

# Cancer Risk Factors and Screening

Among Inuit in Ontario and  
Other Canadian Regions



# Acknowledgements

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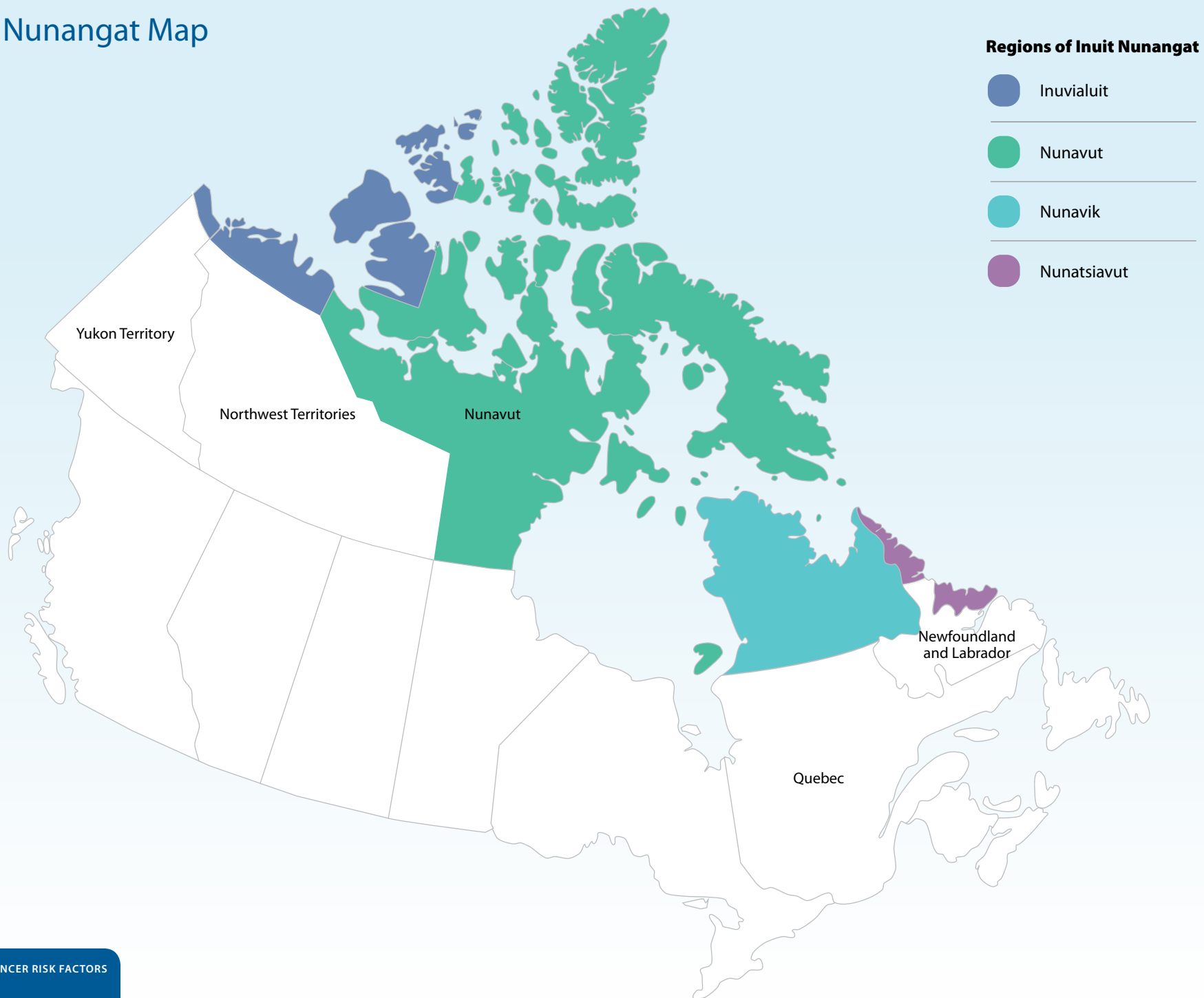
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# Inuit Nunangat Map



# Calls to Action

This report was developed collaboratively by Tungasuvvingat Inuit and Cancer Care Ontario in response to the limited information on cancer burden among Inuit living in Ontario (and other sub-Arctic regions of Canada). Included in the report are estimates of cancer risk and screening among Inuit living in and outside Inuit Nunangat (the traditional Inuit homeland—see map) and in Ontario specifically (where sample size permits), presented alongside cultural and geographical context to highlight the unique challenges Inuit face in securing the means necessary for health and wellbeing.

Across a number of indicators of cancer risk, Inuit living in and outside Inuit Nunangat fared poorer than non-Aboriginal Ontarians. Of particular concern was the high prevalence of smoking and low prevalence of household food security among Inuit compared to non-Aboriginal Ontarians. Additionally, a higher percentage of Inuit in the north were overdue for colorectal cancer screening. Generally, the pattern of risk for Inuit living in Ontario was similar to Inuit living outside Inuit Nunangat more broadly, with a higher proportion of current smoking overall, and a lower prevalence of food-secure households than the non-Aboriginal population.

There is a need for a coordinated data strategy for improving (i) the identification of Inuit in health administrative databases in Canada, (ii) the sampling strategies of population health surveys to ensure adequate coverage of Inuit living in sub-Arctic, urban and rural geographies, and (iii) the comparability of questions and response categories that are currently available in population health surveys.

Furthermore, our findings call for culturally appropriate, system-level interventions to improve the health and well-being of Inuit in all regions of Canada, with an emphasis on the growing population living outside Inuit Nunangat.

Recommendations for action have been called out by other reports, including:

- Tungasuvvingat Inuit released a report from the National Urban Inuit One Voice Workshop with 26 recommendations aimed at improving the health and wellbeing of Urban Inuit.<sup>1</sup>
- Cancer Care Ontario's *Path to Prevention—Recommendations for Reducing Chronic Disease in First Nations, Inuit and Métis* outlines policy recommendations for the Government of Ontario focusing on creating environments that encourage individuals, families and communities to make healthy choices.<sup>2</sup>
- In 2015, the Truth and Reconciliation Commission of Canada released 94 calls to action to redress the legacy of residential schools and advance the process of Canadian reconciliation.<sup>3</sup> This report supports the calls to action related to health priorities of Inuit in Canada, some of which include:
  - **Recommendation #19:** We call upon the federal government, in consultation with Aboriginal peoples, to establish measurable goals to identify and close the gaps in health outcomes between Aboriginal and non-Aboriginal communities, and to publish annual progress reports and assess long-term trends. Such efforts would focus on indicators such as: infant mortality, maternal health, suicide, mental health, addictions, life expectancy, birth rates, infant and child health issues, chronic diseases, illness and injury incidence, and the availability of appropriate health services.
  - **Recommendation #20:** In order to address the jurisdictional disputes concerning Aboriginal people who do not reside on reserves, we call upon the federal government to recognize, respect, and address the distinct health needs of the Métis, Inuit, and off-reserve Aboriginal peoples.
  - **Recommendation #22:** We call upon those who can effect change within the Canadian health-care system to recognize the value of Aboriginal healing practices and use them in the treatment of Aboriginal patients in collaboration with Aboriginal healers and Elders where requested by Aboriginal patients.
  - **Recommendation #23:** We call upon all levels of government to (i) increase the number of Aboriginal professionals working in the health-care field, (ii) ensure the retention of Aboriginal health-care providers in Aboriginal communities and (iii) provide cultural competency training for all healthcare professionals.

# Message from President of Tungasuvvingat Inuit



**Joyce Ford**  
President of Tungasuvvingat Inuit

It is my pleasure to release *Cancer Risk Factors and Screening Among Inuit in Ontario and other Canadian Regions* in partnership with Cancer Care Ontario. The creation of this report was a true Piliriqatigiinniq (working together for a common cause)—a collaboration between our organizations—and I would like to first thank all the authors who have made a significant contribution in writing it. Second, Cancer Care Ontario deserves thanks for recognizing and then responding to the need to create a report of this nature. This partnership is unique and Cancer Care Ontario is truly valued for its efforts in supporting the Inuit community through its expertise in the area of health data collection.

The first of its kind, this report reviews available statistics for urban Inuit on cancer screening and modifiable behaviours. The information it provides will serve as a valuable tool that will enable our communities to take better care of themselves and help us modify our health outcomes with respect to cancer and cancer screening. This report shows that small changes daily can have large impacts on our future health in the long term.

Breaking down barriers to staying healthy by dispelling myths about cancer is consistent with Tungasuvvingat Inuit's mandate to empower and enhance the lives of Inuit across Ontario, and both Tungasuvvingat Inuit and Cancer Care Ontario recognize the need for further research in the area of urban Inuit health. The Calls to Action in this report reflect this need and are echoed by all Inuit organizations in health research.

There is a need for a coordinated data strategy to improve:

- the identification of Inuit in health administrative databases in Canada;
- the sampling strategies of population health surveys to ensure adequate coverage of Inuit living in sub-Arctic, urban and rural geographies; and
- the comparability of questions and response categories that are currently available in population health surveys.

It is our sincerest hope that *Cancer Risk Factors and Screening Among Inuit in Ontario and other Canadian Regions* will be used by healthcare professionals, health-based research institutions and others to inform their future work with Inuit, and that the recommendations expressed in the report can be used by institutions that are our allies to improve the future of Inuit health.

Sincerely,

A handwritten signature in black ink that reads "Joyce Ford". The signature is fluid and cursive.

**Joyce Ford**  
President  
Tungasuvvingat Inuit

# Message from CCO



**Michael Sherar**  
President and CEO, CCO

In May 2017, I was honoured to meet with representatives from several Inuit health service providers in the Champlain region for the signing of a Relationship Protocol. This step helped to formalize our partnership and outline the principles of how we will work together to address common cancer control priorities. The signing marked a historic moment in our efforts towards our shared goal of reducing the burden of cancer for the Inuit people in Ontario.

The release of *Cancer Risk Factors and Screening Among Inuit in Ontario and other Canadian Regions* is another important step in our partnership journey.

As the Ontario government's principal advisor on cancer care, Cancer Care Ontario works with many partners to drive continuous improvement in disease prevention and screening, the delivery of care and the patient experience for all Ontarians. This mission is supported by our fourth Ontario Cancer Plan, which reinforces our commitment to ensuring health equity, and our third Aboriginal Cancer Strategy, which places a priority on productive relationships, prevention, and research and surveillance among First Nations, Inuit and Métis.

*Cancer Risk Factors and Screening Among Inuit in Ontario and other Canadian Regions* focuses on the unique and diverse health service needs of Ontario's growing Inuit population. While evidence suggests that rates of cancer and other chronic disease among Inuit are rising to meet or exceed those of the general population, this report highlights the need for good-quality and comprehensive Inuit health data, particularly for those living in urban areas. Good surveillance data are critical for identifying where

the greatest needs exist, making informed decisions, taking action and measuring the impact of our initiatives.

This report begins to address this information gap with statistical estimates that provide, for the first time, a picture of cancer risk factors (tobacco, alcohol and diet) and screening participation among Inuit. Also included is the cultural and historical context that influences Inuit-specific determinants of health. Together, this information sheds light on how and why cancer and other chronic illnesses are disproportionately affecting this population. In addition, it helps identify opportunities to set health priorities and develop evidence-based, culturally relevant policy recommendations for reducing the burden of chronic disease among Inuit in Ontario.

This report is the result of a strong collaboration with Tungasuvvingat Inuit. It reflects our shared vision to improve the performance of the health system for Inuit and to make available relevant information to organizations and communities with a cancer control mandate. I am delighted to join with Tungasuvvingat Inuit in the release of this report and continue our joint work to improve the health and well-being of Inuit in Ontario and beyond.

A handwritten signature in black ink that reads "Michael Sherar". The signature is fluid and cursive.

**Michael Sherar**  
President and CEO, CCO

# Executive Summary

This report was developed as a tool for highlighting the cancer burden among Inuit populations in Ontario and other Canadian regions. It provides the first-ever consolidated description of cancer risk factors and screening in Inuit populations, particularly in southern regions of Canada, with an emphasis on relevant historical and geographical contexts. Its intention is to begin to mobilize evidence that will help Inuit improve their health status and achieve improved security in accessing the healthcare system wherever they live.

Together, Tungasuvvingat Inuit and the Aboriginal Cancer Control Unit of Cancer Care Ontario not only compiled statistical estimates, but also prioritized the inclusion of information that illustrates the cultural and historical experience of Inuit. Two companion materials were created to bring attention to Inuit-specific determinants of health: a *timeline* that depicts several key historical and contemporary events and an *Inuit Nunangat medical travel map* that shows where primary care and specialized care services are located.

Inuit are one of the fastest growing and youngest sub-populations in Canada. In 2011, 59,460 people identified as Inuit. Almost three-quarters of Inuit lived in Inuit Nunangat, which consists of the western edge of the Northwest Territories (the Inuvialuit Settlement Region), the territory of Nunavut, northern Quebec (Nunavik) and northeastern Labrador (Nunatsiavut). The remaining 27 percent that lived elsewhere showed a five percent population increase since the 2006 census. With the growing sub-Arctic, rural and urban Inuit populations, now is the time to anticipate health and wellness needs, and proactively plan to accommodate them.

There are many factors that can influence the risk of developing cancer and the likelihood of surviving it. Certain lifestyle and behavioural risk factors, such as smoking cigarettes and drinking alcohol, can negatively influence cancer outcomes.

Inuit living in and outside of Nunangat are using and being exposed to tobacco at a greater rate than non-Aboriginal people living in Ontario, which has implications for greater future burden of tobacco-related cancers. Research already shows that Inuit in the Arctic have the highest rates of lung cancer in the world, which means it is essential to further understand tobacco patterns in northern and southern Inuit regions, and to implement meaningful health interventions and coordinated efforts at the municipal, provincial and territorial levels.

Some lifestyle and behavioural factors can reduce potential cancer burden. For example, eating plenty of vegetables and fruit, maintaining a healthy weight and being physically active can reduce one's risk of developing cancer. Country food (i.e., traditional food) is also an important component of a healthy diet for Inuit. However, access and affordability of country foods has become a widespread challenge for Inuit and the prevalence of food security is low for Inuit across Canada. Efforts are urgently needed to understand and address these challenges.

Participation in cancer screening programs is another way to reduce potential cancer burden. Screening can find cancer before it develops or find it earlier (depending on the cancer type), which can lead to reduced cancer mortality (deaths) and improved survival. Evidence strongly supports regularly screening for breast, cervical and colorectal cancer among people in specific age ranges with no cancer symptoms. However, this report reveals gaps in cancer screening participation among Inuit populations. For example, more Inuit in the north are overdue for colorectal screening than the national average. Furthermore, although information on cancer screening in Inuit living in southern Canada is scarce, there is some evidence to suggest that Inuit living in Ontario are less likely to get screened for colorectal cancer. Recent data also suggest that cervical screening participation has improved for Inuit living in northern and southern Canada despite their relatively high rates of cervical cancer incidence (new cases), nevertheless little is known about the efficiency of follow-up of abnormal tests and care received. These examples speak to the need for more or different strategies to improve and maintain cancer screening participation in Inuit populations.



## Key Findings – Tobacco



**TOBACCO USE IS** the single most important modifiable cause of cancer and is responsible for an estimated 15 percent of all cancers diagnosed in Ontario each year, or about 10,000 cases. Many of the types of cancer closely linked with smoking have poor prognoses.

Inuit adults in Nunangat had the highest proportion of people (prevalence) who currently smoke, with nearly three-quarters of respondents (73 percent of men, 74 percent of women) reporting smoking daily or occasionally.

Over one-third (37 percent) of Inuit living outside Nunangat reported smoking daily or occasionally, compared to about one-quarter of non-Aboriginal Ontarians (23 percent).

Among Inuit living outside Nunangat, the prevalence of smoking was especially high in women (41 percent) and is two times higher than among non-Aboriginal women in Ontario (18 percent).

Inuit living outside Nunangat with higher levels of education showed a trend towards lower smoking prevalence, while Inuit living in Nunangat across all education levels showed no difference in smoking prevalence.

**Ontario:** About one-third of Inuit in Ontario were current smokers (34 percent) compared to 23 percent of non-Aboriginal Ontarians. This estimate should be interpreted with caution, due to the small number of Inuit survey participants in Ontario.

**NO AMOUNT OF SECOND-HAND SMOKE IS SAFE.** Among non-smokers, the risk of lung cancer is two to four times higher for those exposed to the cigarette smoke of others.

The prevalence of exposure to second-hand smoke in the home for non-smokers living outside Nunangat was two times higher than for non-Aboriginal Ontarians; the prevalence was four times higher for non-smokers living in Nunangat.

## Key Findings – Alcohol



**ALCOHOL IS** under-recognized as a cancer-causing substance. Drinking even moderate amounts of alcohol increases the risk of a number of cancers, including mouth and throat, liver, breast and bowel; not drinking is the best way to reduce cancer risk. People who both smoke and drink have a particularly high risk of developing cancer. About 1,000 to 3,000 new cancer cases per year (two to four percent) in Ontario are from alcohol consumption.

Inuit men and women inside Nunangat had a higher prevalence of alcohol abstinence in the previous 12 months (32 percent of men, 38 percent of women) than Inuit living outside Nunangat (10 percent of men, 14 percent of women) and non-Aboriginal Ontarians (15 percent of men, 23 percent of women).

The prevalence of binge drinking was similar in Inuit men living in Nunangat (20 percent) and outside Nunangat (26 percent), and in non-Aboriginal men across Ontario (21 percent).

Inuit women living in Nunangat had a higher prevalence of binge drinking (13 percent) than non-Aboriginal women in Ontario (8.7 percent).

## Key Findings – Healthy Living



**COUNTRY FOOD** is the name that Inuit use to describe traditional foods provided by the land and sea.<sup>4</sup> These foods are highly nutritious and can reduce the need for Inuit to eat highly processed or unhealthy convenience foods. The harvesting and sharing of country food is also an important social aspect of Inuit culture. Country foods contribute to a healthy diet, which also includes plenty of plant foods (non-starchy vegetables, fruit, whole grains and legumes). An unhealthy diet increases risk of colorectal cancer and probably other gastrointestinal cancers.

**FOOD INSECURITY** occurs when a household's access to nutritious food is compromised due to limited financial resources. Adults and some children experiencing food insecurity tend to eat significantly fewer servings of vegetables and fruit than those who are food secure. Individuals or households are food secure when they access to enough safe and nutritious food to meet their needs and preferences for a healthy life.

Low levels of food security speak to the issues of food access and affordability facing Inuit communities. While the survey responses in the Aboriginal Peoples Survey and Canadian Community Health Survey were from adults, these data capture the experience of children living in their household.

In Inuit living in Nunangat, less than 50 percent lived in food-secure households (48 percent of men, 47 percent of women).

Inuit living outside Nunangat had a lower prevalence of household food security (83 percent) than non-Aboriginal Ontarians (94 percent), a disparity that was especially pronounced in the youngest age group, 16 to 24 year olds.

For all three groups, respondents with higher education were more likely to report living in a food-secure household than respondents with the least amount of education.

**Ontario:** There was a large enough sample size to produce estimates of household food security among Inuit in Ontario. About two-thirds (67 percent) of Inuit in Ontario reported living in a food-secure household, which is significantly less than non-Aboriginal respondents in Ontario (94 percent).

**BEING OVERWEIGHT AND OBESE** is responsible for about four percent of cancers diagnosed in Ontarians—more than 2,500 every year. The majority of these cancers occur in the bowel, breast or kidneys. Obesity is a concern because the greater the excess weight, the higher the cancer risk.

Inuit women living in Nunangat (28 percent) and outside Nunangat (30 percent) had nearly two times the prevalence of obesity as non-Aboriginal women (17 percent).

A lower proportion of Inuit men living in Nunangat were overweight (28 percent) and a higher proportion were obese (20 percent) than non-Aboriginal men in Ontario (38 percent overweight; 16 percent obese).

**Ontario:** There was a large enough sample size to produce estimates of excess body weight among Inuit in Ontario (overweight and obese combined). Inuit women had a higher prevalence of excess body weight (60 percent) than non-Aboriginal women in Ontario (41 percent).

## Key Findings – Cancer Screening



**POPULATION-BASED SCREENING** is recommended for colorectal, breast and cervical cancer because there is strong scientific evidence showing that it reduces morbidity (amount of disease) and disease-specific mortality. Cancer Care Ontario operates organized screening programs for these three cancers. Screening helps find cancer early, before there are symptoms and when treatment is most effective. For cervical cancer, screening with the Pap test can even identify pre-cancerous cells, which can then be removed so cancer doesn't develop.

A higher proportion of Inuit living in Nunangat were overdue for colorectal screening (72 percent of men, 66 percent of women) than non-Aboriginal Ontarians (43 percent of men, 41 percent of women).

The proportion of screen-eligible women who reported having a Pap test in the last three years was similar across all three groups (77 percent of Inuit women in Nunangat, 83 percent of Inuit women outside Nunangat and 76 percent of non-Aboriginal women in Ontario).

## Summary and Implications

This report marks a breakthrough in the effort to improve the understanding of Inuit health across regions of Canada. Using data from population health surveys, estimates were produced for several indicators of cancer risk and screening among Inuit living in the traditional territory of Inuit Nunangat, outside Nunangat (as a proxy for Ontario) and, in some cases (when the sample size was large enough), for Inuit living in Ontario. This information is presented alongside important social and geographical contexts in the form of a *timeline of key events* and an *Inuit medical travel map* that show the unique challenges Inuit face in securing the means necessary for health and wellbeing.

Across most indicators of cancer risk, Inuit living in and outside Inuit Nunangat fared poorer than non-Aboriginal Ontarians. In particular, Inuit in both regions had higher prevalence of smoking and lower prevalence of household food security than non-Aboriginal Ontarians. Additionally, a higher percentage of Inuit in the north were overdue for colorectal cancer screening. Generally, the pattern of risk for Inuit living in Ontario was similar to Inuit living outside Inuit Nunangat.

Despite the knowledge this report provides, more high-quality and comprehensive data targeting the growing Inuit population in sub-Arctic regions of Canada are needed to support strategies that enhance the health and wellbeing of Inuit and reduce their future burden of cancer.



