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**Stakeholder and Expert Perspectives
on Dietary Sodium Reduction in
Canada
2009**

**Input to the Multi-stakeholder Working Group
on Sodium Reduction**

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1. Executive Summary

This Executive Summary provides a brief overview of submissions and presentations to the Multi-stakeholder Working Group on Dietary Sodium Reduction in February 2009. A detailed report follows. The comments discussed in this report reflect those of participating stakeholders and do not necessarily represent the views of all stakeholders.

1.1. Written Submissions

In December 2008, the Multi-stakeholder Working Group on Dietary Sodium Reduction published a questionnaire to solicit stakeholder feedback on opportunities and challenges related to sodium reduction¹. The closing deadline for comments was January 26, 2009. In total, **32** submissions were submitted and are included in this report.

1.1.1. Key Themes

With only two exceptions, all the submissions to the Working Group were explicitly supportive of sodium reduction. There is general agreement from all the various stakeholder groups that Canadians consume too much sodium.

Almost all respondents agree that consumer tastes present a key challenge to sodium reduction. However, most believe that the consumer palate may be habituated to a less 'salty' flavour over time with gradual reductions.

Manufacturing and quality challenges are understood by most stakeholders but are of greatest concern to Industry. Also, Industry often considered manufacturing and quality issue to be more challenging than palate issues. A key reason why Industry is less optimistic than other groups about effecting significant sodium reductions is the perceived inadequacy of current sodium alternatives, especially for the functional roles salt currently performs. They stress that making low-sodium products is complicated, lengthy and expensive.

There is a sense among industry stakeholders that imposing mandatory reductions on sodium would be premature given that there is a need to better understand consumer behaviours and the implications of reduced sodium for manufacturing and product safety.

¹ See Appendix A for the full questionnaire text.

1.1.2. Consumer Challenges

Stakeholders agree that the key consumer challenges to sodium reduction are low consumer awareness about sodium and sodium reduction, the taste preference of Canadians for high sodium foods, and the increasing preference for processed and prepared foods. Outside industry, some criticism is leveled at food manufacturers for failing to provide appropriate low-sodium alternatives.

Almost all stakeholders endorse the idea of on-going monitoring of dietary sodium. Two key channels for such research are *Tracking Nutrition Trends* and the *Community Health Surveys*. A key point of dissent is whether monitoring should focus on the amount of sodium in foods, or the amount of sodium in the diet as measured by 24hr sodium urine analysis of Canadians.

1.1.3. Consumer Mechanisms

Stakeholders agree that public education and better labelling are the keys to reducing the amount of sodium Canadians consume.

About one-quarter of stakeholders – mostly industry - make a point of suggesting that consumers, industry and government should all be thinking in terms of the total diet Canadians consume rather than focusing on specific foods or food categories.

There is significant agreement that modest sodium reductions *in existing products* (in the range of 5% to perhaps 25%) will be acceptable to consumers if phased in slowly. There is uncertainty about whether larger reductions in existing products would be acceptable to consumers.

When asked to identify examples of successful or worthwhile sodium-reduction strategies, several stakeholders from all groups mentioned the sodium reduction experience in the United Kingdom. Also mentioned were the Heart and Stroke Foundation's Health Check program and the Dietary Approaches to Stop Hypertension (DASH).

Some stakeholders, especially within industry, believe that we do not yet know enough about what targets should be set for sodium reduction. Despite this concern, most stakeholders believe the Nutrition Facts Table (NFT) is an important tool in the process of empowering consumers to consume less sodium. Front of Package (FOP) claims are also seen to play a potential role especially for consumers who are unwilling or unable to read the NFT.

1.1.4. Manufacturing and Quality

The three most commonly-mentioned functional roles of salt (besides taste) are preservation, texture (especially through protein binding in meat) and fermentation control in meats and breads.

A concern amongst industry stakeholders is that low-sodium formulations may damage customer loyalty and purchase intent due to unacceptable taste or texture.

The question of preservation in sodium-reduced foods is of widespread concern in industry, especially for meats, because of the potential development of disease-causing microorganisms (Botulism, Listeria etc). Industry stresses that sodium reduction is as much about safe manufacturing as about consumer tastes.

1.1.5. Alternatives

Industry generally feels that current alternatives are largely inadequate to replace the functional and flavouring roles played by sodium. Non-industry stakeholders also tend to feel that seeking alternatives is a less attractive approach than “weaning” Canadians off their preference for saltiness. Both groups are concerned that novel alternatives (as opposed to traditional flavourings such as herbs and spices) may prove to be no healthier than sodium.

1.1.6. Regulatory Approaches

There are two key perspectives on sodium reduction which inform views on regulatory options. One view is that sodium reduction should focus on the individual consumer and the food choices they make. The other view is that sodium reduction should focus on the amount of sodium in the food supply. While most agree that education should play a role, there is significant disagreement about the role of forced reductions.

About two-thirds of the stakeholders who responded to the questionnaire were not prepared to explicitly support mandated targets for sodium reduction in all foods. This view, most common in industry, stems from the opinion that targets could not be set fairly, may have unintended consequences on product safety or consumer behaviour, or are premature in the absence of proven alternatives.

Support for mandatory reductions, found mostly outside industry, is motivated by a desire to force quicker industry action, the need to maintain a level playing field for all companies, and by the opportunity to reduce dietary sodium without first having to educate Canadians. As noted earlier, some stakeholders outside industry believe there is a lack of consumer options, and these stakeholders believe that mandatory reductions would encourage industry to offer additional low sodium products.

Stakeholders generally support monitoring of the population to ascertain the impact of reduction strategies. Biological monitoring (e.g. urinary sodium measurement) is proposed in addition to traditional survey tracking.

1.2. Consultation Session

The Working Group received 20 presentations during a full-day session on February 19th, 2009. These presentations included experts invited by the Working Group as well as stakeholders who asked to be heard.

The presentations were highly diverse and are summarized in Section 7 of this report, however, a number of common themes were heard from a significant number of presentations, as detailed below.

- Sodium consumption in Canada is currently far too high, largely as a result of consumer preference for processed foods and the sodium content of those foods. Certain foods are especially important contributors of sodium (such as bread and processed meats), either because they are eaten in large amounts or contain relatively large amounts of sodium.
- Sodium has negative impacts on human health, most notably increased blood pressure which in turn is correlated to stroke and cardio-vascular disease.
- Children are a special concern because their sodium intake is high and the impacts of excess sodium may be causing damage in their bodies long before they demonstrate symptoms of hypertension.
- Salt performs many functions in foods beyond creating the sensation of 'saltiness'. It also plays critical roles in texture, aroma, fermentation, protein binding and food safety. Some products may be impossible to manufacture with significantly lower levels of sodium.
- Small reductions in sodium – roughly five to twenty-five percent depending on the product – can be accomplished with relative ease, but larger reductions are far more complicated than might be anticipated. Such reductions affect many aspects of foods, not just 'saltiness', and may not be accepted by consumers.
- Even with regard to taste, gradual reductions are needed to allow consumers to acclimatize to the lower salt.
- In some categories, Canadian foods are already lower in sodium than other markets, and significant reductions in sodium have already been made by certain food sectors in Canada.

- There are important differences between the Canadian market and other markets which we draw comparisons to, such as the UK or EU in general.
- Successful sodium reduction will likely require a combination of public awareness raising and initiatives to reduce sodium in manufacturing.
- Public education is difficult and costly, but is critical to long term success in reducing excess dietary sodium as well as other unhealthy lifestyle choices.

2. Introduction

This report provides an overview of consultations undertaken by the Multi-stakeholder Working Group on Dietary Sodium Reduction in early 2009. This includes responses to a sodium questionnaire published in December 2008 as well as presentations made to the Working Group at a consultation meeting on February 19th 2009.

Findings in this report reflect the views of stakeholders who chose to participate in the consultation and do not necessarily represent the views of all stakeholders or all Canadians.

This report was authored by Martin Redfern on behalf of Health Canada, whose assistance is gratefully acknowledged.

3. The Consultation Approach

3.1. Written Submissions

In December 2008, the Multi-stakeholder Working Group on Dietary Sodium Reduction published a questionnaire to solicit stakeholder feedback on opportunities and challenges related to sodium reduction.² Responses were directly solicited from a wide range of stakeholders and comments were accepted from any member of the general public. The closing deadline for comments was January 26, 2009. In total, **32** submissions were received and are included in this report.³ The following table lists the responses received from various stakeholder groups.

Type of Respondent	Submissions Received
Government / Public Health Agency	6
Industry Association / Private Company	11
Health / Disease / Consumer Organization	6
Health Professional / Individual	9
Total	32

² See Appendix A for the full questionnaire text.

³ Several submissions were received after the deadline but were included in this report.

It should be noted that five submissions in the Health Professional category and one in the Health Organization category were essentially identical or subsets of another. These have been treated as individual submissions, although they evidently emanate from a single collective effort.

3.1.1. Analytical Approach

Of the 32 written submissions, 31 followed the questionnaire provided by the Working Group, although many left sections blank. A number of submissions included academic references or the articles themselves. These references are included in **Appendices B and C**.

The questionnaire published by the Working Group contained 25 questions, all of which were open-ended. These responses elicited a significant amount of text which had to be parsed and categorized systematically if a fair and accurate summary was to be made.

To ensure a fair and accurate summary of these stakeholder comments, Redfern Research executed a three-step analysis using basic content analysis techniques.

First, all the input was compiled into a single database, organized by respondent and question.

Second, a list of approximately 150 different positions taken by one or more stakeholders was compiled. Then, the content of each questionnaire was “coded” into those categories to provide numerical summaries. If a particular submission took a particular position, this was noted in a database. Ultimately, approximately 773 different positions were captured across all 32 submissions. In other words, an average of 24 specific positions were attributed to each stakeholder based on their submission. (In practice, this ranged from 5 to 50, depending on the submission.)

In counting the occurrence of specific views, we were not implying equivalent value of the views of all stakeholders, nor implying that these numerical results might be generalized to the wider stakeholder population. Instead, the numerical analysis simply ensured a truly accurate picture of the content contained in stakeholder submissions.

The numerical summaries of each category were divided into themes and presented in tables, discussed in the following section. The findings in these tables were then augmented with qualitative insight gained from studying the submissions.

3.1.2. Tables in this Report

Throughout this report, responses to the questionnaire are presented in tables. Two important points should be borne in mind.

First, the tables contain counts, not percentages. Each number reflects a real number of respondents. As not all respondents provided answers to all questions, the total number of responses in each table will vary.

