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Chronic Diseases in High Risk Populations

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Overview

- Burden of chronic disease in Canada
- Obesity (and overweight) as a high risk population
- Diabetes – a key chronic disease in this high risk group
- Excess food intake as a major driver of obesity
- Changing the diets of Canadians – opportunities for the Agri-Food sector

The Cost of Chronic Diseases

- The vast majority of disability and premature death in Canada result from chronic diseases (231,000 total deaths in 2005; 207,000 related to chronic diseases; WHO, 2005)
- *The total cost of illness, disability and death in Canada due to chronic diseases is significant with cardiovascular diseases and cancer alone accounting for over \$32 billion annually (EBIC, 1998)*

Current Public Health Challenge

- Unhealthy diets, physical inactivity and smoking are confirmed risk behaviours for chronic diseases. It has been estimated that improved lifestyles can:
 - Reduce the risk of progression to diabetes by 58% over 4 years
 - Up to 80% of coronary heart disease cases could be avoided
 - Up to 90% of cases of type II diabetes could be avoided
- More than 40% of some of the most common cancers could be prevented by lifestyle changes, such as junk food habits, drinking and lack of exercise.
- **Obesity** is a key determinant of or exacerbates the management of **most major** chronic diseases, such as: cardiovascular disease; diabetes; various cancers; stroke; osteoarthritis

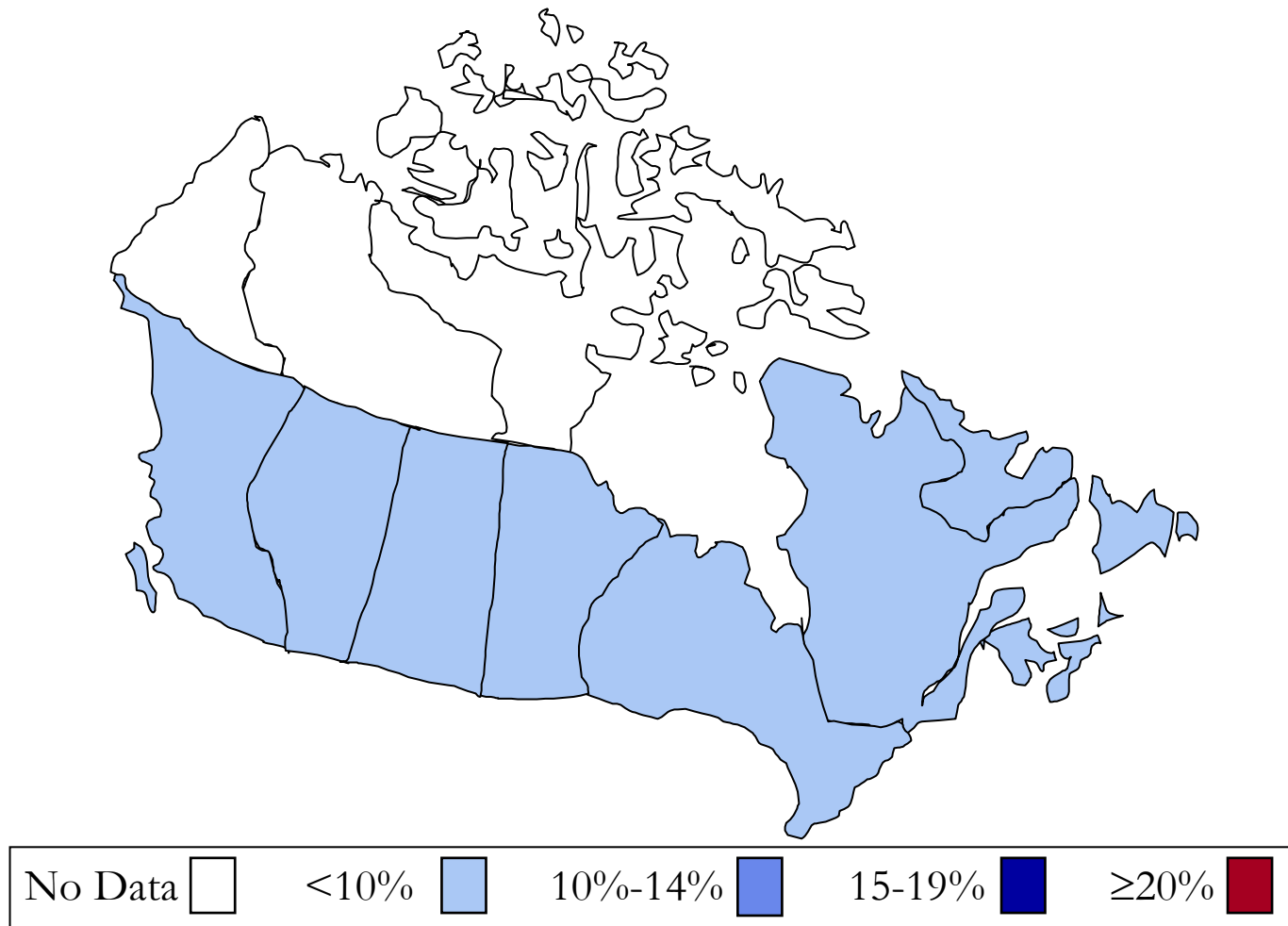
Major Chronic Diseases Associated With Overweight and Obesity

