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Childhood nutrition and progress in implementing the International Code of Marketing of Breast-milk Substitutes

Report by the Secretariat

1. After summarizing the current global burden of the several major forms of malnutrition in infants and young children, this document reports on progress in protecting and supporting infant and young child feeding, as well as implementation of the International Code of Marketing of Breast-milk Substitutes.¹

2. Malnutrition occurs in several linked forms, including intrauterine growth retardation, protein-energy malnutrition and deficiencies of micronutrients such as iodine, vitamin A, zinc and iron. In many countries childhood obesity is an increasing cause of concern. All these forms of malnutrition compromise physical growth, mental development, health, performance and productivity, and survival, and have lasting effects throughout the life span.

PROTEIN-ENERGY MALNUTRITION

3. The worldwide prevalence of protein-energy malnutrition, which contributes to more than half the 10.9 million deaths each year among children under five in developing countries, is slowly decreasing (see figure in Annex). However, almost 30% of children under five in developing countries – or 161 million children – still suffer from stunted growth (see Annex, Table 1). More than 70% of these children live in Asia, over 25% in Africa, and about 4% in Latin America and the Caribbean. The situation in some parts of Africa is particularly alarming because the numbers of malnourished children are increasing as a result of HIV/AIDS, ecological disasters, armed conflict, civil disturbances, and mass population movements.

4. Worst affected are some 50.6 million wasted children under five, primarily in 27 least-developed countries (see Annex, Table 2). The case-fatality rate among these children is typically 20% to 30% (with studies showing a range of 4% to 49%), although with proper management this can be lowered to less than 5%.

¹ This report is submitted in accordance with resolution WHA33.32 and Article 11.7 of the International Code of Marketing of Breast-milk Substitutes.

MICRONUTRIENT MALNUTRITION

5. **Iodine deficiency**, mainly caused by insufficient iodine intake during pregnancy, is the greatest single cause of preventable brain damage and mental retardation (see Annex, Table 3). It is a significant public health problem in 130 countries, most of which are in Africa and Asia. About 13% of the world's population is still at risk from iodine deficiency and 740 million people are currently affected. Nevertheless, remarkable progress has been made over the last decade in eliminating iodine deficiency disorders. More than 80% of affected countries now have salt iodization action plans and an average of 68% of households, ranging from 63% in Africa to 90% in the Americas, have access to iodized salt. The current task is, first, to monitor salt iodization and its impact¹ through regional laboratory networks, and, secondly, to increase access to iodized salt through more effective coordination among the main partners, especially the salt industry. A new international partnership has been formed, whose aim is sustainable elimination of iodine deficiency.

6. **Vitamin A deficiency** is a significant public health problem in 118 countries and more than 250 million preschool children are affected or at risk (clinical and subclinical signs combined) (see Annex, Table 3). It is not only a major cause of preventable child blindness, it is also a major risk factor for morbidity and mortality during late infancy and childhood, and probably during pregnancy as well. WHO, UNICEF, nongovernmental organizations, bilateral donor agencies and private industry are reinforcing their collaboration in order to accelerate progress in combating vitamin A deficiency, particularly through food fortification. Coverage of at-risk children has been increased substantially by linking supplementation to visits to sick children in the context of the integrated management of childhood illness, and to immunization services, for example in Africa where the number of countries providing supplements during national immunization days increased from four in 1996 to 35 in 1999. In 2000, some 90 million children worldwide received at least one dose of vitamin A. Following a review of current dosage levels for infants, young children and postpartum women, new guidelines are being prepared in collaboration with UNICEF and the International Vitamin A Consultative Group. WHO is also coordinating research, with IAEA and the United States Agency for International Development, to examine the safety and health benefits of increased dosage in early infancy.

7. Much is also being done to tackle **iron deficiency**, which is the main cause of **anaemia**, although it remains a remarkably intractable global public health problem, with a range of adverse effects including increased mortality, preterm birth, low birth weight, delayed and impaired development, and decreased work productivity.² A WHO review of approaches to preventing anaemia and improving iron intake among infants and young children is nearing completion.

8. Given the limited availability of **zinc** in the diets of most children in developing countries and the micronutrient's role in reducing the incidence and severity of diarrhoea – and possibly the incidence of pneumonia – WHO is supporting studies to assess care-takers' adherence to dosage recommendations and the impact of zinc supplementation on childhood morbidity and mortality. Double-blind field trials have started in India and Zanzibar (United Republic of Tanzania) to assess the impact of daily zinc supplementation on overall child mortality.

