

Project Sodium

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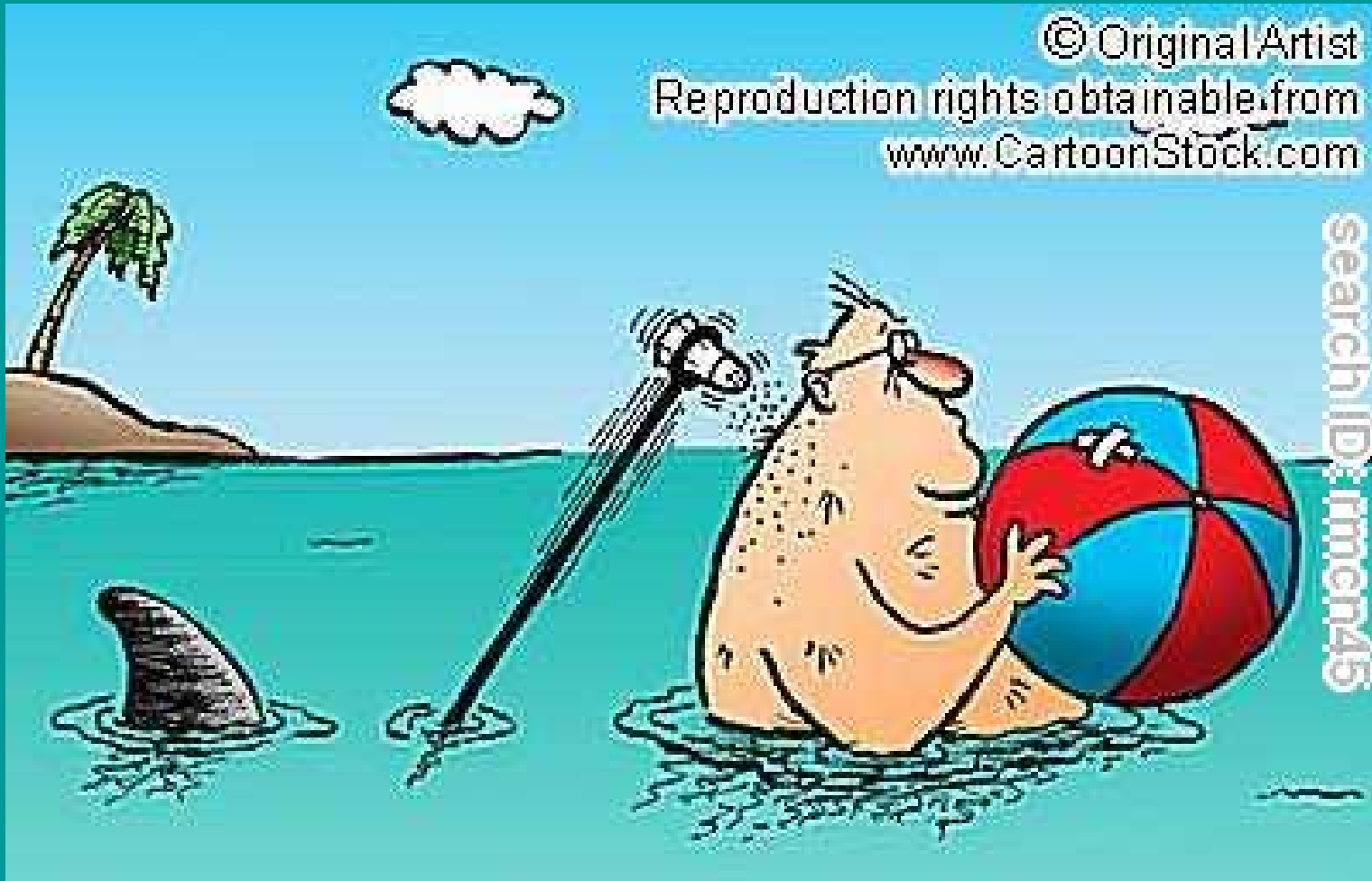


Canadian Foundation for Dietetic Research



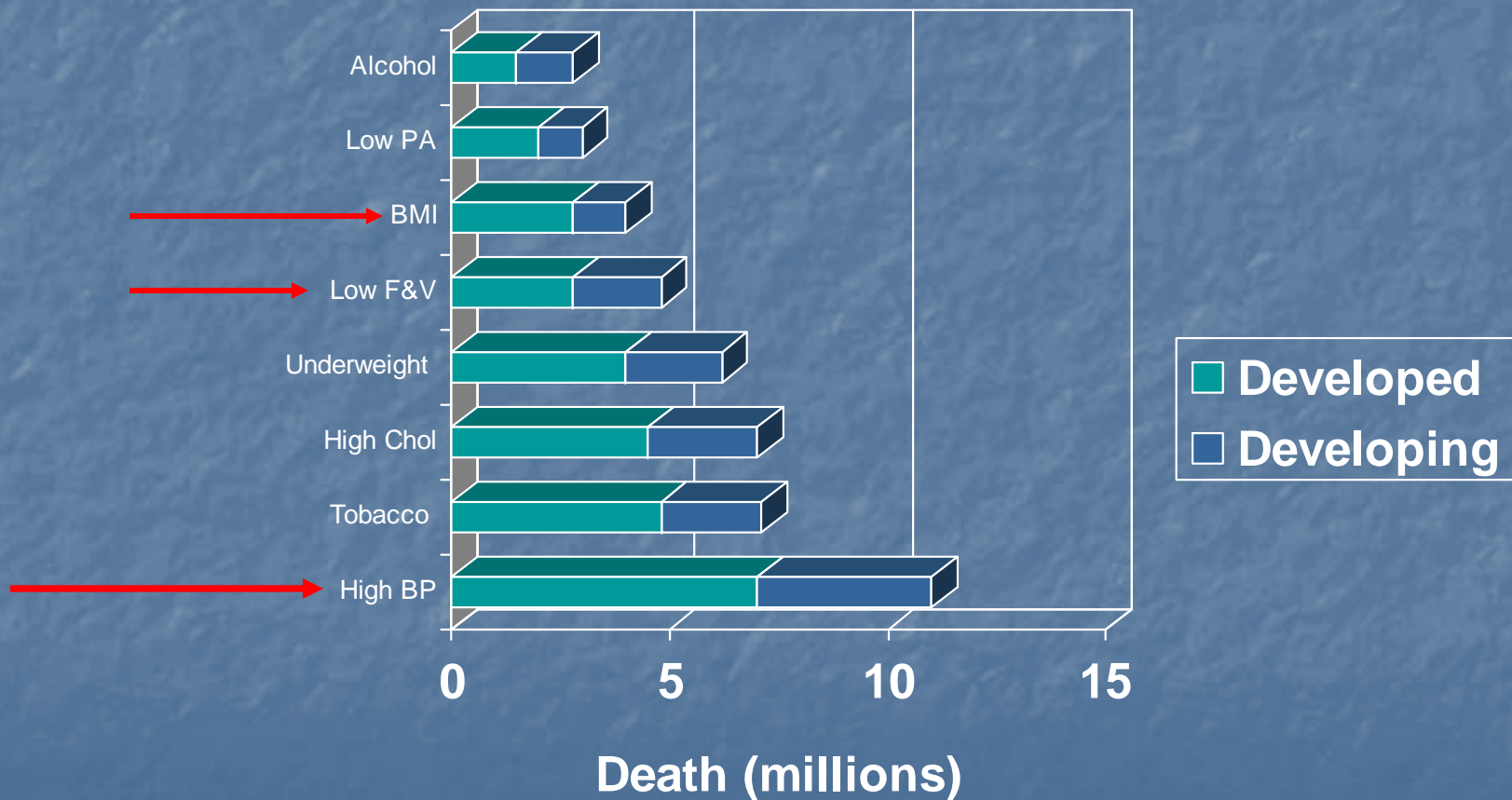
Overview of Presentation

- Impact of sodium on health
- Canadians' sodium consumption
- Educational programs and interventions
- Ecologic view of sodium reduction
- Data collection and survey tools
- Anticipated findings



<http://www.cartoonstock.com/directory/S/Salt.asp>

Burden of disease



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

Does sodium reduction matter to health?



