

Belarus celebrates a superb sustained USI program

Sergei Petrenko, Tatiana Mokhort, Gregory Gerasimov ICCIDD Global Network Belarus, and the ICCIDD Global Network Office for Eastern Europe and Central Asia.

At the initiative of the Belarus Ministry of Health, legislation passed in April 2001 “On the Prevention of Iodine Deficiency Disorders” stipulated that only iodized salt could be used in the manufacture of processed foods (except seafood) and in all education and health facilities. The sale of non-iodized salt was not prohibited, but all retail food outlets were required to have iodized salt available for consumers. The Centers of Hygiene and Epidemiology were committed to conducting the regular monitoring of the quality of iodized salt. Also in 2001, Belarus ratified an intergovernmental agreement with countries of the Commonwealth of Independent States on preventive measures to reduce IDD.

In 2011, the total national demand of 130,000 tons of salt (both iodized and non-iodized) in the food industry and the retail trade was covered by two Belarus producers (78%) and imports (22%), mainly from Ukraine. While retail trade of non-iodized salt in Belarus is not prohibited, iodized salt sales (as proportion of total sales of food salt) have increased from 35.5% in 2001 to 74.5% in 2012, and up to 76.7% in the first half of 2013 (Figure 1). Quality of iodized salt has also remarkably improved. The share of non-standard samples (with iodine levels below 25 and over 55 mg/kg) decreased from 10% in 2002 to 0.02% in 2012. Improvements included introduction of new iodization technology and the use of potassium iodate instead of less stable potassium iodide.

Following the adoption of the government resolution in 2001 all food manufacturers started to use iodized salt.

FIGURE 1 Iodized salt sales in Belarus, as a percentage of total food salt sales.

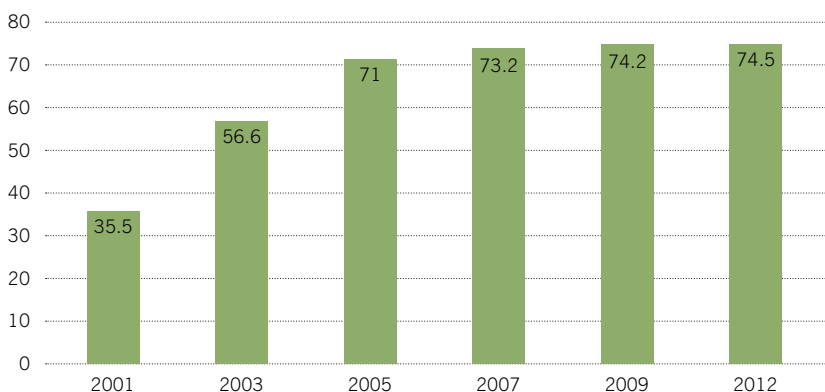
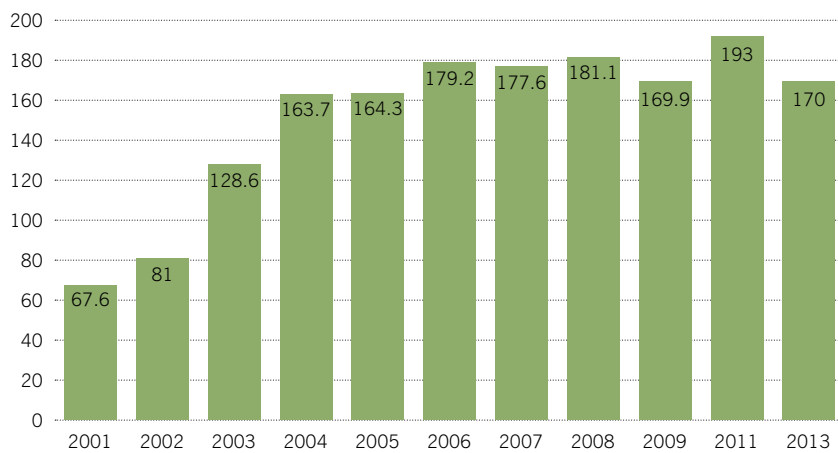


FIGURE 2 The poster used in a social advertising campaign conducted by the Ministry of Health and UNICEF in 2006–2011



Application of iodized salt in the manufacture of bakery products resulted in significant increase of iodine content: from 10 µg to 20-30 µg of iodine per 100 g of bread. Since bread in Belarus is consumed in relatively large amount (on average – 350 g/day), daily intake of iodine from bakery products increased by 50-70 µg or 30-50% of the daily requirement for an adult person. It was estimated that the average Belarusian obtains up to 70% of the daily iodine requirement with processed foods manufactured with iodized salt.

FIGURE 3 Median UIC ($\mu\text{g/L}$) based national and subnational surveys in Belarus**TABLE 1** Incidence of hyperthyroidism (per 100,000), Belarus, 1998–2012

Group	1998	2001	2004	2009	2012
Adults	8.00	9.83	21.3	10.03	11.71
Adolescents	4.02	4.94	6.71	5.76	6.49

optimal levels in all regions of the country (Figure 3). The share of households that used iodized salt increased to 93.6% in 2006. In all the schools surveyed, only iodized salt was being used in canteens. Subnational surveys conducted in 2007 to 2013 showed that median UIC remained on the level of 150 – 189 $\mu\text{g/l}$ while goiter prevalence in children further decreased to 4 – 7%. In the capital city, Minsk, median UICs in pregnant women were 204.8 $\mu\text{g/L}$ in 2009 and 223.6 $\mu\text{g/L}$ in 2010, thereby meeting WHO recommendations.

The experience of many countries worldwide shows that the introduction of iodized salt can lead to a temporary rise in the incidence of hyperthyroidism (iodine-induced hyperthyroidism). Indeed, after the large-scale introduction of iodized salt in Belarus in 2001, the incidence of hyperthyroidism almost doubled among adults, while, among adolescents, the increase was much smaller (Table 1). However, by 2009, the incidence of hyperthyroidism had practically returned to pre-supplementation levels.

To conclude, the Belarusian iodine prophylaxis model based on the extensive use of iodized salt in the food industry has had enormous impact. This approach to iodine prophylaxis is universal, available to all segments and age groups in the population, exhibits no gender differences, has a minimum cost, and may be easily implemented by other countries in the region, specifically Russia and Ukraine.

A media campaign was one of the most important steps in the implementation of the program to eliminate iodine deficiency in Belarus. A promotional campaign in 2006–2011 that was commissioned by UNICEF on Belarusian television under the slogan „A Pinch of Iodized Salt, a Step to Health“ enjoyed tremendous success and enhanced public awareness of iodine deficiency and its

effects, while contributing to an increase in the use of iodized salt in homes. According to the most recent household survey conducted by Belarus Statistics Agency (2012), 85% of the respondents used iodized salt on regular basis.

A national IDD survey conducted in 2006 showed that the median UIC had increased by more than 4 times and reached



Iodized salt in Belarus ensures children can learn well at school