2022 NUTRITION SURVEY

OF REFUGEE CAMPS ALONG THE THAILAND-MYANMAR BORDER

The Border Consortium

PREPARED BY THE BORDER CONSORTIUM

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This report contains the following information:

ACRONYMS

ANC	Antenatal Clinic
AS	Angular Stomatitis
BCC	Behaviour Change Communication
BDY	Ban Don Yang
BMN	Ban Mai Nai Soi
BMS	Ban Mae Surin
CCSDPT	Committee for Coordination of Services to Displaced Persons in Thailand
CI	Confidence Interval
CMT	Community Managed Targeting
EBF	Exclusive Breastfeeding
FCS-N	Food Consumption Score – Nutritional Quality Analysis
GAM	Global Acute Malnutrition
GCM	Global Chronic Malnutrition
GM&P	Growth Monitoring and Promotion
HH	Households
HHS	Household Hunger Scale
ID	Iron Deficiency
MIYCF	Maternal Infant and Young Child Feeding
MLA	Mae La
MLO	Mae La Oon
MRML	Mae Ra Ma Luang
MUAC	Mid-Upper Arm Circumference
MV	Most Vulnerable
NP	Nu Po
PDM	Post-Distribution Monitoring
TBC	The Border Consortium
SR	Self-Reliant
STD	Standard
SFP	Supplementary Feeding Programme
TFP	Therapeutic Feeding Programme
TH	Tham Hin
TPD	Total Population Database
UMP	Umpiem Mai
UNHCR	United Nations High Commissioner for Refugees
V	Vulnerable
WFP	World Food Programme
WHO	World Health Organization

ACKNOWLEDGEMENTS

We are particularly grateful for the assistance given by the Institute of Nutrition Mahidol University, specifically, Ajarn Wanphen Wimonpeerapattana and Khun Panrawee Praditsorn. Their continued partnership and technical assistance in data entry and analyses were invaluable to this report.

We would like to give special thanks to our health agency partners, the International Rescue Committee and Malteser International, as well as the CBO partners in camps who assisted during the survey. Thank you for your continued support, especially during the transition to use KoboToolbox on Android devices, to conduct the survey in 2022.

Finally, without the support of the refugee leaders and community members, conducting the biennial nutrition survey would not be possible. Our gratitude for the time and care you showed in prioritizing nutrition for the community, particularly during the challenging COVID-19 period.

DEFINITIONS AND BENCHMARKS

Malnutrition

TERM	MEASURE	CUTOFF (WHO)
Acute Malnutrition - Wasting		
global acute **(GAM)**	Weight-for-height MUAC	<-2 z-scores <12.5 cm
moderate acute	Weight-for-height MUAC	-2 to ≥-3 z-scores 12.5 cm to ≥11.5 cm
severe acute	w/h or edema MUAC	<-3 z-scores <11.5 cm
Chronic Malnutrition - Stunting		
global chronic **(GCM)**	Height-for-age	<-2 z-scores
moderate chronic		<-2 to ≥-3 z-scores
severe chronic		<-3 z-scores

WHO Classification: Global Acute Malnutrition (2018)

Severity	Prevalence in <5 population
very low	<2.5%
low	2.5 - <5%
med	5 - <10%
high	10 - <15%
very high	≥15%

WHO Classification: Global Chronic Malnutrition (2018)

Severity	Prevalence in <5 population
very low	<2.5%
low	2.5 - <10%
med	10 - <20%
high	20 - <30%
very high	≥30%

Micronutrient Malnutrition

Angular stomatitis - presence of bilateral fissures on corners of mouth (fresh wounds or scars) as symptom of ariboflavinosis (vitamin B_2 deficiency).

Selective Feeding Programmes

Selective feeding programme enrolment rate – number children <-2 z-scores weight-for-height / number children <-2 z-scores weight-for-height enrolled in selective feeding programme during time of survey. Selective feeding programme enrolment rate should be >90% in formal camps (Sphere, 2018).

Vitamin A

Vitamin A coverage - number of children with record of receiving vitamin A dose within past six months / number of children screened. Vitamin A coverage should be >95% in children 6-59 months of age receive appropriate dose (Sphere, 2018).

EXECUTIVE SUMMARY

Background

In 2022, TBC and CCSDPT Health Agencies conducted the biennial nutrition survey of children from birth to 59 months of age in all nine camps in Thailand for refugees from Myanmar. Due to COVID-19 restrictions, it was postponed from 2021.

Methods

Random sampling was used to select households (HH) with children from birth to 59 months of age in all camps using TBC's Total Population Database (TPD). TBC trained health agency staff to implement surveys using KoboToolbox on Android devices in all camps and supervised all surveys to completion. Data was analyzed using SPSS software (version 19). The WHO Child Growth Standards were used to report principal anthropometry results.

Results

A total of 3,341 children were surveyed in all nine camps.

Malnutrition Rates

An average of **3.5%[1] of children surveyed were found with global acute (wasting) malnutrition borderwide. Wasting rates for children <five years of age are stable and within the 'low'** criteria (Graph 1.5) according to the World Health Organization (WHO) benchmarks (2018). Wasting in camps remains lower than in Thailand and Myanmar.

By age group, the highest rates of wasting malnutrition were found in children 12-23 months of age in all camps (Table 1.2), although this was only a small number of children (n=28).

Significant progress was achieved in reducing stunting with 4.3% reduction from 2019 (19.3% reduction from 2013-2022). An average of **21.5% (range 9.4%-33.3% by camp borderwide) of children surveyed were found with global chronic (stunting) malnutrition**. BMN is the first camp to reach a 'low' level at 9.4%. BMS, ML and UM are considered in the 'medium' level with only MLO considered 'very high'. Stunting in the camps is higher than in Thailand but lower than in Myanmar. Graph 1.6 highlights stunting prevalence in previous nutrition surveys conducted – it is evident that there is continued notable progress, and, in 2022 (as in 2019) **every camp had a reduction in stunting.**

Feeding Practices

Maternal Nutrition

Most mothers reported attending the Antenatal Clinic (ANC) as soon as they knew they were pregnant **(98.0%).** Of first ANC visits, 81.1% were within one to three months of the pregnancy. Previously, 21.3% did not attend until ≥ four months during the pregnancy, now improved to 18.2% in this survey (Table 1.7, by camp).

For maternal nutrition education, the **benefits of weight gain during pregnancy related to the mother's health were not well understood** (same as in previous survey); however, the benefits of weight gain during pregnancy as related to the child's health (promote child growth and development) were understood better than the other benefits related to

[1] The 2022 Biennial Nutrition Survey was the first survey to include children <6 months of age as previously the targeted age was 6-59 months. As well, this first time MUAC measurements that identified children as acutely malnourished where WHZ scores did not were added to the overall acute malnutrition prevalence. When compared directly to 2019 survey results (excluding children <6 months of age and children identified only by MUAC as acutely malnourished, the prevalence is 3.2% which is not statistically significantly different than that reported in 2019. (2019: 2.2%, CI 1.8%, 2.7% vs 2022: 3.2%, CI 2.6%, 3.9%).

maternal weight gain (60.1% similar to that reported in 2019 survey - 66.2%).

Food consumption during pregnancy and breastfeeding was reported as best practised in relation to overall food and iron intake. In 2019, food consumption during pregnancy was reported as best practised related to iron intake and during breastfeeding, in relation to iron and amount of food consumed (Graphs 1.9-2.2). Protein intake was reported as 'poorest' in both 2019 and 2020.

There was **high compliance for supplementation with iron, vitamin B1 and folic acid during pregnancy and breastfeeding** (range 84.1%-95.1%, Table 1.8), similar to 2019 (range 88.0%-98.0%); however, for vitamin A, only 60.5% was reported in 2022.

Breastfeeding

Most (79.1%) followed the recommended practice for breastfeeding initiation (newborn put to the breast immediately or within one hour after birth) (85.9%, 2019).

The recommendation is to breastfeed until 24 months of age. It was found that the mean duration borderwide was 20.4 months, similar to that reported in 2019 (20.9 months; Table 1.9). Exclusive breastfeeding (EBF) (just breastmilk with no liquids or foods, including water) duration was 5.0 months (six months is recommended; Table 2.0).

Complementary Feeding

Complementary feeding initiation is recommended at six months of age. Early initiation of complementary feeding was reported by 13.6% of those surveyed (similar to 2019 at 13.0%).

Micronutrient Deficiency – Riboflavin (Vitamin B2)

Of children surveyed, **0.8% (n=26) were diagnosed with angular stomatitis** (AS), a symptom of ariboflavinosis (vitamin B_2 deficiency, similar to 2019 (0.9% or n=34). While there is no Sphere criterion to indicate a problem of public health significance, AS continues to **decrease since 2013 when it was the highest of all the surveys, 3.8%** (Graph 2.4).

Supplementary/Therapeutic Feeding Programme (SFP/TFP) Enrolment

Feeding Programme **enrolment for moderate and severely wasted children was 13.3% and 7.7%**, respectively, indicating that not all malnourished children had been identified.

Vitamin A/De-worming

Vitamin A supplementation coverage has improved since 2007 when it was only at 25.1%. However, the coverage in 2022 was 55.6% (2019, 59.7%) (Sphere standard is >95% of children <five years of age receive six monthly preventive doses; Graph 2.5).

De-worming coverage was 66%, (2019, 64.1%) of children receiving anti-helminths within the past six months.

Of note, over 800 children's records had missing data for vitamin A and de-worming coverage combined.

RECOMMENDATIONS

Wasting

Closely monitor acute malnutrition in the camps post-COVID restrictions. This includes monthly report data (i.e., SFP/TFP enrolment trends).

Stunting

1. Continue community based MIYCF Campaign with behaviour change communication (BCC) and Growth Monitoring & Promotion (GM&P) in all camps, targeting families with

children 6-24 months of age, while promoting healthy maternal status as part of the campaigns.

2. Ensure MIYCF activities are relevant not only to mothers but to other family members who influence childcare decisions (e.g., grandmothers, fathers, youth and community influencers such as faith-based leaders).

3. Use in-person contact to deliver key nutrition messages in camps to re-energize post-COVID efforts with FSN staff and camp residents; however, continue to explore and use social media platforms such as Facebook, YouTube, etc. to deliver key relevant messages in each camp.

4. Continue to train health workers and community facilitators to collaborate and conduct uniform, intensive MIYCF promotion activities in all camps using standardized ToT Nutrition Curriculum. Ensure FSN camp-based staff focal point has capacity to lead these activities. Basic modules may need focus with junior staff post-COVID-19 who have not had the benefit of in-person training recently.

5. Adapt current evidence and best practices into on-going and future programme planning and implementation. Share broadly in regional conferences and peer-reviewed journals.

MIYCF Practices

Maternal Nutrition

1. Maternal nutrition education sessions are an opportunity to promote the importance of ANC visit as soon as a pregnancy is known. All IYCF-related campaigns should include this message. Work closely with health agencies to continue to decrease the frequency of mothers who do not attend ANC early on, especially in MLA camp.

2. Health benefits of weight gain for the mother during pregnancy need to be emphasized to improve understanding and support and sustain behaviour change, particularly with new mothers who may not have had many opportunities for education during COVID-19 restrictions over the past couple of years.

3. Protein and iron consumption during pregnancy and breastfeeding need to be promoted as many reported consuming less frequently or eating the same amounts as when they were not pregnant or breastfeeding. This topic should also be discussed during cooking demonstrations to determine if there are any new barriers to protein and iron consumption during pregnancy and breastfeeding.

4. The survey results showed that vitamin A and folic acid supplementation was less frequently reported during pregnancy or breastfeeding than in the previous survey. This should be followed up with the health agencies as it could be that due to COVID-19 restrictions over the past couple of years in the camps, supplements were not able to be given as routinely as previously.

Breastfeeding

While **EBF duration slightly (but significantly) improved, continued focus is needed to reach the recommendation for EBF until six months of age**, especially in UM and BDY camps. Continue to encourage and promote a supportive environment, discussing in small group sessions as well as featuring more

prominently post-COVID-19 during World Breastfeeding Week (August).

Complementary Feeding

Include messaging in MIYCF-related sessions to continue to strengthen behaviour change on timing of initiating complementary feeding as there was no improvement in practice since the 2019 survey.

Micronutrient Deficiency – Riboflavin (Vitamin B2)

1. Focus on diet diversity in nutrition key messages to continue to prevent deficiencies. Focus on foods that will provide key nutrients, including benefits and ingredients in BabyBRIGHT and Asia*RE*Mix. It was shown in particular for BabyBRIGHT that the connection to preventing stunting was not well understood.
2. Utilize FCS vendor shops as an opportunity to promote diet diversity at point of sale, including providing education and signage to vendors.

SFP/TFP Enrolment

1. One factor contributing to the low enrolment is the 'low' rate of wasting for moderately and severely malnourished children. The denominator is small so even one malnourished child not identified contributes to a low enrolment rate.
2. Another possible explanation for the very low coverage rates in this survey could be due to the COVID-19 restrictions during the last couple of years in the camps. With movement restricted for some periods of time to prevent infections during high transmission periods, children may not have been taken to routine GM&P, which is the main way malnourished children are identified and referred to SFP/TFP.
3. While the acute malnutrition rates are 'low', close monitoring is critical as children can become acutely malnourished rapidly with negative consequences.
4. Even with the small numbers affecting enrolment, develop new ways to identify wasted children in the community without solely relying on attendance at GM&P to identify wasted children.

Vitamin A/De-worming

1. Continue to follow TBC SFP Guidelines 2022 vitamin A protocol for children, pregnant women and nursing mothers, documenting in standard health card.
2. Continue to provide anti-helminths six-monthly for all children 1-12 years of age, documenting de-worming in standard health card.
3. Health agencies to ensure staff understand importance and standardized location for documenting both vitamin A supplementation and de-worming. There were >800 cases of missing data for both vitamin A and de-worming coverage. This is likely due to COVID-19 movement restrictions on children receiving the doses and also ability to properly document in the health records (no touch methods during COVID-19).

BACKGROUND

TBC and CCSDPT Health Agencies conducted nutrition surveys of children from birth to 59 months of age in all nine camps in 2022. These **surveys are conducted biennially to estimate the prevalence and examine trends in acute (wasting) and chronic (stunting) malnutrition; micronutrient deficiencies; SFP enrollment, de-worming and vitamin A supplementation coverage; and feeding practices** in the refugee population in nine camps in Thailand. Due to COVID-19 restrictions, the survey was postponed from 2021.

Child Growth and Nutrition Indicators

This report presents the prevalence of two key indicators - **weight-for-height and MUAC (wasting)** and **height-for-age (stunting)** - for malnutrition as recommended by the World Health Organization (WHO), the United Nations High Commissioner for Refugees (UNHCR), and the World Food Programme (WFP).

Wasting is generally indicative of recent and severe weight loss, often associated with acute starvation and/or recent disease. It is considered the best indicator of acute malnutrition and a strong predictor of mortality among children less than five years of age.

Stunting is generally indicative of a chronic process resulting from suboptimal nutrition and/or health conditions. Stunting may have long-term effects, negatively impacting cognitive development, school performance and maternal reproduction. Ultimately, stunting may adversely impact the economic growth potential of a country.

This report provides by camp and borderwide prevalence of wasting and stunting in children less than five years of age. Surveys were completed from May through November 2022 in all nine camps.

METHODOLOGY

SAMPLING

Sample Size Calculation (using 95% confidence level and a design effect of one)**:**

$$n = \frac{k \times t^2 \times (1-p) \times p}{\square^2}$$

n= sample size
k= design effect- for simple random sample, use 1
t= 1.96 for 95% confidence level
p= estimated prevalence of malnutrition
□= precision

The minimum sample size of children for each camp was calculated using estimated prevalence (based on 2019 survey results of 25.8% and 2.2% for chronic and acute malnutrition, respectively, and desired precision, with 10% added to account for non-respondents, resulting in a sample size of at least 343 children per camp.

Estimated Prevalence of Malnutrition	Precision	Minimum Sample Size	Minimum Sample +10%
30% chronic	5%	311	343
3% acute	2%	271	299

SAMPLING PROCESS

The TBC Total Population Database (TPD) was used to select HH and children for the surveys in the nine camps.

