PROPOSED GLOBAL TARGETS
FOR MATERNAL, INFANT AND YOUNG CHILD NUTRITION

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Introduction

In May 2010, the World Health Assembly in resolution WHA63.23 on infant and young child nutrition requested the Director-General "to develop a comprehensive implementation plan on infant and young child nutrition as a critical component of a global multisectoral nutrition framework". In January 2011 the 128th Executive Board noted the preparatory work on such a plan, making several suggestions on its content, including revising its name to cover maternal nutrition and focusing more attention to the double burden of undernutrition and overweight. In May 2011 the Health Assembly noted the report on the subject and the revised outline of the implementation plan.

During 2011 five regional consultations were convened to obtain feedback and inputs from Member States and concerned stakeholders including UN and bilateral agencies, regional development communities, World Bank and NGOs on the proposed outline of the comprehensive implementation plan. Consultations were held in the African Region, the Region of the Americas, and the South-East Asia, Eastern Mediterranean and Western Pacific regions. The development of global targets was requested by a number of Member States during these consultations. Draft targets were discussed at the regional consultations in the Eastern Mediterranean and Americas Region.

In January 2012 the 130th Executive Board considered the report on "maternal, infant and young child nutrition: draft comprehensive implementation plan" and to provide further guidance in the finalization of the comprehensive implementation plan requested further consultations regarding the targets via a web-based process open to all Member States as well as multilateral organizations. The present document aims to describe the rational for the establishment of potential global targets and to highlight the implications for Member States.

1 See document EB128/2011/REC/2, summary record of the tenth meeting.
2 And where applicable, regional economic integration organizations.
The goal of global targets is to highlight key priority areas that must be addressed to alleviate the double burden of malnutrition in children, starting with the earliest stages of development, so that optimal nutrition and health can be achieved. Global targets are also meant to provide a benchmark for the international community to measure achievements, identify gaps and trigger corrective actions, and estimate global resource requirements.

Global targets will need to be translated into national targets, based on the country-specific context, such as epidemiology of nutritional conditions, risk factor trends, experience with developing and implementing nutrition policies, level of development of health systems and previous experience with interventions. Establishing national targets will help develop national policies and programmes and calculate the level of resources required for their implementation.

The following principles have been followed for the proposition of the targets:

1. epidemiological and public health relevance;

2. availability of evidence-based effective and feasible public health interventions;

3. evidence that targets can be achieved in all countries, regardless of income level;

4. coherence between targets and alignment with targets expressed in relevant policy frameworks, such as the Infant and Young Child Feeding strategy and the UN Secretary General Global Strategy for Women's and Children's Health\(^3\);

5. existence of surveillance systems or other data collection instruments and potential to set a baseline and monitor changes over time;

6. country capacity to monitor indicators for proposed targets (including data generation, compilation and sharing, quality assessment, analysis and synthesis, and communication of results).

**Detailed description of targets**

Targets are needed for nutrition conditions that are responsible for a large burden of nutrition-related morbidity and mortality from conception through the first two years of life: maternal anaemia, low birth weight, stunting. A fourth target is proposed for a condition of increasing prevalence in most parts of the world, i.e. childhood overweight. A fifth target is related to exclusive breastfeeding, a behaviour that is highly protective of childhood survival and able to promote long term health for both mothers and children as well as reducing childhood obesity risk and later non communicable diseases. Reduction of maternal anaemia would lead to reduced low birth weight, and together with increased

\(^3\) UN Secretary General Global Strategy for Women's and Children's Health, 2010
breastfeeding rates, would lead to reduced stunting. Reduction of childhood overweight rates will contribute to the reduction of NCDs.

Three out of five indicators for the selected targets (stunting, low birth weight, exclusive breastfeeding) are included in the list of 39 indicators used by the Countdown to 2015 for Maternal, Newborn and Child Survival and two (stunting, exclusive breastfeeding) are also included in the list provided by the Commission on information and accountability for Women’s and Children’s Health.

**Global target 1: reduction of childhood stunting**

**Target:** 40% reduction of the global number of children under five who are stunted

**Indicator:** percentage of children under five years of age whose height-for-age is below minus two standard deviations from the median of the WHO Child Growth Standards

**Public health relevance:** poor linear growth or stunting in young children is associated with adverse functional outcomes, including short adult stature, reduced lean body mass, poor cognition and educational performance, lower productivity and lower adult wages. It may also lead to increased risk of non communicable diseases if associated with excessive weight gain later in childhood. Women who have been stunted as children deliver lower birthweight infants, thus contributing to the intergenerational cycle of malnutrition.

