

# Cardiovascular Disease Prevention Through Dietary Salt Reduction

## EXPERT GROUP MEETING REPORT

Pan American Health Organization

Washington DC USA

9 – 10 September 2009



## **LIST OF PARTICIPANTS**

### **Expert Group**

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### **PAHO Secretariat**

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## **LIST OF ABBREVIATIONS**

AHA – American Heart Association

APHA – American Public Health Association

CARMEN – Conjunto de Acciones para la Reducción Multifactorial de Enfermedades No Transmisibles

CVD – Cardiovascular diseases

ESAN – European Salt Action Network

FAO – Food and Agricultural Organization of the United Nations

INCIENSA – Instituto Costarricense de Investigación y Enseñanza en Nutrición y Salud

INNSZ – Instituto Nacional de Ciencias Medicas y Nutrición Salvador Zubiran

INTA – Instituto de Nutrición y Tecnología de los Alimentos

IOM – Institute of Medicine (United States)

NCD – Non-communicable diseases

PAHO – Pan American Health Organization

PHAC – Public Health Agency of Canada

PROPIA – Programa de Prevención del Infarto en Argentina

SLAN – La Sociedad Latinoamericana de Nutrición

USDA – United States Department of Agriculture

WHO – World Health Organization

## EXECUTIVE SUMMARY

There is an urgent need to turn knowledge into action regarding the dangers of high dietary salt. The scientific case is strong – salt is a risk factor for a number of conditions and diseases, most notable being hypertension, heart disease, stroke, kidney failure and obesity. People of all ages, including children, are being affected, as are all socioeconomic groups in countries with different levels of economic development. The paradigm is shifting from these conditions and diseases being treated on an individual basis to their being prevented at the population level. In response, the Pan American Health Organization has convened a group of scientific and technical experts to start a process of strengthening capacity in the region for the implementation of population-wide salt reduction policies. This report presents the results of the first meeting of the expert group.

To effectively implement a population-based approach, a wide range of stakeholders needs to be involved: from governments to consumer associations, from academia to mass media and NGOs. Such an inclusive process will combine top-down approaches with the eventual grass-roots social action that will emerge through the education of the general population around issues related to dietary salt. At the same time, to ensure the effectiveness of efforts and concerted actions, the language used by different stakeholders needs to be harmonized so that the messages to the general population are consistent and understandable.

Reducing salt intake across populations can be highly cost-effective in curbing the current chronic disease epidemic. It will also equitably distribute the benefits of low dietary salt and not increase the health equity gap already existing in many countries. Governments can justify direct intervention on the basis of market failure – consumers are displaying an increasingly irrational demand for salt while not being aware of the hazards to health.

A number of governments in the region are mobilizing to reduce dietary salt (Argentina, Brazil, Chile, Canada, and United States). This reinforces the message that there is momentum in the region on which to expand a collaborative and coordinated multi-stakeholder approach. Their experiences are also demonstrating that the messages conveyed and policies implemented have to be based on sound knowledge of local realities and needs. This calls for a strengthening of surveillance programs for them to deliver a precise picture of the amounts of salt consumed by various population groups in countries, for recommendations for salt intake reductions to be adjusted accordingly.

To effectively build more momentum and coordinate multi-stakeholder action, a common tool kit is needed, targeted at different audiences: professionals, governments, and the general public. The measures employed to reduce salt consumption and raise general public awareness of the issue will need ongoing monitoring of effectiveness.

Iodine deficiency is acknowledged as a pressing issue. Salt experts need to work closely with programs on iodine deficiency disorders (IDD) to reconcile the two apparently discordant messages (as they might be perceived by the non-informed general public): promoting iodine fortified salt consumption to reduce IDD and limiting salt intake to reduce hypertension and its related diseases. Since UNICEF is doing extensive work on IDD, it should be contacted immediately.

It is essential to initiate a constructive dialogue with the food industry and with other institutions that can be instrumental in addressing this public health issue. The intention is to not only lower the amounts of salt consumed, but to also promote the introduction of healthy alternatives, such as, replacing sodium with potassium. Moreover, salt intake recommendations should be framed in a dynamic way rather than in a categorical static manner, to be better related, for instance, to caloric intake that can fluctuate. PAHO will assist in the dialogue processes, beginning with the upcoming Partners' Forum.

PAHO is providing a secretariat for the initiative. The experts committed themselves to work as a group as well as in four sub-groups (surveillance, liaison with industry, fortification, advocacy/communication). They will be active over a period of 24 months following a time-line with six month, 10 month and 24 month markers. The priorities to be addressed are:

- Surveillance
  - Determine salt intake per country
    - set the minimum requirements for a common protocol with scientific rigour
    - compile other existing studies with data on salt intake e.g. industry sources
    - gather context variables with salt intake data (demographic, socioeconomic, geographic)
  - Determine sources of dietary salt per country (common food basket)
  - Initiate/advocate surveillance in the region contingent on the availability of funds
- Analysis of cost-benefits of salt reduction per country
  - Distribute to health authorities and the public the data available now on the economic costs and benefits of salt reduction initiatives in an accessible way to convey the magnitude of the economic impacts of the issue
  - Conduct literature reviews on economic levers to reduce salt consumption e.g. subsidise foods that are low in salt and tax those that are high in salt
- Iodine deficiency
  - Strengthen surveillance
  - Identify and review current policies on salt and iodine intake in the region's countries
  - Initiate a process of reformulation and/or options regarding iodine fortification of salt with relevant UN agencies

#### Advocacy for salt reduction at country and regional levels

- Establish baselines of consumer awareness and track changes over time as information campaigns are launched
- Track current and ongoing political activity relevant to salt
- Present findings, suggestions and recommendations from this meeting to the ministries of health in the region
- Develop advocacy tools
- Develop a strategy to attract media attention and involve them in salt reduction campaigns

An immediate priority for the group and the secretariat is the policy statement. Tasks are:

- Finalise the statement
- Finalise a list of key stakeholders at country and regional levels as potential signatories to the statement
- Send out the statement and get endorsements by early December
- Build on the relationships with the private sector established through the Trans Fat Free America initiative to engage participants as signatories
- Use PAHO's newly launched Partners' Forum to disseminate the policy statement and initiate conversations on signatories and commitments

The full expert group will teleconference as needed. It will meet once or twice yearly. The next meeting will likely be in March 2010, attached to a WHO meeting in Argentina on micro nutrients.

Each of the four sub-groups nominated a lead to work closely with the Chair and Co-chairs of the full group, to report on progress and maintain sub-group momentum. Sub-groups agreed to communicate monthly, via e-mail or when necessary by teleconference.

The PAHO secretariat will confirm a work plan that addresses the priority issues, in consultation with the Chair and Co-chairs, the sub-groups and their leads.

## **OPENING – DAY 1**

*Branka Legetic, Jarbas Barbosa*

The expert group meeting is organized and hosted by the Pan American Health Organization (PAHO). Its purpose is to start a process of strengthening capacity to implement salt reduction policies in the region through multi-stakeholder interaction.

Cardiovascular diseases (CVD) are the first main cause of premature death in the region and in the world. The Latin American and Caribbean Region (LAC) is undergoing a process of epidemiological transition in which non communicable diseases (NCD) are responsible for the greatest share of the burden of diseases. NCD are no longer a prerogative of developed countries, of richer strata of society and of elderly sectors of the population. However, while hypertension is by far the most important risk factor for CVD, and while excessive salt intake is known to be the major cause of hypertension, the issue has been relatively neglected. Moreover, while CVD is mainly a condition affecting adults, salt intake needs to be curbed in children and adolescents above all to prevent the development of hypertension and CVD at later stages of their lives.

Thus far, the bulk of preventive efforts in most countries have emphasized factors other than salt, such as tobacco control and obesity. PAHO has been involved in numerous initiatives such as the Tobacco Framework Convention, Trans Fat Free Americas, and the Partners Forum, to be launched the first week of December 2009.

The constitution of an expert group on salt represents an important opportunity to build on these previous initiatives and to work towards the formulation of population based policies for the reduction of dietary salt intake.

## **MEETING CONTEXT AND OBJECTIVES**

*James Hospedales*

PAHO and the WHO Collaborating Centre on Chronic Non-communicable diseases Policy in the Public Health Agency of Canada (PHAC) co-hosted a meeting of international and country experts ‘Mobilizing for dietary salt reduction in the Americas’ in Miami on 13 -14 January 2009. The meeting served to collate information on current salt reduction policies in the CARMEN network and to formulate guidelines for future actions and activities in the region. The institution of a PAHO expert group working for the reduction of dietary salt intake was one of the recommendations.

In line with what was established at the Miami conference, the main objectives of the PAHO expert group will be to:

- Build a scientific case on the effect of salt reduction on the epidemiology of CVD and an economic one for salt reduction in terms of cost savings to drug plans and to hospital services;
- Initiate and/or further develop regional contacts with industry, public sector, academia;
- Identify advocates and champions in the Region;

- Prepare a draft policy statement for salt reduction to be presented to key players in the region;
- Develop common resources for advocacy, for the surveillance of salt intake and the implementation of policies to reduce dietary salt intake in the region:
  - Tools e.g. common messages to raise awareness
  - A Framework for Action by governments, regional, and/or sub-regional bodies
  - A Framework for surveillance and monitoring.

PAHO will serve as the Secretariat for the initiative and will work with the Chair and Co- chairs on a regular basis in order to report on progresses and to stimulate further actions.

