

# The strides to reduce salt intake in Brazil: have we done enough?

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**Abstract:** Non-communicable chronic diseases (NCDs) are a major cause of morbidity and mortality in Brazil and inadequate diet is an important risk factor. Among the NCDs, cardiovascular diseases are very prevalent and sodium reduction in the population is a priority of health sector, because Brazilians consume more than twice the daily World Health Organization (WHO) sodium recommendation. Taking into account that sodium sources vary in the country among different age and income groups, several strategies are needed in order to reduce sodium intake, as consumer education, food reformulation, health promotion in school and work settings, food regulation and healthcare initiatives. So far, since 2011, the first results of sodium targets for processed foods and healthcare improvements are promising, and bring lessons that can be helpful for other countries. Nevertheless, more efforts on communication for healthy behaviors, food regulation, engagement of other partners and stakeholders and improving the monitoring system are key to advance in reducing sodium consumption from 4,700 to 2,000 mg per day until 2020.

**Keywords:** Sodium chloride in diets; food and nutrition programs and policies; Brazil

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## Local epidemiology of health and nutrition

Brazil has experienced major changes in terms of economic, social and health indicators in the last decades, including achievements as significantly reducing poverty and malnutrition, especially among children, but meanwhile the food and nutrition security agenda in the country has faced several other burdens as overweight, obesity and chronic diseases.

Non-communicable chronic diseases (NCDs) are currently the main causes of morbidity and mortality in the world, including low and middle income countries, and represent over 70% of all deaths in Brazil. The main risk factors for these diseases are unhealthy diets, physical inactivity, tobacco use and harmful use of alcohol (1). Cardiovascular diseases were responsible, alone, for approximately 30% of all deaths in Brazil, totalizing 333,264 deaths in 2012, of which 45,056 were attributed to hypertension (2).

In the context of unhealthy diets, the main risk factors for NCDs are excessive sodium, sugar and fat consumption, considering all diet sources, including foods and meals consumed in the household and out of the household to

processed foods, so multiple coordinated strategies are needed to reduce their intake.

In 2013, over 21% of the adults in Brazil have declared a medical diagnosis of hypertension, although the actual hypertension prevalence is most probably much higher (3). The first population data on hypertension prevalence along with the sodium intake based on urinary excretion from the National Health Survey 2013, however, will only be available in the end of 2015.

It is estimated by the Brazilian Cardiology Society that, solely by reducing the average salt intake by Brazilians to 5 g per day, deaths by stroke would be reduced in at least 15% and deaths by myocardial infarction would be reduced in 10%. By achieving the World Health Organization (WHO) recommendation, it is also expected that 1.5 million people would not need hypertension drugs and that life expectancy of hypertensive individuals would be increased in up to 4 years.

## Salt intake and salt knowledge and behaviors

During the last decades, most countries' populations have

shown excessive sodium intake, varying from 3,600 to 4,800 mg/person/day, equivalent to 9 to 12 g of salt (4), while the WHO's recommendation states that sodium intake for adults should be less than 2,000 mg per day (5 g of salt per day).

In Brazil, the average per capita estimated sodium intake, based on population food acquisition data, did not vary from 2002-2003 to 2008-2009 and reached around 4,700 mg of sodium or 12 g of salt per day. In both periods, most of the sodium was derived from kitchen salt or salt-based condiments and sodium intake from processed foods increased with household purchasing power (9.7% of total sodium intake in the lower quintile of the per capita income distribution and 25.0% in the upper quintile). Also, from 2002-2003 to 2008-2009 the relative participation of salt and salt-based condiments in sodium intake was slightly reduced from 76.2% to 74.4%, while the participation of processed foods increased almost 20% (15.8% to 18.9%) (5).

Food consumption data from 2008-2009 has confirmed that Brazilians consume too much sodium in average and that from 70% to almost 90% of the adults consume over 2 g of sodium daily. An additional concern is that from 73% to 89% of Brazilian adolescents also consume excessive sodium (6).

Meanwhile, in 2013, only 14.2% of the adults of Brazil perceived that their personal salt intake was high or very high, so education is still a key element in order to reduce sodium intake in the population, both considering added salt to foods and sodium from processed and ready to eat foods (3).

### Health policies and healthcare systems

Preventing and controlling NCDs is a priority for health sector in Brazil and is supported by the National Food and Nutrition and the National Health Promotion Policies, by the National Food and Nutrition Security Plan and by the National NCD Plan. The three main directives for tackling NCDs are surveillance, integral health care and health promotion.

In particular, because of the multiple sources of dietary sodium, its reduction is based on several strategies, from consumer education and food labeling improvement to actions in settings (workplace, schools) and sodium reduction in restaurants, food services and processed foods and articulation with other policies and programs.