¹ Assessment of iodine deficiency disorders and monitoring their elimination. A guide for programme managers (second edition) (document WHO/NHD/01.1).

² Iron deficiency anaemia assessment, prevention, and control: a guide for programme managers (document WHO/NHD/01.3).

NUTRITION IN EMERGENCIES

9. Malnutrition in its different forms is rampant among the more than 40 million refugees and internally displaced persons worldwide, including 5.5 million children under five.¹ Risk of malnutrition in this group varies according to the extent of access to safe and adequate food, and health services for controlling infectious diseases. WHO continues to provide technical and methodological support and training to governments and frontline international agencies, especially UNICEF, UNHCR and WFP, and their field staff, and nongovernmental organizations.

OBESITY

10. At the other end of the malnutrition spectrum, childhood overweight and obesity are increasing global public health problems. In a recent analysis of national data from 79 countries, representing 87.8% of children under five in developing countries, the overall prevalence rate of overweight in such children in developing countries was 3.3% (17.6 million) (see Annex, Table 2).² Overweight and obesity rates are rising in many countries, and 21 countries already have prevalence rates greater than 5%. Considerable evidence associates childhood obesity with childhood hypertension, diabetes, respiratory disease, orthopaedic conditions and psychosocial disorders. Of even greater concern, however, is its contribution to adult obesity and associated morbidity and mortality, as well as the independent impact it has on increasing the risk of chronic disease later in life.

INFANT AND YOUNG CHILD FEEDING

11. Goals set by the World Summit for Children in 1990 and reaffirmed by the International Conference on Nutrition in 1992 to reduce or eliminate major forms of malnutrition by the year 2000 have not been met in most countries. Inappropriate feeding is still believed to account for at least one-third of malnutrition, and contributes significantly to morbidity and mortality, among children under five. This is the major reason for a new global strategy for infant and young child feeding, which is presented separately.³

12. Protection, promotion and support of infant and young child feeding are critical to preventing malnutrition and ensuring the healthy growth and development of children. Inappropriate feeding practices are a major contributor to poor nutritional status in infants and young children. Progress has been made in strengthening the evidence for optimal feeding recommendations, and in identifying effective interventions⁴ to promote their application. The new global strategy for infant and young child feeding stresses the importance of access to skills and support within the health system and the

¹ *The management of nutrition in major emergencies*. Geneva, World Health Organization, 2000, ISBN 92 4 154520 8.

² See WHO Global Database on Child Growth and Malnutrition (<http://www.who.int/nutgrowthdb/>) and de Onis M, Blössner M. Prevalence of trends of overweight among preschool children in developing countries. *American Journal of Clinical Nutrition*, 2000, **72**: 1032-1039.

³ See document EB109/12.

⁴ Haider R, Ashworth A, Kabir I, Huttly S. Effect of community-based peer counsellors on exclusive breastfeeding practices in Dhaka, Bangladesh: a randomised controlled trial. *Lancet*, 2000, **356**: 1643-1647 and Santos I, Victora CG, Martines J et al. Nutrition counseling increases weight gain among Brazilian children. *Journal of Nutrition*, 2001, **131** (11): 2866-2873.

community, combined with measures to protect infant and young child feeding, to ensure that mothers and other caregivers are able to take adequate care of the nutritional needs of the infants and young children in their care.

13. Some countries have seen substantial improvements in the prevalence and duration of **exclusive breastfeeding** during the past decade. However, rates of *exclusive* breastfeeding during the first six months of life remain low. Through the global strategy for infant and young child feeding, efforts are being renewed to implement and expand interventions of proven effectiveness to increase exclusive breastfeeding rates worldwide.