Chronic Diseases	RR for obesity	RR for overweight
Cardiovascular Disease (CVD)	2.24	1.21
Type II Diabetes Mellitus	3.73	1.27
Colon Cancer	1.45	1.20
Postmenopausal Breast Cancer	1.47	1.33
Endometrial Cancer	2.52	1.59
Osteoarthritis	1.99	1.35
Gall Bladder Disease	3.33	1.50

Source: Katzmarzyk PT, Janssen I. The economic costs associated with physical inactivity and obesity in Canada: an update. *Can J Appl Physiol* 2004;29(1):90-115.
RR = relative risk; reference of RR for overweight is not listed.

Obesity Trends* Among Canadian Adults

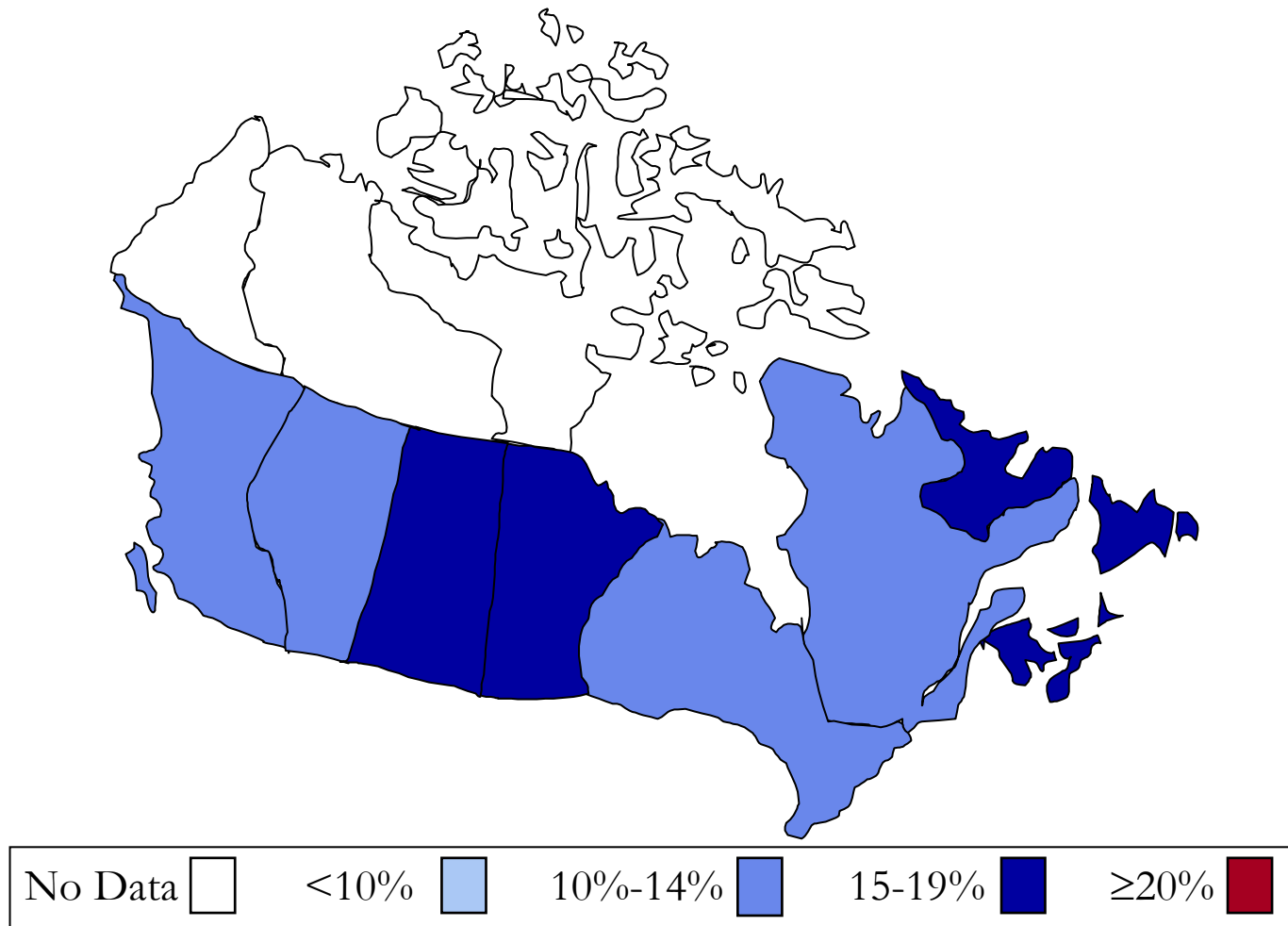
HPS, 1985



Source: Katzmarzyk PT. *Can Med Assoc J* 2002;166:1039-1040.

Obesity Trends* Among Canadian Adults

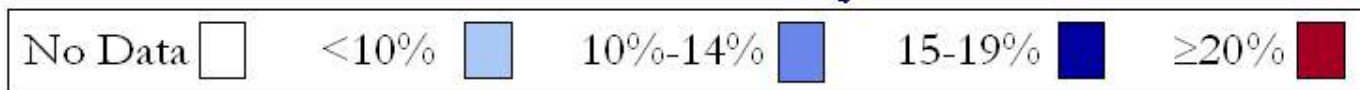
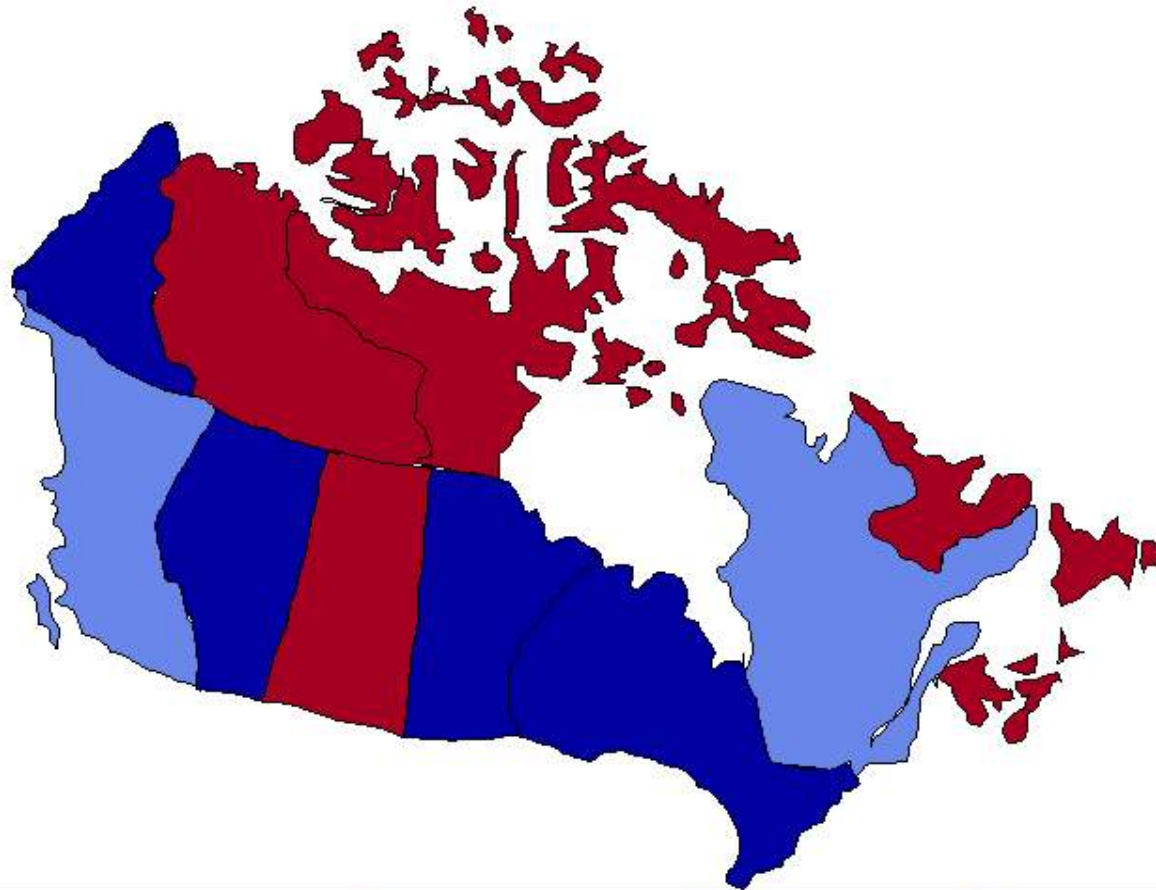
NPHS, 1994