Second, these tables are intended solely to describe the contents of the submissions and cannot claim to represent the wider stakeholder community or indeed all Canadians. Although best efforts are made to include the widest possible range of stakeholders in the consultation, there is no reliable scientific basis upon which to generalize these results to the wider population with statistical certainty. That said, it is very likely that the opinions expressed in consultations reflect the opinions present in the wider stakeholder community. We simply cannot reliably estimate the *proportions* in which each of these views is present. Likewise, when this report refers to stakeholders it is in the same sense as “participants” and “contributors”. We are describing the stakeholders involved in this consultation, not all stakeholders in Canada.

A final caveat which must be borne in mind is the fact that this report gives equal numerical weight to each submission. Thus, the submissions of an individual or small company have the same numerical weight as a large corporation, non-governmental organization or industry association. While this approach poses some interpretive challenges, the alternative approach – weighting the value of submissions based on the size or influence of the stakeholder – is fraught with difficulties. For this reason, the report tables break out results by stakeholder group to allow comparisons and do not provide results for “all stakeholders”.

3.2. Consultation Session

The Working Group met on February 19th 2009 to hear presentations from invited experts and stakeholders who had requested permission to make a presentation. An audience of approximately 50 individuals also attended the session to watch the proceedings.

During the day, the Working group heard 20 presentations on the subject of sodium and sodium reduction. Working Group members posed questions to the presenters and offered observations.

Section Five of this report provides brief summaries of the presentations as well as comments or questions voiced by the Working Group members. Due to tight time constraints, questions were not taken from the audience.

3.2.1. Consultation Evaluations

Audience members at the February 19th sessions were encouraged to complete an evaluation form for the day. While only 8 people completed and returned their forms, the results were generally very positive for all aspects of the session except the venue. Respondents were asked to rate items on a five-point scale where 1 meant *poor* and 5 meant *excellent*.

There was general satisfaction on the following items. Most scored these items as 4 or 5 on the 5-point scale.

- The overall information provided on the sodium issue
- The appropriateness of the session format for expert speakers to advise the WG
- The overall impression made by the session on respondents

Also positive, albeit slightly less so, were the scores given on the following characteristics. These received ratings between 3 and 5.

- The effectiveness of the session format in giving stakeholders the opportunity to advise the Working Group
- The opportunity to build stakeholder awareness and commitment.

Respondents all scored the facilitation of the meeting at 4 at the 5-point scale. The meeting facilities were often scored below 3, however, likely reflecting the relatively tight quarters and the room temperature during the morning session.

4. Written Submissions

4.1. Overall Perspectives

With only two exceptions, all the submissions to the Working Group were supportive of sodium reduction. There is general acceptance in all groups that Canadians consume too much sodium. That said, there is variation in the degree to which stakeholders support sodium reduction and the urgency with which they feel it should be pursued. This is primarily because they disagree about the causes of this problem and, consequently, the solutions. These differences are discussed in detail later.

A specific concern, especially outside industry, is the fact that the Nutrition Facts Table provides information on the Tolerable Upper Intake Level (UL) for sodium, rather than the Adequate Intake (AI). This is seen as potentially misleading to consumers.

All respondents agree that consumer tastes present a challenge to sodium reduction. Many believe that the consumer palate may be habituated to a less 'salty' flavour over time with gradual reductions. This challenge is considered manageable by most stakeholders, although Industry is clearly more concerned than others about potential consumer rejection of low sodium products.

Manufacturing and quality challenges are understood by most stakeholders but of greatest concern to industry. This group raises serious doubts about the possibility of significantly reducing sodium in a number of food groups due to the impact on the safety and quality of processed foods. While non-Industry respondents tend to see manufacturing challenges as manageable, industry is far from optimistic about major reductions, especially with regard to the functional role of sodium (as opposed to its role as a flavouring.)

A key reason why industry is less optimistic about affecting significant sodium reductions is the perceived inadequacy of current sodium alternatives, especially in the functional role. Non-industry stakeholders tend to suggest alternate flavourings (such as herbs, spices, and citrus) while industry is more interested in substances which can mimic the functional role currently played by sodium compounds. There is consensus in industry that adequate alternatives do not yet exist and they do not yet see this challenge as manageable.

Many stakeholders (especially in industry) are not willing to endorse mandatory reductions at this time for processed foods. Believing that more research is needed on realistic targets and approaches, these stakeholders support voluntary targets coupled

with incentives for industry (such as new labelling). If voluntary efforts are not effective in the longer term, mandatory limits would then be considered more appropriate.

4.2. Consumer Challenges⁴

Many stakeholders agree that the public lacks adequate information about sodium including the health effects of the substance and how to read labels and manage their intake. As noted later, education is seen as a key response to the sodium reduction challenge.

Most stakeholders also agree that Canadian consumers have an elevated taste preference for saltiness. For industry, the salt-preference (or habituation) of the Canadian palate is one of the two primary challenges facing efforts to reduce sodium in the diet. (The other is the manufacturing role of sodium, as discussed later.) Industry often claims that consumers will reject foods with significantly less sodium than they are used to, making it difficult to make significant sodium reductions without losing customers to other brands or other products. Industry stakeholders also tend to point out the important role that salt plays in the cultural and religious lives of Canadians as an example of the challenges facing sodium reduction.

Table 2: Challenges to Reducing Sodium

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Taste preferences of consumers	2	7	4	6
Salt levels in processed foods	6	0	4	7
Increasing proportion of processed/prepared foods in diet	1	1	1	6
Lack of consumer choice in processed foods	0	0	3	6
Consumer knowledge of sodium risks	2	3	2	1
Consumer understanding of labelling/Nutrition Fact Table (NFT)	1	1	1	5
Advertising for processed foods	1	0	1	5
Premium pricing of low sodium products	0	0	2	5
Cultural/Religious aspect of salt use in foods	0	3	0	0
Inadequate scientific certainty re impacts of sodium reduction	0	0	1	0
Labelling problems / inconsistencies	0	0	1	0

⁴ This section includes responses to the question: A.1. *What are the biggest challenges in getting Canadians to reduce their sodium intake?*

In contrast, non-industry stakeholders believe that manufacturers of processed foods must bear some responsibility for the elevated amounts of sodium in the Canadians diet. They often say that processed foods contain too much sodium and that manufacturers do not provide low-sodium alternatives to Canadians. They often say that the industry has overemphasized (and over-marketed) high margin processed foods at the expense of low-sodium fresh food alternatives. For non-industry stakeholders, the salt preference is not seen as quite such a significant challenge. These stakeholders tend to believe that consumer palates can be re-educated relatively quickly to accept and even prefer less sodium if industry will produce and promote the products. Some non-industry stakeholders suggest that the fact that low-sodium foods are sold at a premium compared to their higher sodium counterparts is evidence that industry is not yet committed to sodium reduction.

One stakeholder submission used an example from the Canada Food Guide to reinforce the challenge of consuming a diet which meets recommended sodium levels. They demonstrated that a reasonable 2000 calorie diet for a teenage girl which followed the Canada Food Guide would nonetheless contain almost 2500 mg of Sodium, well above recommended levels.

4.3. Consumer Research Approaches⁵

Almost all stakeholders endorse the idea of on-going monitoring of dietary sodium. Two key channels for such research are Tracking Nutrition Trends and the Community Health Surveys. Both of these approaches are mentioned widely as possible vehicles for additional data collection on sodium intake, as are more focused surveys of consumers using traditional market research methods.

Table 3: Consumer Research Approaches

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Consumer attitudes are secondary to industry change	0	0	1	5
Tracking Nutrition Trends	1	2	2	1
Community Health Surveys	1	1	3	0
Consumer Surveys	0	3	0	2
Biological markers / urinalysis	0	1	1	0

⁵ This section includes responses to the question: *A4. What are the methods that can be used to survey current public knowledge, attitudes, barriers and behaviours relating to dietary sodium? Can the knowledge periodically be monitored to determine impact of interventions?*

There is however, a distinct difference in emphasis between industry and others on this question. While industry sees changing consumer preferences as the primary mechanism to reducing dietary sodium (and therefore important to study), non-industry stakeholders are equally interested in regulatory changes which would reduce dietary sodium without the need to change consumer knowledge or tastes first. (This is sometimes called a “passive” approach.) Industry counters that salt-demanding consumers who experience declining sodium will simply move to different foods, eat larger servings, or add salt at the table.

A further question is whether monitoring should examine the amount of sodium in foods, or the amount of sodium in the diet of Canadians. Industry is inclined to argue that sodium comes from so many diverse sources that only biological markers will provide certainty about progress in sodium reduction or lack thereof. A significant reduction in the sodium used in processed foods would mean little, they argue, if Canadians bypass those limits by adding salt themselves at home or eating out.

4.3.1. Existing Research⁶

Stakeholders were asked to provide any existing research they hold on consumer acceptance. They provided both specific information and citations. These are lengthy and are included in Appendix B (findings) and Appendix C (citations).

⁶ This section reports responses to the questions: *A.5. Have you or your organization conducted research on consumer awareness of the health risks associated with high sodium intake? If so, please provide details. A.6. Have you or your organization conducted research on any of the following and are willing to provide data or details to Health Canada?*

4.4. Consumer Mechanisms⁷

Almost all stakeholders agree that public education and better labelling is key to reducing the amount of sodium Canadians consume. Non-industry groups tend to have more specific suggestions for such education, and they suggest such things as label education, cooking education and school education. To some extent, this reflects their greater belief that Canadians are inadvertently consuming too much sodium and would cut back significantly if better informed. Industry is more likely to see overconsumption as a choice many consumers will continue to make, regardless of information, if they feel the alternative is unappetizing food.