High Blood Pressure and CVD

- 49% of strokes and 62% of heart attacks attributable to high blood pressure in the United States*
- High blood pressure is risk factor for cardiovascular disease

WHO. World Health Organization Report 2002: Reducing Risks, Promoting Healthy Life.*



Health Impact of Sodium

- Increases in dietary sodium increase blood pressure
- About 1 million Canadians have hypertension caused by excess dietary sodium
- A reduction of 1840 mg/day of dietary sodium estimated to prevent 11 500 CVD events per day in Canada
- More than half of Canadians have sodium intakes derived mainly from commercially prepared foods

Source: Penz, Joffres and Campbell. The Canadian Journal of Cardiology (2008), 24(8): 647.



Reducing Sodium Intake Matters

50% reduction in salt (sodium) may:

- Reduce mean systolic BP by 5 mm Hg
- Reduce hypertension prevalence by 20%
- Reduce from coronary heart disease by 9%
- Reduce mortality from all causes by 7%
- Save 150 000 lives annually

Source: Havas et al. Am J Public Health (2004) 94:19-22.

Sodium Imperative

The lower your blood pressure, the lower your risk of heart and disease and stroke...

“EVEN IF YOU DO NOT HAVE HYPERTENSION”

- Dr. Lawrence Appel, Harvard University



Forms of Sodium



- 90% of sodium is consumed as sodium chloride (salt)
- Other forms:
 - Sodium bicarbonate
 - Sodium in processed foods (e.g., sodium benzoate, sodium phosphate)

Sodium Reduction Recommendations

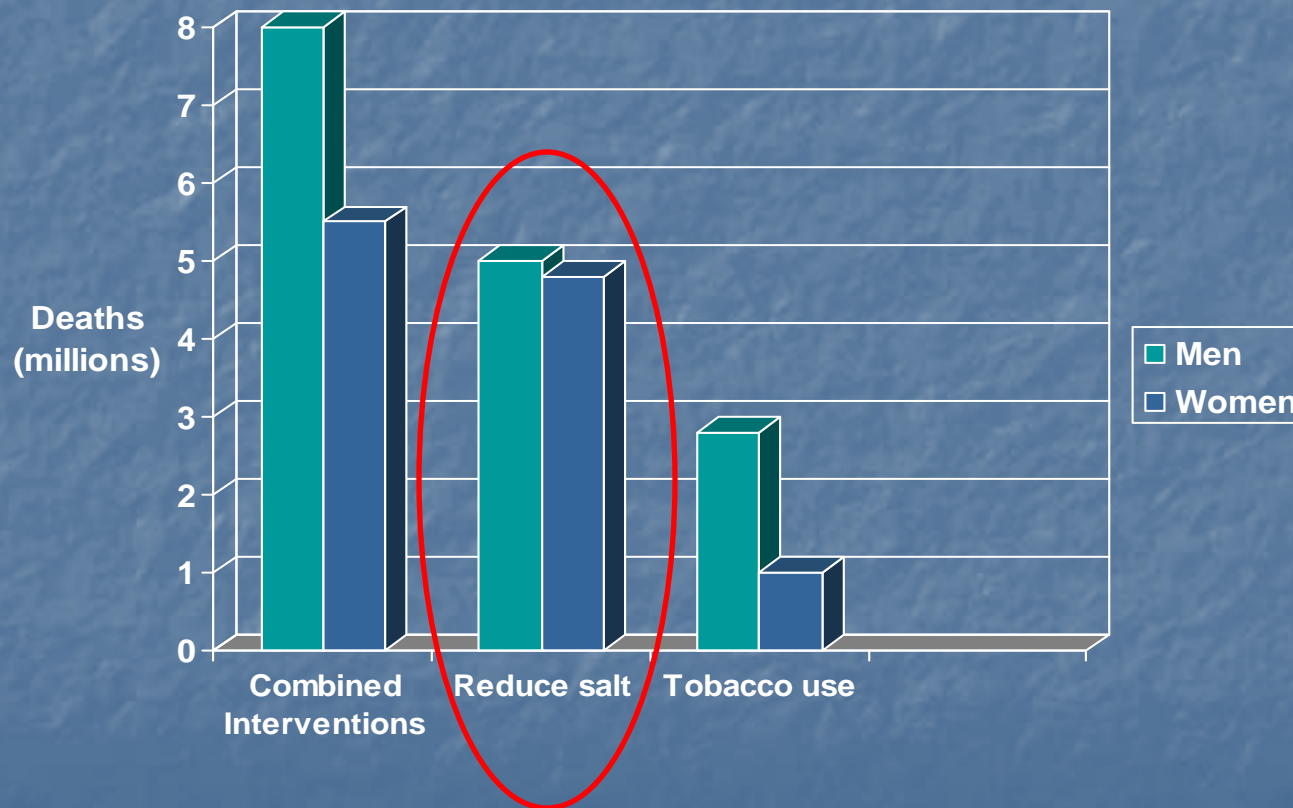


Blood Pressure Canada recommends reducing adult Canadians' sodium intake to between 1200 and 2300 mg (1/2 tsp to 1 tsp) per day by 2020

Blood Pressure Canada Policy Statement. (2008).



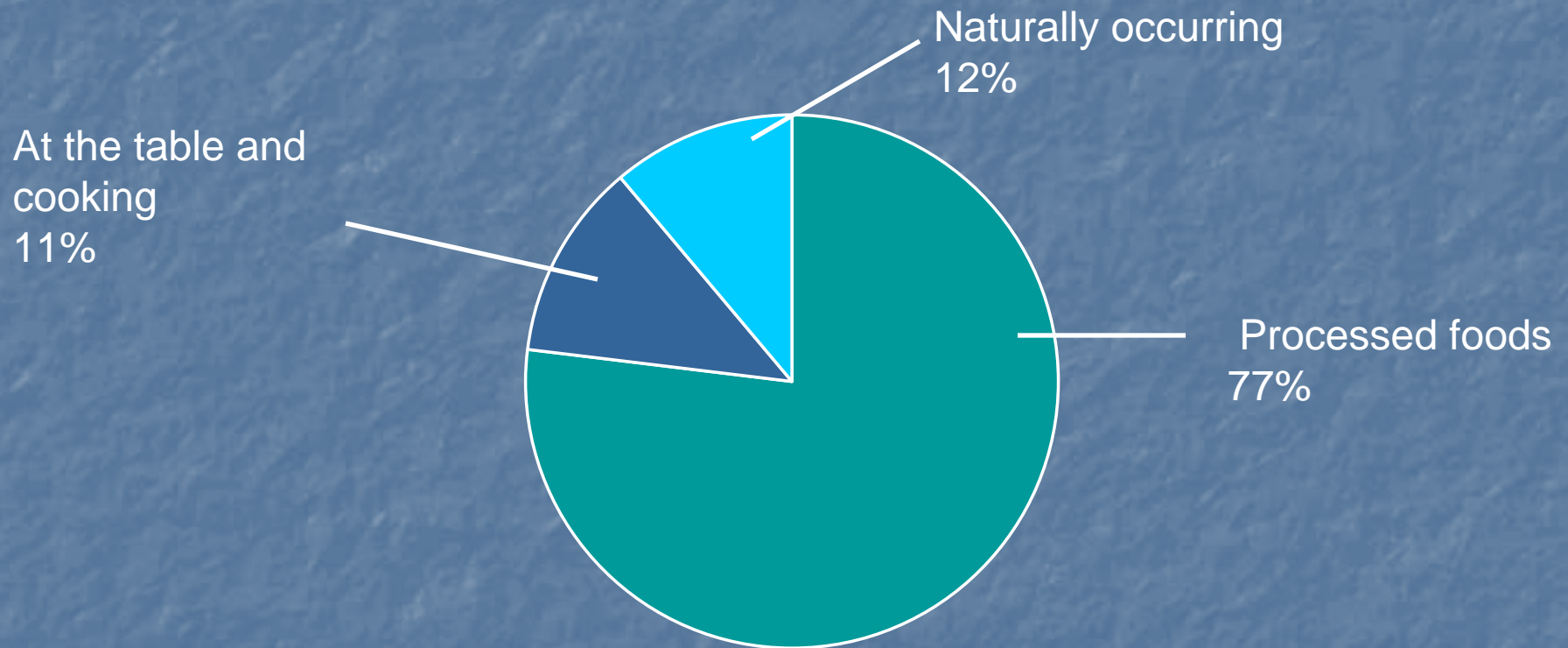
Estimated impact of salt interventions to reduce mortality



