
NUTRITION SURVEY PROCEDURES

for Refugee Camps on the Thailand Burma Border

Thailand Burma Border Consortium, 2007
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SOURCES

Leisel Tally MPH, International Health Branch, Centers for Disease Control and Prevention

The Management of Nutrition in Major Emergencies; WHO, 2000

Field Guide on Rapid Nutritional Assessment in Emergencies; WHO, 1995

Nutrition Guidelines; MSF, 1995

How To Weigh and Measure Children; UN Dept of Technical Co-operation for Development and Statistical Office, 1986

Community Nutritional Assessment, Jelliffe, et al., 1989

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I. SURVEY COORDINATION

The Thailand Burma Border Consortium (TBBC) provides technical support, training, and supervision to health agency staff for annual nutrition surveys conducted in all camps on the Thailand Burma border. TBBC organizes and supervises the survey and analyzes and reports survey data back to the health agency and the CCSDPT Health Information Systems (HIS) Officer.

Health agency staff are responsible for survey staffing, including medics/nurses for anthropometric measurements, home visitors for calling selected households and completing survey questionnaires, and local/international staff for data entry. Staffing numbers needed for surveys are outlined in the next section.

Survey dates are arranged in advance between TBBC and health agencies. Responsibilities are outlined below:

TBBC	<ul style="list-style-type: none">• Overall survey organization• Survey questionnaire• Sampling• Survey training (practical)• Survey supervision• Data entry• Data analysis• Survey report writing
HEALTH AGENCY	<ul style="list-style-type: none">• Camp population data for sampling• Survey staff (medics/nurses and home visitors)• Survey equipment in good working order• Translator (if necessary)• Logistics (eg transportation if necessary)• Data entry

II. STAFFING AND EQUIPMENT NEEDED

The health agency will coordinate the following staff to conduct the survey:

Survey Staffing

No.	Staff member	Role
1	nurse/CHW	survey supervisor
3	CHW	registrar
4	CHW	interviewer
1	medic/nurse	clinical exam
2	nurse/CHW	weight
3	nurse/CHW	height
1	CHW	z scores/review form
1-2	CHW	runners

The health agency insures that the following equipment is prepared and in *good working order*:

- Salter spring-type hanging scale to 25 kg
- height board to 110 cm (UNICEF 'Shorr Board' or made to specifications – see Appendix)
- tables, chairs, pens

III. SURVEY TRAINING

Training will be conducted by TBBC in the camp for 1-2 days.

Training will include:

- registration and follow up procedures
- review of survey questionnaire
- clinical examination
- weight and height/length measurements
- z-score tables and referrals
- survey staff roles/jobs
- practice sessions

IV. METHODOLOGY

Sampling

The TBBC Nutritionist will calculate the sample size for the survey.

Data needed for sample size calculation and sampling:

- household lists for entire camp from camp committee or home visitors
- current total population
- current <5 years population
- household size or number of households in the camp

Sampling Method: systematic random sampling from household lists (camp committee or home visitor/community health worker)

Sample Size Calculation: $n = \frac{k \times t^2 \times (1-p) \times p}{\gamma^2}$

n= sample size

k= design effect- for simple random sample, use 1

t= confidence interval (1.96 for 95% confidence interval)

p= estimated prevalence of malnutrition

γ = precision

To ensure the sample size is large enough to compensate for households that do not participate, an extra 10% is added to the calculated sample size.

Sample sizes for various prevalences derived from above formula (using 95% CI and a design effect of 1)

Prevalence	Precision	Sample Size	Add 10%
Acute			
4%	2%	368	408
5%	2%	456	506
Chronic			
50%	5%	384	426
40%	5%	368	408
30%	5%	276	306
40%	4%	576	640

If the population of children 6 to 59 months of age is less than 5000 the following formula is used:

$$\text{Revised sample size} = \frac{\text{sample size from formula}}{1 + (\text{sample size} / \text{total} < 5 \text{ pop})}$$

The revised sample is then divided by 0.9 to build in an additional 10% to ensure that the sample size is large enough.

