



Manitoba Centre for Health Policy

The Health Status of and Access to Healthcare by Registered First Nation Peoples in Manitoba

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2nd Edition

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Cover Artwork



Cherish One Another
By Jackie Traverse



About the Manitoba Centre for Health Policy

The Manitoba Centre for Health Policy (MCHP) is located within the Department of Community Health Sciences, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba. The mission of MCHP is to provide accurate and timely information to healthcare decision-makers, analysts and providers, so they can offer services which are effective and efficient in maintaining and improving the health of Manitobans. Our researchers rely upon the unique Manitoba Population Research Data Repository (Repository) to describe and explain patterns of care and profiles of illness and to explore other factors that influence health, including income, education, employment, and social status. This Repository is unique in terms of its comprehensiveness, degree of integration, and orientation around an anonymized population registry.

Members of MCHP consult extensively with government officials, healthcare administrators, and clinicians to develop a research agenda that is topical and relevant. This strength,

along with its rigorous academic standards, enables MCHP to contribute to the health policy process. MCHP undertakes several major research projects, such as this one, every year under contract to Manitoba Health, Seniors and Active Living. In addition, our researchers secure external funding by competing for research grants. We are widely published and internationally recognized. Further, our researchers collaborate with a number of highly respected scientists from Canada, the United States, Europe, and Australia.

We thank the Research Ethics Board on the Bannatyne Campus at the University of Manitoba, for their review of this project. MCHP complies with all legislative acts and regulations governing the protection and use of sensitive information. We implement strict policies and procedures to protect the privacy and security of anonymized data used to produce this report and we keep the provincial Health Information Privacy Committee informed of all work undertaken for Manitoba Health, Seniors and Active Living.

The Manitoba Centre for Health Policy

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Acknowledgement of the First Peoples of this Land

“We have always been here.”

- Tanya Talaga¹

“The Creator placed us here and gave us our laws to govern us rightly.”

- Grand Chief Mawen'dopenais²

For millennia, the First Peoples lived in this area of boreal forest, prairie grasslands, lakes and rivers into the tundra. Over more than 6,000 years, the First Peoples of the Great Spirit's Garden (Manitoba) met at what is now called “The Forks” of the Red and Assiniboine Rivers. They came together as societies and nations to trade goods and services, share their winter stories and their preparations for the next seasons, meet, make friends, marry and raise families, and discuss the matters of substance to their peoples before dispersing into smaller groups – the Cree, Dakota, Nakota (Assiniboine) and Lakota, and Anishinaabe and Anishininew – across their homelands for the winter. The Dene of the far north joined later, but well before any Europeans arrived.

The Cree or Nehiyaw or Ininiw are one of the largest tribal nations in North America, stretching across the mid-north from east of James Bay to the mountains, and across the southern prairies to the Rockies. The Cree are the hunters, fishers, trappers and gatherers of both the boreal forest and the prairies, where they are also part of the Buffalo culture. For Manitoba, the Cree were negotiators and signatories of Treaty 5 (1875, 1905) and Treaty 6 (1876, Mathias Colomb and Marcel Colomb).³

The Anishinaabeg are the Lakes people, living across North America in the northern US and southern provinces of Canada, from the Great Lakes across Lake of the Woods and the Interlake to the Rockies. These hunters, fishers, trappers and gatherers were also agriculturalists of long standing, at least several hundreds of years before contact with Europeans. They were renowned for their strong spiritual teachings and healing ceremonies. They were leaders in treaty-making (pre-Confederation and Numbered Treaties 1-4 from 1868-1874), and formed part of the negotiators for Treaty 5 (1875).

The Anishininew have their own history of nationhood drawn from both these great tribal nations (the Ininiw and the Anishinaabe) into their own nation, with their heartland in Island Lake and Red Sucker Lake territory. They are a part of Treaty 5 (1908): their people, culture and language extend eastward across the present northern Manitoba-North West Ontario border.

¹ Talaga, T. (2018). *All Our Relations: Finding the Path Forward*. Toronto: House of Anansi Press Inc. [94]

² Morris, A. (1880). *The Treaties of Canada with the Indians of Manitoba and the North West Territories, including the Negotiations on which they were based*. Toronto: Belfords, Clarke & Co. [95]

³ For further information on the history of treaties in Manitoba, visit the Treaty Relations Commission of Manitoba website (<http://www.trcm.ca>).

The Dakota and Nakota (Assiniboine), together with the Lakota, are the peoples collectively known amongst themselves as the Ochethi Sakowin (Seven Council Fires), whose territory encompassed the wide expanse of the plains and prairies of what later became known as North America. During the mid-19th century “Indian Wars”, many of their people came home to escape the American cavalry. Canada in modern times has often dismissed the Dakota as “American refugees,” but their real history is that they are the Buffalo people whose whole life, culture, language, and society depended upon this animal as a gift from the Creator, within their territory that extended north to what are now called the North Saskatchewan River (The Pas) and the head of Lake Winnipeg (Norway House)⁴. Dakota and Nakota leaders made treaty with the British in the earlier colonial period, after the Royal Proclamation of 1763 recognized Indian Nations, and in 1764 when all Nations leaders gathered to make treaty at Niagara. Their descendants hold their Elder’s medals and the oral history of that time.

The Dene people are known as the Caribou people, and are the keepers of the Eastern Gateway of their Dene nation from what is now known as Alaska across the North West Territories and Northern B.C. and the prairie provinces. They are the same people as the Diné, otherwise known as the Navajo in the South West US. Those who live in the farthest northern territory of Manitoba have their hunting grounds extending into what is now known as Nunavut. Their leaders and hunters today continue to play a role in formal organizations to protect the caribou herds. Northlands Denesuline First Nation is part of Treaty 10 adhesion (1906), and Sayisi Dene is part of Treaty 5 adhesion (1908).

These are the First Peoples whose nations took care of these lands and waters and its many gifts for millennia. In turn, the lands and waters took care of the First Peoples. This was (and still is) an interconnected relationship. Cultural landscapes give meaning to territory, and it is the peoples with their cultural teachings, ceremonies, and languages who have striven to continue their role over generations. These are the nations who met and traded with the newcomers to their territories, the French and then the British, giving them a ‘guided tour’, a few hundred years ago or less, and established nation-to-nation treaties to live in peaceful co-existence.

⁴ The Dakota are part of the Treaty Relations of Manitoba, as their treaties with other nations and with the Crown in Canada predate Confederation (1867). The oral history of the Dakota described here has been shared at the Chiefs’ assemblies and Elders meetings, and recognized by the resolution of the Assembly of Manitoba Chiefs in Assembly resolution.

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Acronyms

ACSC	Ambulatory Care Sensitive Conditions
AMC	Assembly of Manitoba Chiefs
AOM	All Other Manitobans
BMI	Body Mass Index
CCOH	Chiefs' Committee on Health
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
COC	Continuity of Care
DOTC	Dakota Ojibway Tribal Council
DPIN	Drug Program Information Network
FNHSSM	First Nations Health and Social Secretariat of Manitoba
FNIGC	First Nations Information Governance Centre
FNIHB	First Nations and Inuit Health Branch
HIRGC	Health Information Research Governance Committee
ICD	International Classification of Diseases
ILTC	Island Lake Tribal Council
INAC	Indigenous and Northern Affairs Canada
IRTC	Interlake Reserves Tribal Council
KTC	Keewatin Tribal Council
MCHP	Manitoba Centre for Health Policy
MHSAL	Manitoba Health, Seniors and Active Living
NP	Nurse Practitioner
PHIN	Personal Health Identification Number
PMR	Premature Mortality Rate
PYLL	Potential Years of Life Lost
RHA	Regional Health Authority
RHS	First Nations Regional Health Survey
SCTC	Swampy Cree Tribal Council
SERDC	Southeast Resource Development Council
TCA	Tribal Council Area
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
WRTC	West Region Tribal Council



Executive Summary

Introduction

This report is the product of a partnership between the First Nations Health and Social Secretariat of Manitoba (FNHSSM) and the Manitoba Centre for Health Policy (MCHP), describing the results of a study of First Nation people's health status and access to healthcare. The work that has gone into the study and the resulting report has been the basis for a renewed partnership between the Province of Manitoba, Manitoba First Nations, and the University of Manitoba.

We undertook the study in accordance with the Truth and Reconciliation Commission of Canada's Call to Action #19:

“to identify and close the gaps in health outcomes...which focus on indicators such as: infant mortality, maternal health, suicide, mental health, addictions, life expectancy, birth rates, infant and child issues, chronic diseases, illness and injury incidence, and the availability of appropriate health services” [1].

The analysis and interpretation of findings in this report acknowledge

“that the current state of Aboriginal health in Canada is a direct result of previous Canadian government policies, including residential schools” [1].

These Calls to Action set the stage for the intent of the study.

This report is an update to a previous MCHP report published in 2002 about the health status of and healthcare use by First Nation adults, and referred to here as the '2002 First Nations Atlas'. MCHP and FNHSSM are also working on another study that focuses on the health of First Nation children.

Methods

A key requirement for the study was the ethical identification of First Nation peoples and their place of residence. To do this, MCHP and FNHSSM needed to first develop a trusting partnership that would allow MCHP access to the data we now call the Manitoba First Nations Research File. This file, generated in 2016, was linked to the Manitoba Population Research Data Repository (Repository). The most recent data used in analyses in this report are from the 2016/17 fiscal year⁵.

Health and healthcare use indicators were chosen by the research team (comprising representatives of MCHP and FNHSSM) following several discussions with MHSAL and Health Directors from Tribal Councils and First Nations who served on the Advisory Committee for this project or who met with the Research team to discuss indicators for this report. The indicators were selected based on what were considered to be important measures of First Nations health and on what data were available in the Manitoba Population Research Data Repository. The choice of indicators also took into account the measures included in previously published reports, such as the 2002 First Nations Atlas, the 2013 Manitoba RHA Indicators Atlas, and other ongoing investigations at MCHP. The current report is not intended to be a completely comprehensive picture of First Nation peoples' health status and access to healthcare, but instead provides a snapshot that we believe will be useful to policy makers, system planners and First Nations in Manitoba, particularly as these First Nations increasingly take control of managing their own healthcare services on Manitoba reserves.

The research team and Advisory Committee recognize that the chosen indicators are mainly 'deficit indicators' that measure the ill health (not the true health) of the population. The choice to use deficit indicators was a compromise necessitated by the data that were available for the study. The Truth and Reconciliation Commission's Call to Action #19 recognizes the dearth of health statistics available for First Nation people, and encourages the use of deficit indicators as at least a first step towards measuring true population health and the need for improvements.

Our findings are presented by Regional Health Authorities (RHAs) and by Tribal Council Areas (TCAs). Tribal Council (TC) affiliations are important for understanding use of and access to healthcare services among First Nations because of the strong relationship between First Nation communities and their TC. The TCAs in this report include the seven official TCs and groupings of Independent and Non-Affiliated First Nations. It is also important to report findings by RHAs, since provincial funding for healthcare services is allocated to these geographical regions. However, it should be recognized that First Nations do not always access healthcare services in the RHA in which they reside.

We compared indicators across four populations within each RHA and in Manitoba overall: on-reserve First Nations, off-reserve First Nations, All First Nations, and All Other Manitobans (AOM). For most indicators, we report findings by TCA for on-reserve First Nations only. For some indicators, such as dispensations of prescribed opioids, we also present comparisons between on-reserve and off-reserve First Nations. For the report, findings by RHA and TCA were adjusted statistically to allow for fair comparisons between populations in each RHA and between populations in each TCA. These adjusted values do not represent the real (observed) rates of conditions and services experienced within each area. Counts and unadjusted (observed) rates for direct use in a healthcare setting are available in the appendices.

We also compared adjusted indicator rates between First Nations and AOM by income quintiles. As measures of socioeconomic status, income quintiles can influence health outcomes, use of and access to healthcare services. We recognize that AOM generally have higher household incomes than First Nations, and that household income on-reserve is not well-represented. To address this problem, we compared findings for AOM in the highest and lowest income quintiles to off-reserve First Nations in urban areas, and on- and off-reserve First Nations in rural areas.

All comparisons are based on statistical testing to determine if the apparent differences are likely to be important or if they are likely to be the result of chance. This is particularly critical when comparing small populations.

Finally, this report is unique in including results from Manitoba First Nations Regional Health Survey (RHS), as described in detail in Chapter 11. The RHS results provide context to help the reader understand the health and healthcare use of First Nations in Manitoba. Results from the RHS play a crucial role in understanding not only the health challenges and healthcare gaps in Manitoba First Nation communities, but also the strengths, sources of wellness and resilience. The results of the RHS can contribute to building a dialogue that supports strategies for increased access to equitable healthcare, improving programs that support First Nations health and wellness, and supporting policy change and development.

It should be noted that the results for the Interlake Reserves TCA are likely influenced by the evacuation of some First Nations within this TCA caused by the 2011 flood. The Manitoba First Nations Research File includes individuals in the Interlake Reserves TCA as 'on-reserve First Nations' even though they may have lived in Winnipeg since 2011. The impact of displacement on the lives of those affected has not been studied and it remains unclear how the relocation may have influenced the study results.

⁵ April 1, 2016 to March 31, 2017

Summary of Results

The health of a population can be described using indicators – and we often use indicators of ill health since these are more readily available than measures of true health. Table E.1 presents a summary of the mortality indicators from Chapter 5. It is clear from the large, statistically significant differences for each of the indicators in this table that the health of Manitoba First Nations is considerably worse than that of AOM.

Table E.1: Mortality Indicator Summary for Manitoba

Indicators	All First Nations vs. All Other Manitobans (Adjusted Rates)		On-Reserve vs. Off-Reserve First Nations (Adjusted Rates)	
	All First Nations	AOM*	On-Reserve	Off-Reserve
Premature Mortality Rate (per 1,000)	4.35	1.44	4.75	3.81
Total Mortality Rate (per 1,000)	4.97	2.40	5.75	4.15
Potential Years of Life Lost (per 1,000)	122.55	32.03	132.93	103.75
Female Life Expectancy at Birth (Years)	72.42	83.78	71.78	73.43
Male Life Expectancy at Birth (Years)	68.06	79.42	67.00	70.25

* All Other Manitobans

Bolded values indicate statistically significant differences ($p < 0.01$)

Chapter 6 presents the results of our analyses on the incidence (new cases), screening and early detection rates for three types of cancer (Table E.2). We focused our analyses on breast, cervical and colorectal cancer because they are among the five most common cancers in Manitoba, and all have provincial screening programs.

While the incidence of all three cancers is relatively low overall (up to 93 per 100,000 individuals), the incidence of cervical and colorectal cancer is significantly higher among First Nations than AOM (Table E.2). Cancer screening rates are significantly lower among First Nations than AOM, with a gap of 20-29% between these two groups. However, the rates of early detection of stage 1-2 cancer, while low (below 60%), are not different between First Nations and AOM.

Table E.2: Cancer Indicator Summary for Manitoba

Indicators	All First Nations vs. All Other Manitobans (Adjusted Rates)*		On-Reserve vs. Off-Reserve First Nations (Adjusted Rates)*	
	All First Nations	AOM**	On-Reserve	Off-Reserve
Screening				
Mammography	35.36%	58.57%	35.48%	35.57%
Pap Tests	52.44%	67.78%	48.82%	58.02%
Colorectal Screening	9.48%	33.48%	4.47%	16.35%
Incidence				
Breast Cancer (per 100,000)	74.23	81.77	71.25	81.12
Cervical Cancer (per 100,000)	21.89	8.59	19.11	25.59
Colorectal Cancer (per 100,000)	39.21	25.07	40.76	38.59
Early Stage Detection				
Breast Cancer	40.24%	45.17%	37.18%	44.18%
Cervical Cancer*	36.59%	46.07%	s	s
Colorectal Cancer	18.58%	21.61%	16.03%	22.64%

Bolded values indicate statistically significant differences ($p < 0.01$)

* Crude rates only for early stage cervical cancer detection

** All Other Manitobans

's' Data suppressed due to small numbers

Table E.3 summarizes the findings on mental illness presented in Chapter 7. Overall, First Nations have poorer mental health than AOM. Notably, the rates of substance use disorders are three times higher among First Nations compared to AOM, and the rates of suicide and suicide attempts are five to six times higher among First Nations.

Table E.3: Mental Illness Indicator Summary for Manitoba

Indicators	All First Nations vs. All Other Manitobans (Adjusted Rates)		On-Reserve vs. Off-Reserve First Nations (Adjusted Rates)	
	All First Nations	AOM*	On-Reserve	Off-Reserve
Drug and Substance Use Disorder	12.27%	3.86%	10.81%	14.72%
Mood and Anxiety Disorders	24.58%	22.04%	21.09%	30.27%
Psychotic Disorders	3.15%	1.87%	2.85%	3.63%
Hospitalizations for Suicide Attempt (per 100,000)	246.73	42.46	262.07	219.16
Individuals Hospitalized for a Suicide Attempt	0.20%	0.04%	0.21%	0.18%
Suicide (per 100,000)	50.77	11.36	56.87	40.32

* All Other Manitobans

Bolded values indicate statistically significant differences ($p < 0.01$)

Table E.4 presents the findings on physician and nurse practitioner (NP) service use from Chapter 8. We would expect service use to be higher in populations that have poorer health, but unfortunately, that is not always the case. The discrepancy between poor health and lower provider service use is a sign that there are barriers to accessing care. First Nation communities also highlight the importance of traditional healers in the RHS responses in Chapter 11.