Source: Asaria et al. The Lancet (2007). 370;2044-53.

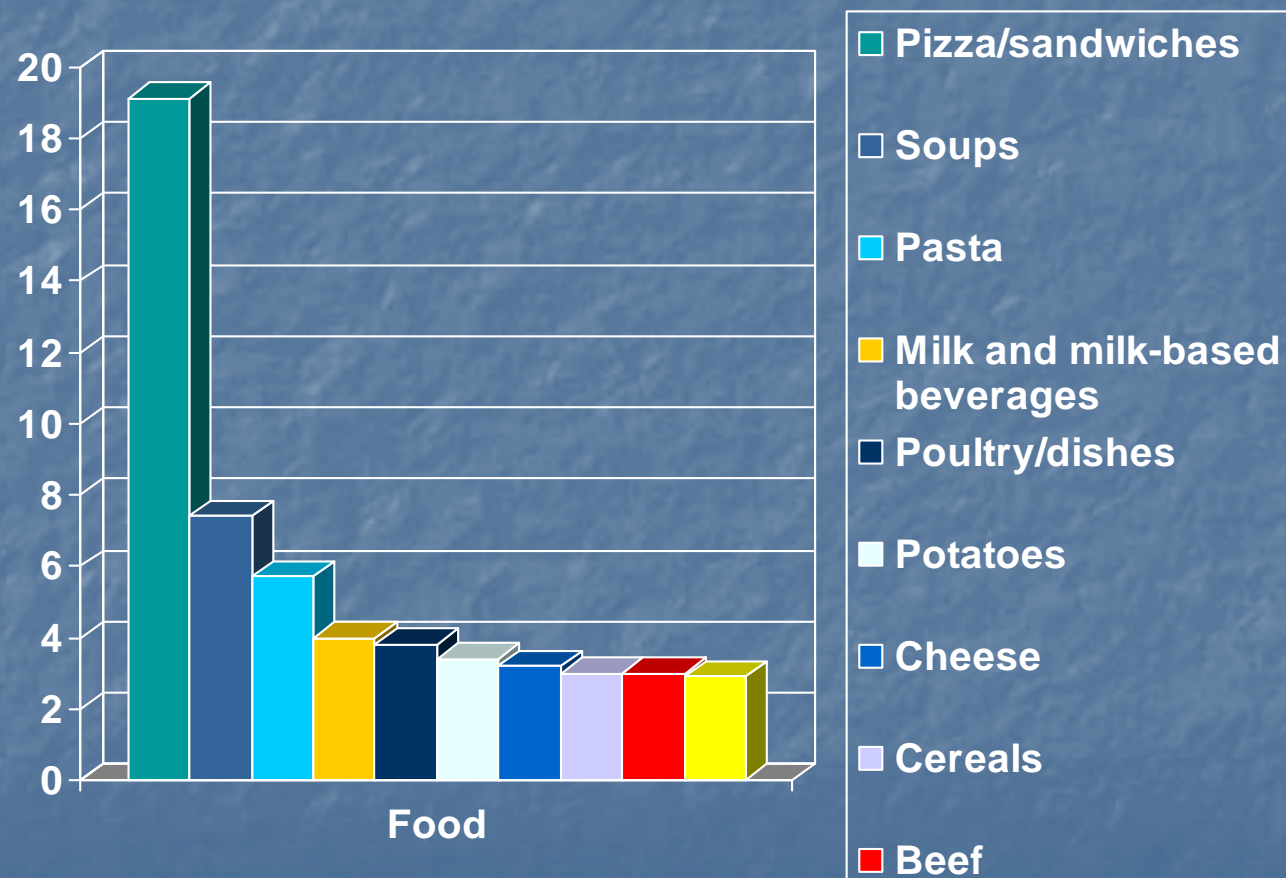


Sources of Sodium in North American Diet



Source: Mattes and Donnelly, 1991

Top 10 Sources of Sodium in Canadian Diet



Source: Statistics Canada, 2007

Sodium Requirements

Age (years)	AI (mg/d)/ Canadians' intake	UL (mg/d)
1 - 3	1000 (1903)	1500
4 - 8	1200 (2677)	1900
9 - 13	1500 (2962-3555)	2200
14 - 18	1500 (2743-4083)	2300
19 - 50	1500 (2778-3634)	2300
51 - 70	1300 (2587-3345)	2300
Over 70	1200 (2294-2874)	2300

Canadians consume far more salt than is necessary

- Sodium content of diet surpassed upper limits
- Men aged 14-30 consumed (>4100 mg/d) more than women (2900 mg/d)
- Higher sodium consumers more likely to add salt to food very often