# About this Report

This report marks a breakthrough in the effort to improve the understanding of Inuit health across regions of Canada.

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This report presents estimates of cancer risk factors and screening participation in Inuit populations in Canada, as well as cultural and historical contexts to highlight Inuit-specific determinants of health. Specifically, it includes:

- information about Inuit in Canada and their health status;
- information about cancer in Ontario;
- information on the main factors known to impact cancer risk; and
- prevalence (proportion of people) estimates for Inuit living in and outside Inuit Nunangat for selected modifiable factors that affect cancer risk or burden: tobacco, alcohol, healthy living (food security, body weight) and cancer screening.

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**Cancer risk factors** included in this report are those that:

- have evidence of an association with cancer risk;
- are potentially modifiable; and
- appear in both the Canadian Community Health Survey and the Aboriginal Peoples Survey with similar questions and response categories (see **Appendix C** for details).

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**Contextual information** provided in this report includes:

- a timeline of key events for Inuit in Canada;
- an Inuit medical travel map; and
- Diet in the North—findings from the 2006 Aboriginal Peoples Survey Arctic Supplement.

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**There are two primary sources of data** for this report:

- **Statistics Canada’s Aboriginal Peoples Survey:** This survey provides estimates of cancer risk in Inuit living in Inuit Nunangat, outside Inuit Nunangat (as a proxy for Ontario) and in Ontario (where there is a large enough sample size). This report contains data primarily from the 2012 Aboriginal Peoples Survey, with the exception of the “Diet in the North” section, which is based on data from the Arctic supplement conducted only for the 2006 Aboriginal Peoples Survey. The Aboriginal Peoples Survey does not include questions related to cancer screening.

- **Statistics Canada’s Canadian Community Health Survey:** This survey provides estimates of cancer risk in non-Aboriginal Ontarians. The 2012 Canadian Community Health Survey was chosen for comparison with Inuit population estimates from the 2012 Aboriginal Peoples Survey. Additionally, multiple survey years of the Canadian Community Health Survey were combined to estimate cancer screening participation in Inuit and non-Aboriginal populations (refer to **Appendix B** for details).

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**Prevalence of modifiable risk factors** is estimated as the percentage of people engaging in a specified behaviour and is shown graphically, where sufficient sample size allows, for the following:

- Inuit living in Inuit Nunangat, outside Inuit Nunangat and Ontario specially (Aboriginal Peoples Survey); and
- Non-Aboriginal people living in Ontario (Canadian Community Health Survey).

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**Prevalence of cancer screening** is estimated as the percentage of people who are overdue or up to date for screening tests and is shown graphically, where sufficient sample size allows, for the following:

- Inuit living in the north and south, and non-Aboriginal people living in Ontario (Canadian Community Health Survey).

Because age distributions differ for Inuit and non-Aboriginal Ontarians, most estimates adjust for these variations in age (i.e., age-standardized—see Appendix B: Data Sources, Analytic Definitions and Methods for details). Variations in the prevalence between the two populations are therefore not due to age differences. Estimates are displayed along with 95 percent confidence limits to show how much the estimates may vary.

A young Inuit child is shown in profile, looking towards the right. The child has dark hair styled in two braids, each adorned with colorful beads. They are wearing a dark blue jacket with a light blue decorative trim along the collar. The background is a vast, open landscape of brown, rocky terrain with patches of snow under a bright, clear sky. The lighting is warm and natural, suggesting a sunny day.

# Introduction and Context

The word Inuit means “the people” in the most commonly used Inuit language of Inuktitut. Inuit are culturally similar Indigenous Peoples who have lived throughout the Arctic for thousands of years.

## Inuit in Canada: History

The word Inuit means “the people” in the most commonly used Inuit language of Inuktitut.<sup>5</sup> Inuit are culturally similar Indigenous Peoples who have lived throughout the Arctic for thousands of years.<sup>6</sup>

The Tuniiit or Dorset people were the first inhabitants of the coastal regions of Arctic Canada from 500 BC to 1500 CE, before they were invaded by the Thule Inuit, originally from Greenland.<sup>7</sup> The Thule Inuit displaced the Dorset people for unknown reasons, who migrated south to what is now known as northern Québec and Labrador.<sup>8</sup> The Thule were skilled whale hunters and depended on a variety of animals for food and clothing, including seals, walrus, fish, caribou and large sea animals, such as the bowhead whale.<sup>9</sup> During the summer months, the Thule Inuit were nomadic and followed the migration of mammals. Unlike the modern Inuit who used ice and snow to build igloos for shelter during the winter months, the Thule Inuit constructed house frames from whalebone, stone and turf.<sup>9</sup> From 1650 to 1850, weather conditions forced whales south, leading the Thule Inuit to migrate in search of food.<sup>10</sup> After 1600 AD, the Thule culture began to decline due to changes in climate conditions and the introduction of diseases from European voyagers.<sup>10</sup>

Contact with Europeans dates back to the 10<sup>th</sup> century, when Viking expeditions attempted to colonize native populations in Greenland, the Arctic and Labrador, landing on Baffin Island and along the coastal regions of the Atlantic.<sup>6</sup> In the late 15<sup>th</sup> century, European explorers began to arrive on the northeast coast of North America in search of a Northwest Passage to Asia.<sup>6</sup> European influence continued to expand with their exploration of Arctic waters and the formation of the Hudson’s Bay Company in 1670.<sup>6,7</sup> The Hudson’s Bay Company expanded commercial networks and trading posts throughout the Arctic. Their dealers relied heavily on Inuit to source furs and hides in exchange for food and tools, such as “metal knives, and needles, rifles, tobacco, cloth and food.”<sup>6,7</sup>

In the mid to late 1800s, large-scale whaling operations had taken over the Arctic waters and Inuit were introduced to huge quantities of manufactured goods (including tobacco and alcohol), as well as infectious diseases to which they had no natural immunity, which resulted in the deaths of thousands of Inuit.<sup>6,11</sup> The British North America Act of 1867 excluded Inuit from the definition of “Indians,” leaving their legal status as First Peoples unclear.<sup>12</sup> In 1939, after a ruling from the Supreme Court of Canada, Inuit were designated as the responsibility of the federal government.<sup>12</sup> Throughout the mid-1900s, Inuit were denied control of many aspects of their lives, such as health, education, transportation, housing and culture.<sup>6</sup> This rapid and forced acculturation—which included residential schooling, relocations and slaughtering of traditional sled dogs—caused immense grief, pain and frustration in Inuit communities, and has had a dramatic impact on their health and well-being. Despite these traumatic events, Inuit have consistently demonstrated resilience, perseverance and optimism, focusing on healing, self-improvement and family well-being.

[Open to view \*timeline of key events\*](#) →

## 13<sup>th</sup> century

### Thule people: ancestors of Inuit

The Tunii or Dorset people were the first known to inhabit Arctic Canada from 500 BC to 1500 CE before being invaded by the Thule Inuit.<sup>7</sup> The Thule originally migrated east from Alaska and were skilled whale hunters who depended on a variety of animals for food and clothing.



## 1819–1845

### Franklin expeditions

From 1819–1845, Sir John Franklin, an English explorer, made several expeditions in an attempt to navigate the Arctic waters and to complete mapping of the Northwest Passage.<sup>6</sup> Through his explorations and many others, the cartography of Arctic Canada was developed, and Inuit became more familiar with the presence of foreigners.

## 1931

### Eskimo Book of Knowledge

The Eskimo Book of Knowledge, written by George Binney, was published by the Hudson's Bay Company with the intention of "arming the Eskimo with vital knowledge" on the British Empire, health, and the changes coming to the north.<sup>14,15</sup>



## 1939

### British North American Act – Revised

The British North America Act was revised to include Inuit in the classification of Indians in Canada.<sup>12</sup> Inuit became the responsibility of the federal government.

## 1946–1969

### C.D. Howe medical patrol and displacement of Inuit due to tuberculosis outbreak

The Government of Canada sent a coast guard ship called C.D. Howe to voyage the arctic and remove tuberculosis patients who were sick enough to require medical treatment in southern Canadian hospitals.<sup>16</sup> Thousands of Inuit were displaced from their homes in the process. Most Inuit were taken immediately without time to say goodbye to their families. For those who survived, their stay in southern hospitals was long and many lost their language, culture and connection to their traditional home.



## 17<sup>th</sup> century

### Introduction of foreign diseases, alcohol and tobacco

In the late 17<sup>th</sup> and 18<sup>th</sup> centuries, European voyageurs and whalers introduced Inuit to tobacco and alcohol in exchange for caribou skins and meat, whalebone, walrus ivory, dogs and fish.<sup>6</sup> With the arrival of Europeans came the introduction of foreign diseases, such as influenza, tuberculosis, syphilis and measles.

## 1867

### British North America Act

The British North America Act establishes Canada as a nation and made "Indians" wards of the Crown.<sup>12</sup> Inuit were excluded from the definition of "Indians," leaving their legal status as Indigenous Peoples unclear.

## 1920-1970

### Arctic Sovereignty; Inuit relocations

As early as the 1920's, the Canadian government—largely motivated by concern over sovereignty of the Canadian Arctic—facilitated Inuit relocations to move Inuit to areas of supposed resources.<sup>13</sup> The 1953 relocations of Inuit families from northern Quebec to the High Arctic (resolute Bay and Grise Fiord) were perhaps the most controversial. Motivations for the relocation were not clearly conveyed, and Inuit were forced to adapt to the much colder climates with longer periods of total light or darkness. In 1955, The Canadian and United States governments agreed to construct the Distant Early Warning (DEW) Line, a system of 63 radar and communication stations—with 42 stations located along the Canadian Arctic coast—designed to give at least four-hour warning to protect North America against airborne attacks from the Soviet Union. These increases in defence technology and American defence partnerships meant that Inuit residency in remote areas was no longer considered so pressing as a means to monitor the North.

## 1941–1972

### E-numbers

The Government of Canada introduced identification numbers commonly referred to as "E" or "W" Tags. Tags beginning with E classified the Eastern Arctic region while W classified Western Canada. Government officials, the Hudson's Bay Company, Royal Canadian Mounted Police and members of the medical community used this form of identification to keep track of Inuit.<sup>13</sup> From 1968–1972, the Northwest Territory Council proposed Project Surname, where federal administrators registered both given and family names for Inuit, and the use of E-numbers subsequently ended.

E-numbers Image Source: Barry Pottle



**1948–1953**

## Contemporary period of Inuit art

The early and developmental years of contemporary Inuit art were 1948 to 1953.<sup>17</sup> The Canadian Handicraft Guild sponsored the James Houston project promoting Inuit carvings in the south.<sup>18</sup>



**1951**

## Residential schools

Residential schools for Inuit started as early as the late 1860s in the Northwest Territories; however, the first government-regulated school for Inuit opened in 1951 in Chesterfield Inlet, Nunavut.<sup>19</sup> Many students who attended residential schools endured physical, emotional and sexual abuse, and were the subject of nutrition and biomedical experiments.<sup>20</sup>



**1960s–present**

## Federal government addresses affordable food in Northern Canada

The Government of Canada enacted a Northern Air Stage Program (also known as Food Mail), which subsidized northern communities by ordering and shipping food from southern supply hubs.<sup>23</sup> The subsidy shifted from community to retailers when Nutrition North replaced Food Mail in 2011, giving the retailer the subsidy based on the weight of eligible foods that could be shipped to eligible communities.

**1971**

## Formation of Inuit Tapirisat of Canada (later renamed Inuit Tapiriit Kanatami)

The Inuit Tapirisat of Canada (Tapirisat means “brotherhood” in English) was formed and later renamed the Inuit Tapiriit Kanatami (ITK), which means “Inuit are united in Canada.”<sup>25</sup> ITK is a not-for-profit organization that represents over 60,000 Inuit and serves as a national voice protecting and advancing the rights and interests of Inuit in Canada.



**1975**

## James Bay and Northern Quebec Agreement

The first comprehensive land claim agreement in Canada, for James Bay and Northern Quebec, was settled.<sup>6</sup> Makivik corporation was established to represent the interests of the Inuit of Nunavik and manage the compensation of funds.



**1960s**

## Sixties scoop

From the 1960s to the end of the 1980s, an estimated 20,000 First Nations, Inuit and Métis children were apprehended by Canadian welfare agencies, many times without parental knowledge or consent.<sup>21</sup> The children were placed in foster homes or adopted by non-Indigenous families in Canada, the United States and Europe. Traumas experienced by Inuit families as a result of the Sixties Scoop still persist today.<sup>22</sup>

**1950**

## Right to vote

Inuit were granted the right to vote in federal elections in 1950, and for territorial and provincial elections in the following years.<sup>6</sup>

**1970**

## Lena Pedersen

On December 21, 1970 Lena Pedersen became the first Inuk person and first woman elected to the Legislative Assembly of the Northwest Territories.<sup>24</sup>

**1972–present**

## Ban on seal products

Beginning in 1972, when the United States passed the marine Mammal Protection act banning the importation of seal products, up to the more recent European Union seal ban in 2009, Inuit have struggled with the destruction of the seal industry and declining demand for the product.<sup>26,27</sup> The seal harvest is central to the Inuit way of life and these regulations have had a devastating effect on local economies.



**1977**

## Inuit Circumpolar Council

Led by Eben Hopson at the first Inuit Circumpolar Conference, delegates from Alaska, Canada and Greenland agreed to found the Inuit Circumpolar Council to work together on an international basis towards protecting and promoting the Inuit way of life. At the 1992 ICC General Assembly Chukotka, Russia officially joined the organization.

**1984**

## Inuvialuit Final Agreement

The Inuvialuit Regional Corporation (IRC) was formed in 1984 following the Inuvialuit Final Agreement (IFA).<sup>28</sup> The IRC represents the collective Inuvialuit interests in dealings with governments and the world at large.

**1987**

## Formation of Tungasuvvingat Inuit

Tungasuvvingat Inuit was incorporated in 1987 to provide support for Inuit in Ontario as the result of an Inuit needs-assessment study.<sup>30</sup> The study demonstrated the necessity of a service geared to the unique cultural requirements of Inuit, assisting them in making the huge adjustment from Northern life to Southern urban living.



Tungasuvvingat Inuit

**1990**

## Pudlo Pudlat

Pudlo Pudlat was the first Inuit artist to have a solo exhibition in the National Gallery of Canada: "Pudlo: Thirty Years of Drawing."<sup>17</sup>

**1995**

## Woodland Cemetary Memorial, Hamilton Ontario

A memorial in Woodland Cemetery was built to commemorate the deaths/burials of several Inuit who died of tuberculosis at the Mountain Sanatorium.<sup>33</sup>



**1997**

## Nancy Karetak-Lindell

Nancy Karetak-Lindell was elected as the first Member of Parliament for the new riding of Nunavut.<sup>35</sup>

**1996**

## Royal Commission on Aboriginal Peoples report

The Royal Commission on Aboriginal Peoples' released a five volume report that included 440 recommendations calling for widespread changes to the relationship between Aboriginal and non-Aboriginal people and the governments in Canada.<sup>34</sup>

**1994**

## Susan Aglukark and Mary J. May Simon

Susan Aglukark received the Canadian Country Music Association Vista Rising Star award and the National Aboriginal Achievement Award in the Arts and Entertainment category, which was the first time this award was given to an entertainer.<sup>32</sup> Mary J. May Simon became the first Inuk to hold an ambassadorial position when she was appointed as Canada's first Ambassador for Circumpolar Affairs.<sup>31</sup>

**1987**

## Northwest Company relaunched as food distributor in Northern Canada

The Northwest Company, a fur trading company that merged with the Hudson's Bay company, relaunched as the Northwest Store, food distributor to many of Northern Canada's communities.<sup>31</sup>

**1984**

## Senator Charlie Watt

Appointed to the Senate by former prime minister Pierre Elliott Trudeau, Senator Charlie Watt represented the province of Quebec and the Senatorial Division of Inkerman.<sup>29</sup>

**INUVALUIT**  
REGIONAL CORPORATION



**2003**

## Elisapee Sheutiapik

Elisapee Sheutiapik became the first Inuk woman to serve as Iqaluit's mayor.<sup>36</sup>

**2005**

## National Urban Inuit Report

Tungasuvvingat Inuit and the Inuit Relations Secretariat of the Department of Indian and Northern Affairs Canada released a report from the National Urban Inuit One Voice Workshop with 28 recommendations for improving the health and wellbeing of urban Inuit.<sup>1</sup>

**2008**

## Apology from Prime Minister Stephen Harper to students of Residential Schools

This marked the first formal apology by a prime minister for the federally financed program that was attended by over 150,000 First Nations, Inuit and Métis students.

**2010**

## Apology from government on forced relocation

On August 18, 2010, John Duncan, Minister of Indian and Northern Affairs, delivered an official apology for the Canadian government's forced relocation of Inuit families to remote parts of the Arctic during the 1950s.<sup>39</sup>

**2014**

## The Qikiqtani Truth Commission

The *Community Histories 1950–1975* and *Qikiqtani Truth Commission: Thematic Reports and Special Studies* are published. This report highlights the oral history of Inuit in the Qikiqtani region.<sup>41</sup>

**2017**

## Our Health Counts

The Our Health Counts Urban Indigenous Health Database project released their report on the health of Inuit adults living in the city of Ottawa; developed in partnership by Tungasuvvingat Inuit and the Centre for Research on Inner City Health.<sup>42</sup>

**NUNATSIAVUT**  
savamanga Government

**2007–2008**

## Inuit Health Survey

McGill University, jurisdictional steering committees and Inuit communities partnered to conduct the Inuit Health Survey "Qanuqitpit? Qanuippitali? Kanuivit?" "How about us? How are we?"<sup>37</sup> The Inuit Health Survey was the first comprehensive survey on the health of Inuit adults and children in the Inuvialuit Settlement Region, Nunavut and Nunatsiavut. The survey was conducted in partnership between McGill University, jurisdictional steering committees and Inuit communities.

**2008**

## The Honourable Leona Aglukkaq, PC

On October 30, 2008, Leona Aglukkaq was the first Inuk in Canadian history to be appointed to the Cabinet of Canada as Minister of Health.<sup>38</sup>

**2011**

## Apology from Quebec Premier Jean Charest to the Inuit of Quebec and Nunavik for the slaughter of hundreds of sled dogs.

On August 8, 2011, Jean Charest offers an apology for the Province's role in the slaughter of hundreds of sled dogs. The apology follows the recommendations concluded from retired Quebec Superior Court judge Jean-Jacques Croteau's 2010 report regarding the allegations concerning the slaughter of Inuit sled dogs in Nunavik (1950–1970).<sup>40</sup>

**2015**

## Truth and Reconciliation Commission (TRC) publishes final report

On December 15, 2015, the TRC outlined 94 calls to action, urging all levels of government to work together and enact policies to repair the damage caused by Residential schools and move forward in the spirit of reconciliation.<sup>3</sup>

**2005**

## Nunatsiavut government created

The Labrador Inuit Association (LIA) signed their final agreement. At this point the LIA ceased to exist and the government of Nunatsiavut was established.<sup>5</sup>

## Inuit in Canada: Today

Inuit are one of three groups of peoples recognized by Canada's Constitution Act of 1982 as "the Aboriginal peoples of Canada," who are explicitly defined as "the Indian [now referred to as "First Nations"], Inuit, and Métis peoples."<sup>43</sup> According to the 2011 National Household Survey, nearly 60,000 people in Canada (3,360 in Ontario) identified as being Inuit and about 73,000 people in Canada (6,175 in Ontario) reported having Inuit ancestry.<sup>44</sup>

### Geography

In 2011, about three-quarters (73 percent) of Inuit in Canada lived in 53 communities across the northern regions of Canada in Inuit Nunangat, which means "the place where Inuit live" (Table 1). Inuit Nunangat is made up of four regions: Inuvialuit Settlement Region (including parts of Northwest Territories and Yukon), Nunavut, Nunavik (Northern Quebec) and Nunatsiavut (Labrador) (Figure 1).<sup>44</sup>

**TABLE 1** Self-identifying Inuit Population, by region, 2006 and 2011

Region	Sub-region	Population size (2006)	Population size (2011)
Inuit Nunangat	Inuvialuit	3,115 (6.2%)	3,310 (5.6%)
	Nunavut	24,635 (48.8%)	27,070 (45.5%)
	Nunavik	9,565 (18.9%)	10,750 (18.1%)
	Nunatsiavut	2,160 (4.3%)	2,325 (3.9%)
Outside Nunangat	Rest of Canada	11,010 (21.8%)	16,000 (26.9%)
	Total	50,485 (100%)	59,460 (100%)

Source: Statistics Canada, 2006 Census of the Population<sup>45</sup> and 2011 National Household Survey<sup>44</sup>

