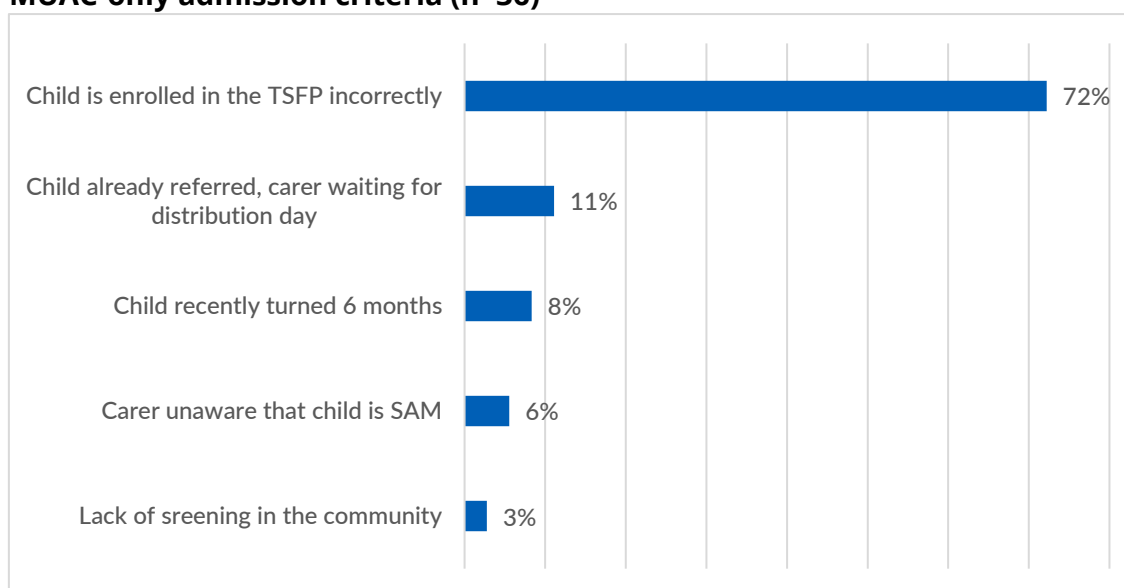
### Reasons for non-attendance to OTP and TSFP

If data collection teams identified a non-covered OTP or TSFP Child U5 during data collection, they administered a questionnaire to determine the primary reason for non-attendance of the child.

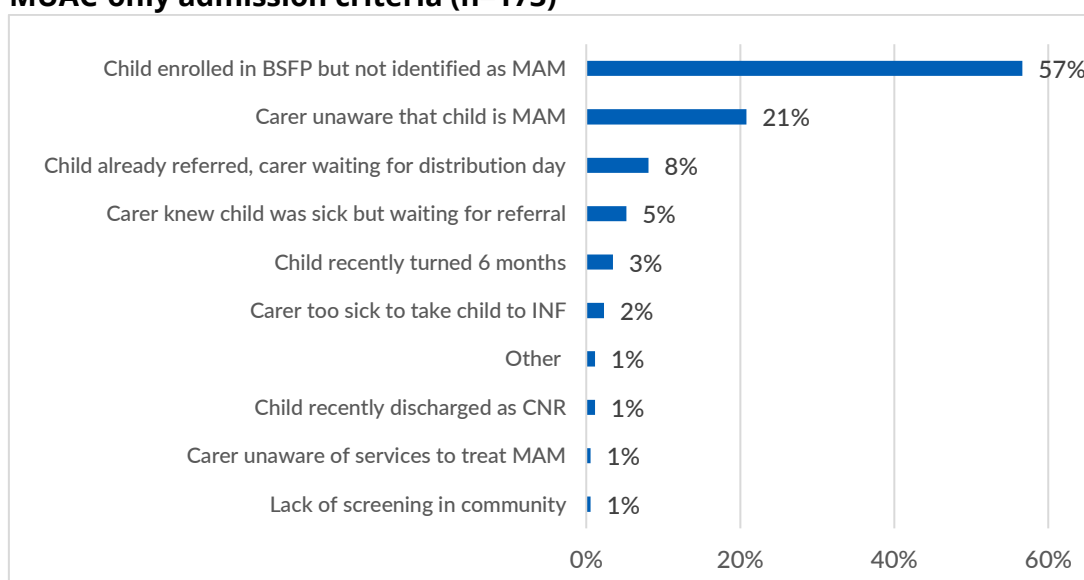
This was done using a structured questionnaire (more information in Annex 1).

The responses for OTP and TSFP cases are summarised for children identified as SAM or MAM in Figures 24 and 25, respectively.

**Figure 24: Primary reasons for non-attendance to OTP based on expanded MUAC-only admission criteria (n=36)**



**Figure 25: Primary reasons for non-attendance to TSFP based on expanded MUAC-only admission criteria (n=173)**



The majority of non-covered SAM and MAM cases (83 percent and 86 percent, respectively) based on the MUAC-only admission criteria were not enrolled in the appropriate programme for three reasons.

The primary reason was that **the child was enrolled in the wrong programme**. This meant that:

- For non-covered SAM cases, they were enrolled in a BSFP or TSFP and had not been identified as SAM by INF staff or had become SAM since their last visit
- For non-covered MAM cases, they were enrolled in the BSFP and had not been identified as MAM by INF staff or had become MAM since their last visit

This was the most common reason for non-attendance during the 2019 CMAM coverage assessment. But they represent a greater percentage of non-covered cases in 2021.

- This was the primary reason for the 46 percent of OTP non-covered cases in 2019; and 72 percent in 2021.
- This was the primary reason for the 50 percent of TSFP non-covered cases in 2019; and 57 percent in 2021.

If this problem were addressed, coverage of both OTP and TSFP would exceed 90 percent across all camps (the SPHERE standard for coverage in refugee camps).

The second most common reason for non-attendance for OTP and the third most common for TSFP was **that the child was already referred, and the carer was waiting for the distribution date**. This is positive as it indicates that carers were aware of the child’s condition and intended to go to the INF to seek treatment. However, it also suggests that relatively high numbers of carers and children were having to wait quite long periods to receive treatment, during which time the child’s health could deteriorate. This is likely to impact of the longer duration between distribution days for OTP (2 weeks) and TSFP (4 weeks).

Finally, 21 percent of carers of non-covered MAM cases **were unaware that their child was MAM** which suggests that there are gaps in regular CNV community screening. As these responses were observed across most camps, it appears that there are screening gaps across camps rather than a small number of poorly performing camps.

### Previous participation in treatment programmes

All carers of covered and non-covered cases were asked if their child had participated in the OTP or TSFP previously (depending on whether they were SAM or MAM). This information was also checked when looking at a child’s health card.

The percentage of cases that had **previously been enrolled in the programmes** is summarised in Table 17.

**Table 17: Percentage of OTP and TSFP cases (children U5) who had previously been enrolled in the OTP or TSFP, December 2021**

<b>OTP</b>	Non-covered cases	28%
	Covered cases	20%
<b>TSFP</b>	Non-covered cases	45%
	Covered cases	13%

The interviewers went on to ask why the child had left the programme. Most carers of covered cases (61 percent) and non-covered cases (83 percent) said that the child had been discharged as cured from the programme and had relapsed. This is similar to 2018 and 2019 and suggests a high relapse rate for SAM and MAM cases in the camps.



## COVERAGE RESULTS (TSFP FOR PLW)

Similar to the OTP coverage results for children U5, the coverage results for the TSFP for PLW are classified by SLEAC Zone due to the small sample sizes of PLW identified during the SLEAC surveys. The list of camps by SLEAC Zone and the map of the zones can be seen in the *OTP Coverage* earlier in this section.

Based on the sample sizes of MAM cases identified, it was possible to classify coverage of the TSFP for PLW on a three-tier scale.

Table 18 summarises the results by SLEAC Zone. The Period Coverage Estimator was used to classify and estimate PLW coverage. More information is available in the Methodology in Annex 1.