**Target setting:** the target implies a relative reduction of 40% of the number of children stunted by the year 2022, compared to the baseline of 2010. This would translate into a 5.1% relative reduction per year between 2012 and 2022 and implies reducing the number of stunted children from the 171 million in 2010 to approximately 100 million, i.e. approximately 40 million less than what this number would be if current trends are not changed. In order for the target to be achieved the pace of reduction could be slower than that observed in some programme settings in Africa and South America (9-16% per year), but faster than what has been achieved in programme settings in Asia (4.4%), at country level in Mexico (2.9%), or at regional level in Asia (2.8%).

This target would complement Target 1.C of Millennium Development Goal 1, related to reducing the prevalence of underweight children, the largest cause of deaths and disability-adjusted life years in children under the age of five years. Stunting represents

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5 Keeping promises, measuring results: Commission on information and accountability for Women’s and Children’s Health. WHO, 2011

6 \( r = \ln(P1/P2)/t \)

the largest fraction of childhood underweight. Stunting is also one of the key indicators recommended by the commission on information and accountability for women's and children's health.

**Baseline data availability, measurement issues and requirements:** child growth data are widely available and WHO maintains since 1986 a global database, the WHO Global Database on Child Growth and Malnutrition (http://www.who.int/nutgrowthdb/en/), that collects, standardizes and disseminates child growth data. Five years after the launch of the WHO Child Growth Standards in April 2006, 125 countries have adopted the standards and another 25 are considering their adoption. Surveillance systems have improved and reliable height-for-age population-based data are available for 159 countries (i.e., 685 nationally representative surveys, out of which 301 have been conducted since the year 2000). In 2010, it is estimated that 171 million children (167 million in developing countries) were stunted. Globally, childhood stunting decreased from 39.7 (95% CI 38.1, 41.4) % in 1990 to 26.7 (95% CI 24.8, 28.7) % in 2010. If present trends continue, in 2020 the number of stunted children is expected to be 142 million. Fifty-five countries have national stunting rates >30% based on surveys conducted from 2000-2010.

In Africa, the prevalence of stunting in 2010 was 38% and has not shown a substantial decreasing trend. Because of population increase, the number of children affected has in fact risen in Africa from 51 million in 2000 to 60 million in 2010. Little improvement is anticipated in coming years if recent trends continue.

In contrast, Asia showed a decrease of stunting from 48.6% to 27.6% between 1990 and 2010, nearly halving the number of stunted children from 190 million to 100 million. This corresponds to an overall reduction of 19% between 1990 and 2010, i.e. a 40% relative reduction in twenty years, or 2.9% per year. In areas of Bangladesh where the Integrated Management of Childhood Illness was implemented, stunting rates in children aged 24–59 months have dropped from 63.1% to 50.4% (i.e. a 13% absolute reduction, or an average relative reduction of 4.5% per year).

Reduction in stunting has also been documented in some countries in South America. In Brazil, the prevalence of stunting in children younger than five years decreased from 37% in 1974–1975 to 7% in 2006–2007 (i.e. a 30% absolute reduction of stunting, or an

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8 These data are also available in the Nutrition Landscape Information System (NLIS) which brought together dynamically all existing WHO Global Nutrition Databases, as well as other existing food and nutrition-related data from partner agencies to provide nutrition country profiles (http://www.who.int/nutrition/nlis/en/index.html)


average relative reduction of 5.2% per year in 32 years). In Mexico stunting decreased from 27% to 16% in 1988–2006 (i.e. an 11% absolute reduction or an average relative reduction of 2.9% per year in 18 years).

Stunting reduction has also been documented in an observational study in 9 countries in sub-Saharan Africa in children <2 y old. In this study the prevalence of stunting dropped by 43% in the three years of programme implementation.

In Brazil reduction of stunting has been associated to (i) increased purchasing power of low-income families; (ii) improved educational levels of mothers; (iii) expanded public water and sewage systems; and (iv) virtual universalization of basic health care, including prenatal care. In Mexico contributing factors have been the enhanced coverage of a conditional cash-transfer programme and increased access to health-care facilities. In Africa programme components involved improvements of household food security and diet diversity and improved coverage of child care and disease-control interventions.