Chair and co- chairs were proposed and confirmed:

Chair – Norm Campbell

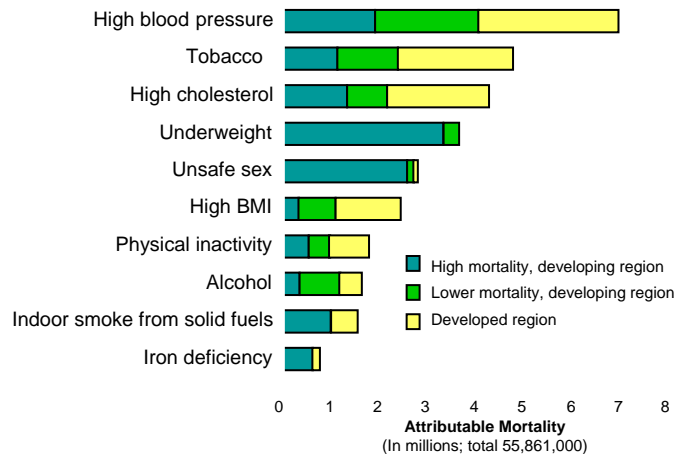
Co-chairs – Rainford Wilks for the Caribbean and Ana Beatriz Vasconcellos for Latin America

## SALT CONSUMPTION AND CHRONIC DISEASES IN THE AMERICAS

*Norm Campbell*

There is overwhelming evidence that salt is one of the main risk factors for the development of hypertension which itself is the leading cause of CVD and of death worldwide (Fig. 1). Systolic blood pressure greater than 115mmHg is responsible for 54% of stroke cases, 50% of heart failure, 25% of heart attack cases and 20% of kidney failure. Specific to stroke, as systolic pressure increases, the risk of mortality increases on a log linear scale. (Fig.2) If the current food production and food consumption patterns in industrialized countries do not change, most people will develop hypertension at some stage of life.

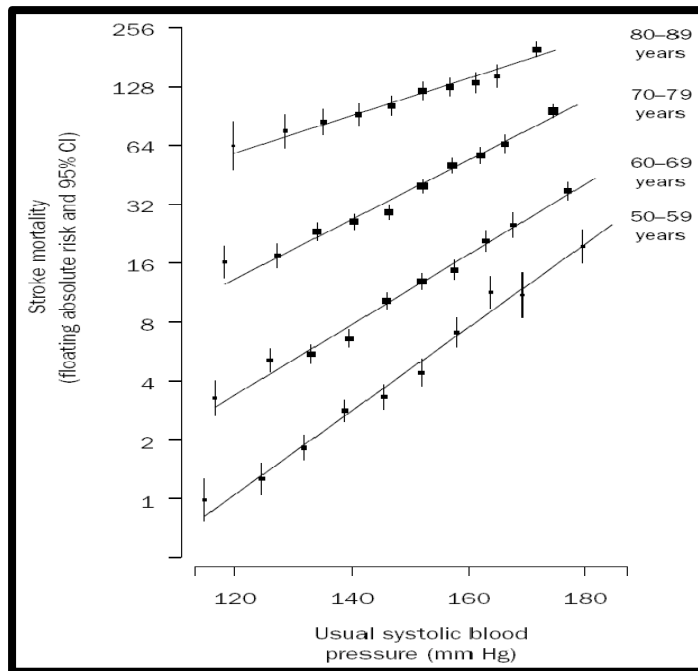
Fig. 1: Leading risk factor for death worldwide



Source: Ezzati et al. The Lancet. 2002;360:1347-60.



Fig. 2: Blood pressure and stroke mortality



Source: Prospective Studies Collaboration. The Lancet. 2002;360:1903-13

Despite differences in terminology, many international and national organizations (among which are the WHO, IOM, AHA, APHA) as well as national governments have recognized and validated the existence of a causative association between excessive salt intake and increased blood pressure. WHO has held two technical consultations that produced a recommendation for daily salt intake of less than 5 grams of salt/day/person which corresponds to:

- Less than 87 mmol of sodium or salt
- Less than 2000 mg of sodium
- Less than 0.87 teaspoon of salt

In Canada and the USA the daily recommended adequate intake (AI) averages between 2.5 – 3.75 g of salt (depending on the age of the individual). For healthy adults the recommended upper limit (UL) is 5.75 g and 3.75 g for people at risk. While it is important that industry, governments and public health institutions harmonize their language when referring to salt in order for campaigns to be effective and accessible to the widest range of audiences, the fact that healthy salt intakes vary on an individual basis needs to be acknowledged. For instance, physical activity in hot dry climates increases salt loss through sweat and affects the amount of dietary salt required, while among the general population reduction in dietary salt intake is often accompanied by increases in lipid and glucose values. Hence these trade-offs cannot be overlooked.

Prevalence of hypertension in the Americas ranges between 21 to 35%, (Tables 1 and 2) however the level of awareness shows a greater degree of variation across the region. For

instance, Canada and the USA report that 86% and 72% of people are aware of their condition respectively, and Paraguay and Peru report much lower levels of 31% and 39% respectively.

Levels of hypertension treatment are also not equally distributed throughout the region with, again, Canada and the USA reporting much higher levels (80% and 61% respectively) compared to Ecuador, Mexico and Peru (23%, 23% and 14.7% respectively).

Table 1 Arterial hypertension, sex and cardiovascular mortality

Countries	Hypertension prevalence (%)	Hypertension awareness (%)	Treated hypertension (%)	Controlled hypertension (%)
Argentina	28.1	54	42	18
Brazil	25-35	50.8	40.5	10.2
Chile	33.7	59.8	36.3	11.8
Colombia	23	41	46	15
Ecuador	28.7	41	23	6.7
México	30.5	56.4	23	19.2
Paraguay	35	31	27	7
Peru	24	39	14.7	14
Uruguay	33	68	48	11
Venezuela	33	55	30	12

Columns 2, 3, and 4 percentage values refer to the corresponding hypertensive population (column 1).

Source: Sanchez RA et al. J Hypertension. 2009;27:905-22.

Table 2: Hypertension in the Caribbean, Canada and the USA.

Country	Prevalence	Awareness	Treatment	Control
<b>Jamaica</b>	<b>25%</b>	<b>67%</b>	<b>44%</b>	<b>24%</b>
<b>St Lucia</b>	<b>27%</b>	<b>55%</b>	<b>40%</b>	<b>13%</b>
<b>Barbados</b>	<b>28%</b>	<b>75%</b>	<b>66%</b>	<b>38%</b>
<b>Cuba</b>	<b>20%</b>	<b>78%</b>	<b>61%</b>	<b>40%</b>
<b>United States</b>	<b>29%</b>	<b>72%</b>	<b>61%</b>	<b>35%</b>
<b>Canada</b>	<b>21%</b>	<b>86%</b>	<b>80%</b>	<b>66%</b>

Sources: Kearney PM et al. J Hypertension. 2004;22:11-19; Ordunez-Garcia P et al. J Hypertension. 2006;24:845-849; Pereira M et al. J Hypertension. 2009;27:963-975.

Hypertension is not only a problem affecting adults. The risk of developing hypertension in fact increases with salt consumption at early stages of life. Being exposed to salty foods increases the child's predisposition for a salty taste and, hence, salted food consumption. This, in turn, raises the child's exposure to the risk of cardio/cerebrovascular and renal disease at later stages of life. Meta-analyses of studies on children and infants show that a reduction of 42% in dietary salt in children can lower systolic blood pressure by 1.2/1.3 mmHg, while a 54% reduction in dietary salt intake among infants could lower their systolic blood pressure by 2.5 mmHg (Hypertension. 2006;48: 861-9).

Among adults, a study in Canada showed that an overall reduction of 4.5 grams in dietary salt intake (from 8.75 to 4.25 grams) would reduce by 30% the number of hypertensive people,

would almost double the rate of treatment and control and would ultimately save between \$430 and \$538 million/year in health care costs (Can J Cardiol. 2007;23:437-43).

Excessive salt intake is a risk factor for a number of conditions beyond heart disease and stroke, such as:

- *Obesity:* eating salty food increases thirst and consumption of fluids which often contain simple sugars or alcohol that add calories. A study by He and MacGregor (Hypertension. 2008;51:629-634) demonstrated that high salt diets are responsible for 20-30% of the excess calories consumed by children. High salt diets are likely to be a significant factor in the obesity epidemic.
- *Asthma:* It is believed that the biological mechanisms regulating smooth muscles in the airways are the same as for blood vessels, hence concerns have been raised that high salt diets contribute to the reactivity of airways in asthma. So far though, meta-analyses of studies on the causal effects of salt in aggravating asthma have been found to lack statistical power; hence it is not possible to either prove or exclude the harm of salt in patients with asthma.
- *Kidney stones:* high dietary salt increases urinary calcium excretion and calcium stones.
- *Osteoporosis:* High urinary calcium excretion associated with high dietary salt is suggested as a cause of osteoporosis, although data are inadequate to confirm the association.
- *Gastric cancer:* high dietary salt is associated with an increased rate of gastric cancer in a dose-response related fashion. This could be due to the presence of carcinogens (nitrates) in high salt diets. To date, there is inadequate evidence to exclude high dietary salt as contributing to gastric cancer in humans.

## DISCUSSION

*Ricardo Uauy*

There is an urgent need to turn knowledge into action regarding the dangers of high dietary salt. Because dietary habits vary across countries and cultures, policies aimed at dietary salt reduction need to be tailored to local realities. Countries therefore need specific information, such as:

- Salt intake among people of all ages.
- Broken down information on the salt content of country-specific food baskets to identify which foods contribute the most to salt intake. For instance, in Finland it was bread; in Chile breakfast cereals appear to have a very high salt content.
- Harmonized terminology referring to salt measurements.

There is also a need to implement population-based policy. Hypertension is not a condition affecting only older people; it also affects children. Therefore, it is fundamental to shift from individual interventions to social action, from targeted medical approaches to approaches with population-wide reach, covering people across the whole socioeconomic spectrum (often people in lower socioeconomic strata consume cheaper and more 'unhealthy' food and drug

treatments for hypertension can be relatively expensive). Population-wide approaches need consumers to take the lead and not physicians.

Policies to reduce dietary salt need to be integrated with existing public policy efforts. Before implementing any programs it is fundamental to first, review existing relevant and related policies and focus on integrating efforts regarding salt with other initiatives that deal with healthy diet. For example, food labeling addresses several diet issues. Other measures may include taxation, legislation, and pricing strategies to create general incentives or disincentives regarding healthy versus unhealthy foods.

Second, the food industry needs to be actively engaged. Previous campaigns such as Trans Fat Free Americas and those about tobacco offer lessons on e.g. product labeling and advertising. Working with the food industry on the salt content of food products is important. It could be given a limit on which to base (re)formulations e.g. the sodium content of any food product cannot exceed 1% of the recommended daily caloric intake. Public advocacy for such changes in food content is essential.

