INUIT HEALTH SURVEY 2007–2008

Nunavut

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Nunavut

Nunavut Tunngavik

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International Polar Year Inuit Health Survey: Health in Transition and Resiliency

with the

Nunavut Steering Committee and contributions from
CINE staff members and graduate students

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Executive Summary

This report provides a summary of the results from the Adult Inuit Health Survey: Health in Transition and Resiliency conducted in Nunavut in 2007 and 2008.

Background

Nunavummiut have expressed a desire to have health information that is of practical relevance so that informed decisions can be made in the face of the rapid changes that are affecting all dimensions of life in Arctic communities. In response to these concerns, a multifaceted participatory health research project for those 18 years of age and above was developed and undertaken in 25 communities in Nunavut in 2007 and 2008. The goal of the survey was to obtain an overview of the health status and living conditions of Nunavummiut living in Nunavut.

Funding

Funding for this project was received from the Government of Canada's Program for International Polar Year, Canadian Institutes of Health Research, Health Canada, University of Toronto, Government of Nunavut, Indian and Northern Affairs and ArcticNet.

Ethics Approval

All work was approved by McGill's Institutional Review Board, the Nunavut Research Institute and all hamlets through community-university agreements.

Results

A total of 1374 households and 1923 individuals participated.

Home environment

75 % of the participants lived in public housing. Many homes were in need of major repairs. Families with children experienced household crowding.

Language

Inuktitut was reported as the dominant language spoken in Nunavut homes, followed by English.

Smoking

The majority of homes in Nunavut had smokers.

Food insecurity

Food insecurity was a problem in homes in Nunavut; unemployment, low income and high food costs were the main reasons for food insecurity.

Country food and food sharing

Participants preferred to eat country food but the high cost of obtaining it made it difficult.
Food sharing networks were strong and the majority of households shared their country food with others in their community.

Cost of living

Participants spent more money on food and shelter than other Canadian households.

Health

Self-reported health

Over 70% of participants reported their health to be good, very good or excellent.

Reported family health history

Heart disease, diabetes, high blood pressure, cancer and high cholesterol were common health problems for parents and siblings of participants.

Participants' health history

Very few participants reported being told by a health professional that they had heart disease or had had a stroke; but diabetes, cancer, high blood pressure and high cholesterol were common health problems.

Physical activity

In the week prior to the survey, 84% of participants walked on 5 days for at least 20 minutes.

Smoking

At the time of the survey smoking was very common among participants.

Education

34% of participants completed secondary school.

Personal income and employment

The main source of income was work related and over one third of participants had full-time employment.

Clinical findings

Weight

The majority of participants were classified as overweight or obese.

The majority of women had an "at-risk" waist circumference.

Blood lipids

Many participants had healthy lipid levels.

Blood pressure

The majority of participants had normal blood pressure.

Type 2 diabetes mellitus (honey-sweet)

6% of participants had a fasting glucose level that was too high and 8% had a 2-hour oral glucose tolerance test with a glucose level that was too high, suggesting either pre-diabetes or diabetes.

Nutrition

Country food

Older participants (≥ 40 years of age) ate more country food than younger participants (< 40 years of age).

Market food

Almost 80% of adults reported consuming pop in the month prior to the survey and they reported drinking 2 - 3 cans of soft drink per day.

Iron Status and Anemia

Iron deficiency is more common among women, especially younger women.

Vitamin D

The majority of Nunavummiut need more vitamin D.

Parasitic Diseases and *Helicobacter pylori*

Parasitic diseases

Parasitic diseases are not common in Nunavut. Few people tested positive for Echinococcosis, Brucellosis and Toxocariasis, however; Trichinosis and Toxoplasmosis were more common.

Bacteria

The majority of participants tested positive for *Helicobacter pylori*.

OVERVIEW

- The Inuit Health Survey in Nunavut was conducted in 2007 and 2008.
- The goal of the survey was to obtain an overview of the health status and living conditions of Inuit living in Nunavut.
- A total of 1374 households and 1923 individuals 18 years of age or older participated. An average of 1.4 people per household participated.

Nunavut participation

	Age		Gender	
	<40 yr	≥40 yr	Men	Women
Number of participants	963	955	772	1151

Nunavut participation by region

Region	Households	Individuals
Baffin	657	898
Kivalliq	410	585
Kitikmeot	307	440

- Average age of participants in the survey was 41 years.
- All data presented are based on the actual number of participants (n = number of participants).
- Not every household was available to participate; 74% did participate, while 26% were unavailable or refused to participate.
- 25 communities representing Nunavut's three regions participated:

Baffin (2007)
- Sanikiluaq
- Hall Beach
- Igloolik
- Cape Dorset
- Kimmirut
- Iqaluit
- Pangnirtung
- Qikiqtarjuaq
- Clyde River
- Pond Inlet
- Grise Fiord
- Arctic Bay
- Resolute Bay (2008)

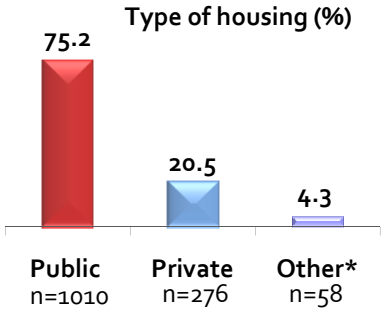
Kivalliq (2007)
- Arviat
- Whale Cove
- Rankin Inlet
- Chesterfield Inlet
- Coral Harbour
- Repulse Bay
- Baker Lake (2008)

Kitikmeot (2008)
- Kugluktuk
- Cambridge Bay
- Gjoa Haven
- Taloyoak
- Kugaaruk

Results from Home-Based Questionnaires

Home Environment

- The home environment is important for the health and well-being of Inuit.
- 75% of participants in Nunavut lived in public housing.
- 28% (n=354) of participants lived in homes needing major repairs such as a new roof, structural repairs, plumbing repairs.
- Mold was reported as a problem in 6% of homes (n=75), and both mold and need for major repairs in 16% of homes (n=205).



*Includes housing provided by a third party such as government or a company.

Homelessness and Crowding

Families with children experience overcrowding in Nunavut.

- During the 12 months prior to the survey, 18% of homes (n=235) provided shelter to homeless persons. An average of 2.3 people stayed a median of 9 weeks.
- The average household consisted of 4.6 people. In other Canadian households the number is 2.5 (1).
- Each home reported having an average of 3 bedrooms; 71% of the homes had more than 2 people per bedroom.
- Based on Statistics Canada's definition of crowding (1), which is having more than one person per room where rooms include kitchen, living room and bedrooms, one-third of homes (n=416) were crowded.

- 78% of homes (n=1015) had children and of those homes, 40% (n=393) were crowded.
- In contrast, among the 283 homes without children, the prevalence of crowding was only 2% (n=6).
- According to the 2006 Census, only 3% of non-Aboriginal people lived in a crowded dwelling (1).

Language

- In Nunavut the predominant language spoken at home was Inuktitut (71%), followed by English (42%).
- Inuinnaqtun and/or the Netsilik dialect were spoken in just under 3% of homes.

Smoking in the Households

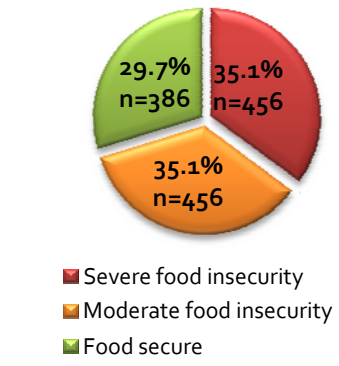
- Of the households surveyed, 90% of households (n=1205) had smokers, and there were on average two smokers per home.
- Smoking indoors was forbidden in 76% of homes (n=850).

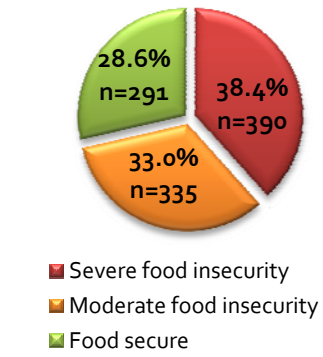
Food Security

Food insecurity is a problem in homes in Nunavut communities.

- The food security questionnaire, developed by the United States Department of Agriculture, was used (2). Indian and Northern Affairs Canada (INAC) modified the questionnaire based on discussions with Inuit interviewers (3).
- Fewer than one-third of households reported that they had enough food to eat (food secure).
- Severe food insecurity is defined as disrupted eating patterns and reduced food intake among adults and / or children (3), 35% of households reported severe food insecurity.
- According to the Canadian Community Health Survey (CCHS) 2004, only 9% of Canadian households reported moderate or severe food insecurity (3).

- 71.4% of households with children (n=725) were food insecure.
- Unemployment, low income and high food costs were the main reasons for food insecurity.