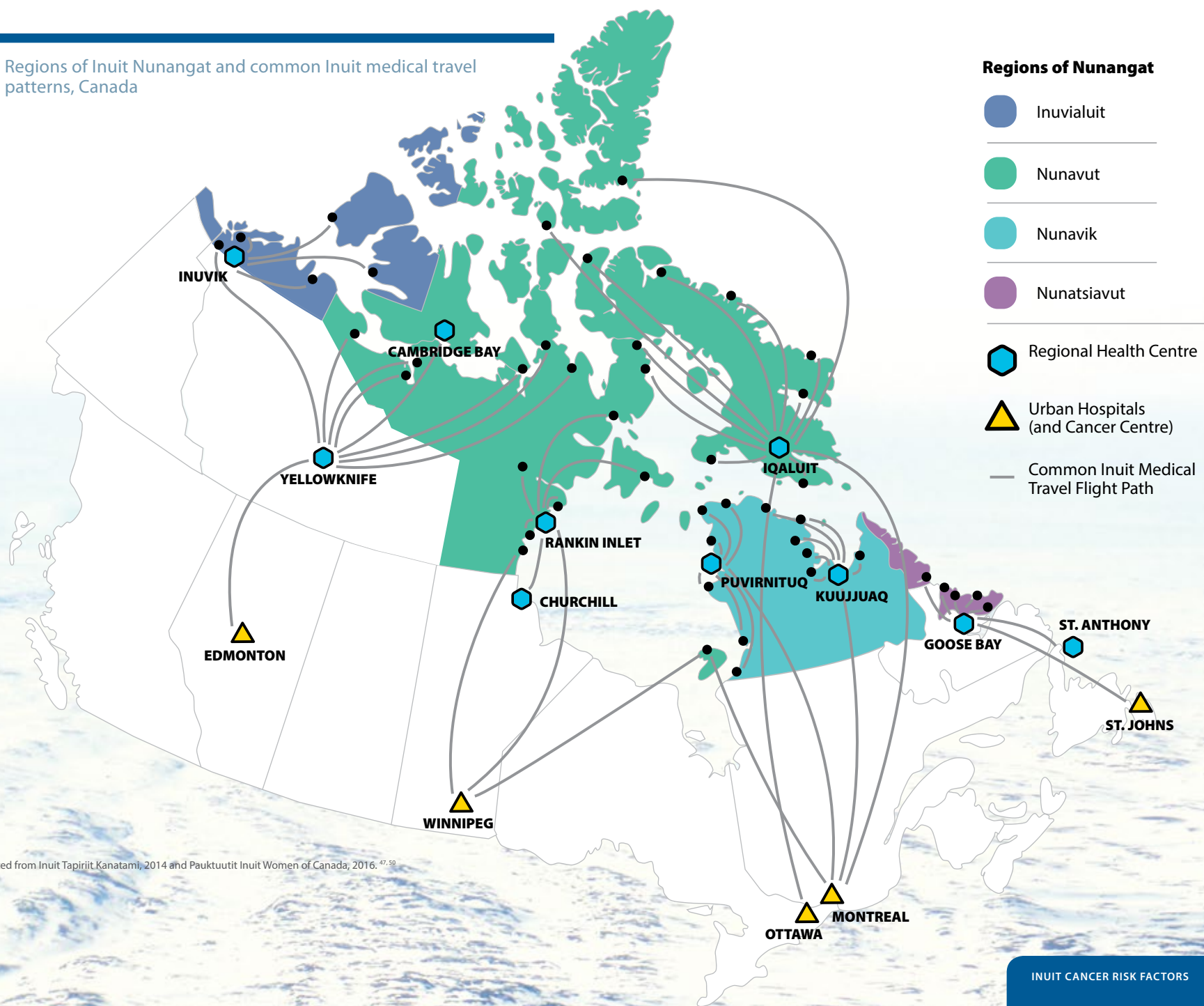
A growing percentage of Inuit live in other parts of Canada, particularly in southern urban centres. In 2011, 27 percent lived outside Inuit Nunangat, up from 22 percent in 2006 and 17 percent in 1996.<sup>44,45</sup> The urban Inuit population continues to grow through high fertility rates and migration away from Inuit Nunangat. As of 2011, the urban centres with the largest Inuit populations were Edmonton (1,115),

Montreal (900), Ottawa (735), Yellowknife (735) and St. John's (680).<sup>46</sup> The Canadian census likely underestimates the size of the Inuit population living outside Inuit Nunangat. When participants of the Our Health Counts survey of Inuit living in Ottawa were asked whether they had completed the 2006 Canadian census, 18 percent of Inuit adults reported they had, 60 percent reported they had not and 22 percent said they did not know.<sup>42</sup>

There are many reasons Inuit move to southern cities, such as Ottawa. Some come for work, post-secondary education or housing, and many Inuit are living in Ontario due to long-term medical treatment that is not available in Inuit Nunangat. Most Inuit communities lack access to specialized medical care.<sup>47</sup> The 2006 Aboriginal Peoples Survey found that Inuit were significantly less likely to have had contact with a medical doctor during the previous year than non-Aboriginal Canadians.<sup>48</sup> Inuit living in the Qikiqtaaluk (Baffin) region of Nunavut primarily travel south to Ottawa for medical treatment via Iqaluit; however, those living in Sanikiluaq (an island near the east coast of Hudson Bay) will travel to Montreal or Winnipeg (Figure 1). Inuit living in the Kivalliq Region (western region of Hudson Bay) are transferred to Winnipeg and those in the Kitikmeot Region will either travel to Edmonton via Yellowknife or to Cambridge Bay for health services. Inuit in need of complex medical care living in Nunavik travel to Montreal and those living in Nunatsiavut travel to St. John's.

Due to limited options for post-secondary education in Inuit Nunangat, 50 percent of Inuit with post-secondary credentials (and 85 percent of those with a university degree) reported having to relocate for their education.<sup>49</sup> The Our Health Counts survey found that 56 percent of the Inuit adult population in Ottawa reported Ontario as their permanent residence, while 44 percent reported a province or territory other than Ontario as their permanent residence.<sup>42</sup>

**FIGURE 1** Regions of Inuit Nunangat and common Inuit medical travel patterns, Canada



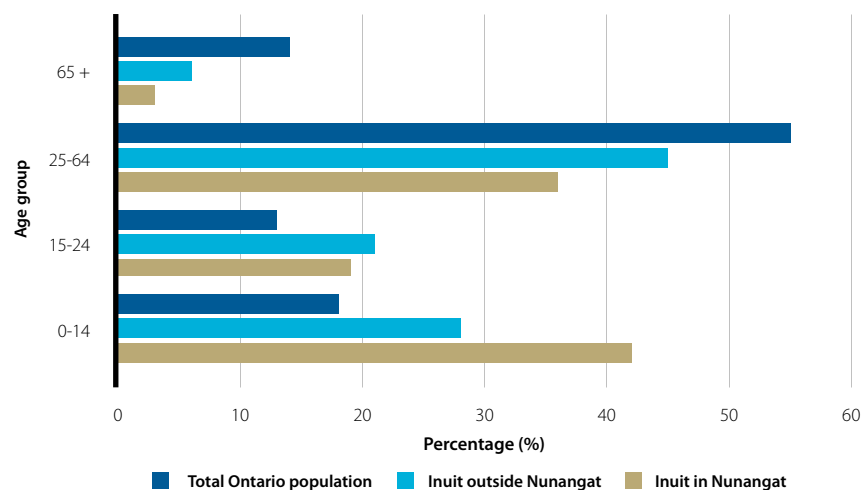
Source: Adapted from Inuit Tapiriit Kanatami, 2014 and Pauktuutit Inuit Women of Canada, 2016. 47-50

## Demographics

Inuit are a young and rapidly growing population. Over half (61 percent) of Inuit living in Inuit Nunangat and about half (50 percent) of Inuit living outside Inuit Nunangat are younger than age 25 (Figure 2).<sup>45</sup> These percentages are much higher than the proportion of the Ontario population younger than age 25, which is about 31 percent. The Inuit population in Ottawa has a higher proportion of young adults compared to older adults.<sup>42</sup> From 2012 to 2013, the birthrate in Nunavut increased 8.4 percent. Over the same time period, the birthrate in Canada decreased 0.4 percent.<sup>51</sup> Rapid Inuit population growth and the corresponding young age structure are demographic trends that are expected to continue well into the future.

According to the 2006 Canadian census, there were proportionately more females (54 percent) living outside Inuit Nunangat than males (46 percent).<sup>45</sup> Female Inuit living outside Inuit Nunangat were slightly older than male Inuit living outside Inuit Nunangat, with 55 percent of females being age 25 or older and only 46 percent of males being age 25 or older. By contrast, Inuit living in Inuit Nunangat, had more equal proportions of males and females across all age groups.

**FIGURE 2** Age distribution of the Ontario population and the Inuit population living in and outside Inuit Nunangat, 2006



Source: Statistics Canada, 2006 Census of the Population

## Language

There are four main dialects of Inuit language used in Canada—Inuinnaqtun, Inuktitut, Inuttitut and Inuvialuktun—and two written styles of the language—syllabics and roman orthography. Syllabics use symbols rather than letters to represent sounds. Roman orthography uses the English alphabet to sound out words in Inuktitut. Within each dialect there are regional and community variances that may include differences in pronunciation or word meanings. According to the 2006 census, 69 percent of Inuit in Canada were able to speak in the Inuit language and 50 percent indicated that the Inuit language was the language most used at home.<sup>52</sup> Outside Inuit Nunangat, the proportion was much lower, with 15 percent of Inuit being able to speak in the Inuit language and four percent using it most often at home. Approximately 38 percent of the Inuit adult population in Ottawa reported speaking English only, 24 percent spoke Inuktitut only, and 38 percent spoke English and Inuktitut. These findings support the need for Inuktitut-specific services and programs for Inuit living both in and outside of Inuit Nunangat.<sup>42</sup>

## Health

Life expectancy of Inuit living in Inuit Nunangat (70.8 years) is well below the Canadian average (80.6 years) and the infant mortality rate (deaths) is three times that of the general Canadian population.<sup>47</sup> Suicide rates in Inuit Nunangat are eleven times higher than the national average and tuberculosis rates are 185 times higher than rates for non-Aboriginal Canadians.<sup>53-55</sup> Additionally, with rapid population growth and aging, chronic diseases such as cardiovascular disease, cancer and diabetes are becoming rising concerns.<sup>53</sup>

Many of these health disparities and concerns can be explained, at least in part, by social determinants of Inuit health, such as a lack of good quality and affordable housing (often leading to overcrowding and homelessness in urban areas), a lack of access to health services for timely and effective diagnosis and treatment of diseases, and socio-economic problems (e.g., poverty, unemployment, violence and substance abuse).<sup>47,53</sup> Historical trauma brought on by rapid and forced acculturation remains a significant barrier to building the community and family supports that are key to addressing wellness in Inuit communities.<sup>47</sup>

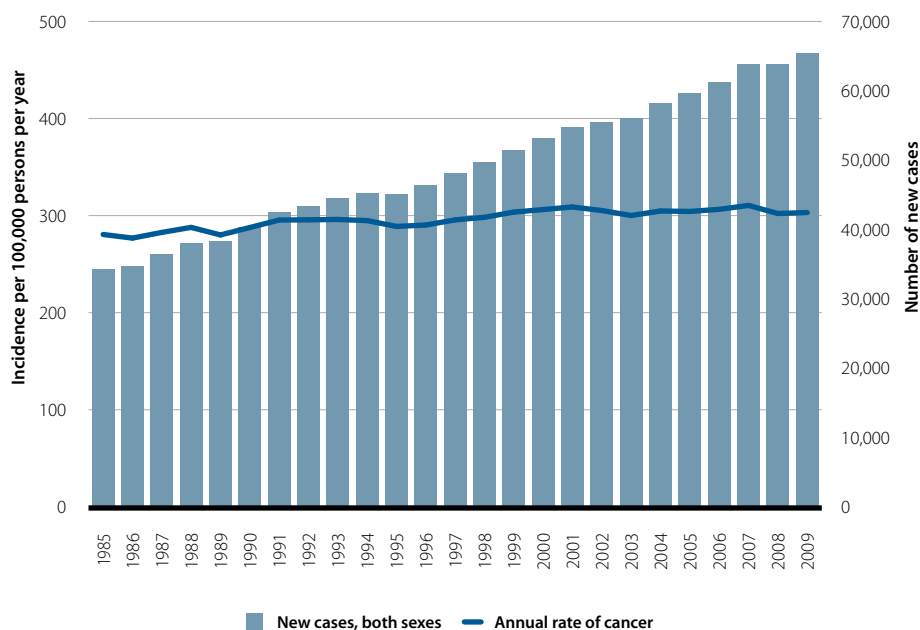
Very little is known about the health of the Inuit community living outside Inuit Nunangat. This is primarily due to their small population size, and a lack of reliable, comprehensive and population-specific data for research. This research gap continues to hinder the ability to accurately determine and effectively address chronic disease prevention priorities in sub-Arctic, urban and rural Inuit communities.

# Cancer in Ontario

The word “cancer” refers to a collection of diseases characterized by the uncontrolled growth of damaged cells in the body.<sup>56</sup> There are more than 200 types of cancer, typically named after the organ where the disease started (e.g., breast cancer is a cancer that started in the breast).

In Ontario, about 65,500 new cases of cancer were diagnosed in 2009 (Figure 3). Prostate, breast, large bowel (colon and rectum) and lung were the most common newly diagnosed cancers, representing about 50 percent of all newly diagnosed cases. From 1985 to 2009, the incidence rate (new cases) of cancer changed very little, although the absolute number of cancers diagnosed in Ontarians nearly doubled from 34,263. This increase is largely due to the rising number of Ontario residents and the aging population.

**FIGURE 3** Incidence rate and number of new cases of all cancers combined, by year, Ontario



Notes: Incidence rates are age-standardized to the age distribution of the World Standard Population  
 Source: Cancer Care Ontario, Ontario Cancer Registry

## Factors affecting the risk of cancer

**TABLE 2** Select risk factors associated with cancer

Risk factor domain	Description
<b>Lifestyle</b>	
Tobacco use	Active smoking, second-hand smoke, preconception/pregnancy exposure, smokeless tobacco
Alcoholic drinks	Alcoholic beverage consumption
Diet	Red meat, processed meat, salt and salty/salted foods, dietary fibre, vegetables and fruit
Body composition	Body fatness, abdominal fatness, adult weight gain, adult attained height
Physical activity	Physical activity
Sedentary behaviour	Prolonged periods of sitting or lying down (e.g., while watching television, playing video games or using a computer)
<b>Occupational and environmental</b>	
Ultraviolet (UV) radiation	Solar UV, UV-emitting indoor tanning devices
Other radiation	Radon-222 and its decay products, X-rays and gamma radiation
Dusts and fibres	Asbestos (all forms), silica dust (crystalline), wood dust
Metals	Arsenic and inorganic arsenic compounds, nickel compounds, beryllium and beryllium compounds, cadmium and cadmium compounds, chromium (VI) and chromium compounds
Industrial chemicals	Acid mists (strong, inorganic), benzene, 1,3-butadiene, formaldehyde, mineral oils (untreated or mildly treated)
Complex mixtures	Diesel engine exhaust, polycyclic aromatic hydrocarbons (PAHs), particulate matter <2.5µm in diameter (PM <sub>2.5</sub> )
<b>Other</b>	
Reproductive and hormonal factors (female)	Parity, breastfeeding, age at first birth, age at menarche (first menstrual period), age at menopause, oral contraceptive use, hormone replacement therapy for menopause
Infectious agents	Epstein-Barr virus, hepatitis B virus, hepatitis C virus, human herpes virus 8, human immunodeficiency virus type 1, human papillomavirus, human T-cell lymphotropic virus type 1, <i>Helicobacter pylori</i> , liver flukes, schistosomes
Genetic susceptibility	Major familial susceptibility syndromes for cancer of the breast, ovary, colon and rectum, and prostate, as well as for leukemia/lymphoma and pediatric cancers
Medical conditions and treatments	Inflammatory and autoimmune conditions, diabetes, gastroesophageal reflux disease and Barrett esophagus, cryptorchidism, benign breast disease, medical radiation (therapy and diagnostics), antineoplastic drugs, other medications

Adapted from: *Cancer Risk Factors in Ontario, Evidence Summary*<sup>69</sup>

Risk factors for cancer are defined as exposures, behaviours or other characteristics that affect someone's risk of developing the disease. While age and sex are the strongest predictors of cancer risk, there are many other risk factors with strong scientific evidence linking them to cancer (Table 2).

Some risk factors are considered modifiable, such as lifestyle and behaviour, because they can be changed, unlike factors relating to personal characteristics, such as age, sex and genetics.

Other than age and sex, factors that are associated with lifestyle—tobacco, drinking alcohol, diet, body composition and physical activity—play the largest role in the risk of developing cancer.<sup>57,58</sup>

## Cancer in Inuit

Up until recently, the commonly used word for “cancer” in Inuktitut means a “disease without a cure.” However, new words for cancer have been developed in each of the Inuit regions. In Nunavut, Ippinnaittulijuuq (Ikpinnaittulijuuq) means “something you do not feel until after the fact.” This change in vocabulary reflects a shift in how people view cancer—it has gone from being an incurable disease to a condition that can be prevented and managed in a way that ensures a better quality of life. The lack of proper Inuktitut terminology has resulted in fear, stigma and discrimination. Given the ambiguity in adequate words to describe cancer and associated words, Pauktuutit Inuit Women of Canada created *Kaggutiq – Inuit Cancer Glossary* to provide accurate definitions for general cancer terms. This resource helps to assist health workers to communicate more effectively and accurately with their patients/clients going through the cancer journey.<sup>50</sup> Pauktuutit also partnered with Canadian Cancer Society to create *Inuusinni Aqqusaaqtara – My Journey*, a series of books with cancer information in English and regional dialects of Inuktitut, designed to support Inuit people diagnosed with cancer understand it better and make informed decisions.

The majority of what is known about cancer in Inuit comes from research focused on Inuit living in Inuit Nunangat, who are also often grouped together with Inuit in other Arctic regions (e.g., Greenland and Alaska) to increase sample sizes in research studies.<sup>60</sup> Research on Inuit in Canada is largely based on geography and is mostly limited to people living in Inuit Nunangat. For example, studies may focus on people living in Nunavut—where it is estimated that over 85 percent of the population are Inuit—as a proxy for the Canadian Inuit population.<sup>61</sup>

Knowledge of cancer risk and burden in sub-Arctic urban and rural Inuit is limited. There are several factors that contribute to this knowledge gap, including small population size, a lack of Inuit identifiers in most Canadian health databases and a shortage of comprehensive Inuit-specific health survey data.

Below is a summary of what is known about cancer in the Inuit population:

### CANCER BURDEN

- One study tracked cancer trends over four five-year periods from 1989 to 2008 in Circumpolar Inuit (i.e., Inuit from Alaska, Northwest Territories, Nunavut and Greenland) (Figure 4). The researchers found an overall increase in cancer in Circumpolar Inuit from 1989 to 2008, in particular in lung, colon and rectum, and female breast cancer.<sup>60</sup> The same study also found a marked decrease in cervical cancer incidence.
- A research project studying cancer in the Arctic across multiple countries found that incidence rates for lung cancer in Inuit men and women living in the Canadian Arctic are the highest in the world.<sup>60,62</sup>
- One study of cancer in the population living in Inuit Nunangat showed that Inuit are more likely to be diagnosed with lung and colorectal cancer than the rest of Canada, and less likely to be diagnosed with breast and prostate cancer.<sup>63</sup>

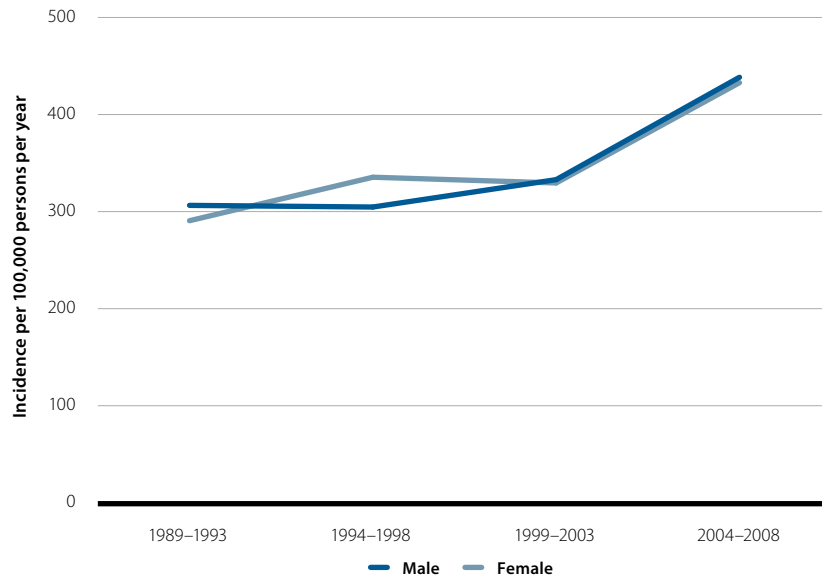


## RISK FACTORS ASSOCIATED WITH LIFESTYLE

- A study of Inuit living in the Circumpolar region found that their levels of obesity and overweight ranked among the highest of high-income countries<sup>65</sup>
- According to the 2012 Aboriginal Peoples Survey, daily smoking is three times more common among Inuit in Canada than in the general population<sup>66</sup>
- The 2007–2008 Inuit Health Survey found that 70 percent of Inuit households surveyed in Nunavut were food insecure based on a set of indicators designed by Indigenous and Northern Affairs Canada.<sup>37</sup> Food insecurity is associated with inadequate nutrition and not eating enough servings of vegetables and fruit.<sup>67</sup> A high intake of vegetables and fruit is estimated to reduce the risk of mouth and throat cancer by 30 to 50 percent.<sup>68-70</sup>
- A study using the 2000–2001 and 2004–2005 versions of the Canadian Community Health Survey found that Inuit women ages 50 to 69 living in Northern Canada were less likely to have had a mammogram in the previous two years, and Inuit women ages 21 to 65 in Northern Canada were significantly less likely to have had a Pap test in the last three years than non-Aboriginal women.<sup>71</sup>
- One study found that geographic regions of Canada with higher proportions of Inuit (Labrador-Grenfell Regional Integrated Health Authority, Northwest Territories and Nunavut) had a higher proportion of adults age 40 and older that were overdue for colorectal cancer screening (i.e., needed a screening test) in 2008 than the Canada-wide average.<sup>72</sup>

Data on lifestyle cancer risk factors in Inuit are available in the Canadian Community Health Survey; however, the survey does not cover large portions of the Inuit homeland (Inuit Nunangat), so the number of Inuit respondents in the Canadian Community Health Survey each year is relatively low. Another source of risk factor data is the Aboriginal Peoples Survey, which targets people who identified as First Nations (living off-reserve), Métis and Inuit in the Canadian census. Although the Aboriginal Peoples Survey contains fewer lifestyle cancer risk factor questions than the Canadian Community Health Survey, it provides a much larger and more comprehensive sample of Inuit living in Canada. The questions included in the Aboriginal Peoples Survey have largely the same wording and response categories as in the Canadian Community Health Survey, making it possible to use non-Aboriginal respondents to the Canadian Community Health Survey as a comparison group.

