

## **Sodium Reduction Strategy**

Date:	August 11, 2010
To:	Board of Health
From:	Medical Officer of Health
Wards:	All
Reference Number:	

### **SUMMARY**

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Canadians consume more sodium than necessary to maintain good health. According to the 2004 Canadian Community Health Survey, a Canadian adult consumes an average of 3100 mg of sodium daily, which far exceeds the recommended amount of 1500 mg.<sup>1</sup>

A high intake of sodium increases the risk of high blood pressure, which is a risk factor for stroke, heart and kidney disease. It has been estimated that more than one in five adult Canadians suffer from high blood pressure and that over 90% of adults in Canada will eventually develop high blood pressure if they live an average lifespan.<sup>2,3</sup>

To address the health risks associated with a high sodium intake, Health Canada established The Sodium Working Group (SWG), a multi-stakeholder working group to develop and oversee strategies to reduce sodium intake. The Working Group released a Sodium Reduction Strategy report on July 29, 2010.

The purpose of this report is to update the Board of Health on the public health impact of excessive sodium intake, review the Sodium Working Group's report and recommendations, and outline local strategies to reduce individual and population level sodium intake in Toronto.

### **RECOMMENDATIONS**

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The Medical Officer of Health recommends that:

1. The Board of Health urge the Federal Minister of Health to support the immediate implementation of the Sodium Reduction Strategy for Canada and to provide adequate funding to support the Strategy;

2. The Board of Health request the Sodium Working Group to accelerate the development of the monitoring and evaluation plan in the Sodium Reduction Strategy, including clear indicators upon which progress is measured;
3. The Board of Health urge the Federal Minister of Health to introduce and enforce a regulatory approach within two years if annual monitoring shows that the recommended targets are not met; and
4. This report be forwarded to the Federal Minister of Health, the Ontario Minister of Health Promotion, and the Ontario Minister of Health and Long-Term Care.

### **Financial Impact**

There are no financial implications related to this report.

## **ISSUE BACKGROUND**

### **What is Sodium?**

Sodium is an element found naturally in many foods, but is also used extensively as an additive in the form of sodium chloride (salt) or other sodium compounds. Most of the sodium we consume is added to the food supply, especially in processed and restaurant foods. Sodium is essential to health; however, we only require small amounts to regulate body functions.<sup>4</sup>

About 5,000 years ago, sodium in the form of salt was first used to preserve food. Salt then gained great importance as it was used to preserve food during the winter and allowed the development of settled communities.<sup>5</sup> Salt became a widely traded commodity globally, with intake peaking around the 1870's. However, with the invention of refrigeration, salt was no longer required as a preservative, resulting in a decline in sodium intake. Recently however, consumption has increased as food industries add large amounts of sodium to food to augment taste and flavour, food safety, shelf life and texture. Although sodium provides important functions in food formulation and food safety, satisfactory products can be manufactured using less sodium and alternative compounds with similar functional properties.<sup>6</sup>

### **Levels of Sodium intake**

An adequate daily intake of sodium for most adults is 1500 mg, which is equivalent to just over a ½ teaspoon of sodium. The 2004 Canadian Community Health Survey (CCHS) 2.2 on Nutrition revealed that the average Canadian adult consumes 3100 mg of sodium daily.<sup>1</sup> Among Canadians between the ages of 19 and 70 years, over 85% of men and 60% of women consumed more sodium than the Upper Tolerable Limit of 2300 mg, beyond which health risks are proven to increase significantly. In children, similarly excessive intakes were seen, with 77% of children aged one to three years and 93% aged four to eight years consuming more than the upper limit.<sup>1</sup> These estimates do not include sodium from salt added to foods at the table or during food preparation, so it likely that the intake is underestimated.<sup>1, 6</sup> Likewise, the survey showed that Ontarians of all ages consumed more sodium daily than the upper tolerable limit.<sup>1</sup>

Furthermore, the World Action on Sodium and Health (WASH) survey in 2009 concluded that Canadians typically consume twice as much sodium in some global food brands as are consumed in other parts of the world. Some cereal brands in Canada, for instance, contain 85% more sodium than the same brand of cereal sold elsewhere.<sup>7</sup>