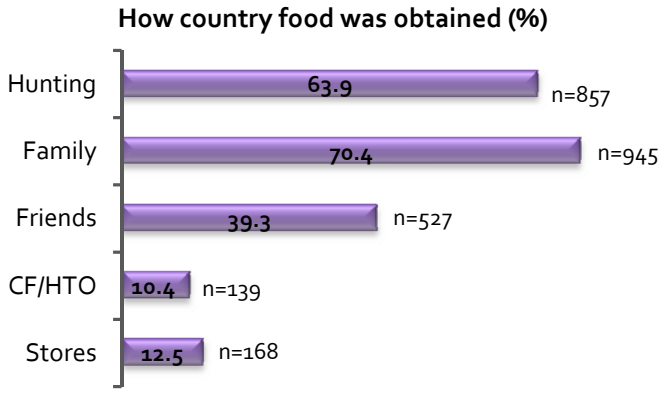




Country Food and Food Sharing Networks

Food sharing networks are strong. The majority of households share their country food with others.

- More than two-thirds of households in Nunavut said they had an active hunter in the home; three quarters of households with children had an active hunter.
- More than 75% of households shared their country food with others in their community.



- Most households said they obtained country food from hunting and/or their families. Other important ways to obtain country food were from friends, stores, and community freezers/hunters and trappers organizations (CF/HTO).

Community freezer in Arviat

- About 20% of households preferred mainly country food, while the rest preferred a mix of both country and store-bought foods.
- About one-third (35%) of households in Nunavut worry about contaminants in country food.

Availability of Country Food

Inuit prefer to eat country food, but the high cost of obtaining it makes it difficult.

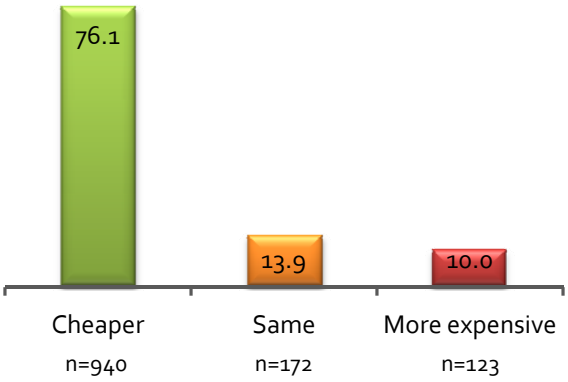
- Most households (81%) preferred to eat more country food than they could get.
- There were many reasons why participants could not get country food. The primary reasons were not having an active hunter in the home, not having a skidoo or boat, and the high cost of supplies and gas to go hunting and fishing (see table).
- When households ran out of country food, more than 65% received food from family, friends, the community freezer or Hunter and Trappers Organization. About 38% bought more store food, many went hunting or fishing (27%), and about 20% went without.
- The majority of households felt getting country food was cheaper than store-bought food. There were 14% who said country food was as costly as store-bought food, and 10% who thought country food was more expensive.

Limitations to getting country food*

	n	%
No active hunter	406	38.4
No transportation	451	42.7
Gas & supplies too expensive	334	31.6
Scarce/hard to harvest	126	11.9
Weather/no time	86	8.1
Other	76	7.2

*Percentages do not add up to 100 because participants could give more than one answer.

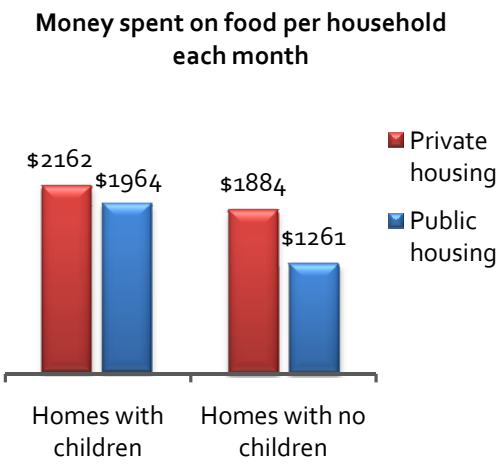
Cost of country food vs store food (%)

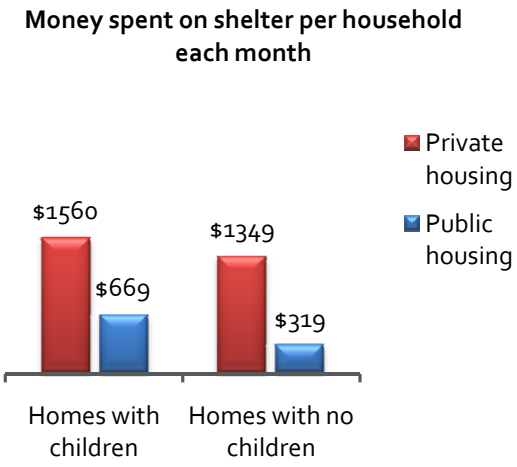


Cost of Living

Nunavut households spend more on food and shelter than other Canadian households.

- In the month prior to the survey, half of the households (n=679) had someone receiving income support.
- The average household in Nunavut spent $1875 per month on food. For households with children, the monthly food bill was $1992.
- In 2007 the average amount spent on food in other Canadian households was about $609 per month (4).
- The average household in Nunavut spent $ 823 per month on shelter. This amount includes rent or mortgage, electricity, heating fuel, gas, water and sewage, and garbage.
- According to Statistics Canada's Survey of household spending, the average Canadian household spent $1,137 per month on shelter in 2007 (4)..





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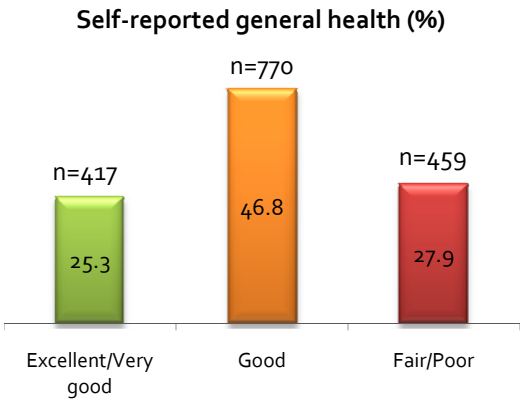
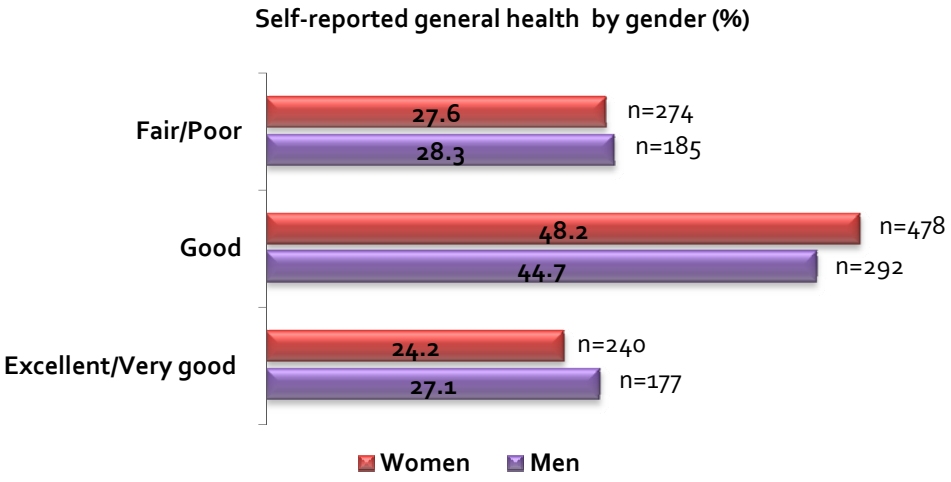
Results from Individual Questionnaires

The majority of participants thought their health was good to excellent.

Overview

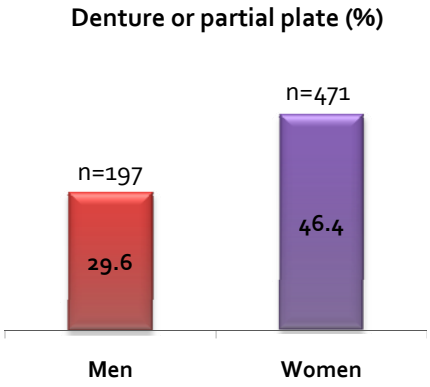
- 25% of participants thought their health was excellent or very good.
- According to the Aboriginal Peoples Survey, 2006 half of Inuit aged 15 and over self-reported to be in excellent or very good health but were less likely to report excellent or very good health than their Canadian counterparts (1).





Dental Health

- The survey found that 47% of participants felt that their gums and teeth needed some work or had an ongoing problem.
- Many participants had dentures or partial plates, especially female participants.



Reported Family Health History

Participants were asked about the health of their parents and siblings.

Heart disease is a common health problem among parents and siblings of participants.

