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Organization**

REGIONAL OFFICE FOR

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ESAN 2018

**10th Meeting of the WHO
Action Network on Salt
Reduction in the Population
in the European Region
(ESAN)**

MEETING REPORT

**12 – 13 September 2018
Rome, Italy**

ABSTRACT

To help facilitate progress towards the globally agreed target to cut salt intakes by 30% by 2025, the WHO Action Network on Salt Reduction in the Population in the European Region (ESAN) was established in 2007. The 10th ESAN meeting took place from 12 - 13 September 2018 in Rome, hosted by the Ministry of Health of Italy and co-organized by the WHO Regional Office for Europe and the Federal Food Safety and Veterinary Office of Switzerland. The meeting welcomed 35 participants, including 17 country representatives, invited speakers and WHO staff.

Six countries gave an update on their national salt reduction strategies, and WHO Headquarters and the WHO Regional Office for Europe provided information about ongoing initiatives. Countries also presented their latest data on sodium in foods and salt intake. Invited speakers presented information on tools to improve consumer access to information, modelling the impact of salt taxes and novel approaches to collect food composition data from online supermarkets. There was also a discussion of the recent controversies on salt intake and cardiovascular diseases (CVD) which have undermined salt reduction efforts, despite the fact that the evidence supporting global action for a moderate reduction in salt consumption to prevent CVD remains strong. Participants exchanged scientific know-how about the monitoring of sodium intake and of the composition of foods, as well as sodium and nutrition labelling. It was agreed that ESAN and WHO would work together to update information on national salt reduction strategies, including detailed information about salt reduction targets set for different categories of foods.

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BACKGROUND AND INTRODUCTION

Background and aim of the network

The WHO Action Network on Salt Reduction in the Population in the European Region (hereafter referred to as ESAN or ‘the network’) was established in 2007 under the auspices of WHO and with the support of the United Kingdom Food Standards Agency (FSA). Since May 2013 Switzerland has chaired ESAN.

The network was established as a response to concern about the increasing salt consumption of the population, in line with WHO Europe’s designation of salt reduction as a priority intervention for tackling noncommunicable diseases (NCDs) in the European population.¹ The main aims and objectives of ESAN are to:

- establish, within the WHO European Region, a network of countries committed to reducing salt intake and building international action on salt reduction;
- provide opportunities for information exchange on the implementation of salt reduction strategies, as well as on related activities and achievements;
- provide opportunities for information exchange on technological progress and developmental processes related to salt reduction; and
- develop guidance for Member States wishing to develop salt reduction strategies and provide technical expertise on the different aspects of a salt reduction strategy, such as setting salt targets, monitoring levels of salt intake and salt in products, and communicating with the public.

Organisation of the network

Since May 2013, the Federal Food Safety and Veterinary Office of Switzerland has chaired the network. As of September 2018, the network consists of 33 of the WHO European Region Member States. Participants include governmental institutions (or those nominated by government) and representatives of WHO and WHO collaborating centres. The network usually meets once a year, at a meeting organized by the ESAN leading country, in close collaboration with the WHO Regional Office for Europe. The network meeting is an important arena for sharing and discussing experiences in salt reduction strategies.

The 10th ESAN meeting took place from 12 - 13 September 2018 in Rome, hosted by the Ministry of Health of Italy and co-organized by the WHO Regional Office for Europe and the Federal Food Safety and Veterinary Office of Switzerland. The meeting welcomed 34 participants, including 17 country representatives, invited speakers and WHO staff.

INTRODUCTORY SESSION

Opening addresses

Daniela Galeone, Ministry of Health, Italy, welcomed participants to Rome and underlined the importance of action on salt reduction for Italy, as part of the national prevention programmes, and noted that salt reduction is designated by WHO as a ‘best buy’ for NCDs. It is vital to share and

¹ WHO Regional Office for Europe. *Action Plan for the implementation of the European Strategy on the Prevention and Control of Noncommunicable Diseases (2012-2016)*.

exchange experience between countries and WHO's support for this exchange is very important to facilitate this process.

On behalf of the WHO Regional Office for Office, Jo Jewell welcomed participants and warmly thanked the Italian Ministry of Health for hosting the meeting and Switzerland for continuing to chair, and co-coordinate with WHO, the network. Salt reduction remains a very important issue for WHO at all levels. Countries have made considerable progress across the Region since the last network meeting, in terms of monitoring the situation, reducing salt levels in food and policy responses. Nonetheless, there are ongoing challenges to salt reduction, both in terms of the science and policy responses, and the network contribution to overcoming these challenges is greatly appreciated.

Meeting objectives

As chair of the network, Michael Beer, Federal Food Safety and Veterinary Office, Switzerland, also welcomed participants and added his thanks to the host organization. He outlined the objectives for the meeting. These can be summarized as:

- Exchange knowledge
- Share good practices and common problems
- Establish links and connections between members

Session 1: Update on salt reduction strategies within the WHO European Region

A number of countries presented an update on their activities on salt reduction.

Italy

Daniela Galeone, Ministry of Health, Italy, presented recent developments in Italy.

A governmental intersectoral strategy, *Gaining Health: Making healthy choices easier*, aims to prevent NCDs linked to common risk factors. It is based on the health-in-all-policies and life-course approaches. It sets out cross-sector actions to facilitate healthy behaviours and also seeks to create healthy environments. It involves an institutional alliance between the Ministry of Health and other stakeholders, including civil society, food industry actors, etc.

The *National Prevention Plan* sets out the approach at the local level towards achievement of the NCD goals. Reducing salt intakes features as an important element of both strategic documents. There are four key actions, as described below.

Estimating population salt intake (in children and in adults)

Since 2009, the Ministry of Health has supported two projects. Firstly, a 24-hour urinary sodium excretion study was conducted in adults (2,002 men, 1,919 women) and children (766 boys, 658 girls) in all the Italian Regions. The national daily intake in men is 10.6 g and in women is 8.2 g. Among children under the age of 9 years, intakes were 6 g for boys and 5.7 g for girls. For boys between 9 and 11 years, the average intake was 7.7 g, rising to 8.7 g for those over 11 years. Similarly, for girls, average intakes of 6 g in 8-10 year olds rise to 8 g for those over the age of 10.

Secondly, a study was conducted on the relationship between salt intake, eating habits and other risk factors, including body mass index (BMI). This study found that sodium excretion increased as BMI increased in both men and women.

A questionnaire on salt consumption revealed that people who consume more salt say that they often add salt to foods, they eat more bread, are often thirsty and find the taste of food tasteless/insipid when eating outside the home.

Reducing salt in foods (bread and other bakery products)

Voluntary agreements were signed with the main National Association of Bakers, including craft and industrial bakeries, to reduce the salt levels by from 5 to 15% in four years. This is particularly challenging because 90% of bread in Italy is produced by craft bakeries. There is, therefore, an important role for the Regions to involve craft bakers at the local level and inform citizens. Further agreements with other sectoral associations were agreed between 2011 and 2014 (15% reduction in gnocchi; at least 10% reduction in pasta and rice of frozen ready meals in 2012; At least 10% in soups and vegetables/legumes in 2014). Then in 2015, a Memorandum of Understanding was signed with some sectors of the food industry on wider food reformulation (reducing salt, sugar, saturated fats, portion size, calories) in a number of categories. In 2017, an agreement with the National Association of Consumer Cooperatives was signed, covering awareness and information actions on reducing salt consumption and also on reformulation.

Developing awareness campaigns

Awareness-raising and information campaigns were conducted in partnership with the Regions, scientific societies, food industry associations, retailers, caterers and restaurants. These aimed to raise awareness of the importance of reducing salt intake, encourage and enable people to choose low salt food and to encourage consumers to check the salt information on food labels.

Monitoring prevention activities

Monitoring activities will include a repeat of the salt intake survey (due to finish in 2020), inclusion of two questions in the nutrition surveillance system (PASSI) and self-reporting by the food industry and association of bakers on foods reformulation process. For example, one company reported, between 2010 and 2017, average reduction of salt in bread of 15%, with 20% reduction in dry bread, 19% in crispbread, 23% in filled pasta and 23% in sauces.

The *National Prevention Plan 2014-2018* includes a leading objective to reduce the excessive consumption of salt. A number of indicators have been defined, along with baseline and goals: Prevalence of subjects who received suggestions from health professionals to reduce salt consumption (goal to increase by 5% from a baseline of 88.6%); Prevalence of subjects who have reduced their daily consumption of salt (30% drop in percentage of people who say they do not pay attention to the amount of salt/salty foods, 2012 baseline is 31.1%).