$$\text{New sample size with additional 10\%} = \text{revised sample size} / 0.9$$

Sampling Interval Calculation

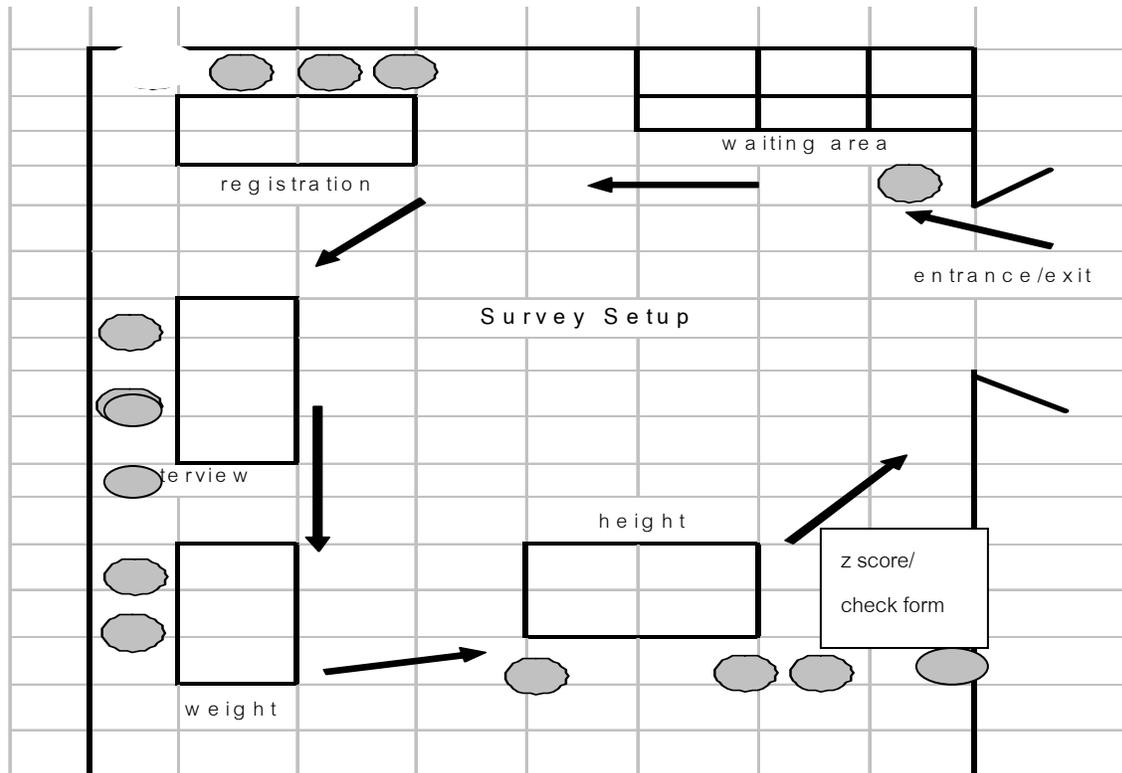
STEPS	HOW TO CALCULATE
1. determine the total population of children <5	use camp committee or home visitor lists
2. determine the no. households in the camp	use camp committee or home visitor lists
3. calculate the no. children <5 per household	= pop children <5 / no. households in camp
4. calculate the no. households needed to achieve the sample size	= sample size / no. children <5 per household
5. calculate the sampling interval	= no. households in the camp / no. households needed = every ' <i>nth</i> ' household

Sample Selection Process

1. The starting zone and section is randomly selected.
2. The first household in the zone or section is selected and marked, and then every '*nth*' household is selected and marked.
3. The process continues sequentially through the sections until all sections are completed (eg if section 9 is randomly selected, the selection will go on to section 10, 11...etc. and then back to one until the whole camp is sampled)
4. All households selected are recorded to a comprehensive list.
5. Home visitors or section leaders will check all households included in the sample to see if they have children between the age of 6-59 months prior to the survey. Checks should be done by CHWs responsible for those sections/households. Only households with children <5 will be called to the survey. CHWs will make a list of the number of children <5 in households with children <5. Households without children 6-59 months will not be called to the survey.

