



**Nutrition Landscape  
Information System (NLIS)**

COUNTRY PROFILE  
INDICATORS

# Interpretation Guide



**World Health  
Organization**





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## Acknowledgement

The development of the Nutrition Landscape Information System (NLIS) was one of the three parallel activities of the Landscape Analysis project; the second being the development of country typologies for "readiness" to accelerate action through the desk review; and the third, the implementation of in-depth country assessments. The development of the NLIS aimed at raising awareness of, and concern about, the Country Profiles among country policy-makers and other stakeholders including donors. Bringing various existing nutrition-related databases together inside WHO and also those of other partner agencies to develop NLIS should help nutrition action as a whole to be presented in a more comprehensive way. This is a living document which may be updated based on new research or feedback from users.

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## Preface

The **Nutrition Landscape Information System (NLIS)** was developed as part of the Landscape Analysis on Readiness to Accelerate Action in Nutrition. While many individual sources of publicly-available data exist, it can be a challenge to identify, collect and organize those data systematically from various sources as well as to monitor any updates as new data become available. Therefore, the main aims of NLIS are to:

- *Bring together nutrition-related indicators in standardized form.* NLIS ensures access to a variety of nutrition indicators as well as health, food, care, development and economic indicators related to nutrition in a single easy-to-access and user-friendly location.
- *Track changes over time and monitor progress.* This comprehensive data collection system includes data from multiple time points, including historical as well as most-recent data, and has the capacity to incorporate data from future time points as these become available.
- *Generate easy-to-interpret Country Profiles.* The concise Country Profiles include selected nutrition and related indicators and visual presentations provide an easy-to-understand snapshot of key nutrition, health, and development indicators at national level. The Country Profiles are a powerful advocacy tool for communicating with policy makers who might not have a health or nutrition background.

NLIS currently draws publicly-available data from the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the UN Statistics Division, the UN Development Programme (UNDP), the Food and Agriculture Organization of the UN (FAO), Demographic and Health Surveys (DHS), the World Bank, the International Food Policy Research Institute (IFPRI), and the International Labour Organization (ILO). These data from external sources are being combined with data from the WHO Global Nutrition Databases which are brought together dynamically. Through this NLIS has achieved:

**Efficiency:** Improved access to comprehensive nutrition information across multiple sources

**Integration:** Combined information leading to more integrated approaches to nutrition interventions

**Timeliness:** Linked dynamically to WHO Global Nutrition Databases

**Accessibility:** Easy access to quality information leading to more informed decision-making

**Comprehensiveness:** Most indicators available for all countries

This Interpretation Guide provides information on all indicators included in the Country Profile. For each indicator, the following aspects are addressed:

1. What does this indicator tell us
2. How is it defined
3. What are consequences/implications, which includes cut-off values for public health significance where these have been established
4. Source and further reading



# Malnutrition in children

## ***Underweight, stunting, wasting and overweight***

### *What do these indicators tell us?*

These indicators are used to measure nutritional imbalance resulting in undernutrition (assessed from underweight, wasting and stunting) and overweight. Child growth is internationally recognized as an important indicator of nutritional status and health in populations.

The percentage of children with a low height for age (stunting) reflects the cumulative effects of undernutrition and infections since and even before birth. This measure can therefore be interpreted as an indication of poor environmental conditions or long-term restriction of a child's growth potential. The percentage of children who have low weight for age (underweight) can reflect 'wasting' (i.e. low weight for height), indicating acute weight loss, 'stunting', or both. Thus, 'underweight' is a composite indicator and may therefore be difficult to interpret.

### *How are they defined?*

- Underweight: weight for age  $< -2$  standard deviations (SD) of the WHO Child Growth Standards median
- Stunting: height for age  $< -2$  SD of the WHO Child Growth Standards median
- Wasting: weight for height  $< -2$  SD of the WHO Child Growth Standards median
- Overweight: weight for height  $> +2$  SD of the WHO Child Growth Standards median

### *What are the consequences and implications?*

***Underweight:*** As weight is easy to measure, this is the indicator for which most data have been collected in the past. Evidence has shown that the mortality risk of children who are even mildly underweight is increased, and severely underweight children are at even greater risk.

***Stunting:*** Children who suffer from growth retardation as a result of poor diets or recurrent infections tend to be at greater risk for illness and death. Stunting is the result of long-term nutritional deprivation and often results in delayed mental development, poor school performance and reduced intellectual capacity. This in turn affects economic productivity at national level. Women of short stature are at greater risk for obstetric complications because of a smaller pelvis. Small women are at greater risk of delivering an infant with low birth weight, contributing to the intergenerational cycle of malnutrition, as infants of low birth weight or retarded intrauterine growth tend to be smaller as adults.

***Wasting:*** Wasting in children is a symptom of acute undernutrition, usually as a consequence of insufficient food intake or a high incidence of infectious diseases, especially diarrhoea. Wasting in turn impairs the functioning of the immune system and can lead to increased severity and duration of and susceptibility to infectious diseases and an increased risk for death.

***Overweight:*** Childhood obesity is associated with a higher probability of obesity in adulthood, which can lead to a variety of disabilities and diseases, such as diabetes and cardiovascular diseases. The risks for most noncommunicable diseases resulting from obesity depend partly on the age at onset and the duration of obesity. Obese children and adolescents are likely to suffer from both short-term and long-term health consequences, the most significant being:

- cardiovascular diseases, mainly heart disease and stroke;
- diabetes;
- musculoskeletal disorders, especially osteoarthritis; and
- cancers of the endometrium, breast and colon.

*Cut-off values for public health significance*

Indicator	Prevalence cut-off values for public health significance
Underweight	< 10%: Low prevalence 10-19%: Medium prevalence 20-29%: High prevalence ≥ 30%: Very high prevalence
Stunting	< 20%: Low prevalence 20-29%: Medium prevalence 30-39%: High prevalence ≥ 40%: Very high prevalence
Wasting	< 5%: Acceptable 5-9%: Poor 10-14%: Serious ≥ 15%: Critical

Reference: WHO, 1995.

Applying similar methodology used to calculate the cut-off values for public health significance for underweight, stunting and wasting, levels of public health significance for overweight (> +2 SD weight-for-height) for children under 5 years of age based on the WHO child growth standards have also been calculated using the data from the WHO Global Database on Child Growth and Malnutrition. However, they are not yet included here as they are currently being evaluated.

*Source*

WHO. *WHO Global Database on Child Growth and Malnutrition*. Department of Nutrition for Health and Development (NHD), Geneva, Switzerland. <http://www.who.int/nutgrowthdb/en/>.

*Further reading*

WHO. Child Growth Standards, publications and peer-reviewed articles. <http://www.who.int/childgrowth/publications/en/>.

WHO. *Physical status: the use and interpretation of anthropometry. Report of a WHO Expert Committee. Technical Report Series No. 854*. Geneva, World Health Organization, 1995. [http://whqlibdoc.who.int/trs/WHO\\_TRS\\_854.pdf](http://whqlibdoc.who.int/trs/WHO_TRS_854.pdf).

## **Low birth weight**

*What does this indicator tell us?*

At population level, the proportion of infants with a low birth weight is an indicator of a multifaceted public health problem that includes long-term maternal malnutrition, ill health, hard work and poor health care in pregnancy. Low birth weight is more common in developing than developed countries.

*How is it defined?*

Low birth weight has been defined by WHO as weight at birth of < 2500 grams (5.5 pounds).

*What are the consequences and implications?*

Low birth weight is caused by intrauterine growth restriction, prematurity or both. It contributes to a range of poor health outcomes: it is closely associated with fetal and neonatal mortality and morbidity, inhibited growth and cognitive development and chronic diseases later in life. Low-birth-weight infants are approximately 20 times more likely to die than heavier infants.

*Source*

UNICEF. Childinfo Database. [http://www.childinfo.org/low\\_birthweight\\_table.php](http://www.childinfo.org/low_birthweight_table.php).

*Further reading*

WHO. Feto-maternal nutrition and low birth weight.  
[http://www.who.int/nutrition/topics/feto\\_maternal/en/index.html](http://www.who.int/nutrition/topics/feto_maternal/en/index.html).

## **Malnutrition in women**

### ***Moderate and severe thinness, underweight, overweight, obesity***

*What do these indicators tell us?*

The values for body mass index (BMI) are age-independent for adult populations and are the same for both genders. BMI may not, however, correspond to the same degree of fatness in different populations due, in part, to different body proportions. The health risks associated with increasing BMI are continuous, and the interpretation of BMI grading in relation to risk may differ for different populations.

*How are they defined?*

BMI is a simple index of weight-to-height commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres ( $\text{kg}/\text{m}^2$ ). For example, an adult who weighs 58 kg and whose height is 1.70 m will have a BMI of 20.1:  $\text{BMI} = 58 \text{ kg}/(1.70 \text{ m} \times 1.70 \text{ m}) = 20.1$

- BMI < 17.0 indicates moderate and severe thinness
- BMI < 18.5 indicates underweight
- BMI 18.5–24.9 indicates normal weight
- BMI  $\geq$  25.0 indicates overweight
- BMI  $\geq$  30.0 indicates obesity

*What are the consequences and implications?*

***Moderate and severe thinness:*** A BMI < 17.0 indicates moderate and severe thinness in adult populations. It has been linked to clear-cut increases in illness in adults studied in three continents and is therefore a further reasonable value to choose as a cut-off point for moderate risk. A BMI < 16.0 is known to be associated with a markedly increased risk for ill health, poor physical performance, lethargy and even death; this cut-off point is therefore a valid extreme limit.

***Underweight:*** The cut-off point of 18.5 for underweight in both genders has less experimental validity as a cut-off point for moderate and severe thinness but is a reasonable value for use pending further, comprehensive studies. The proportion of the population with a low BMI that is considered a public health problem is closely linked to the resources available for correcting

the problem, the stability of the environment and government priorities. About 3–5% of a healthy adult population have a BMI < 18.5.

*Overweight:* Overweight (BMI ≥ 25) is a major determinant of many noncommunicable diseases, including non-insulin-dependent diabetes mellitus, coronary heart disease and stroke, and increases the risks for several types of cancer, gallbladder disease, musculoskeletal disorders and respiratory symptoms. In some populations, the metabolic consequences of weight gain start at modest levels of overweight.

*Obesity:* Obesity (BMI ≥ 30) is a disease that is largely preventable through lifestyle changes. The costs attributable to obesity are high, not only in terms of premature death and health care but also in terms of disability and a diminished quality of life.

*Cut-off values for public health significance*

Indicator	Prevalence cut-off values for public health significance
Adult BMI < 18.5 (underweight)	5-9%: Low prevalence (warning sign, monitoring required) 10-19%: Medium prevalence (poor situation) 20-39%: High prevalence (serious situation) ≥ 40%: Very high prevalence (critical situation)

Reference: WHO, 1995.

*Source*

WHO. *WHO Global Database on Body Mass Index (BMI)*. Department of Nutrition for Health and Development (NHD), Geneva, Switzerland.  
<http://www.who.int/bmi/index.jsp>.

