



## No. 2.5 Nutrition Surveys in Emergencies

### What are nutrition surveys?

**Nutrition surveys** are surveys conducted at random to estimate the prevalence of acute malnutrition in population. Sometimes called **anthropometric surveys**, nutrition surveys are not intended to assess individual children, and must be carried out using sampling procedures.

**Rapid nutritional assessments** are used to assess the underlying causes and risks of malnutrition.

*The Sphere handbook recommends gathering information on underlying causes before conducting an anthropometric survey.*



Fig. 1: Nutrition surveys estimate acute malnutrition prevalence (Credit: Nick Danziger/OXFAM)

### When should nutrition surveys be conducted?

Nutritional surveys are most useful where the **severity of a crisis is uncertain**, in **slow-onset crises** or **chronic emergencies**. In some acute crises, however, when a population's needs are obvious, immediate program implementation takes priority over doing a survey.

When doing a nutritional survey, the working team should have the capacity to conduct a reliable survey and to respond to the emergency, or to influence others to do so.

If the team lacks the relevant expertise, this should be requested, or the survey should not be done.

*Wrong information is worse than no information at all.*

Box 1 lists the reasons why Oxfam would conduct a nutrition survey.

#### Box 1: When and why does Oxfam conduct a nutritional survey?

Oxfam will conduct a nutritional survey:

1. To assess changes in nutritional status in relation to normal seasonal patterns;
2. To determine the severity of people's nutritional situation and the risk to people's lives;
3. To determine the stage of a food crisis/famine and to identify appropriate interventions;
4. To evaluate programmes; and/or,
5. As an advocacy tool: to highlight a nutritional problem and elicit a response.

### Who or what is measured during a nutrition survey?

A nutrition survey should include the following **anthropometric** and **contextual information**:

1. Anthropometry
  - Weight-for-height data in children 6–59 months (65–110 cm tall). This age group is used to indicate population-level malnutrition, unless specific information suggests that older children and adults may be more severely affected (for instance, when there is a high prevalence of HIV/AIDS)
  - Mid-Upper Arm Circumference (MUAC) data is collected in children 12–59 months. MUAC is not recommended for surveys, unless time is limited. There is no need to measure both weight-for-height and MUAC in the same survey
  - Body Mass Index (BMI) should be used for adults 20–60 years
2. Morbidity and mortality. Under-5 mortality rate and crude mortality rate (mortality rate among all age groups)
3. Food security situation (see Oxfam Rough Guides for EFSL assessments)
4. Social/care and health environment (including feeding practices and diet diversity)
5. Available resources (organisational, human and financial resources)
6. Political and security context

## How is a nutrition survey conducted?

Box 2 outlines the steps involved in a nutrition survey. Methods for generating data include the following:

**Anthropometric analysis.** Quantitative methods for anthropometric surveys are based on probabilistic sampling and use descriptive statistics (e.g., means, standard deviations, confidence intervals) for analysis.

Sampling is usually done in clusters, or as random samples. **Cluster sampling** involves selecting different clusters (geographical areas) and up to 30 children per cluster. This type of sampling is suited to emergencies because it does not require that households be listed or organised into a regular pattern. *It has become common practice to use a cluster sampling with a sample size of 900 children (30x30). In practice more than 900 children are very rarely needed.* When household information is available and households are ordered in a regular pattern (e.g., in IDP camps), **random sampling** is more appropriate.

A 30 x 30 cluster survey produces confidence intervals of malnutrition for all the 30 clusters. It is not possible to take data from each cluster to represent that geographical area. This type of breakdown and analysis is statistically invalid.

**Underlying causes analysis.** Assessments involve reviewing secondary sources of information and gathering data using qualitative (non-probabilistic) methods, such as household interviews and focus group discussions and transect walks with members of the affected population (see *EFSL Rough Guide 1.5 Participatory Rural Appraisal*).

**Assessing morbidity and mortality.** If existing health statistics are unreliable, information about the most common, recent diseases (assess the diseases that have occurred in the last 2 weeks) in the population can be gathered by asking the mothers of children selected for anthropometric measurements. Mortality data should cover a period of 1–3 months before the assessment

**Dietary diversity analysis.** There has been a lot of interest in dietary diversity as a quantitative indicator of food insecurity. However, diet diversity says nothing about the causes of food insecurity. There is no statistical relationship between dietary diversity and acute malnutrition. At the same time, the implications for micronutrient deficiencies should not be underestimated (see *EFSL Rough Guide 2.4 Micronutrient Deficiencies in Emergencies*).