Table E.4: Physician and Nurse Practitioner Services Indicator Summary for Manitoba

Indicators	All First Nations vs. All Other Manitobans (Adjusted Rates)		On-Reserve vs. Off-Reserve First Nations (Adjusted Rates)	
	All First Nations	AOM*	On-Reserve	Off-Reserve
Ambulatory Primary Care Visits (per individual)	3.19	3.25	2.79	3.97
Ambulatory Specialist Visits (per individual)	1.00	1.14	0.93	1.17
Continuity of Care Index	0.43	0.49	0.44	0.42

* All Other Manitobans

Bolded values indicate statistically significant differences ($p < 0.01$)

The results from Chapter 9 (hospital services) are summarized in Table E.5. First Nations had more hospital use across all indicators. First Nations had strikingly (two to five times) higher rates of total hospitalization, hospitalization for ambulatory care sensitive conditions, and hospitalization or death due to injury compared to AOM. However, the number of hospital days for mental health conditions for First Nations were not different from AOM. While the higher rate of hospitalizations for mental health conditions among First Nations follows the trend in poorer mental health, the lack of difference in hospital days for mental disorders suggests that hospital stays might be shorter for First Nations than AOM.

Table E.5: Hospital Services Indicator Summary for Manitoba

Indicators	All First Nations vs. All Other Manitobans (Adjusted Rates)		On-Reserve vs. Off-Reserve First Nations (Adjusted Rates)	
	All First Nations	AOM*	On-Reserve	Off-Reserve
Hospital Episodes (per 1,000)	139.07	56.70	153.36	116.54
Hospital Days (per 1,000)	1046.41	416.97	1126.56	1057.56
Hospital Episodes for Mental Health Conditions (per 1,000)	9.85	4.07	9.54	10.50
Hospital Days for Mental Health Conditions (per 1,000)	153.97	101.68	138.25	177.14
Hospital Separations for Ambulatory Care Sensitive Conditions (per 1,000)	15.41	3.44	17.36	12.06
Injury Resulting in Hospitalization or Death (per 1,000)	16.15	5.97	17.26	14.43
Intentional Injury Resulting in Hospitalization or Death (per 1,000)	3.76	0.43	4.30	3.19
Unintentional Injury Resulting in Hospitalization or Death (per 1,000)	11.24	4.97	11.81	10.07
Readmission	10.16%	6.96%	10.56%	9.36%

* All Other Manitobans

Bolded values indicate statistically significant differences (p<0.01)

The summary table for Chapter 10 indicates better prescribing practices for benzodiazepines to community-dwelling older adults, but a dramatically higher rate of opioid dispensations for First Nations than AOM (Table E.6).

Table E.6: Prescription Drug Dispensation Indicator Summary for Manitoba

Indicators	All First Nations vs. All Other Manitobans (Adjusted Rates)		On-Reserve vs. Off-Reserve First Nations (Adjusted Rates)	
	All First Nations	AOM*	On-Reserve	Off-Reserve
Benzodiazepine Dispensations for Community-Dwelling Older Adults	14.23%	18.22%	11.61%	n/a
Opioid Dispensations	24.71%	10.34%	24.33%	26.27%
Repeated Opioid Dispensations	11.21%	2.48%	10.88%	12.36%
Opioid Agonist Treatment Dispensation	0.25%	0.10%	0.14%	0.46%

Bolded values indicate statistically significant differences (p<0.01)

* All Other Manitobans

'n/a' Rates for First Nations living off-reserve are shown only for opioid and opioid agonist dispensations

This report also includes a chapter (Chapter 11) that reports on the RHS. While all of the other results in the report are based on analyses of population-based data held in MCHP's Repository, the RHS was undertaken by First Nation interviewers trained and organized by the FNHSSM research team, and thus was completed by a sample of on-reserve First Nation people. The RHS results provide insight into the social conditions on reserves (only 45% of respondents report that they have safe drinking water; 59% report that their houses require repair; more than a quarter of families living on-reserve include a survivor of residential schools) and other self-reported health indicators.

Strengths and Limitations

All research studies have strengths and limitations. We identified the following limitations of our study:

- The vast majority of the results presented in the report are based on secondary analysis of administrative data, which were collected for purposes such as managing and funding the healthcare system. Because the data were not collected specifically for use in our analyses, they often lack details that would be helpful to better understand what the data mean. We also rely on provider and hospital data extractors who code the data into categories that we then use in our analyses. The coding systems are not designed with our analyses in mind and may not always meet our needs. For example, the diagnosis codes physicians and NPs use for mood disorders and anxiety disorders overlap with each other, which means that we must combine these two groups of conditions into one category in our Chapter 7 analyses.
- The Red River Valley flood of 2011 resulted in the evacuation of many communities in the Interlake Tribal Council Area and relocation to Winnipeg. The communities that were affected the most included Little Saskatchewan, Dauphin River, Pinaymootang, and Lake St. Martin [2-4]. The latter is now an independent First Nation community in southern Manitoba. Many of the relocated people were still in Winnipeg at the time of these analyses. However, the Manitoba First Nations Research File includes these individuals as living on-reserve in 2016. This is likely to have had an impact on the results we report for Interlake TCA and Independent-South, particularly with regard to the comparisons between areas. The nature of the mental, physical and spiritual impacts on individuals needs to be considered but is not well documented at this time.
- The time delay between the provision of health services and the availability of the data for analysis in our Repository is also a limitation. Most of the Repository data are updated annually (with a delay from the end of the fiscal year until the acquisition of the data by MCHP), but some data are updated less frequently. For most of our analyses, we use data up to 2016/17, but all cancer indicators in this report use data that are less current (up to 2015) due to the extensive process of validation that CancerCare Manitoba undertakes to ensure the accuracy of the data.
- MCHP data do not include details of care provided at nursing stations, so we cannot capture treatment provided there. However, we do have records of transfers from nursing stations to hospitals. Twenty-two percent of these transfers result in a

hospital admission, which we capture via hospital discharge data. Of the remaining 78%, our data will allow us to capture only those who end up in a Winnipeg Emergency Department or those who die. This limitation leaves an information gap for the rest of the transfers from nursing stations.

- The data provide limited opportunities to describe the strengths of Manitoba First Nation peoples. Our indicators are very deficit-focused due to this limitation.

The following aspects of the study were identified as strengths:

- The Repository data are highly comprehensive, and include almost all contacts Manitobans had with the healthcare system. As such, the analyses provide a comprehensive description of the health and health services use of the Manitoba population. Most other research that does not include the whole population, relies on statistical methods to ensure that the results obtained apply to people not included in the study. While we also use statistical methods to understand the value of the comparisons described in this report, our data includes the whole population.
- The Manitoba First Nations Regional Health Survey provides us with self-reported health and social data from a portion of the on-reserve population who agreed to complete the survey. The inclusion of this survey in this report is a unique strength. This is the first time comparisons have been made between self-reported health status using the RHS and administrative data analyses for on-reserve First Nations in Canada.
- We have been able to compare many of the results reported in this report with those of the 2002 First Nations Atlas, providing us with a sense of whether differences between First Nations and AOM have increased, decreased, or stayed the same.
- This report exemplifies a strong partnership between FNHSSM and MCHP. We have worked together closely from study inception to completion of this study to provide a report that respects Manitoba First Nations and their health needs.

Conclusions

Overall, this study found that inequities between First Nations and all other Manitobans exist within many of the indicators, and that the gap between the two groups has widened for many indicators since the 2002. This report provides the evidence to support change in how Manitoba supports the health and well-being of First Nations. Being

able to bring about change depends first and foremost on having the measures and numbers to demonstrate the need for a different approach. As we have now documented that health inequities have increased since 2002, we propose the following specific actions:

1. Annual reporting on progress in addressing gaps in health and access to healthcare;
2. Development of strategic initiatives for equitable access to intervention and prevention measures (including addressing racism in the health system through mandatory cultural safety training for all staff, hiring of First Nation providers, new human resource policies for safe reporting of racist incidents);
3. Development of short- and long-term plans for the training and hiring of First Nation healthcare professionals;
4. Further development of research partnerships among MCHP, MHSAL, FNHSSM and Manitoba First Nations;
5. Setting First Nations on the path to borderless healthcare delivery by improving access to primary care healthcare that is designed and delivered through First Nations-led partnerships.

Chapter 1: Introduction

“States that engage in cultural genocide set out to destroy the political and social institutions of the targeted group. Land is seized, and populations are forcibly transferred and their movement is restricted. Languages are banned, spiritual leaders are persecuted, spiritual practices are forbidden, and objects of spiritual value are confiscated and destroyed. And, most significantly to the issue at hand, families are disrupted to prevent the transmission of cultural values and identity from one generation to the next. In its dealing with Aboriginal people, Canada did all these things.” [5]

First Nations in Manitoba: A Brief History

First Nations⁶ is the term used today to refer to the original peoples of what is now known as Canada. First Nations rights are entrenched in the highest law of Canada, the Canadian Constitution enacted in 1982. At the time of the British North America Act (now called the Constitution Act of 1867) and the Constitution Act of 1982, the word used to define First Nations was the misnomer ‘Indians’. Section 35 (1) of the Constitution Act of 1982 states that “the existing treaty and aboriginal rights of the aboriginal peoples of Canada are hereby recognized and affirmed”, and Subsection (2) states: “In this Act, ‘aboriginal peoples of Canada’ includes the Indian [**First Nations**], **Inuit** and **Metis** peoples of Canada”.

Section 91 (24) of the Constitution Act of 1867 states that the federal government has responsibility for “Indians and lands reserved for Indians”. This allowed the federal government of Canada to consolidate early colonial laws that placed the First Peoples of Canada under a regime of Indian agents within a separate bureaucracy, and a system of regulations that ruled the lives of First Nation peoples “from the cradle to the grave.” For example, an outside Indian agent would decide who would live **on-reserve**, who would be issued permits to work or sell their timber, fish, etc. **off-reserve**, who could travel to visit relatives in another **reserve**, and how goods would be divided upon death. The federal government set aside parcels of land, what they considered to be ‘federal crown lands’, to be reserved for Indians only, and these lands continue to be called ‘reserves’.

⁶ Terms in boldface are defined in the Glossary at the end of this report.

The Indian Act provided for registering whether an Indian person would have Indian status according to the Federal government. People deemed to be **non-status** were not allowed to live on-reserve, or be buried on the reserve, or receive any benefits (or deficits) which might be granted by the federal government. **Status** persons could apply to be non-status if they wanted to vote or buy land off-reserve. Often the federal Indian agents and officials decided arbitrarily who would have Indian status and who would not. First Nation peoples were not allowed to vote in a federal election until 1960.

The purpose of the Consolidated Indian Act of 1876 was to control Indian people by stating the conditions of how Indian status was defined, and to make it easier for lands reserved for Indians to be leased or sold. Amendments to the Act through the years enforced Indian children's attendance at residential schools (1895 onward), outlawed Indian ceremonies and enabled confiscation of ceremonial items and medicines (1895-1951), and outlawed Indian people from having the freedom of assembly or taking the federal government to court (1927-1951). The impact of such policies of assimilation has been defined as cultural genocide by the Truth and Reconciliation Commission.

This report begins to address the Truth and Reconciliation Commission's Calls to Action regarding health by providing data which demonstrate the inequalities and inequities between First Nation peoples and 'All Other Manitobans'.

'**Indigenous**' and '**Aboriginal**' are terms that apply altogether to First Nations, Inuit, and Metis as an all-inclusive term, but they mask the realities of the distinct peoples, their histories, geographies, cultures and languages - even within each grouping. In this report, we use the terms 'First Nations', 'on-reserve' and 'off-reserve', 'status' or 'non-status' and 'All Other Manitobans (AOM)'. AOM include Metis, Inuit, and non-status Indian people, together with all other people living in Manitoba.

It is also significant to note that Western Canada, from Lake Superior to the Rockies, is covered by treaties which were negotiated in the 19th and early 20th century between the federal government on behalf of the Crown, and the Anishinaabe, Cree, Blackfoot and Dene nations. The Dakota did not make treaties at that time, but they did have pre-confederation treaties with the British Crown, and earlier with other tribal nations. Thus, all First Nations are included in the Constitution of Canada, and their treaty and aboriginal rights (which precede the treaties) cannot be taken away by the Indian Act.⁷

How this Study was Initiated

The Province of Manitoba provides core funding to MCHP through the University of Manitoba. Each year MCHP undertakes five studies for Manitoba's Minister of Health and other departments. These research projects (or 'deliverable') result in reports which are delivered to the Minister and made public when completed.

The first-ever MCHP report on First Nation peoples in Manitoba was completed by Dr. Pat Martens in 2002 [6]. The 2002 First Nations Atlas ('The Health and Health Care Use of **Registered First Nations** People Living in Manitoba: A Population-Based Study') was unique in that it was supported from the beginning by the Chiefs' Committee on Health (CCOH) of the **Assembly of Manitoba Chiefs** (AMC). In addition, members of the Health Information Research Governance Committee, including First Nation Health Directors and other staff of the seven Tribal Councils, Assembly of Manitoba Chiefs, and Manitoba Keewatinowi Okimaakanak (MKO), served on the Advisory Committee.

Both MCHP and AMC have been interested in pursuing another report to update the data and investigate changes for several years. In 2015, Manitoba Health, Seniors and Active Living (MHSAL) agreed to pursue a First Nations Atlas update. Similar to the 2002 First Nations Atlas, the current report has benefitted from input from an Advisory Committee, which was mainly composed of representatives of MHSAL, the Manitoba First Nation Health Directors of the seven Tribal Councils, First Nation Health Directors who are independent of tribal councils, the First Nations Health Technicians Network, and several other First Nations representatives.

Thus, this report is the product of a renewed partnership between the **First Nations Health and Social Secretariat of Manitoba** (FNHSSM) – established by the AMC in 2013 – and the **Manitoba Centre for Health Policy** (MCHP). The study on which the report is based was undertaken in accordance with the Truth and Reconciliation Commission's Call to Action #19:

***"to identify and close the gaps in health outcomes...which focus on indicators such as: infant mortality, maternal health, suicide, mental health, addictions, life expectancy, birth rates, infant and child issues, chronic diseases, illness and injury incidence, and the availability of appropriate health services."* [1]**

⁷ More information is available on the Treaty Relations Commission of Manitoba website (<http://www.trcm.ca>), in the Final Report Royal Commission on Aboriginal People (1996), the Final Report of the Truth and Reconciliation Commission on Indian Residential Schools (2015), and the Indian Act of Canada (1876).

We began the study by acknowledging the Truth and Reconciliation Commission's Call to Action #18. MCHP and FNHSSM understand

“that the current state of Aboriginal health in Canada is a direct result of previous Canadian government policies, including residential schools...” [1]

Worldwide, it is increasingly recognized that Indigenous peoples have poorer health than any others in their own lands. This is true for Manitoba as well. Researchers are just beginning to understand and acknowledge the underlying reasons why the rates of illness, injury, and chronic disease among First Nations are higher than among other Manitobans, and are some of the highest in Canada [7,8].

What is and isn't Presented in This Report

This report presents information on the health status of and use of healthcare services by First Nation peoples in Manitoba derived from data that are presently available in the **Manitoba Population Research Data Repository** (Repository). It does not cover all indicators of health status and healthcare service use that were included in the 2002 First Nations Atlas, as some of these have already been or will soon be updated in other MCHP reports. MCHP is currently undertaking a separate study of the health of First Nation children in Manitoba, and a number of other reports including 'Exploring Tuberculosis Treatment, Management, and Prevention in Manitoba's Administrative Health Data' (Winter 2018), 'Type 2 Diabetes in Manitoba' (ongoing), and 'The Overlap Between the Child Welfare and Youth Justice Systems in Manitoba' (ongoing) will complement the current report. A number of other MCHP reports that detail health status and healthcare use of Manitobans have been published recently (or will be soon), including 'Mental Illness among Adult Manitobans' (Fall 2018), 'The Mental Health of Manitoba's Children' (Fall 2016), and 'The 2018 RHA Indicators Atlas' (Fall 2019).

FNHSSM is also co-developing with MHSAL an annual or bi-annual profile for each Manitoba First Nation and Tribal Council on a variety of indicators of health status and access to healthcare services. These reports will be confidential and access will be granted only for the benefit of the **First Nation community** and with permission of the Chief and Council of the First Nation in question. These reports are intended to inform health interventions and healthcare planning.

Formal Agreements on Which This Study was Based

This report was undertaken through a formal research partnership between MCHP and FNHSSM, which was borne out of a previous informal relationship between First

Nations and MCHP. Two Information Sharing Agreements (ISAs) were developed for this and other reports: The first ISA was between MHSAL Information Management Analytics and FNHSSM to enable the creation of the key linked file needed to identify First Nation peoples registered as Status Indians under the Federal Indian Act and their place of residence. This linkage led to the development of First Nation Community Health Profiles by MHSAL and FNHSSM. The second ISA was between MHSAL, FNHSSM, and the University of Manitoba (on behalf of MCHP) to enable linkage in the Manitoba Population Research Data Repository, which facilitated the research required for this report. The key linked file ultimately became known as the Manitoba First Nations Research File at MCHP.