Global target 2: reduction of anaemia in women of reproductive age

Target: 50% reduction of anaemia in non pregnant women of reproductive age

Indicator: proportion of non pregnant women in reproductive age (age 15-49 yrs) with Hb concentration of <120 g/L at sea level

Public health relevance: anaemia is a multi-factorial disorder caused mainly by iron deficiency and infections and, to a lesser extent, by deficiencies of vitamin A, vitamin B12, folate and riboflavin as well as by thalassemias and hemoglobinopathies. Parasite infections such as hookworms, ascaris, and schistosomiasis; acute and chronic infections, including malaria, cancer, tuberculosis, and HIV can also lower blood Hb concentrations. Iron deficiency anemia contributes to maternal mortality, foetal growth retardation and perinatal mortality. About 18% of maternal mortality in low- and middle-income countries – almost 120,000 deaths – is attributable to iron deficiency. Hemoglobin concentrations > 120 g/L at the end of the second trimester are associated with a threefold increased risk of preeclampsia and intrauterine growth restriction. Improving iron and folate nutrition influences safe motherhood and birth outcomes and enhances the health and well-being of women by improving educational attainments and increasing overall

productivity. It has been calculated that treatment of anaemia can raise national productivity levels by as much as 20%.

**Target setting:** the target implies a relative reduction of 50% of the number of non pregnant women of reproductive age (15-49 yrs) affected by anaemia by the year 2022, compared to a baseline set in the period 1993-2005 and used as a reference starting point. This would translate into a 6.9% relative reduction per year between 2012 and 2022 and implies reducing the number of anaemic non pregnant women to approximately 230 million.

**Baseline data availability, measurement issues and requirements:** anaemia is diagnosed through finger-prick blood sample tests, 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. Data on anaemia prevalence collected in 1993-2005 are available for 73% of non pregnant women of reproductive age, in 82 countries.

About 468 million women aged 15 to 49 years (30% of all women)\(^{15}\) are thought to be anaemic, at least half is thought to be due to iron deficiency. The highest proportions of these anaemic women live in Africa (48% to 57%), and the greatest numbers are in south-eastern Asia (182 million non pregnant women of reproductive age and 18 million pregnant women). The prevalence of anaemia in adolescent girls (15–19 years) can be even higher and exceeds 60% in Ghana, Mali and Senegal\(^{16}\). Anaemia and iron deficiency, which are associated with a lower physical capacity and increased susceptibility to infections, need to be tackled before women become pregnant in order to reduce the risks of poor maternal health and low birth weight babies.

In 2008 anaemia in women was considered a severe public health problem (prevalence \(\geq 40\)% in 54 countries\(^{11}\).

Several countries have demonstrated a reduction in anaemia prevalence in non pregnant women, as indicated by repeated national surveys reported in the SCN 6\(^{th}\) report on the World Nutrition Situation\(^{17}\): China from 50 to 19.9% in 21 years (1981-2002); Nepal from 65 to 34% in 8 years (1998-2006); Sri Lanka from 59.8 to 31.9 % in 13 years (1988-2001); Cambodia from 56.2 to 44.4 % in 6 years (2000-2006); Vietnam from 40 to 24.3 % in 14 years (1987-2001); Guatemala from 35 to 20.2% in 7 years (1995-2002). These estimates point to a 4-8% relative reduction per year.

This target is to be achieved by (a) increasing iron intake through dietary diversification, with increased intake of foods rich in bioavailable iron, fortification of staple foods like wheat and maize flour with iron, folic acid and other vitamins and minerals and provision

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of iron and folic acid supplements for pregnant, non pregnant women and girls and adolescents in countries where anaemia is a public health problem; (b) preventing and controlling malaria, other infections as well as hookworm and schistosomiasis infestations.

**Global target 3: 50% reduction of low birth weight**

**Target:** 50% reduction of low birth weight

**Indicator:** incidence of weight at birth of < 2500 grams (5.5 pounds)

**Public health relevance:** infants weighing less than 2,500 g (-2SD below the weight-for-age median of the WHO Child Growth Standards) are approximately 20 times more likely to die than heavier babies. The main causes of death are birth asphyxia and infections (sepsis, pneumonia, and diarrhoea), which together account for about 60% of neonatal deaths. Low birthweight because of restricted foetal growth is associated with poor growth in childhood. Low birth weight children have twice the risk to develop type 2 diabetes and coronary heart disease later in life. They also have greater risk of hypertension, stroke, chronic obstructive lung disease, osteoporosis, psychosocial and educational disadvantages and mental ill health.

