World Health Organization

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Mapping salt reduction initiatives in the WHO European Region

ABSTRACT

Noncommunicable diseases (NCDs) are the leading causes of mortality globally, accounting for more deaths than all other causes combined. An urgent development issue, NCDs strike hardest at the world's low- and middle-income populations, where nearly 80% of NCD-related deaths occur. In order to reduce the growing burden of NCDs, the World Health Organization (WHO) recommends reducing salt intake in the general population as a cost-effective strategy. Measures in this direction are considered a "best-buy" approach to preventing NCDs. Salt is a commonly used term referring specifically to sodium chloride (5 g salt ≈ 2 g sodium). The positive health impact of reducing an individual's salt intake is reflected in scientific evidence of a corresponding reduction in blood pressure, among other benefits. Accordingly, WHO recommends a population salt intake level of less than 5 g per person per day for the prevention of cardiovascular diseases. Salt intake in most WHO European Region countries is far above the suggested amount. The purpose of this report is to present an up-to-date view of current salt reduction initiatives in WHO European Member States by highlighting activities related to the action points of the relevant global frameworks.

Keywords

CARDIOVASCULAR DISEASES - prevention and control
DIET, SODIUM-RESTRICTED - utilization
HYPERTENSION - prevention and control
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Abbreviations

CVD	Cardiovascular disease
EU	European Union
FPS Health	Federal Public Service Health, Food Chain Safety and Environment (Belgium)
FSA	Food Standards Agency (United Kingdom)
FSAI	Food Safety Authority of Ireland
GIRCSI	Interdisciplinary Working Group for Reduction of Salt Intake in Italy
NCD	Noncommunicable disease
NOPA	WHO European database on nutrition, obesity and physical activity
RIVM	National Institute for Public Health and the Environment (Netherlands)
UNICEF	United Nations International Children's Emergency Fund
WASH	World Action on Salt and Health

Foreword

Cardiovascular diseases, which are one of the priority areas of the European health policy, Health 2020, are the main causes of morbidity, disability, mortality and overall costs in the WHO European Region. Of particular interest is the association between salt intake and hypertension, a known risk factor for stroke and other cardiovascular diseases.

Reducing salt intake is one of the easiest ways to reduce high blood pressure and thus the risks of stroke and cardiovascular and kidney diseases. Reducing salt intake to less than 5 g per day reduces the risk of stroke by 23% and the general rates of cardiovascular disease by 17%. Most Europeans' daily intake is about 8–11 g, which far exceeds WHO's recommended level of 5 g per day.

WHO has developed a set of voluntary global monitoring targets and 25 indicators to assess progress in the implementation of strategies to achieve the global political commitment to reduce the burden of noncommunicable diseases. The goal of reducing dietary salt intake to ≤5 g/day, together with a 30% reduction of intake by 2025, constitutes a major challenge for WHO European Member States. This goal is based on overwhelming evidence and available cost-effective initiatives for preventing hypertension - the reason why these measures are considered a "best buy" approach to preventing noncommunicable diseases.

The WHO Regional Office for Europe has been working in recent years with Member States to devise policy options that could dramatically reduce dietary salt intake. Several mechanisms have been used, of which some are crucial, namely the promotion of stakeholder engagement underlying the importance of intersectoral collaboration, the provision of sound evidence and the establishment of adequate governance mechanisms in this field fully in line with the WHO Health 2020 philosophy. A good example of this was the establishment, under the guidance of WHO, of the European Salt Action Network, involving 23 Member States.

It is possible to alleviate the burden of cardiovascular diseases on the health of the citizens of the European Region. This report is a contribution that clearly shows how Member States are taking seriously the negative impacts of unhealthy diets on well-being, development and growth. Action on salt reduction by activating the engagement of stakeholders, reformulation of food, provision of proper and meaningful information to consumers and an adequate monitoring system of dietary salt intake and its major sources in the diet is, therefore, possible. Furthermore, such action saves lives and reduces disability.

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WHO Regional Director for Europe

Introduction

Noncommunicable diseases (NCDs) are the leading causes of mortality globally, accounting for more deaths than all other causes combined. An urgent development issue, NCDs strike hardest at the world's low- and middle-income populations, where nearly 80% of NCD-related deaths occur.

In order to reduce the growing burden of NCDs, the World Health Organization (WHO) recommends reducing salt intake in the general population as a cost-effective strategy. Measures in this direction are considered a "best buy" approach to preventing NCDs. Salt is a commonly used term referring specifically to sodium chloride (5 g salt ≈ 2 g sodium). The positive health impact of reducing an individual's salt intake is reflected in scientific evidence of a corresponding reduction in blood pressure, among other benefits (*1*). Accordingly, WHO recommends a population salt intake level of less than 5 g per person per day for the prevention of cardiovascular disease (CVD). Yet salt intake in most countries in the WHO European Region is far above the suggested amount.

The purpose of this report is to present an up-to-date view of current salt reduction initiatives in WHO European Member States by highlighting activities related to the action points of the relevant global frameworks.

Background

Elevated blood pressure is estimated to cause 7.5 million deaths annually, the equivalent of about 12.8% of all deaths worldwide (*2*). It is the major risk factor for CVD, which in itself is the leading cause of deaths globally. Excessive salt intake is closely linked to CVD; in recent decades it has increased, together with the consumption of processed foods.

The historic transition process in nutrition in Europe has been defined, as elsewhere, by population-level shifts in food consumption towards a diet high in saturated fat, sugar and refined foods and low in fibre, with attendant increases in obesity, diabetes, CVD and cancer (*3*). These changes have arisen as populations in Europe modernize through socioeconomic development, urbanization and acculturation. Over the past three centuries, the pace of change in diet and activity levels appears to have accelerated to varying degrees in different regions of the world and to have developed in parallel with major changes in health status as well as major demographic and socioeconomic changes (*4*).

Interpretations of the changes in demography and epidemiology in Europe share a focus with the transition in nutrition in an overlapping set of common determinants and consequences. Such observations highlight the urgent need for a concerted effort to pursue new approaches in public health nutrition policies, interventions and research. There is growing recognition that the time has come to steer this transition in nutrition in a more positive direction in the Region.

WHO has set a goal for global reduction in the dietary salt intake, and has called on all countries to reduce the average population salt intake to ≤5 g/day with the aim of reducing salt intake by 30% by 2025. This goal and proposed target are both based on strong evidence and cost-effective measures aiming to prevent CVD. Good examples from countries that have already successfully introduced salt reduction policies should inspire other European Member States to take action.

WHO and international initiatives for reduction of salt intake

In 2003, a joint report by WHO and the United Nations Food and Agriculture Organization recommended a reduction of salt intake at the population level to no more than 5 g/day, with a provision for ensuring the adequate iodization of salt (*5*). Updated WHO recommendations covering the implementation of measures useful to achieve such a reduction in population salt intake were released in 2006. In 2013, these were updated again, confirming a 5 g/day intake for the adult population and a probable maximum daily intake for children of under 2 g/d (*6*). These form part of the implementation of the WHO Global Strategy on Diet, Physical Activity and Health (*7*), the 2008–2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases (*8*), the Regional Food and Nutrition Policy Action Plan 2007-2012 (*9*) and the Action Plan for the Implementation of the European Strategy for Prevention and Control of Noncommunicable Diseases 2012-2016 (*10*). This last recommends five priority interventions, three of which focus on "promoting healthy consumption via fiscal and marketing policies", "elimination of trans fats in food (and their replacement with polyunsaturated fats)" and "salt reduction".

In September 2012, the sixty-second session of the Regional Committee adopted a new European health policy framework, Health 2020, with the aim of supporting action across government and society to: "significantly improve the health and well-being of populations, reduce health inequalities, strengthen public health and ensure people-centred health systems that are universal, equitable, sustainable and of high quality" (*11*). Health 2020

recognizes that governments can achieve real improvements in health if they work across government to fulfil the two linked strategic objectives of improving health for all and reducing health inequalities, together with improving leadership and participatory governance for health. The Health 2020 policy framework proposes four priority areas for policy action, based on the global priorities set for WHO by its Member States and aligned to address the special requirements and experiences of the European Region. These areas also build on relevant WHO strategies and action plans at the regional and global levels.

The four priority areas are to:

- invest in health through a life-course approach and empower citizens;
- tackle Europe's major disease burdens resulting from noncommunicable and communicable diseases;
- strengthen people-centred health systems and public health capacities, including preparedness and response capacity for dealing with emergencies; and
- create supportive environments and resilient communities (*11*).

In 2008, the European Union (EU) High Level Group on Diet, Physical Activity and Health launched the EU Framework for National Salt Initiatives, setting a common minimum European benchmark of a 16% salt reduction from baseline 2008 levels over four years across all food products (*12*). In the same year, a European Salt Action Network was established under the auspices of WHO, supported by the United Kingdom Food Standards Agency (FSA) and (later) the Swiss Federal Department of Public Health, with the aim of promoting the harmonization of salt intake reduction programmes in EU countries.

In order to reduce salt intake effectively in the general population, EU salt reduction activities have concentrated on a limited number of food categories. Specifically, 12 categories of food are identified, from which countries select at least 5 to target through their national nutrition action plans and strategies.

The 12 priority categories of food for action are:

- bread
- meat products
- cheese
- ready meals
- soup
- breakfast cereals
- fish products
- crisps, savoury snacks
- catering meals
- restaurant meals
- sauces, condiments and spices
- potato products.

Priority is given to food categories that commonly represent major sources of salt in average diets, within which benchmarks are set for achieving the lowest possible salt levels at the EU level, deemed "best in class" levels. These priority benchmarks are identified as follows:

- bread: 16% in 4 years;
- ready meals: 16% in 4 years;
- meat products: 16% in 4 years, acknowledging that sub-categories of meat may have different benchmarks, including reducing variations between similar products;
- cheeses: 16% in 4 years, acknowledging that sub-categories of cheese may have different benchmarks,
- including reducing variations between similar products.

Countries are also encouraged to set individual benchmarks in line with unique national starting levels and contextual factors, particularly for sub-categories of bread, meat and cheese.

In September 2011, a Political Declaration for the Prevention and Control of Non-Communicable Diseases (resolution A/RES/66/2), was endorsed by the United Nations General Assembly (*13*). Member states committed themselves, among other issues, to reduce risk factors and create health-promoting environments.

Table 1 gives a timeline of the commitments listed above and agreed by WHO Member States.

Table 1. Timeline of some key milestones in salt reduction

Year	Milestone
2004	Adoption of the WHO Global Strategy on Diet, Physical Activity and Health (7)
2006	Adoption by WHO European Member States of the European Charter on Counteracting Obesity (14)
2006	Results from the Paris Technical Meeting on Reducing Salt Intake in Populations: three pillars for national programmes (15)
2007	Adoption of the EU White Paper on a Strategy for Europe on Nutrition, Overweight and Obesity related health issues (16) and of the WHO European Action Plan for Food and Nutrition Policy (9)
2007–2012	Implementation of the WHO European Action Plan for Food and Nutrition Policy (9)
2008–2013	Adoption and implementation of the WHO 2008–2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases (8)
2008	Creation of the EU framework for national salt initiatives (12)
2010	Discussion of the United States Institute of Medicine's draft standards for salt content of food by the United Kingdom FSA and WHO in London
2011	Holding of the First Global Ministerial Conference on Healthy Lifestyles and Noncommunicable Diseases Control, Moscow (17)
	Adoption of the Political Declaration of the High-level Meeting of the United Nations General Assembly on the Prevention and Control of Non-communicable Diseases (13)
2012–2016	Endorsement of the Action Plan for Implementation of the European Strategy to Prevent and Control Noncommunicable Diseases (10)
2012	Discussion of the Global Monitoring Framework for Noncommunicable Diseases (18)

Rationale and impact of salt reduction measures

Global framework: WHO key areas for action

The 2006 global expert technical meeting in Paris resulted in the recommendation that national programmes be built around the following three core "pillars", as follows (*7,8*).

- Product reformulation. This is considered an area that should be approached in coordination with manufacturers, distributors and providers. It includes identification and monitoring of the main contributors to salt consumption as well as the implementation of monitoring mechanisms by qualified staff and with an appropriate budget.
- Consumer awareness and education. This should be pursued through campaigns focusing on clear and simple messages to be tested beforehand, carried out by previously identified key groups and individuals. An appropriate avenue of communication should be determined with a view to targeting not only the general population but particularly the most vulnerable groups. The provision of information on how to read and interpret nutrition labels is also proposed as part of Consumer awareness activities.
- Environmental changes. These are considered as a means of making healthy food choices easy and affordable for everyone, including through setting country targets and specific standards for food providers. Clear and comprehensive labelling is also considered a key element of environmental changes.

Building on these recommendations, eight essential steps have been identified by WHO and the Pan American Health Organization:

- organizing support to mobilize for change;
- conducting any kind of valid salt intake survey, with or without biological measurements;
- setting the target (national dietary guideline on salt);

- planning the campaign and engaging partners for implementation;
- carrying out consumer awareness campaigns;
- labelling to highlight the salt content of foods, and symbols/logos/text to identify low salt products;
- negotiating agreements with the food and catering industries, food retailers and restaurants to lower the salt content of a wide range of products;
- monitoring progress, with continuous revision and evaluation.

EU framework

The EU Framework for National Salt Initiatives describes a common vision for a general European approach towards salt reduction. Countries' participation in this framework is entirely voluntary.

The purpose of the framework is to support and reinforce national plans and serve as a means for comparing progress across the EU while maintaining flexibility for member states, allowing them to tailor their national approaches to their specific situations (*12*). In terms of reformulation of food products, a shared framework also facilitates a coordinated message that can be used to engage the industry across Europe. In this way, momentum and measurable action can be generated while at the same time efforts are sustained to reformulate the content of other nutrients such as total fat, saturated fatty acids, trans-fatty acids or sugars.

The framework put into place by the EU builds on five key elements in salt reduction initiatives:

- data collection
- establishment of minimum benchmarks within major food categories
- public awareness
- industry engagement
- monitoring, evaluation and reformulation.

Methods of policy survey and analysis

Sources of evidence

The evidence-gathering approach for this document consisted of the following five components.

Mining of evidence from the data management website for the WHO European database on nutrition, obesity and physical activity (NOPA) (*19*). This database compiles information for WHO European Member States to monitor progress on diet and nutrition, physical activity and obesity. Country information includes national and subnational surveillance data, policy documents, action to implement policy and examples of good practice in programmes and interventions. An analysis of the data in NOPA for identification of further relevant national policies was, therefore, undertaken in 2012.

Confirmation and fine tuning of collected data with Member States. Additional information on existing salt reduction initiatives was received in 2012 electronically from WHO national nutrition focal points in the Member States. A total of 29 countries replied with information on current and planned salt reduction activities.

Search of databases. Relevant electronic databases (including biomedical and health science, social science, health policy, nutrition and WHO regional databases) were searched up to April 2012 using a pre-determined search strategy. Bibliographies of papers matching the eligibility criteria were then searched by hand to identify any further relevant references, which were subject to the same screening and selection process. Identified references were screened independently by two reviewers using a three-stage approach. All types of evaluative study design were eligible for inclusion; studies were not selected based on methodological quality.

Hand search. Government websites pertaining to ministries of health, national public health institutes, ministries of sanitation and welfare or any other relevant government agencies were hand searched in order to identify additional relevant national policies or initiatives. Websites of nongovernmental organizations, scientific associations and any other credible sources involved with salt reduction initiatives, either nationally or nationally, were also consulted.

Grey literature. Technical reports from government agencies or scientific research groups, working papers from task force groups or committees, white papers or preprints were also included. Additionally, reports from the European Commission, WHO and the Collaborative Action for Risk Factor Prevention and Effective Management of Noncommunicable Diseases were consulted.

Data extraction

Policy documents were analysed and any relevant information pertaining to the national salt reduction strategy of a given country was extracted and placed under one of the aforementioned key areas. National nutrition policies or initiatives not mentioning salt were excluded. The information obtained was then placed into a data collection matrix hybrid incorporating key elements from the EU Framework for National Salt Initiatives as well as the essential steps identified by WHO and the Pan American Health Organization.

Structure of the analysis

The following sections are included under each country profile, as relevant.

Current national initiatives

- Organizational aspects, describing the identification and engagement of leaders or the establishment of committees or working groups.
- National benchmarks and targets set by dietary guidelines (including the five food categories prioritized for action).
- Planning aspects, including any mention of the general evolution of salt reduction initiatives in the national context.

This section describes recent and/or Current national initiatives related to salt reduction. Given the flexibility afforded Member States to tailor their efforts strategically to fit national situations, national salt reduction initiatives can vary widely from country to country. This means, for example, that policies or initiatives may be included either within an existing national programme, such as a national public health programme (Hungary), or as an independent salt-specific programme (Ireland).

Initiatives can also be characterized as legislative or non-legislative. Legislative initiatives are enforced by governmental authorities, while non-legislative initiatives can take the form of voluntary contracts or charters agreed by key stakeholders.

Baseline assessment

- Current levels of salt intake as measured by 24-hour urine collection, casual spot urine collection or timed spot collection.
- Primary sources of information on dietary salt such as surveys and dietary records.

As every country is different when it comes to dietary habits, traditional foods, and other determinants of salt intake, initial starting points are needed in order to plan implementation effectively as well as to monitor continuing progress.

Barriers such as a lack of government interest or reluctance by the food industry to cooperate have made it difficult to establish Baseline assessments.