These agreements are historic in the formal recognition of First Nation data governance, in which First Nations exercise their inherent right to self-determination through oversight of their own data. It has also been critical to the ethical implementation of this study that the research team for this study includes both FNHSSM research staff and MCHP staff as co-investigators. When HIRGC reviewed the request for this study in July 2015, they stipulated that this report provide not only details of the analyses, conclusions and questions, but also make specific recommendations for actions to be taken.

Changes in the Sociopolitical Environment in the Last Two Decades

Since the 2002 First Nations Atlas was released, there have been significant shifts in First Nations relations with the rest of Canada, for several reasons: the population of First Nations has increased, with its youth forming the fastest-growing demographic in Canada; social media are now used broadly across Canada, including among First Nations; as well, there is greater public awareness of the inequities First Nations experience, both on-reserve and off-reserve. This increasing awareness is a direct result of Indian Residential School Survivors, determined to hold the federal government and historic missionary churches accountable for what the Truth and Reconciliation Commission called a cultural genocide of First Nations, Inuit, and Metis peoples [5]. It was the Survivors' class action lawsuits and court victories that led to years of negotiations and a final settlement agreement with the Government of Canada and the churches in 2006 [9,10]. This agreement resulted in a Public Apology by the Prime Minister in the House of Commons in 2008, and was the origin of the Truth and Reconciliation Commission, which was formed to document the survivors' experiences and to educate all of Canada and the world about this cultural genocide.

“Cultural genocide is the destruction of those structures and practices that allow the group to continue as a group. States that engage in cultural genocide set out to destroy the political and social institutions of the targeted group. Land is seized. Populations are forcibly transferred and their movement is restricted. Languages are banned. Spiritual leaders are persecuted, spiritual practices are forbidden, and objects of spiritual value are confiscated and destroyed. And, most significantly to the issue at hand, families are disrupted to prevent the transmission of cultural values and identity from one generation to the next. In its dealing with Aboriginal people, Canada did all these things.” [5]

The Truth and Reconciliation Commission’s activities from 2009 to 2015 and the continuing impact of their reports and Calls to Action have educated Canadians on the true history of Indian Residential Schools. This report on First Nation health and access to healthcare is just the beginning of the research that is needed to answer Call to Action #19, to document gaps in health and healthcare. This report will also enable discussions about when and how equity in access to healthcare and equity of outcomes can be achieved, just as the Royal Commission on Aboriginal Peoples called for in its 1996 report [11].

In 2007, after more than thirty years of deliberations with Indigenous peoples across Canada and the world, the General Assembly of the United Nations adopted the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) [12]. Canada did not support UNDRIP in the original vote, but signed on in 2010 (with limitations) [13,14]. In 2016, the Canadian government adopted UNDRIP without limitations, but progress in its implementation has been slow [14].

Within Manitoba First Nations, much has changed beyond these political events. During the late fall of 2012, grassroots actions based on cultural identity and practices in First Nations were growing. First Nation teach-ins and traditional ceremonies expanded into a movement that extended across the country. Under the slogan ‘Idle No More’, First Nations held round dances in malls and in the streets, inviting supporters to be with them and learn from them. This Indigenous resurgence was felt from Ottawa across Canada to all capitals, major gathering places, and in every First Nation, as well as in Inuit and Metis communities [15,16]. The grassroots resurgence led to creativity in the arts (film, music, and social media), as is seen in Winnipeg by the birth of Red Rising Magazine (Antony, 2016; Red Rising Magazine, 2019), the Indigenous course requirement for graduation from the University of Winnipeg [19], the ‘Meet Me at the Bell Tower’ initiative organized by Manitoba youth to stop the violence in the inner city [20], the Indigenous Resurgence contemporary Indigenous Art exhibit in 2018 [21,22] and the Winnipeg Indigenous Biennial exhibits at the Winnipeg Art Gallery [22,23].

Other events that influence First Nation health and access to healthcare have occurred. Organizational changes within the Manitoba healthcare system resulted in the reduction

of the number of **Regional Health Authorities** from 13 in 2002 to the current five RHAs. In June 2017, the Manitoba government began a major transformation of healthcare services. In August 2017, the Prime Minister announced that Indigenous and Northern Affairs Canada (INAC) would be split into two departments: Indigenous Services Canada and **Crown-Indigenous Relations and Northern Affairs Canada** (CIRNAC; formerly under the **First Nations and Inuit Health Branch**) to deal with decolonization of policies and meeting this government’s commitment to implement every one of the TRC’s 94 Calls to Action [24,25].

Thus, this report is breaking new ground as part of a new socio-political era. Following this report, regular updates will be needed to see how the TRC Calls to Action and other transformations take root and begin to enact real change.

The Red River Valley flood of 2011 resulted in the evacuation of many communities in Interlake TCA and relocation to Winnipeg. The communities that were affected the most included Little Saskatchewan, Dauphin River, Pinaymootang, and Lake St. Martin [2,3]. The latter is now an independent First Nation community in southern Manitoba. Many of the relocated people are still in Winnipeg. The impacts of the flood and subsequent relocation have been profound, but may not be fully represented in the analyses. Some of the few narratives about the flood and its impact on First Nation communities include Dr. Myrle Ballard’s book and academic publications with Dr. Shirley Thompson [2–4].

Our Methodological Approach

Identifying and Linking Registered First Nation individuals

Both the 2002 First Nations Atlas and the current report are based on whole-population studies. We examined indicators that could be measured using data available in the MCHP Repository, which includes many health-related databases as well as databases from provincial departments other than health. A key requirement of completing this work is that we used a ‘key linked file’, made possible by the linking of the Manitoba First Nations Research File (from the federal Indian Status Registry) provided by FNHSSM with the Manitoba Health Insurance Registry at MHSAL. All information in the Key Linked File is de-identified, but it contains a numeric ‘key’ that is scrambled to avoid re-identification. The scrambled key is used to link an individuals’ records across databases and over time. This means that researchers can analyze the linked data but that no information is available that would identify any individual.

This process was developed for the 2002 First Nations Atlas for the first time, with ethics approval from the Manitoba First Nations Health Information Research Governance Committee (HIRGC), the University of Manitoba Health Research Ethics Board (HREB), and the committee that ensures the security and confidentiality of Manitobans’

health information, the Health Information Privacy Committee (HIPC). For the 2002 First Nations Atlas and a subsequent series of reports called 'Health Inequalities Research' (2006-2010), the process of linking the files was undertaken through applications by University of Manitoba researchers to the federal Department of Indian Affairs, with the support of the AMC, the AMC Chiefs Committee on Health, HIRGC, as well as MHSAL, who undertook the actual linking process.

Limitations of Including Only Registered First Nation individuals

As with the 2002 First Nations Atlas, we are focusing on First Nations registered in the Manitoba First Nations Research File in this report. Non-status First Nations are included in the 'All Other Manitobans' (AOM) population. This is a limitation resulting in a significant knowledge gap – although we know that many non-status First Nation peoples in Manitoba access healthcare services on-reserve through nursing stations in the north and health centres in the south⁸, we are unable to identify these individuals in the data, and thus no reports of their health status or their use of healthcare services exist. There is presently no identifier in the provincial or federal databases that signifies who belongs to this important group. Having information on non-status First Nation people's healthcare use is increasingly important for several reasons. One reason is that the federal funding (transfer payments) supporting on-reserve services is based on the number of registered First Nation peoples living in the community – not the number of people who actually access the services. Since 2002, many more on-reserve health services have been operating under First Nations control, but funding for these is based on registered numbers of First Nation individuals only.

Selecting Health Indicators for the Study

While we have chosen indicators that we identified as being important to Manitoba First Nation peoples, they are still predominantly deficit-focused. The research team is aware

that it is challenging to identify strength-based indicators of health and healthcare use. It is important to recognize the strengths within Manitoba First Nations, for example, by pointing out those with better outcomes (despite the challenges they face) as a source of potential solutions for others. Many First Nations have developed innovative culturally respectful ways to support the health and well-being of their communities. We encourage the reader to look beyond the inequities identified in this report to find solutions and strengths to support improvement in the health of Manitoba First Nations.

Translating the Findings Into Action

There is a general expectation that a needs-based universal healthcare system (i.e., a system that provides care to individuals based on their need for care) would provide more services to populations with poor health than to populations with good health. As is evident in this report, this expectation is not always (or not even very often) borne out. The results in Chapter 5 (e.g., the lower premature mortality rates among First Nation people) and the relationships between access to healthcare and socioeconomic status seen throughout the report make it clear that changes to how First Nation peoples access healthcare are required at several levels of governance.

We hope that findings from this and other studies will inform evidence-based planning and decision-making about health management strategies and healthcare provision to First Nation peoples. Specifically, they can inform the discussion among FNHSSM, the Province of Manitoba, and the Government of Canada about a borderless health system. Better integration of funding and service delivery has the potential to improve service delivery to Manitoba First Nations. In addition to the direct benefit to policy and program decision-makers, a detailed analysis of recent trends in the health, outcomes, and service use of First Nation peoples in Manitoba is an important contribution to the scientific literature.

⁸ See the online supplement for a map of nursing stations (<http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html>).

Chapter 2: Methods

Data Sources and Years of Data Used

The data used for this report are housed at MCHP, which maintains the Manitoba Population Research Data Repository ('the Repository'). Most of the data in the Repository are derived from administrative data – records that were collected in order to administer health and social services in Manitoba. Data are sent to MCHP from MHSAL only after identifying information (names, addresses) have been removed and personal health information numbers (PHINs) are scrambled. The scrambled PHINs are attached to every line of data in the health datasets. This allows us to link individuals across datasets without identifying them.

We used the following datasets for analyses in this report:

- Canadian Census: Postal codes are collected in the Canadian Census, and assigned an average income by Statistics Canada. We used postal codes and income data to assign each individual to an income quintile. The population is then divided into five groups based on the incomes assigned – these are the income quintiles. See the section "Analyses by Income Quintile" in this chapter for a description of how we conducted analyses by income quintiles.
- Drug Program Information Network (DPIN): This file includes all medications dispensed from a pharmacy in Manitoba. Each record includes details about the drug dispensed, including the person for whom the prescription was written, the type of drug, and the amount of drug dispensed.
- First Nations Regional Health Survey: The First Nations Regional Health Survey (RHS) is the only First Nations-governed national health survey in Canada. It collects information about on-reserve and northern First Nation communities based on both Western and traditional First Nations understandings of health and well-being [26]. The Manitoba portion of the RHS was used with permission from FNHSSM and HIRGC. As explained in Chapter 11, data from the RHS look very different from the results presented in other chapters, and the methods we describe here do not apply to the RHS data.
- Manitoba First Nations Research File: This report uses the First Nations Research File to identify registered (or 'status') First Nation individuals and First Nation communities in Manitoba. This file was transferred to the Repository as arranged by FNHSSM with CIRNAC (formerly INAC) based on a trilateral agreement between FNHSSM, MHSAL and the University of Manitoba (on behalf of MCHP). Access to the file is granted by HIRGC and FNHSSM.

- **Hospital Abstracts:** Health data maintained by MHSAL, consisting of hospital forms or computerized records of demographic and clinical information (e.g., gender, postal code, diagnoses and procedure codes) completed at the point of discharge from the hospital.
- **Manitoba Cancer Registry:** A population-based central registry of all cancer cases in the province, maintained by CancerCare Manitoba. The registry contains information about cancer type, date and location of diagnosis, diagnosis method, and treatment type.
- **Manitoba Cancer Screening Data:** Records of breast, cervix, and colon screening services provided by CancerCare Manitoba, including basic patient demographics, screening date and result of the screening test.
- **Manitoba Health Insurance Registry:** These data provide demographic information about all residents of Manitoba who are registered to receive health benefits.
- **Medical Services:** Health data maintained by MHSAL, consisting of claims for physician and NP visits in offices, hospitals and outpatient departments; **fee-for-service** information for diagnostic tests performed in offices and hospitals; payments for on-call agreements that are not attributed to individual patients; and information about physicians' specialties.
- **Vital Statistics Mortality Registry:** A record of all deaths in Manitoba, including cause of death.

Additional information about Repository data that were used in this report is available on MCHP's website: http://umanitoba.ca/faculties/health_sciences/medicine/units/chs/departmental_units/mchp/resources/repository/descriptions.html.⁹

We used the most recent years of data available when conducting the analyses. The data came from the 2016 calendar year (January 1, 2016 to December 31, 2016) or the 2016 **fiscal year** (2016/17; April 1, 2016 to March 31, 2017). For frequent events, such as ambulatory (outpatient) **primary care** visits, we used only one fiscal year of data (2016/17). For rare events, such as new cases of cancer (cancer incidence), we used Cancer Registry data from 2005 to 2015.

All data management, programming and analyses were performed on MCHP's secure servers, using SAS® version 9.4 software. The data held at MCHP are considered to be 'sensitive data', even though no names are attached to the information. Data security is critical to MCHP. There are numerous measures in place to ensure that there is no unauthorized access to these data, including physical

barriers (the office space is locked with access by swipe card) and technological barriers (access to data requires a username and password).

Permission for data access is granted through the University of Manitoba Health Research Ethics Board (HREB), the Health Information Privacy Committee (HIPC) of the Manitoba government, and (for First Nation data) through the Manitoba First Nations Health Information Research Governance Committee (HIRGC). Once the approval of all of these bodies has been secured, the principal researcher is required to sign an agreement on behalf of the research team that they will abide by the conditions of access to the data. Access is not typically provided directly to the researchers, but rather to MCHP-employed analysts who work directly with the data. Analysts working on a project can only access the data approved for that project. They use a two-factor authentication process every time they access the data system. There are numerous firewalls and technological barriers to prevent unauthorized data access.

When results are presented, the MCHP security rules require that findings for five or fewer people not be shared. This is because for certain results for small numbers of people, those people are more likely to be identifiable. Results for five or fewer people are 'suppressed' in all MCHP reports; this is shown as an 's' in the graphs and tables of the report.

Study Population

We present a detailed description of the study population in Chapter 4.

The study population (Figure 2.1) was created using the 2016 Manitoba First Nations Research File and the 2016 Manitoba Health Insurance Registry. We identified two groups for this report: registered First Nations (referred to as 'All First Nations') from the First Nations Research File and All Other Manitobans (AOM) from the Manitoba Health Insurance Registry. The latter group includes all people registered with MHSAL, including non-status First Nations, Metis and Inuit.

In order to be included in the registered First Nation cohort, individuals in the First Nations Research File had to have a valid PHIN so that their records could be linked with the Manitoba Health Insurance Registry and other administrative data used for analyses in this report. We identified First Nation individuals in the Manitoba Insurance Registry through 'A codes', but observed that a lot of First Nation peoples were misclassified according to the A codes when compared with the 'gold standard' Manitoba First Nations Research File (Table 2.1).

The focus of this report is on adults, but it was necessary to include First Nations of all ages in some analyses (such as premature mortality rates). Because there are often delays

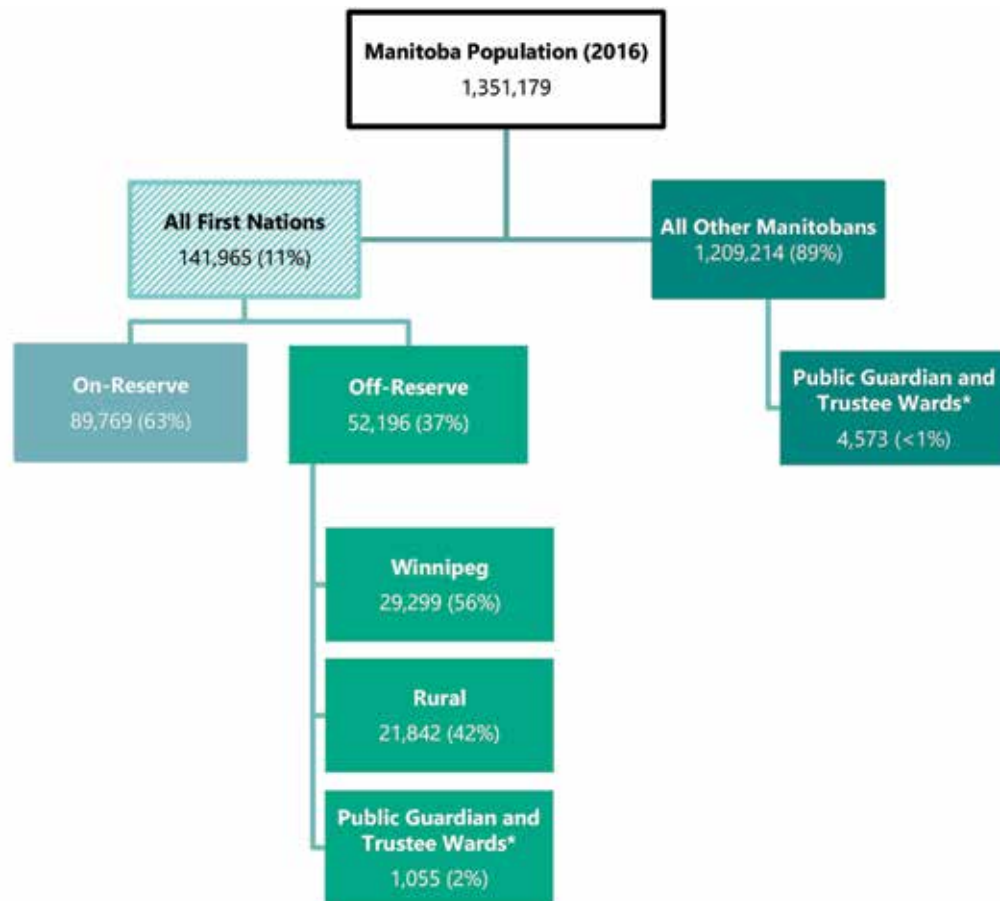
⁹ The Manitoba First Nations Research File and the Regional Health Survey are not presently listed in the Data Descriptions.

between the birth of a child and their inclusion in the Manitoba First Nations Research File, we updated the file to include children ages 5 and under who were not included in the file, but were born to registered First Nation women according to the Repository data.

