STATE OF THE KNOWLEDGE: INUIT PUBLIC HEALTH , 2011

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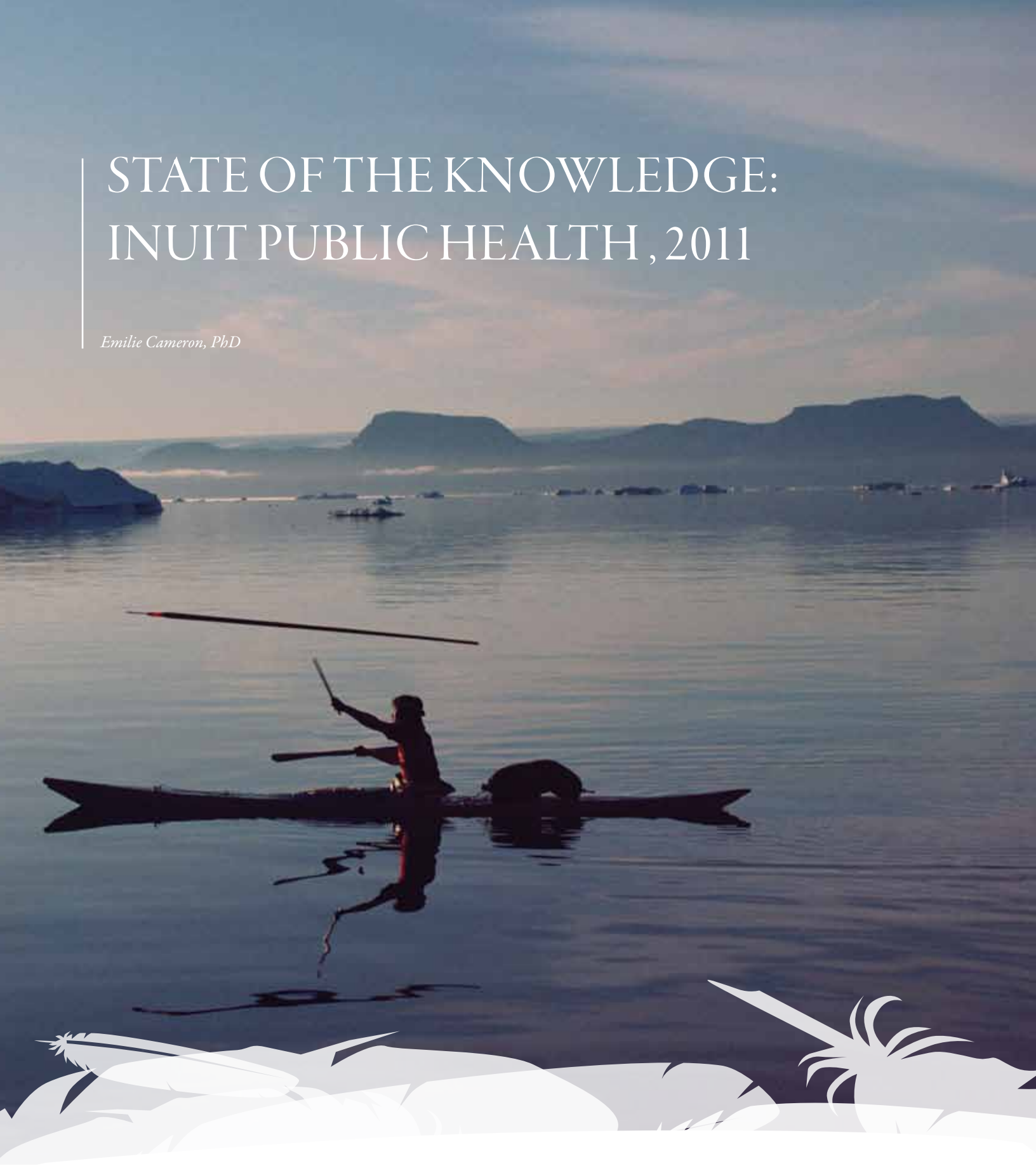

NATIONAL COLLABORATING CENTRE FOR ABORIGINAL HEALTH

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EXECUTIVE SUMMARY

Introduction

The purpose of this report is to synthesize current knowledge to 2011 relating to Inuit public health issues and to identify potential trends and gaps in that knowledge. The report discusses a range of public health issues identified in each of the four northern Inuit regions (Inuvialuit, Nunavut, Nunavik, and Nunatsiavut; see Appendix A for map, Inuit Nunangat) and in southern Canadian cities. It summarizes current understandings of each public health issue, identifies emerging health trends, and describes needs and gaps in knowledge that might be the focus for future initiatives.

Methodology

The report was developed through a comprehensive review of reports, studies, and other literature relating to Inuit public health, as well as through interviews with key informants working across the four northern regions and in southern cities. Health issues are approached from a social determinants perspective.

Public Health Issues Identified

The report discusses the following public health issues:

- Maternal, fetal, and infant health, including issues relating to birthing and midwifery, breastfeeding and infant nutrition, and Fetal Alcohol Spectrum Disorder (FASD)
- Child health, including ear infection (otitis media), dental health, and respiratory infections
- Communicable diseases, including sexually transmitted infections, gastroenteritis and other food-borne diseases, and other communicable diseases like meningitis and tuberculosis
- Cancer
- Diabetes
- Respiratory disease
- Cardiovascular disease
- Injury, including physical and sexual abuse
- Mental health and wellness, including suicide and substance use
- Disability
- Environmental health, including environmental contaminants and the effects of climate change on Inuit health
- Food security and nutrition
- Urban Inuit health.

Current knowledge relating to each issue is discussed, including statistical data and regional patterns when available.

Emerging Health Trends

There is a serious shortage of comprehensive, current, Inuit-specific public health data available in Canada to assist in tracking public health concerns over time and identifying emerging health trends. However, interviews and anecdotal evidence from communities suggest that the following health issues are an emerging concern and priority:

- Diabetes is a rising concern in Inuit communities. Emerging research and anecdotal evidence suggest that Inuit are highly vulnerable to a significant increase in diabetes incidence rates in the coming years.
- As Inuit shift away from a more traditional diet, become more sedentary, and obesity rates increase, cardiovascular disease is also expected to become an increasing public health concern.
- Sexually transmitted infection rates are high and rising in Inuit communities. Chlamydia and gonorrhea are already highly prevalent, but public health experts are increasingly concerned about the vulnerability of Inuit communities to HIV and Hepatitis C infection.
- Youth suicide is a major concern in all Inuit regions.
- Inuit are increasingly noting the effects of climate change on their environment. Climate change is already contributing negatively to Inuit health and future impacts are not well understood.
- Socioeconomic problems such as poverty, unemployment, violence, substance abuse, neglect, and overcrowding impact significantly upon the health and well-being of Inuit. Public health planners, policy-makers, and service providers in all regions note the importance of taking these broad factors into account and approaching Inuit health from a holistic, community-based perspective. Research and policy addressing Inuit public health issues from a social determinants perspective are needed.
- Inuit knowledge and values are increasingly being incorporated into public health planning and programming, although there is still much to be done in this regard.
- Inuit are increasingly controlling research agendas in their regions. There is a need, however, to develop a comprehensive discussion document outlining an Inuit-specific set of research guiding principles in order to ensure that research is culturally and community appropriate. Inuit Tuttarvingat at NAHO (formerly the Ajunnginiq Centre), Inuit Tapiriit Kanatami, and the Nunavut Research Institute have produced guides, fact sheets, and reports that are very helpful in this regard (e.g., Inuit Tapiriit Kanatami and Nunavut Research Institute 2006; see also fact sheets prepared by Nipingit, the National Inuit Committee on Ethics and Research, at www.naho.ca/inuit/e/ethics).

Needs and Gaps

The health care systems serving Inuit are faced with numerous challenges. A number of needs and gaps were identified throughout the development of this report:

- There is a shortage of comprehensive and reliable data documenting Inuit public health issues, although the health surveys conducted in Nunavik in 2004 and Nunavut, Nunatsiavut, and Inuvialuit in 2007/2008 are expected to make a significant contribution to this body of knowledge.
- There is a need to compile and coordinate existing data into a comprehensive, centralized database.
- This lack of reliable and accessible data frustrates efforts to secure funding to address emerging health concerns at the community level. In many cases, communities are aware of pressing needs but are unable to implement much needed services and programs.
- Health data analysts are needed in every region to assist in the analysis and dissemination of available health information.

- Informants in every region stressed the importance of networking, coordination, and cooperation across jurisdictional levels and even within government departments or agencies. A mechanism for this kind of interaction is needed.
- Similarly, coordination of health services is important to ensure that federal, provincial and territorial, regional, and other organizational services are integrated, accessible, and effective.
- The need for increased capacity at all levels is also a pressing concern in every region. It takes generations to build capacity among Inuit in the area of public health and a holistic strategy to encourage more Inuit to consider public health careers is needed.
- Although more data and research are required to understand the public health concerns facing Inuit communities, it is also important that action be taken to address identified problems and that program evaluation and promising practices be circulated more widely between regions, public health organizations, agencies, and individual workers.
- No single public health issue facing Inuit can be addressed in isolation. Holistic, culturally-sensitive initiatives that involve Elders, youth, and other community leaders at the community level are essential to address complex, often intergenerational public health problems. There is a related need to increase research examining Inuit health from a social determinants perspective.
- National pandemic plans are inappropriate for remote, fly-in communities with low capacity to react to crises. The northern regions are vulnerable to pandemics in this regard, although planning for and responding to the H1N1 influenza pandemic in 2009/2010 is expected to improve pandemic planning processes currently underway.
- Although there are knowledge gaps in relation to all of the public health issues discussed in this report, gaps are particularly glaring in terms of injury, disability, obesity, health determinants such as literacy, informal caregiving and caretaking, and the particular health concerns relating to urban Inuit.
- There is a need for an Inuit definition of health and wellness that would guide public health service provision, policy, surveillance, and resource development.
- Inuit concerns and needs tend not to be addressed by federal, provincial, or territorial public health planning or by initiatives aimed at a general Aboriginal population. It is crucial that the distinct cultural, historical, geographic, environmental, and socioeconomic factors impacting Inuit health be accounted for and incorporated into all public health activities.
- There is a need for research documenting public health successes and protective factors that promote health and well-being in Inuit communities.

While the gaps and shortages are significant, public health experts identify the following broad goals as potentially significant contributions to improving the overall health and well-being of Inuit:

- Set specific, national goals for Inuit health outcomes, with associated targets and measurable indicators, and commit sufficient long-term funding to support these goals;
- Develop Inuit-specific health indicators that account for the importance of culture in health outcomes;
- Ensure that Inuit have access to appropriate and timely health services, including screening, diagnostic, treatment, and long-term care services;
- Interventions aimed at specific health issues are ultimately ineffective if the underlying social, cultural, and economic determinants of health are not addressed. In this regard, meaningful commitments to address housing, employment, and intergenerational trauma are as significant a contribution to health outcomes as improvements in health service provision.

INTRODUCTION

Introduction and Background

The purpose of this project is to summarize and synthesize the state of current knowledge on Inuit public health issues. The report is intended to enhance understanding of existing knowledge relating to Inuit public health, to determine gaps in that knowledge, and to facilitate collaboration in the public health community.

Drawing on governmental and organizational grey literature, academic research, and interviews with public health experts, the report synthesizes knowledge across varying spheres and seeks to identify and interpret trends. It includes information pertaining primarily to Inuit communities in the four northern regions: Nunavut, Inuvialuit, Nunavik, and Nunatsiavut, although information regarding the specific health concerns of Inuit living in southern Canadian cities is included where it is available.

Guiding Principles

This project is fundamentally guided by principles of knowledge sharing and collaboration. The National Collaborating Centre for Aboriginal Health (NCCAH) is committed to "KSTE" principles (Knowledge, Synthesis, Translation, and Exchange) with a view to ensuring that knowledge is shared across geographical and institutional levels, making it meaningful and useful to communities.

Research Questions and Methodology

Several research questions guided the development of this report:

- What public health issues are of particular concern in Inuit communities in each of the four northern regions?
- What public health issues are of particular concern for groups within Inuit communities, such as women, children, or Elders?
- What is the state of current knowledge regarding these health issues?
- What concerns exist in terms of planning for and delivering public health services in remote northern regions? What kind of knowledge is required to facilitate any challenges identified?
- What sorts of trends exist in terms of these knowledges? What gaps?
- To what extent does an Inuit view of health and wellness inform public health research, practice, and planning?

The project was carried out in four phases:

1. *Project Design*: identification of goals, principles, and questions guiding the research project
2. *Data Collection*: Key informant interviews with representatives from government, non-governmental organizations, universities, and other stakeholders; review of literatures relating to Inuit public health
3. *Review and Feedback*: Circulation of preliminary report to community stakeholders and reviewers
4. *Final Reporting*: Development of final report and dissemination.

This project has received ethics approval through the University of Northern British Columbia's Research Ethics Board.

Overview of the Population

Inuit share a common cultural heritage and tradition that covers a vast geographical area; over three-quarters of the 50,485 Inuit in Canada live in 53 communities scattered across 40% of Canada's landmass (Statistics Canada 2008). They live primarily in four northern regions of Inuvialuit, Nunavut, Nunavik, and Nunatsiavut (see Appendix A, Inuit Nunangat), although a significant and growing number of Inuit (17%) also live in cities in the south (primarily Ottawa-Gatineau, Yellowknife, Edmonton, Montreal, and Winnipeg, and to a lesser extent, Vancouver and Toronto; see Statistics Canada 2008).

Though there are regional differences, there is much that Inuit share. Today, Inuit share a common interest in advocating for health and wellness services, programs, policies, and research that are Inuit-specific and Inuit-led, and that take into account the unique geographical, cultural, and socio-economic factors affecting their health.

The planning and delivery of health services in Inuit regions has evolved from a pre-government era in which Inuit controlled their own health and welfare to increasing influence by non-Inuit, beginning with the arrival of whalers, traders, and missionaries to the Arctic. Federal government intervention into health services began most intensively in the 1950s when Inuit were often taken away from their communities to tuberculosis sanitaria. Gradually, health services were also delivered by provincial and territorial agencies. More recently, comprehensive land claim settlements have introduced Inuit jurisdiction over matters like health, and Inuit-led agencies are instrumental in advocating for health services, disseminating health information, and representing the particular needs of Inuit women, Elders, and youth. See Appendix B for an overview of the major Inuit-led agencies involved in health.

Government interventions into Inuit communities often marginalized and eroded the rich tradition of healing and wellness that has always informed Inuit health. After many decades of exclusion from health planning, research, and service provision, Inuit are increasingly incorporating these traditions and values into the health care system. However, current health delivery systems continue to be "based on western medical models and dominated by non-Inuit" (Inuit Tapiriit Kanatami 2004a, 8).

There are many challenges associated with health care in remote, fly-in communities. There are high turnover rates among staff and a lack of training and professional development available for those who do remain in communities (Turner 2010). Inuit health is delivered from multiple, overlapping governments and agencies (including federal, provincial/territorial, regional, and Inuit-led organizations), often resulting in a lack of coordination and communication between jurisdictions (Canada-Aboriginal Peoples' Roundtable 2004; Inuit Tapiriit Kanatami 2004a).

"We must seek our own solutions to improve our situation. Our ability to make our own decisions was taken away from us; we must now take it back. We must take back our ways of healing. Although healing wasn't part of our vocabulary, we had means of ensuring we lead healthy lives. Men and women had roles, there were certain ages those teachings were taught. We had ways of resolving issues." *(Inungni Sapujjijiit: Task Force on Suicide Prevention and Community Healing 2003, 10)*

Most communities have nursing stations staffed by a nurse or community health representative, with physicians and other specialists flying in periodically. Advanced medical care requires transfer to southern Canadian cities, "a recurring problem in the provision of culturally appropriate health services in the North" (Jenkins et al. 2003, 19). Indeed, most Inuit must fly out of their home communities for diagnostic and screening services, medical treatments, palliative services, and other forms of health care, resulting in significant social and emotional costs, as well as financial burdens for families and for the health care system. It seems that "geography and population density have so far dictated that Inuit do not have access to services equal to their southern counterparts" (National Aboriginal Health Organization 2004, 1).