Methods used to conduct environmental evaluations of population salt consumption for Baseline assessment include 24-hour urine samples, 24-hour dietary recall and food frequency questionnaires.

Current levels of salt intake measured by urine analysis can be assessed by 24-hour urine collection, casual spot urine collection or timed spot collection, although several Member States regard 24-hour urine collection as the "gold standard" method, given its high accuracy (*20,21*).

Concerns raised by Member States regarding urine collection lie in the logistical and financial difficulties associated with administering this method. Experience has, however, demonstrated that while there are some fixed costs in urinary studies, the majority of costs are accounted for by administration (such as human resources) (*22*). Regarding the minimum sample size, evidence has shown that valid results can be achieved from samples of at least 150–200 participants per age and sex stratum for valid results to be obtained (*20,23*).

Primary sources of dietary intake data include surveys or eating records such as 24-hour dietary recall surveys. Although the 24-hour dietary recall approach undertaken through a detailed interview gives a good idea of all food and beverages consumed, it is considered less accurate than a 24-hour urinary collection, given that it usually underestimates salt intake. Due to the lack of up-to-date salt and sodium composition food tables, many countries are not in a position to measure the use of discretionary salt.

Consumer awareness
- Initiatives designed to raise Consumer awareness, such as via television, radio, newspapers, pamphlets, online tools, social media, national salt days and press releases.

Member States are responsible for activities related to raising public awareness, as interventions should be tailored to each country's situation. The unique advantage that public awareness-raising strategies have over other salt reduction initiatives is that they can also be carried out by a number of stakeholders, including nongovernmental organizations, industry, the media, the health sector and national platforms.

Labelling
- Use of labelling to highlight the salt content of foods.
- Use of symbols, logos, or text to identify low-salt products.

Food labels play important third-party roles when it comes to diet through their impact on advertising and consumers' confidence in food quality and purchasing decisions (*24*). EU legislation on the labelling of foodstuffs prevents presentation and advertising designed to mislead consumers about products' characteristics or effects (*25*). Although not usually specific for salt reduction, initiatives taken by Member States have proved effective in this regard by providing consumers with easily comprehensible labels on food packages. The "keyhole" symbol in Scandinavian countries is one such example.

Industry involvement
- Collaborative action involving the food and catering industries, food retailers and restaurants.

A key activity in any salt reduction strategy is working with industry to reduce salt levels in prepared foods. Through reformulation of industrially processed foods, for example, Member States have been encouraged to obtain a broad endorsement of the common vision for salt reduction with food producers and their local confederations.

Monitoring and evaluation
- Self-reporting framework by industry.
- Monitoring of salt content of foods, intake data.
- Awareness of consumers and changes in their behaviour.
- Sodium excretion surveys.
- Effectiveness of action to raise public awareness.

Monitoring and evaluation of salt intake plays a vital role as a way of measuring the quality and impact of salt reduction initiatives. This is each Member State's responsibility and appropriate methods should be chosen according to the national context.

Salt reduction initiatives: country profiles

Albania
To date, no initiatives have been reported, although some are contemplated in the new draft food and nutrition action plan.

Andorra
Current national initiatives
There is a national strategy for nutrition, sport and health for 2007–2012, although no specific measures have been taken regarding salt (*26*).

Baseline assessment
In 2004, a 24-hour dietary recall and food frequency questionnaire was carried out, estimating that the average sodium intake in the population was 3 g/day (probably an underestimate) (*27*).

Consumer awareness
Information campaigns focusing on a healthy diet and reduced salt intake have been carried out in the forms of conferences, booklets and radio and television spots.

Armenia
To date, no initiatives have been reported.

Austria

Current national initiatives

Headed by the Federal Ministry of Health, activities related to salt reduction have been planned for 2009–2010, with the engagement of partners including the Agency for Health and Food Safety and the bakers' association (via the Federal Economic Chamber). The salt reduction strategy is part of the 2011 nutrition action plan (*28*). The primary nutrient goals and recommendations outlined in the action plan are based on those set regionally for Austria, Germany and Switzerland, whereby national data are measured against regional targets. Policy action mentioned in the plan includes the promotion of healthy food choices and setting of specific targets for the food industry. It is hoped to achieve a 15% salt reduction in bread by 2015.

Baseline assessment

Data based on a 3-day dietary record and 24-hour dietary recall established that average daily salt consumption is 9 g for men and 8 g for women (*29*).

Consumer awareness

Restrictions on the advertising of food with a high salt content are planned, with special emphasis on marketing that targets children. A press conference entitled "Less salt is healthier" was held in 2011.

Industry involvement

In collaboration with the food industry, an ongoing initiative is being undertaken to reduce salt in bread and pastries, including efforts on the part of the baking industry. National authorities, scientific experts and industry representatives have rallied in an effort to reduce the amount of salt added to bread and pastries in bakeries. Several local as well as national bakeries have joined in the effort, which is entitled "Everyone talks about reducing salt – Austrian bakers do something!"

In addition, a database for an evidence-based approach and quality control measures has been developed and is being maintained. A survey on salt levels in food at national level is also being conducted, based on the Austrian salt reduction initiative. Monitoring and evaluation of the initiative is being planned with the development of a concrete monitoring method.

Azerbaijan

To date, no initiatives have been reported.

Belarus

To date, no initiatives have been reported.

Belgium

Current national initiatives

In 2006, a salt strategy that included recommendations on limiting salt intake was defined within the framework of the National Food and Health Plan. A Salt Reduction Task Force was established in 2007, led by the Federal Public Service Health, Food Chain Safety and Environment (FPS Health) (*30*). In addition, a working group has been set up by the co-coordinators of the Plan consisting of representatives of the food industry and all sub-sector federations, the distribution sector federation, consumers' organizations and scientific experts.

A multi-stakeholder meeting was held in 2008, when a national salt reduction strategy was outlined. Currently, the salt reduction initiative is managed by FPS Health in the framework of the National Food and Health Plan. The current salt convention states that the aim is to reduce salt consumption by 10% in the period 2009–2012 (*31*). The feasibility of this target was confirmed by calculating the impact of the salt reduction commitments in the different food categories, taking into account their individual contributions to total salt consumption in the adult population.

The Superior Health Council for Belgium published an extended advisory document on reformulation in 2012 (*32*). Scientifically-based advice will include health, technology and safety aspects as well as options for salt replacers. Recommendations will be drafted directed towards policy-makers, the private sector, researchers and consumers.

Baseline assessment

In 2006, as part of the National Food and Health Plan, a study was authorized by the Federal Government that evaluated 17 different food categories with a high salt content (*33*). As part of this study, a first measurement of salt intake was carried out in 2008 by the Scientific Institute of Public Health at the request of FPS Health. The

mean sodium intake of the population was calculated by 2 day 24-hour dietary recall. The results indicated that men ingested substantially more sodium than women (3.3 g/day versus 2.3 g/day) (*34*). Regional differences were also observed: the intake of sodium in Flanders was 4.29 g/day, whereas in Wallonia it was 3.94 g/day. In both regions, sodium intake in men was higher than in women (*35*).

Consumer awareness

A large-scale media campaign for salt reduction was launched by the Federal Minister of Public Health in the framework of the National Food and Health Plan, with 2009 designated as the year of "hypertension or high blood pressure". This public awareness campaign incorporated communications tools including a brochure focusing on truths about salt consumption ("the unsalted truth or a salted bill") and a calculator (converting between sodium and natrium levels, and calculating salt levels as "high in salt", "medium salt" or "low in salt"). Both tools were distributed with the help of the federation of the distribution sector, pharmacists, general practitioners and the Belgian Cardiology League. Advice for consumers was also to be included in the 2012 recommendations published by the Superior Health Council.

Industry involvement

In 2009, a convention was signed with the federation of the food industry and all its subsectors as well as with the federation of the distribution sector, by which written commitments were provided to reduce salt consumption based on a self-reporting framework. Some sectors requested individual meetings with the president of the working group and the co-coordinator of the Plan to clarify their position, leading to the setting of appropriate sector-specific salt reduction targets across a series of food categories.

Monitoring and evaluation

Salt in Belgian bread is strictly regulated by a Royal Decree of 1985, with maximum salt levels in bread and bread products set at 2% of dry matter (*36*). As part of the monitoring programme, FPS Health undertakes a yearly analysis of artisanal and industrial bread produced in the country to check compliance with the legislation. According to this annual monitoring, more than 90% of bread products analysed meet the national norm.

In 2012, the enacted salt strategy was to be evaluated by several means, including a salt content analysis carried out by an independent institution, supplementing the annual evaluation of salt levels in bread carried out by FPS Health. A new population-level 24-hour urine analysis and a report from all sectors involved in the salt reduction task force were expected. Self-regulatory measures taken by the food industry, distribution sector, restaurant, catering and hotel school sector were also to be evaluated by the task force in 2012.

Bosnia and Herzegovina

To date, no initiatives have been reported.

Bulgaria

Current national initiatives

The first National Food and Nutrition Action Plan was established and carried out during the period 2005–2010. Reformulation of food, including salt reduction measures, was a key priority at the national level. Goals outlined in the Action Plan included a decrease in salt consumption, with a long-term target of reaching an average intake per capita of 5 g/day (*37*). Fiscal measures such as taxation were also included in the Action Plan and implemented by the Ministry of Health and Ministry of Finance during 2005–2007.

The national salt initiative was approved by the National Coordination Committee in 2007. Multiple stakeholders and ministries have been involved in the planning, implementation and monitoring of activities related to salt reduction. In 2009, an ordinance implemented in schools mandated the reduction of salt content in all school canteens. The ordinance was updated for 2011–2012 to include provisions for healthy nutrition and salt reduction in kindergarten canteens.

The second National Food and Nutrition Action Plan for 2012–2017 is being developed. Salt reduction is again one of the important topics under the food and nutrition policy umbrella.

Baseline assessment

Data from the national monitoring of nutritional status and dietary intake have been analysed to obtain the main sources of salt by food group. Based on such assessments, salt content levels have been established by the national government for several food categories including bread, dairy products and poultry.

The national survey conducted in 2004 determined by means of 24-hour dietary recall that population salt consumption levels were 12.5-14.5 g/day for men and 11.4-16.6 g/day for women. These data served as a baseline for the subsequent implementation of national salt initiatives (*38*).

Consumer awareness

Since the first approval of the national salt initiative, two press conferences have been organized at national level as well as a number of special television/radio broadcasts and newspaper publications. Partnerships spearheading these initiatives included the food industry, health sector, and media and nongovernmental organizations. Along similar lines, a new national information campaign for salt reduction, coordinated through the Ministry of Health, was planned to start in 2012.

Industry involvement

Support is provided on an annual basis to the food industry for offering and promoting products that contribute to a healthy food consumption pattern corresponding to the national dietary guidelines. This includes an emphasis on reduced salt in foods, particularly with regard to bread and bakery products, which are the main source of sodium for the population.

Monitoring and evaluation

The Ministry of Health and Control and Protection of Public Health maintained an effective and sustainable national monitoring and information system for control of marketed iodized salt during the period 2005–2010. Data were collected for salt content in various bakery, meat and dairy products from producers. The 2012–2017 National Food and Nutrition Action Plan aims to include a sodium content analysis of ready meals and basic target foods by the Regional Public Health Control and Protection Inspectorates in the framework of their normal control activities. Monitoring of nutritional status and dietary intake, including an analysis of sodium excretion in 24-hour urine samples in population subgroups, is also intended under the new Action Plan.

Croatia

Current national initiatives

The national food and nutrition policy has mentioned reducing salt consumption since 1999 (*39*). However, it was not until 2006 that the first national salt reduction programme was adopted, followed by the Croatian Action on Salt and Health initiative, launched in 2007, as part of the World Action on Salt and Health (WASH) network.

The National Institute of Public Health, the Academy of Medical Sciences, the Ministries of Health and of Agriculture and representatives of the food industry and the media are planning to come together in the near future to raise nutritional awareness in the area of salt reduction. The expected outcomes will include a national strategy on how to move forward and the identification of key areas where action needs to be taken.

Baseline assessment

The average daily salt intake of the population has been estimated at around13-16 g/day. Analyses of the salt content in Croatian bakery products showed that these foods were estimated to account for close to 2% of population salt intake (~20 g/kg flour = 13 g/kg bread; 5 g salt/kg bread). It has been estimated that the levels of salt used in baking are extremely variable, making it difficult to obtain absolute levels of salt in bread in the country (*40*).

Industry involvement

In 2012, the National Institute of Public Health initiated a project in collaboration with food industry representatives, the overarching goal of which was to achieve a 30% reduction in added salt in certain types of bread.

Monitoring and evaluation

Laboratory analyses measuring the salt content of certain food products are planned.

Cyprus

Current national initiatives

In 2008, the Ministry of Health decided to implement and follow the salt initiatives being taken in the EU and published its salt reduction recommendations. That year, an expert committee was formed to take action in the area of salt reduction policy.

Baseline assessment
A 24-hour dietary recall survey conducted from 2005 to 2008 estimated population salt intake at approximately 5 g/day for both men and women (*38*).

Consumer awareness
With the aim of raising awareness in the general public regarding salt reduction, five points of action were agreed in 2008:

- to print a leaflet with information on salt and distribute it to the public;
- to place advertisements in magazines and newspapers;
- to implement a campaign and to engage the media for further dissemination of the campaign;
- to design and print a booklet aimed at children in the form of a story;
- to organize a series of seminars for teachers and parents in order to inform them about the various salt initiatives.

In 2009, National Nutrition Day (May 10) was officially devoted to the salt initiative.

Industry involvement
Reformulation activities involving the food industry and catering services were carried out in September 2008.

Czech Republic
Current national initiatives
There is no national salt strategy at present, although the current general dietary guidelines recommend a total daily salt intake of no more than 5 g (1 teaspoon) per day (*41*).

Baseline assessment
Dietary exposure to sodium based on national nutrition surveys has been measured by the National Institute of Public Health since1996. In the 2004/2005 survey, salted varieties of bakery products and instant soups were categorized as the most important sources of absolute exposure to salt. Cheeses and meat products, meanwhile, were the richest sources of salt counted in kilos of food (except concentrates) (*12*). A repeated 24-hour dietary recall survey carried out in 2003/2004 estimated salt intake at 16.6 g/day for men and10.5 g/day for women (*38*).

In 2007, the nutrition and anthropometric data of 1655 children aged 4-7 years and 1137 children aged 7-10 years were measured. Analyses were based on 48-hour food consumption data and intake, with a focus on over 30 nutrients. The results demonstrated that the most notable excess in consumption within both groups of children was of sodium (*12*).

Consumer awareness
In cooperation with the Ministry of Agriculture, the Ministry of Health maintains a website aimed at improving consumer awareness with respect to healthy nutrition, diet and food safety, with salt reduction as a key area of focus. The website includes information on the main dietary sources of salt as well as recommendations on daily intake (*29*).

Industry involvement
In 2008, a voluntary commitment to reduce sodium content was signed by the producers of dehydrated culinary products associated in the Food Federation of the Czech Republic. This included a pledge to reduce, gradually and evenly over the period 2009–2014, the sodium content of their branded dehydrated culinary products, namely in dehydrated soups and dehydrated ready meals (usually pasta-based). The commitment also involved an effort to implement voluntary labelling regarding energy and other important nutrients on the packaging of their branded products intended for the final consumer. Such labelling was to include the sodium content, not only per 100 g/100 ml but also per portion, indicating the percentage of the guideline daily amount contained in that portion.

Monitoring and evaluation
A national programme to monitor toxic substances (lead, selenium, copper, cadmium and zinc) has been running since 1994. During the first period (1996–2003), 3245 adults and 3075 children were involved. During the second period (2005–2009), 821 adults and 400 children were monitored. As part of this programme, blood and urine samples were collected and a survey carried out. However, no sodium measurements were included in this monitoring – a significant missed opportunity.

Denmark

Current national initiatives

Denmark subscribes to the Nordic Plan of Action on better health and quality of life through diet and physical activity (involving Denmark, Finland, Iceland, Norway and Sweden) (*43*). Given that an estimated 66% of food produced in the EU moves across national borders, the country's integration into a regional framework has been deemed essential (*44*).

In 2008, the Danish Veterinary and Food Administration, in collaboration with the National Food Institute, drew up guidelines that included a recommendation on how to cut down the use of salt in canteens. Meanwhile, the Ministry of Food, Agriculture and Fisheries has targeted an overall salt reduction benchmark of 16% over a 4-year period, seeking to achieve a reduction in the population average daily salt intake by 2014 to 5 g for women and 6-8 g for men (*45*).

The current salt strategy is implemented by a set of national partnerships including the Veterinary and Food Administration, the Danish Food and Drink Federation (an independent business organization within the Confederation of Danish Industries), the Danish Agriculture and Food Council, the Danish Chamber of Commerce, the Danish Heart Association, the Danish Consumer Council, the Danish Cancer Society, the Danish Association of Clinical Dieticians, the Danish Diabetes Association and the Danish Diet and Nutrition Association. The National Food Institute and the Technical University of Denmark participate in monitoring. These partnerships were originally set to span a two-year period. However, considering the reductions in population salt consumption targeted for 2014, an extension has been made to assess the impact of the strategy. Based on this assessment, the programme's continuation and a new strategy for action will be decided.

Baseline assessment

Population salt intake levels were estimated via dietary records and survey data at 7.3 g/day for women and 9.8 g/day for men in 2008. Earlier, results from a dietary survey carried out in 2000–2002 had demonstrated a decrease in salt intake of 10-15%, primarily attributed to new data on bread and bread products. Actual salt intake levels were estimated to be higher because salt added at the dinner table was not included in the survey (*46*).

