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Infant and young child nutrition and progress in implementing the International Code of Marketing of Breast-milk Substitutes

Report by the Secretariat

1. Resolution WHA55.19 reaffirmed commitment to the United Nations Millennium Declaration. Not only does WHO contribute to the collective effort, but its work on the Millennium Development Goals forms an integral part of its core activities.¹ Achieving the health-related goals and targets – especially eradicating extreme poverty and hunger, reducing child mortality and improving maternal health – depends heavily on reducing malnutrition, which is responsible, directly or indirectly, for 54% of the 10.8 million deaths annually among children under five (see Figure). Recent Health Assemblies have expressed deep concern about the vast numbers of infants and young children who are still inappropriately fed and have urged Member States to strive for full coverage of their maternal, neonatal, child and adolescent populations with known effective interventions.²
2. This document summarizes the global burden of malnutrition in infants and young children before reporting on progress in protecting, promoting and supporting appropriate infant and young child feeding and implementing the International Code of Marketing of Breast-milk Substitutes.³

PROTEIN-ENERGY MALNUTRITION

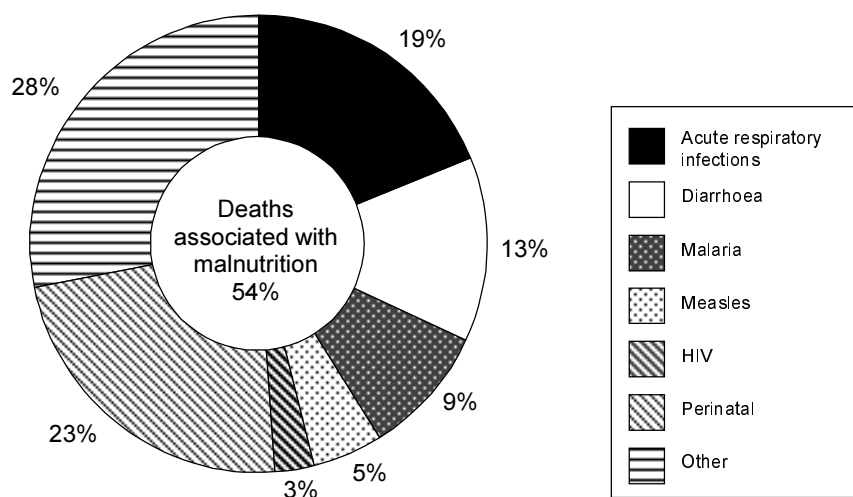
3. Globally, there has been a moderate reduction in child malnutrition during the decade 1990-2000, with the prevalence of underweight declining from 26.5% to 22.4% (see Table 1). The largest decline occurred in Asia where underweight levels dropped from 35.1% to 27.9%, but South-central Asia continues to suffer from staggeringly high levels of child malnutrition, notwithstanding a significant fall in the prevalence of underweight during this period. Substantial improvements were also registered in Latin America and the Caribbean with a relative decrease of one-third (from 9% to 6%) in the frequency of underweight. Africa, however, experienced almost no change; the proportion of children under five who were underweight remained about a quarter while numbers increased from 26 to 32 million. Projections for 2005 are for a reduced prevalence in all regions but Africa.

¹ See document A56/11.

² Respectively, resolutions WHA54.2 (2001) and WHA55.25 (2002) on infant and young child nutrition, and WHA56.21 (2003) on the strategy for child and adolescent health and development.

³ This report is submitted in accordance with resolution WHA33.32 and Article 11.7 of the International Code of Marketing of Breast-milk Substitutes.

**Distribution of 10.8 million deaths per annum
among children under five years of age
in developing countries, 2001**



Sources:
For cause-specific mortality: EIP/WHO.
For malnutrition: Pelletier DL, et al. *American Journal of Public Health*, 1993, 83: 1130-1133 and EIP/WHO.

WHO 03.205

4. The 30 million low-birth-weight babies born annually (23.8% of all births) often face severe short-term and long-term health consequences (see paragraph 23). Whereas the global prevalence of such births is slowly dropping, it is as high as 30% in many developing countries. To support countries in dealing with this major public health challenge, WHO is elaborating a global strategy for promoting optimal fetal growth for presentation to the governing bodies in 2005.¹

MICRONUTRIENT MALNUTRITION

5. Vitamin and mineral deficiencies contribute to conditions that account for about 7.3% of the total global burden of disease. Deficiencies of iodine, vitamin A and iron are the main forms of micronutrient malnutrition which, together, affect more than 4500 million people worldwide: iron deficiency is the most widespread afflicting an estimated 2000 million people (including one in three children); 1900 million have inadequate iodine nutrition; and 250 million preschool children and 20 million pregnant women are vitamin A deficient (see Table 2).² Because the diet of most young children in low-income countries is deficient in iron, zinc and vitamin B6,³ strategies for reducing micronutrient malnutrition need to focus on the first two years of life.