#### *Rainford Wilks*

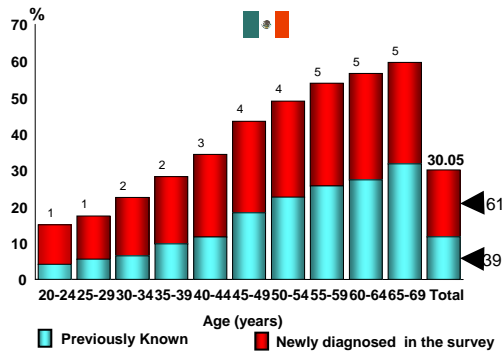
There is increasing awareness in the Caribbean of its growing share of the region's burden of disease attributable to chronic diseases. Currently, CVD are responsible of 60% of deaths in the region. However, whilst salt is the main risk factor for a number of conditions these associations have been widely overlooked and its consumption has not been targeted by public health programs.

Results of several randomized controlled trials show that the main sources of salt intake vary widely across the globe. In Nigeria, for instance, it appears that most salt is added at the table, while, in Jamaica, the main sources of salt are processed foods. Interventions therefore need to be country-specific and based on the knowledge of specific local dietary habits or food culture. To date, the Caribbean is lagging behind in the implementation of the three pillars of action recommended by the 2006 WHO/FAO technical report on reducing salt intake (e.g. food labeling is not yet mandatory in Jamaica).

#### *Ricardo Correa-Rotter*

The LAC region is undergoing an epidemiological transition. In 1965, the top two causes of death in Mexico were diarrhea and pneumonia; in 2000 they were CVD and obesity. The National Chronic Disease Survey conducted in 2000 showed a 61% overall increase in newly diagnosed cases of hypertension cases (Fig. 3).

**Fig 3: Prevalence of High Blood Pressure in Mexico by Age Groups**



Source: Mexico National Chronic Disease Survey 2000.

Chronic diseases pose new challenges for surveillance and control. The main issue is that they require the shifting of mindsets away from treating people to prevention and education through population-based approaches. Public health interventions need to be targeted at whole populations not just to people already affected by the condition of interest.

Children and young people are, in fact, the group most likely to be responsive to change and thus able to bring about a substantial shift in dietary habits in the medium to long term. Yet, they are usually among the strata of society that are most exposed to unhealthy diets and have the lowest degree of decisional power over meals.

Education campaigns need to be targeted at the most responsive sectors of society, and where a high salt diet is culturally embedded, potassium as an alternative to sodium needs to be strongly promoted as part of a comprehensive campaign to reduce salt use.

## WHAT WORK SO FAR, GLOBAL PLANS THAT INCLUDE AMERICAS

### World Health Organization Relevant Initiatives

*Vanessa Candeias*

- 2000: the Global Strategy for the Prevention and Control of Non-communicable Diseases has covered several issues responsible for the emerging NCD epidemic.
- 2003: WHO Framework Convention on Tobacco Control.
- 2004: Global Strategy on Diet, Physical Activity and Health.
- 2007: Prevention and Control of Non-communicable Diseases: Implementation of the Global Strategy.
- 2008: Global Strategy on the Harmful Use of Alcohol.
- 2008: WHO World Health Assembly endorsed a six-year global action plan to address CVD, cancer, respiratory disease and diabetes.

Specific to salt, the WHO hosted two expert consultations which resulted in the publication of the reports:

- “Reducing Salt Intake in Populations” (October 2006)

- “Salt as a Vehicle for Fortification” ( March 2007)

The development of population salt reduction strategies is based on three platforms:

1. Create an enabling environment through product reformulation and consumer education. Momentum is building with members of academia, NGOs, private sector and public policy-makers meeting in the UK in February 2010.
2. Evaluate and monitor salt and food consumption data. Again, members of academia, NGOs, private sector and public policy-makers will meet in the Portugal in 2010 to discuss ways to conduct surveillance exercises.
3. Re-evaluate salt as a vehicle for fortification. The issue of salt fortification with iodine and fluoride will be tackled by policy-makers, representatives of academia, NGOs and UN agencies at a meeting in Argentina in 2010.

The WHO is also working to initiate and support action at regional levels and is participating in a number of regional initiatives, in addition to this meeting in PAHO:

- European Salt Action Network (3<sup>rd</sup> European Salt Action Network meeting, 26-27 November 2009)
- Western Pacific Initiative (1<sup>st</sup> Preparatory Meeting, May 2010).

A meeting aimed at starting an informal global dialogue on population-based prevention strategies for salt reduction has also been tentatively scheduled for December 2009, bringing together the UK Food Standards Agency, the World Heart Foundation, the World Hypertension League, the World Action on Salt and Health (WASH) and the Canadian Sodium Working Group as well as representatives of WHO Europe and PAHO initiatives.

## **SALT, ECONOMICS AND HEALTH**

*Daniel Chisholm*

Salt is an essential physiological element for human life, yet historically its supply or availability was scarce, resulting in it being highly sought after (and even fought over). Accordingly, in many countries supply was - and still is - controlled by the state, but as salt has become more plentiful and cheap (due to improved methods of production and distribution) consumption has steadily increased. So, where before the concern with salt was about increasing and protecting supply, the concern today is around curbing demand. This is because consumers are not fully informed about the harmful health effects of excessive consumption (particularly adverse CVD outcomes, which taken at the national level translates into reduced economic output and productivity). Government intervention to reduce demand and protect the health and wealth of the population is predicated on the basis of this market failure (namely, our increasingly irrational demand for / addiction to salt).

A range of levers to reduce demand for and consumption of salt is available to governments, from health promotion, voluntary reductions in salt content of food, to more interventionist options such as regulation of salt levels in food, higher tax on salty foods, mandatory reformulation and sodium substitution. The literature points towards both economic and health benefits attached to salt reduction policies. For instance, a cost-benefit analysis by Selmer et al. (JEPH, 2000) showed that the net gains of reduced salt intake in Norway over 25 years were \$237 million (Table 3).

Table 3: Cost and consequences of reduced salt intake in Norway over 25 years

US\$, million	Avoided costs (economic benefits)	US\$, million	Implementation costs
147	Reduced hypertension treatment	45	Information campaign & devt of new recipes
404	Increased productivity	355	Taxes & subsidies
286	Avoided care for MI & stroke	223	Health care costs in extended years of life
23	Avoided time losses		
<b>862</b>	<b>Total avoided costs</b>	<b>625</b>	<b>Total implementation costs</b>
<b>237</b>	<b>Total net cost/gain</b>		

Source: Selmer et al. JEPH. 2000;54:697-702.

WHO conducted a cost-benefit analysis of CVD prevention through a comparative, population-based, sector-wide approach operationalized via the CHOICE project (Choosing Interventions that are Cost-Effective, see [www.who.int/choice](http://www.who.int/choice)). In this project effectiveness was defined in terms of healthy years earned and DALYs (Disability Adjusted Life Years) averted over the lifetime of a population with and without interventions in place while resource costs were measured both at the patient and program level.

The range of new and current interventions assessed comprised:

- Personal level interventions: anti-hypertensive and anti-cholesterol drugs, poly-drug therapy, assessed using an absolute-risk approach.
- Non-personal (population-wide) interventions: salt intake reduction (15 and 30% reductions) and mass-media campaigns.

Results are summarized by country in WHO cost-effectiveness databases. A good example from the WHO study involves Argentina, where salt consumption totals 12 grams per day and chronic diseases account for more than 50% of the country's disease burden. Bread is highest single source of salt intake (3.4 grams) and hence interventions aimed at salt reduction need to focus initially and primarily on this element of the food basket. WHO estimated that a reduction of salt in bread would have a low cost (<ARS\$ 100k per year) and would be highly cost-effective (ARS\$ 151 per DALY averted) with modest health gain (compared to poly-drug therapy for individuals at high risk of a CVD event).

Literature has also shown the costs and health impacts of scaling-up salt interventions. In an article in *The Lancet* by Asaria et al. (2007), a reduction in salt intake in 23 low- and middle-income countries by 15% (through collaboration with industry and mass media campaigns) would translate into a financial outlay of US\$ 0.04 – 0.32 (per person/year) and a health impact over 10 years of 8.5 million deaths prevented.

Evidence from the literature collected so far definitely points towards the existence of huge public health benefits and cost benefits to be gained through population-wide salt reduction initiatives.

## DISCUSSION

- Harmonizing analytical methods for cost-benefit analysis applicable to different contexts can guarantee comparable results and supports development of common messages. But country-specific calculations may not be needed to make the cost-effectiveness argument. Index countries by sub-region might suffice.
- It is a priority at this stage to begin sending the results of cost-effectiveness studies to policy-makers and the public to solicit action, increase awareness and start education campaigns.
- Tax is a powerful instrument when dealing with industry. It can be an incentive or disincentive. Increased tax on high salt products relative to low-salt products should be considered. Often high-salt foods are relatively cheaper than low-salt ones therefore tax measures should be carefully considered for them to not increase inequities in access to healthier products. But a levy should be part of a universal food pricing strategy that gives all consumers the incentive to purchase healthy foods.
- CDC is currently undertaking assessment of salt intake in the Americas and results should be available in June 2009. These could provide the basis for further collaboration in the Region.
- PAHO has initiated a discussion with Kraft Foods and other globalized private companies for coordinated and concerted action to reduce salt in food products.
- Voluntary reductions in the salt content of food products by the food industry in the EU have thus far been too slow for significant public health impact.

## **ACTIONS TO REDUCE SALT INTAKE**

### **Canadian Multi-Stakeholder Working Group on Dietary Sodium Reduction**

*Mary L'Abbé*

Cardiovascular disease is the number one cause of death for Canadians. Hypertension is the main risk factor for CVDs and it affects one in five Canadians. Blood pressure relates to dietary sodium in a dose-dependent manner and high blood pressure is estimated by the WHO to be the leading risk factor for death in the world.

When talking about hypertension and CVDs, often terminology is confusing and different concepts and quantities are used interchangeably. In particular, two main numbers need to be distinguished and clarified.

- Adequate Intakes (AI) of sodium for good health for people aged one year and over, range from 1000 mg/day to 1500 mg/day.
- Tolerable Upper Intake Level (UL) for sodium for people aged 14 and over should not exceed 2300mg of sodium per day (IOM, 2004).