Additional data were provided through measurements of sodium excretion from 114 24-hour urine samples and in 3500 randomly selected spot urine samples in 2004–2005 (*12*). A separate estimate was then carried out in 2008 from the mean urinary sodium excretion measured in 4 24 hour collections from 87 individuals. Household salt, added to the volunteers' food, was assessed using a lithium-marker technique. Based on these measurements, total daily salt intake was assessed at 11 g in men and 7 g in women. Median intake of household salt was estimated at 1.0 g/day in men and 0.5 g/day in women, corresponding to 10.2% and 8.7% of total salt intake in men and women, respectively (*47*).

Consumer awareness

Information is supplied to consumers via a website showing major contributors to daily salt intake as well as tips on how to reduce intake. Several publications have also been drafted for the general public on salt awareness. The Veterinary and Food Administration regularly disseminates information on healthy eating and physical activity. This includes information in the form of pamphlets and promotional films (among other means of communication) regarding salt requirements, salt sources and advice on how to reduce intake.

Labelling

Denmark, Norway and Sweden have agreed on a common Nordic food labelling symbol, known as the keyhole, implemented in 2009 after being spearheaded earlier by Sweden. In Denmark, the Veterinary and Food Administration is responsible for administering the keyhole labelling initiative. Engagement in the food labelling initiative commenced in October 2008, when a political agreement reached by the Ministerial Council on new legislation for food labelling was signed. Labelling is on a voluntary basis but is expected to become mandatory in a few years. Information is provided on the food product packaging to aid consumer selection within different food groups with regard to fat, sugar and salt content. The most recent review on labelling criteria started in 2011 and will come into force in early 2013. The feasibility of establishing further criteria for levels of salt in meat and fish products will also be discussed.

Industry involvement

Discussions with the food industry have been undertaken in the hopes of providing producers with a practical set of guidelines and goals, which remain under development at this stage. Efforts to reduce the salt content

of canteen and restaurant food are also planned, including placing the keyhole logo at the main entrance of dining establishments. The initiative is targeted at restaurants, canteens and other eating establishments such as fast food chains, with the objective of making it easier for consumers to make healthier choices when eating out.

A private, self-regulatory initiative, the Forum of Responsible Food Marketing Communication, was launched in December 2007 and is still running among a group of industry partners. Among this Forum's activities has been the development of a code of responsible food marketing communication to children, which the government has welcomed as a form of self-regulation and a positive first step. Partners in the initiative are the Danish Food and Drink Federation, The Danish Chamber of Commerce, the Federation of Retail Grocers in Denmark, TV2 | DANMARK, the Danish Brewers' Association, the Danish Newspaper Publishers' Association, the Association of Danish Advertisers, the Association of Danish Internet Media, the Danish Association of Advertising and Relationship Agencies and the Danish Magazine Publishers' Association.

Monitoring and evaluation

It is planned to carry out two studies in 2014 to assess total salt and household salt consumption in 100 subjects and sodium content in 500 randomly selected spot urine samples. The results will give an idea of the change in total salt intake over time, and will show whether the intake of household salt increases when the intake from industrially produced food decreases (*12*).

Estonia

Current national initiatives

The current national salt initiative is part of the National Strategy for the Prevention of Cardiovascular Diseases 2005–2020, falling under the responsibility of the Ministry of Social Affairs (*48*). A particular emphasis of the National Strategy has been on fruit and vegetables, with much less emphasis placed on the more critical heart health dietary issues such as salt and saturated fat. Salt reduction is also mentioned in the current National Health Plan 2009–2020, but without setting quantifiable targets or goals to be achieved by 2020 (*49*). The Estonian Nutrition Society recommends a daily salt intake level of 5 g for women and up to 6 g for men (*50*). In February 2013, an intersectoral workshop was organized under WHO leadership and involving different stakeholders to prepare a plan for salt reduction in the food chain. The National Institute of Public Health and WHO invited Switzerland to share its experience of success in salt reduction, and a representative of industry to present ways to reduce salt from the technological perspective.

Baseline assessment

Self-reported data collected from 1000 participants in 1997 estimated an average salt intake of approximately 10 g/day in both men and women (*38*).

Consumer awareness

In 2005, an Estonian computer program about nutrition was created that allows users to obtain nutritional information by using three different calculators and to compare their personal results with general nutrition recommendations. The program allows individuals to look up foods by name, source (for example, fast food, grocery store), brand name and ingredients (including salt) to learn its detailed nutritional value.

Labelling

A labelling regulation requiring the display of sodium chloride (not total sodium) content in 10 food product categories has been established. A governmental regulation was drafted in December 2003 and entered into force in 2004. According to this regulation, the maximum percentage by weight of cooking salt (sodium chloride) must be indicated in the following foods:

- butter, margarine and other emulsified fats
- cheese and cheese products and cottage cheese
- sausages and other meat products
- fishery products
- ordinary bakers' wares
- unroasted or roasted cereal flakes or puffed cereals with or without additives
- salads
- broths, soups and sauces, including powdered or concentrated products
- casseroles, minced meat, liver and fish dishes
- mixtures of spices or herbs containing salt.

Industry involvement
In 2002, national legislation set upper limits for the salt content of meals served in schools and pre-schools. In October 2008, a training course for food producers was held to encourage them to reformulate their products to reduce the levels of salt. Work between the food industry and the Ministry of Agriculture to reformulate products towards reducing salt has been identified as a key priority.

Monitoring and evaluation
Along with Finland, Latvia and Lithuania, Estonia is a member of the FINBALT Health Monitoring System, a collaborative project for monitoring health-related behaviour, practices and lifestyles. Estonia joined the project in 1990 (*51*).

The Health Behaviour among Estonian Adult Population study (previously part of the FINBALT study) is carried out every other year. It uses a questionnaire including questions on the type of salt normally used by the respondent (common table, low sodium, iodized or none) as well as on the discretionary use of salt. The 2012 study is currently in its final stages. Additionally, monitoring of salt consumption by means of a 2-day 24-hour dietary recall method is planned for the period 2013–2014.

Finland
Current national initiatives
Finland has a long history of salt reduction initiatives, starting with the North Karelia programme in the 1970s, with the National Nutrition Council recommending lowering population salt intake (*52*). More recently, a government resolution on development guidelines for health-enhancing physical activity and nutrition was carried out from 2008 to 2011, featuring the promotion of population health and the prevention of diseases as primary targets. The aim was to increase the number of people following nutrition recommendations through an increase in the intake of vegetables, fruits and berries and a decrease in the intake of saturated fat and salt. Guidelines on how to include nutritional criteria (such as on salt) in food service procurements were also implemented in late 2009.

Baseline assessment
The 2007 FINDIET survey (part of the National FINRISK Study) reported on the mean daily intake of energy and nutrients among adults. According to these data, there has been an approximately 40% decrease in the intake of salt during the past 30 years: levels are now estimated at 7.0 g/day in women and 8.3 g/day in men (*53*).

Consumer awareness
Information campaigns about salt have been conducted by various stakeholders including the Finnish Food Safety Authority, nongovernmental organizations and the food industry. Public awareness campaigns related to salt reduction in Finland have taken a variety of forms.

- Children and families are offered more information and support to adopt healthy dietary habits with low salt intake.
- Basic information about a healthy diet (including low salt intake) is provided as part of basic education, compulsory for all pupils.
- Compulsory warning labels for high salt foods and compulsory labelling of salt in many food categories have been implemented, after which an increase in consumer awareness the salt content of certain foods was observed.
- The Finnish Food Safety Authority launched an information leaflet on salt in 2008 and will run a campaign to increase consumer awareness regarding information on food labels.
- Many nongovernmental organizations (including the Finnish Health Association and the Diabetes Association) are continuing campaigns initiated in 2009 to raise public awareness of salt and health within the context of a broader message about health. Voluntary "better choice" labelling for foods low in salt, saturated fats and sugar and high in fibre was launched by the Finnish Heart Association in 2000, and criteria for "better choice meals" for food services were introduced in January 2008.

Labelling
Use of the "high salt content" label is required for bread products with sodium chloride contents above 1.3%. The launch of this legislation reduced the average salt content in breads by approximately 20%, from about 1.5% to about 1.2%.To make healthier choices possible for consumers, the percentage content of sodium chloride must be indicated on the packaging of breads, sausages and other meat products, fish products, butter, soups and sauces, ready-made dishes and salt-containing spice mixtures. Moreover, food products

with sodium chloride concentrations falling below certain designated levels are permitted to display a "low-salt" label to emphasize their lower-than-conventional salt levels. These low-salt thresholds are designated according to the category of food: 0.7% in breads; 1.2% in sausages; 0.7% in cheese; 1.0% in fish products, breakfast cereals or butter; 0.5% in soups, sauces and ready-made dishes; and 1.2% in crisp bread (*54*).

From the beginning of 2000, the Finnish Heart Association and the Finnish Diabetes Association launched the Heart Symbol system, which tells the consumer at a glance that the designated product is a better choice in its product group with regard to fat and sodium content (*Fig.1*). Beyond the broad public health promotion goal of the Heart Symbol system, it also represents a valuable marketing tool for the food industry. The Heart Symbol system is generally acknowledged by national authorities (including the Ministry of Trade and Industry and the Finnish Food Safety Authority), and use of Heart Symbol-designated products is recommended by the National Nutrition Council in dietary guidelines for consumers. There is an annual fee (based on the calendar year) for the right to use the Heart Symbol, based on the sales/distribution area of the product and on the total number of Heart Symbol products the same holder carries. Criteria for granting the Heart Symbol are defined according to the product groups (for example, sodium content for bread products must fall below 280 mg/100 g).

Fig.1. Heart symbol for better choice, Finland

Industry involvement

Industry has worked to reformulate products so that salt levels are below that of the "highly salted" warning labelling. This has meant that from the beginning of the 1990s, salt levels in bread, meat products, cheeses and ready meals, as well as certain other product groups, have decreased by about 20–25%. Plans to revise the existing limits for the highly salted designation are currently underway.

Monitoring and evaluation

Along with Estonia, Latvia and Lithuania, Finland is a member of the FINBALT Health Monitoring System, a collaborative project for monitoring health-related behaviour, practices and lifestyles. Finland joined the project in 1997 (*51*).

Salt intake in the population is monitored every five years in connection with the National FINRISK Study, a large population survey of common risk factors for NCDs. Dietary intake of salt in a representative population sample will also be monitored as part of the Finnravinto Survey in the spring of 2012, with sodium excretion surveys to be conducted simultaneously. The number of products and food services with "better choice" labelling will be monitored by the Finnish Heart Association. The Finnish Food and Drink Industries' Federation and the Finnish Grocery Trade Association will gather information about reformulation and products in the market. Consumer awareness of dietary salt issues will further be monitored as part of consumer surveys.

France

Current national initiatives

At the request of the French Agency for Food Safety, a working group was formed in March 2001 which brought together all partners concerned with the development of a salt reduction policy: government departments, agencies, industry representatives, consumers' associations and scientists. In 2002, this group drafted recommendations: the key points included the first environmental surveys in the French population measuring intake through means of 24 hour urine samples, consumer surveys measuring dietary intake, and food analyses indicating salt levels in certain foods.

Recommendations targeting the different food sectors and catering services were also developed, and the feasibility of implementation as well as the monitoring aspects of salt reduction were outlined. Based on the Second National Nutrition and Health Programme 2006–2010, action and benchmarks were set to reduce the average intake of salt to less than 8 g/person per day (representing a 20% reduction over five years) (*55*).

The Ministry of Health coordinates the National Health and Nutrition Programme in consultation with various public agencies with special expertise in salt reduction policies. The National Institute for Prevention and Health Education also spearheads many nutritional initiatives at the national level, including consumer awareness campaigns and education about healthy diets. The French Agency for Food, Environmental and Occupational Health Safety (the former Agency for Food Safety) also works in the area.

Baseline assessment

The first national individual food consumption survey was carried out in 1998/1999 using a sample of 1985 subjects aged over 15 years, and food consumption was assessed with 7-day food records. The mean intake of salt was estimated at around 9 g/day. Overall, men consumed more salt than women; among men, a high proportion were heavy consumers of salt (22.8% of males consumed more than 12 g/day). Bread, meat products, soups and cheese were the main contributors to salt intake in the population and, in heavy consumers, ready-made meals were also important (*14*). Between late 2005 and April 2007, the Dietary Survey Unit of the Agency for Food Safety conducted the second individual and national food consumption survey (INCA 2). INCA2 estimated that the population sodium intake was approximately 3.45 g/day for men and 2.53 g/day for women. These results reveal a decrease of 5.2% in the dietary salt intake in the adult population (*56*).

Consumer awareness

Web-based initiatives have been carried out with the aim of providing advice and recommendations on the appropriate use of iodized salt. The recommendations target specific activities such as tasting food before adding salt and reducing the amount of salt used when boiling water. In November 2009, a television campaign was run with the message, "Salt, fat and sugar are not always where you think".

Labelling

The presentation of nutritional information is closely regulated by law. This information is optional, except in the event of a claim regarding sodium, sugar, saturated fat or fibre.

Industry involvement

As part of the second National Nutrition and Health Programme, food manufacturers were called upon to submit individual "charters of commitment". This included independent bakeries (a key source of bread in the country) and the flour industry. Saltshakers have been removed from tables in catering establishments (including schools) at national level. Specifically, the reduction of salt bag volumes (from 1 g to 0.5 g per bag) has been implemented in the catering sector. The cheese industry has also implemented a voluntary code of practice regarding the use of salt.

Monitoring and evaluation

Comparisons carried out from 2003 to 2007 analysed the salt content of cereals, soups and cheeses. Salt levels were shown to have fallen slightly, although significant changes in processed foods still remain to be seen. In terms of diet, the reduction in the sodium content of food is normally evaluated as part of the updating of the composition tables administered by the French Data Centre on Food Quality. If the regulatory option is selected, the inspection services of the Directorate-General for Competition, Consumer Affairs and Repression of Fraud will monitor the application of the regulations on the salt content of bread products and on the labelling of food products.

Georgia

Current national initiatives

As part of the National Health Strategy 2011–2015, the NCD national policy has the objective of promoting interventions to reduce the prevalence of the main modifiable risk factors for NCDs, such as unhealthy diets high in fats, sugar and salt. As part of the planned activities, a comprehensive multisectoral strategy to limit the consumption of unhealthy food and a plan to incorporate healthy nutrition programmes into school education programmes are included (*57*).

Consumer awareness

During World Salt Awareness Week, activities aimed at raising public awareness at national level include conferences, media briefings and the involvement of nongovernmental and governmental sectors. Educational interventions in schools as well as posters, radio spots, newspapers and web sites have been included in the public awareness strategy.

Germany

No specific policy has been established in relation to salt reduction. Salt intake is monitored at the population level but the government is not in favour of salt reduction initiatives owing to concerns raised with regard to the potential impact on iodine deficiency problems if salt reduction initiatives were to be implemented.

Current national initiatives

The Federal Institute for Risk Assessment, which operates under the Federal Ministry of Food, Agriculture and Consumer Protection for all scientific aspects of consumer health protection, recommends that salt intake is 3.5 g to a maximum of 6 g per day (*58*).

Baseline assessment

Although there are no plans to implement a national salt strategy, national authorities have carried out measurements of salt levels. The Federal Institute for Risk Assessment has determined that the method of choice for sodium intake measurement is through 24-hour urine collection. In 2006, Kersting et al. found that among adolescents aged 14-18 years, the mean sodium excretion in urine was 1.4 1.7 times higher than that recommended by the federal food key from the Max Rubner Institute, Federal Research Institute of Nutrition and Food (*59*).

In the most recent Health Interview and Examination Survey for Adults, sodium excretion in spot urine samples was measured from November 2008 to November 2011 in a total of 180 cities and municipalities across the country, including areas where the Federal Health Survey was also conducted. The results demonstrated that salt intake in Germany, as in other European countries, is considerably higher on average than the recommended upper intake level of 6 g per day.

The Federal Institute for Risk Assessment, together with the Max Rubner Institute and the Robert Koch Institute, conducted dietary surveillance studies in June 2011 as part of the second National Nutrition Survey, based on interviews (including questions on dietary history) of 15 371 individuals aged 14–80 years. According to this survey, the main sources of salt in the adolescent and adult population are bread/rolls (27–28%), meat/meat products (15–21%) and milk/cheese products and vegetables and soups/stews (10–11%). The findings conclude that the average daily salt intake is 9 g for men and 6.5 g for women (*60*).

Greece

Current national initiatives

The lack of nationally representative values for the salt content of bread, in combination with the wide spread of small-scale enterprises which produce bread, hinder the development of a national plan of action in Greece. Nevertheless, the National Plan of Action for Nutrition and Eating Disorders 2008–2012, developed by the Ministry of Health and Social Solidarity, describes activities for the reduction of salt content in foods (*61*). One such activity is the adoption of legislation concerning obligatory nutritional labelling on every food package, including information on salt and fat content. The national action plan also provides for advertising measures for the promotion of a healthier diet and attitude towards nutrition, especially for children, giving attention to the consumption of products containing less salt, fat and sugar. Further measures towards the production of foods containing less salt, fat and sugar are planned in collaboration with the food industry. A separate action plan, the National Action Plan for Cardiovascular Diseases 2008–2012, mentions the importance of salt reduction but does not state specific initiatives for reduction (*62*).