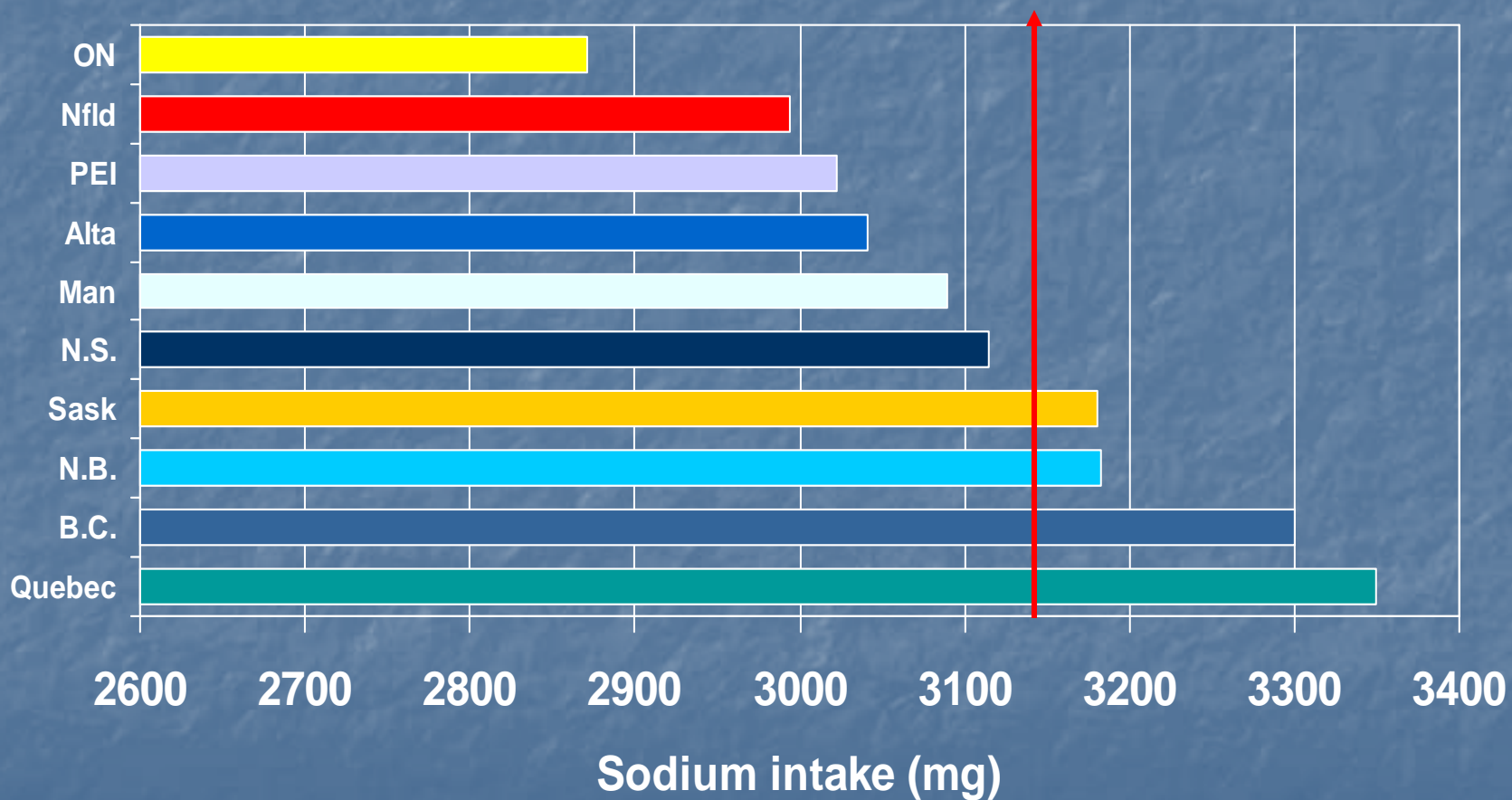
Source: <http://www.statcan.gc.ca/daily-quotidien/070410/dq070410a-eng.htm>



Sodium Intake of Canadians

- Average sodium consumption is ~3100 mg
- 7.9 grams of salt
- Does not include salt added during cooking (accounts for + 10-15% of sodium)
- Over 90% of men and 66% of women (19-70) sodium intake >UL (CCHS 2.2)

Average Sodium Consumption by Province



Does awareness of blood pressure influence sodium intake?



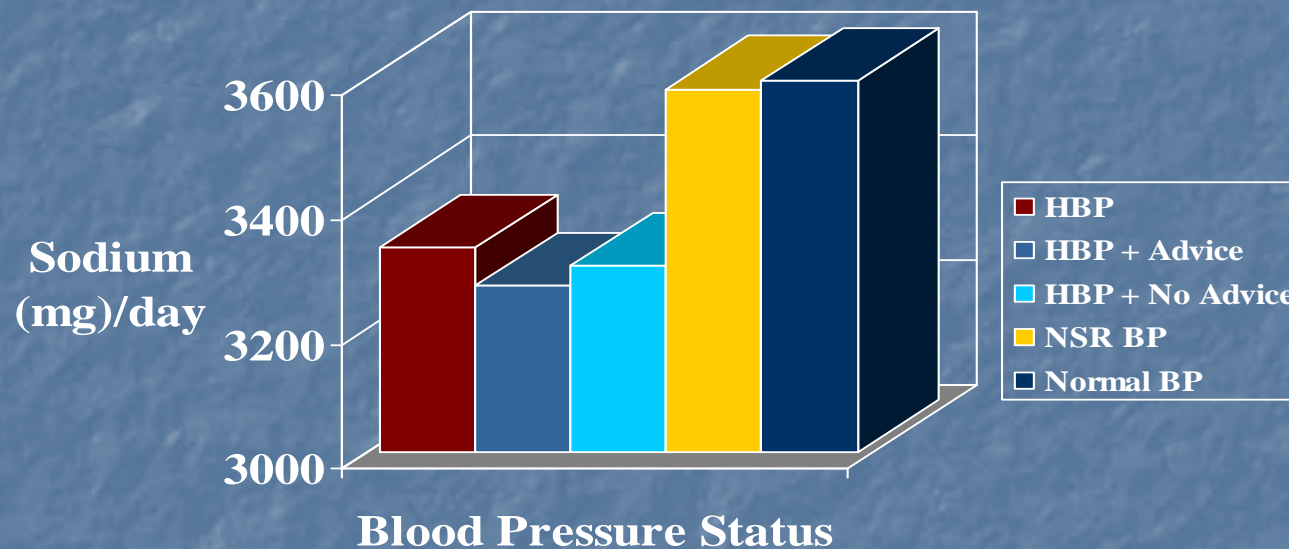
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" I TAKE EVERYTHING HE SAYS
WITH A PINCH OF SALT. "

search ID: gth0411

Sodium Intake (mg) among participants with Normal and High Blood Pressure, NHANES 1999-2000



Source: Ajani et al. Sodium intake among people with normal and high blood pressure. Am J Prev Med 2005;29 (5S1)

Main Findings

- High % received advice from healthcare providers to reduce sodium intake
- Ineffective clinician advice not associated with lower sodium intake
- Effectiveness of counselling varies according to approach, intensity, use of guidelines, and tools and referrals

Challenges for sodium reduction

- Nutrition labelling
 - Format and message
 - Front and back of the package labelling
 - Health claims
- Mandatory or optional sodium reduction policy
- Taste and functionality of sodium
 - Recalibrate the palate to lower sodium
 - Product reformulation
 - Public perceptions

Expectations of the Nutrition Label

Nutrition Facts / Valeur nutritive				
	Per 1 tbsp. (15 mL) par 1 c. à soupe (15 mL)		Per 1/2 cup (125 mL) par 1/2 tasse (125 mL)	
	Amount Teneur	% DV* % VQ*	Amount Teneur	% DV* % VQ*
Calories / Calories	15		120	
Fat / Lipides	0 g	0 %	2.5 g	4 %
Saturated / saturés	0 g	0 %	1.5 g	8 %
+ Trans / trans	0 g		1.5 g	
Cholesterol / Cholestérol	0 mg		10 mg	
Sodium / Sodium	20 mg	11 %	150 mg	6 %
Carbohydrate / Glucides	2 g	1 %	15 g	5 %
Fibre / Fibres	0 g	0 %	0 g	0 %
Sugars / Sucres	2 g		15 g	
Protein / Protéines	1 g		10 g	
Vitamin A / Vitamine A		2 %		10 %
Vitamin C / Vitamine C		4 %		35 %
Calcium / Calcium		4 %		35 %
Iron / Fer		0 %		2 %

* DV = Daily Value / VQ = valeur quotidienne

- Provide consumer credible nutrition information
- Distinctive, easy to read format
- Expected to help consumer choose more nutritious, healthier option.