The Inuit population is young and growing at twice the rate of the general Canadian population. Over 50,000 people identified as Inuit in the 2006 Census (Statistics Canada 2008). The population is expected to rise to 60,000 by 2016 (Inuit Tapiriit Kanatami 2004a). In 2006, the median age of Inuit was 22 years compared to 40 years among the general Canadian population, and the average Inuit life expectancy is about 15 years shorter than the average Canadian life expectancy (Inuit Tapiriit Kanatami 2008). The rate of Inuit adults stating that their health is excellent to very good has declined over the years, and is lower than for the general Canadian population (Tait 2008, 10). In almost every indicator of health, Inuit score lower than the Canadian population. Some particularly alarming statistics include:

- Cancer, the second leading cause of death among Inuit, is increasing among Inuit in all regions. Lung cancer rates among Inuit in Canada are the highest in the world (Circumpolar Inuit Cancer Review Working Group 2008; Inuit Tapiriit Kanatami 2009). In 2000, lung cancer rates in some Inuit regions were 60% higher than the national average (Inuit Tapiriit Kanatami 2004a).
- Accidental death rates in the two largest Inuit regions are nearly three times the Canadian average (Inuit Tapiriit Kanatami 2004a).
- Suicide in Inuit communities is reported at more than eleven times the national average (Pauktuutit Inuit Women of Canada 2007a). One researcher reports that among young men in Nunavut, the rate is nearly forty times the national average (Hicks 2006).
- Tuberculosis rates in Inuit communities have doubled since 2006 and are currently 185 times higher than the rates for non-Aboriginal Canadians (Inuit Tapiriit Kanatami 2010; Public

Health Agency of Canada 2009b). Tuberculosis rates are directly related to inadequate and overcrowded housing, food insecurity, and access to health services (Turner 2010).
- Environmental contaminants and climate change are negatively affecting the health and safety of Inuit (Furgal and Seguin 2006).
- In a study of food security in Kugaaruk, Nunavut, five out of six Inuit homes were classified as food insecure (National Aboriginal Health Organization 2004). More than two-thirds of Inuit preschoolers live in food-insecure homes (Egeland et al. 2010).

In response to these challenges, "Inuit of Canada want to restore wellness in their lives" (Inuit Tapirisat of Canada 2001, 2), and not just in terms of disease rates or other statistical indicators. To be healthy in a holistic sense, Inuit require healthy environments, education and employment opportunities, safe and adequate housing, social supports, and hope among their youth (Inuit Tapiriit Kanatami 2004a). Inuit have many strengths that assist in this regard:

- Much of Inuit language and culture has been maintained
- A land-based economy continues to allow many Inuit to maintain access to traditional country foods and lead sustainable lives in their home communities
- Inuit have high breastfeeding rates
- The average educational attainment of Inuit is increasing over time
- Most Inuit have access to primary, secondary and tertiary health services when needed (Elliott and Macauley 2004).

Some of the strengths, challenges, and gaps in knowledge related to restoring wellness in Inuit communities are discussed in this report.

Social Determinants of Health

Researchers and policy-makers are increasingly employing a social determinants perspective in their efforts to understand and address Aboriginal health concerns. The World Health Organization defines the social determinants of health as "the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices" (World Health Organization 2010). Understanding people's health through a social determinants lens means thinking about the systems and structures in which people live as opposed to separating individual health outcomes from their social contexts (Marmot et al. 2008). Gleeson and Alperstein (2006, 266) argue that there is now "robust evidence demonstrating that social determinants have far greater influence upon health and the incidence of illness than conventional biomedical and behavioural risk factors" (see also Baum and Harris 2006; Lantz et al. 1998; Raphael 2002). Social determinants research is still in its infancy in the Inuit public health sector, but it offers a compelling means of accounting for the diverse social and political pressures shaping Inuit health (Richmond 2009).

A social determinants of health framework highlights how "individuals, communities and nations that experience inequalities in the social determinants of health not only carry an additional burden of health problems, but they are often restricted from access to resources that might ameliorate problems" (Loppie Reading and Wien 2009, 2). For example, Inuit have vastly unequal access to appropriate and affordable housing, leading to overcrowding, and thus making Inuit more vulnerable to communicable diseases such as tuberculosis. They also lack access to the health services that would diagnose and treat tuberculosis in a timely and effective manner, thus exacerbating infection rates. In a social determinants of health framework, the impact of the physical environment (such as inadequate and overcrowded housing) on physical, emotional, mental or spiritual health is accounted for, as are factors such as employment and income, education, and food security.

Key social determinants identified by residents of Nunavut include: acculturation, self-determination, education, quality of early life, productivity, income and its distribution, food security, health care services, social safety net, housing, and environment (Nunavut Department of Health and Social Services 2005). Other studies additionally identify health behaviours, systemic issues in the health and education sectors, community infrastructure, and cultural continuity as factors determining health, as well as issues such as colonialism, racism, and social inclusion (de Leeuw, Greenwood, and Cameron 2009; Loppie Reading and Wien 2009). Inuit Tuttarvingat recently compiled an annotated bibliography of research examining housing as a determinant of health (Knotsch and Akalehiywot 2008).

All of the public health issues discussed in this report can be understood from a social determinants perspective. Exploring the social determinants of Inuit public health concerns is an important focus for future research.

CURRENT STATE OF THE KNOWLEDGE

'Knowledge' can mean many different things. For the purposes of this report, knowledge refers to sources as diverse as statistical information recording the prevalence and severity of various public health concerns in Inuit communities, to the kinds of knowledges involved in delivering coordinated, consistent public health programs and services, to the more holistic, culturally-based kinds of knowledges stemming from the wisdom of Inuit. To be most effective in addressing public health concerns all these knowledges need to be marshaled.

Although knowledge varies regarding each of the public health issues discussed in this report, some general comments can be made. There is quite simply a lack of comprehensive, Inuit-specific public health data available in Canada. Although health data exists regarding particular issues in particular regional contexts, more comprehensive, pan-Inuit health data is required. Informants also emphasize the importance of coordinating existing information, making information accessible, and ensuring that health data collection is guided by Inuit.

Some progress has been made in this regard. ITK has developed a comprehensive *Inuit Public Health Surveillance Report* (Elliott and Macauley 2004) outlining the surveillance programs and sources of data available for each of the four northern Inuit regions and for each public health issue. This document is a tremendously useful resource for governments, organizations, and public health service providers. Some of this report is reproduced in Appendix C.

In recent years, comprehensive regional health surveys have been undertaken in each of the four northern regions. In 2004, a study involving 1,058 residents in 14 communities in Nunavik was carried out. Entitled *Qanuippitaa?* (or *How Are We?*), the study gathered broad population health and health determinant data and represents the most recent and comprehensive health data for the Nunavik region. A similar survey (*Qanuippitali?*) was carried out in 2007/2008 for the Inuvialuit Settlement Region, Nunavut, and Nunatsiavut and preliminary reports are anticipated soon. The survey included questionnaires investigating household crowding, food security, nutrition, country food, eating habits, mental health, community wellness, and medical history. Individual clinical tests included: blood pressure, pulse and carotid artery testing; blood glucose and diabetes testing; height, weight, body composition and waist circumference testing; exposure to infections (e.g., H. pylori); bone health; nutrient status testing; and exposure to environmental contaminants (see www.inuithealthsurvey.ca).

The 2006 *Aboriginal Peoples Survey* (APS) includes health-related data, as well as social and economic data that is useful

from a social determinants of health perspective (for an overview of Inuit health and social conditions documented in the 2006 APS, see Tait 2008).

Both the Government of Nunavut and the Government of Northwest Territories have released comparable indicator reports summarizing comprehensive health data for their regions. Unfortunately, Inuit-specific data is not identified in these reports. While the population of Nunavut is approximately 85% Inuit, Inuit comprise only 10-12% of the population of NWT, making the NWT data less useful for Inuit-specific inquiry. The Nunatsiavut region has not yet published a comparable indicators report, owing to their recent transition to regional self-governance. Some population health information is available in newsletters published throughout the 1990s and early 2000s; these can be accessed through the Nunatsiavut Government.

Inuit health statistics from across the four northern regions will also be available shortly through an online portal (Naasautit: Inuit Health Statistics, www.naasautit.ca). The Naasautit project aims to make better use of existing statistics and enable Inuit regional organizations and communities to access health information.

Increasingly, public health agencies and organizations are turning to Inuit Elders, youth, and other leaders to inform the design and delivery of public health programs and services. This is particularly the case in relation to youth suicide, climate change and environmental contamination, and birthing and midwifery, where Inuit have played an active role in researching and designing appropriate and effective initiatives. Organizations like ITK, Pauktuutit, and the Inuit Tuttarvingat continue to advocate for more comprehensive, consistent, and meaningful participation of Inuit in all areas of health.

Maternal, Fetal, and Infant Health

This section addresses public health concerns related to birthing and midwifery, breastfeeding and infant nutrition, and FASD. Although not discussed in detail in this report, other related public health concerns include high rates of teenage pregnancy, the need for sex education and family planning in elementary and secondary schools in the North (see also the section on Sexually Transmitted Infections in this report), and the importance of including Elders as visible and vocal participants in child bearing and child rearing activities.

Birthing and Midwifery

Currently, almost all pregnant Inuit women are flown out of their home communities to urban centres several weeks before birthing and remain away from their homes for a period of time following the birth. Pauktuutit and the Aboriginal Women and Girls' Health Roundtable emphasize the need for action on developing a medical evacuation policy that strengthens fathers' roles in birthing and enhances support to women by allowing a family member to accompany the mother (Aboriginal Women and Girls' Health Roundtable 2005). They are also active in encouraging midwifery, alongside Irnisuksiiniq, the Inuit Midwifery Network developed by Inuit Tuttarvingat at NAHO. Various participants in the Irnisuksiiniq-Inuit Midwifery Network are active in establishing midwives and birthing centres in northern communities. To date there are five birthing centres in the northern regions, three in Nunavik (in Puvurnituq, Inukjuak, and Salluit) and two in Nunavut (Rankin Inlet and Cambridge Bay). Women living in these communities can opt to give birth at the birthing centres if they have low-risk pregnancies. Recent research also indicates excellent outcomes for higher-risk births attended by midwives along Nunavik's Hudson Coast (Van Wagner 2010).

Needs and goals in relation to birthing and midwifery include:

- Establishment of Inuit midwifery as a viable, cost-effective option for birthing in Inuit communities. This requires the coordination of regional, provincial/territorial, and federal agencies and the elimination of jurisdictional and administrative barriers that prevent the practice of Inuit midwifery at the community-level (Pauktuutit Inuit Women of Canada 2006b).
- Development and dissemination of health promotion information about Inuit pregnancy, childbirth, and midwifery.
- Ongoing development and dissemination of midwife training modules that promote culturally-appropriate Inuit birthing and midwife techniques (modules have

"Isolation, teen pregnancies, housing shortages, domestic violence, poor nutrition, the high cost of living, persistent organic pollutants in country foods, the lack of knowledge about available services, and the general insensitivity of the medical system to Inuit culture are all factors that complicate the delivery of maternity care programs and services [in the North]." *(Ajunnginiq Centre 2006b, 2)*

been developed in Nunavik and are in development in Nunavut).
- Recruitment and training of Inuit midwives to staff birthing centres (Gafvels 2010).

Breastfeeding and Infant Nutrition

Based on a cohort study of all births in Canada during 1990-2000, Inuit-inhabited areas have much higher rates of preterm birth, stillbirth and infant mortality compared with the rest of Canada and with other rural and northern areas (Luo et al. 2010). Infant mortality rates in Nunavik and Nunavut are over three times higher than the overall Canadian rate, and Inuit infants suffer disproportionately from bacterial and viral infections (Jenkins et al. 2003; Tait 2008). Breastfeeding and good infant nutrition are important factors preventing infant mortality. Surveys have shown high breastfeeding rates among Inuit women; rates are particularly high in Nunavik. A report prepared by ITK notes, however, that adopted infants tend not to be breast fed, and up to 30% of Inuit aged 15-24 report having been adopted (Elliott and Macauley 2004). The promotion of breastfeeding is an ongoing priority for organizations like Pauktuutit.

Starting in the late 1970s, concerns were raised about environmental contamination and the presence of persistent organic pollutants (POPs) in the Arctic food chain. Scientists raised particular concerns about the concentration of pollutants in breast milk and the link between fetal and infant health, breastfeeding, and the consumption of country foods. Much fear, misinformation, and confusion exists in Inuit communities regarding best practices related to breastfeeding and the consumption of country foods. These concerns are discussed more fully in the Environmental Health section of this report. Note, however, that organizations like ITK encourage expectant mothers to continue their consumption of country foods, particularly arctic char, because of the nutritional, social, cultural, and economic benefits of eating traditional foods, and because foods like char and caribou are known to carry lower contamination loads than foods like beluga, seal, and polar bear (Inuit Tapiriit Kanatami 2004b).

Fetal Alcohol Spectrum Disorder (FASD)

FASD has been identified as a pressing health issue facing Inuit communities. Interviews with representatives from each of the northern regions identified FASD as one of the major issues they were concerned about in their region. As with many public health issues discussed in this report, actual incidence rates among Inuit are unknown. Anecdotal evidence suggests, however, that the incidence of FASD is many times higher in Inuit communities than the national average (Ajunnginiq Centre 2006a).

Although federal funding for FASD prevention, awareness, resources, and community supports in Aboriginal communities has increased over the last several years, Inuit communities receive a disproportionately low portion of this funding, and identify a general lack of Inuit-specific planning, programming, and resources available. Many note, however, that Pauktuutit has produced very useful, Inuit-specific resources and delivered training workshops in northern communities specific to FASD. Several years ago Pauktuutit and Inuit Tuttarvingat developed a training manual for public health workers who work with women at risk of giving birth to children with FASD (*Working Together to Understand FASD*).

NAHO's Inuit Tuttarvingat (formerly the Ajunnginiq Centre) has undertaken several studies and produced reports summarizing the main challenges identified by Inuit communities regarding awareness and prevention activities, helping those affected by FASD, and Inuit-specific FASD issues (e.g., Ajunnginiq Centre 2003, 2006a). Issues identified as prominent and cutting across all the regions include:

- Lack of diagnosis. This is directly tied to a lack of specialists residing in or visiting Inuit communities.
- Lack of follow-up and coordination following diagnosis. Communities require FASD co-coordinators to ensure long term, coordinated services are provided for affected individuals and their families.
- Lack of services. Even if FASD is diagnosed, there is a severe lack of services in Inuit communities to assist affected individuals and their families.
- Lack of alcohol counseling and harm reduction services. Prevention efforts aimed at pregnant women are frustrated by a lack of effective services and programs in communities to assist women in reducing or stopping their alcohol consumption.

- Lack of staff and staff training. There is a general lack of trained, long-term public health staff in almost all Inuit communities. Community Health Representatives and other community members identify the need for ongoing training and networking to assist them in implementing FASD-related programs and services, but fundamentally also require more staff to do so.
- Lack of staff training and services for FASD-affected offenders in the Corrections system, as well as a lack of diagnosis for adults suspected to be living with FASD.

Given these challenges and concerns, the main recommendations identified in the literature include:

- Coordinated development of a national Inuit-specific strategy to address prevention, promotion and awareness, and to help individuals affected with FASD
- Increased funding for training and capacity building at the community level
- Increased focus on counseling and services available to women at risk, which will require significant investments in human resources, funding, and training.

A Note on Women and Girls

The Aboriginal Women and Girls' Health Roundtable met in 2005 involving NAHO and Health Canada (FNIHB and the Bureau of Women's Health and Gender Analysis, BWHGA). The Roundtable brought together over 70 people, including First Nations, Inuit, and Métis Elders. The Roundtable found that the main concerns facing Aboriginal women and girls are family and social breakdown, violence against Aboriginal women and girls, poverty, and a lack of accessible, holistic, and appropriate health services, particularly in the areas of addiction, circulatory and respiratory problems, diabetes, hypertension, cancer, and prenatal care. In addition, the Roundtable found that there is a lack of Inuit-specific policies that reflect Inuit priorities in health research, policy, and planning (Aboriginal Women and Girls' Health Roundtable 2005). These gaps are key areas of concern in women's and girls' health.

Overall there is a paucity of research on Canadian Inuit women's health and a need, in particular, for research accounting for the complex relationships between determinants of health and the well-being of Inuit women (Healey and Meadows 2007). In addition to increasing knowledge of particular health issues, Healey and Meadows argue that there is a need to "examine the underlying factors in communities that contribute to, for example, food insecurity, economic insecurity, suicide, abuse and addictions" (211), as these factors significantly contribute to women's health outcomes.

Child Health

This section provides an overview of child health concerns, particularly otitis media and ear health, dental health, and respiratory infections. Nutritional issues are discussed in the Food Security and Nutrition section of this report.

Otitis Media

Chronic otitis media is a persistent infection of the middle ear, linked to inadequate housing, a smoke-filled environment, poor nutrition (First Nations and Inuit Health Branch 1999), and possibly to prenatal exposure to environmental contaminants (Government of Canada 2005). Inuit have been found to have the highest reported rates of chronic otitis media worldwide, with reported prevalence rates varying from 7 to 31%, depending on the community studied (Elliott and Macauley

2004). Baxter (1999) reports prevalences of over 50% in certain communities over certain periods.

Chronic ear infections often result in hearing loss. A recent study in Nunavik found that 23% of school-aged children had significant hearing loss (Ayukawa et al. 2003), and similar statistics have been recorded in the other northern regions (Elliott and Macauley 2004). Hearing loss has been linked to poor performance in school and delayed speech and language development, as well as to suicide in youth.