**FIGURE 4** Incidence rate of all cancers combined in Circumpolar Inuit, by sex and period of diagnosis, 1989–2008



**Notes:** Incidence rates are age-standardized to the World Standard Population.

**Source:** Young TK, Kelly JJ, Friberg J, Soininen L, Wong KO. Cancer among circumpolar populations: an emerging public health concern. *Int J Circumpolar Health* 2016;75:29787

- Studies of cancer in Arctic populations, including Inuit in Canada, have found extremely high rates of nasopharyngeal and salivary gland cancer, compared to the general population of Canada. Nasopharyngeal cancer was found to be 25 to 40 times more common among Inuit in Canada, the United States and Denmark (including Greenland) than in the white populations of the same countries.<sup>64</sup>
- According to self-reported family medical histories collected by the Nunavut portion of the Inuit Health Survey (2007–2008), 34 percent of Inuit participants had a parent who was told they had cancer.<sup>37</sup>
- The Our Health Counts survey of Inuit living in Ottawa found a self-reported rate of cancer of 6.8 percent.<sup>42</sup>

# Tobacco



During the fur-trading era, European's bartered goods such as tobacco in exchange for caribou skins and meat, whalebone, walrus ivory, dogs and fish.

## Inuit Context

For Inuit, tobacco holds no cultural, ceremonial or spiritual significance. Traditionally Inuit communities were smoke free.<sup>73</sup> Due to the extremely cold climate in the Arctic regions of Canada, tobacco was not cultivated locally, and European whalers and traders first introduced tobacco to Inuit in the late 17<sup>th</sup> and 18<sup>th</sup> centuries.

During the fur trading era, Europeans bartered goods, such as tobacco, in exchange for caribou and seal skins and meat, whalebone, walrus ivory, dogs and fish.<sup>6</sup> Tobacco was also used by European fur traders in gift-giving ceremonies, where they would smoke tobacco with Inuit to solidify trade agreements or in honour of their new relationships.<sup>74</sup> Over time, smoking tobacco became more and more common among Inuit.

By the late 1950s and 1960s, smoking commercial tobacco was widespread and commonly practiced by Inuit men, women and youth. Today, Inuit have one of the highest rates of smoking in Canada.<sup>48</sup> These high smoking rates have resulted in devastating consequences for Inuit communities, including rapidly increasing rates of lung cancer, which have been cited as being the highest in the world.<sup>62</sup>

To understand why there is such a high proportion of Inuit who smoke (prevalence), it is important to examine the factors that influence this pattern from a holistic perspective. In 2015, Inuit Tapirit Kanatami published a report entitled *Social Determinants of Inuit Health in Canada*.<sup>47</sup> The analysis found that high-risk behaviors, such as tobacco misuse, are indicators of deeper social and economic issues linked to the legacy of colonialism.

## Tobacco Smoking and the Impact on Health

It is well known that smoking tobacco increases the risk of lung cancer and chronic respiratory diseases. Smoking is associated with roughly 76 percent of all lung cancer cases in Ontario men and 66 percent of lung cancer cases in Ontario women.<sup>78</sup> Smokers are nine times more likely than non-smokers to develop lung cancer.<sup>79</sup>

## Tobacco Use and Income

Increases in tobacco taxation—considered a highly effective policy intervention for reducing smoking in populations,<sup>75</sup>—have caused the retail price of tobacco to go up steadily over time. In Ontario, the total retail price per carton of 200 cigarettes increased from \$88.64 in June 2014 to \$97.12 in April 2016 as a result of tax increases. The increase in retail cost of cigarettes weighs heavily on Inuit who have a disproportionately higher smoking rate and a significantly lower median personal income than the non-Aboriginal population.<sup>76</sup> These disparities mean that Inuit are more likely to spend a larger share of their disposable income on cigarettes, which negatively impacts spending ability on healthy behaviours, such as eating healthy food. Research has shown that food insecurity is much more common and severe among adults and children living in households with a smoker than in households without a smoker.<sup>77</sup>

Although tobacco smoking is the largest contributor to lung cancer burden in Ontario, there are other environmental risk factors that are associated with an increased risk of lung cancer. In Ontario, the most important environmental exposure for lung cancer is radon, a naturally occurring radioactive gas that is released from the decay of uranium in soil.<sup>122</sup> About 10 percent of Ontario's lung cancer cases (roughly 1,300 cases per year) are from environmental exposure to radon inhaled indoors. Fine particulate matter (PM<sub>2.5</sub>, defined as particles less than 2.5 micrometers in diameter) in outdoor air pollution is another important environmental cause of lung cancer. An estimated 560 lung cancer cases per year in Ontario are from environmental exposure to PM<sub>2.5</sub> inhaled outdoors.

In 2009, approximately 9,800 new cases of cancer diagnosed in Ontario were estimated to be from cigarette smoking (15 percent of new cancers).<sup>78</sup>

## Research on Tobacco Reduction in Aboriginal Communities (RETRAC) in Ontario

The RETRAC project aims to support Aboriginal communities in Ontario to develop tailored, comprehensive commercial tobacco reduction strategies. The first stage in this development is to engage in community-based research that helps identify and understand non-traditional and/or commercial tobacco use patterns. Among Inuit communities that participated in the research—located predominantly in the Ottawa region—six themes were identified through interviews and focus groups that showcase some of the underlying reasons for the high tobacco use in Inuit:

- 1 Smoking was seen as a norm for youth and adults.
- 2 Many used smoking starting at a very early age (eight to 12 years old) as a form of social acceptance and coping. Over 48 percent of survey respondents reported starting to smoke before age 16.
- 3 Many reported that smoking was a coping mechanism and release from negative feelings and anxiety resulting from trauma. Traumas were described as cultural, sexual, physical, psychological, historic and physiological (some mentioned enduring several traumatic experiences).
- 4 Some smoking cessation or prevention programs and tools were identified in the community, predominantly nicotine gum, oral medication and “the patch.” Feedback from the community indicated that mainstream campaigns are not effective because they do not address the underlying issues of smoking and the reasons people smoke.
- 5 There was not enough awareness of the harms of smoking.
- 6 Other acute issues in the community caused tobacco to be a relatively low priority; however, these issues tended to result in smoking (i.e., due to stress, trying to cope, seeking social acceptance).

Understanding these issues and creating policies and education programs to manage them is the first step in combatting smoking.

In addition to lung cancer, smoking is an established cause of many other cancer types (Table 3). Smoking also increases the risk of other serious chronic conditions, including cardiovascular disease and possibly diabetes.<sup>78,80</sup>

**TABLE 3** Cancers associated with tobacco smoking

Risk factor	Cancer
Smoking	Oral cavity, pharynx, esophagus, larynx, lung, stomach, colon and rectum, pancreas, liver, cervix uteri, ovary, kidney, bladder, leukemia, breast*
Second-hand smoke	Lung, pharynx*, larynx*
Smokeless tobacco (chewing tobacco, snus and snuff)	Oral cavity, esophagus, pancreas

\*Evidence is limited rather than sufficient.  
Source: International Agency for Research on Cancer<sup>81</sup>

## Other Forms of Tobacco Use

This report focuses on cigarette smoking, which is the main form of commercial tobacco use. Other forms, such as cigars, spit or smokeless tobacco (chewing tobacco, a moist powder tobacco placed in the mouth for absorption called “snus,” and fine ground tobacco that is inhaled through the nose called “snuff”), also raise the risk of some cancers (Table 3) and are being increasingly used by youth.<sup>82,83</sup>

Even among non-smokers, the risk of lung cancer is increased two to four times by exposure to the cigarette smoke of others (second-hand smoke).

## The Benefits of Quitting Smoking

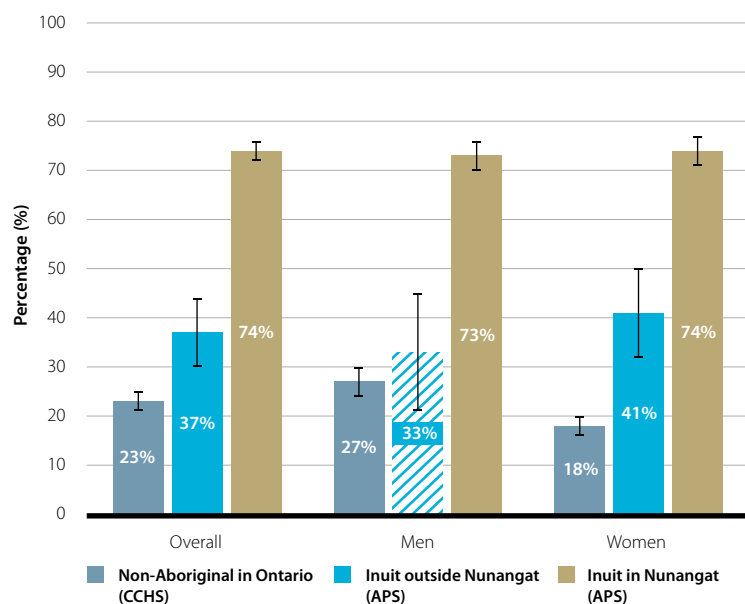
Quitting smoking reduces the risk of cancer, with risk gradually decreasing as time since quitting increases.<sup>84</sup> Quitting smoking also reduces the risk of other chronic diseases, such as cardiovascular disease, respiratory symptoms (e.g., coughing and shortness of breath) and chronic obstructive pulmonary disease.<sup>84</sup>

## Current Smoking

The prevalence of cigarette smoking was highest among Inuit living in Nunangat (Figure 5), where about three-quarters of Inuit adults reported smoking daily or occasionally (73 percent of Inuit men and 74 percent of Inuit women). Smoking was significantly more common in Inuit men and women living in Nunangat than in Inuit living outside Nunangat or non-Aboriginal Ontarians.

A significantly higher proportion of Inuit women living outside Nunangat (41 percent) than non-Aboriginal Ontario women (18 percent) smoked daily or occasionally. Among men, roughly 33 percent of Inuit living outside Nunangat smoked, compared to 27 percent of non-Aboriginal men in Ontario.

**FIGURE 5** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (age 20 and older) who smoked daily or occasionally, by sex, 2012

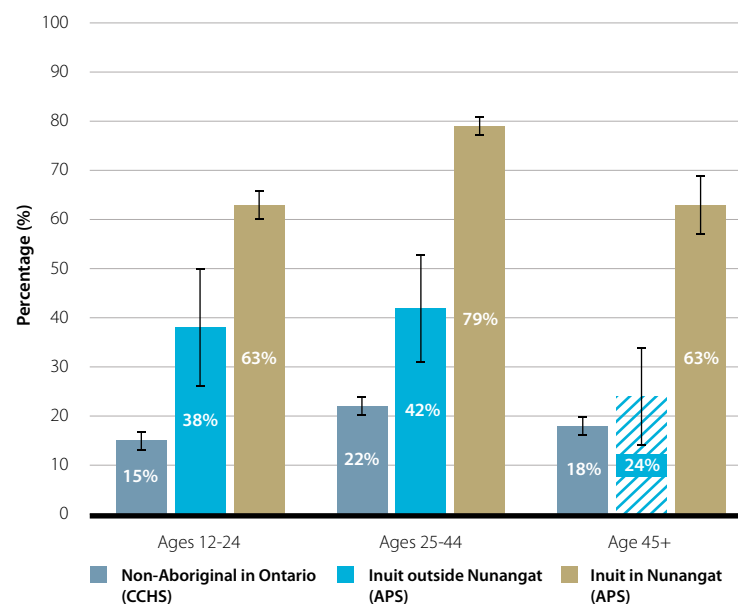


**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.  
 I represents 95% confidence interval.  
 Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

## AGE

The proportion of current smokers was significantly higher in Inuit living in Nunangat than in Inuit living outside Nunangat and non-Aboriginal Ontarians across all age groups (Figure 6). Smoking was also around four times higher in Inuit living in Nunangat than in non-Aboriginal Ontarians ages 12 to 24 and 25 to 44.

**FIGURE 6** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario who smoked daily or occasionally, by age group, 2012

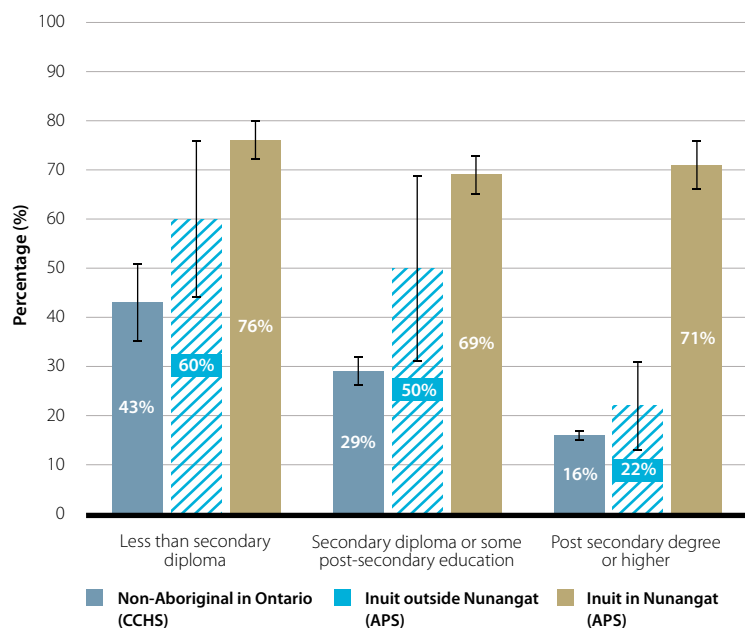


**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
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 Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

## EDUCATION

The proportion of adults who smoked was significantly higher in Inuit living in Nunangat than in non-Aboriginal Ontarians at all levels of education (Figure 7). In people who had completed a university degree, Inuit living outside Nunangat reported a significantly lower rate of smoking (approximately 22 percent) than Inuit living in Nunangat (71 percent). The prevalence of smoking was similar across education levels for Inuit living in Nunangat. The difference in prevalence of smoking between Inuit living in Nunangat and non-Aboriginal Ontarians widened as education increased.

**FIGURE 7** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (age 25 and older) who smoked daily or occasionally, by highest education level, 2012

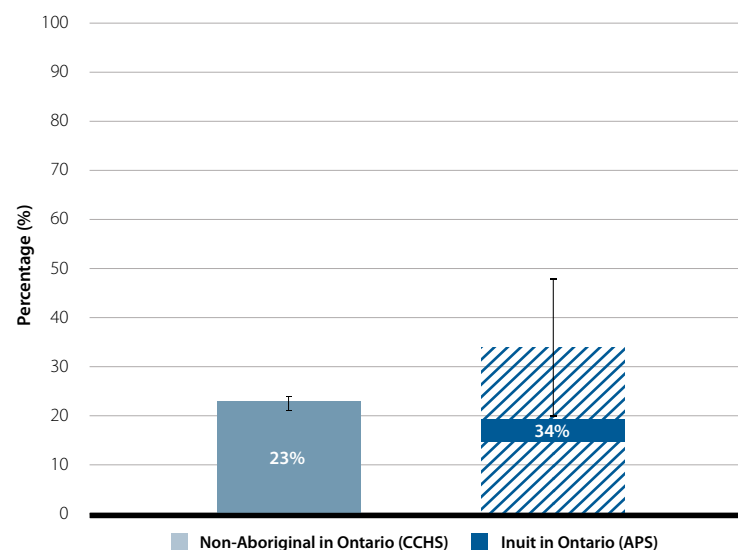


**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat. I represents 95% confidence interval. Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

## ONTARIO

In Ontario, roughly 34 percent of Inuit adults smoked, compared to 23 percent of non-Aboriginal adults. This difference was not statistically significant (Figure 8). The estimated percentage of Inuit in Ontario who smoke is similar to that of all Inuit outside Nunangat (37 percent).

**FIGURE 8** Percentage of Inuit and non-Aboriginal adults (age 20 and older) who smoked daily or occasionally, Ontario, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat. I represents 95% confidence interval. Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)



Community members sitting by the Ottawa River during a Tungasuvvingat Inuit workshop.

A smoke-free home policy not only benefits non-smokers inside a household, but has also been found to help smokers reduce their cigarette consumption and quit smoking completely.<sup>86,87</sup>

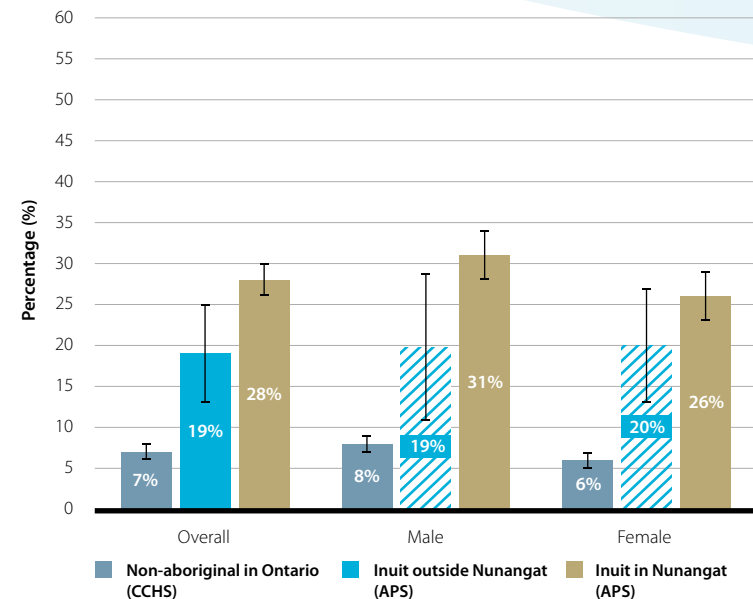
## Second-Hand Smoke

Second-hand smoke (also called environmental tobacco smoke) is what smokers breathe out, as well as unfiltered smoke that comes from the end of a burning cigarette, pipe or cigar.<sup>85</sup> No amount of second-hand smoke is safe.<sup>85</sup> People can breathe in second-hand smoke in public places or in what are considered more private spaces, such as in a home or in a vehicle.

This report focuses on exposures to second-hand smoke in the home only. There were no questions available in the Aboriginal Peoples Survey to measure exposure to second-hand smoke in public places or vehicles.

The proportion of non-smoking Inuit living in and outside Nunangat exposed to second-hand smoke in the home was significantly higher than the proportion of non-Aboriginal non-smoking Ontarians exposed to second-hand smoke in the home (Figure 9). Compared to non-Aboriginal Ontario men and women (8 percent and 6.4 percent), the proportion was four times higher in Inuit men and women (31 percent and 26 percent) in Nunangat. Smaller proportions of Inuit adult non-smokers lived in smoking households outside Nunangat than in Nunangat.

**FIGURE 9** Percentage of Inuit non-smokers in Canada and non-Aboriginal non-smokers in Ontario (age 15 and older) exposed to second-hand smoke in the home, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey

**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.

I represents 95% confidence interval.

Diagonal shading indicates high sampling variability. Interpret with caution.

**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

# Alcohol



Like tobacco, alcohol was introduced during the arrival of whalers and fur traders. Given the sudden appearance of alcohol and the typical binge drinking patterns of the Europeans who introduced the substance, the whalers and traders had a major influence in the development of drinking patterns among Inuit.



## Inuit Context

Like tobacco, alcohol was introduced during the arrival of whalers and fur traders. Given the sudden appearance of alcohol and the typical binge drinking patterns of the Europeans who introduced the substance, the whalers and traders had a major influence in the development of drinking patterns among Inuit.

To address the alcohol problems that many Inuit communities in the north face, some have imposed restrictions on the availability of alcohol, making these communities “dry” or “restricted.”<sup>88</sup> There are also very few liquor stores in the Inuit Nunangat region, and very few eating establishments have licensed restaurants and bars. However, these restrictions have not completely solved alcohol problems and have actually resulted in the smuggling and bootlegging of alcohol, even in dry communities. They have also made it more dangerous for people to get alcohol and have driven up the price of illegal alcohol. Inuit Tapiriit Kanatami (ITK) has recognized that addictions are linked to many of the social determinants of Inuit health. ITK believes that addictions require a holistic, culturally appropriate approach that should include land-based initiatives (programs connecting Inuit to traditional skills) and increased community capacity so community members can stay closer to home when receiving treatment for addiction.<sup>47</sup>

## Drinking Alcohol and the Impact on Health

Alcohol use is a major cause of serious health conditions, including stroke, heart disease, depression, fetal alcohol spectrum disorder, unintentional and intentional injuries, and certain types of cancer.<sup>89</sup> Alcohol consumption can cause mouth and throat, colon and rectum, female breast, liver and stomach cancer (Table 4)<sup>82,90,91</sup>

## Alcohol and Smoking

The risk of developing mouth and throat cancer is higher than expected in people who both drink AND smoke, making the combined effect greater than the sum of the individual risks.<sup>90</sup>

## Cancer Prevention Guidelines

Because there is no safe alcohol limit for preventing an increased risk of cancer, even drinking small amounts can increase the risk of some cancers.<sup>68</sup> All types of alcoholic drinks (e.g., beer, wine, spirits) increase the risk of cancer. If someone chooses to drink alcohol, the World Cancer Research Fund (WCRF) and the American Institute for Cancer Research (AICR) recommend limiting consumption to no more than one drink a day for women and no more than two drinks a day for men.<sup>68</sup>

**TABLE 4** Cancers associated with drinking alcohol

### Alcohol-associated cancers

Oral cavity, pharynx, larynx, esophagus, colon and rectum, breast (female), liver, stomach\*, pancreas\*

\*Evidence is limited rather than sufficient.  
Source: International Agency for Research on Cancer<sup>89,91</sup>

In 2011, approximately 1,000 to 3,000 new cases of cancer in Ontario were estimated to be from drinking alcohol (two percent to four percent of new cases).<sup>90</sup>

Evidence suggests that with each additional drink consumed per day, the risk of developing cancer increases (in particular for oral and pharyngeal cancer and breast cancer).<sup>68,90</sup> However, there is no clear evidence on how different patterns of alcohol consumption (i.e., binge drinking as opposed to daily drinking) impact cancer risk.

## Alcohol Consumption Behaviours Reported on in this Section

**Abstaining from alcohol:** Consuming no alcoholic drinks at any point during the past 12 months.

**Binge drinking:** Consuming five or more alcoholic drinks on one occasion at least two to three times in a month in the past 12 months.