Common tasks when using nutrition labelling

- Identify amount of a specific nutrient
- Assess what counts as a low or high amount of the nutrient
- Decide the overall healthiness of a product
- Compare a specific nutrient content (or the overall nutrient content)
- Calculate the amount of a nutrient in a serving
- Assess the product in the context of a meal choice or daily intake

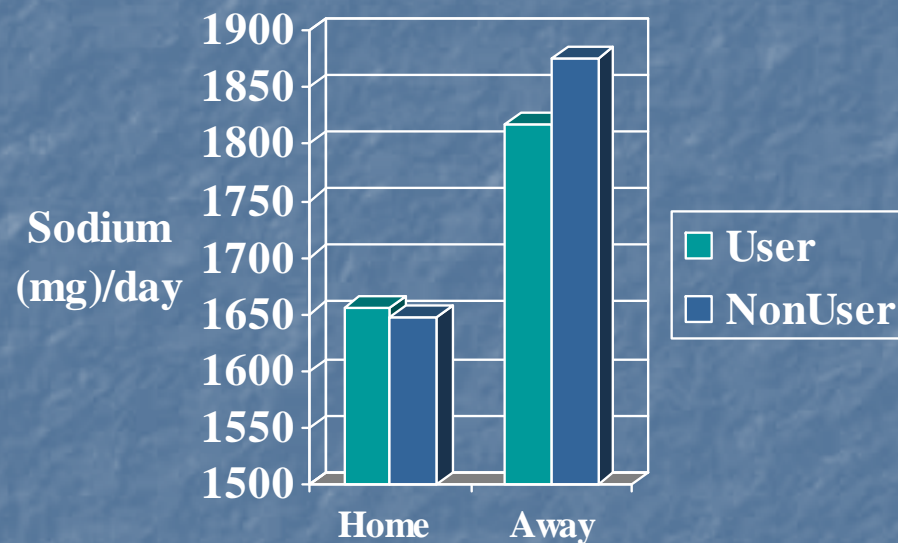
Nutrition labelling and salt/sodium

- Nutrition labelling confusing, especially some technical terms and information
- Understood terms 'fat', 'calories/kilocalories', 'sugar', 'vitamins' and 'salt'
- Least well understood were relationship between sodium and salt; calories and energy; sugar and carbohydrate; and terms cholesterol and fatty acids.
- Difficulty understanding the role of different nutrients
- Difficulty converting from g per 100 g to g per serving and serving size information
- Percentage of energy was not well understood

Does reading nutrition labels affect dietary sodium intake?



Sodium Intakes of Label Users vs. Non Label Users



Continuing Survey of Food Intakes (CSFII) and Diet and Health Knowledge Survey (DHKS)

Source: Variyam J. Do nutrition labels improve dietary outcomes. Health Economics, 2008; 17: 695-708.

Nutrition Information About Sodium

- Study examined whether adults (n=226) able to interpret nutritional information regarding salt on packaging
- Estimated salt content of food product



Source: Gibney A, Fifield S. Nutritional information about sodium: Is it worth the salt?
The New Zealand Medical Journal 2006; 119:1232.

Interpretation of nutrition information



- 67% cared about amount of salt in their diet
- Only 10% aware of recommended daily maximum consumption of salt
- 58% believed salt and sodium are interchangeable terms
- Over 98% unable to identify amount of salt present

Policy on sodium reduction

UK Government

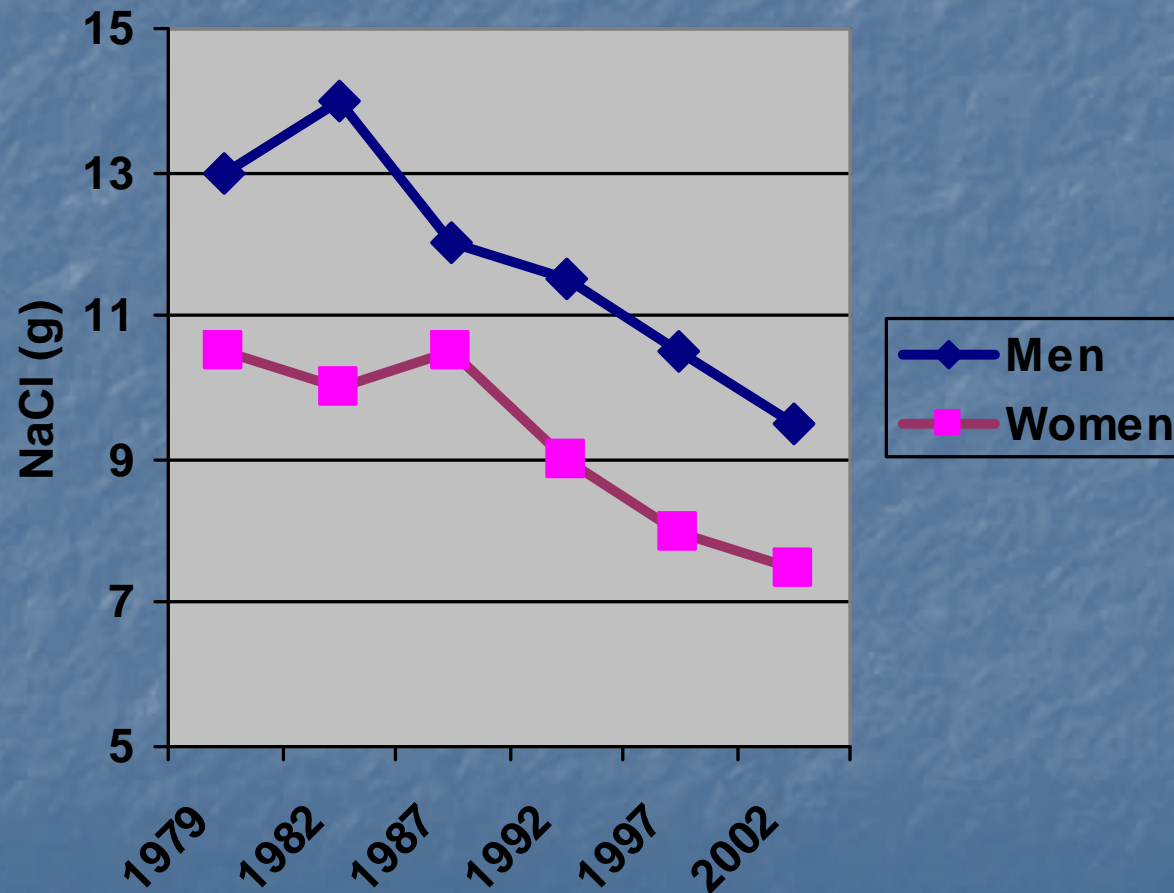
- FSA Strategic Plan
 - Reduce salt intake to 6g/day
 - Set targets for levels of salt in food
- Government commitment
 - Reduce levels of salt in processed foods

www.food.gov.uk

Hypertension Management and Awareness

- Since 1994, mean SBP decrease by 1.6 and 4.3 mmHg in males and females
- Rates of awareness and treatment increased and control rates (<140 mmHg SBP and <90 mmHg) among hypertensive's doubled to 21.5 and 22.8%

Decrease in salt intake of Finnish men and women



Source: Laatikainen et al. European J Clinical Nutrition 2006; 60:965-970.