Steps for random selection of HH with children and individual children:

1. The most recent TPD (monthly camp dataset, usually for two months prior to field work) was used to develop the sample frame for each camp.
2. Required variables for sampling were selected from the TPD and cleaned and recoded in MS Excel. This included coding all individual children within the age range of birth-59 months, based on their age in days from their birth date.
3. A list of all HH heads with children birth-59 months was generated as the sample frame for random selection of HH in each camp.
4. Random selection of HH, from among all HH heads with children from birth-59 months, was completed using an MS Excel Addin "Random Sorter for Excel". The required minimum sample for each camp was 343 children, but random sample selection was by HH, so HH with children birth-59 months were selected. Children were therefore over-sampled, to allow for potential data errors or absences. Since BDY and BMS had less than a total of 343 HH with children birth-59 months of age in each camp, a census listing of these HH and their children were used for the nutrition survey in both camps.
5. The above process produced the final list of the random sample of HH heads and their children.
6. Field staff contacted the randomly selected HH to invite them to bring their children for interview and measurement at central interview stations.

Definitions and Inclusion Criteria

Children from birth-59 months of age were included in the survey. Children whose age was unknown were not included.

Definitions for global, moderate, and severe wasting and stunting were based on current WHO criteria (see Definitions and Benchmarks).

WHO Growth Standards were used to report principal anthropometry results.

Angular stomatitis (AS, riboflavin deficiency) was identified by trained staff. Last date of vitamin A supplementation and de-worming were determined using the child's health card.

SFP/TFP enrolment was obtained by asking the caregiver accompanying the child during the survey if the child was currently enrolled in either SFP or TFP.

Questionnaires & Training

Questionnaires were translated and back-translated into Burmese and Karen, pre-tested, with interviews conducted in the primary HH language. Key topics of the questionnaire were HH information; child health card data; and feeding practices (maternal nutrition, breastfeeding and complementary feeding). Additionally, a physical exam for bilateral angular stomatitis (B vitamin deficiency) was conducted, and weight, height and mid-upper arm circumference (MUAC) were measured (see Appendix 2, 2022 Nutrition Survey Questionnaire.)

In previous Nutrition Surveys, Household Hunger Scale (HHS) and Food Consumption Score, Nutritional Quality (FCS-N) were included. However, as these tools have been added to TBC's Quarterly Food Security Post-Distribution Monitoring (PDM) surveys in camps, they have been removed from the Biennial Nutrition Survey starting in 2022.

Survey Training

Survey teams for each camp were composed of TBC Food Security and Nutrition Officers (FSNO) and Health Agency staff (medics, nurses, community health workers and reproductive and child health workers). Teams were trained by the TBC Food Security and Nutrition Specialist (FSNS) and FSNO prior to the survey, which included a trial run of the survey process. Survey teams were supervised during the surveys by the TBC FSNS and/or FSNO, and by senior camp-based health agency staff.

Survey Procedures

HH were invited to participate according to a schedule developed by survey staff with particular care taken to ensure participants arrived at the central survey location in small numbers to prevent potential COVID-19 transmission. Additionally, the COVID-19 infection prevention and control (IPC) measures of hand washing/gel and mask wearing were reinforced. During all conduct of the survey, social distancing was followed closely.

Selected HH were surveyed even if the target number of children had already been reached. HH were requested to bring the child's health card, ration book and outpatient card to the survey.

Every child between birth-59 months in each selected HH was surveyed. If a child was found not to be between birth-59 months of age, they were not surveyed.

If a HH failed to come to the survey, runners followed up three times. If after three visits the HH was not available, they were no longer included in the survey and were not replaced.

Data Analysis

Data that had been uploaded to the secure KoboToolbox (which uses MS Excel) after each survey was completed were then downloaded, cleaned and imported into WHO Anthro (for anthropometic analysis) and SPSS version 19 for all other analyses. Data analyses were conducted by the Institute of Nutrition, Mahidol University.

Quality control included random checks of data, preliminary analysis to identify any mistakes, and review of all coded data entered. Plausibility checks were run on all data to identify errors in data collection and entry, and ensure that measurements were not skewed.

Exclusions included: age out of range or unknown; and anthropometric outliers (WHO flags: WHZ -5 to 5; HAZ -6 to 6; and MUAC measurements <9.0 cm).

RESULTS

AGE AND SEX DISTRIBUTION

3,341 children were surveyed in all nine camps (Table 1.0).

Table 1.0 Age and sex sample distribution

	Boys		Girls		Total		Ratio
AGE (mo)	No.	Column%	No.	Column%	No.	Column%	Boy:Girl
<6	106	6.5	110	6.5	216	6.5	1.0
6-11	152	9.3	158	9.3	310	9.3	1.0
12-23	322	19.6	351	20.7	673	20.1	0.9
24-35	345	21.0	326	19.2	671	20.1	1.1
36-47	350	21.3	378	22.3	728	21.8	0.9
48-59	368	22.4	375	22.1	743	22.2	1.0
Total	**1,643**	**100.0**	**1,698**	**100.0**	**3,341**	**100.0**	**1.0**

- Survey respondents **consisted primarily of mothers (88.8%)**, with a small number of fathers (5.3%) and grandparents (3.2%). The range of education of the mothers was large, 0 -19 yrs, with 15.6% reporting they had not attended school. **71.7% had ≤10 yrs of education.** By camp, the range of mothers who had not attended school was **8.0% (TH) up to 22.7% (MLA).**
- Most (77.7%) identified their ethnicity as Karen; 13.4% Karenni; and 7.1% Burmese Muslim. The remainder of participants included Arakan, Burman, Chin, Kachin, Mon and Shan.

MALNUTRITION RATES

ACUTE (WASTING) MALNUTRITION

3.5% of children borderwide were found with global acute malnutrition (GAM) (Table 1.1)

- 26 children (0.8%) were severely wasted.
- Slightly more boys (3.9%, n=36) than girls (3.1%, n=53) were malnourished, but the difference was not statistically significant.

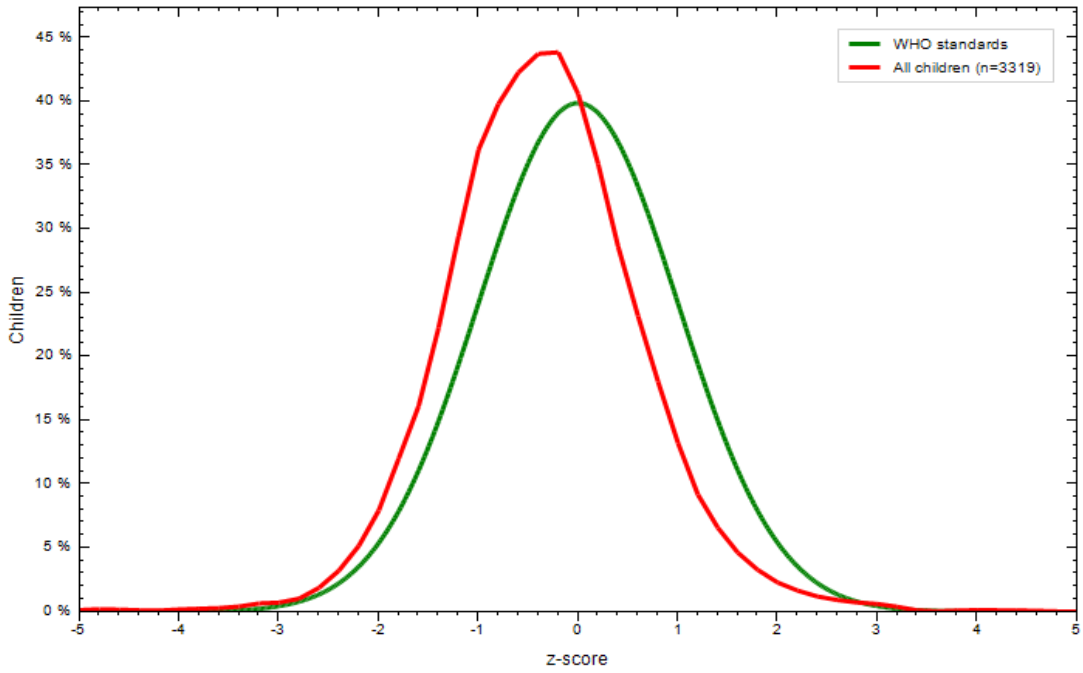
Table 1.1 Prevalence of acute malnutrition by sex

	All n = 3,331	**Boys** n = 1,636	**Girls** n = 1,695
Global malnutrition (<-2 z-score)	**3.5 %** (116) (2.9 – 4.2 95% CI)	**3.9 %** (63) (3.0 – 5.0 95% CI)	**3.1 %** (53) (2.4 – 4.1 95% CI)
Moderate malnutrition (<-2 z-score and ≥-3 z-score)	2.7 % (90) (2.2- 3.3 95% CI)	3.1 % (50) (2.3 – 4.0 95% CI)	2.4% (40) (1.7 – 3.2 95% CI)
Severe malnutrition (<-3 z-score)	0.8 % (26) (0.5 – 1.1 95% CI)	0.8 % (13) (0.5 – 1.3 95% CI)	0.8 % (13) (0.4 – 1.3 95% CI)

Mean z-score for weight-for-height

The mean z-score for weight-for-height (red curve below) was only slightly shifted left (-0.35 ± 1.1) compared to WHO standard normal distribution (green curve below), indicating population within normal limits for wasting malnutrition (Graph 1.0).

Graph 1.0 Weight-for-Height z-scores

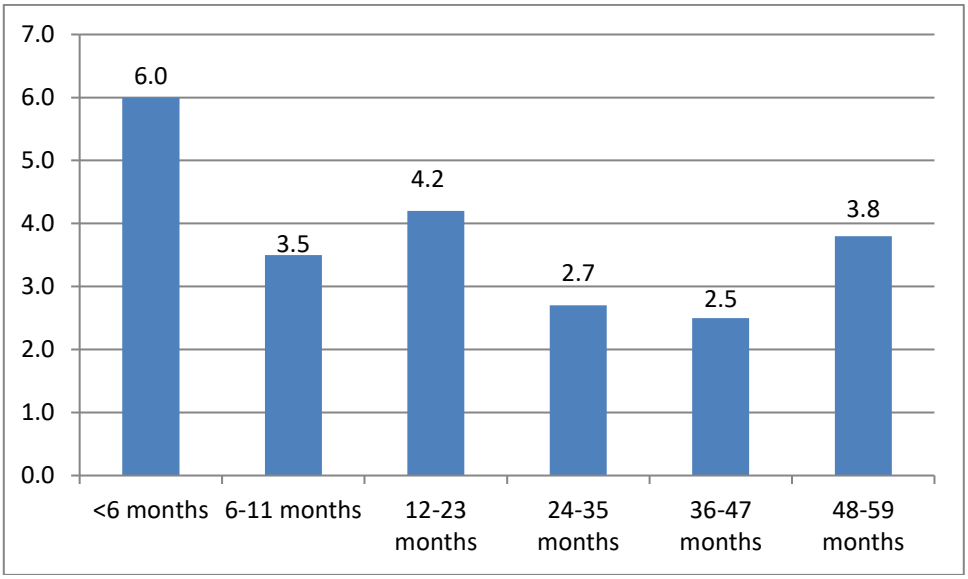


GAM prevalence was highest among children 12-23 months of age (Graph 1.1). Most children with GAM were moderately wasted (Table 1.2).

Table 1.2: Prevalence of acute malnutrition by age

		Global wasting (<-2)		Severe wasting (<-3)		Moderate wasting (>= -3 & <-2)		Normal (> = -2)	
Age (mos)	**Total no.**	**No**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	**216**	**13**	**6.0**	6	2.8	7	3.2	203	94.0
6-11	**310**	**11**	**3.5**	5	1.6	6	1.9	299	96.5
12-23	**671**	**28**	**4.2**	7	1.0	21	3.1	643	95.8
24-35	**669**	**18**	**2.7**	2	0.3	16	2.4	651	97.3
36-47	**726**	**18**	**2.5**	3	0.4	15	2.1	708	97.5
48-59	**739**	**28**	**3.8**	3	0.4	25	3.4	711	96.2
Total	**3,331**	**116**	**3.5**	26	0.8	90	2.7	3,215	97.2

Graph 1.1 Prevalence (%) of GAM by Age in Children from Birth-59 Months of Age Borderwide, 2022 (WHO)



The prevalence of acute (wasting) malnutrition rates by camp is presented in Appendix 1, Table 2

CHRONIC (STUNTING) MALNUTRITION

An average of 21.5% of children border-wide were found with global chronic malnutrition (Table 1.3)

- Of the boys surveyed, 22.8% were stunted compared to 20.3% of girls. 138 children (4.1%) were severely stunted (z score<-3), with more boys (4.6%, n=76) than girls (3.7%, 62) severely stunted. However, neither of these differences by gender were statistically significant.

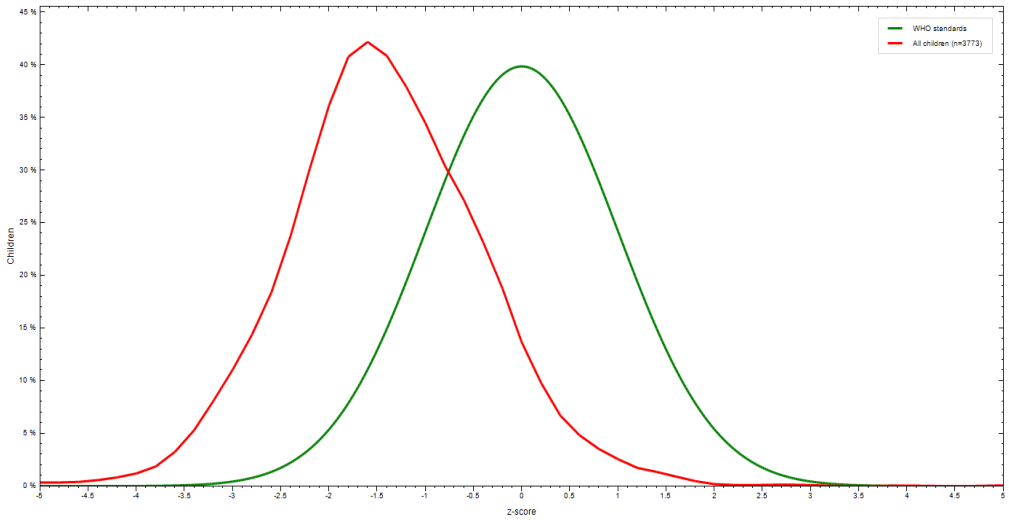
Table 1.3 Prevalence of stunting malnutrition (height-for-age z-score) by sex

CHRONIC – STUNTING – MALNUTRITION	All n = 3,337	Boys n = 1,641	Girls n = 1,696
Prevalence of stunting (<-2 z-score)	**21.5%** (719) (20.2-23.0 95% C.I.)	**22.8 %** (374) (20.8-24.9 95% C.I.)	**20.3 %** (345) (18.5-22.3 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	17.4 % (581) (16.2-18.7 95% C.I.)	18.2 % (298) (16.4-20.1 95% C.I.)	16.7 % (283) (15.0-18.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	4.1 % (138) (3.5-4.9 95% C.I.)	4.6 % (76) (3.7-5.8 95% C.I.)	3.7 % (62) (2.9-4.7 95% C.I.)

Mean z-score for height-for-age

The mean z-score for height-for-age (red curve below) was notably shifted to the left (mean z-score = -1.17 ± 1.1) as compared to WHO standard normal distribution (green curve below), indicating that stunting is a nutrition challenge in the population (Graph 1.2).