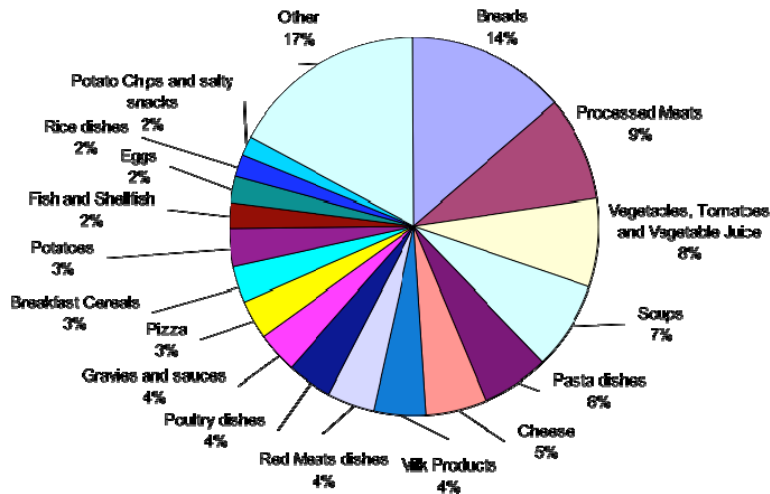
Canadians aged >1 year, consume on average about 3100 mg/day of sodium (7.9 g of salt), (Statistics Canada. Canadian Community Health Survey Cycle 2.2 on Nutrition, 2004). This amount corresponds to more than double the AI, and it comes mostly from processed food, not from salt added in cooking and at the table (which would add another 10-15% onto daily sodium intake). Moreover, over 90% of men and 66% of women aged >19 have sodium intakes



exceeding the UL. Children are also at risk: 76% of children aged 1 – 3, more than 90% of children aged 4 – 8 , 97% of adolescent boys and more than 80% of adolescent girls all exceed the UL for sodium.

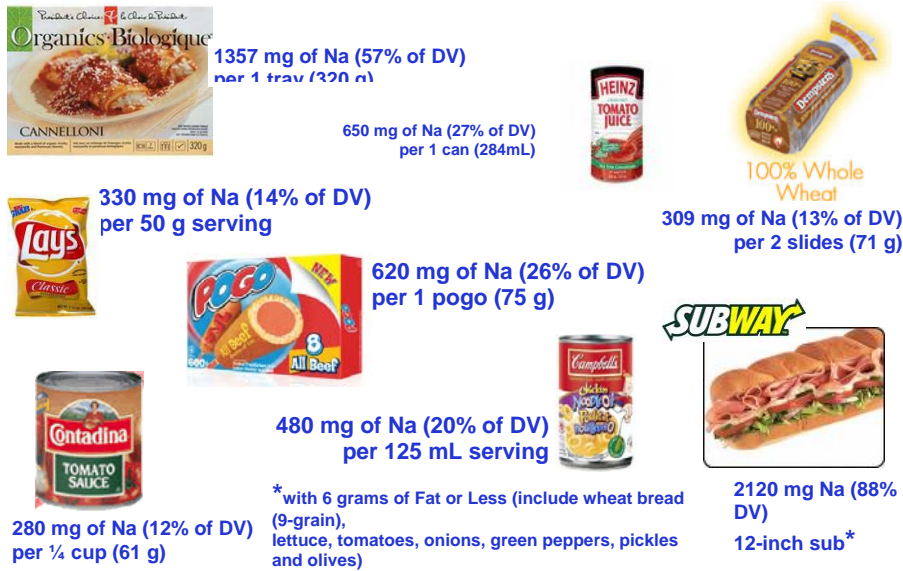
The majority of sodium consumed by Canadians comes from commercially prepared foods. (Fig. 4 and 5) During the development of Canada's Food Guide to Health Eating (2007) it was almost impossible to design a diet with sodium intakes less than the UL using foods normally consumed by Canadians.

**Fig. 4: Percentage of total sodium consumed from major grouped food sources by all respondents (sandwiches split into components)**



Source: Statistics Canada. Canadian Community Health Survey Cycle 2.2, 2004.

**Fig. 5: Sodium content in some foods sold on the Canadian market**



A major focus for interventions to reduce sodium intake needs to be the reduction of salt and sodium containing additives in commercially prepared foods. A strategy for the reduction of dietary sodium in Canada was initiated at the request of the health sector and the food industry.

In October 2007, the Minister of Health announced the creation of a sodium working group with the mandate to develop, implement and oversee a population-health strategy for the successful reduction of the sodium content of Canadian diets. The program aims at promoting:

- education and consumer awareness
- guided voluntary reduction of sodium levels in processed food products and foods sold in food service establishments
- research

There are now sub-committees for each of the areas. The program is rolling out in three phases:

1. Assessment (ongoing, nearing completion):
  - Establishing a common knowledge base with respect to the issue, identifying and prioritizing data gaps;
  - Obtaining input from the wider stakeholder community on the sodium issue through an on-line questionnaire to be administered in November 2009 and from a public consultation session held on 19 February 2009;
  - A report on the consultation and on the responses to the online questionnaire will be made available soon on the Health Canada website.
2. Development of a strategic framework (May 2009 through mid 2010):
  - With goals, action plans to guide implementation and methods of assessment to determine success;
  - Consultation with the wider stakeholder community (as needed) to seek input and/or commitment to action for dietary salt reduction, consistent with the strategic framework;
  - Evaluation of the approach for effectiveness and include consideration of other policy options as required to achieve the goals.
3. Implementation (starting in 2010):
  - The sodium working group will oversee the implementation and will monitor progress according to timelines and methods of assessment outlined in the strategic framework.

The main focus for intervention will be the reduction/removal of sodium from commercially prepared food through the definition of a target percent of sodium reduction within a defined timeline. At the moment, data are being gathered on the ranges of sodium contained in food in Canada and will be compared against targets used in the UK to develop initial Canadian standards.

The Canadian approach will be based upon the successful UK experience and will involve broad cross-sectoral stakeholder collaboration (governments, industry, scientific and professional communities and consumer NGOs). To ensure the feasibility of the initiative, a priority is to set targets that are practical, achievable and ultimately resulting in a difference in the health of Canadians.

In order to set adequate targets, it was decided to:

- select foods according to their salt content and consumption patterns (taking data from the 2004 Canadian Community Health Survey);
- select products which together contribute about 50-60% of salt to the diet of Canadians;
- assess the variability of sodium levels in the products in a food category and determine the range of sodium content.

The “best in class” approach is used as a monitoring tool. Health Canada has a database with 27 food categories covering about 2000 pre-packaged foods, reporting on their sodium content as indicated on their labels. For each category individual products were selected on the bases of market share sales data so that the selected products would represent from 80 to 99% of market share in the given category.<sup>1</sup> (Table 4) Monitoring of salt content is conducted by collecting food labels in various stores across Canada. Information is also gathered directly from specific companies or from the internet. (Table 5)

Table 4: Example of food category for which Health Canada is gathering sodium data

<b>Main Category</b>	<b>Sub-category</b>
<b>Bakery products</b>	<b>Pre-packaged bread products</b> baguette, cinnamon raisin bread, crusted bread-white, diet bread, garlic bread, multigrain bread, other bread - rye bread, whole wheat bread, white bread
	<b>Pre-packaged rolls and buns</b> bagels, croissant, dinner roll, English muffin and crumpets, hamburger, hot dog bun, hot cross bun, kaisers/vienna rolls, miscellaneous rolls, naan, pizza crusts, pita, salad rolls, white hamburger/hot dog buns, whole wheat hamburger/hot dog buns
	<b>Crackers</b> cheese cracker, general crackers
	<b>Cookies</b> chocolate chip/chocolate covered, fruit filled cookies, marshmallow, other cookies, sandwich type, shortbread, social tea/sugar type, sugar wafer
	<b>Pre-packaged baked desserts</b> brownies, cakes, dessert with fruit, cheesecake, donuts, fruit pie, mousse type dessert, muffin, pastry snack cake, puff pastry, snack cakes, sugar pie type, sweet rolls cinnamon

<sup>1</sup> Most of the data were based on the latest available 52 week period ending December 20, 2008.

Table 5: Example of label data that were collected

GRP1	GRP2	Source (Label/Web/Direct from Company)	Sodium/Salt Claim (Free/Low/Lower or Reduced)	Serving Size (g)	Sodium (mg)	% Daily Value	sodium (mg/100g)	Average sodium (mg/100g)	2012 FSA Target (average)	2012 FSA target (max)	% Reduction to attain FSA max target	% Reduction to attain average
Snack food	Potato chips	Label	None	40	220	9	550	682	550	650	0*	19
Snack food	Potato chips	Label	None	50	480	19	960				32	
Snack food	Potato chips	Label	None	28	160	7	571				0*	
Snack food	Potato chips	Label	None	55	190	8	345				0*	
Snack food	Potato chips	Label	None	50	190	8	380				0*	
Snack food	Potato chips	Label	None	50	290	12	580				0*	
Snack food	Potato chips	Label	None	50	820	34	1640				60	
Snack food	Potato chips	Label	None	50	240	10	480				0*	
Snack food	Potato chips	Label	None	50	490	20	980				34	
Snack food	Potato chips	Label	None	50	450	19	900				28	

### Actions for Salt Reduction Intake in Argentina

*Marcelo Tavella*

There is growing awareness in Argentina of the need to act on multiple fronts in order to tackle the issue of hypertension and CVD. Five factors in particular have been identified as essential: knowledge, social support, skills, motivation and environmental changes, with a particular focus on the last factor.

Several projects to test salt reduction programs have been implemented, in aid of changing food environments, such as:

- The creation of two canteens that produce healthy bread (30% less salt, added phytosterols and omega 3 fatty acids, zero trans);

- The organization of workshops for bakers on healthy bread development;
- The provision of advice to bread production companies: Fargo, Workers Cooperative of Bahia Blanca and Granix;
- The creation of the first Healthy Shopping in Argentina (promoting less salt, zero trans and non-smoking public spaces).