Summary

- Multifaceted comprehensive intervention approach appears most effective
- Increase awareness of blood pressure status is associated with lower sodium intake
- Few consumers use and understand nutrition labels related to salt and sodium
- More research is needed to elucidate consumer understanding and use of nutrition labelling, particularly regarding sodium

Ecologic view of perceptions and motivations to sodium reduction: State of the knowledge



Investigators and Collaborators

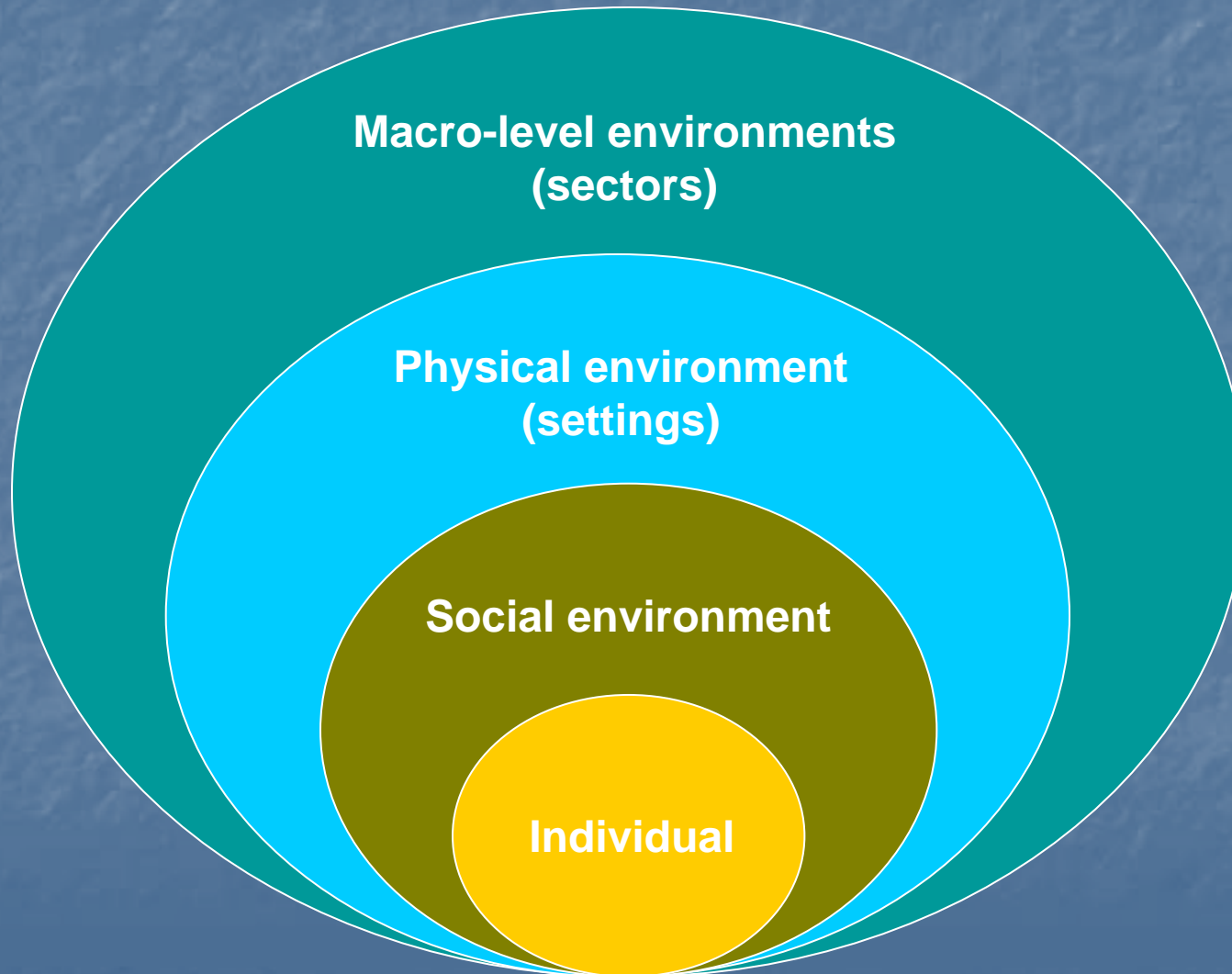
- Anna Farmer, PhD, MPH, RD
- Diana Mager, PhD, RD
- Francy Pilo-Blocka, CEO, CCFN
- Alberta Health Services (Edmonton and Calgary)



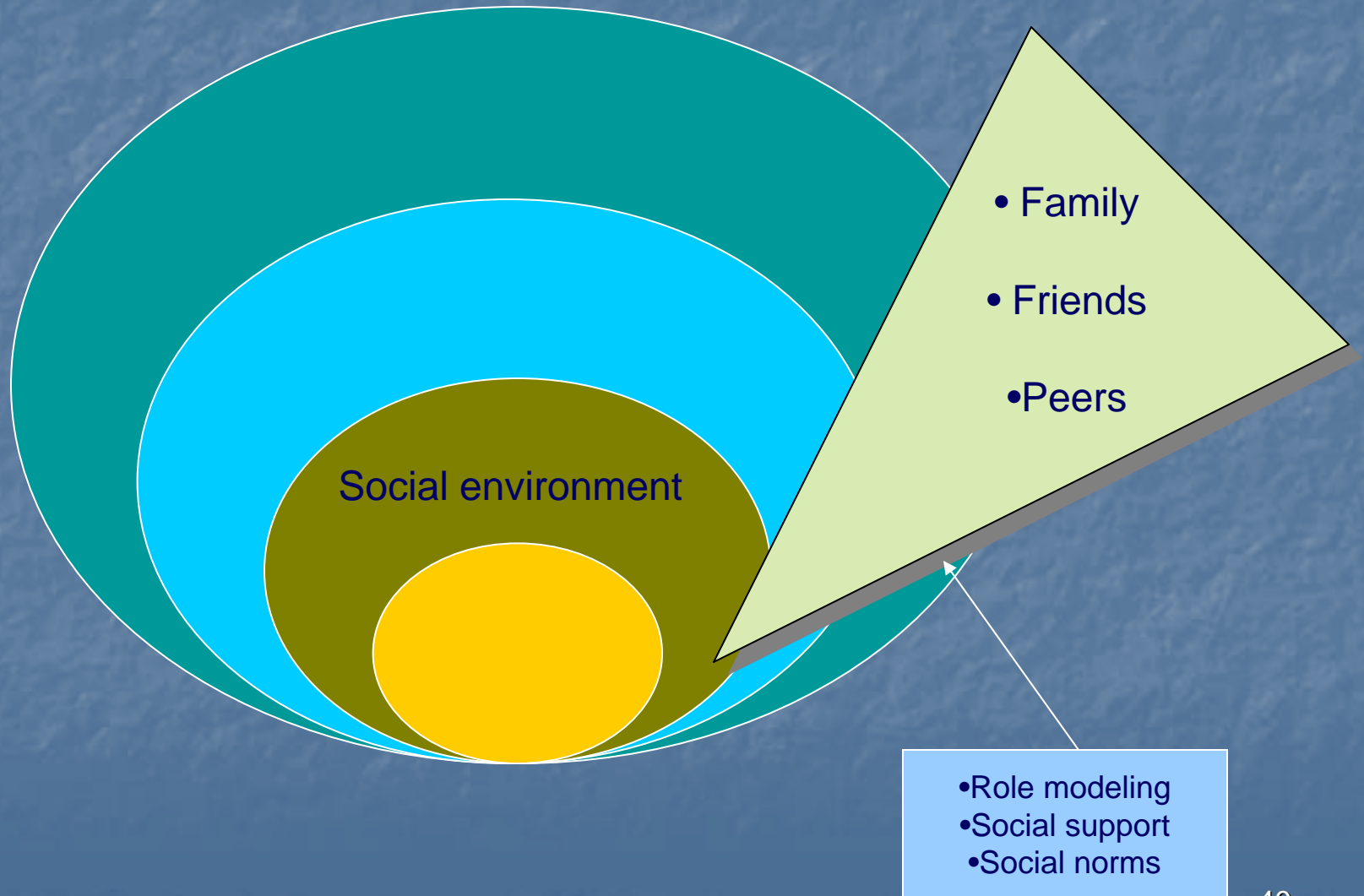
Purpose

To provide an understanding of perceptions and motivations to reduce dietary sodium across different contexts through an ecological lens