**Target setting:** the target implies a relative reduction of 50% of the number of infants born with a weight lower than 2,500 g by the year 2022, compared to a baseline set in 2004 and used as a reference starting point. This would translate into a 6.9% relative reduction per year between 2012 and 2022 and implies reducing the number of infants born with low birth weight to approximately 10 million.

The Declaration and Plan of Action adopted at the United Nations General Assembly Special Session on Children in 2002\(^{18}\) set a goal of reducing low birthweight incidence by at least one third between 2000 and 2010. The reduction of low birthweight would also provide an important contribution to achieving the Millennium Development Goal (MDG) for reducing child mortality.

**Baseline data availability, measurement issues and requirements:** establishing a target for the reduction of the prevalence of low birth weight is challenging in view of the limited availability of data and the poor quality of information.

Low birth weight is a very important indicator that is difficult to collect in populations with low hospital delivery coverage. Recent data are derived from household surveys, in which birth weights are estimated by recall and corrected from other responses. DHS surveys include questions on birth weight as well as the mothers’ subjective assessment of the infant’s size at birth (i.e. very large, larger than average, average, smaller than average, very small), for births in the last 5 to 10 years. In many surveys only a small

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proportion of babies are weighed at birth. Weighed babies may be a biased sample and the proportion of low birth weight infants may be underestimated. Low birth weight can result from prematurity or from intrauterine growth retardation. The latter is defined as being born with a birth weight under the 10th percentile of the birth-weight-for-gestational-age reference curve. Every year an estimated about 20 million infants are born with low birth weight (15.5% of all births) out of which 13 million are estimated to be born with intrauterine growth restriction. In low income countries approximately one child in six is born with low birth weight (16.5%), more than twice what happens in higher income countries (7%). In some Asian countries, up to one every three children is affected. In the 36 countries identified by stunting prevalence ≥20% the prevalence of low birth weight ranged between 9 and 30%, with intrauterine growth retardation accounting between 4 and 24%.

In Bangladesh and India, where around half the world’s children with low birth weight are born, the prevalence of low birth weight decreased, respectively from 30.0% to 21.6% (between 1998 and 2006) and from 30.4% to 28.0% (between 1999 and 2005). Reduction in the prevalence of low birth weight has been observed in El Salvador (from 13% to 7% between 1998 and 2003), South Africa (15.1% to 9.9% from 1998 to 2003), and the United Republic of Tanzania (from 13.0% to 9.5% between 1999 and 2005). In these examples, the recorded relative reductions are in the order of 4% to 12% per year.

Determinants of low birth weight include adolescent pregnancies, maternal disease and infections including malaria, fetal infections, smoking and exposure to passive smoking, alcohol and substance abuse, placental and uterine malfunctions, maternal undernutrition (low body mass index and vitamin and mineral deficiencies).

Effective measures to prevent low birth weight include smoking cessation, malaria prophylaxis or insecticide-treated nets for malaria in endemic regions, treatment of infections and of maternal general medical conditions, measures to reduce adolescent pregnancy, measures to reduce alcohol exposure, improvement in occupational conditions, provision of antenatal care and promotion of adequate weight gain during pregnancy, improvement of maternal nutrition through promotion of a balanced, nutritious diet, and iron and folic acid supplementation during pregnancy. 

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Global target 4: No increase in childhood overweight

Target: 0% increase in the prevalence of overweight in children under five

Indicator: prevalence of overweight (weight-for-height above two standard deviations from the median of the WHO Child Growth Standards) in children under age 5

Public health relevance: overweight and obese children are likely to be overweight or obese in adulthood and to have noncommunicable diseases at a younger age. For most noncommunicable conditions resulting from obesity, the risks depend partly on the age of onset and duration of obesity.

Increased risk of obesity and incidence of metabolic syndrome later in life has been observed in stunted children in different regions of the world, thus linking the two conditions. Interventions to correct moderate malnutrition may lead to increased obesity if the focus is only to achieve weight gain.

Target setting: the target implies that the global prevalence of 6.7% (95% CI 5.6-7.7) estimated for 2010 should not rise to 9.1% (in 2020) as per current trends and that the number of overweight children under 5 should not increase from 43 to approximately 60 million as forecasted.