14. **The Baby-friendly Hospital Initiative**, launched in 1991 to foster health facilities that promote initiation and establishment of exclusive breastfeeding, is being implemented in about 16 000 hospitals in 171 Member States. However, in addition to the concern noted in the last report to the Executive Board in 2000, which has subsequently been confirmed, that standards are not always maintained, the global number of facilities designated “baby-friendly” appears to have reached a plateau. Some countries reporting weakened commitment, particularly in private and university teaching hospitals, have interpreted diminishing resources from WHO and UNICEF as a sign of reduced international interest. At the same time, research is demonstrating the vital importance of hospital-based promotion programmes to the duration and exclusivity of breastfeeding, and progress is being made in some countries. For example, in Belarus a controlled randomized trial found that implementing the Initiative significantly increased the duration and exclusivity of breastfeeding.¹ In Kenya, 230 out of 350 maternity hospitals have qualified for the designation “baby-friendly”. In the United States of America, in an inner-city teaching hospital that provides care primarily to poor, minority and immigrant families, the proportion of mothers initiating breastfeeding increased from 58% in 1995 to 86.5% in 1999 following implementation of the Initiative.² Four countries – Malaysia, Namibia, Oman and Sweden – share the distinction of having *all* their public hospitals qualify.

15. WHO and UNICEF convened a meeting of baby-friendly coordinators from 18 industrialized countries to identify obstacles and strategies to ensure the Initiative’s progress (London, 11-13 June 2001). The two bodies are also promoting use of a monitoring and reassessment package, developed with a collaborating centre,³ to sustain progress and to ensure the Initiative’s long-term quality and integrity. Expansion of the Initiative is a major focus of the new global strategy for infant and young child feeding. To sustain support for optimal breastfeeding practices, health workers, hospital personnel, health care managers and policy-makers have been trained in counselling with WHO-developed courses in nearly 100 countries,⁴ while counselling on breastfeeding and complementary feeding has been incorporated in materials for the integrated management of childhood illness for use in health facilities⁵ and communities. Guidelines are also being drawn up to ensure that appropriate information on infant and young child feeding is integrated into pre-service education for medical and

¹ Kramer M et al. Promotion of breastfeeding intervention trial (PROBIT): a randomized trial in the Republic of Belarus. *Journal of the American Medical Association*, 2001, **285**(4): 413-420.

² Philipp B et al. Baby-friendly Hospital Initiative improves breastfeeding initiation rates in a US hospital setting. *Pediatrics*, 2001, **108**: 677-681.

³ WHO, UNICEF and Wellstart International. The Baby-friendly Hospital Initiative. Monitoring and reassessment: tools to sustain progress. Geneva, WHO, 1999 (document WHO/NHD/99.2).

⁴ Breastfeeding counselling: a training course (documents WHO/CDR/93.3-93.6), available in all United Nations languages and Portuguese; and Promoting breastfeeding in health facilities: a short course for administrators and policy-makers (document WHO/NUT/96.3), available in Arabic, English, Russian and Spanish.

⁵ Integrated management of childhood illness: a training course for first-level health workers (document WHO/CHD/97.3.A-L), <http://www.who.int/child-adolescent-health>

paramedical workers, and to reinforce community support through training of lay and peer breastfeeding counsellors.

16. In 2000, WHO commissioned a systematic review of the published scientific literature on the **optimal duration of exclusive breastfeeding**. More than 3000 references were identified for independent review and evaluation. The outcome of this process was subjected to global peer review, after which all findings were submitted for technical scrutiny during an expert consultation (Geneva, 28-30 March 2001). The consultation's conclusions and recommendations for both practice and research were presented to the Fifty-fourth World Health Assembly.¹ The Health Assembly urged Member States to strengthen activities and develop new approaches to protect, promote and support exclusive breastfeeding for six months as a global public health recommendation, taking into account the findings of the WHO Expert Consultation on the Optimal Duration of Exclusive Breastfeeding, and to provide safe and appropriate complementary foods, with continued breastfeeding for up to two years of age or beyond, emphasizing channels of social dissemination of these concepts in order to lead communities to adhere to these practices (resolution WHA54.2). As the expert consultation's conclusions and recommendations have implications for the age-at-use provision of the draft revised Codex Alimentarius standard for processed cereal based foods for infants and young children, they were also presented to the 24th session of the Codex Alimentarius Commission (Geneva, 2-7 July 2001).