Sodium is widely distributed throughout the food supply. It is estimated that 80% of the sodium Canadians consume comes from packaged foods, ready-to-eat cereals and restaurant foods. Foods that can be high in sodium include: sandwiches and burgers; soups; pizza; frozen and ready-to-eat meals; cheese; gravies and sauces; processed luncheon meats; and snack foods, such as nachos, potato chips and pretzels.<sup>4</sup>

### **What are the health risks of high sodium intake?**

The most common health risk associated with excessive sodium consumption is hypertension. Hypertension, also called high blood pressure, contributes to strokes as well as heart and kidney disease. According to the World Health Organization, hypertension is responsible for an estimated 7.1 million premature deaths per year. In 2000, an estimated 26.4% of adults across the globe had hypertension, a figure projected to increase to 29.2% by 2025.<sup>8</sup>

In Canada, more than one in five adults has hypertension and ninety percent of Canadians will develop high blood pressure provided they live the average lifespan.<sup>2,3</sup> According to the Canadian Community Health Survey, in 2008 16.6% of Ontarians and 14.9% of Torontonians aged 12 years and over reported that they had been diagnosed with hypertension.<sup>9</sup> Although these data show that the self-reported prevalence of hypertension is lower in Toronto compared to the rest of Ontario, the sample size for Toronto is small and the difference is not statistically significant.

The high number of Canadians with hypertension is a significant burden to the public health care system. Anti-hypertensive drugs are among the most expensive drug costs in the health care system because of the high volume of prescriptions.<sup>2</sup> The total cost of managing hypertension in Canada in 2003 was estimated to be \$2.3 billion, a figure that includes office visits, laboratory tests, and prescription drugs.<sup>2</sup> If Canadians reduce their average sodium intake to 1,840 mg/day, hypertension could be decreased by approximately 30% which would result in approximately one million fewer hypertension patients and a direct saving of \$430 million annually in health care costs.<sup>10</sup>

Bibbin-dominigo and colleagues<sup>11</sup> documented that population-based efforts to reduce dietary sodium could be as beneficial as interventions aimed at smoking cessation, weight loss, and use of drug therapy for people with hypertension and hypercholesterolemia. They estimated that a 3 g reduction in daily salt intake (Equivalent to 1200 mg sodium) could have the same effect on coronary heart disease as a 50% decrease in tobacco use, a 5% reduction in weight among obese adults, or the use of statins used to treat persons at low or intermediate risk of coronary heart disease events.

### **Who is most affected?**

Though no one can be said to be immune from the negative effects of high sodium consumption, the risk is significantly higher for particular communities. In 2006, a Canadian study concluded that individuals from South Asian and Black communities are three times as likely to be hypertensive and more likely to develop hypertension earlier than the general population.<sup>12</sup> This difference does not appear to be genetic, but rather due to socioeconomic and lifestyle factors. Another Canadian study compared cardiovascular risk factors among major ethnic groups in Ontario (White, South Asian, Chinese and Black). The study concluded the prevalence of hypertension was 44% higher in Blacks and 24% higher in South Asians compared to the white group.<sup>13</sup>

In 2008, Toronto Public Health (TPH) published the report *The Unequal City: Income and Health Inequalities in Toronto*<sup>13</sup> which documented the relationship between health and income. The report showed that people from lower income brackets have a greater risk of illness, as well as higher rates of diseases, than people with higher incomes.<sup>14</sup> The report concluded that people of lower income are more likely to die at an earlier age.