Baseline data availability, measurement issues and requirements: in 2010, globally 43 million children were estimated to be overweight and obese. The prevalence of overweight in children under the age of five years has been steadily growing in the past 20 years, with relative increases from 3% to 5% per year. The worldwide prevalence of childhood overweight and obesity increased from 4.2% in 1990 to 6.7% in 2010 and is expected to reach 9.1% in 2020, thus affecting 60 million children under 5.

Success in curbing obesity rates in school-age children has been documented in Chile, France and Sweden, although limited to some sub-national areas and to higher income groups.

Preventive interventions should combine healthy dietary practices and increased level of physical activity. Obesity risk is reduced by breastfeeding and by a diet rich in fruits, vegetables, low fat milk and dairy products and whole grains. Consumption of energy-dense micronutrient poor foods should also be discouraged in early childhood. Adequate levels of physical activity need to be achieved in young children, together with limiting children's TV viewing, other sedentary behaviours and increasing sleep.

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The use of the WHO Child Growth Standards allow the early identification of children at risk of overweight and undertaking early corrective actions. The creation of environments that support healthy diets and physical activity is an essential component of childhood obesity prevention strategies.  

**Global target 5: Increase exclusive breastfeeding rates in the first six months of life to at least 50%**

*Target:* increase of exclusive breastfeeding rates in the first six of life months to at least 50%

*Indicator:* exclusive breastfeeding for six months (percentage of infants aged 0–5 months who are fed exclusively with breast milk)

*Public health relevance:* breastfeeding reduces the risk of many perinatal infections, acute lower respiratory infections and diarrhoea in infants below 23 months. Suboptimal breastfeeding is responsible for 45% of neonatal infectious deaths, 30% of diarrhoeal deaths and 18% of acute respiratory deaths in children under 5 years. Exclusive breastfeeding for 6 months confers many benefits to the infant and the mother. Chief among these is the protective effect against gastrointestinal infections. The risk of mortality due to diarrhoea and other infections can increase many-fold in infants who are either partially breastfed or not breastfed at all. In the context of HIV, introducing other milks, foods or liquids significantly increases the risk of HIV transmission through breast milk, and reduces infant’s chances of HIV-free survival. For the mother, exclusive breastfeeding can delay return of fertility.

*Target setting:* this target implies that the current global average, estimated to be 36% for the period 2000-2008, should increase to 50% by 2022. This would involve a 3.2% relative increase per year and would lead to approximately 10 million more children being exclusively breastfed until 6 months of age.

*Baseline data availability, measurement issues and requirements:* globally, exclusive breastfeeding rates increased from 14% in 1985 to 38% in 1995, but decreased subsequently in most regions. Currently, the global average is estimated to be 36% (based on 2005-2008 data). In developing countries only 24–32% of infants are exclusively breastfed at 6 months on average, with lower percentages in higher income countries. Rapid and substantial increases in exclusive breastfeeding rates, often exceeding the proposed global target, have been achieved in individual countries in all regions, such as...
Cambodia (from 12% to 60% between 2000 and 2005), Mali (from 8% to 38% between 1996 and 2006) and Peru (from 33% to 64% between 1992 and 2007).

This target is to be achieved by implementation of comprehensive approaches including the protection, promotion and support to breastfeeding, as indicated in the WHO/UNICEF Global strategy for infant and young child feeding\textsuperscript{29}. Main provisions include (a) the application of a policy of maternity entitlements; (b) the implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes and subsequent relevant World Health Assembly resolutions; (c) the provision of accurate and complete information about appropriate infant and young child feeding practices; (d) the provision of skilled counselling and support for infant and young child feeding; (e) ensuring that hospital routines and procedures remain fully supportive of the successful initiation and establishment of breastfeeding; (f) increasing access to antenatal care and education about breastfeeding; (g) revising and reforming pre-service curricula for all health workers; (h) promoting development of community-based support networks. Advocacy, Code compliance, maternity legislation and workplace support, baby friendly hospital and community initiative, training and education, communication, community based promotion and support appear to be key elements of a successful breastfeeding promotion policy\textsuperscript{30}.

\textsuperscript{29} Global strategy for infant and young child feeding, WHO 2003.
\textsuperscript{30} Infant and Young Child Feeding Programme Review – Consolidated Report of Six Country Programme Review. UNICEF, 2010
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