¹ This process includes meetings of an advisory group on maternal nutrition and low birth weight, a technical consultation to formulate a global strategy for promoting optimal fetal growth (Geneva, 25-27 November 2003), and regional consultations on the draft strategy scheduled for 2004.

² See also: WHO micronutrient deficiency information system (http://www.who.int/nut/db_mdms.htm).

³ Dewey KG, Brown KH. Update on technical issues concerning complementary feeding of young children in developing countries and implications for programs. *Food and Nutrition Bulletin*, 2003, 24(1):5-28.

**TABLE 1. ACTUAL AND PREDICTED REGIONAL AND GLOBAL TRENDS
(1990-2005) OF UNDERWEIGHT^a (PREVALENCE AND
NUMBER OF CHILDREN AFFECTED)**

Region ^b	1990	1995	2000	2005
	Millions (%)	Millions (%)	Millions (%)	Millions (%)
Africa	25.8 (24.0)	28.5 (24.5)	32.0 (25.0)	35.9 (25.6)
Northern	1.6 (9.5)	1.3 (8.1)	1.1 (6.9)	1.0 (5.9)
Sub-Saharan	24.1 (26.8)	27.2 (27.3)	30.9 (27.7)	35.0 (28.2)
Asia	131.9 (35.1)	116.3 (31.5)	101.2 (27.9)	89.2 (24.8)
Eastern	23.1 (18.5)	14.5 (13.2)	9.5 (9.3)	6.1 (6.5)
South-central	86.0 (49.6)	80.9 (45.2)	73.4 (40.8)	67.1 (36.5)
South-eastern	20.2 (35.2)	18.1 (31.2)	15.5 (27.4)	13.2 (23.9)
Western	2.7 (12.9)	2.8 (12.1)	2.8 (11.3)	2.7 (10.6)
Latin America and Caribbean	4.8 (8.7)	4.0 (7.3)	3.4 (6.1)	2.8 (5.0)
Developing countries	162.6 (30.2)	148.9 (27.5)	136.6 (25.0)	128.0 (23.0)
Developed countries	1.2 (1.6)	1.0 (1.4)	0.8 (1.3)	0.7 (1.1)
Total	163.8 (26.5)	149.9 (24.4)	137.4 (22.4)	128.7 (20.8)

^a Underweight is defined as a height-for-age below -2 standard deviations of the National Center for Health Statistics (NCHS)/WHO international reference median.

^b Countries have been grouped according to the Millennium Development Goals regional classification system (http://millenniumindicators.un.org/unsd/mi/mi_worldregn.asp).

Source: WHO Global Database on Child Growth and Malnutrition, 2003.

6. Substantial progress has been made in the past decade in controlling **iodine deficiency**, the greatest cause of preventable mental impairment that leads to poor school performance and impaired work capacity. The number of affected countries has decreased by half since 1993 and 68% of the world's households now consume iodized salt. However, iodine deficiency remains a public health problem in 54 countries. To help to ensure the elimination of iodine-deficiency disorders, especially through sustainability of control measures and effective monitoring, WHO has designed a national programme-evaluation system and established a network of regional resource laboratories.

7. **Vitamin A deficiency**, which is the main preventable cause of child blindness and a major health risk factor, remains a major public health problem in 118 countries. The strategy for controlling this deficiency includes dietary diversification, supplementation and food fortification, and public health measures like promotion of breastfeeding, control of childhood infection, and distribution of vitamin A supplements (linked to sick-child visits and national poliomyelitis immunization days, these supplements have averted an estimated 1.25 million deaths since 1998). As eradication of poliomyelitis becomes imminent, the challenge is to find other ways to sustain delivery of vitamin A,

such as through routine immunization services. WHO is coordinating assessment of the safety and benefits of linking these activities during the first year of life.