The Italian Regions have been active in a number of areas, such as intersectoral agreements with bakers and caterers and defining or updating guidelines for school and collective catering. The Regions have also been involved, for example, in training health workers, catering staff, council workers and teachers, etc. Regional interventions in the workplace have also involved salt reduction activities.

Discussion

There was discussion about iodine intakes and iodized salt. There is a law in Italy to promote use of iodized salt, but this does not apply to the food manufacturing industry. The national prevention plan also includes reference to use of iodized salt and this is being monitored as part of the prevention plan. An analysis of iodine intake based on 24-hour urine collections in children and adolescents is in preparation.

The first source of salt in the Italian diet is bread. There was clarification that monitoring of the salt levels in craft bread has been carried out in some Regions. According to the first survey of bread in Italy the average salt content was 1.5 g per 100 g, but there was very large variation between Regions and breads. It is hoped that the next survey will reveal that real reductions in salt levels across the different types of bread have since been achieved. Reductions in other categories, such as cheese, have been more difficult to obtain.

Spain

Maria José Yusta, AECOSAN, presented an overview of Spain's new *Collaboration Plan for the Improvement of the Composition of Food and Beverages and Other Measures, 2020*. This is one of the measures for the improvement of nutrition and to tackle obesity, and should be seen alongside other complementary measures to reinforce and speed up progress towards the objectives.

The Collaboration Plan is in response to the European Union's Council Conclusions on food improvement (June 2016), in line with EU and WHO strategies and within the framework of Spain's Law 17/2011 on food safety and nutrition. The collaboration builds on Spain's previous initiative between 2004 and 2008, Plan for the Reduction of Salt Intake which achieved a 20% reduction in salt levels in bread.

The objectives of the Collaboration Plan are:

- Reduce added sugars by about 10% of the median value before 2020.
- **Continue with the commitment to reduce salt**, saturated fats and trans fats of industrial origin.
- Ensure that the reductions and substitutions do not increase the energy content.
- Increase the offer of healthier menus or meals provided outside home.
- Reaffirm and boost the voluntary and consensual collaboration and effort of all companies (small, medium and large companies).
- Support and promote the research and development of products with healthier nutrient profile.
- Encourage "best practices" to improve the whole diet.
- Have a health and social impact on the family "shopping basket".
- Reinforce the coordination with the different Regional Administrations.
- Contribute at European level to improving the scientific knowledge and the data collection which promote these initiatives and their monitoring.

The first phase of the plan, in 2016, began with collection of baseline data on nutrient contents in food products (Study on sugar content in certain groups of food and beverages in Spain, 2016) and with the establishment of benchmarking and reduction targets for some food subcategories. In 2017, there were many meetings with different sectoral associations and 180 reformulation

agreements were drawn up and have been signed during 2018. The monitoring and assessment is due to start in 2019.

These agreements were underpinned by data obtained from the study conducted by AECOSAN in 2016 to collect data to establish the baseline, propose the reduction target and to be able to monitor reformulation measures in the future. The total sample comprised 1,173 products, in 27 groups (77 sub-categories), with the highest market share in 2015. Total fat, saturated fat, total sugars, salt and calorie contents were recorded from nutrition labels and total sugars levels were verified by laboratory analysis in order to compare total sugar data from nutrition labels and laboratory analysis. The study found that there are considerable differences in the nutrient content between products within the same sub-categories, and this shows that reductions are possible and enables nutrient reduction targets to be established. The study also found that nutrition labels were accurate and reliable, and useful as a tool to carry out reformulation.

A series of meetings were held with sectoral associations to present the objectives of the Plan, the baseline data and the proposed reduction targets according to the *EU Framework for National Salt Initiatives and Selected Nutrients* (Annexes I for saturated fat and II for added sugars) and taking into account the median value for each nutrient, along with the amount of products below the median for selected food subcategories. After the associations discussed with their partners there was further discussion of technical, regulatory and competitiveness issues and then sectoral agreements were reached. These transversal agreements involved commitments of *all* companies within a sectoral association.

In total, 180 commitments and measures have already been agreed, involving five sectors (manufacturing, retail, restaurant brand business, contract catering and vending sectors). These include 4 general reformulation commitments, 75 quantitative commitments to reduce nutrients in the manufacturing and retail sectors, 27 quantitative commitments from contract catering, restaurants and vending sectors and 74 other commitments. These cover more than 3,500 products.

In relation to salt, there are commitments to reduce salt by 16% in meat products and mayonnaise, 10% in savoury snacks, ready meals and tomato sauces, 13.8% in chips, 6.7% in cream of vegetable soup and 5% in ketchup and fine sauces. There are also quantitative commitments for saturated fats and added sugars. Quantitative objectives for the median content in the sub-categories were also established. It is important to bear in mind that the commitments apply to all products in the subcategory.

There were a number of challenges throughout this process. These include, for example, difficulties in working with companies of different sizes (within associations), delays in decision-making in large companies, how to deal with companies that do not belong to any association, dealing with more than one association covering a subcategory of products, and the heterogeneity of the contract catering and restaurant sectors. These challenges required a flexible and patient approach.

As a result of the Plan, reformulation has now been agreed for many products regularly consumed by families, children and young people and will increase the offer of more balanced and healthier menus outside the home. An impact on health and the prevention of obesity and on consumer awareness of the benefits of cutting consumption of sugars, salt and fats is expected.

The next steps will be to reinforce and formalize the commitments with sectoral associations through the signature of public agreements. Strong assessment and monitoring arrangements are

built into the Plan, and will begin after signature of the agreements. There will also be communication to explain and promote the Plan widely.

Discussion

It is important that assessment and monitoring are independent and there was clarification on the arrangements. For retail and manufacturing sectors, assessment will be through repetition of the baseline study. For catering, restaurants and vending sectors, Regional Administrations have been asked to help with monitoring.

There was discussion about why reduction targets were based on median, rather than 'best in class', values. This approach was chosen because the focus was on getting *all* companies to make changes and this was deemed most realistic. The current set of targets for reductions should be seen as a first step and not necessarily the final end point. The current targets are proposed on a voluntary basis, but progress will be evaluated to reinforce these measures or to put other measures into effect for the future. Targets were established based on the Annex in the EU Framework for National Salt Initiatives and Selected Nutrients, and modified following technical discussions with industry associations. There was clarification that no agreement was reached on targets for salt in cheese.

There was clarification that this Plan is complementary to a range of other initiatives on obesity and NCD prevention. Surveillance arrangements include ongoing participation in the WHO Childhood Obesity Surveillance Initiative (COSI).

Netherlands

Marieke Hendriksen, National Institute for Public Health and the Environment (RIVM), Netherlands presented the findings of a study to evaluate the impact of the product improvement policy on salt intake.

In the Netherlands, the *National Agreement to Improve Product Composition 2014-2020*, was established with the aim of reducing the salt, saturated fat and calorie content (sugar and fat) of products in order to result in a healthier range of products.

The food industry has agreed by how much they will reduce the salt content of their products. A study was conducted by RIVM to estimate the effects of compliance with the current agreements (established up to and including 2016) on daily salt (and sugar) intakes. In addition, the study also set out to estimate the additional impacts which could be obtained if current agreements were sharpened and comparable agreements were extended to more foods or food groups.

The study methodology was to first list all agreements in the food groups, including the targeted reductions up to and including 2016. It was assumed that all foods in a food category with an agreement had been reformulated accordingly. Calculations for the intakes of adults (19-70 years) were then made, based on the Dutch National Food Consumption Surveys conducted in 2007 and 2010. It was assumed that food consumption, including added salt, remained constant. Sodium levels were based on the Dutch National Food Composition Database, 2011.

Several scenario analyses were conducted for foods that were part of the agreement and for foods that are not part of the agreement. Calculations were made for the situation in 2011 (the reference scenario), under the current agreements, if there were an additional 10% reduction to those in the current agreements, and if the current agreements were expanded to more food groups.

Average salt intakes in the Netherlands in the reference scenario were 6.9 g salt from food and 1.8 g per day in additional discretionary salt use. The study found that the current agreements will probably lead to a decrease of 0.4 g salt per person per day. The greatest reductions will be obtained by reducing salt in bread and cereal products (under the current agreements and in the sharpened or expanded versions). If the agreements were sharpened and expanded to more products, average intake could decrease by 1 g per day. In all scenarios, the average salt intake will remain above the maximum recommended intake of 6 g per person per day. In conclusion, additional efforts – beyond reformulation alone - will be needed to reduce salt intake below 6 g per day.