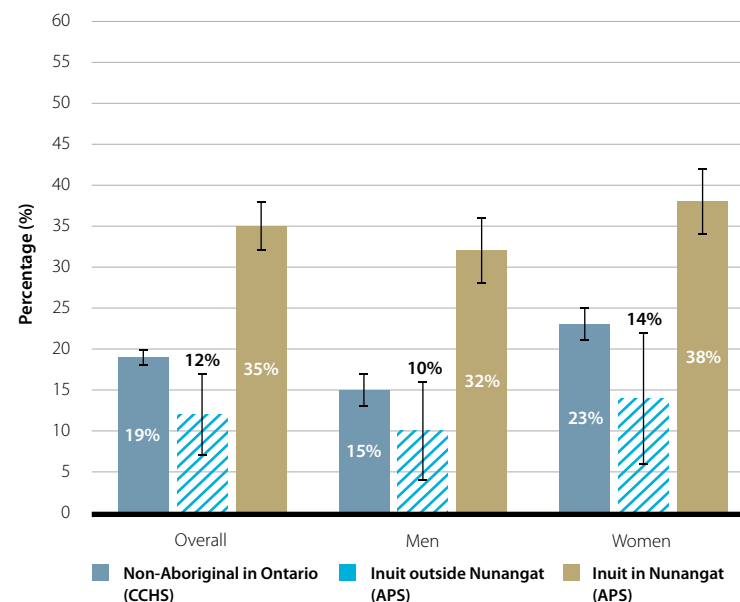
- In other reports, alcohol consumption that exceeds the World Cancer Research Fund/American Institute for Cancer Research cancer prevention guidelines is typically shown.<sup>57</sup> The Aboriginal Peoples Survey did not ask respondents about the number of alcoholic drinks they had each day.
- While there is no clear evidence that the pattern of alcohol consumption (i.e., binge drinking as opposed to daily drinking) is a contributor to cancer risk, binge drinking is the only measure of excessive alcohol consumption included in both the Aboriginal Peoples Survey and the Canadian Community Health Survey.

If someone chooses to drink alcohol, the World Cancer Research Fund (WCRF) and the American Institute for Cancer Research (AICR) recommend limiting consumption to no more than one drink a day for women and no more than two drinks a day for men.<sup>68</sup>

## Abstaining from Alcohol

Inuit adults living in Nunangat had the highest proportion of people who abstained from drinking alcohol in the previous year, followed by non-Aboriginal Ontarians and Inuit adults living outside Nunangat (Figure 10). The proportion of Inuit men in Nunangat who abstained from alcohol (32 percent) was more than double the proportion of non-Aboriginal men in Ontario (15 percent) and more than triple the proportion of Inuit men outside Nunangat (10 percent). Abstaining from alcohol was also more common in Inuit women in Nunangat (38 percent) than in Inuit women living outside Nunangat (14 percent) and non-Aboriginal women living in Ontario (23 percent).

**FIGURE 10** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (age 19 and older) who abstained from alcohol in the previous 12 months, by sex, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS = Aboriginal Peoples Survey

**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.

I represents 95% confidence interval.

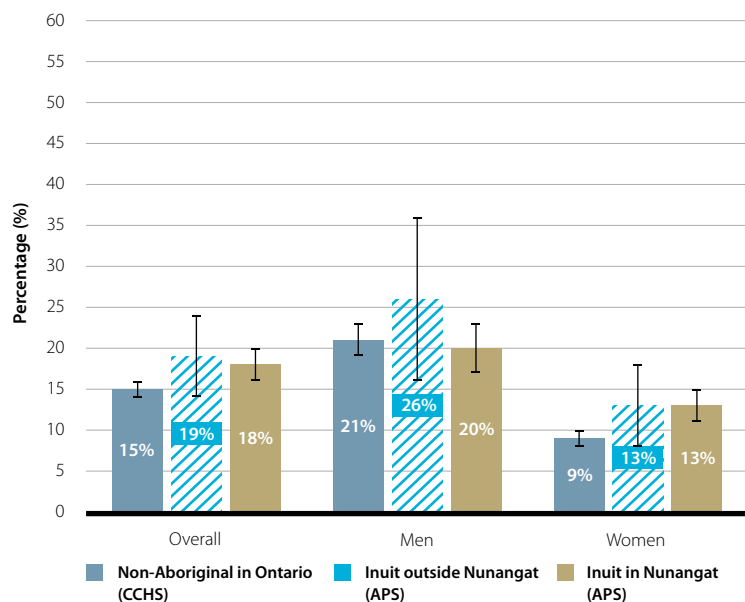
Diagonal shading indicates high sampling variability. Interpret with caution.

**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

## Binge Drinking

Similar proportions of Inuit men living outside Nunangat (26 percent), Inuit men living in Nunangat (20 percent) and non-Aboriginal men living in Ontario (21 percent) reported binge drinking (i.e., having five or more alcoholic drinks on one occasion at least two to three times a month) in the past year (Figure 11). The proportion of binge drinking was the same in Inuit women living inside and outside Nunangat (13 percent). Binge drinking was significantly more common in Inuit women living in Nunangat than in non-Aboriginal women in Ontario.

**FIGURE 11** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (age 19 and older) who had 5 or more alcoholic drinks on one occasion at least 2–3 times per month in the past year, by sex, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS = Aboriginal Peoples Survey  
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 Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)



Artwork at the Mamisarvik Healing Centre in Ottawa. Mamisarvik is a residential and day treatment program for Inuit struggling with trauma and addiction issues.

# Healthy living



Community members gather at a Tungasuvvingat Inuit feast held December 2016

Engaging in physical activity, minimizing sedentary behaviour, eating healthy foods and maintaining a healthy body weight can improve health and reduce the risk of chronic diseases, including several types of cancer (Tables 5 and 6).

However, when someone’s energy intake (diet) exceeds their energy expenditure (physical activity), they can become overweight or obese.<sup>92</sup> While being overweight or obese increases the risk of many cancers, the lifestyle behaviours that affect obesity (physical activity, sedentary behaviour and diet) also independently affect cancer risk.

**TABLE 5** Cancers associated with diet, being overweight or obese, physical activity and sedentary behaviour

Risk factor	Cancer
Red and processed meat	Colon and rectum, stomach*
Salt and salted/salty foods	Stomach*
Overweight and obesity	Esophagus, colon and rectum, pancreas, breast (post-menopausal), endometrium, kidney, liver, ovary*, prostate (advanced)*, gallbladder*, stomach*, colon and rectum*
Sedentary behaviour	Ovary*, prostate*

\*Evidence is probable rather than convincing.

Sources: 68,81,83,91,93

**TABLE 6** Factors associated with diet, body weight and physical activity that protect against cancers

Risk factor	Cancer
Plant foods <sup>†</sup>	Colon and rectum, mouth and throat* <sup>‡</sup> , lung* <sup>‡‡</sup>
Overweight and obesity	Breast (pre-menopausal)*
Physical activity	Colon, breast (post-menopausal)*, endometrium*

\*Evidence is probable rather than convincing

Sources: 66,81,83,91,93

<sup>†</sup>Dietary fibre has been established as a protective factor for colon and rectum cancer.

<sup>‡</sup>Mouth and throat includes oral cavity and pharynx, nasopharynx, nasal cavity and paranasal sinuses, esophagus and larynx.

<sup>‡‡</sup>Probable evidence supports only fruit (not vegetables) as protective for lung cancer.

## Healthy Eating

### Inuit tradition

Historically, Inuit were nomadic and thrived on a culture of harvesting practices, which had many benefits. Inuit were mainly hunters and relied heavily on marine animals as their primary source of food because very little vegetation could survive in the harsh Arctic conditions. In addition to the highly nutritious diet of consuming country foods, harvesting provides a connection with the land that cultivates Inuit culture, community, identity and feelings of self-reliance.<sup>47</sup> Because it eliminates the need to buy food from stores, harvesting also provides Inuit with certain economic benefits and improves household food security. In addition, post-harvest food-sharing activities play an integral role in Inuit society and community networks. According to the Inuit Health Survey (2007–2008), more than 75 percent of households shared their harvested food with others in their community.<sup>37</sup>

Country food is a term used to describe traditional Inuit food gathered from the local environment. Examples of country food include seal, walrus, whale, caribou, fish, berries and seaweed.

For centuries, Inuit lived off the land and relied on the environment to provide them with sustenance. However, in the 17th and 18th centuries, European whalers introduced Inuit to foreign provisions, such as sugar, alcohol and refined grains. In the late 1950s and early 1960s, the once nomadic Inuit were forced by government to move to permanent settlements, which resulted in increased dependence on the state and increased reliance on motorized vehicles to get to their now-distant harvesting areas.<sup>94</sup>



December 2016 feast  
at Tungasuvvingat Inuit

Over time, Inuit have shifted more towards a diet involving easily accessible processed foods that are expensive and much lower in nutritional value than the traditional Inuit diet.<sup>95</sup> In 2010, the weekly cost of market food for a family of four living in Canada's Arctic region (\$395 to \$460) was significantly higher than the equivalent in a southern city, such as Ottawa (\$226).<sup>96</sup> The high cost of food in Northern Canada is driven by many factors, including transportation, store maintenance, staffing, spoilage (losses during transport or food expiration), shrinkage (theft) and retailer profit margins.<sup>97</sup>

In the 1960s, the federal government started the Northern Air Stage Program (also known as Food Mail) to address high food prices by subsidizing shipping costs. With the Food Mail program, someone could order food from a supply hub (located in southern provinces) and have it shipped to their community at a lower rate. The subsidy shifted to retailers when Nutrition North Canada replaced Food Mail in 2011, giving retailers subsidies based on the weight of eligible foods shipped to eligible communities. Nutrition North Canada has come under fire by the Auditor General,<sup>23</sup> which found that Indigenous and Northern Affairs Canada did not choose eligible communities based on need. Instead, communities were chosen based on whether they had year-round road access and whether they had used the old Food Mail program.

The cost of harvesting country food has also become a barrier for many Inuit. According to the Inuit Health Survey (2007–2008), 81 percent of Inuit households in the Arctic preferred to eat more country food than they could get. The primary reasons for not eating more country food included no active hunter in the home, not having access to transportation (skidoo or boat), and the high cost of supplies and gas needed for hunting and fishing.<sup>37</sup> Other barriers for Inuit who want to access healthy food options include lack of availability, variety and quality of market foods, climate change and environmental contaminants.

This Inuit dietary shift has resulted in a number of negative societal, environmental and health changes. Food insecurity has become a widespread issue for Inuit living in the Canadian Arctic. In 2011–2012, Statistics Canada reported that the prevalence of household food insecurity (proportion of people who are food insecure) in Nunavut (36.7 percent) was four times higher than the Canadian average (8.3 percent).<sup>98</sup> Outside Inuit Nunangat, the Our Health Counts survey of Inuit living in Ottawa found that about half of Inuit adults reported experiencing times when household food did not last and there was no money to buy more. About 29 percent reported times where they could not eat healthy food in the last 12 months. However, 95 percent of participants said they had a place to go if they or their family didn't have enough to eat.<sup>42</sup>

### Diet and cancer risk

Several components of diet contribute to the risk of certain cancers. Dietary fibre and plant-based foods, such as non-starchy vegetables and fruit, can have a protective effect, while red and processed meats, and salted/salty foods increase the risk for certain cancers.<sup>99</sup>

It is unclear whether all vegetables and fruit can help protect against cancer, as well as to what extent different mechanisms contribute to their protective effect. Their ability to reduce cancer risk is likely due to a combination of the dietary fibre and micronutrients they contain, in addition to their ability to protect against excess weight gain.<sup>68,100</sup>

Dietary fibre, found mostly in whole grains, legumes, vegetables and fruit, protects against colon cancer. Non-starchy vegetables and fruit may protect against mouth, throat and stomach cancer. Fruit intake, in particular, may protect against lung cancer.<sup>68</sup> Studies show that, when compared to lower intake, a higher intake of vegetables and fruit is estimated to reduce the risk of mouth and throat cancer by 30 to 50 percent.<sup>68-70</sup>

Country food is also an important component of a healthy diet. Traditional Inuit foods are high in omega-3 fatty acids and contain many important micronutrients. In addition, activities related to collecting country food (e.g., hunting, fishing and gathering) provide health benefits through increased physical activity.<sup>101</sup>

### Recommended intake of vegetables and fruit

The World Cancer Research Fund recommends eating at least five servings of non-starchy vegetables (i.e., excluding potatoes) and fruit per day.<sup>68</sup>

## Regularly eating non-starchy vegetables and fruit may protect against several cancers of the digestive system.

### Food security

Most evidence directly linking diet to cancer risk involves individual food choices (e.g., eating red and processed meats increases cancer risk, meeting daily vegetable and fruit intake guidelines decreases cancer risk) rather than broader dietary trends, such as food security.

Individuals or households are defined as food secure when they “at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”<sup>102</sup>

Food insecurity, on the other hand, is “the inability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so.”<sup>103</sup> Food insecurity is associated with inadequate nutrition and eating too few servings of vegetables and fruit.<sup>67</sup>

Food security and insecurity are not necessarily complete opposites of one another. A household that does not meet the criteria for food security is not necessarily food insecure.

## Food security measure reported on in this section

Food security, as defined by the Aboriginal Peoples Survey, measures whether Inuit households have the means to get enough food and are not forced to regularly change their eating habits as a result of financial pressures. Food security (high or marginal security) is measured based on the six food-related questions included in the Aboriginal Peoples Survey. It rates a household’s food security over the previous 12 months as “high/marginal,” “low” or “very low” based on combined responses to these questions. The components of food insecurity are as follows:

- Food purchased did not last the month and there was no money to buy more;
- Member(s) of household couldn’t afford to eat balanced meals;
- Meals ever skipped or cut in size because of lack of funds;
- Frequency of meals being skipped or cut in size;
- Eating less than respondent felt they should due to lack of funds; and
- Feeling hungry, but being unable to afford food.

To be categorized as living in a food-secure household, respondents could be rated insecure on no more than one of these six components. This measure does not capture some components of food security, such as whether culturally appropriate food was available, or whether members of the household worried about running out of food or funds to buy food. Instead, it measures whether or not a household is living in a state of serious food insecurity.

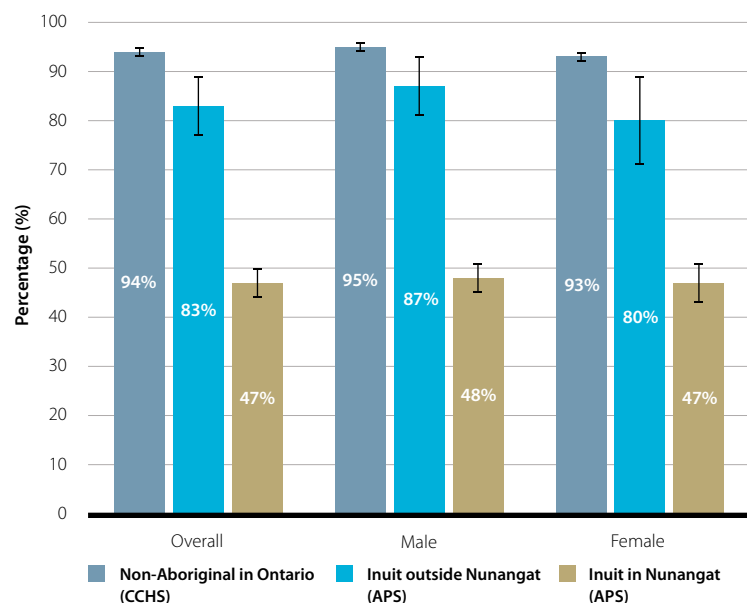
The Aboriginal Peoples Survey does not include any direct measures of vegetable and fruit intake (e.g., number of servings eaten per day). Furthermore, the number of people living in food insecure households was too small to report estimates with certainty. Therefore, food security was used as a measure of a healthy diet due to its relationship with access to sufficient, safe and nutritious food.

Low levels of food security speak to the issues of food access and affordability facing Inuit communities in all regions in Canada, but especially in Inuit Nunangat.

## Food Security

Compared to non-Aboriginal Ontarians, a significantly lower proportion of Inuit living in and outside Nunangat reported that their household was food secure (Figure 12). Approximately half of Inuit men (48 percent) and women (47 percent) living in Nunangat reported that their household was food secure, compared to over 90 percent of non-Aboriginal men (95 percent) and women (93 percent) in Ontario. Among Inuit living outside Nunangat, 87 percent of men and 80 percent of women reported living in food-secure households.

**FIGURE 12** Percentage of Inuit in Canada and non-Aboriginal Ontarians (age 16 and older) living in food secure households, by sex, 2012

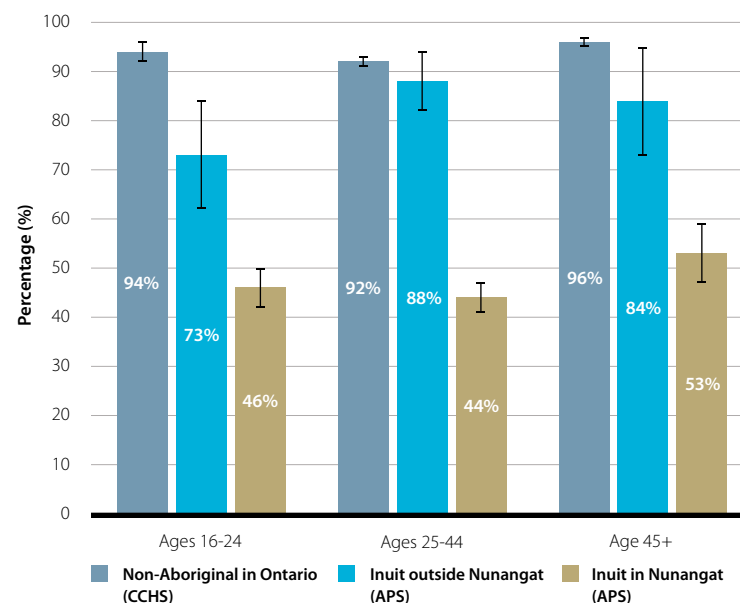


**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat. I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

## AGE

Living in a food-secure household was less common in Inuit living inside Nunangat than in Inuit living outside Nunangat and non-Aboriginal Ontarians across all age groups (Figure 13). Differences in the proportion of respondents living in food-secure households were most striking in people ages 16 to 24; nearly three-quarters (73 percent) of these young Inuit living outside Nunangat and 46 percent of young Inuit living in Nunangat reported living in a food-secure household, compared to 94 percent of non-Aboriginal Ontarians in this age group.

**FIGURE 13** Percentage of Inuit in Canada and non-Aboriginal Ontarians living in food secure households, by age group, 2012



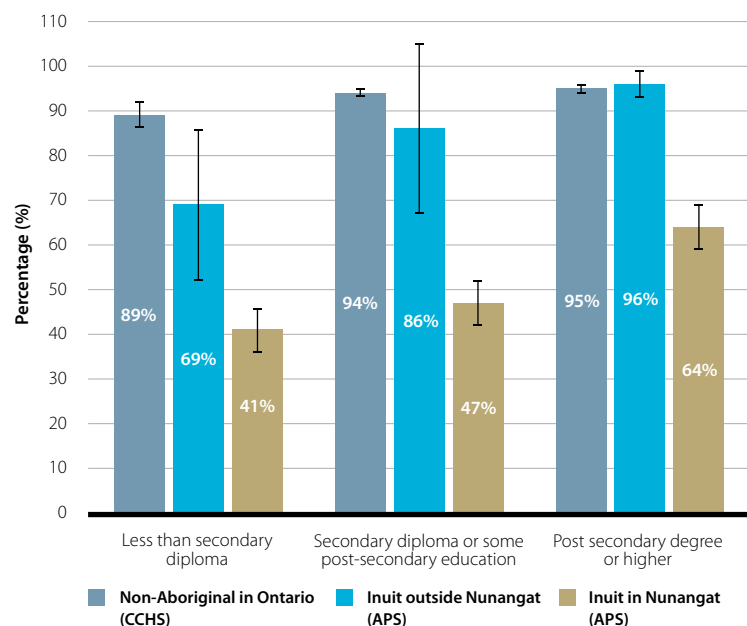
**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
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**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)



## EDUCATION

Among Inuit living in Nunangat, Inuit living outside Nunangat and non-Aboriginal Ontarians, the proportion of respondents who reported living in a food-secure household rose with education level (Figure 14). In all three groups, living in a food-secure household was more common in people who had received a post-secondary degree or higher than in people who did not have a secondary diploma (95 percent vs. 89 percent for non-Aboriginal Ontarians, 96 percent vs. 69 percent for Inuit living outside Nunangat, 64 percent vs. 41 percent for Inuit living in Nunangat).

**FIGURE 14** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (age 25 and older) living in food secure households, by education level, 2012

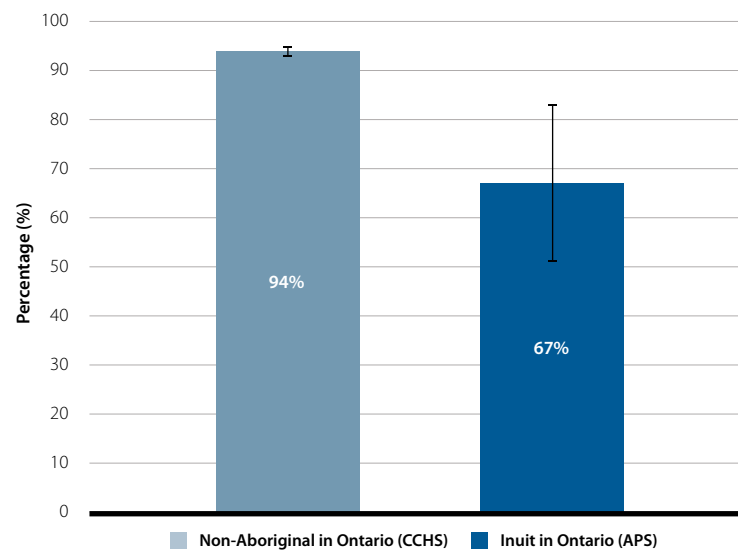


**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat. I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

## ONTARIO

A lower percentage of Inuit living in Ontario lived in food secure households (67 percent) compared to non-Aboriginal Ontarians (94 percent).