TABLE 2. POPULATIONS AFFECTED BY THE THREE MAJOR MICRONUTRIENT DEFICIENCIES, BY WHO REGION

WHO region	Iodine deficiency ^a		Vitamin A deficiency		Iron deficiency (anaemia) ^b	
	Total population		Preschool children		Total population	
	Millions	%	Millions	%	Millions	%
African	254.4	47.6	52.0	49	293.5	46
Americas	75.0	14.1	0.06	20	142.7	19
South-East Asia	624.0	39.9	125.5	69	777.5	57
European	436.0	59.9	-	-	86	10
Eastern Mediterranean	228.4	55.4	16.1	22	183.6	45
Western Pacific	261.1	19.7	42.1	27	598.1	38
Total	1878.5	36.9	251.3	42	2031.7	37

^a Iodine deficiency is defined as median urinary concentration of iodine below 100 µg/l.

^b Based on haemoglobin concentration.

Source: WHO, Micronutrient Deficiency Information System: global prevalence of iodine deficiency, 2003; global prevalence of vitamin A deficiency, 1995; global prevalence of anaemia and iron deficiency, 1990-1995.

8. The most serious effects of **iron deficiency** and **anaemia** are increased maternal and child mortality, but the consequences for child development and work productivity are also significant. In developing countries, where the incidence of anaemia peaks in children aged 12-24 months,¹ iron deficiency's complex etiology – complicated by contributory factors such as malaria, helminth infections and other nutritional deficiencies – requires an integrated set of interventions that combat communicable diseases and improve maternal and child health and nutrition.

9. Recognition of **zinc deficiency** as a public health problem among young children in developing countries,² and of the benefits of zinc supplementation in reducing the incidence of pneumonia and episodes and duration of severe diarrhoea, has come only recently. WHO-supported studies continue

¹ Source: *Demographic and Health Surveys*, 1996-2001.

² Caulfield L, Black RE. Zinc deficiency. In: Ezzati M et al. (eds) *Comparative quantification of health risks: global and regional burden of diseases attributable to selected major risk factors*. Geneva, World Health Organization, 2003 (in press).

in India and Zanzibar (United Republic of Tanzania) to quantify the impact of zinc supplementation on childhood mortality.

NUTRITION IN EMERGENCIES AND MANAGEMENT OF SEVERE MALNUTRITION

10. Major emergencies currently affect nearly 40 million people, including 5.8 million children under five, in 55 countries. To cope with child malnutrition due to the inadequate feeding, care and health services so common under such circumstances, WHO provides technical support to governments and relief agencies operating in Afghanistan, southern Africa, Ethiopia, Iraq, Liberia, and the West Bank and Gaza Strip. Relevant guidelines and standards include nutrition management in emergencies¹ and promotion of optimal feeding of infants and young children.²

11. Although the median under-five case-fatality rate for severe malnutrition typically ranges from 30% to 50%, it can be reduced substantially when physiological and metabolic changes are taken into account. Rates have dropped below 5% in treatment centres applying a WHO-recommended scheme for managing severely malnourished children in hospital settings.³ In order to train health workers in applying this scheme WHO has created a course⁴ which, with the aid of institutional partners in Bangladesh, Chile, Gambia, Malawi and the United Kingdom of Great Britain and Northern Ireland, has been conducted in 25 countries in the African, South-East Asia and Western Pacific Regions.

INFANT AND YOUNG CHILD FEEDING

12. Following the Health Assembly's endorsement of the **Global strategy for infant and young child feeding** (resolution WHA55.25), WHO initiated activities in all regions to translate recommendations into action. For instance, regional meetings were held in Harare (11-14 November 2002, for Botswana, Ethiopia, Ghana and Zimbabwe) and in Casablanca, Morocco (28-31 July 2003, for Bahrain, Egypt, Islamic Republic of Iran, Morocco, Oman, Pakistan and Tunisia), and national meetings to build on past achievements were organized in Bolivia, Botswana, Cambodia, China, Egypt, Ethiopia, Ghana and Viet Nam.⁵ In 2002-2003 UNICEF and collaborating nongovernmental organizations supported multicountry meetings in Egypt, India, Malaysia, Peru and Viet Nam. WHO convened a global technical meeting (Geneva, 10-12 February 2003) on progress in

¹ *The management of nutrition in major emergencies*. Geneva, World Health Organization, 2000; Infant feeding in emergencies. Module 1 for emergency relief staff. WHO, UNICEF, LINKAGES, IBFAN and additional contributors. Dublin, Emergency Nutrition Network, 2001.