In relation to sugar, the current reformulation agreements will probably lead to a decrease of 2 g sugar per person per day. By both sharpening and expanding the current agreements a decrease of 9 g per day could potentially be achieved, leading to an energy intake reduction of 8-36 kcal per day if not replaced by other ingredients such as fat.

There have been a number of policy developments at the Ministry of Health. A multi-stakeholder prevention agreement, initiated by the new Minister of Prevention and Public Health, is under development. A new system for food product improvement is also in development and development of a new logo for foods to replace the Choices logo which was discontinued. Work is also ongoing relating to criteria for healthy canteens (currently used for schools and sport canteens) and these will be expanded to workplace canteens and hospitals. Finally, criteria for 'healthy environment' are being developed for municipalities to enable establishment of healthy food environments in places such as train stations.

Discussion

There was discussion of the implications of these findings. It appears that countries in the Region will struggle to meet the WHO global NCD goal for a 30% reduction in salt intake by 2025. These results underline that other measures, in addition to food product reformulation, are necessary. Policies to reduce overall consumption of processed foods, increase fruit and vegetable intakes and promote reduced discretionary salt use are all required. The message is clear that food reformulation is important, but it will be not enough on its own to meet the targets – especially in countries where much progress has already been made. Nonetheless, it is important to acknowledge that, in most countries, important health gains can still be made through reformulation, especially in countries with very high salt intake where large declines in salt intake may be achieved quickly.

The methodological challenges to identifying small change in salt intakes were acknowledged. There was clarification that a 24-hour sodium excretion urinary study is planned in the Netherlands, using a large sample size.

There was discussion of the implications of substitutions. What are companies adding to products when they remove salt or sugar? In the Netherlands there is no monitoring of this issue but some agreements do include specific conditions for reformulation (e.g., in dairy products the agreement is to reduce sugar levels without adding non-nutritive sweeteners).

Israel

Ronit Endevelt, Ministry of Health and Haifa University, provided an overview of Israel's experience in doing a national survey of salt consumption and its recent efforts to reduce

population salt intake. Since 2011, Israel has had a national programme for salt reduction – based on voluntary agreements with industry and, according to industry, there has been a sizeable reduction in salt levels.

There were many challenges in doing the salt intake survey, and Israel is happy to share experience in the hope that it will help other countries.

For the survey, a 24-hour dietary recall questionnaire and a food-frequency questionnaire were used, and this was supplemented with a 24-hour sodium excretion, spot urine testing and food diaries.

The aims were to:

- Determine the baseline of sodium intake
- Determine the correlation between sodium intake by dietary assessment tools and by 24-hour urine studies and spot urine tests
- Assess the population's knowledge and attitudes towards sodium consumption.

The study was conducted on a randomized national sample of more than 600 healthy adults (male and female) 25-64 years old. There was a problem with obtaining enough subjects in the Arab population (who tend to have higher salt consumption).

Two interviews were conducted in respondents' homes. People preferred to do the urinary collection during the weekend, but this could skew the results so they were required to do it during the week. They also completed 24-hour recall and food frequency questionnaires.

The sodium intake was quite high. There were differences between the Jewish and Arab populations, with higher sodium intake among the Arab subjects. Male intakes were higher than females but also connected to weight.

Only one quarter of respondents considered that it is important to reduce salt intake. The PURE study has had a lot of media coverage, and has reduced population concern about salt. About 40% reported that they took steps to reduce salt intake. There was little difference in salt intakes between people who say that they consume a lot of salt and those that say their intakes are low. In relation to checking salt content in labels, 60% do not read the nutrition labels. Only 15% of women and 10% of men frequently read the sodium listing on labels. Most respondents with high blood pressure recognized that salt was a contributor.

Mean sodium intake was close to 4,000 mg per day. Main contributors were bread, yellow cheese and chicken. There was significant correlation between increased BMI and increased salt intake.

When comparing the sodium intakes as assessed by dietary recall and 24-hour urinary analysis there was hardly any correlation. Dietary questionnaires underestimated true sodium intake compared to 24-hour urine collection methods. In relation to spot urine testing, the only small correlation between spot urine testing and 24-hour urine collection testing was in the morning. At other times of the day there was no correlation.

The majority of respondents always or often added salt during cooking. One third of respondents were not aware of the link between salt intake and hypertension. Less than half of respondents stated they take action to reduce salt. Use of iodized salt was very low (despite the fact that iodine deficiency is common).

A voluntary salt reduction programme in bread, in conjunction with four main bakeries that produce 70% of the bread consumed in the country, was conducted. A healthy bread logo was produced and this includes a salt limit.

One particular challenge is with salt levels in kosher chicken. This was a concern for manufacturers using meat as an ingredient. Following technical discussions, it was possible to reduce the amount of salt in chicken. Another step was a recommendation from the Regulatory Committee was to introduce official front-of-pack nutrition labelling. It was decided to adopt Chilean-style warning labels for salt, sugar and saturated fat, and this measure is due to come in to force in January 2020. A green healthy logo, similar to the KeyHole, will also be introduced.

Discussion

There was clarification of the quality control procedures related to the over- and under-collection of urine in the study. The PAHO protocol was used and an expert in hypertension monitored this issue, rejecting samples where water had been added, etc. There was clarification that the study included measurement of blood pressure.

The lack of correlation found between dietary questionnaire methods (24-hour recall and food frequency questionnaire) and 24-hour urinary analysis was discussed. While an underestimation by questionnaires would be expected, there was some surprise that there is no correlation whatsoever. Possible explanations include outdated food composition databases and/or a very high level of discretionary salt use. It was suggested that it might be possible to subtract the salt intakes from foods, as assessed by the food frequency questionnaire, from the total in order to get an idea of the discretionary salt intake. There is recognition of the value in dietary questionnaire methods for other nutrients and an overall picture of the diet. It is nonetheless important to recognize that there are challenges with dietary survey methods and such challenges need to be addressed (possibly through increased use of biomarkers).

One issue that was discovered in the study was that vegetables contain salt, possibly due to the use of recycled water for agriculture.

The low use of iodized salt in Israel is due to the fact that iodization is not mandatory and also that non-iodized salt is currently subsidised. There are plans to address these issues and also to raise awareness (especially for pregnant women) of the importance of using iodized salt.

In relation to front-of-pack nutrition labelling, the industry reacted favourably to the positive (green health logo) labelling but less favourably to the warning labels. They agreed to a two-year implementation period, giving them time to reformulate before the labelling rules come into force.

Bulgaria

Vesselka Duleva, National Center of Public Health and Analyses, provided an overview of recent work on salt reduction in Bulgaria.

Bulgaria has the highest prevalence of cardiovascular disease within the European Union, and cerebrovascular disease prevalence is particularly high. Salt reduction is, therefore, a priority and has been since it was included in the *Food and Nutrition Action Plan 2005-2010*. Now this falls under the national NCD prevention programme, to 2020. A national nutrition council, under the

Ministry of Health, has been established, with responsibility for the national reformulation programme (salt, sugar, fat). There has been discussion about use of a national logo for food reformulation. In 2016, the Ministry of Health adopted a national salt reduction strategy.

Specific activities relevant to salt reduction include:

- A national monitoring system for assessment of dietary intake from 1997 to date, with nationally representative surveys of dietary intake in all age groups and nutritional status surveys for young children and school children. The national food composition database is under constant revision
- Three national ordinances for nutrition for children (three age groups), with nutrient criteria and guidelines for pre-schools and schools
- National information campaign on salt reduction in 2012/13
- Collaboration with food industry to work on food reformulation
- International cooperation (High Level Group, ESAN) to share experience and learn.

All food-based dietary guidelines include advice on salt reduction and new communication approaches are being adopted to spread key messages about salt.

The 2014 dietary intake monitoring found that a high proportion of children (9-10 years) had a high sodium intake, and similar results were found in adults. A nationally representative spot urine sodium excretion study was conducted across the country in October 2016. This study estimated an average daily salt intake of 12-13 g. In 2000, a survey in one region of Bulgaria found daily intakes of 14 g per day. A validation study of the spot urine study was conducted with 54 individuals in 2017, comparing 24-hour urine samples, one spot urine collection from late afternoon and 24-hour recall (2007, 2014). The study suggests that the results of two 24-hour recalls and 24-hour urine collections are very close, and that spot urine studies' results are also close but tend to overestimate consumption.

In conclusion, nationally representative dietary recall surveys shows average salt intakes to be 12 g per day. The validation survey obtained results of 11.4 g per day and the 24-hour urine analysis estimated lower consumption at about 7 g per day. Our results suggest that spot urine analysis over-estimates salt consumption by about 25 – 40 %. The mean salt consumption in the Bulgarian population significantly exceeds the WHO recommended levels.