Table 4: Consumer Mechanisms

Figures reflect the number of submissions in each stakeholder group that made each point. Figures in parentheses reflect the number of stakeholders who explicitly <u>disagree</u> with each suggestion.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Education / Information				
Public/Consumer education	4	8	3	6
Better labelling	1	4	4	7
Label education for consumers	0	1	4	5
School education	1	1	0	0
Cooking education for consumers	0	0	4	5
Public service advertising	0	1	1	1
Industry / restaurant education	0	1	1	0
Other Approaches				
Use Integrated Total Diet approach	1	7	1	0
Gradual reductions to retrain palate	1	3	1	0
Use Health Practitioner channel	2	1	1	0
New products needed	1	1	1	5
Policy support	1	0	1	5
Specific Programs				
UK system works / Good example	3	1(1)	4	6
Health Check works / Good example	1(1)	2	2(1)	1
DASH system works / Good example	0	2	2	5
Health Eating is in Store for You works / Good example	0	0	2	0

A number of industry stakeholders make a point of suggesting that consumers, industry and government should all be thinking in terms of the total diet Canadians consume rather than focusing on specific foods or food categories. There is significant agreement

⁷ This section reports responses to the following questions: A.2. *What are the best mechanisms to build awareness and motivate Canadians to reduce their dietary sodium intake successfully?* A.3. *Are you aware of any programs that have been successful in getting people to lower their sodium intake? If so, please elaborate.* B.1. *What approaches or current pilot projects have been used to assist consumers in making healthy choices at the point of food purchase whether at retail or in food service establishments? Are you aware of the effectiveness or impact of these initiatives?*

that modest sodium reductions will be acceptable to consumers if phased in slowly. Anecdotally, some industry stakeholders suggest these reductions are in the range of 10% compared to reference products. They also say that, based on experience, consumer acceptance of new lower-sodium products is likely to happen more quickly than for reformulated versions of existing products.

Direct communication and advertising was more frequently identified as a means to raise consumer awareness than were indirect channels such as Health Practitioners.

Asked to identify examples of successful or worthwhile sodium-reduction strategies, stakeholders in all groups are most likely to mention the experience in the United Kingdom. Also mentioned are the Heart and Stroke Foundation's Health Check program and the Dietary Approaches to Stop Hypertension (DASH). The latter program is used with at-risk populations but is seen to provide a solid example for the wider population. These programs are not without their detractors, however. Health Check is criticized for allowing unacceptable levels of sodium in processed foods.

4.4.1. Labelling⁸

As noted earlier, labelling is considered a significant component of public education towards lower sodium intake. In this context, it is important to underline the concern many stakeholders have with the current labelling system.

Many stakeholders, especially within industry, believe that the current levels set for the Daily Value (DV), Adequate Intake (AI) and Upper Limit (UL) are not adequately based on science. Some fear the figures are too high, while others suspect they are too low. Of particular concern outside industry is the fact that the Nutrition Facts Table (NFT) uses the UL for reference on sodium while all other nutrients use the AI. This would seem to imply that consumers *should* consume the Upper Limit rather than the Adequate Intake, leading to a near doubling of sodium intake.

Despite this concern, most stakeholders believe the NFT is an important tool in the process of empowering consumers who want to consume less sodium (and thereby encourage industry to produce foods to meet that demand.)

⁸ Information in this section is drawn primarily from answers to the question: **B.2.** *Do you or your organization have data or views on how nutrition labelling (e.g. % daily value) or nutrient content claim criteria might help or hinder consumers in reducing their sodium intake? If so, please provide details.*

Front of Package (FOP) claims are also seen to play a role, especially for consumers who are unwilling or unable to read the NFT. A number of stakeholders both inside and outside industry believe that consumers would benefit if labels were allowed to claim sodium reductions below the current 25% threshold in comparison to the reference product. Conversely, some stakeholders outside industry feel that high sodium foods should be required to display FOP warnings.

Table 5: Labelling of Sodium Content

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
New labelling (FOP, sodium reductions of < 25%)	0	8	2	0
Research needed to set targets	0	4	1	5
Nutrition Facts Table is helpful	1	3	0	0
Percentage figures (DV) are not useful	0	2	3	7
High sodium foods should be labeled as such	1	0	1	6
Nutrition Facts Table is confusing/difficult	0	1	2	0
Use AI (adequate intake) not UL (upper limit) on labels	0	0	2	5
Better labelling is only useful if industry provides choice	1	0	0	1

4.5. Product Quality and Manufacturing⁹

Industry has a great deal of insight to offer regarding the role which sodium and salt play in current manufacturing. By comparison, non-industry stakeholders do not often comment on this issue.

The three most commonly-mentioned roles of salt (besides taste) are preservation, texture (especially through protein binding in meat) and fermentation control in meats and breads. These functional qualities are based on a deep base of traditional knowledge and cannot be easily obtained by using other products.

⁹ This section includes responses to questions: **C.1.** *What are your organization's current efforts or future plans to reduce the sodium content of specific applications or products?* **D.3.** *Do you or your organization have any information about other challenges associated with the reduction of sodium in processed foods such as cost, time or other resources? If so, please elaborate.* **C.2.** *What are the technical challenges presented by sodium (salt) reduction in specific applications or products? Please provide details on technical functions such as:* **C.3.** *Can you identify the factors that can facilitate the transition to products with lower sodium content in your specific industry sector (technological or otherwise)? Do you have data to share? If so, please provide details.*

The question of preservation in sodium-reduced foods is of widespread concern in industry, especially for meats, because of the potential development of disease-causing microorganisms (Botulism, Listeria etc) if the salt content of meat products is too far reduced. It is clear to a number of industry commentators that there are certain processed meat products which cannot be manufactured with significantly lower salt levels, regardless of taste issues.

Table 6: Sodium in Manufacturing

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Salt preservation is essential to food safety	1	6	2	5
Salt affects protein binding/tenderness	1	2	0	0
Salt controls fermentation	0	3	0	0
Salt maintains colour in meats	0	1	0	0
Salt prevents purge	1	0	0	0
Salt will always be needed in some applications	0	4	0	0

It should be noted that industry does not discount the possibility that food safety could someday be ensured without current sodium levels. Rather, they stress that sodium reduction is as much about safe manufacturing as it is about taste. Further, they believe that alternative approaches to preservation, as discussed in the next section, are still only in the development stage.

Industry raises a number of additional concerns regarding the reduction of sodium in manufacturing. A key concern is that low-sodium formulations may damage customer loyalty and purchase intent due to unacceptable taste or texture. In competitive market with many alternative products and brands, industry is understandably reluctant to take risks with their customer base which may have irreversible consequences.

A related concern, raised primarily by industry, is the possibility that reducing sodium may cause customers to turn away from otherwise healthy foods - such as meats, cheese and green vegetables - which rely on added salt for aspects of their flavour.

Table 7: Challenges to Sodium Reduction in Manufacturing

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Taste changes reduce consumer acceptance	1	5	1	0
Low sodium products take time and money to develop	0	5	1	0
Need a long transition period	0	2	0	1
Sodium reduction may deter eating healthy foods	0	4	2	0
We are producing lower sodium products	0	4	0	1

While some non-industry stakeholders criticize industry for charging a premium price for low-sodium alternatives, industry submissions go to some length to explain the significant time and money required to develop these low sodium products. It is not, they stress, a simple matter of adding less salt.

As noted earlier, there is a general sense that a long transition may be needed to retrain consumer palates. It is also clear, however, that non-industry stakeholders are thinking of larger overall cuts during that transition than is industry. Industry is often thinking only of a 10% or 15% reduction in sodium over time, as they believe that larger cuts in many products would erode consumer acceptance and/or pose major manufacturing challenges.

Despite these concerns, there is general willingness in industry to examine sodium content in products and make reductions where possible. Most of the manufacturers who submitted questionnaires discussed their own efforts to create lower-sodium products which have included both successes and failures. However, industry is clearly less optimistic than other stakeholders about the degree of sodium reduction which is achievable in the near term.

4.6. Alternatives¹⁰

Although almost all stakeholders were willing to engage on the subject of sodium alternatives, their responses were coloured by three underlying perceptions:

- Industry generally feels that current alternatives are largely inadequate to replace the functional and flavouring roles played by sodium.
- Non-industry stakeholders tend to feel that seeking alternatives is a less attractive approach than “weaning” Canadians off their preference for saltiness.
- Both groups are concerned that novel alternatives (as opposed to traditional flavourings such as herbs and spices) may ultimately prove to be no healthier than sodium.

The most commonly mentioned alternatives are potassium compounds, especially potassium chloride, a substance already in use to mimic sodium chloride.

Manufacturers are quick to point out that this substance is inferior to salt in taste and has few of salt’s other functional qualities. Most seem to agree that the potential for this alternative, which must be matched with sweeteners to mask a bitter aftertaste, is quite limited.

Non-industry stakeholders tend to mention herbs, spices and other flavourings as alternatives to sodium. However, these alternatives are usually presented as part of an alternative style of *cuisine* rather as a simple substitution for salt in existing products. To that extent, these flavourings will be of less interest to industry which is interested in reducing sodium without unduly modifying popular existing products. Furthermore, non-

¹⁰ This section includes responses to the following questions: **D.1.** *What alternatives to sodium are currently available? Can these alternatives be used in a variety of products?* **D.2.** *How does the function of these alternatives compare with salt in regards to technical functions.* **D.4.** *Can you identify factors that can ease the transition to healthier alternatives in your specific industry sector (technological or otherwise; please identify your sector/products)?* **E.1.** *As efforts are made to reduce sodium in processed food products and foodservice foods, we may turn towards sodium alternatives with less well-known effects on the health of consumers. What are the health and nutritional concerns related to the use of alternatives to salt or sodium? If you have data, please elaborate.* **E.2.** *What would be the ideal nutritional and health characteristics of alternatives to salt and sodium food additives?* **E.3.** *Is there an impact to focussing on reduction of sodium as opposed to sodium chloride in regards to: A) The ability to formulate foods; B) The association and risk of elevated blood pressure.*

industry stakeholders do not generally address the need to replace the functional contributions of sodium discussed earlier.

Some industry and non-industry stakeholders express concern about the potential health impact of increasing levels of dietary potassium, especially for higher risk groups.

Table 8: Specific Sodium Alternatives Mentioned

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Potassium Chloride	1	3	1	1
Herbs	1	0	3	6
Spices	0	1	3	7
Potassium Lactate	0	2	0	0
Yeast extracts	0	2	0	0
Irradiation	0	1	0	0
Hydrolysed plant proteins	0	1	0	0
Phosphates	0	2	0	0

Asked to identify the ideal characteristics of sodium alternatives, stakeholders generally say these substances should be as benign as possible and mimic sodium as closely as possible. Some also seek an alternative which will not increase prices. Industry is also likely to stress the need for more timely approvals for new additives.

Table 9: Criteria for Sodium Alternatives

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Alternatives must be health neutral	2	3	3	0
Alternatives must be approved more quickly	0	5	0	0
Alternatives require long transition	0	1	1	0
Alternatives should be generally recognized as safe	0	1	1	5
Alternatives should not increase product price	1	1	1	0

As noted earlier, industry is careful to underline the fact that alternatives are needed for all the many functional roles of salt and not simply flavouring. They also make clear their belief that significant levels of sodium will always be needed to safely produce certain products such as pickles and deli meats.