Food insecurity is driven by poverty. According to the 2004 Canadian Community Health Survey 2.2 on Nutrition, 8.4% of Ontario households were food insecure, with Toronto having the highest level, with 10.1% of households being food insecure.<sup>15</sup> A recent study published in *The Journal of Nutrition* reported that food insecurity is associated with cardiovascular risk factors. The study estimated that adults who are food insecure have a 20% higher risk of developing hypertension and 50% higher risk of developing diabetes than adults who are not food insecure.<sup>16</sup>

In 2008, the cost of the nutritious food basket, a tool that measures the cost of healthy eating, had increased by 9.4% in Toronto since 2006.<sup>17</sup> When the costs of nutritious food are high, people of lower income tend to eat more processed foods that are higher in sodium, saturated fat and trans fat because they are more affordable.<sup>18</sup>

The Institute of Clinical Evaluative Studies (ICES) and St. Michael's Hospital reported in 2007 that in some neighbourhoods in Toronto residents had limited access to grocery stores and fruit and vegetable stands.<sup>19</sup> These neighbourhoods are characterized by high diabetes rates, low annual income levels, higher rates of new Canadians, and poor access to public transportation. In addition, the report highlighted that these areas have a higher concentration and easy access to fast food outlets. Fast food tends to be high in saturated fat, trans fat, sugar and sodium.<sup>19</sup>

## **COMMENTS**

As part of the Global Strategy on Diet, Physical Activity, and Health, WHO convened a forum and technical meeting on “reducing sodium intake in populations” and published a report in 2007. The key recommendation was that countries should aim for salt intake of no more than 5 g of salt per day (about 2000 mg of sodium).<sup>20</sup> Encouraged by this recommendation many countries around the world began to implement strategies to reduce the sodium intake of their populations.

The Food Standards Agency of the United Kingdom initiated a comprehensive program and achieved a modest reduction of sodium intake through industry collaborations and aggressive education campaigns. Finland provides one of the best examples of population reduction in sodium. Since the early 1970s, the country has had a population-based policy for sodium reduction in partnership with the food industry and consumer education via mass media.<sup>21</sup>

New York City's Department of Health and Mental Hygiene spearheaded a nationwide partnership effort to reduce the level of sodium in packaged and restaurant foods. The department is working with the food industry on a voluntary framework to reduce sodium in food products.

In Canada, both provincial and local initiatives have been undertaken. EatRight Ontario and the Champlain Cardiovascular Disease Prevention Network (CCPN), in collaboration with the Canadian Stroke Network, have public education campaigns on sodium reduction. The Ontario and Alberta Ministries of Education have developed sodium criteria for foods served in schools.

Other Canadian initiatives include the Heart and Stroke Foundation of Canada's work with food manufacturers to reduce the sodium content of many prepared foods over the next few years. The Health Check Program of the Heart and Stroke Foundation is reducing the sodium for all products bearing the Health Check logo by at least 25% in almost all categories. These guidelines are currently effective for new products under the system and will become effective for products already bearing the Health Check logo by November 2010.<sup>22</sup>

Food companies such as Campbell, Nestle and Kellogg Canada have undertaken sodium reduction initiatives including reformulating their products to lower sodium content.<sup>22</sup>

To date, no country in the world has implemented a mandatory sodium reduction strategy that covers all food categories.

### **Sodium Reduction Strategy for Canada**

To address the problems associated with high sodium intake, Health Canada established a Sodium Working Group (SWG) in 2007 with representatives from food manufacturing and food service industry groups, health-focused non-governmental organizations, the scientific community, consumer advocacy groups, health professional organizations and government representatives. The SWG's mandate is to develop and oversee the implementation of a strategy for reducing dietary sodium intake among Canadians.

The Sodium Working Group (SWG) released its report, Sodium Reduction Strategy for Canada, on July 29, 2010. The report has 26 recommendations. It calls on food manufacturers and food service establishments to voluntarily decrease the sodium levels of their products. It recommends that Health Canada create a monitoring and evaluation system that tracks industry compliance. Two other components include an education and

awareness campaign targeting consumers, industry, health professionals and other key-stakeholders; and research, monitoring and evaluation. The strategy also calls for on-site disclosure of nutrition information for standard menu items at chain restaurants, amendments to government regulations on food labelling to change the Daily Value for sodium from 2400 mg to 1500 mg and improvements to the nutrition labelling system as it relates to sodium; Furthermore, the report recommends that the federal, provincial and territorial governments explore options to reduce the marketing of foods high in sodium to children. The goal of the strategy is to reduce the daily sodium intake of Canadians to an average of 2300 mg by 2016. The ultimate goal is to achieve an intake of 2300 mg of sodium per day for more than 95% of the population.<sup>10</sup>