Heart Attack

- 16% of participants reported that their parents were told by a doctor or a nurse that they had had a heart attack.
- 6% of participants had siblings who were told they had had a heart attack.

Stroke

- 11% of participants reported their parents were told by a doctor or a nurse they had had a stroke.
- 4% of participants had siblings who were told they had had a stroke.

Reported family health history

	Parents			Siblings	
	n*	%		n*	%
Heart attack	219	15.7		77	5.7
Stroke	154	11.1		55	4.1
Other	234	17.8		154	12.0

* n = number of participants

Diabetes, high blood pressure, cancer and high cholesterol are common health problems for parents and siblings of participants.

Diabetes

- 12% of participants reported that their parents were told by a doctor or nurse that they had diabetes.
- 5% of participants had siblings who were told they had diabetes.

High Blood Pressure

- 30% of participants had parents who had been told by a doctor or nurse that they had high blood pressure.
- 13% of participants had siblings who were told they had high blood pressure.

Cancer

- More than one-third (34%) of participants had parents who had been told that they had a cancer.
- 12% of participants had siblings who were told they had a cancer.

High Cholesterol

- 13% of participants had parents who had been told by a doctor or nurse that they had high cholesterol.
- 7% of participants had siblings who were they had high cholesterol.

Reported family health history

	Parents		Siblings	
	n*	%	n*	%
Diabetes	143	11.5	60	4.9
High blood pressure	336	30.2	146	13.3
Cancer	474	33.5	159	12.1
High cholesterol	137	13.4	66	6.5

* n = number of participants

Participants' Medical Information

Participants were asked about their own health.

Very few participants reported having been told they had heart disease or had had a stroke.

Diabetes, cancer, high blood pressure and high cholesterol are common health problems among participants in Nunavut.

Diabetes

- 6% of all participants had been told by a doctor or nurse that they had diabetes. Only 1% of participants less than 40 years of age had been told they had diabetes, while 11% of those age 40 and above had been told they had diabetes.
- The prevalence of diabetes in Canada was 5.8% in 2007 (2).
- The majority of participants with diabetes used medication as the main treatment.

Cancer

- 8% of participants 40 years of age and above reported they had been told they had a cancer. 6% of women and 3% of men reported having cancer.

High Blood Pressure

- 33% of participants 40 and above had been told they had high blood pressure; 25% of women and 22% of men reported having high blood pressure.
- According to the Canadian Community Health Survey, about 16% of Canadians suffered from high blood pressure in 2007 (2).
- The majority of participants with high blood pressure used medication as the main treatment. Diet and exercise were also important treatments.

High Cholesterol

- High cholesterol was a common health problem, especially for those 40 and over.
- The majority of participants with high cholesterol followed a treatment of medication. Many also followed a program of diet and exercise.

Participants' health history

	Age				Gender			
	<40 yr		≥40 yr		Men		Women	
	n	%	n	%	n	%	n	%
Diabetes	10	1.2	92	11.2	43	6.7	59	5.9
Cancer	17	2.0	62	7.5	21	3.2	58	5.8
High blood pressure	119	14.5	268	32.9	140	21.6	247	25.1
High cholesterol	23	2.8	135	16.8	53	8.3	105	10.7

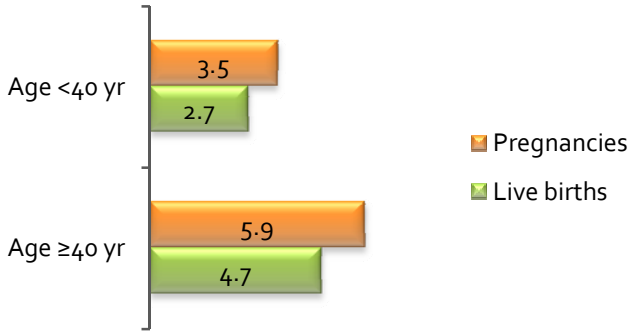
Reproductive health

- Most women had had a Pap test within two years of the survey; however, 4% of women had never had a Pap test.
- Women 40 years of age and above had had 5.9 pregnancies and 4.7 live births, while women below 40 years of age had had 3.5 and 2.7, respectively.

Time of most recent Pap test

	Age			
	<40 yr		≥40 yr	
	n	%	n	%
Last 2 years	413	82.9	315	69.2
More than 2 years	32	6.4	53	11.6
Never or more than 5 years	53	10.6	87	19.1

Pregnancies and live births (N)



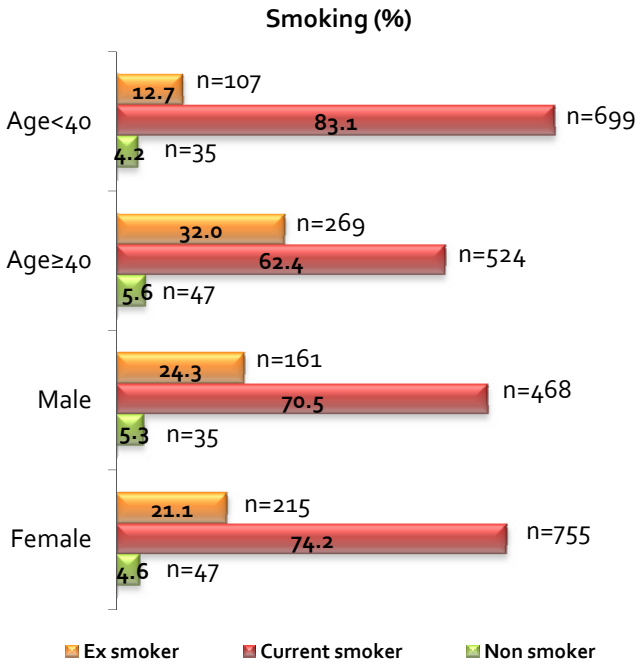
Physical activity

- On average 84% of participants walked on 5 days for at least 20 minutes in the week prior to the survey. Men walked for almost 145 minutes on these days and women walked for 107 minutes.
- 48% of respondents to the 2005 Canadian Community Health Survey, aged 12 and older, reported that they walked less than half an hour each day in their leisure time (3).

Smoking Habits

Smoking is very common in Nunavut.

- At the time of the survey, 73% of participants reported that they were smoking cigarettes.
- In comparison, 22% of other Canadians smoked in 2007 (4).
- 22% of participants had already stopped smoking.
- On average, men smoked 13 and women 10 cigarettes per day.
- The average age when participants began smoking was 15.1 years.
- It is well known that smoking causes cancer, emphysema, and heart disease. Quitting smoking is the best thing you can do to improve your health and quality of life (5).



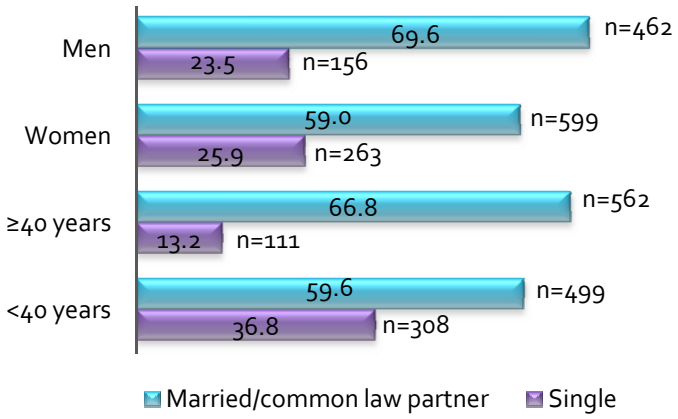
Social Demographic Information

Marital Status

The majority of participants in Nunavut are married or have a common law partner.

- This survey found that the majority of participants (> 60%) were married or had a common law partner.

Participants' marital status (%)



Education

- About 34% of participants in Nunavut completed secondary school.