Table 10: Concerns About Sodium Alternatives

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Alternative will be needed for each separate function of salt	0	7	0	0
Beware possible impact on iodine consumption	0	2	2	0
Potassium problems: Consumer acceptance (Bitterness)	1	4	0	0
Will cost more	0	3	1	0
Alternatives should be a low priority	0	0	1	5
Alternatives should be avoided	0	0	1	5
May reduce food safety	0	0	1	0
Safety of alternatives not proven	1	0	0	0
Will reduce shelf life	0	0	1	0
Focus on sodium not salt	0	3	3	5
More research on impacts needed	0	1	0	0
More anti-microbial agents should be developed / approved	0	1	0	0
Potassium problems: Health	2	2	2	0

One stakeholder concern relates primarily to the consumption of table salt by Canadians. The addition of iodine to table salt is considered to provide very significant public health benefits which could be endangered if Canadians turn away from iodized table salt as a result of sodium-related communications.

As noted earlier, non-industry stakeholders tend to say that sodium alternatives are an inferior solution compared to sodium reductions and the retraining of the Canadian consumer palate.

4.6.1. Salt versus Sodium

There is no consensus on whether future policies should focus on reducing salt or reducing sodium. While the risks associated with sodium chloride are understood to extend to other sodium compounds, there is also recognition that salt comprises the vast majority of sodium in the Canadian diet. As such, salt is the main practical source of concern. The determining factor may be the degree to which existing public awareness and concern focuses on sodium or salt, as no one wants to confuse the public health message by talking to Canadians about a “new” issue. This would be more of an issue if most potential salt alternatives were sodium compounds but this does not appear to be the perception among most stakeholders.

4.7. Policy and Regulatory Options¹¹

There are two key perspectives on sodium reduction which inform views on regulatory options. One view is that sodium reduction should focus on the individual person and the food choices they make. The other view is that sodium reduction should focus on the amount of sodium in the food supply. The latter view exists primarily outside industry, while the 'total diet' approach is common both inside and outside industry. This question of whether sodium reduction should focus on 'supply' or 'demand' is a fundamental division in the views of stakeholders.

There is no consensus regarding whether sodium reductions should be mandatory or voluntary.

Opposition to mandatory reductions is motivated by three underlying perceptions.

First, many believe that industry-wide target-setting would be extremely complicated and may cause inadvertent consequences. This view is in accordance with the widespread view noted earlier that sodium reduction should focus on the total diet rather than specific foods.

Second, there is concern that a global target (e.g. 25% cut in all categories) would not reflect the fact that certain food categories play a disproportionate role in the sodium Canadians consume. (Soup, breads, deli meats and packaged foods are often mentioned).

Third, there are no viable alternatives for many of the functions which salt plays. Thus, hard targets may make many products unacceptable to the consumer and may also make some products impossible to manufacture safely.

¹¹ This section includes responses to the following questions: **F.1.** *There are many different approaches that can be taken to move towards reduced levels of sodium in foods. From amongst the options listed below, please identify what is the best choice in your opinion and why: i) Establishing targets in Canada for the sodium content of processed foods and foods sold in food service establishments. ii) Imposing regulatory limits in Canada on the sodium content of processed foods and foods sold in food service establishments (as opposed to voluntary targets).* **F.2.** *Are there specific instances where regulatory limits would be helpful for the food industry?* **G.1.** *Are there regulatory or other barriers to consider when trying to reduce the sodium content of foods? (e.g. regulatory standards for foods, food additives). If so, please explain.* **G.2.** *Are there policy and/or regulatory initiatives you would like to suggest for consideration by the Sodium Working Group? If so, please elaborate.*

In industry, there is a sense that considerable efforts are already being made to reduce sodium in response to consumer demand. For this reason, a few stakeholders argue that sodium targets should be absolute, not linked to reference products which may already have significantly reduced sodium levels.

Table 11: Regulatory Options

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Reduction targets should be voluntary	0	3	1	1
Mandatory targets needed	2	1	2	6
Food-specific targets not overall food supply targets	3	3	2	0
Voluntary reduction first, mandatory only if necessary	2	1	3	1
Trans fat reduction works / Good example	3	1	2	0
Absolute sodium targets, not relative	0	1	1	0
Regulatory limits and voluntary targets	1	0	1	5
Some products should be exempt	0	2	0	0
Mandatory limits needed in restaurants	0	0	1	5
Provide incentives to industry	0	1	1	0
Money needed for research	1	0	0	0

The example of current efforts to reduce trans fats is raised by a number of stakeholders as a good example to follow in reducing sodium levels in food.

Support for regulatory targets is also motivated primarily by three perceptions. First, industry is not expected to make significant sodium reductions voluntarily due to inertia and concern about customer loyalty. Second, regulatory requirements would create a level playing field, preventing damage to individual companies who might otherwise lose customers to high sodium alternatives. Finally, regulatory targets would mean that sodium reduction could occur quickly and without awaiting success in public education.

A number of compromises are proposed between the two absolute alternatives of mandatory targets and voluntary reductions.

- Mandatory reductions could be implemented if industry does not make significant strides toward meeting voluntary targets.
- Regulatory limits could be set only for specific foods which are disproportionate sources of dietary sodium.
- Some products might be exempted from sodium reductions targets either because they are considered important to healthy eating (e.g. cheese) or because their manufacture is impossible without high sodium (e.g. cured meats).

Voices inside and outside industry suggest that food manufacturers will need incentives to reduce sodium, whether this is tax relief, research assistance, regulatory requirements or the fear of negative publicity.

Table 12: Regulatory Impacts

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Beware creating trade barriers / retaliation	0	0	2	0
Avoid price increases	0	0	1	0
Should not hurt Canadian companies or advantage imports	0	1	0	0
Reductions may change food definitions	0	1	0	0

Various stakeholders also caution regulators against the possibility of unintended impacts - on trade relations, product prices, the competitive environment, or food definitions - created by the limits on sodium in Canadian foods.

4.8. Monitoring¹²

Stakeholders generally support monitoring of the population to ascertain the impact of reduction strategies, and this is not a question which sparks significant discussion.

Some would focus on monitoring population health (especially hypertension) because that is the overall objective of sodium reductions. Other would focus on sodium amounts in the diet and/or in the food supply. Answers to this question reflect the 'supply' versus 'demand' division discussed earlier. Among those making substantive comments, however, there is a tendency to feel that biological measures will be more meaningful than measuring the sodium content in foods.

Table 13: Monitoring

Figures reflect the number of submissions in each stakeholder group that made each point.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Monitor dietary levels, not products	1	1	1	0
Use biological markers in population	1	2	0	0
Measure sodium in range of products	1	0	1	0
Make records public	0	0	1	0
Need better record keeping	0	1	0	0

¹² This section includes responses to the question **G.3. What are the methods to monitor and assess the success of a sodium reduction strategy? Which have been shown to be effective?**

4.9. Other Issues / Perspectives¹³

Stakeholders raised a number of issues which fall somewhat outside the scope of the questionnaire. First, there is some doubt expressed by six stakeholders (both inside and outside industry) as to whether a total population approach to sodium reduction is appropriate or justifiable. They cite research which suggests that sodium increases hypertension in only a 'salt sensitive' segment of the population while having no impact or beneficial impacts for others. These stakeholders wonder whether sodium reduction, at least during the initial stages, should not focus on populations at risk for sodium-related hypertension rather than the entire population. They note that motivations and compliance in this at-risk group would be much higher.

Second, there is concern that the dietary needs and sensitivities of children are not being given greater attention. This group may be more vulnerable to sodium and significant uncertainty is said to exist with regard to appropriate consumption figures for children. This question was raised by eight stakeholders.

Finally, four stakeholders warned that the foodservice industry should not be exempt from sodium reduction strategies. Indeed, several suggested that foodservice should be a key focus, because consumers have less access to information about these foods and there is evidence that these foods are excessively high in sodium. One industry stakeholder points out that it will be difficult for low sodium processed foods to succeed if they are inherently less satisfying to the Canadian palate than their foodservice alternatives. The industry cautions that customer 'customization' of food will make it difficult to standardize sodium levels for many restaurant items.

¹³ This section includes responses to question: **G.4.** *Are there any other issues or perspectives regarding sodium reduction that you would like to share with the Working Group? If so, please elaborate.*

4.10. Qualitative Assessment of Stakeholder Positions

The Sodium Questionnaire did not ask respondents to take unequivocal positions and most stakeholders offered opinions which were appropriately complex and nuanced. It is useful, however, to step back and ask six general questions about each stakeholder:

1. Do they support or oppose sodium reduction?
2. Do they believe sodium reduction is urgent or not urgent?
3. Do they believe that consumer challenges are manageable?
4. Do they believe that manufacturing challenges are manageable?
5. What potential do they believe alternatives have?
6. Do they prefer a voluntary approach to sodium reduction or regulatory requirements?

Based upon the sum total of comments, the author of this report has placed each submission into one of three categories with regard to each of these six questions. This is a deliberately broad characterization which cannot reflect the complexity and sophistication of the submissions. It does however provide a reliable overall picture at a glance.

The following pages provide the overall picture for each question based on this qualitative assessment of each submission.

4.10.1. Support for Sodium Reduction

Almost all stakeholders support sodium reduction as a desirable goal.

Table 14: Support for Sodium Reduction

Figures reflect the number of submissions that were judged to take each position.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Strong support	6	8	6	9
Mild support	0	1	0	0
Little or no support	0	2	0	0
No position	0	0	0	0

4.10.2. Perceived Urgency of Sodium Reduction

Although sodium reduction has the support of most stakeholders, many do not consider this to be a *highly* urgent issue, especially in industry. As noted earlier, reduction of sodium used for flavouring is expected to take some time.

Table 15: Urgency of Sodium Reduction

Figures reflect the number of submissions that were judged to take each position.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Very urgent	2	0	2	5
Somewhat urgent	1	8	4	3
Not urgent	1	3	0	0
No position	2	0	0	1

4.10.3. Perceived Manageability of Consumer Challenges

Compared to other stakeholders, industry tends to see consumer preferences for saltiness as far more difficult to overcome. This perception is reflected in the following table which shows that industry tends to see consumer challenges as *somewhat* manageable while other stakeholders often see those challenges as *completely* manageable. Few stakeholders believe that consumer challenges cannot be overcome, however.