*Further reading*

WHO. Obesity and other diet related chronic diseases, list of publications.  
[http://www.who.int/nutrition/publications/obesity\\_chronicdiseases/en/index.html](http://www.who.int/nutrition/publications/obesity_chronicdiseases/en/index.html).

WHO. *Physical status: the use and interpretation of anthropometry. Report of a WHO Expert Committee*. Technical Report Series No. 854. Geneva, World Health Organization, 1995.  
[http://whqlibdoc.who.int/trs/WHO\\_TRS\\_854.pdf](http://whqlibdoc.who.int/trs/WHO_TRS_854.pdf).

## Vitamin and mineral deficiencies

### **Anaemia**

*What does this indicator tell us?*

Anaemia has a wide variety of causes. Although iron deficiency is probably the commonest cause of anaemia, other causes include acute and chronic infections that result in inflammation and haemorrhages; deficiencies of other vitamins and minerals, especially folate, vitamin B<sub>12</sub> and vitamin A; and genetically inherited traits, such as thalassaemia. Other conditions (malaria and other infections, genetic disorders, cancer) also play a role. The terms 'iron-deficiency anaemia' and 'anaemia' are often used synonymously, and the prevalence of anaemia has often been used as a proxy for iron-deficiency anaemia, although the degree of overlap between the two varies considerably from one population to another according to gender and age.

### *How is it defined?*

Anaemia is defined as a haemoglobin concentration below a specified cut-off point, which can change according to the age, gender, physiological status, smoking habits and altitude at which the population being assessed lives. WHO defines anaemia in children under 5 years of age and pregnant women as a haemoglobin concentration < 110 g/l at sea level. The finger-prick blood sample test is easy to administer in the field. The test could be easily integrated in regular health or prenatal visit to capture all women in reproductive ages, though cost of equipment may be prohibitive.

### *What are the consequences and implications?*

Anaemia is associated with increased risks for maternal and child mortality. Iron-deficiency anaemia reduces the work capacity of individuals and entire populations, with serious consequences for the economy and national development. In addition, the negative consequences of iron-deficiency anaemia on the cognitive and physical development of children and on physical performance - particularly the work productivity of adults - are major concerns. The numbers are staggering: about 25% of the world's population are anaemic, many because of iron deficiency; in resource-poor areas, the number is frequently exacerbated by infectious diseases. Malaria, HIV/AIDS, hookworm infestation, schistosomiasis and other infections such as tuberculosis contribute to the high prevalence of anaemia in some areas.

The main risk factors for iron-deficiency anaemia include a low dietary intake of iron or poor absorption of iron from diets rich in phytate or phenolic compounds. Population groups with greater iron requirements, such as growing children and pregnant women, are particularly at risk. Overall, the most vulnerable, poorest and least educated groups are disproportionately affected by iron-deficiency anaemia.

### *Cut-off values for public health significance*

Indicator	Prevalence cut-off values for public health significance
Anaemia	$\leq 4.9$ : No public health problem 5.0–19.9: Mild public health problem 20.0–39.9: Moderate public health problem $\geq 40.0$ : Severe public health problem

Reference: WHO, 2008.

### *Source*

WHO. *Vitamin and Mineral Nutrition Information System (VMNIS)*. Department of Nutrition for Health and Development (NHD), Geneva, Switzerland. <http://www.who.int/vmnis/en/>.

### *Further reading*

WHO. Anaemia/iron deficiency list of publications.  
[http://www.who.int/nutrition/publications/micronutrients/anaemia\\_iron\\_deficiency/en/index.html](http://www.who.int/nutrition/publications/micronutrients/anaemia_iron_deficiency/en/index.html).

WHO. *Worldwide prevalence of anaemia 1993-2005 WHO Global Database on Anaemia*. Geneva, World Health Organization, 2008.  
[http://whqlibdoc.who.int/publications/2008/9789241596657\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241596657_eng.pdf).

## Vitamin A deficiency

### *What does this indicator tell us?*

Vitamin A deficiency results from inadequate dietary intake of vitamin A to satisfy physiological needs. It may be exacerbated by high rates of infection, especially diarrhoea and measles. It is common in developing countries but rarely seen in developed countries. Vitamin A deficiency is a public health problem in more than half of all countries, especially those in Africa and South-East Asia, most severely affecting young children and pregnant women in low-income countries.

### *How is it defined?*

Vitamin A deficiency can be defined clinically or subclinically. The stages of xerophthalmia [clinical spectrum of ocular manifestations of vitamin A deficiency, from the milder stages of night blindness and Bitot spots to the potentially blinding stages of corneal xerosis, ulceration and necrosis (keratomalacia)] are regarded both as disorders and clinical indicators of vitamin A deficiency. Night blindness (in which it is difficult or impossible to see in relatively low light) is one of the clinical signs of vitamin A deficiency and is common during pregnancy in developing countries. Blood concentrations of retinol (the chemical name for vitamin A) in plasma or serum are used to assess subclinical vitamin A deficiency. A plasma or serum retinol concentration < 0.70 µmol/l indicates subclinical vitamin A deficiency in children and adults, and < 0.35 µmol/l indicates severe vitamin A deficiency.

### *What are the consequences and implications?*

Night blindness is one of the first signs of vitamin A deficiency. In its more severe forms, vitamin A deficiency contributes to blindness by making the cornea very dry and damaging the retina and cornea. An estimated 250 000–500 000 vitamin A-deficient children become blind every year, and half of them die within 12 months of losing their sight.

Vitamin A deficiency also contributes to maternal mortality and other poor outcomes of pregnancy and lactation. Furthermore, it diminishes the ability to fight infections. Even mild, subclinical deficiency can be a problem, as it may increase children's risk for respiratory and diarrhoeal infections, decrease growth rates, slow bone development and decrease the likelihood of survival from serious illness.

### *Cut-off values for public health significance*

Indicator	Prevalence cut-off values for public health significance
Serum or plasma retinol < 0.70 µmol/l in preschool-age children	≤ 1.9: No public health problem ≥ 2%–< 10% Mild ≥ 10%–< 20%: Moderate ≥ 20%: Severe
Night blindness (XN) Pregnant women	≥ 5: Moderate

Reference: WHO, 2009.

### *Source*

WHO. *Vitamin and Mineral Nutrition Information System (VMNIS)*. Department of Nutrition for Health and Development (NHD), Geneva, Switzerland. <http://www.who.int/vmnis/en/>.

### *Further reading*

WHO. Vitamin A deficiency, list of publications.  
[http://www.who.int/nutrition/publications/micronutrients/vitamin\\_a\\_deficiency/en/index.html](http://www.who.int/nutrition/publications/micronutrients/vitamin_a_deficiency/en/index.html).

WHO. *Global prevalence of vitamin A deficiency in populations at risk 1995–2005*. WHO *Global Database on Vitamin A Deficiency*. Geneva, World Health Organization, 2009.  
[http://whqlibdoc.who.int/publications/2009/9789241598019\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598019_eng.pdf).

## ***Iodine deficiency***

### *What does this indicator tell us?*

This indicator allows an assessment of iodine deficiency at population level. Iodine is an essential trace element that is present on the thyroid hormones, thyroxine and triiodothyronine. It occurs most frequently in areas where there is little iodine in the diet—typically remote inland areas where no marine foods are eaten.

### *How is it defined?*

The median urinary iodine concentration is the main indicator of iodine status in all age groups, because its measurement is relatively non-invasive and easy to perform. Goitre assessment by palpation or ultrasound may be useful for assessing thyroid function, but the results are difficult to interpret once salt iodization programmes have started. The indicator is the median concentration of iodine in urine in a population of children aged 6–12 years. Adequate iodine nutrition is considered to pertain when the median urinary iodine concentration is 100–199 µg/l.

A median urinary iodine concentration in a population of < 100 µg/l indicates that the iodine intake is insufficient. When the median is < 20 µg/l, the population is described as having severe iodine deficiency; at 20–49 µg/l, the public health problem is moderate, and at 50–99 µg/l, the population has mild iodine deficiency. A population's median urinary iodine concentration should be at least 100 µg/l, with less than 20% of values < 50 µg/l. For pregnant women, the median urinary iodine should be 150–249 µg/l.

### *What are the consequences and implications?*

Iodine-deficiency disorders, which can start before birth, jeopardize children's mental health and often their very survival. During the neonatal period, childhood and adolescence, iodine-deficiency disorders can lead to hypo- and hyperthyroidism. Serious iodine deficiency during pregnancy can result in stillbirth, spontaneous abortion and congenital abnormalities such as cretinism, a grave, irreversible form of mental retardation that affects people living in iodine-deficient areas of Africa and Asia. Of even greater significance is the less visible, yet pervasive, mental impairment that reduces intellectual capacity at home, in school and at work. It is estimated that, in 2007, iodine deficiency was a public health problem in 47 countries, and 266 million (31.5%) school-age children and 2 billion people in the general population had insufficient iodine intake.

### *Cut-off values for public health significance*

Indicator	Prevalence cut-off values for public health significance
Iodine deficiency (Median UI concentration µg/l)	Median UI concentration: < 20 µg/l: Severe deficiency 20–49 µg/l: Moderate 50–99 µg/l: Mild deficiency 100–199 µg/l: Optimal 200–299 µg/l: Risk of iodine-induced hyper-thyroidism ≥ 300 µg/l: Risk of adverse health consequences

Reference: WHO, 2008.

### *Source*

WHO. *Vitamin and Mineral Nutrition Information System (VMNIS)*. Department of Nutrition for Health and Development (NHD), Geneva, Switzerland. <http://www.who.int/vmnis/en/>.

### *Further reading*

WHO. Iodine deficiency, list of publications.

[http://www.who.int/nutrition/publications/micronutrients/iodine\\_deficiency/en/index.html](http://www.who.int/nutrition/publications/micronutrients/iodine_deficiency/en/index.html).

WHO. *Iodine status worldwide. WHO Global Database on Iodine Deficiency*. Geneva, World Health Organization, 2004. <http://whqlibdoc.who.int/publications/2004/9241592001.pdf>.

## **Health services**

### ***Births attended by skilled health personnel***

#### *What does this indicator tell us?*

This indicator is used in the NLIS as a proxy for access to health services and maternal care.

#### *How is it defined?*

The indicator gives the percentage of live births attended by skilled health personnel in a given period. A skilled birth attendant is an accredited health professional—such as a midwife, doctor or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of women and newborns for complications. Traditional birth attendants, whether trained or not, are excluded from the category of ‘skilled attendant at delivery’.

In developed countries and in many urban areas in developing countries, skilled care at delivery is usually provided in health facilities. Births do, however, take place in various other appropriate places, from home to tertiary referral centres, depending on availability and need. WHO does not recommend a particular setting for giving birth. Home delivery may be appropriate for normal births, provided that the person attending the delivery is suitably trained and equipped and that referral to a higher level of care is an option.

*What are the consequences and implications?*

All women should have access to skilled care during pregnancy and at delivery to ensure the detection and management of complications. One woman dies needlessly of pregnancy-related causes every minute, representing more than half a million mothers lost each year, a figure that has improved little over the past few decades. Another 8 million or more suffer life-long health consequences from the complications of pregnancy. Every woman, rich or poor, has a 15% risk for complications around the time of delivery, but almost no maternal deaths occur in developed regions. The lack of progress in reducing maternal mortality in many countries often reflects the low value placed on the lives of women and their limited role in setting public priorities. The lives of many women in developing countries could be saved by reproductive health interventions that people in rich countries take for granted, such as the presence of skilled health personnel at delivery.