Baseline assessment

There are no available data on the level of salt intake in the population. In 2011, however, the Food Authority's Directorate of Nutrition Policy and Research conducted a national survey regarding the knowledge, attitude and behaviour of the population as regards salt. The results showed that 38.2% of the respondents thought that salt added at the table was the main source of sodium in the diet, while only 3.5% of the respondents thought that bread, a product widely consumed in Greece, was the main source of sodium (*63*).

Consumer awareness

The Ministry of Health, in collaboration with other organizations, organizes information programmes and education about the traditional Greek diet, healthy eating, obesity and physical activity as part of primary and secondary education. Furthermore, the Ministries of Education and Health have collaborated to promote measures to prevent the sale of products high in fat, sugar and salt in school canteens (*61*).

The Food Authority's web site has a section on salt with a link to a document addressing consumers. This document provides basic information on the association between salt (or sodium) intake and health, describes

current guidelines, lists sources of sodium in the daily diet and suggests practical tips to reduce salt intake (*64*).

Industry involvement

The current national action plan promotes cooperation with the industry and food trade in working towards the production of healthy food based on scientific criteria, especially in terms of reduced fat, sugar and salt content (*61*).

In February 2012, bread manufacturers and caterers met to discuss salt issues. The officers of the Hellenic Food Authority invited those present to provide any data they had available on the sodium intake of the population. They further asked them to provide information on initiatives to reduce the sodium content of foods, together with feedback on the implementation of such initiatives.

Hungary

Current national initiatives

Hungary's national salt initiative is currently part of the National Public Health Programme 2003–2013 (*65*). The country joined the EU Framework for Salt Reduction in 2009.

In February 2010, the "STOP SALT!" national salt reduction programme was launched, coordinated by the National Institute for Food and Nutrition Science. The programme has the following elements: national situation assessment, identification of main food products to be included in the salt reduction programme, reformulation of products by the industry and public catering establishments, an awareness-raising campaign for the public, and monitoring and evaluation. The Minister of Rural Development, together with the Ministers of National Resources and National Economy, oversaw the first phase of the campaign in August 2010 to ensure that reformulation measures were carried out towards reducing the sugar, fat and salt content of certain foods. The benchmark set was attainment of population salt intake levels of less than 5 g/day (*66*).

Baseline assessment

A nationally representative nutrition survey was carried out in 2003–2004 with the aim of setting the national baseline for salt intake. Under the coordination of the "STOP SALT!" national salt reduction programme, data were collected from the local commercial and public canteens and the food served was assessed for salt content. The national situational analysis showed that the adult population salt intake was above that recommended by WHO, with men 3-4 times and women 2.5-3 times above the recommended level of 5 g/day. As for children's salt intake, analysis of menus served in school canteens and hospitals showed that salt levels were around 3-4 times higher than WHO-recommended thresholds.

The National Diet and Nutritional Status Survey was carried out in 2009 to measure population salt intake and to gauge the level of public awareness regarding the salt content of the different food groups. The survey results showed that only half of the adult population was aware of the relationship between excess salt intake and high blood pressure. According to the Survey's findings, daily salt intake was 17.5 g in men and 12.1 g in women, compared to a random sample of 200 adults which found that 24-hour salt excretion levels were 11.2 g in men and 9.6 g in women.

The National Institute for Food and Nutrition Science also collected and measured the salt content of 436 food samples in different food groups. Among processed foods, bread and other bakery products accounted for 31% of salt intake, while meat products accounted for 21% of salt intake (*66*).

Consumer awareness

The first public campaign phase of the action plan was carried out in 2010, with the main message emphasizing that excess salt intake causes high blood pressure, heart attack and stroke. The campaign also provided advice on measures to reduce salt intake and highlighted the importance of conscious shopping, the recommended daily allowance for salt intake, and the relationship between levels of salt and sodium. The target groups and the main messages of the campaign were identified based on the results of a pre-survey.

The five-week campaign also included use of the "STOP SALT!" logo and the campaign slogan, "Don't be salty!" in all communication materials including web sites, printed materials and radio and television spots. Numerous professional and civic organizations joined the "STOP SALT!" salt reduction programme.

The Institute of Food and Nutrition Science, together with other health authorities, distributed campaign flyers to various sites including general practitioners' offices, hospitals, local governments, public caterers, child

welfare institutions, leisure and community centres, elderly people's homes and school camps. The 2010 salt reduction programme was promoted in more than 65 national and local events, reaching a broad segment of the population.

Labelling
In 2011, the Minister of National Resources, together with the Minister of Rural Development and the Minister of Justice, started working on the labelling aspects of salt in food. Plans to implement such measures include establishing a regulatory framework to be set up in schools. Legislation in this area has yet, however, to be put into action at the national level.

Industry involvement
Although collaboration with industry was originally planned, industry partnerships have so far been difficult to establish. There has, however, been a certain amount of progress on this front, as some food products (such as salty snacks, soup and other powders and artificial seasonings) fall under the Public Health Product Tax Act of 2011, popularly called the "chips tax", based on their salt content. The guidelines on public catering (including, among other provisions, recommended salt intake levels by age group and restrictions on artificial soup powders and other convenience products) and the related normative order of the Chief Medical Officer are also good examples of successful components of the salt reduction initiative.

In January 2012, the Hungarian Bakers' Association assembled more than 1500 bakers to sign a contract with the National Institute for Food and Nutrition Science in which they undertook voluntarily to decrease the salt content of bread by 16% by the end of 2017 and to report their results. The relevant section of the Codex Alimentarius has been modified accordingly.

Monitoring and evaluation
The most recent salt intake data were obtained from the National Dietary Survey 2009 (the fourth such survey) organized by the National Institute for Food and Nutrition Science. The salt and other nutrient intakes of the adult population were calculated based on three-day dietary records of a sample population representative of the general adult population in terms of age and gender. The salt intake in males (17.5 g/day) exceeded the recommended level by more than three times, and women's salt intake (12.1 g/day) was also well above the recommended 5 g/day. The main processed food contributors to salt intake were white, semi-brown bread and bakery products (31%), meat products (such as canned meat and sausages) (21%), canned and pickled vegetables (10%), and other wheat products (such as pasta, cereals and sweets (8%) (*67*).

Iceland
Current national initiatives
Salt has been included in the national nutrition recommendations since 2006 and is mentioned in the nutrition recommendations 2010–2012, although no specific interventions currently exist (*68*). Recommendations for school canteens highlight the importance of reducing salt, but corresponding legislation is still pending.

Baseline assessment
The Public Health Institute, in collaboration with Matís (an independent research institute), has analysed the composition of foods for the national food composition database. The database contains data on the composition of foods available on the market, with data on 45 components (including salt) in about 1100 foods. The database is now available to the general public on the internet, but earlier publications included printed food composition tables.

A national 24-hour dietary recall survey conducted in 2002 found high levels of salt consumption among men and women: 10 g/day and 7 g/day, respectively (*69*). The results of a dietary survey carried out in 2010–2011 showed that consumption had fallen slightly since the previous survey (by 5%), probably owing to decreases in both the sodium content of bread and consumption levels. About 13% of sodium intake has been attributed to bread and 19% to meat products (*70*).

Consumer awareness
In an effort to increase public awareness, the Public Health Institute has created a brochure, web site and posters, and also published a report on salt in bread.

Industry involvement
In 2008–2009, the Public Health Institute, in cooperation with the Federation of Iceland Industries, undertook efforts to quantify the salt content of bread produced by the country's major bakeries (*71*).

Monitoring and evaluation
There are plans for national surveys on diet in the group aged 15-80 years to be carried out every four to five years (*69*).

Ireland
Current national initiatives
Under the Food Safety Authority of Ireland (FSAI), a national salt reduction programme is in place for 2011–2012 (*72*). As part of the national cardiovascular health policy 2010–2019, it is recommended that foods high in fats, salt and sugar from the top shelf of the food pyramid (oils, butter, cakes, soft drinks, etc.) should be served no more than three times a day. National benchmarks are set at achieving adult salt intake levels of no more than 6 g/day within the lifetime of the 2010–2019 framework (*73*).

Interest is also being expressed in possible alignment of the FSAI salt reduction programme with the United Kingdom Food Standards Agency (FSA) targets for salt reduction 2010–2012. The FSAI believes that one way to facilitate universal achievement of the challenging reductions in salt set out in the EU framework is to adopt salt reduction targets. Furthermore, considering the importance of trade in food products between Ireland and the United Kingdom and the industries' desire for a level playing field, it seems appropriate to consider the adoption of the United Kingdom's salt reduction targets. The FAO estimated that in 2009, 88% of bread in Ireland was imported from the United Kingdom alone (*74*).

In May 2009, following consultation and agreement with concerned stakeholders, the United Kingdom FSA published revised salt reduction targets for 2012 covering 80 categories of food. These revised FSA targets are set at levels deemed appropriate to have a real impact on consumers' intakes, while taking into account the reductions that have already been achieved by the industry and the various technical and safety issues associated with salt in processed foods.

The FSAI provides a monthly information update on academic and industry articles related to salt and salt reduction. In addition, technical support is available from state bodies such as the Agriculture and Food Development Authority. A number of trade bodies, including the Irish Bread Bakers Association and the Food and Drink Industry Ireland/Irish Business and Employers Confederation Meat Sector Group, have offered to provide technical assistance to companies who wish to join the salt reduction programme.

Baseline assessment
Estimated population salt intake levels exceed the recommended daily allowance of salt for adults in Ireland of 6 g/day (4 g/day for individuals in clinical settings). The Irish Heart Foundation has estimated that a reduction of 3 g/day in salt intake would reduce stroke mortality by approximately 13% and coronary (ischaemic) heart disease mortality by 10% (that is, approximately 700 fewer deaths per year nationally) (*75*).

Spot urine samples from the 2007 National Survey of Health and Lifestyles in Ireland estimated that the daily salt intake in adults aged over 45 years was 10.3 g for men and 7.4 g for women (*76*). Estimates based on para-aminobenzoic acid validated 24-hour urine collections (n=599) provided similar results, indicating a mean intake of 9.3 g/day with levels higher in men (10.4 g/day) than in women (7.4 g/day) (*77*). More recent estimates of salt intake for the Irish population provided through the National Adult Nutrition Survey indicate that, among those aged 18-64 years, mean daily intake of salt from processed foods is 7.4 g, with men having higher intakes (8.5 g) than women (6.2 g) (excluding discretionary salt added in cooking and at the table). Adults aged 65 years and over, meanwhile, have an estimated mean daily salt intake of 6.3 g, with men having higher intakes (7.3 g) than women (5.4 g) (*78*).

The most recent estimates indicate that the main contributors to salt intake in the population are meat and fish (30%), of which 18% comes from cured/processed meats, and bread (22%). Soups and sauces, milk and milk products, and vegetables contribute 9%, 8% and 7%, respectively (*78*).

Consumer awareness
The Broadcasting Authority of Ireland undertook a consultation on its Children's Commercial Communications Code commencing at the end of August and closing early October 2011. The review focused on the regulation of commercial communications to children for foods that are high in fat, salt and sugar.

Labelling
Labelling of pre-processed foods is governed by the general labelling legislation Directive 2000/13/EC, which prohibits labelling that misleads the consumer to a material degree (*25*). Products must lower salt content by

at least 25% to be eligible to claim "reduced salt" status. Limits for claims of "low salt", "very low salt" and "salt-free" have also been predefined.

Specifically in the context of claims, this legislation also prohibits labelling which suggests that a foodstuff possesses special characteristics when in fact all similar foodstuffs possess such characteristics. Thus, for example, "low salt" claims on foods which are naturally low in salt are not permitted unless the claim clearly communicates the fact that all other similar foodstuffs are also low in salt.

In addition to the requirements of the general labelling legislation, claims on foodstuffs that concern salt are now also governed by a 2006 regulation of the European Parliament and of the Council of the EU on nutrition and health claims made on foods (*79*).

Industry involvement

Currently, the Department of Health and Children is liaising with the food industry on implementing the EU common framework on salt reduction. The FSAI has been working with the food industry (manufacturers, retailers, caterers, etc.) since 2003 to achieve gradual, sustained and universal reductions in the salt content of processed and prepared foods. During this time, significant voluntary reductions in levels of salt in certain product sectors have been achieved. However, the long-term goal is to reduce the average population intake of salt from 10 g/day to 6 g/day by 2010 through partnership with the food industry and state bodies charged with communicating the salt and health message to consumers.

The FSAI's voluntary programme involves 58 companies and trade associations that are continuing to reduce the level of salt in processed foods on the market. The FSAI has stated that these reductions alone would not be sufficient to reduce average daily salt intake by adults to the target of 6 g/day by the end of 2012, and that consumers need to make a greater effort to reduce the amount of salt they add to their food in cooking and at the table if targets are to be met. It also recommends that consumers use their purchasing power and opt for low salt products, which in turn will influence the food industry to effect salt reductions.

Achievements and undertakings from the industry to further reduce salt levels in processed foods have progressed since 2009, with five new companies joining the programme. Furthermore, the level of detail and the data supplied to the FSAI by companies have also improved. The Irish Bread Bakers Association, for example, has produced a new FSAI-endorsed document, Managing salt reduction in bread, designed to help small/medium-sized bakeries reduce salt in their products (*72*).

Monitoring and evaluation

The FSAI, in conjunction with the Public Analyst's Laboratory, has monitored processed food on the market since 2003 to determine mean levels of sodium and potassium in products available for purchase. Data generated from this annual monitoring helps support the FSAI salt reduction programme.

Currently, 10 categories of processed food are monitored by the FSAI to determine mean levels of sodium and potassium. These categories are monitored at intervals which allow sufficient time for industry commitments on salt reduction to filter down into the products available on the market. Intervals range from two to five years, depending on the product category, in line with the FSAI policy of sustained gradual reductions in sodium. Tests for sodium and potassium in early surveys carried out by the FSAI/Public Analyst's Laboratory were made on a single sample of each product surveyed, offering a distinct snapshot in time of that product as available on the market. In more recent surveys from 2010 and 2011, more representative sampling of products has been undertaken, wherein a minimum of three samples of selected products with different batch numbers and/or shelf-life declarations have been collected and tested. In general, the FSAI would like to see the mean sodium value for each category of processed food decreasing and the range of sodium values for products within a category becoming tighter around the mean value (a smaller standard deviation). Hence some products within a category may need to be reduced by a greater amount than other products. However, as some categories of processed food are bigger contributors to salt intakes in the population than others, there is also a recognition that smaller reductions in these categories could make a bigger impact on population salt intake than larger reductions in smaller contributory categories (*80*).

Israel

Current national initiatives

The "Healthy Israel 2020" initiative was launched by the Ministry of Health in 2011. Twenty different professional committees worked to evaluate the disease burden, define objectives and quantitative targets for 2020, and develop interventional strategies founded upon the best scientific evidence. The plan highlights the reduction

of salt consumption as a priority intervention and sets a recommendation of no more than 1.5 g of sodium (approximately 5-6 g of salt) per day. Israel aims to reduce the sodium content of manufactured foods and salt consumption by 25% and 35% in 2015 and 2020, respectively.

Baseline assessment

The First Israeli National Health and Nutrition Survey 1999–2001 (MABAT1), conducted by the Centre for Disease Control of the Ministry of Health, included a 24-hour dietary recall. The results showed that the average sodium intake of the Israeli population is 2.8 g/day, 3.3 g in men and 2.3 g in women. Most of the sodium is consumed in processed foods such as breads, soups, pickles, sauces, snacks and ready-to-eat meals.

Labelling

The Ministry of Health requires nutritional information to be listed on the labels of packaged foods. The law requires labelling of sodium content in mg/100 g of ready-to-eat products. The plan encourages the use of icons for products, according to the level of literacy of the population, and the inclusion of health information. The use of healthy menus at fast food restaurants as well as at meetings and cultural events should be promoted and the composition of food served should also be completely clear.

Industry involvement

The food industry should be encouraged to develop healthy products as well as reduce food salt content. As most dietary sodium comes from processed foods, it is important that food manufacturers reduce the amount of salt used in processing.

Monitoring and evaluation

Consumption levels of sodium in the population will be assessed in the second Israeli National Health and Nutrition Survey (MABAT2) to assist changes in the sodium content of processed foods (*81*).

Italy

Current national initiatives

The year 2007 marked the birth of the Interdisciplinary Working Group for Reduction of Salt Intake in Italy (GIRCSI), with the commitment and active involvement of eight partner Italian scientific societies. This government initiative, led by the Ministry of Health, is based on institutional alliances with regions and municipalities, together with partnerships with food industries, distribution networks and consumers associations. The Working Group is led by health professionals, associations of bakers, epidemiologists and medical officers of the Ministry of Health. It has defined targeted goals, including setting benchmarks as recommended by WHO, establishing agreements with bakery associations on targets for salt, and reducing the salt content of products found to be the most important vehicles of salt intake in the population. The Group has also launched public information campaigns on overall nutrition highlighting the necessity for salt reduction through the national programme "Gaining health: making healthy choices easy" (*82*).

In 2009, the Ministry of Health (MINISAL)-GIRCSI programme was established with the support of the National Centre for Disease Prevention and Control (the operational branch of the Ministry of Health). The primary objective of this programme was to undertake the baseline evaluation and subsequent monitoring of habitual salt intake in the adult, paediatric and hypertensive populations, as well as the evaluation of the salt content of selected commercially available food items. The GIRCSI and the Ministry of Health agree that concerted action is preferable to legislative measures, although legislative action cannot be excluded at a later stage.

