



Prevention and control of iodine deficiency disorders

Report by the Secretariat

BACKGROUND

1. Although the importance of iodine for preventing endemic goitre has been recognized for more than a century, it has only been during the past 30 years that a wide range of harmful effects of iodine deficiency has been described. While cretinism, a condition characterized by severe brain damage occurring in very early life, is both the most well known and the most serious of these effects, of greater significance are the more subtle degrees of mental impairment which occur in apparently normal children in iodine-deficient areas. The consequences are pervasive: they include poor school performance, reduced intellectual ability and impaired work capacity. Communities in remote mountainous regions are usually considered to be most at risk of iodine deficiency. However, it has been increasingly identified in other areas after the concept of endemic goitre was extended by the development of new indicators of iodine deficiency, in addition to goitre prevalence. These include measurement of iodine levels in urine and of thyroid-related hormones in blood, and assessment of thyroid size using ultrasonography.

2. The term iodine deficiency disorders was coined in 1983 to underscore the wide range of serious adverse effects of iodine deficiency.¹ The adoption of this term proved a turning point in raising awareness of the problem and galvanizing governments and international agencies into action. In 1990, the Health Assembly recognized that iodine deficiency is the world's greatest single cause of preventable mental retardation, and established the goal of eliminating it as a public health problem by the year 2000.²

3. Iodine deficiency has been identified as a significant public health problem in 130 countries (see the table below). At least 1500 million people, or 29% of the world's population, live in areas at risk of iodine deficiency.³ In 1998 WHO estimated that 740 million of them are affected by goitre: eight of the most populous countries in the world⁴ have a significant iodine deficiency problem. Together, they account for 54% of the world's population affected by iodine deficiency disorders.

¹ Hetzel B.S. Iodine deficiency disorders (IDD) and their eradication. *Lancet*, 1983; **2**: 1126-1127.

² Resolution WHA43.2.

³ WHO/UNICEF/International Council for the Control of Iodine Deficiency Disorders. *Global prevalence of iodine deficiency disorders*, MDIS Working Paper No. 1. Geneva, World Health Organization, 1993.

⁴ Bangladesh, Brazil, China, India, Indonesia, Nigeria, Pakistan and Russian Federation.

**PROGRESS SINCE 1990 IN ELIMINATING
IODINE DEFICIENCY DISORDERS**

WHO region	Number of countries	Number of countries					
		Countries with iodine deficiency disorders ^a	Legislation on universal salt iodization ^b	Monitoring		Progress towards universal salt iodization	
				Quality of iodized salt	Iodine status	Population coverage	
						10% to 50%	Above 50%
Africa	46	44	34	29	24	7	24
The Americas	35	19	17	19	19	3	16
South-East Asia	10	9	7	8	7	2	6
Europe	51	32	20	17	13	12	6
Eastern Mediterranean	22	17	14	14	10	2	9
Western Pacific	27	9	6	8	6	4	4
Total	191	130	98	95	79	30	65

^a Only includes countries where disorders are documented and have remained a public health problem since 1990. Excludes countries where there are no data, no reported problems of iodine deficiency disorders or where such disorders have been eliminated or never existed.

^b Legislation may have been put in place before 1990.

4. The main strategy for the control of iodine deficiency disorders is universal salt iodization, but sustainable elimination cannot be achieved by this means alone. The first step in the development of a national prevention and control programme is to establish a suitable mechanism responsible for coordinating the sectors involved in the control of iodine deficiency disorders and for overseeing the programme. Later stages include carrying out baseline assessments; preparing plans of action; winning political support; communicating with the public and other sectors, and writing, enacting and enforcing legislation on salt iodization. In high-risk areas, where considerable delays in access to iodized salt are likely, iodized oil should be given to women and children. Monitoring the impact of iodization programmes is essential in order to ensure adequate and continuing coverage.

5. During the past decade, tremendous progress has been made towards eliminating iodine deficiency disorders. WHO, in collaboration with UNICEF, the International Council for the Control of Iodine Deficiency Disorders, and other international organizations, bilateral agencies and nongovernmental organizations, has played a crucial role in supporting national governments to this end. The table above summarizes progress in each of the six regions.

6. To date, 73% of the countries affected by iodine deficiency disorders have made progress towards achieving universal salt iodization, and 50% have made substantial progress (defined as more than half the population currently consuming iodized salt). The percentage of the latter group of countries is highest in the

Region of the Americas (84%), followed by the South-East Asia Region (67%), the Eastern Mediterranean Region (53%), the African Region (54%), the Western Pacific Region (44%) and the European Region (19%). Of the eight most populous countries with iodine deficiency disorders, all but two have made significant progress towards achieving universal salt iodization. Thirty countries where iodine deficiency disorders are known or likely have yet to report any control activities.

