NUTRITIONAL STATUS OF CHILDREN		
Health	**Nutritional Status**	**Core indicator**

1. INDICATOR

(a) Name: Nutritional Status of Children.

(b) Brief Definition: Percentage of underweight (weight-for-age below -2 standard deviation (SD) of the WHO Child Growth Standards median) among children under five years of age; percentage of stunting (height-for-age below -2 SD of the WHO Child Growth Standards median) among children under five years of age; and percentage of overweight (weight-for-height above +2SD of the WHO Child Growth Standards median) among children under five years of age.

(c) Unit of Measurement: %.

(d) Placement in the CSD Indicator Set: Health/Nutritional Status.

2. POLICY RELEVANCE

(a) Purpose: The purpose of this indicator is to measure long term nutritional imbalance and malnutrition resulting in undernutrition (assessed by underweight and stunting) and overweight.

(b) Relevance to Sustainable/Unsustainable Development (theme/sub-theme): Health and development are intimately interconnected. Meeting primary health care needs and the nutritional requirement of children are fundamental to the achievement of sustainable development. Anthropometric measurements to assess growth and development, particularly in young children, are the most widely used indicators of nutritional status in a community. The percentage of low height-for-age reflects the cumulative effects of under-nutrition and infections since birth, and even before birth. This measure, therefore, should be interpreted as an indication of poor environmental conditions and/or long term chronic restriction of a child's growth potential. The percentage of low weight-for-age may reflect the less common wasting (i.e. low weight-for-height) indicating acute weight loss, and/or the much more common stunting. Thus, it is a composite indicator which is more difficult to interpret.

(c) International Conventions and Agreements: The United Nations World Summit for Children and the Millennium Development Goals represent international agreements relevant to this indicator.

(d) International Targets/Recommended Standards: To half the prevalence of underweight among children younger than 5 years between 1990 and 2015. This target of the Millennium Development Goal No. 1 to "eradicate extreme poverty and hunger" has been established at the Millennium Summit in 2000, where representatives from 189

countries committed themselves to give highest priority to sustaining development and eliminating poverty.

(e) Linkages to Other Indicators: This indicator is closely linked with adequate birth weight. It is also associated with such socioeconomic and environmental indicators as squared poverty gap index, access to safe drinking water, infant mortality rate, life expectancy at birth, national health expenditure devoted to local health care, Gross Domestic Product (GDP) per capita, environmental protection expenditures as a percent of GDP, and waste water treatment coverage.

3. METHODOLOGICAL DESCRIPTION

(a) Underlying Definitions and Concepts: An international standard (i.e. the WHO Child Growth Standards) is used to calculate the indicator prevalences for low weight-for-age, low height-for-age, and high weight-for-height (1,2). The International Pediatric Association (IPA), the Standing Committee on Nutrition of the United Nations System (SCN), and the International Union of Nutritional Sciences (IUNS), have officially endorsed the use of the WHO standards describing them as an effective tool for detecting and monitoring both undernutrition and overweight, thus addressing the double burden of malnutrition affecting populations on a global basis (3-5). The WHO standards may be used for all children up to five years of age, since the influence of ethnic or genetic factors on young children is considered insignificant (6).
Low weight-for-age and low height-for-age are defined as less than two standard deviations below the median of the WHO Child Growth Standards (1,2). High weight-for-height is defined as more than two standard deviations above the median of the WHO Child Growth Standards (1,2).

(b) Measurement Methods: The proportion of children under five with low weight-for-age and low height-for-age can be calculated by using the following formula:

% underweight children = (Numerator/ denominator) x 100

Numerator: number of children under five with weight-for-age below -2 SD

Denominator: total number of children under five weighed.

% stunted children = (Numerator/ denominator) x 100

Numerator: number of children under five with height-for-age below -2 SD

Denominator: total number of children under five measured.

The proportion of children under five with high weight-for-height can be calculated by using the following formula:

% overweight children = (Numerator/ denominator) x 100
Numerator: number of children under five with weight-for-height above +2 SD
Denominator: total number of children under five measured.