A Task Force on Salt Reduction led by the national Ministry of Health was created and integrated with the Task Force on Trans Fatty Acids in order to develop joint strategies on the basis of the successful experience of the latter. A new Department of Non-communicable Diseases was also created in the national Ministry of Health. Alternative strategies to deliver adequate levels of iodine, such as through raw and refined vegetable oil instead of salt, are also being explored. The national parliament has recently passed several bills aimed at supporting salt reduction programs. Namely, it:

- Created a national plan for reduction of sodium chloride consumption;
- Deliberated that advertising of packaged foods destined for human consumption that have more than 30% of the daily sodium recommendation must include on the label the warning “high salt content consumption may be harmful for human health”;
- Made it compulsory for any food containing high levels of sodium and/or cholesterol to have nutrition information on its container.

## **DISCUSSION**

- Brazil is considering a sodium tax because intake at the table and in cooking at home is high. Regarding pre-prepared foods, bakeries have been approached to reduce their use of salt. Other industries have been convened to consider a five year horizon to gradually reduce salt in a list of foods to target levels.
- Mexico’s experience with the food industry is mixed. There are no reliable national data on sodium consumption and the industry will not accept proxy data. From the Ministry of Health perspective, there are insufficient funds to add sodium intake questions to national surveys to get nationally representative data (the next survey is scheduled for 2012). Street foods and small bakeries are purported to be the main sources of dietary salt, not large-scale commercially processed foods. Food safety is brought forward as an issue given that salt increases the shelf-life of pre-packaged foods.
- It is important, when monitoring salt intake in populations, to determine whether there is a difference in intake levels by e.g. socioeconomic strata or geographic location, to minimize rather than amplify inequalities when implementing policy measures. Too often poor quality food products, whose salt and fat content are extremely high, are the cheapest available on the market, exposing people in the lowest socioeconomic strata of society who choose the products to higher levels of risk relative to wealthier people who have more choice.
- When implementing salt reduction initiatives in heterogeneous populations, it is important to account for the different groups in order to tailor messages and policies to

multiple audiences and realities. Similarly, it is often the case that the sources of salt intake vary across countries therefore it is neither possible nor advisable to implement 'one size fits all' salt reduction policies across the region.

- The private sector food industries need a global business rationale to reduce the salt content of their food products, since it is hard to envision a scenario where a single company reduces it unilaterally. It is thus fundamental to engage the private sector in multilateral talks and engage the large companies to lower the levels of sodium in their products all together. PAHO's Partners' Forum has the potential to mobilize industry in a common direction regarding salt. Collecting common questions and issues raised by the food industry, with corresponding standard responses, can help those who are engaging with the private sector.
- There is a strong analogy to tobacco in that salt is addictive. But unlike tobacco, where people can choose to smoke or not, salt consumption is not a matter of choice when it comes to pre-prepared foods. One perspective on taxing salty food products is that tax increases are picked up by media and this way awareness can be raised for the issue, apart from any impacts of a tax on salt consumption. Obtaining sufficient funding from multiple sources, public and private, is a necessary precondition for the successful implementation of a truly multi-stakeholder region-wide initiative on dietary salt reduction.
- At this time, there is opportunity to join a global movement on salt. Experiences with the food industry in Europe, regarding reformulations of bread, cheese, meats, and ready-made meals can inform those working with industry in other regions.

## **ROUNDTABLE: ISSUES, CHALLENGES AND OPPORTUNITIES IN THE REGION**

### **Using National Household Budget Surveys to Estimate Sodium Intake: the Experience of Brazil**

*Rafael Moreiro Claro*

In Brazil, Household Budget Surveys (HBS) are data sources to estimate salt intake. HBS account for all food and drink purchases for seven consecutive days, to identify family consumption. HBS are based on multistage cluster sampling stratified by geographic location and economic level and in the case reported here, comprised 48,470 households, extending to five regions and 26 states, both in urban and rural areas.

The survey had records of approximately 1,300 food items (non-edible items were excluded) which were divided into four food groups and 69 subgroups. The software Aquinunt was used to perform statistical analysis and to correct for non-edible fractions and for sodium quantities in food preserved in salt.<sup>2</sup> Aquinunt is a free software available for download as an add-on to other statistical analysis packages (i.e. Stata) and will be soon translated into Spanish.

The analysis both:

- Estimated daily per capita availability of energy (Kcal/day/person) and sodium (mg/day/person);

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<sup>2</sup> In food preserved in salt (e.g. salted, dried beef or fish) the software converts the original amount of sodium into a sodium concentration equivalent to the de-salted product.

- Adjusted sodium availability to an energy consumption of 2000 Kcal accounting for meals consumed outside the home in order to approximate the results of the survey to the actual intake.

Fig. 6: Average household availability of sodium (g/ d/ 2,000Kcal). Brazil, 2002/03

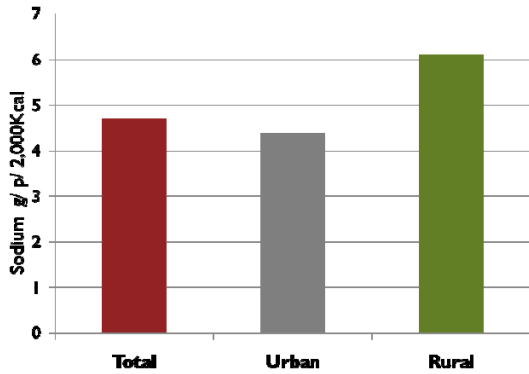


Fig. 7: Average household availability of sodium (g/ d/ 2,000Kcal) according to income levels. Brazil, 2002/03.

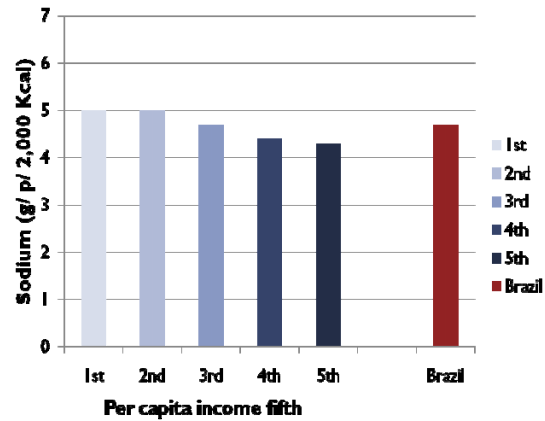
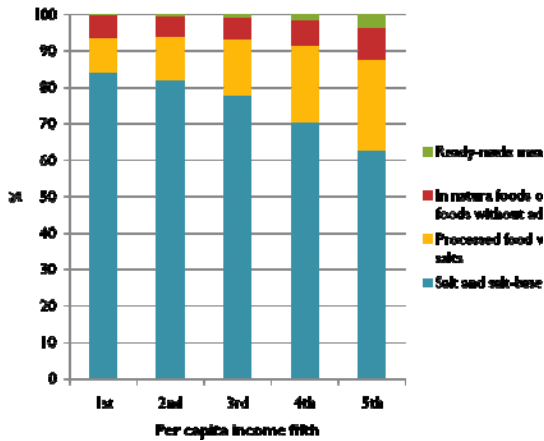


Fig. 8: Distribution (%) of household sodium availability according to income levels and food groups. Brazil, 2002/03.



Source: Brazil Household Budget Surveys 2002/03.

The analysis found that salt consumption is higher in rural and poorer settings (Figures 6, 7, 8) and that the major source of salt intake is the salt added at the table. Wastage (cooking food in salted water) is assumed to be low.

This study has a series of limitations such as the inability to fully account for salt contained in food consumed outside the home. However, it also has a number of strengths. HBS tend to agree with results obtained from individual intake surveys and in the case of cooking ingredients, HBS might provide a better estimate of the actual intake of salt since individuals have difficulty accurately estimating the amount of salt in home prepared meals.



HBS are currently conducted in the majority of countries in the Americas and could become a useful tool for the estimation of sodium intake in the region.

### **Salt as a Vehicle to Prevent Micronutrient Deficiency**

*Ruben Grajeda*

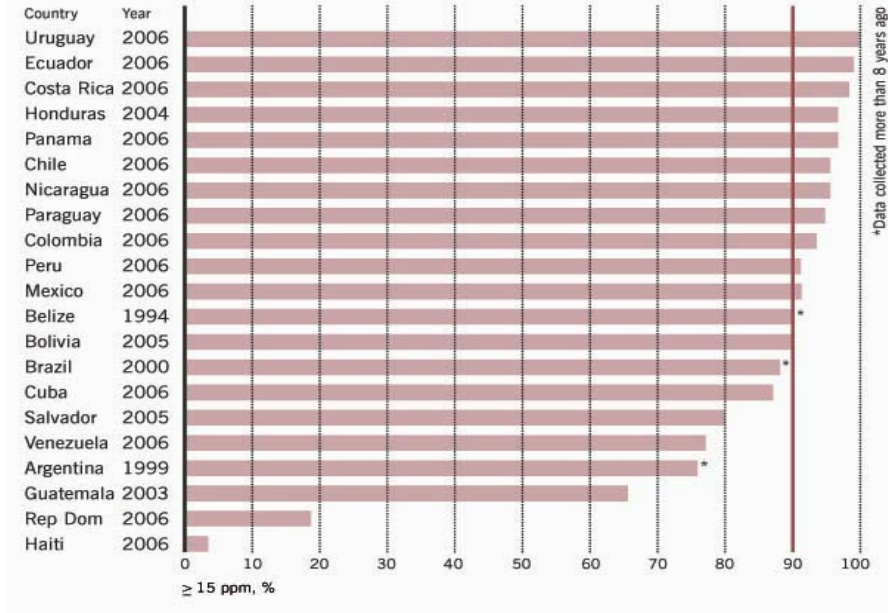
Iodine deficiency disorders include a series of conditions ranging from increased risks of spontaneous abortion in mothers, to retarded physical growth, impaired mental functioning, cretinism, hypothyroidism and goiter.

Worldwide, two billion people do not consume adequate levels of iodine through their diet, while in the Americas region 98 million people might suffer from insufficient levels of iodine intake if additional supply is not ensured. Several strategies have been devised in order to provide people with the necessary amount of iodine. Usually, they are based on the fortification of a range of staple foods (i.e. bread, water, oil, milk, wheat flour) with iodine and on iodine supplementation programs.