**Table 18: TSFP for PLW SLEAC survey results by SLEAC zone, December 2021**

Case definition	TSFP Cin	TSFP Cout	TSFP Rin	TOTAL
Description	MAM cases in the TSFP	MAM cases not in the TSFP	TSFP Recovering cases	<b>Cin + Cout + Rin</b>
Zone 1	15	3	2	<b>20</b>
Zone 2	12	6	15	<b>33</b>
Zone 3	21	3	12	<b>36</b>
Zone 4	9	0	5	<b>14</b>
Zone 5	9	5	7	<b>21</b>
<b>All zones</b>	<b>66</b>	<b>17</b>	<b>41</b>	<b>124</b>

Once the cases were summed by zone, it was possible to calculate the 60 percent and 90 percent decision rules for each zone using the LQAS technique. The number of covered cases found was then compared with the decision rules to classify coverage on the three-tier scale. This is shown in Table 19.

**Table 19: TSFP for PLW coverage classifications by SLEAC zone, December 2021**

	TOTAL (n)	Covered cases (c)	Decision rule 1 (d <sub>1</sub> )	c > d <sub>1</sub> ?	Decision rule 2 (d <sub>2</sub> )	c > d <sub>2</sub> ?	Coverage classification
	Cin+Cout+Rin+Rout	Covered cases (Cin+Rin)	$d_1 = n \times \left(\frac{60}{100}\right)$		$d_2 = n \times \left(\frac{90}{100}\right)$		
Zone 1	<b>20</b>	<b>17</b>	12	Yes	18	No	Moderate
Zone 2	<b>33</b>	<b>27</b>	19	Yes	29	No	Moderate
Zone 3	<b>36</b>	<b>33</b>	21	Yes	32	Yes	High
Zone 4	<b>14</b>	<b>14</b>	8	Yes	12	Yes	High

Zone 5	<b>21</b>	<b>16</b>	12	Yes	18	No	Moderate
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Finally, as the number of cases identified in all SLEAC Zones was greater than 96 (124 cases identified), it is possible to estimate the coverage of TSFP for PLW with a 95 percent confidence interval across the five SLEAC zones. Both period and point coverage estimators can be used to do this.

As with the OTP for children U5 coverage estimates, the final coverage estimates are weighted based on the population of PLW in each SLEAC zone. A chi-squared test was also completed, and the upper and lower confidence intervals were calculated.

**Table 20: TSFP for PLW coverage estimates (period and point coverage estimators) December 2021**

Period Coverage Estimate	Point Coverage Estimate
<b>85.9%</b> (95% CI: 79.7-92.2%)	<b>78.9%</b> (95% CI: 70.4-87.5%)

The 2021 coverage survey was the first time that the coverage of the TSFP for PLW has been assessed in the Rohingya refugee camps.

The results indicate that the programme's is *Moderate* in three SLEAC Zones and *High* in two SLEAC Zones. In Zone 4 (which includes Camps 14, 15 and 16), all MAM PLW were found to be enrolled in the TSFP.

## QUALITATIVE FINDINGS FROM SLEAC (PLW)

### Boosters to TSFP

The PLW who were found to be MAM and covered by the TSFP were asked why they had decided to enrol in the programme.

Out of the 66 MAM PLW who responded:

- **48 (73 percent)** said that they had been **referred following community screening by a CNV**
- **17 (26 percent)** said that they had been **diagnosed by personnel at an INF during a routine visit**

This indicates that community outreach activities are effective at identifying MAM PLW.

### Barriers to TSFP

All PLW who were MAM and not enrolled in the TSFP were asked why were not enrolled. Figure 26 summarises the responses of the 17 non-covered MAM cases identified.

**Figure 26: Primary reasons for non-attendance to TSFP provided by MAM PLW (n=17)**

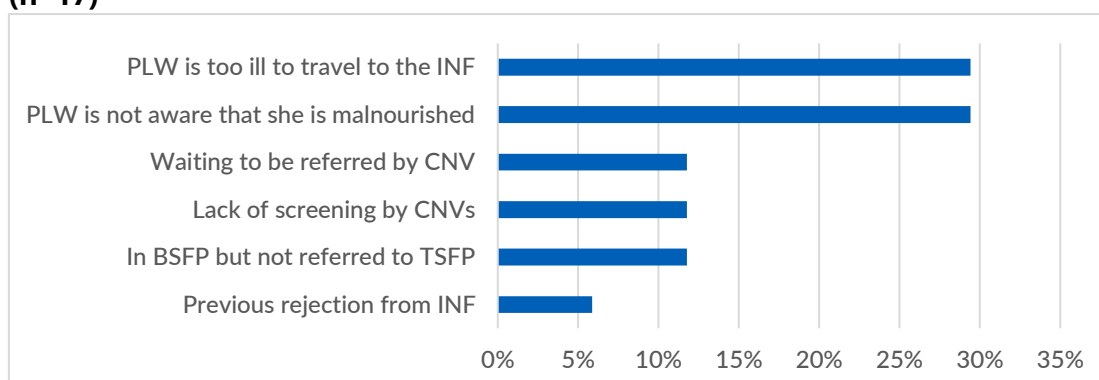


Figure 26 indicates that the morbidity of MAM PLW is an important factor preventing PLW from travelling to INF to receive their distribution, indicating that some PLW are reluctant to leave home when they are pregnant or lactating.

Another important factor is that MAM PLW are unaware that they are MAM, suggesting an absence of community screening of PLW.

### SCREENING COVERAGE (CHILDREN U5 AND PLW)

The carers of all children who received full anthropometric measurement and all PLW were asked if their child / they had been measured previously at home with a MUAC tape. The results are shown in Table 21 and have been colour coded based on the coverage classification scale as *High* (91-100 percent), *Moderate* (61-90 percent) or *Low* (0-60 percent).

**Table 21: Response to question: Have you / Has your child been measured at home with a MUAC tape previously?**

Camp	Children U5	PLW
Kutupalong RC	92%	71%
Camp 1 East	97%	47%
Camp 1 West	94%	29%
Camp 2 East	100%	73%
Camp 2 West	98%	59%
Camp 3	98%	71%
Camp 4	93%	55%
Camp 4 Extension	100%	55%
Camp 5	96%	17%
Camp 6	97%	66%
Camp 7	100%	65%
Camp 8 East	99%	72%
Camp 8 West	99%	72%
Camp 9	97%	46%
Camp 10	97%	63%
Camp 11	92%	49%

Camp 12	96%	34%
Camp 13	95%	63%
Camp 14 (Hakimpara)	94%	72%
Camp 15 (Jamtoli)	100%	78%
Camp 16 (Potibonia)	91%	65%
Camp 17	100%	65%
Camp 18	100%	31%
Camp 19	97%	20%
Camp 20	96%	66%
Camp 20 Extension	94%	44%
Camp 21 (Chakmarkul)	96%	2%
Camp 22 (Unchiprang)	98%	33%
Camp 24 (Leda)	98%	49%
Camp 25 (Ali Khali)	100%	32%
Camp 26 (Nayapara)	96%	51%
Camp 27 (Jadimura)	96%	45%
Nayapara RC	98%	63%
<b>ALL CAMPS</b>	<b>97%</b>	<b>51%</b>

**The results show that 97 percent of carers said their child had been measured with a MUAC tape previously. This is a slight improvement compared to 2019 (95 percent) and provides strong evidence that effective screening of children U5 is taking place throughout the camps.** In 2021, 93 percent of those who confirmed that their child had been screened previously confirmed that it had been taken during the previous month (in 2019, the result was 92 percent).

However, this does not indicate that 97 percent of all children U5 have been screened at home with MUAC previously, as this question was only asked for carers of children receiving full anthropometric measurement during the SLEAC surveys (i.e. all children with a MUAC <13.5cm or whose carer confirmed that they were enrolled in the OTP or TSFP). Therefore, these results should be interpreted with caution.

**The results also indicate that screening PLW is not as systematic as screening for children U5.** 51 percent of PLW confirmed that they had been screened at home. Of those screened, 48 percent said they had not been screened in the last 12 months.