*Source*

Millennium Development Goals indicators database.  
<http://mdgs.un.org/unsd/mdg/Default.aspx>.

*Further reading*

WHO. Making Pregnancy Safer. [http://www.who.int/making\\_pregnancy\\_safer/en/](http://www.who.int/making_pregnancy_safer/en/).

## **Children aged 6–59 months receiving vitamin A supplements**

*What do these indicators tell us?*

These indicators are the proportion of children aged 6–59 months who received one and two doses of vitamin A supplements, respectively.

*How are they defined?*

The indicators are defined as the proportion of children aged 6–59 months who received one or two high doses of vitamin A supplements within 1 year. Current international recommendations call for high-dose vitamin A supplementation every 4–6 months for all children between the ages of 6 and 59 months living in affected areas. The recommended doses are 100 000 IU for 6–12-month-old children and 200 000 IU for those aged 12–59 months.

*What are the consequences and implications?*

Programmes to control vitamin A deficiency enhance children's chances of survival, reduce the severity of childhood illnesses, ease the strain on health systems and hospitals and contribute to the well-being of children, their families and communities. The 1990 World Summit for Children set the goal of virtual elimination of vitamin A deficiency and its consequences, including blindness, by the year 2000. The critical role of vitamin A for child health and immune function also makes control of deficiency a primary component of efforts to improve child survival and therefore of the achievement of the fourth Millennium Development Goal, a two-thirds reduction in mortality of children under 5 by the year 2015.

As there is strong evidence that supplementation with vitamin A reduces child mortality, measuring the proportion of children who have received vitamin A within the past 6 months can be used to monitor coverage with interventions for achieving the child survival-related Millennium Development Goals. Supplementation with vitamin A is a safe, cost-effective, efficient means for eliminating its deficiency and improving child survival.

#### *Source*

UNICEF. Childinfo database. [http://www.childinfo.org/vitamina\\_coverage.php](http://www.childinfo.org/vitamina_coverage.php).

#### *Further reading*

WHO. Vitamin A deficiency, list of publications.

[http://www.who.int/nutrition/publications/micronutrients/vitamin\\_a\\_deficiency/en/index.html](http://www.who.int/nutrition/publications/micronutrients/vitamin_a_deficiency/en/index.html).

WHO. Immunization, Vaccines and Biologicals. Vitamin A supplementation.

<http://www.who.int/vaccines/en/vitamina.shtml>.

## ***Children aged 1 year immunized against measles***

#### *What does this indicator tell us?*

Estimates of vaccination coverage of children aged 1 year are used to monitor vaccination services, to guide disease eradication and elimination programmes and as indicators of health system performance.

#### *How is it defined?*

Measles vaccination coverage is defined as the percentage of 1-year-olds who have received at least one dose of measles-containing vaccine in a given year. In countries that recommend that the first dose be given to children over 12 months of age, the indicator is calculated as the proportion of children under 24 months of age receiving one dose of measles-containing vaccine.

#### *What are the consequences and implications?*

Measles is a leading cause of vaccine-preventable childhood deaths, and unvaccinated populations are at risk for the disease. Measles is a significant infectious disease because it is so contagious that the number of people who would suffer complications after an outbreak among nonimmune people would quickly overwhelm available hospital resources. When vaccination rates fall, the number of nonimmune persons in the community rises, and the risk for an outbreak of measles consequently rises.

#### *Source*

Millennium Development Goals indicators database.

<http://mdgs.un.org/unsd/mdg/Default.aspx>.

#### *Further reading*

WHO. Measles. <http://www.who.int/topics/measles/en/>.

## ***Children with diarrhoea who receiving zinc***

#### *What does this indicator tell us?*

This indicator reflects the prevalence of children who were given zinc as part of treatment for acute diarrhoea. Unfortunately, there are no readily available data on this indicator, which is maintained in the NLIS to encourage countries to collect and compile data on these aspects in order to assess their national capacity.

#### *How is it defined?*

Whereas there is no internationally accepted indicator for zinc treatment of children with diarrhoea, it could be defined as the percentage of children under 5 years with acute diarrhoea who were given supplements of 20 mg zinc daily for 10–14 days or 10 mg/day for infants under 6 months.

#### *What are the consequences and implications?*

Measures to prevent childhood diarrhoeal episodes include promoting zinc intake. Diarrhoeal diseases account for nearly 2 million deaths a year among children under 5, making them the second most-common cause of child death worldwide. The greater the prevalence of zinc supplementation during diarrhoea treatment, the better the outcome of treatment for diarrhoea.

WHO and the United Nations Children's Fund (UNICEF) recommend exclusive breastfeeding, vitamin A supplementation, improved hygiene, better access to cleaner sources of drinking-water and sanitation facilities and vaccination against rotavirus in the clinical management of acute diarrhoea and also the use of zinc, which is safe and effective. Specifically, zinc supplements given during an episode of acute diarrhoea reduce the duration and severity of the episode, and giving zinc supplements for 10–14 days lowers the incidence of diarrhoea in the following 2–3 months.

#### *Source*

Currently no data are available.

#### *Further reading*

Rehydration Project. *Zinc supplementation. ORS and zinc: treatment of diarrhoea is now more effective*. Hong Kong, Mother and Child, Health and Education Trust, 2009. <http://rehydrate.org/zinc/>.

WHO. *The impact of zinc supplementation on childhood mortality and severe morbidity*. Report of a workshop to review the results of three large studies. Geneva, World Health Organization, 2007. [http://www.who.int/child\\_adolescent\\_health/documents/zinc\\_mortality/en/](http://www.who.int/child_adolescent_health/documents/zinc_mortality/en/).

## ***Improved sanitation facilities and drinking-water sources***

#### *What do these indicators tell us?*

These indicators are the percentage of population with access to an improved drinking-water source and improved sanitation facilities.

#### *How are they defined?*

Improved drinking-water sources are defined in terms of the types of technology and levels of services that are likely to provide safe water. Improved water sources include household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collection. Unimproved water sources are unprotected wells, unprotected springs, vendor-provided water, bottled water (unless water for other uses is available from an improved source) and tanker truck-provided water. 'Reasonable access' is broadly defined as the availability of at least 20 litres per person per day from a source within 1 kilometre of the user's dwelling.

Improved sanitation facilities are defined in terms of the types of technology and levels of services that are likely to be sanitary. Improved sanitation includes connection to a public sewers, connection to septic systems, pour-flush latrines, simple pit latrines and ventilated improved pit latrines. Service or bucket latrines (from which excreta are removed manually), public latrines and open latrines are not considered to be improved sanitation.

*What are the consequences and implications?*

Access to safe drinking-water and improved sanitation are fundamental needs and human rights vital for the dignity and health of all people. The health and economic benefits of a safe water supply to households and individuals (especially children) are well documented. Both indicators are used to monitor progress towards the Millennium Development Goals.

*Source*

WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation. <http://www.wssinfo.org/>.

*Further reading*

WHO. Water, Sanitation and Hygiene. [http://www.who.int/water\\_sanitation\\_health/en/](http://www.who.int/water_sanitation_health/en/).

World Health Statistics, 2010. <http://www.who.int/whosis/whostat/2010/en/index.html>.

Global Health Observatory (GHO). <http://www.who.int/gho/en/>.

The WHO Indicator and Measurement Registry (IMR).

## ***Women receiving iron and folate supplements during pregnancy***

*What does this indicator tell us?*

This indicator reflects the percentage of women who were given supplements of both iron and folic acid during pregnancy. It would give information about the quality of and coverage of perinatal medical services. Unfortunately, there are no readily available data on this indicator, which is maintained in the NLIS to encourage countries to collect and compile data on these aspects.

*How is it defined?*

The current WHO recommendation is universal supplementation with 60 mg of iron and 400 µg of folic acid daily during pregnancy, as soon as possible after the beginning of gestation and no later than the third month and continuing for the rest of pregnancy. Whereas there is no internationally accepted indicator for these concerns, the indicator could be defined as the percentage of mothers who received daily iron and folic acid supplements for at least 6 months of pregnancy.

*What are the consequences and implications?*

Improving the iron and folate intake of women of reproductive age could improve pregnancy outcomes and enhance maternal and infant health. Iron and folic acid supplementation can ensure the iron and folate status of women before and during pregnancy, in communities where food-based strategies are not yet fully implemented or effective. Daily dosing with folic acid before pregnancy during the first trimester of pregnancy decreases the risk for neural tube defects.

Anaemia during pregnancy places women at risk for poor pregnancy outcomes, including maternal mortality, and also increases the risks for perinatal mortality, premature birth and low birth weight. Infants born to anaemic mothers have less than one half the normal iron reserves. Morbidity from infectious diseases is increased in iron-deficient populations, because of the adverse effect of iron deficiency on the immune system. Iron deficiency is also associated with reduced work capacity and with reduced neurocognitive development.

#### Source

Currently no data are available.

#### Further reading

WHO. *Weekly iron-folic acid supplementation (WIFs) in women of reproductive age: its role in promoting optimal maternal and child health*. Geneva, World Health Organization, 2009. [http://www.who.int/nutrition/publications/micronutrients/weekly\\_iron\\_folicacid.pdf](http://www.who.int/nutrition/publications/micronutrients/weekly_iron_folicacid.pdf).

## Food security

### **Population living on less than US\$ 1 per day**

#### *What does this indicator tell us?*

This indicator gives the prevalence of people living in extreme poverty, as measured by their daily income, and allows comparisons and aggregation of data on the progress of countries in reducing extreme poverty and allows monitoring of global trends.

#### *How is it defined?*

The proportion of the population living on less than US\$ 1 per day is the percentage living on less than US\$ 1.08 a day at 1993 international prices. The US\$ 1 per day poverty line is compared with consumption or income per person, including consumption of their own production and income in kind. As this poverty line has fixed purchasing power across countries or areas, it is often called the 'absolute poverty line'.

Purchasing power parity is defined by comparing economies on the basis of standardized international US\$ price weights, rather than official currency exchange rates.

#### *What are the consequences and implications?*

The US\$ 1 per day poverty measure is used to assess and monitor poverty at global level, but, like other indicators, it is not equally relevant in all regions because countries have different definitions of poverty. Measures of poverty in countries are generally based on national poverty lines. Comparisons of poverty measures within countries are also difficult, especially for urban–rural differences. As the cost of living is typically higher in urban than in rural areas, the urban monetary poverty line should be higher than that for rural areas. The difference between the two in practice, however, may not properly reflect the difference in cost of living.

Malnutrition is the single one of the most important risk factor for disease. When poverty is added, it results in a downward spiral that may end in death.

- Poor people may consume too little nutritious food, making them more susceptible to disease.
- Inadequate or inappropriate food consumption leads to stunted development or premature death.
- Nutrient-deficient diets provoke health problems.
- Disease decreases people's ability to cultivate or purchase nutritious foods.

#### Source

Millennium Development Goals indicators database. <http://mdgs.un.org/unsd/mdg/Default.aspx>.