In 2005, Nunavik's Kativik School Board equipped most classrooms with acoustic soundfield systems to assist the learning of children with hearing impairments (George 2005). Others are considering similar initiatives. In the area of prevention, Bowd (2003, 7) argues that "community-based, culturally sensitive public health and educational programs are the keys to prevention of middle ear disease and hearing loss in northern communities," including particular focus on encouraging breastfeeding and reducing exposure to smoke. Adequate nutrition, improved housing, and access to clean water are also cited as important preventive factors. Early intervention is a priority, requiring better screening, referral, and treatment for children with ear infections. This is particularly challenging in remote, isolated communities without audiological specialists.

Dental Health

Tooth and gum disease are common in Inuit children (as well as adults). Very high rates of decayed and missing teeth are reported across the northern regions, with some regions noting 95-100% prevalence (Elliott and Macauley 2004). Tooth decay in infants and toddlers often results from prolonged exposure to sugar-containing drinks (including milk), especially when the child is put to bed with a bottle. Lack of tooth brushing and snacking on candy in older children also contributes to tooth decay.

A report prepared for ITK lists fluoridation of community drinking water, promotion of dental hygiene and healthy eating, and adequate dental care as important preventive strategies (Elliott and Macauley 2004). Dental therapists have been employed in some communities as key players in the implementation of these various community strategies. Quinonez (2003) notes that addressing dental health among Inuit requires an understanding of the political and economic factors affecting the structure and availability of dental services, and sensitivity to concerns around non-insurable health benefits in the North.

Respiratory Infections

Inuit infants and children experience some of the highest rates of respiratory infection in the world (Kovesi et al. 2007). Infections caused by respiratory syncitial virus (RSV), adenovirus, influenza A, and parainfluenza virus contribute to rates such as a 48% incidence of hospitalization for respiratory infection among infants less than six months of age in the Baffin Region of Nunavut (Banerji et al. 2001). The Government of Nunavut is increasing surveillance of RSV due to high rates of hospitalization for bronchitis and pneumonia among Inuit, particularly among children under the age of two (Sobol 2010). Environmental factors such as household crowding, poor ventilation, and exposure to tobacco smoke may contribute to respiratory infection in infants and children (Elliott and Macauley 2004; Kovesi et al. 2007), while adoption, lack of breastfeeding, prematurity, and congenital heart disease have been identified as possible individual risk factors. Elliott and Macauley (2004) suggest that expansion of passive RSV immunization might be considered in order to reduce respiratory infection.

Widespread outbreaks of viral and bacterial respiratory infections among children and adults are frequently reported in the four northern regions, including tuberculosis (TB), which remains "a serious public health problem in Canada's Inuit regions" (Elliott and Macauley 2004, 15). Please see section on tuberculosis for more details.

Communicable Diseases

Historically, Inuit did not experience high rates of communicable disease. As

a result of contact with Europeans in the sixteenth and seventeenth centuries, Inuit were exposed to a range of communicable diseases to which they had no immunity, such as smallpox, typhoid, and influenza. In the early and mid twentieth century, epidemic rates of tuberculosis were a major cause of death, and outbreaks of measles and polio also occurred. The incidence of these diseases has been greatly reduced over the past several decades, although tuberculosis and other respiratory diseases are still significant concerns in the four northern regions. Today, sexually transmitted infections are a pressing concern, alongside tuberculosis, meningitis, gastroenteritis and other food-borne infections.

Sexually Transmitted Infections (STIs)

Sexually transmitted infections are a growing concern in Inuit communities. Chlamydia and gonorrhea are particularly prevalent; some report incidences of up to ten times the national average in Inuit communities (Steenbeek et al. 2006). Chlamydia infection rates have risen dramatically over the past decade, and public health experts are concerned that HIV and Hepatitis C are also on the rise, although current statistics are not available in this regard (Pauktuutit Inuit Women of Canada 2006a).

There are currently no AIDS/HIV service organizations in the North. People who are HIV-positive must travel south to receive care and treatment. Pauktuutit has been active for many years in raising awareness about HIV/AIDS in Inuit communities, through AIDS walks, fairs, and the dissemination of resource materials. High rates of unprotected sex, teenage pregnancy, STI infection, and the increase in travel between northern communities and the South raise concerns about the vulnerability of Inuit communities to HIV and Hepatitis C infection (Pauktuutit Inuit Women of Canada 2006a). Statistics are often unreliable or unavailable regarding these infections, but public health workers know that there are Inuit currently living in northern communities with HIV and Hepatitis C.

Widespead vaccination against Human Papillomavirus (HPV), a central causal agent of cervical cancer, was carried out across the northern regions over the past several years. Although data do not exist documenting the incidence of HPV in Nunatsiavut (Turner 2010), a 1999 study of 19 communities representing 80% of the population of Nunavut showed a 26% prevalence rate for oncogenic HPV (Totten et al. 2010). A more recent surveillance initiative initially found a prevalence rate of 34% for HPV and 24% for oncogenic HPV in a sample of 1116 women, 90% of whom were Inuit (Totten et al. 2010). A study in Nunavik found as much as a two-fold higher burden of HPV infection among women in Nunavik than in the general Canadian population, and close to a three-fold higher prevalence among women under the age of 20 (Hamlin-Douglas et al. 2008).

Several organizations have identified Inuit reluctance to talk about sex as a challenge in addressing sexual health issues (e.g., Pauktuutit Inuit Women of Canada 2008). This is compounded by a lack of anonymity and confidentiality in small communities. As with most other health issues discussed in this report, geography, isolation, and a lack of staff limit the feasibility and effectiveness of sexual health campaigns and programs. Organizations like Pauktuutit identify a need to involve Elders and other community leaders in any strategy to address sexual health issues, even if they may not have formal training in sexual health.

In 2010 the Government of Nunavut launched a sexual health website (www.irespectmyself.ca) aimed at youth to raise their awareness of safe sex, sexual health and lower the incidence of sexually transmitted diseases.

Other important areas of focus include:

- Inclusion of Inuit and community-based organizations in the development, implementation and evaluation of STI strategies in each of the northern regions
- Implementation of regional sexual health coordinators
- More resources (including Internet materials), training, and capacity building for communities
- Involvement of mining companies in funding sexual health programs in mining communities
- More consistent sexual health education in schools and communities
- More opportunities to network and coordinate across community and regional levels (e.g., at a proposed northern sexual health conference) (Pauktuutit Inuit Women of Canada 2006a).

Gastroenteritis and Other Food-Borne Infections

Gastroenteritis is a common infectious disease among Inuit infants and children, although there is a lack of statistics on incidence rates. Dehydration is one of the main risk factors leading to gastroenteritis, and it can be fatal if untreated. E.coli infection has been reported in the northern regions (Elliott and Macauley 2004).

A number of food-borne illnesses are reported in Inuit populations. Botulism, produced by bacteria in fermented meat, is potentially deadly if ingested. There were 62 outbreaks and 132 cases of botulism reported in Nunavik between 1971 and 1999 (Elliott and Macauley 2004). Cases are also reported in the other regions. Trichinellosis, a parasitic infection transmitted through eating the raw meat of infected animals (usually walrus), has also been reported. Both botulism and trichinellosis cause severe symptoms but can be treated successfully with medication. As Elliott and Macauley (2004, 16) note, it is crucial that adequate stores of these medications

be maintained in Inuit communities, as both these diseases are very uncommonly seen in southern Canadian populations. Promotion of safer meat fermentation practices for botulism prevention and early testing of harvested walrus meat for Trichinella is encouraged in many regions.

Tuberculosis

Tuberculosis is "a serious public health problem in Canada's Inuit regions" (Elliott and Macauley 2004, 15). In 2006, rates of tuberculosis were 23 times higher among Inuit than in the total Canadian population (Inuit Tapiriit Kanatami 2008; Tait 2008). In 2008, the rate in Nunavut (184.4 per 100,000 population) was the highest in the country and 38 times that of the general population (Public Health Agency of Canada 2009b, 1). A large number of adults and Elders with latent infections contribute to periodic reactivation of TB, as well as crowding, socioeconomic conditions, and difficulties in monitoring and treating TB at the community level.

The resources provided by national programs to address TB are simply not suitable for remote, fly-in communities, nor are they culturally appropriate (Møller 2010). This is one of the many examples where national standards of care for a particular public health concern are simply not appropriate or effective in Inuit regions. There is a need for Inuit-specific and Inuit-led initiatives in this realm. With regard to tuberculosis, more effective screening and treatment programs are required. Turner (2010) notes that tuberculosis rates are exacerbated by broader health service issues, particularly access to community-based screening, diagnosis, and continuing care. Although pan-Inuit statistics suggest extremely high levels of TB, some communities do not have significant rates. Studies of how these communities keep TB infection rates low, and other protective factors, would be immensely valuable for addressing TB in communities with higher rates.

Other Communicable Diseases

A review of factors influencing Inuit infant health highlights that meningitis has caused more infant and child deaths over the past 20 years in Nunavik than any other type of infection (Jenkins et al. 2003, 24). Meningitis outbreaks are relatively frequent across the northern regions (Dewailly et al. 2000; Jenkins et al. 2003).

In 2006 the Government of Nunavut implemented emergency measures in response to a possible outbreak of HTLV-1 virus (a virus that can lead to leukemia, lymphoma, or neurological consequences in 5% of infected cases). Public education and an infant ante-natal screening program were successfully implemented (Sobol 2010).

Vaccination against various communicable diseases has been successful in many regions. In Nunatsiavut, a pneumococcyl vaccination program resulted in dramatic reductions in medical evacuation of babies from remote communities (Turner 2010). HPV immunization carried out in 2009 is also expected to reduce the incidence of cervical cancer.

Inuit experienced higher rates of infection, hospitalization, and mortality than the national average during the 2009/2010 H1N1 influenza pandemic (Sobol 2010). Public health officials report that national pandemic plans are inappropriate for remote regions and for Inuit populations. In spite of these challenges, vaccination against H1N1 was quickly and effectively carried out in the northern regions and is believed to have made a significant

contribution to preventing further infection (Sobol 2010; Turner 2010).

Pandemic Planning

Pandemic planning and preparedness has been a key priority for all levels of government, particularly in the wake of the 2003 outbreak of Severe Acute Respiratory Syndrome (SARS) and "systemic deficiencies" identified in Canada's public health response to the outbreak (Health Canada 2003). Low population density and geographic dispersion make pandemic planning in any rural and remote area challenging, but the challenges of planning for and responding to pandemic events in Inuit communities also highlight the broader issues shaping Inuit public health outcomes, including lack of funding, lack of access to health services, jurisdictional issues, and the challenges in recruiting and retaining health care workers (Turner 2010). The Public Health Agency of Canada released a report in late 2009 discussing needs and strategies for H1N1 response in rural and remote communities (Public Health Agency of Canada 2009a). The report notes that remote and isolated communities in Canada tend to be primarily Aboriginal, and that these communities suffer from higher rates of overcrowding, inadequate water quality, food insecurity, pre-existing chronic health conditions, and lower education and incomes, all of which exacerbate vulnerability to H1N1. Public health officials insist that an Inuit-specific appendix to the Canadian Pandemic Plan is required in order to effectively address the unique issues that arise in pandemic planning in Inuit regions (Turner 2009).

Both the Northwest Territories and Nunavut have developed pandemic influenza plans (Government of Nunavut 2006; Government of the Northwest Territories 2005) and territorial plans are being revised in Nunavut (Sobol 2010). Community-level pandemic plans have been developed in most northern communities.

Cancer

As with most health issues discussed in this report, there is a lack of up to date, comprehensive, long-term, Inuit-specific data relating to cancer. Between 1988 and 1997, an Inuit Cancer Registry was maintained by the Government of the Northwest Territories covering the Inuvialuit and Nunavut regions. Comprehensive cancer data from the registry is summarized on ITK's website, and ITK continues to lobby for the maintenance of an Inuit specific cancer registry that will include data from all four northern regions. Currently, each region collects its own cancer data, but to varying extents. Comprehensive reports summarizing cancer data are available from the Government of the Northwest Territories (Government of the Northwest Territories 2003) and Nunavut (Healey, Plaza, and Osborne 2003) although Inuit-specific data are not available. Detailed statistics are not yet available for Nunavik and Nunatsiavut. Because Nunavut has a population of approximately 85% Inuit (compared to 10-12% Inuit in the NWT), the data collected by Nunavut is considered to be most representative of the Inuit population as a whole, although experts are cautious about generalizing without more study.

The Circumpolar Inuit Cancer Review, which included Canadian data to 2003, found cancer rates have risen in the past 30 years among both Inuit men and women, and that lung cancer death rates in particular are the highest in the world and rising (Circumpolar Inuit Cancer Review Working Group 2008). Aside from the impact of tobacco, levels of PCBs and other pollutants may be implicated in these rising rates (Inuit Tapiriit Kanatami 2009). Elliott and Macauley cite a cross-jurisdictional study of circumpolar Inuit from 1969-1988 in their report to ITK (2004), showing that the most frequently diagnosed cancers (in descending order) were those of the lung, colon, stomach and nasopharynx for men, and those of the cervix, lung, breast and colon for women. These incidence patterns are also noted in Nunavut's more recent cancer report (Healey, Plaza, and Osborne 2003), where lung cancer is identified as the biggest concern in the region, accounting for almost 40% of all cancer cases (compared

to 19% in Canada). The high incidence of lung cancer is widely attributed to high rates of smoking among Inuit. Colorectal cancer is the second most common invasive cancer and the rates have risen sharply for both men and women since 1989 (Inuit Tapiriit Kanatami 2009). The incidence of breast cancer, prostate and endometrial cancer is lower than national averages, but breast cancer remains a concern in Nunavut, particularly as screening and diagnostic services are intermittent and often conducted outside of communities (Inuit Tapiriit Kanatami 2009). Nasopharyngeal cancer is 24.3 times more prevalent in Nunavut than in Canada as a whole. The Government of Nunavut's cancer report suggests a possible genetic predisposition among Inuit to nasopharyngeal cancer (Healey, Plaza, and Osborne 2003).

Among men in Nunavut, lung cancer is the most prevalent (43% of cases), while among women cervical cancer accounts for 30% of all diagnoses (Healey, Plaza, and Osborne 2003). These cancers are declining over time in Canada (Inuit Tapiriit Kanatami 2009). Cervical cancer is associated with sexually transmitted infections, a growing concern in Inuit communities. Approximately 75% of cervical cancer cases in Nunavut were diagnosed between the ages of 20 and 39 (Healey, Plaza, and Osborne 2003).

As the Government of Nunavut's cancer report states, treatment, and often diagnosis, of cancer is generally not undertaken in the territory itself. Most cancer patients are treated in one of four out-of-territory cities: Yellowknife, Ottawa, Winnipeg and Edmonton which "can present challenges because of the distance between local health care providers and emotional support networks" (Healey, Plaza, and Osborne 2003, 1). Notably, because cancer is often diagnosed much later in Inuit than in southern populations (due to a lack of local specialists and diagnostic facilities), the mortality rates for those diagnosed with cancer are much higher than for other populations. This is a major concern for organizations like ITK, as are other barriers to treatment including a fragmented health care system and lack of aftercare.

Research into the links between northern contaminants and cancer has been underway for several years. In order to identify the impact of environmental contaminants on cancer rates, comprehensive, long term cancer data is required, underscoring the need for an Inuit cancer registry. In the interim, Inuit need timely, accurate and culturally appropriate resources to support education and encourage prevention (Inuit Tapiriit Kanatami 2009).

Diabetes

Diabetes is a growing concern in Inuit communities but there is a shortage of reliable, comprehensive, long term data to document this issue. Diabetes is not yet highly prevalent among Inuit, but health researchers predict much higher rates of diabetes in the future. Their predictions are based on the growing rates of metabolic syndrome, a cluster of warning signs clinicians look for in pre-diabetic patients, including abdominal obesity, high triglyceride levels, and low HDL cholesterol levels (Chateau-Degat 2006). A 2004 health survey in Nunavik found that 12.6% of the population was pre-diabetic, while 4.8% had diabetes (compared to a national average of 3.1%) (Dewailly et al. 2007). Similarly, the 2006 Aboriginal Peoples Survey found 4% of Inuit had been diagnosed with diabetes, up from 2% in 2001 (Tait 2008, 14). Other researchers suggest that rates could be much higher in circumpolar Inuit communities than those diagnosed (Young et al. 1992). While diabetes rates are still much lower among Inuit than in other Aboriginal populations, the potential for much higher rates of diabetes in the future is indicated by risk factors such as increased inactivity, obesity, and infrequent access to health care (First Nations and Inuit Health Branch 2000). Researchers also suggest that a combination of high omega-3 consumption (as found in fish and other country foods) and high simple carbohydrate consumption (particularly sugars) is an explosive combination for diabetes (Dewailly et al. 2006). Consuming a combination of country foods and high carbohydrate store-bought foods is very common among Inuit. Results from the Inuit Health Survey carried out in 2007/2008 are anticipated shortly, and should provide insight into current rates of diabetes.