We divided the First Nation cohort into on-reserve (home reserve or other reserve)¹⁰ and off-reserve¹¹ subgroups based on residence codes in the Manitoba First Nations Research File (Figure 2.1). Annual location of residence

(region of residence) for First Nations living on-reserve was determined through the residence code in the Manitoba First Nations Research File. Annual location of residence for First Nations living off-reserve was determined using postal codes in the Manitoba Health Insurance Registry. Table 4.1 and 4.2 in Chapter 4 provide information about the distribution of First Nations on-reserve, First Nations off-reserve, and AOM across health regions and tribal council areas.

Figure 2.1: Populations Included in This Report



* Results for wards of The Public Guardian and Trustee of Manitoba (see the Glossary) are not shown in this report.

¹⁰ Registered First Nations who do not have a valid Manitoba PHIN (i.e., deemed 'out-of-province'), but who are included in the First Nations Research File as living 'on-reserve', are excluded from our analyses.

¹¹ Registered First Nations who do not have a valid Manitoba PHIN (i.e., deemed 'out-of-province'), but who are included in the First Nations Research File as living off-reserve and who have a Manitoba postal code, are included in the off-reserve cohort. However, these individuals are not included in analyses by Tribal Council Area because they do not have a band (First Nation community) affiliation.

Table 2.1: Agreement Between the Manitoba Health Insurance Registry and the Manitoba First Nations Research File

		Manitoba Health Insurance Registry*		
		Registered First Nations	All Other Manitobans	Total
Manitoba First Nations Research File	Present in File	97,094 (68.39%)	44,871 (31.61%)	141,965
	Not in File	5,458 (5.32%)	1,203,756 (96.41%)	1,209,214
	Total	102,552	1,248,627	1,351,179

* A unique municipal code is recorded for each First Nations individual in the Manitoba Health Insurance Registry.

Analyses by Regional Health Authority and Tribal Council Area

We present the findings of this report based on two highly relevant groupings: Regional Health Authorities (RHAs) and Tribal Council Areas (TCAs).

Tribal Council (TC) affiliations are key to understanding use of and access to healthcare services among First Nations. There are strong relationships between First Nation communities and their affiliated TCs. TCAs in this report include the seven official Tribal Councils and groupings of Independent and Non-Affiliated First Nation communities (Table 2.2, Figure 2.2). Sioux Valley Dakota Nation is the only First Nation in Manitoba that has negotiated a self-government agreement, and is recognized by the federal and provincial governments as self-governing. However, Sioux Valley Dakota Nation declined to be involved in this study, and their data are not included in the analyses.

Findings in this report are also presented by provincial RHA, because funding for the provincial healthcare system is allocated to the five RHAs (Figure 2.3). A map of districts within the five RHAs can be found in the online supplement at <http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html>. While it is important to explore indicators based on RHAs, we also recognize that many First Nations do not access healthcare services in the geographical RHAs

in which they reside. For example, First Nations living in Island Lake Tribal Council Area do not receive services from Northern RHA even though they are located within the geographic boundaries of this RHA. It should also be noted that all figures and tables in this report use the official RHA names, listed below. We use shorter labels in the report text (e.g., Northern RHA, Southern RHA).

Regional Health Authorities (official names):

- Interlake-Eastern RHA
- Northern Health Region
- Prairie Mountain Health
- Southern Health-Santé Sud
- Winnipeg RHA

For a few indicators of location of service provision, we use districts within the RHAs to provide more detail. The map for these districts can be found in the online supplement at <http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html>.

Note that many communities in Interlake TCA were flooded in 2011 and the residents were relocated to Winnipeg [2,3]. The communities that were affected the most included Little Saskatchewan, Dauphin River, Pinaymootang, and Lake St. Martin (now an independent First Nation community in southern Manitoba). However, the 2016 First Nations Research File continues to show these communities as living on-reserve so we have included these communities as part of the on-reserve cohort in this report.

Table 2.2: Organization of First Nation Communities into Tribal Council Areas in This Report

Tribal Council Areas in This Report	First Nation Communities
Official Tribal Councils	
Dakota Ojibway Tribal Council (DOTC)	Birdtail Sioux Dakota Nation
	Long Plain First Nation
	Roseau River Anishinabe First Nation
	Swan Lake First Nation
	Waywayseecappo First Nation
Interlake Reserves Tribal Council (IRTC)	Dauphin River First Nation
	Kinonjeoshtegon First Nation
	Lake Manitoba Treaty 2 First Nation
	Little Saskatchewan First Nation
	Peguis First Nation
	Pinaymootang First Nation
Island Lake Tribal Council (ILTC)	Garden Hill First Nation
	Red Sucker Lake First Nation
	St. Theresa Point First Nation
	Wasagamack First Nation
Keewatin Tribal Council (KTC)	Barren Lands First Nation
	Bunibonabee Cree Nation
	Fox Lake Cree Nation
	Gods Lake First Nation
	Manto Sipi Cree Nation
	Northlands Denesuline First Nation
	Sayisi Dene First Nation
	Shamattawa First Nation
	Tataskweyak Cree Nation
	War Lake First Nation
York Factory First Nation	
Southeast Resource Development Council (SERDC)	Black River First Nation
	Bloodvein First Nation
	Brokenhead Ojibway Nation
	Hollow Water First Nation
	Little Grand Rapids First Nation
	Paungassi First Nation
Poplar River First Nation	
Swampy Cree Tribal Council (SCTC)	Chemawawin Cree Nation
	Marcel Colomb First Nation
	Mathias Colomb Cree Nation
	Misipawistik Cree Nation
	Mosakahiken Cree Nation
	Sapotaweyak Cree Nation
	Wuskwi Sipiik First Nation
West Region Tribal Council (WRTC)	Ebb and Flow First Nation
	Gamblers First Nation
	Keeseekoowenin Ojibway First Nation
	Pine Creek First Nation
	Rolling River First Nation
	Skownan First Nation
	Tootinaowaziibeeng Treat Reserve

Table 2.2: Continued

Tribal Council Areas	First Nation Communities
Other Groupings	
Independent-North	Nisichawayasihk Cree Nation
	Norway House Cree Nation
	Opaskwayak Cree Nation
	O-Pipon-Na-Piwin Cree Nation
	Pimicikamak Cree Nation
Independent-South	Berens River First Nation
	Buffalo Point First Nation
	Dakota Tipi First Nation
	Fisher River Cree Nation
	Lake St. Martin First Nation
	O-Chi-Chak-Ko-Sipi First Nation
	Sagkeeng First Nation
	Sandy Bay First Nation
Non-Affiliated	Canupawakpa Dakota Nation
	Dakota Plains Wahpeton Nation

Figure 2.2: Map of Tribal Council Areas in Manitoba, 2016

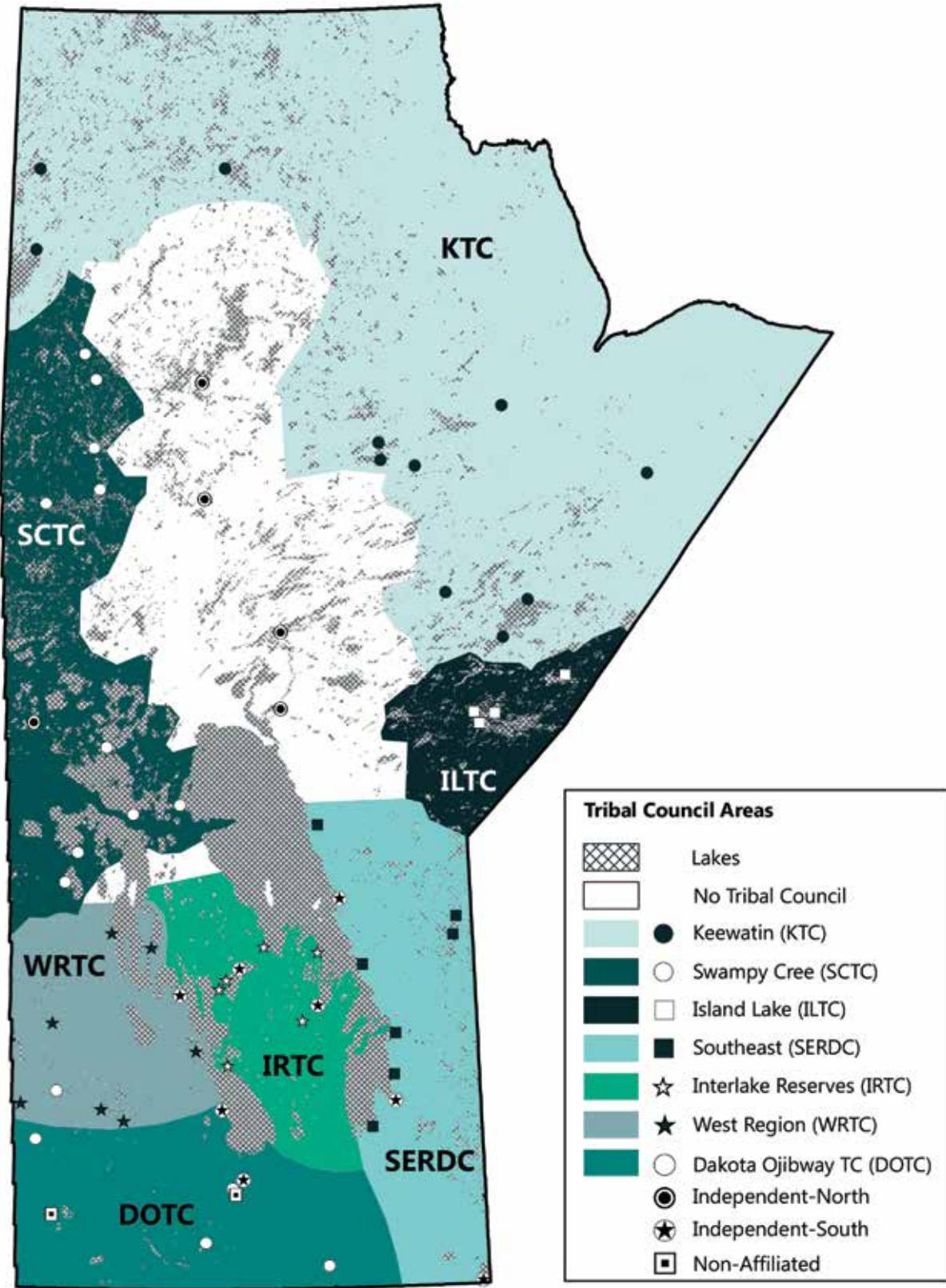
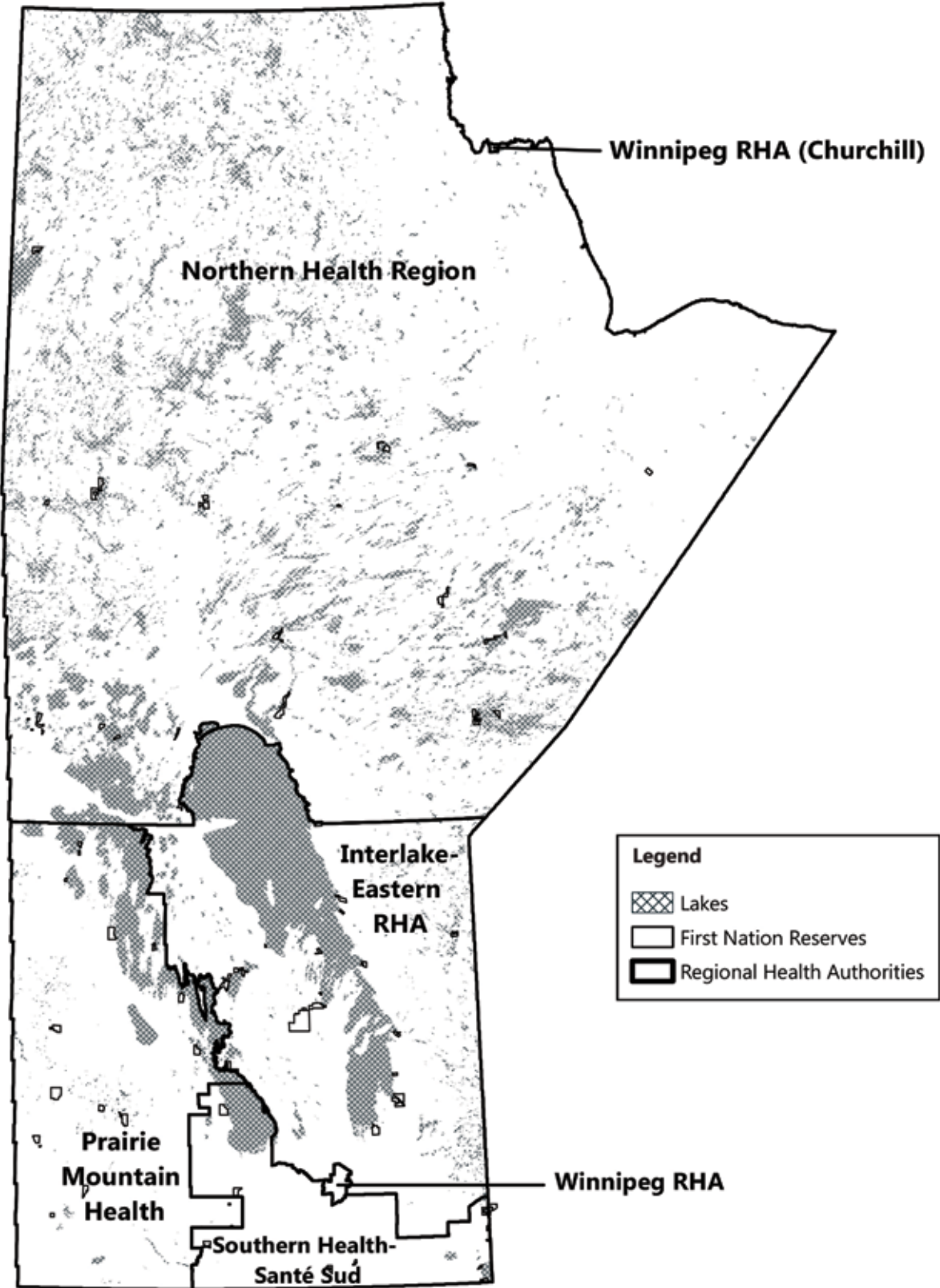


Figure 2.3.: Map of Regional Health Authorities in Manitoba, 2016



The Order in Which Regional Health Authorities and Tribal Council Areas are Shown

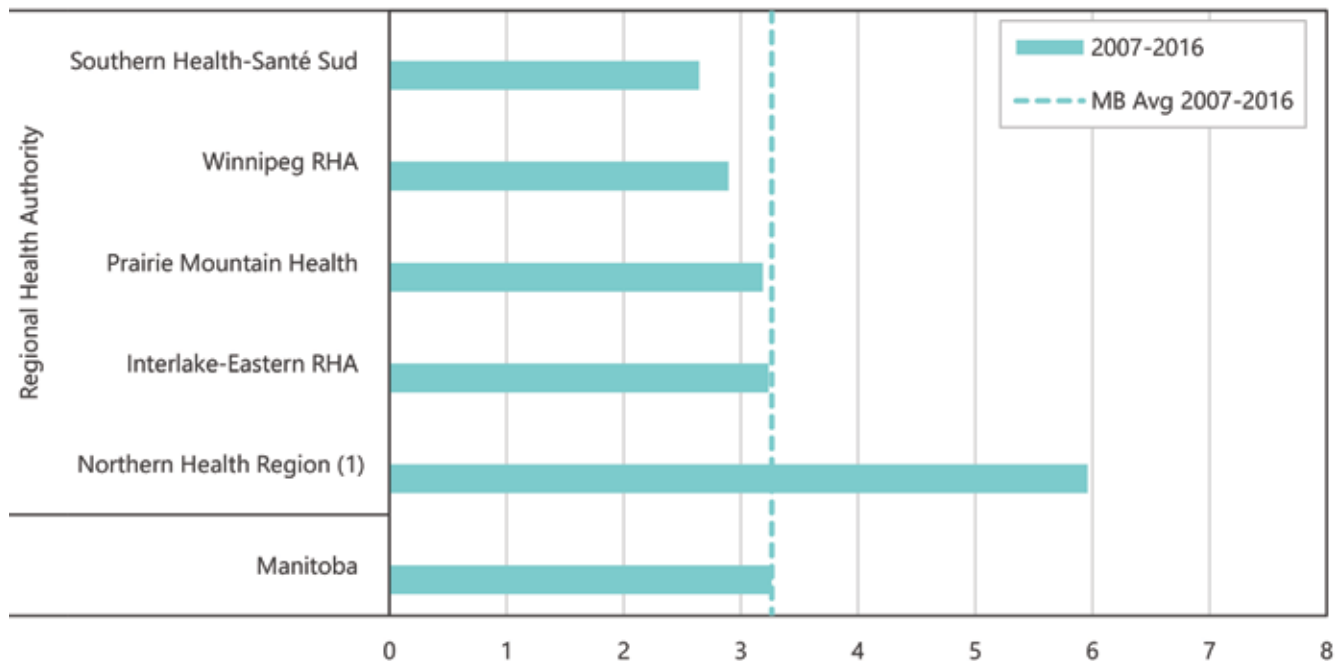
The health regions and tribal council areas are shown in a particular order in this report, which is consistent throughout the report and similar to other MCHP reports. This order is based on the overall health status of the population of each area as measured by the premature mortality rate (PMR). A death before the age of 75 years is considered premature, so the PMR reflects how many residents of that area died before reaching the age of 75 (per 1,000 area residents under 75). Because some areas have small populations, we used ten years of data (2007-2016) to ensure reliable estimates. Like other indicators in this report, the PMR data were adjusted to account for the age and sex composition of each area's population.