The Sodium Working Group's strategy for reducing sodium intake for Canadians is an important step toward addressing this important national health issue. It provides a blueprint for reducing sodium among Canadians that if implemented in its entirety may save thousands of lives and millions in healthcare costs annually. The education and awareness strategy the SWG has recommended is key to achieving the sodium reduction recommendations called for in the Sodium Reduction Strategy for Canada. However the strategy needs to be aggressive and visible to ensure consumers understand the health implications of high sodium intake and to provide them with guidance on how to reduce their sodium intake.

Consumer palates that are accustomed to foods with high sodium levels can be re-educated to adjust to foods with less sodium. This can be achieved through an aggressive public education initiative. As a result, consumers can create a demand for foods that are low in sodium, which will be an impetus for the food industry to begin taking action. Changing the food environment gives consumers a broader range of healthy foods to choose. Therefore, reducing sodium in the Canadian food supply requires partnerships at the federal, provincial and local levels.

The Sodium Working Group did not compare the potential benefits of a mandatory approach to sodium reduction and was directed through their terms of reference to consider voluntary reductions of sodium levels. Voluntary approaches to changes in food products have limitations. On April 2010, the Institute of Medicine (IOM) urged the American government to make gradual but sweeping regulatory approaches to reduce sodium in the food supply because the current voluntary industry efforts have failed.<sup>23</sup> The IOM press release stated:

“The industry’s voluntary efforts have fallen short because of lack of a level playing field for all products. Companies have feared losing customers who could switch to competing products or brands with higher salt content. Also, salt is widespread and present in such large amounts in grocery and menu items- including many foods and drinks that people do not think of as salty”.<sup>23</sup>

The Canadian food industry expressed similar concerns. During their consultations with the SWG, they discussed how a voluntary sodium reduction approach would create market imbalances as some products would reduce sodium levels while other competing

products may not. Also, they expressed concern that foods imported from countries with less stringent sodium standards may disadvantage domestic food products.<sup>24</sup>

In 2007, the Government of Canada gave the food industry a two-year voluntary period to completely eliminate artificial trans fat throughout the food supply but levels remain high in a number of food categories three years after the announcement.<sup>25</sup> This is a clear example of an ineffective voluntary approach.

Given the limitations of voluntary measures in Canada and other countries, the federal government should strongly support the full implementation of the Sodium Reduction Strategy for Canada, including adequate funding and effective monitoring of progress toward targets for a period of two years. If targets are not met after two years, the federal government should promptly move to a regulatory approach.

### **What is Toronto Public Health doing to reduce sodium intake?**

The busy lifestyle of people in many Western countries has led to the rise of the ready-to-eat and Fast Food Industry. With the wide availability of frozen meals, grocery prepared meals, and restaurant foods, many people are now eating fewer home-prepared meals. This has a significant impact on sodium intake. Local public health programs provide healthy eating messages and teach cooking skills to create confidence in one's ability to prepare meals and broaden food selections.<sup>26</sup> This may lead to higher consumption of healthier foods such as vegetables, fruits and grain products. In the absence of cooking competency, people trust and rely heavily on ready-to-eat and restaurant foods.

The Toronto Food Strategy is a City initiative that connects food and health with the City's environmental, economic and social objectives. The Strategy identifies priority areas for action that include empowering Toronto residents with food skills, and information, and collaboration among different orders of government to establish health-focused food policies.<sup>27</sup> The Toronto Food Strategy shares many similarities with the Sodium Reduction Strategy recommendations for education and awareness.

