

Fact sheet on nutrition surveys

November 2007



Fact sheet on nutrition surveys- UNHCR- November 2007

A fact sheet intended for UNHCR health, HIV and nutrition coordinators and implementing partners in order to clarify some issues often raised when a survey is undertaken.

1. When should I conduct a nutrition survey?

Nutrition surveys should be conducted to:

- Establish baseline data and estimate if a nutritional emergency or the risk of a nutritional emergency exists;
- Estimate the severity and geographical extent of the nutritional emergency and possibly the groups most affected or at risk;
- Assess the likely evolution and impact of the emergency on health and nutritional status, taking into account secondary information, including food security, food distributions and response to the crisis;
- Assess the needs for nutrition interventions and identify the most effective measures to prevent or minimize the nutritional emergency; and
- Determine the need to establish or expand existing surveillance, so that the effectiveness of measures taken can be monitored over time.

2. With what frequency should I conduct nutrition surveys?

- Once a program of assistance is underway, periodic assessments are done to assist evaluation of the effectiveness of response and recovery;
- Within two months after the start of a new operation/arrival of new refugees;
- In the event of a change in the situation which might affect the nutritional situation; and
- Once a year in stable situations.

3. What other key issues should I consider?

- In a context where seasonal cycles might have a serious effect on households' food security (for example, where refugees can cultivate or can have better access to income-generating activities during the cultivation season), surveys should be conducted at periods of highest or lowest nutrition and food security risk, *i.e.* harvest time or hunger gap;

- To determine if seasonal cycles have an effect on food security, food security assessments might be conducted along with nutrition surveys at periods of highest and lowest nutrition and food security risk for one or two years; and
- Repeated increases in admissions to feeding centers during some periods of the year might also be indicative of seasonal effects.

4. Who is the target population?

- The target population for nutrition surveys is generally 6 to 59 month-old children.
- The refugees and other person of concern to UNHCR to be assessed may be moving or living in camps, towns or villages, or may be dispersed in a rural environment. This will have important bearings on the design of the survey and the use of the results.
- Conducting nutrition surveys among the national population surrounding the camps is useful for the following reasons:
 - To enable the comparison of the nutritional status of refugees with national populations, and
 - To plan for feeding programs because national populations can have access to feeding centers.

5. Where should I conduct the nutrition survey?

- Depending on the goal and objectives, surveys can be conducted in each camp in a region (several camps combined into one survey) or in a country (all camps combined).
- The regional survey will be implemented if camps are in the same area and if there is no indication that the nutritional and food security situations are different between camps.
 - For example, in Dadaab, Kenya, surveys were conducted in each of the three camps for several years. These surveys showed that the nutritional situation in each camp was similar to that of the other camps. A single survey for all camps was conducted in subsequent years. Carrying out only one survey for all camps will save time and money.

6. What indicators should I measure?

Anthropometry – the data collected are weight, height, sex, edema, and age (or estimate of age).

- Global Acute Malnutrition (GAM) – weight-for-height z-score < -2 and/or edema,
- Severe Acute Malnutrition (SAM) – weight-for-height z-score < -3 and/or edema,
- Edema (bilateral pedal edema).

Things to consider:

- Weight-for-height is recommended as the main or only indicator of malnutrition by most manuals and guidelines issued by UN agencies, governments, and nongovernmental organizations. It is robust, independent of age for children, has an internationally accepted reference population, and its interpretation is based on wide experience in many parts of the world. The indicator is formed from weight and height measurements by comparing the weight of each child to the distribution of weights of reference children of the same height. Boys and girls are treated separately, although in the field a quick analysis can be done using a table for combined sexes.
- Although weight-height in z-score is used in surveys to evaluate prevalence of acute malnutrition, weight-height in percentage of the median is most widely used as criteria of admission for children in feeding programs (weight-height $< 70\%$ for therapeutic feeding and weight-height $> 70\%$ and $< 80\%$ for supplementary feeding centers). In this case, this indicator should also be calculated to estimate the expected needs.
 - Chronic malnutrition (stunting) – height-for-age z-score < -2 (to be used only if birth dates are known with relative accuracy).
 - Mid-Upper-Arm-Circumference (MUAC). Given that MUAC is increasingly used as a criteria for admission into feeding centers for children 6-59 months old (especially for community-based management of severe acute malnutrition – MUAC < 110 mm)¹, measuring MUAC may be useful to calculate the number of children that would require nutritional treatment. (See manual referenced below for indicators).