The PMR is considered the best single indicator of the overall health status of a region's population and need for healthcare [27,28]. PMR is correlated with morbidity and with self-rated health, as well as with several socioeconomic indicators [29]. We would expect populations with a high PMR to need more healthcare services than healthier populations with a lower PMR.

PMR values for the RHAs and TCAs are shown in Figures 2.4-2.5. In Figure 2.4, the region with the lowest PMR (that is, the best overall health status) is shown at the top of the graph (Southern), and the other regions follow in order of increasing PMR ending with Northern, which has the highest PMR (poorest overall health status). Below that is the overall average for Manitoba, and dashed lines are drawn vertically to allow easy comparison of the provincial average to each area's rate. TCAs are also arranged in the order of lowest PMR (best overall health status) at the top (Interlake Reserves TCA), and highest PMR (poorest overall health status) at the bottom (Island Lake TCA).

Figure 2.4: Premature Mortality Rate by Regional Health Authority, 2007-2016

Age- and sex-adjusted, per 1,000 individuals, age 0-74

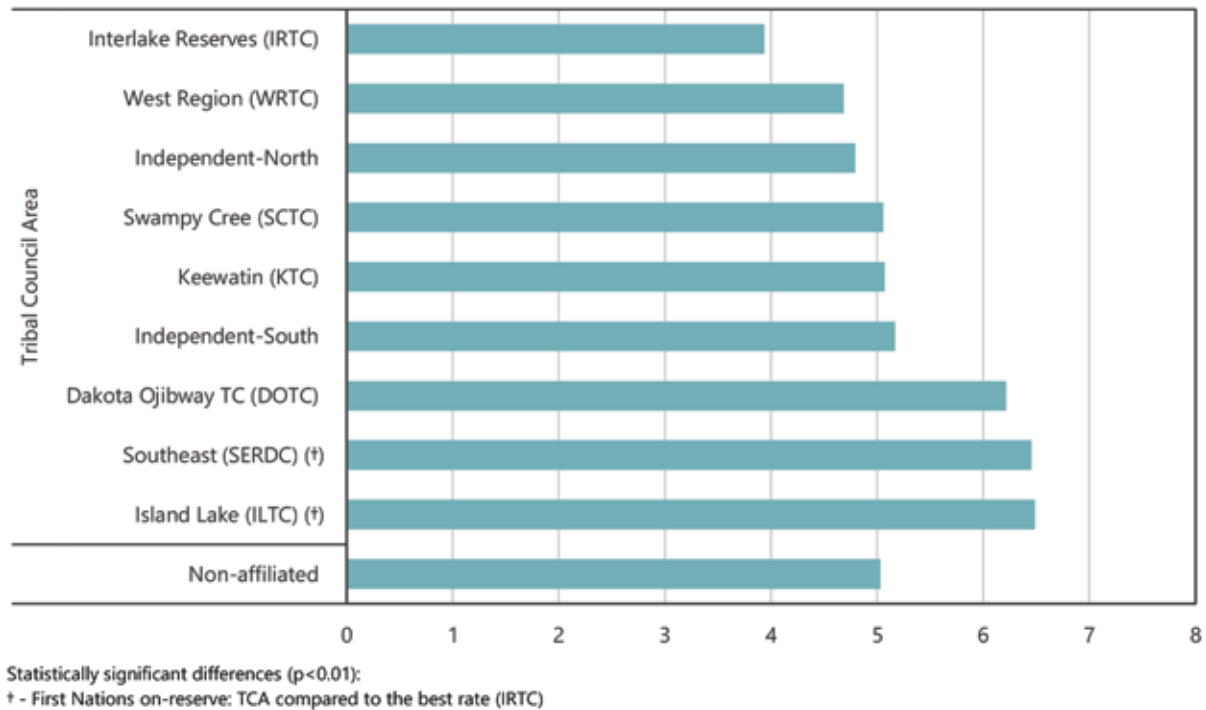


Statistically significant differences ($p < 0.01$):

1 - First Nations on-reserve: RHA compared to the Manitoba average

Figure 2.5: Premature Mortality Rate among On-Reserve First Nations by Tribal Council Area, 2007-2016

Age- and sex-adjusted, per 1,000 individuals, age 0-74



Analyses by Income Quintile

We performed analyses for this report by urban and rural income quintile. Urban areas include Winnipeg and Brandon, while the rest of Manitoba is regarded as rural. The AOM population in the rural and urban areas was divided into five groups of approximately equal population according to the average household income of the dissemination area in which they live (as reported in the 2016 Canadian Census). Income values were taken from public use files from the 2016 Canadian Census, the most recent reliable data available.

The analyses by income quintile are important because income has a large impact on health and healthcare use [30]. But, looking at income can make the difference between First Nations and All Other Manitobans (AOM) difficult to interpret, because First Nations have lower incomes than AOM (see self-reported household income for on-reserve First Nations in Chapter 11). We adjusted the populations in these analyses by age and sex (described in more detail elsewhere). To make the comparisons between First Nations and AOM more equitable, we compared indicator rates for AOM in the highest and lowest income quintiles to off-reserve First Nations in urban areas, as well as on- and off-reserve First Nations in rural areas.

One of the other challenges of using income quintiles for analyses is that we can only assign an individual to

a residence once during the study period (see ‘Area of Residence’ below). We recognize that people may move after being assigned, but their area of residence and income quintile will not be changed in our analyses. The assigned income is also not a personal income but the average income of that dissemination area.

Measures – Key Concepts

Area of Residence

We calculated most indicators in this report using a population-based approach. This means that the rates shown are based upon data from virtually every person living in Manitoba.¹² The indicators reflect where people live, not where they received services. The home community of First Nation individuals was identified using information from the Manitoba First Nations Research File, which is provided to CIRNAC by Manitoba First Nations annually and is regarded as the most reliable and up-to-date source of information available. First Nation peoples who live on-reserve move to urban areas to work, study, support a family member needing long-term medical treatment, or for other reasons – and many also move back to their home community. There is a high degree of mobility that we cannot track within this study. Nevertheless, First Nation

¹² Excludes persons in federal penitentiaries and personnel of the Canadian Armed Forces. Together, these comprise less than 2% of the population.

peoples in Manitoba and Saskatchewan have the highest rates of on-reserve population in Canada. This high mobility speaks to the presence of many predictive factors for ill health, including the need for better housing, clean water, better education, healthcare, and economic opportunities, as well as to protective factors like the strength of ties to family, the land, culture and language.

For First Nation peoples living off-reserve, we used postal codes from the Manitoba Health Insurance Registry to identify area of residence. For example, a person living in the Northern Health Region may fill a drug prescription in Winnipeg, but the drug dispensation is attributed back to the rate for Northern RHA. We used this approach in Chapter 9, when we describe where Manitobans get hospital care in relation to where they live. In Chapter 10, we provide further details about the relationship between the individual's reported place of residence and the geographical location of the pharmacy that dispensed each prescription.

Residents of some areas receive some of their healthcare services in nursing stations operated by the federal government or through transfer agreements to their First Nation (see a map of nursing stations in the online supplement at <http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html>). Most of the services provided in these settings are not recorded in the provincial data files used in our analyses. Therefore, provider visits and the medical diagnoses derived from visits are likely an underestimate for First Nations who access care on-reserve. This issue is most important in the Northern RHA, but also affects other regions to some extent. In addition, First Nations may have patterns of care that are not based on the nearest geographically available care. For example, many First Nations in the Interlake RHA travel to Winnipeg for services. While Churchill is included in Winnipeg RHA, the surrounding areas are included in the Northern Health Region (Figure 2.3). This means that in our analyses, those who seek care in the town of Churchill will have that care included as care provided in Winnipeg. The Island Lake Tribal Council (ILTC) also has a clinic in Winnipeg that serves its population living in or visiting Winnipeg.

Statistical Analyses

Statistical analyses are a way of determining if the comparisons between populations (e.g., on-reserve vs. off-reserve First Nations; Keewatin vs. Interlake Reserves TCAs) are showing important differences or if the differences shown may be due to chance. For analyses by RHA, we also compare the rates of each RHA to the Manitoba average as a standard point of reference. For analyses by TCA, we compare the rates of each TCA to the TCA with the lowest rate for indicators with negative effects, or to the TCA with the highest rate for indicators with positive effects, to evaluate differences between TCAs within a relevant context.

Where the comparisons are not statistically different, the rate is considered similar to the comparison group. Not seeing a difference may be due to the rate being based on small numbers (either a small number of events, a small population, or both). We used the 99% **confidence interval** for statistical comparisons to indicate how much confidence to put in the rates. If a difference is “statistically significant” (e.g., p-value less than 0.01), then the difference is large enough that we are confident it is not just due to chance. **It is important to recognize that what appears to be a large difference on the graph may not be statistically different.**

Statistically different results are indicated on the graphs by numbers next to the areas that are different and explained below the graph.

The analyses for this report were done using a **generalized linear modeling** approach (negative binomial), incorporating interaction terms. Parameters in the model included age, sex, and area of residence (RHA, TCA, or income quintile). Because we modeled rates (not events), we used the logarithm of the population as an offset in the model. Separate models provided rates for the populations included in the RHA, TCA and income quintile analyses. The models for analyses by RHA and income quintile include All First Nations and AOM. The model for analyses by TCA included on-reserve First Nations for most indicators, but both on- and off-reserve First Nations for analyses of dispensations of prescribed opioids.

Below are the notation and explanatory footnotes for statistically significant differences between comparison groups by RHA:

1. First Nations on-reserve rate in an RHA compared to the on-reserve rate for Manitoba
2. First Nations off-reserve rate in an RHA compared to the off-reserve rate for Manitoba
3. All First Nations rate in an RHA compared to the All First Nations rate for Manitoba
4. AOM rate for an RHA compared to the AOM rate for Manitoba
5. All First Nations rate compared to the AOM rate
6. First Nations on-reserve rate compared to the First Nations off-reserve rate

The notation and explanatory footnotes for statistically significant differences between comparison groups by TCA are:

- † First Nations on-reserve rate in a TCA compared to the TCA with the best, lowest or highest on-reserve rate
- ‡ First Nations off-reserve rate in the TCA compared to the TCA with the best, lowest or highest off-reserve rate
- § First Nations on-reserve rate compared to the off-reserve rate in the same TCA

The notation and explanatory footnotes for statistically significant differences between comparison groups by income quintile are::

- Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Note: Only AOM are grouped by income quintile.

MCHP's data confidentiality policy requires that whenever the number of events or persons involved is between one and five, the results are suppressed (i.e., not shown). In this case an 's' is shown in the table or graph and an explanatory footnote is included below to indicate that the results has been suppressed. However, in the case of a true '0' (non-occurrence of events), some graphs simply have no bar where one might otherwise be, and there is no 's' beside the area name.

Chapter 3:

Interpreting the Data for Local Use

This chapter explains how to find specific information in the report, and how to understand what this information is telling you about a population.

What is Included in This Report

Chapter 3 provides detailed information about how we conducted the analyses. This report includes indicators on First Nations demographic information (Chapter 4), health status and death (Chapter 5), cancer diagnosis and screening (Chapter 6), mental health (Chapter 7), use of provider and hospital services (Chapters 8 and 9), medication use (Chapter 10), and self-reported health and well-being from the First Nations Regional Health Survey (Chapter 11). The online supplement (<http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html>) includes all data presented in this report, additional data to supplement the report, a map of nursing stations, a map of RHA districts, and detailed definitions of all indicators included in this report.

Each chapter begins with a brief introduction to the overall chapter topic. Then we describe the indicators – we start with a brief definition of the indicator in plain language. Detailed definitions that include data sources, data years, diagnosis and drug codes are provided in the online supplement (see above). Next, we summarize the key findings for that indicator, and list trends we observed by regional health authority, by tribal council area, and by income quintile. We provide a brief summary of how these results compare to other reports of the same indicator, if they exist. Finally, we present all the detailed findings for the indicator in tables and graphs. For most indicators, the reader will see three figures: the indicator is shown first by regional health authority, then by tribal council area, and lastly by household income quintile.

Groupings for the Analyses

Chapter 3 provides details about how we defined the populations and other groupings for this report.

The main populations included in this report are registered First Nations and everyone else (All Other Manitobans or AOM). First Nations are often grouped further into on-reserve and off-reserve. In broad terms, 'on-reserve' includes registered First Nations living in or near the 63 First Nation communities of which they are band members (additional details in Chapter 3)¹³. Other groupings that we used in this report include regional health authorities (RHAs), tribal council areas (TCAs), and income quintiles.

¹³ Winnipeg RHA and urban areas of Manitoba (i.e., Winnipeg and Brandon) do not have "on-reserve" First Nations.

By Regional Health Authority

We present our findings for on- and off-reserve First Nations and AOM by RHA for a number of reasons. First, provincial health funding is allocated by RHA, and the RHAs are then mandated to provide services to the population living in that health region. Second, the RHAs provide an indication of the geographical remoteness of First Nation communities. We recognize that there are often large differences in remoteness within RHAs as well as between them. One of the surprising key findings of the 2002 First Nations Atlas was that the health of many northern First Nations was better than the health of First Nations in the south. This finding led to a new understanding of the complexity of health and health care use in Manitoba First Nations. It is instructive to draw comparisons between RHAs, as these comparisons may offer clues to differences in clinical practice that are not specific to the First Nations in that region. The RHA analysis also provides information on the relative distribution of resources, such as hospital beds, in each region, which gives additional context for the hospitalization rates presented in Chapter 9.

By Tribal Council Area

For some indicators, we present findings for on-reserve and off-reserve First Nations by tribal council area (TCA). The TCAs include the seven official Tribal Councils (TCs), as well as groupings of independent First Nation communities (Independent-North and Independent-South) and Non-Affiliated communities. These groupings are key to understanding use of healthcare services among First Nations because of the strong relationships between communities and the TCs with which they affiliate. First Nations face significant challenges based on the fragmentation of the funding and delivery systems between the federal and provincial governments, between RHAs and TCAs, and amongst their individual communities. This fragmentation severely limits implementation of the focused, strategic initiatives needed to address some of the challenges described in this report.

By Income Quintile

Income quintile groupings provide information on the influence of social and material environments on health status and healthcare use. For these analyses, we group AOM into income quintiles that represent the average household income in the area where they live. Then we compare AOM in the lowest and highest income quintiles to on- and off-reserve First Nations in urban and rural areas allow us to determine whether household income and location are associated with poor health and healthcare use.

These analyses, which are based on residential geography, need to be interpreted in the context of a highly mobile population. First Nation peoples often change from

on-reserve to off-reserve residential status and back to pursue education and employment opportunities and to seek medical care. Although the allocation of residence in this study is based on the best available data, the mobility of First Nation peoples is not always well documented.

Presentation of Results

The way the RHAs and TCAs are ordered in the graphs and tables is based on the population health status of each RHA or TCA, as measured by their premature mortality rate (PMR; death before the age of 75). Each graph shows RHAs and TCAs in order of lowest to highest PMR. The areas with the lowest PMR are considered to have the highest health status.

For findings by RHA, we compare the populations within each RHA (All First Nations vs. AOM; on-reserve vs. off-reserve First Nations). We also compare findings for each population in the RHAs to a reference value, which is the population's average for Manitoba overall. For example, we compare findings for All First Nations in each RHA to All First Nations for Manitoba overall.