The Government of Nunavut is hoping to head off an epidemic of diabetes by directing federal diabetes funding towards awareness and prevention efforts. Diabetes is also a significant concern for health planners and public health workers in Inuvialuit, Nunavik, and Nunatsiavut. While researchers point to the replacement of certain traditional foods by packaged, canned, and other pre-made foods as a primary cause of diabetes and advocate a diet comprised of more fresh, wholesome foods, others note that choosing more healthy dietary choices is significantly more expensive at local food stores, and that the provisions required to secure country foods are not accessible to all community members (Statistics Canada 2001). Efforts to address dietary habits in Inuit communities must take into account food security issues and factors mitigating the ability of Inuit to pursue more traditional food procurement activities. The prevention protocols outlined in the *Canadian Aboriginal Diabetes Initiative* also emphasize support for community-based activities that promote healthy and active lifestyles.

In addition to research relating to the four northern regions, the *Aboriginal Diabetes Initiative* specifically targets

urban Inuit populations in its prevention and awareness programs. Tungasuvvingat Inuit (an Ottawa-based urban Inuit organization) hosts a website (www.inuitdiabetes.ca) providing a range of resources relating to type 2 diabetes.

In summary, while rates are not yet as high as in other Aboriginal communities, diabetes is a major concern in the four northern regions, and public health initiatives are particularly focused on prevention and monitoring of risk factors in the hopes of preventing epidemic levels in the future.

Respiratory Disease

ITK's *Public Health Surveillance* report notes that 6-7% of Nunavut and Nunavik adults reported chronic respiratory problems in the 2001 Aboriginal Peoples Survey and that in the Kivalliq region from 1987-1996, respiratory disease (mostly from chronic obstructive lung disease), was found to be the third leading cause of death overall, at a rate 2.7 times the national average (Elliott and Macauley 2004, 17). Smoking is a known risk factor for respiratory disease, and cigarette smoking rates are very high in the four northern regions. Approximately 70% of the adult Inuit population smokes, while 48% of youth in Nunavut aged 12-19 report being daily smokers (Government of Nunavut 2004, 25). The 2006 Aboriginal Peoples Survey found that more than 58% of Inuit adults smoke daily, a rate over three times that of all Canadian adults (Tait 2008). The rates differ by region, with the most likely to smoke daily living in Nunavik (73%) and the least likely (40%) living outside Inuit Nunangat. By way of comparison, 21% of Canadians aged 12 and older reported smoking daily or occasionally in 2008 (Statistics Canada 2009).

High rates of smoking, combined with household crowding and passive smoke exposure of infants and others, "expose the Inuit population to a high degree of risk from smoking related illness" (Elliott and Macauley 2004, 17). Efforts to address smoking among Inuit are complicated by beliefs that smoking is a traditional cultural practice. Organizations like Pauktuutit and ITK are working to problematize this belief, noting that tobacco does not grow in the Arctic. Culturally-sensitive, grassroots, community-based strategies are particularly critical in efforts to address tobacco use.

Available interventions to reduce tobacco use include increasing cigarette prices through taxation, mandatory modifications to product packaging, point-of-sale regulations, bans on indoor public smoking, community- and school-based education campaigns, improving access to smoking cessation programs, and litigation against tobacco companies (Elliott and Macauley 2004). Note, too, that the national smoking "Quit-Line" now has Inuit language translators available.

Cardiovascular Disease

Cardiovascular disease is a rising concern in Inuit communities. For years, researchers believed that Inuit were not susceptible to cardiovascular disease, but as Bjerregaard, Young and Hegele (2003) note, this view was based on weak scientific evidence and uncertain mortality statistics. The traditional marine diet eaten by older Inuit seems to protect them from cardiovascular disease, but as younger Inuit shift their diets away from these foods, researchers are finding a corresponding increase in cardiovascular disease (Dewailly et al. 2001). It is believed that the high levels of omega-3 fatty acids found in marine foods assist in regulating HDL cholesterol levels and thus

contribute to low levels of heart disease in older Inuit.

The *Qanuippitaa?* health survey in Nunavik collected information on cardiovascular disease, including the monitoring of blood cholesterol and glucose levels. Preliminary findings suggest doubled rates of hypertension among Inuit in Nunavik (Picard 2009). Similar data was collected during the 2007/2008 Inuit Health Survey and preliminary results are expected soon.

Factors such as increased obesity, a shift to a more sedentary lifestyle, and increased consumption of processed foods suggest that cardiovascular health will become a more important public health issue in the years to come.

Injury

Injury is a leading cause of death among Inuit but there is a relative shortage of research investigating this pressing public health concern. While some focus their public health planning on preventing physical injuries and accidents (sometimes alcohol-related), organizations like Pauktuutit focus on preventing abuse and battering. Suicide is sometimes included in injury data, although many choose to address suicide as a mental health issue rather than an injury issue.

As with many other public health issues, there is a shortage of Inuit-specific data on injury (Government of Canada 2001). Available studies consider injury among all Aboriginal populations a major knowledge gap faced by public health agencies aiming to address injury in Inuit communities. Current estimates suggest that unintentional injuries among Inuit are 4-5 times the national average in Nunavut, and 6 times the national average in Nunavik (Korhonen 2004c). Pan-Aboriginal injury studies identify motor vehicle accidents, drowning, accidental poisoning, accidental falls, and fire as leading causes of unintentional injury, often linked to the consumption of alcohol. Drowning is a particularly important concern for Inuit, as nearly all communities are located along the coast. The effect of climate change on ice conditions has rendered sea ice travel particularly dangerous in recent years (Inuit Tapiriit Kanatami, Nasivvik Centre for Inuit Health and Changing Environments, and Ajunnginiq Centre 2005). More specific comments on the prevention of unintentional injury include:

- Effective prevention requires an understanding of injury prevention concepts and a holistic, coordinated plan. Community-based surveillance and meaningful, relevant data are crucial.
- A prevention strategy and community-based action plan also requires information about who is being injured, when, under what conditions, where, and why.
- Education is the foundation of prevention, but education alone is ineffective without regulations, equipment, and concrete interventions (e.g., drunk driving laws, random breathalyzer tests, seatbelts, designated driver strategies, etc.) (Korhonen 2004c).

Suicide, homicide, assault, and family violence are the leading forms of intentional injury in Aboriginal populations. Again, Inuit-specific statistics are lacking, but there is evidence to suggest that suicide rates in Inuit communities are higher than overall Aboriginal rates (Government of Canada 2001, 7) and are 11 times higher than national averages. Among young men the rates are even more alarming. (Please refer to the discussion of suicide in the Mental Health and Wellness section of the report).

Pauktuutit and ITK have partnered in the development of an Inuit-specific *Injury Prevention Framework* which recommends the implementation of public education initiatives addressing binge drinking, helmet use, and vehicle and water safety (Inuit Tapiriit Kanatami 2004c). The *Framework* also recommends the development of injury surveillance programs to provide more detailed, Inuit-specific injury data. These initiatives must be culturally-sensitive and take into account the fact that prevention requires a coordinated, systematic, and culturally-sensitive approach.

Abuse

Abuse and family violence are priority issues for Pauktuutit. Although comprehensive data is unavailable (owing, in part, to the reluctance of victims to report violence), Nunavut's reported violent crime rate was eight times the Canadian average in 2004, and the use of shelters for abused women grew by 54% between 2001 and 2004, a dramatic increase (Pauktuutit Inuit Women of Canada 2006c). The rates declined

"I think the intergenerational impact is the main one. When the [new] system of government came, changes were made [in how Inuit live and govern themselves]. A lot of our people are still living in that place where they had to obey; they had to listen to what was being brought to them." *(Inuk counselor/healer, cited in Pauktuutit Inuit Women of Canada 2006c, 4)*

slightly in 2005 and 2006, but 2007 and 2008 data show slight increases in violent crime, and the violent crime rate remains eight times higher than the Canadian average (Nunavut Statistics Bureau 2008; Statistics Canada 2007). Sexual abuse is also a significant concern in the North, where appropriate services are lacking and available staff are overburdened and often overwhelmed (Pauktuutit Inuit Women of Canada 2003). In 2004 the rate of reported sexual assault in Nunavut was almost 13 times that of Canada as a whole – 941 reported sexual assaults per 100,000 people, compared to 74 for Canada (Pauktuutit Inuit Women of Canada 2006d, 17). Rates in 2007 decreased slightly to 669 reported assaults per 100,000 people but this still represents an alarmingly high rate, especially when compared to national averages that year of 65 per 100,000 (Statistics Canada 2007, 2).

Since 2003, Pauktuutit has been working to improve the coordination of abuse prevention services and resources in Inuit communities, in part through the maintenance of a database listing over 400 programs and services available in communities across the northern regions.

Between 2006 and 2008 Pauktuutit designed and piloted a national mobile training module for frontline workers who work in the 14 women's safe shelters that serve the 53 Inuit communities across Canada (Pauktuutit Inuit Women of Canada 2010).

Inuit describe the high rates of abuse and violence in their communities as an intergenerational issue, rooted in shame, guilt, and fear, and stemming from the massive changes experienced by Inuit over the past several decades, including residential schooling. They insist on the need for community solutions to abuse and active intervention to prevent victims from repeating the cycle of abuse. Note that an Inuit-specific residential school healing strategy was developed by Pauktuutit (2007b) (see Pauktuutit's website for information on the *Sivumuapallianiq* project).

In its National Strategy to Prevent Abuse in Inuit Communities, Pauktuutit identifies the following priorities:

- Make abuse in Inuit communities a priority issue
- Raise awareness and reduce tolerance of abuse
- Invest in training and capacity development
- Sustain front-line workers and community services
- Deliver services that heal Inuit
- Expand programs that build on Inuit strengths and prevent abuse (Pauktuutit Inuit Women of Canada 2006c).

Specific concerns related to sexual abuse include:

- Lack of Inuit content in programs
- Lack of training specific to Inuit child sexual abuse
- Need for ongoing support and networking for caregivers
- Need for additional staff and reduced workloads (Pauktuutit Inuit Women of Canada 2003).

A lack of meaningful and sustained government funding and commitment to all abuse issues is a major concern for Pauktuutit. Notably, Pauktuutit incorporates principles derived from Inuit *Qaujimajanngit* (Inuit knowledge and values) in its abuse advocacy, programming, and analyses.

Mental Health and Wellness

According to ITK, mental wellness is the highest priority health issue for Inuit. Difficulties with mental health stem from factors such as loss of culture, lack of recognition, poverty, housing issues, violence, abuse, addictions, and intergenerational trauma related to residential schooling and institutionalization for tuberculosis. Youth suicide is a particular concern for Inuit and several programs and strategies have been developed in recent years to address these concerns.

Providing appropriate and timely mental health services is a significant challenge in the four northern regions. There is a shortage of mental health staff in small, remote communities and a high turnover among existing staff due to burnout, isolation, and lack of professional development (Zamparo et al. 2005). Culturally-specific mental wellness programs are also lacking in Inuit communities, although more and more Inuit-specific and Inuit-driven mental health initiatives are emerging.

This report focuses specifically on suicide and substance abuse, as these are the more prominent mental health concerns identified by communities. It is important to note, however, that a Canadian Mental Health Association conference identified schizophrenia as a concern in Inuit communities and pointed to the over-representation of Inuit with mental health concerns in the justice system (Korhonen 2004b).

Suicide

Suicide is a major concern in all Inuit communities, particularly among youth and particularly male youth. The higher prevalence of suicide among young men is not well understood and several informants suggest that this is an important area of future research. Hicks (2007) emphasizes the social determinants of suicide and the links between suicide and family history, early childhood experiences, mental health, education, employment, substance use, and the availability and accessibility of health care services. A backgrounder on Inuit suicide released in 2009 also cites high poverty rates, housing problems, lack of education, lack of employment, intergenerational trauma, loss of cultural values and lifestyle, and the effect of suicide "clusters" as contributing factors (National Inuit Youth Council et al. 2009). Korhonen (2004c) suggests that studies aimed at understanding how girls and women cope with stress might assist in identifying the protective factors and appropriate interventions required in terms of male suicide.

Based on 2001 Census data, Health Canada estimates the national Inuit suicide rate at more than 11 times the national average (National Inuit Youth Council et al. 2009). Among men aged 15-24 in Nunavut, the rate of suicide is reported by Hicks (2006; 2007) to be nearly 40 times the national average, and this rate appears to be increasing. Hicks (2006) also reports significant disparities in suicide rates between regions and within regions (the Qikiqtani region of Nunavut, for example, has significantly higher suicide rates than the Kitikmeot and Kivalliq regions). Although it is lower than that of men, the suicide rate among Inuit women is almost five times the Canadian average of 4.9 per 100,000 (24.6 per 100,000 in Nunavut and 52.4 per 100,000 in Nunavik in 2001; see Pauktuutit Inuit Women of Canada 2007a).

A backgrounder on Inuit suicide prepared by Pauktuutit Inuit Women of Canada (2007a, 3) reports the following suicide rates for the period 1999 to 2003:

- Canada – 12 per 100,000 population
- Nunavik – 181 per 100,000 population
- Nunatsiavut – 239 per 100,000 population
- Nunavut – 120 per 100,000 population
- Inuvialuit – 61 per 100,000 population

There are a variety of suicide-prevention projects and initiatives underway across the four regions and these are surveyed in several good reports (Ajunnginiq Centre 2006c; Inungni Sapujjijiit: Task Force on Suicide Prevention and Community Healing 2003; National Inuit Youth Council, Inuit Tapiriit Kanatami, and Ajunnginiq Centre 2005; National Inuit Youth Council et al. 2009; Stevenson and Ellsworth 2004). The National Inuit Youth Council is active in suicide prevention, as is ITK, Inuit Tuttarvingat, and various levels of government and health service providers. A new suicide prevention strategy is being developed in Nunavut (*Uqaqatigiiluk!/Talk about It!*) that will combine prevention efforts with an intervention training program for Nunavut's front-line workers (Bell 2009).

In spite of these efforts, some major challenges remain. Although there is a national Inuit action plan on mental wellness (*Alianait*), Canada does not have a national suicide prevention strategy (Inuit Tapiriit Kanatami et al. 2009), and funding for the National Aboriginal Youth Suicide Prevention Strategy is currently at risk. The 2004 *National Inuit Youth Suicide Prevention* report (Stevenson and Ellsworth 2004) notes that there is no clear, unified vision as to what needs to be done to address suicide in Inuit communities, and that there is little in the way of evaluation tools for suicide prevention and wellness programs. Culturally-specific risk factors and models of suicide prevention need to be identified and implemented, and greater collaboration between mental health and suicide prevention service providers is needed. The Ajunnginiq Centre released a report on traditional Inuit knowledge and practices that encourage resilience and coping (Ajunnginiq Centre 2006c), considering how these practices might bear upon suicide prevention efforts.

This kind of initiative is a direct response to community interest in developing culturally-specific, locally driven responses to suicide.

The *National Inuit Youth Suicide Prevention Framework* identifies challenges in securing long term funding, training, and support for suicide prevention initiatives, noting that such initiatives need not specifically address suicide in order to contribute to wellness in communities (e.g., economic development, spiritual renewal, anti-colonial initiatives, and so on) (Stevenson and Ellsworth 2004). They advocate for a central database or network to coordinate programs and research, but at the same time stress community ownership and empowerment to heal their own problems. Increased education about healthy lifestyles and romantic relationships is identified as a priority, and the effects of intergenerational trauma are highlighted. Overall, contributors to the *Prevention Framework* stress that young people need people to talk to about their feelings, and require a sense of hope and viable social, cultural, and economic futures in their communities. This requires efforts on multiple fronts.

An Inuit-specific, comprehensive, territory-wide follow-back study (*Qaujivallianiq inuusirijauvalauqtunik*) is currently underway in Nunavut. The study will involve the collection and analysis of 300 Inuit life stories, including 100 people who have never attempted suicide, 100 who have, and 100 who completed suicide. The purpose is to better identify risk factors and assist in developing more effective prevention approaches (National Inuit Youth Council et al. 2009).

Substance Use

It is important to note that not all substance use is related to mental health concerns, and that not all use of substances is "abuse." This section discusses the use and abuse of a range of substances.

There are many factors influencing substance use among Inuit. Inadequate housing and overcrowding is the norm in most communities: Inuit are nearly eight times more likely to live in crowded homes (Inuit Tapiriit Kanatami 2008). Unemployment rates are high, and Inuit are struggling with rapid cultural, economic, social, and environmental change (Dolan 2007). High suicide rates and loss of community members to injuries and accidents mean that many communities experience crisis and grief on a regular basis. The long term, intergenerational effects of residential schooling and other traumas also contribute to substance misuse.

The substances most often used are alcohol and marijuana. Marijuana is often cheaper and easier to acquire than alcohol, particularly in 'dry' communities (Dolan 2007). Street drugs like cocaine and heroin are reported in Iqaluit and in some mining communities. Solvent abuse is endemic in some regions, while in others it tends to come and go.