Discussion

There was discussion of the discrepancies between the spot and 24-hour urine collections, and the surprising conclusion that spot urine *overestimates* sodium excretion. There was clarification that there were controls (creatinine) to check that the urine was not under collected. Representatives from WHO Collaborating Centres agreed to discuss the data with Bulgaria to examine the findings.

Norway

Henriette Øien, presented an update on salt reduction activities in Norway.

The *Norwegian Action Plan on Salt Reduction 2014-18* established a number of goals:

- 15% reduction in salt intake by 2018 – equivalent to 1.5 g salt per person/day.
- 30% reduction by 2025 – equivalent to 3 g salt per person/day.
- The long-term goal is a 50% reduction in salt intake to 5 g per person/day.

The Action Plan focuses on four areas: communication; labelling; monitoring and a partnership for salt reduction.

The Health Minister established a food industry group in 2014, working with major companies in Norway. The first topic was the salt action plan and a salt partnership was launched in 2015, followed by launch of a partnership for a healthier diet in 2016. This involved intention agreements to facilitate a healthier diet between the food industry and health authorities

The goal of the salt partnership is to reduce salt in processed foods and served foods by 15% within 2018. Actors involved in the partnership include the food industry (food manufacturers and retailers), the catering industry, research institutes, trade associations, Norwegian consumer council, NGOs and authorities. The partnership involves six working groups, run by the food industry, working together on setting salt targets for six food groups (more than 100 sub-groups). The Board is led by the Norwegian Directorate of Health.

The working groups have been working to establish the voluntary salt reduction targets for the period 2015-2018. All targets are approved by the partnership board. There are different arrangements for the catering industry and the framework for this sector promotes action across a number of areas including, development of nutritional procurement criteria, training of canteen staff including a 'salt school', and provision of consumer information.

A number of salt public information campaigns have been conducted between 2014 and 2018, working in cooperation with other Nordic countries. These campaigns focus on the amounts, main sources and health consequences.

Monitoring is a key issue and is carried out via a databank of processed foods (Tradesolution) which has data on salt levels and market sales in volume, annual analysis of 200 indicators/key products between 2014 and 2018, food composition tables and the number of Keyhole labelled products. There are also annual consumer surveys on salt and health relating to knowledge and attitudes regarding the use of salt.

In addition, national dietary surveys have been conducted in adults (2010/11) and children and adolescents (2015/16). In 2015 a 24-hour urinary sodium analysis was conducted in Tromsø. Preliminary results suggest that men in Tromsø have an intake of around 10 g salt per day and for women intakes are around 7.5 g per day. The plan is to repeat this survey in 2021.

The current salt partnership is ending in 2018 and an evaluation will be published in spring 2019. Nonetheless, the salt reduction work will continue, under the leadership of the Directorate of Health. This will include follow-up on the work on salt reductions targets. Discussions on the organization of the work for the period 2019-2021 are ongoing. Further information on the salt reduction work is available online.²

Discussion

There was clarification that the working groups (industry representatives) proposed the targets for salt reduction in order to achieve gradual reductions and to reach the agreed overall targets.

² <https://helsedirektoratet.no/english/salt-and-the-salt-partnership>

There was some discussion of the Keyhole labelling scheme. Almost all (98%) of the population is aware of the Keyhole, as determined by annual surveys. There was clarification that the Keyhole label is used on processed foods and the number of products carrying the Keyhole increases every year.

Update from WHO headquarters about current initiatives

Chizuru Nishida provided an update on salt reduction activities from WHO headquarters.

Data from the most recent *Global Nutrition Policy Review 2016-17*, in which 158 countries responded to the section of the questionnaire on policy measures for promoting healthy diet, suggest that increasing numbers of countries are taking regulatory actions which were largely unthinkable 5 - 10 years ago. Over 80% of the countries, for example, are implementing nutrition labelling. Although there are variations between WHO Regions, there are similar trends, with countries ready to take regulatory action.

Specifically in relation to salt/sodium, of the 189 countries that have nutrition policies 92 (49%) have incorporated goals/targets specifically relating to salt or sodium reduction. In addition, a further 30 countries (within the 189) are implementing salt reduction activities even if they have not set specific goals/targets.

Of the 77 countries that provided more detailed information on their salt/sodium reduction, the most common initiatives at the global level were mandatory inclusion of salt/sodium on back of pack nutrition labelling, media campaigns, reformulation to reduce salt levels and front-of-pack nutrition labelling.

Labelling has been highlighted as an effective measure for many years, highlighted in the WHO Technical Report Series 916, which formed the basis for the global strategy on diet and physical activity which was adopted in 2004 by the World Health Assembly. WHO called on Codex to implement the labelling actions of the global strategy. This led to a process that resulted in inclusion of sodium (salt), total fat, saturated fat, total sugars in the list of nutrients to be included in mandatory nutrient declarations in revised Codex guidelines in 2013. Nutrient Reference Values for saturated fats, sodium and potassium were also introduced, based on WHO Guidelines, for use in nutrition labelling.

With regards to reformulation, a formal dialogue was organized with industry in June 2018. A number of specific requests were posed to industry in relation to sodium, and this is an area where industry seems amenable to change. Namely, WHO expects that industry commits to reformulate foods to lower sodium concentrations, by adopting standardized targets for the food and beverage categories which are top contributors to sodium intake and implement them by 2025 for manufactured, retail and out of home and food services. Secondly, that all food services and manufacturers in every jurisdiction commit to provide on-pack sodium data, as required by Codex. Food services and restaurant chains should also provide these data in store, on packaging or online. In addition, WHO called on industry associations to eliminate geographical inequalities in nutrient contents of products. Discussions are also ongoing for the establishment of an accountability framework to measure industry's progress against towards benchmarks.

Update from WHO Regional Office for Europe on current initiatives in the European Region

Jo Jewell, WHO Regional Office for Europe, presented an updated overview of salt reduction strategies in the European Region.

In relation to monitoring of sodium intakes, a growing number of countries are measuring sodium intakes using 24-hour urinary sodium excretion methods, often with WHO technical support. The Regional Office is keen to explore the possibilities for pooling data obtained through the various in-country studies, to ascertain whether this may yield further insights. Member countries of ESAN were asked to consider whether they would be interested in sharing their data for such purposes.

Data on average salt intakes throughout the Region show that all countries for which there is data are above the WHO recommended levels, with averages reaching as high as 18 g and 15 g per day. The Regional Office has published a series of papers presenting data on adult, child and adolescent intakes from national nutrition surveys in Europe.³

The WHO Regional Office has also been supporting countries to study the composition of commonly available packaged and unpackaged foods, with respect to sodium, potassium and trans fat contents. These FEEDcities studies have been conducted in Moldova, Tajikistan, Kyrgyzstan, Kazakhstan, Bosnia Herzegovina and Turkmenistan. In this context the studies have examined ready-to-eat foods from street vendors. These results highlight that many foods have salt levels that are considered high and some foods have very high levels of sodium (with 100 g of a particular food sometimes providing the entire day's salt intake according to the WHO guideline).

A new global initiative, *Resolve for NCDs*, is looking to conduct similar studies in Turkey and Russia. The methodology will require modification (different sampling) to take into account that food markets are less common and a higher proportion of foods are bought in supermarkets, and that there is greater availability of packaged, processed foods.

Modelling studies are showing that, in order to achieve the 30% reduction in salt intake to meet the global target, some *very* substantial reductions in salt levels in food are required. WHO is providing a tool for countries to be able to conduct such modelling exercises, in order to inform policy.

There are a number of other policy areas that are relevant to salt reduction. Marketing of foods high in fat, sugar or salt, for example, is important and WHO has published an evaluation of implementation of the *WHO Set of Recommendations on the Marketing of Foods and Non-Alcoholic Beverages for Children* in the European Region. Another important area is front-of-pack nutrition labelling and WHO is developing different guidance and support on this issue. A recent study, for example, compared three models (NutriScore, traffic lights and the industry-proposed ENL symbol) suggesting that the ENL approach would encourage people to consume bigger portions of food products.

³ See Rippin HL, Hutchinson J, Evans CEL, Jewell J, Breda JJ, Cade, JE. 2018. National nutrition surveys in Europe: a review on the current status in the 53 countries of the WHO European Region. *Food and Nutrition Research*: V62(2018). And: Rippin HL, Hutchinson J, Jewell J, Breda JJ, Cade JE. 2017. Adult nutrient intakes from current national dietary surveys of European populations. *Nutrients*; 9(12):E1288.