For findings by TCA, when we are looking at indicators of negative (or undesirable) health outcomes, we compare the findings for on-reserve First Nations in each TCA to the TCA with the worst findings for that indicator. When we are looking at indicators of positive (or beneficial) health outcomes, we compare on-reserve First Nations in each TCA to the TCA with the best findings for that indicator. For example, we compare cancer screening rates (a positive health outcomes) for on-reserve First Nations in each TCA to the TCA with the highest screening rates.

Statistical Significance

If a difference is '**statistically significant**' or two groups are 'statistically different' from each other, then this difference is large enough that we are confident it is not just due to chance. Statistical significance describes how much confidence to put in the results. When you see a large difference that is NOT statistically significant, it is telling you that the rate for one group is probably not actually different from the rate for the comparison group, and that it could fluctuate greatly from year to year. The reasons for a difference to not be significant could be due to the finding being based on small numbers (either a small number of events, or a small underlying population), and so it could change from year to year. All of the graphs show what differences are statistically significant using numbers or symbols next to each RHA or TCA label that are explained in the corresponding footnotes below the graphs.

When an 's' appears on a graph or next to an RHA or TCA label, this indicates that the data are 'suppressed'. We can't report the finding because it is based on a small number of individuals or events (between one and five), and since

there are so few individuals or event, there is potential for individuals to be identified. To avoid identification, we use **data suppression**.

Rates and Adjustments

Graphs in this report present **adjusted rates** (where possible), while tables in the online supplement show actual numbers and **crude rates**. A rate refers to the number of events that occur for a group of people in a given period, or the number of individuals who have a characteristic that is of interest during a given period. For many indicators in this report, these numbers are presented simply as a percentage of the population that met the definition. However, some health-related events can happen to a single person more than once, and these are presented as the frequency with which they occur. For example, the physician and NP visit rate shows how often individuals visit providers each year (that is, number of visits per individual in a year). Where an indicator covers a period longer than one year, the rate is annualized (calculated as an average number of events in a year).

The rates in most graphs in this report have been statistically adjusted to account for the different age and sex composition of the different populations that we compare. This adjustment allows for fair comparisons between areas with different population characteristics. Adjusted rates show what that area's rate would have been if the area's population had the same age and sex composition as the Manitoba population. For example, adjusted rates are almost always higher than the crude rates for individuals living in the Northern Health Region, because this region has a relatively young population. Adjusted rates do not tell you how many actual people or events are being reported in that indicator. If an area has a very different age and sex composition compared to Manitoba, the adjusted rate may give you an overestimate or underestimate of the actual number of people or events reported.

Adjusted rates are essential for comparisons between populations. These comparisons provide the context to understand the results. For example, in Chapter 9, we describe the adjusted rates of hospitalization by RHA and TCA. If these results were not adjusted, we would not be able to decide if the hospitalization rate for Northern RHA was high or low compared to other RHAs. There would be no benchmark to compare the hospitalization rate to. The population in Northern RHA is quite different to that in Winnipeg, so comparing the crude numbers for Northern RHA to Winnipeg would not give us a valid result.

The online supplement¹⁴ contains crude (unadjusted) rates and the actual numbers of events and individuals observed for each indicator by RHA and TCA. This information is helpful in giving a more practical view of the number of health care system users (e.g., actual number of individuals diagnosed with cancer or admitted to hospital).

In the report, there are a few places where rates have not been adjusted, either because the events are so rare that adjustment is not possible, or because the rates are presented by sex (so adjustment by sex does not make sense). Where this is the case, it is indicated in the relevant section and in the title of the figure.

Interpretation of the Findings

When reviewing the results presented in this report, it is important to understand what determines health and what factors other than access to good healthcare determine the health of a population. Since the World Health Organization reported the work of the Commission on the Social Determinants of Health [31], it is widely accepted that measurable indicators such as education, income and employment, housing and clean water, social services and support networks all impact health. Sometimes these determinants are expressed in language such as 'social and physical environments', but we can recognize that poverty and exclusion are at the basis of all such indicators.

It is important that we recognize the unique determinants health experienced by First Nation people, whose poverty has been imposed by generations of government policies and laws to segregate them from their own lands and waters, and restrict them from building a livelihood in their own country [32]. Generations of First Nation children have been taken from their families, first by residential schools, and then by child welfare authorities. Many suffered horrible abuse, and many lost their cultural foundations and their languages [1]. Under the Indian Act, First Nation peoples were prevented from traveling and participating in the economy, and exclusion and racism grew. Canada has a history of separating First Nation peoples from other Manitobans into 'Indian Hospitals', which were underfunded and provided inferior healthcare [33]. Until recent years, education systems across Canada have failed to teach a balanced and inclusive history of this country, which has allowed prejudice to grow [1].

Thus, when this report presents the statistical reality of ill health among First Nations in Manitoba, it is incumbent upon the reader to understand and take into account the social and historical context of inequity experienced by First Nation peoples and the significance of what are termed the Indigenous determinants of health (Table 3.1).

¹⁴ <http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html>

Table 3.1 Key Determinants of Health

Reproduced from Postl et al., (2010) [34]

World Health Organization	Canada	Indigenous Peoples
<ul style="list-style-type: none"> • Social Gradient • Stress • Social Exclusion • Work • Unemployment • Social Support • Early Life 	<ul style="list-style-type: none"> • Education • Income and Social Status • Social Support Networks • Employment and Working Conditions • Social and Physical Environments • Personal Health Practices and Coping Skills • Healthy Child Development • Culture • Gender • Health Services • Biology • Genetic Endowment 	<ul style="list-style-type: none"> • Cultural Continuity • Physical and Social Environments • Self-Determination • Connectivity to Land and Reconciliation • History of Health Issues • Racism and Marginalization

The social determinants of health identified by the WHO and by Canada (in the left-most and centre columns of Table 3.1) apply to First Nation peoples in addition to a number of Indigenous-specific health determinants. These Indigenous determinants of health include whether the people have re-connected with their lands, their cultures and languages; whether their communities are self-governing; how many live in overcrowded houses with no access to clean water; and how they deal with ongoing racism and exclusion.¹⁵

¹⁵ For more information on the social and Indigenous determinants of health, see Reading and Wien (2009) [96] and the website of the National Collaborating Centre on Aboriginal Health (<http://nccah.ca/publications>).

Chapter 4: Population Description

Introduction

Both the health status and the health care use of a population are influenced by population characteristics like age and sex. For example, an older population is likely to have more visits to primary care providers and to be diagnosed with more chronic disease, which results in more visits and prescription drug use. In their reproductive years, females tend to have more primary care visits related to contraception, pregnancy and screening. It is important to know the characteristics of the populations when comparing different populations. While this chapter provides this information, we also address the differences in population age and sex throughout this report by adjusting the populations we compare. This allows us to make more accurate comparisons between populations such as different TCAs or RHAs. More details on how we adjusted populations are available in Chapter 3.

Looking at the age distribution of the population also helps with planning for future needs. **Population pyramids** are graphic representations of the age and sex composition of a population (all ages). The percent and number of residents within each five-year age group (from 0–4 to 90+) are shown for both males and females.

Most developing countries of the world have a population pyramid in the shape of a triangle, indicating that most of the population is very young, with few people in the oldest age brackets. Most industrial countries have a population pyramid that looks more rectangular, with the young and middle-age people representing similar (smaller) percentages of the population, and many more elderly people in the top part of the pyramid compared to developing countries.

Results

Figures 4.1 and 4.2 show the age and sex profiles of RHAs and TCAs in Manitoba. Table 4.1 shows the number and percent of people in each population in the report (First Nations on-reserve, First Nations off-reserve, All First Nations and AOM). Table 4.2 shows the number of First Nation individuals living in each of the TCAs. These tables and graphs are intended to support health service planning and delivery.

Key Findings

The population pyramids clearly show the differences in population age and sex between First Nations and AOM. There is a consistent pattern of more of the First Nation population being under 30 years old and more of the AOM population being older; these differences are particularly pronounced over age 50. This pattern exists for the Manitoba populations as a whole (Figure 4.1) and all of the RHAs (Figures 4.3-4.7).

Overall, the on-reserve and off-reserve First Nation populations are very similar in age and sex distribution, but a slightly higher percent of females above the age of 30 live off-reserve (Figure 4.2). This pattern is most pronounced in Interlake-Eastern RHA and the Northern Health Region (Figures 4.11 and 4.12). In Interlake-Eastern RHA and the Northern Health Region, the off-reserve population is also slightly older, with fewer youth and a greater percent of middle-age individuals (Figures 4.11 and 4.12).

Figures 4.13-4.22 present the population distribution for each TCA without comparisons among the populations or age groups.

The age and sex distribution of First Nations in the Non-Affiliated group is variable (Figure 4.22), most likely because of the smaller number of individuals (under 500) in this group.

Comparison to Other Findings

The percent of registered First Nations in Manitoba has increased from 8% to 10% of the Manitoba population since 1999 [6]. The number and percent of registered First Nations living on-reserve have also increased from 48,036 (57%) to 89,769 (63%). The sex distribution in the First Nation population has not changed since 1999 (around 50% males and 50% females). The age profile has increased slightly, with a smaller percent of individuals under the age of 10.

Our findings are comparable to the findings of Decker et al. (2016), who reported that First Nations comprise 10% of the population in Manitoba [35].

Table 4.1: Manitoba Population by Regional Health Authority, 2016

Regional Health Authorities	Counts	Percent	Counts	Percent	Counts	Percent	Counts	Percent
	First Nations On-Reserve		First Nations Off-Reserve		All First Nations		All Other Manitobans	
Southern Health-Santé Sud	8,531	4.3%	3,166	1.6%	11,697	5.8%	188,554	94.2%
Winnipeg RHA	n/a	n/a	29,299	3.9%	29,299	3.9%	726,297	96.1%
Prairie Mountain Health	9,299	5.5%	5,845	3.4%	15,144	8.9%	155,099	91.1%
Interlake-Eastern RHA	23,508	17.3%	4,424	3.3%	27,932	20.5%	108,101	79.5%
Northern Health Region	48,431	58.1%	8,407	10.1%	56,838	68.1%	26,590	31.9%
Manitoba	89,769	6.6%	52,196	3.9%	141,965	10.5%	1,209,214	89.5%

n/a Not applicable

Table 4.2: Manitoba Population by Tribal Council Area, 2016

Tribal Council Areas	Counts	Percent
	First Nations On-Reserve	
Interlake Reserves (IRTC)	7,429	8.3%
West Region (WRTC)	5,264	5.9%
Independent-North	19,345	21.5%
Swampy Cree (SCTC)	8,168	9.1%
Keewatin (KTC)	11,226	12.5%
Independent - South	14,011	15.6%
Dakota Ojibway TC (DOTC)	5,985	6.7%
Southeast (SERDC)	6,989	7.8%
Island Lake (ILTC)	10,855	12.1%
Non-Affiliated	497	0.6%
First Nations Total	89,769	100%