## What makes a reliable nutrition survey?

A reliable nutritional survey requires **allocation of adequate time and resources**. There should be sufficient local personnel recruited and trained (with 2–3 members per survey team) to complete data collection within 3–5 days (usually longer in large rural areas). Preparation for fieldwork can take up to a week, and analysis and report writing 1–2 weeks. When scheduling fieldwork, avoid market days, local celebrations, food distribution days, vaccination campaigns, and consider the agricultural calendar.

Table 1 outlines how to assure the reliability of a nutrition survey. *Oxfam recommends using the SMART Methodology when overseeing or conducting a nutrition survey.*

SMART provides a basic, integrated method for nutrition surveys in emergency situations. It includes the Nutrisurvey software for nutrition and mortality data analysis and sampling, plus an optional food security component based on the Household Economy Approach (see *EFSL Rough Guide 1.2 HEA*) to analyzing the underlying food security situation.

### Box 2: What steps are involved in a nutrition survey?

1. Defining the objectives
2. Defining the geographic area and population group(s) to be surveyed
3. Informing community leaders and local authorities
4. Determining sample size
5. Gathering available information
6. Deciding what additional information to collect
7. Designing and pre-testing data collection forms and analysis sheets
8. Gathering the necessary equipment
9. Selecting and training survey personnel
10. Scheduling and conducting fieldwork under supervision
11. Analyzing, interpreting, and reporting the findings
12. Writing the report and presenting it to interested parties

**Table 1. Assessing reliability in nutrition surveys**

What to check	What to know
<i>Reliability of methods</i>	
Sampling design Sample size Confidential intervals Nutritional indices	<ul style="list-style-type: none"> <li>• Weight-for-height is the recommended index</li> <li>• MUAC can identify severely malnourished children in a time constrained situation</li> <li>• A two-stage cluster survey is the most appropriate</li> <li>• There should be 25–30 clusters</li> <li>• A sample size of 450 should be enough for simple random samples</li> <li>• A sample size of around 900 should be enough for cluster sampling</li> <li>• The size of the <i>confidence</i> interval (CI) reflects the precision of the sample. If the CI is too high the sample size may have been too small and not representative enough</li> <li>• Standard deviation of the WFH should always be 0.8–1.2 z-scores</li> </ul>
<i>Bias</i>	
Incomplete coverage Age bias Measurement error	<ul style="list-style-type: none"> <li>• Have all groups in the area been included (e.g. nomadic groups)?</li> <li>• Have any people recently migrated into or out of the area?</li> <li>• Was the survey conducted during a special season?</li> <li>• How many clusters was the team unable to access?</li> <li>• What is the demographic composition of the sample? Is it unusual?</li> <li>• Did the team have experience? What training did they receive?</li> </ul>
<i>Comparing surveys</i>	
Methods Coverage Population changes	<ul style="list-style-type: none"> <li>• Were the methods and coverage the same in both surveys?</li> <li>• Has the population demography changed as a result of migration?</li> <li>• Were the surveys done at the same time of the year?</li> <li>• Have the shifts in frequency distribution (and/or Z score mean) been analyzed?</li> </ul>
<i>Information on underlying causes</i>	
Information sources Interpretation	<ul style="list-style-type: none"> <li>• Have all underlying causes been assessed?</li> <li>• What secondary sources have been used?</li> <li>• Do findings on underlying causes match with anthropometry?</li> <li>• Have seasonal patterns been considered in data interpretation?</li> </ul>

### Where can I find further reading and more detailed information?

Oxfam EFSL Rough Guides – 1.1 EFSL assessments (determining underlying causes) – 2.1 Understanding Malnutrition – 2.2 Interpreting Malnutrition	Minimum standards in food security, nutrition and food aid: Sphere Project 2004. Humanitarian Charter and Minimum Standards in Disaster Response (Chapter 2)
Determining survey sample size: NutriSurvey <a href="http://www.nutrisurvey.de/lp/lp.htm">www.nutrisurvey.de/lp/lp.htm</a>	SMART methodology for measuring mortality, nutritional status and food security in crises: <a href="http://www.smartindicators.org">www.smartindicators.org</a>

### Who can I contact for more information and guidance?

Laura Phelps, Emergency Food Security and Livelihoods Adviser, EFSL Team, Humanitarian Department, Oxford—[lphelps@oxfam.org.uk](mailto:lphelps@oxfam.org.uk).

### References

1. Young H. and Jaspars S. 2006. HPN. Working Paper Number 56
2. WHO et al. 2000. *The Management of Nutrition in Major Emergencies*. Geneva.
3. Save the Children UK 2004. *Emergency Nutrition Assessment: Guidelines for Fieldworkers*. Chapter 2.
4. Measure Evaluation Project 2003. *Lot Quality Assurance Sampling Survey*.
5. Oxfam GB 2001. *Oxfam's Approach to Nutrition Surveys in Emergencies*.