Graph 1.2 Height-for-Age Z-Scores

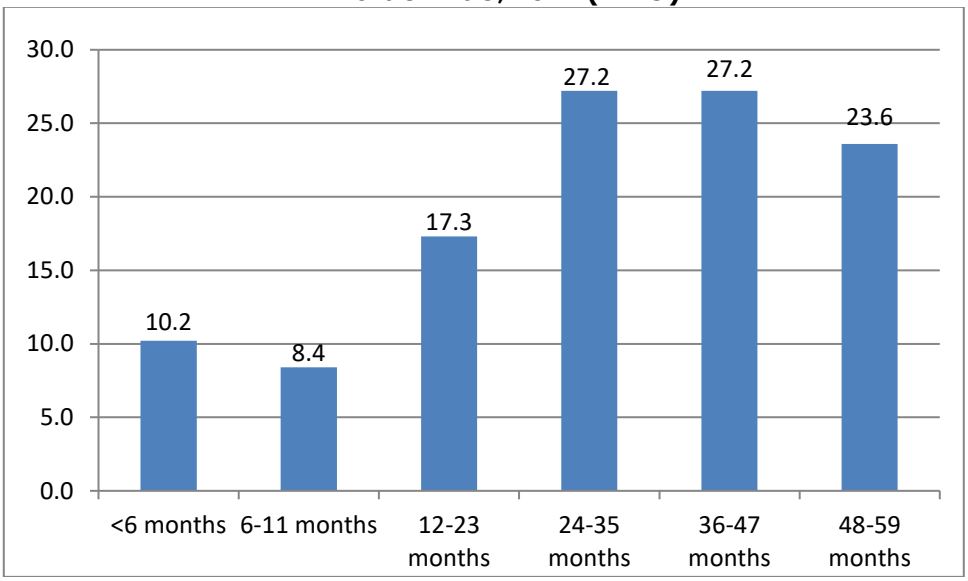


The prevalence of Global Chronic Malnutrition (moderate and severe stunting) was highest in children 24-47 months of age (Table 1.4, Graph 1.3).

Table 1.4 Prevalence of stunting by age (height-for-age z-score)

		Global stunting <-2 z score)		Severe stunting (<-3 z-score)		Moderate stunting (≥-3 & <-2 z-score)		Normal (≥-2 z-score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	**216**	**22**	**10.2**	5	2.3	17	7.9	194	89.8
6-11	**310**	**26**	**8.4**	1	0.3	25	8.1	284	91.6
12-23	**672**	**116**	**17.3**	23	3.4	93	13.8	556	82.7
24-35	**670**	**182**	**27.2**	38	5.7	144	21.5	488	72.8
36-47	**728**	**298**	**27.2**	42	5.8	156	21.4	530	72.8
48-59	**741**	**175**	**23.6**	29	3.9	146	19.7	566	76.4
Total	**3,337**	**742**	**21.5**	138	4.1	581	17.4	2,563	77.5

Graph 1.3 Prevalence Chronic Malnutrition by Age in Children 6-59 Months of Age, Borderwide, 2022 (WHO)



The prevalence of chronic (stunting) malnutrition rates by camp (Table 1.5) ranged from 9.4%-33.3%, considered 'low' to 'very high' according to WHO (2018, see Definitions and Benchmarks). Every camp showed a decrease in stunting.

Highest stunting rates continue to be in MLO and MRML (Table 1.5), although continued progress is noted in each successive survey.

Table 1.5 Global Chronic (Stunting) Malnutrition Prevalence by Camp

	2011	2013	2015	2017	2019	2022
	%					
BMN	25.8	24.8	22.3	18.8	13.6	9.4
BMS	48.8	35.6	32.9	30.1	20.6	14.9
MLO	53.6	49.7	40.5	41.7	36.3	33.3
MRML	48.8	49.2	38.4	38.3	33.6	28.6
MLA	32.8	37.8	30.0	25.0	21.4	19.5
UMP	35.7	42.6	36.6	26.0	19.2	17.1
NP	43.2	37.6	39.9	34.5	28.7	20.3
TH	40.1	42.6	34.3	34.9	25.5	20.8
BDY	44.3	44.6	41.1	33.9	25.5	22.8
Borderwide	**41.5**	**40.8**	**35.1**	**31.8**	**25.8**	**21.5**

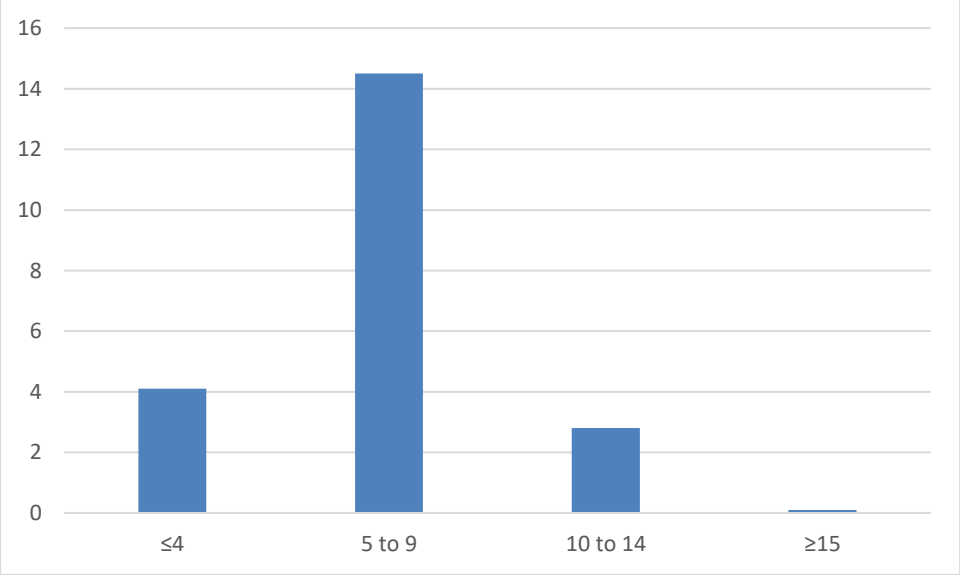
While stunting continues to decrease, at the borderwide level, it has not yet reached 'low' (<10%, WHO criteria, 2018). Further analyses were undertaken to consider other factors.

- Table 1.6 shows the distribution of the sample survey of HH by Community Managed Targeting (CMT)[2] Ration Category – the majority were considered Standard Ration (81.8%). Table 1.6 shows of those children identified as stunted, which CMT category as reported, which follows the overall survey participation distribution.
  - HH with five to nine family members had the highest rate of stunting compared to other HH sizes (Graph 1.4).

Table 1.6 HH CMT Ration Category

CMT Ration Category of HH	Percent in Survey Sample (N, %)	Global Chronic Malnutrition (Stunting)
Most Vulnerable	123, 3.7%	4.4%
Vulnerable	423, 12.7%	15.0%
Standard	2,732, 81.8%	80.0%
Self-Reliant	22, 0.7%	0.3%

Graph 1.4 Stunting Prevalence (%, Global Chronic Malnutrition) by Family Size

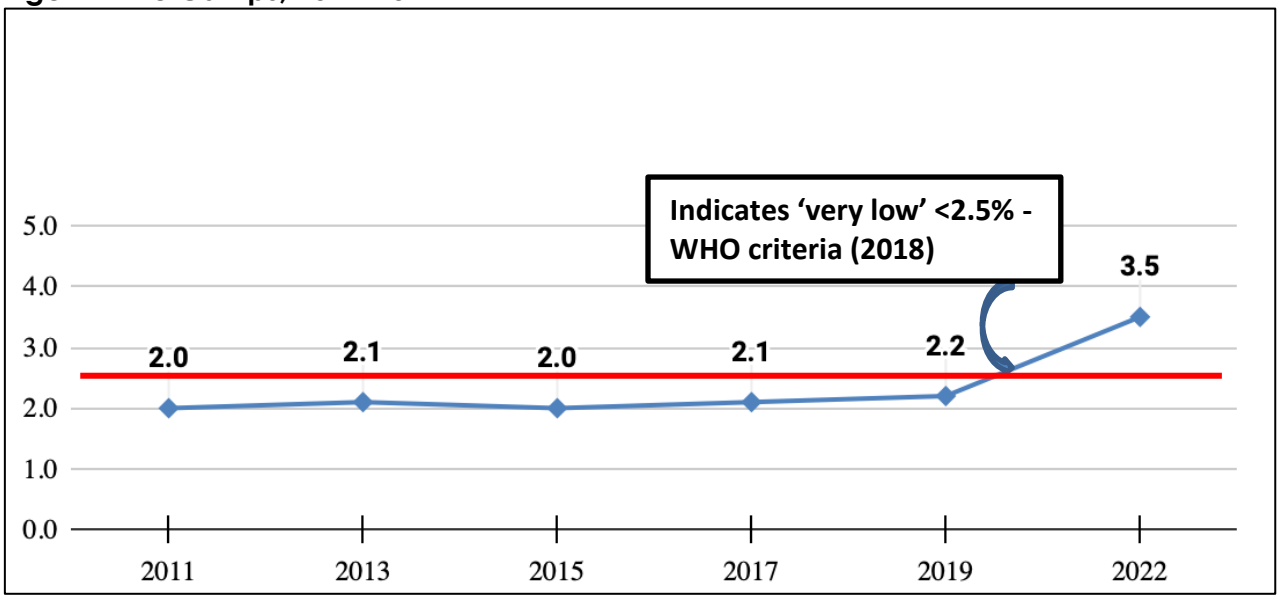


Trends in Rates of Acute & Chronic Malnutrition

The borderwide rate of acute malnutrition continues to be below the WHO benchmark considered 'low' (less than 5%).

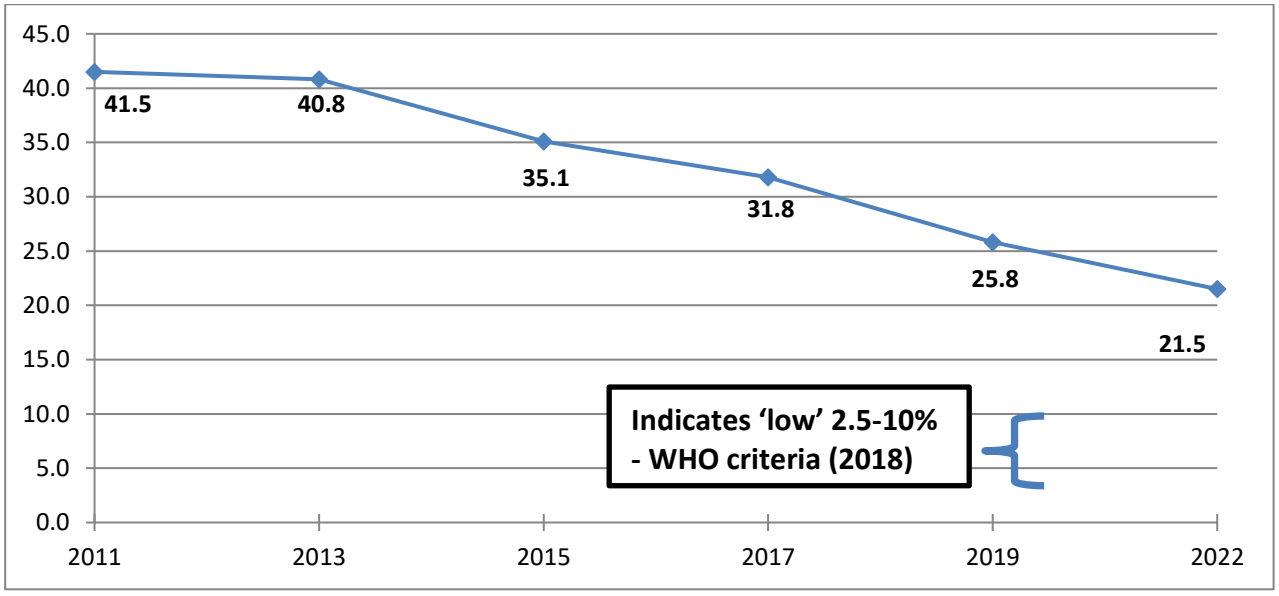
[2] Community Managed Targeting (CMT) is a system by which the refugee communities decide on the Food Assistance level provided in camps based on several factors including HH resources, vulnerability, needs, etc.

Graph 1.5 Prevalence of Acute – WASTING – Malnutrition in Children Birth-59 Months of Age in Nine Camps, 2011-2022



There is a clear downward trend in chronic malnutrition rates since 2013 (Graph 1.6), although the current level under updated WHO criteria (2018) is considered high (WHO criteria of 20% - <30%).

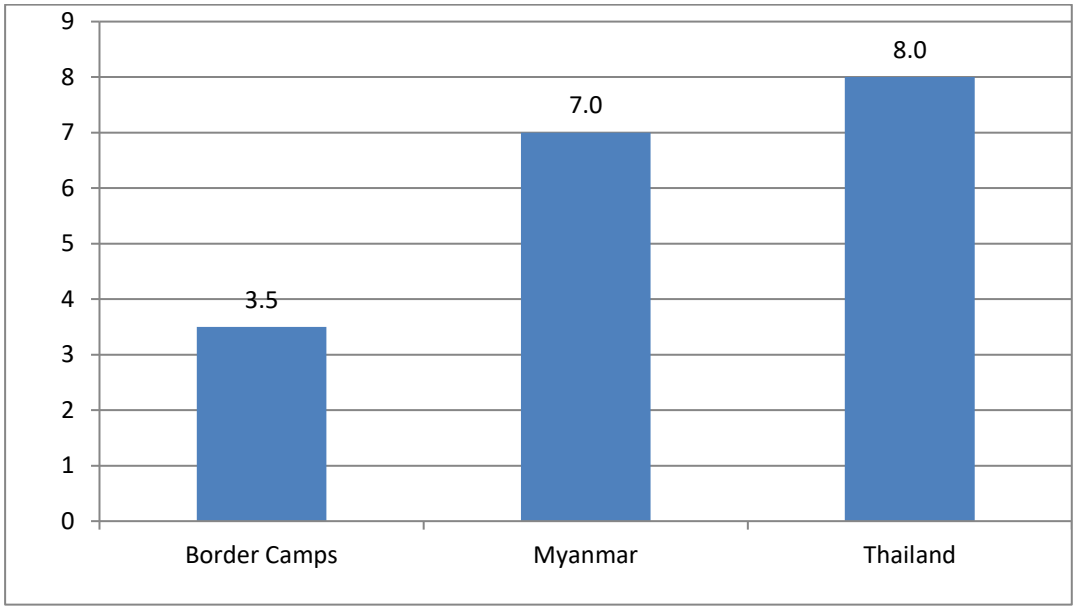
Graph 1.6 Prevalence of Chronic – STUNTING – Malnutrition in Children Birth-59 Months of Age in Nine Camps, 2011-2022



Regional Acute & Chronic Malnutrition Rate Comparisons

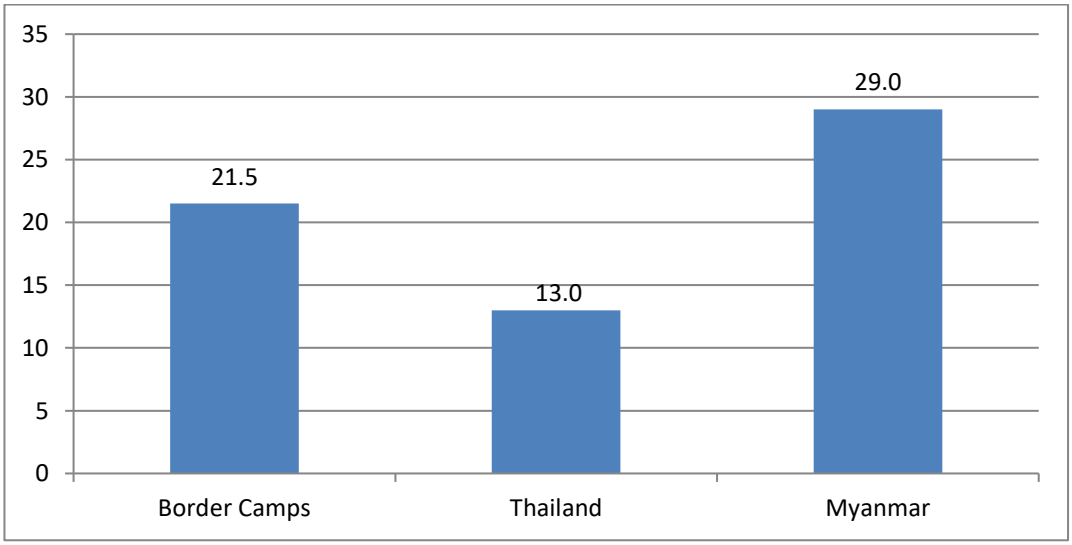
Acute malnutrition rates in camps remain considerably lower than in Thailand or Myanmar (Graph 1.7, Thailand and Myanmar data from Multiple Indicator Cluster Survey (MICS), 2019 and Myanmar DHS 2015-2016, respectively).