**FIGURE 15** Percentage of Inuit and non-Aboriginal people (age 16 and older) living in food secure households, Ontario, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat. I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada).



Country food (muktuk) being prepared in Rankin Inlet, Nunavut

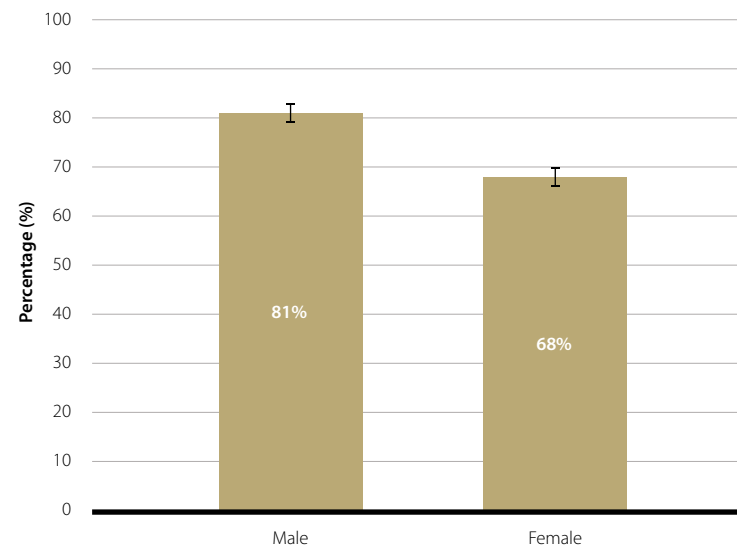
## Diet in the North: Findings from the 2006 Aboriginal Peoples Survey Arctic Supplement

In 2006, the Aboriginal Peoples Survey included a supplementary set of questions for people living in Inuit Nunangat. The supplement was based on the Survey of Living Conditions in Circumpolar Arctic Countries (SLiCA), developed jointly with the Inuvialuit Regional Corporation, Nunavut Tunngavik Incorporated, Makivik Corporation, the Labrador Inuit Association, Inuit Tapiriit Kanatami and Laval University.<sup>104</sup> The questionnaire included more detailed questions than the general Aboriginal Peoples Survey on the harvesting and eating of country food, and the degree of satisfaction with elements of community living in the Arctic. Examples of harvesting country food include hunting for caribou, fishing for Arctic char, and gathering wild berries and shellfish. These additional indicators can help contextualize the challenges related to fresh food access and affordability in the far north, as well as the importance of country food in the Inuit tradition. Given that the survey only involved Aboriginal people living in the Arctic, the following graphs do not include comparison groups for Inuit living outside Inuit Nunangat or non-Aboriginal Ontarians.

### Harvesting country food

The majority of Inuit living in the Arctic reported having harvested country food within the last year. A higher proportion of men (81 percent) than women (68 percent) harvested country food (Figure 16). According to the Inuit Health Survey (2007–2008), Inuit men also ate larger portions of country food more frequently than women.<sup>37</sup> Fresh and dried caribou meat and Arctic char were eaten most often and in large quantities.

**FIGURE 16** Percentage of Inuit living in the Arctic (age 15 and older) who harvested country food in the last year, 2006



**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.

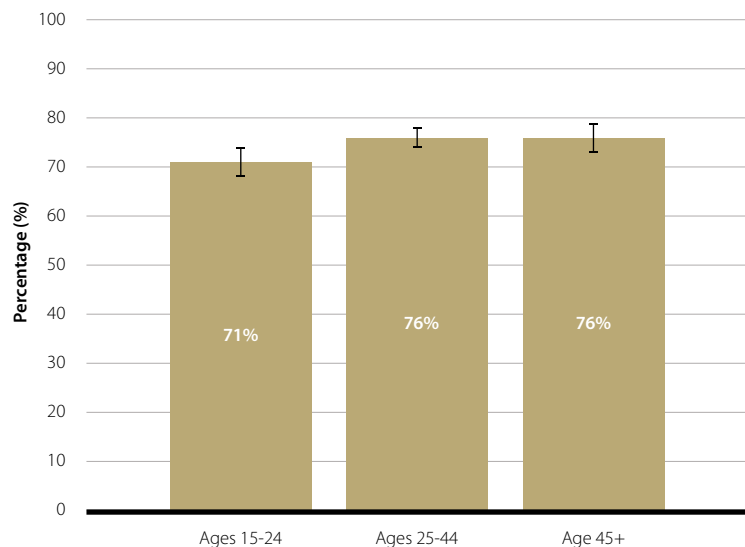
I represents 95% confidence interval.

**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## AGE

Harvesting country food was a common activity across all age groups of Inuit living in the Arctic (Figure 17).

**FIGURE 17** Percentage of Inuit living in the Arctic who harvested country food in the last year, by age group, 2006

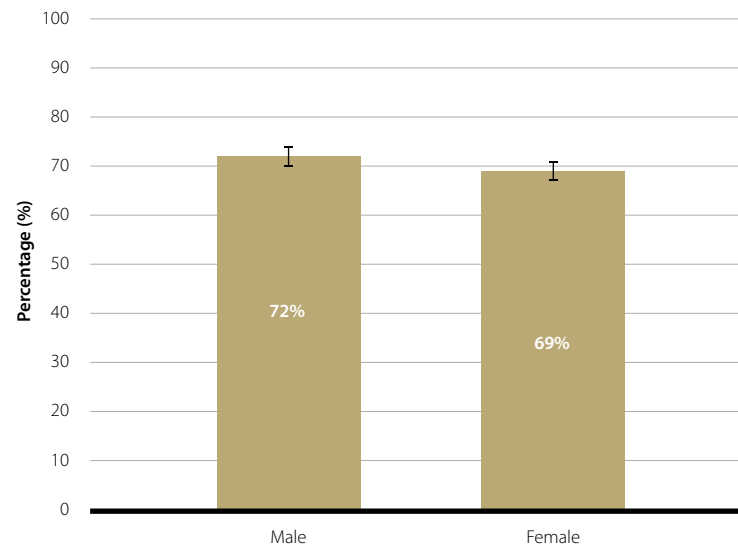


**Notes:** I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## Proportion of diet from country food

The majority of Inuit respondents living in the Arctic reported that at least half of the meat and fish that they ate in a year was country food (Figure 18). The annual meat and fish intake of 72 percent of males and 69 percent of females was mostly country food.

**FIGURE 18** Percentage of Inuit living in the Arctic (age 15 and older) whose annual meat and fish intake was at least half country food, 2006

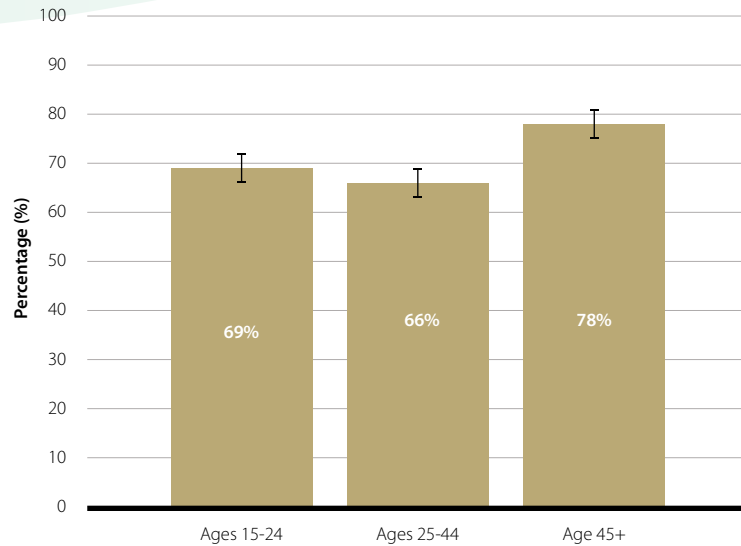


**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.  
I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## AGE

The proportion of Inuit living in the Arctic whose annual meat and fish intake was at least half country food was highest in adults age 45 and older (78 percent) (Figure 19). A significantly higher proportion of adults in this age group reported that the majority of their meat and fish intake was country food, compared to Inuit ages 15 to 24 (69 percent) and ages 25 to 44 (66 percent).

**FIGURE 19** Percentage of Inuit living in the Arctic (age 15 and older) whose annual meat and fish intake was at least half country food, by age group, 2006

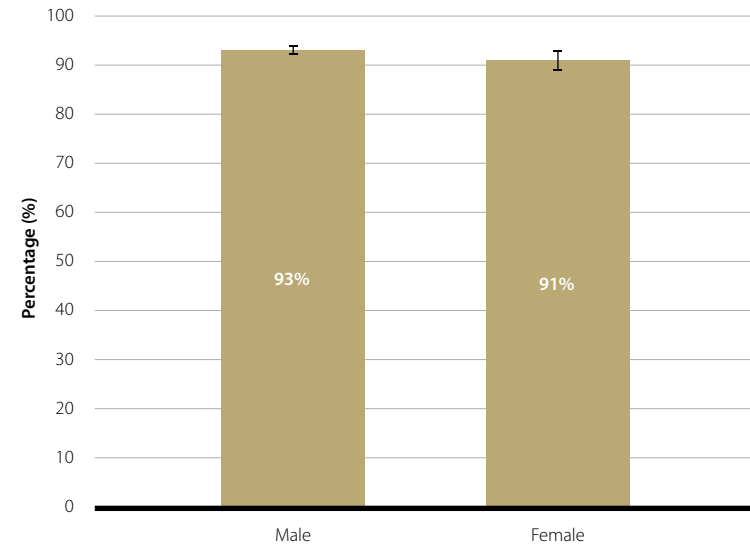


**Notes:** I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## Satisfaction with availability of country food

Most Inuit living in the Arctic reported satisfaction with the availability of country food where they live (Figure 20). Ninety-three percent of males and 91 percent of females reported that they were satisfied or somewhat satisfied with the country food available in their area.

**FIGURE 20** Percentage of Inuit living in the Arctic (age 15 and older) who were satisfied or somewhat satisfied with the availability of country food where they live, 2006

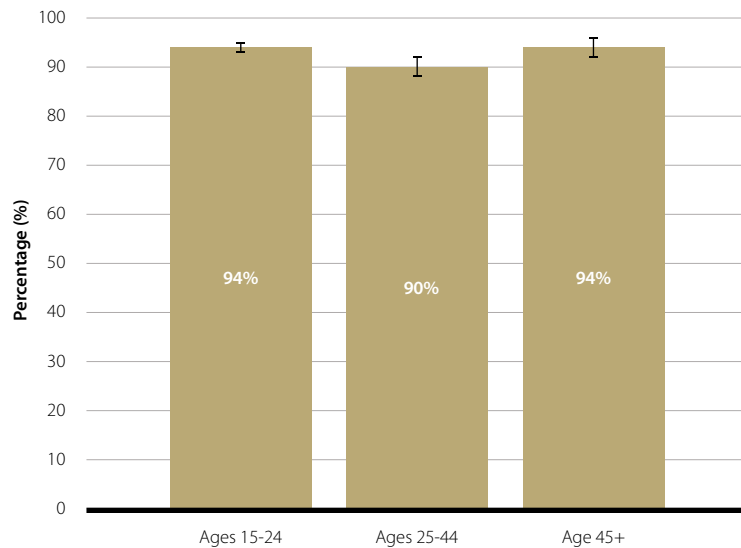


**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.  
I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## AGE

The proportion of Inuit living in the Arctic who were satisfied with the availability of country food where they live was high across all age groups (Figure 21).

**FIGURE 21** Percentage of Inuit living in the Arctic (age 15 and older) who were satisfied or somewhat satisfied with the availability of country food where they live, by age group, 2006

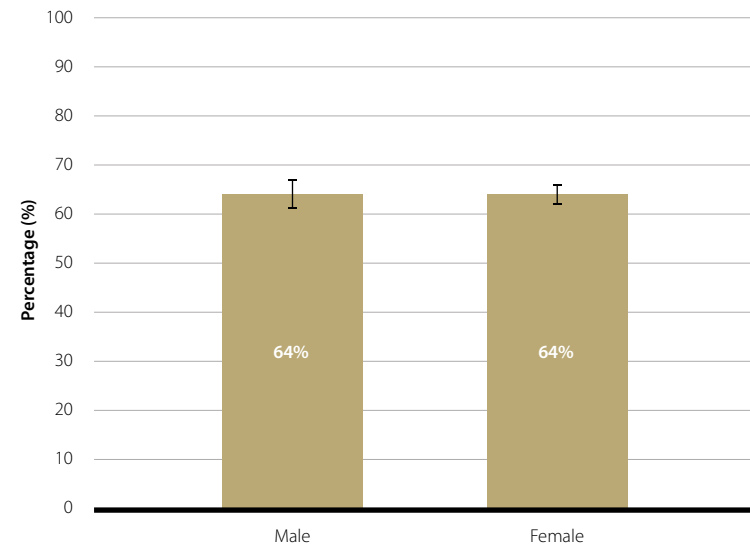


**Notes:** I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## Satisfaction with freshness of food available for purchase

Nearly two-thirds (64 percent) of Inuit men and women living in the Arctic were satisfied or somewhat satisfied with the freshness of the food available in local stores (Figure 22).

**FIGURE 22** Percentage of Inuit living in the Arctic (age 15 and older) who were satisfied or somewhat satisfied with the freshness of food for purchase in local stores, by sex, 2006

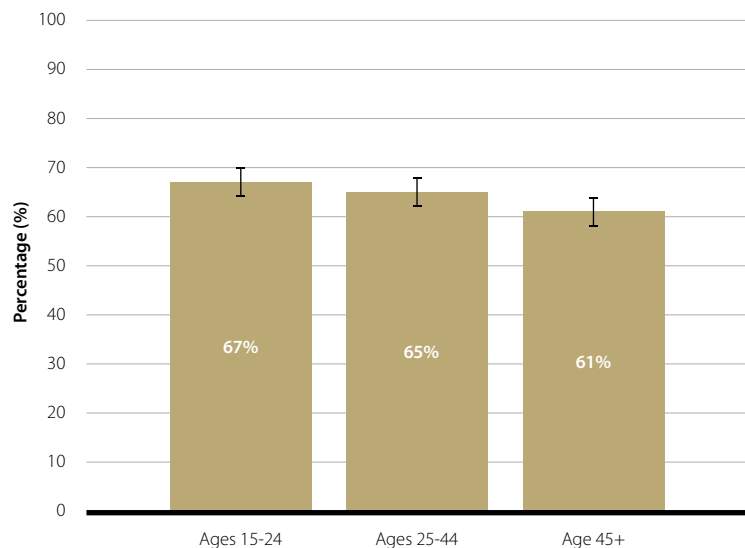


**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.  
I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## AGE

The proportion of Arctic Inuit respondents who were satisfied or somewhat satisfied with the freshness of the food available in local stores decreased with age (Figure 23). A lower proportion of people in the oldest age group (age 45 and older) were satisfied with food freshness than people in the 15 to 24 age group (61 percent vs. 67 percent).

**FIGURE 23** Percentage of Inuit living in the Arctic (age 15 and older) who were satisfied or somewhat satisfied with the freshness of food for purchase in local stores, by age group, 2006



**Notes:** I represents 95% confidence interval.  
**Source:** Aboriginal Peoples Survey 2006 (Statistics Canada)

## Healthy Weight

Maintaining a healthy weight is important for preventing the development of several cancers. Excess body weight (i.e., being overweight or obese) increases the risk of cancer of the esophagus, colon, rectum, pancreas, breast (post-menopausal), endometrium, kidney and liver, and probably increases the risk of cancer of the gallbladder, ovary and prostate (advanced).<sup>68,105,106</sup>

Body weight depends on a number of factors, including bone and organ mass, body fatness and lean muscle mass. Body fatness is the most variable determinant of weight and, together with body fat distribution (particularly abdominal fat distribution), is an important factor for maintaining health and well-being. Body mass index (BMI), a measure of weight adjusted for height, is calculated by dividing weight in kilograms by height in metres squared ( $\text{kg}/\text{m}^2$ ) and is a common measure of overall body fatness. Although the accuracy of BMI in measuring body fatness at an individual level varies depending on musculature, bone mass and ethnicity, BMI has been shown to be a valid measure of body fatness and is associated with health risks at a population level.<sup>107,108</sup> Adult BMI is frequently classified into four broad categories (Table 7).<sup>108</sup>

**TABLE 7** Body mass index (BMI) categories for adults

BMI	Category
<18.50	Underweight
18.50–24.99	Normal
25.00–29.99	Overweight
$\geq 30.00$	Obese

In 2010, over 2,000 new cases of cancer diagnosed in Ontario were estimated to be from being overweight or obese (four percent of all new cases).<sup>107</sup>

Studies have shown that, when surveyed, adults tend to overestimate their height and underestimate their weight.<sup>109-112</sup> As a result, BMI calculated from self-reported height and weight is likely to be underestimated. Therefore, estimates of the percentage of adults who are overweight or obese presented in this report may be lower than the true values. Body mass index is also an imperfect tool for excess body fat, particularly in Inuit. BMI has been shown to have a different relationship to certain health measures (blood pressure, lipid and insulin levels) than the general Canadian population. Researchers have speculated that this difference may be due to high levels of omega-3 fatty acids in the traditional Inuit diet or differences in build that BMI fails to capture.<sup>65</sup> Waist circumference appears to be a more appropriate measure of excess body fat in Inuit, however this information is not included in the Aboriginal Peoples Survey or the Canadian Community Health Survey.

The risk of cancer rises with increasing BMI, even when someone's BMI falls within the normal range.<sup>68,105,106</sup> Accordingly, experts recommend being "as lean as possible within the normal range of body weight" to reduce cancer risk.<sup>68</sup>

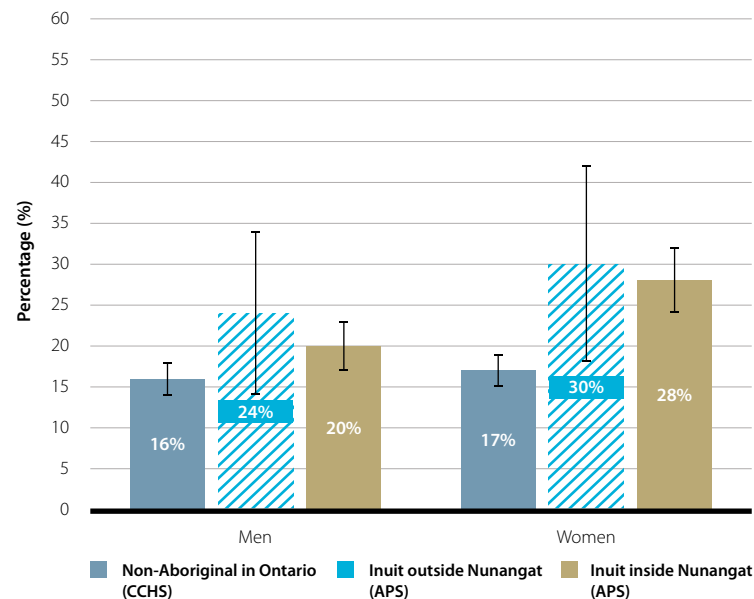
Body weight measurements reported on in this section:

- **Overweight;**
- **Obese; and**
- **Excess body weight (overweight or obese).**

## Obesity

The proportion of Inuit women inside (28 percent) and outside Nunangat (30 percent) who were obese was nearly twice that of non-Aboriginal women living in Ontario (17 percent) (Figure 24). About 20 percent of Inuit men living in Nunangat and 24 percent of men living outside Nunangat were obese, compared to 16 percent of non-Aboriginal men in Ontario. These differences were not statistically significant.

**FIGURE 24** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (age 18 and older) who were obese, by sex, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey

**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.

I represents 95% confidence interval.

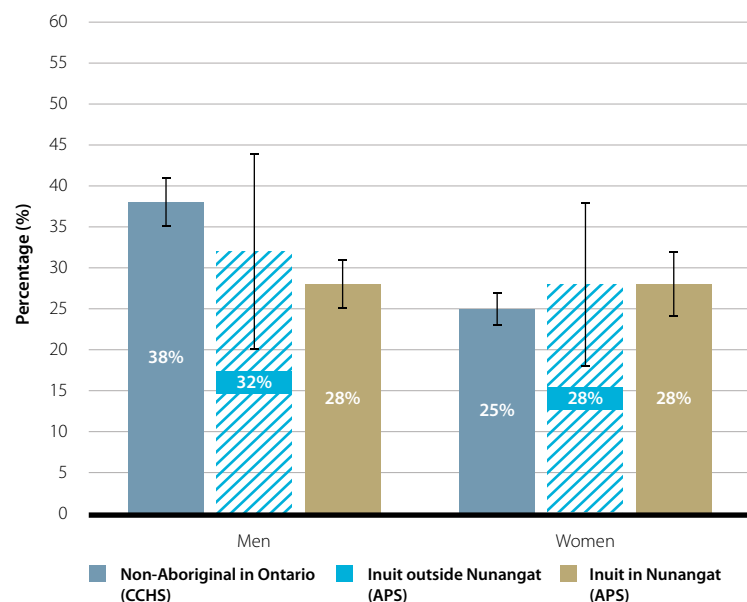
Diagonal shading indicates high sampling variability. Interpret with caution.

**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

## Overweight

Being overweight was about as common in Inuit women living outside Nunangat as it was in Inuit women living inside Nunangat and in non-Aboriginal women in Ontario (Figure 25). A lower proportion of Inuit men living inside Nunangat (28 percent) were overweight than non-Aboriginal men in Ontario (38 percent).