Screening coverage of PLW did not exceed 90 percent in any camps. Coverage was 61-90 percent in 15 camps and was less than 60 percent in 18 camps. Anecdotal information provided by PLW who were interviewed during the SLEAC surveys in 2021 suggests that CNVs prioritise the screening of children over the screening of PLW and that there is a shortage of female CNVs to screen PLW in camps.

## COVERAGE RESULTS (BSFP FOR CHILDREN U5 AND PLW)

All carers of children U5 and PLW screened with MUAC tapes during the SLEAC surveys were asked if their child / they were enrolled in the BSFP.

It was possible to estimate BSFP coverage for children U5 and PLW per camp owing to the large sample sizes. The results have been listed in Table 22 and colour-coded based on whether the estimates fall in the *Low*, *Moderate* or *High* classification ranges. The cases found and 95 percent confidence intervals for the estimates are included in Annexes 5 and 6.

**Table 22: Coverage estimates of BSFP for children U5 and PLW in Rohingya refugee settlements, December 2021**

Camp	Children U5	PLW
Kutupalong RC	99%	95%
Camp 1 East	99%	93%
Camp 1 West	97%	84%
Camp 2 East	100%	91%
Camp 2 West	98%	96%
Camp 3	99%	95%
Camp 4	98%	91%
Camp 4 Extension	100%	98%
Camp 5	98%	91%
Camp 6	99%	94%
Camp 7	100%	92%
Camp 8 East	99%	90%
Camp 8 West	96%	76%
Camp 9	99%	89%
Camp 10	98%	90%
Camp 11	97%	88%
Camp 12	95%	83%
Camp 13	98%	90%
Camp 14 (Hakimpara)	98%	91%
Camp 15 (Jamtoli)	99%	86%
Camp 16 (Potibonia)	99%	96%
Camp 17	99%	96%
Camp 18	99%	96%
Camp 19	95%	84%
Camp 20	98%	97%
Camp 20 Extension	98%	100%
Camp 21 (Chakmarkul)	99%	87%
Camp 22 (Unchiprang)	98%	91%
Camp 24 (Leda)	96%	93%
Camp 25 (Ali Khali)	98%	93%
Camp 26 (Nayapara)	93%	85%
Camp 27 (Jadimura)	99%	96%

Nayapara RC	98%	96%
<b>ALL CAMPS</b>	<b>97%</b>	<b>91%</b>

The BSFP coverage estimates indicate that coverage is exceptionally high for children U5 and PLW, with greater than 90 percent coverage reported in most camps for both programme targets.

The estimates for children U5 represent a significant improvement compared to the 2019 coverage survey results. Coverage was greater than 90 percent in all camps; in 2019, 14 out of 34 camps reported *High* coverage (more significant than 90 percent), with 16 camps falling in the *Moderate* category and two in the *Low* category with coverage less than 60 percent.

BSFP coverage data was not collected for PLW in 2019. The results from 2021 indicated that 9 out of 10 PLW (91 percent) were enrolled in the BSFP. Nine out of 33 camps fell in the *Moderate* category, while the remainder were classified as *High* coverage.

### **SLEAC TEAM OBSERVATIONS**

During data collection, data collection supervisors (all of whom were programme officers involved in the delivery of CMAM services in the Rohingya refugee camps), compiled observations and, where relevant, took photos of negative aspects of CMAM programme delivery. These have been compiled into a report in Annex 3.

## 4. ANALYSIS OF FINDINGS

As in 2019, the mixed methods approach used during the 2021 CMAM coverage assessment in the camps yielded a large amount of data, which enabled the assessment team to achieve the coverage assessment's objectives (see section 1.7).

In addition to children aged 6-59 months (children U5), PLW were also targeted by the assessment in 2021. Furthermore, the SLEAC surveys set out to classify and estimate the coverage of the OTP and TSFP programmes for children U5 based on two admission criteria:

1. The Expanded MUAC-only admission criteria were introduced to limit physical contact in INF in April 2020 due to the COVID-19 pandemic. This was still being used as the admission criterion by all implementing partners in December 2021.
2. The WHO admission criteria was in use before the onset of the pandemic.

For treatment programmes targeting **children U5**, the programme data analysis indicated that, before the completion of the SLEAC surveys in December 2021, the supply elements of the CMAM programme (stock availability, facility staff availability and in-community screening) were all operating effectively and had been for several months. The COVID-19 lockdowns led to minor reductions in the screening of children in May and June 2021, but there was no impact of this evident in September/October 2021 when monthly screening targets were being exceeded in all camps.

As such, the demand indicators of the CMAM programme data (MUAC at admission and monthly admission totals), indicated that coverage was likely to be strong. MUAC at admission indicated that admissions were timely and new admissions to the OTP and TSFP had stabilised in the months before the survey following irregular admission periods during the COVID-19 pandemic. Programme effectiveness data (programme exit data) also indicated very positive results, despite slightly longer LoS before a cure for OTP and TSFP were reported from July-September 2021, largely due to the reduced frequency of visits to the programmes owing to adapted protocols.

In summary, the programme data of the CMAM programme for children indicated that coverage was likely in all camps. The SLEAC survey findings confirmed that this was the case. Based on the expanded MUAC-only admission criteria, OTP and TSFP coverage was estimated to be greater than 80 percent in all camps combined. OTP coverage was classified as *moderate* for all SLEAC zones, and TSFP coverage was classified as *high* in 9 camps, *moderate* in 23 camps and *low* in one camp. This represents a significant improvement compared to the survey in December 2019 and demonstrates that the implementing partners (who are all now operating INF and are responsible for CMAM at camp level) are identifying and treating GAM children effectively.

However, OTP and TSFP coverage does not exceed SPHERE standards for CMAM coverage in camp settings (90 percent). The primary reason why coverage estimates did not exceed 90 percent because SAM and MAM children were found to be in the wrong programme; as previously noted, SAM children enrolled in TSFP were not identified as SAM by INF staff, while MAM children enrolled in BSFP were not identified as MAM by INF staff. Delays in admission due to the reduced frequency of visit were another important factor. Also, coverage results based on the WHO admission criteria were slightly lower than those found on the expanded MUAC-only admission criteria, especially for OTP. This is because children who were identified as SAM or MAM based on WFH Z-score but not by MUAC were being missed. When it is deemed safe, nutrition sector partners may want to consider reverting to the WHO treatment protocols to ensure that all at-risk children are identified.

For TSFP targeting **PLW**, the programme data presented a more negative situation, indicating that PLW coverage may not be as high as the coverage of treatment programmes for children U5.

Community screening data, and anecdotal information from programme teams, CNVs and PLW, indicated that PLW were not being screened systematically in all camps and that children were often the primary target of community screenings. Additional findings from the SLEACs confirmed that screening coverage is patchy for PLW. Also, PLW admissions data during the period assessed varied, with some camps reporting very low admissions and others reporting high admissions. MAM PLW MUAC at admission data indicated that many MAM PLW are being identified quite late in the onset of MAM, and programme exit data was inconsistently reported.

However, the SLEAC survey indicated that 85 percent of MAM PLW are enrolled in the TSFP for all camps combined, with two SLEAC Zones reporting *high* coverage (>90 percent) and three *moderate* coverage (60-90 percent). Based on the limited qualitative data collected during the SLEAC surveys, it is hard to determine why the coverage of the TSFP for PLW is higher than the treatment programmes for children U5. However, one explanation could be that, as most PLW are enrolled in the BSFP (91 percent) throughout all camps, if they are MAM, then INF staff identify them and enrol them in the TSFP.

Coverage of the TSFP for PLW could be higher. The main reasons for non-attendance included the PLW not being aware that she was MAM (which indicates the absence of screening of PLW) and the morbidity of the PLW preventing her from leaving her home to travel to the INF. If these two factors were addressed, coverage of the TSFP for PLW could be greater than 90 percent.



## 5. CONCLUSION

The third CMAM coverage assessment was completed in December 2021 to assess the extent to which children suffering from SAM and MAM are accessing treatment. The 2021 assessment also assessed the treatment coverage of TSFP for PLW. This was the first time that this had been assessed in the Rohingya camps. The coverage assessment set out to assess how treatment coverage had evolved in the camps following several changes to the delivery of CMAM.

