NUTRITION SURVEY PROCEDURES for Refugee Camps on the Thailand Burma Border

Thailand Burma Border Consortium, 2007
12/5 Convent Road, Silom Road
Bangkok, Thailand 10500
CONTENTS:

I. SURVEY COORDINATION______________________________2
II. STAFFING AND EQUIPMENT NEEDED__________________3
III. SURVEY TRAINING________________________________4
IV. METHODOLOGY____________________________________5
V. DATA INPUT AND ANALYSIS__________________________10
VI. DATA INTERPRETATION______________________________12

APPENDICES
SURVEY FORM______________________________________14

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

FOR INFORMATION, CONTACT:

Andrea Menefee, MPH, RD  andrea@tbbc.org
## 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:

<table>
<thead>
<tr>
<th>TBBC</th>
<th>HEALTH AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Overall survey organization</td>
<td>• Camp population data for sampling</td>
</tr>
<tr>
<td>• Survey questionnaire</td>
<td>• Survey staff (medics/nurses and home visitors)</td>
</tr>
<tr>
<td>• Sampling</td>
<td>• Survey equipment in good working order</td>
</tr>
<tr>
<td>• Survey training (practical)</td>
<td>• Translator (if necessary)</td>
</tr>
<tr>
<td>• Survey supervision</td>
<td>• Logistics (eg transportation if necessary)</td>
</tr>
<tr>
<td>• Data entry</td>
<td>• Data entry</td>
</tr>
<tr>
<td>• Data analysis</td>
<td></td>
</tr>
<tr>
<td>• Survey report writing</td>
<td></td>
</tr>
</tbody>
</table>
II. STAFFING AND EQUIPMENT NEEDED

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

Survey Staffing

<table>
<thead>
<tr>
<th>No.</th>
<th>Staff member</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>nurse/CHW</td>
<td>survey supervisor</td>
</tr>
<tr>
<td>3</td>
<td>CHW</td>
<td>registrar</td>
</tr>
<tr>
<td>4</td>
<td>CHW</td>
<td>interviewer</td>
</tr>
<tr>
<td>1</td>
<td>medic/nurse</td>
<td>clinical exam</td>
</tr>
<tr>
<td>2</td>
<td>nurse/CHW</td>
<td>weight</td>
</tr>
<tr>
<td>3</td>
<td>nurse/CHW</td>
<td>height</td>
</tr>
<tr>
<td>1</td>
<td>CHW</td>
<td>z scores/review form</td>
</tr>
<tr>
<td>1-2</td>
<td>CHW</td>
<td>runners</td>
</tr>
</tbody>
</table>

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:  
\[
  n = k \times \frac{t^2 \times (1-p) \times p}{\gamma^2}
\]

- \(n\) = 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
- \(\gamma\) = 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)

<table>
<thead>
<tr>
<th>Prevalence</th>
<th>Precision</th>
<th>Sample Size</th>
<th>Add 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4%</td>
<td>2%</td>
<td>368</td>
<td>408</td>
</tr>
<tr>
<td>5%</td>
<td>2%</td>
<td>456</td>
<td>506</td>
</tr>
<tr>
<td>Chronic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>5%</td>
<td>384</td>
<td>426</td>
</tr>
<tr>
<td>40%</td>
<td>5%</td>
<td>368</td>
<td>408</td>
</tr>
<tr>
<td>30%</td>
<td>5%</td>
<td>276</td>
<td>306</td>
</tr>
<tr>
<td>40%</td>
<td>4%</td>
<td>576</td>
<td>640</td>
</tr>
</tbody>
</table>

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.

\[
\text{New sample size with additional 10%} = \frac{\text{revised sample size}}{0.9}
\]

Sampling Interval Calculation

<table>
<thead>
<tr>
<th>STEPS</th>
<th>HOW TO CALCULATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>determine the total population of children &lt;5 use camp committee or home visitor lists</td>
</tr>
<tr>
<td>2.</td>
<td>determine the no. households in the camp use camp committee or home visitor lists</td>
</tr>
<tr>
<td>3.</td>
<td>calculate the no. children &lt;5 per household (= \text{pop children } &lt;5 / \text{no. households in camp})</td>
</tr>
<tr>
<td>4.</td>
<td>calculate the no. households needed to achieve the sample size (= \text{sample size} / \text{no. children } &lt;5 \text{ per household})</td>
</tr>
<tr>
<td>5.</td>
<td>calculate the sampling interval (= \text{no. households in the camp} / \text{no. households needed}) = every ‘nt’ household</td>
</tr>
</tbody>
</table>
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 (e.g., 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 bilateral angular stomatitis (a fresh wound or healed wound) and bilateral pitting edema (below).

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 ‘Schorr Board’ or made to specifications) and are measured to the nearest millimeter.

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 is 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)**

<table>
<thead>
<tr>
<th>severity</th>
<th>prevalence in &lt;5 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>acceptable</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>poor</td>
<td>5-9%</td>
</tr>
<tr>
<td>serious</td>
<td>10-14%</td>
</tr>
<tr>
<td>critical</td>
<td>&gt;15%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>severity</th>
<th>prevalence in &lt;5 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>low</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>medium</td>
<td>20-29.9%</td>
</tr>
<tr>
<td>high</td>
<td>30-39.9%</td>
</tr>
<tr>
<td>very high</td>
<td>&gt; 40%</td>
</tr>
<tr>
<td><strong>1.</strong></td>
<td>Days in the camp (เดือน) / Month (เดือน)</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

| **2.** | No. of people living in household: (บุคคลในที่พักอาศัย) |

| **3.** | No. of receive ration: (จำนวนรับอาหาร) |

| **4.** | Child receives ration: (เด็กรับอัตราการรักษา) Yes □ (Y) No □ (N) |

| **5.** | Sex: (เพศ) Male □ (M) Female □ (F) |

| **6.** | Birth date: (วันที่เกิด) Day (วัน): Day (วัน) Month (เดือน): Month (เดือน) Year (ปี): Year (ปี) |

| **7.** | Birth weight: (น้ำหนักที่เกิด) kg |

| **8.** | Currently enrolled in: SFP □ (S) TFP □ (T) |

| **9.** | Date of last vitA suppl (check card): (วันล่าสุดรับวิตามินเอ) Day (วัน): Day (วัน) Month (เดือน): Month (เดือน) Year (ปี): Year (ปี) |

| **10.** | Angular Stomatitis (both sides): (โรคอันวิริยะเบ็ดหน้า (ขอบทั้งสองข้าง)) Yes □ (Y) No □ (N) |

| **11.** | Edema (both feet): (อักเสบที่เท้า (ทั้งสองข้าง)) Yes □ (Y) No □ (N) |

| **12.** | Weight of child: (น้ำหนักเด็ก) kg |

| **13.** | Height / Length of child: (ความสูง/ความยาว) cm |

| **14.** | Weight-for-height z-score (�ี-สกอร์น้ำหนักกับความสูง) (น้ำหนักกับความสูงของเด็ก ซึ่งมี Z-score (�ี-สกอร์น้ำหนักกับความสูงของเด็ก)) |

| **15.** | z-score (�ี-สกอร์) Weight (น้ำหนัก) (BMI) Referred to: SFP □ (S) TFP □ (T) |