Other activities in the national salt reduction strategy include a surveillance programme, developed with the input of consumers, to monitor the salt content of bread. The programme has been planned to span the process of salt reduction initiatives undertaken over the next few years and to evaluate the effect of these measures on specific health outcomes, including hypertension.

Baseline assessment

The National Research Institute for Food and Nutrition analysed a representative sample of the adult population, in collaboration with the National Institutes of Health as part of the 2009–2011 Cardiovascular Epidemiologic Observatory/Health Examination Survey. This included an assessment of the age-, sex- and region-specific average sodium and potassium intake in a representative sample of the adult hypertensive population, in collaboration with the Society of Hypertension Regional Sections, followed by discussion of the study results with the family doctors of the participating patients.

Preliminary results from baseline data analysis of 12 different random samples collected in the MINISAL-GIRCSI Health Examination Survey started in 2008 and indicated that the adult population consumes salt at levels more than double the WHO-recommended salt intake. Mean daily sodium chloride intake was estimated at 11 g in men and 8 g in women, with a range of 1–27 g and 2–27 g, respectively. The study also found that 72% of individuals eat three slices of bread per day and 22% eat cheese and processed meat more than four times a week (*83*). A baseline assessment of the region-specific average salt content of bread and other baking products was also conducted under the oversight of the National Research Institute for Food and Nutrition. Data on the final outcomes of the MINISAL-GIRCSI programme were expected by mid-2012 (*84*).

Consumer awareness

World Salt Awareness Week, launched each year by the international WASH organization and supported in Italy by GIRCSI and, in particular, by the Italian Society of Human Nutrition, is promoted every year at the national level. Educational activities conducted in the framework of the WASH Salt Awareness Week and World Hypertension Day are sustained by GIRCSI and help to cultivate awareness and responsibility in the catering arena.

Emphasis is placed on the promotion of communication campaigns (television, booklets, magazines, etc.) to increase public awareness of the importance of reducing salt intake. A specific campaign carried out in Sardinia in 2008, for example, involved the distribution of an illustrated booklet about reducing salt intake that was posted with the regular electricity bill sent to each household. Efforts have been made to involve medical doctors and paediatricians and professionals involved in communicating and promoting healthy lifestyles.

Labelling

The GIRCSI has made an effort to promote agreements with the food industry to improve the labelling of products, encouraging companies to adapt to the requirements set while at the same time maintaining comprehensible labelling for the general public.

Industry involvement

In 2009, an official agreement was signed between the Minister of Health and the bakers' associations, committing the industry to reduce the salt content of bread and other bakery products by 10-15% over two years. Further reductions to be made in the next two years involved the food catering sector (restaurants, pubs, bars and fast food chains) in measures designed to make low-salt foods and dishes more easily available.

Monitoring and evaluation

To monitor action and evaluate the results, a plan has been drafted to select a representative sample of the population on a regional basis, by sex and age, in order to obtain a well-executed 24-hour urine collection along with demographic and anthropometric information. It is planned to repeat such monitoring activities on a regular basis so as to assess the effectiveness of measures implemented to reduce the contributions to salt intake in both food production and on the discretionary side.

Kazakhstan

In clinical practice guidelines introduced in 2005, which aimed to improve clinical detection and management of high blood pressure, emphasis was put on counselling to reduce salt consumption and increase regular exercise.

Kosovo

To date, no initiatives have been reported.

Kyrgyzstan

To date, no initiatives have been reported.

Latvia

Current national initiatives

There is no national salt reduction strategy at present. Excessive salt consumption is, however, recognized as a problem under the Public Health Strategy 2011–2017 (*85*). Dietary guidelines for adolescents and adults recommend limiting salt intake to an upper limit of no more than 3 g/day in individuals over 60 years of age. The current Healthy Nutrition 2003–2013 Action Plan focuses on a general healthy diet/lifestyle programme, although no specific salt component is incorporated (*86*). Existing regulations stipulate that any food served in educational institutions, including pre-schools and vocational schools, must not exceed a limit of 1.25 g salt per 100 g.

Baseline assessment
Estimated by 24-hour dietary recall and food frequency questioners, the average daily dietary intake of salt in the population is 7.1 g/day in excess of the recommended amount of 5 g/day (*87*). A further study published in 2011 on the health-affecting habits of the population reported that only 33.1% of men and 49.8% of women do not add salt to their food. Meanwhile, the study found that 9.0% of men, as opposed to 4.3% of women, add salt to their food before tasting it (*88*).

Consumer awareness
Several local newspaper publications, internet campaigns and television interviews have been undertaken with the aim of publicizing the salt reduction initiative.

Industry involvement
Organized meetings with the food industry, including two separate meetings with the bread industry, took place in 2008 to discuss the national salt initiative. Participants from the Ministry of Health, the Latvian Federation of Food Enterprises, the Latvian Association of Bakers, the Latvian Association of Dieticians and the Public Health Agency were present. In February 2013, an intersectoral workshop was organized in Estonia under WHO leadership and involving different stakeholders, including participants from Latvia, to prepare a plan for salt reduction in the food chain. The National Institute of Public Health and WHO invited Switzerland to share its experience of success in salt reduction, and a representative of industry to present ways to reduce salt from the technological perspective.

Monitoring and evaluation
Together with Estonia, Finland and Lithuania, Latvia is a member of the FINBALT Health Monitoring System, a collaborative project for monitoring health-related behaviour, practices and lifestyles. Latvia joined the project in 1998 (*51*).

Lithuania
Current national initiatives
Both the State Food and Nutrition Strategy and Action Plan for 2003–2010 and national dietary guidelines in place since 2005 recommend limiting salt intake, although no specific activities are mentioned (*89*). In 2011, an ordinance was established by the Minister of Health restricting unhealthy food and products with high fat, sugar and salt content (where high sodium content is classified at levels exceeding 0.4 mg/100 g) in food supplied to all children in primary and secondary schools as well as in foster homes.

Baseline assessment
National nutrition surveys were conducted in 1997, 2002 and 2007. A random sample of 3000 people aged 19-65 years was taken from the national population register, from which sodium intake was found to be elevated, especially in men (4.3 g/day in men versus 2.8 g/day in women) (*90*).

Consumer awareness
Plans have been drafted through the Ministry of Health encouraging the media to promote products which contain lower amounts of salt and to encourage healthy eating habits. Plans have also been made for televised discussions aimed at raising public awareness about nutrition issues, as well as similarly-themed articles to be published in popular newspapers and journals.

Labelling
The Minister of Health has encouraged foodstuff labelling by means of the keyhole logo, the meaning of which is uniform across the Nordic countries. Application of the keyhole symbol is intended to facilitate regulations on the fat, sugar, salt and dietary fibre content of foodstuffs. Lithuania plans to introduce the "Green keyhole" labelling scheme as reported in the EU Salt Monitoring Framework Report (*91*).

Industry involvement
The State Food and Nutrition Strategy and Action Plan for 2003–2010 encourage industry to reformulate salt levels in food products, although no legislation has been passed to this end.

Monitoring and evaluation
Along with Estonia, Finland and Latvia, Lithuania is a member of the FINBALT Health Monitoring System, a collaborative project for monitoring health-related behaviour, practices and lifestyles. Lithuania joined the project in 1994 (*51*).

Food consumption monitoring initiatives were carried out during 2006–2007, including the distribution of a questionnaire to a representative sample of the national population. The results showed excessive adult salt consumption (8-10 g/day) in the general population (*90*). A monitoring plan was adopted in 2009 and will come into force in 2013.

Luxembourg

Current national initiatives

The Ministry of Health coordinates all activities under the salt reduction strategies. As part of a national programme for healthy nutrition and physical activity initiated in 2006, attempts are being made to raise awareness of the need for a balanced diet. The various awareness campaigns carried out as part of this initiative targeted a salt intake level of 5 g/day. One of the basic recommendations concerning a balanced diet was to limit salt consumption while favouring salt supplemented with iodine (*92*).

Consumer awareness

Information and education campaigns have been organized at national and local levels. The target encompasses schools, municipalities, youth centres, day-care centres, the general population, and every association whose motivation is to organize activities in the field of balanced diet and physical activity. Media campaigns have included booklets, posters, teaching kits and implementation of a national label for good practices (*93*).

Industry involvement

Following a study of salt concentration in bread products, an initial meeting with the Bakery Federation took place in which salt reduction in bakery products was the main topic of discussion. It has not, however, been possible to track the results of this study.

Malta

Current national initiatives

The Strategy for the Prevention and Control of Noncommunicable Disease in Malta was adopted for implementation in 2010–2020, overseen by the Department of Health Promotion and Disease Prevention together with the Public Health Regulation Division of the Ministry of Health, the Elderly and Community Care. The strategy is formulated to reduce the level of morbidity by controlling the dietary intake of food elements such as salt in the general population. Total salt intake is recommended not to exceed 5 g/day, including the salt in bread and processed, cured and preserved foods (*94*).

The Ministry of Health, the Elderly and Community Care has launched a national obesity strategy for 2012–2020, "A healthy weight for life", including measures to reduce the salt content in key food products as one of the main objectives. Plans include working more closely with the food industry and establishing agreements for the voluntary reformulation of food to achieve a lower salt content (*95*). The following priority areas have been identified in this strategy to promote healthy eating:

- support for schools and families so that meals and snacks, including drinks, prepared for school-aged children are nutritious and appetizing without being energy-dense and/or containing excess amounts of fats, trans-fatty acids, salt and sugar;
- the setting up of a national task force led by the Ministry of Health, the Elderly and Community Care to develop action plans for the introduction of agreed mechanisms to reduce salt and sugar, limit saturated fat and eliminate trans-fat content in local food products.

Baseline assessment

The National Health Interview Survey in 2002 contained a section about dietary habits that was not included in the 2008 version, meaning that any changes in population dietary habits between 2002 and 2008 cannot be explored. Data from the 2002 survey indicated that the addition of salt with meals is widespread, with 47% of the respondents reporting that they almost always added salt during cooking and 24% responding that they almost always add salt at the table (*95*).

Consumer awareness

The Ministry of Health, the Elderly and Community Care, together with the Directorate for Health Promotion and Disease Prevention, has created several services for the public to obtain information on how to control blood pressure through diet, including brochures (*96*).

Monaco

To date, no initiatives have been reported.

Montenegro

Current national initiatives

The current Nutrition and Food Safety Action Plan has been adopted for the period 2010–2014. The nutrition goals highlighted in the Action Plan include a target for daily salt intake of less than 5 g. Also covered is the promotion of food products enriched with protective components. The Action Plan does not define specific types of food product that should be reformulated so as to reduce salt, but envisions the development of guidelines for producing food products with lower contents of salt, sugar and fat as well as products enriched with protective components (*97*).

The WHO country office and the Ministry of Health, the Institute for Public Health and the National Food Council have launched a joint initiative to combat the prevalence of chronic NCDs caused by overconsumption of salt in the diet. The initiative, introduced on 17 December 2012, was developed in response to evidence of the link between excessive salt intake and life-threatening NCDs such as CVD. It focuses on reducing the daily salt intake of the population, who have a gastronomic culture traditionally high in salt. Implementation measures are being developed, but will include:

- determining the population's average daily salt intake per capita;
- analysing the salt concentrations in food staples;
- preparing national guidelines for specific population categories;
- designing a national programme to reduce salt intake in line with EU and WHO recommendations;
- preparing legislation to provide conditions for the implementation of these recommendations; and
- working with relevant international programmes, national and international stakeholders and the general public.

Baseline assessment

There are no data on the actual level of salt intake in the population. However, a household survey on the health of the general population in 2008 showed that 4.9% of respondents had tried to change their own attitudes towards health by reducing their salt intake.

Industry involvement

The national strategy highlights the importance of a continuing dialogue with the food industry on product reformulation, for instance by reducing the fat and salt content of food. The strategy also includes a recommendation to lower by 10% the fat, salt and sugar content of processed foods, with the aim of limiting the consumption of salt (*97*).

A dialogue was begun with the bakery industry in 2010, and a line of salt-free bread was launched by one local baker during the 2010 Salt Awareness Week at the same price as regular bread. Other local bakeries are now also offering low-salt bread. It is proposed that the local bread industry be involved from the initial stages of the campaign, which would make it easier to use the opportunities available to them in promoting local bread. Such potentially useful opportunities include an annual bread festival as well as other public health outreach initiatives, with reportedly extensive involvement of the media. In February 2013, an intersectoral workshop was organized under WHO leadership and involving different stakeholders, including representatives from Montenegro. The National Institute of Public Health and WHO invited Switzerland to share its experience of success in salt reduction, and a representative of industry to present ways to reduce salt from the technological perspective.

Netherlands

Current national initiatives

The national policy on salt formed part of a broad policy document and action plan on nutrition and health issued in 2008, entitled Healthy nutrition, from start to finish. The current recommendation for daily salt intake on which this policy is based is 6 g, as set by the Ministry of Health, Welfare and Sports and the Ministry of Agriculture, Nature and Food Information (*98*). The national policy document on health, Health close to people, outlines the nutrition policy which aims to stimulate efforts to make products more healthy, especially with regard to salt and saturated fat content (*99*).

In 2008, the Federation of the Dutch Food and Grocery Industry established the Salt Task Force, which drew up a plan to reduce the use of salt throughout the food industry. This plan consisted of multiple phases with goals for each sector to gradually reduce the salt content of the product groups, depending on their specific characteristics. The Task Force also planned to work together with the hospitality, catering and retail industries

to gradually reduce the amount of salt used by them (*100*). In addition to the Salt Task Force, the Nutrition Centre supports and promotes reduced salt consumption as part of its Good Nutrition project.

Baseline assessment

A study commissioned by the Ministry of Health, Welfare and Sport estimated the intake of sodium and iodine by 24-hour urine excretion (*101*). In 2010, half of the participants registered a salt intake of more than 8.5 g/day. In 2006, these daily intakes corresponded to 8.4 g of salt and 262 µg of iodine, respectively (*102*). It has also been reported that an estimated 70-75% of total salt intake is from prepared foods combined with "out-of-home" use, while the remaining 25-30% is added by consumers at home.

Labelling

The government launched its voluntary front-of-package "Healthy Choice" label in 2006, a system developed by food industry representatives and endorsed by the Ministry of Health. The system is applicable to all foods although there are several exceptions (alcoholic beverages, supplements, products for use under medical supervision, and infant food and formula). Generally, products may earn a Healthy Choice label if they have limited amounts of saturated fat, trans-fat, sugar and sodium, based on WHO standards (*103*). A board and scientific committee have been appointed to monitor and carry out application of the Healthy Choice logo on food products.

There are two different versions of the label: green and blue. The green logo, with the text "healthier choice", is awarded to the healthiest options within a group of basic food products. The following products are eligible for a green logo:

- fruits and vegetables (including juices)
- sources of carbohydrates (potatoes, pasta, bread, rice, cereal)
- water
- oils and fats (including fat-based spreads)
- meat, fish, poultry and meat substitutes
- dairy
- meals (for example, sandwiches, meal mixes, mixed salads).

The blue logo, bearing the words "conscious choice" is available for healthier options among food products that do not belong to the basic food categories outlined above. The following products are eligible for a blue logo:

- soups
- sauces (meat sauces and other sauces or water-based emulsions)
- snacks
- beverages (excluding milk, water and fruit juices)
- spreads (with the exception of cheese and meats)
- other food products.

Industry involvement

Various companies have begun to reduce the salt content in their foods since dialogues between the Salt Task Force and the industry were initiated (*100*). In 2009, in response to a request from the industrial and craft bakery sector to the Minister of Health, the maximum salt content in bread was lowered from 2.5% to 2.1% sodium chloride in dry matter. The Ministry of Health is proposing that the law be adjusted to allow for a further reduction of the maximum salt content in bread to 1.8% by 2013, following a second request from the bakery sector. When this proposal is implemented, the salt content in bread will be reduced by 25%.

Monitoring and evaluation

The monitoring and evaluation agreed by the Salt Task Force includes a food consumption survey in the general population, with data to be reported every five years from 2010. A study of sodium levels in urine, last carried out in 2006, is also scheduled to take place. There are also plans for the availability of healthy foods to be monitored by the Food and Consumer Product Safety Authority and the commercial sector, in consultation with the government.

As part of a self-reporting framework in the food industry, participating organizations and companies conduct annual self-monitoring activities to determine whether they are on track in achieving their own objectives (including salt reduction targets). This information will be disclosed to the public. The Federation of the Dutch

Food and Grocery Industry is to release an interim report on progress achieved within the food industry in 2013, with the final report to be published in 2015/2016.

There are also plans for monitoring to be carried out by an independent third party assigned by national authorities (*100*). In addition, the National Institute for Health and Environment is expected to map food consumption in the general population within 2012 (*104*).

Norway

Current national initiatives

The health authorities have recommended a reduction in dietary salt intake since the beginning of the 1980s. The national salt initiative reduction is linked to the Action Plan on Nutrition (2007–2011), "Recipe for a healthier diet", which was designed as a tool for decision-makers, professionals, experts and others in the public and private sectors involved in working for the population's diet. Twelve government ministries collaborated to create the Action Plan, with inputs sought from experts, food industry representatives and other private actors. One of the general goals outlined in the Action Plan for dietary change is reduced consumption of salt. The current recommendation given by the Directorate of Health, together with the National Nutrition Council, is for a gradual, long-term reduction in the average intake of salt to 5 g/day. In a shorter-term perspective, the population target has been set at 6 g/day for women and 7 g/day for men, with a limited salt intake further recommended for children (*105*). For children below two years of age, the guidelines state that salt intake should not exceed 1.25 g/megajoule (239 kcal), in order to prevent them becoming accustomed to a diet with a high salt content.