Source: Katzmarzyk PT. *Can Med Assoc J* 2002;166:1039-1040.

Obesity Trends* Among Canadian Adults

CCHS, 2005



Source: Public Health Agency of Canada, 2006 using unpublished data.

Obesity in Canada

Those overweight or obese have become a main stream high risk population

- In 2004, 36% of Canadian adults were overweight, and 23% obese (measured)
- Most current estimates – 36% overweight and 24% obese (Canadian Health Measures Survey 2007-2009; measured)

Prevalence among traditional high risk population, even higher

- In 2004, among off reserve aboriginals 30% were overweight and 38% obese (measured)
- 2002-2003, among First Nations people living on-reserve approximately 36% were overweight and 32% were obese (self-reported)

Diabetes is Increasing in Canada A Consequence of Rising Obesity

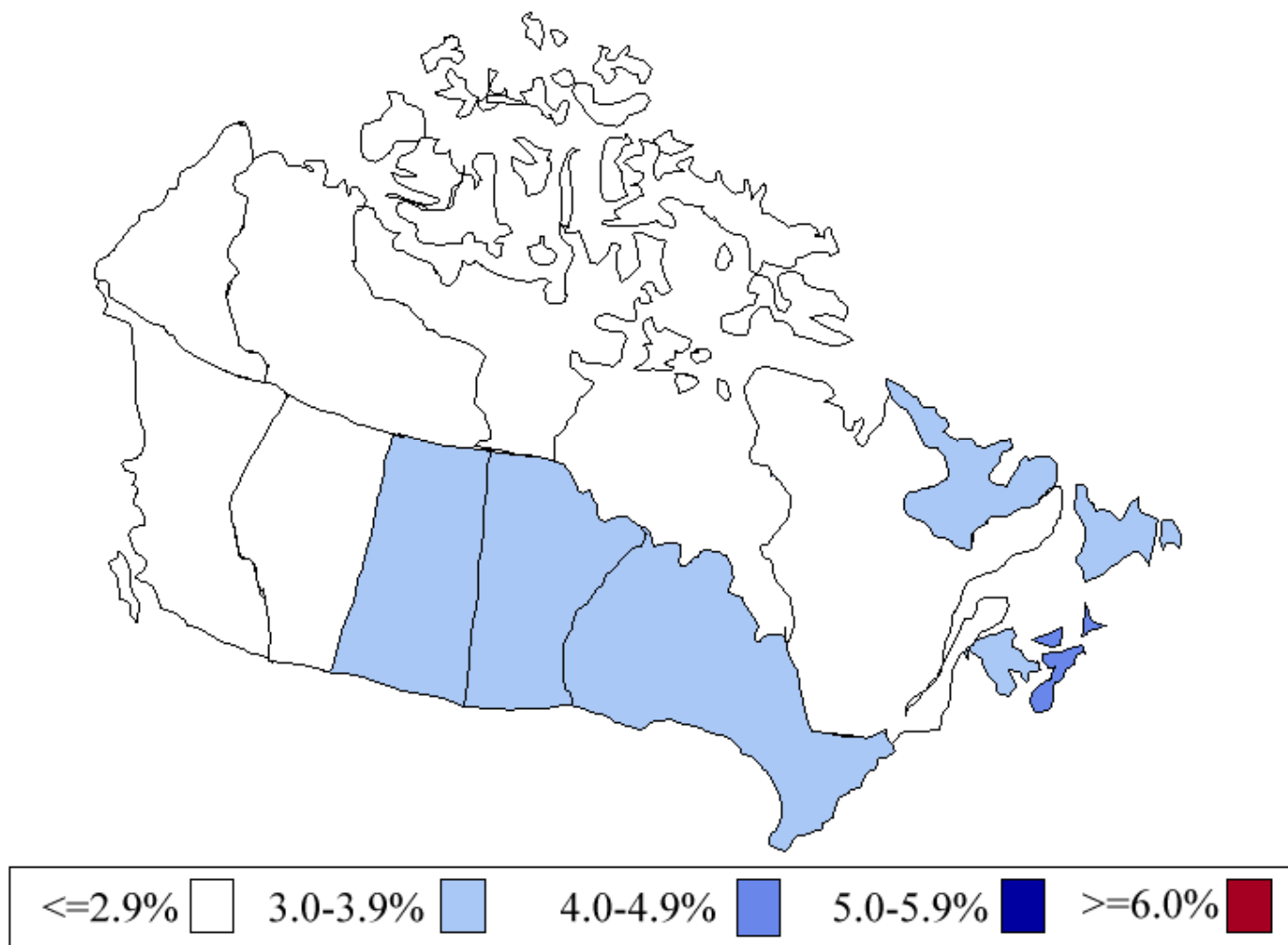
- Diabetes is a metabolic disorder characterized by defective insulin secretion, action, or both
- An estimated 2.8 million Canadians currently live with diabetes
- Rates are highest in First Nations populations
 - 3.8 times higher than Canadian average

