

Health and Well-being in the Canadian North:

Recent Advances and Remaining Knowledge Gaps and Research Opportunities

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Abstract and Methodology

This summary presents health and well-being related research gains, gaps and opportunities gathered by the Canadian Polar Commission in fulfillment of its mandate to monitor and communicate polar knowledge in Canada and around the world. It is focused on the Canadian North, comprising the Yukon, Northwest Territories, Nunavut, Nunavik, and Nunatsiavut, during the seven-year period beginning with the International Polar Year (IPY) in 2007. The following observations are organized under recent advances and knowledge gaps and research opportunities. They are based on semi-structured interviews with northern housing research experts and practitioners, which have been supplemented and validated with both peer-reviewed and 'grey' literature. Recent advances and knowledge gaps pertaining to food security are included in a separate food security summary.

Overview

- In many areas of the North, health and well-being programs and services are not comparable to those offered in southern Canada (Furgal, 2008; Canadian Health Services Research Foundation, 2011). Especially outside the larger population centres, community-level access to health and well-being facilities, services and resources can be limited or lacking. Patients may have to travel to larger northern centers or to southern Canada to obtain services, which can be costly and emotionally difficult for the patient and his or her family (Romanow, 2002; Furgal & Seguin, 2006; Gesink Law et al., 2008; Nunavut Tunngavik Inc., 2008; Egeland et al., 2010; Cameron, 2011; First Nations Information Governance Centre, 2012; Canadian Institute for Health Information, 2013; Pauktuutit Inuit Women of Canada, 2013).
- Many Aboriginal peoples in Canada's North have a lower socioeconomic status that has significant implications for health and well-being (Furgal & Seguin, 2006; Richmond, 2009; Cameron, 2011).
- The North is undergoing rapid change as a result of drivers such as climate change, economic development activity, demographics, governance, changing expectations, and past assimilation practices, with significant implications for health and well-being (Berner & Furgal, 2005; Furgal & Seguin, 2006; Parkinson, 2008; Furgal, 2008; Parkinson & Evengård, 2009; Lehti et al., 2009; Richmond, 2009; King et al., 2009; Knotsch & Lamouche, 2010; Lix et al., 2010). The rate and complex nature of these changes that have cultural, social, environmental and economic dimensions can make it challenging to adapt (Steenbeek et al., 2006). Adaptive capacity from a health and well-being perspective can vary within and across regions of the North depending on factors such as access to knowledge and expertise; access to human, technical and financial resources; pre-existing health conditions; and public health infrastructure (Furgal, 2008; Cameron, 2011). There can be disparities in adaptive capacity between Aboriginal and non-Aboriginal peoples and between smaller, remote communities and the larger population centres in the North (Furgal, 2008).
- While there is a wide range of important areas pertaining to health and well-being in Canada's North, this summary will focus on the following: a) health status and determinants of health; b) health care system and health research; c) chronic diseases; d) infectious diseases and other illnesses; e) injuries, abuse and violence; f) intergenerational trauma, mental health and addictions; g) environmental conditions and human health; h) fetal, child and maternal health; and i) sexual health and sexually transmitted and blood borne infections (STBBIs).

Recent Advances, Knowledge Gaps and Research Opportunities

a) Health status and determinants of health

- There is a significant discrepancy in health status between northern populations and Canadians in general, as well as between northern Aboriginal peoples and non-Aboriginal peoples (Furgal & Seguin, 2006; Furgal, 2008; Parkinson, 2008; Egeland et al., 2010; Cameron, 2011; Sheppard & Hetherington, 2012). Life expectancy rates are lower and infant mortality rates are higher (Furgal, 2008). Although there are

differences across regions, some of the leading causes of death in Canada's North include cancer, cardiovascular diseases, chronic lower respiratory diseases, infectious diseases, accidents, and suicide (Donaldson et al., 2010; Cameron, 2011; Health and Social Services – Government of the Northwest Territories, 2011b).

- There is a high cost of living, with issues of poverty, unemployment, and underemployment in many regions (Furgal, 2008; Egeland et al., 2010; First Nations Information Governance Centre, 2012). Poor living conditions, including overcrowding are also common (Kativik Regional Government & Makivik Corporation, 2010; Knotsch & Kinnon, 2011; Sheppard & Hetherington, 2012).
- In many northern Aboriginal communities, the population is young and growing (Furgal & Seguin, 2006; Furgal, 2008; Cameron, 2011; Nunavik Regional Board of Health and Social Services, 2012; First Nations Information Governance Centre, 2012).
- In some areas of the North, the migration of people from smaller communities to larger centres, and from the North to southern Canada to, for example, pursue education or job opportunities is a concern (Institute for Circumpolar Health Research, 2010; Natalia, 2011; Goldhar et al., 2012).
- The *Circumpolar Health Atlas* provides an overview of health patterns across the circumpolar North including contextual elements such as climate patterns, socioeconomic conditions, health determinants, and health systems (Young [Ed.], 2012).

Recent Advances

- The Survey of Living Conditions in the Arctic (SLiCA) initiative was undertaken to measure, document, compare, and better understand living conditions among indigenous peoples living in the Arctic. Some of the key findings included that well-being relates closely to employment opportunities, availability of wildlife, and a sense of local control, and that the improvement of well-being might help to reduce social problems (Poppel et al., 2007).
- There is more knowledge of some of the differences in health status between Aboriginal and non-Aboriginal peoples in Canada, including causes of the health gap (King et al., 2009; Gracey & King, 2009). The National Collaborating Centre for Aboriginal Health (NCCA) has published a number of reports regarding the status and determinants of health for Aboriginal peoples in Canada, including a report on the state of knowledge of Aboriginal health (National Collaborating Centre for Aboriginal Health, 2012a & b), health inequalities and social determinants (Reading & Wien, 2009), living conditions as a determinant of health (Reading & Halseth, 2013) and historical and socioeconomic impacts on the health and well-being of Aboriginal women (Halseth, 2013).
- Research based on interviews with Community Health Representatives (i.e., frontline community workers) working in rural and remote First Nations and Inuit communities identified life balance, life control, education, material resources, social resources and environmental/cultural connections as some key determinants of health. It also highlighted the significance of environmental dispossession (i.e.,

processes through which access to resources of traditional environments is reduced) and colonialism on health determinants (Richmond & Ross, 2009).

- A 2011 report published by the National Collaborating Centre for Aboriginal Health titled *State of the Knowledge: Inuit Public Health, 2011* details what is known about maternal, fetal and infant health; child health; communicable diseases; cancer; diabetes; respiratory disease; cardiovascular disease; injury; mental health and wellness; disability; environmental health; and food security and nutrition among the Inuit population. It also highlights trends including diabetes and cardiovascular disease as a rising concern as well as youth suicide. The need for comprehensive, long term, Inuit-specific health data was also noted, as well as the need to address knowledge gaps regarding injury, disability, obesity, literacy as a determinant of health, and informal care (Cameron, 2011). Peters also examined Inuit health in Canada, including population dynamics and community characteristics, noting that inequalities relate to access to health and social services, lower education and employment opportunities and loss of culture (Peters, 2012). Peters also examined causes of death by gender and age group among Inuit living in the Inuit regions (Inuit Nunangat) to better understand contributors to mortality and life expectancy. Cancer was noted as a major contributor to the difference in life expectancy between Inuit living in Inuit Nunangat and those living in the rest of Canada. As well, it was found that deaths among Inuit males between 15 and 25 years of age and Inuit females greater than 60 years of age were also significant contributors to the difference in life expectancy (Peters, 2010). The *Inuit Oral Health Survey Report* for 2008-2009 describes the oral health status and burden of oral health conditions of Inuit living in the Inuit regions (except Nunavik). It was found that more Inuit reported poor oral health, more food avoidance and oral pain than southern Canadians, with more dental disease among Inuit, and much of it remaining untreated. The report suggests the need for more community-based primary preventive measures, as well as the need to address other health issues that can impact oral health such as tobacco use and food insecurity (Health Canada, 2011). Research by Richmond examined how access to social support (i.e., positive social interaction, emotional support, tangible support and affection and intimacy) varies among the Inuit population. This research found that men, the elderly, and the unmarried reported lower levels of social support and that Inuit that are unable to speak or understand an Aboriginal language or who do not participate in traditional harvesting activities also tend to report lower levels of social support (Richmond, 2009).
- Research was undertaken to develop a framework to support an Inuit-specific, culturally relevant gender-based analysis of the determinants of health (Pauktuutit Inuit Women of Canada et al., 2012).
- The First Nations Regional Longitudinal Health Survey administered by the First Nations Information Governance Centre (FNIGC) provides information regarding health, wellness, and health determinants of First Nations living in First Nations communities. The first phase of this survey was completed in 2002/03 (First Nations Information Governance Centre, 2010). Results from the second phase of this survey (2008-10) are detailed in the *National Report on Adults, Youth and Children Living in First Nations Communities* which covers a variety of areas such as

health care access, physical activity and nutrition, oral health, living conditions, sexual health, and chronic health conditions (First Nations Information Governance Centre, 2012).

- The Yukon Government publishes regular reports on the health status of the Yukon population. The most recent *Yukon 2012 Health Status Report* covers chronic conditions, communicable diseases, mental well-being, injuries, risk behaviours, and health care system performance, with a more in depth look at children and youth. This report also identifies the need for a comprehensive public health plan and an early childhood development strategy for the Yukon (Health and Social Services – Yukon Government, 2012a). The *Dimensions of Social Inclusion and Exclusion in Yukon, 2010* report examined conditions that lead to social inclusion (including higher literacy, educational attainment and incomes) as well as conditions that lead to exclusion and poverty (including not having a high school education, having a lower household income, being a single parent, and being Aboriginal) to inform a Social Inclusion and Poverty Reduction Strategy for Yukon (Health and Social Services – Yukon Government, 2010). A 2011 report *Health and Health-related Behaviours Among Young People in Yukon* examined health risk behaviours, healthy living, eating and diet, violence and bullying, injuries, and mental health among students in Grades 6 to 10 in the Yukon. This report also identified numerous gaps in health and health-related behaviours between young people living in rural and urban areas in the Yukon. Some health-related areas of concern that were identified included bullying; high use of cannabis among Grade 9 and 10 students, especially among rural males; the emotional health and well-being of girls in Grades 9 and 10 living in rural areas; the school experiences of boys in Grades 9 and 10 living in rural areas; and eating patterns, especially among boys and those living in rural areas. Some positive health-related findings included low incidence of glue and solvent use and of tobacco smoking; a high level of responsibility towards pregnancy prevention and sexually transmitted infection (STI) reduction among boys in Grades 9 and 10 living in rural areas; better health outcomes and positive attitudes among boys in Grades 9 and 10 living in urban areas; and good self-reported health especially among students in Grades 6 to 8 (Freeman et al., 2011).
- The GNWT publishes regular reports on the health status of the NWT population. The most recent 2010 *Northwest Territories Health Status Report* covers well-being, chronic and communicable diseases, mental health and addictions, child and infant health, health determinants and preventive services. Findings included that the NWT's mortality rate is decreasing, that Methicillin Resistant Staphylococcus Aureus (MRSA) is an emerging health issue with the rate of new infection increasing significantly, and that 70% of all deaths in the NWT and more than 50% of days spent in hospital were related to chronic conditions (Health and Social Services – Government of the Northwest Territories, 2011b). The 2012 report *Health and Health-related Behaviours Among Young People in the Northwest Territories* summarizes the findings of the Health Behaviours in School-aged Children (HBSC) study comprised of students in Grades 6 to 10 from most schools in the NWT that examined mental health, environmental influences, health promoting behaviours, and health risk behaviours. This study found poor results for most mental health indicators in comparison with students in the rest of Canada, with female students

reporting a higher level of emotional problems. Among other findings, higher levels of people who are overweight or obese and fewer hours of physical activity were also noted (Freeman et al., 2012).

- The Government of Nunavut publishes regular reports on the health status and performance of the health care system in Nunavut. The most recent *Nunavut Report on Comparable Health Indicators 2011* covers health conditions, deaths, total mortality by selected causes, non-medical determinants of health, health behaviours, health system performance, community and health system characteristics, and health surveillance. In comparison with the health of other Canadians, this report notes higher rates of infant mortality, lung cancer, tuberculosis (TB), and low life expectancy (Paul & Sobol, 2011). Healey & Meadows conducted a review of literature regarding Inuit women's health in Nunavut, noting reproductive and sexual health, wellness, suicide and stress as important issues for Inuit women (Healey & Meadows, 2007). An examination of the perspectives of Inuit women in Nunavut in terms of their health and well-being was also conducted to inform health promotion and illness prevention initiatives. This research also highlighted the importance of culture and traditional knowledge as key determinants of health (Healey, 2008).
- The *Health Profile of Nunavik 2011* report covers demographic and socioeconomic information regarding the Nunavik population in the areas of fertility, family and marital status, level of education, jobs and employment, income and food security. It notes a significant and continuing increase in population, a number of socioeconomic challenges including a high cost of living and a significant gap between the socioeconomic status of the Nunavik population and the Québec population as a whole (Nunavik Regional Board of Health and Social Services, 2012).
- The results from a 2004 health survey conducted in Nunavik by the Institut national de santé publique du Québec (INSPQ) are outlined in *Qanuippitaa? How Are We?*, including those related to socioeconomic status, the environment, physical health status, nutrition and eating habits, lifestyles, psychosocial health, and women's health (Anctil [prepared by], 2008). Similar comprehensive surveys, termed the 'Inuit Health Survey', were also conducted in the Inuvialuit Settlement Region, Nunavut and Nunatsiavut during the International Polar Year, examining housing, food security, nutrition, country food, eating habits, mental health, community wellness, and medical history (Cameron, 2011). This Survey can assist in providing baseline data, identifying health risks, and validating what had been known on more of an anecdotal level in order to provide evidence-based support for health related priorities and proposals and targeted programs. The Inuit Child Health Survey in Nunavut, which was also conducted at this time, reported on health determinants such as food security, oral health, housing conditions, socioeconomic factors and health behaviours and histories (Egeland et al., 2010). In addition to supporting decision making, the survey also led to the establishment of a Nunavut food security task force and support for early-age obesity intervention and prevention (Owens et al., 2012).

Knowledge Gaps and Research Opportunities

- Further intervention research is needed to address the social determinants of health among Aboriginal populations living in the North (King et al., 2009). This includes further research to better understand the impacts of social determinants on Inuit public health to inform policies and programs (Cameron, 2011). This also includes further research to evaluate the successes of social determinants of health intervention research (e.g. the impact of housing on health), which requires health researchers and clinicians to work together with social scientists (King et al., 2009).
- Further research is needed which examines the relationship between levels of social support among Inuit and health outcomes while accounting for other socioeconomic factors such as income (Richmond, 2009).
- There is a need to further examine the impacts of residential schools and the socio-cultural implications of changing northern societies.
- There is a need “to better understand the mechanisms through which determinants of health affect Inuit women” to inform health policies, programs, and resource allocation (Healey & Meadows, 2007; Pauktuutit Inuit Women of Canada et al., 2012). While research has examined the perspectives of Inuit women in Nunavut regarding their health and well-being, further research is needed to examine the perspectives of women in the other Inuit regions of Canada as well as in the circumpolar North (Healey, 2008).
- There is a need for further long-term data collection with respect to health outcomes that incorporates local knowledge and observations and is comparable temporally and spatially (Furgal & Seguin, 2006).
- There is a need for the further development of more culturally appropriate indicators of health and well-being that reflect the values of Aboriginal peoples, such as the use of local country food (Cameron, 2011; Pauktuutit Inuit Women of Canada et al., 2012).
- There is a need to support the enhancement of resiliency among Northerners as a way to strengthen health and well-being in the face of significant change (King et al., 2009). There is also a need for further research to better understand the drivers and mechanisms for mitigating and building resiliency, including the relationship between individual and community resiliency with respect to health and well-being.
- More research is needed regarding the impacts of continuously changing demographics in many parts of the North that is occurring as a result of factors such as employment opportunities, the presence of seasonal workers, and the arrival of new Canadians, and regarding the non-Aboriginal population living in the North and their integration into socioeconomic systems and the associated impacts.

b) Health care system and health research

- The costs of service delivery are rising (Yukon Health Care Review Steering Committee, 2008; Nunavut Tunngavik Inc., 2008; Health and Social Services – Government of the Northwest Territories, 2011a), with the long-term sustainability of current healthcare systems in the North being a key concern (Romanow, 2002; Yukon Health Care Review Steering Committee, 2008; Nunavut Tunngavik Inc., 2008).

- The sometimes fragmented and uncoordinated health and social programs in the North can lead to addressing symptoms and issues in isolation without a more holistic perspective, and the design of stand-alone programs that can be too narrow in scope (Nunavut Tunngavik Inc., 2008; King et al., 2009; Ford et al., 2010b; Cameron, 2011).
- It can be difficult to attract and retain health professionals over the longer term (Marrone, 2007; Furgal, 2008; Ford et al., 2010b; Cameron, 2011). In some areas of the North, health and well-being professionals hired from southern Canada may not be able to speak languages used in the North other than English or French which could result in miscommunication of key health information (Nunavut Tunngavik Inc., 2008). A shortage of healthcare professionals to analyze data and implement, coordinate, and provide services and programs can also be an issue (Cameron, 2011).
- In some areas of the North, there is a lack of and/or inconsistent use of Aboriginal identifiers in data collection for health records including those which are First Nations, Métis, or Inuit-specific, which can make it difficult to spot trends and issues and inform response measures (Furgal, 2008; Smylie, 2010; Cameron, 2011; Pauktuutit Inuit Women of Canada et al., 2012; Canadian Institute for Health Information, 2013).

Recent Advances

- The *Human Health* section of the report *Understanding Earth's Polar Challenges: International Polar Year 2007-2008* describes some of the health research initiatives that were undertaken and associated gains made during the International Polar Year in the areas of environmental contaminants, climate change, socioeconomic change, chronic diseases and health disparities between indigenous and non indigenous populations. Some of the noted research gains included increased information regarding the burden of mental illness, better understanding of the determinants of resiliency, and more baseline information to better understand the health status of Inuit (Parkinson & Chatwood, 2011).
- Proceedings from the International Congress on Circumpolar Health, which was recently held in Yellowknife, NT in 2009 and in Fairbanks, Alaska in 2012, provide information regarding health-related initiatives that are taking place in the circumpolar regions and associated research findings (Chatwood et al. [Eds.], 2010; Murphy & Parkinson [Eds.], 2013).
- In 2013, the *Approaching a Collaborative Research Agenda for Systems Performance* seminar was held to discuss circumpolar health systems in an effort to identify priority research areas. Some of the recommendations that followed from this seminar included the need to better bridge physical and mental health systems through the further development of models and measures that can inform associated practices, build research capacity in areas such as data and policy, and be more responsive in terms of satisfying data sharing needs across health systems (Chatwood et al., 2013).
- *Public Health Practice in Circumpolar Regions: Lessons for Canada* examines public health programs in the areas of public health surveillance; emergency preparedness

and response; health promotion; disease and injury prevention; health protection; maternal and child health; and determinants of health in circumpolar regions. It also identifies a number of cross-cutting themes including governance, financing, and management; policy and planning; public health human resources and capacity; health disparities and inequalities; performance measurement and evaluation; citizen engagement and public education; intersectoral coordination and collaboration; and knowledge translation. Lessons learned for Canada are presented, including the need to further understand the northern context; better integrate public health in the northern health care system; strengthen surveillance and health information systems in the North; adopt new technologies to improve public health programs; strengthen links between the Public Health Agency of Canada (PHAC) and northern health agencies; address social determinants of health; and develop public health human resources for the North (Young & Chatwood, 2009).