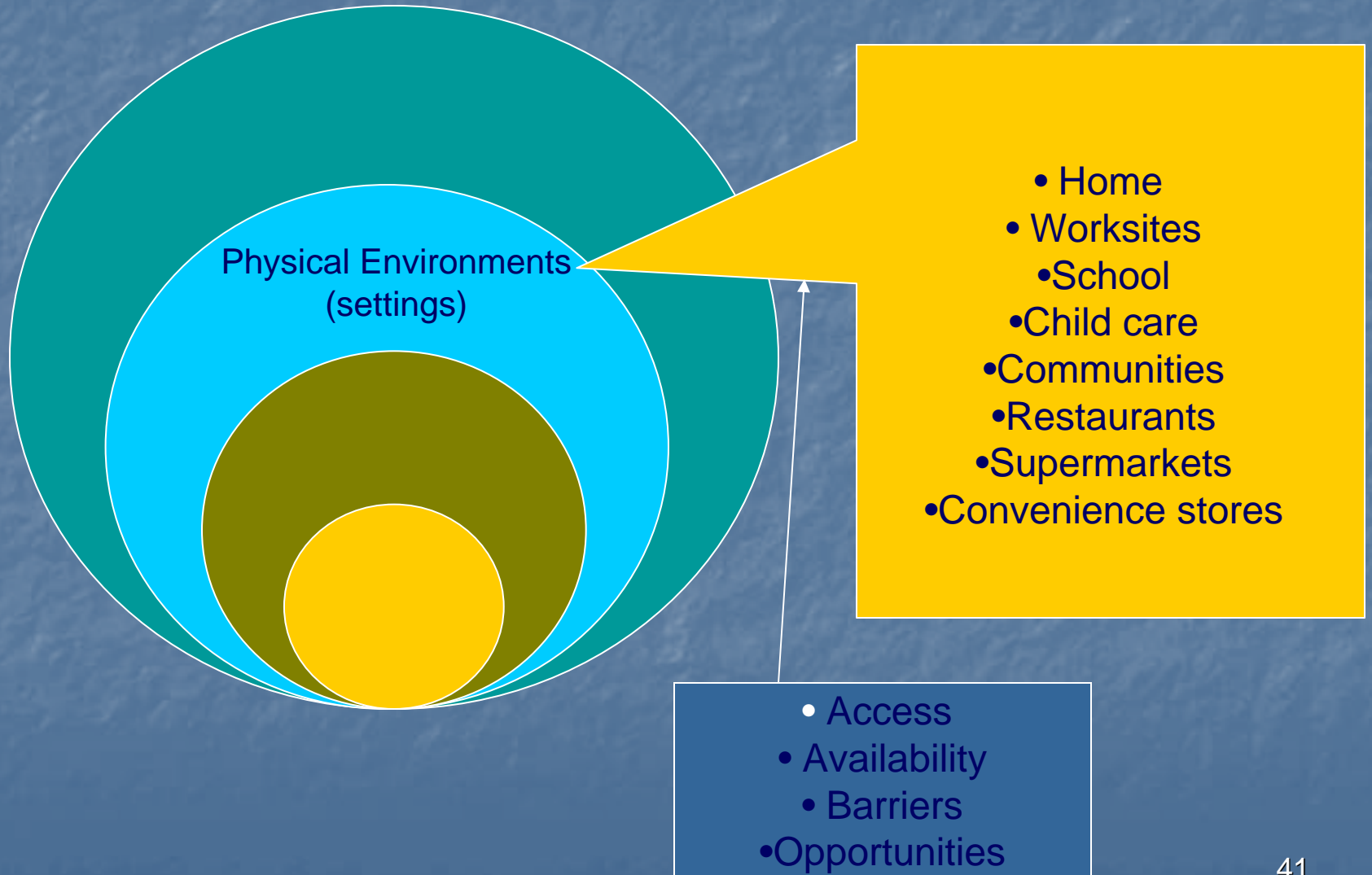
Ecological View of Influences



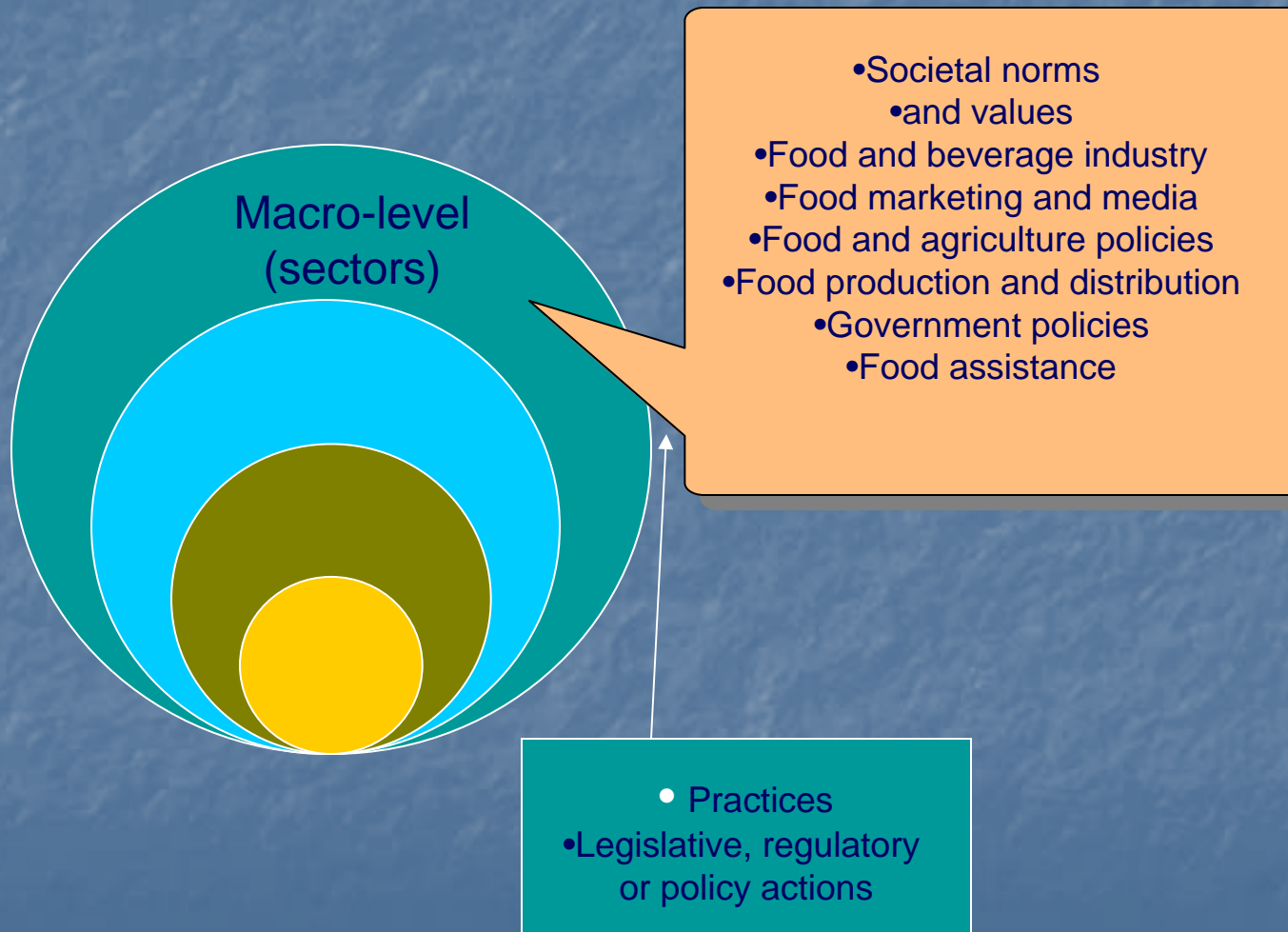
Influences on Social Environment



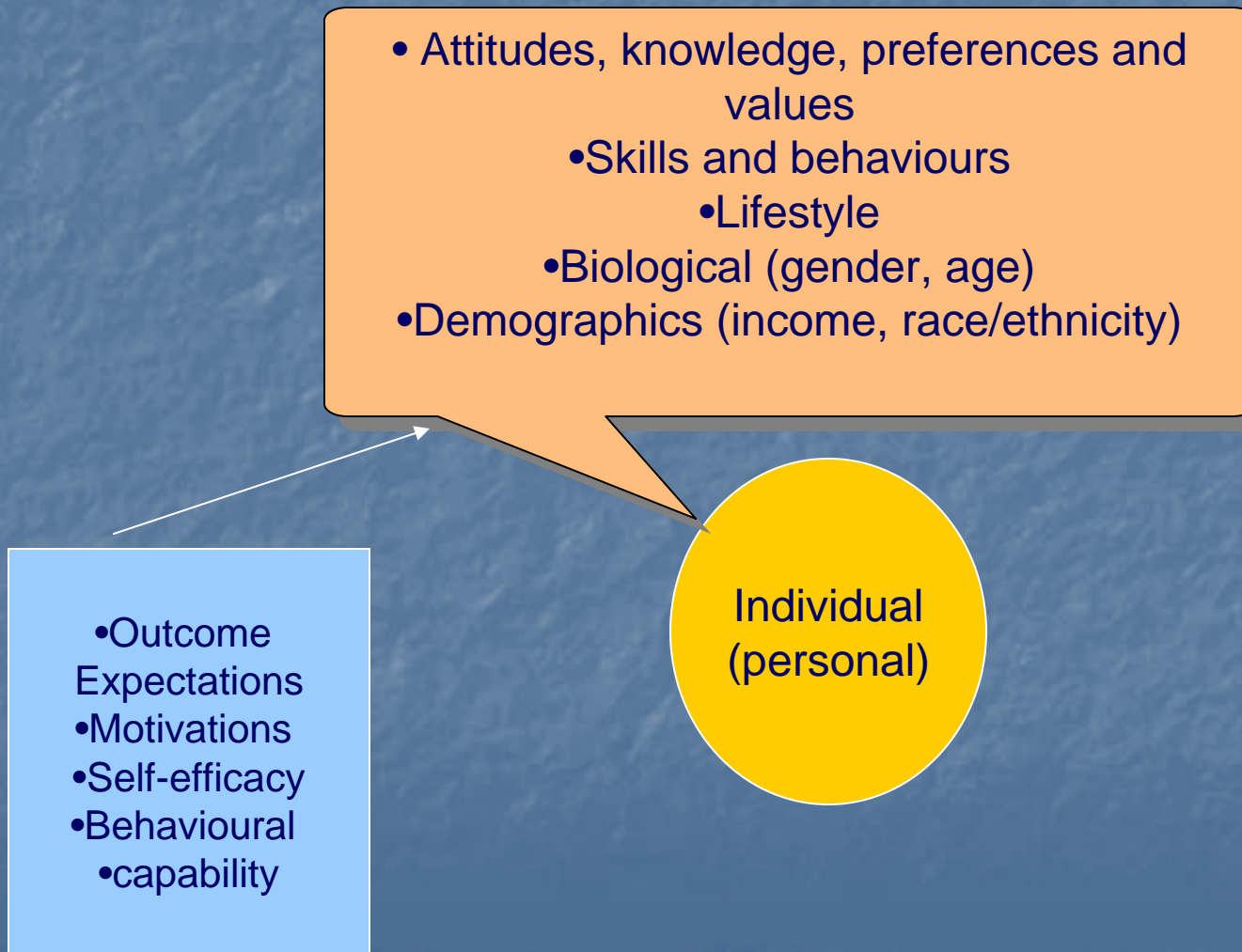
Physical Environments



Macro-Level Influence



Influences on Individual Behaviour



Study Design

- Comprehensive literature review
- Quantitative
 - TNS Canadian Facts
 - Link with Tracking Nutrition Trends at the Canadian Council on Food and Nutrition
- Qualitative
 - Key informant interviews
 - Focus groups

Participants

- Consumers – focus on families
- Health care practitioners
 - Community Dietitians
 - Nurses
 - Physicians
- Food producers and researchers
- Policy makers

Recruitment

- Families through Alberta Health Services –
Edmonton and Calgary
 - Community Health Centres
 - Primary Care Division
 - Nutrition Services
- Stakeholders in Alberta Food Industry
 - Alberta Agriculture
 - Health and Food Program

Web-based Survey

- Cross-country survey
- Expand on TNT survey
- Attitudes, knowledge, beliefs and behaviour related to sodium
- 10 minutes to complete
 - 1500 participants in TNT 2008
 - Survey launched April 30th
 - 642 responded by May 4th
 - Hoping for ~900 by May 7th

Qualitative Data

- Focus groups with families
- 10 focus groups (Calgary and Edmonton)
 - 6 – 8 per group
 - Semi-structured interviews
 - Attitudes, knowledge and beliefs
 - Themes: perceptions of health, nutrition facts panel, familiarity with EWCFG, food choice, barriers and facilitators to reducing sodium