Survey Procedures

The survey will be conducted in a central location that households can easily access. In larger camps, surveys will take place in several areas, consecutively. The set-up will follow the general plan below:



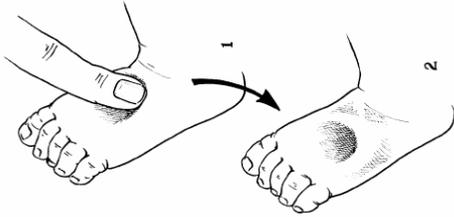
All households will be called according to a schedule developed by the survey staff. All households selected are surveyed, even if the target number of children has already been reached. Households will be requested to bring the child's health card to the survey.

Every child between 6-59 months in the selected household is surveyed. If a child is found not to be between 6-59 months of age, they are not included in the survey. If the child is a patient at the In-patient Department (IPD), the questionnaire is completed with the mother and the child will be weighed and measured at the IPD.

If households fail to come to the survey, runners will follow up 3 times. If after 3 visits the household is not available, they are no longer included in the survey.

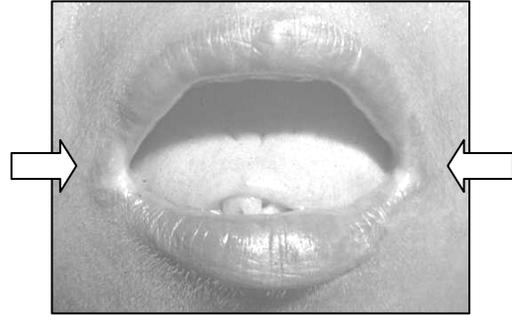
Clinical Exam and Measurements

Children are examined for bi-lateral angular stomatitis (a fresh wound or healed wound) and bilateral pitting edema (below).



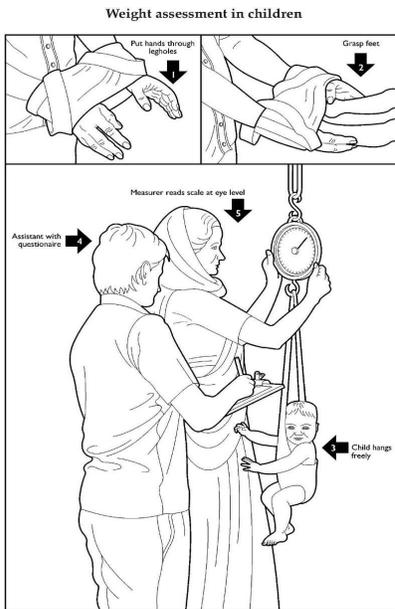
Pitting oedema on dorsum of foot. After applying pressure for a few seconds, a pit remains after the finger is removed.