- A literature review by Mitton et al. examined health service organization and delivery innovations that have been employed to improve access, quality, efficiency and/or effectiveness in northern rural and remote areas. This review highlighted the importance of cultural sensitivity, local capacity development and community-led programming in terms of implementing effective innovations (Mitton et al., 2011).
- In addition to providing an overview of healthcare delivery, administration and funding context, Powers examined e-health initiatives which are being implemented in each of the territories including telehealth, interoperable electronic health records, and primary care and physician office electronic medical records, noting the implementation of these initiatives as models for other Canadian jurisdictions to facilitate the implementation of e-health enabled healthcare (Powers, 2011).
- A 2010 report published by the Canadian Home Care Association examines promising practices across Canada in First Nations and Inuit home and community care in fall prevention, holistic chronic disease management and prevention, client safety, assisted living, and support for home support workers (Canadian Home Care Association, 2010).
- Research by Novik & MacLean examining pain and palliative care for seniors in the territories highlighted factors that are key to ensuring quality care and the importance of taking into consideration differences among regions, communities and culture in the provision of services. It also notes the direct impact of culture and ethnic background on pain recognition, assessment and management (Novik & MacLean, 2011).
- An environmental scan was conducted of curriculum and other initiatives that have been implemented by governments, academia and other organizations to improve cultural competency and cultural safety of health professionals (i.e., the ability to “communicate competently with a patient in that patient’s social, political, linguistic, economic and spiritual realm”) who work with First Nations, Inuit and Métis patients (National Aboriginal Health Organization, 2008; Baba, 2013). The related Competencies for Indigenous Public Health, Evaluation and Research (CIPHER) initiative is underway among Aboriginal collaborators from Canada, Australia, New Zealand, and the US which aims to develop a cultural safety approach to Indigenous

public health through the identification of core competencies to be used to improve education, practices, services and policies (Centre for Aboriginal Health Research, n.d.).

- A review of the health care system in the Yukon was undertaken in 2008 with a focus on long-term sustainability. It highlighted pressures resulting from aspects such as rising costs, shortage of professional health care providers, the aging population, the Yukon's small and dispersed population, and dependence on provinces to provide tertiary medical interventions. From this review, 43 recommendations were made including the implementation of user fees for some non-insured health programs and services and greater use of alternative delivery models to improve patient outcomes and cost-effectiveness (Yukon Health Care Review Steering Committee, 2008).
- The NWT's current government priorities and associated plans with respect to health and social services are outlined in *Building on Our Foundation 2011-2016: A Strategic Plan for the NWT Health and Social Services System*. Priorities include improved health status; enhanced services for children and families; innovative service delivery for core community health and social services; an integrated territorial health system with local delivery; patient/client safety and system quality; and the measurement, assessment and public reporting of health and social service outcomes (Health and Social Services – Government of the Northwest Territories, 2011a). The GNWT's *Northwest Territories Hospitalization Report* provides baseline data regarding reasons for hospitalizations of NWT residents between 2008/09 and 2010/11 to inform health care management (Health and Social Services – Government of the Northwest Territories, 2013a). The GNWT also measures client satisfaction with health programs and services offered at NWT hospitals (Health and Social Services – Government of the Northwest Territories, 2009a). A 2006 evaluation of Tele-Care NWT found that it enhanced access to health information and non-urgent services for larger and mid-sized communities, but that it was not used as much by smaller communities. The evaluation also noted several challenges and barriers with respect to program uptake including high turnover of staff and a significant portion of northern residents without access to a telephone in their home (Howard Research and Management Consulting Inc. & Outcrop, 2006). A feasibility study for the implementation of an 811 line in the NWT for non-emergency services was also conducted during this time to examine aspects such as the services to be accessed via the line and how to integrate them, and whether other information channels could be used such as the Internet. This study noted the importance of involving a broad range of stakeholders in the development of the line (e.g. determining the range of services to be offered, operational requirements, etc.) including Aboriginal organizations, and the need for branding to differentiate 811 from 911 services and for call transfer protocols between the two services (Howard Research and Management Consulting Inc. & Outcrop, 2006). Research by Graham et al. that was focused on the NWT and northern Ontario aimed to inform ways in which social work-related knowledge and practice can be developed that is more suited in the northern context. Findings suggested the need for more interdisciplinary training and collaboration among social work practitioners (Graham et al., 2008).

- The Government of Nunavut's current public health strategy *Developing Healthy Communities* outlines health and well-being priorities and goals for 2008 to 2013. Priorities include improving the health of children and families and reducing addiction, with goals that include decreasing the number of people experiencing mental, physical, emotional or sexual abuse, and increasing the capacities of communities to improve healthy living (Health and Social Services – Government of Nunavut, 2008). A 2008 report *Nunavut's Health System* published by Nunavut Tunngavik Inc. (NTI) provides an overview of the state of Inuit health in Nunavut, health care financing and administration and the organization and delivery of health care. It also provides a number of recommendations including strengthening health surveillance, building community level capacity, and involving Inuit in health care design and delivery (Nunavut Tunngavik Inc., 2008). Research has examined the historical development of medical and dental care in Nunavut, noting a long-term move from state- and professionally-controlled delivery to more Inuit-controlled care (Quiñonez, 2006).
- Research by Ives and Aitken examined how the Inuit regional government in Nunavik can use more traditional practices and values in terms of social work approaches to address social issues. It was suggested that communities should be encouraged to explore their own capacity in health and build social cohesion, and that the regional government in Nunavik implement social policies to support this (Ives & Aitken, 2009). Research has also examined the experiences of Inuit patients from Nunavik with emergency nursing in Montreal to inform nursing practices that better meet cultural needs. It was found that Inuit patients experienced poor first impressions from long waits and insufficient communication, information and privacy. While the Inuit patients noted that the nurses ultimately provided client-centred care that recognized their culture and approaches to healing, it was suggested that having direct access to an Inuit language interpreter could improve their experience in terms of translation and providing cultural awareness to interactions (Arnaert & Schaack, 2006).
- Research provided a better understanding of some socio-technical barriers to telehealth use in Labrador, including technical issues (from severe weather and difficulties troubleshooting the system, etc.) and social issues pertaining to privacy, culture and trust (Peddle, 2007). A demonstration project conducted in Nain, Nunatsiavut found that robotic telemedicine can have a positive impact on health care delivery from the perspectives of patients, nurses, and physicians in a remote, northern setting (Jong, 2013). Harper et al. evaluated the utility and attributes of a health registry system used by Labrador Grenfell Health, which provides primary health care for five Nunatsiavut communities, and the quality of data captured to determine whether improvements could be made. Conversion from a paper-based system to an electronic system was recommended, along with the continued use of standardized and systematic evaluations of health databases to better understand their usefulness, strengths and weaknesses (Harper et al., 2011).
- Naasautit: Inuit Health Statistics was launched in 2011 with the objective of providing regional Inuit organizations and communities with access to Inuit-specific statistics that are easier to understand and use in order to better understand health issues and facilitate capacity building with respect to research, analysis and

advocacy. Available data relates to access to health services; community and family; culture and language; economy and governance; environment; food security; health behaviours; health status; housing and infrastructure; and knowledge and learning (Inuit Qaujisarvingat Knowledge Centre, n.d.).

- Health research capacity has increased with the involvement of northern researchers, health authorities and policymakers in leading and setting priorities for health research initiatives (Young & Chatwood, 2011). Community-based health research is being carried out in the North through northern research institutions such as the Arctic Institute of Community-Based Research in the Yukon, the Institute for Circumpolar Health Research in the NWT and the Qaujigiartiit Health Research Centre in Nunavut. An article by Chatwood & Young discusses some of the factors that led to the establishment of the Institute for Circumpolar Health Research in the NWT, and provides a model to facilitate the development of more northern-based health research (Chatwood & Young, 2010).

Knowledge Gaps and Research Opportunities

- There is a need for enhanced public health surveillance in Canada's North (Nunavut Tunngavik Inc., 2008; Young & Chatwood, 2009). In addition to enabling a better understanding of current health status of the northern population and emerging health concerns, strengthened public health surveillance could provide better understanding of the transmission of disease and patterns from one community to another and inform intervention strategies (Parkinson & Evengård, 2009).
- There is a need for more circumpolar partnerships to supplement partnerships between institutions in northern and southern Canada and more international health-related research programs to facilitate the exchange of best practices in health care and inform decision-making (Parkinson & Chatwood, 2011; Young & Chatwood, 2011; Chatwood et al., 2013). There is also an opportunity to further examine successful approaches to health and well-being that have been implemented in other jurisdictions (e.g. Greenland) to assess the extent to which they may apply in Canada's North.
- Further research is needed to examine the association between Aboriginal self-government, community control of health services, and health equity in Canada's North (Young & Chatwood, 2011). Further work is also needed to incorporate Inuit knowledge and values into public health planning and programming (Nunavut Tunngavik Inc., 2008; Cameron, 2011).
- There is a need for further research regarding health care systems in Canada's North (e.g. assessment of health system performance, etc.). There is also a need for further research to "examine the ways in which traditional healing methods can be integrated with the biomedical model of health service delivery" (Chatwood et al., 2013).
- Further research is needed to inform evidence-based guidelines regarding which health services should be provided locally rather than at another location to which a patient must be transported by air (Mitton et al., 2011). There is a need for further research to examine the experiences of Inuit patients who are brought to southern

urban health centres for treatment and the experiences of their families to inform more culturally supportive health care practices (Arnaert & Schaack, 2006).

- There is a need for further research regarding technology applications to improve access to services and quality of life in the North (Young & Chatwood, 2009).
- In addition to addressing poor health habits, there is a need for further health promotion and education initiatives that aim to reinforce positive aspects of health within local communities (Kuhnlein, 2004). There is a continued need for research to inform effective communication approaches of health issues to facilitate prevention and promote healthy living.
- Vaccine registries have not been fully implemented in Canada, which can make it difficult to evaluate the effectiveness of vaccination programs. A better understanding of the immunization status of the northern population is needed (Degani, 2008).
- Further research is needed to assess regional emergency response mechanisms (Bolton et al., 2011).
- With the lack of or inconsistent use of Aboriginal identifiers on health records in some areas of the North (Furgal, 2008; Smylie, 2010; Cameron, 2011; Pauktuutit Inuit Women of Canada et al., 2012; Oyvind Odland & Nieboer, 2012; Canadian Institute for Health Information, 2013), there is a need for Aboriginal identifiers on health records in some regions to provide a better understanding of the health status of Aboriginal peoples and the services that they are accessing. There are some challenges in establishing these identifiers such as difficulty obtaining buy-in and developing a cost-estimate of implementation. There is a need for comprehensive, long-term, Inuit-specific health data, as well as a need for existing data to be compiled in a centralized database that is accessible to communities so that they are able to use the data to support proposals and applications and inform programs (Cameron, 2011). There is also a need for more health and well-being data that is specific to regions or communities.
- There is a need for continued work to build and use health research frameworks that are based on Indigenous epistemologies.
- There is a need for further community-based health research (Chatwood & Young, 2010). There is, however, also a need to increase northern capacity to define research priorities and undertake community-based, culturally appropriate participative health research.
- There is a need for more regionally-led, community-driven research from a holistic perspective including but not limited to that which pertains to the social determinants of health; Inuit children, youth, and maternal health; and mental health and associated adaptation to improve health outcomes (Cameron, 2011; Sheppard & Hetherington, 2012; Cunsolo Willox, 2012).
- While continued health and well-being research to better understand prevalence, causes and risk factors associated with health conditions is important, there is a need for more intervention research, in which health initiatives such as programs, services and workshops are developed using evidence-based research, implemented, and evaluated to determine the extent to which the initiative was successful, and identify key contextual factors that contributed to its success or inhibited it so that a successful initiative can be appropriately scaled-up and

adapted for implementation in other communities. This includes intervention research in the areas of health promotion, health literacy, health education, and healing.

- There is a need for more multi-disciplinary, multi-stakeholder initiatives to better translate research into improved programs and services.
- There is a need for further support for the development of policies and governance for health research in Canada's North (Chatwood & Young, 2010).

c) Chronic diseases

Recent Advances

- Research examined and compared self-reported prevalence of major chronic diseases and risk factors in the territories with prevalence in southern Canadian populations. While findings noted lower prevalence of self-reported hypertension, arthritis/rheumatism, diabetes, heart disease and stroke among respondents in the territories, a higher self-reported prevalence of obesity and smoking was noted (Deering et al., 2009).
- An examination of the prevalence and risk factors of self-reported chronic disease among adult Inuvialuit found hypertension and diabetes to be most prevalent. As well, a higher prevalence of heart disease was noted among female participants in comparison with the Canadian average (Erber, 2010).
- Research examining self-reported data suggested that the distribution of chronic diseases and risk factors in the territories differs across ethnic groups and geographic regions and noted the importance of community-based preventive interventions with respect to community and primary care (Lix et al., 2010).
- In terms of informing chronic disease related health promotion programs, research found that awareness of a relative with chronic disease was associated with increased knowledge of healthy food behaviours among Inuit, but not generally with self-efficacy or the intention to live a healthier lifestyle. It was suggested that it may be beneficial to have immediate relatives communicate information and help motivate others to lead a healthier lifestyle (Pakseresht et al., 2010).
- Gittelsohn et al. documented the approach and process (which included community workshops, group feedback and implementation training) that was used to develop a culturally appropriate community-based chronic disease prevention program for Inuit in Nunavut called Healthy Foods North (Gittelsohn et al., 2010).
- Research by the Canadian Institute for Health Information found disparities between rates of heart attacks among First Nations, Métis and Inuit peoples and the rates of in-hospital treatment and care for heart attacks such as cardiac diagnostic and revascularization procedures (Canadian Institute for Health Information, 2013).
- Research has found an extremely high prevalence of cardiovascular disease risk factors such as smoking, obesity and elevated blood pressure among Inuit in Nunavik, with higher prevalence noted among women (Chateau-Degat et al., 2010).
- Galloway et al. conducted a scoping review of research on obesity among Inuit living in the circumpolar North and noted the high prevalence among adults and the significantly increasing prevalence among preschool and school-aged children

(Galloway et al., 2012). Research also found a nearly fourfold increase in the prevalence of severe obesity among Inuit in Nunavik between 1992 and 2004, and notes the importance of regular monitoring of severe obesity prevalence (Kellett et al., 2012).

- Research examining physical activity and body mass index (BMI) among Inuit adults from three Nunavut communities found a high prevalence of overweight and obese adults which corresponded with the highest levels of self-reported physical activity (Hopping et al., 2010).
- Research from the Circumpolar Inuit Cancer Review covering the period of 1989 to 2003 indicated that cancer is increasing among both men and women in all Inuit regions. It also revealed that Inuit are at higher risk than non-Inuit for more traditional cancers (such as cancer of the nasopharynx and salivary glands), that the incidence of lung cancer is rapidly increasing in Canada, and that the incidence of breast and prostate cancer are low in comparison to the non-Inuit population (Kelly et al., 2008a & b). Friborg & Melbye outlined current knowledge regarding cancer epidemiology in Inuit populations in Alaska, northern Canada and Greenland. Low incidence among Inuit of cancers that are more common among white populations was noted including prostate cancer, bladder cancer, and cancer of the haemopoietic system. An increase in lifestyle-associated cancers of the lung, breast and colon was found among Inuit populations, and these are also the most malignant diseases among Inuit in the North (Friborg & Melbye, 2008). Research has examined cancer incidence patterns between residents of Inuit Nunangat and the rest of Canada from 1998 to 2007, noting elevated rates of cancers with potentially modifiable risk factors among Inuit such as lung cancer. This research also identified socioeconomic characteristics such as housing and income as potential contributors (Carrière et al., 2012).
- McDonald & Trenholm examined whether demographic, socioeconomic and geographic factors account for differences between Inuit and other Northerners in health-related behaviours and health service in terms of cancer incidence and diagnosis. This research found that behaviours leading to increased cancer risk and lower use of diagnostic screening are a result of unobserved factors that are specific to Inuit and their social-cultural context, highlighting the need for targeted policy interventions for Inuit that take into consideration the broader health and socioeconomic context (McDonald & Trenholm, 2010).
- Community Cancer Sharing Sessions were held in Fort Good Hope, NT and Fort Resolution, NT to enable community members to share concerns about cancer rates in their community, identify gaps and challenges, and explore ways in which health could be enhanced (The Saint Elizabeth First Nations, Inuit, and Métis Program, 2012a & b).
- The Inuit Cancer Project is underway to develop culturally appropriate cancer awareness tools for Inuit living in Inuit Nunangat in order to encourage increased screening and early diagnosis (Pauktuutit Inuit Women of Canada, 2013).
- The GN's *Nunavut Tobacco Reduction Framework for Action 2011-2016* provides an overview of smoking impacts on Nunavummiut and identifies areas for action such as evaluation of tobacco programs and interventions and further research with universities and other organizations to better understand tobacco use and inform

interventions (Health and Social Services – Government of Nunavut, 2011). A 2009 *Youth Smoking in the NWT* report provides a descriptive summary of some of the findings from the 2006 NWT School Tobacco Survey and compares them with the results from previous surveys (Health and Social Services – Government of the Northwest Territories, 2009b).

