

<b>WOMEN OF CHILDBEARING AGE WHO ARE MALNOURISHED</b>	
<b>GENERAL CONSIDERATIONS</b>	
<i>Issues</i>	Perinatal diseases
<i>Type of indicator</i>	Exposure (proximal) Can also be used as a measure of action in relation to food policies.
<i>Rationale</i>	<p>The period of development in the womb is critical for the health of the child, both at birth and long afterwards. Maternal exposures to environmental hazards during pregnancy can thus have a major impact on children's health.</p> <p>One of the most important risk factors at this stage is maternal nutrition. Inadequate nourishment increases risks of a wide range of gestational and perinatal problems. Low birthweight is especially important, for this not only one of the main causes of perinatal mortality, but also has long-term effects on development and health status. Lack of crucial nutrients during pregnancy is likewise associated with pre-eclampsia and hypertension, both of which can lead to increased perinatal mortality. In addition, foetal undernutrition has been found to be associated with increased risks of mental and neuro-behavioural impairment, as well as some congenital anomalies (e.g. neural tube defects). This indicator is therefore an important measure of exposure for perinatal diseases.</p>
<i>Issues in indicator design</i>	<p>Although the effects of inadequate maternal nutrition are generally well-established and clear, obtaining information on malnourishment remains difficult. In part, the problem is one of definition. Malnourishment is not a unitary condition, but may represent the absence of a wide range of different food requirements. In some cases, therefore, it occurs because of an absolute lack of nutrition (e.g. due to food shortages); in other cases it reflects a lack of specific nutrients or vitamins from an otherwise balanced and adequate diet.</p> <p>This problem is compounded by a lack of readily available and reliable data on nutritional levels, that can be used to identify those who are undernourished. Routine monitoring of the nutritional status of women is rarely carried out. Generally, therefore, data need to be derived from special surveys. These may provide quantitative information on food intake, or more qualitative information on the nutritional status of women. The design of the indicator will depend upon the range and quality of information available.</p>
<b>SPECIFICATION</b>	
<i>Definition</i>	Percentage (or number) of women age 15-49 years who are malnourished.
<i>Terms and concepts</i>	<p><b>Malnourished:</b> in receipt of inadequate food to sustain good health in the long-term. This may be due to:</p> <ul style="list-style-type: none"> <li>• <b>Undernutrition – an absolute insufficiency of food, such that the dietary energy intake is below that required to provide an acceptable level of energy expenditure; and/or</b></li> <li>• <b>Malnutrition – a deficiency of specific nutrients, resulting in impaired health</b></li> <li>• <b>Women of child-bearing age:</b> women between the ages of 15 and 49</li> </ul>
<i>Data needs</i>	Nutritional status of women between the ages of 15 and 49.
<i>Data sources, availability and quality</i>	In most cases data will need to be obtained from dietary or nutritional surveys. Routine national surveys are often undertaken via health clinics. Rapid assessment methods are also available for use in emergency

	<p>situations (Collins <i>et al.</i> 2000, WHO 1995), and aid agencies are active in supporting the surveys in many developing countries.</p> <p>Nutritional surveys usually employ direct measurements of body shape or stature as indicators of under-nutrition. The two most widely used are the body mass index (BMI) and the mid-upper arm circumference (MUAC). Both suffer from significant limitations, especially when applied to pregnant women, and therefore need to be used and interpreted with care.</p> <p>Dietary (or nutritional intake) surveys involve an assessment of food intake. They may use a range of different methods, including simple respondent (usually 24 hour) recall, food frequency questionnaires, food history surveys, weighed dietary recording, and examination or recording of food stored in the home or of food purchases. To provide detailed information on nutrient or vitamin intake, these need to be backed up by assay of foodstuffs, either by reference to manufacturers' descriptions, or by direct analysis.</p> <p>In both cases, sampling often represents a significant problem, especially in more remote areas or in emergency situations. For these reasons, caution is needed in making comparisons between different surveys.</p>
<i>Level of spatial aggregation</i>	Administrative district or region
<i>Averaging period</i>	Annual or longer
<i>Computation</i>	<p>The indicator can be computed as a simple percentage, as follows:</p> $100 * W_{mal} / W_{tot}$ <p>where <math>W_{mal}</math> is the number of women aged 15-49 who are classified as malnourished;  <math>W_{tot}</math> is the total number of women aged 15-49.</p>
<i>Units of measurement</i>	Percentage or number
<i>Worked example</i>	<p>Assume that an area contains a population of 75 500 women aged 15-49, of whom 2 080 are defined as malnourished. In this case, the indicator is calculated as:</p> $100 * 2\ 080 / 75\ 500 = 2.8\%$
<i>Interpretation</i>	<p>This indicator provides a direct measure of the nutritional status of women of childbearing age. An increase in the indicator implies a worsening of their nutritional status; a reduction in the indicator implies an improvement. Since nutritional status as a direct bearing upon the survival chances and health of newborn children, the indicator can thus be interpreted as a general measure of perinatal health. Care is nevertheless needed in making interpretations because of the inherent uncertainties in the available data, and differences in survey design (e.g. the specific definition of malnourishment used) from one country, or one survey to another. Attention also needs to be given the sample size and sampling framework when selecting data for use in the indicator.</p>
<i>Variations and alternatives</i>	<p>The indicator described here can be constructed and presented in a variety of ways. Different measures of malnourishment may, for example, be used, depending on the available data. In addition to those outlined above, evidence of anaemia in pregnant women (using measures of haemoglobin in blood) may also be used as an indicator of under nourishment.</p>
<i>Examples</i>	<p>WHO <i>Catalogue of Health Indicators</i></p> <ul style="list-style-type: none"> <li>• <b>Anaemia in women</b></li> <li>• <b>World Bank HNP Indicators on Socio-Economic Inequalities</b></li> <li>• <b>Low mother's BMI</b></li> </ul>
<i>Useful references</i>	Collins, S., Duffield, A. and Myatt, M. 2000 <i>Assessment of nutritional status in emergency-affected populations</i> . Geneva: ACC/FOR Sub-Committee on

	<p>Nutrition.</p> <p>FAO 2001 <i>The state of food insecurity in the world, 2001</i>. Rome: Food and Agricultural Organization.</p> <p>Ferro-Luzzi, A. 2002 Individual food intake survey methods. <i>Paper presented to International Scientific Symposium on Measurement and Assessment of Food Deprivation and Under-nutrition, June 26-28, 2002, Food and Agricultural Organization Headquarters, Rome</i>. (Available at <a href="http://www.fao.org/es/esa/iss/">www.fao.org/es/esa/iss/</a> )</p> <p>Shetty, 2002 Measures of nutritional status from anthropometric survey data. <i>Paper presented to International Scientific Symposium on Measurement and Assessment of Food Deprivation and Under-nutrition, June 26-28, 2002, Food and Agricultural Organization Headquarters, Rome</i>. (Available at <a href="http://www.fao.org/es/esa/iss/">www.fao.org/es/esa/iss/</a> )</p> <p>WHO 1995 <i>Field guide on rapid nutritional assessment in emergencies</i>. Geneva: World Health Organization.</p> <p>WHO 1996 <i>Catalogue of health indicators. A selection of important indicators recommended by WHO Programmes</i>. Geneva: World Health Organization.</p>
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