Toronto Public Health Programs like Colour It Up, Diabetes Prevention, Peer Nutrition and Healthiest Babies Possible provide skill building opportunities for cooking and shopping while promoting the consumption of unprocessed foods, especially vegetables and fruits. Toronto Public Health works with partners such as school boards and Children's Services Division to support their initiatives in developing nutrition standards for schools and for City-operated childcare centres. Currently, TPH is working with Parks, Forestry and Recreation Division to create healthier options for foods and beverages sold through vending machines in City facilities. TPH has collaborated with the Ontario Society of Nutrition Professionals to advocate for the revision of the Day Nurseries Act nutrition requirements. The goal of these programs and initiatives is to help Toronto residents consume nutritious foods that are low in sodium and enable children to develop and appreciate the taste of low sodium foods at an early age.

Toronto Public Health is well positioned to move the sodium reduction strategy forward. It has the ability to identify key opinion leaders in the community who can effectively

lead efforts to increase education and awareness with culturally appropriate messages highlighting the risk associated with excess dietary sodium.<sup>20</sup> Initiatives such as food literacy, integration of food skills into city programs, and disclosure of nutrition information in restaurant menus are strategies that can be implemented through the Toronto Food Strategy.

To help Toronto residents reduce their sodium intake, Toronto Public Health will:

1. Continue promoting a health focused food system approach through the Toronto Food Strategy;
2. Continue to be involved in current multi-strategy health promotion programs and services to provide education, awareness and skill-building opportunities for Toronto residents;
3. Continue strengthening programs designed for children such as Peer Nutrition to specifically address sodium in foods offered to children;
4. Strengthen its current programs' focus on sodium reduction and the link between high sodium intake and poor health outcomes;
5. Expand the Eat Smart! Workplace program, that includes guidelines for sodium, by promoting the program to City departments and cafeterias; and
6. Promote the planned federal social marketing campaign on sodium reduction among Toronto residents.

## **CONCLUSION**

The current level of sodium in the Canadian food supply is too high for good health. High sodium intake is associated with high blood pressure, a significant risk factor for stroke, heart and kidney disease. Preventing high blood pressure through sodium reduction requires government leadership, public education, individual behaviour change, creative solutions and significant change in the food industry.

Toronto Public Health supports the Sodium Reduction Strategy for Canada and is calling on the federal government to immediately implement the recommendations, provide adequate funding and accelerate the process of developing the monitoring and evaluation plan. The monitoring should include indicators upon which progress is measured regularly and reported back to Canadians. The federal government should introduce and enforce regulatory measures in two years if the recommended sodium targets are not met.



## **CONTACTS**

Jann Houston  
Director (Acting), Healthy Living -  
Chronic Disease Prevention  
Toronto Public Health  
Tel: 416-392-1355  
Email: [jhouston@toronto.ca](mailto:jhouston@toronto.ca)

Sari Simkins  
Manager, Healthy Living -  
Chronic Disease Prevention  
Toronto Public Health  
Tel: 416-338-1504  
Email: [ssimkin@toronto.ca](mailto:ssimkin@toronto.ca)

## **SIGNATURE**

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Dr. David McKeown  
Medical Officer of Health