Inuit communities and regional governments have identified alcohol abuse as a priority problem (Korhonen 2004a). Inuit tend to drink less overall than the national average, but drinking tends to occur in binge events. Korhonen notes that "binge drinking... is a major factor in violence, accidents and injury, employment and family problems, [and] unwanted sexual contacts" (ii). There is a shortage of alcohol-related information available to communities, however, as well as a severe lack of effective and appropriate treatments and services at the community level (Ajunnginiq Centre 2006a).

Many people succeed in moderating or stopping their drinking altogether without outside help; others require more help. Alcohol counseling is generally done by Community Health Representatives (CHRs), wellness workers, or addictions workers. There are numerous challenges, however, in recruitment, training, and retention, as well as in building capacity among Inuit to fill these jobs. These challenges vary by region and by community. The Northwest Territories reports a severe lack of capacity and knowledge in Inuit regions regarding addiction and a shortage of skilled addictions workers (Government of the Northwest Territories 2002).

Cigarettes are the most commonly used drug in the northern regions; approximately 70% of the adult Inuit population smokes, while 48% of youth in Nunavut aged 12-19 report being daily smokers (Government of Nunavut 2004, 25). (Please see the section on Respiratory Diseases for fuller discussion of the impact of smoking on Inuit health).

Disability

There is a lack of comprehensive data related to disability issues in Inuit communities, but disability has been identified as a concern by organizations like ITK. Hearing loss is a significant concern, as are disabilities resulting from accidents and injury, and disabilities related to FASD. An article in a disabilities journal states that there are approximately 5,000 people living with disabilities throughout the eastern and central Arctic, and that the disability rate in the north is thought to be twice that of the rest of Canada at 30% (Shain 1998). More research is required to understand the kinds of disabilities most prevalent among Inuit and the challenges experienced by Inuit with disabilities, and more accurate statistics are needed to document the number of Inuit reporting disabilities.

Environmental Health

Environmental health concerns in the four northern regions range from concerns over contaminants in the water, soil, and country foods (due to air and water pollution, contaminated DEW line sites, and other vectors of contamination), concerns about the impact of climate change on the health and well-being of northern communities, and toxins in the homes and workplaces of Inuit. Environmental contamination and climate change are discussed in this report.

Environmental Contamination

While there has been substantial research into the prevalence of toxins in northern environments, there is still little evidence linking exposure to contaminants in the food chain with adverse health outcomes in Inuit. Nevertheless, environmental contamination remains a priority concern for Inuit public health. Numerous government and academic studies into contaminants have been undertaken (largely through the Northern Contaminants Program or NCP), and a comprehensive overview of this literature is beyond the scope of this report. In general terms, however, the following can be stated with some confidence:

- Inuit show elevated levels of numerous environmental contaminants, including mercury, PCBs, and organochlorides. The second *Canadian Arctic Contaminants Report* noted that "79% of mothers from Nunavik and 68% of those from the Baffin region had higher mercury blood levels than those known to be safe for the fetus and breastfeeding infant" (Elliott and Macauley 2004, 24).
- A great deal of confusion, misinformation, and fear exists around environmental contamination and higher toxicity levels in Inuit. Much of the concern relates to the consumption of country foods (Furgal, Powell, and Myers 2005). Recent public health information and interventions by agencies like Nunavik's Regional Board of Health and Social Services aim to clarify some of this confusion and provide clear, accurate guidelines regarding country foods.
- The benefits of eating country foods still outweigh the risks, particularly when the cultural, economic, and nutritional value of traditional foods is factored in. Arctic char and caribou carry the lowest levels of contaminants, and pregnant and lactating women are actively encouraged to consume these foods. Foods like beluga, seal, and polar bear, because of their higher fat content, may pose health risks if consumed in excess, but Inuit are still encouraged to consume these foods in moderation (Inuit Tapiriit Kanatami 2004b).

Climate Change

Climate change is a growing concern throughout Canada, but particularly in the Arctic regions where the effects of climate change are more visible and the impact of climate change on Inuit communities is potentially severe. Inuit leaders emphasize that climate change represents a significant and urgent threat to Inuit health, including

"The role of hunting, fishing and the traditional foods and food-gathering practices goes far beyond nutrition and is intimately tied up with Inuit spirituality and identity as a people; thus the pollution of the arctic ecosystem is of great concern"

(Elliott and Macauley 2004, 24)

not only physical health, but also their cultural, spiritual, and economic well-being (Inuit Circumpolar Commission 2009). Already, Inuit are noticing changes to their environment that impact on health and safety (Government of Nunavut 2003; Inuit Tapiriit Kanatami, Nasivvik Centre for Inuit Health and Changing Environments, and Ajunnginiq Centre 2005). Increasingly, researchers are drawing on Inuit knowledge to identify evidence of climate change and better understand the factors that enhance or inhibit the ability of Inuit to adapt to rapid environmental change (e.g., Ford et al. 2008; Furgal, Martin, and Gosselin 2002; Furgal and Seguin 2006; Laidler 2006).

The Nasivvik Centre for Inuit Health and Changing Environments (based at Laval University) is actively researching the links between Inuit health and climate change. Changes such as increased temperature fluctuations, extreme weather events, and uncharacteristic weather patterns have been linked to injury, psychological stress, and even death (due, for example, to travel and hunting in areas with increasingly unpredictable ice and storm conditions). Increased UVB exposure is linked to higher risks of skin cancers, burns, infectious disease, cataracts, and immunosuppression (Furgal, Martin, and Gosselin 2002). Researchers also note challenges related to northern home design: the lack of ventilation in homes causes heat stress among the elderly on warm days (Furgal and Seguin 2006). Decreased access to country foods, decreased ability to build igloos, higher incidences of diarrheal and other infectious diseases, emergence of new diseases, instability of physical structures built on permafrost, flooding, and psychosocial disruption are all considered potential health impacts due to climate change (Furgal and Seguin 2006). Some communities might even be forced to relocate if rising sea levels flood existing communities.

In addition to identifying and attempting to predict the health impacts of climate change, researchers and policy-makers are increasingly interested in coping strategies and community capacity for adaptation to changing environmental conditions (Ford et al. 2010; Government of Nunavut 2003; Lemmen et al. 2008). The ability to adapt and respond varies by individual, community and region, but several factors are identified by researchers as important considerations (see especially Furgal and Seguin 2006):

- The ability to overcome changes in access to or availability of country food resources is significantly related to access to economic and technological resources (e.g., as the snow travel season shortens, the use of all terrain vehicles (ATVs) to access hunting grounds will increase).
- The generation and sharing of local and traditional knowledge of regional environments assists in adapting to new navigational and hunting conditions.
- Institutional or other formal support for the pursuit of traditional activities may assist in ensuring that local knowledge is maintained and local environmental changes are monitored.
- Communities with strong public health infrastructures (e.g., water treatment facilities), or with access to resources to strengthen these basic services, are expected to be better equipped to respond to new water-borne diseases and other infectious disease increases.
- Existing health status of Inuit is expected to be exacerbated by changes in local climate. Environmental change is expected to compound difficulties in addressing basic health needs, economic vulnerability, and rapid social and cultural change.

Researchers emphasize the importance of developing coping and adaptation strategies as soon as possible, noting that such strategies not only reduce vulnerability to climate-related changes, but also contribute to community resilience in the face of other stresses. Relatively straightforward solutions such as establishing community freezers to ensure the safe preservation of country foods are also suggested (Furgal and Seguin 2006, 1968). Broader policy-supported interventions identified by Ford et al. (2010) include support for the teaching and transmission of environmental knowledge and land skills, enhancement of emergency management capacity, protection of infrastructure, and economic support to facilitate adaptation among more vulnerable groups.

Inuit leaders also emphasize the importance of working to prevent further climatic change through reductions in greenhouse gas emissions (Inuit Circumpolar Commission 2009; Watt-Cloutier 2009). As with any health concern facing Inuit communities, the importance of involving Inuit in research, policy, planning, education, and other initiatives cannot be overstated.

Food Security and Nutrition

Food security is identified as a significant concern in many regions, as is child and adult nutrition. A food security study in Nunavut found that half of those surveyed reported there was not enough to eat in the house in the previous month (Lawn and Harvey 2001). Recent results of the Nunavut Inuit Child Health Survey reported nearly 70% of Inuit preschoolers were found to reside in households rated as "food insecure" (Egeland et al. 2010). Boult (2004) suggests that low income, changing dietary habits, high cost of food, lack of awareness of healthy eating habits, and a number of other factors have combined to ensure hunger and poor nutrition continue to impact many Inuit families.

The Nasivvik Centre for Inuit Health and Changing Environments published

an Inuit Food Guide for Nunavik and Nunatsiavut, outlining healthy food choices for Inuit and providing recipes and nutritional information (Gagné and Blanchet 2006). Nutritional deficiency is a concern across the Inuit population but particularly for children and pregnant and lactating women. Governments and health agencies are actively encouraging the consumption of country foods among Inuit, as current research suggests that the nutritional value of these foods outweighs the risks of consuming contaminants (Inuit Tapiriit Kanatami and Government of Nunavik 2003).

Urban Inuit

The population of Inuit living in urban centres is growing. According to the 2006 Census, approximately 11,000 Inuit live outside of the four northern Inuit land claim settlement regions (8,400 of which live in cities), and there has been a 60% increase in the population of Inuit living in urban centres outside of Inuit Nunangat since 1996 (Statistics Canada 2008). In 2006, the urban centres outside Inuit Nunangat with the largest Inuit populations were Ottawa/Gatineau, 725; Yellowknife, 640; Edmonton, 590; Montréal, 570; and Winnipeg, 355. Toronto (315), St. John's (280) and Vancouver (210) also have significant Inuit populations. Inuit public health experts suggest that these numbers are low, and that significantly larger populations of Inuit reside in southern cities.

Many of the public health concerns identified in the northern regions are also concerns in the urban South, but organizations like Tungasuvvingat Inuit, an Inuit service agency based in Ottawa, pay particular attention to diabetes, mental health and counseling services, addictions, HIV and other STIs, and child and family health. Agencies supporting urban Inuit communities also aim to provide employment and education services, youth programming, nutrition and Head Start programs, and other initiatives that help maintain an Inuit support network.

It is also worth noting the impact of urban migration upon northern communities. Although not well-studied, migrants tend to be younger and more skilled, and to leave communities to seek employment, education, and services that are unavailable in their home communities. This can impact upon capacity within northern communities, insofar as there are fewer skilled adults available to occupy key positions, provide child and Elder care, and provide overall leadership in the community. Ensuring that northern communities offer adequate programs, services, and opportunities not only directly affects individual public health outcomes then, but also indirectly affects public health in that it enables Inuit who want to remain in the North to do so, and to contribute to community well-being. In general, there is a dearth of research into the specific health needs of urban Inuit. Although not a specifically health-related study, the Environics Institute recently released an Urban Aboriginal Peoples Survey, involving 2,614 Aboriginal peoples living in Vancouver, Edmonton, Calgary, Regina, Saskatoon, Winnipeg, Thunder Bay, Toronto, Montreal, Halifax, and Ottawa (see www.uaps.ca).

Summary: Trends, Needs, and Gaps

Public health programming, policy-making, resource development, and service delivery in the four northern regions are beset by challenges. There are 'gaps' everywhere: a lack of Inuit-specific data, lack of staff and resources, lack of funding to address emerging health concerns, and lack of coordination across the multiple jurisdictional levels in each region. In many cases, the scope and nuances of various public health issues are not well understood. In large part this is due to a lack of data and comprehensive surveillance systems, but it is also attributable to a severe shortage of qualified, long term public health staff available to analyze data, network and coordinate services, engage in professional development, and implement much needed health services and initiatives.

In spite of these challenges, there are a number of very knowledgeable and committed people working in each of the northern regions who were instrumental in the identification of the following emerging health trends:

- Diabetes is a rising concern in Inuit communities. Emerging research and anecdotal evidence suggest that Inuit are highly vulnerable to a significant increase in diabetes incidence rates in the coming years.
- As Inuit shift away from a more traditional diet, become more sedentary, and obesity rates increase, cardiovascular disease is also expected to become an increasing public health concern.
- Sexually transmitted infection rates are high and rising in Inuit communities. Chlamydia and gonorrhea are already highly prevalent, but public health experts are increasingly concerned about the vulnerability of Inuit communities to HIV and Hepatitis C infection.
- Youth suicide is a major concern in all Inuit regions.
- Inuit are increasingly noting the effects of climate change on their environment. Climate change is already contributing negatively to Inuit health (e.g., sea ice has become less predictable in recent years, leading to increased incidences of drowning), and future impacts are not well understood.
- Socioeconomic problems such as poverty, unemployment, violence, substance abuse, neglect, and overcrowding impact significantly upon the health and well-being of Inuit. Public health planners, policy-makers, and service providers in all regions note the importance of taking these broad factors into account and approaching Inuit health from a holistic, community-based perspective. Research and policy addressing Inuit public health issues from a social determinants perspective is needed.
- Inuit knowledge and values are increasingly being incorporated into public health planning and programming, although there is still much to be done in this regard.
- Inuit are increasingly controlling research agendas in their regions. There is a need, however, to develop a comprehensive discussion document outlining an Inuit-specific set of research guiding principles in order to ensure that research is culturally

and community appropriate. Inuit Tuttarvingat at NAHO (formerly the Ajunnginiq Centre), Inuit Tapiriit Kanatami, and the Nunavut Research Institute have produced guides, fact sheets, and reports that are very helpful in this regard (e.g., Inuit Tapiriit Kanatami and Nunavut Research Institute 2006; see also fact sheets prepared by Nipingit, the National Inuit Committee on Ethics and Research, at www.naho.ca/inuit/e/ethics).

A number of gaps have also been identified throughout the development of this report:

- Every public health issue discussed in this report would benefit from comprehensive, long term, Inuit-specific health data. There is a related need to compile and coordinate existing data into a comprehensive, centralized database.
- This lack of reliable data frustrates efforts to secure funding to address emerging health concerns at the community level. In many cases, communities are aware of pressing needs but are unable to implement much needed services and programs because they cannot produce the statistical evidence required by funding agencies.
- Health data analysts are needed in every region to assist in the analysis and dissemination of available health information.
- Informants in every region stressed the importance of networking, coordination, and cooperation across jurisdictional levels and even within government departments or agencies. A mechanism for this kind of interaction is needed.
- Similarly, coordination of health services is important to ensure that federal, provincial and territorial, regional, and other organizational services are integrated, accessible, and effective.
- The need for increased capacity at all levels is also a pressing concern in every region. It takes generations to build capacity among Inuit in the area of public health and a holistic strategy to encourage more Inuit to consider public health careers is needed.
- Although more data and research are required to understand the public health concerns facing Inuit communities, it is also important that action be taken to address identified problems and that program evaluation and promising practices be circulated more widely between regions, public health organizations, agencies, and individual workers.
- No single public health issue facing Inuit can be addressed in isolation. Holistic, culturally-sensitive initiatives that involve Elders, youth, and other community leaders at the community level are essential to address complex, often inter-generational public health problems. There is a related need to increase research examining Inuit health from a social determinants perspective.
- National pandemic plans are inappropriate for remote, fly-in communities with low capacity to react to crises. The northern regions are vulnerable to pandemics in this regard, although planning for and responding to the H1N1 influenza pandemic in 2009/2010 are expected to improve pandemic planning processes currently underway.
- Although there are knowledge gaps in relation to all of the public health issues discussed in this report, gaps are particularly glaring in terms of injury, disability, obesity, literacy as a determinant of health, informal caregiving and caretaking, and the particular health concerns relating to urban Inuit.
- There is a need for an Inuit definition of health and wellness that would guide public health service provision, policy, surveillance, and resource development.
- Inuit concerns and needs tend not to be addressed by federal, provincial, or territorial public health planning or by initiatives aimed at a general Aboriginal population. It is crucial that the distinct cultural, historical, geographic, environmental, and socioeconomic factors impacting Inuit health be accounted for and incorporated into all public health activities.
- There is a need for research documenting public health successes and protective factors that promote health and well-being in Inuit communities.

While the gaps and shortages are significant, public health experts identify the following broad goals as potentially significant contributions to improving the overall health and well-being of Inuit:

- Set specific, national goals for Inuit health outcomes, with associated targets and measurable indicators, and commit sufficient long-term funding to support these goals.
- Develop Inuit-specific health indicators that account for the importance of culture in health outcomes.
- Ensure that Inuit have access to appropriate and timely health services, including screening, diagnostic, treatment, and long-term care services.
- Interventions aimed at specific health issues are ultimately ineffective if the underlying social, cultural, and economic determinants of health are not addressed. In this regard, meaningful commitments to address housing, employment, and intergenerational trauma are as significant a contribution to health outcomes as improvements in health service provision.

