

Initiatives developed in Brazil to reduce sodium content of processed foods*

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ABSTRACT

The construction of strategies for reducing the sodium content of processed foods is part of a set of actions to decrease the intake of this nutrient in Brazil—from the current 12 g of salt per person per day to less than 5 g per person per day (2 000 mg sodium) by 2020. In this process, a central action is the pact between the government and the food industry to establish voluntary, gradual, and sustainable targets to reduce the maximum sodium content of industrial foods. This article describes the Brazilian experience in building and implementing strategies for the reduction of these maximum limits in processed foods and the social actors involved in this effort.

Key words

Sodium; sodium chloride, diet; nutrition programs and policies; Brazil.

Salt intake in most countries has been excessive in recent decades, ranging from 9 to 12 g per person per day (1). In contrast, the World Health Organization (WHO) recommends a maximum daily intake of 5 g of salt (equivalent to 2 000 mg of sodium) for adults. The maximum limits for sodium and salt intake are even lower for children and adolescents, since these populations are more vulnerable. Lower consumption in these age groups translates into better heart health as adults (2–4). There is also evidence from animal models that sodium intake in pregnancy can result in a greater preference for sodium in

adult offspring (5), indicating the need for a greater focus on pregnant women. In addition, the literature points to an association between excessive sodium intake and the development of a range of chronic diseases, including hypertension, cardiovascular disease, stomach cancer, kidney disease, and osteoporosis (6, 7).

Initiatives to reduce sodium intake are among the most cost-effective for the prevention and control of chronic diseases directly associated with diet (8–10). The main strategies include voluntary reductions in the sodium content of processed food and media campaigns to promote healthy eating: according to WHO estimates, this could prevent 2.5 million deaths per year and save the world's health systems billions of dollars (11).

In the international context, major initiatives to reduce sodium intake in the population have been undertaken in Finland, England, and Japan. In the past

decade, a growing number of countries, including some in the Americas, have made this agenda a priority (12). Reducing sodium content in processed food is, in fact, a linchpin of these nutritional policies, considering food consumption patterns in many developed countries such as England, Canada, and the United States, where the consumption of this type of food predominates (6). The global agenda to reduce sodium intake is being reinforced with the involvement of major international agencies, in particular the Regional Expert Group for Cardiovascular Disease Prevention through Dietary Salt Reduction, coordinated by the Pan American Health Organization (PAHO), in which Brazil participates. One of the main outputs of the Expert Group has been a policy statement affirming the commitment of the countries of the Region to reducing salt consumption to less than 5 g per day by 2020 (13).

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SITUATION IN BRAZIL

The Ministry of Health has coordinated national strategies to reduce sodium intake that include action connected with sectoral plans such as the National Health Plan 2012–2015 and the Strategic Action Plan to Combat Chronic Noncommunicable Diseases in Brazil (2011–2022).

Strategies to reduce sodium intake in Brazil focus on: 1) promoting a healthy diet (especially the reasonable use of salt); 2) education and information for health professionals, food handlers and manufacturers, and the general public; and 3) reformulating processed foods, as discussed in this article.

Epidemiological profile

Hypertension, one of the principal diseases associated with sodium intake and salt consumption, is of major epidemiological importance in Brazil. According to data from the Ministry of Health's Vigitel telephone survey (for the surveillance of risk factors and protection against chronic diseases), 23.3% of the adult population in Brazil's state capitals were medically diagnosed with hypertension in 2010 (14). Furthermore, an estimated 35% of Brazilians over the age of 40 suffer from hypertension (15). In 2007, diseases of the circulatory system were responsible for 29.4% of all deaths in Brazil, while hypertension alone accounted for 3.7% (16).

The population's diet has markedly changed over the years and is currently characterized by higher consumption of food outside the home and of processed foods, lower consumption of unprocessed and traditional foods, and insufficient consumption of fruits, vegetables, and legumes (17). These new eating patterns pose major challenges to public health, particularly in the area of chronic diseases—a concern emphasized in both the National Food and Nutrition Policy and international and domestic instruments (18–22).

Brazil's Family Budget Survey (POF) for 2002–03 and 2008–09 estimates an average sodium intake of 4 700 mg per person per day (equivalent to almost 12 g of salt). In addition, studies of individual food consumption showed that over 70% of the country's population consumed excessive amounts of sodium (more than 2 000 mg a day) and that over 90% of

adults and adolescents (aged 14–18) in urban areas exceeded this daily limit (23).

Sources of dietary sodium

Localized studies of urinary sodium excretion revealed daily consumption of 12.6 ± 5.8 g of salt per person in Victoria, the capital of Espírito Santo state. Some 52.3% of this intake came from salt added to food (24).