Highest level of schooling completed

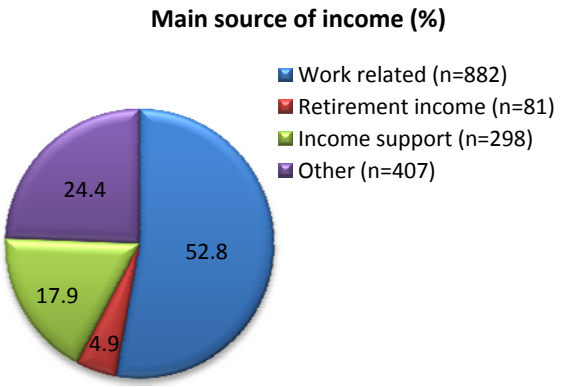
	n	%
Less than secondary	1089	66.0
Secondary completed	252	15.3
Any post secondary	309	18.7

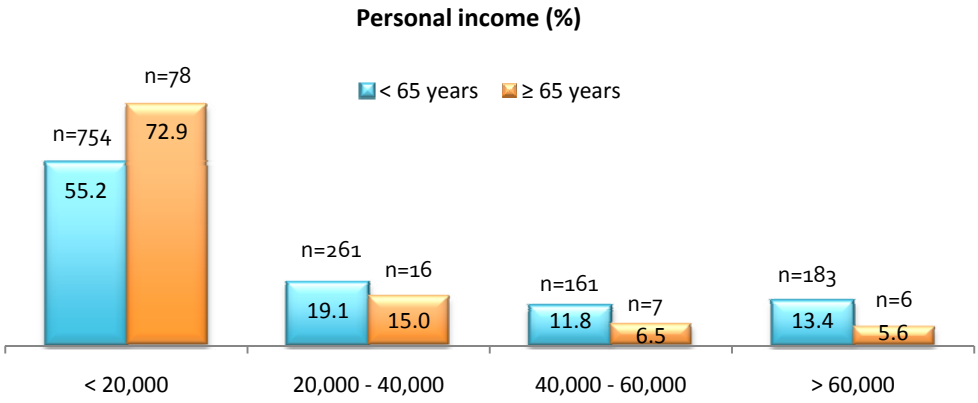
Personal Income

The main source of income was work related. Just over one third of participants had full-time employment.

- 53% of participants in Nunavut received their income from wages and salaries, self-employment, carving, sewing, crafts/arts and home daycare.
- For 5% of participants, their main source of income was income support.

- 5% of participants received their income from pensions, benefits from Canada/Nunavut pension plan, superannuation and annuities.
- 24 % of participants received their income from other sources (employment insurance, workers' compensation, hunter support program, child support, alimony, dividends, interest, and child tax benefit).
- 55% of participants less than 65 years of age estimated their personal income to be less than $20,000.00 per year.
- 73% of participants 65 years of age and older estimated their personal income to be less than $20,000 per year.





Employment

- At the time of the interview 36% of participants had full-time employment.

Employment status

	n	%
Full time	586	36.1
Part-time /occasional work	338	20.8
Other	700	43.1

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Clinical Findings

During the health survey, participants had their standing height (without shoes) and sitting height measured, as well as their weight and waist circumference.

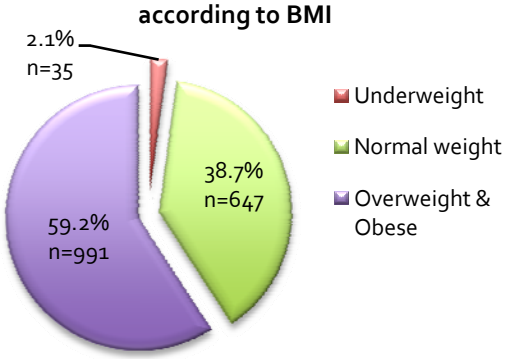
Healthy Body Weight

- Body mass index (BMI) is commonly used to assess whether one has a healthy body weight for one's height. BMI is calculated by taking weight in kilograms and dividing it by [(height in meters) x (height in meters)].

$$\text{BMI} = \frac{\text{Wt (kg)}}{[\text{ht(m)} \times \text{ht(m)}]}$$

- 39% of participants (n=647) had a healthy body weight.

Participants in each classification according to BMI



Health Risk classification according to BMI (1)

BMI	Classification	Risk of developing health problems
< 18.5	Under weight	Increased
18.5-24.9	Normal weight	Least
> 24.9	Overweight & Obese	Increased

Waist Circumference

- A waist circumference greater than 102 cm for men and greater than 88 cm for women is associated with a greater risk for health problems.
- In Nunavut, 55% of women (n=544) and 22% of men (n=146) had an "at-risk" waist circumference.

Standing Height

Average height of participants

	cm	ft/in
Men (n=662)	165.3	5'5"
Women (n=1003)	155.9	5'1"

Sitting Height

- Because BMI is influenced by leg length, someone with long legs will have a lower BMI than someone with shorter legs but a similar size torso.

- When BMI was adjusted by sitting height, the percentage of participants in the healthy weight category went up and the percentage in the obese and overweight categories went down slightly.

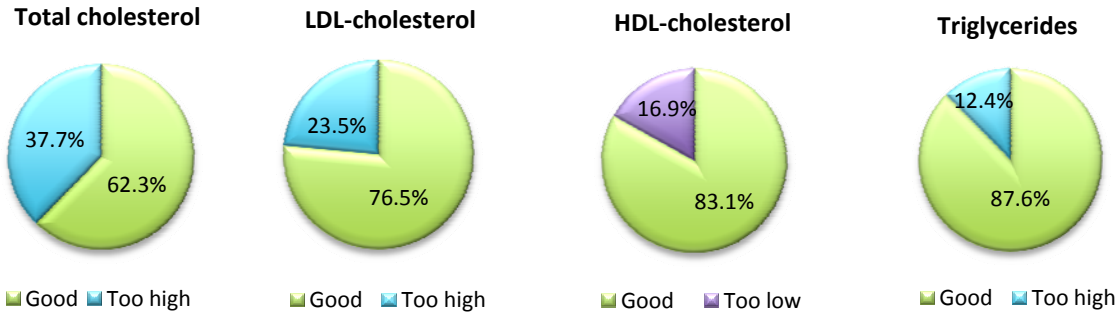
Blood Lipids

- The type and amount of lipids circulating in the blood stream provide an indication of a person's risk for cardiovascular disease.

- Nurses collected fasting blood samples in the morning from participants. These samples were used to assess total cholesterol, low density lipoprotein cholesterol (LDL-chol) which is the unhealthy cholesterol, high density lipoprotein cholesterol (HDL-chol) which is the healthy cholesterol, and triglycerides.

- 38% of Nunavut participants had a level of total cholesterol that was too high. 24% had high levels of the unhealthy cholesterol (LDL-chol). 17% had low levels of healthy cholesterol (HDL-chol). Triglyceride levels were too high for 12% of participants

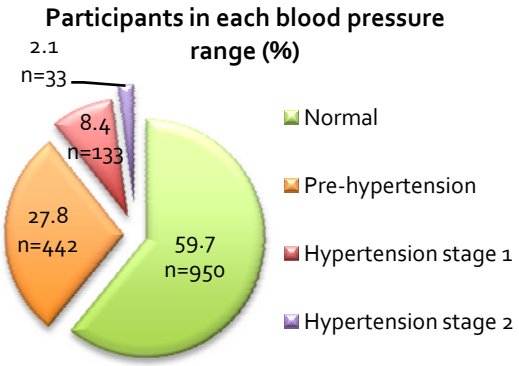
Participants' Lipid Levels



Blood Pressure

A survey cannot diagnose hypertension, but does give a picture of the likely extent of blood pressure problems in Nunavut.

- Blood pressure is the force needed to deliver blood to all parts of our body. Blood pressure is always given as 2 numbers, systolic pressure and diastolic pressure, a higher number over a lower number.
- Nurses measured the systolic blood pressure (the pressure when the heart is squeezing and sending blood to the rest of the body = the higher number) and the diastolic blood pressure (the pressure when the heart is relaxing and filling up with blood again = the lower number).
- Blood pressure was measured 3 times when participants were at rest.
- It is important to keep blood pressure at "normal" levels because with high blood pressure or hypertension the heart has to work harder and your blood vessels take a beating (2).
- Untreated high blood pressure is a risk for heart disease and stroke (2).



Blood pressure category	Systolic pressure	Diastolic pressure
Normal	< 120	< 80
Pre-hypertension	120 -139	80 - 89
Hypertension stage 1	140 - 159	90 - 99
Hypertension stage 2	≥ 160	≥ 100

Type 2 Diabetes Mellitus

A survey cannot diagnose diabetes. However, results suggest that about 6% of participants have fasting glucose levels that are too high, suggesting either pre-diabetes or Type 2 diabetes.

- When blood sugar is too high it is a sign that the cells in the body are not getting the fuel they need to function properly, and that a person may have pre-diabetes or type 2 diabetes.
- Fasting blood samples were used to test for blood sugar (glucose).
- About 35% of survey participants had a second blood sample taken two hours after drinking a flavoured glucose sugar drink. The test is called an oral glucose tolerance test (OGTT) and is a way of seeing how the body handles glucose.

Participants with "at risk" glucose levels

- The survey found that 6% of participants in Nunavut had a fasting glucose level that was too high (> 6 mmol/L) which indicates either pre-diabetes or diabetes. 8% had a 2-hour OGTT glucose level that was too high (>7.8 mmol/L) which indicates pre-diabetes or Type 2 diabetes.