Graph 1.7 Comparison of Acute – WASTING – Malnutrition (%) in Children Birth-59 Months in Nine Camps, Thailand & Myanmar, 2022 (WHO)



Chronic malnutrition rates in camps are significantly higher than Thailand but lower than Myanmar. (Graph 1.8, Thailand and Myanmar data from 2019 MICS and Myanmar 2015-2016 DHS, respectively). Of note, stunting prevalence ranged from 20.0% in Yangon Region to 41.0% in Chin State.

Graph 1.8 Comparison of Chronic – STUNTING – Malnutrition (%) in Children Birth-59 Months in Nine Camps, Thailand & Myanmar, 2022 (WHO)



MIYCF PRACTICES

MATERNAL NUTRITION

ANTENATAL ATTENDANCE

- Most women (98.0%) reported attendance at ANC during their most recent pregnancy, with little variation by camp. The majority **(81.1%;** n=2,148) went to ANC between the **first one to three months of their pregnancy**. MLA **had >30%** of mothers who **did not attend ANC until four months or later during their pregnancy** (Table 1.7, n=2,706). Further, MLA was the only camp that did not decrease the length of time before the first ANC visit since the 2019 Biennial Nutrition Survey (MLA 30.0%, 2019).

Table 1.7. ANC Visits

Camps	ANC visit during most recent pregnancy (%, n)	≥4 Months during most recent pregnancy (%, n)
BMN	99.7 (352)	10.8 (35)
BMS	95.1 (155)	19.0 (17)
MRML	96.8 (329)	20.3 (36)
MLO	97.7 (340)	10.9 (19)
MLA	94.3 (316)	**30.5 (51)**
UMP	98.4 (315)	12.1 (19)
NP	100.0 (320)	19.9 (32)
BDY	99.5 (187)	16.2 (12)
TH	99.7 (336)	21.1 (38)
All Camps:	**98.0 (2,650)**	**16.8% (444)**

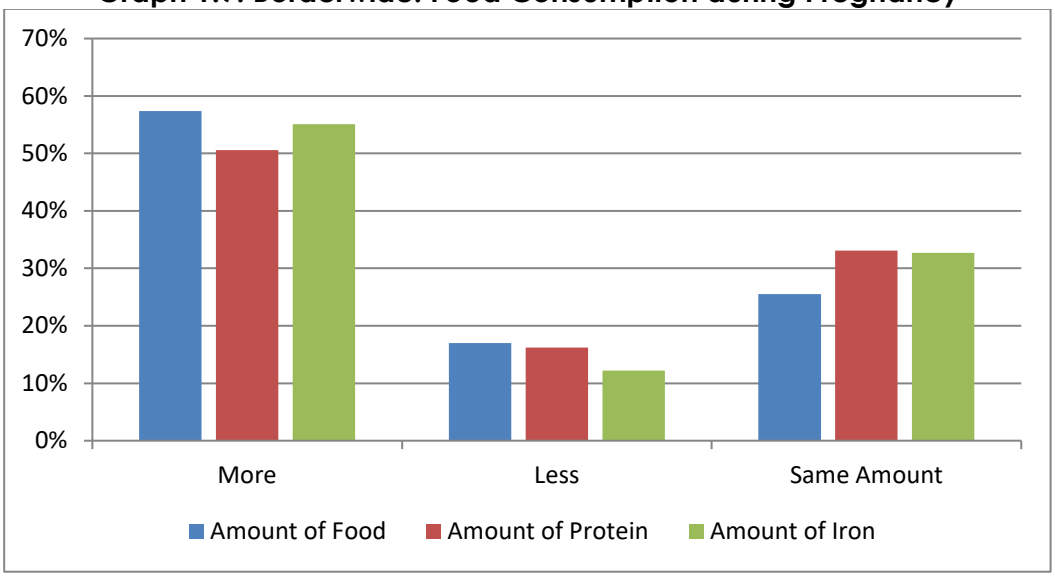
KNOWLEDGE OF BENEFITS OF WEIGHT GAIN DURING PREGNANCY

- The respondents' knowledge of the benefits of weight gain during pregnancy is presented in Appendix 1, Table 2. Borderwide, the benefits of weight gain during pregnancy still seem to be not well understood, with promoting child growth and development in early childhood best understood (60.1%) borderwide and by camp. Preventing anemia during pregnancy was least well understood.

FOOD CONSUMPTION DURING PREGNANCY

- Women were asked about how they ate during their most recent pregnancy, compared to when they were not pregnant (Graph 1.9). **Borderwide**, **best practices were for overall amount of food** consumed. These results were similar to the 2019 survey.

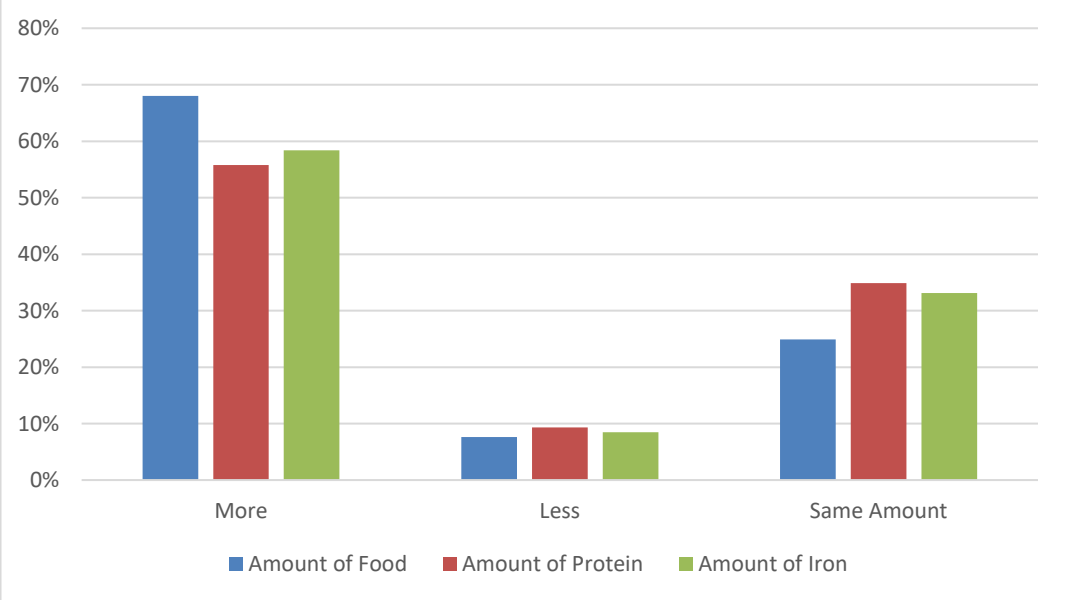
Graph 1.9. Borderwide: Food Consumption during Pregnancy



FOOD CONSUMPTION DURING BREASTFEEDING

- Women were also asked how they ate during the last time they were breastfeeding compared to when they were not breastfeeding (Graph 2.1 & Appendix 1, Table 4). As reported during pregnancy, **practices were best related to the overall amount of food** consumed.

Graph 2.1 Borderwide Food Consumption during Breastfeeding



SUPPLEMENTATION DURING PREGNANCY OR BREASTFEEDING

- Most women stated during pregnancy or breastfeeding they took **vitamin B1, iron, folic acid, multivitamin and vitamin A (Table 1.8).**
- Additionally, 40.5% reported taking vitamin C and 18% iodine. Compared to 2019, women reported lower intake of vitamin A (87.9%) and folic acid (97.6%) than in this survey.

Table 1.8 Supplementation during Pregnancy or Breastfeeding

n=2,704	Vitamin B1	Iron	Folic Acid	Multivitamin	Vitamin A
Yes	95.1%	93.6%	84.1%	65.8%	60.5%

BREASTFEEDING

Breastfeeding Initiation & Practices

- Borderwide, most women **(79.1%) had put their newborn to their breast immediately or within one hour after birth**, as recommended (**range 58.4% in BMN to 95.2% in BDY**).
- As in 2019, few women **reported never breastfeeding** (2.2, n=73).
- Borderwide, 4.6% (n=24) of mothers of children 6-24 months of age indicated that they were not currently breastfeeding, despite recommendations to do so (19.0% in 2019).
- Borderwide**, duration of breastfeeding** was **20.4 ± 0.3 months** (n=1,897), the same as in 2019 (20.9 months ± 0.2 months). All camps had similar durations of breastfeeding with **BDY the highest (20.9%) and the largest improvement** (Table 1.9).

Table 1.9 Duration (months) of Breastfeeding (mean ± SD)

Camp	2022	2019
BMN	19.8 ± 0.6	19.9 ± 0.4
BMS	21.1 ± 1.1	21.4 ± 0.7
MRML	22.1 ± 1.1	23.2 ± 0.6
MLO	17.5 ± 1.0	22.1 ± 0.5
MLA	21.6 ± 0.8	20.4 ± 0.5
UMP	20.3 ± 0.7	20.2 ± 0.5
NP	20.9 ± 0.5	19.3 ± 0.5
BDY	**24.8 ± 1.5**	20.4 ± 0.7
TH	18.7 ± 1.1	20.9 ± 0.6
All Camps:	**20.4 ± 0.3**	**20.9 ± 0.2**

- Borderwide, the mean **duration for EBF** was **5.0 ± 0 months (n=3,064)**, which was a slight but significantly increased difference from 2019. **EBF duration was increased for every camp except UM and BDY since the 2019 survey. The lowest duration (below borderwide mean) continued to be** in **TH**, **MLO and MLA, but not MRML in 2022** (Table 2.0).

Table 2.0 Duration of EBF 2019-2022

Camp	Months (mean ± SD)	
	2022	2019
BMN	5.7 ± 0	5.5 ± 0.1
BMS	5.4 ± 0.1	5.2 ± 0.1
MRML	5.2 ± 0.1	**4.2 ± 0.1**
MLO	**4.7 ± 0.1**	**4.0 ± 0.1**
MLA	**4.4 ± 0.1**	**4.1 ± 0.1**
UMP	5.2 ± 0.1	5.6 ± 0.1
NP	5.3 ± 0.1	5.2 ± 0.1
BDY	5.4 ± 0.1	5.8 ± 0.1
TH	**4.1 ± 0.1**	**3.9 ± 0.1**
All	**5.0 ± 0**	**4.7 ± 0**

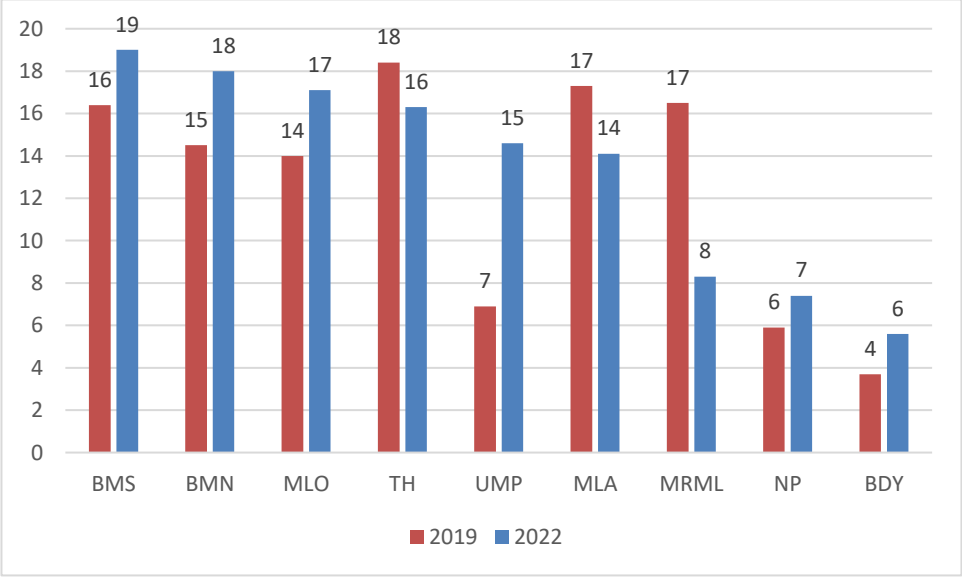
BENEFITS OF EBF

Most agreed that benefits of EBF were those directly related to the child's health (sufficient nutrients for baby and promotes optimum growth and development), similar to the 2019 Biennial Nutrition Survey. Two responses were added in 2022 ('saves time' and 'saves money'), which not many agreed with. By camp, results can help to inform programming of education and campaigns, targeting areas that need strengthening (Appendix 1, Table 5).

COMPLEMENTARY FEEDING

- Border-wide, 13.6% (the same as in 2019 at 13.1%) of mothers reported giving the first meal to their child before six months of age. Mothers in BDY (5.6%), NP (7.4%) and MRML (8.3%) were all below 10.0% of mothers initiating early complementary feeding (BDY and NP were also below 10.0% in 2019; Graph 2.3).

Graph 2.3 First Meal Given Before Six Months by Camp (%), 2019-2022



- 'Benefits of BabyBRIGHT (provided for children 6-24 months of age) - Borderwide, the least well understood benefit of BabyBRIGHT was protecting babies from infections, the same as in 2019 survey (Table 2.1), with prevents stunting only agreed with by 19.3% of survey participants.

Table 2.1 Benefits of BabyBRIGHT

	% Agree
Sufficient nutrients for baby	72.7
Promotes optimum growth & development	68.8
Prevents stunting	19.3
Protects baby from infections	17.4

MICRONUTRIENT DEFICIENCIES

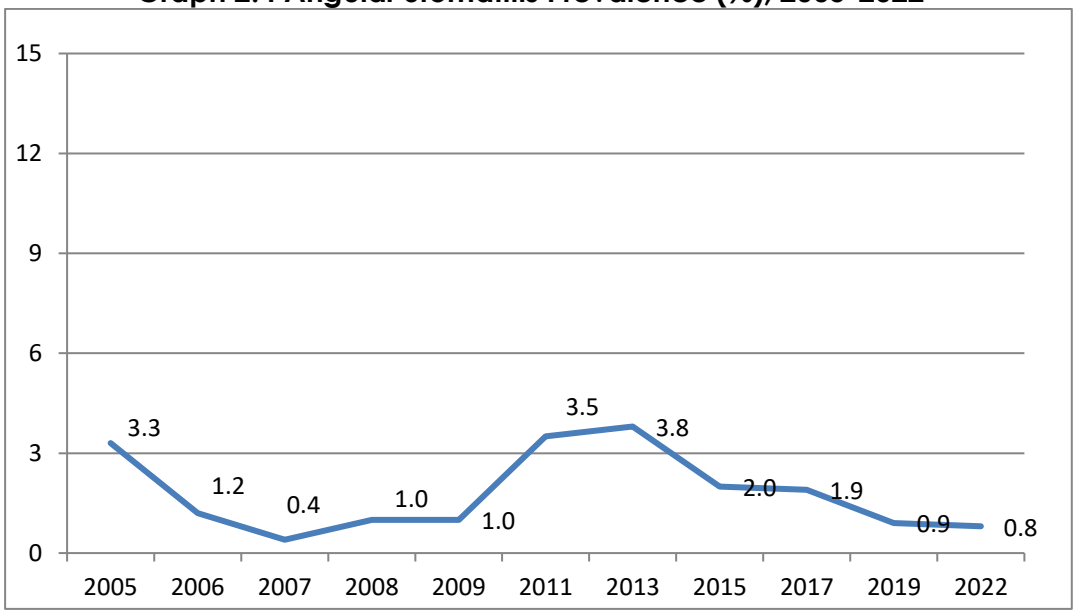
Of children surveyed, 0.8% (n=26)[3] 0.9% (n=34) were found with bi-lateral angular stomatitis (AS), a symptom of ariboflavinosis (vitamin B_2 deficiency (Table 2.2). AS also indicates general vitamin B deficiencies in a population. NP was the only camp with no AS cases. As shown in Graph 2.4, AS continues to decline since 2013 when it was at the highest rate reported for all previous nutrition surveys.

Table 2.2 Angular Stomatitis Prevalence

Camp	Children with AS (n)	Children with AS (%)	Total Screened
BMN	2	0.5	393
BMS	3	1.5	201
MRML	3	0.7	461
MLO	4	0.8	495
MLA	4	0.9	425
UMP	3	0.8	357
NP	0		380
BDY	2	0.9	215
TH	5	1.2	414
All Camps	**26**	**0.8**	**3,341**

[3] This was not significantly different than in 2019 (0.9%, n=34, CI 0.6%, 1.3%) as compared to 2022 (CI 0.5%, 1.1%), which shows CIs overlapping.

