

Оригинальные исследования

Обзор возможных стратегий профилактики йодного дефицита в странах Юго-Восточной Европы и Центральной Азии: 2009–2016**Г.А. Герасимов^{1*}, F. van der Haar², J.H. Lazarus³**¹ Iodine Global Network, Myrtle Beach, SC, США² Rollins School of Public Health, Emory University, Atlanta, GA, США³ Iodine Global Network, Cardiff University, Cardiff, Великобритания

Стратегия всеобщего йодирования соли стала мощным импульсом для стран Юго-Восточной Европы и Центральной Азии за период с 2000 по 2009 г. К концу первого десятилетия несколько стран региона уже достигли оптимального потребления йода; другие страны стремительно двигались к достижению той же цели и лишь в нескольких странах прогресс в сторону всеобщего йодирования соли оставался обнадеживающим. В данной статье приводятся данные субрегиональных семинаров (для стран Восточной Европы, Центральной Азии и Юго-Восточной Европы), проведенных в 2015 и 2016 гг. Оба семинара демонстрируют стремление стран регионов Юго-Восточной Европы и Центральной Азии к устойчивому устранению йодного дефицита. Несмотря на определенные недостатки, данные, полученные от стран региона, не предполагают каких-либо серьезных препятствий на пути к победе над йодным дефицитом. Тем не менее, России и Украине необходимо приложить больше усилий для развития и рационализации стратегии всеобщего йодирования соли, так как именно эти страны находятся в списке отстающих в данном вопросе.

Ключевые слова: йодный дефицит, Восточная Европа, Центральная Азия, профилактика, йодированная соль.

Overview of Iodine Deficiency Prevention Strategies in the South-Eastern Europe and Central Asia Region: 2009–2016**Grigory A. Gerasimov¹, Frits van der Haar², John H. Lazarus³**¹ Iodine Global Network, Myrtle Beach, SC, USA² Rollins School of Public Health, Emory University, Atlanta, GA, USA³ Iodine Global Network, Cardiff University, Cardiff, UK

Universal salt iodization (USI) strategies gained strong momentum in countries of the Southern Europe and Central Asia (SECA) region during the 2000–2009 decade. By the end of the first decade, several countries in the region had already reached the goal of optimum iodine nutrition; other countries were quickly approaching this goal, and in only a few countries the progress toward USI had remained slow. This paper reports an overview of the two Sub-Regional workshops (for countries of Eastern Europe and Central Asia and South-Eastern Europe) conducted in 2015 and 2016. Both workshops demonstrate that the SECA region remains on track in the pursuit of USI for sustainable IDD elimination. Notwithstanding the noted imperfections, none of the data or information from countries of the region suggested that the conquest of iodine deficiency is seriously threatened. However, more efforts should be made to develop and streamline USI strategies in Russia and Ukraine, two major countries that are lagging behind.

Key words: iodine deficiency, Eastern Europe, Central Asia, prevention, iodized salt.

Introduction

Universal salt iodization (USI) strategies gained strong momentum in countries of the Europe and Central Asia Region (ECAR) during the 2000–2009 decade. By the end of the first decade, several countries in the region had already reached the goal of optimum iodine nutrition; other countries were quickly approaching this goal, and in only a few countries, the progress toward USI

had remained slow or high-level political commitment had not yet materialized in enacting a mandate [1].

More recently, the emphasis across ECAR countries has started shifting toward approaches that can self-sustain the USI successes. The importance for iodine nutrition of industrially manufactured foods is becoming paramount, provided these foods are formulated with iodized salt in the recipe [2]. Besides the increasing priority on population-wide dietary prevention approach

by USI, an emphasis on efforts to reach vulnerable groups (pregnant and lactating women, infants, etc.) with iodine supplementation still persists, sometimes even at the expense of genuine USI commitment.

To tackle population-wide high blood pressure levels, national strategies to reduce salt intakes are also gaining momentum, and to avoid counter-productive policy practices, the need to ensure synergy between the two strategies has come to the fore. These changes in landscape require new forms of collaboration for further improvement in research, monitoring and evaluation (M&E), and advocacy and communication.

Progress review procedures

With these background factors in mind, the UNICEF Office for ECAR (ECARO) and the Iodine Global Network (IGN) conducted two Sub-Regional workshops: first for countries of Eastern Europe and Central Asia in Almaty, Kazakhstan during September 24–25, 2015; and second for countries of Central and Southern Europe in Sarajevo, Bosnia and Herzegovina, during October 14–15, 2016.