17. With respect to mother-to-child transmission of HIV the Health Assembly was informed in May 2001 that 10% to 20% of infants born to HIV-positive mothers may acquire HIV through breastfeeding, and recent studies indicate a heightened risk of transmission during the early months. However, evidence from one study shows that exclusive breastfeeding in the first three months of life may carry a lower risk of HIV transmission than mixed feeding does, possibly because infectious or allergic processes associated with the latter compromise the integrity of mucosal surfaces. The joint UNICEF/UNAIDS/WHO guidelines² issued in 1998 remain valid. All HIV-infected mothers should receive counselling that includes information about the risks and benefits of different feeding options, and specific guidance in selecting the option most likely to be suitable for their situation. When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-positive women is recommended; otherwise exclusive breastfeeding is recommended during the first months of life. To minimize HIV transmission, breastfeeding by HIV-positive women should be discontinued as soon as feasible, taking into account local circumstances, the individual woman's situation and the risks of replacement feeding, including malnutrition and infections other than HIV. The final decision should be the mother's and she should be supported in her choice.

18. In collaboration with UNICEF and UNAIDS, WHO has developed a three-day training course for health workers who are responsible for counselling mothers on HIV and infant feeding.³ The course has already been held in 10 countries. WHO is also preparing a short course on improving nutritional care and management for community health workers who provide nutrition advice for people, including children, living with HIV. Research in South Africa and Zambia to assess the risk of HIV transmission in exclusively breastfed infants and the effect of early cessation of breastfeeding on

¹ See document A54/INF.DOC./4.

² UNICEF, UNAIDS, WHO. *HIV and infant feeding: Guidelines for decision-makers. A guide for health care managers and supervisors. A review of HIV transmission through breastfeeding* (documents WHO/FRH/NUT/CHD/98.1-3).

³ HIV and infant feeding counselling: a training course (document WHO/FCH/CAH/00.2-6).

overall transmission rates is being supported by WHO. Materials for counselling mothers on early cessation of breastfeeding and safe replacement feeding are being prepared.

19. At its 88th session in June 2000, the International Labour Conference adopted the Maternity Protection Convention, 2000 (No. 183) and Maternity Protection Recommendation, 2000 (No. 191). WHO participated throughout preparations for the revised Convention and presented evidence on **protecting maternal health and promoting breastfeeding**. The Convention was significantly strengthened through the inclusion of a new provision on protection from hazardous agents, an increase in the entitlement to a minimum length of maternity leave from 12 to 14 weeks, reinforcement of the entitlement to paid breastfeeding breaks, and extension of the Convention's application to women in atypical forms of dependent work.

20. Since the adoption of the **International Code of Marketing of Breast-milk Substitutes** by the Thirty-fourth World Health Assembly in 1981 (resolution WHA34.22), 162 of WHO's 191 Member States (85%) have reported on their actions to give effect to the Code's principles and aim. This includes adoption of new, or revision of existing, legislation, regulations, codes, guidelines, agreements, and monitoring and reporting mechanisms. Since the last report to the Executive Board at its 105th session in 2000¹ nine countries (Angola, Cambodia, France, Ghana, Greece, Kazakhstan, Nigeria, South Africa, and the United Republic of Tanzania) have provided information on new or revised actions. Meanwhile, WHO has responded to requests for technical support from Australia, Cambodia, New Zealand, Oman and Pakistan. It has also provided input to the revised Code-monitoring protocol of the Interagency Group on Breastfeeding Monitoring, a coalition of nongovernmental organizations, churches and academic institutions. The Code reached its twentieth anniversary in May 2001, and the Director-General participated in a ceremony to mark the occasion organized by the International Baby Food Action Network.

21. Ensuring adequate nutrient intake after the period of exclusive breastfeeding can be difficult and many children are at particular risk of malnutrition between six and 24 months of age. In order to translate scientific evidence into practical messages, WHO has developed practical guidelines on **complementary feeding**, in collaboration with the London School of Hygiene and Tropical Medicine.² These are an expansion of guidelines for first-level health workers designed as part of the integrated management of childhood illness. A three-day course to help to equip health workers with effective skills in counselling carers on appropriate complementary feeding for children between six and 24 months of age is being prepared. WHO is convening a global consultation on complementary feeding (Geneva, 10-13 December 2001) to build on existing evidence, experience and recent research findings, in order to improve feeding practices.

MATERNAL NUTRITION

22. The evidence on the life-course links to cardiovascular diseases and diabetes, presented at the WHO Expert Meeting on Life Course and Health (Annecy, France, 2-4 May 2001), demonstrated the influence of maternal pre-pregnancy nutritional status on the fetal and post-natal growth of offspring and their subsequent risk of chronic disease. Besides intrauterine growth retardation, maternal undernutrition, even in a nutritionally adequate post-natal environment, may increase the risk of cardiovascular diseases and diabetes in offspring. Similarly, maternal obesity significantly raises

¹ See document EB105/2000/REC/2, summary record of ninth meeting.