Graph 2.4 Angular Stomatitis Prevalence (%), 2005-2022



SUPPLEMENTARY/THERAPEUTIC FEEDING PROGRAMME ENROLMENT

SFP and TFP enrolment in a camp setting should be at least 90% (e.g., at least 90% of wasted children (<-2 weight-for-height z-score) are enrolled in feeding programmes; Sphere, 2018).

- Of the 90 children identified as moderately acutely malnourished, 12 (13.3%) were already enrolled in SFP (Table 2.3). Of the 26 children identified as severely acutely malnourished, two (7.7%) were enrolled in either SFP or TFP (Table 2.4). (The highest reported rate of SFP/TFP enrolment was 42.4% in 2011, with 26.9% in 2019).

Table 2.3: SFP Enrolment – Moderate Wasting

Camp	No. wasted children	No. of wasted children enrolled in SFP	% Enrolled
BMN	4	1	25.0
BMS	8	0	0
MRML	15	3	20.0
MLO	16	0	0
MLA	16	1	6.3
UMP	10	4	40.0
NP	7	0	0
BDY	7	2	28.6
TH	7	1	14.3
All Camps	**90**	**12**	**13.3%**

Table 2.4: SFP/TFP Enrolment – Severe Wasting

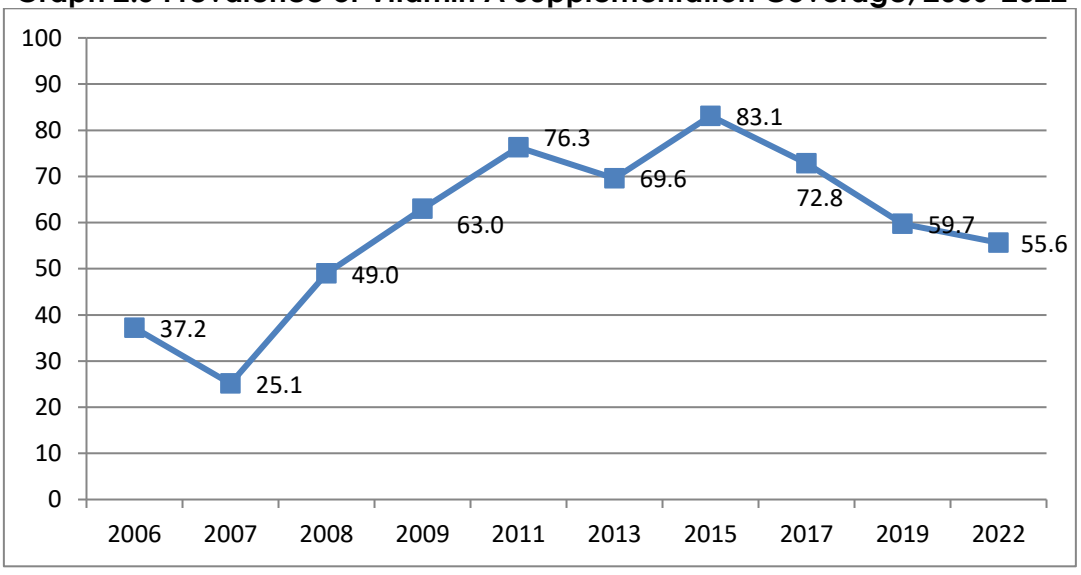
Camp	Wasted children (n)	Wasted children enrolled in TFP (n)	Wasted children enrolled in SFP (n)	% Enrolled
BMN	1	0	0	0
BMS	1	0	0	0
MLO	4	0	0	0
MRML	3	0	0	0
MLA	2	0	0	0
UMP	2	0	1	50.0
NP	3	1	0	50.0
BDY	3	0	0	0
TH	7	0	0	0
All Camps	**26**	**1**	**1**	**7.7%**

VITAMIN A SUPPLEMENTATION COVERAGE

At least 95% of children <five years of age should receive high-dose vitamin A supplement at four to six-month intervals to prevent illness and blindness associated with vitamin A deficiency (Sphere 2018).

- The child health card indicated that 55.6% had received vitamin A supplements within the last six months (Graph 2.5). Over 300 surveyed children's health records had missing data for vitamin A supplementation. As population mobility continues to increase, this could result in less accurate documentation in health records.

Graph 2.5 Prevalence of Vitamin A Supplementation Coverage, 2006-2022



DE-WORMING COVERAGE

Children <five years of age should receive anti-helminths treatment at six-month intervals to prevent illness and malnutrition associated with helminths infection, including anemia and vitamin A deficiency. Data taken from the child's health card indicate that 66.0% had

received anti-helminths treatment within the last six months (2019, 64.1%; 2017, 83.5%; 2015, 86.6%). Over 500 surveyed children's health cards had missing data for de-worming.

DISCUSSION & RECOMMENDATIONS

CONCLUSIONS

Malnutrition Rates

Acute (wasting) malnutrition rates for children <five years of age is 'low' (WHO, 2018) border wide. The 2022 Biennial Nutrition Survey was the first survey to include children <6 months of age as previously the targeted age was 6-59 months. As well, this first time MUAC measurements identified children as acutely malnourished where WHZ scores did not were added to the overall acute malnutrition prevalence. When compared directly to 2019 survey results (excluding children <6 months of age and children identified only by MUAC as acutely malnourished, the prevalence is 3.2% which is not statistically significantly different than that reported in 2019 (2019: 2.2%, CI 1.8%, 2.7% vs 2022: 3.2%, CI 2.6%, 3.9%).

However, given the period of COVID-19 restrictions leading up to this survey, it is plausible that the prevalence increased. A child's health can rapidly deteriorate with acute malnutrition and acknowledging that the SFP/TFP enrolment coverage rates were very low, this should be monitored closely. GM&P attendance should be as well as considering other ways to identify and refer children to SFP/TFP such as 'Mother's MUAC' if needed.

Chronic (stunting) malnutrition rates range between 'low to very high' (WHO, 2018). The borderwide rate at 21.5% is classified as 'high' (20% to <30%) but continues to show a **decreasing trend since 2013 (by 18.6%)**. Since 2015, camps with the highest stunting rates continue to be MLO and MRML, although as in all camps, both camps decreased since 2019. This may be due to the remoteness of both camps and access to diet diversity. BMN continues to have the lowest rates. These findings should be explored more with feedback from the camps and potentially qualitative research to further understand the camp differences.

The effects of stunting are serious and lifelong. Stunting is strongly linked to learning ability and cognitive development in children; it negatively affects maternal and adult health.

Children 6-24 months of age are most vulnerable to wasting and stunting. The introduction of complementary foods and poor nutritional quality diets during infancy and early childhood lead to inadequate nutrient intake. Frequent infections during the first two years of life also contribute to the high risk wasting and/or stunting during this period.

By age group, **the highest rates of wasting were in children <6 months although there were only 216 children in this age group for the entire study, and children 12-23 months (4.2%)**. The prevalence of **stunting increased with age, peaking in the 24-47 month age groups (27.2%) as in 2019.** The higher stunting rate in older children indicates the effectiveness of 'Healthy Babies, Bright Futures' IYCF programme. As IYCF-related practices and behaviors improve, fewer children within the

'window of opportunity' (<24 months of age) when stunting can still be corrected, are stunted.

MIYCF Practices

Maternal Nutrition

ANC attendance at any time during pregnancy was high at 98.0%. It was shown that MLA was the only camp that did not decrease the length of time before they attended ANC compared to 2019. This could have been impacted by the large caseload MLA experienced during COVID-19 outbreak periods but emphasis should be included on the importance of ANC during nutrition education sessions.

For maternal nutrition education, the benefits of weight gain during pregnancy were still not well understood as in 2019, particularly as related to the mother's health. For knowledge on MIYCF, in general there was not significant improvements overall. COVID-19 movement restrictions and prevention of group gatherings during the time leading up to the survey may be at least in part responsible for this. Efforts should be refocused now to 'catch up' on opportunities to promote behaviour change related to recommended MIYCF practices.

Best practices of food consumption during pregnancy and breastfeeding were related to overall amount of food and iron intake. Food consumption related to protein intake was poorest. This should be emphasized during education sessions on recommended MIYCF practices.

While there was high compliance reported for supplementation with iron, vitamin B1and folic acid during pregnancy or breastfeeding at >84.0% for each (range 84.1%-95.1%), vitamin A supplementation was only reported by 60.5% of mothers. While this could be due to poor self-recall, in 2019, 87.9% of mothers in the survey reported vitamin A supplementation. COVID-19 movement restrictions and camp lockdowns during that time may have also impacted the ability to distribute supplements in camps effectively.

Breastfeeding

Most (79.1%) followed recommended breastfeeding initiation practice (newborn put to the breast immediately or within one hour after birth), although not improved from 2019 (82.0%).

Breastfeeding is recommended until 24 months of age; the mean duration across all camps was 20.4 months, again not improved from 2019 (20.9 months). Further, EBF (just breastmilk with no liquids or foods, including water) duration was improved from 4.7 months to 5.0 months, a significant increase.; however not yet reaching the recommendation of six months.

Overall, survey results indicate that the importance of **breastfeeding needs continued focus** to improve knowledge and related practices.

Complementary Feeding

Complementary feeding initiation as recommended at six months of age, with feeding prior to six months unchanged from 13.0% in 2019 to 13.6% borderwide in 2022.

Micronutrient Deficiencies

Angular stomatitis is used as an easily detectable clinical indicator of micronutrient deficiency and can indicate a more widespread problem of other micronutrient deficiencies.

The rate of AS continued to decline since the 2013 Nutrition Survey, now >1.0%. While Sphere 2018 does not provide a

cutoff to indicate a problem of public health significance, continued monitoring and early detection of malnutrition to include micronutrient deficiencies is recommended.

SFP/TFP Enrolment

The SFP/TFP aims to treat acute malnutrition (wasting). Feeding programme enrolment indicates the effectiveness of growth monitoring as a screening tool to identify wasting in children <five years of age, and effectively implement the feeding programme to treat children.

SFP and TFP **enrolment for wasted children is low (13.3% and 7.7%, respectively)** indicating that not all malnourished children are being identified and treated. One factor contributing to the low enrollment identified during the survey is the 'low' rate of wasting for moderately and severely malnourished children (2.7% and 0.8%, respectively). The denominator is small so even one malnourished child not identified contributes to a low enrolment rate.

Another possible explanation for the very low coverage rates in this survey could be due to the COVID-19 restrictions during the last couple of years in the camps. With movement restricted for some periods of time to prevent infections during high transmission periods, children may not have been taken to routine GM&P or GM&P may not have been able to be conducted. This is the main way malnourished children are identified and referred to SFP/TFP.

Vitamin A and De-worming Coverage

Vitamin A deficiency is a major contributor to childhood mortality and illness; supplementation is necessary to ensure adequate intake.

Worm infections contribute to malnutrition in general, and to vitamin A deficiency and anemia. Six monthly de-worming is necessary in the refugee camps to ensure that worm infection is prevented in children.

There were >800 child health cards in the survey had missing data for both vitamin A and de-worming coverage. While COVID-19 restrictions may be partly responsible, this should be discussed together with health partners to include vitamin A supplementation during pregnancy and breastfeeding.

RECOMMENDATIONS

Wasting

Closely monitor acute malnutrition in the camps post-COVID restrictions. This includes monthly report data (i.e., SFP/TFP enrolment trends).

Stunting

Current evidence suggests that stunting may be prevented by promoting appropriate IYCF practices between 6-24 months of age, including EBF until six months of age; continued breastfeeding until two years of age, with complementary feeding initiated at six months of age; and promoting healthy maternal status.

1. Continue community based MIYCF Campaign with behaviour change communication (BCC) and Growth Monitoring & Promotion (GM&P) in all camps, targeting families with children 6-24 months of age, while promoting healthy maternal status as part of the campaigns.

2. Ensure MIYCF activities are relevant not only to mothers but to other family members who influence childcare decisions (e.g., grandmothers, fathers,

youth and community influencers such as faith-based leaders).

3. Use in-person contact to deliver key nutrition messages in camps to re-energize post-COVID efforts with FSN staff and camp residents; however, continue to explore and use social media platforms such as Facebook, YouTube, etc. to deliver key relevant messages in each camp.

4. Continue to train health workers and community facilitators to collaborate and conduct uniform, intensive MIYCF promotion activities in all camps using standardized ToT Nutrition Curriculum. Ensure FSN camp-based staff focal point has capacity to lead these activities. Basic modules may need focus with junior staff post-COVID-19 who have not had the benefit of in-person training recently.

5. Adapt current evidence and best practices into on-going and future programme planning and implementation. Share broadly in regional conferences and peer-reviewed journals.

MIYCF Practices

Maternal Nutrition

1. Maternal nutrition education sessions are an opportunity to promote the importance of ANC visit as soon as a pregnancy is known. All IYCF-related campaigns should include this message. Work closely with health agencies to continue to decrease the frequency of mothers who do not attend ANC early on, especially in MLA camp.

2. Health benefits of weight gain for the mother during pregnancy need to be emphasized to improve understanding and support and sustain behaviour change, particularly with new mothers who may not have had many opportunities for education during COVID-19 restrictions over the past couple of years.

3. Protein and iron consumption during pregnancy and breastfeeding need to be promoted as many reported consuming less frequently or eating the same amounts as when they were not pregnant or breastfeeding. This topic should also be discussed during cooking demonstrations to determine if there are any new barriers to protein and iron consumption during pregnancy and breastfeeding.

4. The survey results showed that vitamin A and folic acid supplementation was less frequently reported during pregnancy or breastfeeding than in 2019. This should be followed up with the health agencies as it could be that due to COVID-19 restrictions over the past couple of years in the camps, supplements were not able to be given as routinely as previously.

Breastfeeding

While **EBF duration slightly (but significantly) improved, continued focus is needed to reach the recommendation for EBF until six months of age**, especially in UM and BDY camps. Continue to encourage and promote a supportive environment, discussing in small group sessions as well as featuring more prominently post-COVID-19 during World Breastfeeding Week (August).

Complementary Feeding

Include messaging in MIYCF-related sessions to strengthen behaviour change on timing of initiating complementary feeding as there was no improvement in practice since the 2019 survey.

Micronutrient Deficiency – Riboflavin (Vitamin B2)

1. Focus on diet diversity in nutrition key messages to continue to prevent deficiencies. Focus on foods that will provide key nutrients, including benefits and ingredients in BabyBRIGHT as it was shown that its connection to preventing stunting was not well understood.
2. Utilize FCS vendor shops as an opportunity to promote diet diversity at point of sale, including providing education and signage to vendors.

SFP/TFP Enrolment

While acute malnutrition rates are 'low', close monitoring is critical as children can become acutely malnourished rapidly with negative consequences.

Vitamin A/De-worming Coverage

1. Continue to follow TBC SFP Guidelines 2022 vitamin A protocol for children, pregnant women and nursing mothers, documenting in standard health card.
2. Continue to provide anti-helminths six-monthly for all children 1-12 years of age, documenting de-worming in standard health card.
3. Health agencies to ensure staff understand importance and standardized location for documenting both vitamin A supplementation and de-worming. There were >800 cases of missing data for both vitamin A and de-worming coverage. This is likely due to COVID-19 movement restrictions on children receiving the doses and also ability to properly document in the health records (no touch methods during COVID-19).