Programs involving salt fortification have been the most widely implemented in Latin America due to several characteristics of salt itself and of its role within people's diets in the region. Salt is:

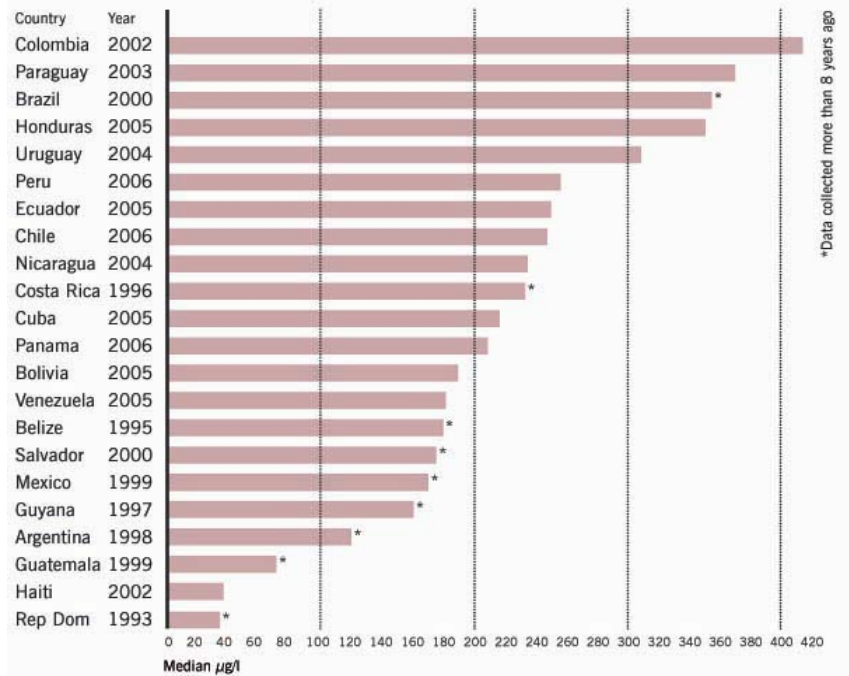
- Universally consumed and its consumption remains relatively stable throughout the year;
- Iodine addition does not change its color, taste or odor and is a simple operational procedure, requiring uncomplicated low-maintenance equipment;
- Production is sufficient from a few centers in most countries;
- Iodization has a low cost (US\$0.005 to 0.0.020).

**Fig. 9: Percentage of salt fortified ( $\geq 15$  ppm) at retail/household level.**



Source: Pretell E et al. IDD Newsletter. 2009;31.

**Fig. 10: Urinary Iodine Excretion in School Age Children**



Source: Pretell E et al. IDD Newsletter. 2009;31.

Although surveillance data are not equally up to date in the countries in the Americas, it appears that iodine deficiency is only mild to moderate across the region. Moreover, in the majority of countries, the level of iodine in the salt consumed either conforms to or approximates the recommended levels of fortification. However, recommended fortification levels are based on a suggested salt intake of 10 g/day, while recent recommendations from a WHO sponsored meeting suggest a maximum intake of salt of less than 5 g/day. Many countries are therefore now confronted with the challenge to re-adjust their levels of salt fortification in order to account for the pressing need for dietary salt reduction. While this is not an impossible task (Table 6), it will require increased levels of collaboration between public health bodies, governments and the salt industry.

**Table 6: Suggested iodine fortification levels to comply with recommendations to reduce salt intake**

<b>Salt consumption</b>	Min	Average	Max
<b>Male 19 – 59 year old</b>	3.0 g/day	5.0 g/day	10.0 g/day
<b>Recommended nutritional intake (RNI)</b>	150 mcg/day		
<b>Suggested Iodine Addition levels</b>	40 mg/Kg		
<b>Production parameters</b>	Min	Average	Max
	30 mg/kg	40 mg/kg	50 mg/kg
<b>Regulatory parameters</b>	27 mg/kg		50 mg/kg

## DISCUSSION

- The vast majority of countries in the Americas has salt iodization programs in place, however Inter-agency efforts should be directed to update the situation in the Central American and Caribbean countries and, in particular, in Guatemala, Haiti and the Dominican Republic.
- Levels of iodine fortification should also be tailored to the individual reality of each country. For instance, Colombia, Paraguay, Brazil, Honduras and Uruguay are now reporting excessive levels of iodine intake. Thus salt iodization needs to be reformulated to adapt to their needs - levels could be modulated according to salt intake. However, before promoting any changes in current regulatory parameters, salt intake and salt sources should be reviewed together with urinary sodium excretion data.
- Iodine surveillance and fortification program monitoring need to be put in place in order to foster political collaboration and financial support and ensure the long term sustainability of surveillance.
- Iodine supplementation is a feasible intervention that can be implemented in order to reach those who do not have access to iodized salt.

## Monitoring and Surveillance of Salt Intake in Populations

Francesco Cappuccio

Between the 1980s and 2000 there has been an increase in the level of salt<sup>3</sup> consumed in Great Britain equal to 10-11 g in men and 7.5-8.8 g in women. Children's salt consumption has also increased. Salt consumption appears to be higher among males and older people. The main source of salt intake is processed foods and meals consumed outside the home, while salt added at the table and while cooking represent a very small fraction of the total intake.

**Table 7: Sources of sodium intake in the diet:**

Source	Proportion	Estimated amount <sup>†</sup>
Processed and restaurant food	77%	~131
Naturally occurring	12%	~20
Added by consumer (discretionary)		
<i>while eating</i>	6%	~10
<i>in home cooking</i>	5%	~9

<sup>†</sup> calculated on an estimated intake of 170 mmol Na per day (~10 g salt per day) and expressed as mmol/day

Source: Mattes RD & Donnelly D. J Amer Coll Nutr. 1991;10:383-93

In March 2008 in Ljubljana, a European Salt Action Network (ESAN) was created with the purpose of promoting policy for the reduction of dietary salt intake in Europe. The ESAN will target three main areas:

- It will monitor population salt intake progress towards recommended national targets or the target recommended in the technical report from WHO and FAO. It will do so by employing a number of tools such as urinary sodium excretion measurements, dietary surveys, market surveys, food sodium content calculations;
- It will monitor progress towards reformulation benchmarks. After the identification of a number of target foods, a minimum benchmark of 16% of salt reduction over 4 years should be achieved. Moreover, food salt content will be monitored through the construction of a databank of salt content of foods;
- It will measure the effectiveness of public awareness programs through, for instance, Consumers' Attitude Surveys.

Several methods can be employed to estimate salt intake: duplicate diets, dietary surveys (i.e. food frequency, 7 day weighted records, food diary, 24 hour recall), and urine collection (i.e. spot, overnight, times and 24 hour). Of these methods, dietary surveys appear to be the most

<sup>3</sup> For the purposes of this presentation the word salt is used to refer to sodium, while the term "limitation of dietary salt intake" implies the reduction of total sodium intake from all dietary sources including, for example, additives such as monosodium glutamate and other sodium-based preservatives or taste enhancers.

unreliable as they tend to underestimate the total level of salt intake. Usually, 24 hour urine collection is the preferred method for calculating salt intake.

The gold standard method to measure sodium intake is the 24 hour urine collection, able to capture more than 90% of the sodium ingested. This method is also ideal for the measurement of iodine intake. However, it presents a number of challenges that so far have prevented its widespread use. First, it places a high burden on participants and, consequently, it presents problems of completeness of the collection (PABA method to check for completeness has not been established for large scale population surveys).

An alternative to 24 hour urine collection is “timed” urine collection. This method is less burdensome on participants and, while its results might be more variable at the individual level, it is still able to provide good estimates of a group mean. Timed urine collection uses 24 hour urine assays to compare between populations or time points and it can be used also for monitoring iodine intake, ideally in adult populations.

Table 8: Features of 24 hour and timed urine collection methods.

<b>Practicalities in methods for urine collection</b>	
<b><i>24 hour urine collection</i></b>	<b><i>“timed” urine collection</i></b>
Field worker trained centrally <ul style="list-style-type: none"> <li>– Participant attends screening (or field worker visits participant)</li> <li>– Participant voids bladder then</li> <li>– Field worker takes the time (START)</li> <li>– Duly labelled plastic bottle handed out</li> <li>– Participant instructed to collect ALL urine passed throughout day and night</li> <li>– Participant asked to return following morning (or field worker re-visits participant)</li> <li>– Participant voids bladder then</li> <li>– Field worker takes the time (FINISH)</li> <li>– Field worker enquires about lost or missed aliquots</li> <li>– Bottle collected and sent to the lab</li> </ul>	Field worker trained centrally <ul style="list-style-type: none"> <li>– On the morning of screening participant instructed               <ul style="list-style-type: none"> <li>• To void the bladder in the morning at home</li> <li>• to record the time (START)</li> <li>• to drink one glass of water</li> <li>• to refrain from passing urine until screening</li> </ul> </li> <li>– At screening               <ul style="list-style-type: none"> <li>• to void bladder completely</li> <li>• to record the time (FINISH)</li> </ul> </li> <li>– Collection time (FINISH – START) in min (usually 4-5h ± 1-2h)</li> <li>– Extrapolated to 24h (<u>validation studies vs 24h needed</u>)</li> </ul>

Source: Cappuccio FP. 2009, personal communication.

Spot urine collections are the least burdensome on participants, but they are highly variable at the individual level (although they might give a good estimate of the group mean) and they are less desirable for monitoring program effects over time. Currently, they are used for monitoring iodine in children and in women of childbearing age.

Similarly, overnight collections place a small burden on participants, but they might give a biased estimate of sodium excretion (i.e. hypertensive individuals may present higher percentages of sodium excretion than normotensive people) and they are undesirable for monitoring program effects over time.

Different issues need to be considered when deciding what method to use in order to calculate urinary sodium excretion:

- Measurement needed: timed urine may be effective to calculate absolute or proportional population changes; 24 hour collection is targeted to the individual, but may be good to estimate usual level as it varies from day to day;
- Feasibility: timed urine collections are usually more feasible even in different contexts;
- Costs: to set up a timed collection in the region would cost €2,500-3,500 (assuming minimum sample n=400 per center per year). [CHECK]

### **LATINFOODS, Opportunities**

*Adriana Blanco-Metzler*

LATINFOODS was established in 1986 as the Latin American Network of Food Data Systems. It is co-sponsored by FAO and the UN under its INFOODS project. It is an interdisciplinary effort involving food scientists, analytical chemists, and nutritionists working with the food industry and computer and information scientists.