Session 2: Sources of salt intake

Republic of Moldova and Montenegro: New data on sodium in foods from national surveys

Francesco Cappuccio, Warwick Medical School, presented preliminary findings of two 24-hour urinary excretion studies carried out in Moldova and Montenegro.⁴ Both countries have a high burden of NCDs, with high estimated prevalence of hypertension, and neither country had direct measures of salt intake.

The objectives of both surveys were:

- To estimate the consumption of sodium (salt), potassium (and iodine in Moldova) in a representative sample of adult men and women (18-69 years) using the gold-standard measure of 24-hour urinary excretion of sodium, potassium (and iodine in Moldova) as a measure of intake.
- To explore knowledge, attitudes and behaviours toward dietary salt consumption.

The study design, methods and sampling were slightly different in the two countries. The main difference in terms of representativeness is that the Moldovan study was nationally representative, while in Montenegro the study was conducted in the capital city, Podgorica. Training of field workers in the survey methodology, based on the Salt Smart Americas and WHO Regional Office for the Eastern Mediterranean Office protocols, was a key step. There were 858 participants in the final sample in Moldova and 639 in Montenegro after exclusions (e.g., over- or under collection of urine as assessed by self-reported and objective methods). This resulted in 66% and 63% of valid samples respectively.

Overall prevalence of hypertension among participants in Moldova was 45.5% and among participants in Montenegro was 35.9%.

Estimated daily salt intake in Moldova was 10.8 g (11.5 g for men, 10.3 g for women), while average potassium intake was 3.7 g per day. Only 11.3% of the population meet the WHO recommendations for salt intake, but, encouragingly, almost half of the population (49.7%) appear to be consuming enough potassium. Iodine content of table salt was, on average, 21.0 mg/kg and there was a clear difference between rural and urban areas (with less iodine from table salt in rural areas).

In Montenegro, average salt intake was 11.6 g per person per day (13.9 g for men, 9.9 g for women) and potassium intake was 3.2 g per day, on average. Only 7% of the population meets the target for salt intake, and only 13% have sufficient potassium intakes.

In conclusion, in both Moldova and Montenegro similar surveys found high salt intakes and low potassium consumption in both men and women. In Moldova, in order to meet the WHO targets by 2025, a reduction of 3.24 g per day is needed and this would lead to an estimated reduction of 7.9% in cardiovascular events and 10.7% fewer strokes per year. In Montenegro, a reduction of 3.6 g per day is needed to meet the WHO targets, and this would bring about an estimated 12.2% drop in cardiovascular events and 16.5% fewer strokes per year.

⁴ See <http://www.euro.who.int/en/countries/republic-of-moldova/publications/dietary-salt-intake-survey-in-the-republic-of-moldova-2016> and <https://www.mdpi.com/2072-6643/11/1/160>

Montenegro: National 'rulebook' for salt in bread and planned activities on meat products

Radana Damjanovic, Deputy Minister of Agriculture and Rural Development, Montenegro, provided an overview of the *National Programme for the Reduction of Daily Salt Intake by Food in Montenegro 2017 – 2025*, which aims to reduce daily salt intake by 30% by 2025.

The results of the study on average salt intake in Montenegro, which showed an average daily salt intake of 11.6 g (see above) constitute a warning that dietary change is needed and point to the need to implement a national salt reduction programme.

The reduction of daily salt intake by 30% by 2025 is the national task for all sectors and society in general in Montenegro. This is a demanding but realistic goal and its achievement entails close cooperation of not only governmental departments, primarily ministries of health and agriculture, but also food producers, hospitality industry as well as engaging well-informed consumers. In February 2017, the National Council for Coordination and Prevention of Chronic Noncommunicable Diseases in Montenegro was established. It is tasked with ensuring and promoting an efficient interdepartmental communication and coherence of sectoral policies and actions in the field of health, agriculture, education, environment and finance for effective prevention and control of chronic NCDs and related risk factors.

Six years ago, at the initiative of the Ministry of Health and the WHO Office in Montenegro, the Ministry of Agriculture and Rural Development joined the activities to reduce the content of hidden salt in products and production processes. First, in partnership with the baking industry, a survey was carried out on salt in bread and bakery products (107 samples of bakery products from several municipalities in Montenegro were analysed) results of which showed that consumption of such products would result in exceeding the recommended daily salt intake in one meal.

With support from WHO experts, recommendations were developed and national consultations were held on regulation of salt content in bread and bakery products. The objective was to set the maximum salt content in bread, as the main staple food. Subsequently, the Ministry of Agriculture, with approval of the Ministry of Health, adopted a new Rulebook on the minimum quality of cereals, mill and bakery products from cereals and pastries which, among others, lays down the maximum salt content in bread (percentage of salt in baked bread for consumption may not exceed 1.4% per 100g of bread or 14 g of salt per 1 kg of bread).

A Decree on communicating information about food to consumers has laid down more detailed conditions regarding the provision of information about food and transposes the provisions of the EU legislation on food information to consumers, as Montenegro is in the European integration process.

For the future, consultations with the meat processing industry are planned to discuss possibilities for salt reduction, within the constraints of maintaining sensory properties and microbiological stability.

Interdepartmental communication is of key importance in order to achieve results and lessons should be learned from good practice, models and solutions applied by other countries to effectively implement policies for reducing salt intakes.

Discussion

There was discussion about the interesting result showing high potassium consumption in Moldova. For example, is there high consumption of fruit and vegetables or milk? Research on this issue is underway.

There was clarification that there was no check for correlation between sodium intakes and blood pressure in the sample because the study had not been designed to study such correlations.

Turkey: Dietary sources of high sodium intake – SALTURK, Sodium content in packed foods

Yunus Erdem, Hacettepe University Faculty of Medicine, Turkey, presented an overview of two studies in Turkey.

The SALTurk study set out to determine the daily salt intake in Turkey and to investigate the relation between sodium intake and hypertension in Turkey. This study found a very high average daily intake of 18 g per day, and hypertension prevalence is also high in Turkey.

The hypertensive population did not consume more salt than people without hypertension. It may be more appropriate, however, to look at awareness of blood pressure and salt intake. People who were aware of their hypertension had a lower salt intake (16.55 g) and those with no awareness of their hypertension had higher intakes (18.91 g). There are important exclusions that should be applied to 24-hour urinary sodium excretion studies. Firstly, participants with urinary creatinine levels outside the reference limits should be excluded. Secondly, participants on anti-hypertensive medication and/or those who are aware of their hypertension should be excluded. For the SALTurk study, after exclusions there were 816 participants remaining and, among these participants, there was a correlation between sodium intakes and blood pressure (although not among obese subjects).

A second study was conducted (SALTurk2) to examine the dietary sources of high sodium intake in Turkey. The study aimed to detect daily salt intake in the sub-group selected from the PatenT2 group and to investigate the sources of salt in the diet. The study was conducted in rural and urban areas of four cities (Ankara, Istanbul, Izmir, Konya) and a total of 925 individuals were screened between February and March 2012. Of these, 657 had 24-hour creatinine excretion within the determined limits, and were therefore included in the analysis.

The study found sodium intakes of 14.82 g per day (men 15.72 g; women 14.02 g). Rural residents consume more salt than urban residents (15.96 g compared to 14.5 g), in line with findings from other countries. There was a correlation between results from dietary recall and from 24-hour urine methods, although the dietary recall method did underestimate sodium intake.

In relation to sources of salt, one third of salt comes from bread. As income falls, the amount of bread consumed (and, thus, salt from bread) increases. Salt from processed foods is relatively low (1.28 g), but salt added during cooking is very high (5.08 g) and table salt provided 1.5 g.

Discussion

There was discussion about some of the challenges involved in excluding people who are aware of their hypertension. In the study, people are excluded if they have ever been diagnosed as hypertensive, if they are using anti-hypertensive medication or have measured high blood pressure.

There was clarification that SALTurk took place in 2008 and SALTurk2 was conducted in 2012, after the start of the salt reduction programme in 2011. A new study was conducted in 2017, with WHO Regional Office for Europe, on NCD risk factors. This included a spot urine test on 6,000 people. According to this study a daily salt intake of 9.2 g was found. A new 24-hour urinary sodium excretion test is now being planned, and it is hoped that this will confirm that the intakes have fallen. There was some discussion about the rationale for investing in spot urine analysis on such a large scale, given that 24-hour methodology is recognized as the gold standard. It would be interesting to look at all the existing data for Turkey and explore whether there is some cross-validation of results from different methods that could be done.