### *Further reading*

WHO. *Turning the tide of malnutrition. Responding to the challenge of the 21st century.* Geneva, World Health Organization, 2000.  
<http://www.who.int/mip2001/files/2232/NHDbrochure.pdf>.

*Millennium Development Goals. 1a. Proportion of population below \$1 (PPP) per day.* Washington DC, World Bank.  
[http://ddpext.worldbank.org/ext/GMIS/gdmis.do?siteId=2&contentId=content\\_t1a&menuId=Inav01home1](http://ddpext.worldbank.org/ext/GMIS/gdmis.do?siteId=2&contentId=content_t1a&menuId=Inav01home1).

Millennium Development Goals indicators series metadata.  
<http://mdgs.un.org/unsd/mdg/Metadata.aspx>.

*Indicators for monitoring the Millennium Development Goals.* New York, United Nations, 2003.  
<http://mdgs.un.org/unsd/mdg/Resources/Attach/Indicators/HandbookEnglish.pdf>.

## **Population with less than the minimum dietary energy consumption**

### *What does this indicator tell us?*

This indicator is the percentage of the population whose food intake falls below the minimum level of dietary energy requirements, and who therefore are undernourished or food-deprived.

### *How is it defined?*

The estimates of the Food and Agriculture Organization of the United Nations (FAO) of the prevalence of undernourishment are essentially measures of food deprivation based on calculations of three parameters for each country: the average amount of food available for human consumption per person, the level of inequality in access to that food and the minimum number of calories required for an average person.

The average amount of food available for human consumption is derived from national 'food balance sheets' compiled by FAO each year, which show how much of each food commodity a country produces, imports and withdraws from stocks for other, non-food purposes. FAO then divides the energy equivalent of all the food available for human consumption by the total population, to derive average daily energy consumption.

Data from household surveys are used to derive a coefficient of variation to account for the degree of inequality in access to food. Similarly, because a large adult needs almost twice as much dietary energy as a 3-year-old child, the minimum energy requirement per person in each country is based on age, gender and body sizes in that country.

The minimum dietary energy requirement is derived from the results of a FAO/WHO/United Nations University expert consultation in 2001 (published in 2004), which established energy standards for different sex and age groups performing sedentary physical activity and with a minimum acceptable body weight for attained height.

The average energy requirement is the amount of food energy needed to balance energy expenditure in order to maintain body weight, body composition and levels of necessary and desirable physical activity consistent with long-term good health. It includes the energy needed for the optimal growth and development of children, for the deposition of tissues during pregnancy and for the secretion of milk during lactation consistent with the good health of the mother and child. The recommended level of dietary energy intake for a population group is the mean energy requirement of the healthy, well-nourished individuals who constitute that group.

FAO reports the proportion of the population whose daily food intake falls below that minimum energy requirement as 'undernourished'. Trends in undernourishment are due mainly to:

- changes in food consumption as reported on country food balance sheets;
- changes in the distribution of dietary energy consumption in a population due to changes in the distribution of both dietary energy consumption by income level and

dietary energy requirements based on weight for attained height by gender and age; and

- changes in the minimum dietary energy consumption due to changes in attained height and the gender–age population structure.

*What are the consequences and implications?*

The indicator is a measure of an important aspect of food insecurity in a population. Sustainable development requires a concerted effort to reduce poverty, including solutions to hunger and malnutrition. Alleviating hunger is a prerequisite for sustainable poverty reduction, as undernourishment seriously affects labour productivity and earning capacity. Malnutrition can be the outcome of a range of circumstances. In order for poverty reduction strategies to be effective, they must address food access, availability and safety.

*Source*

Millennium Development Goals indicators database.  
<http://mdgs.un.org/unsd/mdg/Default.aspx>.

*Further reading*

United Nations Millennium Development Goals. Series metadata.  
<http://mdgs.un.org/unsd/mdg/metadata.aspx>.

FAO. Human energy requirements. Report of a Joint FAO/WHO/UNU Expert Consultation. Rome, 17–24 October 2001. Rome, FAO, 2004.  
<ftp://ftp.fao.org/docrep/fao/007/y5686e/y5686e00.pdf>.

Food and Agriculture Organization of the UN (FAO). Food Security Statistics.  
<http://www.fao.org/economic/ess/food-security-statistics/en/>.

## ***Households consuming adequately iodized salt ( $\geq 15$ parts per million)***

*What does this indicator tell us?*

Salt iodization has been adopted as the main strategy for eliminating iodine-deficiency disorders as a public health problem, and the aim is to achieve universal salt iodization. While other foodstuffs can be iodized, salt has the advantage of being widely consumed and inexpensive. Salt has been iodized routinely in some industrialized countries since the 1920s. This indicator is a measure of whether a fortification programme is reaching the target population adequately.

*How is it defined?*

The indicator is a measure of the percentage of households consuming iodized salt, defined as salt containing 15–40 parts per million of iodine. Preferably, household access to iodized salt should be greater than 90%.

*What are the consequences and implications?*

Iodine deficiency is most commonly and visibly associated with thyroid problems (e.g. hyper- or hypothyroidism, goitre or an enlarged thyroid gland) but takes its greatest toll in impaired mental growth and development, which contribute to poor school performance, reduced intellectual ability and impaired work performance.

Consumption of iodized salt increased in the developing world during the past decade: in the early 1990s, only about 20% of households consumed adequately iodized salt, but today 68%

of households do so. This means that about 84 million newborns are now being protected from learning disabilities due to iodine-deficiency disorders.

#### *Source*

UNICEF. ChildInfo. *Iodized salt consumption*. [http://www.childinfo.org/idd\\_profiles.php](http://www.childinfo.org/idd_profiles.php).

#### *Further reading*

UNICEF. ChildInfo. *Monitoring the situation of women and children. Statistics by area: nutrition. Sustainable elimination of iodine deficiency disorders by 2005*. <http://www.childinfo.org/idd.html>.

WHO. Micronutrient deficiencies, iodine deficiency disorders. <http://www.who.int/nutrition/topics/idd/en/index.html>.

## **Caring practices**

### ***Infant and young child feeding***

To enable mothers to establish and sustain exclusive breastfeeding for 6 months, WHO and UNICEF recommend:

- initiation of breastfeeding within the first hour of life;
- exclusive breastfeeding, i.e. only breast milk with no additional food or drink, not even water;
- breastfeeding on demand, as often the child wants, day and night; and
- no use of bottles, teats or pacifiers.

The recommendations for feeding infants and young children (6–23 months) include:

- continuing breastfeeding;
- introduction of solid, semisolid or soft foods at 6 months;
- appropriate food diversity (at least four food groups per day);
- appropriate frequency of meals: two to three times a day between 6 and 8 months, increasing to three to four times a day between 9 and 23 months with nutritious snacks offered once or twice a day, as desired;
- safe preparation of foods; and
- feeding infants in response to their cues.

The caring practice indicators for infant and young child feeding available on the NLIS country profiles include:

- proportion of children aged 0–23 months who were put to the breast within 1 h of birth
- proportion of infants under 6 months who are exclusively breastfed
- proportion of infants aged 6–8 months who receive solid, semisolid or soft foods; and
- proportion of children aged 6–23 months who receive a minimum acceptable diet.

### **Early initiation of breastfeeding**

*What does this indicator tell us?*

This indicator is the percentage of infants who are put to the breast within 1 hour of birth.

*How is it defined?*

Early initiation of breastfeeding is defined as the proportion of children born in the past 24 months who were put to the breast within 1 hour of birth.

*What are the consequences and implications?*

Breastfeeding contributes to saving children's lives, and there is evidence that delayed initiation of breastfeeding increases their risk for mortality.

### **Infants under 6 months who are exclusively breastfed**

*What does this indicator tell us?*

This indicator is the percentage of infants aged 0–5 months who are exclusively breastfed.

*How is it defined?*

It is the proportion of infants aged 0–5 months who are fed exclusively on breast milk.

*What are the consequences and implications?*

Exclusive breastfeeding is an unequalled way of providing the ideal food for the healthy growth and development of infants; it is also an integral part of the reproductive process, with important implications for the health of mothers. An expert review of evidence showed that, on a population basis, exclusive breastfeeding for 6 months is the optimal way of feeding infants.

Breast milk is the natural first food for infants. It provides all the energy and nutrients that the infant needs for the first months of life. It continues to provide up to one half or more of a child's nutritional needs during the second half of the first year and up to one third during the second year of life.

Breast milk promotes sensory and cognitive development and protects the infant against infectious and chronic diseases. Exclusive breastfeeding reduces infant mortality due to common childhood illnesses, such as diarrhoea and pneumonia, and leads to quicker recovery from illness.

Breastfeeding contributes to the health and well-being of mothers, by helping to space children, reducing their risks for ovarian and breast cancers and saving family and national resources. It is a secure way of feeding and is safe for the environment.

### **Infants aged 6–8 months who receive solid, semisolid or soft foods**

*What does this indicator tell us?*

The indicator is the percentage of infants who start solid, semisolid or soft foods at between 6 and 8 months of age. WHO recommends starting complementary feeding at 6 months of age.

*How is it defined?*

It is defined as the proportion of infants aged 6–8 months who receive solid, semisolid or soft foods.

### *What are the consequences and implications?*

When breast milk alone no longer meets the nutritional needs of the infant, complementary foods should be added. The transition from exclusive breastfeeding to family foods, referred to as 'complementary feeding', typically occurs between 6 and 18–24 months of age. This is a very vulnerable period, and it is the time when malnutrition often starts, contributing significantly to the high prevalence of malnutrition among children under 5 worldwide.

### **Children aged 6–23 months who receive a minimum acceptable diet**

#### *What does this indicator tell us?*

This indicator is the percentage of children aged 6–23 months who receive a minimum acceptable diet

#### *How is it defined?*

The composite indicator of a minimum acceptable diet is calculated from:

- the proportion of breastfed children aged 6–23 months who had at least the minimum dietary diversity and the minimum meal frequency during the previous day and
- the proportion of non-breastfed children aged 6–23 months who received at least two milk feedings and had at least the minimum dietary diversity not including milk feeds and the minimum meal frequency during the previous day.

Dietary diversity is present when the diet contained four or more of the following food groups:

- grains, roots and tubers;
- legumes and nuts;
- dairy products (milk, yogurt, cheese);
- flesh foods (meat, fish, poultry, liver or other organs);
- eggs;
- vitamin A-rich fruits and vegetables; and
- other fruits and vegetables.

The minimum daily meal frequency is defined as:

- twice for breastfed infants aged 6–8 months,
- three times for breastfed children aged 9–23 months and
- four times for non-breastfed children aged 6–23 months.

### *What are the consequences and implications?*

A minimum acceptable diet is essential to ensure appropriate growth and development for feeding infants and children aged 6–23 months. Without adequate diversity and meal frequency, infants and young children are vulnerable to malnutrition, especially stunting and micronutrient deficiencies, and to increased morbidity and mortality.

#### *Source of all infant and young child feeding indicators*

WHO. *WHO Global Data Bank on Infant and Young Child Feeding*. Department of Nutrition for Health and Development (NHD), Geneva, Switzerland.  
<http://www.who.int/nutrition/databases/infantfeeding/en/index.html>.