- An examination by Costello of the potential effectiveness of tobacco-related health messages to promote smoking cessation among Inuit in Nunavut suggested the need for an integrated communication strategy with complementary, targeted materials along with population-level approaches such as warning labels (Costello, 2013).
- Research examined the Pan-Arctic Inuit Wellness TV series that was broadcast in May 2009 in Alaska and Canada as a way to share information on IPY progress and innovative health and wellness projects, engage Inuit youth and adults, and test a participatory communication model. It was found that this series was useful in increasing local community involvement and disseminating effective strategies for promoting Inuit wellness. One of the lessons learned from this project was that using too many communication channels can dilute key messages and the community voice (Johnson, 2009; Johnson et al., 2011).
- The report *Celebrating Our Stories: Building a Healthier Yukon Together* provides an overview of healthy living initiatives that have been implemented in the Yukon such as the greenhouse and farm operation in Little Salmon Carmacks which provides free vegetables, and the Winter Culture camp and bison hunt in Whitehorse which combines academic work with experiential learning with the aim of engaging and inspiring First Nations communities to implement similar types of initiatives (Butler Walker et al., 2012).
- The *Yukon First Nations Health Promotion Spring School 2007* capacity building initiative enabled First Nations health resource workers in the Yukon to discuss health promotion in the areas of diabetes, depression, substance use, food security and residential schools to form the basis for the development of proposals and partnerships that address community issues (Butler Walker et al., 2008).

Knowledge Gaps and Research Opportunities

- There is an ongoing need for continued research to better understand how to enhance health and well-being and reduce disease burdens through prevention and the promotion of healthy behaviours.
- There is an ongoing need for chronic disease monitoring and better understanding of risk factors, as well as continued development of associated prevention and management strategies (Deering et al., 2009; Health and Social Services – Yukon Government, 2012a).
- Further research is needed regarding dietary change among Northerners to examine the extent to which there are correlations and relationships between that and increasing levels of chronic diseases (Donaldson et al., 2010).
- Further research is needed to examine obesity among pre-adolescents and undertake cohort studies to better understand health outcomes with respect to obesity (Galloway et al., 2012).

- There is a need for further research to inform effective obesity prevention programs.
- More comprehensive, long-term data regarding cancer rates is needed to better understand the impact of environmental contaminants on cancer (Cameron, 2011).
- There is a need for further research to better understand knowledge, attitudes and behaviour with respect to cancer (Pauktuutit Inuit Women of Canada, 2013).

d) Infectious diseases and other illnesses

Recent Advances

- The Pan-Territorial Pandemic Planning Project, which included an environmental scan of common pan-territorial issues, challenges, gaps and priorities and a Pan-Territorial Workshop on pandemic planning, was undertaken to facilitate the sharing of best practices and identify priorities and areas for future collaboration. Common challenges included difficulty of having multi-departmental committees involved, appropriately defining roles, HR capacity deficiencies, and time commitments required to facilitate coordination. Lessons learned and best practices included the use of a yearly pan-territorial planning workshop arranged by PHAC to share efficiencies, procuring the majority of vaccine early, and using different communication approaches for different audiences (Terriplan Consultants, 2010b and c).
- An evaluation of the GNWT's Department of Health and Social Services plans and response to the H1N1 pandemic was undertaken. It was found that the plan did not account for varying types and severity levels of influenza, and that roles and responsibilities in terms of pandemic planning and response were not always clearly understood. It was recommended that the NWT's Pandemic Influenza Contingency Plan be updated to reflect lessons learned and best practices, that a real-time electronic inventory system be implemented to track health emergency supplies, and that the ability of the NWT and its regions and communities to stockpile necessary emergency items be assessed (Terriplan Consultants, 2010a).
- Wesche et al. conducted an environmental scan and presented case studies of respiratory health initiatives that have been implemented for First Nations, Inuit and Métis populations, noting that while most initiatives involved a pan-Aboriginal approach, they tended to incorporate a holistic view of health. With respect to initiatives for First Nations peoples, it was found that initiatives focused on tobacco abuse cessation or tuberculosis (TB), that post-program evaluations were often not conducted, and that a gender-based approach may be useful. With respect to initiatives for Inuit, it was found that community-based approaches are beneficial, and that it is important to have an Inuit champion or long-term collaborator, especially locally (Wesche et al., 2011).
- Research comparing hospitalization rates for lower respiratory tract infections among Inuit and non-Inuit infants in the NWT and the Kitikmeot region of Nunavut found that while rates in each of the regions were generally higher than the Canadian rate, rates in the Kitikmeot region were the highest (Young et al., 2007).

- Research examined the cost of lower respiratory tract infections hospital admissions for infants less than one year of age per live birth in the NWT, Nunavut, and Nunavik, including transportation, hospital stay, physician fees and accommodation costs. This research found that costs are highest in Nunavut and Nunavik as a result of high rates of admission, expensive medical evacuations and prolonged hospitalizations. The authors recommend the use of prevention strategies to decrease infection rates and generate health savings (Banerji et al., 2013).
- Research examined risk factors and viruses associated with hospitalization of children less than 2 years of age in Iqaluit, NU due to lower respiratory tract infection. It was found that some of the key independent risk factors included smoking during pregnancy, place of residence, lack of breastfeeding, and overcrowding (Banerji et al., 2009). Research on preschool Inuit children in Nunavik suggested that neonatal vitamin A deficiency is a significant risk factor for acute otitis media and lower respiratory tract infections (Cameron et al., 2008).
- Research by Kovesi et al. pertaining to Inuit children in Nunavut aged three to five years old found that severe lower respiratory tract infection during the first two years of life was associated with ongoing respiratory morbidity, with symptoms seeming to lessen in severity over time (Kovesi et al., 2011). Research by Kovesi et al. also noted the impact of reduced ventilation and crowding in Nunavut houses on lower respiratory tract infections among children between 2000 and 2004 (Kovesi et al., 2006).
- The 2011 *State of Tuberculosis in Inuit Nunangat* report prepared for Inuit Tapiriit Kanatami (ITK) includes an overview of the jurisdictional background in terms of health in each region, an analysis of TB data, and an overview of TB prevention, intervention and education activities in each of the regions (Demmer, 2011). ITK later published an Inuit-specific TB strategy that provides an overview the social and health determinants of TB and some of the current regional practices to address TB. It also outlines five core components for an Inuit-specific action plan such as Inuit-appropriate prevention, control and care programs (Inuit Tapiriit Kanatami, 2013).
- While not specific to the North, TB-related research is being carried out to better understand outbreaks (e.g. Walker et al., 2013), shorten treatment regimens (Inuit Tapiriit Kanatami, 2013) and support the application of new technologies (e.g. Kirwan & Gilman, 2013). Research will be undertaken to model the impact of TB-specific interventions (such as diagnostic testing for latent or active TB) and other types of interventions such as smoking prevention or improved housing to predict the associated benefits and cost-effectiveness of these TB-related control interventions (Canadian Institutes of Health Research, 2012a).
- A literature review on adherence to TB care found that poor adherence was often the cause of initial treatment failure and of disease relapse. Systemic, personal and societal factors affecting adherence among Aboriginal peoples in Canada were also highlighted (Orr, 2010a). Strategies for removing barriers to TB adherence among Aboriginal peoples were examined through a review of biomedical and social science literature, which found that strategies tended to focus on the health care system and on the individual, with insufficient attention given to the social context

(Orr, 2010b). Research by Moller focusing on Inuit in two Nunavut communities highlighted colonialism as having a key influence on the experience of Inuit with TB (Moller, 2010).

- The TAIMA TB public health campaign initiative which involved numerous partners including Nunavut Tunngavik Inc., Government of Nunavut, Ottawa Hospital Research Institute, and the Public Health Agency of Canada was piloted beginning in 2011 in Iqaluit, NU. The campaign involved raising awareness through social media and community focus groups whose members then developed videos in Inuktitut/English regarding TB facts and showed them to the community. They then went door to door in high-risk areas to provide TB facts to residents and, assisted by public health nurses, answer questions in Inuktitut or English to reduce stigma and encourage people to get tested for latent TB and seek treatment. Initial results have indicated that the TAIMA TB campaign led to an increase in the number of people presenting to public health for latent TB screening, with further analysis being undertaken to determine enablers and barriers to treatment completion (Alvarez, 2013). Building on this, a TB awareness campaign will be implemented in two more Nunavut communities. New TB diagnosis equipment at the Qikiqtani General Hospital Laboratory will also be evaluated to determine the extent to which it can facilitate an accurate and timelier diagnosis (Canadian Institutes of Health Research, 2012c).
- Research has examined reported notifiable gastrointestinal illness (NGI) in the NWT from 1991 to 2008. This research found that the distribution of NGI notifications varied by geographic region, season and year (Pardhan-Ali et al., 2012a) and that key risk factors were environment- and behaviour-related (Pardhan-Ali et al., 2012b). Research also examined community-level risk factors for NGI (Pardhan-Ali et al., 2013).
- Goodman et al. conducted a systematic review of the state of knowledge regarding the *Helicobacter pylori* (*H. pylori* – bacteria that infect the stomach). Findings noted a high prevalence among northern Aboriginal populations. Further community-based research was recommended to better understand the disease burden and inform health policies (Goodman et al., 2008). An *H. pylori* Working Group has been examining *H. pylori* since 2007 through community-based participatory research in Aklavik, NT, Tuktoyaktuk, NT, Fort McPherson, NT, and Old Crow, YT to better understand the disease burden and identify ways in which associated health risks can be reduced (CANHelp Working Group, 2013). While further research is required, including work to better understand the long-term implications of the initiative, the screening and treatment components of the initiative in Aklavik, NT have been shown to substantially reduce the prevalence of *H. pylori* (Carraher et al., 2013).
- Degani et al. examined the epidemiology of invasive bacterial diseases in Canada's North (including the Yukon, NWT, Nunavut, and the northern regions of Québec and Labrador) using clinical and demographic information. It was found that disease caused by *S. pneumoniae* was a serious problem, but apparent progress toward a reduction in the disease incidence was noted. It was also found that rates of invasive *H. influenzae* are higher among Aboriginal persons (Degani et al., 2008).

Knowledge Gaps and Research Opportunities

- There is a need for further research related to infectious diseases in the northern context (Kulmann & Richmond, 2011; Public Health Agency of Canada, 2013).
- There is a need to further compare the attitudes and beliefs of health care providers in Nunavut who are operating influenza vaccine programs with vaccine uptake rates to determine the extent to which more health care provider training is needed to optimize vaccine uptake (Steenbeek et al., 2009a).
- An examination of the transmissibility of the H1N1 pandemic in remote and isolated communities (including Nunavut) highlighted the need for more targeted or population-specific control strategies (Mostaço-Guidolin et al., 2012). There is also a need for pandemic plans that are more appropriate for remote, northern fly-in communities that have low capacity (Cameron, 2011).
- Further work is needed to enhance the efficacy of telehealth to address respiratory diseases in remote communities (Wesche et al., 2011).
- Further research is needed to examine the risk factors for lower respiratory tract infection hospitalizations among infants in Canada's North (Young et al., 2007). Further research is also needed to determine optimal measures to decrease rates of hospital admissions for lower respiratory tract infections in regions of the North that are experiencing high rates (Banerji et al., 2013).
- More research is needed to identify ways in which health inequities can be reduced as an approach to lowering TB rates in northern populations (Orr, 2010b).
- There is a need for further research to better understand "the similarities and differences of TB cases among and within the [Inuit] regions, and patterns of TB transmission" (Inuit Tapiriit Kanatami, 2013). Further study of northern communities that have maintained low TB infection rates would be useful in better understanding how other northern communities can prevent the spread of TB (Cameron, 2011). As well, to address the cycle of transmission, further research is needed to examine the feasibility and efficacy of novel approaches to contact investigation such as social network analysis, geographic information systems and genomics in Aboriginal communities to prioritize contacts who are candidates for treatment of latent TB infection (Cook et al., 2012).
- Continued design and testing of point-of-care tests for both active and latent TB are needed for more rapid, cost-effective, and straightforward TB diagnosis (Connell et al., 2011; Evans, 2011; Dheda et al., 2013).
- With respect to active TB disease treatment, further research is needed to evaluate the impact of varied directly observed therapy approaches to treatment (i.e., having someone such as a health worker or family member directly monitor drug treatment adherence), and to compare the effectiveness of these approaches with other strategies and initiatives that aim to improve TB treatment adherence (Volmink & Garner, 2007).
- Further research is needed to develop more culturally and contextually appropriate TB prevention, control and care programs (Inuit Tapiriit Kanatami, 2013), including those that aim to address personal and family barriers to TB treatment adherence (Orr, 2010b), and the social determinants of health (Kulmann & Richmond, 2011). As well, continued work is needed to frame the evidence base in terms of underlying

risk factors for TB in a way that promotes policy uptake (Kulmann & Richmond, 2011).

e) Injuries, violence and abuse

- In some areas of Canada's North, there is a higher prevalence of injuries and injury-related mortality (Health and Social Services – Government of the Northwest Territories, 2004; Indian Health Service, 2008; Cameron, 2011; Health and Social Services – Government of the Northwest Territories, 2011b). Injuries include intentional and unintentional injuries. Intentional injuries such as suicide and suicide attempts are, to a large extent, covered in section f), intergenerational trauma, mental health and addictions.
- Violence against Aboriginal women and girls is also an issue (Billson, 2006; Anctil [prepared by], 2008; Cameron, 2011).

Recent Advances

- The GNWT's *Injury in the Northwest Territories Report*, and the more statistical version, *Injury in the Northwest Territories: A Descriptive Report* details trends, major types and causes of injury, and at-risk groups in the NWT. The leading causes of injuries were suicide, and motor vehicle traffic crashes or injuries resulting from other means of transportation such as snowmobiles. Unintentional falls were the main cause of injury-related hospitalization. At-risk groups included those who are between 15 and 44 years of age as well as seniors. As well, injury mortality and hospitalization rates among the Inuit and Dene in the NWT were found to be higher than the rates for other NWT residents (Health and Social Services – Government of the Northwest Territories, 2004). The *NWT Injury Prevention Strategy 2007-2012 Implementation Plan* outlines planned initiatives in response to address injury and injury-related deaths (Health and Social Services – Government of the Northwest Territories, 2007).
- Research examining unintentional injuries among children and adolescents in Aboriginal and non-Aboriginal communities in Newfoundland and Labrador found that the rates of unintentional injury and of subsequent mortality are higher in Aboriginal communities (Alaghebandan et al., 2010).
- An Injury Prevention Priority Setting Exercise was undertaken in the Yukon in 2009 that combined quantitative injury data with input from stakeholders to identify an injury profile and inform prevention strategies (Kramer, 2010).
- Research has examined the extent to which there is less violence in Nunavut communities that have prohibited the importation of alcoholic beverages. While it was found that there was less violence in communities where alcohol was prohibited, the rates of violence were still much higher than the national average (Wood, 2011).
- Focusing on the territories, Moffitt et al. examined literature and conducted a 3-year media watch regarding intimate partner violence in the territories. Covering themes of colonization, alcohol and substance use, effects of residential schools, housing inadequacies, help-seeking behaviours and gaps in the justice system, literature and media pertaining to the territories has generally contextualized and

described intimate partner violence, focusing on the causes, attributes, consequences and gaps in services (Moffitt et al., 2013).

- Research examined the views of Inuit women in Pangnirtung, NU to better understand how societal changes and changes in gender regimes relate to domestic violence among Inuit, and noted the importance of addressing both precipitating (e.g. alcohol and drug abuse, male jealousy, and difficulties in interpersonal communication) and structural (e.g. poverty and rapid social change) factors (Billson, 2006).
- Research is being undertaken to develop and test participatory and culturally sensitive interventions to address sexual violence among Inuit youth, including prevention and management tools (Canadian Institutes of Health Research, 2012b).
- Pauktuutit Inuit Women of Canada designed and piloted a national Training Module for frontline shelter workers with the objective of enhancing support provided to Inuit women (Pauktuutit Inuit Women of Canada, 2007; Cameron, 2011).

Knowledge Gaps and Research Opportunities

- There is a need for further research to examine injuries, which could be facilitated by community-based injury surveillance programs to provide better understanding of who is being injured under what conditions, and in turn risk factors to inform holistic and culturally sensitive prevention strategies (Alaghebandan et al., 2010; Cameron, 2011).
- Given that the variables that influence intimate partner violence are multifactoral, more comprehensive research is needed regarding intimate partner violence in the North (Moffitt et al., 2013).

f) Intergenerational trauma, mental health and addictions

- Mental health and addictions are of significant concern in many areas of the North, where there are high substance abuse rates (Cameron, 2011) or high rates of suicide especially among male Inuit youth (Cameron, 2011). Intergenerational trauma from residential schools, a noted contributor to mental health and substance abuse issues has ongoing impacts (Cameron, 2011).

Recent Advances

- Lehti et al. conducted a literature review of epidemiological mental health research pertaining to Aboriginal children and adolescents in the circumpolar Arctic. It was found that most of this research involved more regional cross-sectional studies that examined substance use and suicidal behaviour, and that there was insufficient attention given to other psychosocial problems (Lehti et al., 2009).
- The 2007 Mamisarniq Conference was held in part to facilitate knowledge sharing among addiction and mental health workers from northern and southern Canada who work with Inuit of effective Inuit-specific approaches to healing. A report prepared by Tungasuvvingat Inuit outlines these approaches and provides some recommendations including creating a frontline workers association to address

specific concerns and establishing an Inuit Trauma and Addiction Counsellor certificate or diploma program in the North (Tungasuvvingat Inuit, 2007).