Health Care Practitioners

- Focus groups with RDs, PHNs, MDs
- Attitudes, skills, knowledge, and self-efficacy
- Themes: perceptions and motivation in delivery nutrition interventions to sodium reduction, barriers to adoption and adherence to reduced sodium in delivery of care

Stakeholders in Agriculture and Food and Health Sectors

- Semi-structured interviews to determine issues facing different sectors
- Themes: impact of mandatory and optional sodium policy, supply and demand of lower sodium foods, interest and feasibility of producing lower sodium foods, readiness to change, capacity to regulatory mandates



Timeline

- Three phases: 18 – 22 months
 - Phase I: comprehensive review and development of tools
 - Phase II: Recruitment and interviews
 - Phase III: Data analysis and report writing

PR Activities

- Radio interviews
- Globe and Mail
- News releases
- Chancellor's Cup – Sodium Shocker Casino

Value Added

- Add to gaps in the literature for understanding the linkages, the relationships among different factors that may influence perceptions and motivations regarding sodium intake.
- Aid to inform and shape various strategies aimed at reducing sodium intakes of Canadians, dietary guidance messages and product communications

Linkages

- Sodium Working Group – Health Canada
- Research Group at Blood Pressure Canada
- Co-investigator Champlain Group – Mass Media Campaign to examine knowledge pre- and post-media campaign

Thank You

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