#### *Further reading*

WHO. Infant and young child feeding list of publications.  
<http://www.who.int/nutrition/publications/infantfeeding/en/index.html>.

WHO. *The optimal duration of exclusive breastfeeding: a systematic review*. Geneva, World Health Organization, 2001.

## ***Children with diarrhoea receiving oral rehydration therapy and continued feeding***

*What does this indicator tell us?*

This indicator is the prevalence of children with diarrhoea who received oral rehydration therapy and continued feeding.

*How is it defined?*

It is the proportion of children aged 0–59 months who had diarrhoea and were treated with oral rehydration salts or an appropriate household solution and continued feeding. The terms used for diarrhoea should cover the expressions used for all forms of diarrhoea, including bloody stools (consistent with dysentery) and watery stools, and should encompass mothers' definitions as well as local terms.

*What are the consequences and implications?*

Diarrhoeal diseases remain one of the major causes of mortality among children under 5, accounting for 1.8 million deaths among children worldwide. As oral rehydration therapy is a critical component of effective management of diarrhoea, monitoring coverage with this highly cost-effective intervention indicates progress towards the child survival-related Millennium Development Goals.

*Sources*

UNICEF. ChildInfo. *Monitoring the situation of women and children*.  
[http://www.childinfo.org/diarrhoea\\_countrydata.php](http://www.childinfo.org/diarrhoea_countrydata.php).

*Further reading*

WHO Statistical Information System (WHOSIS). Children < 5 years with diarrhoea receiving oral rehydration therapy (percentage).  
<http://www.who.int/whosis/indicators/2007DiarrhoeaChildORTFluids/en/>.  
UNICEF. ChildInfo. <http://www.childinfo.org/diarrhoea.html>.

## ***Women aged 15–19 years who are mothers or are pregnant with their first child***

*What does this indicator tell us?*

This indicator is the prevalence of women aged 15–19 years who are mothers or are pregnant with their first child. Adolescent pregnancies are still common, and WHO has identified the care of pregnant adolescents and the safe delivery and care of their infants as an area that was inadequately addressed. Adolescents account for 15% of the global burden of disability for maternal conditions and 13% of all maternal deaths.

*How is it defined?*

Adolescent (or 'teenage') pregnancy is pregnancy at the age of 10–19 years. In most statistics, the age of a mother is defined as her age at the time her infant is born. Because there are considerable differences between 12- and 19-year-old girls and women, statistics are often presented separately for 10–14- and 15–19-year age groups. Birth rates and pregnancy rates are counted per 1000 of a specific population. Comparisons of country

incidences are often given as rates per 1000 adolescents aged 15–19 years. The pregnancy rate includes pregnancies ending in births and those ending in abortion.

#### *What are the consequences and implications?*

Births to girls and young women are strongly associated with health risks for both the mothers and the infants. Many of these risks are also associated with giving birth for the first time. Because adolescent mothers are usually also first-time mothers, it is difficult to separate these risks. For unknown reasons, the rate of death of adolescents in childbirth is disproportionately high; and adolescents are more likely to give birth to preterm and low-birth-weight infants, who are at higher risk for perinatal mortality. In many countries, the risk for dying from pregnancy-related causes is twice as high for adolescents aged 15–19 years as for older women.

#### *Source*

Demographic and Health Surveys STATcompiler. <http://www.statcompiler.com/>.

#### *Further reading*

UNFPA. Adolescents and youth. [http://www.unfpa.org/public/publications/pubs\\_youth](http://www.unfpa.org/public/publications/pubs_youth).

WHO. Child and adolescent health and development. Topic: adolescent/young people. [http://www.who.int/child\\_adolescent\\_health/documents/adolescent/en/index.html](http://www.who.int/child_adolescent_health/documents/adolescent/en/index.html).

WHO. Making Pregnancy Safer. [http://www.who.int/making\\_pregnancy\\_safer/en/](http://www.who.int/making_pregnancy_safer/en/).

WHO. WHO Reproductive Health Library. Adolescent sexual and reproductive health. <http://apps.who.int/rhl/adolescent/en/>.

## **Commitment**

### ***Health expenditure***

#### *What do these indicators tell us?*

Health expenditure includes that for the provision of health services, family planning activities, nutrition activities and emergency aid designated for health, but excludes the provision of water and sanitation.

Health financing is a critical component of health systems. National health accounts provide a large set of indicators based on information on expenditure collected within an internationally recognized framework. National health accounts consist of a synthesis of the financing and spending flows recorded in the operation of a health system, from funding sources and agents to the distribution of funds between providers and functions of health systems and benefits geographically, demographically, socioeconomically and epidemiologically.

#### *How are they defined?*

*General government expenditure on health as a percentage of total government expenditure* is defined as the level of general government expenditure on health (GGHE) expressed as a percentage of total government expenditure. The indicator contributes to understanding the weight of public spending on health within the total value of public sector operations. It includes not just the resources channelled through government budgets but also the expenditure on health by parastatals, extrabudgetary entities and notably the compulsory health insurance. The indicator refers to resources collected and pooled by public agencies including all the revenue modalities.

*Total expenditure on health as a percentage of gross domestic product (GDP)* is defined as the level of total expenditure on health expressed as a percentage of gross domestic product (GDP), where GDP is the value of all final goods and services produced within a nation in a given year. The indicator provides information on the level of resources channelled to health relative to a country's wealth.

*Per capita total expenditure on health* is defined as per capita total expenditure on health expressed at average exchange rate for that year in US\$. The indicator contributes to understanding the total expenditure on health relative to the beneficiary population, expressed in US\$ to facilitate international comparisons.

#### *What are the consequences and implications?*

These indicators reflect government and total expenditure on health resources, access and services, including nutrition, in relation to government expenditure, the wealth of the country, and per capita. Although increasing health expenditures are associated with better health outcomes, especially in low-income countries, there is no 'recommended' level of spending on health. The larger the per capita income, the greater the expenditure on health. Some countries, however, spend appreciably more than would be expected from their income levels, and some appreciably less. When a government attributes less of its total expenditure on health, this may indicate that health, including nutrition, are not regarded as priorities.

#### *Sources*

WHO. National health accounts - World Health Statistics, 2010 (<http://apps.who.int/ghodata/>)

WHO. Core health indicators (<http://apps.who.int/ghodata/>) for 'Per capita total expenditure on health (US\$)'.

#### *Further reading*

WHO. National health accounts. <http://www.who.int/nha/en/>.

WHO. *Wealth, health and health expenditure*. WHO/NHA Policy Highlight No. 4, 2008. [http://www.who.int/nha/use/Highlight\\_4\\_Aug25,2008.pdf](http://www.who.int/nha/use/Highlight_4_Aug25,2008.pdf).

The WHO Indicator and Measurement Registry (IMR).

[http://apps.who.int/gho/indicatorregistry/App\\_Main/browse\\_indicators.aspx](http://apps.who.int/gho/indicatorregistry/App_Main/browse_indicators.aspx).

## ***Nutrition component of the United Nations Development Assistance Framework***

#### *What does this indicator tell us?*

This indicator describes the strength of nutrition in the United Nations Development Assistance Framework (UNDAF), the strategic programme framework for United Nations country teams. UNDAFs usually focus on three to five areas in which the country team can make the greatest difference, in addition to activities supported by other agencies in response to national demands but which fall outside the common UNDAF results matrix. For each national priority selected for United Nations country team support, the UNDAF results matrix gives the outcome(s), the outcomes and outputs of other agencies working alone or together, the role of partners, resource mobilization targets for each agency outcome and coordination mechanisms and programme modalities. The nutrition component of the UNDAF reflects the priority attributed to nutrition by the United Nations agencies in a country and is an indication of how much the United Nations system is committed to helping governments improve their food and nutrition situation.

### *How is it defined?*

The indicator is "strong", "medium" or "weak", depending on the degree to which nutrition is being addressed in the expected outcomes and outputs in the UNDAF. It been defined and estimated within the 'WHO Landscape Analysis', which is based on how the outcomes and outputs of the UNDAF address nutrition and the evidence-based interventions identified in the *Lancet Nutrition Series* (published in January 2008).

UNDAF documents follow a predefined format, with a core narrative and a results matrix. The matrix lists the high-level expected results ('the UNDAF outcomes'), the outcomes to be reached by agencies working alone or together and agency outputs. The results matrix the UNDAF document was used to assess commitment to nutrition, because it represents a synthesis of the strategy proposed in the document and is available in the same format in most country documents. The most recent UNDAF documents on the United Nations Development Group (UNDG) website were used. The outcomes and outputs specifically related to nutrition were identified and counted. The outputs were compared with the evidence-based interventions to reduce maternal and child undernutrition recommended in the *Lancet Nutrition Series* (Bhutta et al., 2008, Table 1, p. 42). The method and scoring are described in detail by Engesveen et al. (2009).

### *What are the implications?*

A strong nutrition component in the UNDAF document means that the United Nations agencies consider nutrition to be a joint priority. A weak nutrition component in the UNDAF document does not necessarily imply that no United Nations agency in the country is working to improve nutrition; however, unless such efforts are mentioned in strategy documents like the UNDAF, they may receive inadequate attention from development partners to ensure the necessary sustainability or scale-up to adequately address nutrition problems in the country. The multisectoral nature of nutrition means that it must be addressed by a wide range of actors. Basing such action in frameworks for overall development contributes to ensuring the accountability of United Nations partners.

### *Sources*

Completed UNDAFs, available from the UNDG website.  
<http://www.undg.org/index.cfm?P=234>.

UNDG and United Nations System Staff College provide an online results matrix database.

### *Further reading*

Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, Haider BA, Kirkwood B, Morris SS, Sachdev HPS and Shekar M (2008) What works? Interventions for maternal and child undernutrition and survival. *The Lancet* 371(9610):417-40. (online)

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[http://www.unscn.org/files/Publications/SCN\\_News/scnnews37.pdf](http://www.unscn.org/files/Publications/SCN_News/scnnews37.pdf).

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## ***Nutrition component of poverty reduction strategy papers***

### *What does this indicator tell us?*

This indicator describes the strength of nutrition in the Poverty Reduction Strategy Paper (PRSP). The poverty reduction strategy approach was introduced in 1999 to empower governments to set their own priorities and to encourage donors to provide predictable, harmonized assistance aligned with country priorities. The PRSP should state the development priorities and specify the policies, programmes and resources needed to meet the goals. It is prepared by governments in a participatory process involving civil society and development partners, including the World Bank and the International Monetary Fund, and should result in a comprehensive, country-based strategy for poverty reduction.

### *How is it defined?*

The indicator is "strong", "medium" or "weak", depending on the degree to which nutrition is addressed in the PRSP, in terms of recognition of undernutrition as a development problem, use of information on nutrition to analyse poverty and support for appropriate nutrition policies, strategies and programmes. The indicator has been defined and estimated within the 'WHO Landscape Analysis' using a methodology proposed by the World Bank (Shekar and Lee, 2006). The most recent PRSPs available on the World Bank website were used. The papers were systematically searched for key words to identify the parts that concerned nutrition, food security, health outcomes and interventions that would be relevant for the World Bank method. In order to classify the commitments to nutrition in the PRSPs, a scoring system was developed, which is described in more detail by Engesveen et al. (2009).