- Kronstal examined how community mental health and addiction services providers in the NWT experience and respond to rapid socioeconomic change in terms of their professional practice and identified recommendations to improve mental health and addiction services policies and practices. This research noted that internal organizational change is having a significant impact on these workers, and that while workers need to engage in community life in order to gain client trust, they are also required to meet certain service standards and regulations and work under government policies and procedures which are sometimes perceived as inflexible, which can make it difficult to meet the needs of communities. It also identified the need for more local involvement in the structuring and delivery of community-based services, increased cultural competency of paraprofessionals who are not originally from the communities they are serving, continued professional development so that paraprofessionals can assume more counseling responsibilities, and more flexibility with government-run mental health and addiction services arrangement to allow practitioners more opportunity to connect with clients (Kronstal, 2009).
- Research examined previous mental health and addictions initiatives in the NWT and promising future initiatives to address these issues and propose a new broader approach that includes the determinants of health (McDermott Consulting, 2011).
- The Qaujigiartiit Health Research Centre, under its Child and Youth Mental Health Intervention, Research and Community Advocacy Project, is working to develop, implement and evaluate child and youth community-based mental health and wellness interventions (Qaujigiartiit Health Research Centre, n.d.). Components of this project included an examination of wellness and empowerment camps; use of photovoice to explore mental health and wellness; a needs assessment of child and youth mental health services in Nunavut; and a review of parenting support programs (Qaujigiartiit Health Research Centre, 2010b). The review of youth wellness and empowerment camps in Nunavut and other regions of the North and related literature led to the identification of key wellness and empowerment aspects including community involvement in camps, time spent on the land, skill building, and provision of country food. A framework for a wellness camp model for Nunavut youth was developed (Noah, 2012). The perspectives of 10 community members from Nunavut on the impacts of climate change on health were examined using photovoice, which involved engaging participants through discussion of the photographs that they had taken that depicted some of the key impacts. Community participants noted both reflection and changing knowledge systems as being key aspects of the relationship between climate change and health (Magner & Healey, 2010). An environmental scan of child and youth mental health services and programs for Nunavummiut was conducted. Gaps in service provision were also identified, including lack of child and youth mental health programs in Nunavut, the need for proactive early childhood programs for at-risk children, and the lack of residential treatment services for high-risk youth. A review of best practices in other jurisdictions was also undertaken, which highlighted the importance of culturally appropriate, community-based, holistic programs and services as well as

broadband development to connect remote communities to facilitate coordinated multi-jurisdictional initiatives and enhanced stakeholder collaboration and coordination (Qaujigiartiit Health Research Centre, 2010a). Research under this initiative examined the experiences of frontline mental health workers in Nunavut, noting challenges such as difficulties with addressing non-acute issues and lack of continuous resources and permanency planning. Best practices for frontline workers in Nunavut and other jurisdictions were also identified, including early intervention, holistic service coordination, interagency information sharing, and empowerment and skill development for children, youth and families (Lindsay & Healey, 2012a). Research examined the perspectives of frontline workers and families working with Nunavut's foster care system. From the perspective of foster parents, strengths of the current system included care at home and compensation, while gaps included the lack of training and cultural orientation sessions and resources to support foster parents. From the perspective of frontline workers, gaps in the current system included worker shortages and 'burn out' and lack of opportunities to recruit and approve foster homes given the significant amount of time spent delivering related programs. Recommendations that followed included establishing culturally-relevant goals for the child in care plans, dedicated regional foster care worker positions to focus on recruitment, formal training, and resource development, and foster parent training and support networks (Lindsay & Healey, 2012b). Research also reviewed parenting support programs including program content in Nunavut and other jurisdictions including the Yukon, NWT, Alaska and Greenland, to identify gaps in Nunavut programming and support the development of a parent support program model for Nunavut which targets whole families and focuses on experiential learning (Qaujigiartiit Health Research Centre, 2010b). An evaluation of the Inunnguiniq Parenting Support Program, which was subsequently developed and piloted in eight Nunavut communities, was conducted to identify areas of success, areas for improvement, and recommendations for the next phase of pilots. Areas of success included the use of land-based activities to increase participation of men, and the involvement of elders in sharing Inuit parenting practices and traditional lifestyles. It was found that response was limited for reading and writing activities and that some of the curriculum elements were too complex for facilitators to appropriately deliver. Recommendations included adding more activity-based discussion, and revising the reading level of program materials (Qaujigiartiit Health Research Centre, 2012).

- Research examining Inuit and western perspectives on the impact of relocation in the 1950s on current Inuit family relationships found that this, along with the associated separation of families and the resulting fragmentation of Inuit language, ways of knowing, and knowledge sharing was in turn a key contributor to current social challenges being faced by communities (Healey, In review).
- A 2009 publication *Mentally Healthy Communities: Aboriginal Perspectives* examined what constitutes a mentally healthy community and what makes some communities more resilient than others with respect to mental health, while focusing on Aboriginal communities in Canada, to better understand how individual, social, cultural, physical and socioeconomic determinants impact individual and community mental health (Canadian Institute for Health Information [ed.], 2009).

Kral et al. researched themes central to well-being in two Nunavut communities, which included family, talking/communication, and traditional Inuit cultural values and practices (Kral et al., 2011).

- Nelson examined colonial norms as determinants of Aboriginal mental health, and the hidden assumptions based on colonialism that may be present in mental health care systems that can have implications for the way in which mental health research is conducted, and the way in which services are delivered and accessed (Nelson, 2012).
- There is greater knowledge of the direct and indirect effects of Canada's residential school system on the mental health of succeeding generations of Aboriginal peoples (Wesley-Esquimaux, 2007; Truth and Reconciliation Commission of Canada, 2012). This has been greatly augmented by work of the Truth and Reconciliation Commission of Canada which has documented the extent of residential school and intergenerational trauma and is assembling considerable data on the subject.
- Kral et al. examined new developments with respect to suicide prevention initiatives, noting a move towards more Inuit control, with more Inuit-driven and community-based prevention initiatives and evaluations to determine their efficacy (Kral et al., 2009).
- A 2006 NAHO report documents findings from a series of Elder focus groups in each of the Inuit regions regarding suicide prevention, with a focus on traditional Inuit practices that encouraged resilience and coping. Recommendations included involving more Elders, using modern methods (e.g. posters, curriculum, etc.) to communicate Inuit values, and taking youth out on the land to teach them survival skills along with coping skills such as patience and perseverance (National Aboriginal Health Organization, 2006).
- The Nunavut Suicide Prevention Strategy outlines an approach to suicide among various partners including the Government of Nunavut, Nunavut Tunngavik Inc., the Embrace Life Council and the Royal Canadian Mounted Police that includes the use of evidence-based interventions that have been successful in other jurisdictions and community-development activities to enhance individual and community wellness (Government of Nunavut et al., 2010).
- The psychological autopsy method, which is used for retrospective study of suicides, was adapted by researchers for use among Inuit in Nunavut in order to provide a better understanding of the causes of suicide in Nunavut to inform suicide prevention strategies (Hicks, 2009; Chachamovich et al., 2013). This study found that some key risk factors for suicide in Nunavut included mental illness, as well as childhood physical, sexual and emotional abuse (Chachamovich et al., 2013; Chachamovich & Tomlinson, 2013).
- Tan et al. examined caller characteristics, call contents, and type of assistance provided to callers to the Inuit crisis line in Nunavut between 1991 and 2001, which indicated that most users were adult females, and that the crisis line was underused by young Inuit males (Tan et al., 2012).
- The 2010 *NWT Addictions Report* provides data regarding the prevalence of alcohol, illicit drugs, tobacco use and gambling in the NWT to inform decision-making in terms of prevention and treatment. It was found that those who were more likely to engage in heavy drinking, use cannabis, and smoke cigarettes were younger, male,

with lower levels of education, and living outside of the larger centres (Health and Social Services – Government of the Northwest Territories, 2010).

- Research examining patterns of psychoactive substance use among youths aged 11 to 21 in Nunavik found that the proportion of females whose substance use was problematic was twice as high as that of males (Brunelle et al., 2010).
- The report *Improving Treatment and Support for Yukon Girls and Women with Substance Use Problems and Addictions* provides an overview of current programs, policies and services for women experiencing substance abuse in the Yukon; issues and factors affecting girls and women related to substance use problems including gendered pathways to substance use and stronger stigma that creates a barrier to treatment and care; and best practices in treatment and support including integrated treatment of trauma, violence and substance use concerns (Poole & Hanson, 2007).
- Davison et al. examined community-driven alcohol policy in the territories across time from 1970 to 2008, including the types, patterns and impacts of the policies. This research found that the number of communities with some form of regulation has increased over time, and that there has been an increase in the adoption of restrictions other than prohibition. It was also found that smaller, younger and more remote communities with a greater percentage of Aboriginal peoples tended to have regulations (Davison et al., 2011).

Knowledge Gaps and Research Opportunities

- There is a need for more longitudinal and culturally relevant research to better understand socio-cultural changes and the associated effects on psychological problems (Lehti et al., 2009). There is a need for further contemporary research to examine the collision of worldviews, including impacts on the younger generation and their perceptions of modernization.
- Following an examination of community mental health and addiction services in the NWT in the context of rapid socioeconomic change, Kronstal notes the need for further research to better understand the impact of rapid socioeconomic change and internal organizational change on mental health and addictions practice, including the relationship between rapid change and trauma, and between trauma, mental health and addiction issues. Kronstal also notes the need to examine related policies and programs to identify ways in which they could be changed to focus more on wellness and healing from trauma to address root causes of mental health and addictions issues, and to examine how to incorporate community visions and traditional northern healing practices (Kronstal, 2009).
- With the reliance of smaller communities on paraprofessionals to perform supporting roles in the delivery of health and well-being services, further research is needed to better understand the experience of paraprofessionals in northern and remote healthcare practice (Kronstal, 2009).
- There is a need for more longitudinal research to better assess the impact of mental health and addictions interventions, including those that are based on traditional knowledge and practices.

- Further research is needed to examine best practices with respect to camps for youth empowerment and wellness and the extent to which these practices can be applied to camps for Inuit youth (Noah, 2012).
- There is a need for further epidemiological data regarding the mental health of young Aboriginal people in Canada's North, especially with respect to younger children (Lehti et al., 2009). Further research is needed to better understand the causes of mental health among Aboriginal peoples in the North (Lehti et al., 2009). Further research is needed to better understand the impacts of rapid socio-cultural change on mental health among Aboriginal children and adolescents in the North (Tester & McNicoll, 2004; Lehti et al., 2009). Research is also needed to examine the impact of changing livelihoods on mental health (Bolton et al., 2011).
- Further research is needed to examine the relationship between determinants of mental health and social capital, and to examine mental health as a positive attribute (Lakaski, 2008).
- There is a need for further research to inform appropriate mental health services and support measures.
- An examination by Law & Hutton of the clinical and social characteristics of psychiatric consultation clients in Iqaluit, NU revealed that psychiatric issues were intertwined with interpersonal, socioeconomic and societal changes and that there is a need for community mental health services to go beyond the medical model to address broader psychosocial issues (Law & Hutton, 2007).
- With existing epidemiological mental health research in the circumpolar Arctic pertaining primarily to substance use and suicidal behaviour, further research is needed regarding other psychosocial problems experienced by Aboriginal peoples in the North (Lehti et al., 2009). The need for further research to "better understand the prevalence of mental disorders in Nunavut" has also been identified (Government of Nunavut et al., 2010).
- There is a need to pilot more community-based interventions that aim to address mental health issues by better understanding and strengthening collective resilience. In recognition of the challenges in measuring the impacts of some community-based and traditional interventions on mental health, the need for more longitudinal research was also noted.
- Further understanding of "residential school syndrome," a form of post-traumatic stress disorder, is needed in support of healing so that families and communities can restore their spiritual, emotional and cultural values in ways that they choose (Robertson, 2006).
- There is a need for further research regarding the social determinants of suicide (i.e., social transition, colonial status, changing gender roles, etc.) from a public health approach (Sustainable Development Working Group, 2010). There is a need for further research to better understand factors behind the higher prevalence of suicide among young Inuit men (Hicks, 2009; Cameron, 2011). Further research is also needed to better understand factors which may lead to suicidal thoughts and suicidal attempts among Nunavummiut as well as the extent to which there are protective factors at play by utilizing the psychological autopsy methodology (Hicks, 2009; Chachamovich et al., 2013).

- There is a need for further ethnographic study of suicide to better understand cultural perspectives (Kral, 2012).
- There is a need for evidence-based, community-driven, culturally-based, holistic suicide prevention initiatives (Hicks, 2009; Sustainable Development Working Group, 2010; Cameron, 2011).
- There is a need for further policy related research to inform decisions and better understand the extent to which social policies contribute directly or indirectly to suicide prevention (Sustainable Development Working Group, 2010).
- There is a need to document and examine the impact of suicide prevention efforts that have been implemented in the circumpolar Arctic, as well as a need for more communication and information sharing between suicide researchers in the circumpolar Arctic (Sustainable Development Working Group, 2010). There is a need for the development of more tools to evaluate suicide prevention and wellness programs (Stevenson & Ellsworth, 2004; Government of Nunavut et al., 2010).
- There is a need to integrate multi-disciplinary approaches to suicide research (Kral, 2012).
- Further research is needed with respect to alcohol related policies within northern communities, to better understand whether dry communities are healthier and safer as a result, how policy interventions interact with contextual elements and the resulting impacts on an individual and community level, and whether crime rates are lower in communities which have restricted or prohibited alcohol (Davison et al., 2011).

g) Environmental conditions and human health

- There are environment related human health concerns for Northerners such as those which stem from living in a harsh northern environment (Young & Mäkinen, 2010), from the impacts of climate change, and from contaminants in water, soil, and country foods (Donaldson et al., 2010; Cameron, 2011).

Recent Advances

- The Human Health chapter of the *Arctic Climate Impact Assessment* outlines many of the direct and indirect impacts of climate change on the health and well-being of people in the circumpolar North in the context of cultural and socioeconomic change, and details how communities can identify, select and monitor basic indicators related to climate change and human health (Berner & Furgal, 2005). A brief review by Oyvind Odland & Nieboer examined progress made and challenges that remain in terms of human biomonitoring in the Arctic, largely within the context of the Arctic Council's Arctic Monitoring and Assessment Program (AMAP) (Oyvind Odland & Nieboer, 2012). A 2010 report published by the National Aboriginal Health Organization details changes in the environment in the Inuit regions that are impacting biodiversity and the implications for Inuit health and well-being in a number of areas including culture, food security, mental health, drinking water quality and quantity, and economic well-being (Knotsch & Lamouche, 2010).

- Research has noted implications of climate change for human health in the circumpolar North, including emerging infectious diseases, injury and death as a result of extreme events, increased mental and social stress, and decreased access to quality water, and increased exposure to contaminants (Berner & Furgal, 2005; Parkinson & Evengård, 2009).
- Donaldson et al. examined some of the new knowledge regarding human health impacts of environmental contaminants since the 2003 Canadian Arctic Contaminants Assessment Report (CACAR-II), noting increased knowledge regarding the geographic pattern of human exposure to environmental contaminants, more data which can be used as a baseline to assess changes in human exposure to contaminants, and more knowledge regarding the relationship between contaminant exposure and the consumption of country foods and presence of other lifestyle factors. The importance of using communication strategies that balance risks and benefits of country food consumption is also noted (Donaldson et al., 2010).
- Research in Nunatsiavut highlighted a number of interrelated pathways that were identified by Inuit through which climate change impacts mental health including increased reports of family stress and decreased place-based mental comfort (Cunsolo Willox, 2012).
- Natalia examined trends in research related to the impacts of climate change on human health from a gender perspective, noting that the impacts were not gender neutral and that the direct and indirect impacts of climate change and health risks were different for women and men (Natalia, 2011). Research examining the influence of gender and place on health risk perspectives in northern Aboriginal communities found that gender had a limited overall effect on risk perspectives, but that there were some gender differences in response to impacts of climate change. For example, this research found that women tended to focus on community impacts and mitigating action (Jardine et al., 2009).
- In addition to examining the impacts of climate and environmental change in the coastal areas of Canada's North, work done through ArcticNet has included a comprehensive vulnerability assessment of several communities in the Arctic, providing a better understanding of how climate and environmental stresses and risks are affecting coastal communities and demonstrating the importance of considering these stresses and risks in tandem with socioeconomic pressures, constraints and opportunities. This research also demonstrated that effects are not uniform across coastal communities, and noted some adaptation strategies that are currently in use such as teaching traditional skills to youth. Vulnerabilities with respect to meteorological related hazards have also been examined, such as transportation disruptions, reduced predictability and associated adaptation measures, as well as the impacts of climate change on key traditional food species and community health (ArcticNet, 2012).
- The Community Adaptation and Vulnerability in the Arctic Regions (CAVIAR) project was undertaken during IPY to further understanding of the vulnerability of Arctic communities to climate change and the adaptive strategies and policies that are being put in place in response. Findings from a number of case studies

undertaken for this project are documented in the book *Community Adaptation and Vulnerability in Arctic Regions* (Hovelsrud & Smit [Eds.], 2010).

- Research by Ford et al. examined climate change vulnerabilities for Inuit and related policy interventions to assist in adapting to climate change including teaching and transferring environmental knowledge and skills, assessing and strengthening emergency management capability, and providing economic support to those with limited income (Ford et al., 2010a). Reduced transfer of intergenerational land-based skills and knowledge to the younger population has been reported in different areas of the North (Laidler et al., 2009; Pearce et al., 2011).
- Research by Ford et al. examined Aboriginal health systems in Canada in the context of climate change, and noted a number of vulnerabilities including underdeveloped surveillance and early warning capacity for communities in remote regions; insufficient access to health information, diagnosis and treatment for some populations; and jurisdictional conflict and resource constraints (Ford et al., 2010b).
- Inuit knowledge is increasingly being used by researchers to better understand the ability of Inuit to adapt to changes in the environment (Cameron, 2011).
- Many community-based projects have been undertaken in northern communities with respect to climate change adaptation and capacity building. McClymont Peace & Myers examined the community-based participatory process in the context of Health Canada's Climate Change and Health Adaptation Program for Northern First Nations and Inuit Communities which has been used to increase knowledge and understanding within communities of climate change related health impacts in order to inform the development of community-level adaptation strategies (McClymont Peace & Myers, 2012).
- A community-based project in Rigolet, Nunatsiavut used participatory digital media along with interviews, focus groups and surveys to examine and better understand the relationship between climate and health and well-being and generate accessible and transferrable educational media to support individual and collective capacity building (Town of Rigolet, 2012; Harper et al., 2012; Petrusek MacDonald et al., 2013).
- The perspectives of community members in Iqaluit, NU regarding the impacts of climate change on health were explored through participatory research. Community members noted the importance of ongoing reflection and incorporation of new knowledge with traditional knowledge in terms of adaptation (Healey et al., 2011).
- The Climate Telling web portal was developed by the Institute for Circumpolar Health Research to facilitate the dissemination of climate change and health-related knowledge in the Arctic through photo, audio, and video and social media platforms. The portal also provides information on projects funded through the Health Canada Climate Change and Health Adaptation Program (Climate Telling, 2012).
- Research was undertaken in the Yellowknives Dene First Nation in the NWT which involved intergenerational knowledge sharing through the development and dissemination of a video to help inform adaptation plans and facilitate dialogue with respect to emergency preparedness and management in response to climate change (Northwest Territories Research Database, 2012).

- Climate change adaptation plans have been developed for some northern communities including, but not limited to Dawson City, YT (Hennessey et al., 2011), Aklavik, NT (Friendship & Community of Aklavik, 2011), Iqaluit, NU (Lewis & Miller, 2010), and Arviat, NU (Sullivan & Nasmith, 2010).