At the beginning of the 1990s, the National Nutrition Council approached the National Food Control Authority, requesting that maximum levels of salt be set for certain food groups such as meat products and cheeses. The Council also asked for the mandatory declaration of salt content in foods. There are, however, no regulations regarding the salt content of foods and there is no legal obligation for the salt content of food products to be shown on the labels. The Council continues periodically to repeat its request for declaration of the salt content in foods.

Baseline assessment

A 1983 study carried out on a sample of 262 men found that salt excretion in urine averaged 11.3 g/day (*106*). More recently, 24-hour urine samples from 208 women and men in 2006-2007 estimated an average salt excretion level of 7.9 g/day for women and 9.2 g/day for men (*107*).

Consumer awareness

The National Nutrition Council held national conferences in 1984 and 1987 with representatives of the food industry, nongovernmental organizations and experts in nutrition and health. The aim was to increase awareness of the health implications of salt intake and to discuss how the industry could help consumers to reduce their salt intake by reducing the salt content of their food products.

At the school level, a basic cookery book, Food and health, has been provided free to pupils at the lower secondary level and to education personnel. Recipes are based on the official dietary guidelines.

Labelling

In 2009, Denmark, Norway and Sweden implemented a common Nordic food labelling symbol, known as the keyhole, which had earlier been spearheaded by Sweden. The aim of the keyhole label is to help consumers to make healthier food choices. The voluntary labelling system includes several nutritional criteria, including maximum levels for salt content. There are plans to revise and strengthen the criteria for maximum salt content in 2013 (*108*).

Industry involvement

Local food control authorities in some parts of the country started projects around 1990 to encourage the local food industry and bakers to reduce the salt content of bread and meat products by carrying out repeated salt analyses of products and giving feedback. In one district, for example, local bakers reduced the average salt content of their bread from 1.5% to 1.1% between 1986 and 1988. The food industry and authorities also held joint meetings in 2007 and 2008 to discuss how to reduce the salt content of foods and salt intake.

Monitoring and evaluation

The Directorate for Health and Social Affairs and the Norwegian Food Safety Authority have a joint system for food and dietary monitoring that includes a food database, dietary calculation system and dietary surveys.

The database and calculation system are necessary tools for estimating the intake of various nutrients. The database regularly carries analyses of food with respect to its nutritional content and the results are published collectively in the Food Composition Table (*109*).

Nationally representative diet surveys that make it possible to estimate the intake of calories and nutrients by various age groups have been conducted since 1993. The plan is to repeat such surveys in these age groups every 10 years. In addition to the major diet surveys, annual statistics on national food supplies, Statistics Norway's consumer surveys of private households and various market surveys are used to describe changes in the diet.

Poland

Current national initiatives

The National Programme for the Prevention of Overweight, Obesity and Noncommunicable Diseases through Diet and Improved Physical Activity 2007–2011 (POL-HEALTH) has targeted the reduction of salt, fat and sugar by 2015. Activities have been defined for key stakeholder groups, but specific benchmarks have not been quantified (*110*).

The National Salt Initiative was prepared in September 2008 during a consultation meeting held at the National Food and Nutrition Institute (the coordinating body for the Initiative). Organized under the patronage of the Minister of Health, the meeting was attended by scientists, representatives of public institutions, nongovernmental organizations and the food industry. In collaboration with the Chairman of the Polish Commission for Control of Iodine Deficiency Disorders, a position paper on undertaking initiatives aimed at reducing salt consumption was formulated.

Baseline assessment

A national food consumption survey carried out in 2000 by the National Food and Nutrition Institute highlighted excessive sodium intake levels in the general population, as shown in 99% of reported diets. The average amount of sodium in the average daily diet was 4.1 g/day, slightly higher in males (5.18 g/day) and highest in men aged 19–25 years (6.47 g/day). Survey results also indicated that dietary sodium intake was lower in the urban than in the rural populations (4.1 g/day and 4.2 g/day, respectively).

The Institute is also responsible for the monitoring of salt intake by means of the annual household budget surveys conducted by the Central Statistical Office. According to the most recent study, average salt intake in 2009 amounted to about 7 g/person per day. After the addition of salt intake and dietary sodium content, the total consumption in 2009 was calculated as 11.5 g/person per day overall, 10 g/person per day in urban settings and close to 14 g/person per day in rural households (*111*).

Consumer awareness

Consumer awareness highlighted in the framework of the National Salt Initiative. There is also a stated concern for the involvement of the health sector (including doctors and dieticians), food control services, governmental and nongovernmental organizations and the media (television, radio, press) in the Initiative, although no specific recommendations for action have been included. The National Food and Nutrition Institute has organized workshops and training conferences with the food industry. It has also published a leaflet aimed at the general public to encourage a reduction in salt intake, including sample recipes with reduced salt content.

Industry involvement

Training sessions have been offered to food producers in the prevention of diet-related diseases and the possibility of influencing the quality of food through the improvement of food production technologies and recipes. Targeted objectives include limiting the occurrence of substances that have adverse effects on health, and restricting the fat, salt and sugar content in products.

Monitoring and evaluation

The national framework on nutrition mentions the need for monitoring activities with regard to salt consumption, associations between salt consumption and NCDs, salt content in foods and meals, sodium excretion surveys, changes in dietary habits and consumer behaviour, and the educational level of the population in relation to diet. No specific legislative measures have, however, been included.

Portugal

Current national initiatives

A national guideline was established in 2004 to reduce the population average salt intake to less than 5 g/day (*112*). In 2006, the Portuguese Society of Hypertension set up Portuguese Action against Salt and Hypertension (*113*).

In 2007, the National Platform against Obesity was created, with the collaboration of several representatives of the Ministries of Health, Education, the Economy and Agriculture, together with municipalities, civil society and nongovernmental organizations. The Platform has a Scientific Council and a Consultant Council composed of representatives of several food and nutrition companies, institutions and nongovernmental organizations, with the mission to fight obesity at primary, secondary and tertiary levels. Salt reduction is a key component in this Platform (*114*). The National Health Plan 2012–2016 is currently being developed.

Baseline assessment

In 2006, a pilot study conducted with a sample of almost 500 people reported an average salt intake of 12.3 g/day, using 24-hour urine sodium excretion evaluation techniques (*113*). Baseline assessments to analyse the content of salt in bread have reported values higher than the recommended level, with a range of 344-724 mg sodium/100 g of the most popular types of bread (*115,116*). Meals served in school canteens have also been shown to contain high levels of salt, often two to three times higher than the recommended amount (*117*).

Consumer awareness

In 2005, the General Directorate of Health published a book, Salt – principles for a healthy diet, containing guidelines, suggestions and tips to reduce the amount of salt used in cooking. With the help of the Portuguese Bakery Association, a mass media campaign was initiated in 2006 to raise awareness regarding the problem of high salt intake, along with an educational campaign directed at food manufacturers, health authorities and policy-makers.

Labelling

In August 2009, Parliament fixed an upper limit of 550 mg sodium/100 g bread. Nutritional labelling is mandatory for processed foods and must include information on salt content and percentage per product and portion. The Portuguese Economic and Food Safety Authority is responsible for monitoring the salt content in food and ensuring compliance with the law (*118*).

Industry involvement

Since 2006, several regional programmes have been implemented, including the "Pao.come" in the central region of Portugal, by working with bakers in workshops, offering supportive material, monitoring salt content in bread and updating reports to guarantee that the steps planned are being achieved. The main objective of such programmes has been to reduce the salt content in bread to less than 0.1%. In 2009, legislation set a maximum of 1.4 g salt/100 g serving of bread (*119*).

Monitoring and evaluation

The 2011 National Dietary Survey incorporated plans to include spot urine analysis as part of the measurements used to track progress on salt reduction. The reported results are still pending.

Republic of Moldova

There is no current national salt policy. However, Law No. 10-xvi on the State Surveillance of Public Health (approved in February, 2009), article 38(*3*), stipulates that obesity will be controlled through: reducing the consumption of energy-dense food with a high content of salt, sugar and fats; modifying food content in order to reduce the salt, sugar and fat content; and ensuring adequate nutrition and physical activity in all educational institutions (*120*).

The National Food and Nutrition Action Plan is being developed and, according to the established timeframe of the National Centre of Public Health, must be submitted to the Government for approval in the near future.

Romania

Current national initiatives

No particular salt reduction initiative has been established, although public awareness campaigns and cooperation with the food industry have been carried on for several years.

Baseline assessment
The average consumption of salt per capita was estimated by the Ministry of Health in 2010 as 11.25 g, calculated by means of a 7-day dietary record undertaken as part of a national survey. The survey did not, however, account for salt added at the table (*121*).

Consumer awareness
Public awareness campaigns have been carried out by the Ministry of Health since 2008. Such efforts have included a media campaign entitled "Consumption of too much salt is dangerous for health" and a 2006 booklet, Guide to healthy eating, which contained recommendations on salt reduction for the general public (*122*).

Industry involvement
In November 2010, a protocol of cooperation was signed between the Ministry of Health and the Food Industry Federation aiming to reducing salt intake in the population over a five-year period. Under this agreement, commitments were made to conduct continuing evaluations of daily salt intake, provide information to consumers on salt-related health risks through information and education campaigns, and contribute to reformulation to reduce the salt content of processed foods (*123*).

Monitoring and evaluation
The monitoring of salt intake through food and the content of salt in food are included in the Ministry of Health National Health Programme from 2007 (*124*).

Russian Federation
The Russian Federation participates in the European Salt Action Network. The aim of the network is for countries to share experience with salt reduction efforts, provide background information and material, and act as a resource for technical expertise.

San Marino
To date, no initiatives have been reported.

Serbia
No specific national action on salt reduction has been undertaken or reported to date. Serbia does not have a salt reduction strategy as a separate policy document.

Baseline assessment
Over a three-year period (2005–2007), the Institute of Public Health investigated the salt content of ready-to-eat food as well as samples of daily meals served in kindergartens, student canteens and enterprise/institutional cafeterias. The results indicated that the average salt content in kindergarten meals had risen from 1.8 g in 2005 to 8.1 g in 2007; in student canteens, it had gone up from 8.1 g in 2005 to 13.1 g in 2007; and in workplace cafeterias it had gone up from 3.8 g in 2005 to 5.1 g in 2007 (*125*).

Slovakia
Current national initiatives
The National Salt Initiative is linked to the preparation of the update of the Programme of Improvement of Nutrition of Slovak Inhabitants, which was established in 2008. The Programme's activities include advertising, education, urban planning, legislation, policy, research, food development, transport and the establishment of partnerships. The government is collaborating with manufacturers, health professionals and nongovernmental organizations in the programme. Specific targets were set at no more than one teaspoon (5 g) of salt consumed per day, including salt in bakery products, meat products and other processed and preserved foods (*126*).

Baseline assessment
A 24-hour dietary recall and food frequency questionnaire carried out in 2008/2009 has estimated salt intake levels at 9.6-9.8 g/day for men and 7.0-7.2 g/day for women. A baseline assessment conducted by the League against Hypertension to check the quantity of salt in food establishments analysed samples from 10 restaurants and canteens from different parts the country and found a general increase in the amount of salt in the food products served.

Consumer awareness
Media awareness campaigns have been carried out, led by the League against Hypertension, aiming to reduce salt intake to 4 g/day in the general population.

Industry involvement
The Food Chamber of Slovakia has stated that a voluntary commitment to reduce the amount of sodium has been made by the Association of Dehydrated Food Product Manufacturers. The planned reductions are to be carried out gradually over the period 2009–2014 (*127*).

Slovenia
Current national initiatives
The salt initiative was a national activity overseen by the National Food and Nutrition Action Plan 2005–2010. The body responsible for the adoption and implementation of activities and the national contact point was the Ministry of Health. Other national sectors, professional organizations and civil society were also involved in the implementation process (*128*).

The main objectives of the National Action Plan on Reduced Salt Intake are as follows:

- to pursue long-term cooperation with the food processing industry so as to gradually achieve a minimum level of salt in the food groups that is based on national research, with processed foods being an important source of dietary salt for the population;
- to improve, in partnership with providers, food servings in work organizations, hospitality establishments, catering establishments, educational institutions, hospitals, nursing homes and other organizations;
- to achieve greater public awareness regarding the importance of reducing dietary salt intake by choosing foods lower in salt and reducing the discretionary use of salt;
- to achieve the consistent participation of health professionals towards more effective management of hypertension and other risk factors for CVD and of other diseases associated with excessive consumption of salt (*129*).

Baseline assessment
In 2007, a national survey was conducted of the presence of sodium excreted in the urine through 24-hour urine collection in 143 subjects. The survey found that adults consume an average of 12.4 g of salt per day (14.3 g in men and 11.0 g in women) (*130*). A separate analysis of the salt content of bread and meat products has shown that such products available in Slovenia contain excessive amounts of salt. In December 2009 and January 2010, a representative sampling and chemical analysis of samples of different types of bread and meat products revealed that the average salt content of bread was 1.4 g/100 g (*131*).

Consumer awareness
There are plans for awareness campaigns on reducing salt intake to be carried out through various media, with interministerial and interdisciplinary activities involving the Ministry of Education and Sport, the Ministry of Agriculture, the Chamber of Agriculture, the Chamber of Commerce and Industry of Slovenia, the Countrywide Integrated Noncommunicable Disease Intervention in Slovenia, the National Institute of Public Health, regional public health institutes, and health staff in primary health centres and hospitals. The campaigns will be carried out on various levels (both national and local) and in different environments (such as schools, kindergartens, student hostels, workplaces and industrial premises).

Industry involvement
The dialogue between the Ministry of Health and Industry is coordinated through the Chamber of Commerce and Industry, an umbrella organization for the food processing and food retailing industries. Continuing cooperation with the food processing industry is sought with the aim of gradually reducing the salt content in foods, especially those which constitute the largest source of salt intake in the population (bread and meat products). Monitoring of the salt content in food products is carried out through continuing analytical work, reported every two years by the manufacturers (*129*).

Monitoring and evaluation
Monitoring plans for the near future include a sodium excretion survey by 24-hour urine collection, assessment of the salt content of foods, and a study of the effects of implementing awareness campaigns in the general population.

Spain

Current national initiatives

The 2005 Strategy for Nutrition, Physical Activity and Prevention of Obesity recommended that salt intake from all sources should be reduced to less than 5 g/day (*132*). A focused plan to reduce salt consumption has been under development since 2009.The current plan aims to reduce the salt content in food products by 20% over a four-year period (2010–2014).

Baseline assessment

According to findings from the Spanish Agency for Food and Nutrition Safety and the Complutense University of Madrid, mean salt consumption in Spain, estimated by means of 24 hour urinary collection, is 9.7 g per person with more than 80% of the population consuming more than the recommended 5 g of salt per day. It was further found that 70-75% of salt intake comes from processed foods and from outside the home. The main source of sodium in the adult population is bread, accounting for 19% of the total intake, followed by cured ham and cold meats. In children, the same foods are chiefly responsible for the intake of sodium, although bread takes second place (*133*).

In efforts to measure the salt content of foodstuffs, 1256 products in 20 food categories (including 62 samples of bread but excluding freshly baked bread) have been analysed to establish the maximum, minimum and average salt content in every food category. Following the baseline assessment, the Ministry of Health reassessed the average content of salt in bread after a four-year period and observed a reduction of 1.63 g salt/100 g flour (*134*).

Consumer awareness

Efforts to increase consumer awareness have been carried out through the distribution of brochures and press releases as well as through the dissemination of information on the Agency for Food and Nutrition Safety web site. In 2010, the campaign distributed 100 000 copies of the brochure Plan to reduce the consumption of salt, which was also made available to the autonomous communities of Spain (*135*). Additionally, the Agency has conducted public awareness campaigns about the benefits of reduced salt intake. The last such campaign, in 2011, was conducted through web sites, online games and social networks such as Twitter. One of the available online tools lets users print a personalized four-week plan to reduce salt intake using tips and recommendations.

Industry involvement

To achieve the target of a 5% reduction in salt intake by 2014, formal agreements are being prepared in cooperation with the food and catering industry as well as with restaurants and school canteens. The Agency for Food and Nutrition Safety has held numerous meetings with the food manufacturing associations, companies and distribution networks, although no specific targets on lowering salt in the targeted food products have been achieved.

With the aim of preventing obesity and overweight, the food, hotel and catering industries have been involved in the continuing initiative to promote healthier products that contribute to a healthy and balanced diet. Under this initiative, measures to achieve the reduction of salt in bakery products, as part of reducing the population's daily intake of salt, are carried out by the general administration of the state (the Ministry of Health and Consumer Affairs, the Ministry of Agriculture, Fisheries and Food and the Ministry of Industry), the autonomous communities and the bakery industry.

In 2005, the Agency for Food and Nutrition Safety launched a campaign and signed an agreement with the Spanish Confederation of Bakery Organizations covering the period 2005–2009, with the aim of reducing the salt in bread from 22 g of salt per kg of flour to 18 g per kilo. The Spanish Association of Frozen Dough Manufacturers has also joined the agreement. At the end of the designated four-year period, levels were reduced to 16.3 g of salt per kilo, representing a 26.4% reduction in salt. This reduction was verified by laboratory analyses carried out by the Agency.