### *What are the implications?*

The emphasis given to nutrition in PRSPs reflects the extent to which the government considers it essential to improve nutrition for poverty reduction and national development. In other words, it can be an indication of the government's priority for improving nutrition.

A strong nutrition component in a PRSP means that the government considers nutrition a priority for poverty reduction and national development. A weak nutrition component in the document does not necessarily imply that no government department is working to improve nutrition; however, unless such efforts are mentioned in strategy documents like PRSPs, they may not be sufficiently sustainable or be scaled-up to adequately address nutrition problems in the country. The multisectoral nature of nutrition means that it must be addressed by a wide range of actors. Basing such action in frameworks for overall development contributes to ensuring the accountability of relevant government departments.

### *Sources and further reading*

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### *Further reading*

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WHO. *Landscape analysis on countries' readiness to accelerate action in nutrition*, 2010. (forthcoming).

World Bank. Poverty reduction strategies. <http://go.worldbank.org/FXXJK3VEW0>.

## **Nutrition governance**

### *What does this indicator tell us?*

This indicator is a description of the strengths and weaknesses of various aspects of nutrition governance in countries.

### *How is it defined?*

The nutrition governance score is "strong", "medium" or "weak", depending on the presence of a set of elements identified by countries themselves as crucial for successful development and implementation of national nutrition policies and strategies. The following 10 elements or characteristics are used to assess and describe the strength of nutrition governance:

- existence of an intersectoral mechanism to address nutrition;
- existence of a national nutrition plan or strategy;
- whether the national nutrition plan or strategy is adopted;
- whether the national nutrition plan or strategy is part of the national development plan;
- existence of a national nutrition policy;
- whether the nutrition policy is adopted;
- existence of national dietary guidelines;
- allocation of budget for implementation of the national nutrition plan, strategy or policy;
- regular nutrition monitoring and surveillance; and
- existence of a line for nutrition in the health budget.

These elements were identified by countries as key elements for successful development and implementation of national nutrition policies and strategies during a review of the progress of countries in implementing the World Declaration and Plan of Action for Nutrition adopted by the 1992 International Conference on Nutrition, the first intergovernmental conference on nutrition (Nishida et al. 2003). The method and scoring are described in detail by Engesveen et al. (2009).

### *What are the consequences and implications?*

The components of the composite indicator have been identified by countries as important for determining the completeness of national nutrition plans and policies (Nishida, Mutru, Imperial Laue, 2003). For instance, a national nutrition plan and policy was considered to provide the political basis for initiating action. In many countries, official government endorsement or adoption of a national nutrition plan or policy facilitated its implementation. The role of an intersectoral coordinating committee in implementing national nutrition plans and policies was also considered crucial, although the nature (i.e. whether executive or advisory), members, organizational structure and location of the committee determined its effectiveness. Another important element was considered to be regular surveys and other means of collecting data on nutrition. A periodically updated national nutrition information system and routinely collected data on food and nutrition were considered important for evaluating the effectiveness of national nutrition plans and policies and identifying subsequent actions.

### *Source*

WHO. *WHO Global Database on National Nutrition Policies and Programmes*. Department of Nutrition for Health and Development (NHD), Geneva, Switzerland.

### *Further reading*

Engesveen K et al. Assessing countries' commitment to accelerate nutrition action demonstrated in PRSP, UNDAF and through nutrition governance. *SCN News* 2009, 37. [http://www.unscn.org/files/Publications/SCN\\_News/scnnews37.pdf](http://www.unscn.org/files/Publications/SCN_News/scnnews37.pdf).

Nishida C, Mutru T, Imperial Laue R. Strategies for effective and sustainable national nutrition plans and policies. In: Elmadfa I, Anklam E, König JS, eds. *Modern aspects of nutrition, present knowledge and future perspective*. Basel, Karger (Forum for Nutrition 56), 2003:264–266.

WHO. *Landscape analysis on countries' readiness to accelerate action in nutrition*, 2010. (forthcoming)

## ***Monitoring and enforcing the International Code of Marketing of Breast-milk Substitutes***

### *What does this indicator tell us?*

This indicates whether a government has adopted legislation to monitor and enforce the International Code of Marketing of Breast-milk Substitutes, which helps create an environment that enables mothers to make the best possible feeding choice, based on impartial information and free of commercial influences, and to be fully supported in doing so.

### *How is it defined?*

This indicator is defined on the basis of whether a government has adopted legislation for effective national implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes. The Code is a set of recommendations to regulate the marketing of breast-milk substitutes, feeding bottles and teats. The Code aims to contribute "to the provision of safe and adequate nutrition for infants, by the protection and promotion of breastfeeding, and by ensuring the proper use of breast-milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution" (Article 1).

### *What are the consequences and implications?*

Improper marketing and promotion of food products that compete with breastfeeding often negatively affect the choice and ability of a mother to breastfeed her infant optimally. The Code was formulated in response to the realization that such marketing resulted in poor infant feeding practices, which negatively affect the growth, health and development of children and are a major cause of mortality in infants and young children.

Breastfeeding practices worldwide are not yet optimal, in both developing and developed countries, especially for exclusive breastfeeding under 6 months of age. In addition to the risks posed by the lack of the protective qualities of breast milk, breast-milk substitutes and feeding bottles are associated with a high risk for contamination that can lead to life-threatening infections in young infants. Infant formula is not a sterile product, and it may carry germs that can cause fatal illnesses. Artificial feeding is expensive, requires clean water, the ability of the mother or caregiver to read and comply with mixing instructions and a minimum standard of overall household hygiene. These factors are not present in many households in the world.

### *Source*

WHO. Department for Child and Adolescent Health and Department of Nutrition for Health and Development, 2010.

### *Further reading*

WHO. *The International Code of Marketing of Breast-milk Substitutes. Frequently asked questions*, 2008.

[http://www.who.int/nutrition/publications/Frequently\\_ask\\_question\\_Internationalcode.pdf](http://www.who.int/nutrition/publications/Frequently_ask_question_Internationalcode.pdf).

## **Maternity leave**

### *What does this indicator tell us?*

This indicator provides information on national policies for legal entitlement to leave from work during pregnancy and after birth.

### *How is it defined?*

The indicator is the duration of maternity leave. The basic elements of maternity protection reflect concern to ensure the health of pregnant and nursing women and their children. They include the right to leave and to cash and medical benefits, so that before and after giving birth women workers can take a reasonable amount of time off, with sufficient continued income, to rest and recuperate, breastfeed and take care of their newly born children. The right to job security and nondiscrimination are other basic elements of maternal protection.

Governments have enacted a range of legislative measures to protect women workers during pregnancy and at childbirth. International labour standards have been established to provide maternity protection for women workers, including a new Convention and Recommendation adopted at the International Labour Conference in June 2000. The Maternity Protection Convention of the International Labour Organization (ILO) (C183) states that mothers should be entitled to a period of paid maternity leave of not less than 14 weeks, in addition to other benefits, including breastfeeding breaks and employment protection. The ILO Maternity Protection Recommendation (R191) recommends at least 18 weeks.

### *What are the consequences and implications?*

Appropriate maternity protection is a necessary condition for equality. More women are now in the labour force and work more continuously than before; they earn an increasing proportion of the family income and often work throughout their childbearing years. Exposure to certain health and safety hazards on the job or in the working environment during pregnancy can have adverse effects on the health of the woman and her unborn child. Before and after giving birth, she also needs a reasonable amount of time off from her job to recuperate, breastfeed and bond with her child. Many women want and need to be able to return to work after childbirth, and this is increasingly recognized as a basic right in a world where the participation of women in the labour force is approaching that of men in many countries. As many women support themselves and their families, continuity of income during maternity leave is vital.

### *Source*

ILO. Maternity protection database.

<http://www.ilo.org/travaildatabase/servlet/maternityprotection>.

### *Further reading*

ILO. Maternity protection

[http://www.ilo.org/global/themes/equality\\_and\\_discrimination/maternityprotection/lang--en/index.htm](http://www.ilo.org/global/themes/equality_and_discrimination/maternityprotection/lang--en/index.htm).

ILO. Documentation for the maternity protection database

[http://www.ilo.org/travaildatabase/theme/mpd\\_documentation.pdf](http://www.ilo.org/travaildatabase/theme/mpd_documentation.pdf).

## Capacity

### ***Degree training in nutrition and nutrition in medical curricula***

These indicators reflect the capacity of a country to train professionals in nutrition. As nutrition is an important part of health staff activities, adequate training of health professionals is essential to ensure that nutrition activities are part of the health system. Unfortunately, there are no readily available data on these indicators. The indicators are maintained in the NLIS to encourage countries to collect and compile data on these aspects in order to assess their national capacity.

### ***Density of nutrition professionals***

The indicator 'Number of trained nutrition professionals per 100 000 population' reflects the capacity of a country to design and implement a nutrition policy and programmes effectively. Unfortunately, there are no readily available data on this indicator. This indicator is maintained in the NLIS to encourage countries to collect and compile data on these aspects in order to assess their national capacity.

### ***Density of nurses and midwives***

*What does the indicator tell us?*

Nurse and midwife density indicates whether nurses and midwifery personnel are available to address the health care needs of a given population.

*How is it defined?*

It is the number of nursing and midwifery personnel and density per 10 000 population. These personnel include professional nurses, professional midwives, auxiliary nurses, auxiliary midwives, enrolled nurses, enrolled midwives and other personnel, such as dental nurses and primary care nurses. Traditional attendants are not counted here but as community or traditional health workers.

*What are the consequences and implications?*

There is no gold standard for a sufficient health workforce to address the health care needs of a given population. It has been estimated, however, that countries with fewer than 25 health-care professionals (counting only physicians, nurses and midwives) per 10 000 population fail to achieve adequate coverage rates for selected primary health care interventions that are priorities in the Millennium Development Goals.

*Source*

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The WHO Indicator and Measurement Registry (IMR).  
[http://apps.who.int/gho/indicatorregistry/App\\_Main/browse\\_indicators.aspx](http://apps.who.int/gho/indicatorregistry/App_Main/browse_indicators.aspx).

## ***Gross domestic product per capita and annual growth rate***

*What do these indicators tell us?*

Gross Domestic Product (GDP) per capita and GDP per capita annual growth rate are widely used by economists to gauge the health of an economy.

*How are they defined?*

*GDP per capita* (purchasing power parity) is the GDP divided by the midyear population, where GDP is the total value of goods and services for final use produced by resident producers in an economy, regardless of the allocation to domestic and foreign claims. It does not include deductions for depreciation of physical capital or depletion and degradation of natural resources. Purchasing power parity indicates the rate of exchange that accounts for price differences across countries, allowing international comparisons of real output and incomes. The purchasing power parity US\$ 1 has the same purchasing power in the domestic economy as US\$ 1 in the United States. Purchasing power parity rates allow standard comparisons of real prices among countries, just as conventional price indexes allow comparisons of real values over time; use of normal exchange rates could result in over - or undervaluation of purchasing power.