Firstly, nutrition services were organised into INF in November-December 2019. Before then, multiple partners delivered OTP and TSFP services in separate facilities, each with their own community outreach teams. The 2019 re-organisation set out to streamline the delivery of nutrition services.

Secondly, the COVID-19 crisis compelled the Nutrition Sector to rethink how it delivered the CMAM programme to children U5. To reduce contact, an expanded MUAC-only protocol was introduced for OTP and TSFP in all INF. The protocol also reduced the frequency of visits for SAM and MAM children. During the periods of strict lockdown, community screening by CNVs was also stopped, and mothers were trained to assess their children's MUAC and, if necessary, bring them to the INF for treatment.

The results from the SLEAC survey in 2021 indicated that since 2019, treatment coverage has improved for children U5 who are GAM. Combined results from all camps indicate that, in December 2021, approximately 83 percent of SAM cases and 85 percent of MAM cases were accessing treatment. This is attributed largely to the reintroduction of mass screening campaigns in the camps in September and October 2021. But it may also be due to a better organisation of CMAM services at camp level due to the aforementioned reorganisation of the programmes into INF.

In conclusion, the COVID-19 pandemic does not appear to have negatively affected CMAM coverage or the treatment-seeking behaviour of Rohingya communities. The result may have been different if the survey had been conducted in May-June 2020 or 2021. However, findings indicate that treatment coverage of OTP based on WHO admission criteria has reduced slightly since 2019 as some cases who were SAM based on WFH Z-score but not by MUAC were not enrolled in the OTP. This might be a justification for partners to revert to the WHO admission criteria. However, most SAM cases which were only SAM based on their WFH Z-score, were enrolled in the TSFP.

The treatment coverage of the TSFP for PLW was estimated to be approximately 86 percent for all camps combined. This is impressive, especially given that programme partners admit that the CMAM programme for PLW is less of a priority than the CMAM programme for children and that the routine programme data for the TSFP for PLW suggests a worse performing programme.

Implementing partners are close to exceeding the SPHERE standard for CMAM coverage in camp settings (90 percent).

For children, this could be achieved through improved adherence to protocols at the INF level to ensure that children do not become SAM whilst receiving treatment for MAM. Likewise, when carers receive their monthly ration from the BSFP, children should be systematically screened to ensure they have not become MAM.

For PLW, this could be achieved by delivering treatment to MAM PLW who may not be willing to travel to INF to receive their treatment for MAM and by ensuring that there are sufficient female CNVs to screen all PLW at the community level.

The Nutrition Surveillance team and implementing partners have identified the following recommendations to improve coverage.

### Children under 5 years of age

Negative factors	Recommendations
Non-systematic screening by MUAC in some INF leads to some SAM / MAM children being missed	<ul style="list-style-type: none"> <li>• Ensure proper execution of treatment protocol in all INF.</li> <li>• Ensure sound referral mechanisms.</li> <li>• Community screening should be mandatory every month.</li> </ul>
Non-response rate >10% in certain camps	<ul style="list-style-type: none"> <li>• Training &amp; orientation of INF staff.</li> <li>• Conduct home visits.</li> <li>• Update the child &amp; PLW database monthly along with improved data quality at the source – i.e., UNHCR data &amp; restart the growth monitoring promotion activity.</li> <li>• Ensure protocols are available at facility level.</li> </ul>
Inaccurate ages being recorded on child health cards	<ul style="list-style-type: none"> <li>• Disseminate messages to caregivers to bring EPI<sup>2</sup> cards during admission to OTP and TSFP.</li> <li>• Check EPI card and history from the caregivers to ensure the age of the children is correct.</li> <li>• Maintain a digitized register book to record the date of birth of newborn children in the catchment area.</li> </ul>
SAM and MAM children being missed due to use of MUAC only protocol	<ul style="list-style-type: none"> <li>• Advocate to the National Nutrition Sector (NNS) and Nutrition Sector to resume WHO standard, protocols.</li> <li>• Increase monitoring of anthropometric measurements at community and facility level.</li> <li>• Provide guidance and advice to partners to emphasize the need for accuracy when taking anthropometric measurements for the at-risk group (MUAC 13.0 cm to 13.5 cm).</li> <li>• Include OTP cured cases in the home visit criteria.</li> </ul>

### PLW

<sup>2</sup> Enhanced Programme of Immunisation

Negative factors	Recommendations
Systematic screening of PLWs is not taking place in all camps	<ul style="list-style-type: none"> <li>• Recruitment of female CNVs.</li> <li>• Regular screening of PLW by community outreach team.</li> <li>• Ensure active referral of PLW and orient during mother-to-mother support groups.</li> <li>• Introduction of mass screening for PLW along with U-5 mass screening.</li> </ul>
Morbidity preventing some PLWs from visiting INFs	<ul style="list-style-type: none"> <li>• CNV and supervisor should ensure adequate linkages with health facilities.</li> </ul>
Acutely malnourished PLWs unaware that they are eligible for treatment	<ul style="list-style-type: none"> <li>• Ensure MUAC measurement of PLW both in centres and communities with adequate sensitization of all PLW during BSFP distributions and IYCF sessions.</li> </ul>
Inconsistencies in reporting of PLW exit criteria	<ul style="list-style-type: none"> <li>• Ensure all camps have a harmonized reporting format.</li> <li>• Orient all staff on reporting indicators.</li> </ul>

## 6. ANNEXES

### ANNEX 1: ADAPTED SQUEAC METHODOLOGY

#### 1. CMAM Programme data collection and analysis

The first stage of the coverage assessments in the camps in 2021 involved the collection and analysis of CMAM programme data and other data from individual nutrition facilities to indicate and map catchment areas with potentially high and low coverage.

In October 2021, nutrition sector partners compiled data from the nutrition facilities which they are responsible for on an Excel-based **data collection tool** (available on request). The compiled data was shared with the AAH Bangladesh surveillance team. Data was received from 49 INF. The following data was shared (separately for OTP and TSFP for children U5 and TSFP for PLW) by month (between October 2020 and September 2021):

- No. of weeks in a month with 100 percent stock availability (RUTF, RUSF or WSB++ as relevant)
- No. of weeks in a month with 100 percent human resources availability (for nutrition facilities only, i.e. not including community outreach workers)
- Average LoS before discharge as cured
- MUAC at admission for all children U5 and PLW (July-September 2021)

The following data was also extracted from the Nutrition Sector monthly reports from 2020 and 2021:

- New admissions by month and by facility in 2020 and 2021
- Programme exit data (including cured, defaulter, death, and non-responder rates) by month and by facility in 2020 and 2021

Once received, this data was compiled, analysed, and summarised by partner and camp in Excel.

The analysis indicated:

- Differences in programme data by camp
- Variations in programme data in the 12 months prior

The findings were summarised and presented to Nutrition Sector partners during a half-day workshop on **15 December 2021**. The workshop's objective was for partners to review programme data (where possible, for the camps they were responsible for), identify potential high and low coverage camps and hypothesise the reasons for the high and low coverage.

During the workshop, the Senior Nutrition Assessment Advisor presented the data and key observations from the data. Following this presentation, the partners split into three groups: one group for OTP data for children U5; one group for TSFP data

for children U5; one group for TSFP data for PLW. The groups then conducted group work to make observations to explain or justify the trends seen in the data. Observations were added to an analysis sheet, then presented to the plenary.

## 2. SLEAC surveys in individual camps

The second stage of the coverage assessment involved implementing coverage surveys in individual camps using the SLEAC methodology.

The implementation of the SLEAC survey involved a two-stage sampling technique:

- Stage 1: Calculation and selection of primary sampling units
- Stage 2: In-community case finding to identify and classify all OTP and TSFP cases (children U5 and PLW)

Stage 2 was then compiled and analysed to classify coverage of the TSFP for children U5 at the camp level and to classify coverage of the OTP for children U5 and TSFP for PLW in each of the five SLEAC Zones used during the 2019 assessment. Using this data, it was also possible to estimate the coverage of the OTP and TSFP across all camps for children U5 and PLW.