According to the POF 2002–2003, the main sources of dietary sodium in the home were salt and salt-based condiments (76.2%), processed food with added salt (15.8%), processed or unprocessed food without added salt (6.6%), and ready-to-eat meals (1.4%). The distribution of these categories varies with the location of the residence and family income: more processed food is consumed in urban and higher-income households (25).

Between 2002–03 and 2008–09, annual household purchases of salt (refined and rock salt) fell from 2.98 to 2.47 kg per capita. At the same time, the cost of eating out increased to one third of total family food expenditures, and the share of processed food increased at all income levels, intensifying the role that these categories play in Brazilians' sodium intake (17).

PUBLIC INITIATIVES TO REDUCE SODIUM INTAKE IN BRAZIL

Since 2010, the Brazilian government, through the Ministry of Health, has been holding national seminars to promote dialogue with institutions and organizations directly or indirectly involved in initiatives to reduce sodium intake. The purpose of these seminars has been to raise awareness and dialogue with potential partners in the public and private sector, including representatives of other government ministries, departments, and agencies; industrial and consumer protection associations; medical societies; and academia. The seminars have also been used to select the following priority areas for action to reduce sodium intake in the country:

- increasing the supply of healthy (unprocessed or minimally processed) food;
- reformulating processed food;
- communicating, educating, and raising awareness among the popula-

tion, health professionals, and food handlers;

- formulating guidelines for the use of nutritional labeling on processed food.

It is therefore clear that Brazil needs to act both to restore and increase the consumption of unprocessed or minimally processed natural foods (26) and to reformulate processed foods to reduce sodium, fat, and sugar levels.

Promoting the consumption of unprocessed foods is key to activities to promote a healthy diet in the country and is a component of all food and nutrition initiatives and programs: such strategies include the preparation and review of food guidelines, the promotion of healthy eating at all stages of life (including reasonable use of salt), and the forging of partnerships with other governments and sectors.

In 2007, a cooperation agreement was signed between the Ministry of Health and ABIA, the main food manufacturing association in Brazil, primarily for the purpose of drafting proposals to reformulate processed foods. The first success in this cooperative effort was a reduction in the use of trans fats in many of the country's food categories, linked to the goals for eliminating these fats in the Americas (27). In 2010, the lowering of sodium intake was added to this joint agenda.

In order to implement the agenda, closer ties with other sectors of the Ministry of Health, especially the National Health Surveillance Agency (ANVISA), were forged, given the importance of the activities for regulating, overseeing, and monitoring the activities in the sodium intake reduction plan.

Accordingly, the role of the Food Sector Board (*Câmara Setorial de Alimentos*) was enhanced. This Board, coordinated by ANVISA, includes representatives of the Ministry of Health, the food manufacturing sector, civil society, and professional associations. The Board has created three working subgroups for action to reduce sodium intake, focused on:

- reaching agreement on goals for reducing sodium in processed food
- waging a public education and information campaign
- preparing guidelines on best nutritional practices

The first subgroup, coordinated directly by the Ministry of Health, is linked to the action taken under the cooperation agreement between the government and the food manufacturing sector: working groups discuss proposed sodium reduction goals in each food category, as well as other related actions such as evaluating the process agreed upon and its outcomes, monitoring the scope of the goals, and coordinating these processes with other public policies. Sodium reduction in each category is discussed individually, and biannual goals are set to lower maximum limits—goals that which are formalized through agreements signed between the government and representatives of the food industry.

The second subgroup works to forge partnerships for public education campaigns. For example, the partnership with the Brazilian Supermarkets Association gets information out to the public on the risks of excessive sodium intake, the main sources of sodium in food, ways to reduce salt consumption from the selection of food to its preparation and eating, and the use of nutritional labeling to help consumers select better processed foods.

The third subgroup, which includes ANVISA, the Ministry of Health, the Federal Council of Nutritionists, and representatives of the food processing sector, works on guidelines for best nutritional practices and instruments to help food services prepare food with lower sugar, fat, and sodium content. The first item that the subgroup worked on was French bread, one of the most widely-consumed foods in Brazil and therefore one of the main contributors to sodium intake. This strategy supports implementation of the established reduction goals for each category. The best practices guidelines will also be useful for sectors that provide food for consumption outside the home, as well as food services at businesses and public institutions, including facilities such as popular eateries and school canteens.

Given their importance on the health ministry's current agenda, strategies to reduce sodium intake are also linked to other public policies, such as the National Action Plan to Combat Chronic Non-communicable Diseases, which emphasizes reductions in the salt, fat, and sugar content of processed food (28). These reformulation initiatives are also included in the main federal planning instru-

ment, the Multiannual Action Plan (PPP) 2012–2015, helping keep this agenda at the center of national health policy.