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WHAT ADULTS ATE

Country Food

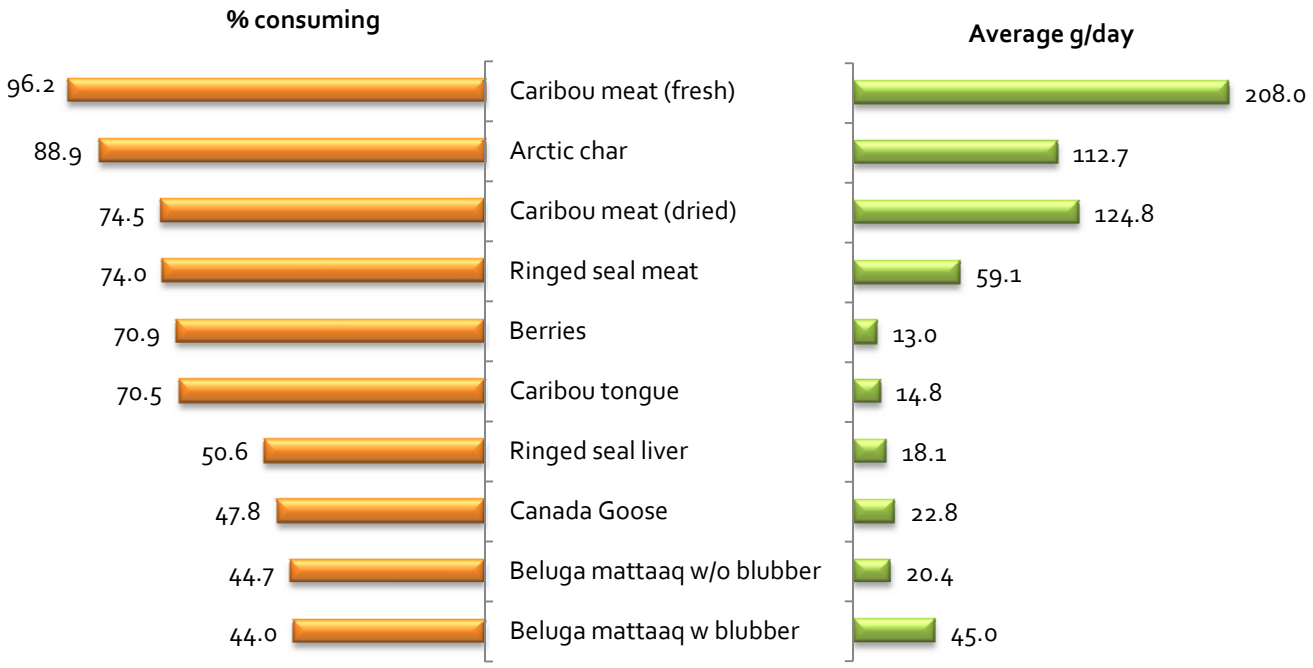
Country food is a rich source of nutrients.

- What we eat and drink along with other lifestyle factors, has the potential to protect us from or increase our risk of chronic diseases such as heart disease, diabetes (high blood sugar) and osteoporosis (weak bones).

- Country food consumption in the 12 months prior to the survey:

  - Men ate more country food than women.
  - Older adults (≥ 40 years of age) ate more country food than younger adults (< 40 years of age).
  - Fresh and dried caribou meat and char were country foods that were eaten often and in large quantities.
  - Ringed seal meat was also eaten very often but in smaller quantities.

Most commonly consumed country food in Nunavut (n=1569)

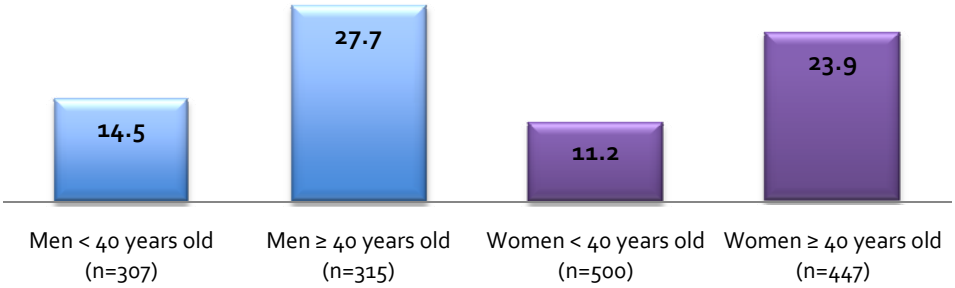


This column shows the proportion (%) of participants, who reported eating each of the country foods listed.

This column shows on average, how much of each country food was eaten by each participant who reported consuming these foods.

- Country food consumption the day before each participant was interviewed for the survey:
  - The average proportion of total Calories that came from country food was higher among older participants than younger participants.
  - Country food intake has decreased in the past decade (1).

% Calories from country food on the day before the interview

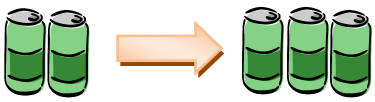


Market Food

Many studies have shown that higher intakes of sugar, especially the sugar from soft drinks, are associated with an increased risk of obesity (too much body fat), heart disease, and diabetes (2,4,5,6)

- Foods such as chips, pop, sweet drinks (made from crystals), and chocolate bars/candy are high in "empty Calories" – this means they are not healthy foods to eat on a daily basis. Many adults consumed these foods on the day before the interview.

- The most commonly consumed market food was regular pop - almost 80% of adults reported drinking pop in the month prior to the interview.



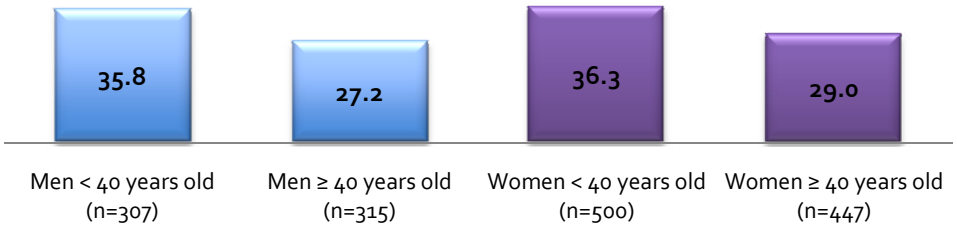
Participants reported drinking 2 – 3 cans of soft drinks per day.

One can contains 9 teaspoons of sugar.

- Milk has more nutrients than sugary drinks, but was consumed less often and in smaller quantities than sugary drinks.

- One quarter to one third of total Calories consumed came from high sugar foods and drinks.

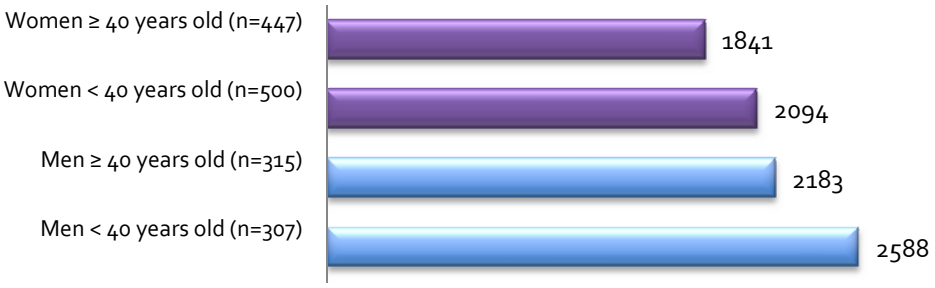
% Calories from foods with more than 25% of energy as sugar on the day before the interview



Calories, Fat, Protein and Carbohydrates

- Men consumed more Calories than women, and younger adults consumed more Calories than older adults.
- Average Caloric intake was higher among participants in Nunavut compared with the rest of Canadians in the 2004 Canadian Community Health Survey (CCHS) (2).

Average Caloric intake

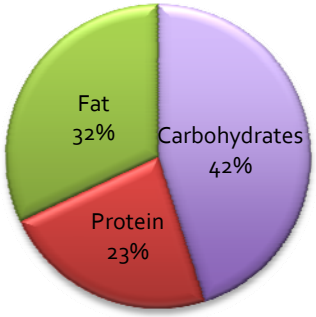


- Men consumed more Calories as protein than women.
- Men consumed fewer Calories as carbohydrates than women.

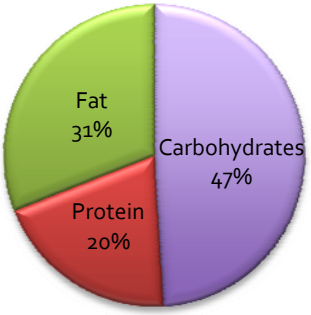
Acceptable intake ranges for carbohydrate, protein, and fat (3)

Carbohydrate	Protein	Fat
45 – 65 %	10 – 35%	20 – 35%

Men (n=622)



Women (n=947)



Folate

- Folate is important for healthy pregnancies.
- Folate in red blood cells showed adequate levels for women of reproductive age.

Iron Status and Anemia

Iron deficiency is more common among women, especially young women.