In relation to salt levels in bread, the average is 1.75 g/100 g (from a small study), with some breads containing 3 g per 100 g.

Developing a salt reduction resource kit for the WHO European Region: Reflections on experience from the Americas

Professor Branka Legetic, Consultant, provided an overview of efforts to reduce salt in the Americas region. Salt Smart Americas set a policy goal for gradual and sustained drop in dietary salt, through working in four areas (government, civil society, industry, public). A pan-American movement for salt reduction was formed, starting with a technical group (2009-2012), followed by a technical advisory group (2013-2017) and then establishment of a network for salt reduction in the Americas in 2018. Brazil has the presidency of that network and vice-presidents are Costa Rica, Argentina and Colombia. Twenty-two countries (of 36 in the Americas region) are involved in salt reduction.

Salt intakes in the region, as determined by 24-hour urinary excretion methods, are between 8.6 and 12 g per day per person. Eight countries have conducted 24-hour urine studies. There have been different approaches to determining the main sources of salt in a diet. In the US and Canada, for example, the whole food supply was examined. Other countries, with more limited capacity, selected particular food categories to examine in more detail. The common food categories which are main sources of salt are bread and bakery products, biscuits and cookies, cakes, processed meat and cuts, dairy, snacks, soups, pasta and mayonnaise.

In the Americas region, there was an interest in establishing partnerships from an early date. A *Salt Smart Consortium* platform has been established, involving governments, civil society and professional associations, the private sector (biggest market contributors to the market for these products across the Region) and experts from the PAHO Technical Advisory Group. The priorities for 2014 -18 are to change social norms around salt consumption and product reformulation.

Regional sodium reduction targets have been established for the Americas. There were a number of concepts underpinning this process. It was decided, for example, to promote harmonization using existing national targets and to build on the current targets and timelines of countries in the Americas. Maximum levels were used as benchmarks to facilitate implementation and monitoring. It was decided to focus on major food groups for these regional targets and that the targets would be reassessed biennially. There was also a recognition of the existing voluntary efforts of some

industry actors. Transparent monitoring by an external third party was built in from the outset. There was no intention to override current national targets and timelines, and countries remain free to set more stringent maximums.

Regional targets were agreed for 12 food categories (bread, soups, mayonnaise, biscuits and cookies, cakes, meat, cereals, cheese, butter/dairy spreads, snacks, pasta, condiments). These are the main food sources of sodium in five countries of the region and a major source in at least two or more countries. For all breads, targets in the region ranged from 400 to 600 mg sodium per 100 g bread, so the regional target was set at 600 mg sodium per 100 g and a lower target of 400 mg sodium per 100 g. Chile, for example, managed to reduce average sodium levels in bread from more than 830 mg per 100 g to 479 mg per 100 g. For meat, regional targets were set for different sub-categories in meats. It was not possible to set a harmonized target for dairy products, particularly cheese (where there was huge variation).

The monitoring process was conducted through a PAHO-funded project conducted in 15 countries for the 12 food categories, coordinated by the Latin Foods Network and WHO country offices. Data was collected based on between 50 and 150 foods per category (in total around 1000 -1500 foods per country) the declared level of sodium on the label, along with photographs of the label to enable verification at a later stage.

These results show reasonable progress in these food categories (as expected because these were the first categories to be agreed). Over two-thirds (68%) of the cured meat products and over three-quarters of the breakfast cereals, for example, met the lower targets. The results did vary between countries, showing that there is still much potential for further improvements.

Establishment of regional salt/sodium reduction targets benefit everyone in a number of ways. It can be helpful for national strategies to improve the quality of the food supply and to push industry processes. In addition, countries without targets can take advantage of the targets and timelines already in place and the lessons learned. Consumers will be in a better position to achieve the recommended intake and the associated health gains and, furthermore, companies can harmonize their formulations for products supplied to markets across the region.

Discussion

There was discussion of the issue of setting regional targets for salt reduction for the WHO European Region. There is an EU Framework in existence but this does not apply to countries within the Region who are not EU-members and there still some EU-members who have not yet set national targets. Professor Legetic is available to work with WHO and ESAN on this issue, and this is an important opportunity. As a step towards this process ESAN could, for example, establish a regional consensus on the food groups to prioritize or could share and compare the detail of existing national targets or benchmarks. It would also be useful to collect data on 'best in class' products in each category in each country – this is very useful for highlighting feasibility and informing any discussion on technological or safety barriers. The aim of any such exercise would not be to override any national targets. Rather, it would provide clarity on what ESAN/WHO considers the highest acceptable values for salt/sodium in products on the market in European countries

There was support for this approach, but also recognition that it is a complex area of work. Previous discussions within an ESAN working group on targets for bread had lengthy discussions on how to define 'bread' and finding an agreed definition was challenging. In setting benchmarks it is

important to look at dietary patterns, i.e., to determine which foods are the most widely consumed as the basis for calculating how much individual food categories should contribute to achieve the overall target, rather than just using current levels in foods as a starting point.

It was agreed that it would be helpful to revisit the work by ESAN on targets for bread, to take into account the developments within the EU, and that countries would share information on the food categories for which they have targets, and provide a description of what foods are included in each category.

It was suggested that more information is needed on technological and safety barriers, so that lower limits for salt levels are clear. Data on 'best in class' products will be helpful on this issue and discussion with industry is also critical. It was also suggested that some agreement on rules for what ingredients or additives can be used to substitute salt would be helpful. It was pointed out that, in practice, for many products there is considerable scope to reduce the salt contents without any perceptible difference for consumers and without any need for substitutes, additives or technological changes.

Session 3: Understanding the market and informing consumers

Salt tax experience in Portugal

Francisco Goiana da Silva, adviser to the Ministry of Health, Portugal, presented an overview of developments relating to a salt tax in Portugal. Despite advances in reducing child mortality and increasing life expectancy, the growing prevalence of NCDs, and the associated pharmaceutical budget, has been putting a strain on the Portuguese health system. Portugal is the country with one of the highest prevalence of diabetes and childhood overweight and obesity.

Salt was identified as a key risk factor and it was realized that this issue needs to be tackled. A multisectoral national strategy was developed and implemented. As part of efforts to tackle childhood obesity a tiered sugar tax for sugar-sweetened beverages was introduced, and resulted in significant reformulation of products.

It was decided, therefore, to use the same approach for salt. National survey data were used to identify the priority food groups, and it was decided to introduce the tax on added salt in breakfast cereals, snacks, potato chips and cookies. The proposed tax comprised two tiers, and a key objective was to promote reformulation to reduce the levels of salt added. It was not designed as a revenue raising measure. Ultimately it was not approved by the Parliament, due to a small number of Parliamentarians who opposed it.

Although the tax did not pass, industry took notice of changing attitudes and noted that civil society was largely supportive of the idea and that only a small number of parliamentarians had opposed the measure. The successful introduction of the sugar tax on sugar-sweetened drinks provided an important backdrop. The companies have, therefore, made considerable efforts to reformulate their products. Efforts are now underway to develop co-regulation to reformulate salt, sugar and fat levels. By working together in this way, on a variety of measures, these challenges can be tackled.

Discussion

There was clarification that the threshold was set at 1 g because the national survey identified the most problematic food groups and identified the level at which half the products were above the threshold, in order to push half of the products in these food groups to reformulate.

The proposed tax would have applied to all products, both imported and domestic products.

There was discussion about the acceptability of a proposal to tax staple foods. In fact, there was not a proposal to tax bread, but rather a regulatory limit for the maximum levels of salt in bread. New legislation to reduce this limit is in preparation.

Modelling the impact of salt taxes

Linda Cobiac, WHO collaborating centre at the University of Oxford, UK, presented work on modelling the impact of salt taxes.

There is a long history of putting taxes on salt to raise government revenue, and there is also a long history of opposition to salt taxes. The use of taxes to improve health is, however, a relatively recent initiative.

When a tax is levied on foods or ingredients, the price goes up and purchases of the affected items go down. Crucially, however, the purchases of other products may go up, as people switch to alternative foods. Taxes, therefore, have an impact across the whole diet. Less obvious pathways for effects include encouraging reformulation, influencing social norms about foods and impacting on food waste. The way in which a tax is designed affects how the tax has an impact through these different pathways.

There has been relatively little research around salt taxation and evidence is sparse, but there are some real-world examples.