² Complementary feeding: family foods for breastfed children (documents WHO/NHD/00.1, WHO/FCH/CAH/00.6).

offspring's risk of obesity and related chronic diseases. In response to the recommendations of the expert meeting, WHO recognizes the need for the adoption of a life-course perspective in infant and child nutrition strategies and to take account of the intergenerational effects on infant and child nutritional status, growth and health, including undernutrition and obesity in young women.

MULTICENTRE GROWTH REFERENCE STUDY

23. This study of over 10 000 children¹ began in 1997 with the aim of establishing a new international reference for assessing the health, growth and nutritional status, including under- and over-nutrition, of population groups and individuals. Work was completed first in Brazil and the study continues in Ghana, India, Norway, Oman and the United States of America. The study's cross-sectional component – a sample of 1400 children between 18 and 71 months of age – has been completed in two sites. Data are also being collected to facilitate investigation of the link between physical growth and motor development in affluent children from various ethnic backgrounds in different cultural settings. Data files are sent for validation and processing to the study coordinating centre in WHO headquarters. The release of the new growth curves, expected in 2005, depends on adequate funding for development and testing.

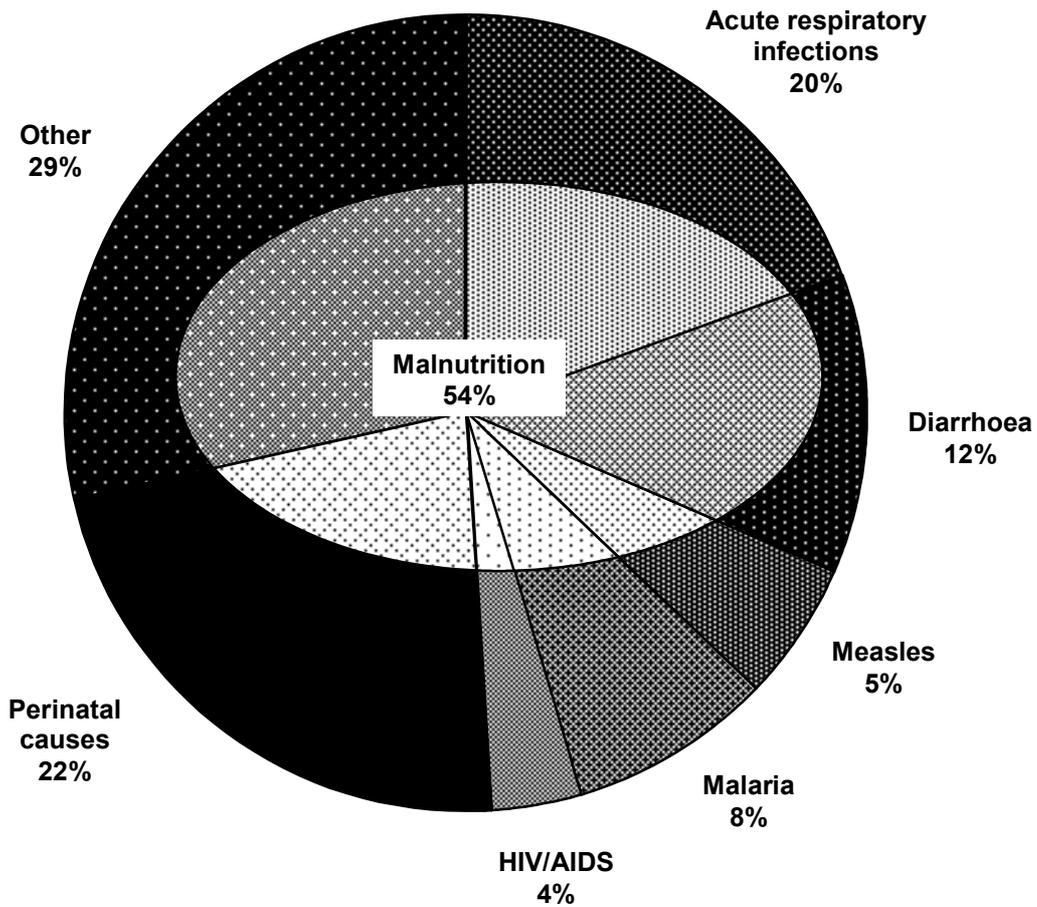
ACTION BY THE EXECUTIVE BOARD

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

¹ See also document EB105/INF.DOC./1.