Table 16: Manageability of Consumer Challenges

Figures reflect the number of submissions that were judged to take each position.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Completely manageable	5	4	4	9
Somewhat manageable	1	4	2	0
Not manageable	0	2	0	0
No position	0	1	0	0

4.10.4. Perceived Manageability of Manufacturing Challenges

Industry believes that some manufacturing challenges related to sodium reduction are insurmountable, especially with regard to foods such as processed meat, soup and pickles. Some industry submissions are decidedly pessimistic about reducing sodium given the functions it serves. In contrast, non-industry stakeholders tend to think primarily of sodium used for flavouring and are therefore quite optimistic that manufacturing challenges will be manageable.

Table 17: Manageability of Manufacturing Challenges

Figures reflect the number of submissions that were judged to take each position.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Completely manageable	4	2	4	8
Somewhat manageable	1	6	2	0
Not manageable	0	2	0	0
No position	1	1	0	1

4.10.5. Perceived Potential for Sodium Alternatives

Overall enthusiasm for sodium alternatives is not high. As the following table shows, almost one-half of industry submissions largely dismiss alternatives, not least because they do not yet offer replacements for the functional roles salt plays.

Table 18: Perceived Potential of Sodium Alternatives

Figures reflect the number of submissions that were judged to take each position.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
High potential	0	0	0	0
Moderate potential	2	6	3	2
Little or no potential	1	4	2	5
No position	3	1	1	2

4.10.6. Voluntary Versus Mandatory Sodium Reductions

Support for mandatory sodium reduction targets is concentrated among health and disease groups as well as health professionals. Industry feels strongly that targets should be voluntary.

Table 19: Voluntary Versus Mandatory Sodium Reductions

Figures reflect the number of submissions that were judged to take each position.	Gov't / Public Health (n=6)	Industry Assoc. / Private Company (n=11)	Health / Disease / Consumer Group (n=6)	Health Professional / Individual (n=9)
Reductions should be voluntary	1	10	0	1
Mix of voluntary and mandatory targets	2	0	2	1
Reductions should be mandatory	2	1	4	6
No position	1	0	0	1

5. Expert and Stakeholder Presentations

The following section of this report provides summaries of the presentations provided by experts and stakeholders during the February 19th consultation session.

5.1. Overview of Health Effects of Sodium

Dr. Lawrence J. Appel, Prof. of Medicine, Johns Hopkins Bloomberg School of Public Health, and Chair of the Institute of Medicine's DRI panel on sodium

Dr. Appel provided an overview of the issue of dietary sodium. He highlighted the health impacts of excess sodium, including increased hypertension, stomach cancer and cardiovascular disease. He also noted other possible relationships between sodium and osteoporosis, left ventricular mass and obesity. He pointed out that the overall global toll of death and disease due to sodium is very large, and that hypertension is the most common cause of death worldwide. Dr. Appel stressed that damage is not limited to people suffering from clinical hypertension and that persons without hypertension are at increased risk of elevated blood pressure, even if it does not cross the threshold that defines high blood pressure. He also pointed out that the health benefits associated with lowering sodium are direct and progressive. He did note that certain populations are more sensitive to sodium.

In response to a question, Dr. Appel reaffirmed that the effect of sodium is linear and that neither the UL or AI represent “safe” levels of sodium. Although little data exists on very low sodium diets (and their impact on cardio-vascular health), Dr. Appel suggested that there is no known public health risk associated with large reductions in sodium intake. In response to another question, he stated that excess sodium in childhood causes cardiovascular damage and this only increases with age. This means that a policy focus on children is required.

5.2. Sodium Levels and Sources in Diets of Canadians

Ms. Lynne Underhill, Bureau of Nutritional Sciences, Health Canada

Ms. Underhill explained current sodium intake levels in Canada and contrasted them to recommended levels. She pointed out that most sodium comes from processed foods and explained Canadian labelling requirements related to sodium. The presentation included detailed information taken from the 2004 Community Health Survey which showed the primary sources of sodium in the Canadian diet and highlighted important distinctions between the first and fourth quartile of sodium consumption. The Working Group saw a number of models demonstrating the impact of removing specific percentage of sodium from those foods which currently provide the largest amounts of dietary sodium.

In response to several questions, Ms. Underhill stated that existing information on intake is less than ideal as it provides inadequate detail on 'mixed dishes' and is based on the Canadian Nutrient File (CNF) which is dependent in some areas upon data from the United States. She agreed that good baseline data will be critical and expressed the hope that the CNF will contain more accurate Canadian data in the future.

5.3. EU Government Initiatives

Ms. Stephanie Bodenbach, European Commission, Health and Consumers Directorate

Salt intake in a number of EU countries (in 1985) ranged from 8 to 14 grams per day, far above recommended intake levels. Ms. Bodenbach explained that the EU framework for national salt initiatives includes shared benchmarks, shared learning, stakeholder involvement, priority for foods with the largest market share, and a commitment to reduce sodium in products at all price levels. Reductions are managed through the member states and each state sets its own targets based on national realities. Participation of Member States in the framework is entirely voluntary. Most countries have national recommended values of less than 6 or 5 grams of sodium expressed as sodium chloride (salt) per day. The current common relative benchmark in the framework is to reduce sodium by 16% over four years starting in 2008. Twelve categories of food have been identified as priorities, of which each member state will choose at least five. Currently bread, cheese, meat products and prepared meals are often the focus of national plans. EU members are encouraged to use the 'best in class' approach to set sodium targets. Currently, nutrition labelling is not mandatory for all foods in EU countries, but in January 2008 the Commission adopted a proposal for a regulation on general food labelling and nutrition labelling that includes mandatory front-of-pack labelling of nutritional information, including sodium expressed as salt equivalent amounts.

5.4. UK Government Initiatives

Ms. Victoria Targett, Salt Reduction Strategy Team, Food Standards Agency

Ms Targett explained that the UK sodium reduction program began in 2003 with a fourfold approach: work with retailers and manufacturers, work with the catering sector, increase consumer awareness, and monitor success. The goal was to reduce average sodium intake to 6 grams per day. The UK government worked closely with manufacturers and manufacturer associations to identify appropriate reductions in sodium and assisted with research and information sharing. Targets were set for a wide variety of foods, often using the 'best in class' approach. Some targets for foods were modified after discussions with Industry, while other targets were created specifically in

response to industry requests for targets. The program is credited with reducing overall sodium intake approximately one gram between 2001 and 2008.

In response to a question, Ms. Targett indicated that there is no good data showing positive health outcomes as a result of reduced sodium. She suggested that because the link between sodium and hypertension is clear, that money would be better spent elsewhere than in trying to tease out the impact of lower sodium on overall cardiovascular health in the UK. In response to another question about health promotion to cultural groups, she offered the example of practical education offered to food preparers at Sikh and Hindu temples.

Asked about the targets set in the UK, Ms. Targett explained that the original intention had been to set targets only for high sodium foods, but that industry asked for targets in many other sectors. Ultimately, targets were set for 85 food categories. These targets allowed the UK to track progress. She stressed that 24-hour urinalysis is a powerful assessment tool because it is both meaningful and convincing.

In response to a question about catering, Ms. Targett noted that the UK is working with the catering sector, including a current initiative with pizza outlets. She also pointed out that most small food establishments buy their food from the same sources as consumers, meaning that the sodium in their meals is already being reduced by reductions made elsewhere.

5.5. Kellogg Europe Experiences

Dr. Ian Bell, Kellogg Europe Trading Ltd

Dr. Bell discussed the contribution of breakfast cereals to dietary sodium and to essential nutrients. In seeking to reduce sodium, Kellogg has been challenged to take into account the impact on consumer preference, the need for recipe standardization across Europe, and the need for suppliers to adjust their products. Cuts in sodium across 27 brands have ranged from 50% (All Bran and Special K) to 25% (Just Right) since 1999. New products with no sodium added have been introduced. UK government modeling suggests that sodium from cereals has declined from 3.6% of all sodium to 2.8% between 2003 and 2008. Sodium reductions have been made in Canadian Kellogg products, and the company is continuing to pursue further technical solutions.

In response to a question, Dr. Bell agreed that recipes are different in North America and often contain more sodium based on the consumer taste preferences. He credited the UK and EU approach for helping Kellogg to reduce sodium. He also noted that Kellogg has not relied on salt substitutes but instead on slow reductions. There is a brief

increase in consumer questions after a change but it quickly dies away. Gradual reduction of sodium did not affect Kellogg product sales

5.6. Food Supply Challenges and Solutions

Dr. Chor San Heng Khoo, Vice President, Global Nutrition and Health, Campbell Soup Company, Camden NJ

Dr. Khoo informed the Working Group that sodium reduction is a global effort for Campbell Soup Company which has been a 40 year journey. She shared the successes and challenges faced by the food industry, including Campbell, in sodium reduction in products and the importance of consumer acceptance to ensure longterm compliance. Dr. Khoo outlined many lessons learned including the important role salt plays in taste, texture, food safety and colour. For some products even a small reduction of 10%, can impact product acceptance. Higher reduction levels can require complete product redesign and flavour balance. She noted that today, there is no substitute for salt, but that potassium chloride, flavour enhancers and PH adjustment are useful ways to assist in sodium reduction but lack of recognition by consumers of these ingredients pose acceptance barriers. Sodium reduction is time and resource intensive. Despite these challenges, Dr. Khoo described significant progress being made in sodium reduction by Campbell, especially in soups.

More research however is still needed to understand salt taste mechanism in humans. Industry would benefit from government assistance with basic research.

In response to a question, Dr. Khoo confirmed that recipes and formulations may change in different global markets consumer taste preferences vary. She stressed the need for joint and coordinated efforts between government, industry and academia to help Canadians achieve dietary guidelines and affirmed that Campbell will continue to be a partner in this goal.

5.7. Meat and Processed Meat Products Sector

Dr. Richard Holley, Professor Food Science, University of Manitoba

Dr. Holley explained that sodium is found in larger quantities in processed meat products and stressed its importance for taste, texture and food safety. He noted that UK targets for sodium in some processed meats (such as ham and bacon) were revised significantly upward because the suggested sodium levels were inadequate to properly manufacture the products. Dr. Holley explained the role which salt plays in creating a “meat batter” in foods such as frankfurters and luncheon meats. He noted that food safety in meats is a balance between salt, nitrite and pH level, and that salt preservation backs up refrigeration which is not always consistent or reliable in Canadians stores. He concluded that many processed meat products could be reduced to 2% or less with the use of appropriate substitutes (KCl, CaCl₂, MgCl₂). He stressed, however, that salt is a

critical part of meat products and that some products (such as fermented sausages) cannot be made without higher levels of sodium.