Age and Sex Distribution for Manitoba

Figure 4.1: Age Profile of Manitoba, 2016

First Nations: 141,965

All Other Manitobans: 1,209,214

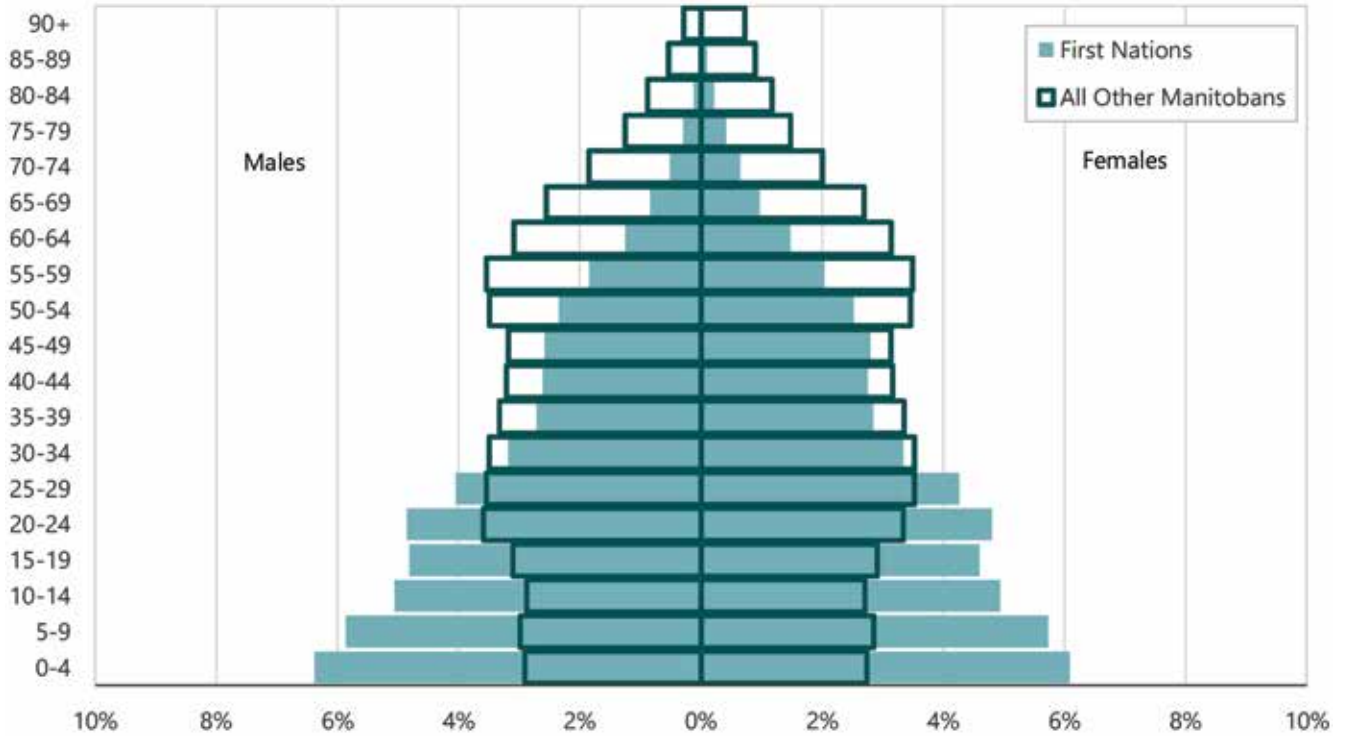


Figure 4.2: Age Profile of First Nations in Manitoba, 2016

First Nations On-Reserve: 89,769

First Nations Off-Reserve: 52,196

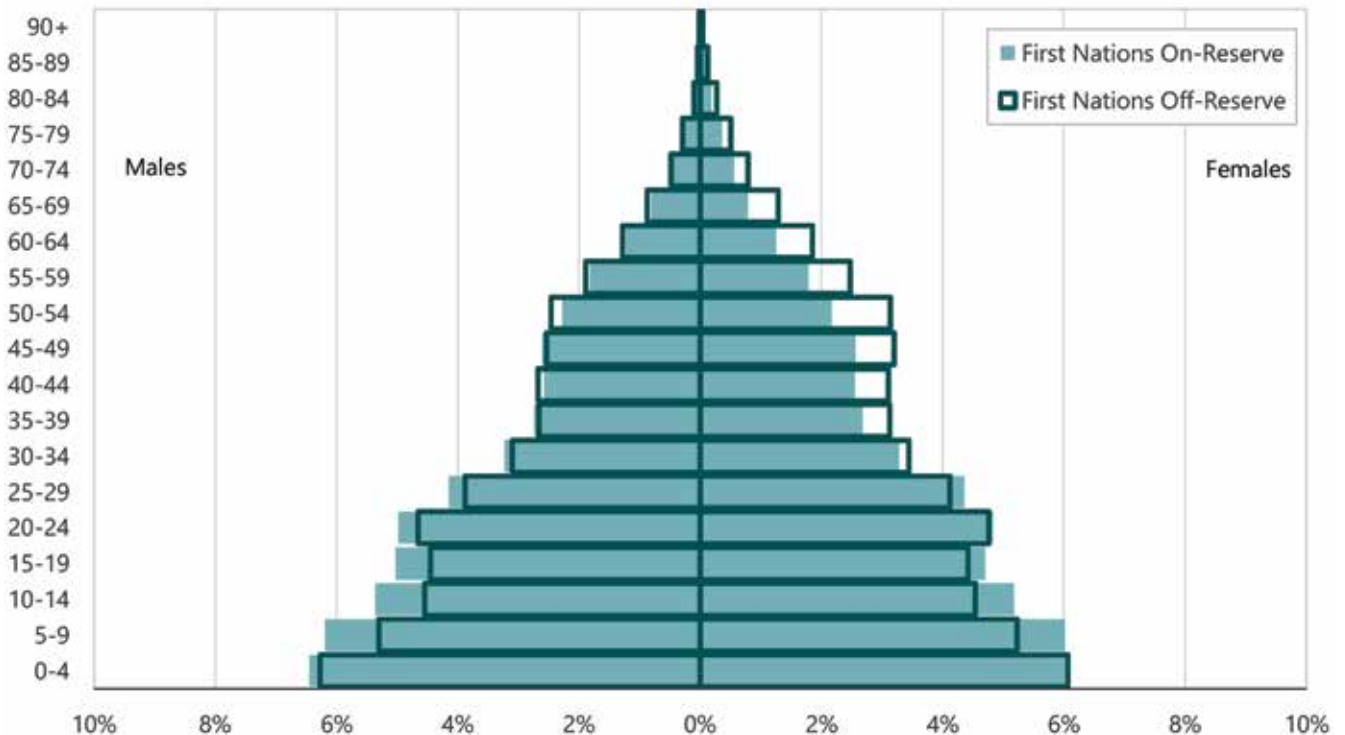


Figure 4.3: Age Profile of Southern Health-Santé Sud, 2016

First Nations: 11,697

All Other Manitobans: 188,554

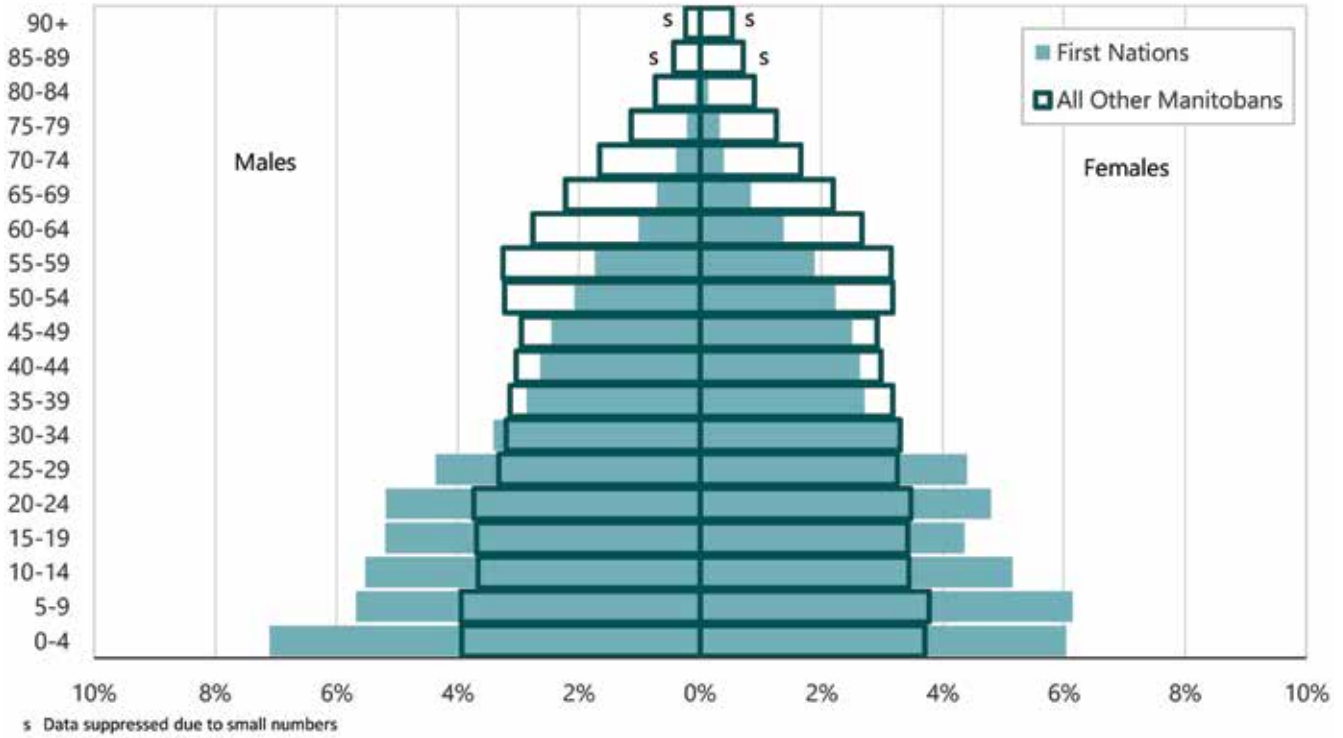


Figure 4.4: Age Profile of Winnipeg RHA, 2016

First Nations: 29,299

All Other Manitobans: 726,297

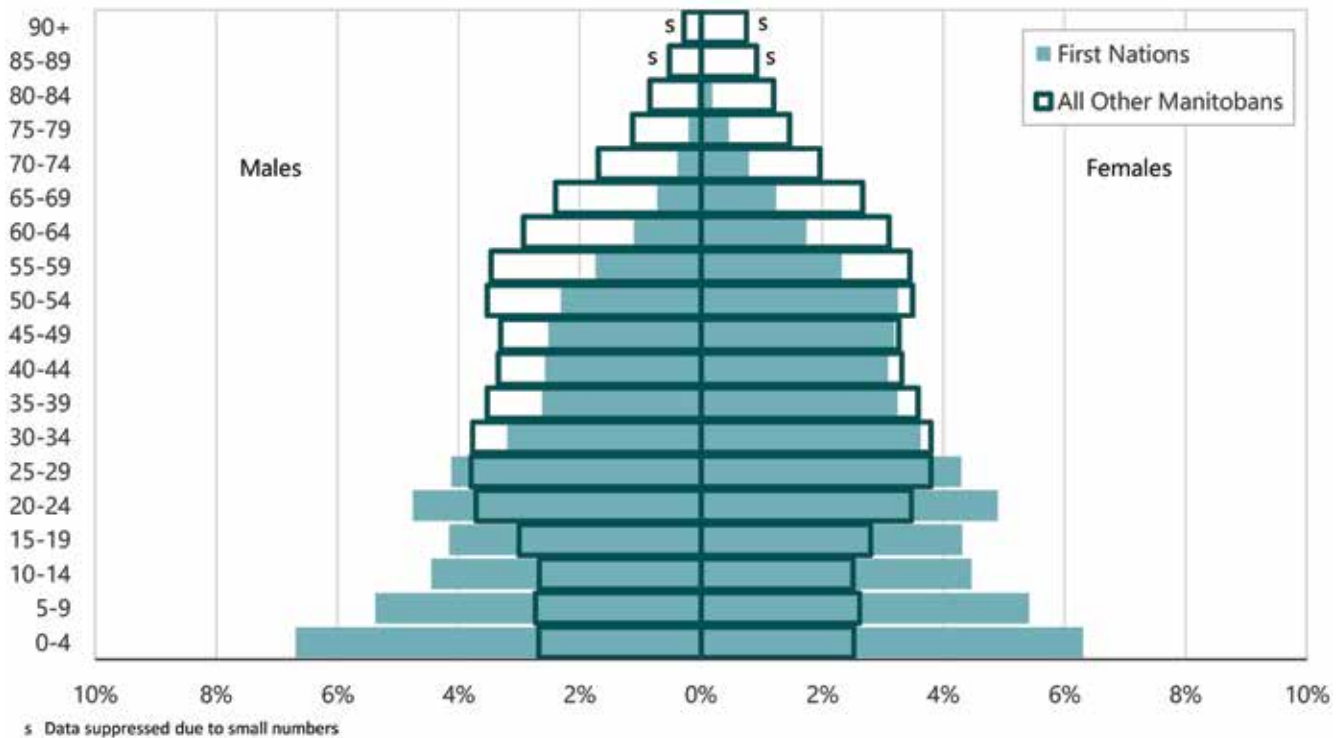


Figure 4.5: Age Profile of Prairie Mountain Health, 2016

First Nations: 15,144

All Other Manitobans: 155,099

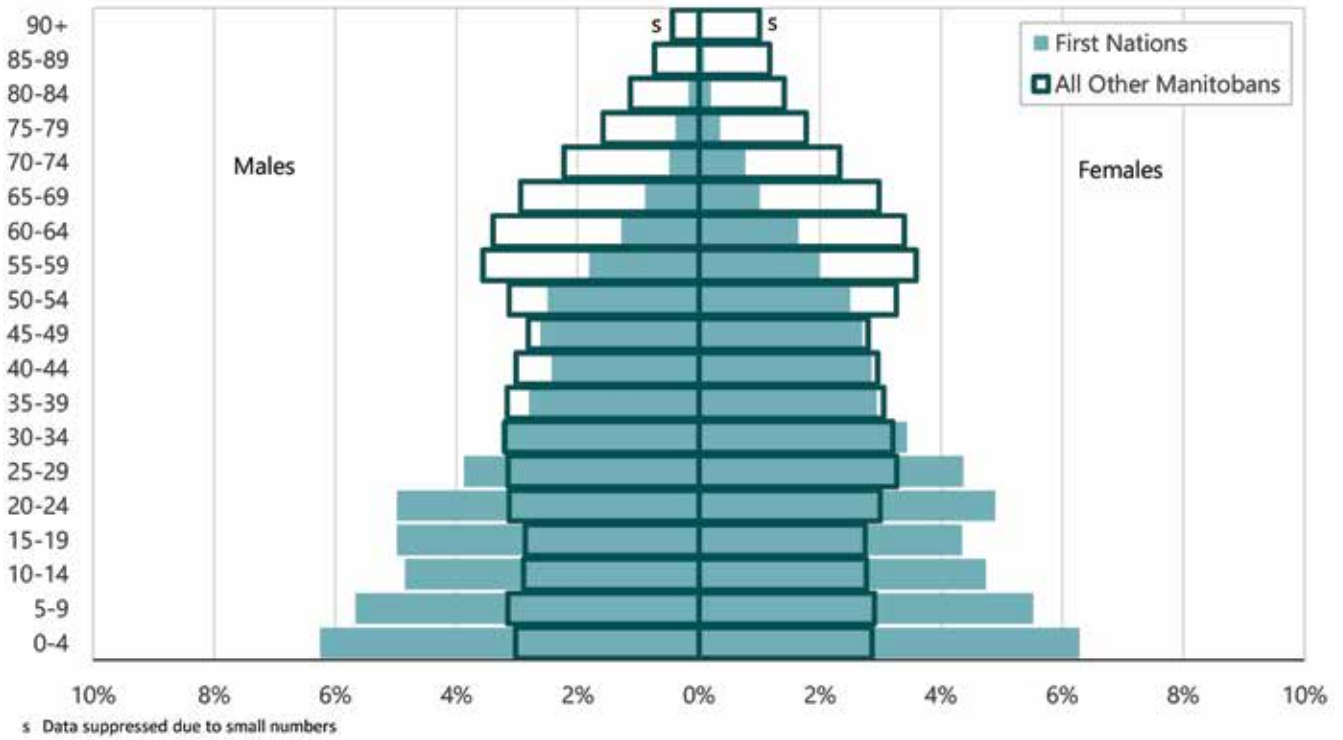


Figure 4.6: Age Profile of Interlake-Eastern RHA, 2016

First Nations: 27,932

All Other Manitobans: 108,101

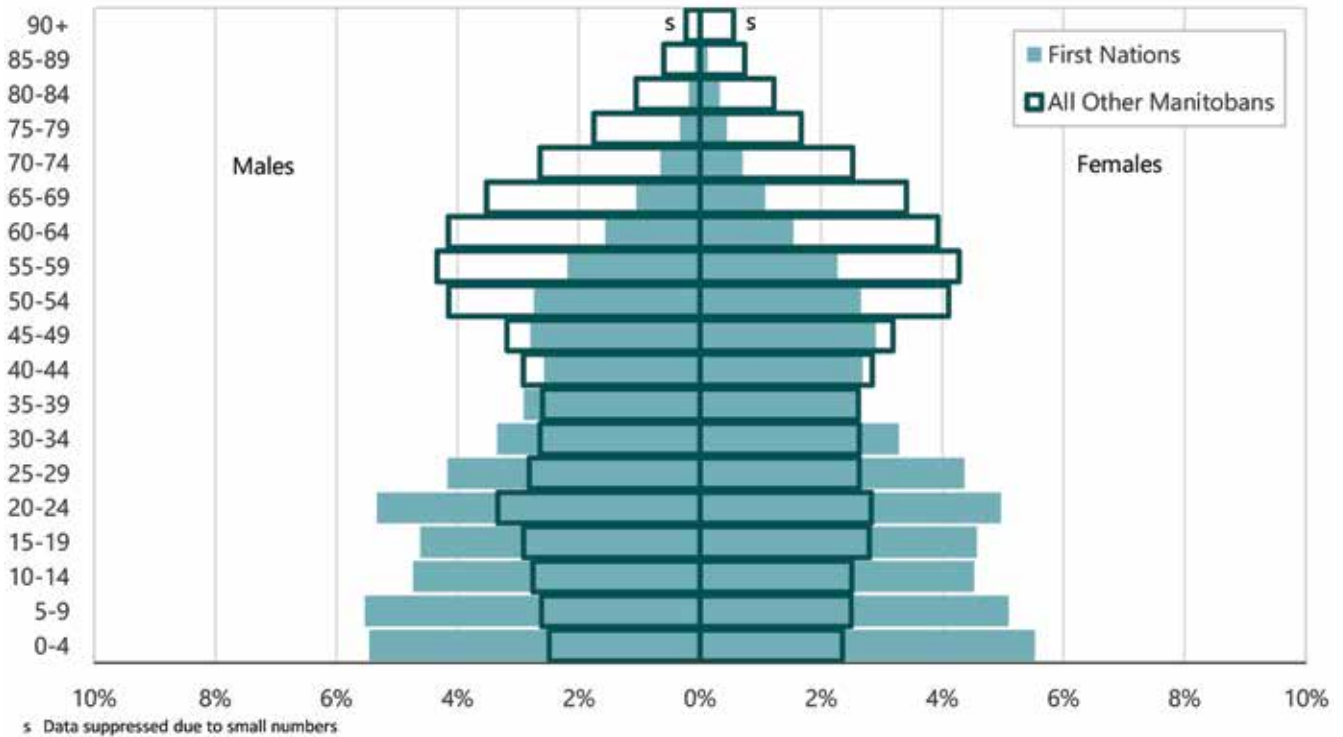
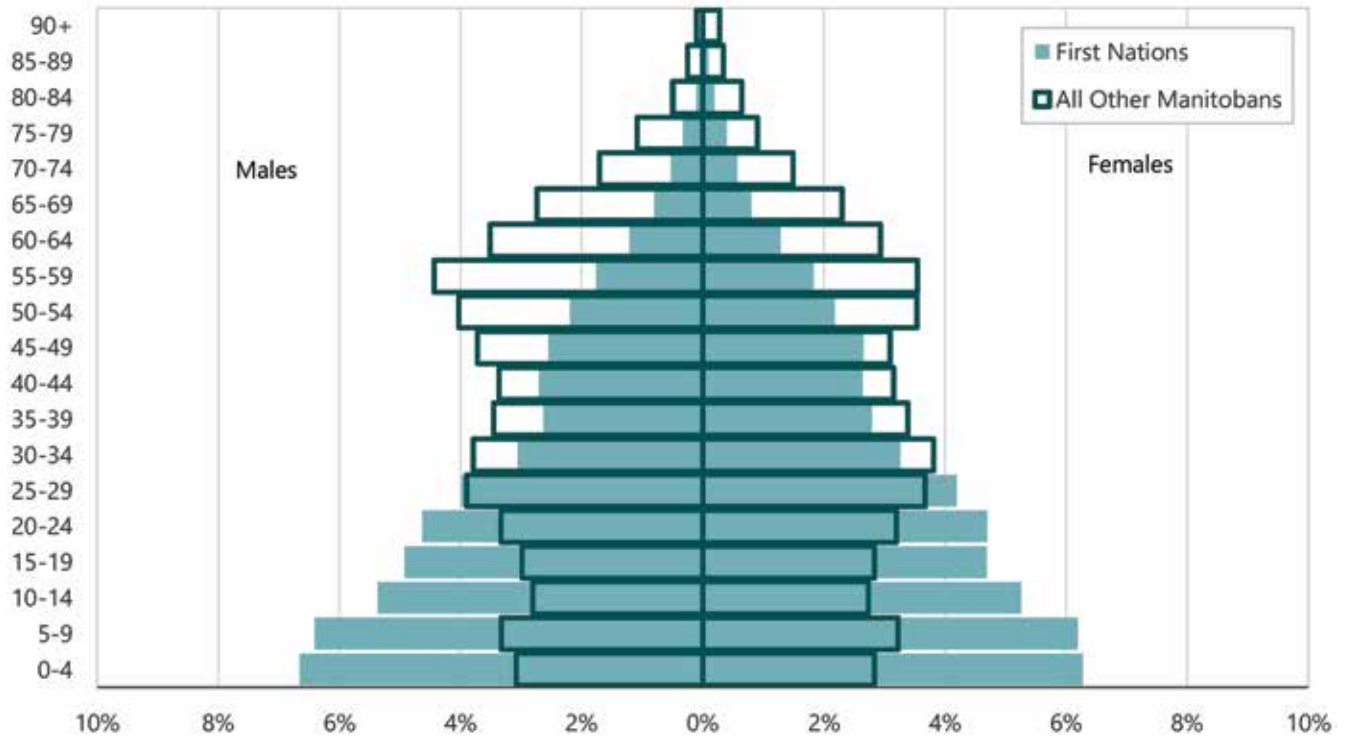