Hungary, for example, was an early adopter, with its Public Health Product Tax, which included salt snacks. Sales data after the tax was introduced show that prices went up and sales went down (although it is hard to ascertain how much of that price increase was due to the tax). Household panel survey data enables some adjustment for background context and analysis found that expenditure on processed foods went up by 6.5% after imposition of the tax and quantities of purchases went down by 3.4%. Note that 'processed foods' includes both products that were taxed and some that were untaxed, so it is difficult to determine what proportion of the changes can be attributed to the tax.

In another example, Mexico imposed an 8% tax on non-essential energy dense foods including salty snacks, chips, cakes, pastries and frozen desserts in January 2014. Data show that purchases of taxed foods dropped by 5% after one year, and the biggest effect was in salty snacks.

In order to investigate the long-term effects on population health, however, it is necessary to look at modelling studies. The earliest modelling study was conducted in the United States, and the simulated impact of a tax on sodium was to reduce intake by 6%. The health gain increased by 1.3 million quality-adjusted life years (QALYs) and health care costs were reduced by 22.4 billion dollars, suggesting that a salt tax would be cost saving in the United States.

In New Zealand, one study modelled a tax imposed on salt at production level, with annual incremental increases. Modelling this intervention suggested it would produce a health gain of 195,000 QALYs and reduce healthcare costs by 1,000 million dollars. The modelled impact was greater than the modelled impact for mandatory limits, voluntary reformulation, front-of-pack labelling (although all of these would be cost saving).

Another study modelled the impact of a salt tax per 1 g in excess of recommended levels in processed foods in Australia. Once again, the tax was predicted to bring about a health gain and to be cost saving. The study also suggested that a fruit and vegetable subsidy would result in a health loss, because sodium and total energy purchases went up (as less money was spent on fruit and vegetables). This is in line with other modelling studies and some experimental evidence. It is suggested, therefore, that such subsidies need to be implemented as part of a package of fiscal measures with taxes, to ensure that there are no unintended negative consequences.

There are a number of key points to consider in designing a food tax:

- What is the target?
 - o Nutrient or food? Apply tax per kg or as a % of value?
- Who is the target?
 - o Consumers to change behaviour, manufacturers to reformulate?
- How big should the tax be?
 - o What is the best level? Revenue implications
 - o A one-off or annual increase
- What is the setting?
 - o Retail, manufacture, import
- Other considerations
 - o Consumer perceptions
 - o Administrative aspects
 - o Monitoring and evaluation

In conclusion, food taxes are likely to be very effective and cost-effective, if not cost saving. Careful planning and management of the design and implementation is essential. It is also important to combine food taxes with other salt reduction strategies, such as regulatory approaches and public information campaigns.

Discussion

There was discussion about what level of tax is effective. Although it is often quoted that a 20% tax is effective, the appropriate level actually depends on the specific food and the country context. So, some quantitative analysis is required before setting a level of tax, and exploring the impact for consumers.

foodDB – Using big data techniques to track the nutritional composition of foods in the UK

Vyas Adhikari, WHO Collaborating Centre, University of Oxford, UK, presented an overview of the use of big data to track the nutrition composition of foods and track changes in products.

foodDB is a web-scraping tool, which scrapes data from major UK supermarkets' websites. Data is being collected on 100,000 food and drink products per week. The information collected is standard information available on the online retailer websites, and includes price, offers, branded or non-branded, nutritional information and associated marketing messages.

There have been discussions about the potential of using the database to monitor the impact of food policy. It can easily replace time-consuming supermarket surveys and facilitate analysis. It also enables data collection on how products are positioned (by looking at how they are categorized, e.g., as 'healthier', for children) and the claims made by industry.

foodDB has been able to monitor the impact of the soft drinks industry levy, introduced on 6 April 2018, on sugar levels and price by analyzing data on 1,789 unique drinks between March and May 2018. Over that period a substantial amount of drinks that would have qualified for the higher tax band were reformulated to fall into another tax band, and in some products were reformulated with very significant drops in sugar levels. In the taxed drinks segment of the market, prices were increased for around half of the drinks in those categories. In the non-taxed segments of the market there were no significant price changes.

In conclusion, foodDB is a powerful tool for monitoring nutritional quality, price and promotional aspects of foods in the UK.

Discussion

There was discussion of the fact that much of the reformulation of sugar-sweetened beverages was likely to have taken place well in advance of the study period, so the results of this study are likely to underestimate the extent of reformulation. There was clarification that there is a legal requirement for retailers to ensure that the website information is accurate.

There was discussion of whether foodDB could also monitor the use of non-sugar sweeteners. It would be possible to get information from the ingredients list on the presence of sweeteners, but no information would be available on the amounts of sweeteners added.

There was some discussion about the scope for adapting the database to other countries. This tool could be used in other countries which have a large proportion of their sales through major supermarkets with comprehensive websites.

There were also some requests for further information on how the products are classified in the foodDB.

“Do I choose healthy?” app

Ivon Milder, RIVM, Netherlands presented the “Do I choose healthy?” app developed by the Netherlands Nutrition Centre.

The app was developed in order to give information to consumers in a more personal way at the moment of choice, and to include more possibilities for background information. This also matches the trend of increased openness and transparency on the part of food producers. This app is only one of the tools in a wider package of measures.

In October 2016, following the phasing out of the Choices logo in the Netherlands, preparations for the app started as an alternative way of providing information to consumers. Starting in 2017 there was development of the infrastructure to collect all data and testing of the prototype among consumers and professionals. The app was launched in January 2018.

Consumers use the app to scan a product, via its barcode. Information is provided on the nutrient declaration and whether the product meets the criteria of the Dutch wheel of five and, if not, why not. The app also suggests healthier product substitutions. The app can also be used to compare different types of products within categories.

Access to correct data is absolutely crucial for the app. Manufacturers/retailers are responsible for ensuring that the data on the label is up to date and reliable. There is daily exchange between the various databases and the Nutrition Center food database. A number of different databases are used to provide data for the app (GS1, SIM, PS, Brand Bank and Albert Heijn).

It is too early to show results of the impact of the app, whether on consumer choice or on product reformulation. There is anecdotal evidence that manufacturers are seeking advice on how to ensure their product qualifies for the wheel of five. So far, there have been 175,000 downloads of the app. A small pilot study found that 12% of people used the app daily and over 50% several times per week.

In the future, the plans are to make the app even more personal (notification if products contain no meat or fish, or other specific ingredients). There are also plans to connect it to a diet app (*etmeter*), by enabling scanned products to be transferred to the *etmeter* app.

Discussion

There was clarification that the databases that are used for the app are also used by RIVM to monitor the impact of reformulation efforts.

The process of getting access to the databases is very time consuming and can also be costly. Negotiations are underway to increase the input of retailers' data into the app. Crowdsourcing may also play a role in the future.

The science of salt and health – addressing recent controversy

Pasquale Strazzullo, Federico II University of Naples, Italy, and Francesco Cappuccio, University of Warwick, addressed some of the recent controversies on the health impact of high salt consumption.

Inclusion of reduction of salt intake in the guidelines for blood pressure control was a major achievement 10-15 years ago. Unfortunately, this evidence-based approach is increasingly challenged by a group of researchers.

Controversies emerged in 2011 questioning the evidence base on salt on the basis of a number of prospective studies. This started a debate in a wide range of journals. The questioning was based on two claims:

- There is a J-shaped relationship between sodium intake and cardiovascular events
- There may be harm for some people in reducing salt intake towards recommended targets

These controversies were largely based on two studies: EPOGH (based on 24-hour urine collection) and PURE (using spot urine analysis). Both of these studies are problematic for a number of reasons.

When prospective studies are conducted with correct methodology the relationship between salt intake, as accurately estimated, and cardiovascular outcomes is graded and linear. Patient-based studies (rather than in the healthy population) found a J-shaped curve, but this is based on people who are already ill.

Common methodological flaws in these studies are:

- Systematic errors in sodium assessment (single or incomplete 24-hour urine collection, spot urine collections of dietary assessment)
- Reverse causality – where the sick populations are in the low sodium group
- Potential for residual confounding due to incomplete adjustment for confounding and incomplete follow-up
- Random error in sodium assessment
- Insufficient statistical power
- Inconsistent results with the same datasets.

The consensus around the world is concordant in considering these studies irrelevant to assess the appropriateness of salt reduction at the population level. Very strong rebuttal, however, is required and it was suggested that a strong consensus statement on the scientific studies from ESAN would be valuable. A draft was circulated and a process for agreeing such a statement was proposed. If agreed, and finalized, it would be on the ESAN website and could be used by other Member States and institution.

Discussion

There was support for the idea of producing a consensus statement.⁵ It is important to convince medical professionals and nutritionists, because these are often invited to speak on the media.