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APPENDIX 1

RESULTS BY CAMP

Prevalence of Global ACUTE & CHRONIC Malnutrition in Children birth to <5 years: 2011-2022

Camps	Global ACUTE Malnutrition (weight-for-height <-2 z-score or MUAC <12.5 cm)						Global CHRONIC Malnutrition (height-for-age <-2 z-score)					
	2022	2019	2017	2015	2013	2011	2022	2019	2017	2015	2013	2011
	%	%	%	%	%	%	%	%	%	%	%	%
Ban Mai Nai Soi	1.3	2.3	0.5	0.9	1.7	1.0	9.4	13.6	18.8	22.3	24.8	25.8
Ban Mae Surin	4.0	2.6	1.3	1.6	1.5	1.6	14.9	20.6	30.1	32.9	35.6	48.8
Mae Ra Ma Luang	3.9	2.8	3.9	3.7	2.9	2.1	28.6	33.6	38.3	38.4	49.2	48.8
Mae La Oon	3.9	2.9	4.3	2.0	2.3	1.0	33.3	36.6	41.7	40.5	49.7	53.6
Mae La	4.3	2.0	2.3	4.3	1.6	3.2	19.5	21.4	25.0	30.0	37.8	32.8
Umpiem Mai	3.4	1.9	0.9	1.1	2.0	2.2	17.1	19.2	26.0	36.6	42.6	35.7
Nu Po	2.6	1.4	2.1	0.6	0.6	1.7	20.3	28.7	34.5	39.9	37.6	43.2
Ban Don Yang	4.7	1.7	1.0	1.5	1.0	2.2	22.8	25.5	33.9	41.1	44.6	44.3
Tham Hin	3.9	1.6	0.7	1.7	4.3	3.1	20.8	25.5	34.9	34.3	42.6	40.1
All Camps:	**3.5**	**2.2**	**2.1**	**2.0**	**2.1**	**2.0**	**21.5**	**25.8**	**31.8**	**35.1**	**40.8**	**41.5**
Thailand (MICS 2019)		8.0	n/a	**5.4**	6.7	n/a		13.0	n/a	**10.5**	16.3	n/a
Myanmar			n/a	**7.0***	n/a	**7.9****			n/a	n/a	**29.2***	**35.1****

*DHS 2016 (Stunting prevalence ranged from 20.3% in Yangon Region to 41.0% in Chin State.)

***2022 Nutrition Survey included children <6 months of age. Previously target age was 6-59 months. Also, this was first time MUAC measurements that identified children as wasted where WHZ scores did not were added to overall wasting prevalence. Excluding children <6 months of age & MUACs where WHZ did not identify wasting, prevalence is 3.2%, not statistically significantly different than in 2019. (2019: 2.2%, CI 1.8%, 2.7% vs 2022: 3.2%, CI 2.6%, 3.9%).

Table 2. Knowledge of Benefits of Weight Gain during Pregnancy

Camps	Prevent Risks Maternal Complications & Death	Prevent Anemia in Pregnancy	Prevent LBW & Premature Baby	Prevent Infection for Baby & Mother	Promote Child Growth & Development in Early Childhood
	% (n)	% (n)	% (n)	% (n)	% (n)
BMN	14.2 (50)	13.6 (48)	20.1 (71)	37.4 (132)	69.1 (244)
BMS	35.6 (58)	50.9 (83)	39.3 (64)	37.4 (61)	61.3 (100)
MRML	43.5 (148)	15.0 (51)	26.8 (91)	28.8 (98)	63.5 (216)
MLO	53.2 (185)	30.5 (106)	31.9 (111)	15.2 (53)	59.2 (206)
MLA	17.0 (57)	12.8 (43)	9.3 (31)	13.1 (44)	32.5 (109)
UMP	13.8 (44)	15.6 (50)	11.9 (38)	39.4 (126)	66.6 (213)
NP	25.3 (81)	20.0(64)	35.3 (113)	22.5 (72)	74.1 (237)
BDY	37.8 (71)	26.1 (49)	28.7 (54)	28.7 (54)	53.7 (101)
TH	35.6 (120)	11.9 (40)	6.8 (23)	8.6 (29)	59.3 (200)
All Camps:	**30.1 (814)**	**19.7 (534)**	**22.0 (596)**	**24.7 (669)**	**60.1 (1,626)**

Table 3. By Camp: Food Consumption during Pregnancy

	Amount of Food	Amount of Protein	Amount of Iron
BMN (n=353)			
More	67.7%	48.4%	45.6%
Less	2.8%	5.9%	6.2%
Same Amount	26.9%	43.6%	46.2%
BMS (n=163)			
More	52.1%	41.1%	41.1%
Less	9.8%	8.0%	3.7%
Same Amount	37.4%	50.3%	54.6%
MRML (n=340)			
More	35.0%	29.7%	35.0%
Less	27.4%	15.3%	8.5%
Same Amount	37.1%	53.8%	55.9%
MLO (n=348)			
More	69.5%	68.7%	70.1%
Less	14.7%	11.5%	7.8%
Same Amount	15.5%	19.3%	21.0%
MLA (n=335)			
More	49.6%	35.5%	44.5%
Less	23.3%	31.3%	20.3%
Same Amount	24.5%	30.1%	30.7%
UMP (n=320)			
More	51.9%	43.8%	51.9%
Less	16.9%	17.8%	12.5%
Same Amount	29.7%	36.9%	34.1%
NP (n=320)			
More	67.5%	59.7%	70.9%
Less	15.0%	15.6%	11.3%
Same Amount	16.6%	23.8%	16.9%
BDY (n=188)			
More	74.5%	77.7%	83.5%
Less	5.9%	9.0%	4.8%
Same Amount	19.7%	13.3%	11.7%
TH (n=337)			
More	47.8%	52.8%	53.1%
Less	27.9%	22.8%	25.8%
Same Amount	23.4%	23.1%	20.2%

Table 4. By Camp: Food Consumption during Breastfeeding

	Amount of Food	Amount of Protein	Amount of Iron
BMN (n=353)			
More	65.4%	48.4%	40.5%
Less	2.0%	4.2%	5.9%
Same Amount	30.3%	45.0%	51.3%
BMS (n=163)			
More	58.3%	52.8%	49.7%
Less	4.3%	1.2%	2.5%
Same Amount	35.6%	44.2%	46.0%
MRML (n=340)			
More	45.3%	35.0%	44.4%
Less	10.9%	8.5%	6.2%
Same Amount	42.4%	55.3%	48.2%
MLO (n=348)			
More	78.2%	69.8%	69.0%
Less	6.9%	6.9%	7.5%
Same Amount	13.5%	21.8%	22.4%
MLA (n=335)			
More	60.9%	48.7%	53.1%
Less	10.4%	17.6%	11.9%
Same Amount	23.3%	28.1%	27.8%
UMP (n=320)			
More	73.1%	55.6%	57.5%
Less	2.8%	5.0%	7.5%
Same Amount	22.2%	37.5%	33.1%
NP (n=320)			
More	74.1%	62.2%	70.6%
Less	7.2%	8.1%	6.9%
Same Amount	15.3%	26.3%	19.1%
BDY (n=188)			
More	77.7%	78.7%	80.3%
Less	6.4%	6.9%	5.9%
Same Amount	15.4%	13.8%	13.3%
TH (n=337)			
More	60.2%	47.8%	53.1%
Less	13.4%	17.8%	16.0%
Same Amount	21.1%	29.1%	25.5%

Table 5. Belief in Benefits of EBF by Camp & Border-wide

	BMN	BMS	MRML	MLO	MLA	UMP	NP	BDY	TH	ALL
Sufficient nutrients for baby	24.9	66.3	79.7	83.0	69.0	57.5	75.0	82.4	75.7	**67.3**
Promotes optimum growth & development	66.3	66.9	59.1	63.8	52.5	57.8	60.9	63.3	51.9	**59.8**
Protects baby from infections	56.7	66.3	29.7	28.4	17.3	45.0	30.9	42.6	27.6	**36.3**
Promotes bonding & motherhood	7.9	15.3	14.1	19.3	9.9	4.4	10.6	9.6	15.1	**11.8**
Decreases breast, ovarian & cervical cancers	13.9	25.2	5.6	7.5	1.5	6.6	7.5	3.7	3.6	**7.5**
Delays new pregnancy	3.7	8.6	8.8	7.2	3.6	5.6	5.0	4.3	4.5	**5.6**
Reduces risk of post-partum bleeding	2.3	13.5	2.1	10.9	1.8	1.6	4.7	2.7	2.7	**4.3**
Saves money	4.8	5.5	8.2	18.1	3.9	11.3	4.7	8.0	1.5	**10.1**
Saves time	3.1	3.7	2.6	8.9	4.8	9.1	11.3	1.1	0.6	**5.3**

1. BMN

Results Tables for WHO Growth Standard, 2006

Table 1.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:Girl**
>6	7	4.6	23	9.5	30	7.6	0.3
6-11	15	9.9	26	10.8	41	10.4	0.6
12-23	33	21.7	53	22.0	86	21.9	0.6
24-35	36	23.7	39	16.2	75	19.1	0.9
36-47	26	17.1	46	19.1	72	18.3	0.6
48-59	35	23.0	54	22.4	89	22.6	0.6
Total	152	52.1	241	47.9	393		0.6

Table 1.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 392	**Boys** n = 151	**Girls** n = 241
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(5) 1.3 % (0.4– 2.3 95% C.I.)	(2) 1.3 % (0.2 – 4.7 95% C.I.)	(3) 1.2 % (0.3 – 3.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(4) 1.0 % (0.3 – 2.6 95% C.I.)	(2) 1.3 % (0.2 – 4.7 95% C.I.)	(2) 0.8 % (0.1– 3.0 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(1) 0.3 % (0.0 – 1.4 95% C.I.)	(0) (0.0 – 1.4 95% C.I.)	(1) 0.4 % (0.0 – 2.3 95% C.I.)

Table 1.3: Prevalence of acute malnutrition by age

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		**Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)**		**Global (<-2 z-score & MUAC <11.5 cm)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	30	1	3.3	0		1	3.3
6-11	41	0		0		0	
12-23	86	0		0		0	
24-35	75	0		1	1.3	1	1.3
36-47	72	0		2	2.8	2	2.8
48-59	88	0		1	1.1	1	1.1
Total	**392**	1	0.3	4	1.0	5	1.3

2. BMN (con't)

Table 1.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 392	**Boys** n **=** 151	**Girls** n **=** 241
Prevalence of stunting (<-2 z-score)	(37) 9.4 % (6.7 – 12.8 95% C.I.)	(17) 11.3 % (6.7 – 17.4 95% C.I.)	(20) 8.3 % (5.1 – 12.5 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(37) 9.4 % (6.7– 12.8 95% C.I.)	(17) 11.3 % (6.7 – 17.4 95% C.I.)	(20) 8.3 % (5.1 – 12.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(0) (0.0 – 0.9 95% C.I.)	(0) (0.0 – 2.4 95% C.I.)	(0) (0.0 – 1.5 95% C.I.)

Table 1.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	30	0		0		0	
6-11	41	0		2	4.9	2	4.9
12-23	86	0		10	11.6	10	11.6
24-35	75	0		7	9.3	7	9.3
36-47	72	0		10	13.9	10	13.9
48-59	88	0		8	9.1	8	9.1
30	**392**	0		37	9.4	37	9.4

2. BMS

Results Tables for WHO Growth Standard, 2006

Table 2.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:Girl
>6	6	4.6	8	9.0	14	7.0	0.8
6-11	9	9.9	6	6.7	15	7.5	1.5
12-23	22	21.7	23	25.8	45	22.4	1.0
24-35	25	23.7	15	16.9	40	19.9	1.7
36-47	30	17.1	19	21.3	49	24.4	1.8
48-59	20	23.0	18	20.2	38	18.9	1.1
Total	112	55.7	89	44.3	201		1.3

Table 2.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 201	Boys n = 112	Girls n = 89
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(8) 4.0 % (1.7 – 7.7 95% C.I.)	(4) 3.6 % (1.0 – 8.9 95% C.I.)	(4) 4.5 % (1.2 – 11.1 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(7) 3.5 % (1.4 – 7.0 95% C.I.)	(4) 3.6 % (1.0 – 8.9 95% C.I.)	(3) 3.4 % (0.7 – 9.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(1) 0.5 % (0.0 – 2.7 95% C.I.)	(0) (0.0 – 3.2 95% C.I.)	(1) 1.1% (0.0 – 6.1 95% C.I.)

Table 2.3: Prevalence of acute malnutrition by age (weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		Moderate wasting (>=-3 and <-2 z-score & MUAC 12.5->=11.5 cm)		Global (<-2 z-score & MUAC <11.5 cm)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
<6	14	0		0		0	3.3
6-11	15	0		0		0	
12-23	45	1	2.2	2	4.4	3	6.7
24-35	40	0		2	5.0	2	5.0
36-47	49	0		2	4.1	2	4.1
48-59	38	0		1	2.6	1	2.6
Total	201	1	0.5	7	3.5	8	4.0

2. BMS (con't)

Table 2.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 201	**Boys** n **=** 112	**Girls** n **=** 89
Prevalence of stunting (<-2 z-score)	(30) 14.9 % (10.3– 20.6 95% C.I.)	(19) 17.0 % (10.5 – 25.2 95% C.I.)	(11) 12.4 % (6.3 – 21.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(26) 12.9 % (8.6 – 18.4 95% C.I.)	(16) 14.3 % (8.4– 22.2 95% C.I.)	(10) 11.2 % (5.5 – 19.7 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(4) 2.0 % (0.5 – 5.0 95% C.I.)	(3) 2.7% (0.6 – 7.6 95% C.I.)	(1) 1.1 % (0.0 – 6.1 95% C.I.)

Table 2.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	14	0		0		0	
6-11	15	0		2	13.3	2	13.3
12-23	45	1	2.2	4	18.9	5	11.1
24-35	40	1	2.5	6	15.0	7	17.5
36-47	49	1	2.0	7	14.3	8	16.3
48-59	38	1	2.6	7	18.4	8	21.1
30	**201**	4	2.0	26	12.9	30	14.9

3. Mae Ra Ma Luang

Results Tables for WHO Growth Standard, 2006

Table 3.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:Girl**
>6	19	4.6	22	9.9	41	8.9	0.9
6-11	25	9.9	20	9.0	45	9.8	1.3
12-23	43	21.7	39	17.5	82	17.8	1.1
24-35	45	23.7	49	22.0	94	20.4	0.9
36-47	49	17.1	47	21.1	96	20.8	1.0
48-59	57	23.0	46	20.6	103	22.3	1.2
Total	238	51.6	223	48.4	461		1.1

Table 3.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 460	**Boys** n = 236	**Girls** n = 224
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(18) 3.9 % (2.3– 6.11 95% C.I.)	(8) 3.4 % (0.8– 3.4 95% C.I.)	(10) 4.5 % (2.2 – 8.1 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(14) 3.0 % (1.7 – 5.1 95% C.I.)	(8) 3.4 % (0.8– 3.4 95% C.I.)	(7) 3.1 % (1.3 – 6.3 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(3) 0.7 % (0.1 – 1.9 95% C.I.)	0 (0.0 – 0.8 95% C.I.)	(3) 1.3 % (0.3 – 3.9 95% C.I.)

Table 3.3: Prevalence of acute malnutrition by age (weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		**Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)**		**Global (<-2 z-score & MUAC <11.5 cm)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	41	0		0		0	
6-11	45	1	2.2	1	2.2	2	4.4
12-23	82	0		2	1.2	2	2.4
24-35	94	2	2.1	3	3.2	5	5.3
36-47	95	0		2	2.1	2	2.1
48-59	103	0		7	6.8	7	6.8
Total	**460**	3	0.7	15	3.3	18	3.9

3. Mae Ra Ma Luang (con't)

Table 3.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 461	**Boys** n = 238	**Girls** n = 223
Prevalence of stunting (<-2 z-score)	(132) 28.6 % (24.5 – 33.0 95% C.I.)	(67) 28.2 % (22.5 – 34.3 95% C.I.)	(65) 29.1 % (23.7– 35.6 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(109) 23.6 % (19.8 – 27.8 95% C.I.)	(55) 23.1 % (17.9– 29.0 95% C.I.)	(54) 24.2 % (18.8– 30.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(23) 5.0 % (3.2 – 7.4 95% C.I.)	(12) 5.0 % (2.6– 8.6 95% C.I.)	(11) 4.9 % (2.5 – 8.7 95% C.I.)

Table 3.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	41	1	2.4	4	9.8	5	12.2
6-11	45	0		3	6.7	3	6.7
12-23	82	7	8.5	10	12.2	17	20.7
24-35	94	4	4.3	26	27.7	30	31.9
36-47	96	4	4.2	31	32.3	35	36.5
48-59	103	7	6.8	35	34.0	42	40.8
30	**461**	23	5.0	109	23.6	132	28.6

4. Mae La Oon

Results Tables for WHO Growth Standard, 2006

Table 4.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:Girl**
>6	19	4.6	14	5.7	33	6.7	0.6
6-11	21	9.9	30	12.2	51	10.3	0.7
12-23	47	21.7	54	22.0	101	20.4	0.9
24-35	57	23.7	48	19.5	105	21.2	1.2
36-47	54	17.1	52	21.1	106	21.4	1.0
48-59	51	23.0	48	19.5	99	20.0	1.1
Total	249	50.3	246	49.7	495		1.0

Table 4.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 492	**Boys** n = 247	**Girls** n = 245
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(19) 3.9 % (2.3– 6.0 95% C.I.)	(10) 4.0 % (2.0– 7.3 95% C.I.)	(9) 3.7 % (1.7 – 6.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(15) 3.0 % (1.7 – 5.0 95% C.I.)	(8) 3.2 % (1.4 – 6.3 95% C.I.)	(7) 2.9 % (1.2 – 5.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(4) 0.8 % (0.2 – 2.1 95% C.I.)	(2) 0.8 % (0.1 – 3.0 95% C.I.)	(2) 0.8 %) (0.1 – 2.9 95% C.I.)