Knowledge Gaps and Research Opportunities

- Community-based environmental monitoring needs to be established and/or strengthened to provide baseline health and well-being information, enhance community capacity, and identify proactive response measures (Bolton et al., 2011). Further work is needed to enhance public health capacity to monitor climate-related infectious diseases that can have significant impacts such as respiratory illness. Regional monitoring systems should be linked to facilitate information sharing and the detection of trends (Parkinson & Evengård, 2009). Further community-based participatory research is also needed to examine the impacts of climate change on health from the perspective of community members (Magner & Healey, 2010).
- There is a need to enhance surveillance and early warning capacity in remote communities to enable the identification of emerging risks and vulnerable populations (Ford et al., 2010b).
- Further research is needed to better understand the interactions between climate change and ozone depletion and the associated impacts for UV-B exposure (De Fabo, 2005).
- There is a need for more research and monitoring including that which is community-based to document environmental change and build local adaptation capacity (Berner & Furgal, 2005). For example, community-based surveillance and communication networks are needed to monitor snow, ice and weather extremes and associated health and rates of injuries (Parkinson & Berger, 2009). Further monitoring and research is also needed including enhanced baseline information, long term monitoring programs, and interdisciplinary research to better understand the impacts of climate change on wildlife populations in terms of emerging infectious diseases that can impact human health (Kutz et al., 2004; Parkinson & Berger, 2009).
- There is a need for further research to better understand the links between environmental dispossession (i.e., processes through which access to resources from traditional environments is reduced), cultural identity and social determinants of health, and to ensure that the significance of environmental dispossession is recognized in health policies and programs by, for example, ensuring support for the harvesting of traditional foods (Richmond & Ross, 2009).
- Research by Donaldson et al. outlines knowledge gaps pertaining to contaminant research and monitoring such as human health, including the need for further monitoring and research regarding emerging contaminants, including trends and impacts on human health (Donaldson et al., 2010), and regarding health risks of exposure to mixtures of chemicals (Donaldson et al., 2013). There is a need for continued biomonitoring of persistent organic pollutants (POPs) as well as tools to interpret the data in relation to health risks (Donaldson et al., 2013). A better understanding of health risk perception and effective methods and context for

communicating contaminants information and research to various target audiences is needed (Donaldson et al., 2013). In regions where contaminant exposure levels are higher, further research is needed in related to areas such as child and maternal health, chronic diseases, development from infancy, and immune system function (Donaldson et al., 2013).

- Further research is needed to develop “comprehensive, reliable, and culturally specific health assessment measures from which to assess climate change impacts” (Ford et al., 2010b).
- With respect to climate change and public health, research is needed to better understand patterns of injuries and diseases and the impact of factors influencing adaptive capacity (Furgal, 2008) to support predictive modeling of health impacts.
- Further research is needed to identify ways in which individuals, communities, and public institutions can adapt to current and predicted climate change impacts (Furgal & Seguin, 2006; Bolton et al., 2011). Research is also needed to evaluate the extent to which current adaptation strategies are effective in response to environmental risks to human health, and to assist in identifying vulnerabilities (Furgal & Seguin, 2006). Further community-based vulnerability and risk assessments that consider socioeconomic factors are needed to inform adaptive measures (Furgal, 2008).
- There is a need to plan for extreme climate events in addition to planning for more average, ongoing change from a community planning perspective (e.g. infrastructure, mental health, etc.) (Parkinson & Berner, 2009). Further research is needed to assess the extent to which communities are prepared for emergencies (Furgal, 2008). There is also a need to conduct detailed regional assessments of emergency response mechanisms in each of the Inuit regions (Bolton et al., 2011).
- There is a need for more human health baseline data to conduct appropriate vulnerability and risk assessments. Further research is needed to identify short and long term risk factors in terms of climate change vulnerabilities and inform adaptive measures (Ford et al., 2010a), and in-depth assessments on a local or regional scale are needed to examine the vulnerability of Aboriginal health systems to climate change (Ford et al., 2010b).
- Further research is needed to better understand the impacts of climate change on mental health (Bolton et al., 2011). Research by Cunsolo Willox identified a number of areas in which further research is needed in this regard to inform related support measures to enhance resilience, especially for Aboriginal peoples, youth, the elderly, people living in poverty, people living in remote areas, and people who have pre-existing mental health conditions. Her research also identifies the need for an in-depth analysis of how other determinants of mental health (e.g. social, economic, historical, cultural) interact with climate change related impacts of mental health (Cunsolo Willox, 2012).
- There is a need to better integrate human, biophysical and natural system climate studies conducted at a local or regional level (Furgal, 2008), and further work is needed to identify local/TK indicators (Berner & Furgal, 2005).
- Further research is needed to examine gender perspectives regarding climate change as it relates to human health through interdisciplinary, collaborative research (e.g. incorporating health sciences, gender studies, etc.) (Natalia, 2011).

h) Fetal, child and maternal health

Recent Advances

- Following a review of peer-reviewed literature from 2000 to 2010 regarding Inuit children, youth and maternal health, Sheppard & Hetherington identified areas in which research is concentrated (i.e., infectious diseases and environmental contaminants, especially with respect to children) and lacking. It was also noted that the areas in which peer-reviewed literature was concentrated did not correspond to areas of priority concern, which related to the social determinants of health that had been identified by Canadian Inuit organizations representing Inuit (Sheppard & Hetherington, 2012).
- Research examining birth outcomes in Canadian Inuit communities revealed higher rates of preterm birth, stillbirth and infant death in comparison to national rates and rates found in other rural and northern areas (Luo et al., 2010).
- Moffitt reviewed what is known about the health of pregnant women in the NWT from a historical, health status and social determinants perspective and identified areas requiring further research or action such as the implementation of a perinatal surveillance system (Moffitt, 2012). With a focus on Inuvialuit women of child-bearing age, research comparing dietary adequacy between those who do consume alcohol with those who do not, and comparing dietary adequacy between those who do smoke with those who do not found that dietary intake was inadequate regardless of whether the women did or did not smoke or consume alcohol (Kolahdooz et al., 2013a & b).
- The *Nunavut Maternal and Newborn Health Care Strategy 2009-14* outlines health status and risk conditions and a number of priority actions in response such as improved monitoring and surveillance and the development and delivery of more culturally relevant family programs (Health and Social Services – Government of Nunavut, 2009).
- Sanderson & Couchie examined best practices for accommodating birthing in rural and remote Aboriginal communities, including having Aboriginal communities and health institutions work together to change maternity programs and having protocols for clinical care developed in conjunction with midwifery programs (Sanderson & Couchie, 2007).
- A review of clinical and cultural literature pertaining to childbirth among Inuit (including infant mortality, morbidity, prenatal care and post-natal care) revealed that epidemiological studies were outdated and inconclusive, and that there is support among Inuit for traditional communal birthing that incorporates the use of biomedical techniques and technology (Douglas, 2006).
- The GNWT's *Midwifery Options Report* examines community-based, regionally-based and territorial-based midwifery models considering factors such as the benefits and weaknesses of the particular model, associated staffing requirements, midwifery coverage, cost, and health and social outcomes. A community-based model of midwifery care was recommended for the NWT (DPRA Consultants, 2012).
- Research has examined the Inuit midwifery service in Nunavik (Van Wager et al., 2007), including the associated community-based education program in Nunavik

(Epoo et al., 2012), and the safety of midwifery care in Nunavik in terms of birth outcomes (Simonet et al., 2009; Van Wager et al., 2012). Research has also examined midwifery services in Nunavut (James et al., 2010). A historical study of the Rankin Inlet Birthing Centre in Nunavut has been undertaken, noting some success, but also noting that it was more like a southern institution in the Arctic and that there was sometimes a lack of enthusiastic support from the community (Douglas, 2011).

- Research by Findlay & Janz which examined the parent-reported health of Inuit children under 6 years of age living in Canada identified asthma, speech and language difficulties, allergies, lactose intolerance, and hearing impairment as the most common chronic conditions (Findlay & Janz, 2012).
- Research examined the prevalence of asthma and risk factors for asthma related symptoms among Aboriginal and non-Aboriginal children in the territories (Gao et al., 2008).
- The Nutaqqavut “Our Children” Health Information System (NHIS) was recently developed to standardize the collection of health data regarding pregnant women, new mothers and young children in Nunavut to assist in the identification of causes and risk factors, inform health strategies, programs and services and facilitate the evaluation of health initiatives. It also aims to facilitate comparison of some data with other circumpolar jurisdictions and the development of baseline statistics that can assist in longitudinal health surveillance (Health and Social Services – Government of Nunavut, 2010; Lauson, 2011).
- Following a literature review and examination of existing frameworks, the *Kids Count: Measuring Child and Family Wellness in Yukon* report provides a set of indicators within a framework for tracking and reporting on the well-being of children and families in the Yukon in terms of health, learning and development, safety and security, family circumstances, social connection, and health related behaviours (Health and Social Services – Yukon Government, 2012b).
- A report published by the National Collaborating Centre for Aboriginal Health (NCCA) examined literature regarding the prevalence and incidence of Fetal Alcohol Spectrum Disorder (FASD) and Fetal Alcohol Syndrome (FAS) among Aboriginal peoples in Canada, noting that “the true extent of FAS and FASD among Aboriginal and non-Aboriginal populations is not known and thus no assessment of higher prevalence is possible.” Further research regarding the prevalence of FAS and FASD was recommended (Pacey, 2009a).
- Fitzpatrick-Lewis & Thomas conducted a systematic review of community-based interventions for children and adolescents with attention deficit hyperactivity disorder (ADHD) and their families, which found that the most promising interventions involved multi-component treatment (e.g. behavioural parent training with self-instructional training and school-based contingency training). The need for interventions to help children and families address and cope with ADHD across home, school and community settings was also highlighted. Implications for practice included the need to identify children with co-morbidities (e.g. those with ADHD who also have other conditions such as conduct disorders, substance abuse issues and/or depression). Implications for research included the need to study non-pharmacological interventions more rigorously (ex. using more equivalent

control groups, etc.), the need to identify and consider demographic characteristics that can influence research outcomes, and the need to conduct long-term follow up research to examine interventions that have demonstrated positive short-term results (Fitzpatrick-Lewis & Thomas, 2010).

Knowledge Gaps and Research Opportunities

- Better understanding of the social determinants of health is needed as they relate to Inuit children, youth and maternal health (Sheppard & Hetherington, 2012).
- There is a need for comprehensive epidemiological and qualitative research pertaining to Inuit childbirth in Canada's North to reduce the statistical error that is present in smaller regional studies, and to link the data with cultural variations, and inform policy (Douglas, 2006).
- To better understand and support the health and well-being of pregnant women living in the NWT, there is a need for a perinatal surveillance system to facilitate the identification of patterns, trends, and predictors of health and the need for further research regarding the social determinants of health for pregnant women (Moffitt, 2012).
- A 2009 report published by the NCCAH provides an overview of knowledge gaps pertaining to fetal alcohol syndrome and fetal alcohol spectrum disorder among Aboriginal peoples in Canada, including gaps in terms of prevention and treatment programs for women, estimates of prevalence of FASD and treatment programs for children and those with FASD who are aging (Pacey, 2009b).

i) Sexual health and sexually transmitted and blood borne infections (STBBIs)

Recent Advances

- Research has examined the basic epidemiology of sexually transmitted infections (STIs) in the Arctic and sub-Arctic regions of Canada, Alaska, and Greenland, noting high rates of chlamydial infections and gonorrhoea in Canada's North as compared to southern Canada (Gesink Law et al., 2008). Steenbeek et al. examined the efficacy of universal screening, treatment and contact tracing in terms of providing a better count of the prevalence of chlamydia and gonorrhoea and to assist in limiting transmission. For the community of focus for this research (located in the Baffin region of Nunavut), it was found that this was beneficial in populations with a prevalence of chlamydia that is greater than 10% (Steenbeek et al., 2009b). Research examining screening practices for chlamydia in the Yukon identified some barriers to screening and found that screening patterns differ between physicians and community nurses. In response, it was suggested that "more consistent application of optimal screening methods" may be beneficial to facilitate conversation regarding sexual health among health providers and patients and assist in and addressing barriers to screening (Machalek et al., 2013a). Research examining contributing factors to the high rates of chlamydia in the Yukon found that higher testing rates may be a factor, along with higher risk sexual behaviour (Machalek et al., 2013b).

- Research examined the determinants of STIs among Canadian Inuit adolescent populations including the effects of westernization, as well as beliefs and cultural values that may lead to engagement in high-risk behaviours, and discussed the associated implications for nursing practice including the need for greater understanding of cultural differences and similarities to provide more culturally-specific care (Steenbeek et al., 2006).
- The diagnosis of STIs continues to become less invasive. For example, the development of Nucleic Acid Amplification Tests (NAAT) that utilize urine samples can be used for the detection of gonorrhoea and chlamydia to facilitate screening in non-clinic venues (Gaydos & Quinn, 2005).
- Research examined the impact of community-based communications interventions that had been developed based on baseline and follow-up surveys that were conducted which indicated the need to improve knowledge regarding STIs, change sexual attitudes and enhance safe condom use in the Tlicho region of the NWT. While subsequent follow-up studies are needed, this research has indicated that the interventions were associated with ease in discussing condom use and sex and with a shift to safer condom use during the last sexual encounter (Edwards et al., 2011).
- The report from a 2008 summit of US and Canadian STI experts in prevention, research and clinical care in northern Aboriginal populations documents some areas for potential collaboration to address high rates of STIs including the establishment of a circumpolar network to disseminate and share information, greater use of social networking, and the development and promotion of STI interventions for schools (Indian Health Service, 2008).
- Research examining the prevalence of type-specific human papillomavirus (HPV) infections in northern Canada (including the Yukon, NWT, Nunavut, and Labrador) found a higher prevalence in this area than in other areas of Canada (Jiang et al., 2013). Research focused on Inuit women in Nunavik examined the prevalence and age distribution (Hamlin-Douglas et al., 2008) and determinants of HPV infection (Hamlin-Douglas, 2008; Hamlin-Douglas et al., 2010), as well as awareness and knowledge about HPV (Cerigo et al., 2011). Research has examined the type-specific prevalence of HPV in women in the NWT (Jiang et al., 2011) and Labrador (Severini et al., 2013), and HPV self-sampling detection methods and preferences among Inuit women in Nunavik (Cerigo, 2010; Cerigo et al., 2012a & b).
- Research has examined the attitudes and experiences of Inuit women in Nunavik with respect to cervical cancer in order to inform prevention strategies (Cerigo et al., 2012c).
- O'Leary et al. applied a mathematical model of disease transmission to examine the effect of hepatitis B virus (HBV) vaccine and antiviral treatment among Inuit, which indicated the importance of immunization combined with treatment programs in reducing the prevalence and incidence of HBV among Inuit (O'Leary et al., 2010).
- Research examining the perspectives of Inuit families on perceived factors that have influenced sexual health and relationships in Nunavut found that the experiences of residential school and forced settlement, with linkages to trauma, family separation, hardship and grief figured prominently (Healey, In publication).

Knowledge Gaps and Research Opportunities

- There is a need for enhanced surveillance data regarding STIs to better understand the burden of disease and the associated allocation of resources to address priorities, as well as an opportunity for collaboration between Canada and the US in the development and enhancement of STI surveillance systems for the Arctic in order to facilitate collaboration and information sharing (Indian Health Service, 2008). Multi-drug resistance patterns for gonorrhea are poorly understood in the North, suggesting the need for surveillance in this respect.
- There is a need for further research to develop, disseminate and evaluate resources and communications initiatives for STI prevention in the northern context (Indian Health Service, 2008). Further research is needed to identify effective ways in which to engage youth in terms of increasing STBBI education and awareness.
- There is a need for more sociological studies to examine factors leading to the elevation of certain STIs (e.g. stigma, lack of partner notification, lack of adherence to treatment, etc.). There is a need for further evidence-based research to better understand the factors that can influence STI transmission among Inuit youth (Gesink Law et al., 2008).
- There is a “lack of available data on cultural determinants of sexual and healthcare seeking behaviour” with respect to STIs (Indian Health Service, 2008). There is a need for further community-level STI research to better understand aspects such as perception of risk and choices to undergo or not undergo testing/screening (Indian Health Service, 2008). As well, based on research focused in Nunavut, there is a need for further understanding of the historical and community context to inform evidence-based sexual health interventions (Healey, In publication).
- There is a continued need for further development and testing of rapid point-of-care tests for STIs that are more affordable, sensitive, specific, user-friendly, and robust (Peeling et al., 2006; Peeling, 2009), given that having specimens sent to more southern regions of Canada causes a significant time lag before positive results can be received and individuals treated, during which further transmission may occur. The importance of evaluation was noted in this regard to assist in identifying settings in which tests are best suited. Increased point-of-care testing availability (including self-sampling and home testing) might be useful in terms of decreasing barriers to testing and increasing the number of people accessing treatment and care.
- A point-of-care molecular antimicrobial resistant gonorrhea detection assay, which could potentially enable the rapid identification of the type of drug resistance and guide associated treatment, is not currently available. Research is, however, in progress to develop an assay.
- There is a need for further community-based participatory research to address sexual health and STIs in Canada’s North (Gesink Law et al., 2008). There is also a need for more culturally appropriate STI interventions that address the social determinants of health and are effective in the northern context, as well as a need for the evaluation of these interventions (Indian Health Service, 2008).
- There is a need for more evidence-based information regarding the effectiveness of clinical practices that are in place to reduce STIs (Indian Health Service, 2008).

References

- Alaghebandan, R., Sikdar, K.C., MacDonald, D., Collins, K.D., and Rossignol, A.M. (2010). Unintentional Injuries among Children and Adolescents in Aboriginal and Non-Aboriginal Communities, Newfoundland and Labrador, Canada. *International Journal of Circumpolar Health*, 69(1), 61-71.
- Alvarez, G.G. (2013). TAIMA TB in Iqaluit, Nunavut. Retrieved from http://www.bc.lung.ca/association_and_services/documents/2-GONZALOALVAREZTAIMATBVancouverConfFeb2013.pdf
- Anctil, M. (prepared by) (2008). *Survey Highlights. Nunavik Inuit Health Survey 2004. Qanuippitaa? How are we?* Quebec: Institut national de santé publique du Québec and Nunavik Regional Board of Health and Social Services.
- ArcticNet. (2012). Pienitz, R., Lemay, M., Michaud, J., Blasco, K., and Veillette, J. (Eds.), *Impacts of Environmental Change in the Canadian Coastal Arctic: A Compendium of Research Conducted During ArcticNet Phase I (2004-2008)*, Volume 2. Quebec City, QC: ArcticNet Inc.
- Arnaert, A. and Schaack, G. (2006). Cultural awareness of Inuit patients' experiences with emergency nursing care. *Accident and Emergency Nursing*, 14(2), 97-103.
- Baba, L. (2013). *Cultural Safety in First Nations, Inuit and Métis Public Health: Environmental Scan of Cultural Competency and Safety in Education, Training and Health Services*. Prince George, BC: National Collaborating Centre for Aboriginal Health.
- Banerji, A., Greenberg, D., White, L.F., Macdonald, W.A., Saxton, A., Thomas, E., Sage, D., Mamdani, M., Lanctôt, K.L., Mahony, J.B., Dingle, M., and Roberts, A. (2009). Risk Factors and Viruses Associated with Hospitalization Due to Lower Respiratory Tract Infections in Canadian Inuit Children: A Case-Control Study. *Pediatric Infectious Disease Journal*, 28(8), 697-701.
- Banerji, A., Panzov, V., Robinson, J., Young, M., Kaspar, N., Mamdani, M. (2013). The cost of lower respiratory tract infections hospital admissions in the Canadian Arctic. *International Journal of Circumpolar Health*, 72.
- Berner, J. and Furgal, C. (2005). Human Health. In *Impacts of a Warming Arctic: Arctic Climate Impact Assessment*. New York: Cambridge University Press.
- Billson, J.M. (2006). Shifting gender regimes: The complexities of domestic violence among Canada's Inuit. *Inuit Studies*, 30(1), 69-88.
- Bolton, K., Loughheed, M., Ford, J.D., Nickels, S., Grable, C., and Shirley, J. (2011). *What we know, don't know and need to know about climate change in Inuit Nunangat: A systematic literature review and gap analysis of the Canadian Arctic*. Ottawa, ON: Inuit Tapiriit Kanatami.