Sweden

Current national initiatives

The National Food Administration drafts the national salt reduction guidelines while the National Public Health Institute carries out the implementation and monitoring. The salt initiative is part of the keyhole branding initiative for products and ready-made meals as well as the keyhole certification scheme. In both programmes, salt is among the target nutrients. Dietary guidelines for food provided in schools, pre-schools and workplaces emphasize the importance of salt reduction.

Baseline assessment
The second nationwide food consumption survey, undertaken through seven-day dietary recording methods, was carried out in 1997. Results indicated an average salt intake of 7 g/day and 9 g/day in women and men, respectively (*136*). The National Food Administration, meanwhile, estimates that the general population consumes 10-12 g of salt per day (*137*). Both figures exceed the 5-6 g/day guideline given in the Swedish Nutrition Recommendations 2005 (*138*).

Consumer awareness
The National Food Administration seeks to raise consumer awareness about salt through various communication media including web sites and brochures. An important part of this work is carried out in partnership with relevant trade associations and their sections, namely the Swedish Food Federation and its subdivisions.

Labelling
In 1989, the National Food Administration introduced the voluntary keyhole front-of-package food labelling system to help consumers identify healthier products in specific food categories (*139*). For a food product to earn the keyhole symbol, it must be lower in fats (including saturated fat and trans-fat), sugar and sodium and/or higher in fibre than other foods in the same category. A special keyhole mark initiative has also been developed to target the catering industry, including elements of education, awareness and recipe recommendations. The keyhole programme was spearheaded by Sweden and has since implemented in Denmark and Norway as well.

According to Swedish agency officials, the keyhole system has resulted in the development of healthier products and the reformulation of existing products. One Swedish retailer, ICA, reported that in 2003 and 2004 sales of keyhole-labelled products rose by over 15% (*140*).

Industry involvement
The National Food Administration initiated a dialogue with the food industry in the form of a five-year programme (2007–2011) to reduce salt in processed foods and meals eaten outside the home. Recently the Swedish Retail Association and the Swedish Hotel and Restaurant Association have also been invited to participate in national initiatives.

Monitoring and evaluation
A recent national survey conducted by the National Food Administration included records from 5000 individuals for 4 consecutive days, recording everything they ate and drank during those days. The study also incorporated blood and urine samples from 1000 participants. The initial results were published in late 2012 (*141*). In addition, the National Food Administration plans to evaluate continuously the total market of keyhole products and their market share as well as keyhole meals sold by restaurants.

Switzerland
Current national initiatives
The Federal Office of Public Health has developed a salt strategy with the mid-term objective of decreasing the daily salt consumption of the population to the 5 g recommended by WHO. From a shorter-term perspective, a reduction of average salt intake by up to 16% (4% per year) to 8 g/day was planned. The national salt initiative is currently part of the National Diet and Physical Activity Programme 2008–2012 and involves five key elements: data and research, public relations, national and international cooperation, modification of product formulations, and monitoring and evaluation (*142, 143*).

Baseline assessment
The lack of recent national data regarding salt consumption has been addressed in the latest National Diet and Physical Activity Programme. The most recent nationwide study to measure sodium in 24-hour urine samples was carried out in 1984 and yielded a value of 11.9 g/day for average daily salt intake (*144*). A 2007 study in Lausanne with 251 participants indicated an average intake of about 8 g of salt per day (8.3 g/day in men, 7.4 g/day in women) (*145*). The most recent study, carried out in Geneva in 2012, has shown a mean intake of 10.6 g/day in men and 8.1 g/day in women. The highest contribution to these values was from processed foods such as bread (17%), cheese (11%), meat products (8%), soups (7%) and ready meals (5%) (*146*).

Industry involvement
Continuous efforts are being made, in close collaboration with the food industry and researchers, to investigate how salt levels in processed foods and in the catering sector can be reduced over the longer term without adversely affecting taste. To this end, the Federal Office of Public Health has held discussions with

representatives of the food industry in a bid to develop a concerted salt reduction strategy, bearing in mind that 70-80% of daily salt consumption comes from processed industrial foods.

Monitoring and evaluation

A national nutrition survey on dietary consumption was carried out in 2012 (*147*). Monitoring of salt is part of the strategy developed for the National Diet and Physical Activity Programme monitoring system for nutrition and physical activity. The National Nutrition Survey was initiated in 2006 with the objective of delivering representative data on food consumption throughout the country, and is intended to be used as a tool for the salt monitoring and evaluation strategy. The first pilot study was launched in November 2008, with the final interviews conducted in November 2009. The survey involved telephone interviews conducted with 1500 men and women in the group aged 15-85 years from all linguistic regions of the country. The data have been analysed and are being incorporated into continuing planning activities for the National Nutrition Survey (*148*).

Tajikistan

Although there is no national salt policy at present, there are plans to discuss salt reduction activities in a multisectoral working group. A draft of a project commissioned by the national health authorities entitled "Study of dietary risk factors for hypertension and coronary heart diseases among the population of the Republic of Tajikistan" includes plans to study salt intake as a nutritional risk factor for hypertension and coronary heart diseases.

The former Yugoslav Republic of Macedonia

To date, no initiatives have been reported.

Turkey

Current national initiatives

The current national salt reduction strategy is part of the Excessive Salt Consumption Reduction Programme 2011–2015 (*149*). Although there are no set targets for salt content in food, one of the activities under the Action Plan is to establish national targets in each food group. Moreover, the Ministry of Health has recommended that daily salt intake for the general population should be 5 g/day (*150*).

Baseline assessment

The 2010 published study SALTURK measured 24-hour urine sodium output as well as dietary habits in both normotensive and hypertensive subjects. Average urinary sodium excretion in the population was 18.01 g/day (*151*).

Consumer awareness

Awareness campaigns as part of the National Salt Reduction Action plan include health and education programmes, materials for the training of health personnel and a practical interactive web page, all at a national level.

The Turkish Society of Hypertension and Renal Diseases has been responsible for launching the WASH campaign at national level and has produced posters and booklets for schools regarding a healthy diet, including a reduction in salt intake (*152*).

Labelling

There are plans under the current Action Plan to introduce high-, medium- and low-salt logos on foodstuffs. Implementation is still under development.

Industry involvement

Plans to collaborate with the food industry, including the national federation of bakers, in establishing a set reformulation process are part of the current Action Plan. Voluntary initiatives have been carried out by the industry, such as the People's Bread Factory (a major supplier of bread) committing itself to reducing the salt content in bread content to at least 1.4%, and raising awareness in students from elementary and high schools.

Monitoring and evaluation

Under the Action Plan, monitoring should be carried out by the implementation of a national survey of salt consumption.

Turkmenistan

To date, no initiatives have been reported.

Ukraine

Current national initiatives

Salt reduction was one of the topics in the Healthy Nutrition and Food Safety and Quality sections of the state comprehensive programme "HEALTH 2020: Ukrainian Dimensions". Unfortunately it was deleted from the current draft of the programme. It is hoped that it will be possible to reinstate this important topic in the programme.

United Kingdom

Current national initiatives

In 1996, a group of experts set up an action group, the Consensus Action on Salt and Health as a forum for negotiating with food manufacturers and suppliers a universal and gradual reduction in the salt content of processed foods as well as increasing community awareness about excess salt intake (*153*). From 1998, the FSA took on the task of reducing salt intake in the United Kingdom, and its independent Scientific Advisory Committee on Nutrition confirmed the need to reduce salt intake in the whole population to less than 6 g/day (*154*).

The Department of Health for England has been working on salt reduction since 2003 when the Scientific Advisory Committee published its report Salt and health. In this, the Committee concluded that the evidence of a link between salt and high blood pressure had strengthened since the issue had previously been considered, and recommended that work should be undertaken to reduce salt intake to reduce this risk. The Committee recommended a reduction in the population average intake of salt to 6 g/day for adults, and also set targets for children for the first time (below 6 g).

In May 2009, the FSA published the revised, voluntary salt reduction targets for the industry to be met by 2012. Other challenging targets for 2012 were set for 80 different food categories so as to ensure that the momentum in reducing salt levels is maintained by both manufacturers and food retailers.

In 2011, the Public Health Responsibility Deal was launched, with targets for the salt content of 80 specific food groups that contribute most to the population's salt intake to be achieved by the end of 2012. These targets include dietary staples such as processed meats, bread and cheese, as well as convenience foods (ready meals, soups, pasta sauces, pizzas and sandwiches) and snacks. The 2012 targets comprise the third generation of targets, which have been developed since 2006 and through a stepwise approach have evolved to account for reductions achieved, salt levels in products, technical constraints, food safety issues, consumer acceptability, independent advice and data on salt intakes. The Responsibility Deal salt targets for breads were to be achieved by the end of 2012 and were for products "as sold" per 100 g to be met on a sales-weighted average basis.

The government has a number of commitments to reduce consumers' intakes of salt, saturated fat and sugar, and to help them maintain their energy balance. These are set out in the Agencies' Strategic Plan 2005–2010 and in "Healthy Weight, Healthy Lives", a cross-government obesity strategy, which is led by the Department of Health.

Baseline assessment

In 2001, average salt consumption was estimated as 9.5 g/day in the adult population based on 24-hour urinary sodium excretion. It was roughly estimated that approximately 5% of the total (0.6 g) was naturally present in the food, 15% was added either at the table or in cooking, and the remaining 80% (7.5 g) was added by the food industry. Eighty food categories were identified as major contributors to sodium chloride intake and targets were set for each category that the food industry was asked to meet within a certain period. As a result of the FSA strategy on clear labelling of the salt content of food, a new estimate of population salt intake carried out in 2008 indicated a significant reduction from the 2001 estimate of 9.5 g to 8.6 g/day (*155*).

Dietary information has been available from the Expenditure and Food Survey. Sodium surveys conducted by 24-hour urinary assessment were also carried out by the FSA throughout 2000–2010 (for example, intake was 9.5 g/day in the average population in 2000, down to 8.7 g/day in 2008). Over the years, continuous assessments have been able to influence governmental commitments and strategic action plans for the reduction of salt in the general population. A recent study has assessed the impact of salt reduction campaigns by using data on spot urinary sodium readings and sociodemographic variables taken from the Health Survey for England throughout a four-year period. The information has been combined with food pricing information

from the Expenditure and Food Survey, and the results demonstrate a positive impact on salt reduction in the general population (*156*).

Consumer awareness

The FSA has run three phases of a public awareness campaign, the main purpose of which is to make consumers aware of why a high salt intake is bad for their health and what they can do to reduce their intakes.

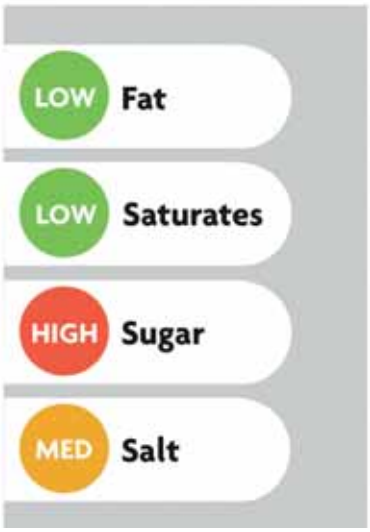
A variety of methods were used to convey the message: television and poster advertisements, articles in the press (the main newspapers and magazines), coverage in the domestic news, leaflets and a dedicated salt web site (*157*).

Partnerships have been established with a range of nongovernmental, consumer-related and industry organizations (food retailers and manufacturers) organizations as well as organizations representing specific sections of the population.

Labelling

Nutrition labelling is voluntary at the national level but is present on more than three quarters of foods. In March 2006, after roughly two years of consultation and research, the FSA introduced a voluntary traffic light signpost system, which has succeeded in catching international attention. The traffic light system focuses on nutrients deemed to be of greatest public health significance – total fat, saturated fat, sugar and sodium – and colour codes the amount of these nutrients in a food product as red (high), yellow (medium) or green (low) (*Fig.2*).

Fig. 2. Traffic light signpost system for nutrients in food, United Kingdom



The system is based on benchmarks established by EU Regulation No. 1904/2006, which governs nutrition and health claims (*158*), and recommendations of the United Kingdom's own Committee on Medical Aspects of Food and Nutrition Policy and Scientific Advisory Committee on Nutrition.

Another variation of front-of-package labelling presently in use in the United Kingdom is the guideline daily amount system, supported by a coalition of the largest food and beverage manufacturers and by major retailers. The FSA is currently reviewing its recommendations on front-of-package labelling, in the light of the findings of an independent evaluation it commissioned to study the different front-of-package labelling schemes in use in the country (*159*), conducted by a small independent panel known as the Project Management Panel (*160*). The main conclusions of the Panel's evaluation, published in May 2009, are that: (i) a single front-of-package scheme would be most helpful for consumers, as the presence of multiple labelling systems can cause confusion; (ii) the strongest front-of-package label is one that combines elements of both the traffic light and the guideline daily amount systems; (iii) consumers who use front-of-package labels value them and use them to compare products; and (iv) there is generally a high level of awareness and understanding of front-of-package labels, which suggests that promoting a single front-of-package labelling scheme could result in increased use of such labels in making food purchasing decisions (*161*). It remains to be seen whether the government will use these findings to develop a single, mandatory approach to front-of-package labelling in the United Kingdom.

Industry involvement

The Public Health White Paper published in November 2010 outlines details of the Public Health Responsibility Deal, the aim of which was to work in partnership with business and the voluntary sector to bring about sustained changes in behaviour. Five networks were established to take this forward, including a food network, which covered a range of nutrition strategies. As a component of the Public Health Responsibility Deal, a wide range of businesses including manufacturers, retailers and caterers have committed themselves to a pledge to deliver a substantial reduction in the salt content of United Kingdom foodstuffs. In the past, the Trading Standards Institute and the British Meat Processors Association have produced toolkits and manuals to aid businesses in reducing salt in their products.

Monitoring and evaluation

Adult salt intakes have been monitored using urinary sodium data collected from countrywide surveys. The average daily salt intake of adults has been estimated at 8.6 g, which is a reduction of about 10% (from 9.5 g) since 2001 (*156*).

The last survey was carried out in 2007/2008 and results for the dietary sodium levels are available from urine samples representative of the adult population in England aged 19-64 years, which were collected from participants in the National Diet and Nutrition Survey (*162*). Progress on reducing intakes and levels of salt in food are regularly monitored.

The FSA also leads work on monitoring and evaluation in conjunction with the Department of Health. A self-reporting framework, by which industry could report the levels of salt in products across the categories for which targets had been set, was published in August 2007. Twenty-five responses to the framework were received, covering around one third of the companies committed to the salt reduction programme. Future approaches will include a combination of label data sourced commercially and a smaller set of self-reported data from industry.

The FSA has also evaluated the success of its consumer awareness work which shows that the number of consumers cutting down on salt has increased by as much as one third, there has been a 10-fold increase in awareness of the 6 g a day message, and the number of consumers trying to cut down on salt by checking labels has doubled since the beginning of the campaign.

United Kingdom (Scotland)

Current national initiatives

In 2003, the United Kingdom Scientific Advisory Committee on Nutrition recommended that the average salt intake of the population should be reduced from the then current levels of 9.5 g to 6 g per day for adults, with less for children.

In 2006, in response to the Committee's recommendations, the FSA developed a set of voluntary salt reduction targets for 85 categories of food that contribute most salt to the diet, such as bread, bacon, breakfast cereal and cheese, as well as a wide range of convenience foods. In 2008 these targets were reviewed to consider progress and to identify any technical difficulties the industry was experiencing. The review concluded that considerable progress had been made and so, to encourage industry to continue salt reduction, a revised set of more challenging targets was developed for compliance by 2012.

This salt reduction work is in keeping with the Scottish Government's obesity strategy Preventing overweight and obesity in Scotland: a route map towards healthy weight (*163*).

Baseline assessment

Results from the most recent survey carried out in Scotland in 2008 indicated that the mean salt intake was 8.8 g/day. This was not statistically different from the mean salt intake from the 2006 survey (9.0 g/day). Overall, 89% of men and 72% of women had a daily intake higher than the recommended 6 g/day (*164*).

Industry involvement

Certain sections of the food industry, mainly craft bakers and manufacturers of meat products, expressed concerns about the impact of salt reduction on microbial safety, consumer acceptance and technological barriers. In partnership with the British Meat Processors Association, the FSA developed guidance on how to approach the process of reducing salt in meat products. The FSA also worked with craft bakers to produce guidance which enabled them to adjust their ingredients and mixing methods in order to meet the 2012 target.

Monitoring and evaluation

Dietary sodium levels among adults in the general population are periodically calculated using the analysis of 24-hour urine samples.

Uzbekistan

Current national initiatives

In 2011, the government drafted the national NCD strategy, including action on the legal regulation of the production and content of foodstuffs with the aim of reducing the salt content, and a review of the existing norms and standards for ready-made foodstuffs in line with international standards and recommendations (*165*).

The Action Plan for the Prevention and Control of Chronic Non-Communicable Diseases contains a new legal and regulatory framework related to nutrition. One of the components of the framework is to review the existing norms and standards for ready-made foodstuffs and to verify that they are in line with international standards and recommendations. These activities are being carried out by the Ministry of Agriculture and Water Resources and the Ministry of Health over the period 2011–2015.

The politics of salt

Iodine deficiency is one of the major nutrient deficiencies in the WHO European Region. Since 2003, the number of countries with insufficient iodine intake has decreased, although it still remains a significant public health problem. In 2011, 44.2% of the general population had insufficient iodine intake (*166*).