² Document WHA55/2002/REC/1, Annex 2, and *Promoting optimal feeding of infants and young children during emergencies, with special reference to the situation in Iraq* (http://www.who.int/nut/documents/emerg_feeding_iraq.pdf). Geneva, World Health Organization, 2003.

³ *Management of severe malnutrition: a manual for physicians and other senior health workers*. Geneva, World Health Organization, 1999; Management of the child with a serious infection or severe malnutrition (document WHO/FCH/CAH/00.1).

⁴ Training course on the management of severe malnutrition (including seven modules for participants and guidelines for instructors) (document WHO/NHD/02.04; English original, French, Portuguese and Spanish editions in preparation).

⁵ Since the joint FAO/WHO International Conference on Nutrition (Rome, 1992), 146 Member States and 5 territories have revised and strengthened intersectoral food and nutrition policies, 100 of them having specifically integrated strategies to promote appropriate infant and young child feeding practices.

strategy implementation, for which WHO and its partners¹ are preparing various practical resources, for example a tool² designed to assess policies and programmes for protecting, promoting and supporting appropriate feeding, and guidelines³ for introducing essential knowledge and competences into basic training for health professionals.

13. Analysis of data from 414 surveys in 122 countries in WHO's **global data bank on breastfeeding and complementary feeding** shows an overall increase of exclusive breastfeeding for the first four months⁴ of life from 19% in 1990 to 38% in 2002. During the same period the estimated overall proportion of children receiving timely complementary feeding increased from 55% to 60%.⁵ Despite these improvements, feeding practices are still far from ideal in terms of WHO's global public health recommendation – exclusive breastfeeding for six months followed by provision of safe and appropriate complementary foods with continued breastfeeding for up to two years of age or beyond (resolution WHA54.2).

14. To support science-based promotion of appropriate **complementary feeding** practices and their accurate assessment over time, WHO is encouraging use of best-practice guidelines⁶ by policy-makers and programme planners in drawing up local feeding recommendations. The guidelines reflect the results of a global consultation on complementary feeding (Geneva, 10-13 December 2001),⁷ and accompany a booklet⁸ directed at mid-level health workers who advise on child feeding. After field-testing in Bangladesh, Jamaica and South Africa, a course designed to equip health workers with skills for counselling caregivers was introduced for trainers (Oman, 13-18 September 2003), for replication in Bahrain, Oman, Pakistan and Sudan.⁹ WHO is also defining indicators for assessing

¹ Including UNICEF, FAO, ILO, the LINKAGES Project, International Baby Food Action Network, La Leche League International and World Alliance for Breastfeeding Action.

² *Infant and young child feeding: a tool for assessing national practices, policies and programmes* (<http://www.who.int/nut/publications.htm#inf>). Geneva, World Health Organization, 2003.

³ *Integrated Management of Childhood Illness (IMCI): planning, implementing and evaluating pre-service training*. Geneva, World Health Organization, 2003 (http://www.who.int/child-adolescent-health/New_Publications/IMCI/Planning_Implementing_Evaluating.pdf).

⁴ Although the global public health recommendation of six months' exclusive breastfeeding is the preferred variable for analysis, adequate data on this basis are not yet available from national surveys. The competent authorities in nearly 60 Member States – including, by mid-2003, Australia, Ireland and the United Kingdom of Great Britain and Northern Ireland – formally recommend six months of exclusive breastfeeding.

⁵ A full report on recent global and regional trends in the prevalence and duration of exclusive breastfeeding and timely complementary feeding is in preparation.

⁶ *Guiding principles for complementary feeding of the breastfed child*. Washington, DC, PAHO/World Health Organization, 2003.

⁷ *Complementary feeding: report of a global consultation and summary of guiding principles*. Geneva, World Health Organization, 2003 (http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/Complementary_Feeding.pdf); Daelmans B, Martines J, Saadeh R eds. Special issue based on a World Health Organization expert consultation on complementary feeding. *Food and Nutrition Bulletin*, 2003, **24**(1).

⁸ *Complementary feeding: family foods for breastfed children*. Geneva, World Health Organization, 2001.