### Stage 1: Calculation and selection of primary sampling units

The first stage involved calculating and sampling the primary sampling units to be visited during the SLEAC surveys.

**Calculation of target sample size:** In a SLEAC survey, the primary sampling units must be the smallest possible catchment areas in a survey zone (typically a village in rural settings) **or** the number of children one survey team can have screened in one day (60-80).

In Cox's Bazar, the primary sampling units are camp **sub-blocks** (1,878 in total, excluding the sub-blocks in Camp 23<sup>3</sup>) which have an average population of 476 individuals (based on the NPM Site Assessment Round 17 conducted in January 2020). Population data also indicated that children aged 6-59 months account for approximately 20 percent of the population (although this figure varied by camp).

The first step in selecting the primary sampling units was to calculate the target sample size of MAM children U5 in each camp. To classify coverage at camp level, a minimum sample size of 40 MAM cases needed to be found. However, if the expected number of MAM cases at the time of the survey was expected to be fewer than 500 (which would be the case if camp populations were small and the prevalence of MAM was low), the sample size could be reduced based on the following table:

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<sup>3</sup> Camp 23 was excluded from the SLEAC surveys in 2021 due to fact that it was a temporary camp for families in transit to Bhasan Char.

Total number of cases in the service delivery unit	Target sample size
>500	40
250-500	33
125-250	32
100-125	29
80-100	26
60-80	26
50-60	25
40-50	22
30-40	19
20-30	18
<20	15

This table is taken from page 115 of the SLEAC technical reference<sup>4</sup> and is based on a three-tier classification system. The expected number of MAM cases can be calculated with the following formula:

$$\text{average camp population all ages} \times \frac{\text{population 6 – 59 months}}{100} \times \text{MAM prevalence}$$

Once the required sample size was calculated, the following calculation was used to calculate the number of sub-blocks required to reach the sample size ( $n$  = required sample size):

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

For the CMAM coverage assessment in 2021, using an Excel spreadsheet, the above formula was used to calculate the expected populations of MAM children U5, the required sample sizes and the number of sub-blocks to visit. Sample size calculations indicated that survey teams would need to visit **189 sub-blocks** (see [Annex 2 for the](#) data used to calculate this figure).

With the resources available for this survey, it was **not possible to classify coverage of the OTP for children U5 or the TSFP for PLW by camp**. Therefore, the research team combined survey results from neighbouring camps to classify the scope of both services across the five SLEAC zones used during the CMAM coverage assessments in 2018 and 2019.

Further information about the sample sizes achieved is detailed below.

**Selection of the sub-blocks:** During a SLEAC survey, selection of sampling units can be made using one of two methods.

<sup>4</sup> The technical reference for the methodology is available here: <http://www.coverage-monitoring.org/wp-content/uploads/2014/10/SQUEAC-SLEAC-Technical-Reference-Oct2012.pdf> (starting from page 114)

If detailed maps are available and marked with each sub-block name for the entire survey area, the centric systematic area sampling method can be used to select the sub-blocks to visit. This involves drawing a grid over the map to create quadrants. The sub-block at, or nearest, the centre of each quadrant is then selected as the sub-block to visit. This was not possible for the Cox's Bazar camps, however, due to the unavailability of detailed camp-level maps.

If no detailed maps are available, SLEAC sample sub-blocks can be selected from a list of sub-blocks using the **systematic, stratified sampling methodology**. This is the sampling method used during the 2021 coverage assessment.

All sub-blocks in a camp were listed alphabetically, stratified by block. The required number of sub-blocks per camp were then sampled from the list as follows:

- A sampling interval was calculated by dividing the total number of sub-blocks in the camp by the total number of sub-blocks to visit.
- Starting with a random number (between one and the sampling interval), the sampling interval was applied systematically to the list of sub-blocks until the required number of sub-blocks had been selected.

## **Stage 2: In-community case finding for OTP and TSFP cases**

Stage 2 involved survey teams visiting the selected sub-blocks to conduct exhaustive in-community case findings of all eligible cases, recording their anthropometric details, and determining whether they were enrolled in the relevant treatment programme.

### **Target population and case definition:**

The target population was children aged 6-59 months and PLW in the selected sub-blocks.

Teams conducted door-to-door sampling to identify whether children aged 6-59 months and PLW were classified as cases.

### **Case definition for children aged 6-59 months**

Any child aged 6-59 months that is SAM or MAM at the time of the survey <b>and/or</b> any child that is enrolled in an OTP or TSFP at the time of the survey.
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### **Case definition for PLW**

Any PLW that is GAM <b>and/or</b> any PLW that is enrolled in TSFP at the time of the survey.
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**Verification of age:** To determine the age of identified children, the survey teams first asked if the carer could show them a registration card, ID card, 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 age.

**Identification of SAM and MAM cases:** SAM and MAM cases were identified by MUAC, presence of oedema and/or by WFH Z-score. The case definitions for SAM and MAM cases were as follows:

	Children aged 6-59 months			PLW
	MUAC	Oedema	Z-score	MUAC
<b>SAM case (any of)</b>	<120 mm	+, ++, +++	<-3	<160 mm
<b>MAM case (any of)</b>	120-129 mm	No oedema	-2 to -3	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 needed to confirm using the following proof:

OTP	TSFP (for children + PLW)
OTP treatment card OR A full packet of RUTF OR Confirmation from a CNV	TSFP treatment card OR A full packet of RUSF or Supercereal (for PLW) and confirmation from the carer / PLW that they collect new packets from the nutrition facility <b>every month</b> OR Confirmation from a CNV

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

**Decision process for children aged 6-59 months:**

Each child in the age range was measured for signs of oedema using a MUAC tape. If their MUAC fell below a **cut-off of 135 mm and/or if they showed signs of oedema**, their weight and height Z-score was determined using a set of scales and a height board.

Based on the three measurements, the survey team recorded 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 follows:

Description	Acronym	Action taken		
		Summary sheet	Questionnaire	Referral to INF
6-59-month SAM case in the OTP	SAM Cin	Yes	Yes	No
6-59-month SAM case not in the OTP	SAM Cout	Yes	Yes	Yes



6-59-month case that <b>was</b> SAM but still in the OTP programme as they had not yet reached discharge criteria	SAM Rin	Yes	Yes	No
6-59-month MAM case in the TSFP	MAM Cin	Yes	Yes	No
6-59-month MAM case not in the TSFP	MAM Cout	Yes	Yes	Yes
6-59-month case that <b>was</b> MAM but still in the TSFP programme as they had not yet reached discharge criteria	MAM Rin	Yes	Yes	No
Child found to be well-nourished following measurement	WN Ch	Yes	No	No

The carers of all above cases were interviewed (using KoboCollect software loaded onto tablets) to determine the main reason for enrolment into the relevant programme or reason for non-attendance. These questionnaires closely resembled the questionnaires used during the 2021 survey. During case finding, the results were recorded on data collection summary sheets.

Data collection teams also asked carers of all children measured to confirm whether their child was enrolled in BSFP. The responses were also recorded on the data collection summary sheet.

#### **Decision process for PLW:**

In the selected sub-blocks, all pregnant and lactating mothers with infants younger than six months had their MUAC measured.

Based on this measurement, the survey team recorded the PLW's 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 of less than 210 mm or were enrolled in TSFP, they were interviewed by data collection teams.

PLW case definitions and actions taken were as follows:

Description	Acronym	Action taken		
		Summary sheet	Questionnaire	Referral to INF
Acutely malnourished PLW who is in the TSFP	AM PLW Cin	Yes	Yes	No
Acutely malnourished PLW who is not in the TSFP	AM PLW Cout	Yes	Yes	Yes
PLW who was SAM or MAM but still in the TSFP as they had not yet reached discharge criteria	AM PLW Rin	Yes	Yes	No

PLW found to be well-nourished following measurement	WN PLW	Yes	No	No
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Data collection teams also asked measured PLW to confirm whether they were enrolled in the BSFP. The responses were recorded on the data collection summary sheet.

At the end of each day of data collection, leaders from each team returned to Cox’s Bazar to share survey results from the sub-block they visited.