¹ Prudhon C, Briend A, Weise-Prinzo Z *et al.* WHO, UNICEF and SCN informal consultation on community-based management of severe malnutrition in children. Food and Nutr Bull. 2006. 27(3).

Coverage of feeding centers

Enrolment status in feeding programs:

- A nutrition survey might be the opportunity to evaluate the coverage of feeding centers. For questionnaire and calculation of the coverage see:

Duffield A, Taylor A (2004) *Emergency Nutrition Assessment: Guidelines for Field Workers*. Save the Children. This publication can be ordered from: <http://www.savethechildren.org.uk/scuk/jsp/resources/details.jsp?id=2313&group=resources§ion=publication&subsection=details> .

- However, estimation of coverage from data of a nutrition survey might not be very precise as few malnourished children are usually detected during a survey.
- The coverage of feeding centers can be estimated by another type of survey specifically defined for this purpose.^{1,2}

Micronutrient deficiencies

Micronutrient deficiencies might also be surveyed:

- Anemia in children (6-59 months) and women (usually their mothers), using hemoglobin measurement in blood, should be part of the regular nutrition surveys.³
- Biochemical measurements of other micronutrients are difficult to implement and should be reserved for specific situations.
- Clinical signs of some micronutrient deficiencies⁴, such as goiter for iodine deficiency, might be used but they might not be specific and may be difficult to recognize. Specific training is required.
- In some situations, such as a strong presumption of certain deficiencies in a population or investigation of an outbreak, it is better to call for a specialized institution to conduct the survey.
- Independently of nutrition surveys, analysis of the micronutrient content of the food basket can indicate potential deficiencies.⁵

² Valid International, Community-based therapeutic care (CTC), a field manual. Valid International, Oxford. Available at: www.validinternational.org

³ For criteria of severity, see WHO (2000) *The Management of Nutrition in Major Emergencies*. Available at <http://www.who.int/bookorders/anglais/detart1.jsp?sesslan=1&codlan=1&codcol=15&codcch=2154#> .

⁴ See UNHCR, *Micronutrient Malnutrition - Detection, Measurement and Intervention: A Training Package for Field Staff*. Available from UNHCR Headquarters.

⁵ See UNHCR/WFP, *NutVal*, available at headquarters

Mortality

- Mortality surveys might be conducted with nutrition surveys when there is no surveillance system of deaths. The household method (retrospective listing of all members of household with age, sex, and births/deaths) is the most widely used method to measure mortality (see manuals referenced below).
- If there is a reasonably well-functioning surveillance system of deaths, there is no need to perform a mortality survey, unless it is necessary to validate the surveillance system for accuracy.
- Mortality rate recorded by the surveillance system should be mentioned in the report as it is an important factor in interpreting the situation.

Morbidity

- Two-week retrospective recall on cumulative incidence of diarrhea and acute respiratory illness (fever plus cough or difficulty breathing).
- Health care seeking behavior (percentage of children with aforementioned conditions who are taken to the health center).

Measles and vitamin A coverage:

- Measles vaccination and vitamin A distribution coverage can also be investigated during a nutrition survey. This might help to cross-check information with the routine Health Information System (HIS).

Breastfeeding and complementary feeding practices:

- This will be included in another fact sheet on infant and child feeding practices to be developed soon.