⁹ *Complementary feeding counselling: a training course*. Geneva, World Health Organization, 2003 (in press).

complementary feeding practices in collaboration with the International Food Policy Research Institute.¹

15. The overwhelming source of **HIV infection in children** is mother-to-child transmission, whether during pregnancy, labour and delivery, or by breastfeeding (with a transmission rate of 5% to 20% in infants born to HIV-positive women). WHO and eight other organizations of the United Nations system are promoting an action framework that simultaneously emphasizes reduction in HIV transmission and enhanced support for breastfeeding among the general population.² The framework underpins comprehensive national feeding policies, implementation of the International Code of Marketing of Breast-milk Substitutes and relevant Health Assembly resolutions, appropriate feeding for all children, support to HIV-positive women, and research, and is complemented by revised and updated guidelines (for decision-makers and health personnel) and a technical review.³

16. WHO has field-tested a set of counselling cards for use in conjunction with training on breastfeeding counselling and prevention of mother-to-child transmission of HIV. It has designed a research tool for assessing feeding options for HIV-positive mothers who choose not to breastfeed or who stop breastfeeding early, and is preparing complementary feeding guidelines for non-breastfed children. In order to provide the information base for suitable interventions, WHO is supporting research on the risks of HIV transmission associated with different feeding modes, including exclusive breastfeeding, and the role of mastitis and other infections in such transmission. In addition to supporting operations research in Brazil and South Africa on quality assurance for infant feeding counselling and support, WHO is facilitating the establishment of a research network to foster information exchange and coordination.

17. A WHO Technical Advisory Group on Nutrition and HIV/AIDS met (Geneva, 13-15 May 2003) to review nutrient requirements for the estimated 42 million people, including three million children under 15, living with HIV/AIDS, and evidence on nutrition's role in HIV transmission, disease progression and morbidity. The Group is also drafting a monograph on scientific evidence, programme implications, and food security and care for vulnerable groups, including orphans. WHO and FAO have jointly prepared a training course for health workers about nutrition's role in HIV transmission, disease progression and practical care measures, and published a manual offering simple dietary suggestions for people living with HIV/AIDS.⁴

18. The **Baby-friendly Hospital Initiative**, launched in 1991 to foster initiation and establishment of exclusive breastfeeding in health facilities, is being implemented in more than 19 000 hospitals in 138 countries, and in 2002 Kerala (India), with 80% of maternity hospitals certified baby-friendly, was declared the world's first "baby-friendly state". The Regional Office for Africa organized a training

¹ Ruel MT, Brown KH, Caulfield LE. Moving forward with complementary feeding: indicators and research priorities. Washington, DC, International Food Policy Research Institute, Discussion Paper 146, 2003 (http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/paper146.pdf).

² *HIV and infant feeding: framework for priority action*. Geneva, World Health Organization, 2003 (http://www.who.int/child-adolescent-health/publications/NUTRITION/HIV_IF_Framework.htm).

³ WHO, UNICEF, UNAIDS. *HIV and infant feeding: Guidelines for decision-makers; A guide for health care managers and supervisors*. Geneva, World Health Organization, documents WHO/FRH/NUT/CHD/98.1 and 98.2, and WHO, UNICEF, UNFPA, UNAIDS. *A review of HIV transmission through breastfeeding*. Geneva, World Health Organization, 2003 (in press).

⁴ Nutritional care and support for people living with HIV/AIDS. Geneva, World Health Organization (in press); *Living well with HIV/AIDS: a manual on nutritional care and support for people living with HIV/AIDS*. Rome, Food and Agriculture Organization of the United Nations, 2003 (<http://www.fao.org/DOCREP/005/Y4168E/Y4168E00.HTM>).

course for health-facility evaluators from 12 African countries (Libreville, 28-30 May 2002). To sustain the Initiative's progress, WHO is widely disseminating a reassessment and monitoring tool¹ and drawing up recommendations for supporting HIV-positive mothers in baby-friendly hospitals. The training course for hospital administrators² is being adapted accordingly.