bilateral pitting edema

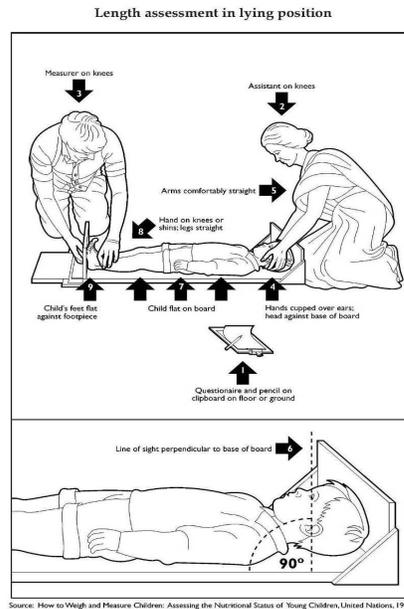


angular stomatitis

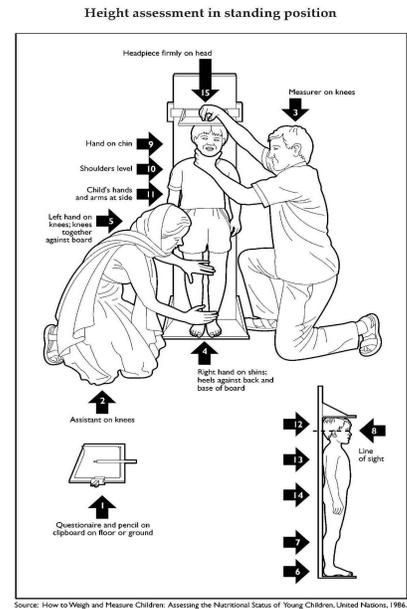
Weight measurements are taken using a Salter spring-type hanging scale to 25 kg and are measured to the nearest 0.1 kilogram. Height/length measurements are taken using a height board in good condition (UNICEF 'Shorr Board' or made to specifications) and are measured to the nearest millimeter.



Source: How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children, United Nations, 1986.



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Male and female z-score tables will be used to find and refer children who are <-2 z scores to selective feeding programs. Any child found with bilateral pitting edema will be referred to the IPD.

V. DATA INPUT AND ANALYSIS

Data Entry

TBBC staff will do data entry and the TBBC Nutritionist will clean and analyze data and report back to the health agency.

Analysis

Demographics

- number of children and % male and female
- age and age group distributions
- new arrivals (living in camp ≤ 3 months)

Nutrition Status

- mean/median weight-for-height and height-for-age z-scores
- % severe, moderate and global acute malnutrition (total, age, sex, new arrival status)
- % severe, moderate and global chronic malnutrition (total, age, sex, new arrival status)
- % edema and angular stomatitis

Programme Coverage

- % currently enrolled in SFP/TFP and % below -2 z-scores who are not enrolled in SFP/TFP
- % that received vitamin A supplement within last 6 months, last 1 year, last 2 years, last 3 years, last 4 years and % never received vitamin A supplement
- number referred to SFP/TFP during survey

VI. DATA INTERPRETATION

Malnutrition and Indicators



Acute malnutrition is measured by weight-for-height or bilateral pitting edema.

Acute malnutrition (wasting) is usually caused by illness and/or shortage of food, and results in a thin and wasted child. Children with acute malnutrition are at increased risk of morbidity, including increased duration and severity of the infection, as well as an increased risk of mortality. Severe acute malnutrition is

treated in the In-patient department (IPD) with therapeutic feeding, and moderate acute malnutrition in the (take home) supplementary feeding program.

Chronic malnutrition is measured by height-for-age. Chronic malnutrition (stunting) is caused or influenced by long-term food deficiency, OR poor quality diet that does not have vitamins and minerals, OR previous acute malnutrition, OR poor maternal nutrition status, OR low economic status, OR poor feeding practices, or various combinations of these, and results in a short child.



Chronic malnutrition cannot be addressed by therapeutic or supplementary feeding. It must be addressed in other ways, such as improving the diet, improving feeding practices, providing nutrition and health education to mother, ensuring good access to health care, water and sanitation, etc.

Underweight is a combination of both weight-for-height and height-for-age and therefore reflects both long-term and recent malnutrition or a combination of both. It does not tell us the cause of malnutrition. Underweight is assessed by weight-for-age and should only be used for growth monitoring.

Micronutrient malnutrition can be caused by deficiency of one or more micronutrients. Angular stomatitis – fissures on both sides of the mouth – indicates B2 deficiency (riboflavin deficiency) or multiple B-vitamin deficiencies. This is a common deficiency in this population and is clinically apparent, and gives an indication of overall B vitamin adequacy and overall micronutrient status.

Definitions

MAM = moderate acute malnutrition
= weight-for-height <-2 to -3 Z scores

SAM = severe acute malnutrition
= weight-for-height <-3 Z scores or bilateral pitting edema

GAM = global acute malnutrition
= weight-for-height <-2 Z scores

MCM = moderate chronic malnutrition
= height-for-age <-2 to -3 Z scores

SCM = severe chronic malnutrition
= height-for-age <-3 Z scores

GCM = global chronic malnutrition
= height-for-age <-2 Z scores

Angular stomatitis = presence of bilateral fissures on mouth (fresh wounds or scars)

Nutritional Edema = bilateral pitting edema

WHO Classification: Global Acute Malnutrition (<-2 z scores)

severity	prevalence in <5 population
acceptable	<5%
poor	5-9%
serious	10-14%
critical	>15%

WHO Classification: Global Chronic Malnutrition (<-2 z scores)

severity	prevalence in <5 population
low	<20%
medium	20-29.9%
high	30-39.9%
very high	> 40%

နိဂါးကဏ္ဍ / (မှတ်တမ်းနံပါတ်) Number/ID.....