7. Where can I find the most important manuals on nutrition survey design and analysis?

The manuals below can be useful to design and analyse a nutrition survey:

- CDC/WFP (2005) *A Manual: Measuring and Interpreting Malnutrition and Mortality*. There are some in stock at WFP and UNHCR Headquarters.
- SMART (2006) *Measuring mortality, nutritional status and food security in crisis situations: SMART methodology, version 1*. Available for download at <http://www.smartindicators.org> .
- Duffield A, Taylor A (2004) *Emergency Nutrition Assessment: Guidelines for Field Workers*. Save the Children. This publication is available at: <http://www.savethechildren.org.uk/scuk/jsp/resources/details.jsp?id=2313&group=resources§ion=publication&subsection=details> .

8. Where can I find software available for analysing nutrition surveys?

- Epi-Info software can be used to analyse nutrition surveys. Epi-Info 6 and Epi-Info for Windows are available for free download at: <http://www.cdc.gov/EPIINFO/Epi6/ei6.htm> .
<http://www.cdc.gov/EpiInfo> .
- However, these software packages do not provide standard analysis of nutrition and mortality surveys, and calculating prevalence of acute malnutrition and a 95% CI that properly includes edematous children is an especially cumbersome and non-intuitive process. However, the following manual, which extensively describes the procedure, was released by Save the Children.
- Save the Children (2003) *Using Epi-Info 6.04 – Data Processing and Analysis of Nutrition Survey: A Training Manual*. Save the Children. Available at: <http://www.savethechildren.org.uk/scuk/jsp/resources/details.jsp?id=1673&group=resources§ion=publication&subsection=details>
- As part of the SMART initiative, NutriSurvey, a software package used to analyse nutrition and mortality surveys, was developed. It can be downloaded freely at: <http://www.nutrisurvey.de/ena/ena.html> . Its use is described in the SMART manual referred to above.
- NutriSurvey is convenient for analyzing anthropometry and mortality data, but has no capability to analyze other data collected in the survey (e.g., feeding practices, morbidity, program coverage, etc.). Therefore, the need still exists to

use Epi Info or other software to analyze these data, even if NutriSurvey is used to analyze anthropometry and mortality.

9. Is it possible to generate overall prevalence from camp-based surveys?

- Surveys are designed to be representative of the population included in the sampling universe. It is not possible to analyse data and obtain results of a sub-sample of this population or to pool several surveys together unless sampling is stratified.
- For example, if a cluster survey with 30 clusters has been done, data cannot be analysed and results given for a sub-sample of clusters. The estimation would be incorrect.
- If several nutrition surveys have been conducted simultaneously in different camps (each survey being representative of one camp) in the same area and an estimation of the average prevalence of malnutrition among all the camps is needed, it is not possible to simply calculate a mean of the different prevalence, or to analyse all the data together. The results per camp need to be weighted – based on each camp’s population of 6-59 month-olds and, ideally, to the design effects of each of the surveys. Attached is a spreadsheet that is designed to calculate average prevalence and confidence intervals. Keep in mind that these are only approximations.

10. How many staff do I need to conduct the survey?

- Each team should have a team leader, two measurers and one interviewer.
- Four teams is most common, but this may vary according to staff availability (*e.g.*, if staffing is short, the supervisor may help with other tasks), and whether other measurements (*e.g.*, Hb) are taken.
- It is recommended to limit the number of teams to 6 at a maximum.
- Things to watch out for:
 - the more surveyors, the more chances to have poor measurements and variability between measurers;
 - training, supervision and logistic are also more difficult, and
 - critical role of having good reliable team supervisors

11. Where can I order equipment for the nutrition survey?

- The most commonly used scales are 25 kg hanging spring scales with 100 g divisions and UNISCALE electronic scales (available from UNICEF). Ordinary bathroom scales are not sufficiently accurate.
- Some agencies might have some scales, MUAC tapes and height measuring boards that they might give or lend. Measuring boards can be made locally, but their accuracy needs to be tested.
- It is very important to have good equipment for a survey. Equipment should be tested before the survey is conducted and during the survey. It is worth keeping good equipment for the only purpose of nutrition surveys.
- Equipment can be ordered from suppliers, such as:

UNICEF supply division (for scales, MUAC tapes and height measuring boards)
UNICEF plads, Freeports
DK-2100 Copenhagen
Denmark
e-mail: supply@unicef.org
Tel: +45 35 27 35 27
Fax: +45 35 26 94 21
Website: www.supply.unicef.dk

Shorr Productions (for scales and height measuring boards)
17802 Shotley Bridge Place
Olney, Maryland 20832
USA
e-mail: ijshorr@shorrproductions.com
Tel: +301-774-9006
Fax: +301-774-0436

CMS Weighing Equipment, Ltd. (for scales and height measuring boards)
18 Camden High Street
Lon NW1 OJH
UK
Tel: +44-020 7387 2060

Salter Industrial Measurement, Ltd (for hanging scales, Salter Model 235-6S)
George Street
West Bromwich
West Midlands,
BP70 6AD
UK
Tel: +44 121 553 1855

Email: sales@salterweighing.com
Website: www.salterweighing.com

TALC
PO Box 49,
St Albans,
Herts
AL1 5TX
UK
Tel: +44 1727 853869
Fax: +44 1727 846852
Email: info@talcuk.org
<http://www.talcuk.org/accessories/small-insertion-tape.htm>

- For measuring hemoglobin, portable analysers and supplies can be ordered from:

HemoCue AB
Box 1204
S-262 23 Angelholm
Sweden
Tel: +46 431 458 200
Fax: +46 431 458 225
Website: www.hemocue.com

They have several offices around the world that can be found on the website.

12. What other possible ways are there to assess nutritional status?

Nutrition surveys remain the best way to estimate accurately prevalence of malnutrition. Records of cases of malnutrition at health centers or during screening cannot be considered representative of the population. They will, however, give indication of trends in the number of cases of malnutrition. This is the same with data of admissions to feeding centers. Any significant increase should trigger further investigation.

13. What partners are usually involved in nutrition surveys?

Main partners for planning and implementing:

- UNHCR regional or HQs technical focal points
- WFP
- Implementing partners in health and nutrition

Other partners:

- Centers for Disease Control and Prevention (CDC, Atlanta) and Institute of Child Health (ICH, London).
- In country, nutrition agencies/universities/national bodies used to perform such surveys might also be approached. Their ability to perform surveys should be checked by reviewing their profile and experience in doing nutrition surveys.
- An experienced consultant can also be appointed to conduct the survey after seeking technical views of regional/HQs focal points.

Important points to remember when planning a survey:

- In non-emergency situations, ample time will be needed to secure availability of a qualified person as most of the time there is high demand for such service.
- Surveys need to have a budget for most of the external support, as UNHCR internal capacity in terms of personnel is limited.

14. How can headquarters support me with the nutrition survey?

- Headquarters can provide remote technical guidance on nutrition surveys, such as methodology, data analysis, interpretation, advice on equipment, and identification of external resources, if needed. Sharing implementation plans (including protocol) and draft reports of surveys with headquarters is, therefore, recommended.
- Draft reports of nutrition surveys should be shared with regional offices and/or headquarters for comments before finalisation and release.
- Results of nutrition surveys are recorded in a database at headquarters and are used, along with other information, to report on situations and trends, and to trigger actions. Reports should, therefore, be sent to headquarters to be saved in a centralized file.
- Results of nutrition surveys are shared with a wider audience through the quarterly reports on Nutrition Information in Crisis Situations (NICS) of the UN Standing Committee on Nutrition.

15. How should I disseminate the results of the nutrition survey?

- The raw data and data files should be saved and maintained at country level for any future reference.

- If the survey is conducted in collaboration with other agencies, all parties must agree on how the data will be stored and protected according to UNHCR refugee data protection guidelines.
- All related publications or presentations will need to be agreed upon beforehand by all parties involved in the data collection.
- Communications with the media regarding nutrition situation should be shared with regional office/headquarters focal points before release.