Its mission is to develop and strengthen activities related to food composition in Latin America and to elaborate and disseminate food composition tables and databases at the national, regional and sub-regional levels in order to:

- improve population health;
- protect the consumer;
- strengthen international commerce.

Several objectives have been identified as priorities for the network:

1. Form national networks on food composition called national branches;
2. Form specialized and multi-sectoral working groups on various topics related to the production, handling and use of food composition data;
3. Generate harmonized, reliable and updated food composition information of high quality;
4. Strengthen the analytical capacity of food laboratories in accordance with quality assurance standards;
5. Prepare and publish the databases and food composition tables;
6. Disseminate and promote the use of food composition data.

Since 1986, 19 national branches were created and a first Latin American Food Composition Table was compiled. Several workshops on production, handling and use of composition data were held and a list of 50 priority foods for each country was identified. BRASILFOODS assisted in 2007 with the organization of the 7<sup>th</sup> International Food Data Conference (7th IFDC) with general assemblies and the FAO/SLAN/LATINFOODS Symposia. Among its forthcoming priorities are:

- Organize and implement the General Assembly LATINFOODS/Chile, November 2009;

- Produce a manual on food sampling to determine chemical composition (USDA/LATINFOODS);
- Develop a model of a relational database and tools (LanguaL);
- Formulate joint research projects with the European Food Information Resource Network (EuroFIR);
- Collaborate with FAO on a Technical Cooperation Project (TCP) "Development of Databases and Tables of Food Composition in Argentina, Chile and Paraguay to Strengthen International Trade and Consumer Protection";
- Participate in FAO/TCP negotiations for Central America and the Dominican Republic;
- Support the initiative for salt intake reduction in the Americas.

Several challenges exist for the implementation of the above-mentioned initiatives. Mostly, there is a need to improve the technical and economic sustainability of the network, to reactivate a few of the networks in the region and to modernize and update the database.

## **DAY 2**

### **Summary of Day 1**

*Branka Legetic*

- A scientific case is strong that salt is a risk factor for a number of conditions ranging from hypertension and heart disease, to stroke, kidney failure and obesity. Evidence of this causal link was presented for a number of different countries covering different levels of economic development.
- There has been a global shift in paradigm: hypertension and CVD are no longer perceived as conditions to be simply treated, but as conditions that can be prevented through a reduction in dietary salt intake. The entire population, comprising all age and socio-economic groups, needs to become the target for new preventive measures. Forthcoming awareness campaigns should in particular focus on children since they are the most likely to be responsive to change and are those for whom long term benefits will be perceived as the greatest.
- In order to achieve a population-based approach, a wide range of stakeholders needs to be involved: from governments to consumer associations, from academia to mass media and NGOs. This inclusive process not only will involve top-down approaches, but will eventually turn into a grass-root movement involving social action through the education of the general population around issues related to dietary salt intake.
- The governments of several countries (Argentina, Brazil, Canada, Chile and United States) in the region are increasingly involved in dietary salt reduction efforts. This reinforces the message that there is momentum in the region on which to build up a collaborative and coordinated multi-stakeholder approach.
- There is a strong economic case for governments to invest in measures regarding salt consumption in the general population. At the moment a double market failure

characterises salt consumption: there is uninformed over-consumption (excessive demand) coupled with the lack of awareness of the hazard to people's health. Evidence shows that reducing salt consumption at the population level could be a highly cost-effective way of curbing the current chronic disease epidemic. Therefore, future efforts should ultimately be aimed at reducing overall demand and protecting public health. Several economic measures were explored e.g. a tax reduction/increase for products with less/more salt. Brazil, for instance, is considering placing a tax on salt since the main source of sodium intake appears to be the salt added at the table.

- In order to ensure the effectiveness of future efforts and concerted actions, there is a strong need to harmonise the language used by different stakeholders. This will ensure that the message that is sent out is consistent and, ultimately, understandable by the general population. Moreover, it was suggested that salt intake recommendations should be framed in a dynamic way rather than in a categorical static manner in order to be better related, for instance, to caloric intake which can fluctuate.
- The messages conveyed and policies that will be implemented will have to be based on sound knowledge of the reality in which they will operate and will have to be tailored to local needs. This calls for a strengthening of surveillance programs for them to deliver a precise picture of the amounts of salt consumed by various population groups in countries so that recommendations for salt intake reductions can be adjusted accordingly. Policies need to equitably distribute the benefits of low dietary salt and not to increase the health equity gap already existing in many countries.
- The intention is to not only to lower the amounts of salt consumed by people, but to also promote the introduction of healthy alternatives, such as, replacing sodium with potassium.
- To be effective in increasing momentum and coordinating multi-stakeholder action, the expert group should produce tool kits targeted at different audiences: professionals, governments, and the general public. The achievement of results over time will require an ongoing monitoring of whether the measures employed are effective in reducing salt consumption and raising general public awareness of the issue.
- The work of the LATINFOODS network on the standardized production, handling and use of food composition data can inform and potentially support initiatives to reduce the salt content of food products.
- Iodine deficiency is acknowledged as a pressing issue to be tackled by the expert group on salt and by future policy actions. Salt experts need to work closely with programs on iodine deficiency disorders (IDD) to reconcile the two apparently discordant messages (as they might be perceived by the non-informed general public) of promoting iodine fortified salt consumption in order to reduce IDs and limiting salt intake to reduce hypertension. Since UNICEF is doing extensive work on IDD, it should be contacted immediately by the expert group.
- The first activities of the expert group should be aimed at initiating a constructive dialogue with the food industry and with other institutions who can be instrumental



in addressing this public health issue. The expert group suggested the collection of information of questions from industry to develop common answers ready for a conversation with the industry around the issue. PAHO will assist the process through the Partners' Forum Network.

## **PLENARY SESSION**

### **Input to the draft policy statement**

- The language used in reference to salt should be harmonised in order to guarantee the consistency of the message. It was also agreed to use the word salt instead of sodium.
- It is important to refer to CVD as causing mortality and not just as related to hypertension (which is nonetheless the main risk factor for CVD), since CVD can occur even in the absence of hypertension when a person is exposed to a high salt diet. Stroke should also be mentioned along with kidney failure.
- Increased focus should be placed on children both in assessing the burden of CVD and hypertension and salt intake and in devising tailored dietary salt reduction campaigns and policy. Mention of children should be central in the policy statement.
- Policy recommendations emerging from this meeting should be harmonised with the three policy pillars in the technical report produced by WHO and FAO.

## **BREAK OUT GROUP WORK**

Expert group members identified:

- priority policy/scientific issues that require additional study and analysis;
- short (6 months), medium-term (10 months) and long term (24 months) priorities.

### **Priority issues:**

- Surveillance
  - i. Determine salt intake per country
    - 1. what are the minimum requirements for a common protocol with scientific rigour - develop a tool box to assist with and standardise surveillance
    - 2. are there other existing studies with data on salt intake e.g. industry sources
    - 3. include context variables with salt intake data (demographic, socioeconomic, geographic)
  - ii. Determine sources of dietary salt per country (common food basket)
  - iii. Initiate/advocate surveillance in the region contingent on the availability of funds
- Analysis of cost benefits of salt reduction per country

- iv. Distribute to health authorities and the public the data available now on the economic costs and benefits of salt reduction initiatives in an accessible way to convey the proportions of the matter
- v. Conduct literature reviews on economic levers to reduce salt consumption e.g. subsidise foods that are low in sodium and tax those that are high in sodium
- Iodine deficiency
  - vi. Strengthen surveillance
  - vii. Identify and review current recommendations on salt and iodine intake in the region's countries
  - viii. Initiate a process of reformulation and/or options regarding iodine fortification of salt
- Policy statement
  - ix. Finalise the statement
  - x. Finalise a list of key stakeholders at country and regional levels as potential signatories to the statement
  - xi. Send out the statement and get endorsements by early December
  - xii. Build on the relationships established through the Trans Fat Free America initiative to engage the private sector as signatories
  - xiii. Use PAHO's newly launched Partners' Forum to disseminate the policy statement and initiate talks on signatories
- Advocacy at country and regional levels on the issue of salt reduction
  - xiv. Establish baselines of consumer awareness and track changes over time as information campaigns are launched
  - xv. Track current and ongoing political activity relevant to salt
  - xvi. Present findings, suggestions and recommendations from this meeting to the ministries of health in the region
  - xvii. Develop advocacy tools
  - xviii. Develop a strategy to attract media attention and involve them in salt reduction campaigns

## **WORKPLAN**

### **Expert Group**

The full group will teleconference as needed. It will meet once or twice yearly with good advance notice. The next meeting will likely be in March 2010, attached to a WHO meeting in Argentina on micro nutrients.

### **Sub-groups**

The expert group divided itself into four sub-groups to advance the work on priorities as identified, across a six, 10 and 24 month period. Each group nominated a lead to work closely

with the Chair and Co-chairs, to report on progress and maintain sub-group momentum. Sub-groups agreed to communicate monthly, via e-mail or when necessary by teleconference.

The PAHO secretariat will develop a workplan jointly with the sub-groups and their leads.