The Almaty workshop was attended by 50 participants from 10 countries in the Eastern Europe and Central Asia (EECA) sub-region: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Russia, Tajikistan and Uzbekistan [2]. The workshop in Sarajevo brought together 40 participants from 9 countries in the Central and Southern Europe (CSA) sub-region: Albania, Bosnia and Herzegovina, Bulgaria, Kosovo, Macedonia, Moldova, Montenegro, Romania and Serbia [3]. Participants in both meetings included officials of government, health and nutrition experts, salt industry staff, special subject matter invitees and UNICEF, WHO and IGN officers.

Overall, the objectives of these workshops were to review the developments and current status of iodine deficiency preventive strategies in the region since 2009, develop next steps for each country to preserve the successes of Iodine Deficiency Disorders (IDD) elimination through USI and to strengthen the national systems of collaboration for permanent success.

In preparation for each workshop, country teams drawn from different sectors collected and assessed the available information on the critical changes that had taken place during the past 6–7 years period in activities and outcomes of the national USI strategy. All country teams developed a focused presentation that covered one of three selected aspects, considered important for sustainable success, namely (a) Strong national USI partnership collaboration; (b) Effective USI/IDD surveillance, monitoring and evaluation; and (c) High coverage with proper quality of the iodized salt deliveries to processed food industry and consumers. Each country team developed an outline of 4–6 key actions or “Road

Map” for the next period, intended for sharing and further work among national stakeholders and partners upon return to their countries.

This publication is based on the analysis of information presented by the country teams in both meetings. Main indicators relating to the status of national IDD prevention programs are presented in Tables 1 and 2.

Legislation and normative base

All the 10 countries in EECA sub-region have enacted legislation or regulation on IDD prevention and in 8 countries, the legislation has a clear provision for mandatory iodization of all types of salt, both for retail sale to consumers and for use in food manufacturing outside the homes. In Belarus, the regulation requires the use of iodized salt in the bread bakeries and other food industries (except seafood), while non-iodized salt remains permitted for consumer retail sales (the market share for non-iodized consumer salt is less than 30%). The Russian Federation currently has a voluntary model of salt iodization, while an amendment to the food safety law that would mandate use of iodized salt in baking industry is being drafted by Ministry of Health. In June 2015, the Parliament in Uzbekistan adopted an amendment to the USI law, which abolished the previous requirement to provide non-iodized salt to people with a “contra-indication” to iodized salt; now all the salt intended for human consumption must be iodized.

Prior to the previous review in 2009, USI/IDD mandatory legislation and/or standards for iodized salt had already been enacted in all the countries of CSE sub-region, applicable to all the food-grade salt supplies (to consumers as well as food manufacturers), except in Moldova. Post 2010, no change in policy or legislation was reported in 6 countries. In Bosnia and Herzegovina, the use of only KIO_3 was made compulsory as fortificant (the less stable KI was previously also permitted). In Moldova, the voluntary salt iodine standard was lowered in 2011 to 20–35 mg/kg and the provision of iodized salt was made obligatory in restaurants and public catering. In Romania, mandatory use of iodized salt in bread and bakery products was introduced and the salt iodine standard was raised to 30–40 mg/kg although KI remains permitted as fortificant. Several countries improved the normative requirements for basic quality characteristics of salt, which can help improve the retention of added iodine in iodized salt in the customary practices of the food industries and the households.

Any remaining issues are country-specific and include the ongoing ambition toward setting a single salt iodine standard in the area. The teams from Montenegro and Serbia are cognizant of the need for amending the comparatively low salt iodine standards in their countries. Compelling the exclusive use of KIO_3 for iodization is a remaining priority in Montenegro, Romania and Serbia.