ANNEX

FIGURE. DISTRIBUTION OF 10.9 MILLION DEATHS PER ANNUM AMONG CHILDREN UNDER FIVE YEARS OF AGE IN DEVELOPING COUNTRIES, 1999



Source: WHO 2000, based on 1999 data.

TABLE 1. ACTUAL AND PROJECTED REGIONAL AND GLOBAL PREVALENCE OF CHILDHOOD STUNTING^a (1980-2005)

Region ^b	1980	1985	1990	1995	2000	2005
	% (millions)	% (millions)	% (millions)	% (millions)	% (millions)	% (millions)
Africa	38.8 (32.6)	37.8 (36.4)	36.8 (39.4)	35.8 (41.3)	34.9 (43.6)	33.9 (45.5)
Asia	54.1 (175.1)	48.4 (169.2)	42.8 (162.0)	37.3 (135.9)	32.2 (115.3)	27.4 (96.4)
Latin America and Caribbean	23.4 (12.2)	20.1 (10.8)	17.1 (9.4)	14.5 (8.0)	12.3 (6.8)	10.3 (5.7)
Developing countries	48.1 (221.3)	43.3 (216.3)	38.5 (208.6)	34.0 (182.2)	29.8 (161.0)	25.9 (140.5)

^a Stunting is defined as a height-for-age ≤ 2 SD of the National Center for Health Statistics (NCHS)/WHO international reference median.

^b Countries have been grouped by the United Nations classification system (United Nations Population Division. *World population prospects – the 1998 revision*, New York, United Nations, 1999).

Source: WHO Global Database on Child Growth and Malnutrition, 2001.

TABLE 2. REGIONAL AND GLOBAL PREVALENCE OF OVERWEIGHT^a AND WASTED^b CHILDREN BELOW FIVE YEARS OF AGE (1995)

Region ^c	Overweight			Wasted		
	Percentage of population covered by national nutrition surveys	Percentage overweight	Number overweight (thousands)	Percentage of population covered by national nutrition surveys	Percentage wasted	Number wasted (thousands)
Africa	70.9	3.9	4 471	94.5	9.6	11 060
Asia	92.4	2.9	10 643	93.7	10.4	37 872
Latin America and Caribbean	94.1	4.4	2 429	97.2	2.9	1 591
Oceania ^d	15.5	NA ^e	NA ^e	15.5	NA ^e	NA ^e
Developing countries	87.8	3.3	17 561	94.1	9.4	50 593

^a Overweight defined as a weight-for-height >2 SD of the National Center for Health Statistics (NCHS)/WHO international reference median.

^b Wasted defined as a weight-for-height \leq 2 SD of the NCHS/WHO median.

^c Countries have been grouped by the United Nations classification system (United Nations Population Division. *World population prospects – the 1998 revision*, New York, United Nations, 1999).

^d Excluding Australia and New Zealand.

^e NA = not available.

Source: de Onis M, Blössner M. Prevalence and trends of overweight among preschool children in developing countries. *American Journal of Clinical Nutrition*, 2000, **72**: 1032-1039.

TABLE 3. PREVALENCE OF VITAMIN A DEFICIENCY AND IODINE DEFICIENCY DISORDERS BASED ON TOTAL GOITRE RATE IN THE SIX WHO REGIONS (1999)

WHO region	Population with goitre ^a		Population with vitamin A deficiency (preschool children)	
	Number (millions)	% in region ^b	Number (millions)	% in region ^b
African Region	124	20	53	49
Region of the Americas	39	5	16	20
South-East Asia Region	172	12	127	69
European Region	130	15	NA ^c	NA ^c
Eastern Mediterranean Region	152	32	16	22
Western Pacific Region	124	8	42	27
Total	740	13	254	38

^a Goitre number/prevalence is used as a proxy for iodine deficiency disorders.

^b Total goitre rate.

^c NA = not available.

Source: WHO Global Database on Iodine Deficiency Disorders and Vitamin A Deficiency.

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