## References

1. Garriguet, D. Canadian Community Health Survey- Sodium consumption at all ages. Health Reports. Statistic Canada, catalogue 82-003, 2007; 18 (2): 47-52
2. Blood Pressure Canada. Sodium Backgrounder: The Silent Additive. 2009.
3. Public Health Agency of Canada. Hypertension Facts and Figures. Available at [http://www.phac-aspc.gc.ca/cd-mc/cvd-mcv/hypertension\\_figures-eng.php](http://www.phac-aspc.gc.ca/cd-mc/cvd-mcv/hypertension_figures-eng.php)
4. Health Canada. Food and Nutrition. It's Your Health: Sodium. 2008 available at <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/food-aliment/sodium-eng.php>
5. He F, MacGregor GA. Comprehensive review on sodium and health and current experience of worldwide sodium reduction programmes. Journal of Hypertension, 2009(23); 363-384.
6. Barr I, Susan. Reducing dietary sodium intake: the Canadian context. App.Physiol.Nutr.Metab. 2010(35):1-8.
7. World Action on Sodium and Health (WASH). New research reveals huge differences in sodium content in global brands (Media Release), 2009 available at [http://www.worldactiononsodium.com/media/recent\\_press\\_releases.htm](http://www.worldactiononsodium.com/media/recent_press_releases.htm)
8. Bryan, Shirley, et al. Resting blood pressure and heart rate measurement in Canadian Health Measures Survey, Cycle 1. Health Reports. Statistics Canada, catalogue 82-003-x, Feb.2010.
9. Statistic Canada, Canadian Community Health Survey (CCHS). Health Indicators, Annual Estimates, By Age Group and Sex, Canada, Provinces, Territories, Health Regions and Peer Groups, (2007 boundaries- occasional)- available at [www.cansim2.statiscan.gc.ca](http://www.cansim2.statiscan.gc.ca)
10. Health Canada. Sodium Reduction Strategy for Canada. Recommendations of the Sodium Working Group, July 2010 available at [www.healthcanada.gc.ca/sodium](http://www.healthcanada.gc.ca/sodium)
11. Bibbins-Dominigo, Kristin, et al. Projected Sodium Reductions on Future Cardiovascular Disease. NEngl J Med 2010.Feb.18; 362(7): 650-2.
12. Leonon H.H., Frans, et al. Result of Ontario Survey on Prevalence and Control of Hypertension. CMAJ 2008;178(11):1441-9.
13. Chui, Maria et al. comparison of cardiovascular risk profiles among ethnic groups using population health survey between 1996 and 2007. CMAJ 2010;182(8).
14. Toronto Public Health. The Unequal City: Income and Health Inequalities in Toronto. October 2008.

15. Heart and Stroke Foundation of Ontario. Food Security Essential to the Heart Health of Ontarians. Available at  
E:\Food\_Security\_Essential\_to\_the\_Heart\_Health\_of\_Ontarians.htm.html
16. Seligman K, Hilary, et al. Food Insecurity is associated with Chronic Diseases among Low- income NHANES Participants. J.Nutr. 2010(140):304-310.
17. Toronto Public Health. Cost of Nutritious Food Basket in Toronto: Backgrounder. 2009. Available at [http://www.toronto.ca/health/food\\_basket.htm](http://www.toronto.ca/health/food_basket.htm)
18. Faculty of Public Health of the Royal Colleges of Physicians of United Kingdom. Food Poverty and Health. Available at  
[www.fph.org.uk/uploads/bs\\_food\\_poverty.pdf](http://www.fph.org.uk/uploads/bs_food_poverty.pdf)
19. Glazier RH, et al. Neighbourhood Environments and Resources for Healthy Living- A Focus on Diabetes in Toronto. (ICES, Atlas) Toronto: Institute for Clinical Evaluative Sciences; 2007.
20. World Health Organization. Reducing Sodium Intake in Populations- Report of a WHO Forum and Technical Meeting. 2007. Paris, France.
21. Mohan, Sailesh, et al. Effective Population-wide Public Health Interventions to Promote sodium Reduction. CMAJ, Oct 2009; 181: 1605-609.
22. Health Canada. Stakeholder and Expert Perspectives on Dietary Sodium Reduction Canada, 2009. Available at <http://www.hc-sc.gc.ca/fn-an/pubs/nutrition/sodium/2009-reduction/index-eng.php>
23. Institute of Medicine. Strategies to Reduce Sodium Intake in the United States. 2010. Washington DC: National Academy Press.
24. Health Canada. Initial Stakeholder Feedback on Draft Proposed Sodium Targets for Food, 2009. Available at <http://www.hc-sc.gc.ca/fn-an/pubs/nutrition/sodium/2009-1124-rapport-report/index-eng.php>
25. Health Canada. Trans Fat, 2007. Available at <http://www.hc-sc.gc.ca/fn-an/nutrition/gras-trans-fats/index-eng.php>
26. Ternier, Sabrina. Understanding and measuring cooking skills and knowledge as factors influencing convenience food purchase and consumption, 2010. Available at <http://journal.lib.uoguelph.ca/index.php/surg/article/view/1122/1652>
27. Toronto Public Health. Cultivating Food Connections: Towards a Healthy and Sustainable Food System for Toronto. May 2010.