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APPENDICES

Appendix A

Inuit Nunangat

Appendix B

Overview of National Inuit Organizations

Appendix C

Public Health Surveillance in the Four Northern Regions

Appendix C1
Public Health Surveillance in Northwest Territories/Inuvialuit

Appendix C2
Public Health Surveillance in Nunavut

Appendix C3
Public Health Surveillance in Nunavik

Appendix C4
Public Health Surveillance in Labrador/ Nunatsiavut

Appendix A: Inuit Nunangat

Source: Inuit Tapiritt Kanatami, Inuit Regions of Canada,
www.itk.ca/publications/maps-inuit-nunaat-inuit-regions-canada

Appendix B: Overview of National Inuit Organizations

There are three national Inuit organizations engaged in advocacy, research, consultation, information dissemination, and program delivery in the four northern regions. Each organization has a different mandate and set of priorities relating to Inuit public health.

Inuit Tapiriit Kanatami (ITK)
170 Laurier Avenue West, Suite 510
Ottawa ,ON, K1P 5V5
www.itk.ca

ITK is primarily an advocacy organization, representing the interests of the Inuit of Canada at the national level since 1972. ITK has played a key role in Inuit land claims over the past several decades and continues to be active in a variety of policy areas, including health. Through its Health Committee, ITK works with various government, non-government, and Aboriginal organizations towards meeting Inuit health needs, and has been active in initiatives relating to diabetes, Fetal Alcohol Spectrum Disorder, home care, accident prevention, nutrition, and non-insured health benefits, as well as the health aspects of climate change. ITK shares information about Inuit health care needs and priorities with a variety of health committees and jurisdictions, while working with them to develop appropriate policies and programs.

Inuit Tuttarvingat (formerly the Ajunnginiq Centre), National Aboriginal Health Organization
220 Laurier Avenue West, Suite 1200
Ottawa, ON, K1P 5Z9
www.naho.ca/inuit

Inuit Tuttarvingat is the Inuit-specific centre of excellence of the National Aboriginal Health Organization (NAHO). NAHO aims to improve and promote the health and well-being of Aboriginal Peoples by carrying out knowledge-based activities, such as publishing reports, facilitating research, making presentations, holding conferences, and sharing information. Whereas ITK is primarily an advocacy organization, Inuit Tuttarvingat focuses primarily on information dissemination. Inuit Tuttarvingat emphasizes in particular the validation and promotion of holistic healing practices that will restore a healthy Inuit lifestyle and improve the health status of Inuit. It has been active in the areas of mental health, suicide prevention, substance abuse, midwifery, traditional health, literacy, climate change, and food security.

Pauktuutit: Inuit Women of Canada
Suite 400, 56 Sparks Street
Ottawa, ON, K1P 5A9
www.pauktuutit.ca

Pauktuutit represents Inuit women at the national level. Pauktuutit is primarily an advocacy organization, but is also active in the development of resources and programs that cater to the specific needs of Inuit women and children. Since its incorporation in 1984, Pauktuutit has focused in particular on the need for gender equality and the representation of Inuit women on issues of concern to aboriginal peoples in Canada. Pauktuutit represents the interests of Inuit women in the development of federal policies and programs, and has been active in the areas of abuse, diabetes, early childhood development, economic development, FASD, community care, injury prevention, justice, teen pregnancy, tobacco reduction, sexual health, and youth rights.

Appendix C: Public Health Surveillance in the Four Northern Regions

Rather than duplicate already completed research, this appendix calls attention to a very comprehensive and useful summary of public health surveillance programs and sources of data relevant to Inuit public health compiled by ITK (Source: Elliott and Macauley, 2004).

Appendix C1. Public Health Surveillance in Northwest Territories/Inuvialuit

Overall Health Indicators

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Life Expectancy	Yes	NWT Dept. of Health and Social Services Health Status Report/PIRC	Territorial/ National	StatsCan mortality database, Census data	Yes	Age-specific mortality and population counts	Life Expectancy	Reported in NWT Health Status Report, not by ethnicity; Reported in NWT PIRC Report; Data linkage required for Inuit-specific life expectancy
Self-reported health	Yes	NWT Dept. of Health and Social Services Health Status Report/PIRC	Territorial	Canadian Community Health Survey	Yes	Self-rated Health Status: Excellent, Very Good, Good, or Fair/ Poor	Self-rated Health Status	Other data sources: Aboriginal Peoples Survey

Maternal Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Anemia in Pregnancy	No							
Nutrition in Pregnancy	No							
Smoking in Pregnancy	Yes	Canadian Community Health Survey	Territorial	Canadian Community Health Survey	Yes	Survey item: whether smoked during last pregnancy	Estimate of rates of smoking in pregnancy	Inuit sample likely too small for generalizability
Alcohol use in pregnancy	Yes	Canadian Community Health Survey	Territorial	Canadian Community Health Survey	Yes	Survey item: whether drank alcohol during last pregnancy	Estimate of rates of alcohol use in pregnancy	Inuit sample likely too small for generalizability
Drug use in pregnancy	No							
STIs in Pregnancy	No							
Ectopic Pregnancies	Yes	Canadian Perinatal Surveillance system	National	CIHI/DAD	No	Hospital separations for ectopic pregnancy, population counts	Ectopic pregnancy rate	

Fetal/Infant/Child Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Infant Mortality	Yes	Canadian Perinatal Surveillance Program	National	StatsCan Death Database	No	Counts of death less than one year of age	Infant mortality rate	Reported in PIRC, NWT Health Status Report
Prematurity	Yes	Canadian Perinatal Surveillance Program	National	StatsCan Birth and Death Databases	No	Gestational Age at Birth, Cause of Death data	Rate of preterm birth, mortality from prematurity	
SIDS	Yes	Canadian Perinatal Surveillance Program	National	StatsCan Death Database	No	Cause of death data	Rate of SIDS	
Congenital Anomalies (including Fetal Alcohol Spectrum Disorder)	Yes	Canadian Perinatal Surveillance Program	National	CIHI/DAD	No	Hospitalizations for Congenital Anomalies	Rate of Congenital Anomalies	The NWT is planning to institute a territorial congenital anomalies surveillance system.
Breastfeeding	Yes	NWT Breastfeeding Surveys	Territorial	NWT Breastfeeding surveys	Yes	Details of initiation, maintenance and discontinuation of breastfeeding	Breastfeeding initiation rates, mean duration of breastfeeding, reasons for breastfeeding choices	NWT Breastfeeding surveys done in 1983, 1993, and 2003
Immunizations	Yes	Immunization Registry	Territorial	HealthSuite forms from community and public health nurses	Yes	Demographic Information, Date of Immunization, type of immunization given	Immunization coverage rates	Does not include influenza immunizations. Program evaluation has demonstrated undercounting. A national immunization registry has been proposed.
Infant anemia	No							
Oral health	Yes	1996/97 National School of Dental Therapy Survey	Territorial	Survey data	Unknown	Counts of decayed/missing/filled (DMF) teeth	Average DMF counts by age, gender, ethnicity, community. Effect of Water fluoridation by community.	A survey of children in 18 NWT communities. Unknown if it will be repeated.
Otitis Media/ Hearing Loss	No							

Communicable Diseases

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Notifiable Diseases	Yes	Communicable Disease Registry	Territorial	Community physicians, nurses, and laboratories	Yes (Health Care Number [HCN])	Case counts for each disease, laboratory testing done, Patient Demographics, date of illness onset and reporting	Infection rates, trends, outbreak curves when applicable	Territorial System: i-PHIS module. Aggregate data sent to National Disease reporting System (see below).
		National Notifiable Disease Database	National	Provinces and Territories	No	Counts of cases of disease, demographics (age, gender)	Infection rates, trends	Provincial and Territorial counts of reportable diseases reported monthly
Sexually Transmitted Infections (STI)	Yes	Communicable Disease Registry, STI module	Territorial	Community physicians, nurses, and laboratories	Yes (HCN)	Counts of cases, contacts, and treatments, demographics	Infection rates, trends, treatment completion rates for cases and contacts	Territorial System: i-PHIS module. Aggregate data sent to National Disease Reporting System (see below).
		National Notifiable Disease Database	National	Provinces and Territories	No	Counts of cases of disease, demographics	Infection rates, trends	
Tuberculosis	Yes	Communicable Disease Registry, TB Module	Territorial	Community physicians, nurses, and laboratories	Yes (HCN)	Counts of TB cases, demographics, treatment details	TB rates, trends, treatment completion rates	Each case reported to National Tuberculosis Registry (see below)
		National TB Registry	National	Provinces and Territories	Yes	Counts of TB cases, demographics, treatment details	TB rates, trends, treatment completion rates	
HIV/AIDS	Yes	Communicable Disease Registry	Territorial	Community physicians, nurses, and laboratories	Yes (HCN)	Counts of cases of disease, demographics (age, gender)	HIV/AIDS rates, trends, treatment completion rates	Each case reported to the National HIV/AIDS registry (see below)
		National HIV/ AIDS registry	National	Provinces and Territories	Yes	Counts of cases, demographics (including ethnicity), other details of illness	Rates of AIDS and HIV infection	

Communicable Diseases

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Invasive Bacterial Infections	Yes	International Circumpolar Surveillance (ICS)	Circumpolar	Participating laboratories	Yes	Counts of positive laboratory specimens, demographic data	Infection rates, serotypes, vaccine preventability. Analyzed by region and ethnicity.	All 4 Inuit regions of Canada represented. Diseases monitored: invasive S. pneumonia, meningococcal disease, H. influenza, Group A and B Strep.
RSV/ bronchiolitis	Yes	Communicable Disease Registry	Territorial	Health professionals	Yes	Counts of affected individuals	Infection rates in outbreaks	Reportable only in an outbreak situation
Influenza	Yes	FluWatch	National	Sentinel Health professionals	No	Intermittent counts of individuals presenting with influenza-like illness	Indications of level of influenza activity in the NWT at any given time	
Vaccine associated adverse events	Yes	Vaccine Associated Adverse Events Surveillance System (VAAESS)	National	Community and public health nurses	No	Patient identifier, demographics, date, vaccine given, description of adverse event	Rates of serious adverse effects to vaccines	

Chronic Lung Disease (smoking related)

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Burden of chronic lung disease	Yes	Chronic disease Surveillance Online	National	StatsCan Death Database, CIHI/DAD	No	Counts of deaths and hospitalizations from COPD, pneumonia	Mortality and hospitalization rates for COPD and pneumonia, trends	Can access Territorial data, but with limitations (see report text)
Tobacco Use	Yes	PIRC and health Status Reports	Territorial/ National	Canadian community health survey (previously NPHS)	Yes	Counts of smokers vs. non-smokers in population sample	Smoking rates	Other data sources: 1996 and 2002 Drug and Alcohol Surveys, NWT Labour Force Survey
Youth smoking	Yes	School Tobacco Survey	Territorial	School Tobacco Survey	Not reported on	Counts of smokers vs. non-smokers in population sample, details of smoking history and attitudes	Smoking rates, attitudes among youth	Youth Smoking Survey – done in 1982, 1987, 1993, 1999, 2002 (now called School Tobacco Survey)

Cancer

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cancer	Yes	NWT Cancer Registry	Territorial	Health providers and hospital pathology departments, reciprocal notifications from other Canadian cancer registries	Yes (HCN)	Patient demographics, method of diagnosis, cancer site, cell type, date of diagnosis, patient alive or dead, date of death if applicable	Incidence and mortality rates for each type of cancer	Potential exists for calculating survival times
		Canadian Cancer Registry	National	Provinces and Territories	No	As above	As above	
Cancer screening participation	No							

Diabetes

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Diabetes Prevalence	Yes	National Diabetes Surveillance System (NDSS, Health Canada)	Territorial/ National	CIHI discharge Abstract Database (DAD), NWT Medicare database (physician shadow billing), NWT health care registration database	Yes (HCN)	Diagnosis codes, demographic information (age, gender, Health Care Number, Community of Residence)	Diabetes prevalence rates, overall, by gender, and by 5-year age groups; trends	Program will be modified to include information on co-morbid conditions; aggregate data is passed on to national system

Cardiovascular Disease and Risk Factors

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cardiovascular Disease morbidity and mortality	Yes	Cardiovascular Disease Surveillance Online (Health Canada)	National	StatsCan Death Database, CIHI/DAD	No	Counts of deaths and hospitalizations from C.V. diseases	Mortality and hospitalization rates for different cardiovascular diseases, trends	Territorial data can be accessed, but with limitations (see report text)
Obesity	Yes	Canadian Community Health Survey	National/ Territorial	Canadian Community Health Survey	Yes	Survey items: height and weight	Body mass index, categorized as underweight, acceptable weight or obese	
Hypertension (self-reported)	Yes	Canadian Community Health Survey	National/ Territorial	Canadian Community Health Survey	Yes	Survey items: diagnosis of hypertension	Rate of self-reported hypertension	Underestimates true rates
Physical activity	Yes	Canadian Community Health Survey	National/ Territorial	Canadian Community Health Survey	Yes	Survey items: frequency, duration and intensity of physical activity	Activity level, classified as inactive, moderately active, or active	

Injuries

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Injury Hospital Morbidity	Yes	National Trauma Registry	National	CIHI/DAD	No	Injury-related hospital separations for each province and territory	Hospital separation rates for different types of injuries	Only includes hospitalizations within NWT
Injury morbidity and mortality	Yes	Injury Surveillance Online (Health Canada)	National	StatsCan Death Database, CIHI/DAD	No	Counts of deaths and hospitalizations from injuries	Mortality and hospitalization rates for different types of injuries; trends	Territorial data can be accessed, but with limitations (see report text)
Contributing Factors to Injuries	Yes	CHIRPP/ Yellowknife	Territorial/ National	CHIRPP Database	Yes	Injury time and place, circumstances and details	Aggregate information on causative factors and outcomes of different types of injuries	Sentinel surveillance: only a fraction of injuries captured
Occupational Injuries	Yes	Workers' Compensation Board of the NWT and Nunavut	Territorial	WCB Injury Database	No	Detailed data on circumstances, type of injury, health care utilization	Aggregate information on outcomes of different types of injuries, risks of different types of work	
Water-related fatalities (drownings, boat accidents)	Yes	Canadian Red Cross-Western Zone	Provincial/ Territorial	Coroner's Reports	Yes	Type of injury, personal factors, equipment factors, and environmental factors	Aggregate frequency data on data elements described	Extraction of data from Coroner's reports is done by Red Cross volunteers

Mental Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Mental well-being	Yes	Canadian Community Health Survey (formerly NPHS)	Territorial/ National	Canadian Community Health Survey	Yes	Survey items: Questions on stress levels, sense of belonging to community, contacts with mental health professionals	Estimates of proportion of population experiencing stress, seeing mental health professionals	Inuit sample may be too small for generalizability
Suicide	No							
Alcohol and Drug abuse	Yes	NWT Drug and Alcohol Surveys	Territorial	NWT Drug and Alcohol Surveys	Not reported on	Details of respondents' patterns and history of use of alcohol, illegal drugs and tobacco	Rates and patterns of use of alcohol, drugs and tobacco	

Environmental Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Environmental contaminants	Yes	Northern contaminants Program (NCP)	National	Academic research studies	Variable	Variable	Levels, trends of contaminants in environment, food supply, human tissues and fluids; effects on nutrition, human health	
E. coli/ Coliform counts of water supply	Yes	NWT Water Quality database	Territorial	Routine water quality testing	No	Various chemical water quality tests; bacteriological tests for fecal and total coliforms	Water quality test results for each NWT community, updated twice yearly	Available online at Department of Public works website: www.maca.gov.nt.ca/operations/water/homepage.asp

Disability

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Activity limitation	Yes	Canadian Community Health Survey	Territorial/ National	Canadian Community Health Survey	Yes	Survey items: limitations on activity, 2-week disability	Estimates of disability rates in territory	Inuit sample may be too small for generalizability
Health expectancy (disability-free life expectancy)	Yes	PIRC	Territorial	StatsCan Mortality database, census population counts, census data on activity limitation	No			

Appendix C2. Public Health Surveillance in Nunavut

Overall Health Indicators

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Life Expectancy	Yes	PIRC report	Territorial/ National	StatsCan mortality database, Census data	No	Age-specific mortality and population counts	Life Expectancy	Contained in Nunavut PIRC report
Self-reported health	Yes	PIRC	Territorial	Canadian Community Health Survey	Yes	Self-rated Health Status: Excellent, Very Good, Good, or Fair/Poor	Self-rated Health Status	Other data sources: Aboriginal Peoples Survey

Maternal Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Anemia in Pregnancy	No							
Nutrition in Pregnancy	No							
Smoking in Pregnancy	Yes	Canadian Community Health Survey	Territorial	Canadian Community Health Survey	Yes	Survey item: whether smoked during last pregnancy	Estimate of rates of smoking in pregnancy	Inuit sample likely too small for generalizability
Alcohol use in pregnancy	Yes	Canadian Community Health Survey	Territorial	Canadian Community Health Survey	Yes	Survey item: whether drank alcohol during last pregnancy	Estimate of rates of alcohol use in pregnancy	
Drug use in pregnancy	No							
STIs in Pregnancy	No							
Ectopic Pregnancies	Yes	Canadian Perinatal Surveillance system	National	CIHI/DAD	No	Hospital separations for ectopic pregnancy, population counts	Ectopic pregnancy rate	