Type II diabetes risk is driven by obesity/overweight

Diabetes Trends* Among Canadian Adults

NPHS, 1994

(*Self Reported, 12 years of age and older)

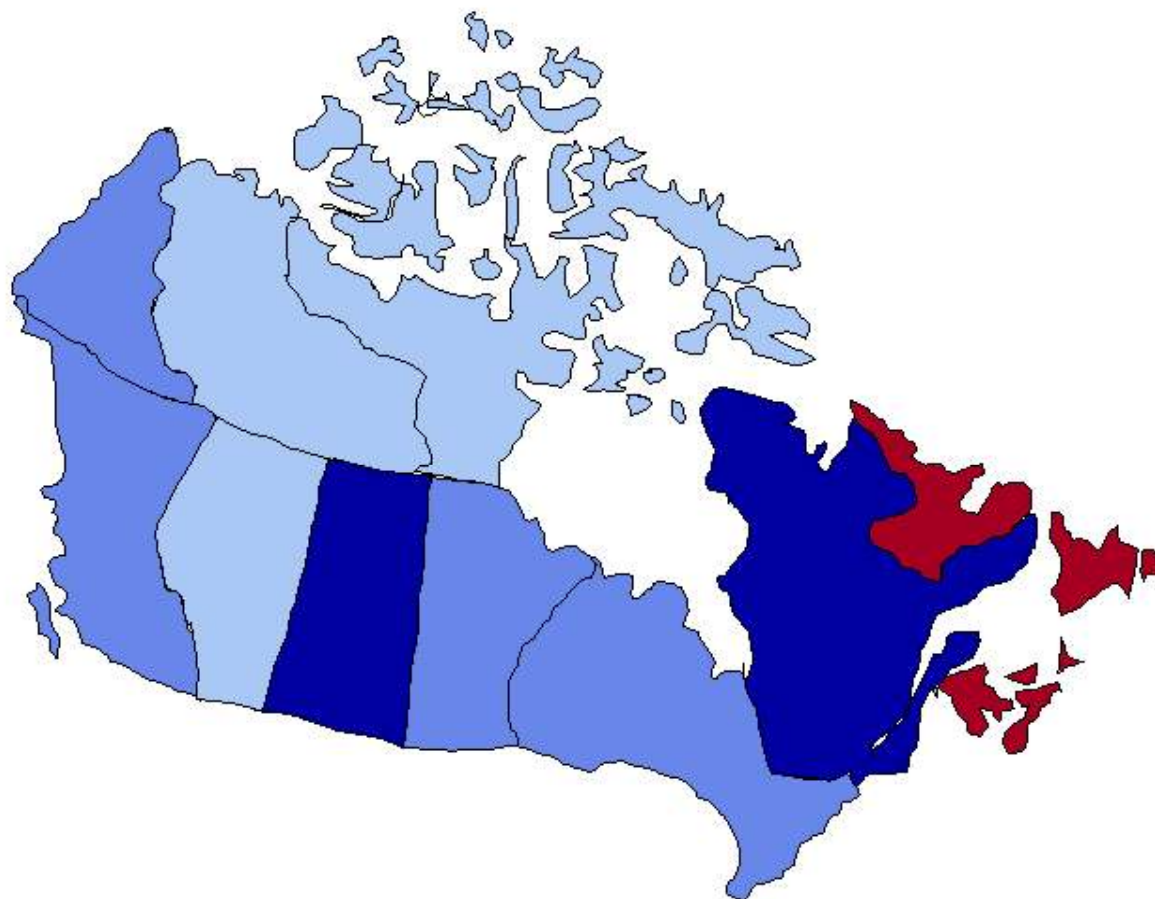


Source: Public Health Agency of Canada, 2006 using Statistics Canada, National Population Health Survey data.
Note: Northern Territory data not available.

Diabetes Trends* Among Canadian Adults

CCHS 2005

(*Self Reported, 12 years of age and older)



Source: Public Health Agency of Canada, 2006 using Statistics Canada, Canadian Community Health Survey data.

Consequences of Diabetes

- Approximately 80% of people with diabetes will die as a result of heart disease or stroke
- Diabetes is a contributing factor in the deaths of approximately 41,500 Canadians each year
- Canadian adults with diabetes are twice as likely to die prematurely, compared to people without diabetes
- Life expectancy for people with type 2 diabetes may be shortened by 5 to 10 years.
- People with diabetes incur medical costs that are two to three times higher than those without diabetes. A person with diabetes can face direct costs for medication and supplies ranging from \$1,000 to \$15,000 a year.

Consequences of Diabetes

- Complications of Diabetes:
 - Heart disease and stroke
 - Blindness
 - Kidney disease
 - Nervous system disease
 - Amputations
 - Dental disease
 - Pregnancy complications
 - Higher risk of death from illnesses, such as pneumonia or influenza

Public Health Challenge

- Helping Canadians make and sustain food choices that will reduce obesity rates and related chronic diseases
- *Food matters*
 - Consuming too much
 - Not enough access to and consumption of healthy foods (vegetables, fruits, whole grains)

More Is Not Necessarily Better



More Is Not Necessarily Better

20 Years Ago



320 calories

TURKEY SANDWICH

Today



820 calories



**390 calories
(1½ cups)**

**CHICKEN CAESAR
SALAD**



**790 calories
(3½ cups)**

From: National heart, Lung and Blood Institute, Obesity Education Initiative (2007).
Portion Distortion: Do you Know How Food Portions Have Changed in 20 Years?