- Iron has many functions in our body.
- One important function is transporting the oxygen we breath in throughout the body.
- Not having enough iron in your blood can make you feel weak, tired, and cold.
- Not eating enough iron can lead to iron deficiency, the most common nutritional deficiency in the world.
- Country foods like caribou meat, liver, duck, dried meat, and fish are good sources of iron. Beef, ham, and chicken are also high in iron.
- Men appear to have good iron status.

Iron status among Nunavut participants

Definitions		Men (%)	Women (%)
Anemia (weak blood)	Low hemoglobin in blood	20	26
Iron deficiency	Low iron stores in the body	6	32
Iron deficiency + Anemia	Very low iron stores and low hemoglobin	3	13

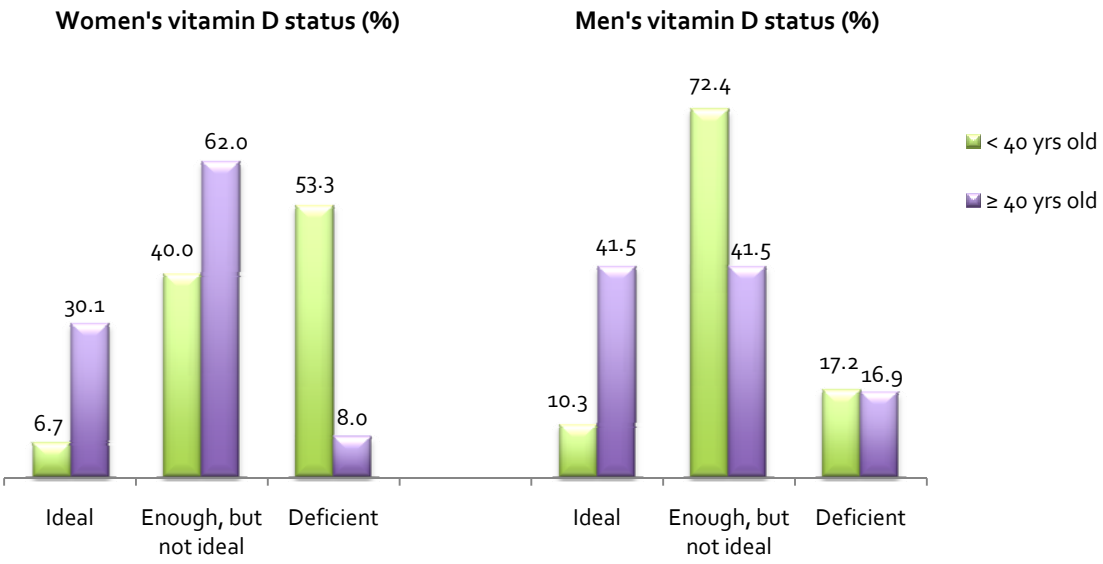
Vitamin D

The majority of Inuit need more vitamin D.

- Vitamin D is important for good bone health. Not getting enough can lead to brittle bones.
- Foods containing vitamin D include arctic char, blubber, liver, fatty fish, and vitamin D fortified milk.
- Only about 10% of participants under 40 years of age had the recommended level of Vitamin D.
- Levels of 25-hydroxyvitamin D in the blood stream are used to determine vitamin D status.

Vitamin D status measured in blood

25(OH)D nmol/L	Status
> 75	Ideal
37.5 – 75	Enough, but not ideal
< 37.5	Deficient

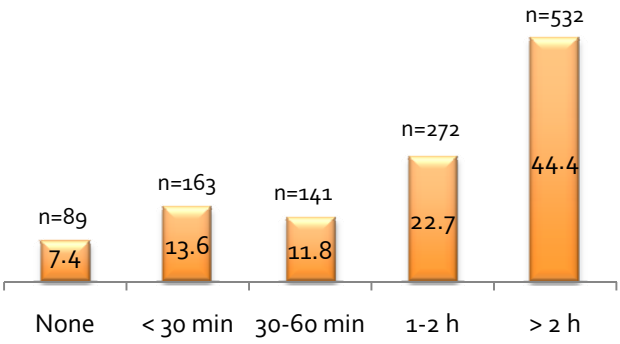


Sun Exposure

People should get some sun every day for more vitamin D.

- The body can make vitamin D when the skin is exposed to sunlight during the summer months.
- The survey found that more than 44% of participants spend more than 2 hours in the sun during the summer months, while 7% of participants do not spend any time in the sun.
- Exposing arms and legs to direct sunlight for 5 to 30 minutes between 10:00 AM and 3:00 PM twice a week in the summer appears to be sufficient to make vitamin D. The time required depends on the time of day, season, latitude and skin pigmentation. (7)

Summer months sun exposure (%)



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2. Garriguet, D. 2007. Canadians' Eating Habits. *Health Reports.* 18(2):17-32.
3. Institute of Medicine, Food and Nutrition Board. 2005. *Dietary Reference Intakes for Energy, Carbohydrates, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids.* The National Academies Press. Washington DC.
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Parasitic Diseases and *Helicobacter pylori*

- Blood samples from participants were tested to determine exposure to several parasites and to the bacteria called *Helicobacter pylori.*
- It is important to remember that a positive test indicates exposure at some time during the person's life, and does not necessarily mean an active infection.

Parasitic Diseases

Echinococcosis

- Caused by *Echinococcus sp.*, a tape worm. The form found in northern communities exists in wolves, moose and caribou.
- Eating meat from infected animals or contact with dog feces are the routes for human infection.
- The infection is not common. 6% of participants (n=100) had a positive test.

Trichinosis

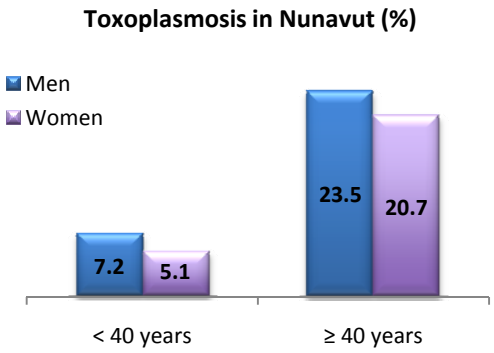
- Caused by *Trichinella nativa*, a parasitic worm found in most bears and in 15-20% of walruses in northern communities.
- This parasite can survive prolonged freezing.
- The primary cause of infection is eating raw or poorly cooked meat from an infected animal.
- In Nunavut 16% of participants (n=264) tested positive for *Trichinella* exposure.

Toxocariasis

- In northern communities, people are exposed to a form of *Toxocara*, a parasitic worm that exists in dogs.
- This form is spread by contact with dog feces, especially from puppies.
- Toxocariasis is rare. Only 1% of participants (n=22) had positive tests.

Toxoplasmosis

- Caused by *Toxoplasma gondii*, one of the most successful parasites in the world. There are more than 2 billion people infected globally.
- Any animal can be infected, so raw and poorly cooked meat, as well as exposure to cat feces, can be sources of infection.
- Freezing at very low temperatures for a long time may kill the parasite, but is not a guarantee.
- Toxoplasmosis is the most common parasitic infection in the North. In Nunavut 28% of participants (n=459) had a positive test.
- Infection is life-long, but is not usually a problem except for women who become infected during pregnancy and for people with compromised immunity.



Brucellosis

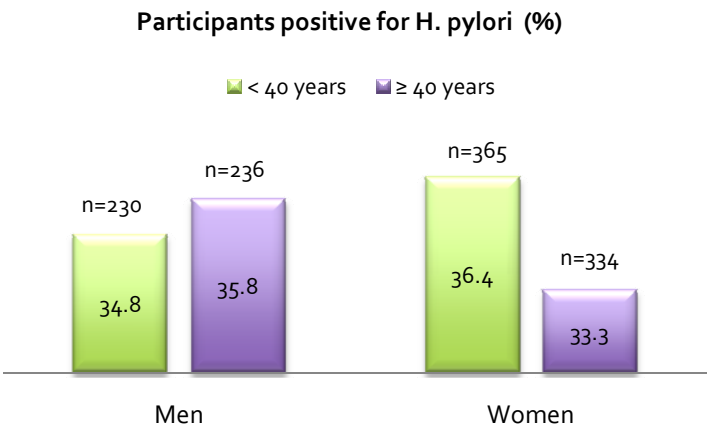
- Caused by bacteria that infect many mammals, including marine mammals.
- Exposure can come during slaughter and cleaning of animals.
- Infection is very rare. Fewer than 2% of participants in Kivalliq and Baffin had positive tests.

Bacteria

H. pylori infection is common in Nunavut where 70% of all participants tested positive.

Helicobacter pylori

- *H. pylori* is a bacterium that lives in the lining of the stomach and is associated with low level inflammation.
- It is spread person-to-person through close contact and is likely related to household crowding.
- Over one third of men and women under 40 years of age and about one third of men and women over 40 were positive for *H. pylori*.
- Infection usually produces no symptoms, but can cause stomach pain and possibly ulcers. In rare cases it can cause stomach cancer.