Table 1. IDD Program update for Countries of Eastern Europe and Central Asia

Countries	IDD committee	Legislation	Salt reduction strategy	Iodized salt production, supply	Iodized salt inspections	Iodine nutrition status of general population
Armenia	No	Mandatory USI	No	90% – local (Avan salt factory), 10% import	Regular: production, import, distribution, households	Optimum, Median UIC (2017) in SAC – 242 mcg/l; PW – 226 mcg/l
Azerbaijan	No	Mandatory USI	No	Local (Azersun salt factory), import from Belarus, Russia, Iran	Regular: production, import, distribution	Optimum, Median UIC (2008) in SAC – 204 mcg/l; PW – 195 mcg/l
Belarus	Yes, active	Mandatory USI (food industry and public catering)	Pending	Mostly local (Belaruskaliy, Mozyrsalt), import from Ukraine, Russia	Regular: production, import, distribution, amount of sales	Optimum, Median UIC (2015) in SAC – 166 mcg/l; PW: urban – 192 mcg/l, rural: 107 mcg/l
Georgia	No	Mandatory USI	No	All salt imported: Ukraine (70%), Greece, Turkey, Azerbaijan	Only import	Optimum, Median UIC (2017) in SAC – 298 mcg/l, PW – 211 mcg/l
Kazakhstan	Yes	Mandatory USI	Pending	Mostly local (Araltuz) import from Russia	Regular: production, import, distribution, households	Optimum, Median UIC (2011) in WRA – 187 mcg/l
Kyrgyzstan	Yes, active	Mandatory USI	No	All salt imported (Kazakhstan, Russia, Belarus), some salt locally iodized	Regular: production, import, distribution	Optimum, Median UIC in SAC (2009) – 114 mcg/l; PW (2016) – 103 mcg/l
Russia	Yes, active	Voluntary	Pending	Mostly local (4 large producers), import from Belarus, Ukraine	Regular: production, import, distribution	No national UIC data exist
Tajikistan	No	Mandatory USI	No	Mostly locally by 3 large/medium and many small producers, some import	Regular: production, distribution; weak enforcement	Mild iodine deficiency, Median UIC (2009) <100 mcg/l in SAC and PW
Turkmenistan	Yes, active	Mandatory USI	No	Only local (one large producer)	Regular: production, import, distribution	Optimum, Median UIC (2006) in SAC – 188 mcg/l
Uzbekistan	Yes, dormant	Mandatory USI	Pending	Only local, by many small producers	Regular: production, import, distribution; weak enforcement	Optimum, Median UIC (2016) in SAC > 100 mcg/l

Table 2. IDD Program update for Countries of the Central and Southern Europe

Countries	IDD committee	Legislation	Salt reduction strategy	Iodized salt production, supply	Iodized salt inspections	Iodine nutrition status of general population
Albania	Yes, semi-active	Mandatory USI	Pending	Mostly local (75%), import mainly from Greece	Regular: production, import, distribution	Suboptimum, Median UIC in SAC (2012) – 100 mcg/l
Federation of Bosnia and Herzegovina (B&H)	No	Mandatory USI	Yes	Mostly local (“Tuzla” factory)	Regular: production only	Optimum, Median UIC in SAC (2005) – 157 mcg/l; PW (2008) – 157 mcg/l
Republica Srpska (autonomy within B&H)	No	Mandatory USI	No	All salt imported, B&H	No	Optimum, Median UIC in PW (2008) – 160 mcg/l
Bulgaria	Yes, semi-active	Mandatory USI	Yes	Mostly imported (11% – local production)	Regular: production, import, distribution	Optimum, Median UIC in SAC (2008) – 182 mcg/l; PW (2012) – 161 mcg/l
Kosovo	Yes, semi-active	Mandatory USI	No	All salt imported, B&H	Regular: import, distribution	Optimum, Median UIC in SAC (2009) – 176 mcg/l; PW – 183 mcg/l
Macedonia	Yes, active	Mandatory USI	Pending	All salt imported, various sources	Regular: import, distribution	Optimum, Median UIC in SAC (2003) – around 175 mcg/l
Moldova	Yes, semi-active	Voluntary	Yes	All salt imported (Belarus, Ukraine, Russia)	Regular: import, distribution	Optimum, Median UIC (2012) in SAC – 204 µg/L; PW – 173 µg/L
Montenegro	No	Mandatory USI	Yes	All salt imported, B&H, EU	Regular: import	Optimum, Median UIC in SAC (2007) – 174 mcg/l; PW – 134 mcg/l
Romania	Yes, semi-active	Mandatory USI (use in food industry)	Yes	Mostly local (SALROM), some import	Regular: production, import, distribution	Optimum, Median UIC in SAC (2014) – 203 mcg/l; PW (2016) – 139 mcg/l
Serbia	Yes, semi-active	Mandatory USI	No	All salt imported, B&H some salt locally iodized	Regular: production, import, distribution	Optimum, Median UIC in SAC (2007) – 195 mcg/l; PW – 158 mcg/l

Quality assurance (QA) and quality control (QC) of iodized salt

Eight of the 10 countries of EECA sub-region are primary producers of iodized salt (all of them are also importing it from other countries). The Kyrgyz Republic and Georgia do not have their own natural salt resources and are entirely reliant on importing the required iodized salt supply from other countries. Some salt processing businesses in Kyrgyz Republic are importing non-iodized salt from Kazakhstan and iodizing it locally. In the Russian Federation, Belarus, Kazakhstan, Armenia and Turkmenistan, the main salt producers have long-time established QA/QC procedures in place (some are ISO-9000 certified) and these factories have no major problems in the ability to supply proper quality iodized salt according to standards.