- Brunelle, N., Plourde, C., Landry, M., Gendron, A., Guyon, L., Mercier, C., and Eveno, S. (2010). Patterns of Psychoactive Substance Use Among Youths in Nunavik. *Revue internationale sur l'Autochtonie*, 2.
- Butler Walker, J., Kassi, N., Jackson, S., Duncan, L., Minich, K., Abbott, D., and Duke, S. (2008). *Yukon First Nations Health Promotion Spring School 2007*. Whitehorse, YT: Arctic Health Research Network.
- Butler Walker, J., Friendship, K., Sparks, C., and Duke, S. (Eds.). (2012). *Celebrating Our Stories: Building a Healthier Yukon Together*. Whitehorse, YT: Arctic Institute of Community-Based Research.
- Cameron, C., Dallaire, F., Vézina, C., Muckle, G., Bruneau, S., Ayotte, P., and Dewailly, E. (2008). Neonatal vitamin A deficiency and its impact on acute respiratory infections among preschool Inuit children. *Canadian Journal of Public Health*, 99(2).
- Cameron, E. (2011). *State of the Knowledge: Inuit Public Health, 2011*. Prince George, BC: National Collaborating Centre for Aboriginal Health.
- CANHelp Working Group. (2013). Canadian North Helicobacter pylori Working Group. CANHelp Working Group. Retrieved from <http://www.canhelpworkinggroup.ca/#2>
- Canadian Health Services Research Foundation. (2011). *Provincial and Territorial Health System Priorities: An Environmental Scan*. Ottawa, ON: Canadian Health Services Research Foundation.
- Canadian Home Care Association. (2010). *Mind Body Spirit: Promising Practices in First Nations and Inuit Home and Community Care*. Mississauga, ON: Canadian Home Care Association.
- Canadian Institute of Health Information (Ed.). (2009). *Mentally Healthy Communities: Aboriginal Perspectives*. Ottawa, ON: Canadian Institute of Health Information.
- Canadian Institute for Health Information. (2013). *Hospital Care for Heart Attacks Among First Nations, Inuit and Métis*. Ottawa, ON: Canadian Institute of Health Information.
- Canadian Institutes of Health Research. (2012a). Project information: Modeling the impact of interventions for tuberculosis control in Inuit communities. Canadian Institutes of Health Research. Retrieved from http://webapps.cihr-irsc.gc.ca/cfdd/db_results_submit
- Canadian Institutes of Health Research. (2012b). Project information: Preventing Childhood Sexual Violence in Inuit Communities in Canada. Canadian Institutes of Health Research. Retrieved from http://webapps.cihr-irsc.gc.ca/cfdd/db_results_submit
- Canadian Institutes of Health Research. (2013c). Harper Government helps tackle tuberculosis in Nunavut. Canadian Institutes of Health Research. Retrieved from <http://www.cihr-irsc.gc.ca/e/45086.html>

- Carraher, S., Chang, H.-J., Munday, R., Goodman, K.J. and the CANHelp Working Group. (2013). Helicobacter pylori incidence and re-infection in the Aklavik H. pylori Project. *International Journal of Circumpolar Health*, 72.
- Carrière, G., Tjepkema, M., Pennock, J., Goedhuis, N. (2012). Cancer patterns in Inuit Nunangat: 1998-2007. *International Journal of Circumpolar Health*, 71(10).
- Centre for Aboriginal Health Research. (n.d.). CIPHER. Centre for Aboriginal Health Research. Retrieved from <http://cahr.uvic.ca/programs-research/programs/cipher/>
- Cerigo, H. (2010). *HPV knowledge and self-sampling for the detection of HPV DNA among Inuit women in Nunavik, Quebec*. (Masters thesis). McGill University, Montreal, QC.
- Cerigo, H., Macdonald, M.E., Franco, E.L., and Brassard, P. (2011). Awareness and Knowledge about Human Papillomavirus Among Inuit Women in Nunavik Quebec. *Journal of Community Health*, 36, 56-62.
- Cerigo, H., Coutlée, F., Franco, E.L., and Brassard, P. (2012a). Dry self-sampling versus provider-sampling of cervicovaginal specimens for human papillomavirus detection in the Inuit population of Nunavik, Quebec. *Journal of Medical Screening*, 19(1), 42-48.
- Cerigo, H., Macdonald, M.E., Franco, E.L., and Brassard, P. (2012b). HPV Detection by Self-Sampling in Nunavik, Quebec: Inuit Women's Sampling Method Preferences. *Journal of Aboriginal Health*, 8(1), 29-39.
- Cerigo, H., Macdonald, M.E., Franco, E.L., and Brassard, P. (2012c). Inuit women's attitudes and experiences towards cervical cancer and prevention strategies in Nunavik, Quebec. *International Journal of Circumpolar Health*, 71.
- Chachamovich, E. and Tomlinson, M. (2013). *Learning From Lives that Have Been Lived: Nunavut Suicide Follow-Back Study 2005-2010*. Montreal, QC: Douglas Mental Health University Institute.
- Chachamovich, E., Haggarty, J., Cargo, M., Hicks, J., Kirmayer, L.J. and Turecki, G. (2013). A psychological autopsy study of suicide among Inuit in Nunavut: methodological and ethical considerations, feasibility and acceptability. *International Journal of Circumpolar Health*, 72(10).
- Chateau-Degat, M.-L., Dewailly, É., Louchini, R., Counil, É., Noël, M., Ferland, A., Lucas, M., Valera, B., Ékoé, J.-M., Ladouceur, R., Déry, S., Egeland, G.M. (2010). Cardiovascular burden and related risk factors among Nunavik (Quebec) Inuit: Insights from baseline findings in the circumpolar Inuit Health in Transition cohort study. *Canadian Journal of Cardiology*, 26(6), 190-196.
- Chatwood, S. and Young, K. (2010). A New Approach to Health Research in Canada's North. *Canadian Journal of Public Health*, 101(1), 25-27.
- Chatwood, S., Orr, P., and Ikäheimo, T. [Eds.]. (2010). Proceedings of the 14th International Congress on Circumpolar Health. July 11 to 16, 2009. Yellowknife, Canada. *Circumpolar*

Health Supplements, 7. Retrieved from http://www.circumpolarhealthjournal.net/public/journals/32/chs/CHS_2010_7_ICCH14.pdf

Chatwood, S., Bytautas, J., Darychuk, A., Bjerregaard, P., Brown, A., Cole, D., Hu, H., Jong, M., King, M., Kvernmo, S., and Veillard, J. (2013). Seminar report: Approaching a collaborative research agenda for health systems performance in circumpolar regions. *International Journal of Circumpolar Health*, 72.

Climate Telling. (2012). About the Site. Climate Telling. Retrieved from <http://climatetelling.ca/about-the-site/>

Connell, D.W., Berry, M., Cooke, G., Kon, O.M. (2011). Update on tuberculosis: TB in the early 21st century. *European Respiratory Review*, 20(120), 71-84.

Cook, V.J., Shah, L., and Gardy, J. (2012). Modern contact investigation methods for enhancing tuberculosis control in aboriginal communities. *International Journal of Circumpolar Health*, 71.

Costello, M.-J. (2013). *An evaluation of the potential effectiveness of tobacco-related health messages among Inuit in Nunavut, Canada: What types of messages work best at promoting smoking cessation among Inuit smokers?* (Doctorate dissertation). University of Waterloo, Waterloo, ON.

Cunsolo Willox, A. (2012). *Lament for the Land: On the Impacts of Climate Change on Mental and Emotional Health and Well-Being in Rigolet, Nunatsiavut, Canada.* (Doctoral dissertation). University of Guelph, Guelph, ON.

Davison, C.M., Ford, C.S., Peters, P.A., Hawe, P. (2011). Community-driven alcohol policy in Canada's northern territories 1970-2008. *Health Policy*, 102(1), 34-40.

De Fabo, E.C. (2005). Arctic stratospheric ozone depletion and increased UVB radiation: potential impacts to human health. *International Journal of Circumpolar Health*, 64(5), 509-522.

Deering, K.N., Lix, L.M., Bruce, S., and Young, T.K. (2009). Chronic diseases and risk factors in Canada's northern populations: Longitudinal and geographic comparisons. *Canadian Journal of Public Health*, 100(1).

Degani, N., Navarro, C. and the Canadian International Circumpolar Surveillance Working Group. (2008). Invasive Bacterial Diseases in Northern Canada. *Emerging Infectious Diseases*, 14(1), 34-40.

Demmer, M. (2011). *The State of Tuberculosis in Inuit Nunangat.* Prepared for Inuit Tapiriit Kanatami.

Dheda, K., Ruhwald, M., Theron, G., Peter, J., Yam, W.C. (2013). Point-of-care diagnosis of tuberculosis: Past, present and future. *Respirology*, 18(2), 217-232.

- Donaldson, S.G., Van Oostdam, J., Tikhonov, C., Feeley, M., Armstrong, B., Ayotte, P., et al. (2010). Environmental contaminants and human health in the Canadian Arctic. *Science of the Total Environment*, 408(22), 5165-5234.
- Donaldson, S.G., Curren, M.S., Adlard, B., Provost, J., Leech, T., Tikhonov, C., Feeley, M., Tomlinson, S., and Shearer, R. (2013). Future human health research directions for the Canadian Northern Contaminants Program. *International Journal of Circumpolar Health*, 72.
- Douglas, V.K. (2006). Childbirth Among the Canadian Inuit: A Review of the Clinical and Cultural Literature. *International Journal of Circumpolar Health*, 65(2), 117-132.
- Douglas, V.K. (2011). The Rankin Inlet Birthing Centre: Community Midwifery in the Inuit Context. *International Journal of Circumpolar Health*, 70(2), 178-185.
- DPRA. (2012). *Midwifery Options Report*. Yellowknife, NT: DPRA Consultants.
- Edwards, K., Gibson, N., Martin, J., Mitchell, S., and Andersson, N. (2011). Impact of community –based interventions on condom use in the Tlicho region of Northwest Territories, Canada. *BMC Health Services Research*, 11(2), S9.
- Egeland, G.M., Faraj, N., and Osborne, G. (2010). Cultural, socioeconomic, and health indicators among Inuit preschoolers: Nunavut Inuit Child Health Survey 2007-2008. *Rural and Remote Health*, 10: 1365.
- Epoo, B., Stonier, J., Van Wagner, V., and Harney, E. (2012). Learning Midwifery in Nunavik: Community-Based Education for Inuit Midwives. *Pimatisiwin: A Journal of Aboriginal and Indigenous Community Health*, 10(3), 283-300.
- Erber, E., Beck, L., De Roose, E., Sharma, S. (2010). Prevalence and risk factors for self-reported chronic disease amongst Inuvialuit populations. *Journal of Human Nutrition and Dietetics*, 23(s1), 43-50.
- Evans, C.A. (2011). GeneXpert – A Game-Change for Tuberculosis Control? *PLoS Med*, 8(7), e1001064. doi:10.1371/journal.pmed.1001064.
- Findlay, L.C. and Janz, T.A. (2012). The health of Inuit children under age 6 in Canada. *International Journal of Circumpolar Health*, 71.
- First Nations Information Governance Centre. (2010). RHS – Regional Health Survey. First Nations Information Governance Centre. Retrieved from <http://www.rhs-ers.ca/node/11>
- First Nations Information Governance Centre. (2012). *First Nations Regional Health Survey (RHS) Phase 2 (2008/10) National Report on Adults, Youth and Children Living in First Nations Communities*. Ottawa, ON: The First Nations Information Governance Centre.
- Fitzpatrick-Lewis, D. and Thomas, H. (2010). *Systematic Review of Community-based Interventions for Children and Adolescents with ADHD and their Families*. Prince George, BC: National Collaborating Centre for Aboriginal Health.

- Ford, J.D., Pearce, T., Duerden, F., Furgal, C., and Smit, B. (2010a). Climate change policy responses for Canada's Inuit population: The importance of and opportunities for adaptation. *Global Environmental Change*, 20(1), 177-191.
- Ford, J.D., Berrang-Ford, L., King, M., and Furgal, C. (2010b). Vulnerability of Aboriginal health systems in Canada to climate change. *Global Environmental Change*, 20(4), 668-680.
- Freeman, J., Saab, H., King, M., and Gropp, K. (2011). *Health and Health-Related Behaviours Among Young People in Yukon*. Whitehorse, YT: Yukon Government.
- Freeman, J., King, M., Briand, P., and Pickett, W. (2012). *Health and Health-Related Behaviours Among Young People in the Northwest Territories*. Kingston, ON: Queen's University.
- Friborg, J.T. and Melbye, M. (2008). Cancer patterns in Inuit populations. *The Lancet Oncology*, 9(9), 892-900.
- Friendship, K. and Community of Aklavik, NWT. (2011). *Climate Change Adaptation Action Plan: Community of Aklavik, Northwest Territories*. Aklavik, NT: Authors.
- Furgal, C. (2008). Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity. In J. Séguin (Ed.), *Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity*. Ottawa, ON: Health Canada.
- Furgal, C. and Seguin, J. (2006). Climate change, health, and vulnerability in Canadian Northern Aboriginal communities. *Environmental Health Perspectives*, 114(12), 1964-1970.
- Galloway, T., Blackett, H., Chatwood, S., Jeppesen, C., Kandola, K., Linton, J., and Bjerregaard, P. (2012). Obesity studies in the circumpolar Inuit: A scoping review. *International Journal of Circumpolar Health*, 71.
- Gao, Z., Rowe, B.H., Majaesic, C., O'Hara, C., Senthilselvan, A. (2008). Prevalence of asthma and risk factors for asthma-like symptoms in Aboriginal and non-Aboriginal children in the northern territories of Canada. *Canadian Respiratory Journal*, 15(3), 139-145.
- Gaydos, C.A. and Quinn, T.C. (2005). Urine nucleic acid amplification tests for the diagnosis of sexually transmitted infections in clinical practice. *Current Opinion in Infectious Diseases*, 18(1), 55-66.
- Gesink Law, D., Rink, E., Mulvad, G. and Koch, A. (2008). Sexual Health and Sexually Transmitted Infections in the North American Arctic. *Emerging Infectious Diseases*, 14(1), 4-9.
- Gittelsohn, J., Roache, C., Kratzmann, M., Reid, R., Ogina, J., Sharma, S. (2010). Participatory Research for Chronic Disease Prevention in Inuit Communities. *American Journal of Health Behavior*, 34(4), 453-464.

Goldhar, C., Bell, T., Sheldon, T., Andersen, T., Piercy, W., Gear, D., Wolfrey, C., Jacque, H., Furgal, C., Knight, J., Kouril, D., Riedlsperger, R., and Alice, I. (2012). *SakKijânginnatuk Nunalik: Understanding opportunities and challenges for sustainable communities in Nunatsiavut, Learning from the coast*. Nain, NL: Nunatsiavut Government.

Goodman, K.J., Jacobson, K., and Veldhuyzen van Zanten, S. (2008). Helicobacter pylori infection in Canadian and related Arctic Aboriginal populations. *Canadian Journal of Gastroenterology*, 22(3), 289-295.

Government of Nunavut, Nunavut Tunngavik Inc., the Embrace Life Council, and the Royal Canadian Mounted Police. (2010). Nunavut Suicide Prevention Strategy. Iqaluit, NU: Government of Nunavut, Nunavut Tunngavik Inc., the Embrace Life Council, and the Royal Canadian Mounted Police.

Gracey, M. and King, M. (2009). Indigenous health part 1: determinants and disease patterns. *The Lancet*, 374(9683), 65-75.

Graham, J.R., Brownlee, K., Shier, M., and Doucette, E. (2008). Localization of Social Work Knowledge through Practitioner Adaptations in Northern Ontario and the Northwest Territories, Canada. *Arctic*, 61(4), 399-406.

Halseth, R. (2013). *Aboriginal Women in Canada: Gender, Socio-Economic Determinants of Health, and Initiatives to Close the Wellness Gap*. Prince George, BC: National Collaborating Centre for Aboriginal Health.

Hamlin-Douglas, L., (2008). *Prevalence and determinants of human papillomavirus*. (Masters thesis). McGill University: Montreal, QC.

Hamlin-Douglas, L.K., Coutlée, F., Roger, M., Franco, E.L., and Brassard, P. (2008). Prevalence and Age Distribution of Human Papillomavirus Infection in a Population of Inuit Women in Nunavik, Quebec. *Cancer Epidemiology, Biomarkers & Prevention*, 17, 3141-3149.

Hamlin-Douglas, L.K., Coutlée, F. D., Roger M., Hanley, J., Franco, E.L., and Brassard, P. (2010). Determinants of Human Papillomavirus Infection Among Inuit Women of Northern Quebec, Canada. *Sexually Transmitted Diseases*, 37(6), 377-381.

Harper, S.L., Edge, V.L., Schuster-Wallace, C.J., Ar-Rushdi, M., and McEwen, S.A. (2011). Improving Aboriginal Health Data Capture: Evidence from a Health Registry Evaluation. *Epidemiology and Infection*, 139(11), 1774-1783.

Harper, S.L., Edge, V.L., and Cunsolo Willox, A. (2012). Changing Climate, Changing Health, Changing Stories' Profile: Using an EcoHealth Approach to Explore Impacts of Climate Change on Inuit Health. *EcoHealth*, 9(1), 89-101.

Healey, G.K. (2008). Tradition and Culture: An Important Determinant of Inuit Women's Health. *International Journal of Indigenous Health*, 4(1).