GUIDELINES FOR AGREEMENT ON GOALS TO REDUCE SODIUM CONTENT IN PROCESSED FOOD

In Brazil, reaching agreement with the food manufacturing sector to set goals for reducing sodium content in processed food is an endeavor that combines elements of international experience—for example, that of the United Kingdom (29) and Canada (30)—with aspects of recent Brazilian experiences and innovations.

It is expected that a gradual voluntary reduction in sodium content will be achieved through biannual interim goals that take aspects such as new technologies and formulations and changing consumer tastes into account. It will therefore be possible to evaluate each stage of the reduction plan, with discussions of outcomes, progress, and problems. If necessary, the goals can be revised using the monitoring data as a guide.

Priority food categories were selected on the basis of how much each category

contributed to the population's sodium intake (considering total product consumption and average sodium content), using data from public surveys of food purchases and food composition tables. Foods more commonly consumed by vulnerable populations, such as adolescents and children, were also selected with a view to protecting these groups.

Based on these criteria, a number of food categories (31, 32) were selected for an agreement on the sodium reductions to be reached by the end of 2012 (see Table 1). It should be noted that reducing sodium in broths and salt-based seasonings will have an impact on the main component of the population's sodium intake: salt and seasonings, which are commonly used in home cooking and in restaurants and other commercial establishments.

In order to standardize procedures in the analysis, discussion, definition, and monitoring of sodium reduction goals, the sodium content per 100 g of product was standardized, and based on this, agreements are being reached on goals, using the maximum sodium content in the brand names investigated in each category as a reference.

TABLE 1. Agreed annual reduction (%) in maximum sodium content in priority categories of processed food in Brazil

Category	Agreed annual reduction (%)					
	2011	2012	2013	2014	2015	2016
Packaged noodles	30	30	—	—	—	—
Sliced bread	10	10	10	10	—	—
Bisnaguinhas (sweet rolls)	10	10	10	10	—	—
French bread	2.5	2.5	2.5	2.5	—	—
French fries	5	5	5	5	5	5
Corn chips	8.5	8.5	8.5	8.5	8.5	8.5
Layer cakes	7.5	7.5	7.5	7.5	—	—
Cakes without filling	8	8	8	8	—	—
Rocamboles (cake rolls)	4	4	4	4	—	—
Sponge cake mix	8.5	8.5	8.5	8.5	8.5	8.5
Cream cake mix	8	8	8	8	8	8
Mayonnaise	9.5	9.5	9.5	9.5	—	—
Cream crackers	13	13	13	13	—	—
Corn bread	7.5	7.5	7.5	7.5	—	—
Cream-filled cookies	17.5	17.5	19.5	19.5	—	—
Margarine	—	19	19	19	19	—
Breakfast cereals	—	7.5	7.5	15	15	—
Bouillon cubes	—	3.5	3.5	3.5	3.5	—
Broth jelly	—	3.5	3.5	3.5	3.5	—
Pasta seasonings	—	3.5	3.5	6.5	6.5	—
Rice seasonings	—	1.3	1.3	1.3	1.3	—
Other seasonings	—	4.3	4.3	4.3	4.3	—
Dairy products (dairy beverages, processed cheeses and mozzarella, ricotta-style cheese spreads) ^a	—	—	—	—	—	—
Deli meats (sausage, ham, hamburger, meats in batter, pork sausage, salami, bologna) ^a	—	—	—	—	—	—
Ready-to-eat meals (pizza, lasagna, soups) ^a	—	—	—	—	—	—

^a Categories still under discussion as of October 2012.

ANVISA Technical Report No. 42/2010 on the Nutritional Profile of Processed Food (33) was used to develop the baseline for variations in sodium content in each category. For foods not covered in the report, information from studies of nutritional labeling was used.

An innovation of the Brazilian model was to establish objective, transparent criteria for the government and food industry to agree on goals, given the need to guarantee the impact and legitimacy of the agreement process, the accountability of the parties involved, the transparency of the process, and the social outcomes. This in turn would guarantee and foster public oversight—a stated principle of the public health system under Brazilian law (34). Any exceptions to the criteria would depend on an assessment of technological issues and have to be well-founded and documented. Under these criteria (32), the agreed maximum sodium content in each category at the end of the first four years should be less than the average baseline content or represent a reduction in sodium content in at least half the products on the market.

The ultimate reduction goal for 2020 is to achieve minimal sodium content in food products, using values equal to or lower than those in the same categories in other countries (such as the United Kingdom and Canada) as a reference, provided that the food categories and/or minimum sodium content in each food category are comparable to the Brazilian baseline.

