Nutrition and Health Tool

This nutrition and health tool will help you to measure and monitor the prevalence of child malnutrition, diseases, and death rates in your project area. The goals are: to report the percentage of under-5 children who are malnourished as defined by one or more of the standard indicators, the percentage of children who are affected by key symptoms, and the rate at which people in the project area are dying. By repeating the survey at various times, you can track changes in these important indicators. Note that some training is required to collect this information accurately. If this is your first time doing a nutrition and health survey, we recommend that you hire a supervisor with experience and training in this area.

Data Collection

Use the childhood nutrition and health table (below) to collect information on nutritional status and illnesses. Enter information from all under-5 children selected in your sample. Add extra rows and pages as needed. Note that a standard sample size for nutritional surveys is 30 clusters of 30 children each (a total of 900 children).

See the Appendix to this tool for detailed instructions on weighing and measuring children.

Increase the accuracy of your survey by:

- Training enumerators properly before the survey begins. Training should include a day of observed data collection, to ensure that enumerators are using the instruments properly and reading and recording the results accurately
- Ensuring that all equipment is calibrated and functioning properly
- Double checking data entry. Identify and eliminate or validate any extreme values.

Childhood Nutrition and Health Table
(Add this table to your questionnaire)

Village/Cluster No. ________ Team No. __________ Date of Survey _________

Family No.	***Child No.***	***Date of Birth***	***Age*** *(mos)*	***Sex*** *1=M 2=F*	***Height*** *(cm)*	***Weight*** *(kg)*	***Oedema*** *1=Yes 0=No*	***In the past two weeks, has the child had:***			
								Cough *1=Yes 0=No*	***Fever*** *1=Yes 0=No*	***Diarrhea*** *1=Yes 0=No*	***Vomiting*** *1=Yes 0=No*
10	1	21/04/01	22	1	82.2	11.5	0	1	1	0	0

NOTE: "Oedema" refers to bilateral pitting oedema – depressions in the skin remain after thumb pressure on the top of each foot. We have found that this symptom is often mistaken unless enumerators are well trained by a qualified person.

Mortality Questions

(Add these questions to your household questionnaire)

How many people in this household have died in the past three months? __________

How many children under 5 years of age in this household have died in the past three months? ________

Data Analysis

Child Nutrition
The child nutrition and health data should be entered into a statistical package (preferably Epi-Info, which will automatically calculate nutritional indices). The goal is to determine what percentage of children are affected by the main types of malnutrition: wasting (low weight-for-height), stunting (low height-for-age), and underweight (low weight-for-age).

In order to determine which children are malnourished, each child's weight and height needs to be compared with data from a standard population. The World Health Organization recommends that children be compared to the National Centre for Health Statistics (NCHS) dataset, which gives the heights and weights of well-nourished U.S. children. Two methods are commonly used to make this comparison. The first is to calculate a Z-score for each child. A Z-score tells you how far the child deviates from the average. In general, a Z-score of -2 indicates moderate malnutrition, and a Z-score of -3 indicates severe malnutrition for all indices. If you are using a statistical package like Epi-Info, these Z-scores can be calculated automatically. The second method is to calculate the child's height or weight as a % of the **median** height or weight for the standard population. The median is the middle score (e.g. if you had a sample of 100 children arranged from shortest to tallest, the "median" height would be the height of the 50^{th} child). Again, if you are using a statistical package like Epi-Info, these calculations can be done automatically.

Once you have compared each child to the standard population and generated a Z-score or % of the median for each child, you are ready to calculate the prevalence of malnutrition. This is done quite simply, by counting all of the children whose Z-score or % of median is below the cut-off value for each indicator. To calculate the prevalence of wasting (indicating acute malnutrition), count all of the children in your sample with a weight-for-height Z-score less than -2. Report the result as a % of the total sample. For example, if you measured 850 children, of whom 98 had a weight-for-height Z-score less than -2, the prevalence of wasting would be 98/850 = 11.5%.

The following table provides general guidelines for interpreting the nutritional indices.

Index	**Prevalence**			
	Low	**Medium**	**High**	**Very High**
Wasting (weight-for-height Z<-2)	<5.0%	5.0-9.9%	10.0-14.9%	>=15.0%
Stunting (height-for-age Z <-2	<20.0%	20.0-29.9%	30.0-39.9%	>=40.0%
Underweight (weight-for-age Z<-2)	<10.0%	10.0-19.9%	20.0-29.9%	>=30.0%

Calculate the prevalence of severe malnutrition by repeating the analysis in the previous paragraph, using a Z-score less than -3 as the cut-off. In general, any significant prevalence of severe malnutrition is cause for concern.

Note that the definition of "Global Acute Malnutrition" includes children with low weight-for-height (Z-score less than -2) AND children with oedema. The definition of "Severe Acute Malnutrition" includes children with severely low weight-for-height (Z-score less than -3) AND children with oedema. In other words, children with oedema are considered severely malnourished, whether or not they are wasted. Oedema should be assessed only by well trained staff – otherwise it tends to be incorrectly diagnosed.