In Azerbaijan, a brand new salt factory (under the Azersun Holding) has recently been established for the production of quality iodized salt, which could potentially cover the entire national demand and replace the low quality salt supply from the many small cottage producers [5].

Problems with ensured QA/QC of iodized salt supplies remain in Tajikistan, Uzbekistan and Kyrgyz Republic (mainly with small iodized salt producers). Recent assessments show that more than 90% of the iodized salt in Khatlon region of Tajikistan is of inadequately quality, which is connected with intermittent sourcing of potassium iodate [6]. Significant problems with the procurement of sufficient potassium iodate remain also in Uzbekistan. In Kyrgyz Republic, the Association of Salt Producers has recently established a revolving fund to facilitate stable supply of good quality and reasonably priced potassium iodate through the Global Alliance for Improved Nutrition (GAIN) Premix Facility. One of the major salt producers in Tajikistan also sources its fortificant needs from this Facility and this practice should be extended to the salt producers located in Khatlon Oblast. Contract arrangements between the salt producers in the region and the GAIN Premix Facility should be further encouraged and supported, where and if needed.

Macedonia and Moldova are importing all their domestic iodized salt needs; other countries of CSE sub-region combine the import of iodized salt with domestic manufacturing. Post 2009, important changes in the salt supply situation have taken place in Albania (a new enterprise, Sea Salt Albania, has raised the overall share of domestically produced iodized salt to $\pm 80\%$), Kosovo (a domestic factory has started producing iodized salt from imported non-iodized salt), Montenegro (a domestic sea salt producer closed operations) and Moldova, where the salt imports are fluctuating due to the military conflict in Eastern Ukraine, which handicaps the supplies by railway line from the Ukrainian salt company "Artyomsalt".

The domestic shares in the national salt supply in the Balkan area are generally under pressure from outside competition due to an increase in trade policies toward "open" borders. The need for close and serious attention to QA of iodized salt manufacturing and QC at border crossings was manifested in the country reports. The Quality Manager of Solana Tuzla, the major salt company in Bosnia and Herzegovina, gave a highly informative presentation on the standard operational procedures (SOPs) in its factories that are aimed to ensure the quality of iodized salt supplies for the 7 countries attending the meeting. Improving the routine QA/QC systems in the salt factories and close attention to the required use of iodized salt in the food manufacturing industries are high priorities in Albania.

National pro-usi oversight coalitions (IDD committees)

National coalitions have been established in 6 of the 10 countries in the EECA sub-region; almost all are informal, i.e., they have no organized or "officially" sanctioned structure, permanent membership or operational budget. In Kyrgyz Republic, the coalition is mostly driven by the Kyrgyz Salt Producers' Association, together with health professionals and a consumer-interest group, supported by the government and donors. In the Russian Federation, the informal coalition (Public Coordination Council) continues its active lobbying of the government structures for USI legislation. In Belarus, a national coalition is driven by the leading health professionals concerned with ensuring sustainability of the USI strategy, who conduct regular small-scale USI/IDD monitoring studies. The Kazakh Academy of Nutrition represents the pro-USI coalition in overseeing the regular monitoring of iodized salt use and adequacy of iodine nutrition in Kazakhstan. The Ministry of Health of Turkmenistan provides strong leadership for effective USI. Overall, national pro-USI coalitions require further encouragement, support and strengthening to assure endured national IDD prevention through the USI strategies in each country.

National committees, by the name of coalition, working group or similar structures, do exist also in several countries of the CSE sub-region. Experience post 2009, however, demonstrates that these national coordination structures do not steadily keep themselves informed of USI actions and outcomes in their countries, and thus remain rather feeble in setting direction and next steps for USI. Similar as in the other part of the region, true high-level multi-sector coalitions are few and where existing, they are typically informal, dealing mainly with technical issues only and without a secure budget. The presentations, discussions and Road Maps illustrated a commonly felt need for revival of more frequent, structured and effective

partnership collaboration, for example through a review of functions and memberships. Policy advocacy to strengthen the national coordination function through better multi-sector partnership collaboration was proposed by the teams from Albania, Bulgaria, Kosovo, Montenegro, Romania and Serbia.