Data Tables

for

Kivalliq, Baffin and Kitikmeot

Results from Home-Based Questionnaires

Type of housing

	Public		Private		Other*	
	n	%	n	%	n	%
Kivalliq	317	81.9	61	15.8	9	2.3
Baffin	481	73.6	129	19.7	44	6.7
Kitikmeot	212	70.0	86	28.4	5	2.7
Nunavut	1010	75.2	276	20.5	58	4.3

* Includes housing provided by a third party such as government or a company.

Homes with mold and/or needing major repairs

	Major repairs		Mold		Major repairs & Mold	
	n	%	n	%	n	%
Kivalliq	106	28.2	14	3.7	72	19.2
Baffin	141	23.1	39	6.4	85	13.9
Kitikmeot	107	36.4	22	7.5	48	16.3
Nunavut	354	27.6	75	5.9	205	16

Shelter for homeless people

	Homes providing shelter		Average number of people	Median stay (weeks)
	n	%	n	n
Kivalliq	56	14.6	2.3	6.5
Baffin	137	21.0	2.2	9.7
Kitikmeot	42	13.9	2.7	4.3
Nunavut	235	17.5	2.3	8.7

Household crowding[a]

	Homes with children			Homes without children		
		Crowded			Crowded	
	Total (N)	n	%	Total (N)	n	%
Kivalliq	303	144	49.2	78	1	1.3
Baffin	481	157	33.3	138	4	3.0
Kitikmeot	231	92	43.6	67	1	1.6
Nunavut	1015	393	40.3	283	6	2.2

[a] More than 1 person per room, including kitchen, living room and bedrooms (Statistics Canada).

Languages spoken in the home

	Inuktitut		Innuinaqtun		Netsilik		English		French	
	n	%	n	%	n	%	n	%	n	%
Kivalliq	294	75.4	2	0.5	0	0	146	37.4	0	0
Baffin	585	89.3	2	0.3	0	0	169	25.8	1	0.2
Kitikmeot	72	23.8	31	10.2	6	2.0	256	84.5	1	0.3
Nunavut	951	70.6	35	2.6	6	0.5	571	42.4	2	0.2

Smoking in households

	Households with smokers		Smoking forbidden indoors	
	n	%	n	%
Kivalliq	340	87.2	247	79.4
Baffin	588	90.5	407	70.7
Kitikmeot	277	91.4	196	85.2
Nunavut	1205	89.7	850	76.1

Overall household food security

	Food secure		Moderately food insecure		Severely food insecure	
	n	%	n	%	n	%
Kivalliq	95	24.9	124	32.6	162	42.5
Baffin	204	33.0	217	35.1	198	32.0
Kitikmeot	87	29.2	115	38.6	96	32.2
Nunavut	386	29.7	456	35.1	456	35.1

Food security in households with children

	Food secure		Moderately food insecure		Severely food insecure	
	n	%	n	%	n	%
Kivalliq	77	25.4	93	30.7	133	43.9
Baffin	147	30.5	161	33.4	174	36.1
Kitikmeot	67	29.0	81	35.1	83	35.9
Nunavut	291	28.6	335	33.0	390	38.4

How country food was obtained

	Hunting		Family		Friends		CF/HTO[a]		Stores	
	n	%	n	%	n	%	n	%	n	%
Kivalliq	258	66.5	252	65.0	120	30.9	30	7.7	33	8.5
Baffin	376	57.6	509	78.0	300	45.9	84	12.9	93	14.2
Kitikmeot	223	74.1	184	61.1	107	35.6	25	8.3	42	14.0
Nunavut	857	63.9	945	70.4	527	39.3	139	10.4	168	12.5

[a] Community Freezers/Hunters and Trappers Organizations

Limitations to getting country food[a]

	No active hunter		No transportation		Gas & supplies too expensive		Scarce/hard to harvest		Weather/no time	
	n	%	n	%	n	%	n	%	n	%
Kivalliq	112	38.9	121	42.0	91	31.6	28	9.7	18	6.3
Baffin	221	41.5	216	40.5	155	29.1	65	12.2	47	8.8
Kitikmeot	73	30.9	114	48.3	88	37.3	33	14.0	21	8.9
Nunavut	406	38.4	451	42.7	334	31.6	126	11.9	86	8.1

[a] Percentages do not add up to 100 because participants could give more than one answer.

How participants rated the cost of country food versus store-bought food

	Cheaper		Same		More expensive	
	n	%	n	%	n	%
Kivalliq	315	85.6	32	8.7	21	5.7
Baffin	404	70.0	97	16.8	76	13.2
Kitikmeot	221	76.2	43	14.8	26	9.0
Nunavut	940	76.1	172	13.9	123	10.0

Money spent per household on food each month

	Homes with children		Homes without children	
	Private housing	Public housing	Private housing	Public housing
Kivalliq	$2208	$1798	$1830	$1094
Baffin	$1954	$1928	$1556	$1183
Kitikmeot	$2421	$2274	$2232	$1655
Nunavut	$2162	$1964	$1884	$1261

Money spent per household on shelter each month

	Homes with children		Homes without children	
	Private housing	Public housing	Private housing	Public housing
Kivalliq	$1260	$497	$538	$272
Baffin	$1796	$830	$1522	$324
Kitikmeot	$1445	$578	$1448	$369
Nunavut	$1560	$669	$1349	$319

Results from Individual Questionnaires

Participation by age and gender

	Age				**Gender**			
	<40 yr		≥40 yr		Men		Women	
	n	%	n	%	n	%	n	%
Kivalliq	299	51.1	286	48.9	249	42.6	336	57.4
Baffin	450	50.4	443	49.6	352	39.2	546	60.8
Kitikmeot	214	48.6	226	51.4	171	38.9	269	61.1
Nunavut	963	50.2	955	49.8	772	40.2	1151	59.9

Participation and Refusal by household

	Eligible households	Households that participated		Households that refused	
	N	n	%	n	%
Kivalliq	679	1372	60.4	207	30.5
Baffin	811	410	81.1	164	20.2
Kitikmeot	446	657	68.4	140	31.4
Nunavut	1936	307	70.9	511	26.4

General health

	Excellent/Very good		Good		Fair/Poor	
	n	%	n	%	n	%
Kivalliq	113	22.2	248	48.7	148	29.1
Baffin	220	28.3	362	46.5	196	25.2
Kitikmeot	84	23.4	160	44.6	115	32.1
Nunavut	417	25.3	770	46.8	459	27.9

Participants with dentures or a partial plate

	n	%
Kivalliq	219	42.0
Baffin	348	43.7
Kitikmeot	101	27.8
Nunavut	668	39.7

Family health history (parents)

	Heart attack		Stroke		Other heart disease	
	n	%	n	%	n	%
Kivalliq	74	17.3	47	11.3	63	16.1
Baffin	106	16.2	75	11.3	133	21.0
Kitikmeot	39	12.4	32	10.4	38	13.2
Nunavut	219	15.7	154	11.1	234	17.8

Family health history (siblings)

	Heart attack		Stroke		Other heart disease	
	n	%	n	%	n	%
Kivalliq	27	6.8	12	3.2	34	9.3
Baffin	38	6.1	26	4.1	86	14.1
Kitikmeot	12	3.8	17	5.3	34	10.9
Nunavut	77	5.7	55	4.1	154	12.0

Family health history (parents)

	Diabetes		High blood pressure		Cancer		High cholesterol	
	n	%	n	%	n	%	n	%
Kivalliq	41	11.0	103	30.0	128	30.5	25	8.1
Baffin	74	12.8	157	30.1	245	35.7	81	16.9
Kitikmeot	28	9.7	76	30.4	101	32.6	31	13.1
Nunavut	143	11.5	336	30.2	474	33.5	137	13.4

Family health history (siblings)

	Diabetes		High blood pressure		Cancer		High cholesterol	
	n	%	n	%	n	%	n	%
Kivalliq	15	4.3	53	16.6	44	11.5	13	4.5
Baffin	34	6.0	64	12.6	79	12.5	37	7.8
Kitikmeot	11	3.6	29	10.7	36	11.8	16	6.3
Nunavut	60	4.9	146	13.3	159	12.1	66	6.5

Participants' medical information

	Heart attack		Stroke		Other heart disease	
	n	%	n	%	n	%
Kivalliq	28	5.5	15	2.9	44	8.7
Baffin	29	3.7	11	1.4	79	10.0
Kitikmeot	10	2.8	9	2.5	33	9.1
Nunavut	67	4.0	35	2.1	156	9.4