In response to a question regarding whether 2% was a sufficiently ambitious target, Dr. Holley affirmed that this target was meant only for processed meats and would represent a 50% reduction in many cases.

5.8. Baking and Dairy Sector

Dr. Rick Yada, Professor Food Science, University of Guelph

Dr. Yada reiterated the multiple roles played by salt in food production, including dairy products and dough. In dough, these functions include leavening, preservation and dough conditioning. Dr. Yada pointed out that there are many ingredients which may potentially introduce sodium into processed foods. He also explained the role and goals of the Advanced Foods and Materials Network (AFMNet) including the Network's membership, research agenda and international ties.

5.9. Sodium in Bread

Martha Carman, Director, Regional Product Development, Canada Bread Company

Ms. Carman provided a profile of Canada Bread Inc. and then proceeded to discuss three challenges related to reducing sodium in bread. She pointed out that bread is not in itself high in sodium but contributes significant amounts of sodium to the diet due to its popularity and widespread use. Canadian breads are, according to Ms. Carman, already lower in sodium than comparable products in the UK, Australia and the United States. The Canadian Nutrient File (CNF) contains U.S. values, which are higher than actual. She also noted that the required 'mold-free shelf-life' (MFSL) of Canadian products are more than twice as long as in the UK. Sodium has a functional role in bread: gluten formation, controlling the rate of fermentation, and the stabilization of loaf structure. Ms. Carman suggested that other products with higher sodium amounts wherein sodium is not functional should be addressed before seeking larger reductions in bread. She said that salt substitutes are currently inadequate and comparatively expensive.

Ms. Carman noted that very few customer calls relate to the amount of sodium in products and suggested that some consumers are prone to misinterpret the Nutrition Facts Table (NFT), so that a Health Canada-sponsored consumer education programme, as seen in the U.K., is required. It appears that consumers may not understand the sodium issue; thus, the demand for lower sodium levels in breads has not been expressed. She also explained that regulatory barriers exist, and that limited

regulatory provision for sodium reduction claims means that few bread products could benefit, as potential one-time reductions will generally fall below 25%, they are not conducive to a step-down approach to sodium reduction and that proactive companies with already lower sodium levels are at a disadvantage.

In response to a question, Ms Carman stated that the low number of very low sodium breads on the Canadian market is related to the functional role of salt and the extreme difficulty of manufacturing these products. Also, the consumer acceptability is to be determined. She also reminded the Working Group that preservation through refrigeration is not possible for breads as it causes undesirable changes in the product.

5.10. Unilever Canada

Jonathan Clifford, Regulatory Affairs Manager, Unilever Canada Inc.

Given that the link between hypertension and sodium is clear, Unilever has worked to reduce its use of sodium significantly. Relying on flavour enhancers and ‘silent reductions’ of sodium (reductions which are not advertised), Unilever has gradually reduced sodium in its products, often by 25%. Consumers will not accept abrupt reductions. In many cases, sodium reductions have already reached their practical limits beyond which significant functional impacts would be seen in the products. A particular challenge is reformulation of carbohydrate-based products. These will require new tools, new additives and access to new health-related claims within regulation. Consumers may be resistant to sodium alternatives which bear complicated and unfamiliar names. New regulatory claims for reductions under 25% would reward innovation and provide an incentive for the costly and time-consuming process of reformulation. These claims would have to be time-limited to about two years and could only be made with reference to a company’s existing products. The presentation concluded by stressing that changes should not compromise food safety or consumer acceptance, and that a cautious approach is appropriate.

5.11. Campbell Company of Canada

Phil Donne, President, Campbell Company of Canada

Mr. Donne spoke to the Working Group to explain why Campbell has undertaken sodium reduction in its products, sharing that the primary motivation was the realization that while difficult, this was the right thing to do. Employee perceptions of Campbell products were a wake-up call to the company. He stressed that while some Campbell products were not yet at the ideal level of sodium, the company was working hard to overcome complex challenges and reach these goals by modifying existing products and introducing new products including a variety of sodium reduced choices and over

25 soups at 480 mg of sodium or less. Mr. Donne stressed the personal involvement of Campbell employees in the process and emphasized the value of positive reinforcement to encourage further improvements.

5.12. Grocery Distribution Sector

Sherry Casey, Senior Director, Nutrition and Regulatory Affairs, Loblaw Companies Ltd, and Chair of Canadian Council of Grocery Distributors Labelling Committee.

After providing an introduction to CCGD, Ms. Casey identified three different food categories based on their potential for sodium reduction. These were:

- **Possible to reduce sodium**, including cereal, granola bars, canned vegetables and beans, cookies and salad dressings.
- **Hard to reduce sodium**, including boxed side dishes, boxed meat, pizza, some breads, snack foods, soup, sauces and ethnic foods.
- **May not be able to reduce sodium**, including deli meat, processed meat, bacon, wieners, sausage, and cheese.

Ms. Casey identified the tools which industry needs to reduce sodium, and focused on the importance of having regulatory access to health claims for sodium reductions of less than 25%. Other tools include new claim types, revised definitions, faster approval of alternatives, consumer research, and tax incentives. She noted that the manufacturer's cost for redeveloping a single product was at minimum twenty thousand dollars. She also noted that trans fat reduction took between 8 and 24 months for most products, and was only necessary once for each product, unlike gradual sodium reductions which will require repeated reformulations. She completed her presentation by reminding listeners of the important economic and market role played by small Canadian companies and emphasizing the need for gradual reductions, realistic goals, and customized solutions for different products and categories.

5.13. Sensory Issues in Sodium Reduction

Dr. Chris Findlay, Compusense Inc.

Dr. Findlay discussed the science underlying sensory testing and emphasized that non-subjective measures (such as chemical analysis) are very poor predictors of sensory perceptions. He presented two case studies reflecting the impact of sodium changes on sensory perceptions of food. Dr. Findlay emphasized that the impact of salt on sensory experience is profound and far wider than simply the perception of 'saltiness'. He

concluded by noting that low sodium formulations will require extensive sensory perception testing if manufacturers are not to lose customers.

5.14. The Salt Institute

Morton Satin, Director, Technical and Regulatory Affairs, Salt Institute

Mr. Satin challenged conventional wisdom regarding the health effects of sodium through the lens of a theoretical trade-related challenge under the WTO. In this context, he asked questions which the WTO and FAO might ask, then offered his own answers. He pointed out that salt-sensitive hypertensive responses in humans are heterogeneous with perhaps one-third of individuals showing a reduction and one-fifth showing an increase in blood pressure with reduced salt intakes. He argued that many studies have shown no impact on blood pressure from reducing sodium in the diet, and took issue with suggestions that the Intersalt Study showed conclusive proof in this regard. Mr. Satin also pointed out that ischemic heart disease deaths have fallen faster in Canada than in Finland, despite the considerable effort made in Finland to reduce dietary sodium. He further cast doubt on reported sodium reductions in the UK, noting that 24 hour urinalysis results for 2008 were largely unchanged from 1988. He claimed that very low sodium diets (80mmol) yielded significantly lower survival rates than higher sodium (120mmol) in recovering heart failure patients. He questioned whether reducing sodium in the food supply might not simply lead to replacement by consumers through greater consumption or added salt at the table. Finally, Mr. Satin argued that the reduction of salt may inadvertently reduce the intake of healthy foods, such as cruciform vegetables.

5.15. Affecting Consumer Behaviour

Robert C. Post, Ph.D, Acting Executive Director, Center for Nutrition Policy and Promotion (CNPP), United States Department of Agriculture (USDA)

Dr. Post explained the role of CNPP and its role in establishing the U.S. Dietary Guidelines for Americans, which includes a recommendation for limiting sodium and increasing potassium for the general public. The goals are to improve the health and well-being of consumers, define and increase awareness of what constitutes a healthy diet; and promote healthy options and choices. He explained that the science-based messages are consumer-tested to affect consumer behavior. He then discussed recommended sodium intakes in the United States and contrasted them with actual intakes, pointing out that over three-quarters of sodium comes from processed foods. He discussed changes in the food market since 2005 and marketing responses to meet consumers' growing interests in lower-sodium foods, noting that regulatory changes

have occurred as well as the introduction of many new products. He cautioned, however, that uptake of low sodium cheese and meat products has been very limited and is not growing, perhaps because of technological constraints. The US will renew Dietary Guidelines for Americans in 2010, which may include new recommendations that may help better influence consumer behaviors in accepting lower-salt foods.

5.16. Eating Habits Among Children

Karen Webber Cullen, DrPH, RD, Baylor College Medical School

Dr. Cullen discussed influences on children's diets, noting that many substances are inadequate in children's diets, while sodium, total fat and cholesterol are present in excess. She explained that sodium is significantly in excess of the UL in school age children according to the NHANES study (1999-2004), and showed related statistics demonstrating the relatively poor diets of school age children as well as the mixed success of efforts to improve school meals. Based on a UK study, she noted that packed lunches may actually be higher in sodium than school lunches. Dr. Cullen concluded by pointing out the importance of food environments on children's eating habits and the need to focus on home, school and restaurants.

5.17. Social Marketing

Dr. Sameer Deshpande, Associate Professor of Marketing, Faculty of Management, University of Lethbridge

Dr. Deshpande explained the concept of Social Marketing and contrasted it to the concepts of social advertising, education, and health promotion. He explained that social marketing is a framework to influence behaviour of specific market segments. The social marketing strategy delivers and communicates value in the form of opportunity in the environment. He discussed the social marketing aspects of sodium reduction campaigns used in other countries and provided recommendations for the Canadian context, centering on multi-pronged, multiple segment strategy which uses different behaviour management strategies.

In response to a question, Dr. Deshpande said that it would be preferable to socially market specific foods than to market low sodium eating in general. He stressed that it is important to empower consumers rather than scare them.

5.18. Education Programs

Dr. Anna Farmer, Associate Professor, Community Nutrition Alberta Institute of Human Nutrition, and Centre for Health Promotion Studies University of Alberta

Dr. Farmer explained that relatively little information exists to verify the effectiveness of various educational strategies in reducing sodium at the population level. The two best examples (United Kingdom and Finland) both integrated multilevel interventions that included public education with industry-government initiatives to reduce sodium in food products. She presented evidence that food and nutrition labels are poorly understood by consumers and their use does not lead to significantly lower sodium intakes. However, there is evidence that awareness of the link between dietary sodium and awareness of blood pressure status does lead to lower sodium intakes. She concluded by reinforcing that educational initiatives may work best when combined with other simultaneous strategies.