**TSFP sample sizes achieved (children U5)**

[Annex 2](#) includes the data used to calculate the target sample sizes per camp of MAM children U5 and the sample sizes achieved per camp.

The **target** TSFP sample for all camps was 1,202. By the end of data collection, 1,280 TSFP cases had been identified across all camps. Sufficient sample sizes of MAM cases (children U5) were identified to classify coverage by camp.

**OTP sample sizes achieved (children U5) and TSFP sample sizes achieved (PLW)**

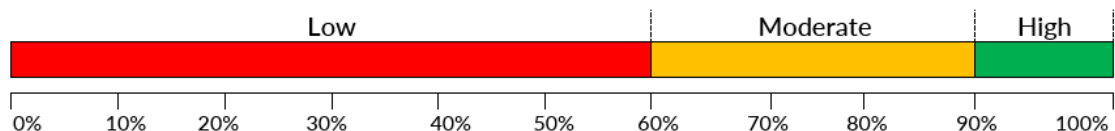
By the end of data collection, a sufficient number of OTP cases (children U5) and TSFP cases (PLW) had been identified to classify coverage in each SLEAC Zone.

**Classifying coverage**

When teams had visited all selected sub-blocks in a camp, the survey coordinator analysed the results **to classify both coverage of TSFP for children U5 per camp and OTP coverage for children U5 and TSFP coverage for PLW per zone**. This was done using the LQAS classification technique.

The SLEAC survey methodology uses a classification system derived from the LQAS classification technique which enables coverage classification on a two or three-tier scale. A three-tier classification scale was used for the 2021 survey in Cox’s Bazar (the same scale used during the 2018 and 2019 coverage assessments). The classifications were based on the SPHERE standard for coverage of CMAM services in camps (90 percent<sup>5</sup>). Therefore, for coverage to be considered “High” it should exceed 90 percent.

During the SLEAC survey in 2019, the Assessment Technical Working Group agreed to use the following range of scales to classify coverage. To ensure comparability, the same range was used for the survey in 2021:



**Single coverage estimator for children U5**

<sup>5</sup> See <http://www.spherehandbook.org/en/management-of-acute-malnutrition-and-micronutrient-deficiencies-standard-2-severe-acute-malnutrition/>

The final coverage classifications and estimates for CMAM services for children U5 were calculated using the **Single Coverage Estimator**.<sup>6</sup>

Coverage classifications and estimates for children U5 were calculated based on two admission criteria:

1. The **expanded, MUAC-only criteria**, which were in use at the time of the SLEAC surveys in December 2021 and had been used by all partners since April 2020;
2. The **WHO standard criteria** which were in use until April 2020 (prior to the start of the COVID-19 pandemic).

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

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

Recovering cases were classified as OTP *Rin* or TSFP *Rin*. However it was not possible to find recovering cases **not in** the programme. These were SAM or MAM cases which recovered naturally without entering a nutrition treatment programme. The estimated number of these cases was 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 classifying coverage, it was necessary to calculate the number of recovering cases not in the programme (*Rout*).

### **Period coverage estimator for PLW**

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 classify or 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:

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

### **Classifying coverage per camp / zone**

The following steps were taken to classify coverage:

1. Based on the denominator of SAM and MAM cases, decision values were calculated using the following equations:

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<sup>6</sup> 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

$$d_1 = \left\lfloor n \times \frac{p_1}{100} \right\rfloor \qquad d_2 = \left\lfloor n \times \frac{p_2}{100} \right\rfloor$$

$d$  = decision value

$p$  = coverage proportion

$n$  = sample size

For example, if the denominator of TSFP cases in a camp was **50 cases** and the classification scale of this survey was used, then decision values would be as follows:

$$d_1 = \left\lfloor 50 \times \frac{60}{100} \right\rfloor = 30$$

$$d_2 = \left\lfloor 50 \times \frac{90}{100} \right\rfloor = 45$$

2. The number of covered cases (the numerator) identified was then compared with the decision values.
  - If 25 covered cases were found out of the 50, as 25 is inferior to  $d_1$ , coverage would be classified as **Low**.
  - If 40 covered cases were found, as 40 falls between  $d_1$  and  $d_2$ , coverage would be classified as **Moderate**.
  - If 47 covered cases were found, coverage would be classified as **High**.

(NB. The number of covered cases must exceed the decision value to be classified in the above category. E.g., if covered cases = 45, this would still be considered **Moderate** coverage).

### Estimating coverage

It was possible to estimate the coverage of the OTP and TSFP for children U5 and the TSFP for PLW for the entire survey area by combining the results from all camps.

It was only possible to estimate coverage if the following conditions were met:

- **The overall sample size was 96** (or more). This sample size is usually sufficient to estimate coverage with a 95 percent confidence interval and a precision of 10 percent
- **Coverage was not patchy** (i.e. coverage is broadly similar in each of the areas surveyed).

The final coverage estimates were weighed based on each camp's expected number of OTP / TSFP cases. To test the patchiness of coverage, a *chi-squared* test was then completed. Details of both steps are available in the SLEAC technical reference<sup>7</sup> on pages 129-133.

### Analysis of questionnaires

<sup>7</sup> The technical reference for the methodology is available here: <http://www.coverage-monitoring.org/wp-content/uploads/2014/10/SQUEAC-SLEAC-Technical-Reference-Oct2012.pdf>

When the OTP or TSFP case was identified, a structured questionnaire was administered to the carer (or the PLW) to determine the reasons why the child or PLW **was** or **was not** enrolled in the relevant treatment programme. The questionnaire was administered on tablets using “Kobo collect” software.

The results of questionnaires with non-covered cases were analysed to determine the primary reasons for not being in the relevant treatment programme. Otherwise, the questionnaire identified the main reasons why the case was in the programme.

Questionnaire responses were analysed and ranked by camp for the entire survey area.

## ANNEX 2: SLEAC POPULATION AND SAMPLE SIZE DATA

Camp name	# of sub blocks	# of individuals	% 6-59 months	Total MAM Children U5	TSFP U5 sample size	Sub-blocks to visit	Sub blocks visited	Sample size achieved (TSFP Children U5)
Camp 1 East	105	39,572	13.1%	564	38	8	8	43
Camp 01 West	98	38,840	11.5%	487	38	8	8	55
Camp 02 East	61	26,780	14.8%	431	37	6	6	47
Camp 02 West	46	24,574	14.0%	374	37	5	5	33
Camp 03	85	37,095	13.5%	545	38	6	6	57
Camp 04	73	32,312	14.4%	507	38	6	6	30
Camp 04 Extension	5	8,325	17.7%	161	33	3	3	16
Camp 05	47	26,279	17.2%	493	38	4	4	19
Camp 06	40	24,267	15.9%	420	37	4	4	43
Camp 07	63	38,626	14.8%	624	38	4	4	27
Camp 08 East	77	30,452	13.1%	434	37	7	7	61
Camp 08 West	80	31,818	14.0%	484	38	7	7	44
Camp 09	94	33,764	13.7%	506	38	8	8	54
Camp 10	81	30,666	13.7%	458	37	7	7	47
Camp 11	79	31,220	12.9%	440	37	7	7	62
Camp 12	56	27,283	14.0%	416	37	5	5	39
Camp 13	89	43,388	13.2%	626	38	6	6	41
Camp 14	47	33,454	14.7%	536	38	4	4	31
Camp 15	102	52,323	13.1%	748	39	6	6	35
Camp 16	28	21,865	15.3%	365	37	3	3	42
Camp 17	42	18,089	16.6%	328	36	5	5	42
Camp 18	74	28,626	14.8%	462	37	6	6	40
Camp 19	63	24,900	12.9%	349	36	7	7	32
Camp 20	21	7,283	16.7%	133	31	5	5	28
Camp 20 Extension	25	9,919	17.4%	189	34	5	5	23
Camp 21	32	17,288	15.0%	283	36	5	5	36
Camp 22	40	22,171	12.4%	301	36	5	5	34
Camp 24	69	27,018	12.6%	372	37	7	7	36
Camp 25	23	7,865	12.5%	107	30	7	7	41
Camp 26	72	41,154	12.9%	578	38	5	5	31
Camp 27	35	15,981	13.3%	232	35	6	6	53