Table 4.3: Prevalence of acute malnutrition by age (weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		**Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)**		**Global (<-2 z-score & MUAC <11.5 cm)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	33	0		0		0	3.3
6-11	51	1	2.0	2	3.9	3	5.9
12-23	101	2	2.0	7	6.9	9	8.9
24-35	104	0		3	2.9	3	2.9
36-47	105	1	1.0	1	1.0	2	1.9
48-59	98	0		2	2.0	2	2.0
Total	**492**	4	0.8	15	3.0	19	3.9

4. Mae La Oon (con't)

Table 4.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 493	**Boys** n = 248	**Girls** n = 245
Prevalence of stunting (<-2 z-score)	(164) 33.3 % (29.1– 37.6 95% C.I.)	(88) 35.5 % (29.5 – 41.8 95% C.I.)	(76) 31.0 % (25.2– 37.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(126) 25.6 % (21.8– 29.7 95% C.I.)	(66) 26.6 % (21.2– 32.6 95% C.I.)	(60) 24.5 % (19.2– 30.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(38) 7.7 % (5.5 – 10.4 95% C.I.)	(22) 8.9 % (5.6– 13.1 95% C.I.)	(16) 6.5 % (3.8– 10.4 95% C.I.)

Table 4.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	33	1	3.0	5	15.2	6	18.2
6-11	51	1	2.0	6	11.8	7	13.7
12-23	101	5	5.0	27	26.7	32	31.7
24-35	104	11	10.6	30	28.8	41	39.4
36-47	106	12	11.3	32	30.2	44	41.5
48-59	98	8	8.2	26	26.5	34	34.7
30	**493**	38	7.7	126	25.6	164	33.3

5. Mae La

Results Tables for WHO Growth Standard, 2006

Table 5.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:Girl**
>6	21	4.6	7	3.5	28	6.6	3.0
6-11	17	9.9	16	8.0	33	7.8	1.1
12-23	41	21.7	35	17.5	76	17.9	1.2
24-35	43	23.7	40	20.0	83	19.5	1.1
36-47	45	17.1	51	25.5	96	22.6	0.9
48-59	58	23.0	51	25.5	109	25.6	1.1
Total	225	52.9	200	47.1	425		1.1

Table 5.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 423	**Boys** n = 223	**Girls** n = 200
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(18) 4.3 % (2.5 – 6.6 95% C.I.)	(13) 5.8 % (3.1- 9.8 95% C.I.)	(5) 2.5 % (0.8 – 5.7 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(16) 3.8 % (2.2 – 6.1 95% C.I.)	(12) 5.4 % (2.8 – 9.2 95% C.I.)	(4) 2.0 % (0.6 – 5.0 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(2) 0.5 % (0.1 - 1.7 95% C.I.)	(1) 0.4 % (0.0 - 2.5 95% C.I.)	(1) 0.5 (0.0- 2.8 95% C.I.)

Table 5.3: Prevalence of acute malnutrition by age (weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		**Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)**		**Global (<-2 z-score & MUAC <11.5 cm)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	28	0		4	14.3	4	14.3
6-11	33	1	3.0	2	6.1	3	9.1
12-23	76	1	1.3	3	3.9	4	5.3
24-35	82	0		1	1.2	1	1.2
36-47	96	0		2	2.1	2	2.1
48-59	108	0		4	3.7	4	3.7
Total	**423**	2	0.5	16	3.8	18	4.3

5. Mae La (con't)

Table 5.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 425	**Boys** n = 225	**Girls** n = 200
Prevalence of stunting (<-2 z-score)	(83) 19.5 % (15.9 – 23.6 95% C.I.)	(48) 21.3 % (16.2– 27.3 95% C.I.)	(35) 17.5 % (12.5 - 23.5 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(54) 12.7 % (9.7 – 16.3 95% C.I.)	(29) 12.9 % (8.9– 18.0 95% C.I.)	(25) 12.5 % (8.3– 17.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(29) 6.8 % (4.6– 9.7 95% C.I.)	(19) 8.4 % (5.2 – 12.9 95% C.I.)	(10) 5.0 % (2.4 – 9.0 95% C.I.)

Table 5.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	28	1	3.6	0		1	3.6
6-11	33	0		1	3.0	1	3.0
12-23	76	4	5.3	9	11.8	13	17.1
24-35	83	9	10.8	11	13.3	20	24.1
36-47	96	9	9.4	16	16.7	25	26.0
48-59	109	6	5.5	17	15.6	23	21.1
30	**425**	29	6.8	54	12.7	83	19.5

6. Umpiem Mai

Results Tables for WHO Growth Standard, 2006

Table 6.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:Girl**
>6	9	5.1	12	6.7	21	5.9	0.8
6-11	16	9.0	12	6.7	28	7.8	1.3
12-23	32	18.1	33	18.3	65	18.2	1.0
24-35	41	23.2	45	25.0	86	24.1	0.9
36-47	39	22.0	33	18.3	72	20.2	1.2
48-59	40	22.6	45	25.0	85	23.8	0.9
Total	177	49.6	180	50.4	357		1.0

Table 6.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 356	**Boys** n = 177	**Girls** n = 179
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(12) 3.4 % (1.8 – 5.8 95% C.I.)	(5) 2.8 % (0.9 – 6.5 95% C.I.)	(7) 3.9 % (1.6 – 7.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(10) 2.8 % (1.4– 5.1 95% C.I.)	(3) 1.7 % (0.4- 4.9 95% C.I.)	(7) 3.9 % (1.6 – 7.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(2) 0.6 % (0.0 – 2.0 95% C.I.)	(2) 1.1 % (0.1 – 4.0 95% C.I.)	0 (0.0- 2.0 95% C.I.)

Table 6.3: Prevalence of acute malnutrition by age (weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		**Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)**		**Global (<-2 z-score & MUAC <11.5 cm)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	21	0		0		0	
6-11	28	0		0		0	
12-23	65	0		2	3.1	2	3.1
24-35	86	0		2	2.3	2	2.3
36-47	72	1	1.4	1	1.4	2	2.8
48-59	84	1	1.2	5	6.0	6	7.1
Total	**356**	2	0.6	10	2.8	12	3.4

6. Umpiem Mai (con't)

Table 6.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 357	**Boys** n = 177	**Girls** n = 180
Prevalence of stunting (<-2 z-score)	(61) 17.1 % (13.3 – 21.4 95% C.I.)	(29) 16.4 % (11.3 – 22.7 95% C.I.)	(32) 17.8 % (12.5 – 24.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(52) 14.6 % (11.1 – 18.7 95% C.I.)	(24) 13.6 % (8.9 – 19.5 95% C.I.)	(28) 15.6 % (10.6– 21.7 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(9) 2.5 % (1.2 – 4.7 95% C.I.)	(5) 2.8 % (0.9 – 6.5 95% C.I.)	(4) 2.2 % (0.6 – 5.6 95% C.I.)

Table 6.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	21	2	9.5	4	19.0	6	28.6
6-11	28	0		0		0	
12-23	65	3	4.6	8	12.3	11	16.9
24-35	86	1	1.2	16	18.6	17	19.8
36-47	72	2	2.8	8	11.1	10	13.9
48-59	85	1	1.2	16	18.8	17	20.0
30	**357**	9	2.5	52	14.6	61	17.1

7. Nu Po

Results Tables for WHO Growth Standard, 2006

Table 7.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:Girl
>6	8	4.3	7	3.6	15	3.9	1.1
6-11	14	7.4	13	6.8	27	7.1	1.1
12-23	42	22.3	42	21.9	84	22.1	1.0
24-35	38	20.2	33	17.2	71	18.7	1.2
36-47	42	22.3	50	26.0	92	24.2	0.8
48-59	44	23.4	47	24.5	91	23.9	0.9
Total	188	49.5	192	50.5	380		1.0

Table 7.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 379	Boys n = 188	Girls n = 191
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(10) 2.6 % (1.3 – 4.8 95% C.I.)	(4) 2.1 % (0.6 – 5.4 95% C.I.)	(6) 3.1 % (1.2– 6.7 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(7) 1.8 % (0.8 – 3.8 95% C.I.)	(3) 1.6 % (0.3 – 4.6 95% C.I.)	(4) 2.1 % (0.6 – 5.3 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(3) 0.8 % (0.2 – 2.3 95% C.I.)	(1) 0.5 % (0.0 – 2.9 95% C.I.)	(2) 1.0 % (0.1 – 3.7 95% C.I.)

Table 7.3: Prevalence of acute malnutrition by age (on weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)		Global (<-2 z-score & MUAC <11.5 cm)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
<6	15	0		0		0	
6-11	27	1	3.7	0		1	3.7
12-23	83	1	1.2	3	3.6	4	4.8
24-35	71	0		1	1.4	1	1.4
36-47	92	1	1.1	2	2.2	3	3.3
48-59	91	0		1	1.1	1	1.1
Total	**379**	3	0.8	7	1.8	10	2.6

7. Nu Po (con't)

Table 7.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 379	**Boys** n = 188	**Girls** n = 191
Prevalence of stunting (<-2 z-score)	(77) 20.3 % (16.5 – 24.7 95% C.I.)	(37) 19.7 % (14.3 – 26.1 95% C.I.)	(40) 20.9 % (15.4 – 27.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(65) 17.2 % (13.5 – 21.33 95% C.I.)	(32) 17.0 % (11.9 – 23.2 95% C.I.)	(33) 17.3 % (12.2 – 23.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(12) 3.2 % (1.7 – 5.5 95% C.I.)	(5) 2.7 % (0.9 – 6.1 95% C.I.)	(7) 3.7 % (1.5– 7.4 95% C.I.)

Table 7.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	15	0		4	26.7	4	26.7
6-11	27	0		1	3.7	1	3.7
12-23	83	1	1.2	9	10.8	10	12.0
24-35	71	2	2.8	18	25.4	20	28.2
36-47	92	6	6.5	18	19.6	24	26.1
48-59	91	3	3.3	15	16.5	18	19.8
30	**379**	12	3.2	65	17.2	77	20.3

8. Ban Don Yang

Results Tables for WHO Growth Standard, 2006

Table 8.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:Girl**
>6	5	6.09	14	10.7	19	8.8	0.4
6-11	6	7.1	11	8.4	17	7.9	0.5
12-23	15	17.9	28	21.4	43	20.0	0.5
24-35	18	21.4	21	16.0	39	18.1	0.9
36-47	25	29.8	32	24.4	57	26.5	0.8
48-59	15	17.9	25	19.1	40	18.6	0.6
Total	84	39.1	131	60.9	215		0.6

Table 8.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 215	**Boys** n = 84	**Girls** n = 131
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(10) 4.7 % (2.3 – 8.4 95% C.I.)	(7) 8.3 % (3.4 - 16.4 95% C.I.)	(3) 2.3 % (0.5- 6.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(7) 3.3 % (1.3 – 6.6 95% C.I.)	(5) 6.0 % (2.9 - 13.4 95% C.I.)	(2) 1.5 % (0.2- 5.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(3) 1.4 % (0.3 – 4.0 95% C.I.)	(2) 2.4 % (0.3 – 8.3 95% C.I.)	(1) 0.8 % (0.0 - 4.2 95% C.I.)

Table 8.3: Prevalence of acute malnutrition by age (weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		**Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)**		**Global (<-2 z-score & MUAC <11.5 cm)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	19	1	5.3	2	10.5	3	15.8
6-11	17	0		0		0	
12-23	43	1	2.3	2	4.7	3	7.0
24-35	39	0		0		0	
36-47	57	0		2	3.5	2	3.5
48-59	40	1	2.5	1	2.5	2	5.0
Total	**215**	3	1.4	7	3.3	10	4.7

8. Ban Don Yang

Table 8.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 215	**Boys** n = 84	**Girls** n = 131
Prevalence of stunting (<-2 z-score)	(49) 22.8 % (17.4 – 29.0 95% C.I.)	(22) 26.2 % (17.2 – 36.9 95% C.I.)	(27) 20.6 % (14.4 – 28.6 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(40) 18.6 % (13.6– 24.5 95% C.I.)	(19) 22.6 % (14.2 – 33.1 95% C.I.)	(21) 16.0 % (10.2 – 23.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(9) 4.2 % (1.9 – 7.8 95% C.I.)	(3) 3.6 % (0.7 – 10.1 95% C.I.)	(6) 4.6 % (1.7 – 9.7 95% C.I.)

Table 8.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	19	0		0		0	
6-11	17	0		2	11.8	2	11.8
12-23	43	1	2.3	7	16.3	8	18.6
24-35	39	3	7.7	13	33.3	16	41.0
36-47	57	4	7.0	12	21.1	16	28.1
48-59	40	1	2.5	6	15.0	7	17.4
30	**215**	9	4.2	40	18.6	49	22.8

9. Tham Hin

Results Tables for WHO Growth Standard, 2006

Table 9.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:Girl
>6	12	5.5	3	1.5	15	3.6	4.0
6-11	29	13.3	24	12.2	53	12.8	1.2
12-23	47	21.6	44	22.4	91	22.0	1.1
24-35	42	19.3	36	18.4	78	18.8	1.2
36-47	40	18.3	48	24.5	88	21.3	0.8
48-59	48	22.0	41	20.9	89	21.5	1.2
Total	218	52.7	196	47.3	414		1.1

Table 9.2: Prevalence of acute malnutrition (weight-for-height z-score) by sex

	All n = 416	Boys n = 219	Girls n = 197
Prevalence of global malnutrition (<-2 z-score) & MUAC <12.5 cm	(16) 3.8 % (2.2 - 6.2 95% C.I.)	(10) 4.6 % (2.2 – 8.2 95% C.I.)	(6) 3.0 % (1.1 – 6.5 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score) & MUAC 12.5 to <=11.5 cm	(9) 2.2 % (1.0 – 4.1 95% C.I.)	(5) 2.2 % (0.8 – 5.3 95% C.I.)	(4) 2.0 % (0.6 – 5.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score) & MUAC <11.5 cm	(7) 1.7 % (0.7 – 3.4 95% C.I.)	(5) 2.3 % (0.8 – 5.3 95% C.I.)	(2) 1.0 % (0.1 - 3.6 95% C.I.)

Table 9.3: Prevalence of acute malnutrition by age (on weight-for-height z-score)

		Severe wasting (<-3 z-score & MUAC 11.5 cm)		Moderate wasting (>= -3 and <-2 z-score & MUAC 12.5->=11.5 cm)		Global (<-2 z-score & MUAC <11.5 cm)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
<6	15	4	26.7	1	6.7	5	33.3
6-11	54	1	1.9	1	1.9	2	1.9
12-23	91	1	1.1	0		1	1.1
24-35	78	0		3	3.8	3	3.8
36-47	89	0		1	1.1	1	2.0
48-59	89	1	1.1	3	3.4	4	4.5
Total	416	7	1.7	9	2.2	16	3.8

9. Tham Hin (con't)

Table 9.4: Prevalence of stunting (height-for-age z-score) by sex

	All n = 414	**Boys** n = 218	**Girls** n = 196
Prevalence of stunting (<-2 z-score)	(86) 20.8 % (17.0 – 25.0 95% C.I.)	(47) 21.6 % (16.3 – 27.6 95% C.I.)	(39) 19.9 % (14.6 – 26.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(72) 17.4 % (13. 9– 21.4 95% C.I.)	(40) 18.3 % (13.4 – 24.1 95% C.I.)	(32) 16.3 % (11.4– 22.3 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(14) 3.4 % (1.9 – 5.6 95% C.I.)	(7) 3.2 % (1.3 – 6.5 95% C.I.)	(7) 3.6 % (1.5 – 7.2 95% C.I.)

