

## Sustainable control of iodine deficiency in Iran: Beneficial results of the implementation of the mandatory law on salt iodization

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**ABSTRACT.** Iodine deficiency disorders (IDD) were prevalent in the Islamic Republic (IR) of IRAN before 1989, when the national salt iodization program with 40 mg I/k of salt was initiated. Despite a comprehensive IDD control program, less than 50% of the households in rural areas consumed iodized salt by 1994. A law for the mandatory production of iodized salt for households was passed in 1994. The purpose of this study was to evaluate goiter status and urinary iodine excretion 2 yr after this law was implemented. In each of 26 provinces, 30 groups of 40 schoolchildren, total 36,178, were examined for goiter and classified according to World Health Organization (WHO) classification. Urinary iodine excretion was measured in 2,917 children by digestion method. Goiter was endemic in all provinces, but the majority were small (grade 1) goiter. Median urinary iodine was 20.5 µg/dl 85.1% had urinary iodine ≥10 µg/dl.

Median urinary iodine was above 13 µg/dl in all 26 provinces. In all provinces the percentage of schoolchildren with urinary iodine <5 µg/dl was less than 16%. In nine provinces the median urinary iodine was between 13 to 20 µg/dl; urinary iodine of their schoolchildren was <5 µg/dl in 10.8% and <2 µg/dl in 6-9%. No significant difference was observed between boys and girls or children of rural and urban regions in urinary iodine excretion. We conclude that 7 yr after the beginning of salt iodization and 2 yr following mandatory iodized salt consumption, urinary iodine excretion is adequate in schoolchildren; considering the data of the percent of households consuming iodized salt and programmatic setting of the IDD program, The IR of Iran has reached a sustainable control program for iodine deficiency.

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### INTRODUCTION

Iodine deficiency leads to a spectrum of disorders, from simple goiter, to hypothyroidism, impaired psychosomatic performance, decreased intelligent quotient, auditory disturbance, neurological deficit and finally clinical presentation of typical cretinism, which are collectively referred to as iodine deficiency disorders (IDD) (1). It is estimated that more than 1.5 billion people in 117 countries around the world are at risk of iodine deficiency. This consti-

tutes 29% of the world's population. Globally, the prevalence of goiter is estimated to be 12% of the world population (2).

The prevalence of goiter in the Islamic Republic (IR) of Iran was found to be between 10-60% in 1968 (3); However, no preventive measures for the control of iodine deficiency was undertaken. In the 1980's several studies showed the existence of various forms of IDD in the country (4-7). A nationwide survey of goiter in 1989, showed that goiter existed in schoolchildren in most provinces at a rate of between 30-80% (8) and it was estimated that 20 million people were at risk of iodine deficiency. The Minister of Health and Medical Education set up the Iranian National Committee for Control of IDD in 1989. The production and distribution of iodized salt, with 40 mg of potassium iodide per kg of sodi-

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