In response to a question, Dr. Farmer stated that the labelling system in the UK is better developed and evaluated than the one in Canada. She affirmed that front-of-package labelling has the potential to have an impact on consumer behaviour because many consumers make point-of-purchase decisions in a few seconds based on this information. While only some consumers will take time to read the Nutrition Facts Panel at the back of the package.

5.19. The Heart and Stroke Foundation

Carol Dumbrow, RD, Heart and Stroke Foundation of Canada

Ms. Dombrow outlined some of the Heart and Stroke Foundation's efforts to improve the health of Canadians. She identified the important role that sodium plays in hypertension, stroke and heart disease. The underlying philosophy of the Health Check™(HC) program was explained including the existence of specific criteria for every food category in the Canada Food Guide. Ms. Dombrow pointed out that Health Check has recently reduced the allowable sodium for products bearing the logo by at least 25% in almost all categories. These are effective immediately for new products under the system but will become effective in November 2010 for products already bearing the Health Check logo. It was recommended that the federal government establish monitoring systems to track sodium levels and standardize serving information on the Nutrition Facts Panel. In addition, it was suggested that the Food Service Industry should make readily available the nutrition facts information, including sodium content for all foods sold in food service outlets. She concluded by saying that the Heart and Stroke Foundation is anxious to work with other organizations in pursuit of lower sodium consumption by Canadians.

In response to a question about the frequency of reassessment, Ms. Dombrow stated that the Health Check system was reassessed following the publication of the current Canada Food Guide and again following the National Policy Statement by Blood Pressure Canada. She expects that the program will be reassessed approximately every two years in the future. Asked about a 1500 mg/day dietary recommendation, Ms. Dombrow suggested that based on the current food supply that this would most likely be impossible within a reasonable timeframe.

5.20. Quebec Government Strategies

Rana Farah, Direction générale de la santé publique, Ministère de la Santé et des Services Sociaux (MSSS), Québec

M^{me} Farah explained that the overall approach to public health in Quebec was a combination of individual education and an increase in the availability of healthy food choices. Ultimately, MSSS aims to make healthy choices easy to make. She agreed that sodium intake is currently too high and that a modest decrease in the amount of sodium could have a significant positive impact on the population. Reductions in sodium by manufacturers are an attractive “passive” option because they do not require the time and expense of public education. She affirmed that, in Quebec, the MSSS is working on a Food and nutrition policy and the Ministry of Agriculture, Fishery and Food (MAPAQ) is being associated to the process. Noting that sodium consumption is too high and that consumer palates may be retrained over time, she placed first priority on working with manufacturers to reduce sodium gradually in food products. Relying on consumer habituation to lower sodium, M^{me} Farah discouraged the pursuit of salt substitutes. Second priority should be placed on consumer education regarding labels and the levels of sodium in processed and restaurant foods. Finally, she suggested the actual level of sodium in the Canadian diet should be monitored to assess progress.

In response to a question regarding the diversity of small food manufacturers in Quebec, M^{me} Farah said that MSSS and MAPAQ will work to educate all food preparers in Quebec, including manufacturers, caterers, and schools. There is also public education to be done. She noted that this work has not yet begun in earnest.

6. **Appendix A: Questionnaire for the Public Consultation on Dietary Sodium Reduction**

Health Canada is chairing a Multi-stakeholder Working Group on Dietary Sodium Reduction (Sodium Working Group). To assist the Sodium Working Group (SWG) with the creation of a sodium reduction strategy, Health Canada is engaging in a consultation through this on-line questionnaire. The feedback received will help the SWG in developing a strategy for the successful reduction of the sodium content of the diets of Canadians. **Refer to the Sodium Consultation on Health Canada's website for more information on other elements of this public consultation.**

General instructions

The following suggestions are provided to help you prepare your response and will assist in our analysis:

1. Please explain your responses as clearly and concisely as possible using facts, data or specific examples. If your comments exceed 10 pages, please provide a summary (one to two pages).
2. Describe any assumptions that you used.
3. Please provide copies of any technical information, references and/or data you used in your comments, if possible.
4. Health Canada will accept comments until January 26, 2009. Please ensure to submit your comments in Word or WordPerfect form by this time.

Please note that in keeping with our commitment to an open and transparent process, comments made to Health Canada in response to this consultation will not be considered confidential. However, the names of individuals sending comments who are not representatives of groups/organizations will be protected pursuant to the *Access to Information Act* and the *Privacy Act*.

Any information collected during this consultation will be used only for the purpose of input to this consultation. The information collected will be used in conjunction with input obtained from the February 19 consultation meeting to guide decisions of the SWG on the development of a strategy for the successful reduction of the sodium content of the diets of Canadians. Information protected pursuant to the *Access to Information Act* and the *Privacy Act* collected during this consultation will be stored in a secure location and will not be shared with a third party.

In order to better enhance the transparency of Health Canada consultations, you may submit a **Voluntary Statement of Information Form** to further inform us of your interest in Health Canada's work. If you complete the form, please include it with your questionnaire or your request to attend the February 19 meeting. For more information on the Voluntary Statement of Information, please visit: <http://www.hc-sc.gc.ca/fn-an/consultation/init/sodium/vsi-fdv-eng.php>.

QUESTIONNAIRE ON DIETARY SODIUM REDUCTION

Respondent Name:

Organization (where applicable):

Address:

Affiliation: Academia
 Health Professional
 Health-focused Non-governmental Organization
 Consumers
 Food Manufacturing Industry
 Food-service Industry
 Government
 Other (please specify)

Indicate if your comments represent those of an individual or an association/group.

If the comments represent those of an association/group, please describe the process used within your organization to develop your response.

A. Consumer Behaviour and Awareness

A.1. What are the biggest challenges in getting Canadians to reduce their sodium intake?

A.2. What are the best mechanisms to build awareness and motivate Canadians to reduce their dietary sodium intake successfully?

A.3. Are you aware of any programs that have been successful in getting people to lower their sodium intake? If so, please elaborate.

A.4. What are the methods that can be used to survey current public knowledge, attitudes, barriers and behaviours relating to dietary sodium? Can the knowledge periodically be monitored to determine impact of interventions?

A.5. Have you or your organization conducted research on consumer awareness of the health risks associated with high sodium intake? If so, please provide details.

A.6. Have you or your organization conducted research on any of the following and are willing to provide data or details to Health Canada:

- Perception of saltiness by consumers;
- Consumer acceptability and purchase of food products with low or reduced sodium levels;
- Specific factors influencing acceptability;

- Consumer ability to perceive a (gradual) transition to reduced sodium in different foods;
- Concrete examples of the rate of success (or lack of success) of gradual reductions in sodium;
- Use of salt substitutes, other flavours, changes in texture or other organoleptic properties;
- New products or changes to familiar products; or
- Health status of consumers.

B. Education Programs Associated with Sodium Reduction

B.1. What approaches or current pilot projects have been used to assist consumers in making healthy choices at the point of food purchase whether at retail or in food service establishments? Are you aware of the effectiveness or impact of these initiatives?

B.2. Do you or your organization have data or views on how nutrition labelling (e.g. % daily value) or nutrient content claim criteria might help or hinder consumers in reducing their sodium intake? If so, please provide details.

C. Technical Questions Concerning Reduction of Sodium

C.1. What are your organization's current efforts or future plans to reduce the sodium content of specific applications or products?

C.2. What are the technical challenges presented by sodium (salt) reduction in specific applications or products? Please provide details on technical functions such as:

- Antimicrobial or preservative
- Texture
- Protein solubility
- Water loss
- Fermentation process
- Leavening
- Taste or flavour.

C.3. Can you identify the factors that can facilitate the transition to products with lower sodium content in your specific industry sector (technological or otherwise)? Do you have data to share? If so, please provide details.

D. Transitions to healthier alternatives

D.1. What alternatives to sodium are currently available? Can these alternatives be used in a variety of products?

D.2. How does the function of these alternatives compare with salt in regards to technical functions such as:

- Antimicrobial or preservative
- Texture
- Protein solubility

- Water loss
- Fermentation process
- Leavening
- Taste or flavour.

D.3. Do you or your organization have any information about other challenges associated with the reduction of sodium in processed foods such as cost, time or other resources? If so, please elaborate.

D.4. Can you identify factors that can ease the transition to healthier alternatives in your specific industry sector (technological or otherwise; please identify your sector/products)?

E. Health Impact of Salt/Sodium Alternatives

E.1. As efforts are made to reduce sodium in processed food products and foodservice foods, we may turn towards sodium alternatives with less well-known effects on the health of consumers. What are the health and nutritional concerns related to the use of alternatives to salt or sodium? If you have data, please elaborate.

E.2. What would be the ideal nutritional and health characteristics of alternatives to salt and sodium food additives?

E.3. Is there an impact to focusing on reduction of sodium as opposed to sodium chloride in regards to:

- The ability to formulate foods
- The association and risk of elevated blood pressure.

F. Establishing Targets for Sodium Consumption by Canadians

F.1. There are many different approaches that can be taken to move towards reduced levels of sodium in foods. From amongst the options listed below, please identify what is the best choice in your opinion and why:

i) Establishing targets in Canada for the sodium content of processed foods and foods sold in food service establishments.

- Establishing a general overall target for all foods (e.g a specific percentage reduction per year, applicable to all foods).
- Establishing a general overall target applicable to identified key food groups or categories of foods.
- Establishing different targets for different food groups.
- Establishing targets by “best case” in each food category (e.g. based on brands with the lowest sodium levels).

ii) Imposing regulatory limits in Canada on the sodium content of processed foods and foods sold in food service establishments (as opposed to voluntary targets).

F.2. Are there specific instances where regulatory limits would be helpful for the food industry?

G. Policy and Regulatory Options Regarding the Sodium Reduction

G.1. Are there regulatory or other barriers to consider when trying to reduce the sodium content of foods? (e.g. regulatory standards for foods, food additives). If so, please explain.

G.2. Are there policy and/or regulatory initiatives you would like to suggest for consideration by the Sodium Working Group? If so, please elaborate.

G.3. What are the methods to monitor and assess the success of a sodium reduction strategy? Which have been shown to be effective?

G.4. Are there any other issues or perspectives regarding sodium reduction that you would like to share with the Working Group? If so, please elaborate.

7. Appendix B: Research Insight Included With Written Submissions

The following pages contain research references provided by stakeholders. They are presented verbatim.