Table 9.5: Prevalence of stunting by age (height-for-age z-score)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Global (<-2 z-score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<6	15	0		0		0	
6-11	53	0		8	15.1	8	15.1
12-23	91	1	1.1	9	9.9	10	11.0
24-35	78	7	9.0	17	21.8	24	30.8
36-47	88	4	4.5	22	25.0	26	29.5
48-59	89	2	2.2	16	8.0	18	20.2
30	**414**	14	3.4	72	17.4	86	20.8

APPENDIX 2

SURVEY FORM

Today' s Date:
Camp:
Zone:
Section:
House Number:

1. HOUSEHOLD INFORMATION

1.1 How many people live in the same house as **this child**? *(Includes everyone living in this household, including this child, and even persons not registered in the ration book.*) _____total number of persons	1.1a. Number of people <5 years 1.1b. Number of people 5 – 17 years 1.1c. Number of people 18+ years
1.2 Do you have ration book? (1) ☐Yes **(Go to 1.2a)** (2) ☐No (999) ☐Don't know **(If No or Don't know, Go to 1.4.)**	1.2a. If Yes, How many of HH members are listed on TBC ration book? (*Take information from ration book*.) _____persons
1.3 Refer to ration book–what is HH ration book stamped? (1) ☐SR (2) ☐MV (3) ☐V (4) ☐Standard Ration (999) ☐Don't know	
1.4 Which ethnicity does your family most closely identify with? (1) ☐Karen (Sgaw/ Pwo) (2) ☐Karenni (3) ☐Burmese Muslim (4) ☐Arakan (5) ☐Burma (6) ☐Mon (7) ☐Shan (PaOo) (8) ☐Kachin (9) ☐Chin (10) ☐Other **(Go to 1.4a)**	1.4a. If Other, which ethnicity does your family most closely identify with? Other _____

2. FEEDING PRACTICES - MATERNAL

2.1 What is the highest grade of education the mother of **this child** completed? (Not including kindergarten) (1) ☐Grade (Go to 2.1a) (2) ☐Post – 10 School or beyond (Go to 2.1b)	2.1a. If Grade Grade_____	2.1b. If Post – 10 School or beyond

<table>
<tr><td>(998) ☐Did not attend school
(999) ☐Don't know
(If Did not attend school or Don't know, Go to 2.2)</td><td colspan="2"></td><td>Number of years_____</td></tr>
<tr><td>2.2 How old is your youngest child?
(1) ☐Day (Go to 2.2a)
(2) ☐Week (Go to 2.2b)
(3) ☐Months (Go to 2.2c)
(999) ☐Don't know (Go to 2.3)</td><td>2.2a. If Day

Day_____</td><td>2.2b. If Week

Week_____</td><td>2.2c. If Months

Months_____</td></tr>
<tr><td colspan="4">2.3 For your youngest child, how long after birth did you put the new-born to the breast?
(1) ☐Immediately or within one hour after birth
(2) ☐Within 24 hours of birth (not < 1 hr)
(3) ☐Greater than 24 hours after birth
(4) ☐Never breastfed (Go to 2.5)
(999) ☐Don't know</td></tr>
<tr><td colspan="2">2.4 Is your youngest child still currently breastfeeding?
(1) ☐Yes
(2) ☐No (Go to 2.4a)
(3) ☐Never breastfed youngest child
(999) ☐Don't know
(If Yes, Never breastfed or Don't know, Go to 2.5.)</td><td colspan="2">2.4a. If No, How old was your youngest child when you stopped breastfeeding him/her?
_____ Months</td></tr>
<tr><td colspan="4">2.5 Did you go to the Antenatal Clinic (ANC) when you were pregnant with your youngest child?
(1) ☐Yes
(2) ☐No
(999) ☐Don't know
(If No or Don't know, Go to 2.7.)</td></tr>
<tr><td colspan="4">2.6 How many months gestation were you when you first visited Antenatal clinic (ANC) when you were pregnant with your youngest child? (Take information from Pink Book if available)
(1) ☐1-3 months
(2) ☐4-7 months
(3) ☐≥8 months
(999) ☐Don't know</td></tr>
<tr><td colspan="3">2.7 Did you take any of the following supplements when you were pregnant or breastfeeding your youngest child?</td><td>2.7a. Iron supplement
(1) ☐Yes
(2) ☐No</td></tr>
</table>

<table>
<tr><td colspan="2"></td><td>(999) ☐Don’t know</td></tr>
<tr><td colspan="2"></td><td>2.7b. Vitamin A
(1) ☐Yes
(2) ☐No
(999) ☐Don’t know</td></tr>
<tr><td colspan="2"></td><td>2.7c. Folic acid
(1) ☐Yes
(2) ☐No
(999) ☐Don’t know</td></tr>
<tr><td colspan="2"></td><td>2.7d. Vitamin B1
(1) ☐Yes
(2) ☐No
(999) ☐Don’t know</td></tr>
<tr><td colspan="2"></td><td>2.7e. Multivitamin
(1) ☐Yes
(2) ☐No
(999) ☐Don’t know</td></tr>
<tr><td colspan="2"></td><td>2.7f. Vitamin C
(1) ☐Yes
(2) ☐No
(999) ☐Don’t know</td></tr>
<tr><td colspan="2"></td><td>2.7g. ☐Other (specify)
_____
____</td></tr>
<tr><td colspan="3">2.8 What are benefits of weight gain for both the mother and baby during pregnancy? (Participant can answer more than 1 choice.)
(1) ☐Prevent risk of maternal complications and death
(2) ☐Prevent anemia in pregnancy
(3) ☐Prevent low birth weight and premature baby
(4) ☐Prevent infection for baby and mother
(5) ☐Promote child growth and development in early
(999) ☐Don’t know</td></tr>
<tr><td colspan="3">2.9 When you were pregnant with your youngest child, how did you eat compared to when you were not pregnant? (Ask mother to select 1 answer for each of the following questions. For questions 2.9a-2.9c, use food photos to show examples of protein and iron-rich foods.)</td></tr>
<tr><td>2.9a. Ate: (you were pregnant)
(1) ☐More food
(2) ☐Less food
(3) ☐Same amount of food
(999) ☐Don’t know</td><td>2.9b. Ate: (you were pregnant)
(1) ☐More protein-rich (body building) foods
(2) ☐Less protein-rich (body building) foods
(3) ☐Same amount of protein-rich (body building)
(999) ☐Don’t know</td><td>2.9c. Ate: (you were pregnant)
(1) ☐More iron-rich (protective) foods
(2) ☐Less iron-rich</td></tr>
</table>

		(protective) foods (3) ☐Same amount of iron-rich (protective) food (999) ☐Don't know
2.10 When you were breastfeeding **your youngest child**, how did you eat compared to when you were not breastfeeding and not pregnant? (*Ask mother to select one answer for each of the following questions. For questions 2.10a-2.10c, use food photos to show examples of protein & iron-rich foods.)*		
2.10a. Ate: (you were breastfeeding) (1) ☐More food (2) ☐Less food (3) ☐Same amount of food (999) ☐Don't know	2.10b. Ate: (you were breastfeeding) (1) ☐More protein-rich (body building) foods (2) ☐Less protein-rich (body building) foods (3) ☐Same amount of protein-rich (body building) (999) ☐Don't know	2.10c. Ate: (you were breastfeeding) (1) ☐More iron-rich (protective) foods (2) ☐Less iron-rich (protective) foods (3) ☐Same amount of iron-rich (protective) food (999) ☐Don't know
3. CHILD HEALTH CARD		
3.1 Is this the youngest child from the household participating in the survey? (1) ☐Yes (2) ☐No		
3.2 Number/ID ☐Yes **(Go to 3.2a)** ☐No **(Go to 3.2b)**		3.2a. If Yes, Number/ID_____ _____ (Refer to survey list)

	3.2b. If No, Number/ID_____ _____ (Refer to daily new ID numbers from supervisor)	
3.3 Child' s Name		
3.4 Child' s PIN number _____ (Refer to ration book)		
3.5 Do you live in the same household as **this child**? (1) ☐Yes (2) ☐No		
3.6 What is your relationship with **this child**? (1) ☐Father (2) ☐Mother (3) ☐Aunty/Uncle (4) ☐Sister/Brother (5) ☐Grandparents (6) ☐Neighbour (7) ☐Adoptive Parents		
3.7 Sex of this child *(Refer to child or mother health card/lemma)* (1) ☐Male (2) ☐Female		
3.8 Pink Book: (1) ☐Pink Book/child or mother health card (998) ☐No Pink Book/child or mother health card		
3.9 What is **this child's** birth date? (*Take the birth date of the child from Pink Book /child or mother health card if available.)* (1) ☐Know **(Go to 3.9a)** (999) ☐Don't know **(Go to 3.10)**	3.9a. If Know, What is this child's birth date? _____day _____month _____year	
3.10 Birth weight (1) ☐g **(Go to 3.10a)** (2) ☐kg **(Go to 3.10b)** (999) ☐Don't know (*Take the birth weight of the child from Pink Book /child or mother health card if available*.)	3.10a. Birth weight _____g	3.10b. Birth weight

			____ kg
3.11 Is **this child** currently enrolled in: *(Refer to child's health card/lemma)* (1) ☐Yes/SFP (to 3.11a) (2) ☐Yes/TFP (to 3.11a) (3) ☐Not Enrolled (999) ☐Don't know **(If Not enrolled or Don't know, Go to 3.12.)**	**3.11a. If YES**, how long has **this child** been enrolled in SFP / TFP? (1) ☐Less than 2 weeks (2) ☐2-6 weeks (3) ☐More than 6 weeks (999) ☐Don't know		
3.12 **This child** last received vitamin A *(Refer to child's health card/lemma*) (1) ☐Yes (2) ☐No (998) ☐No record (999) ☐Don't know **(If No, No record or Don't know, Go to 3.1.3)**	3.12a. **If Yes, Date this child** last received vitamin A (Refer to child's health card/lemma) _____day _____month _____year		
3.13 **This child's** last de-worming *(Refer to child's health card/lemma)* (1) ☐Yes (2) ☐No (998) ☐No record (999) ☐Don't know **(If No, No record, or Don't know, Go to Section 4.)**	3.13a. **If Yes, Date this child's** last de-worming *(Refer to child's health card/lemma)* _____day _____month _____year		
4. **FEEDING PRACTICES - BREASTFEEDING**			
4.1 Has **this child** ever been breastfed? (1) ☐Yes (2) ☐No or Never breastfed (999) ☐Don't know (**If No or Don't know, Go to 4.5.)**			
4.2 Is **this child** currently breastfeeding? (1) ☐Yes **(Go to 4.4)** (2) ☐No (999) ☐Don't know (**Go to 4.4)**			
4.3 For how many months has **this child** been breastfeeding? (1) ☐Day **(Go to 4.3a)**	4.3a. If Day _____	4.3b. If Week__ _____	4.3c. If Months _____

(2) ☐Week **(Go to 4.3b)** (3) ☐Months **(Go to 4.3c)** (999) ☐Don't know			
4.4 How many months old was **this child** when you started giving water? (1) ☐Day **(Go to 4.4a)** (2) ☐Week **(Go to 4.4b)** (3) ☐Months **(Go to 4.4c)** (4) ☐Haven't yet given (999) ☐Don't know	4.4a. If Day _____	4.4b. If Week__ _____	4.4c. If Months _____

4.5 What are the benefits of exclusive breastfeeding (*No water or any other foods or liquids*.)
(Do not read the answer; participant can answer more than 1 choice.)
(1) ☐Sufficient nutrients for baby
(2) ☐Protects baby from infections
(3) ☐Promotes optimum growth and development
(4) ☐Reduces the risk of post-partum bleeding
(5) ☐Promotes bonding and motherhood
(6) ☐Decreases breast, ovarian and cervical cancers
(7) ☐Delays new pregnancy
(8) ☐Saves money
(9) ☐Saves time
(999) ☐Don't know

5. FEEDING PRACTICES – COMPLEMENTARY FEEDING

5.1 How old was **this child** when you gave first gave complementary food/first meal? (*Includes solid, semi-solid and soft foods.)*
(1) ☐Less than 2 weeks
(2) ☐2 weeks- less than 1 month
(3) ☐1 month- less than 4 months
(4) ☐4 months- less than 6 months
(5) ☐At 6 months
(6) ☐7 months & above
(7) ☐Has not yet given **(Go to 5.5)**
(999) ☐Don't know

5.2 Did **this child** eat meals during last 24 hours?? *(Meals refer to staple food, not small snacks.)* (1) ☐Yes (2) ☐No (999) ☐Don't know **(Go to 5.3)**	5.2a. **If Yes,** How many meals did this child eat during last 24 hours? (Meals refer to staple food, not small snacks.) Number of meals _____
5.3 Did **this child** eat a snack during last 24 hours? *(Kanom,* Asia*RE*Mix snacks, fruit, other) (1) ☐Yes (2) ☐No	5.3a. **If Yes**, How many times did this child eat a snack during last 24 hours? (Kanom, Asia*RE*Mix snacks, fruit, other) Number of times _____

(999) ☐Don't know **(Go to 5.4)**		
5.4 During the **past week** did **this child** eat any BabyBRIGHT? (1) ☐Yes (2) ☐No (999) ☐Don't know **(Go to 5.5)**	5.4a **If YES,** how many days did the child eat (1) ☐ 1 day (2) ☐ 2 days (3) ☐ 3 days (4) ☐ 4 days (5) ☐ 5 days (6) ☐ 6 days (7) ☐ 7 days (999) ☐Don't know	5.4b **If NO**, why not? (1) ☐Cannot cook it (2) ☐Run out of BabyBRIGHT (3) ☐Child does not like it (4) ☐Not enough oil to cook (5) ☐Do not receive BabyBRIGHT (999) ☐Don't know
5.5 What are benefits of eating BabyBRIGHT? *(Do not read the answer; participant can answer > 1 answer.)* (1) ☐Sufficient nutrients for baby (2) ☐Protects baby from infections (3) ☐Promotes optimum growth and development, including brain development (4) ☐Prevents chronic malnutrition (stunting) (999) ☐Don't know		
6. CLINICAL EXAM		
6.1 Within this month, has **this child** been ill? (1) ☐Yes (2) ☐No (999) ☐Don't know **(If No or Don't know, Go to 6.2.)**	6.1a. I**f YES**, was the illness serious? (e.g., malaria, acute diarrhea, pneumonia, had to go to clinic…) (1) ☐Yes (2) ☐No (999) ☐Don't know	
6.2 Angular Stomatitis *(Both sides)* (1) ☐Yes (2) ☐No		
7. WEIGHT, HEIGHT & MUAC		
7.1 Weight of child (1) ☐Infant Scale **(Go to 7.1a)** (2) ☐Hanging Scale **(Go to 7.1a)** (3) ☐Floor scale **(Go to 7.1a)** (998) ☐Unable to measure **(Go to 7.2)**	7.1a. Weight of child _____ kg	
7.2 Height / Length of child. Child measured: (1) ☐Lying down **(Go to 7.2a)** (2) ☐Standing up **(Go to 7.2a)** (998) ☐Unable to measure **(Go to 7.3)**	7.2a. Height / Length of child _____ cm	
7.3 MUAC **(only for children >6 months)**	7.3a. MUAC	

(1) ☐Measure on child's left arm **(Go to 7.3a)** (2) ☐Measured on right arm **(Go to 7.3a)** (998☐Unable to measure **(Go to 7.4)** (999) ☐ Child under 6 months of age **(Go to 7.4)**	_____ cm	
7.4 Does **this child** have a disability? (1) ☐Yes (2) ☐No **(Go to Section 8)**	**7.4a. If Yes**, what is the disability? *(Ask the caretaker for their common word.)* (1) ☐Visual impairment (ex. bad eye) (2) ☐Communication impairment (ex. cannot speak) (3) ☐Hearing impairment (4) ☐Motor impairment (ex. CP, cannot walk) (5) ☐Intellectual/cognitive impairment (ex. Downs Syndrome, developmental delay) (6) ☐Other **(Go to 7.4b)**	7.4b. If Other_____ _____ ___
8. Next		
(1) ☐ Another child in the family **(Go to Section 3. CHILD HEALTH CARD)** (2) ☐ Another child and mother in same house **(Go to Section 2. FEEDING PRACTICES – MATERNAL)** (3) ☐ Another child and mother in same house number, but not same house **(Go to Section 1. HOUSEHOLD INFORMATION)** (4) ☐ Completed		