**FIGURE 25** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (age 18 and older) who were overweight, by sex, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.  
 I represents 95% confidence interval.  
 Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)



Traditional foods shared at a Tungasuvvingat Inuit feast held December 2016 including (left to right) arctic char, muktuk and caribou

## Excess body weight (obesity and overweight combined)

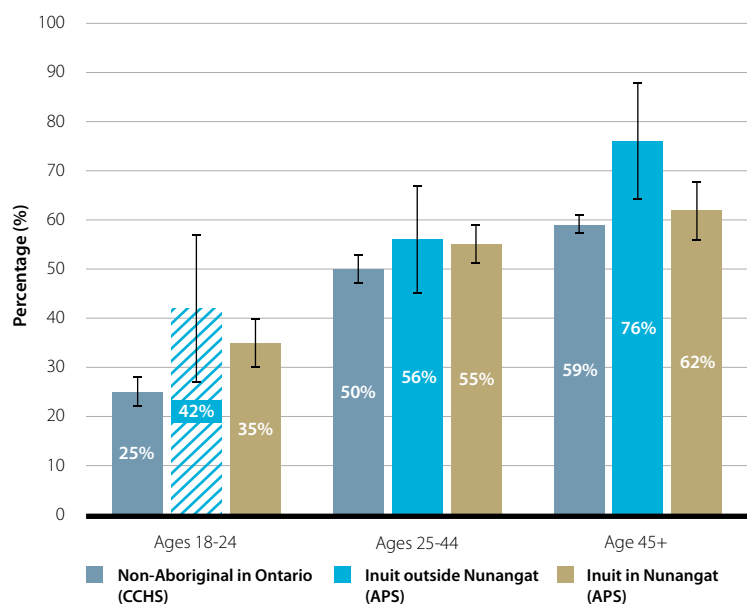
### AGE

Having excess body weight (being obese or overweight) was more common in Inuit adults age 45 and older living inside and outside Nunangat than in young adults (ages 18 to 24) (Figure 26). Among Inuit living outside Nunangat, 76 percent of adults in the oldest age group had excess body weight, compared to 42 percent of young adults. The same pattern was seen in Inuit living in Nunangat, with 62 percent of those in the older age group being obese or overweight, compared to 35 percent of young adults.

The proportion of Inuit adults living outside Nunangat age 45 and older who were obese or overweight was significantly higher than that of non-Aboriginal Ontarian adults in the same age category. In the youngest age group (18 to 24), the prevalence of excess body weight was higher in Inuit living in Nunangat than non-Aboriginal young adults living in Ontario. In the ages 25 to 44, there were no statistically significant differences among Inuit living in Nunangat, Inuit living outside Nunangat and non-Aboriginal Ontarians.



**FIGURE 26** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario who had excess body weight (obese and overweight combined), by age group, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** I represents 95% confidence interval.  
 Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

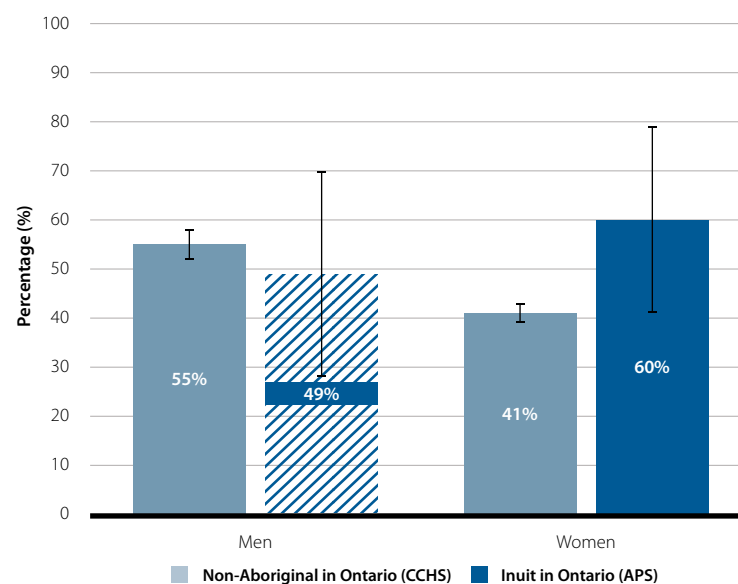
**EDUCATION**

There were no differences in excess body weight by level of education seen among Inuit living in Nunangat, Inuit living outside Nunangat or non-Aboriginal Ontarians (data not shown).

**ONTARIO**

A higher proportion of Inuit women living in Ontario (60 percent) had excess body weight than non-Aboriginal women living in Ontario (41 percent) (Figure 27). Inuit men in Ontario (49 percent) had about the same prevalence of excess body weight as non-Aboriginal men (55 percent).

**FIGURE 27** Percentage of Inuit and Non-Aboriginal adults (age 18 and older) who had excess body weight (obese and overweight combined), by sex, Ontario, 2012



**Acronyms:** CCHS=Canadian Community Health Survey, APS=Aboriginal Peoples Survey  
**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat.  
 I represents 95% confidence interval.  
 Diagonal shading indicates high sampling variability. Interpret with caution.  
**Source:** Aboriginal Peoples Survey 2012 (Statistics Canada); Canadian Community Health Survey 2012 (Statistics Canada)

# Cancer Screening



A group of youth jigging (fishing) on the Arctic Ocean in Cambridge Bay, Nunavut

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## Breast, Cervical and Colorectal Cancer Screening

Evidence currently indicates that population-wide screening for colorectal, breast and cervical cancer reduces morbidity (amount of disease) and mortality (deaths) associated with cancer.<sup>113-115</sup> Screening is done on people who do not have (or do not know about having) any cancer symptoms to find pre-cancerous changes or cancer at an early stage when there is a better chance of successful treatment.

Organized cancer screening involves activities such as sending letters to eligible people inviting them to get screened, providing them with their screening results and recommendations, and reminding them when follow-up action is needed. It also involves supporting primary care providers, and monitoring and improving quality across all parts of the screening system.

Cancer Care Ontario coordinates province-wide screening for colorectal, breast and cervical cancer, and is moving towards fully organized and integrated screening for all three cancers to improve effectiveness.

## Other Types of Cancer Screening

The evidence for the effectiveness of screening in reducing deaths from other cancer types is less clear. If you are concerned about your risk for other types of cancer, where screening programs are not currently supported, you should talk to your primary care provider. Individual decisions to screen should be made as a part of a shared decision-making process involving a discussion between you and your primary care provider.

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## Cancer Screening Behaviours Reported on in this Section

**Overdue for colorectal cancer screening:** Percentage of people ages 50 to 74 who have not had a fecal occult blood test (FOBT) in the last two years and have not had a colonoscopy or sigmoidoscopy within the last 10 years.

**Up to date for cervical cancer screening:** Percentage of women ages 21 to 69 who had a Pap test within the last three years.

There were insufficient numbers of age-eligible Inuit women ages 50 to 74 to reliably estimate breast cancer screening participation in Inuit and there are currently no questions in the Canadian Community Health Survey that ask respondents about lung cancer screening participation.

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## Colorectal Cancer Screening

Colorectal cancer was the second most commonly diagnosed cancer in Ontario in 2016 and the second leading cause of cancer death.<sup>116</sup> It is estimated that 9,900 Ontarians were diagnosed with colorectal cancer and 3,200 died of the disease in 2016.<sup>117</sup>

The five-year survival for colorectal cancer in Ontario is about 63 percent, although this varies considerably depending on stage at diagnosis.<sup>116</sup> The earlier colorectal cancer is caught and treated, the better the chance of surviving five years after being diagnosed. Someone with colorectal cancer has a 90 percent chance of surviving five years or longer if the cancer is caught early, when it is localized and easier to treat. The likelihood of surviving five years or longer with colorectal cancer decreases to 12 percent if the disease is found at later stages, when the cancer has spread to a different part of the body.<sup>114</sup>

Guidelines for colorectal screening have been established by the Canadian Task Force on Preventive Health.<sup>118</sup>

### Colorectal cancer in Inuit

Colorectal cancer is one of the most common cancers in the Circumpolar Inuit population.<sup>62</sup> In Canada, incidence rates (new cases) of colorectal cancer are higher in the Inuit Nunangat population (especially in men) than in the rest of Canada.<sup>63</sup>

## ColonCancerCheck: Ontario's colorectal cancer screening program

Ontario was the first jurisdiction in Canada to introduce a province-wide screening program for colorectal cancer. Jointly run by Cancer Care Ontario and the Ontario Ministry of Health and Long-Term Care, ColonCancerCheck was launched in 2008 as a fully organized screening program.

ColonCancerCheck recommends that Ontarians ages 50 to 74 without a family history of colorectal cancer (average risk) get screened once every two years for the disease with an at-home test called the fecal occult blood test (FOBT)\*. People at average risk for colorectal cancer who choose to be screened with flexible sigmoidoscopy should be screened every 10 years.

ColonCancerCheck recommends that people with a family history of colorectal cancer get screened with colonoscopy beginning at 50 years of age, or 10 years earlier than the age their relative was diagnosed, whichever occurs first.

## Colorectal Cancer Screening in Inuit

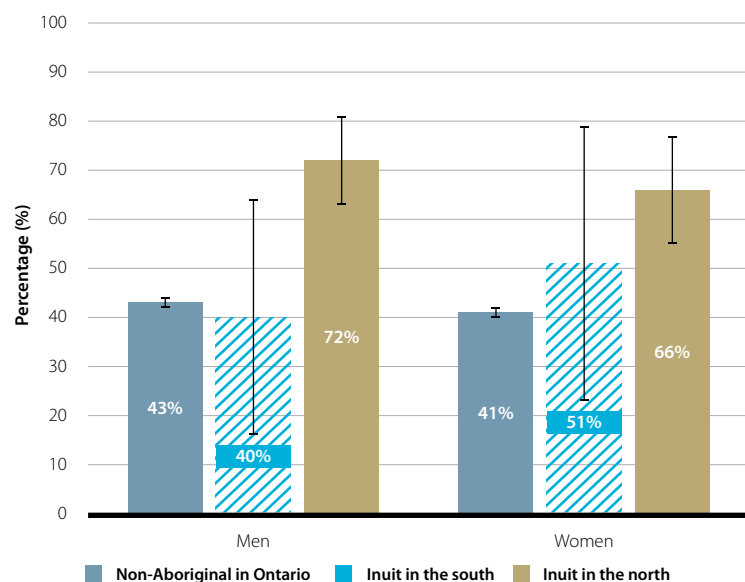
There are no known data on colorectal cancer screening rates in Ontario's Inuit population. However, in geographic regions of Canada with higher proportions of Inuit (Labrador-Grenfell Regional Integrated Health Authority, Northwest Territories and Nunavut), more people age 50 and older were overdue for colorectal cancer screening (i.e., needed a screening test) in 2008 than the national (Canada-wide) average.<sup>72</sup> For the Inuit adult population over age 50 in Ottawa, 23 percent of Our Health Counts survey respondents indicated that they had received a fecal occult blood test (FOBT) to screen for colon cancer in their lifetime. In comparison, 41 percent of the general Ottawa population over age 50 reported having a FOBT in the past 2 years in the 2007–2008 Canadian Community Health Survey.<sup>42</sup>

\*ColonCancerCheck is in the process of switching from FOBT to a better at-home test called the fecal immunochemical test (FIT).

## Overdue for colorectal cancer screening

A higher proportion of Inuit men and women living in Northern Canada (Nunavut, Northwest Territories and Labrador) were overdue for colorectal cancer screening than non-Aboriginal men and women in Ontario (Figure 28). Nearly three-quarters (72 percent) of Inuit men and two-thirds (66 percent) of Inuit women in the North had not had an FOBT test in the last two years or a colonoscopy/sigmoidoscopy in the last 10 years. About 51 percent of Inuit women living in the south were overdue for colorectal cancer screening, compared to 41 percent of non-Aboriginal women in Ontario. This difference was not statistically significant. There was also no difference in colorectal cancer screening between Inuit men living in the south (40 percent) and non-Aboriginal men living in Ontario (43 percent).

**FIGURE 28** Percentage of Inuit adults in Canada and non-Aboriginal adults in Ontario (ages 50–74) who were overdue for colorectal cancer screening



**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat. North= Nunavut, Northwest Territories and Labrador. South= provinces (excluding Labrador) and Yukon. I represents 95% confidence interval. Diagonal shading indicates high sampling variability - interpret with caution.  
**Source:** Canadian Community Health Survey 2005-2012 (Statistics Canada)

## Cervical Cancer Screening

Cervical cancer ranks 14th out of all the cancers diagnosed in Ontario women in 2012, but it is the fifth most common cancer diagnosed in women ages 30 to 39.<sup>116</sup> It is estimated that 640 Ontario women were diagnosed with cervical cancer and 150 died of the disease in 2015.<sup>117</sup>

Cervical cancer is almost entirely preventable with regular screening, appropriate and timely follow-up of abnormal results, and human papillomavirus immunization. Incidence rates (new cases) and mortality rates (deaths) for cervical cancer have decreased substantially over the past 50 years in Ontario, which is likely due to widespread screening with the Pap test. Most cervical cancers are diagnosed in women who have never been adequately screened.

Guidelines for cervical screening have been established by the Canadian Task Force on Preventive Health.<sup>119</sup>

### Cervical Cancer in Inuit

Incidence of cervical cancer is two to three times higher in the Canadian Inuit population than the national average; however, over time, cervical cancer rates have been decreasing in Canadian Inuit women.<sup>60,64</sup> This decrease is likely due to improvements in Pap test participation in the three Canadian territories and communities in Nunavik.<sup>60</sup>

## The Ontario Cervical Screening Program: Ontario's cervical cancer screening program

The Ontario Cervical Screening Program (OCSP) started in 2000 as a province-wide screening program that aimed to reduce the incidence and mortality of cervical cancer.

Cancer Care Ontario is coordinating the transition of the OCSP to a fully organized and integrated cervical screening program as defined by the International Agency for Research on Cancer to improve its effectiveness.

The Ontario Cervical Screening Program recommends cervical screening for women ages 21 to 69 every three years if they are or have ever been sexually active.

Screening can stop at age 70 in women who have been regularly screened and have had three or more normal tests in the previous 10 years.

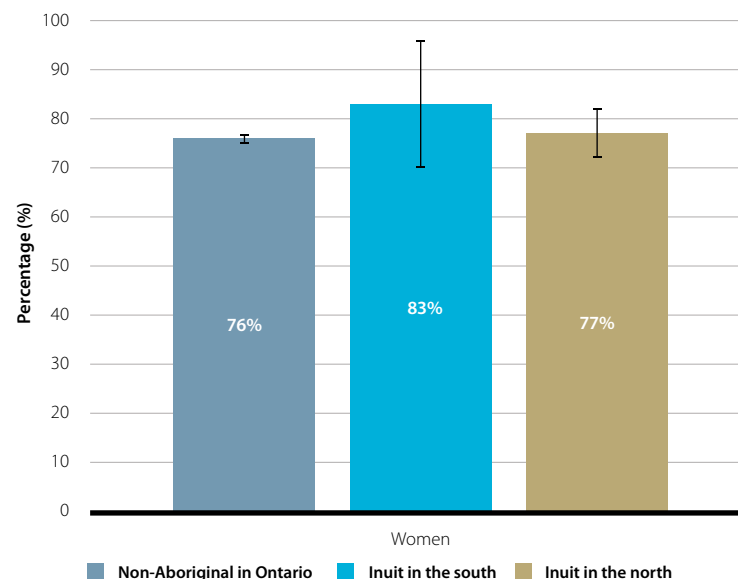
### Cervical cancer screening in Inuit

There are very few studies of cervical screening in Inuit. One study of self-reported screening history (using the Canadian Community Health Survey) found that Inuit women ages 21 to 65 in Northern Canada were significantly less likely to have had a Pap test in the last three years than non-Aboriginal women (75 percent vs. 80 percent, respectively).<sup>71</sup> Work linking Our Health Counts survey participants to health records held by the Institute for Clinical Evaluative Sciences (ICES) found 48 percent of Inuit women in Ottawa had a Pap test in the previous three years, compared to 64 percent of women in Ottawa and 62 percent of women in Ontario. Approximately 73 percent of Inuit women surveyed by Our Health Counts reported having had a Pap test in the previous three years, compared to 81 percent of Ottawa women in the Canadian Community Health Survey. These proportions are different from the results of the ICES data linkage in part because the ICES data does not include Pap tests done at hospital-based clinics.<sup>42</sup>

### Up to date for cervical cancer screening

A similar percentage of women were up to date for cervical cancer screening in Inuit living in the north (Nunavut, Northwest Territories and Labrador), Inuit living in the south (southern provinces and the Yukon) and non-Aboriginal women living in Ontario (Figure 29). A little over three-quarters of Inuit women in the north (77 percent) and non-Aboriginal women in Ontario (76 percent) had had a Pap test within the previous three years.

**FIGURE 29** Percentage of Inuit women in Canada and non-Aboriginal women in Ontario (ages 21–69) who were up to date for cervical cancer screening



**Notes:** Age-standardized to the 2006 Inuit population outside Nunangat. North= Nunavut, Northwest Territories and Labrador. South= provinces (excluding Labrador) and Yukon. I represents 95% confidence interval.

**Source:** Canadian Community Health Survey 2005-2012 (Statistics Canada)

## Breast Cancer Screening

Breast cancer is the most common cancer in women and is the second leading cause of cancer deaths in women in Ontario. It is estimated that 9,800 Ontario women were diagnosed with breast cancer and 1,900 died of the disease in 2015<sup>117</sup>. Most women diagnosed with breast cancer have no family history of the disease.

The five-year relative survival for breast cancer in Ontario is 87 percent.<sup>116</sup> When breast cancer is diagnosed at an early stage, there are generally more treatment options available, better treatment outcomes and higher survival rates.<sup>120</sup>

Guidelines for breast screening have been established by the Canadian Task Force on Preventive Health.<sup>121</sup>

### Breast cancer in Inuit

Historically, breast cancer incidence (new cases) in the Circumpolar Inuit population has been low; however, incidence rates have been rising over time and are approaching the rate seen in non-Inuit populations.<sup>63,64</sup> The reason for this increase is not well understood. Researchers have hypothesized that it may be due to improvements in diagnosis and screening, as well as a widespread increase in factors that are known to increase the risk of breast cancer, such as fewer births and greater mean age at first birth, shortened periods of breastfeeding through childbearing years, a rising prevalence of obesity and transition to a non-traditional Inuit diet.<sup>64</sup>

### Breast screening in Inuit

There are very few studies of breast screening in Inuit. One study of self-reported screening history (using the Canadian Community Health Survey), found that Inuit women ages 50 to 65 living in Northern Canada are significantly less likely to have had a mammogram within the last two years than non-Aboriginal women in Northern Canada.<sup>71</sup>



A community member attends a December 2016 feast at Tungasuvvingat Inuit

## The Ontario Breast Screening Program: Ontario's breast cancer screening program

The Ontario Breast Screening Program (OBSP) began in 1990 and through its organized approach, has provided more than five million screens to over 1.4 million Ontario women age 50 and over. Over 75 percent of all screening mammograms performed in Ontario in women ages 50 to 74 are completed through the OBSP.<sup>123</sup>

The OBSP recommends that women ages 50 to 74 at average risk for breast cancer have a screening mammogram every two years.

The OBSP also recommends that women ages 30 to 69 who are at high risk for breast cancer get screened annually with mammography and breast MRI (magnetic resonance imaging).



# Summary and Conclusions

The path towards healthier communities involves not only taking practical steps towards encouraging healthy behaviours, but also creating environments that support individuals, families and communities in making healthy choices.



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Across a number of indicators of cancer risk, Inuit living in and outside Inuit Nunangat fared poorer than non-Aboriginal Ontarians. In particular, there was a high prevalence of smoking and low prevalence of household food security among Inuit compared to non-Aboriginal Ontarians. Additionally, a higher percentage of Inuit in the north were overdue for colorectal cancer screening. Generally, the pattern of risk for Inuit living in Ontario was similar to Inuit living outside Inuit Nunangat more broadly, with a higher proportion of current smoking overall, and a lower prevalence of food-secure households than the non-Aboriginal population.

The path towards healthier communities involves not only taking practical steps towards encouraging healthy behaviours, but also creating environments that support individuals, families and communities in making healthy choices. Cultural distinctions need to be reflected in the design of health policy and programming for Inuit living in Inuit Nunangat and in southern regions, such as Ontario. Recommendations for action have been called out by other reports, including the National Urban Inuit One Voice Workshop, which makes 26 recommendations aimed at improving the health and wellbeing of urban Inuit.<sup>1</sup> Cancer Care Ontario's *Path to Prevention—Recommendations for Reducing Chronic Disease in First Nation, Inuit and Métis* also outlines policy recommendations for the government of Ontario. This report focuses on creating environments that encourage individuals, families and communities to make healthy choices.<sup>2</sup> Furthermore, the Truth and Reconciliation Commission of Canada released 94 calls to action in their 2015 report, which redress the legacy of residential schools and advance the process of Canadian reconciliation.<sup>3</sup> Implementation of these recommendations will involve full participation by all levels of government, Inuit communities and partner organizations working in a manner consistent with Inuit values and knowledge.

## Engaging with Inuit Communities in Ontario

This report is the result of a collaboration between Tungasuvvingat Inuit and Cancer Care Ontario's Aboriginal Cancer Control Unit, which have a shared interest in improving the health of Inuit communities across Ontario. The collaboration pairs knowledge of the unique cultural requirements of Inuit living in sub-Arctic Canada with expertise in cancer control research and practice. Ongoing collaboration of this nature is essential as we move forward along the path towards healthier Inuit communities.

The Champlain Inuit Service Providers Relationship Table (CISPRT) is another collaborative group taking steps towards healthier communities. Formed in 2016, the CISPRT consists of representatives from Inuit health service providers working in the Champlain region, members of the Champlain Regional Cancer Program and representatives from Cancer Care Ontario's Aboriginal Cancer Control Unit. The purpose of the CISPRT is to provide guidance and direction to the Champlain Regional Cancer Program and to Cancer Care Ontario on the continued development, implementation and evaluation of the *Champlain Regional Aboriginal Cancer Plan* and the *Aboriginal Cancer Strategy III*. CISPRT also provides a forum for discussing Inuit-specific initiatives regarding the implementation of *Path to Prevention: Recommendations for Reducing Chronic Disease in First Nations, Inuit and Métis*.