Fetal/Infant/Child Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Infant Mortality	Yes	Canadian Perinatal Surveillance Program	National	StatsCan Death Database	No	Counts of death less than one year of age	Infant mortality rate	Reported in PIRC
Prematurity	Yes	Canadian Perinatal Surveillance Program	National	StatsCan Death Database	No	Gestational Age at Birth, Cause of Death data	Rate of preterm birth, mortality from prematurity	
SIDS	Yes	Canadian Perinatal Surveillance Program	National	StatsCan Death Database	No	Cause of death data	Rate of SIDS	
Congenital Anomalies (including Fetal Alcohol Spectrum Disorder)	Yes	Canadian Perinatal Surveillance Program	National	CIHI/DAD	No	Hospitalizations for Congenital Anomalies	Rate of Congenital Anomalies	
Breastfeeding	No							Existing data from NWT Breastfeeding surveys done in 1983 and 1993
Immunizations	No							
Infant anemia	No							
Oral health	Yes	1996/1997 National School of Dental Therapy Survey	Territorial	Survey data	Unknown	Counts of decayed/missing/filled (DMF) teeth	Average DMF counts by age, gender, ethnicity, community. Effect of water fluoridation by community.	A survey of children in 18 NWT communities. Unknown if it will be repeated.
Otitis Media/ Hearing Loss	No							

Communicable Diseases

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Notifiable Diseases	Yes	Communicable Disease Registry	Territorial	Community physicians, nurses, and laboratories	Yes (HCN)	Case counts for each disease, laboratory testing done, patient demographics, date of illness onset and reporting	Infection rates, trends, outbreak curves when applicable	Territorial System: i-PHIS module. Aggregate data sent to National Disease reporting System (see below).
		National Notifiable Disease Database	National	Provinces and Territories	No	Counts of cases of disease, demographics (age, gender)	Infection rates, trends	Provincial and Territorial counts of reportable diseases reported monthly
Tuberculosis	Yes	TB registry	Territorial	Community physicians, nurses, and laboratories	Yes (HCN)	Counts of TB cases, demographics, treatment details	TB rates, trends, treatment completion rates	Each case reported to National Tuberculosis Registry
	Yes	National TB Registry	National	Provinces and Territories	Yes	Counts of TB cases, demographics, treatment details	TB rates, trends, treatment completion rates	
HIV/AIDS	Yes	Communicable Disease Registry	Territorial	Community physicians, nurses, and laboratories	Yes (HCN)	Counts of cases of disease, demographics (age, gender)	HIV/AIDS rates, trends, treatment completion rates	Each case reported to the National HIV/AIDS registry (see below)
		National HIV/AIDS registry	National	Provinces and Territories	Yes	Counts of cases, demographics (including ethnicity), other details of illness	Rates of AIDS and HIV infection	
Invasive Bacterial Infections	Yes	International Circumpolar Surveillance (ICS)	Circumpolar	Participating laboratories	Yes	Counts of positive laboratory specimens, demographic data	Infection rates, serotypes, vaccine preventability. Analyzed by region and ethnicity.	All 4 Inuit regions of Canada represented. Diseases monitored: invasive S. pneumonia, meningococcal disease, H. influenza, Group A & B Strep.
RSV/ bronchiolitis	Yes	Communicable Disease Registry	Territorial	Health professionals	Yes	Counts of affected individuals	Infection rates in outbreaks	
Influenza	Yes	FluWatch	National	Sentinel Health professionals	No	Intermittent counts of individuals presenting with influenza-like illness	Indications of level of influenza activity in the NWT at any given time	
Vaccine associated adverse events	Yes	Vaccine Associated Adverse Events Surveillance System (VAAESS)	National	Community and public health nurses	No	Patient identifier, demographics, date, vaccine given, description of adverse event	Rates of serious adverse effects to vaccines	

Chronic Lung Disease (smoking related)

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Burden of chronic lung disease	Yes	Chronic disease Surveillance Online	National	StatsCan Death Database, CIHI/DAD	No	Counts of deaths and hospitalizations from COPD, pneumonia	Mortality and hospitalization rates for COPD and pneumonia, trends	Can access Territorial data, but with limitations (see text of report)
Tobacco Use	Yes	PIRC and health Status Reports	Territorial/ National	Canadian community health survey (previously NPHS)	Yes	Counts of smokers vs. non-smokers in population sample	Smoking rates	Other data sources: 1996 and 2002 Drug and Alcohol Surveys, NWT Labour Force Survey

Cancer

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cancer	Yes	NWT Cancer Registry	Territorial	Health providers and hospital pathology departments, reciprocal notifications from other Canadian cancer registries	Yes (HCN)	Patient demographics, method of diagnosis, cancer site, cell type, date of diagnosis, patient alive or dead, date of death if applicable	Incidence and mortality rates for each type of cancer	Potential exists for calculating survival times
		Canadian Cancer Registry	National	Provinces and Territories	No	As above	As above	
Cancer screening participation	No							

Diabetes

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Diabetes Prevalence	Yes	National Diabetes Surveillance System (NDSS, Health Canada)	Territorial/ National	CIHI discharge Abstract Database (DAD), NWT Medicare database (physician shadow billing), NWT health care registration database	Yes (HCN)	Diagnosis codes, demographic information (age, gender, Health Care Number, Community of Residence)	Diabetes prevalence rates, overall, by gender, and by 5-year age groups; trends	Aggregate data is passed on to national system

Cardiovascular Disease and Risk Factors

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cardiovascular Disease morbidity and mortality	Yes	Cardiovascular Disease Surveillance Online (Health Canada)	National	StatsCan Death Database, CIHI/DAD	No	Counts of deaths and hospitalizations from C.V. diseases	Mortality and hospitalization rates for different cardiovascular diseases, trends	Territorial data can be accessed, but with limitations (see report text)
Obesity	Yes	Canadian Community Health Survey	National/ Territorial	Canadian Community Health Survey	Yes	Survey items: height and weight	Body mass index, categorized as underweight, acceptable weight or obese	
Hypertension (self-reported)	Yes	Canadian Community Health Survey	National/ Territorial	Canadian Community Health Survey	Yes	Survey items: diagnosis of hypertension	Rate of self-reported hypertension	Underestimates true rates
Physical activity	Yes	Canadian Community Health Survey	National/ Territorial	Canadian Community Health Survey	Yes	Survey items: frequency, duration and intensity of physical activity	Activity level, classified as inactive, moderately active, or active	

Injuries

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Injury Hospital Morbidity	Yes	National Trauma Registry	National	CIHI/DAD	No	Injury-related hospital separations for each province and territory	Hospital separation rates for different types of injuries	Only includes hospitalizations within Nunavut (would be a major underestimate of total injury hospitalizations)
Injury morbidity and mortality	Yes	Injury Surveillance Online (Health Canada)	National	StatsCan Death Database, CIHI/DAD	No	Counts of deaths and hospitalizations from injuries	Mortality and hospitalization rates for different types of injuries; trends	Territorial data can be accessed, but with limitations (see report text)
Occupational Injuries	Yes	Workers' Compensation Board of the NWT and Nunavut	Territorial	WCB Injury Database	No	Detailed data on circumstances, type of injury, health care utilization	Aggregate information on outcomes of different types of injuries, risks of different types of work	
Water-related fatalities (drownings, boat accidents)	Yes	Canadian Red Cross-Western Zone	Provincial/ Territorial	Coroner's Reports	Yes	Type of injury, personal factors, equipment factors, and environmental factors	Aggregate frequency data on data elements described	

Mental Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Mental well-being	Yes	Canadian Community Health Survey (formerly NPHS)	Territorial/ National	Canadian Community Health Survey	Yes	Survey items: Questions on stress levels, sense of belonging to community, contacts with mental health professionals	Estimates of proportion of population experiencing stress, seeing mental health professionals	Other data source: Aboriginal Peoples Survey
Suicide	No							
Alcohol and Drug abuse	Yes	NWT Drug and Alcohol Surveys	Territorial	NWT Drug and Alcohol Surveys	Not reported on	Details of respondents' patterns and history of use of alcohol, illegal drugs and tobacco	Rates and patterns of use of alcohol, drugs and tobacco	

Environmental Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Environmental contaminants	Yes	Northern contaminants Program (NCP)	National	Academic research studies	Variable	Variable	Levels, trends of contaminants in environment, food supply, human tissues and fluids; effects on nutrition, human health	All four Inuit regions of Canada covered.
E. coli/ Coliform counts of water supply	Yes	Nunavut Water Quality database	Territorial	Routine water quality testing	No	Bacteriological tests for fecal and total coliforms	Water quality test results for each Nunavut community	

Disability

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Activity limitation	Yes	Canadian Community Health Survey	Territorial/ National	Canadian Community Health Survey	Yes	Survey items: limitations on activity, 2-week disability	Estimates of disability rates in territory	Other data source: Aboriginal Peoples Survey
Health expectancy (disability-free life expectancy)	Yes	PIRC	Territorial	StatsCan Mortality database, census population counts, census data on activity limitation	No			

Appendix C3. Public Health Surveillance in Nunavik

Overall Health Indicators

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Life Expectancy	Yes	Health Portrait of Quebec and its Regions, 2001 Health and What Affects it has in Nunavik, 1997	Provincial Regional	MSSS Mortality Database Nunavik Mortality Database	No No	Age-specific mortality and population counts	Life Expectancy	Data are consistent in both reports
Self-reported health	Yes	Sante Quebec Regional Surveys	Provincial/ Regional	Sante Quebec Nunavik Survey	Yes	Self-rated Health Status: Excellent, Very Good, Good, or Fair/Poor	Self-rated Health Status	Most recent survey, 1992. Other data sources: Aboriginal Peoples Survey (APS). Note: Community Health Survey (CCHS) does not include Nunavik.

Maternal Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Anemia in Pregnancy	No					Special research studies only (see Hodgins, 1997). Sante Quebec survey has data on general population iron intake.		
Nutrition in Pregnancy	No					Sante Quebec survey collects data on nutrient (e.g. folate) intake of general population (non-pregnant). Canadian Prenatal Nutrition Program is program-oriented and does not conduct surveillance on these indicators.		
Smoking in Pregnancy	Yes	Sante Quebec Regional Surveys	Provincial/ Regional	Sante Quebec Nunavik Survey	Yes	Survey items: current smoking; pregnancy status	Estimate of rates of smoking in pregnancy	Most recent survey in 1992
Alcohol use in pregnancy	Yes	Sante Quebec Regional Surveys	Provincial/ Regional	Sante Quebec Nunavik Survey	Yes	Survey items: current alcohol use; pregnancy status	Estimate of rates of alcohol use in pregnancy	
Drug use in pregnancy	No	Sante Quebec Regional Surveys	Provincial/ Regional	Sante Quebec Nunavik Survey	Yes	Survey items: current drug use; pregnancy status	Estimate of rates of drug use in pregnancy (e.g. hashish; solvent inhalation)	
STIs in Pregnancy	No							MADO (Notifiable Diseases database) does not record pregnancy status
Ectopic Pregnancies	Yes	MedEcho Hospitalization Surveillance (MSSS)	Provincial/ Regional	MedEcho Hospitalization Database	No	Hospital separations for ectopic pregnancy, population counts	Ectopic pregnancy rate	

Fetal/Infant/Child Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Infant Mortality	Yes	"Our Children" Report, NRBHSS Health Portrait of Quebec and its Regions, 2001	Regional Provincial/ Regional	MSSS Mortality Database	No	Counts of death less than one year of age	Infant mortality rate	
Prematurity	Yes	"Our Children" Report	Regional	MSSS Mortality and Birth Databases	No	Births <37 weeks; deaths attributed to prematurity	Rate of preterm birth, mortality from prematurity	
SIDS	Yes	"Our Children" Report NRBHSS	Regional	MSSS Mortality Databases	No	Cause of death data	Rate of SIDS mortality	
Congenital Anomalies (including Fetal Alcohol Spectrum Disorder)	Yes	"Our Children" Report NRBHSS	Regional	MSSS: MedEcho Hospitalization, Stillbirth and Mortality databases	No	ICD-9 codes for congenital anomaly hospitalizations, stillbirths and infant deaths	Prevalence rate of congenital anomalies and associated stillbirths and deaths	
Breastfeeding	No					No surveillance: Research studies done in 1988 and 1990		
Immunizations	Yes	"Our Children" Report NRBHSS	Regional	Individual immunization records (hard copy only available)	Yes		Percent of children aged <3 and <2 who have received MSSS scheduled vaccinations	Special compilations of hard copy data were performed by authors. Computerized database planned.
Infant anemia	No					Research studies only (Hodgins 1997); hemoglobin routinely tested at 9 months of age, but not captured by surveillance		
Oral health	Yes	"Our Children" Report	Regional	Belanger, R., Public Health Department, NRBHSS	Yes	Counts of decayed/missing/	DMF counts by age; proportion cavity-free	
Otitis Media/ Hearing Loss	Yes	Otology and hearing programs of Regional Health Centres	Regional	Annual reports, otology and hearing programs	Unknown	Counts of kindergarten children with one or more perforated ear drum; or failing hearing test	Proportion of kindergarten children with these problems	

Communicable Diseases

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Notifiable Diseases (including STIs)	Yes	Communicable Disease Registry: MADO (MSSS/ INSPQ)	Regional/ Provincial	Community physicians, nurses, and laboratories	No	Case counts for each disease, laboratory testing done, patient demographics, date of illness onset and reporting	Infection rates, trends, outbreak curves when applicable	
Tuberculosis	Yes	Communicable Disease Registry: MADO (MSSS/ INSPQ)	Regional/ Provincial	Community physicians, nurses, and laboratories	Yes (Health Care Number)	Counts of TB cases, demographics, treatment details	TB rates, trends, treatment completion rates	Each case reported to National Tuberculosis Registry
AIDS	Yes	Programme de surveillance du sida du Quebec (MSSS)	Provincial with regional breakdowns	Community physicians, nurses, and laboratories	Yes	Demographics (age, gender, ethnicity), geo-locator (3 digit postal code); risk factors	AIDS incidence/	Each case reported to the National HIV/AIDS registry
HIV	Yes	Laboratoire de Sante Publique du Quebec	Provincial/ Regional	LSPQ/MSSS	Yes	As above	HIV incidence/	Only reportable to Public Health if donated/received blood/tissue
Invasive Bacterial Infections	Yes	International Circumpolar Surveillance (ICS)	Circumpolar	Participating laboratories	Yes	Counts of positive laboratory specimens, demographic data	Infection rates, serotypes, vaccine preventability. Analyzed by region and ethnicity.	All 4 Inuit regions of Canada represented. Diseases monitored: Invasive S. pneumonia, meningococcal disease, H. influenza, Group A and B Strep. MADO also captures these.
RSV/ bronchiolitis	No					Hospitalizations could be tracked with MedEcho; Deaths are captured by mortality database		
Influenza	Yes	FluWatch	National	Sentinel Health professionals	No	Intermittent counts of individuals presenting with influenza-like illness	Indications of level of influenza activity in the NWT at any given time	
Vaccine associated adverse events	Yes	Vaccine Associated Adverse Events Surveillance System (VAAESS)	National	Community and public health nurses	No	Patient Identifier, demographics, date, vaccine given, description of adverse event	Rates of serious adverse effects to vaccines	

Chronic Lung Disease (smoking related)

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Burden of chronic lung disease	No							National (CIHI) data does not give sub-provincial regional breakdowns. Hospitalizations can be captured thru MedEcho and deaths from mortality database.
Tobacco Use	Yes	Sante Quebec Survey; APS	Regional National	Sante Quebec APS	Yes	Current/past smoking status; demographics	Smoking rates	

Cancer

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cancer	Yes	Nunavik Cancer Registry Tumor Registry, MSSS	Regional Provincial	MedEcho (hospitalizations). Providers, reciprocal notifications from other Canadian cancer registries	No	Patient demographics, method of diagnosis, cancer site, cell type, date of diagnosis, patient alive or dead, date of death if applicable	Incidence and mortality rates for each type of cancer	
Cancer screening participation	Yes	Cervical cancer screening coverage: Sante Quebec survey	Provincial/ Regional	Sante Quebec survey	Yes	PAP smear within last 2 years; demographics	Age-specific PAP smear coverage rates	New program of screening mammography and PAP smears for women 50-69 years to begin in Nunavik in September 2004

Diabetes

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Diabetes Prevalence	Yes	Sante Quebec Nunavik Survey	Regional/ Provincial	Sante Quebec Surveys	Yes	Fasting blood sugar levels; demographics	Diabetes prevalence rates, overall, by gender, and by 5-year age groups; trends	New Nunavik regional diabetes registry planned for 2004/2005 (INSPQ pilot project)