19. The **International Code of Marketing of Breast-milk Substitutes**, which was adopted in 1981, provides for annual reporting by Member States to the Director-General, on action taken to give effect to the Code's principles and aim (Article 11.6). With 162 (84%) of WHO's 192 Member States having already reported (often more than once), the flow of new information has greatly reduced. Renewed emphasis on the International Code is one of the operational targets of the global strategy for infant and young child feeding.³ Since the last report to the Health Assembly,⁴ new information is available from just three Member States: India (Amendment Bill 2003, which strengthens the Act of 1993⁵ by prohibiting promotion of products intended for feeding below two years of age); Malaysia (amendment to the Food Regulations 1985 prohibiting any information promoting or advertising another product through any descriptive matter appearing on or attached to or supplied with infant formula); and Pakistan (Ordinance on Breastfeeding Protection and Child Nutrition (26 October 2002), which covers all products intended for feeding during the first year of life).⁶ WHO has responded to requests for technical support from Australia, Bahrain, Cambodia, New Zealand and Turkey. In April 2002 the International Pediatric Association – a nongovernmental organization in official relations with WHO since 1951 – reaffirmed to the Director-General its support for the International Code and subsequent relevant Health Assembly resolutions.

INTERNATIONAL GROWTH STANDARDS FOR INFANTS AND YOUNG CHILDREN

20. Growth references are among the most commonly used tools for assessing the well-being of children and, by extension, the healthiness of the communities in which they live. Their value resides in helping to determine the degree to which physiological needs for growth and development are being met during the all-important fetal and childhood period. In 1994, WHO, recognizing the shortcomings of the current National Center for Health Statistics/WHO international growth reference, began planning for new standards based on how children *should* grow in all countries rather than merely describing how they grew at a particular time and place.

21. The WHO multicentre growth reference study (1997-2003), constituting the second phase of the growth standards project, collected primary data from some 8500 children with widely differing ethnic backgrounds and in cultural settings (Brazil, Ghana, India, Norway, Oman and the United States of America). Building on the findings, a third phase has begun: the development of scientifically robust

¹ WHO, UNICEF and Wellstart International. The Baby-friendly Hospital Initiative. Monitoring and reassessment: tools to sustain progress (document WHO/NHD/99.2).

² Promoting breastfeeding in health facilities: a short course for administrators and policy-makers (document WHO/NHD/96.3).

³ The strategy "includes as a priority for all governments ... to consider what new legislation or other suitable measures may be required, as part of a comprehensive policy on infant and young child feeding, to give effect to the principles and aim of the International Code ... and to subsequent relevant Health Assembly resolutions" (document WHA55/2002/REC/1, Annex 2, paragraph 33).

⁴ Document A55/14.

⁵ *International Digest of Health Legislation*, 1993; 44:638.

⁶ *International Digest of Health Legislation*, <http://www.who.int/idhl/>, Pak. 02.003.

tools for assessing growth and nutritional status. The new standards – expanded from three to 12 and linked to attained milestones in motor development – will establish the breastfed infant as the biological norm.

22. The goal is that, by 2010, most of the 99 countries that currently use the National Center for Health Statistics/WHO growth reference will be effectively using, or will have initiated transition to use of, the new standards. This shift will be fully exploited to reinforce the linking of growth assessment and promotion activities in support of the Millennium Development Goals. Moreover, a growth standard based on a worldwide sample and recognition that environmental differences – not genetic endowment – are the principal determinants of disparities in child growth should contribute to fulfilment of accepted human rights principles, notably those stipulated in the Convention on the Rights of the Child.

REDUCING NUTRITION RISK FACTORS THROUGHOUT THE LIFE COURSE

23. Compelling evidence continues to accumulate associating malnutrition, whether of deficiency or excess, with impairment of health in later life. Recent studies demonstrate increased risk of disease in adulthood when intrauterine growth retardation is followed by rapid catch-up growth. Other evidence points to a higher risk of coronary heart disease, stroke and probably adult-onset diabetes for people whose growth was stunted in childhood. Breastfeeding is associated with significantly lower blood pressure in childhood for both term and preterm infants. Meanwhile, short-term breastfeeding and feeding breast-milk substitutes have been associated with a risk of several chronic diseases of childhood and adolescence (e.g. type 1 diabetes, celiac disease, some childhood cancers and inflammatory bowel disease); some recent evidence suggests an association between being infant-formula fed and increased risks of obesity and hypertension later in life.¹ The impact of early nutrition on long-term health outcomes, however, requires further research. For all these reasons, WHO promotes a life-course approach to healthy diet, nutrition and the prevention of chronic diseases for all age groups.²

ACTION BY THE EXECUTIVE BOARD

24. The Executive Board is invited to note the report.

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¹ WHO Technical Report Series, No. 916, 2003.

² See also document EB113/7 on health promotion and healthy lifestyles, and document EB113/44 Add.1, which presents a draft global strategy on diet, physical activity and health.