All members of CISPRT recognize that, while the Inuit community living in Ottawa is large, there are additional communities outside the national capital. Therefore, the group is committed to identifying Inuit across the province and ensuring that their cancer needs are being met. Strong ties have also been formed with the Government of Nunavut and health service providers working within the Inuit homeland. These ties have led to increased efforts aimed at ensuring smooth travel among regions, reducing the anxiety Inuit feel when they need to travel away from home. For example, members of CISPRT are working towards creating a video highlighting the Champlain Regional Cancer Centre and local accommodations. The hope is that this video will help reduce some of the anxiety someone seeking medical treatment and their family may feel before travelling for these services. As the Inuit population continues to grow and spread across the country, other provinces may wish to engage with local Inuit communities in similar ways.

## Risk factor disparities

Prevention and education are two strategic priorities of the *Aboriginal Cancer Strategy III*. Key actions that Cancer Care Ontario has committed to completing from 2015 to 2019 include:

- Continue to build awareness and education in commercial tobacco prevention, cessation and protection through the Aboriginal Tobacco Program.
- Continue to build and strengthen collaborations and partnerships with Aboriginal leadership and relevant stakeholders through the Aboriginal Tobacco Partnership Table.
- Support Research on Tobacco Reduction in Aboriginal Communities (RETRAC) to improve understanding of why and how interventions work.
- Implement and evaluate recommendations from the report, *Path to Prevention: Recommendations for Addressing Chronic Disease in First Nation, Inuit and Métis*.
- Implement Aboriginal Relationship and Cultural Competency courses, designed to enhance knowledge of First Nation, Inuit and Métis history, culture and the health landscape to improve patient experience and person-centred care. The courses are geared towards healthcare providers, professionals, and others working with First Nations, Inuit and Métis communities.
- Complete the enhanced Aboriginal Tobacco Program website for First Nations, Inuit and Métis communities.
- Disseminate and promote educational materials (i.e., smoking cessation materials, palliative care resources, cancer screening fact sheets, Cancer 101 educational toolkit).
- Develop a framework to create, support and evaluate First Nations, Inuit and Métis educational initiatives.

## Cancer screening

Screening is one of the strategic priorities of the *Aboriginal Cancer Strategy III*. Key actions that Cancer Care Ontario has committed to completing from 2015 to 2019 include:

- Continue to explore opportunities to improve access to screening (e.g., digital mammography) and participate in a lung cancer screening pilot program with Inuit.
- Further develop and expand community-based Screening Activity Reports for non-patient enrolment model primary care providers, and evaluate how these reports inform frontline/community screening practice.
- Continue to develop and build on partnerships to explore linkage opportunities for the development of community Screening Activity Reports.
- Establish evidence to inform screening correspondence and provincial policies for screening invitations and follow-up.

## The need for data

The lack of good-quality and comprehensive Inuit health data, especially outside Inuit Nunangat, is a significant barrier to better understanding and reducing the risk of chronic diseases, including cancer, among Inuit. Inuit-specific health data are needed for tracking and monitoring cancer rates and outcomes, improving the understanding of key health determinants, and assessing the impacts of interventions designed to reduce risk and disease rates in the Inuit population.

Surveillance is one of the strategic priorities of the *Aboriginal Cancer Strategy III*. Key actions that Cancer Care Ontario has committed to completing from 2015 to 2019 include:

- Explore and support options for expanding knowledge of cancer risk and burden in Inuit.
- Work with experts and communities to support knowledge translation and exchange activities relating to cancer statistics and research findings.
- Engage with relevant partners to increase Aboriginal identifiers in Cancer Care Ontario's data holdings to support ongoing surveillance of cancer burden and to improve uptake of cancer screening.

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# Appendix A: Glossary of Terms and Acronyms

## Acronyms:

**APS** –Aboriginal Peoples Survey

**BMI** – Body Mass Index

**CCHS** – Canadian Community Health Survey

**OBSP** – Ontario Breast Screening Program

**OCSP** – Ontario Cervical Screening Program

## Glossary:

**Body mass index:** A measure of body fatness calculated by dividing weight in kilograms by height in metres-squared

**Cancer registry:** Systematic collection of information about cancer and tumor diseases diagnosed within a catchment area

**Cancer:** Refers to a collection of diseases characterized by the uncontrolled growth of unhealthy cells in the body

**Five-year survival:** The percentage of people who survived five years or longer after their diagnosis of a disease

**Incidence:** The number of new events (e.g. new cases of disease) in a defined population within a specified period of time

**Inuit Nunangat:** Traditional territory for Inuit in Canada. Inuit Nunangat is comprised of four regions: Inuvialuit (including parts of Northwest Territories and Yukon), Nunavut, Nunavik (Northern Quebec) and Nunatsiavut (Labrador). Refer to map on page 4 for further details.

**Prevalence:** The proportion of individuals with a specified risk factor within a population (i.e., the number of individuals with a particular risk factor divided by the number of individuals in the population). In this report, prevalence is expressed as a percentage.

**Risk factor:** Any attribute, characteristic or exposure of an individual that increases his or her likelihood of developing a disease or injury.



# Appendix B: Data Sources, Analytic Definitions and Methods

## Data Source: Aboriginal Peoples Survey (APS)

The APS, carried out by Statistics Canada, is a national survey of First Nations (off-reserve), Métis and Inuit aged six years and over. There have been four cycles of the survey, the first beginning in 1991. The survey includes questions on the topics of education, employment, health, language, income and housing and mobility. For this report, the APS 2012 will be used for identifying the Inuit population. Approximately 38,000 Aboriginal respondents were included in APS 2012.

The APS 2012 survey sample was selected from individuals who reported Aboriginal identity on the 2011 National Household Survey. The APS incorporates a three-phase design in which the first two phases correspond to the selection of the NHS sample and the third phase corresponds to the selection of the APS sample.

The survey was administered primarily using Computer Assisted Telephone Interview (CATI); Computer Assisted Personal Interviews (CAPI) were conducted if individuals could not be contacted by telephone. Data collection took place from February to July 2012.

Qualitative testing of the survey was done in collaboration with First Nations people, Métis and Inuit across Canada.

## Data Source: Canadian Community Health Survey (CCHS)

The CCHS, administered by Statistics Canada, is a population-based survey that contains questions on health status, healthcare use, and health determinants for the Canadian population age 12 years and over living in all provinces and territories. People living on Indian Reserves and Crown Lands, institutional residents, full-time members of the Canadian Forces and residents of some remote regions (including Nunavik, the James Bay Cree Health Region and smaller communities in Nunavut) are not surveyed. The CCHS is representative of 98 percent of the Canadian population age 12 and over.

The CCHS began in 2000/2001. Two survey waves followed in 2003 and 2005. Approximately 39,000 Ontario respondents were sampled in each cycle. Annual

survey waves began in 2007 with approximately 20,000 Ontario respondents included in each wave. For this report, only the CCHS 2012 annual wave was used to provide a non-Aboriginal Ontarian comparison.

This report uses the CCHS Ontario Share Files, which include all respondents who have agreed to share their data with the Ontario Ministry of Health and Long-Term Care.

The APS 2012 does not collect information related to cancer screening. Therefore, multiple survey years of the CCHS (2005-2012 for colorectal screening and 2005-2008 and 2011-2012 for cervical screening) were used to estimate cancer screening participation in the Inuit population.

## Definitions

### Aboriginal Identity—Inuit and non-Aboriginal Ontarians

#### CANCER RISK FACTOR ANALYSIS:

**Inuit in Nunangat:** In this report, this population is defined as respondents of the APS who identified as Inuit and were residing in the Inuit Nunangat region (Nunatsiavut, Nunavik, Nunavut and Inuvialuit regions) at the time of the 2011 National Household Survey.

**Inuit outside Nunangat:** In this report, this population is defined as respondents of the APS who identified as Inuit and were not residing in the Inuit Nunangat region (Nunatsiavut, Nunavik, Nunavut and Inuvialuit regions) at the time of the 2011 National Household Survey. Given the small numbers of Ontario Inuit respondents in the APS, the outside Nunangat population is used as a proxy for the Ontario Inuit population.

**Inuit in Ontario:** In this report, this population is defined as respondents of the APS who identified as Inuit and reported residing in Ontario at the time of the 2011 National Household Survey. When the numbers are reportable, cancer-related risk factors are shown for the Ontario Inuit population.

**Non-Aboriginal Ontarians:** In this report, this population is defined as respondents in Ontario who did not self-identify as Aboriginal, or who identified as Aboriginal, but were born outside of Canada, the United States, Germany or Greenland.

## CANCER SCREENING ANALYSIS:

**Inuit in the South:** respondents who self-identified as Inuit with any combination of Aboriginal identity and resided in any of the 10 provinces (excluding Labrador-Grenfell Health Region) or Yukon Territory. Given small numbers of respondents who self-identified as Inuit, no estimates were calculated for the Ontario Inuit population.

**Inuit in the North:** respondents who self-identified as Inuit with any combination of Aboriginal identity and resided in either Northwest Territories, Nunavut or the Labrador-Grenfell Health Region.

**Non-Aboriginal Ontarians:** respondents in Ontario who did not self-identify as Aboriginal, or who identified as Aboriginal, but were born outside of Canada, the United States, Germany or Greenland.

## EDUCATION

Respondents are asked to report the highest level of education attained, which is divided into three categories: less than secondary school graduation, secondary school graduation or some post-secondary school, and post-secondary graduation. Only respondents ages 25 years or over are included in the education analysis, since there is an increased likelihood that younger respondents have yet to complete their education.

## Methods: Estimation of Risk Factors and Screening

**Weighting:** All estimates in APS and CCHS are weighted using the sampling weights provided by Statistics Canada. See the CCHS Annual Component User Guide or the APS Annual Concepts and Methods Guide for more details.<sup>1,2</sup>

**Age standardization:** All estimates (excluding estimates stratified by age groups) are age-standardized to the age distribution of the Canadian outside Inuit Nunangat identity population in the 2006 census using age groups of 15-24, 25-55, 55-64, 65 and over. This technique adjusts for the differing age distributions of the Inuit population and the non-Aboriginal Ontarian population (Inuit population being younger), allowing us to compare the two populations without bias. Note that the population used for age standardizing in this report differs from the population used in some other reports produced by Cancer Care Ontario therefore age-standardized estimates may differ.<sup>3,4,5</sup>

**Assessment of sampling variation (coefficient of variation):** The coefficient of variation (CV) is a normalized measure of dispersion or spread estimated as the ratio of the standard deviation to the mean. It is calculated for all estimates using a bootstrap technique with the appropriate multiplicative factor (Fay adjustment). In keeping with Statistics Canada guidelines, estimates with a CV ranging from 16.6 percent to 33.3 percent are flagged as having high sampling variability and are to be interpreted with caution. Estimates with a CV greater than 33.3 percent are not reported because of extreme sampling variability. Estimates with a CV between 16.6 percent and 33.3 percent are indicated in the graphs by hatched shading with a footnote stating that these estimates are to be interpreted with caution due to high sampling variability.

**95 percent confidence limits:** Confidence limits are another measure of statistical variation and are calculated using a bootstrap technique with the appropriate multiplicative factor (Fay adjustment). In this report we use these to determine whether estimates differ significantly (see information on statistical significance below). Confidence limits indicate our confidence that, based on the number of persons sampled, the true parameter we are trying to estimate has been captured by our observations. Were we to repeat the survey on 100 different samples of respondents, the 95 percent confidence interval would encompass the true parameter value about 95 times. We denote the confidence interval for an estimate in the graphs by a vertical bar with horizontal crosses at both ends.

**Statistical significance of differences:** In this report, we declare that a difference in two percentages is statistically significant if the 95 percent confidence intervals of the two estimates do not overlap. This is a conservative approach to significance testing, but non-overlapping confidence intervals indicate that it is unlikely that the difference observed between the two groups is due to chance alone.

<sup>1</sup> Statistics Canada. Canadian Community Health Survey (CCHS) Annual component User guide 2012 and 2011-2012 Microdata files [Internet]. Ottawa: Statistics Canada; 2013 [cited 2015 Available from: [http://odesi1.scholarsportal.info/documentation/CCHS\\_2011-2012/cchs-escc2012\\_2011-2012gid-eng.pdf](http://odesi1.scholarsportal.info/documentation/CCHS_2011-2012/cchs-escc2012_2011-2012gid-eng.pdf)].

<sup>2</sup> Statistics Canada. Aboriginal Peoples Survey, 2012: Concepts and Methods Guide. Ottawa: Statistics Canada; 2014 [http://www.statcan.gc.ca/pub/89-653-x/89-653-x2013002-eng.pdf].

<sup>3</sup> Cancer Care Ontario. Cancer Risk Factors in Ontario: Healthy Weights, Healthy Eating, Active Living. Toronto: Queen's Printer for Ontario; 2015.

<sup>4</sup> Cancer Care Ontario. Cancer Risk Factors in Ontario: Alcohol. Toronto, Canada; 2014.

<sup>5</sup> Cancer Care Ontario. Cancer Risk Factors in Ontario: Tobacco. Toronto, Canada; 2014.

# Appendix C: Risk Factors and Screening Indicator Definitions

All indicators are based on data available in both the 2012 Canadian Community Health Survey (CCHS) survey and the 2012 Aboriginal Peoples Survey (APS). Indicators from CCHS and APS are directly comparable, unless otherwise noted.

## Tobacco indicator

Indicator	
<b>Current Smokers</b>	<p><b>Definition:</b> Percentage of respondents aged 20 years or over who reported smoking cigarettes daily or occasionally</p> <p><b>Survey Question:</b> At the present time, do you smoke cigarettes daily, occasionally or not at all?</p>
<b>Exposure to second-hand smoke</b>	<p><b>Definition:</b> Percentage of respondents aged 16 years or over (excluding those who do not live in a household with at least one other person) who do not currently smoke cigarettes and have household members and regular visitors who smoke inside their home every day or almost every day.</p> <p><b>Survey Question:</b> Including both household members and regular visitors, does anyone smoke inside your home, every day or almost every day?</p>

## Alcohol Indicators

Indicator	
<b>Alcohol Abstainer</b>	<p><b>Definition:</b> Percentage of respondents aged 19 years or over (excluding pregnant women) who reported not having an alcoholic drink in the past 12 months</p> <p><b>Survey question:</b> During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?</p>
<b>Binge Drinkers</b>	<p><b>Definition:</b> Percentage of respondents aged 19 years or over (excluding pregnant women) who reported having 5 or more drinks on one occasion at least 2-3 times a month in the past 12 months</p> <p><b>Survey Question:</b> How often in the past 12 months have you had 5 or more drinks on one occasion?</p> <p><b>Response:</b> 2-3 times a month, once a week, more than once a day.</p> <p><b>Note:</b> This estimate is used as a proxy to express excessive alcohol consumption, since alcohol consumption in excess of cancer prevention guidelines could not be measured through the 2012 APS</p>

## Healthy Living Indicators

Indicator	
<b>High food security</b>	<p><b>Definition:</b> Percentage of respondents aged 16 years or over who report high or marginal food security</p> <p><b>Survey Questions:</b></p> <ol style="list-style-type: none"> <li>1. The food that [you/you and other household members] bought just didn't last and there wasn't any money to get more. Was that often true, sometimes true, or never true in the past 12 months</li> <li>2. [You/you and other household members] couldn't afford to eat balanced meals. In the past 12 months was that often true, sometimes true or never true?</li> <li>3. In the past 12 months, since last month, did [you/you and other household members] ever cut the size of your meals or skip meals because there wasn't money for food?</li> <li>4. How often did this [cutting food size or skipping meals] happen—almost every month, some months but not every month, or in only 1 or 2 months?</li> <li>5. In the past 12 months, did you [personally] ever eat less than you felt you should because there wasn't enough money to buy food?</li> <li>6. In the past 12 months, were you [personally] ever hungry but didn't eat because you couldn't afford enough food?</li> </ol> <p><b>Note:</b> High or marginal food security is a derived variable which consists of the responses to the six questions above.</p> <p>Responses are coded as yes/no to derive level of food security. Responses of "often true" and "sometimes true" to questions 1 and 2, responses of "almost every month" and "some months but not every month" to question 4 and responses of "yes" to questions 3,5 and 6 are all coded as "yes" in the calculation.</p> <p>The total number of "yes" responses to the six questions determines the category to which the response is classified. Respondents with 0 or 1 "yes" responses are classified as having high or marginal food security.</p>

## Diet in the North Indicators

Indicator	
<b>Satisfaction with country food</b>	<b>Definition:</b> Percentage of respondents aged 15 years or over who were somewhat satisfied or very satisfied with the availability of country food where they live
	<b>Survey Question:</b> Are you satisfied or dissatisfied with the availability of country food to your household, for example through sharing, hunting, or other?
<b>Satisfaction with freshness of food</b>	<b>Definition:</b> Percentage of respondents aged 15 years or over who were somewhat satisfied or very satisfied with the freshness of foods for purchase in local stores
	<b>Survey Question:</b> Are you satisfied or dissatisfied with the freshness of foods in local stores?
<b>Amount of country food consumption</b>	<b>Definition:</b> Percentage of respondents aged 15 years or over whose total household food consumption consisted of half or more than half country food
	<b>Survey Question:</b> Of the total amount of meat and fish eaten in your household during the year ending December 31st, 2005, how much of this total was country food?
<b>Harvesting country food</b>	<b>Definition:</b> Percentage of respondents aged 15 years or over who harvested country food during the last year
	<b>Survey Question:</b> Did [respondent] harvest country food [caribou, arctic char, gathering berries and shellfish] during the year ending December 31st, 2005?

## Body Weight Indicators

Indicator	
<b>Overweight</b>	<b>Definition:</b> Percentage of respondents age 18 years or over (excluding pregnant women and respondents who report height less than 0.914m or greater than 2.108m) who, based on self-reported height and weight, have a body mass index between 25 kg/m <sup>2</sup> and 29.99 kg/m <sup>2</sup>
	<b>Survey Questions:</b> <ul style="list-style-type: none"> <li>• How tall are you without shoes on?</li> <li>• How much do you weigh?</li> <li>• Are you pregnant?</li> </ul>
<b>Obesity</b>	<b>Definition:</b> Percentage of respondents aged 18 years or over (excluding pregnant women and respondents who report height less than 0.914m or greater than 2.108m) who, based on self-reported height and weight, have a body mass index greater than or equal to 30 kg/m <sup>2</sup>
	<b>Survey Questions:</b> <ul style="list-style-type: none"> <li>• How tall are you without shoes on?</li> <li>• How much do you weigh?</li> <li>• Are you pregnant?</li> </ul>

## Cancer Screening Indicators

Results related to cancer screening are from multiple survey years of the Canadian Community Health Survey. The 2012 APS does not have questions on cancer screening participation. For these results, the definition of the Inuit population deviates from the definition used in all other indicators using the 2012 APS [please refer to Appendix B]

Indicator	
<b>Overdue for colorectal cancer screening</b>	<b>Definition:</b> Percentage of respondents aged 50-74 years who have not had a fecal occult blood test (FOBT) within the last two years AND have not had a colonoscopy or sigmoidoscopy within the last 10 years
	<b>Survey Questions:</b> <ul style="list-style-type: none"> <li>• Have you ever had an FOBT?</li> <li>• When was the last time you had an FOBT?</li> <li>• Have you ever had either a colonoscopy or sigmoidoscopy?</li> <li>• When was the last time you had a colonoscopy or sigmoidoscopy?</li> </ul>
	<b>Note:</b> CCHS survey years 2005-2012
<b>Cervical cancer screening participation</b>	<b>Definition:</b> Percentage of respondents aged 21 to 69 years who have had a Pap test within the last three years
	<b>Survey Questions:</b> <ul style="list-style-type: none"> <li>• Have you ever had a Pap smear test?</li> <li>• When was the last time [you had a Pap smear test]?</li> <li>• Have you had a hysterectomy?</li> </ul>
	<b>Notes:</b> <ul style="list-style-type: none"> <li>• Women with hysterectomies (removal of the uterus) are excluded from the calculation</li> <li>• CCHS survey years 2005-2012 (excluding 2009/2010)</li> </ul>

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# About the Organizations



## Tungasuvvingat Inuit

Tungasuvvingat Inuit (TI) is an Ontario based provincial organization providing a multi-sector service hub for Inuit of all ages. TI is a registered charity, offering more than 20 highly integrated, front-line services. The agency is the only Inuit-specific service organization of its kind in urban Canada offering support through the entire life cycle. TI has over 30 years of highly successful experience in crafting the design, development and delivery of a wide range of effective, client-centered services.

With an ever growing percentage of Inuit living away from traditional communities, TI is recognized as a leading advocate for Inuit and is prominent within the framework of national Inuit organizations. Our comprehensive agency is a respected leader and the primary model for Inuit-specific service delivery, working in both urban and non-urban settings. The majority of TI's staff is Inuit and we embody the motto of Inuit helping Inuit. The organization serves a critical and invaluable role in the education, training and development of high-performing Inuit professionals.

TI prides itself on a rich history of community development. With limited Inuit specific resources available, several TI projects have evolved into standalone Inuit service providers, enriching the options for Inuit needs to be met and strengthening the community voice. Beyond Ottawa and across southern Canada, TI has been working with Inuit in many cities to help strengthen and develop local capacity to better meet the needs of Inuit. Our agency has received mainstream recognition as a centre of excellence in several of our programs. We are governed by an elected, volunteer Board of Directors, consisting broadly of community leaders from across the province committed to fulfilling our vision.



Cancer Care Ontario

## Cancer Care Ontario

Cancer Care Ontario equips health professionals, organizations and policy-makers with the most up-to-date cancer knowledge and tools to prevent cancer and deliver high quality patient care.

It does this by collecting and analyzing data about cancer services and combining it with evidence and research that is shared with the healthcare community in the form of guidelines and standards. It also monitors and measures the performance of the cancer system, and oversees a funding and governance model that ties funding to performance, making healthcare providers more accountable and ensuring value for investments in the system.

Cancer Care Ontario actively engages people with cancer and their families in the design, delivery and evaluation of Ontario's cancer system, and works to improve the performance of Ontario's cancer system by driving quality, accountability, innovation and value.