Cardiovascular Disease and Risk Factors

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cardiovascular Disease morbidity and mortality	Yes	Sante Quebec Nunavik Survey Nunavik Mortality Database	Regional/ Provincial	Sante Quebec Surveys; Mortality database	Yes	Diagnosis and medication use for CVD (self-report); cause-specific mortality	Estimates of prevalence and mortality due to CVD	Last Sante Quebec Nunavik Survey in 1992; next planned for 2004/5
Obesity	Yes	Sante Quebec Nunavik survey	Regional/ Provincial	Sante Quebec Surveys	Yes	Clinical anthropometric measurements	Body mass index; waist to hip ratio	
Hypertension (self-reported)	Yes	Sante Quebec Nunavik survey	Regional/ Provincial	Sante Quebec Surveys	Yes	BP measurement; diagnosis and medication use for hypertension (self-reported)	Prevalence of clinical and self-reported hypertension	
Physical activity	Yes	Sante Quebec Nunavik survey	Regional/ Provincial	Sante Quebec Surveys	Yes	Survey items: physical activity both in village and while "on land"	Activity level, classified as inactive, moderately active, or active	

Injuries

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Injury Hospital Morbidity	Yes	Health Portrait of Quebec and its Regions, MSSS	Provincial/ Regional	MedEcho hospitalization database	No	Injury-related hospital separations	Hospital separation rates for different types of injuries	
Injury morbidity and mortality	Yes	Sante Quebec Nunavik Survey; Nunavik mortality database	Regional/ Provincial	Sante Quebec surveys; mortality database	No	Self-reported injuries; counts of deaths from injuries; external cause (E-codes)	Incidence and mortality rates for injuries, by type	
Occupational Injuries	Yes	Commission de la Sante et de la securite du travail (CSST) Quebec	Provincial	CSST Injury Database	No	Data on type of injury, circumstances, health care utilization, demographics	Incidence of occupational injury by type, location, demographics	
Water-related fatalities	No							Could be derived from mortality database

Mental Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Mental well-being	Yes	Sante Quebec Nunavik Survey	Regional/ Provincial	Sante Quebec Surveys	Yes	Survey items: self-reported levels of happiness, stress	Estimates of general mental well-being, psychological distress	Estimates of psychiatric disorders available in research reports only (e.g. Kirmayer L. 1994)
Suicide	Yes	Mortality: Nunavik Mortality Database Attempts: Sante Quebec Survey; MedEcho Hospitalization database	Regional/ Provincial	Mortality database; Sante Quebec survey; MedEcho database	No Yes No	Cause of death; self-reported suicide attempts; Hospitalizations for suicide attempts	Estimates of suicide mortality rates and suicide attempt rates; by age, gender and community	Youth suicide attempts also recorded by Youth Protection Services, Nunavik
Alcohol and Drug abuse	Yes	Sante Quebec Nunavik Survey	Regional/ Provincial	Sante Quebec Surveys	Yes	Self-reported use of alcohol, marijuana/ hashish, solvents and other drugs	Rates and patterns of use of alcohol and drugs, eg. Proportion with binge-drinking pattern	Use by age <15 not captured

Environmental Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Environmental contaminants	Yes	Northern contaminants Program (NCP)	National	Academic research studies	Variable	Variable	Levels, trends of contaminants in environment, food supply, human tissues and fluids; effects on nutrition, human health	All four Inuit regions of Canada covered. Sante Quebec Survey (1992) also measured exposures
E. coli/ Coliform counts of water supply	Yes	KRG water quality database	Regional	Routine water quality testing	No	Bacteriological tests for fecal and total coliforms	Water quality test results for each Nunavik community	

Disability

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Activity limitation	Yes	Sante Quebec Nunavik Survey	Regional/ Provincial	Sante Quebec Survey	Yes	Self-reported disabling conditions and limitations on activity; demographics	Estimates of disability rates by age, gender	Other data source: Aboriginal Peoples Survey
Health expectancy (disability-free life expectancy)	No							

Appendix C4. Public Health Surveillance in Labrador/Nunatsiavut

Overall Health Indicators

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Life Expectancy	Yes	Mortality Surveillance System, NLCHI	Provincial/	MSSS Mortality Database Nunavik Mortality Database	No No	Age-specific mortality and population counts	Life Expectancy	Data are consistent in both reports
Self-reported health	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Self-rated Health Status: Very Good, Good, Fair or Poor; demographics	Self-rated Health Status	Other data sources: Aboriginal Peoples Survey (APS)

Maternal Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Anemia in Pregnancy	No							Information on prenatal form but not extracted for surveillance
Nutrition in Pregnancy	No							Information on prenatal form but not extracted for surveillance
Smoking in Pregnancy	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Survey items: current smoking; pregnancy status	Estimate of rates of smoking in pregnancy	Most recent survey in 1992
Alcohol use in pregnancy	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Survey items: current alcohol use; pregnancy status	Estimate of rates of alcohol use in pregnancy	
Drug use in pregnancy	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Survey items: current drug use; pregnancy status	Estimate of rates of drug use in pregnancy	
STIs in Pregnancy	No							
Ectopic Pregnancies	No							

Fetal/Infant/Child Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Infant Mortality	Yes	Mortality Surveillance System, NLCHI	Regional/	MSSS Mortality Database	No	Counts of death less than one year of age	Infant mortality rate	
Prematurity	No							Low birth weight reported in LIHC Community Profiles
SIDS	Yes	Mortality Surveillance System, NLCHI	Regional/	MSSS Mortality Databases	No	Cause of death data	Rate of SIDS mortality	
Congenital Anomalies	No							
Breastfeeding	No							Breastfeeding initiation on LBNF; public health keeps hard copy record at 2, 4, 6 months of age
Immunizations	Yes	Regional Immunization Database	Regional	Individual immunization records (hard copy only available)	Yes		Percent of children aged <3 and <2 who have received MSSS scheduled vaccinations	Special compilations of hard copy data were performed by authors. Computerized database planned.
Infant anemia	No							
Oral health	No							
Otitis Media/ Hearing Loss	No							Public Health follows up individual cases

Communicable Diseases

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Notifiable Diseases (including STIs)	Yes	Communicable disease control database	Regional/ Provincial	Community physicians, nurses, and laboratories	No	Case counts for each disease, laboratory testing done, patient demographics, date of illness onset and reporting	Infection rates, trends, outbreak curves when applicable	Computerized CDC database maintained at both regional and provincial levels
Tuberculosis	Yes	Tuberculosis Registry (provincial) and regional TB database	Regional/ Provincial	Community physicians, nurses, labs	Yes	Counts of TB cases, demographics, treatment details	TB rates, trends, treatment completion rates	Each case reported to National Tuberculosis Registry
HIV/AIDS	Yes	Communicable Disease Control Database	Regional/ Provincial	Community physicians, nurses	Yes	Demographics (age, gender, ethnicity), geo-locator (3 digit postal code); risk factors	HIV/AIDS incidence/ Prevalence rates	Each case reported to the National HIV/AIDS registry
Invasive Bacterial Infections	Yes	International Circumpolar Surveillance (ICS)	Circumpolar	Participating laboratories	Yes	Counts of positive laboratory specimens, demographic data	Infection rates, serotypes, vaccine preventability. Analyzed by region and ethnicity.	All 4 Inuit regions of Canada represented. Diseases monitored: Invasive S. pneumonia, meningococcal disease, H. influenza, Group A and B Strep. Provincial/ Regional CDC system also captures these, without Inuit identifier.
RSV/ bronchiolitis	Yes	Communicable Disease Control Database	Regional/ Provincial	Community physicians, nurses	No	Aggregate case counts by community, region	Incidence rates	Useful for epidemic detection
Influenza	Yes	Communicable Disease Control Database	Regional/ Provincial	Community physicians, nurses, laboratories	No	Case counts for each disease, laboratory testing done, patient demographics, date of illness onset and reporting	Infection rates, trends, outbreak curves when applicable	Lab-confirmed cases of influenza notifiable individually; aggregate reporting for influenza-like-illness, for outbreak detection
Vaccine associated adverse events	Yes	Vaccine Associated Adverse Events Surveillance System (VAAESS)	National	Community and public health nurses	No	Patient identifier, demographics, date, vaccine given, description of adverse event	Rates of serious adverse effects to vaccines	

Chronic Lung Disease (smoking related)

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Burden of chronic lung disease	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Self-reported diagnosed chronic diseases	Prevalence rates	Self-reported data only
Tobacco Use	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Self-reported tobacco use; demographics	Smoking rates by age and gender	Self-reported data only

Cancer

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cancer	Yes	Tumor Registry, NFLD Cancer Treatment/ Research Foundation	Provincial	Providers, death certificates, labs and reciprocal notifications from other Can. cancer registries	No	Patient demographics, method of diagnosis, cancer site, cell type, date of diagnosis, patient alive or dead, date of death if applicable	Incidence and mortality rates for each type of cancer	
Cancer screening participation	Yes	Cytology Registry NFLD Cancer Treatment/ Research Foundation	Provincial	PAP smear forms, Bliss Murphy Cancer Centre, St. Johns	No	Dates PAP smears done; results; demographics	Age-specific PAP smear coverage rates, abnormality rates	No mammography surveillance done

Diabetes

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Diabetes Prevalence	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Self-reported diagnosed chronic diseases	Prevalence rates	Self-reported data only; other source: APS Survey

Cardiovascular Disease and Risk Factors

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Cardiovascular Disease morbidity and mortality	Yes	Morbidity: Labrador Inuit Regional Health Survey Mortality: Mortality Surveillance System, NLCHI	Regional Provincial	LIRHS Death certificates	Yes No	Self-reported diagnosed chronic disease Cause of death; demographics	Prevalence rates Cause-specific mortality	Self-reported data only; hospitalization data could also be used, but no Inuit identifier
Obesity	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Self-reported height, weight	Prevalence rates	Self-reported data only
Hypertension (self-reported)	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Self-reported diagnosed chronic diseases	Prevalence rates	Self-reported data only
Physical activity	Yes	Labrador Inuit Regional Health Survey	Regional	LIRHS	Yes	Self-reported physical activity	Prevalence rates	Self-reported data only

Injuries

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Injury Hospital Morbidity	No	CHIRPP/Janeway Child Health Centre	Provincial/ National	CHIRPP Database	Yes	Injury time and place, circumstances, and details	Incidence and causative factors for specific injuries	Sentinel surveillance: Only a fraction of injuries captured; only those serious enough to be transferred to St. John's
Injury morbidity and mortality	Yes	Morbidity: Labrador Inuit Regional Health Survey Mortality: Mortality Surveillance System, NLCHI	Regional Provincial	LIRHS Death certificates	Yes No	Self-reported diagnosed chronic diseases Cause of death; demographics	Prevalence rates Cause-specific mortality	Self-reported data only; hospitalization data could also be used, but no Inuit identifier. LIHC also keeps database of intentional injuries
Occupational Injuries	Yes	Work Injuries Database, Occupational Health and Safety Division, Provincial Dept. of Employment and Labour	Provincial	WHSCC forms completed by workplace at time of injury	No	Data on type of injury, circumstances, health care utilization, demographics	Incidence of occupational injury by type, location, demographics	
Water-related fatalities	No							Could be derived from mortality database

Mental Health

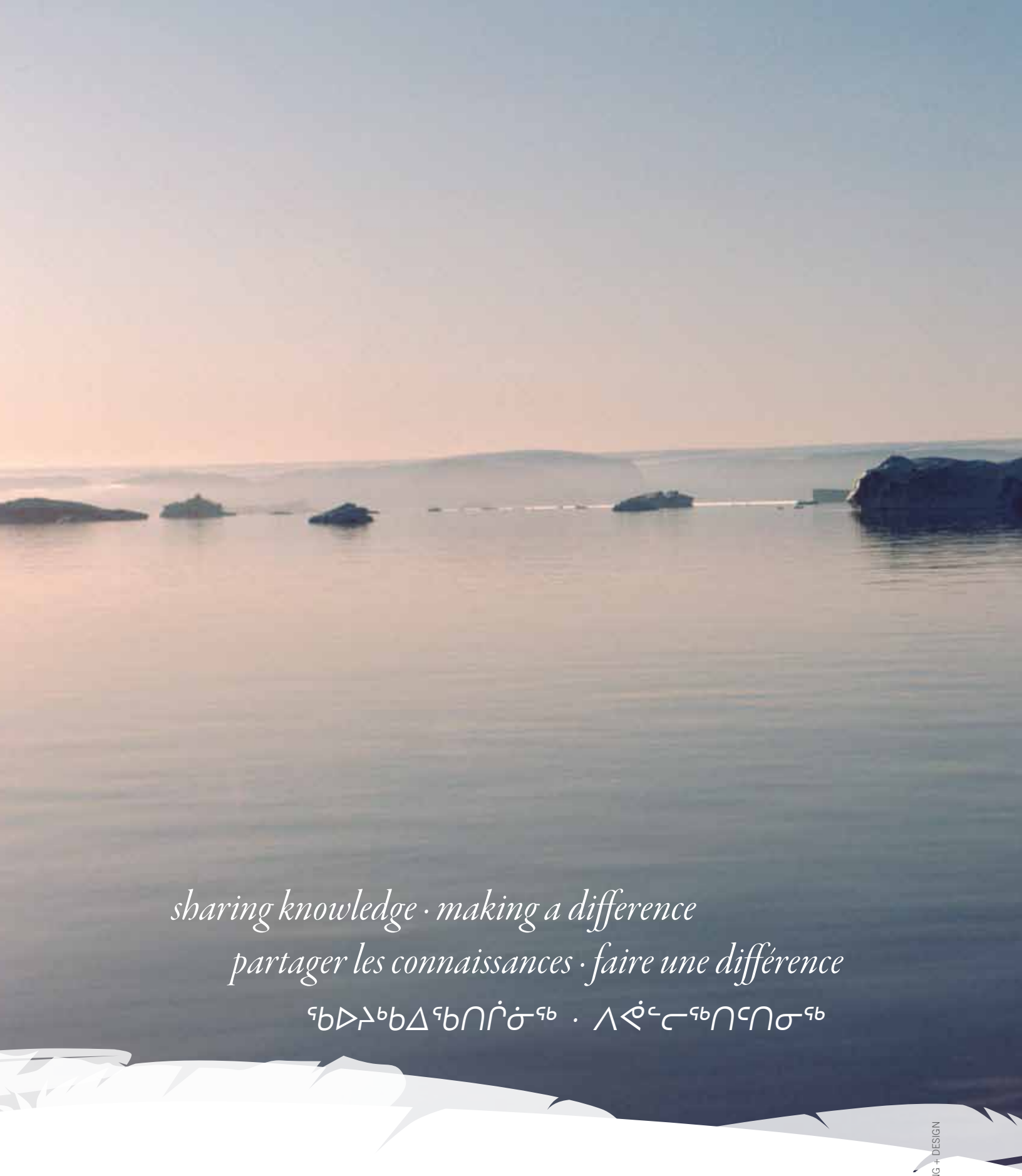
Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Mental well-being	Yes	Labrador Inuit Regional Health Survey Aboriginal Peoples Survey LIHC Counseling and Crisis Response Databases	Regional Regional/ National Regional	LIRHS APS LIHC Internal Mental Health Program Databases	Yes Yes Yes	Self-reported health, wellness, chronic mental conditions Same LIA number, demographics, incident type, services provided	Estimates of mental well-being, prevalence of problems Services provided	Self-reported data
Suicide	No							Mortality data available from NLCHI Mortality Surveillance System
Alcohol and drug abuse	Yes	Clinical Database Management System (captures acute care episodes) LIHC Alcohol and Drug Abuse Treatment Centre Database Labrador Inuit RHS	Provincial Regional Regional	CDMS (access through NLCHI)	Yes Yes Yes	MCP number, demographics, ethnicity, status of service Client number, intake/ discharge information, substance abused Self-reported drug use	Acute care service rates Substance abuse treatment rates	

Environmental Health

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Environmental contaminants	Yes	Northern contaminants Program (NCP)	National	Academic research studies	Variable	Variable	Levels, trends of contaminants in environment, food supply, human tissues & fluids; effects on nutrition, human health	All four Inuit regions of Canada covered
E. coli/ Coliform counts of water supply	Yes	LIHC Community Profiles	Regional	Routine water quality testing	No	Bacteriological tests for fecal and total coliforms	Water quality test results for each community	Water testing results also reported to provincial ministry

Disability

Health Issue	Under Active Surveillance	Name of Surveillance Program	Scope of Program	Data Source(s) for Program	Inuit Identifier Available	Core Dataset Elements	Main System Outputs	Comments
Activity limitation	Yes	Labrador Inuit Health Survey; Aboriginal Peoples Survey	Regional National	LIHS APS	Yes	Self-reported disabling conditions and limitations on activity; demographics	Estimates of disability rates by age, gender	Self-reported
Health expectancy (disability-free life expectancy)	No							



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NATIONAL COLLABORATING CENTRE
FOR ABORIGINAL HEALTH

CENTRE DE COLLABORATION NATIONALE
DE LA SANTÉ AUTOCHTONE

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