Child Health

The incidence of key childhood illnesses over the past two weeks can be analyzed using a statistics package such as Epi-Info, or the data may be simply entered into an Excel spreadsheet. The goal is to calculate the % of children that have experienced each of the key illnesses over the past two-week period.

Each row in your spreadsheet should contain the data from one child. As in the data entry form (previous page) the diseases are listed as separate columns, in which you enter “1” if the child has experienced the symptoms in the past two weeks, or “0” if the child has not experienced those symptoms.

If you have used “1”s and “0”s to code your data, you can calculate the two-week incidence by dividing the sum of each column (the total of all the “1”s) by the total number of respondents. Thus, if 203 children had diarrhea in the past two weeks and the total number of children surveyed was 988, the two-week incidence of diarrhea would be estimated at 203/988 = 21%.

Note, if some children did not respond to the question, or the data were not entered for some reason, those children should be left out of the calculation entirely. Continuing with our example, if 988 children were surveyed, but 88 did not answer the question about diarrhea, then the incidence should be calculated as 203/900 = 23%.

Mortality

In emergencies, mortality rates are often reported as a daily rate (number of deaths per 10,000 people per day). Otherwise, annual rates are generally used (number of deaths per 1,000 people per year).

The questionnaire asks for the number of deaths in the household over the past three months. To convert a three-month mortality rate to a daily rate, simply divide the number of deaths by 90 (the number of days in the recall period). To convert a three-month mortality rate to an annual rate, multiply the number of deaths by four (since a year is equal to three months times four).

Example:

You surveyed a sample of 900 households with an average household size of 5. The total sample size is 900 X 5 = 4,500 individuals. Your survey found that 7 people died in those 900 households over the past three months. Thus, over the past 90 days, there were 7 deaths per 4,500 people. That is the same as 15.55 deaths per 10,000 (= 10,000 X 7 / 4,500) per 90-day period. That is equal to 15.55 / 90 = 0.17 per 10,000 per day.

For reference, 1 death per 10,000 per day is considered a serious situation. A mortality rate of 2 deaths per 10,000 per day is considered an emergency.

The under-5 mortality rate is calculated in much the same way. Take the total number of under-5’s that died in the past 90 days, divide by the total number of under-5’s in the sample, multiply by 10,000 and divide by 90. Say that the 900 households surveyed included a total of 1,350 under-5’s. In those households, 3 children under-5 have died in the past 90 days. Thus, over the past 90 days, there were 5 deaths per 1,350 under-5’s = 37.04 deaths per 10,000 (= 10,000 X 5 / 1,350) per 90-day period. That is equal to 37.04/90 = 0.41 deaths per 10,000 per day.

For reference, an under-5 mortality rate of 2 deaths per 10,000 per day is considered a serious situation. An under-5 mortality rate of 4 deaths per 10,000 per day is considered an emergency.

Presentation

Nutrition

The minimum requirements for reporting nutritional data include a detailed methods section (describing sample selection and data collection), breakdown of the sample by age group and sex, and the nutritional data reported in a table as follows:

Table 1. Prevalence of wasting among under-5s in Anywheria Region

Indicator	Baseline		End of project	
	Girls n=462	**Boys** n=438	**Girls** n=460	**Boys** n=433
Wasting (WHZ <-2)	6.5	7.2	5.5	5.6
Severe Wasting (WHZ <-3)	1.0	1.3	0.5	0.5

Table 2. Prevalence of stunting among under-5s in Anywheria Region

Indicator	Baseline		End of project	
	Girls n=462	**Boys** n=438	**Girls** n=460	**Boys** n=433
Stunting (HAZ <-2)	23.0	21.2	21.0	21.1
Severe Stunting (HAZ <-3)	2.4	1.8	1.7	1.1

Table 3. Prevalence of underweight among under-5s in Anywheria Region

Indicator	Baseline		End of project	
	Girls n=462	**Boys** n=438	**Girls** n=460	**Boys** n=433
Underweight (WAZ <-2)	16.1	15.5	12.2	14.8
Severe Underweight (WAZ <-3)	1.8	1.6	1.1	0.9

Health

The minimum requirements for reporting health data include a detailed methods section (describing sample selection and data collection), breakdown of the sample by age group and sex, and the health data reported in a table as follows:

Table 1. Two-week incidence of key diseases among children in Anywheria Region

Illness	Baseline		End of project	
	Girls n=462	**Boys** n=438	**Girls** n=460	**Boys** n=433
Diarrhea	10.0	12.4	8.9	10.2
Vomiting	3.3	5.6	3.4	6.4
Cough	34.5	23.4	32.6	25.5
Fever	19.9	16.7	15.8	16.5

Mortality

The minimum requirements for reporting health data include a detailed methods section (describing sample selection and data collection), breakdown of the sample by age group and sex, and the mortality data reported as follows:

Mortality Rate	Baseline		End of Project	
	n	rate (/ 10,000/day	n	rate (/ 10,000/day
Crude Mortality rate (/ 10,000 / day)	4,500	0.32	4,500	0.24
u5 Mortality rate (/ 10,000 / day)	1,350	1.1	1,350	0.86