Healey, G.K. (In publication). 'Settlement' as a determinant of sexual health and wellness in Nunavut. Iqaluit, NU: Healey, G.K.

- Healey, G.K. (In review). *A perspective on childhood trauma, the disruption of parent-child attachments and implications in Inuit relational society*. Iqaluit, NU: Healey, G.K.
- Healey, G.K. and Meadows, L.M. (2007). Inuit women's health in Nunavut, Canada: A review of the literature. *International Journal of Circumpolar Health*, 66(3), 199-214.
- Healey, G.K., Magner, K.M., Ritter, R., Kamook, R., Aningmiuq, A., Issaluk, B., Mackenzie, K., Allardyce, L., Stockdale, A., and Moffit, P. (2011). Community Perspectives on the Impact of Climate Change on Health in Nunavut, Canada. *Arctic*, 64(1), 89-97.
- Health and Social Services – Government of the Northwest Territories. (2004). *Injury in the Northwest Territories: A Summary Report*. Yellowknife, NT: Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of the Northwest Territories. (2007). A Culture of Safety. *NWT Injury Prevention Strategy. 2007-2012 Implementation Plan*. Yellowknife, NT: Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of the Northwest Territories. (2009a). *NWT Hospital Satisfaction Report*. Yellowknife, NT: Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of the Northwest Territories. (2009b). *Youth Smoking in the NWT: A Descriptive Summary of Smoking Behaviour among Grades 5 to 9 students*. Yellowknife, NT Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of the Northwest Territories. (2010). *NWT Addictions Report: Prevalence of alcohol, illicit drug, tobacco use and gambling in the Northwest Territories*. Yellowknife, NT: Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of the Northwest Territories. (2011a). *Building on Our Foundation 2011-2016: A Strategic Plan for the NWT Health and Social Services System*. Yellowknife, NT: Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of the Northwest Territories. (2011b). *Northwest Territories Health Status Report*. Yellowknife, YT: Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of the Northwest Territories. (2013a). *Northwest Territories Hospitalization Report*. Yellowknife, NT: Health and Social Services – Government of the Northwest Territories.
- Health and Social Services – Government of Nunavut. (2008). *Developing Healthy Communities: A Public Health Strategy for Nunavut 2008 to 2013*. Iqaluit, NU: Health and Social Services – Government of Nunavut.

Health and Social Services – Government of Nunavut. (2009). *Nunavut Maternal and Newborn Health Care Strategy 2009-2013*. Iqaluit, NU: Health and Social Services – Government of Nunavut.

Health and Social Services – Government of Nunavut . (2010). Nutaqqavut “Our Children” Health Information System (NHIS). Health and Social Services – Government of Nunavut. Retrieved from <http://www.hss.gov.nu.ca/en/Your%20Health%20NSS.aspx>

Health and Social Services – Government of Nunavut. (2011). *Nunavut Tobacco Reduction Framework for Action*. Iqaluit, NU: Health and Social Services – Government of Nunavut.

Health and Social Services – Yukon Government. (2010). *Dimensions of Social Inclusion and Exclusion in Yukon 2010*. Whitehorse, YT: Health and Social Services – Yukon Government.

Health and Social Services – Yukon Government. (2012a). *Yukon 2012 Health Status Report Focus on Children and Youth*. Whitehorse, YK: Health and Social Services – Yukon Government.

Health and Social Services – Yukon Government. (2012b). *Kids Count: Measuring child and family wellness in Yukon*. Whitehorse, YT: Health and Social Services – Yukon Government.

Health Canada. (2011). *Inuit Oral Health Survey Report 2008-2009*. Ottawa, ON: Health Canada.

Hennessey, R., Jones, S., Swales, S., and Duerden, F. (2011). *Dawson Climate Change Adaptation Plan, Revised Edition*. Whitehorse, YT: Northern Climate ExChange, Yukon Research Centre, Yukon College.

Hicks, J. (2009). Toward More Effective, Evidence-Based Suicide Prevention in Nunavut. In F. Abele, T.J. Courchene, F.L. Seidle, and St-Hilaire, F. (Eds.) *Northern Exposure: Peoples, Powers and Prospects in Canada’s North*. Montreal, QC: The Institute for Research on Public Policy.

Hopping, B.N., Erber, E., Mead, E., Roache, C., and Sharma, S. (2010). High levels of physical activity obesity co-exist amongst Inuit adults in Arctic Canada. *Journal of Human Nutrition and Dietetics*, 23(s1), 110-114.

Hovelsrud, G.K. and Smit, B. (Eds.). (2010). *Community Adaptation and Vulnerability in Arctic Regions*. Springer.

Howard Research and Management Consulting Inc. & Outcrop. (2006). *Evaluation and 811 Feasibility Study for Tele-Care NWT*. Prepared for the Government of the Northwest Territories’ Department of Health and Social Services. Calgary, AB: Howard Research and Management Consulting Inc. & Outcrop.

Indian Health Service. (2008). *Sexually Transmitted Diseases among Alaska Native and Inuit/First Nations/Métis in Canada: Discovering Opportunities for Collaboration*. Albuquerque, New Mexico: Indian Health Service.

- Institute for Circumpolar Health Research. (2010). Mental Health Workshop. Institute for Circumpolar Health Research. Retrieved from <http://ichr.ca/portfolio/mental-health-workshop/>
- Institute for Circumpolar Health Research. (2012). Promoting Sexual Health. Institute for Circumpolar Health Research. Retrieved from <http://ichr.ca/portfolio/foxy/>
- Inuit Tapiriit Kanatami. (2013). *Inuit-specific Tuberculosis (TB) Strategy*. Ottawa, ON: Inuit Tapiriit Kanatami.
- Inuit Qaujisarvingat Knowledge Centre. (n.d.). Naasautit: Inuit Health Statistics. Inuit Tapiriit Kanatami. Retrieved from <http://www.inuitknowledge.ca/naasautit>
- Ives, N. and Aitken, O. (2009). From colonized region to globalized region? Challenges to addressing social issues in Nunavik in the transition to regional government. *Indigenous Policy Journal*, 20(3).
- James, S., O'Brien, B., Bourret, K., Kango, N., Gafvels, K., and Paradis-Pastori, J. (2010). Meeting the needs of Nunavut families: A community-based midwifery education program. *Rural and Remote Health*, 10(1355).
- Jardine, C.G., Boyd, A.D., and Furgal, C.M. (2009). Gender and place influences on health risk perspectives in northern Canadian Aboriginal communities. *Gender, Place and Culture: A Journal of Feminist Geography*, 16(2), 201-223.
- Jiang, Y., Brassard, P., Severini, A., Goleski, V., Santos, M., Leamon, A. et al. (2011). Type-specific prevalence of human papillomavirus infection among women in the Northwest Territories, Canada. *Journal of Infections and Public Health*, 4, 219-227.
- Jiang, Y., Brassard, P., Severini, A., Mao, Y., Li, Y.A., Laroche, J., Chatwood, S., Corriveau, A., Kandola, K., Hanley, B., Sobol, I., Ar-Rushdi, M., Johnson, G., Lo, J., Ratnam, S., Wong, T., Demers, A., Jayaraman, G., Totten, S., and Morrison, H. (2013). The prevalence of human papillomavirus and its impact on cervical dysplasia in Northern Canada. *Infectious Agents and Cancer*, 8(25).
- Johnson, R. (2009). *Final Evaluation Report: Pan-Arctic Inuit Wellness TV Series*. Prepared for Inuit Tuttarvingat, National Aboriginal Health Organization. Ottawa, ON: National Aboriginal Health Organization.
- Johnson, R., Morales, R., Leavitt, D., Carry, C., Kinnon, D., Rideout, D., and Clarida, K. (2011). Pan-Arctic TV Series on Inuit Wellness: A Northern Model of Communication for Social Change? *International Journal of Circumpolar Health*, 70(3).
- Jong, M. (2013). Impact of Robotic Telemedicine in a Remote Community in Canada. From eTELEMED 2013: *The Fifth International Conference on eHealth, Telemedicine and Social Medicine*. Nice, France.
- Kativik Regional Government and Makivik Corporation. (2010). *Plan Nunavik*. Westmount QC: Avataq Cultural Institute.

- Kellett, S., Poirier, P., Dewailly, E., Sampasa, H., Chateau-Degat, M.-L. (2012). Is Severe Obesity a Cardiovascular Health Concern in the Inuit Population? *American Journal of Human Biology*, 24, 441-445.
- Kelly, J., Lanier, A., Santos, M., Healey, S., Louchini, R., and Friberg, J. (2008a). Cancer among the circumpolar Inuit, 1989-2003. I. Background and methods. *International Journal of Circumpolar Health*, 67(5).
- Kelly, J., Lanier, A., Santos, M., Healey, S., Louchini, R., and Friberg, J. (2008b). Cancer among the circumpolar Inuit, 1989-2003. II. Patterns and trends. *International Journal of Circumpolar Health*, 67(5).
- King, M., Smith, A., and Gracey, M. (2009). Indigenous health part 2: the underlying causes of the health gap. *The Lancet*, 374(9683), 76-85.
- Kirwan, D. and Gilman, R.H. (2013). Same-day diagnosis and treatment of tuberculosis. *The Lancet Infectious Diseases*, 13(2), 102-104.
- Knotsch, C. and Lamouche, J. (2010). *Arctic Biodiversity and Inuit Health*. Ottawa, ON: National Aboriginal Health Organization.
- Knotsch, C. and Kinnon, D. (2011). *If Not Now...When? Addressing the Ongoing Inuit Housing Crisis in Canada*. Ottawa, ON: National Aboriginal Health Organization.
- Kolahdooz, F., Spearing, K., Corriveau, A., and Sharma, S. (2013a). Dietary adequacy and alcohol consumption of Inuvialuit women of child-bearing age in the Northwest Territories, Canada. *Journal of Human Nutrition and Dietetics*, DOI: 10.1111/jhn.12068.
- Kolahdooz, F., Mathe, N., Katunga, L.A., Beck, L., Sheehy, T., Corriveau, A., and Sharma, S. (2013b). Smoking and dietary inadequacy among Inuvialuit women of childbearing age in the Northwest Territories, Canada. *Nutrition Journal*, 12(27).
- Kovesi, R., Creery, D., Gilbert, N.L., Dales, R., Fugler, D., Thompson, B., Randhawa, N., and Miller, J.D. (2006). Indoor air quality risk factors for severe lower respiratory tract infections in Inuit infants in Baffin Region, Nunavut: a pilot study. *Indoor Air*, 16(4), 266-275.
- Kovesi, T.A., Cao, Z., Osborne, G., Egeland, G.M. (2011). Severe Early Lower Respiratory Tract Infection is Associated with Subsequent Respiratory Morbidity in Preschool Inuit Children in Nunavut, Canada. *Journal of Asthma*, 48(3), 241-247.
- Kral, M.J. (2012). Postcolonial Suicide Among Inuit in Arctic Canada. *Culture, Medicine and Psychiatry*, 36, 306-325.
- Kral, M.J., Wiebe, P.K., Nisbet, K., Dallas, C., Okalik, L., Enuaraq, N., and Cinotta, J. (2009). Canadian Inuit Community Engagement in Suicide Prevention. *International Journal of Circumpolar Health*, 68(3).

- Kral, M.J., Idlout, L., Minore, J.B., Dyck, R.J., and Kirmayer, L.J. (2011). Unikkaaruit: Meanings of Well-Being, Unhappiness, Health, and Community Change Among Inuit in Nunavut, Canada. *American Journal of Community Psychology*, 48(3-4), 426-438.
- Kulmann, K.C. and Richmond, C.A.M. (2011). Addressing the Persistence of Tuberculosis Among the Canadian Inuit Population: The need for a social determinants of health framework. *The International Indigenous Policy Journal*, 2(1), 1-16.
- Kramer, M. (2010). *Report on the Yukon Injury Prevention Priority Setting Exercise*. Prepared for the Injury Prevention Coalition Yukon. Mikra Training and Social Research.
- Kronstal, A. (2009). *Negotiating change: Community mental health and addiction practice in the Northwest Territories of Canada*. (Masters thesis). University of Victoria: Victoria, BC.
- Kuhnlein, H. (2004). Finding Good Things About Health: A Perspective for Research with Arctic Indigenous Peoples. *International Journal of Circumpolar Health*, 63(1), 5-8.
- Kutz, S.J., Hoberg, E.P., Nagy, J., Polley, L., and Elkin, B. (2004). "Emerging" Parasitic Infections in Arctic Ungulates. *Integrative & Comparative Biology*, 44(2), 109-118.
- Lakaski, C. (2008). In Canadian Institute of Health Information (Ed.), *Mentally Healthy Communities: A Collection of Papers*. Ottawa, ON: Canadian Institute of Health Information.
- Laidler, G.J., Ford, J.D., Gough, W.A., Ikummaq, T., Gagnon, A.S., Kowal, S., Qrunnut, K., and Irgaut, C. (2009). Travelling and hunting in a changing Arctic: Assessing Inuit vulnerability to sea ice change in Igloodik, Nunavut. *Climatic Change*, 94(3-4), 363-397.
- Lauson, S., McIntosh, S., Obed, N., Healey, G., Asuri, S., Osborne, G., and Arbour, L. (2011). The development of a comprehensive maternal-child health information system for Nunavut-Nutaqqavut (Our Children). *International Journal of Circumpolar Health*, 70(4), 363-372.
- Law, S.F. and Hutton, E.M. (2007). Community psychiatry in the Canadian Arctic – Reflections from a 1-year Continuous Consultation Series in Iqaluit, Nunavut. *Canadian Journal of Community Mental Health*, 26(2), 123-140.
- Lehti, V., Niemelä, S., Hoven, C., Mandell, D., and Sourander, A. (2009). Mental health, substance use and suicidal behaviour among young indigenous people in the Arctic: A systematic review. *Social Science & Medicine*, 69(8), 1194-1203.
- Lewis, J. and Miller, K. (2010). *Atuliqtuq: Action and Adaptation in Nunavut: Climate Change Adaptation Action Plan for Iqaluit*. Iqaluit, NU: Canadian Institute of Planners; Government of Canada; Government of Nunavut.
- Lindsay, T. and Healey, G.K. (2012a). *Exploring the Mental Health of Mental Health Frontline Workers in Nunavut*. Iqaluit, NU: Qaujigiartiit Health Research Centre.
- Lindsay, T. and Healey, G.K. (2012b). *Perspectives of Families Working with Nunavut's Foster Care System*. Iqaluit, NU: Qaujigiartiit Health Research Centre.

- Lix, L.M., Sarkar, J., Bruce, S., Young, T.K. (2010). Ethnic and Regional Differences in Prevalence and Correlates of Chronic Diseases and Risk Factors in Northern Canada. *Preventing Chronic Disease*, 7(1), A13.
- Luo, Z-C., Senécal, S., Simonet, F., Guimond, É., Penney, C., and Wilkens, R. (2010). Birth outcomes in the Inuit-inhabited areas of Canada. *Canadian Medical Association Journal*, 182(3), 235-242.
- Machalek, K., Hanley, B.E., Kajiwarra, J.N., Pasquali, P.E., Stannard, C.J. (2013a). Chlamydia screening practices among physicians and community nurses in Yukon, Canada. *International Journal of Circumpolar Health*, 72.
- Machalek, K., Hanley, B.E., Kajiwarra, J.N., Pasquali, P.E., Stannard, C.J. (2013b). High Chlamydia rates in Yukon, Canada: Fact or fiction? *International Journal of Circumpolar Health*, 72.
- Magner, K. and Healey, G. (2010). *Climate Change and Health Community Photovoice Research Project*. Iqaluit, NU: Qaujigiartiit Health Research Centre.
- Marrone, S. (2007). A Review of Disparities in Health Care Services Among Indigenous Populations. *International Journal of Circumpolar Health*, 66(3), 188-198.
- McClymont Peace, D., and Myers, E. (2012). Community-based Participatory Process – Climate Change and Health Adaptation Program for Northern First Nations and Inuit in Canada. *International Journal of Circumpolar Health*, 71.
- McDermott Consulting. (2011). *Transformational Process for Mental Health and Addictions: Future Directions and Promising Practices in the Northwest Territories (NWT)*. Boulder, Colorado: McDermott Consulting.
- McDonald, J.T. and Trenholm, R. (2010). Cancer-related health behaviours and health service use among Inuit and other residents of Canada. *Social Science & Medicine*, 70(9), 1396-1403.
- Mitton, C., Dionne, F., Masucci, L., Wong, S., Law, S. (2011). Innovations in health service organization and delivery in northern rural and remote regions: a review of the literature. *International Journal of Circumpolar Health*, 70(5), 460-472.
- Moffitt, P. (2012). In the Dark: Uncovering Influences on Pregnant Women's Health. In B.D. Leipert, B. Leach, and W.E. Thurston (Eds.), *Rural Women's Health*. Toronto, ON: University of Toronto Press.
- Moffitt, P., Fikowski, H., Mauricio, M., and Mackenzie, A. (2013). Intimate partner violence in the Canadian territorial north: perspectives from a literature review and a media watch. *International Journal of Circumpolar Health*, 72.
- Moller, H. (2010). Tuberculosis and Colonialism: Current Tales about Tuberculosis and Colonialism in Nunavut. *Journal of Aboriginal Health*, 6(1), 38-48.

Mostaço-Guidolin, L.C., Bowman, C.S., Greer, A.L., Fisman, D.N., and Moghadas, S.M. (2012). Transmissibility of the 2009 H1N1 pandemic in remote and isolated Canadian communities: a modeling study. *Epidemiology*, 2(5).

Murphy, N. and Parkinson, A. [Eds.]. (2013). Proceedings of the 15th International Congress on Circumpolar Health. August 5 to 12, 2012. Fairbanks, Alaska. *International Journal of Circumpolar Health*, 72(1). Retrieved from http://www.circumpolarhealthjournal.net/public/journals/32/chs/CHS_2013_10.pdf

Natalia, K. (2011). Climate change effects on human health in a gender perspective: some trends in Arctic research. *Global Health Action*, 4(10).

National Aboriginal Health Organization. (2006). *Suicide Prevention: Inuit Traditional Practices that Encouraged Resilience and Coping*. Ottawa, ON: National Aboriginal Health Organization.

National Aboriginal Health Organization. (2008). *Cultural competency and safety: A guide for health care administrators, providers and educations*. Ottawa, ON: National Aboriginal Health Organization.

National Collaborating Centre for Aboriginal Health. (2012a). *The State of Knowledge of Aboriginal Health: A Review of Aboriginal Public Health in Canada*. Prince George, BC: National Collaborating Centre for Aboriginal Health.