In terms of healthcare to people with chronic diseases, the Brazilian National Health System has been developing

lines of healthcare for some of the main chronic diseases (hypertension, diabetes, obesity, cardiovascular and renal diseases). Other strategies have been based on implementing NCD healthcare networks, coordinating and integrating primary health care with more complex services, as clinics, emergency rooms and hospitals, along with instructional materials for health professionals, improvement of health facilities and equipments and training strategies. For example, the strategies for hypertension in primary health care units encompass population screening, individual diagnosis, patient treatment and monitoring, nutritional recommendations (for both prevention and treatment) and physical activity recommendations (7).

The access to medications is an important part of NCD treatment, so the National Health Systems provides free medicines for hypertension and diabetes at healthcare facilities and has also partnered drugstores in order to provide cheaper medicines for these diseases. As a result of these combined initiatives, the hospitalizations related to hypertension have been decreasing year by year, so the number of hospitalized people was reduced in 37% from 2002 to 2012 (reduction from 95.04 to 59.67 hospitalizations/100 thousand inhabitants).

### Community interventions—schools and workplaces

Two of the main settings for promoting food and nutrition education and for providing healthy foods in Brazil are schools and workplaces, where important policies and programs take place.

In public schools, Brazil has one of the largest school meal programs in the world, which reaches up to 42.2 million students in the country with nutritionally balanced foods, with controlled salt, sugar and fat levels. Additionally, in order to stimulate the use of fresh produce and strengthen local circuits of food production, at least 30% of the foods for schools must be bought from local family farmers.

Also in public schools, by articulating health and education sectors at the local level through the School Health Program, health and nutrition contents are included in school activities and classes and health care and health promotion can be addressed in the school environment.

In private schools, the Ministry of Health has partnered with state school associations in order to implement healthy cafeterias and several states and municipalities have approved regulations that limit or prohibit unhealthy foods, especially energy-dense and rich in sodium, sugar and fat, in

the school environment.

Within the workplace, the directives of National Worker's Food Program (PAT), mostly directed to industry workers, has been revised in order to improve the nutritional profile of meals, in particular in relation to calories, sodium, sugar and fats. Also, within the Federal Government all meals and coffee-breaks in workplaces and meetings and events have healthy standards to comply with, including the incentive to natural and minimally processed foods will limit processed foods and restrict highly processed foods, particularly those with high sodium, fat and sugar levels.

### **Community interventions—communication strategies**

Taking in consideration that added salt to foods is the major source of sodium for Brazilians, educating consumers is fundamental to reduce sodium intake in the country. Hence, healthy dietary habits have constantly been a part of health promotion campaigns by the Ministry of Health, emphasizing salt reduction as a key behavior for NCD prevention.

The newly revised Dietary Guidelines for the Brazilian Population establish the main directives for the promotion of healthy eating, by prioritizing natural and minimally processed foods as the foundation of diets, valorizing the habits of cooking and eating together and emphasizing that oils, fats, sugar and salt should only be used in small amounts in the preparation of meals (8).

Also, other partners have been engaged in communication to the population concerning salt intake, as consumer protection associations and even the private sector, as the supermarkets. These communication strategies consider the contribution of all sodium sources in diet, especially added salt and processed foods, in order to enforce people to better health and diet choices when preparing, ordering and purchasing foods, including food labelling.

### **Community interventions—food industry**

In Brazil, the government engaged with the Brazilian Food Industry Association since 2007 through a technical cooperation agreement which encompasses food reformulation (particularly by reducing sodium, sugar and fat contents) as a main directive (9). Firstly, a goal was set for tackling trans fatty acids, according to the Pan American Health Organization's Regional Targets, in 2008, and, 2 years later, monitoring showed that almost 95% of the

food products in the Brazilian market achieved the targets, representing the exclusion of 230 tons of trans fats from foods per year (10). Following the positive results of this strategy, addressing sodium as the key ingredient for food reformulation became a priority for both government and food industries.

The work on sodium reduction started by selecting the food categories that most contributed to sodium intake and specific categories which are most commonly consumed by vulnerable groups as children and adolescents, based on data from household budget surveys. In Brazil instant pasta (noodles), industrialized bread, buns, mayonnaise, corn sacks, potato chips, cakes and cake mixes, cookies and biscuits, margarine, breakfast cereals, condiments, French bread (artisanal), soups, dairy and meat products are responsible for over 90% of sodium from processed foods in Brazil.

Based on the sodium content, food categories were individually discussed in order to set voluntary, biannual and sustainable reduction targets. The targets for each product were set as an upper limit in terms of sodium per 100 g of product, with intermediate biannual targets and a final reduction target for 2020.

Setting the targets involved the analysis of sodium content at the baseline of negotiations, through information from food labels and laboratory analysis. Specific criteria were set for establishing targets that represent meaningful and measureable impacts on sodium content, as removing upper and lower outliers and setting targets based on adjusted averages and medians, so that within four years from baseline, at least half of the brands should be lower than the baseline average and/or there was an impact on sodium reduction in over 50% of brands in a category. In the long term, considering the targets for 2020, the final targets should be based on international targets for similar food categories (as established in the United Kingdom, for example) and by the products with less sodium that already exist nationally (11).

