



## Editorial

### Prevention of Iodine Deficiency: Difficult to Implement, More Difficult to Sustain

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The first concise description of disorders caused by iodine deficiency was published in 1908 (1). The term “iodine deficiency disorders” (IDD) introduced by Basil Hetzel in 1983 has transformed the world’s understanding of the problem from “endemic goiter” to a wide range of conditions, indicating the vulnerability of the fetus and young children. Therefore, impaired thyroid function, retarded growth and mental development, decreased fertility, and increased prenatal mortality have long called for universal intervention (3).

In 1999, WHO estimated that 2.2 billion people were at risk for IDD in 130 countries (4). Programs to eliminate iodine deficiency were established on the basis of an informal global partnership with the distribution of iodized salt, the so-called “Universal Salt Iodization” (USI). Remarkable progress has been achieved for elimination of IDD in the last 2 decades. In 1990, 1572 million people in 110 countries were at risk of IDD, 12% had goiter, 8% had some degree of mental impairment due to iodine deficiency, and 2% were cretinous (5). From 2003 to 2011, the number of countries with iodine deficiency decreased from 54 to 32 (6), and by 2012, 71% of the global population had access to iodized salt (7). We have shown that iodine nutrition status of mothers residing in countries with mandatory iodine fortification is better than those in regions with voluntary iodine programs (8).

Although great success has been achieved in universal recognition of IDD and major steps have been taken for adequate iodine nutrition; yet universal collaboration is insufficient and incomplete (9). Successful IDD control programs are achieved when a carefully planned monitoring system is functioning. A good example of such a program is the IDD control program of the Islamic Republic of

Iran (10). In 1989, an effective and functional multidisciplinary national body (IDD National Committee), responsible to the government for elimination of IDD, became active, and an executive officer responsible for the IDD elimination programme was appointed. Legislation on universal salt iodization was implemented in 1992, and salt factories began producing only iodized salt for household use. Public education and social mobilization on the importance of iodine nutrition and the consumption of iodized salt were implemented and integrated into the health network. Iran was committed to assessment and re-assessment of progress in the elimination of IDD, with increased access to iodine laboratories and regular data on salt iodine at factory, retail and household levels. National monitoring of goiter rate, iodized salt consumption and urinary iodine was performed every 5-7 years. Co-operation from the salt industry in maintenance of quality control was excellent. Monitoring in 1978 and 1986 showed adequate iodine nutrition (10, 11). Surveillance in 2007 demonstrated that median urinary iodine of schoolchildren had decreased though some inadequacy in iodine nutrition was evident in 6 out of the 31 provinces in Iran (12). The Ministry of Health & Medical Education was promptly informed of this, and it was found that appropriate monitoring had failed in a few salt factories. Evaluation and supervision of factories and retailers were enforced, and more recent data show improvement in iodine nutrition.

The lack of success in many countries in the development and sustainability of an efficient monitoring system presents a dismal picture. The lesson learned is that IDD prevention programs are fragile, and require long-term sustained commitment. Furthermore, USI, although achieved in the majority

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of countries where iodine deficiency had been a major public health problem, is not sufficient by itself to eliminate IDD. The main objective should focus on suitable and sustainable iodine nutrition (13). Greater attention needs to be paid to the development of an efficient, sustainable and operating monitoring system in every country to sustain adequate iodine nutrition and to prevent re-emergence of IDD.

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