*GDP per capita annual growth rate* is defined as the least squares annual growth rate, calculated from constant price GDP per capita in local currency units.

*What are the consequences and implications?*

Higher income is usually associated with lower rates of malnutrition. Improving income however, reduces malnutrition to only a small degree (World Bank 2006). For example, when the gross national product [GDP plus the net factor income residents receive from abroad for factor services (labour and capital), less similar payments made to who contribute to the domestic economy] per capita in developing countries doubled, the nutrition situation did improve, but reductions in underweight rates were only modest—from 32% to 23%. On the basis of the correlation between growth and nutrition, it is estimated that a sustained per capita economic growth of 2.5% between the 1990s and 2015 would reduce malnutrition by 27%—only halfway towards the Millennium Development Goal target 3. These estimates suggest that countries cannot depend on economic growth alone to reduce malnutrition within an acceptable time.

*Source*

UNDP. Indicators. Human Development Report.  
<http://hdr.undp.org/en/reports/global/hdr2009/>.

*Further reading*

UNDP. *Human Development Report 2007/2008. Fighting climate change. Human solidarity in a divided world*, 2008. [http://hdr.undp.org/en/media/hdr\\_20072008\\_en\\_complete.pdf](http://hdr.undp.org/en/media/hdr_20072008_en_complete.pdf).

UNDP. Human development reports. Glossary of terms.  
<http://hdr.undp.org/en/humandev/glossary/>.

World Bank. *Repositioning nutrition as central to development. A strategy for large-scale action*, 2006. <http://siteresources.worldbank.org/nutrition/resources/281846-1131636806329/nutritionstrategy.pdf>.

## **Official development assistance**

*What does this indicator tell us?*

Official development assistance received (net disbursements as a percentage of Gross Domestic Product (GDP)) is a measure of the flow of aid, private capital and debt in comparison with the value of goods and services produced within the country.

*How is it defined?*

This indicator is official development assistance received as a percentage of the GDP. Net official development assistance consists of grants or loans to countries or territories from the official sector, with the main objective of promoting economic development and welfare, at concessional financial terms. GDP is the total value of final goods and services produced within a country's borders in a year, regardless of ownership.

*What are the consequences and implications?*

When official development assistance makes up a large proportion of the GDP, a country is highly aid dependent, with the risk of unpredictable aid and donor-driven aid programmes. This can affect the resources allocated to nutrition, which are often not a donor priority in the sector-wide aid strategies promoted by the Paris Declaration (2005).

*Source*

UNDP. *Indicators. Human development report*. <http://hdr.undp.org/en/reports/global/hdr2009/>.

*Further reading*

*Paris Declaration on Aid Effectiveness: ownership, harmonization, alignment, results and mutual accountability*, adopted at the High-level Forum on 'Joint Progress towards Enhanced Aid Effectiveness: Harmonization, Alignment, Results', held in Paris, 28 February–2 March 2005. <http://www1.worldbank.org/harmonization/paris/finalparisdeclaration.pdf>.

UNDP. *Human development report 2007/2008. Fighting climate change. Human solidarity in a divided world*, 2008. [http://hdr.undp.org/en/media/hdr\\_20072008\\_en\\_complete.pdf](http://hdr.undp.org/en/media/hdr_20072008_en_complete.pdf).

## **Low-income food-deficit countries (LIFDC)**

*What does this indicator tell us?*

This indicator identifies countries with low income and food inadequacy.

*How is it defined?*

A country is classified by the UN Food and Agriculture Organization (FAO) as 'low-income food-deficit' for analytical purposes on the basis of low income and food inadequacy, and the status is agreed by the country itself. The classification applies to countries that have a per capita income below the ceiling used by the World Bank to determine eligibility for International Development Association assistance and for 20-year terms determined by the International Bank for Reconstruction and Development, applied to countries included in World Bank categories I and II. The second criterion is based on the net (i.e. gross imports less gross exports) food trade position of the country, averaged over the preceding 3 years. Trade volumes of a broad range of basic foodstuffs (cereals, roots and tubers, pulses, oilseeds and oils other than tree crop oils, meat and dairy products) are converted and aggregated by the calorie content of individual commodities. The third criterion, which is self-

exclusion, is applied when countries that meet the above two criteria specifically request to be excluded from the low-income food-deficit category. In order to avoid too frequent changes of low-income food-deficit status, usually reflecting short-term, exogenous shocks, an additional factor is taken into consideration. This factor, called 'persistence of position', postpones the 'exit' of a country from the list even if it does not meet the low-income or the food-deficit criterion, until the change in its status is verified for 3 consecutive years. In other words, a country is taken off the list in the fourth year after confirming a sustained improvement in its position. During these 3 years, the country is considered to be in a transitional phase.

#### *What are the consequences and implications?*

The rationale behind the low-income food-deficit classification is that being both food deficit and having a low income at the same time means that the country lacks the resources not only to import food but also to produce sufficient amounts domestically. It is the combination of these two factors that makes these countries both food insecure and susceptible to domestic and external shocks, which could affect the nutritional status of vulnerable populations. The low-income food-deficit list is intended to capture this aspect of the food problem.

In comparison with countries in other classifications commonly used for analytical and operational purposes, e.g. 'least-developed countries', the World Bank's 'low-income countries' and 'heavily indebted poor countries', countries that are low-income food-deficit have demonstrated better nutrition and health related outcomes.

#### *Source*

FAO. Country profiles. Low-income food-deficit countries.  
<http://www.fao.org/countryprofiles/lifdc.asp?lang=en>.

#### *Further reading*

Committee on World Food Security. *Twenty-eighth Session. Rome, 6–8 June 2002. The LIFDC classification—an exploration, 2002.*  
<http://www.fao.org/docrep/meeting/004/y6691e/y6691e00.htm>.

## **Meta-indicators**

### ***Women in national parliaments***

#### *What does this indicator tell us?*

This is an indicator of gender equality and empowerment of women and reflects Millennium Development Goal 3, to promote gender equality and empower women. Women's representation in parliaments is one aspect of their opportunities in political and public life, and it is therefore linked to women's empowerment.

#### *How is it defined?*

The proportion of seats held by women in national parliaments is obtained by dividing the number of parliamentary seats occupied by women by the total number of seats occupied. National parliaments consist of one or two chambers. For international comparisons, generally only the single or lower house is considered in calculating the indicator.

### *What are the implications?*

Women are underrepresented in all decision-making bodies and political parties, particularly at the higher echelons. Women still face many practical obstacles to the full exercise of their role in political life. Low status restricts women's opportunities and freedom, giving them less interaction with others and fewer opportunities for independent behaviour, restricting the transmission of new knowledge and damaging their self-esteem and expression. It is a particularly important determinant of two resources for care: mothers' physical and mental health and their autonomy and control over household resources. Low status restricts women's capacity to act in their own and their children's best interests. There is a demonstrated association between women's status and malnutrition in children.

### *Source*

Millennium Development Goals indicators database.

<http://mdgs.un.org/unsd/mdg/Default.aspx>.

### *Further reading*

Smith LC, Haddad L. *Explaining child malnutrition in developing countries: a cross-country analysis*. Bonn, International Food Policy Research Institute, 1999 (Food Consumption and Nutrition Division Discussion Paper No 60).

<http://www.ifpri.org/publication/explaining-child-malnutrition-developing-countries>.

United Nations. *Indicators for monitoring the Millennium Development Goals. Definitions, rationale, concepts and sources*. United Nations Development Group (United Nations Population Fund, United Nations Development Programme, Department of Economic and Social Affairs), New York, Statistics Division, United Nations, 2003 (ST/ESA/STAT/SER.F/95). <http://mdgs.un.org/unsd/mdg/Resources/Attach/Indicators/HandbookEnglish.pdf>.

## ***Averaged aggregate governance indicators***

### *What does this indicator tell us?*

The world governance indicators of the World Bank Institute define governance as the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to formulate and implement sound policies effectively; and the respect of citizens and the state for the institutions that govern economic and social interactions among them. The world governance indicators measure six broad definitions of governance, capturing the key elements of this definition:

- *Voice and accountability*: the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and free media;
- *Political stability and absence of violence or terrorism*: the likelihood that the government will be destabilized by unconstitutional or violent means, including terrorism;
- *Effectiveness*: the quality of public services, the capacity of the civil service and its independence from political pressures and the quality of policy formulation;
- *Regulatory quality*: the ability of the government to provide sound policies and regulations that enable and promote private sector development;
- *Rule of law*: the extent to which agents have confidence in and abide by the rules of society, including the quality of contract enforcement and property rights, the police and the courts, as well as the likelihood of crime and violence; and

- *Control of corruption*: the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the State by elites and private interests.

#### *How is it defined?*

The averaged aggregate governance indicators in the NLIS country profile represent the aggregated average of the six world governance indicators. The indicators represent the views of thousands of stakeholders worldwide, including respondents to household and firm surveys and experts from nongovernmental organizations, public sector agencies and providers of commercial business information. The NLIS averaged aggregate governance indicators are calculated from the average of the z scores (a measure of standard deviations away from the mean) of the six world governance indicators. Each of the six indicators are expressed as the standard normal units, ranging from around -2.5 to 2.5. The higher the score a country has, the better the assessment has it received regarding the six governance elements.

#### *What are the consequences and implications?*

Policy-makers, civil society groups, aid donors and scholars around the world increasingly agree that good governance affects development. This consensus has emerged from a proliferation of empirical measures of institutional quality and governance, the investment climate and research (World Bank Institute, 2008).

For nutrition, the importance of good governance is reflected in the UNICEF conceptual framework of factors in the "control and management of resources influenced by political and ideological structures in society" (Jonsson 1995). The SCN 5th Report on the World Nutrition Situation (SCN 2004) further shows how a nutrition perspective can help improve governance. Good governance is also recognized by countries themselves in the Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security (FAO 2004) as an essential factor for sustained economic growth, sustainable development, the eradication of poverty and hunger and the realization of all human rights, including the right to adequate food.

#### *Source*

World Bank. Worldwide governance Indicators.  
<http://info.worldbank.org/governance/wgi/index.asp>.

#### *Further reading*

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<http://www.unscn.org/layout/modules/resources/files/rwns5.pdf>.

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## ***Gender equality***

### **Gender Parity Index in primary level enrolment (ratio of girls to boys)**

*What does this indicator tell us?*

This indicator of gender equality is also an indicator of Millennium Development Goal 3: to promote gender equality and empower women.

*How is it defined?*

The ratio of girls to boys, the gender parity index, in primary education is the ratio of the number of female students enrolled at the primary level of education to the number of male students. To standardize the effects of the population structure of the appropriate age groups, the gross enrolment ratio for each level of education is used. The gross enrolment ratio is the number of students enrolled in primary, secondary and tertiary education, regardless of age, as a percentage of the population of official school age for the three levels.

*What are the implications?*

Low status restricts women's opportunities and freedom, giving them less interaction with others and fewer opportunities for independent behaviour, restricting the transmission of new knowledge and damaging their self-esteem and expression. It is a particularly important determinant of two resources for care: mothers' physical and mental health and their autonomy and control over household resources. Low status restricts women's capacity to act in their own and their children's best interests. There is a demonstrated association between women's status and malnutrition in children.