Kutupalong RC	12	17,194	9.4%	176	33	6	6	20
Nayapara RC	14	22,908	9.7%	243	35	6	6	38
<b>Grand Total</b>	<b>1,878</b>	<b>893,299</b>	<b>13.7%</b>	<b>13,371</b>	<b>1,202</b>	<b>189</b>	<b>189</b>	<b>1,280</b>

## ANNEX 3: SLEAC TEAM OBSERVATIONS REPORT

Observation	Descriptions ( <a href="#">Link with evidence</a> )
<b>Skin disease</b>	In the majority of the camps, several types of skin illnesses of U-5 children and PLW were discovered, which might one of the major causes of malnutrition. Particularly in camps 2E, 6, 7, 8, 10, 16, 19, 20, and 22. Measurers also faced difficulties in measuring MUAC due to severe skin conditions & maintained extra precautionary method during measuring the MUAC.
<b>Camp with poor WASH facilities having more wasting cases</b>	Most of the camp's hygiene promotions are abysmal. The drains are filthy, and the foul odour is spreading. As a result, malnutrition cases are more prevalent in the worst-affected locations, such as camps 2E, 9, and 8E. In these areas, the team discovered higher relapse cases.
<b>Interruption in logistics supply</b>	Due to a paucity of TSFP cards, many INF has recorded anthropometric status in the BSFP card for both child and PLW instances. Even It was not stated in the card whether the child receiving TSFP or BSFP services. Some temporary cards are extremely thin, foggy, and easily torn. There was no update on measurement readings or visit dates on some cards.
<b>Lack in community screening</b>	There were also some gaps in community screening for both children and PLWs. Some mothers said that volunteers did not measure their children on a frequent basis, and some PLW also agreed. We discovered over five BSFP, TSFP Cout, OTP Cout, and other non-covered cases for both children and PLW as a result.
<b>Conservative community drawbacks</b>	In some camps, women were hesitant to visit the nutrition facility because of religious beliefs; husbands were prohibited; the distance from the centre; and the lack of another family member to care for other sick people in the HH. Even husbands and children are not permitted to take ration. Increasing C-out or defaulter in this situation, however, there is no choice to provide home services by the volunteer.
<b>Defective age calculation leads to service out before being aged out</b>	Team found a child Murshed who was born in Myanmar. His family came to Bangladesh before 2 days of Eid-UI-Adha (2nd September) in 2017. During that time, he was 40 days old. According to this statement, his present age is 53 months. However, based on the UNHCR family data card his age proved over 5 years and the child is already being discharged from the BSFP program. It is noted that at present the child is MAM and but out of services.
<b>Incorrect MUAC measurement indicating</b>	The child's MUAC was found 137mm instantly and weight was 7.1 kg by survey team during data collection but in the BNF card, MUAC was 118 mm and weight 5.6 kg and was admitted in OTP. That is indicating a manipulation in admission.



Observation	Descriptions ( <a href="#">Link with evidence</a> )
false treatment	
General observation of survey team for uncovered cases	<ul style="list-style-type: none"> <li>• A large number of U5-beneficiaries age was more than the actual age in the data card &amp; beneficiary's card and the child were discharged immediately before to reach five years actually.</li> <li>• Not all facilities resume Z-score calculation in their centre level so that child is treating in another program according to admission by MUAC criteria.</li> <li>• Due to medical complication some SAM/MAM child falling CNR frequently.</li> <li>• Few beneficiaries were reach newly six month but were not tracking properly by CNV.</li> <li>• Some of the uncovered SAM/MAM beneficiaries were in cure follow up (OTP/TSFP Follow up) but still non-admitted in any programme.</li> <li>• To reduce CNR cases, intentionally giving fake discharge by MUAC criteria and writing more weight gradually.</li> <li>• Team found big discrepancy between CNV/BNF Card MUAC ranges with the actual data.</li> <li>• Some PLW were not interested to receive the services and in some centre there was no female volunteer for PLW MUAC measurement.</li> <li>• Many PLW mother got newly pregnancy, confirmed by diagnosis but having no ANC card yet.</li> <li>• Some mother suffered complex disease long time and not go to take PLW services.</li> <li>• Relocation, marriage occurred between two camps and refugee-Bangladeshi people.</li> </ul>
Challenges:	<ul style="list-style-type: none"> <li>• The mobile network in the camp area was very poor(2G), and in some camps were completely out, as a result, the team faced difficulty communicating with respective Majhi, volunteers, or site supervisors, or consulting with the program manager on new difficulties.</li> <li>• During the initial stage of data collection, most of the Nutrition centers did not admit our referred children who were malnourished according to WHO Z-score criteria as centers are following the admission criteria as per interim guidelines where MUAC based admission is ongoing, not Z-score.</li> <li>• Difficulty to locate several sub-blocks provided by IOM database during area demarcation and mapping.</li> <li>• Some BNF were hesitant to show their identity card or BNF cards because they were afraid of being relocated to Bhasanchor.</li> <li>• Food sharing with other family members' children is a very common issue and food selling is not a new issue in Refugee camps to get some family products.</li> </ul>

Observation	Descriptions ( <a href="#">Link with evidence</a> )
	<ul style="list-style-type: none"> <li>• A hilly terrain and a long distance from a nutrition facility are obstacles for unidentified beneficiaries.</li> <li>• Some blocks were not correctly segregated, resulting in HH from different sub blocks being mixed together.</li> <li>• Due to the handover process of some nutrition facilities to other partners interprets the normal Nutrition activity on certain camps.</li> </ul>

## ANNEX 4: WEIGHTING, CHI-SQUARED TEST AND 95% CONFIDENCE INTERVAL CALCULATIONS

Weighting calculations for OTP coverage (expanded MUAC only admission criteria)

	Total population children aged 6-59 months (a)	SAM prevalence (b)	Estimated no. of SAM cases (N)	Weighting factor (w)	Estimated coverage	Weighted coverage
			$N = a \times b$	$w = \frac{N}{\sum N}$	$\frac{c}{n}$	$w \times \frac{c}{n}$
Zone 1	29,764	1.30%	387	0.24	0.88	0.21
Zone 2	31,369	1.30%	408	0.26	0.82	0.21
Zone 3	27,003	1.30%	351	0.22	0.73	0.16
Zone 4	15,125	1.30%	197	0.12	0.88	0.11
Zone 5	19,411	1.30%	252	0.16	0.86	0.14
<b>Sum</b>	<b>122,672</b>		<b>1,595</b>			<b>82.8%</b>

Chi-square test calculations for OTP coverage results (expanded MUAC-only protocol)

	Total (n)	Observed covered cases (O)	Expected covered cases (E)	$O - E$	$(O - E)^2$	$\frac{(O - E)^2}{E}$
Zone 1	69	61	57.00	4.00	16.00	0.2807
Zone 2	65	53	53.70	-0.70	0.48	0.0090
Zone 3	66	48	54.52	-6.52	42.53	0.7801
Zone 4	26	23	21.48	1.52	2.32	0.1078
Zone 5	50	43	41.30	1.70	2.88	0.0696
<b>Sum</b>	<b>276</b>	<b>228</b>	<b>228</b>			<b>1.2473</b>

The critical value for the five survey areas is 9.49. As 1.2473 is not greater than 9.49, this indicates that the coverage of OTP services (based on the expanded MUAC-only admission criteria) is not patchy.

