First Nations Food, Nutrition and Environment Study

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The information and opinions expressed in this presentation are those of the authors/researchers and do not necessarily reflect the official views of Health Canada.
Many Sources Of Pollution
Is it safe to eat traditional food?

What and how much do people eat?

What and how much contaminants are in the food?
First Nations Unique Food System

Traditional Food

Market Food

Total Diet
Current Nutrition Issues

• Nutrients of concern – Vitamin A, calcium,
• Food security
• Safety of water
• Safety of food

Diet related concerns
  – Obesity
  – Diabetes
  – Heart disease
  – Poor dental health
Traditional Food

• Important source of many nutrients that are not consumed in sufficient amounts.

• Diets are healthier when traditional food is eaten than if just market foods are eaten.
Loss of Traditional Food Systems

- ↓ number of plant species
- ↓ density of species
- ↓ harvesting
- ↑ concern of environmental contaminants
- ↓ culture specific food activities
- ↑ sedentary life
- ↓ dietary diversity
- ↓ cultural moral

OBESITY, DIABETES, ALCOHOLISM, GALL BLADDER DISEASE, HEART DISEASE, ANEMIA, TOOTH LOSS, INFECTIONS, CANCER
What is known about contemporary food use in First Nation communities

- Limited number of nutrition studies that have provided a quantitative assessment of the total diet – what foods are consumed, how much, what nutrients are in short and adequate supply
AVAILABLE WORK WITH ONTARIO FN FOOD CONSUMPTION DATA

1985: Walpole Island (N=1087),  (L. Montour, 1986)
1987: 13 communities (n=161) (Health Welfare Canada)
1989: Sioux LO, Big Trout Lake (n=102) (J. Lawn, Health Welfare Canada)

1993: Sandy Lake (n=729) (Wolever et al. 1997; Gittelsohn et al, 1998)
1993-6: 33 communities (n=1783) (EAGLE project, Health Canada, 2001)

2000: Sioux LO area + Poplar Hill (n=31) (Health Canada, 2000)
2003-4: 8 NW communities (n=129) (Sharma et al, 2007)
2004: Grassy Narrows + Wabaseemoong (n=49) (L. Chan et al, Health Canada)
2004: Fort Severn (n=66) (J. Lawn & D. Harvey, DIAND)
Introduction to the First Nations Food, Nutrition and Environment Study

• Why this study
  – There remains a gap in knowledge at the national and regional level on nutritional composition and the environmental safety of foods consumed by First Nations peoples living on reserve lands south of 60th parallel across Canada.
  – There is a lack of knowledge on the baseline levels of environmental pollutants in the traditional foods across Canada.
  – There remains a gap in knowledge on the total diet of First Nations across Canada.
Resolution no. 30 at the AFN Annual General Assembly
July 12, 2007
Halifax, NS
This study is led by

• Dr. Laurie Chan, Toxicologist and Professor, University of Northern BC

• Dr. Olivier Receveur, Nutritionist and Professor, Université de Montréal

• Dr. Donald Sharp, Assembly of First Nations

• With contributions from: Dr. Constantine Tikhonov, Dr. Harold Schwartz, and Dr. Caroline Mimeault.
Objectives

In partnership with First Nation communities, the study will aim to:

• Document traditional and market food consumption
• Document food security and some water quality issues in communities
• Estimate exposure to contaminants and intake of nutrients of concern across communities
• Document self-reported health status and lifestyle habits across communities
Partnership and Community Participation

• The project involves the participating communities at all stages of the project

• CIHR guidelines are respected

• Data is kept confidential
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- 100 communities from 2008-2018
- ~8 - 12 communities per year and returning back in the last 2 years
- Systematic Random Sampling by region and ecozone
FN FNES Sampling Framework
The above map shows the locations of First Nations in Ontario. The information contained in this map has been compiled from various sources and includes First Nations not defined as a “Band” within the meaning of the Indian Act. The map is provided as a general visual aid only and should not be used or interpreted as a representation of the boundaries of First Nations reserves or a complete list of First Nations. The Government of Ontario accepts no responsibility or liability for any errors, inaccuracies and/or omissions in this data.
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1. Household Questionnaire
2. Food Sampling for a Suite of Contaminants
3. Water Sampling for Trace Metals
4. Surface water Sampling for Pharmaceuticals
5. Hair sampling for Mercury
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PART 1 - DIETARY SURVEY
• Randomly select 100 households in each community
• At the household level - 1 adult
• QUESTIONNAIRE
  – Food Frequency of Traditional Food Use
  – 24 hour recall
  – Food security (Wild harvested food and store food)
  – Health and Lifestyle Questionnaire
PART 2 - Sampling of traditional food  
(30 samples/community)

For nutrients, as needed

For chemical analysis

- Proposed analytes include:
  - pesticide residues,
  - polychlorinated biphenyls (PCBs),
  - polychlorinated dibenzo-p-dioxins and dibenzofurans,
  - Trace elements and heavy metals.
  - PBDE
  - PFOS/PFOA
  - PAH
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PART 3 - Sampling of drinking water (households)
– For trace metals
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PART 4 - Sampling surface water
- for pharmaceuticals and their metabolites.
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PART 5 - Hair sampling for mercury

– To verify the mercury exposure estimate from food intake
– About 20 pieces of hair are requested from each participant
Approach

- Methodology workshop
- Community visits and negotiation of Research Agreement
- Hiring of research assistants in communities
- Collecting seasonal food samples
- Training of research assistants
- Interviews, hair and drinking water collection
- Data and sample analysis
- Result reporting and communications
Contact Information

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