*Source*

Millennium Development Goals indicators database.  
<http://mdgs.un.org/unsd/mdg/Default.aspx>.

*Further reading*

United Nations Standing Committee on Nutrition. *Challenges for the 21st century: a gender perspective on nutrition through the life cycle*, 1998 (Nutrition Policy Paper No. 17).  
[http://www.unscn.org/layout/modules/resources/files/policy\\_paper\\_No\\_17.pdf](http://www.unscn.org/layout/modules/resources/files/policy_paper_No_17.pdf).

United Nations Statistics Division. Millennium Development Goals indicators. Goal 3. Promote gender equality and empower women. Target 3A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015. Indicator: 3.1 Ratio of girls to boys in primary, secondary and tertiary education.  
<http://mdgs.un.org/unsd/mdg/Metadata.aspx?IndicatorId=0&SeriesId=611>.

## Gender-related development index

### *What does this indicator tell us?*

This is an indicator of the HDI, adjusted for gender disparities in its basic components.

### *How is it defined?*

The gender-related development index is a measure of achievement in the same basic capabilities as the human development index but taking account of inequality in achievement between women and men. The method used imposes a penalty for inequality, such that the gender-related development index falls when the achievement levels of both women and men in a country go down or when the disparity between their achievements increases. The greater the gender disparity in basic capabilities, the lower a country's gender-related development index than its human development index. The gender-related development index adjusts the average achievement to reflect the inequalities between men and women in the following dimensions:

- a long and healthy life, as measured by life expectancy at birth;
- knowledge, as measured by the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio; and
- a decent standard of living, as measured by estimated earned income (purchasing power parity).

The GDI is not a measure of gender inequality. It is the HDI adjusted for gender disparities in its basic components. To get a measure of gender inequality, one should use the difference or the ratio of two indicators.

### *What are the implications?*

Low status restricts women's opportunities and freedom, giving them less interaction with others and fewer opportunities for independent behaviour, restricting the transmission of new knowledge and damaging their self-esteem and expression. It is a particularly important determinant of two resources for care: mothers' physical and mental health and their autonomy and control over household resources. Low status restricts women's capacity to act in their own and their children's best interests. There is a demonstrated association between women's status and malnutrition in children.

### *Source*

UNDP. Human development report. <http://hdr.undp.org/en/reports/global/hdr2009/>.

Millennium Development Goals indicators database. <http://mdgs.un.org/unsd/mdg/data.aspx>.

### *Further reading*

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## **Global Hunger Index**

### *What does this indicator tell us?*

The global hunger index is a means of monitoring whether countries are achieving the hunger-related Millennium Development Goals. It can be used for international ranking.

### *How is it defined?*

The global hunger index captures three dimensions of hunger: insufficient availability of food, shortfalls in the nutritional status of children and child mortality, which is to a large extent attributable to undernutrition. Accordingly, the index includes three equally weighted indicators: the proportion of people who are food energy-deficient, as estimated by FAO, the prevalence of underweight in children under the age of 5 as compiled by WHO and mortality rate of children under 5 as reported by UNICEF. In order to identify countries that are notably better or worse off with regard to hunger and undernutrition than would be expected from their gross national income per capita, a regression analysis is made of the global hunger index on gross national income per capita. Countries are ranked on a 100-point scale, with 0 and 100 being the best and worst possible scores, respectively.

After controlling for variations in gross national income per capita, the global hunger index is 22% higher in countries at war than in other countries, because a higher proportion of people are food energy-deficient and there is a higher prevalence of underweight children. Likewise, in countries with an HIV prevalence greater than 10%, the global hunger index is 23% higher than in countries with lower HIV prevalence rates, because a higher proportion of the population is food energy-deficient and the mortality of children under 5 is higher.

### *What are the consequences and implications?*

Hunger is one of the world's major problems and therefore one of its most important challenges. Hunger and undernourishment form a vicious circle, which is often 'passed on' from generation to generation: The children of impoverished parents are often born underweight and are less resistant to disease; they grow up under conditions that impair their intellectual capacity for the whole of their life. As of 2009, FAO estimates that 1.02 billion people are undernourished worldwide. This is the highest number since 1970, the earliest year for which comparable statistics are available.

The factors that contribute to a high global hunger index are:

- *Low income and poverty:* Countries with high hunger indexes are overwhelmingly low- or low- to middle-income countries with high levels of poverty. Sub-Saharan Africa and South Asia are the regions with the highest global hunger indexes and the highest poverty rates.
- *War and violent conflict:* These have been major causes of widespread poverty and food insecurity in most countries with high global hunger indexes.
- *General lack of freedom:* The 15 countries with the highest global hunger indexes were consistently rated by the 'Freedom House Index' as non-free or partially free (with regard to political rights and civil liberties) in the period 2006–2008.
- *Women's status (in South Asia):* Low women's status is an important contributor to child malnutrition, which in turn accounts for high global hunger indexes for South Asian countries.
- *Poorly targeted and delivered health and nutrition programmes:* Well-designed, well-implemented health and nutrition services can reduce child malnutrition substantially. Many of the countries with high global hunger indexes, especially in South Asia, do not have effective health and nutrition services that reach the most vulnerable age groups (pre-pregnancy through 2 years of age).

### Source

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## **Human development index**

### *What does this indicator tell us?*

The human development index is a summary measure of human development.

### *How is it defined?*

The human development index is a summary composite measure of a country's average achievements in three basic aspects of human development: health, knowledge and a decent standard of living. It is a measure of the average achievements in a country in three dimensions of human development:

- a long and healthy life, as measured by life expectancy at birth;
- knowledge, as measured by the adult literacy rate (with two-thirds weight) and the combined primary, secondary and tertiary gross enrolment ratio (with one-third weight); and
- a decent standard of living, as measured by GDP per capita in purchasing power parity terms in US\$.

The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1. The higher a country's human development, the higher its HDI value.

### *What are the consequences and implications?*

The human development index is used to capture the attention of policy-makers, the media and nongovernmental organizations and to draw it away from the usual economic statistics to focus on human outcomes. It was created to re-emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth.

The human development index is also used to question national policy choices, to determine how two countries with the same level of income per person can have widely different human development outcomes. For example, Swaziland and Sri Lanka have similar income per person, but the life expectancy and literacy differ greatly, so that Sri Lanka has a much higher

human development index than Swaziland. These contrasts stimulate debate on government policies on health and education, to determine why what is achieved in one country is beyond the reach of the other.

The human development index is also used to highlight differences within countries, between provinces or states, across genders, ethnicity and other socioeconomic groupings. Highlighting internal disparities along these lines has raised national debate in many countries.

#### *Source and further reading*

UNDP. *Human development report*. <http://hdr.undp.org/en/reports/global/hdr2009/>.

## ***Retention and school drop-out***

### *What does this indicator tell us?*

The indicator is the percentage of pupils of each sex starting grade 1 who reach the last grade of primary education and is a measure of an education system's success in retaining students from one grade to the next as well as its internal efficiency. It illustrates the retention of pupils from grade to grade in schools and, conversely, the drop-out rate by grade. It does not imply that all children of school age complete primary education. It is an indicator of Millennium Development Goal 2, to achieve universal primary education.

### *How is it defined?*

The proportion of pupils starting grade 1 who reach the last grade of primary education, known as the 'survival rate to last grade of primary', is the percentage of a cohort of pupils enrolled in grade 1 at the primary level of education in a given school year who are expected to reach the last grade of primary school, regardless of repetition. The survival rate is a percentage of a cohort of pupils (i.e. children who have already entered school) and not a percentage of children of school age.

### *What are the implications?*

Level of education, especially among women, plays a role in a child's nutritional status.

### *Source*

Millennium Development Goals indicators database.  
<http://mdgs.un.org/unsd/mdg/Default.aspx>.

### *Further reading*

United Nations Millennium Development Goals. Series metadata.  
<http://mdgs.un.org/unsd/mdg/Metadata.aspx>.

## ***Under-five mortality***

### *What does this indicator tell us?*

The indicator is the number of children who die by the age of 5 years, per 1000 live births.

#### *How is it defined?*

The mortality rate of children under 5 is the probability that a child born in a specific year or period will die before reaching the age of 5, subject to the age-specific mortality rates of that period.

#### *What are the consequences and implications?*

This indicator is linked to internationally recognized goals for general development standards and children's rights. Like the infant mortality rate, the mortality rate of children under 5 is a baseline indicator of how a country is progressing towards assuring children's rights, in particular their rights to life, health-care services, nutrition, water, social security and protection. Article 24 of the United Nations Convention on the Rights of the Child specifically obliges all States to take appropriate measures to reduce the child death rate.

#### *Source*

WHO. *Global Health Observatory (GHO)*. <http://apps.who.int/ghodata/>.

#### *Further reading*

The WHO Indicator and Measurement Registry (IMR).

[http://apps.who.int/gho/indicatorregistry/App\\_Main/browse\\_indicators.aspx](http://apps.who.int/gho/indicatorregistry/App_Main/browse_indicators.aspx).

## **Female education levels**

#### *What does this indicator tell us?*

The indicator is the level of education among women of reproductive age in a country.

#### *How is it defined?*

The indicator gives the percentage distribution of women age 15–49 years by the highest level of schooling attended or completed.

#### *What are the consequences and implications?*

Gender parity in education is important because:

- Education is a fundamental human right for all, girls and women included.
- Educated girls have more life choices and opportunities to participate in community life and decision-making.
- Educated women are more likely to send their children to school, especially their daughters.
- Educated girls tend to marry later and have fewer, healthier, better-nourished children. Every additional year of female education reduces child mortality by 5–10%.
- Educated girls can protect themselves better against HIV/AIDS.
- Educating women is the best investment for reducing poverty and improving health and social well-being.
- Educating girls yields the highest return in economic terms. Countries in sub-Saharan Africa that have not sent enough girls to school over the past 30 years now have gross national products that are 25% lower than if they had sent those girls to school.
- Educated girls have more wage-earning opportunities.
- Countries that fail to educate girls are not availing themselves of their full potential.

*Source*

Demographic and Health Surveys. STATcompiler. <http://www.statcompiler.com/>.

*Further reading*

Smith LC et al. *The importance of women's status for child nutrition in developing countries*. Bonn, International Food Policy Research Institute, 2003.

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The Nutrition Landscape Nutrition Information System (NLIS) is one of three components of the Landscape Analysis on countries' readiness to accelerate action in nutrition. Linking dynamically all existing WHO Global Nutrition Databases, as well as other existing food and nutrition-related data from partner agencies, NLIS was developed as a web-based tool that provides nutrition and nutrition-related health and development data in the form of automated country profiles and user-defined downloadable data.

Data presented in the Country Profiles are structured by the UNICEF conceptual framework for causes of malnutrition and intend to give an overview snapshot of a country's nutrition, health, and development at the national level.

This Indicator Interpretation Guide provides information on all indicators included in the Country Profile. For each indicator, the Guide gives a general understanding and scientific definition, a description of consequences or implications, including cut-off-values for public health significance where these have been established, and reference to the source of information and suggested further reading.

**NLIS is available at [www.who.int/nutrition/nlis](http://www.who.int/nutrition/nlis)**

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