7. Of the 130 countries where iodine deficiency has remained a public health problem since 1990, 74% report that they are monitoring the quality of iodized salt (although monitoring needs to be strengthened in many cases), while 61% report that they have a monitoring system for iodine status, most often based on goitre prevalence. A growing number of countries are now measuring iodine in urine, which is the key indicator recommended for assessing the impact of iodine deficiency control measures. Few countries have yet to carry out surveys of the prevalence of iodine deficiency disorders after implementation of salt iodization. However, in those that have,¹ the change has been dramatic, leading to a drop in goitre prevalence and a rise in urinary iodine in affected areas.

ISSUES

8. Despite the achievements of the past decade, problems remain: (i) iodized salt is not reaching all target communities, in particular the most disadvantaged; (ii) a plethora of small-scale salt producers makes salt iodization programmes difficult to implement in some countries; (iii) some salt producers are unwilling to pay for potassium iodate, which is the recommended agent for iodization, or use less than the required amount; (iv) there is frequently unacceptable variation in the quality of iodized salt; (v) many salt iodization programmes are not adequately monitored; (vi) a related problem is the lack of laboratory facilities in many countries for monitoring salt and urinary iodine levels; (vii) a transient increase in the incidence of hyperthyroidism has been identified in some countries after salt iodization.

9. The most important issue at present is the long-term sustainability of salt iodization programmes. Priority needs are to develop and improve links with the salt industry so as to ensure continuing high quality salt iodization, to support small-scale salt producers, and to set up adequate structures for monitoring both salt iodization and its impact on the iodine status of the population. Alternative strategies are also needed for iodization in areas where iodized salt will not be available in the foreseeable future. Growing evidence that iodine deficiency may be reappearing in some countries where it had previously been eliminated underscores the need for continued monitoring of the iodine status of populations that have been at risk in the past.

ACTION BY THE HEALTH ASSEMBLY

10. The Health Assembly may wish to consider the following draft resolution, prepared in the light of discussions on the matter at the 103rd session of the Executive Board:

The Fifty-second World Health Assembly,

Having considered the report on progress achieved in preventing and controlling iodine deficiency disorders;

¹ For instance, Algeria, Bolivia, Bhutan, Cameroon, China, Indonesia, Peru, Thailand, Zimbabwe.

Recalling resolutions WHA39.31, WHA43.2 and WHA49.13 on the prevention and control of iodine deficiency disorders;

Concerned that iodine deficiency remains a major threat to the health and development of populations worldwide and that it may result in goitre, stillbirth and miscarriage, neonatal and juvenile thyroid deficiency, dwarfism, brain damage and intellectual impairment, deaf mutism, spastic weakness and paralysis, as well as lesser degrees of loss of physical and mental function;

Recognizing that the elimination of iodine deficiency will therefore represent a major public health triumph of truly global proportions and an important contribution to national economic development,

1. COMMENDS governments, international organizations, bilateral agencies and nongovernmental organizations, in particular the International Council for Control of Iodine Deficiency Disorders, on their support in the struggle to eliminate iodine deficiency disorders throughout the world, and on the progress to which they have contributed over the last decade to prevent and control iodine deficiency at global, regional and national levels;

2. REAFFIRMS the goal of eliminating iodine deficiency disorders as a major public health problem, while recognizing that some countries still face considerable obstacles in meeting this goal and consequently require additional intensive support;

3. URGES Member States:

(1) to assess the extent and severity of iodine deficiency disorders, where they have not already done so;

(2) to redouble their efforts to promote universal salt iodization, including the adoption of relevant legislation, and to implement alternative strategies for iodine supplementation in areas where iodized salt is not yet available;

(3) to monitor the iodine status of their populations and the quality of iodized salt in all areas, including those where current iodine intakes are thought to be adequate, in order to gauge progress towards achieving the goal of sustainable elimination of iodine deficiency disorders as a public health problem;

4. REQUESTS the Director-General:

(1) to provide, on request, technical support to Member States in formulating and implementing programmes for the control of iodine deficiency, including the development of appropriate communication strategies, and the promotion of effective programme implementation;

(2) to mobilize, and collaborate with, international and bilateral development agencies, nongovernmental organizations and the private sector in support of the efficient and effective iodization of salt by both large- and small-scale salt producers;

(3) to provide technical support to Member States in establishing and strengthening systems for monitoring the iodine status of their populations and the quality of iodized salt, to identify

the required financial and technical resources for this purpose, and to support Member States in developing links with the salt industry;

(4) to facilitate intercountry cooperation and collaboration for sustainable elimination of iodine deficiency disorders, in particular by developing and supporting subregional networks of laboratories to ensure adequate surveillance and monitoring of these disorders;

(5) to maintain and update the WHO global database on the incidence and prevalence of iodine deficiency disorders as a means of monitoring the status of control programmes, assessing progress towards eliminating iodine deficiency disorders, and increasing awareness of their public health implications;

(6) to report to the Health Assembly on progress achieved in eliminating iodine deficiency disorders.

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