The composition of the sub-groups is:

- Surveillance: Francesco Cappuccio (lead), Rainford Wilks, Adriana Blanco, Dan Chisholm, Ricardo Correa Rotter, Mary L'Abbe
- Advocacy: Norm Campbell (lead), Hubert Linders, Beatriz Champagne
- Liaison with industry: Ricardo Uauy (lead), Simon Barquera, Tito Pizarro, Mary L'Abbe, Marcelo Tavella, Darwin Labarthe
- Fortification : Ruben Grajeda (lead) Omar Dary, Mary L'Abbe, Marcelo Tavella, Ana Beatriz Vasconcellos

Table 9: Workplan

Responsibility	6 months	10 months	24 months
<b>PAHO secretariat</b>	<ul style="list-style-type: none"> <li>• Complete the policy statement (October 2009)</li> <li>• Develop a web-based repository of existing data e.g. HBP data, sodium intake etc per country</li> <li>• Start a dialogue with multinationals through the Partners' Forum</li> <li>• Prepare material for the meeting of the Executive Comm of the PAHO Directing Council in June 2010.</li> <li>• launch a web site</li> </ul>	<ul style="list-style-type: none"> <li>• Create repository of reports/references that may be important for translation/dissemination</li> <li>• Compile information for the region on food labelling regulations, any relevant policies on food taxation, food subsidies, agriculture, trade</li> <li>• Consider studies on modelling the impact of increasing tax on salt or salty foods</li> <li>• Post the tool kit, including costs of interventions, FAQ to industry, FAQ to policy and decision makers, fact sheets, media packages and messages, effective campaign information</li> </ul>	<ul style="list-style-type: none"> <li>• Publish report card for the region</li> </ul>

Responsibility	6 months	10 months	24 months
<b>Surveillance</b>	<ul style="list-style-type: none"> <li>· Identify potential signatories to the policy statement and approach for endorsement</li> <li>· Determine gaps in current surveillance systems</li> <li>· Coordinate with fortification sub-group regarding plans to monitor iodine parallel to sodium</li> <li>· Collect options for protocols and methods</li> <li>· Draft surveillance plan and schedule</li> </ul>	<ul style="list-style-type: none"> <li>· Surveillance tool box has information on protocols, pros and cons of methods and statistical considerations</li> <li>· Measure baseline per country or in index countries: salt intake, sources of salt, contexts</li> <li>· Sharing, collaborating on, and building databases on sodium intake and sodium in foods to achieve best in class</li> <li>· Define burden of disease related to salt for countries in the region</li> <li>· Confirm methods and components for costs and benefits estimates for regional and country levels</li> </ul>	<ul style="list-style-type: none"> <li>· Report on surveillance (salt intake, sources, contexts)</li> <li>· Facilitate long term surveillance and monitoring</li> </ul>
<b>Industry</b>	<ul style="list-style-type: none"> <li>· Identify stakeholders as potential signatories to the policy statement and approach for endorsement</li> <li>· Begin coalition building e.g. link to Partners' Forum through PAHO</li> <li>• Encourage participation of governments in Codex related to sodium.</li> <li>• Prepare a position on harmonizing the sodium content of globally available food products referring to best in class</li> </ul>	<ul style="list-style-type: none"> <li>· Develop coalitions, networks, partnerships</li> <li>· Gather regulations, guidelines, standards around advertising of sodium/salt</li> </ul>	<ul style="list-style-type: none"> <li>· Develop legislative or regulatory framework</li> <li>· Provide information on salt substitutes and taste substitution/enhancement</li> <li>· Formulate position on safety of salt as a food additive, and safety of high salt content foods</li> <li>· Monitor for unintended consequences of lowering sodium in foods (e.g. raised levels of sugars)</li> </ul>
	<ul style="list-style-type: none"> <li>• Examine with PAHO the experiences and lessons from the Trans Fat Free Americas initiative, in particular interactions with industry e.g. their questions, data requested.</li> <li>• Prepare FAQ.</li> </ul>		

Responsibility	6 months	10 months	24 months
<b>Fortification</b>	<ul style="list-style-type: none"> <li>· Contact and coordinate with UNICEF re iodine fortification programs</li> </ul>	<ul style="list-style-type: none"> <li>Prepare options regarding salt fortification for the WHO conference on fortification (March 2010 Argentina)</li> </ul>	
<b>Advocacy/Communication</b>	<ul style="list-style-type: none"> <li>· Develop a communications plan with emphasis on the information needs of the Caribbean, and Central and Latin America</li> <li>· Frame salt additives as a food safety issue</li> <li>· Initiate development of an advocacy tool kit = prepare 5 key fact sheets directed at different audiences eg policy makers, public, health professionals, others TBD</li> <li>· Initiate media advocacy and prepare responses to FAQ</li> <li>· Examine literature for the best way to inform consumers about sodium e.g. front-of-package</li> <li>· Identify point person(s)/facilitator(s)/champion(s) in countries. Work with PAHO to support</li> <li>· Identify political opportunities, obstacles, readiness</li> <li>· Advocate restricted advertising of foods to children. Join/add support to the related global movement.</li> </ul>	<ul style="list-style-type: none"> <li>· Monitor the take-up of the policy statement and subsequent activities</li> <li>· Monitor use of labels, logos, symbols indicating low sodium levels or warnings for high sodium, and associated evaluations of efficacy</li> <li>· Complete Tool kit, place on PAHO website</li> <li>· Facilitate public and media awareness campaign</li> <li>· Build capacity of advocates, policy makers, media</li> <li>· Encourage expert interdisciplinary group per country eg leads are MOHs</li> </ul>	<ul style="list-style-type: none"> <li>· Stimulate publications in academic and lay press</li> <li>· Continue to encourage/support local policy change efforts</li> <li>· Continue to encourage/support public and media awareness campaigns, changing messages as necessary</li> <li>· Collect and track information on the knowledge and understanding of consumers of sodium/salt risk</li> </ul>

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## **Appendix 1 – Expert Group Meeting Overview and Agenda**

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### **Cardiovascular Disease Prevention through Dietary Salt Reduction**

**Expert Group meeting, 9-10 September 2009**

#### **OVERVIEW**

The Regional Expert Group (EG) is being established for 2 years by the Pan American Health Organization (PAHO) Director, Dr. Mirta Roses Periago, with the purposes of: (1) reviewing current knowledge on and epidemiological situation of chronic diseases in the Region; and (2) issuing recommendations about the strategies and interventions that can be employed to reduce sodium intake levels in populations to prevent and control chronic non-communicable diseases in line with WHO recommendations. The EG is composed of independent professionals with academic, technical and public health knowledge on the issue of salt and health. All invited members of the EG must sign a letter stating any conflict of interest.

In carrying out this work, the Expert group will explore the following aspects to the extent of its practicality:

- Current epidemiological situation in the Region regarding hypertension, cardiovascular diseases (CVDs) and some cancers, and main sources of salt intake in populations;
- Policies and initiatives world-wide and in the Region of the Americas aimed at reducing dietary salt, as well as areas of potential intervention such as regulation, education, health professional roles, product reformulation by industry, monitoring progress, leadership;
- Monitoring salt intake in the population and feasibility of using existing surveillance systems and structures;
- Opportunities for public-private partnerships to adapt existing good practices and foster creative and innovative approaches and programs;
- Options for resolution of use of salt for fluoridation and considerations in relation to iodized salt and iodine deficiency;
- Best practices from CARMEN countries and countries from other WHO regions.

#### Objectives of day 1:

The first day's objectives will be: (1) the establishment of the Expert Group (confirming its membership, TORS, period of work); (2) a review of current knowledge on hypertension and CVD as an issue for the Americas and of trends in salt intake in countries of the Americas; (3) a presentation of a cost benefit analysis of salt reduction as a preventive measure for CVDs; (4) a review of existing salt reduction initiatives; and, finally, (5) a discussion on opportunities, issues and challenges arising from salt reduction initiatives.

#### Objectives for day 2:

The second day's objectives will be to (1) discuss, agree upon and draft a policy statement; (2) investigate and convene on issues requiring additional study; and (3) agree on short, medium and long term goals for the expert group.

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## AGENDA

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<b>Wednesday, 9 Sept.</b>	<b>Room B, second floor</b>	
8:30-9:00	Registration 2 <sup>nd</sup> Floor Lobby	
9:00-9:10	Welcome and Opening, PAHO	Jarbas Barbosa
9:10-9:20	Election of the Chair	
	Expert Group purpose & objectives	C. James Hospedales
	Terms of Reference	
9:20 –9:40	Presentation of Expert group members	
9:40-10:15	Presentation Salt consumption and chronic diseases in the Americas	Norman Campbell
10:15-10:30	Discussion Panel (5 mins.ea.)	Ricardo Uauy Rainford Wilks Ricardo Correa Rotter
10:30-10:50	WHO work so far, global plans that include Americas	Tim Armstrong Vanessa Candeias
10:50-11:15	Break – coffee & tea will be served	
11:15-11:45	Presentation Cost Benefit Analysis of salt reduction strategies on CVD	Daniel Chisholm
11:45- 12:30	Discussion	
12:30 -14:00	Lunch	
14:00:14:45	Presentation on Actions to reduce salt intake: <ul style="list-style-type: none"> <li>• Canada:</li> <li>• Portugal:</li> <li>• Argentina:</li> </ul>	Mary L. Abbe Jorge Polonia Marcelo Tavella
14:45- 15:15	Q & A	
15:15- 15:40	Break - coffee & tea will be served	
15:40-16:10	Round table: Issues, challenges and opportunities in the Region <ul style="list-style-type: none"> <li>• Diversity of salt sources in food from LAC- use of food basket for assessment of salt intake: Brazil</li> <li>• Salt as a vehicle to prevent micronutrient deficiency</li> <li>• Data/Surveillance of salt intake in populations</li> <li>• Opportunities: LATINFOODS</li> </ul>	Carlos Monteiro, and Rafael Moreira Claro  Ruben Grajeda Franco Cappuccio Adriana Blanco
16:10-16:30	Discussion	
16:30-17:00	Closing of the day Introduction to the second day: work in Break-up Groups	

<b>Thursday, 10 Sept.</b>	<b>Room B, 2<sup>nd</sup> floor</b>	
8:30-9:00	Review of day 1, Task for day 2	
9:00-10:00	<b>Break-out Groups</b>	
	Each Break-out group will discuss the following topics:	
	(i) Draft Policy Statement structure, content, focus and recommendations.	
	(ii) Identify a list of policy/scientific issues that require additional study and analysis	
	(iii) List Expert Group short (6 months), medium-term (10 months), and long-term (24 months) activities.	
10:00-10:30	Break – coffee & tea will be served	
10:30-12:00	Continuation of Break-out Groups	
12:00-13:30	Lunch	
13:30-14:00	Plenary	
	Reporting from group discussion outcomes (5 min per group)	
14:00- 14:45	Discussions	
14:45-15:15	Reaching consensus on priority actions, next steps.	
15:15-15:30	Closing	TBD
15:30-16:00	Review of Draft Press Release	
16:30	Cocktail with PAHO Director:	Mirta Roses Periago

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## Appendix 2 – Expert Group

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### Composition of a PAHO/WHO Regional Expert Group on Cardiovascular Disease Prevention through Dietary Salt Reduction

#### GROUP OF EXPERTS LIST

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