WHO, the United Nations Children's Organization (UNICEF) and the International Council for the Control of Iodine Deficiency Disorders recommend a daily iodine intake of 90 µg for the group aged 0–59 months, 120 µg for the group aged 6–12 years, 150 µg for adolescents and adults, and 250 µg during pregnancy and lactation (*167*). Iodine deficiency disorders will occur if these physiological requirements are not met. Miscarriages and increased perinatal mortality, malformations of the central nervous system, mental retardation, retarded physical development and goitre are only a few such disorders (*166,168,169*).

Since 1993, WHO and UNICEF have recommended universal salt iodization as the primary strategy for eliminating iodine deficiency disorders. Experience shows that this strategy is sustainable but requires political commitment, an effective and operational monitoring and evaluation system, strong collaboration between the partners involved in the control of iodine deficiency and public education (*169*).

Salt has been chosen as a vehicle for fortification because of its widespread consumption and the extremely low cost of iodization, which allows for a safe, simple, cost-effective and cost-beneficial strategy to reduce iodine deficiency (*169*). The iodization of salt should not, however, promote its consumption, and countries should be encouraged to implement complementary measures to increase the intake of iodine (*170*).

Worldwide, different approaches have been implemented to reduce iodine deficiency. In Romania, instead of iodized salt (which is not readily available), iodized oil is used, particularly to cover the physiological needs of pregnancy. Other products that have been fortified with iodine and successfully used include fortified bread in Australia and the Netherlands, iodized water in Italy and iodine-rich milk in the United Kingdom and the United States (*169,171,172*).

In most countries of the WHO European Region the iodization of table salt or cooking salt is mandatory although this is not the major source of salt in the diet. Nowadays, processed food is responsible for 80% of daily salt intake, but the iodization of this type of salt is still voluntary (*173*).

Another issue is that the consumption of table salt or cooking salt is falling as a result of salt reduction programmes (*169*). Sodium intake is highly associated with hypertension, which is a major risk factor for CVD. In this context, there is a need to adjust the concentration of iodine in salt in order to ensure a sufficient supply of iodine without exceeding WHO's current recommendation for a salt intake of <5 g/day.

Salt intake can be reduced without compromising micronutrient fortification. It is essential that the monitoring and surveillance system is correctly implemented in order to balance iodine salt fortification levels and salt intake.

These two public health initiatives are not contradictory. Together, salt iodization and salt reduction policies can be compatible, cost-effective and of great public benefit. Iodine deficiency disorders can be successfully eliminated and salt consumption reduced concurrently (*174-178*).

Conclusions

In the WHO European Region, 26 of the 53 Member States have operational salt reduction policies. In some countries, advocacy groups or research institutions are carrying out activities in the absence of salt reduction policies.

When it comes to the existence of baseline assessment data, 31 Member States have carried out activities in this area by urine analysis, intake survey or salt levels in food categories. In total, 33 Member States have initiated some form of consumer awareness activity, either through a government programme or through the involvement of a nongovernmental advocacy organization.

Labelling activities have been implemented or are planned in 17 Member States and vary as to whether they are voluntary or regulated by legislation. Involvement by industry was found to be voluntary in the majority of cases, spanning a variety of activities, including food reformulation and the production of toolkits for the general public, as part of corporate responsibility initiatives.

Monitoring and evaluation activities were planned or carried out in 25 Member States in the form of urine analysis, sampling of commercial food products and measurements of the effects of campaign awareness. Voluntary self-reporting by industry also takes place.

Continuing estimation of the health effects of salt reduction strategies in Europe

Given the burden of disease caused by excessive salt intake, assessment of the impact of a reduction of salt intake in terms of morbidity and mortality, as well as the impact on life expectancy and disability-adjusted life expectancy, might be helpful to support salt reduction strategies and policies. Several simulation models exist to evaluate the health effects of salt reduction. Estimates from various countries show a positive impact on morbidity and mortality, but country comparisons are hampered because authors have used different modelling approaches and assumptions. In addition, some models are quite complicated and cannot be easily implemented in other countries.

The DYNAmic Model for Health Impact Assessment model (DYNAMO-HIA) (*179*) is, however, a model that is user-friendly and might be used in all Member States. At the request of WHO, the WHO collaborating centre for nutrition at the National Institute for Public Health and the Environment (RIVM) in the Netherlands made the model appropriate for evaluating salt reduction strategies. Calculations of the health effects of salt reduction will be based on a two-step approach. In the first step, the effect of salt reduction on systolic blood pressure levels is modelled. In the second step, the effect of salt reduction in modifying blood pressure levels is modelled on health outcomes (including on prevalence of morbidity and mortality from stroke and ischaemic heart disease over, for example, 20 years, as well as on life expectancy). Important country data needed for such calculations are demographic data, salt intake distribution data and blood pressure distribution data for the various age and gender groups, as well as relevant data on morbidity and mortality.

In 2012, a pilot study was performed by RIVM and WHO in which the health gain was calculated for specific salt reduction strategies (for example, going from present salt intake to the WHO recommended maximum level of 5 g per day; or going from present salt intake to a 30% reduction in present salt intake) in nine European countries (Finland, France, Ireland, Italy, the Netherlands, Poland, Spain, Sweden and the United Kingdom). These countries were selected because the required country data were relatively easily accessible through literature and the internet, sometimes complemented with personal communications. The pilot study showed that country comparisons in health gains can indeed be made, but the country health effects strongly depend on current salt intake and blood pressure levels and morbidity and mortality rates. One of the main difficulties for valid comparisons between countries is with country salt intake assessments. Only 4 out of the 9 countries have assessments based on 24-hour urinary sodium excretions, and the countries with salt intake assessments based on food consumption surveys usually lack assessments of household salt use.

Based on the outcomes of the pilot study, the protocol will be improved and a manual will be written for collecting the data required. During 2013, WHO will ask Member States to participate in this study on health gains attainable through salt reduction strategies in Europe by providing the desired data. The outcomes of this planned WHO study will give further support to salt reduction strategies and policies, at national as well as regional or European levels.

Observations

With the discernible increases in poverty and inequality taking hold in recent years, the most vulnerable groups will be unable to afford a healthy variety of safe food. This highlights the importance of implementing evidence-based interventions aimed at bringing about positive structural changes in the population towards achieving an adequate reduction in salt intake.

This report highlights the broad spectrum of salt reduction initiatives that exist in the Region. Although most Member States have chosen to follow the EU guidelines and general benchmarks on salt reduction, great heterogeneity can nonetheless be observed when comparing existing policies.

While most strategies are carried out by governmental organizations, other advocacy groups and

nongovernmental organizations have also played important roles. In countries where salt reduction policies have yet to be adopted, international collaboration with advocacy groups such as WASH have at least put salt on the radar.

Industry participation has remained voluntary, with the exception of food labelling, in most countries. Health claims regarding salt on packages have been closely monitored in countries which have salt reduction policies. The reformulation of processed and catering foods has generally been accepted in western European countries to a greater extent than in the rest of the Region. This is true not only when it comes to reformulation processes but with regard to salt reduction initiatives in general. Member States with greater financial resources seem also to be those presenting more mature salt programmes. At the same time, several excellent examples, such as Turkey, have demonstrated that salt reduction programmes are not the exclusive province of western European countries but have also gained importance on the political agenda in those countries defined as low- or middle-income by the World Bank.

Countries that have been able to carry out environmental surveys to determine the main sources of salt in their populations can serve as examples for neighbouring countries in the Region that have yet to carry out similar types of analysis. The need to identify missed opportunities for salt intake assessments should be highlighted and partnerships for action encouraged.

The importance of having a strong governing structure that can react in a positive and effective manner in the face of activities (such as trade flows) that might undermine the national salt reduction initiative should be highlighted as well. Throughout this analysis, it has been apparent that food trade flows have not been adequately addressed by any salt reduction policy at the European level. A key example can be seen in the import and export of bread, where large quantities of food high in salt may enter a country that has a salt policy initiative from other countries with no such policies (as experienced by Germany).

Close to 60% of the disease burden in Europe is attributable to seven leading risk factors: high blood pressure, tobacco use, harmful use of alcohol, high blood cholesterol, overweight, low fruit and vegetable intake and physical inactivity.

Interventions that share similar strategies, such as sugar and fat reformulation, use similar platforms for interventions (for example, the engagement of industry) and can serve as the basis for programmes.

WHO is key when it comes to providing evidence-based tools for the planning, implementation and surveillance of national salt reduction initiatives. The wide range of stakeholders involved should continue to work together as more and more information emerges each day on how best to reduce salt intake.

The promotion of comprehensive policies on healthy dietary intake begins with an acknowledgement of their integral role in addressing epidemics of obesity and other NCDs and recognition of the shared opportunities for policy intervention. For their impact to be maximized, national salt reduction initiatives should be carried out alongside interventions targeting the environmental conditions that facilitate a reduction in salt consumption for the population as a whole.

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Annex 1

Surveillance, evaluation and monitoring of salt in WHO European Member States

Table 1.1. Current policy and environmental survey

Country	Existing plan Environmental scan				Environmental scan			
	Existing task force/ working group	National salt initiative	Part of bigger initiative	Food reformulation	24-hour urine	Spot urine	Primary sources of dietary salt	Dietary intake survey
Andorra								xxx
Austria		xxx	xxx	xx				xxx
Belgium	xxx	xxx	xxx		xxx		xxx	xxx
Bulgaria		xxx	xxx	xxx			xxx	xxx
Croatia		xxx	xxx				xxx	
Cyprus	xxx	xx						xxx
Czech Republic							xxx	xxx
Denmark	xxx	xxx	xxx		xxx			xxx
Estonia		xxx	xxx					xxx
Finland	xxx	xxx	xxx	xxx	xxx			xxx
France	xxx	xxx	xxx				xxx	xxx
Georgia								
Germany					xxx		xxx	xxx
Greece			xxx	xx				
Hungary		xxx	xxx	xxx	xxx		xxx	xxx
Iceland								xxx
Ireland	xxx	xxx	xxx	xxx	xxx		xxx	xxx
Israel							xxx	xxx
Italy	xxx	xxx			xxx		xxx	
Latvia								xxx
Lithuania								xxx
Luxembourg							xxx	
Malta	xx		xxx					xxx
Montenegro			xxx					
Netherlands	xxx	xxx	xxx	xxx	xxx		xxx	
Norway	xxx	xxx	xxx			xxx		xxx
Poland		xxx						xxx
Portugal					xxx		xxx	
Romania								xxx
Serbia							xxx	
Slovakia		xxx	xxx				xxx	xxx
Slovenia		xxx	xxx	xxx	xxx		xxx	
Spain			xxx	xxx	xxx		xxx	
Sweden		xxx	xxx					xxx
Switzerland		xxx	xxx	xxx	xxx		xxx	xxx
Turkey		xxx			xxx			
United Kingdom	xxx	xxx	xxx	xxx	xxx	xxx	xxx	
United Kingdom (Scotland)	xxx		xxx					
Uzbekistan			xx					

Table 1.2. Benchmarks			
Country	**National target set/goals**		
	Dietary target	**Overall population consumption**	**Specific food category**
Andorra		7.5 g/day	
Austria		9 g/day/month and 8 g/day/week	15% by 2015 in bread
Belgium	reduce 10% by 2012	8.25 g/day/month and 5.75 g/day/week	maximum 2% salt on dry matter
Bulgaria	<5 g/day	12.5–14.5 g/day/month and 11.4–16.6 g/day/week	
Croatia			30% by 2012 in bread
Cyprus	<5 g/day	5 g/day/month and/week	
Czech Republic	<5 g/day	16.6 g/day/month and 10.5 g/day/week	
Denmark	5 g/day/week and 6–8 g/day/ month	9.8 g/day/month and 7.3 g/day/week	16% by 2012
Estonia	5 g/day/week and	6 g/day/month	10 g/day
Finland	6 g/day/week and 7 g/day/month <2 years 0.5 g/day	9.3 g/day/month and 6.8 g/day/week	20–25% in bread
France	<8 g/day	9 g/day	20% by 2012 in bread
Georgia			
Germany	3.5–6 g/day	9 g/day/month and 6.5 g/day/week	
Greece	<5 g/day		
Hungary	<5 g/day	17.5 g/day/month and 12.1 g/day/week	16% by 2017 in bread
Iceland	6–7 g/day	9.5 g/day/month and 6.5 g/day/week	
Ireland	<6 g/day	10.3 g/day/month and 7.4 g/day/week	16% by 2013 in bread
Israel	<5–6 g/day	7 g/day	35% by 2020
Italy	<6 g/day	11 g/day/month and 8 g/day/week	10% by 2012 in bread
Latvia	<5 g/day	7.1 g/day	
Lithuania	<5 g/day	10.75/day/month and 7 g/day/week	10% by 2013 in bread
Luxembourg	5 g/day		
Malta	<5 g/day		
Montenegro	<5 g/day		
Netherlands	<6 g/day	>8.5 g/day	25–30% by 2015
Norway	<5 g/day (6 g/day/week and 7 g/day/month)	9.2 g/day/month and 7.9 g/day/week	
Poland	5–6 g/day	7 g/day (HBS)	16% in 2012 in bread
Portugal	<5 g/day	12.3 g/day	
Romania	<6 g/day	11.25 g/day	
Serbia			
Slovakia	<5 g/day	9.6–9.8 g/day/month and 7–7.2 g/day/week	
Slovenia	<6 g/day	12.4 g/day (14.3 g/day/month and 11 g/day/week)	16% in 2012 in bread
Spain	<5 g/day	9.8 g/day	20% in 2014 in bread
Sweden	5–6 g/day	10–12 g/day	
Switzerland	<8 g/day by 2012 and then 5 g	9 g/day	
Turkey	5 g/day	18.01 g/day	
United Kingdom	<6 g/day	8.7 g/day	
United Kingdom (Scotland)	<6 g/day	8.8 g/day	
Uzbekistan			

Table 1.3. Consumer awareness. industry involvement and labelling								
Country	Consumer awareness campaigns						Industry involvement	Labelling
	Brochure/ print	TV/ radio	Website/ software	Education/ schools/health care facilities	Conference	Reports		
Andorra	xxx	xxx			xxx			
Austria					xxx		xxx	
Belgium	xxx		xxx	xxx		xx	xxx	
Bulgaria	xxx	xxx			xxx		xxx	
Croatia							xx	
Cyprus	xxx	xxx		xxx	xx		xxx	
Czech Republic			xxx				xxx	xx
Denmark	xxx	xxx	xxx	xxx			xx	xxx
Estonia			xxx				xx	xxx
Finland	xxx			xxx			xxx	xxx
France		xxx	xxx	xxx			xxx	xxx
Georgia		xxx	xxx	xxx	xxx			
Germany								
Greece				xxx			xx	xxx
Hungary	xxx	xxx	xxx	xxx			xxx	xx
Iceland	xxx		xxx			xxx	xx	
Ireland				xxx		xxx	xxx	xxx
Israel							xx	xxx
Italy	xxx	xxx		xx			xxx	xx
Latvia	xxx	xxx	xxx	xx			xx	xx
Lithuania	xx	xx		xx		xx	xx	xxx
Luxembourg	xxx			xxx			xx	xxx
Malta	xxx	xx					xx	
Montenegro							xx	
Netherlands				xxx			xx	xxx
Norway	xxx			xxx	xxx		xxx	xxx
Poland	xx	xx		xx			xx	
Portugal	xxx	xxx		xxx			xxx	xxx
Romania	xxx	xxx					xxx	
Serbia								
Slovakia					xxx		xx	
Slovenia	xx	xx		xxx			xx	
Spain	xxx		xxx	xxx			xx	
Sweden	xxx		xxx				xxx	xxx
Switzerland				xx			xx	
Turkey	xxx		xxx	xxx			xx	xx
United Kingdom	xxx	xxx	xxx	xxx			xxx	xxx
United Kingdom (Scotland)							xxx	
Uzbekistan							xx	xx

Table 1.4. Framework for national salt initiatives						
Country	**Monitoring and evaluation**					
	Industry self–reporting	**Salt content in food**	**Salt intake**	**Consumer awareness**	**Behavioural change**	**24-hour urinary sodium excretion**
Andorra						
Austria		xxx	xx			
Belgium	xxx	xxx			xxx	xx
Bulgaria	xxx	xxx	xx			xx
Croatia		xx				
Cyprus					xxx	
Czech Republic						
Denmark		xxx	xxx			xx spot urine
Estonia			xxx		xxx	
Finland	xxx	xxx	xxx	xxx	xxx	xxx
France		xxx	xx			xx
Georgia					xx	
Germany			xxx			
Greece						
Hungary	xxx	xxx	xxx		xx	
Iceland			xxx			
Ireland		xxx	xxx		xxx	
Israel			xxx			
Italy		xx	xxx			xxx
Latvia		xxx	xxx		xx	xxx
Lithuania			xxx			
Luxembourg						
Malta						
Montenegro						
Netherlands	xxx	xxx	xxx		xxx	xxx
Norway	xxx	xxx	xxx			
Poland		xx	xx	xx	xx	xx
Portugal						xx spot urine
Romania		xx	xx			
Serbia						
Slovakia						
Slovenia		xxx	xxx	xxx	xx	xxx
Spain		xx				
Sweden		xxx	xxx			xxx
Switzerland		xxx	xxx			
Turkey			xx			
United Kingdom	xxx	xxx	xxx	xxx	xxx	xxx
United Kingdom Scotland						xxx
Uzbekistan						

Mapping salt reduction initiatives in the WHO European Region

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Albania
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Armenia
Austria
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Bulgaria
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Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
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