According to the yet unpublished first monitoring results, in the reduction of sodium in instant pasta, industrialized bread and buns, it is estimated that food industries have used 1,295 less tons of sodium in these categories by the end of 2013, and that all targets already set will lead to reducing 28.5 thousand tons of sodium in all selected food categories. According to the first monitoring results, in the reduction of sodium in instant pasta, industrialized bread and buns, it is estimated that food industries have used 1,295 less tons of sodium in these categories by the end of 2013, and that all targets already set will lead to reducing 28.5 thousand tons of

sodium in all selected food categories. It has been found that 94.9% of instant pasta brands, 97.7% of breads brands and 10% of bun brands have achieved the first sodium targets and that the average sodium content of these categories has been reduced in 10% to 15% from 2011 to 2014.

In order to assist industries and food services in achieving lower sodium products, the National Health Surveillance Agency (Anvisa) along with the Ministry of Health and other partners elaborated Guides of Good Nutritional Practices. Currently, two guides have already been released: for artisanal bread and for restaurants, so the standards for sodium levels can be achieved also in small businesses around the country (12,13).

### Health policy advocacy

Advocacy on sodium reduction is very important, both nationally and internationally, so Brazil has worked on building partnerships and articulating with institutions and associations that can participate in supporting, implementing and evaluate salt reduction actions.

Nationally there are important forums to discuss, within food and nutrition policies, the joint strategies for sodium reduction, as the Interministerial Food and Security Chamber and the Intersectoral Food Chamber. Annually, the Ministry of Health also holds a comprehensive seminar with representatives of government offices, consumer associations, councils of health professionals (nutrition, nutriology, cardiology, nephrology), food companies, laboratories and other stakeholders, in order to discuss strategies and to monitor the results of sodium reduction policies.

Regionally, Brazil has discussed sodium reduction policies in the Mercosul region as part of the Action Plan for the Food and Nutrition Security Working Group, with Argentina, Paraguay, Uruguay and Venezuela, and working on the proposition of regional targets for sodium content in selected food categories. Also in the international context, Brazil has been a reference in addressing sodium reduction, especially in terms of the approach towards processed foods and in harmonizing salt reduction with the protection against iodine deficiency disorders (IDD), along with institutions as the WHO (14), the Pan American Health Organization (PAHO) (15) and the International Council for Control of Iodine Deficiency Disorders (ICCIDD) (16).

### Conclusions

Brazil now faces a multiple burden of food and nutrition

insecurity, where malnutrition, micronutrient deficiencies, obesity and NCDs coexist not only in the country, but even in some households. As cardiovascular diseases are major causes of death and disease and excessive sodium intake is an important risk factor, the country has developed many strategies in order to reduce population dietary sodium by addressing consumer behaviors, processed foods, foods prepared and consumed out of the household, food regulation, intersectoral policies and education of health professionals and food producers, but there is a long way to achieving 2,000 mg per person daily in the country.

So far, the strides have shown promising preliminary results, as in the first sodium targets for processed foods and in improving healthcare and access to medicines, but especially in terms of behaviors towards discretionary salt, there is still a huge challenge, because most Brazilians do not yet acknowledge their excessive sodium consumption.

Besides, policymakers and other stakeholders face several challenges in terms of technologies in food reformulation, improving the monitoring framework of population sodium consumption, food sources and behaviors, strengthening food regulation (especially food labelling, simplifying the information to consumers, as with front of package labeling and food publicity regulation), enabling more protective settings (in particular to children and adolescents) and expanding and strengthening communication and education both by government as by private and civil society partners.

There are many lessons that can be already taken from the Brazilian experience in tackling excessive dietary sodium consumption. For countries where sodium sources vary from discretionary salt at home and at food services to processed foods, the experience on building different approaches in order to educate consumers while reducing sodium content of processed foods can be particularly useful. The need for permanent improvement of monitoring and evaluation instruments is also a very important learning, so that even though initiating sodium reduction policies does not depend on having gold standard methods at hand at baseline, the tools must be constantly improved through time.

Specifically on the reformulation of processed foods, the lessons are many: larger market shares can be reached by negotiating with food industry associations instead of individual industries, having transparent and meaningful criteria for establishing sodium targets allows better accountability by civil society and clearer monitoring of results, setting gradual targets can be helpful for industries to have time to develop new technologies and formulations with reduced sodium and also reduces possible consumer

rejection to products with less sodium and learning from the technological and sensorial functions of salt and other sodium salts can allow different food industries to assist each other and to ensure that the largest reductions possible may be achieved.

The strides of Brazil show that, although there is strong commitment to comprehensive and articulated health and intersectoral policies, there is much more to be done in order to gradually reduce sodium consumption from 4,700 to 2,000 mg per day by 2020.

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