National Collaborating Centre for Aboriginal Health. (2012b). *The State of Knowledge of Aboriginal Health: A Review of Aboriginal Public Health in Canada. Annotated Bibliography (2000-2009)*. Prince George, BC: National Collaborating Centre for Aboriginal Health.

Nelson, S. (2012). *Challenging Hidden Assumptions: Colonial Norms as Determinants of Aboriginal Mental Health*. Prince George, BC: National Collaborating Centre for Aboriginal Health.

Noah, J. (2012). *Youth Wellness and Empowerment Camps*. Iqaluit, NU: Qaujigiartiit Health Research Centre.

Novik, N. and MacLean, M. (2011). Pain and Palliative Care with Seniors in Canada's Northern Territories. In J.C. Kulig and A.M. Williams (Eds.), *Health in Rural Canada*. UBC Press. Vancouver, BC: UBC Press.

Nunavik Regional Board of Health and Social Services. (2012). *Health Profile of Nunavik 2011: Demographic and Socioeconomic Conditions*. Kuujuaq, QC: Gouvernement du Québec.

Nunavut Tunngavik Inc. (2008). *Nunavut's Health System*. Annual Report on the State of Inuit Culture and Society. Iqaluit, NU: Nunavut Tunngavik Inc.

NWT Research Database. (2012). Climate Change and Emergency Measures. Aurora Research Institute. Retrieved from <http://data.nwtresearch.com/Scientific/15135>

- O'Leary, C., Hong, Z., Zhang, F., Dawood, M., Smart, G., Kaita, K., and Wu, J. (2010). A mathematical model to study the effect of hepatitis B virus vaccine and antiviral treatment among the Canadian Inuit population. *European Journal of Clinical Microbiological Infectious Diseases*, 29, 63-72.
- Orr, P. (2010a). Adherence to tuberculosis care in Canadian Aboriginal populations. Part 1: definition, measurement, responsibility, barriers. *International Journal of Circumpolar Health*, 70(12), 113-127.
- Orr, P. (2010b). Adherence to tuberculosis care in Canadian populations Part 2: a comprehensive approach to fostering adherent behaviour. *International Journal of Circumpolar Health*, 70(2), 128-140.
- Oyvind Odland, J. and Nieboer, E. (2012). Human Biomonitoring in the Arctic. Special Challenges in a Sparsely Populated Area. *International Journal of Hygiene and Environmental Health*, 215(2), 159-167.
- Owens, S., De Wals, P., Egeland, G., Furgal, C., Mao, Y., Minuk, G.Y., Peters, P.A., Simard, M., and Dewailly, É. (2012). Public health in the Canadian Arctic: Contributions from International Polar Year Research. *Climatic Change*. Springer.
- Pacey, M. (2009a). *Fetal Alcohol Syndrome & Fetal Alcohol Spectrum Disorder Among Aboriginal Peoples*. Prince George, BC: National Collaborating Centre on Aboriginal Health.
- Pacey, M. (2009b). *Fetal Alcohol Syndrome & Fetal Alcohol Spectrum Disorder Among Aboriginal Canadians: Knowledge Gaps*. Prince George, BC: National Collaborating Centre on Aboriginal Health.
- Pakseresht, M., Mead, E., Gittelsohn, J., Roache, C., Sharma, S. (2010). Awareness of chronic disease diagnosis amongst family members is associated with healthy dietary knowledge but not behaviour amongst Inuit in Arctic Canada. *Journal of Human Nutrition and Dietetics*, 23(s1), 100-109.
- Pardhan-Ali, A., Berke, O., Wilson, J., Edge, V.L., Furgal, C., Reid-Smith, R., Santos, M., and McEwen, S.A. (2012a). A spatial and temporal analysis of notifiable gastrointestinal illness in the Northwest Territories, Canada, 1991-2008. *International Journal of Health Geographics*, 11(17).
- Pardhan-Ali, A., Wilson, J., Edge, V.L., Furgal, C., Reid-Smith, R., Santos, M., and McEwen, S.A. (2012b). A descriptive analysis of notifiable gastrointestinal illness in the Northwest Territories, Canada, 1991-2008. *BMJ Open*, 2.
- Pardhan-Ali, A., Wilson, J., Edge, V.L., Furgal, C., Reid-Smith, R., Santos, M. and McEwen, S.A. (2013). Community-level risk factors for notifiable gastrointestinal illness in the Northwest Territories, Canada, 1991-2008. *BMC Public Health*, 13(63).
- Parkinson, A.J. (2008). The International Polar Year, 2007-2008, An Opportunity to Focus on Infectious Diseases in Arctic Regions. *Emerging Infectious Diseases*, 14(1), 1-3.

- Parkinson, A.J. and Berner, J. (2009). Climate Change and Impacts on Human Health in the Arctic: An International Workshop on Emerging Threats and the Response of Arctic Communities to Climate Change. *International Journal of Circumpolar Health*, 68(1), 84-91.
- Parkinson, A.J. and Chatwood, S. (2011). Human Health. In I. Krupnik, et al., *Understanding Earth's Polar Challenges: International Polar Year 2007-2008*. Rovaniemi, Finland: University of the Arctic.
- Parkinson, A.J., and Evengård, B. (2009). Climate change, its impact on human health in the Arctic and the public response to threats of emerging infectious diseases. *Global Health Action*, 2, DOI: 10.3402/gha.v2i0.2075.
- Pauktuutit Inuit Women of Canada. (2007). *Making Our Shelter Strong: Training for Inuit Shelter Workers: Participant Handbook*. Ottawa, ON: Pauktuutit Inuit Women of Canada.
- Pauktuutit Inuit Women of Canada. (2013). *Inuit Cancer Project – Year One Final Report*. Ottawa, ON: Pauktuutit Inuit Women of Canada.
- Pauktuutit Inuit Women of Canada, Rasmussen, D., and Guillou, J. (2012). Developing an Inuit-Specific Framework for Culturally Relevant Health Indicators Incorporating Gender-Based Analysis. *Journal of Aboriginal Health*, 8(2), 24-35.
- Paul, T.B. and Sobol, I. (2011). *Nunavut Report on Comparable Health Indicators 2011*. Iqaluit, NU: Department of Health and Social Services, Government of Nunavut.
- Pearce, T.D., Wright, H., Notaina, R., Kudlak, A., Smit, B., Ford, J.D., and Furgal, C. (2011). Transmission of Environmental Knowledge and Land Skills Among Inuit Men in Ulukhaktok, Northwest Territories, Canada. *Human Ecology*, 39(3), 271-288.
- Peddle, K. (2007). Telehealth in Context: Socio-technical Barriers to Telehealth use in Labrador, Canada. *Computer Supported Cooperative Work*, 16, 595-614.
- Peeling, R.W., Holmes, K.K., Mabey, D., Ronald, A. (2006). Rapid tests for sexually transmitted infections (STIs): The way forward. *Sexually Transmitted Infections*, 82(s5), v1-6.
- Peeling, R.W. (2009). Utilization of Rapid Tests for Sexually Transmitted Infections: Promises and Challenges. *The Open Infectious Diseases Journal*, 3, 156-163.
- Peters, P.A. (2010). Causes and contributions to differences in life expectancy for Inuit Nunangat and Canada, 1994-2003. *International Journal of Circumpolar Health*, 69(1), 38-49.
- Peters, P.A. (2012). Shifting Transitions: Health Inequalities of Inuit Nunangat in Perspective. *Journal of Rural and Community Development*, 7(1), 36-58.
- Petrasek MacDonald, J., Harper, S.L., Cunsolo Willox, A., Edge, V.L., and Rigolet Inuit Community Government. (2013). A necessary voice: Climate change and lived experiences of youth in Rigolet, Nunatsiavut, Canada. *Global Environmental Change*, 23(1), 360-371.

- Poole, N. and Hanson, G. (2007). *Improving Treatment and Support for Yukon Girls and Women with Substance Use Problems and Addictions*. Prepared for Interdepartmental Working Group, Women's Directorate, Justice, Health and Social Services, Bureau of Statistics, Government of Yukon.
- Poppel, B., Kruse, J., Duhaime, G., and Abryutina, L. (2007). *SLiCA Results*. Anchorage: Institute of Social and Economic Research, University of Alaska Anchorage.
- Powers, P. (2011). Integrating Healthcare and e-Health in the Territories. The Tasks Ahead for Yukon, the Northwest Territories and Nunavut. *ElectronicHealthcare*, 9(4), 21-31.
- Public Health Agency of Canada. (2013). *The Chief Public Health Officer's Report on the State of Public Health in Canada, 2013: Infectious Disease – The Never-ending Threat*. Ottawa, ON: Public Health Agency of Canada.
- Qaujigiartiit Health Research Centre. (n.d.). *Child and Youth Mental Health Intervention, Research and Community Advocacy Project in Nunavut*. Iqaluit, NU: Qaujigiartiit Health Research Centre.
- Qaujigiartiit Health Research Centre. (2010a). *Child and Youth Mental Health Intervention, Research and Community Advocacy Project in Nunavut: Child and Youth Mental Services in Nunavut Needs Assessment*. Iqaluit, NU: Qaujigiartiit Health Research Centre.
- Qaujigiartiit Health Research Centre. (2010b). *Parenting Support Programs in Nunavut: A Review*. Iqaluit, NU: Qaujigiartiit Health Research Centre.
- Qaujigiartiit Health Research Centre. (2012). *Parenting Support Program for Nunavummiut: Evaluation*. Iqaluit, NU: Qaujigiartiit Health Research Centre.
- Quiñonez, C.R. (2006). A political economic history of medical and dental care in Nunavut, Canada. *International Journal of Circumpolar Health*, 65(2), 101-116.
- Reading, C.L. and Wien, F. (2009). *Health Inequalities and Social Determinants of Aboriginal Peoples' Health*. Prince George, BC: National Collaborating Centre for Aboriginal Health.
- Reading, J. and Halseth, R. (2013). *Pathways to Improving Well-Being for Indigenous Peoples: How Living Conditions Decide Health*. Prince George, BC: National Collaborating Centre for Aboriginal Health.
- Richmond, C.A.M. (2009). The Social Determinants of Inuit Health: A Focus on Social Support in the Canadian Arctic. *International Journal of Circumpolar Health*, 68(5), 471-487.
- Richmond, A.M. and Ross, N.A. (2009). The determinants of First Nation and Inuit Health: A Critical Population Health Approach. *Health & Place*, 15(2), 403-411.
- Robertson, L.H. (2006). The residential school experience: Syndrome or historic trauma. *Pimatisiwin: A Journal of Aboriginal and Indigenous Community Health*, 4(1), 1-28.
- Romanow, R.J. (2002). *Building on Values: The Future of Health Care in Canada. Final Report*. Saskatoon, SK: Commission on the Future of Health Care in Canada.

Sanderson, S. and Couchie, C. (2007). *A Report on Best Practices for Returning Birth to Rural and Remote Aboriginal Communities*. The Society of Obstetricians and Gynaecologists of Canada Report No. 188.

Severini, A., Jiang, Y., Brassard, P., Morrison, H., Demers, A.A., Oguntuase, E., Al-Rushdi, M., Preston, F., Ratnam, S., and Mao, Y. (2013). Type-specific prevalence of human papillomavirus in women screened for cervical cancer in Labrador, Canada. *International Journal of Circumpolar Health*, 72.

Sheppard, A.J. and Hetherington, R. (2012). A decade of research in Inuit children, youth, and maternal health in Canada: areas of concentrations and scarcities. *International Journal of Circumpolar Health*, 71, 18383 - <http://dx.doi.org/10.3402/ijch.v71i0.18383>

Simonet, F., Wilkins, R., Labranche, E., Smylie, J., Heaman, M., Martens, P., Fraser, W.D., Minich, K., Wu, Y., Carry, C., Luo, Z-C. (2009). Primary birthing attendants and birth outcomes in remote Inuit communities – a natural “experiment” in Nunavik, Canada. *Journal of Epidemiological Community Health*, 63, 545-551.

Smylie, J. (2010). *Achieving Strength Through Numbers: First Nations, Inuit and Métis Health Information*. Prince George, BC: National Collaborating Centre for Aboriginal Health.

Steenbeek, A., Tyndall, M., Rothenberg, R., and Sheps, R. (2006). Determinants of Sexually Transmitted Infections Among Canadian Inuit Adolescent Populations. *Public Health Nursing*, 23(6), 531-534.

Steenbeek, A., Sobol, I., and MacDonald, N.E. (2009a). Influenza Vaccine Use in Nunavut: A Brief Overview of the Uptake Rates across the Regions. (Letter to the Editor). *Canadian Journal of Public Health*, 100(5), 398.

Steenbeek, A., Tyndall, M., Sheps, S., and Rothenberg, R. (2009b). An epidemiological survey of chlamydial and gonococcal infections in a Canadian Arctic community. *Sexually Transmitted Diseases*, 36(2), 79-83.

Stevenson, L. and Ellsworth, Q. (2004). *National Inuit Youth Suicide Prevention Framework*. Ottawa, ON: Inuit Tapiriit Kanatami.

Sullivan, M. and Nasmith, K. (2010). *Climate Change Adaptation Plan: Hamlet of Arviat, Nunavut*. Ottawa, ON: Canadian Institute of Planners.

Sustainable Development Working Group. (2010). *Hope and Resilience: Suicide Prevention in the Arctic*. November 7-8, 2009 Conference Report. Sustainable Development Working Group, Arctic Council.

Tan, J.C.H., Maranzan, K.A., Boone, M., Vander Velde, J., and Levy, S. (2012). Caller Characteristics, Call Contents, and Types of Assistance Provided by Caller Sex and Age Group in a Canadian Inuit Crisis Line in Nunavut, 1991-2001. *Suicide and Life-Threatening Behaviour*, 42(2), 210-216.

- Terriplan Consultants. (2010a). *Evaluation of the Department of Health and Social Services Planning and Response to the H1N1 Pandemic*. Submitted to the GNWT Department of Health and Social Services. Yellowknife, NT: Terriplan Consultants.
- Terriplan Consultants. (2010b). *Pan-territorial Pandemic Planning Project: Environmental Scan Report March 2010*. Submitted to the GNWT Department of Health and Social Services. Yellowknife, NT: Terriplan Consultants.
- Terriplan Consultants. (2010c). *Pan-territorial Pandemic Planning Project: Workshop Report March 2010*. Submitted to the Government of the Northwest Territories' Department of Health and Social Services. Yellowknife, NT: Terriplan Consultants.
- Tester, F.J. and McNicoll, P. (2004). Isumagijaksaq: mindful of the state: social constructions of Inuit suicide. *Social Science & Medicine*, 58(12), 2625-2636.
- The Saint Elizabeth First Nations, Inuit, and Métis Program. (2012a). *Report on the Fort Good Hope Community Cancer Sharing Session, June 18 and 19, 2012*. Fort Good Hope, NT: The Saint Elizabeth First Nations, Inuit, and Métis Program and Health and Social Services, GNWT.
- The Saint Elizabeth First Nations, Inuit, and Métis Program. (2012b). *Report on the Fort Resolution Community Cancer Sharing Session, August 21 and 22, 2012*. Fort Resolution, NT: The Saint Elizabeth First Nations, Inuit, and Métis Program and Health and Social Services, Government of the Northwest Territories.
- Town of Rigolet. (2012). Research Activities. Town of Rigolet. Retrieved from http://www.townofrigolet.com/home/research_activities.htm
- Truth and Reconciliation Commission of Canada. (2012). *Truth and Reconciliation Commission of Canada: Interim Report*. Winnipeg, MB: Truth and Reconciliation Commission of Canada.
- Tungasuvvingat Inuit. (2007). *Mamisarniq Conference 2007: Inuit-specific Approaches to Healing from Addiction and Trauma*. Prepared for Inuit Tapiriit Kanatami (ITK). Ottawa, ON: ITK.
- Van Wager, V., Epoo, B., Nastapoka, J., Harney, E. (2007). Reclaiming Birth, Health and Community: Midwifery in the Inuit Villages of Nunavik, Canada. *Journal of Midwifery and Women's Health*, 52(4), 384-391.
- Van Wagner, V., Osepchook, C., Harney, E., Crosbie, C., and Tulugak, M. (2012). Remote Midwifery in Nunavik, Québec, Canada: Outcomes of Perinatal Care for the Inuulitsivik Health Centre, 2000-2007. *Birth*, 39(3), 230-237.
- Volmink, J. and Garner, P. (2007). Directly observed therapy for treating tuberculosis. *Cochrane Database of Systematic Reviews 2007, Issue 4*. Art. No.: CD003343. DOI: 10.1002/14651858.CD003343.pub3.

- Walker, T.M., Ip, C.L.C., Harrell, R.H., Evans, J.T., Kapatai, G., Dediccoat, M.J., Eyre, D.W., Wilson, D.J., Hawkey, P.M., Crook, D.W., Parkhill, J., Harris, D., Walker, S., Bowden, R., Monk, P., Smith, E.G., and Peto, T.E.A. (2013). Whole-genome sequencing to delineate Mycobacterium tuberculosis outbreaks: A retrospective observational study. *The Lancet Infectious Diseases*, 13(2), 137-146.
- Wesche, S., Ryan, R., and Carry, C. (2011). *First Nations, Inuit and Métis: Respiratory Health Initiatives Environmental Scan*. Ottawa, ON: National Aboriginal Health Organization.
- Wesley-Esquimaux, C. (2007). The intergenerational transmission of historic trauma and grief. *Indigenous Affairs*, 4, 6-11.
- Wood, D.S. (2011). Alcohol controls and violence in Nunavut: A Comparison of Wet and Dry Communities. *International Journal of Circumpolar Health*, 70(1).
- Young, K. [Ed.]. (2012). *Circumpolar Health Atlas*. Toronto, ON: University of Toronto Press.
- Young, M., Kandola, K., Mitchell, R., and Leamon, A. (2007). Hospital admission rates for lower respiratory tract infections in infants in the Northwest Territories and the Kitikmeot region of Nunavut between 2000 and 2004. *Paediatrics & Child Health*, 12(7), 563-566.
- Young, T.K. and Mäkinen, T.M. (2010). The health of Arctic populations: Does cold matter? *American Journal of Human Biology*, 22(1), 129-133.
- Young, K. and Chatwood, S. (2009). *Public Health Practice in Circumpolar Regions: Lessons for Canada*. Report prepared for the Public Health Agency of Canada. Yellowknife, NT: Institute for Circumpolar Health Research.
- Young, T.K. and Chatwood, S. (2011). Health care in the North: What Canada can learn from its circumpolar neighbours. *Canadian Medical Association Journal*, 183(2), 209-214.
- Yukon Health Care Review Steering Committee. (2008). *The Yukon Health Care Review*. Whitehorse, YT: Health and Social Services – Yukon Government.