ရက်စွဲ (ရက်စွဲ) Date.....

မိခင် (အမည်) Name _____ ခရိုင် / (ခရိုင်) Camp _____

ဇုန် / ဇုန်ခွဲ / (ရပ်၊ ရပ်ကွက်) Zone/Section _____ မိခင်နိဂါး / (အိမ်နံပါတ်) House number _____

ခရိုင် အချိန်အကုန် (ခရိုင်အတွင်းအချိန်) Time in Camp နှစ် (နှစ်) Years _____ လ (လ) Months _____

1. မိ / မိ (လိင်) Sex: မိ (ကျား) Male (M) မိ (မ) Female (F)

2. မိခင်ရက်စွဲ / (မွေးနေ့ သက္ကရာဇ်) Birth date:

ရက်စွဲ (ရက်) Day(dd) _____ လ (လ) Month(mm) _____ နှစ် (နှစ်) Year (yyyy) _____

အသက် (အသက်) Age: နှစ် (နှစ်) Years _____ လ (လ) Months _____ တွေးမိသလို / (မသိ) don't know (DK)

3. နိဂါးကဏ္ဍ အလေးချိန် (ကီလိုဂရမ်) Birth weight _____ kg တွေးမိသလို / (မသိ) don't know (DK)

4. ခုတ်တင်ထားသော / (လက်ရှိလက်ခံထားခြင်း (တစ်စုစီစီစီ)) Currently enrolled in:

SFP (S) TFP (T) တွေးမိသလို / (မသိ) don't know (DK)

5. မိခင်မိခင်မိခင်မိခင်မိခင် (စိတ်မပူစေ နောက်ဆုံးရရှိသောနေ့ ရက်) Date of last vita suppl (check card):

ရက်စွဲ (ရက်) Day (dd) _____ လ (လ) Month(mm) _____ နှစ် (နှစ်) Year (yyyy) _____

မိခင်မိခင်မိခင် / (မရရှိ) no record (NR)

6. အင်္ဂါအဆီအဆီ / (ခါးကပ်လမ်း) / (ကုန်ကုန်ပေါ်စင် (နှစ်တက်စေ)) Angular Stomatitis (both sides)

မိခင် / (ရှိ) Yes (Y) မိခင် / (မရှိ) No (N)

7. ကတုတ် (မိခင်မိခင်) / (ပေါ်ရောင်ခြင်း (ခြေနှစ်ဖက်စေ)) Edema (both feet):

မိခင် / (ရှိ) Yes (Y) မိခင် / (မရှိ) No (N)

8. မိခင်အလေးချိန် / (ကလေး၏ကိုယ်အလေးချိန်) Weight of child _____ kg

တိုင်းတာရန် မဖြစ်နိုင် (တိုင်းတာရန်မရ) unable to measure

9. မိခင်အလေးချိန် / (ကလေး၏အရှည်အမြင့်) Height / Length of child _____ cm

တိုင်းတာရန် မဖြစ်နိုင် (တိုင်းတာရန်မရ) unable to measure

10. နိဂါးကဏ္ဍအလေးချိန် / အလေးချိန် / Z- SCORE (ကွဲလွဲမှုမှတ်တမ်း) (ကိုယ်အလေးချိန်အရပ်အမြင့် Z-score (ဇယားကိုကြည့်ပါ))

Weight-for-height z-score (refer to table): < -3 < -2 ≥-2

11. တွေးမိသလို (လွှဲပြောင်းခြင်း (တစ်စုစီစီ)) Referred to: SFP (S) TFP (T)