Public Health Response

- Eat less
- When it comes to vegetables (including legumes) and fruits, however, “eat more” will be the message
- Not a new message, but it is getting louder (e.g. recent USDA emphasis – plant based diet)
- *Canada’s F/P/T Childhood Obesity Framework for Action*
 - Improve access to nutritious foods, particularly vegetables and fruits, particularly in the North

Public Health Response Northern and Remote Communities

- Nutrition North Canada, INAC
 - Program to offset high cost of shipping food to northern isolated communities (formerly Food Mail Program)
 - Focus healthy nutritious foods (i.e. fruits and vegetables)
 - New program model features a retail subsidy (Canada Post no longer involved as of April 2011)
 - New complementary HC funding for nutrition education/promotion in eligible communities
- Successful pilot projects:
 - Northern Healthy Foods Initiative (Manitoba)
 - Northern Fruit and Vegetable Pilot Program (Ontario)

Public Health Response Northern and Remote Communities

- Increasing availability of nutritious foods in the North currently resonates:
 - High rates of diabetes, overweight and obesity
 - Food insecurity an important issue
 - Children in the North considered particularly vulnerable

Public Health and the Agri-Food Sector

- Can we find the win-win actions?
- What are the opportunities for food sector innovations at the product, process and system level?
- How do we work together to promote synergy?

What can Agri-Food Do?

- Increase the availability and variety of plant foods
- Find the best “value-added” action that caters to convenience, e.g.:
 - Apply innovative methods to develop and market food products that take into consideration how food components interact and provide nutritious “ready-made” meals
 - Reformulate to reduce or eliminate known harmful components in foods (e.g. sodium, trans fat, free sugars).
 - Improve shelf-life without compromising quality

Turning the Tide on Obesity

- “Eat Less” message is critical
- This will be our biggest challenge
- But, together we can find the “win-win” solutions

Thank you!