IDD/USI monitoring and evaluation

Monitoring and evaluation (M&E) are critical components to enable sustained salt iodization in all countries of the EECA sub-region. The previously successful program of endemic goiter prevention and control of the USSR declined over the years after monitoring was abolished during the early 1970s upon finding evidence of success.

In all the 10 EECA countries, government statistics agencies collect information about the production and/or import of iodized salt and in Kazakhstan, such data are compelled by regulation to be incorporated in the annual national statistical report. In at least 5 countries (Turkmenistan, Russia, Belarus, Kazakhstan, Kyrgyzstan) the quality of iodized salt is routinely externally controlled by the public health system services at production (factory) and retail (markets, shops) levels as well as in mass catering establishments, hospitals, bread bakeries and food industry.

Over the past 5–6 years, periodic national or subnational IDD/USI surveys have been conducted in Kazakhstan, Tajikistan, Kyrgyz Republic, Uzbekistan and Belarus. Only in Kazakhstan and Uzbekistan were these surveys funded entirely by the national governments, while in Tajikistan, Kyrgyz Republic and Belarus, the surveys depended on external funding (mostly from UNICEF) [7, 8]. In Azerbaijan and Turkmenistan no national surveys were performed in the past decade and in the vast Russian Federation, no national survey has ever been conducted.

Following 2015 sub-regional workshop, UNICEF, IGN, private donors and government agencies provided support to national surveys in Georgia and Armenia: both surveys had been completed in 2017 and showed sustained success in USI and IDD elimination [9, 10]. Iodine assessments were conducted in the self-proclaimed republics of Abkhazia [7] and Nagorno-Karabakh. Results of iodine surveys in Belarus and Kyrgyzstan are expected in early 2018.

In the CSE sub-region the responsibility of the Food Authority and/or Industry Department for ongoing monitoring and certification of the iodized salt factories was noted, but actual inspection data from this source were not provided in any of the country reports and presentations. Cognizant of an information gap, the Bulgarian team conducted a quick telephone inquiry across a selection of the major food manufacturing companies (bread-baking industries, meat and dairy

processors, etc.). The production managers contacted did not report any problem or obstacle encountered in the continued use of iodized salt in the industry's product manufacturing. Survey capacity was reported as sufficient in all countries but Montenegro, and some country reports mentioned that their urinary iodine lab participates in an external quality service program such as EQUIP (USA) and QUICK (Kazakhstan).

Yet, post 2009, only in Albania had a population survey been conducted. Results of the national survey estimating sodium and iodine intake through collection of 24-hour urine in Moldova are expected in 2018. Given the lack of national funding earmarks for such surveys, the need for external support was noted in most Road Map proposals. UNICEF ECARO has provided limited funding to iodine surveys in some CSE countries (Montenegro, Macedonia, Kosovo) and results of these surveys are expected in early 2018.

Alignment of salt iodization and salt intake reduction strategies

There is increasing focus in Western countries on efforts to reduce population salt intakes through public education and by gradually lowering the amount of salt used in industrial manufacturing of flour, dairy and meat products. Similar initial policy considerations are taking place in Belarus, Kazakhstan, Russian Federation and Uzbekistan.

From 2015 onward, the regular annual cycles of iodine nutrition biomonitoring surveys in Kazakhstan have started adding data collection on salt intake in adult men and (non-pregnant) women through 24h urine collections in an effort to support coordinated policy development and prevention of an anticipated lower USI impact as salt intakes start falling. In most of the participant countries, policy consideration of the need for population salt intake reduction is emerging, but no specific programs of educational or product reformulation activities have commenced yet in any country.

Development of salt reduction strategies is pending in most of CSE countries and contingent on the adoption of national non-communicable disease (NCD) prevention planning with support of WHO and EU. The objective of the National Food and Nutrition Plan in Moldova (adopted in 2014) is to reduce by 30% the consumption of salt by 2020 while keeping an eye on adjustment of the salt iodine standard as and when needed. A survey of salt and iodine intake was conducted in Moldova in 2016 and the findings and their policy implications are expected to be discussed in 2017.

Conclusion

The inputs and contributions from country teams in both workshops demonstrate that the ECAR region

remains on track in the pursuit of USI for sustainable IDD elimination. Notwithstanding the noted imperfections, none of the data or information from countries of the region suggested that the conquest of iodine deficiency is under threat. Reports from the country teams demonstrated a comprehensive, step-by-step approach that is preserving, and reaching ever closer to, the USI target and promises permanent success in realizing equitable iodine nutrition throughout the urban and rural areas.

Additional information

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