* * *

CIAI (Consumer Interest Alliance Inc.) conducted research into the readability of food labels. Included as part of the research methodology were four focus groups. Participants indicated that they did not understand the nutrition facts panel. The % daily value had little meaning as they were unsure what the daily value was supposed to be. They had little understanding of what would be considered 'high' 'good' 'medium' 'low'. That a product could indicate that it was a source of a nutrient with only 5% of the nutrient was a mystery. If 5% is considered a source then what would be considered 'low', reduced etc. (Participants were not probed for their understanding of sodium content of foods.) One major constraints identified by the consumer participants in the consumer focus groups was the position of ingredient list and nutrition facts panel on labels. These two important components should be next to each other with no intervening material as is required by the United States. Consumers find that the nutrition facts panel alone is difficult to interpret.

* * *

In 2001 the R&D department of a major food company discovered that their canned pasta products had sodium levels in excess of 50% of the RDI per serving, with each can containing two servings. Given these products were consumed mainly by kids, the company decided to simply reduce it to a more justifiable 20-25% of RDI. It was done gradually in decrements of 10% or so, every 3-4 months. The main concern was regular consumers of this product who would readily notice any difference. However they did not receive any complaints related to saltiness during or after the change was complete.

* * *

The US National Health and Nutrition Examination Surveys (NHANES) carried out over the last 30 years have shown a dramatic drop in urinary iodine. The median urinary iodine excretion in adults declined from 320 µg per liter in 1971–1974 to 145 µg per liter in 1988–1994 and 168 µg per liter in 2001–2002. More disturbing, in pregnant women, the frequency of moderate iodine deficiency (considered to be a urinary iodine excretion > 50 µg per liter) jumped from 1 percent in 1971–1974 to 7 percent in both 1988–1994 and 2001–2002 surveys. While the current levels are not low enough to declare a public health emergency, the trend is a matter of great concern. Any move to salt alternatives must be paralleled by an effort to ensure that iodine intakes are not affected.

An observational study using a cohort of data from the NHANES III trial evaluated the effect of sodium restriction on the risk of cardiovascular disease and all cause mortality . A nonsignificant trend between sodium restriction and both cardiovascular disease incidence and all cause mortality was observed. Townsend et al. conducted a study in 21 healthy subjects to test the effects of a very low sodium diet . Subjects were given a control diet containing 20 mmol sodium per day for six days, with a second group receiving salt tablets to increase sodium intake to 200 mmol per day. Compared to those receiving the salt tablets, subjects who received the very low sodium diet alone were found to have a decrease in insulin mediated glucose uptake, increased aldosterone, and increased renin levels. In a 2008 study by Nakandakare et al. hypertensive subjects (n=41) were given frozen meals to keep dietary sodium at either 160 mmol or 60 mmol per day for four weeks. While there was a reduction in 24 hour blood pressure with a low sodium diet, plasma renin activity and serum aldosterone increased with the low sodium diet. The low sodium diet also increased fasting triglycerides, with no change in total cholesterol, LDL or HDL cholesterol. Congestive heart failure patients participated in a 2008 study by Paterna et al. in which patients were provided written standard diets for 180 days. The diets were identical except for sodium content, the normal diet provided 120 mmol sodium per day and the low sodium diet provided 80 mmol per day. The normal sodium group had fewer readmissions, lower brain natriuretic peptide values, and a decrease in aldosterone; while the low sodium group had increases in aldosterone and increases plasma renin activity. In another study designed to investigate the possible association between excess aldosterone, and pulse wave velocity, a valid marker of generalized atherosclerosis in young healthy adults, Shapiro et al. studied 60 healthy normotensive subjects (43+/-7 years) who were counseled on how to limit their sodium intake to 2300 mg/day for 2-week run-in period . All subjects developed elevated aldosterone levels, rapidly followed by stiffening of the arteries.

* * *

The Heart and Stroke Foundation commissioned a poll (2008) which asked Canadians: "What do you think is the main source of salt in the diet of Canadians?" The results were:

79%-prepared food bought in stores
 16%- food prepared at home in which salt is added
 3%-both equally
 3%-Don't know/No answer

* * *

Consumers consistently state that taste is the most important attribute in foods they choose. The most recent Canadian survey was the Canadian Council of Food and Nutrition Tracking Nutrition Trends VII survey conducted in 2008. Taste ranked as the most important food choice for all income and educational groups. Consumers are far more likely to choose nutrient-rich foods if they can also enjoy them because of sodium that is either inherent or added to the food for flavour (Keast et al, 2002; Breslin et al, 1997, 1995).

* * *

Une étude publiée dans le *Journal of Human Hypertension* en décembre dernier fait état d'une initiative du Royaume-Uni qui a, en 2003-2004, implanté avec succès un programme visant la participation volontaire de l'industrie de sorte à réduire, via des cibles spécifiques, la quantité de sodium dans 80 catégories de produits alimentaires transformés. Ce programme a été accompagné d'une importante campagne d'éducation et de sensibilisation et d'un nouveau système d'étiquetage sur la face principale des produits avec code de couleurs pour bien distinguer les aliments plus salés des autres qui le sont moins. Les résultats de cette étude démontrent une diminution spectaculaire de la quantité de sodium dans les aliments et une excellente réponse des consommateurs à cet effet. Le Royaume-Uni est un pays en avance sur les autres sur le plan de la réduction du sodium alimentaire et est donc un exemple pour le reste du monde. Le Canada aurait avantage à s'en inspirer.

* * *

Published evidence suggests that the only beneficiaries for reduced salt intakes will be salt sensitive individuals which comprise about 30% of the population. The same publications indicate that salt reduction will increase blood pressure for about 20-25% of the population while the remaining ~50% show no effect at all.(1) Is a population-wide salt reduction program justified in view of the great heterogeneity of blood pressure responses in normotensive adults? In 2008 there have been a number of publications which indicate that a population-wide reduction in salt intakes is not warranted. On the contrary, such a reduction may lead to negative health consequences such as arterial stiffening (2) and increased CVD death rates(3).

1. see Miller JZ, Weinberger MH, Daugherty SA et al. Heterogeneity of blood pressure responses to dietary sodium restriction in normotensive adults. *J Chronic Dis* 1987; 40: 245–250 and Luft FC, McCarron DA. Heterogeneity of hypertension: the diverse role of electrolyte intake. *Annu Rev Med* 1991; 42: 347–355.

2. (Shapiro, Y., Boaz, M., Matas, Z., Fux, A., & M. Shargorodsky, "The association between the renin-angiotensin-aldosterone system and arterial stiffness in young healthy subjects," *Clinical Endocrinology* (OnlineAccepted Articles). doi:10.1111/j.1365-2265.2008.03176.x), metabolic syndrome ([Edna R. Nakandakarea](#), [Ana M. Charfa1](#), [Flávia C. Santosa1](#), [Valéria S. Nunesa](#), [Katia Ortegab](#), [Ana M.P. Lottenberga](#), [Décio Mion Jr.b](#), [Takamitsu Nakanoc](#), [Katsuyuki Nakajimac](#), [Elbio A. D'Amicod](#), [Sergio Catanozia](#), [Marisa Passarella](#), [Eder C.R. Quintãoa](#) Dietary salt restriction increases plasma lipoprotein and inflammatory marker concentrations in hypertensive patients *Athlertscerosis* Volume 200, Issue 2, Pages 410-416 (October 2008))

3. Cohen, et al "Sodium Intake and Mortality Follow-Up in the Third National Health and Nutrition Examination Survey (NHANES III) ," *Journal of General Internal Medicine*, Volume 23, Number 9 / September, 2008 .

* * *

McCain Foods has conducted preliminary research that shows consumers cannot detect a gradual decrease in sodium levels in certain food products. Based on those results, McCain has already decreased the amount of sodium in their retail French fries.

* * *

PepsiCo research indicates that there is no lack of awareness about the impact of sodium in the diet. In fact, 83% of Canadian adults said in 2008, that they are "aware of the news relating to the harmful effects of sodium/salt." This value moved up from 76% in 2007. (1) This high awareness likely stems from the huge increase in media coverage of sodium/salt as seen by a 700% jump between 2006 and 2007 (1,545 articles in 2006 to 11,278 articles in 2007 within printed news).

In terms of being motivated to reduce sodium, 45% of Canadian adults said that they are taking steps to "monitor their sodium/salt intake" which has been consistent for 2 years. (1)

Despite motivation to reduce sodium, Canadians demonstrate a general misunderstanding of the main sources of dietary sodium. The Statistics Canada 2007 Health Report provides the top dietary sources of sodium in the Canadian diet which includes products such as pizza, sandwiches, cereals, poultry and milk. When asked by Synovate what food products have "too much sodium" none of the items mentioned are captured. Conversely, Canadians believe that "too much sodium" is coming from foods like potato chips which Statistics Canada reports as only contributing <1% of the total daily intake of sodium in the diet.(2)

Research conducted through FCPC states that Canadians have a high awareness and usage of the Nutrition Facts Table on packages (73% use NFT), however they have a poor understanding of percent daily values and serving sizes. (3)

1. Synovate Limited — PepsiCo proprietary research —'Health Attitude Monitor", 1081 sample, 2008 & 2007.
2. Statistics Canada — Health Reports, Sodium Consumption at All Ages, 2007.¹⁴
3. Pollara Research Company, Nutrition Labelling Survey for FCPC, 2008.

* * *

When asked by Synovate Limited what food products have "too much sodium" 88% of Canadians said French fries and 85% of Canadians said potato chips. As indicated in the Statistics Canada research, <1% [See Footnote 14] of sodium in the average daily intake comes from potato chips. This indicates that foods that are "topically salted" or have visible salt are perceived as being higher in salt than many foods with hidden salt or with flavours that mask a salty taste. An example of this confusion can be seen by a comparison between Lay's BBQ flavoured potato chips, which contains 270 mg sodium/50 g serving versus a plain white bagel that has relatively little salty taste but contains 379 mg sodium/70 g serving. (1)

1. Plain Bagel value is from Health Canada Nutrient Values of Some Common Foods, 2008. Lay's value is from new formulation- product Nutrition Facts Table, 2008.

¹⁴ Editor's Note: This figure has since been revised by Statistics Canada to be less than 2%.

8. Appendix C: References Provided With Written Submissions

Stakeholders responding to the Sodium Questionnaire provided the following references either as additional reading or in support of the research findings noted in Appendix B.

In addition, one stakeholder specifically recommended World Health Organization publications on the subject of sodium.

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