Calculation of confidence interval for OTP coverage (Expanded MUAC-only protocol)

	w	w <sup>2</sup>	$\frac{c}{n}$	$1 - \frac{c}{n}$	$\frac{w^2 \times \frac{c}{n} \times (1 - \frac{c}{n})}{n}$
Zone 1	0.24	0.059	0.88	0.12	0.00009
Zone 2	0.26	0.065	0.82	0.18	0.00015
Zone 3	0.22	0.048	0.73	0.27	0.00015
Zone 4	0.12	0.015	0.88	0.12	0.00006
Zone 5	0.16	0.025	0.86	0.14	0.00006
<b>Sum</b>					<b>0.00050</b>

The 95% confidence interval (CI) is:

$$95\% CI = 0.0828 \pm 1.96 \times \sqrt{0.00050} = \{78.42, 87.23\}$$

#### Weighting calculations for OTP coverage (WHO admission criteria)

	Total population children aged 6-59 months (a)	SAM prevalence (b)	Estimated no. of SAM cases (N)	Weighting factor (w)	Estimated coverage	Weighted coverage
			$N = a \times b$	$w = \frac{N}{\sum N}$	$\frac{c}{n}$	$w \times \frac{c}{n}$
Zone 1	29,764	1.30%	387	0.24	0.78	0.19
Zone 2	31,369	1.30%	408	0.26	0.72	0.18
Zone 3	27,003	1.30%	351	0.22	0.56	0.12
Zone 4	15,125	1.30%	197	0.12	0.68	0.08
Zone 5	19,411	1.30%	252	0.16	0.72	0.11
<b>Sum</b>	<b>122,672</b>		<b>1,595</b>			<b>69.4%</b>

#### Chi-square test calculations for OTP coverage results (WHO admission criteria)

	Total (n)	Observed covered cases (O)	Expected covered cases (E)	$O - E$	$(O - E)^2$	$\frac{(O - E)^2}{E}$
Zone 1	78	61	53.64	7.36	54.17	1.0100
Zone 2	75	54	51.58	2.42	5.87	0.1139
Zone 3	86	48	59.14	-11.14	124.13	2.0988
Zone 4	34	23	23.38	-0.38	0.15	0.0062
Zone 5	60	43	41.26	1.74	3.02	0.0733
<b>Sum</b>	<b>333</b>	<b>229</b>	<b>229</b>			<b>3.3021</b>

The critical value for the five survey areas is 9.49.3.3021 is not greater than 9.49 and indicates that the coverage of OTP services (based on WHO admission criteria) is not patchy.

#### Calculation of confidence interval for OTP coverage (WHO admission criteria)

	w	w <sup>2</sup>	$\frac{c}{n}$	$1 - \frac{c}{n}$	$\frac{w^2 \times \frac{c}{n} \times (1 - \frac{c}{n})}{n}$
Zone 1	0.24	0.059	0.78	0.22	0.00013
Zone 2	0.26	0.065	0.72	0.28	0.00018
Zone 3	0.22	0.048	0.56	0.44	0.00014
Zone 4	0.12	0.015	0.68	0.32	0.00010
Zone 5	0.16	0.025	0.72	0.28	0.00008
<b>Sum</b>					<b>0.00063</b>

The 95% confidence interval (CI) is:

$$95\% CI = 0.0694 \pm 1.96 \times \sqrt{0.00063} = \{64.45, 74.26\}$$

## ANNEX 5: BSFP COVERAGE ESTIMATIONS BY CAMP (CHILDREN U5)

Camps	BSFP In	BSFP Out	Total	Coverage	Lower 95% CI	Upper 95% CI
Camp 1 East	389	4	393	99%	98.0%	100.0%
Camp 1 West	353	12	365	97%	94.9%	98.5%
Camp 2 East	319	1	320	100%	99.1%	100.0%
Camp 2 West	251	5	256	98%	96.4%	99.7%
Camp 3	320	2	322	99%	98.5%	100.0%
Camp 4	299	6	305	98%	96.5%	99.6%
Camp 04 Extension	202	1	203	100%	98.5%	100.0%
Camp 05	257	6	263	98%	95.9%	99.5%
Camp 06	231	2	233	99%	98.0%	100.0%
Camp 07	243	1	244	100%	98.8%	100.0%
Camp 08 East	328	4	332	99%	97.6%	100.0%
Camp 08 West	357	13	370	96%	94.6%	98.4%
Camp 09	388	5	393	99%	97.6%	99.8%
Camp 10	351	6	357	98%	97.0%	99.7%
Camp 11	395	13	408	97%	95.1%	98.5%
Camp 12	272	14	286	95%	92.6%	97.6%
Camp 13	408	7	415	98%	97.1%	99.6%
Camp 14 (Hakimpara)	229	4	233	98%	96.6%	100.0%
Camp 15 (Jamtoli)	334	5	339	99%	97.2%	99.8%
Camp 16 (Potibonia)	211	3	214	99%	97.0%	100.0%
Camp 17	296	3	299	99%	97.9%	100.0%
Camp 18	338	4	342	99%	97.7%	100.0%
Camp 19	363	18	381	95%	93.1%	97.4%
Camp 20	281	5	286	98%	96.7%	99.8%
Camp 20 Extension	269	6	275	98%	96.1%	99.5%
Camp 21 (Chakmarkul)	268	3	271	99%	97.6%	100.0%
Camp 22 (Unchiprang)	348	6	354	98%	97.0%	99.6%
Camp 24 (Leda)	302	11	313	96%	94.4%	98.5%
Camp 25 (Ali Khali)	387	7	394	98%	96.9%	99.5%
Camp 26 (Nayapara)	242	19	261	93%	89.6%	95.9%
Camp 27 (Jadimura)	333	4	337	99%	97.7%	100.0%
Nayapara RC	293	6	299	98%	96.4%	99.6%
Kutupalong RC	315	4	319	99%	97.5%	100.0%
	<b>10172</b>	<b>210</b>	10382	<b>98%</b>	<b>97.7%</b>	<b>98.2%</b>

## ANNEX 6: BSFP COVERAGE ESTIMATIONS BY CAMP (PLW)

Camps	BSFP In	BSFP Out	Total	Coverage	Lower 95% CI	Upper 95% CI
Camp 1 East	116	9	125	93%	88.3%	97.3%
Camp 1 West	73	14	87	84%	76.2%	91.6%
Camp 2 East	69	7	76	91%	84.3%	97.3%
Camp 2 West	80	3	83	96%	92.4%	100.0%
Camp 3	100	5	105	95%	91.2%	99.3%
Camp 4	71	7	78	91%	84.7%	97.4%
Camp 4 Extension	51	1	52	98%	94.3%	100.0%
Camp 5	49	5	54	91%	83.0%	98.5%
Camp 6	51	3	54	94%	88.3%	100.0%
Camp 7	58	5	63	92%	85.4%	98.7%
Camp 8 East	87	10	97	90%	83.6%	95.7%
Camp 8 West	60	19	79	76%	66.5%	85.4%
Camp 9	95	12	107	89%	82.8%	94.8%
Camp 10	83	9	92	90%	84.1%	96.3%
Camp 11	99	13	112	88%	82.5%	94.3%
Camp 12	66	14	80	83%	74.2%	90.8%
Camp 13	77	9	86	90%	83.1%	96.0%
Camp 14 (Hakimpara)	41	4	45	91%	82.8%	99.4%
Camp 15 (Jamtoli)	65	11	76	86%	77.6%	93.4%
Camp 16 (Potibonia)	44	2	46	96%	89.8%	100.0%
Camp 17	70	3	73	96%	91.3%	100.0%
Camp 18	76	3	79	96%	92.0%	100.0%
Camp 19	93	18	111	84%	76.9%	90.6%
Camp 20	85	3	88	97%	92.8%	100.0%
Camp 20 Ext	69	0	69	100%	100.0%	100.0%
Camp 21 (Chakmarkul)	47	7	54	87%	78.1%	96.0%
Camp 22 (Unchiprang)	69	7	76	91%	84.3%	97.3%
Camp 24 (Leda)	75	6	81	93%	86.9%	98.3%
Camp 25 (Ali Khali)	83	6	89	93%	88.0%	98.5%
Camp 26 (Nayapara)	51	9	60	85%	76.0%	94.0%
Camp 27 (Jadimura)	69	3	72	96%	91.2%	100.0%
Nayapara RC	81	3	84	96%	92.5%	100.0%
Kutupalong RC	74	4	78	95%	90.0%	99.8%
	<b>2377</b>	<b>234</b>	2611	<b>91%</b>	<b>89.9%</b>	<b>92.1%</b>

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