For height, supine length is measured in children under two years of age, and standing height in older children (7).

(c) Limitations of the Indicator: Lack of specificity when using anthropometry to assess nutritional status, as changes in body measurements are sensitive to many factors including intake of essential nutrients, infections, altitude, stress and genetic background. In some countries, the age of children is difficult to determine. It is also difficult to measure the length of young children, particularly infants, with accuracy and precision.

(d) Status of the Methodology: A well-established methodology for the compilation and standardized analysis of nutritional surveys, as well as robust methods for deriving global & regional trends and forecasting future trends, have been published (8-10).

(e) Alternative Definitions/Indicators: Not Available.

4. ASSESSMENT OF DATA

(a) Data Needed to Compile the Indicator: The data needed to compile this indicator are the weight, length/height, age and sex of the children in the index populations.

(b) National and International Data Availability and Sources: The data are routinely collected by ministries of health at the national and subnational levels for most countries. Other sources are: Demographic and Health Surveys (DHS, www.measuredhs.com); Multiple Indicators Cluster Surveys (MICS, www.childinfo.org); Living Standards Measurement Surveys (LSMS, www.worldbank.org/lsms/). All data from these four sources are being collected and standardized by the WHO Department of Nutrition and disseminated via the WHO Global Database on Child Growth and Malnutrition web site www.who.int/nutgrowthdb.

(c) Data References: Available via the WHO Global Database on Child Growth and Malnutrition web site www.who.int/nutgrowthdb

5. AGENCIES INVOLVED IN THE DEVELOPMENT OF THE INDICATOR

(a) Lead Agency: The lead agency is the World Health Organization (WHO). At WHO, the contact point is the Director, Department of Nutrition for Health and Development; fax no. (41 22) 791 3111.

(b) Other Contributing Organizations: UNICEF.

6. REFERENCES

(a) Readings:

1. de Onis M, Garza C, Onyango AW, Martorell R, editors. WHO Child Growth Standards. *Acta Paediatrica Suppl* 2006;450:1-101.

2. WHO Multicentre Growth Reference Study Group. *WHO Child Growth Standards: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: Methods and development.* Geneva: World Health Organization, 2006.

3. International Pediatric Association Endorsement. The New WHO Growth Standards for Infants and Young Children. *http://www.who.int/childgrowth/Endorsement_IPA.pdf*

4. Standing Committee on Nutrition of the United Nations System. SCN Endorses the New WHO Growth Standards for Infants and Young Children. *http://www.who.int/childgrowth/endorsement_scn.pdf*

5. International Union of Nutritional Sciences. Statement of Endorsement of the WHO Child Growth Standards. *http://www.who.int/childgrowth/endorsement_IUNS.pdf*

6. WHO Multicentre Growth Reference Study Group. Assessment of differences in linear growth among populations in the WHO Multicentre Growth Reference Study. *Acta Paediatrica Suppl* 2006;450:56-65.

7. WHO. *Physical Status: The Use and Interpretation of Anthropometry. Report of a WHO Expert Committee.* Geneva, World Health Organization, 1995 (WHO Technical Report Series, No. 854).

8. de Onis M and Blössner M. The WHO Global Database on Child Growth and Malnutrition: methodology and applications. *International Journal of Epidemiology* 2003;32:518-26.

9. de Onis M, Blössner M, Borghi E, Morris R, Frongillo EA. Methodology for estimating regional and global trends of child malnutrition. *International Journal of Epidemiology* 2004;33:1260-70.

10. de Onis M, Blössner M, Borghi E, Frongillo EA, Morris R. Estimates of global prevalence of childhood underweight in 1990 and 2015. *JAMA* 2004;291:2600-6.

(b) Internet sites:

1. WHO Global Database on Child Growth and Malnutrition. http://www.who.int/nutgrowthdb

2. WHO Child Growth Standards. http://www.who.int/childgrowth/en