Participants' medical information

	Diabetes		High blood pressure		Cancer		High cholesterol	
	n	%	n	%	n	%	n	%
Kivalliq	34	6.7	141	28.0	24	4.7	37	7.4
Baffin	50	6.4	173	22.1	38	4.8	90	11.6
Kitikmeot	18	5.0	73	21.0	17	4.7	31	9.0
Nunavut	102	6.2	387	23.7	79	4.8	158	9.8

Reproductive health: Time of most recent Pap test

	Last 2 years		3 - 5 years		Never or more than 5 years	
	n	%	n	%	n	%
Kivalliq	200	70.9	29	10.3	53	18.8
Baffin	355	76.0	42	9.0	70	15.0
Kitikmeot	173	84.8	14	6.9	17	8.3
Nunavut	728	76.4	85	8.9	140	14.7

Reproductive health: Pregnancies and live births

	Pregnancies	Live births
	Average	Average
Kivalliq	5.0	3.9
Baffin	4.5	3.6
Kitikmeot	4.7	3.5
Nunavut	4.7	3.7

Smoking habits

	Current smoker		Ex smoker		Non smoker	
	n	%	n	%	n	%
Kivalliq	373	71.5	120	23.0	29	5.6
Baffin	585	73.5	170	21.4	41	5.2
Kitikmeot	265	73.0	86	23.7	12	3.3
Nunavut	1223	72.8	376	22.4	82	4.9

Participants' marital status

	Single		Married / Common law partner	
	n	%	n	%
Kivalliq	140	26.8	317	60.7
Baffin	206	25.9	491	61.6
Kitikmeot	73	20.3	253	70.3
Nunavut	419	25.0	1061	63.2

Highest level of schooling completed

	Less than secondary		Secondary completed		Any post secondary	
	n	%	n	%	n	%
Kivalliq	354	69.8	63	12.4	90	17.8
Baffin	506	64.7	106	13.6	170	21.8
Kitikmeot	229	63.4	83	23.0	49	13.6
Nunavut	1089	66.0	252	15.3	309	18.7

Employment status

	Full time		Part-time /occasional work		Other	
	n	%	n	%	n	%
Kivalliq	159	31.8	99	19.8	242	48.4
Baffin	292	38.2	155	20.3	318	41.6
Kitikmeot	135	37.6	84	23.4	140	39.0
Nunavut	586	36.1	338	20.8	700	43.1

Main source of income

	Work related		Retirement income		Income support		Other	
	n	%	n	%	n	%	n	%
Kivalliq	232	44.7	23	4.4	101	19.5	163	31.4
Baffin	432	54.6	37	4.7	137	17.3	185	23.4
Kitikmeot	218	60.9	21	5.9	60	16.8	59	16.5
Nunavut	882	52.9	81	4.9	298	17.9	407	24.4

Personal income

	<20,2000		20,000-40,000		40,000-60,000		>60,000	
	n	%	n	%	n	%	n	%
Kivalliq	276	62.3	80	18.1	46	10.4	38	8.6
Baffin	381	54.2	138	19.6	85	12.1	97	13.8
Kitikmeot	175	53.5	59	18.0	37	11.3	54	16.5
Nunavut	832	56.5	277	18.8	168	11.4	189	12.8

Clinical Findings

Participants in each weight category by Body Mass Index (BMI)

	BMI < 18.5 Underweight		BMI 18.5-24.9 Normal weight		BMI > 24.9 Overweight or Obese	
	n	%	n	%	n	%
Kivalliq	5	1.0	169	32.8	341	66.2
Baffin	9	1.2	367	47.0	405	51.9
Kitikmeot	21	0.6	111	31.0	245	68.4
Nunavut	35	2.1	647	38.7	991	59.2

Average standing height of participants

	Men			Women		
	n	cm	ft/in	n	cm	ft/in
Kivalliq	249	166.2	5′ 5″	336	154.3	5′ 1″
Baffin	352	164.5	5′ 5″	546	153.6	5′ ½″
Kitikmeot	171	165.3	5′ 5″	244	158.7	5′ 2½″
Nunavut	662	165.3	5′ 5″	1003	155.9	5′ 1″

Participants in each waist circumference category

	Men				Women			
	Normal ≤ 102 cm		At risk >102 cm		Normal ≤ 88 cm		At risk >88 cm	
	n	%	n	%	n	%	n	%
Kivalliq	154	73.0	57	27.0	120	41.2	171	58.8
Baffin	254	85.5	43	14.5	246	51.1	235	48.9
Kitikmeot	98	68.1	46	31.9	75	35.2	138	64.8
Nunavut	506	77.6	146	22.4	441	44.8	544	55.2

Participants in each blood pressure range

	Normal		Pre-hypertensive		Hypertension Stage 1		Hypertension Stage 2	
	n	%	n	%	n	%	n	%
Kivalliq	286	60.7	135	28.7	41	8.7	9	1.9
Baffin	406	56.2	227	31.4	71	9.8	19	2.6
Kitikmeot	258	70.9	80	22.0	21	5.8	5	1.4
Nunavut	950	59.7	442	27.8	133	8.4	33	2.1

Participants with unhealthy blood lipid levels

	Total cholesterol (too high)		HDL-cholesterol (too low)		LDL-cholesterol (too high)		Triglycerides (too high)	
	n	%	n	%	n	%	n	%
Kivalliq	163	31.8	69	13.5	107	21.0	68	13.3
Baffin	318	40.9	157	20.2	200	26.3	101	13.0
Kitikmeot	143	39.1	54	14.8	77	21.2	37	10.1
Nunavut	624	37.7	280	16.9	384	23.5	206	12.4

Participants with "at risk" glucose levels

	Fasting glucose > 6 mmol/L		Post OGTT glucose > 7.8 mmol/L	
	n	%	n	%
Kivalliq	38	7.4	19	10.2
Baffin	13	3.6	10	7.3
Kitikmeot	53	6.8	19	7.4
Nunavut	104	6.3	48	8.3

Parasitic diseases and *Helicobacter pylori*

Incidence of a positive for exposure to *Echinococcus spp.*

	Men				Women			
	<40 yr old		≥40 yr old		<40 yr old		≥40 yr old	
	n	%	n	%	n	%	n	%
Kivalliq	12	5.6	9	4.2	19	6.3	9	3.0
Baffin	5	1.7	12	4.0	15	3.1	18	3.8
Kitikmeot	0	0	0	0	1	0.4	0	0
Nunavut	17	2.6	21	3.2	35	3.5	27	2.7

Incidence of a positive for exposure to *Trichinella nativa*

	Men				Women			
	<40 yr old		≥40 yr old		<40 yr old		≥40 yr old	
	n	%	n	%	n	%	n	%
Kivalliq	7	3.3	36	16.7	13	4.3	25	8.3
Baffin	22	7.3	50	16.6	29	6.1	78	16.4
Kitikmeot	0	0	1	0.7	0	0	3	1.3
Nunavut	29	4.4	87	13.2	42	4.2	106	10.6

Incidence of a positive for exposure to *Toxocara*

	Men				Women			
	<40 yr old		≥40 yr old		<40 yr old		≥40 yr old	
	n	%	n	%	n	%	n	%
Kivalliq	1	0.5	3	1.4	0	0	1	0.3
Baffin	0	0	7	2.3	1	0.2	5	1.0
Kitikmeot	0	0	1	0.7	0	0	3	1.3
Nunavut	1	0.2	11	1.7	1	0.1	9	0.9

Incidence of a positive for exposure to *Toxoplasma gondii*

	Men				Women			
	<40 yr old		≥40 yr old		<40 yr old		≥40 yr old	
	n	%	n	%	n	%	n	%
Kivalliq	5	2.3	38	17.8	6	2.0	39	12.9
Baffin	37	12.4	87	29.1	43	9.0	134	28.1
Kitikmeot	5	3.5	29	20.3	2	0.9	34	15.2
Nunavut	47	7.2	154	23.5	51	5.1	207	20.7

Incidence of a positive for exposure to *Brucella spp.*

	Men				Women			
	<40 yr old		≥40 yr old		<40 yr old		≥40 yr old	
	n	%	n	%	n	%	n	%
Kivalliq	2	1.2	5	2.9	3	1.3	5	2.1
Baffin	6	2.1	8	2.8	7	1.6	7	1.6
Kitikmeot[a]								
Nunavut[b]	8	1.8	13	2.9	10	1.5	12	1.7

[a] Not measured [b] Kivalliq and Baffin only

Incidence of a positive test for *Helicobacter pylori*

	Men				Women			
	<40 yr old		≥40 yr old		<40 yr old		≥40 yr old	
	n	%	n	%	n	%	n	%
Kivalliq	78	36.3	83	38.6	119	39.4	97	32.1
Baffin	111	36.9	106	35.2	175	36.7	157	32.9
Kitikmeot	41	28.5	47	32.6	71	31.7	80	35.7
Nunavut	230	34.8	236	35.8	365	36.4	334	33.3

IPY – Inuit Health Survey

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