There was discussion of the challenge of communicating these messages beyond the scientific field. It was proposed that a short, plain language version of the statement for policymakers, media, bloggers and lay people is also needed. Ireland offered to help with preparation of this version (for the English language version). It was suggested that it is important to stress the implausibility of the J-shaped curve and to add some calculations estimating the potential global health impact of reducing salt intakes. There could be value in involving communication professionals to help with the framing, language and techniques.

⁵ The statement has since been published. Cappuccio FP, Beer M, Strazzullo P and the European Salt Action Network. Population dietary salt reduction and the risk of cardiovascular disease. A scientific statement from the European Salt Action Network. *Nutrition, Metabolism and Cardiovascular Diseases*; 29(2):107-114.
<https://www.sciencedirect.com/science/article/pii/S0939475318303521?via%3Dihub>

Workshop: Monitoring sodium intake and integrating into ongoing surveillance

A subgroup of participants discussed the challenges and opportunities for monitoring sodium intake and how to integrate these activities into ongoing surveillance.

The group concluded that spot urine samples are not good enough to measure sodium intake at population levels in Europe and recommended that monitoring should be carried out using the gold standard method of 24-hour urinary excretion, ideally. Periodic dietary surveys were also recognized as important for informed policy-making (not only for salt, but more widely). However, the group considered that running both concurrently could prove challenging.

There are opportunities to do sodium intake studies alongside the WHO STEPS surveys or other routine risk factor surveys, with verification of sodium intakes through a 24-hour urinary sodium excretion study on a smaller sub-sample alongside the larger survey population. It was agreed that ESAN should convey a statement from the network on the importance of 24-hour urinary excretion surveys.

It was suggested that there is a need to report on absolute values for salt intakes and to share this information between countries, as comparative data can be particularly effective in motivating policymakers to take action.

Workshop: Approaches to monitoring the composition of the food supply

A sub-group of participants discussed different approaches to monitoring the composition of the food supply. Participants found it valuable to share the different methods in use to monitor food composition data, including survey data from nutrition labels or purchased data from market research companies that provide sales volume or market share figures. This is especially important given that many of the companies involved are operating across the Region.

The value in using label data to monitor composition was recognized, although it is important that the label information is accurate and there is acknowledgement that label information is not always kept sufficiently up to date to monitor changes in the short term. Another challenge is the definition and categorization of food groups. There was also recognition that there could be considerable value in sharing and exchange in relation to technological aspects.

Workshop: Sodium and nutrition labelling

A sub-group of participants discussed issues around sodium and nutrition labelling. The group acknowledged the global and regional importance of front-of-pack nutrition labelling and examined some of the labelling schemes which are in use within the Region. There was recognition that front-of-pack nutrition labelling is a valuable tool to contribute to sodium reduction.

The case study of Israel, which is introducing warning labels and a healthy food logo, was discussed. Participants were also informed about ongoing work by WHO headquarters to produce global guiding principles for front-of-pack labelling and a manual for implementation.

There was discussion around definitions and the setting of thresholds for unhealthy foods, as well as the categorization of healthy foods which are recommended as part of healthy diets. Further

discussion explored the political challenges around convincing policymakers about the need for front-of-pack labelling and how to overcome opposition from industry and build political support for this approach.

Discussion on participation of NGOs as observers

There was discussion on whether NGOs should be invited to participate in the ESAN meetings. To date, NGO representatives have only participated when they had been invited to deliver a presentation. There is, however, interest from NGOs in participating in the network and this could be a way of involving civil society as an ally in salt reduction efforts. It was pointed out that NGOs⁶ make a very positive contribution to the meetings of the WHO European Network on Marketing of Unhealthy Foods to Children.

There was openness to the idea of opening meetings to NGOs and it was agreed to invite selected NGOs to the next meeting. The network coordinator and WHO would further discuss and make a proposal for the precise modalities (e.g., invited to open sessions only, invited as observers, etc.).

Special session: Celebrating 10 years of ESAN – Review and outlook of the WHO salt reduction action network

João Breda, WHO Regional Office for Europe, reflected on the progress made by ESAN during its 10-year history to date. The network has made a tremendous contribution to work on salt reduction throughout the Region. As a result, more countries now have better data on salt intakes and the levels of salt in foods and a wider array of methods are available for monitoring and surveillance. The exchange of expertise on salt reduction between Member States has been enormously valuable and the continued vitality of the network is clear as its membership continues to grow.

The network continues to be a powerful tool for WHO's work on salt reduction and WHO is committed to ongoing support for the network. In future, it would be good to see more Member States joining the network, even better data on intakes and food composition and more progress in reducing salt consumption. There are grounds to be optimistic that the Member States in the network are on the verge of delivering results in terms of reduced salt intakes and improved health outcomes, but it is clear that further efforts are still required. There is scope for ESAN to improve links with other key policy areas such as labelling, marketing and taxation. There could potentially be a role for ESAN to reach out to policymakers and other wider audiences, through more public events such as, for example, a regional conference on salt.

In conclusion, there are many reasons to celebrate the 10-year anniversary of ESAN and also much cause for optimism about the network's future contribution. Thanks are due to the UK for its initial coordination of the network and to Switzerland for the ongoing smooth running, and to all network members for their continued participation.

Conclusions and next steps

As chair of the network, Michael Beer summarized next steps. The key follow-up actions to the meeting include:

⁶ BEUC, European Heart Network, World Cancer Research Fund International, World Obesity Federation

- Finalize and publish the scientific statement on the evidence relating to salt intakes and cardiovascular disease and prepare a plain language version of the statement
- Collation of information on the food categories for which member countries have targets, the levels of those targets and descriptions of the foods included in each category. This data to be submitted by countries in response to a questionnaire from WHO/ESAN chair.
- Consider a statement relating to methodology for measuring sodium intakes
- Develop a proposal for inviting NGOs to participate at ESAN meetings.

The next meeting is scheduled to take place in Switzerland in 2019.

Closing the meeting, João Breda thanked the Italian Ministry of Health and the local organizers for hosting the meeting. He also thanked Switzerland for coordinating and chairing the network and the WHO team for all their efforts in organizing the meeting.

Annex 1

LIST OF PARTICIPANTS

Albania

Eralda Mariani
Ministry of health and social protection

Bulgaria

Vesselka Duleva
National Center of Public Health and Analyses

Greece

Georgios Marakis
Hellenic Food Authority

Hungary

Eszter Sarkadi-Nagy
National Institute of Pharmacy and Nutrition

Ireland

Karl McDonald
Food Safety Authority of Ireland

Israel

Ronit Endevelt
Ministry of health, nutrition division,
Haifa university, school of public health

Italy

Paolo Bellisario
Ministry of Health

Lanfranco D'Elia
Federico II University of Naples

Daniela Galeone
Ministry of Health

Lorenzo Spizzichino
Ministry of Health

Pasquale Strazzullo
Federico II University of Naples/
SINU (Italian Society of Human Nutrition)

Kazakhstan

Valikhan Akhmetov
National center of public health care of the Ministry of health

Republic of Moldova

Alexandru Buga
National Agency for Public Health

Montenegro

Radana Damjanović
Ministry of Agriculture and Rural Development

Norway

Hilde Nysæther Frantzen
Norwegian Directorate of Health

Henriette Øien
Norwegian Directorate of Health

Portugal

Mariana Coelho Santos
National Institute of Health Dr Ricardo Jorge,

Lithuania

Indre Makarskiene
Ministry of Health of the Republic of Lithuania

Spain

María José Yusta
Aecosan

Sweden

Veronica Öhrvik
National Food Agency

Netherlands

Marieke Hendriksen
National Institute for Public Health and the Environment (RIVM)

Turkey

Nazan Yardim
General Directorate of Public Health, Ministry of Health of Turkey

Yunus Erdem
Hacettepe University,
Faculty of Medicine

Switzerland

Michael Beer
Federal Food Safety and Veterinary Office

Steffi Schluechter
Federal Food Safety and Veterinary Office

WHO

Joao Breda
WHO Regional Office for Europe

Jo Jewell
WHO Regional Office for Europe

Liza Villas
WHO Regional Office for Europe

Ivo Rakovac
WHO Regional Office for Europe

Chizuru Nishida
World Health Organization

Invited Speakers

Branka Legetic
WHO-EURO consultant

Ivon Milder
National Institute for Public Health and the Environment (RIVM)
Netherlands

Francesco Cappuccio
WHO Collaborating Centre, Warwick Medical School
UK

Linda Cobiac
WHO Collaborating Centre, University of Oxford
UK

Vyas Adhikari
University of Oxford,
UK