MONITORING REDUCTIONS IN SODIUM INTAKE

The Brazilian plan was designed to allow systematic monitoring of changes in the nutritional profile of food products and evaluation of the scope of the goals proposed and agreed upon by the Ministry of Health, the National Health Surveillance Agency, and representatives of the food manufacturing sector. Monitoring is based on studies of nutritional labeling, surveys of trends in the food industry's use of the main ingredients containing sodium (salt and additives), and laboratory testing of foods (35).

Labeling will be monitored by means of digital records of the nutritional information found on food products (kept by

the food regulation and control authorities: ANVISA and the Ministry of Agriculture). Monitoring will also be based on a study of food labels in the market and on food industry data.

Information will be also gathered on the main food ingredients that contain sodium, such as salt and sodium-based additives. This will be done annually in collaboration with the food industry and will include retrospective data to estimate the amount of salt and additives no longer used in the manufacture of processed food. This will make it possible to construct a historical series for this indicator. In order to validate the nutritional information found on labels and ensure that the results are regionally representative, monitoring will be complemented by laboratory findings on the sodium content found in products on the market by the official network of National Health Surveillance System laboratories.

In terms of food supply and demand, all product information to be evaluated with salt reduction in mind must be adjusted according to each brand's share of the consumer market to guarantee more reliable estimates of the impact of sodium reductions. Over the medium and long term, this information will be complemented by public surveys (such as POF) and health system data, primarily to determine the impact of the plan on sodium intake in the Brazilian population and on the morbidity and mortality indicators for the diseases and conditions associated with excessive sodium intake—especially hypertension and cardiovascular disease.

FINAL CONSIDERATIONS

The countries of the Hemisphere are committed to reducing sodium intake in the Region, as PAHO has proposed. This strategy is key to the prevention and control of morbidity and mortality from chronic diseases, which not only adversely affect the quality of life and productivity of the population, but impose a burden on the Region's health systems as well.

Reducing the sodium intake of the Brazilian population from its current 4 700 mg/person/day to less than 2 000 mg/person/day is high on the country's health agenda. This will be accomplished by communication, the refor-

mulation of food products, monitoring, and regulations designed to reduce the amount of salt added during food preparation and consumption, as well as the amount of sodium in processed foods.

The Brazilian experience with reducing sodium in processed foods has drawn on international experiences and, most importantly, has benefited from coordinated action in the public sector and between the public and private sectors to devise positive health promotion agendas. This has been accomplished by creating opportunities for discussion and agreement and by strengthening public oversight of this process. In the public sector in particular, intensification of the joint action of government agencies and institutions fosters the construction of common agendas and leads to greater institutionalization of processes to improve their implementation, maximize the impact of the action taken, and ensure the accountability of the plan to government agencies and, most importantly, society.

At the same time, to preserve ethics in the relationship with the food processing sector and lend transparency to public-private sector relations, other important factors were negotiations with associations representing the sector (guaranteeing greater market impact and greater impartiality in terms of brand names and products); establishing objective criteria for setting sodium reduction goals with the food industry; and creating a system to monitor and evaluate the outcomes and impact of the plan. It is also important to point out the innovative strategies that have been adopted, such as partnerships with retail sectors (for example, supermarket associations) to design health promotion agendas focused on reducing sodium intake, directly providing consumers with information on the risks of excessive sodium intake and the benefits of healthier food choices.

Joint implementation of the plan by the public and private sectors makes government and society more committed to reducing sodium intake and to Brazil's role as a regional model in this area. Strengthening national policies will reduce the diseases and deaths associated with excessive sodium intake. Commitment, coordination, and mutual support among the countries of the Region are also essential for meeting the proposed goal.

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RESUMEN

Iniciativas desarrolladas en Brasil para reducir el contenido de sodio en alimentos procesados

La formulación de estrategias para reducir el contenido de sodio en alimentos procesados forma parte de un conjunto de iniciativas tendientes a disminuir el consumo de ese nutriente en Brasil —de los actuales 12 g de sal por persona al día a menos de 5 g por persona por día (2 000 mg de sodio) para el año 2020. En ese proceso, una de las principales acciones es un acuerdo entre el gobierno y la industria de alimentos sobre metas de reducción voluntaria, gradual y sustentable del contenido máximo de sodio en los alimentos industrializados. Este artículo presenta la experiencia brasileña en la formulación y aplicación de estrategias para reducir los límites máximos de sodio en los alimentos procesados, así como los actores sociales involucrados.

Palabras clave

Sodio; cloruro de sodio dietético; programas y políticas de alimentación y nutrición; Brasil.