Figure 4.7: Age Profile of Northern Health Region, 2016

First Nations: 56,838

All Other Manitobans: 26,590



Age and Sex Distribution Among First Nations On-Reserve and Off-Reserve by RHA

Figure 4.8: Age Profile of First Nations in Southern Health-Santé Sud, 2016

First Nations On-Reserve: 8,531

First Nations Off-Reserve: 3,166

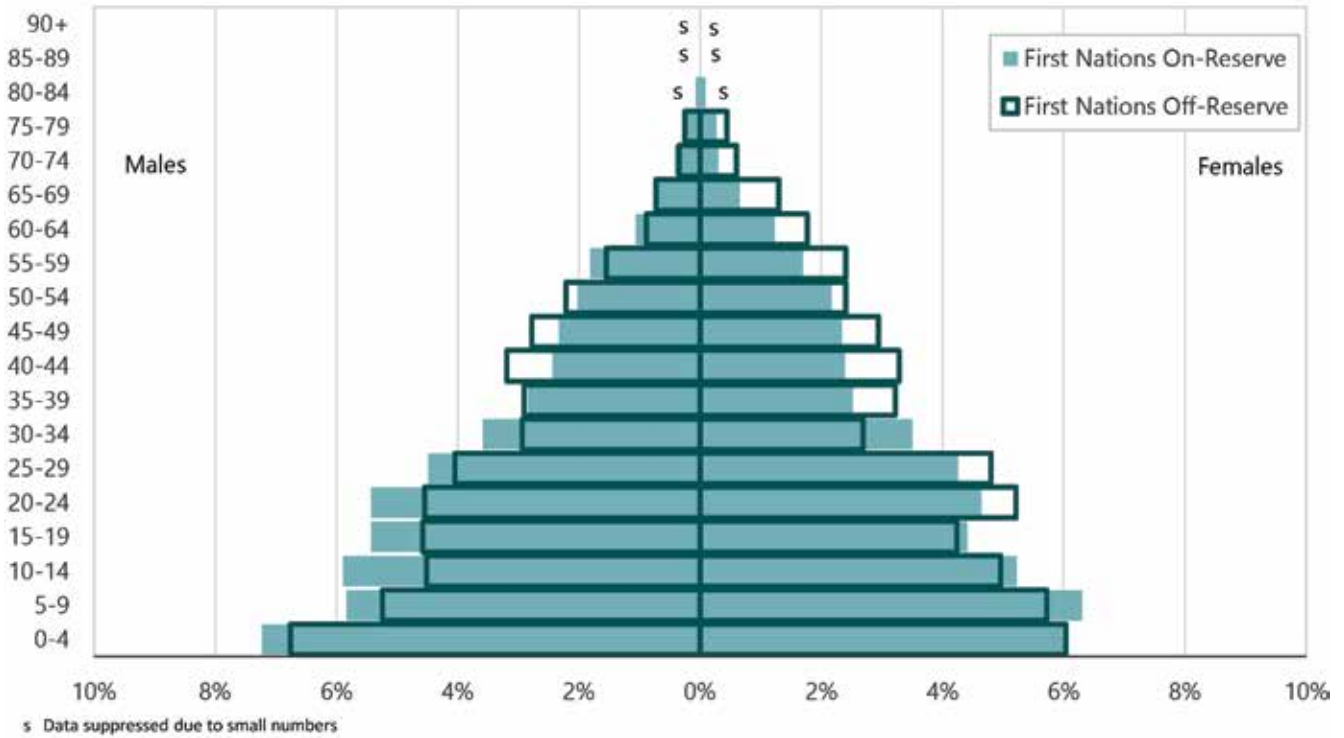


Figure 4.9: Age Profile of First Nations in Winnipeg RHA, 2016

First Nations Off-Reserve: 29,299

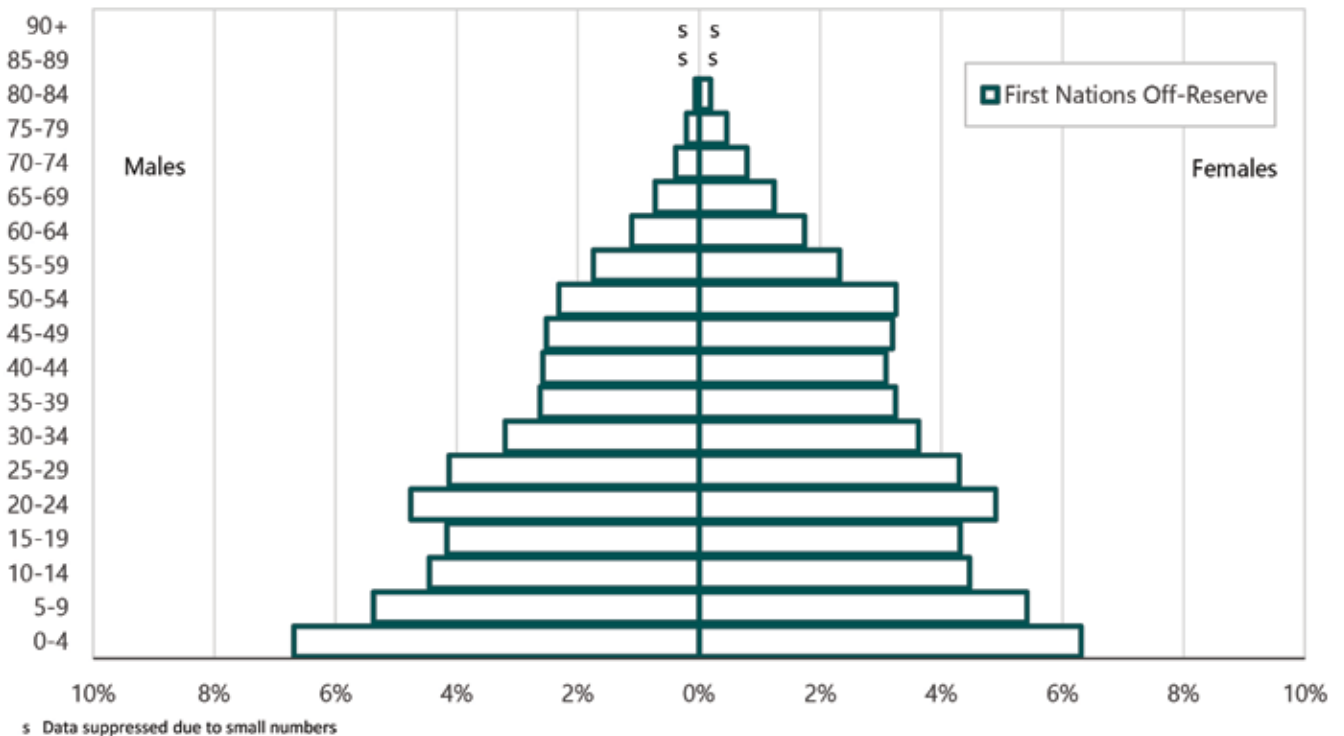


Figure 4.10: Age Profile of First Nations in Prairie Mountain Health, 2016

First Nations On-Reserve: 9,299

First Nations Off-Reserve: 5,845

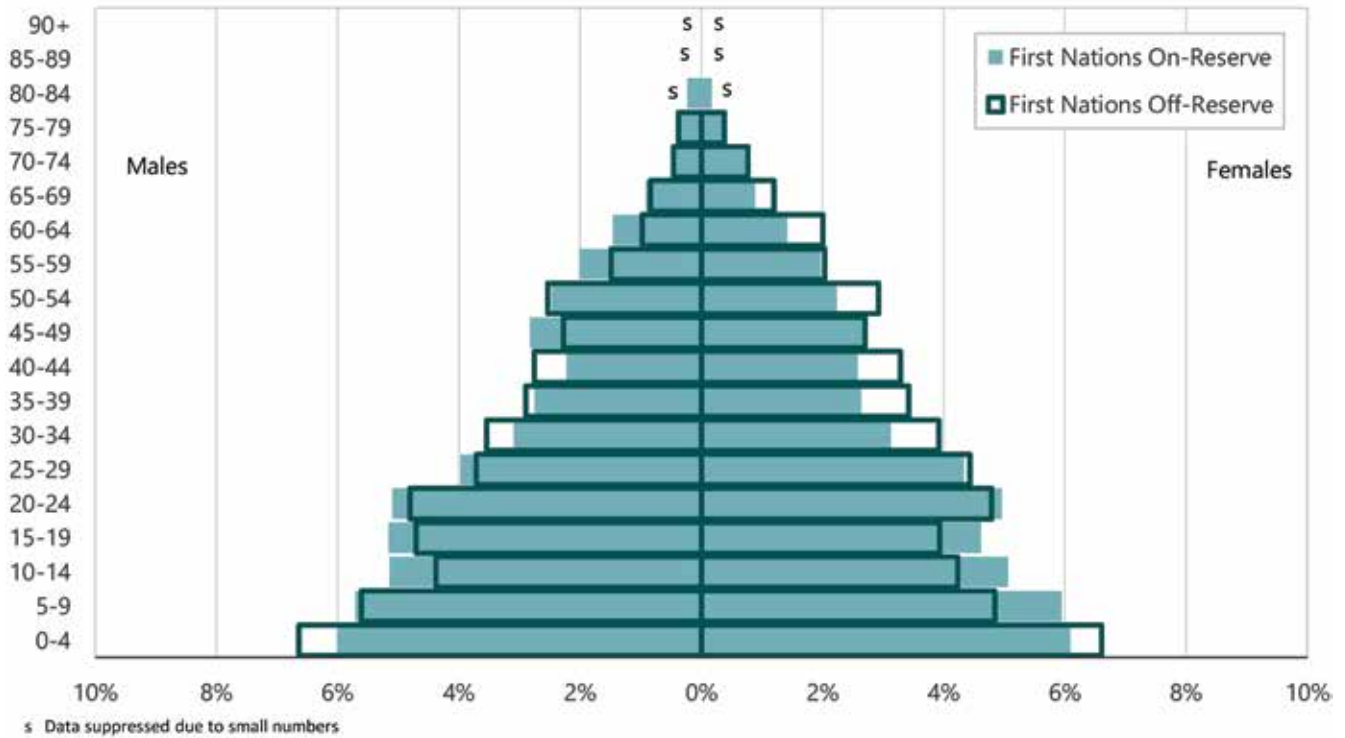


Figure 4.11: Age Profile of First Nations in Interlake-Eastern RHA, 2016

First Nations On-Reserve: 23,508

First Nations Off-Reserve: 4,424

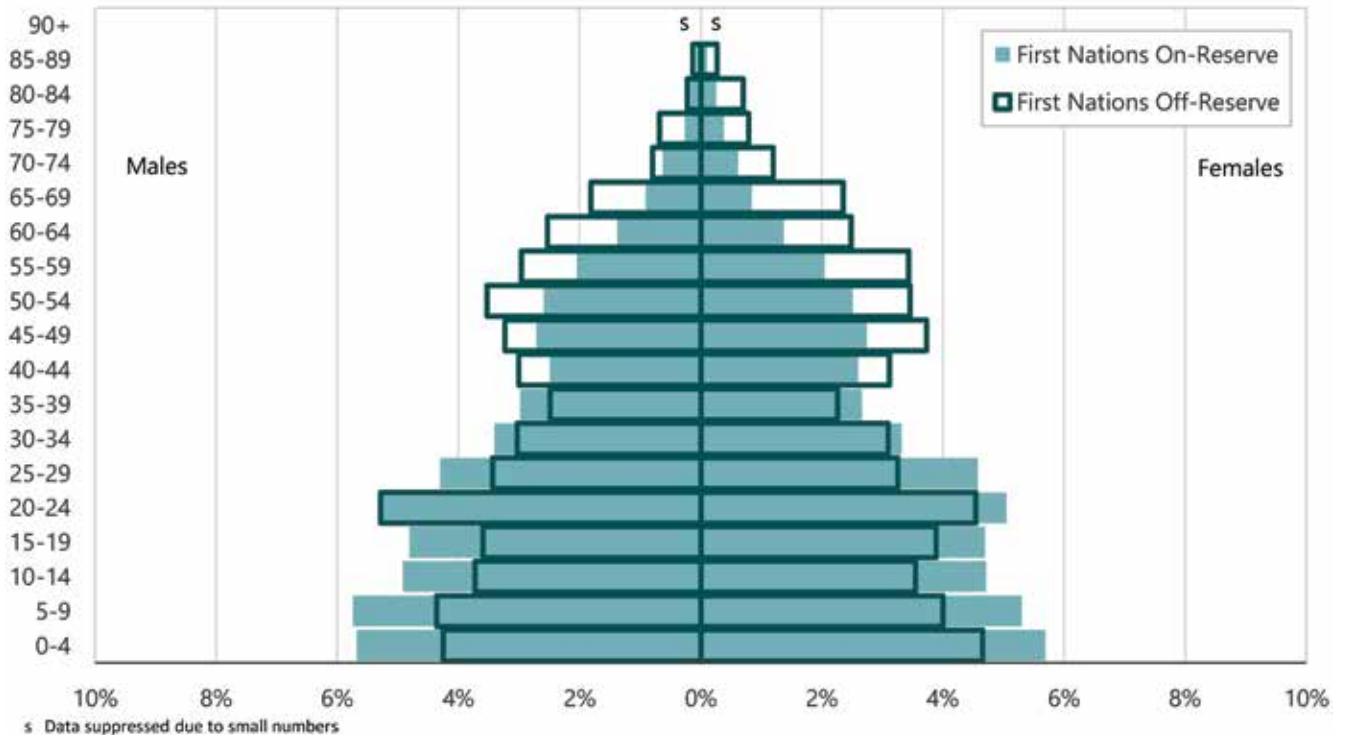
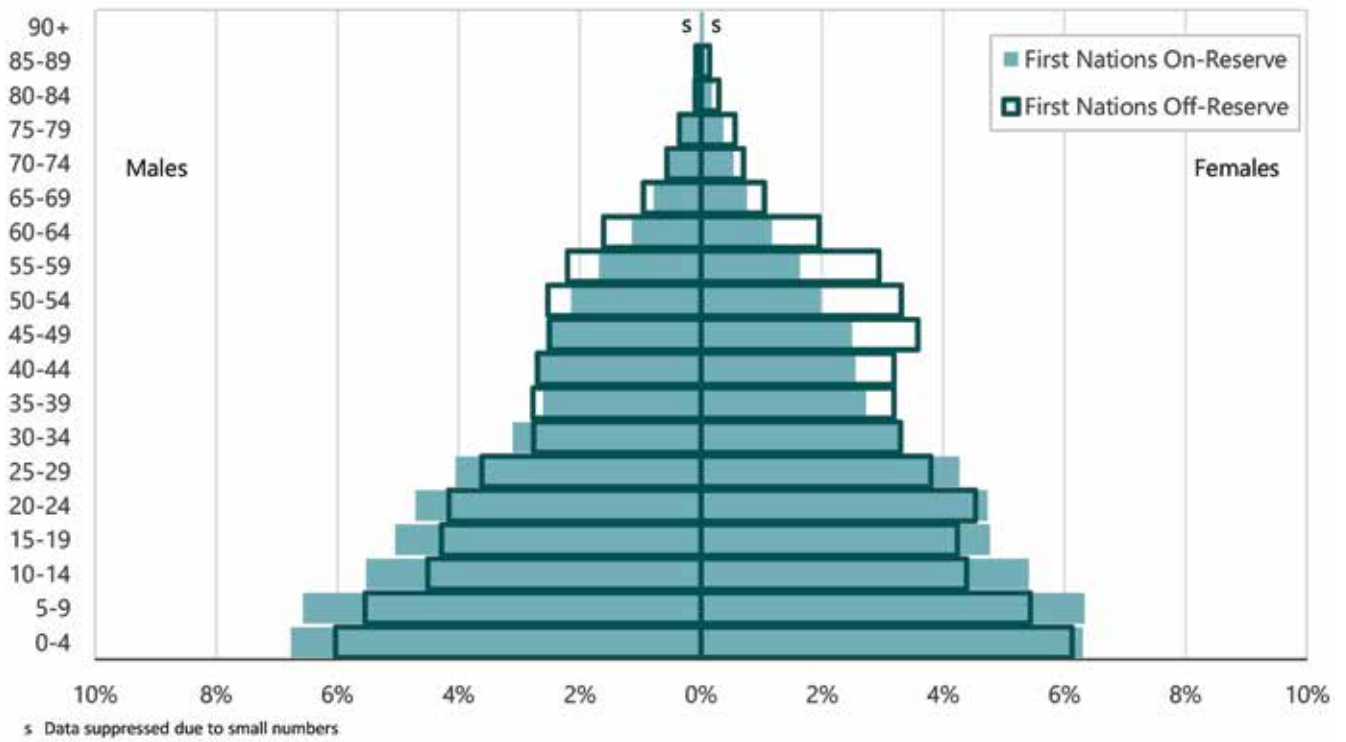


Figure 4.12: Age Profile of First Nations in Northern Health Region, 2016

First Nations On-Reserve: 48,431

First Nations Off-Reserve: 8,407



Age and Sex Distribution Among First Nations On-Reserve by Tribal Council Area

Figure 4.13: Age Profile of First Nations On-Reserve in Interlake Reserves Tribal Council Area (IRTC), 2016

IRTC: 7,429

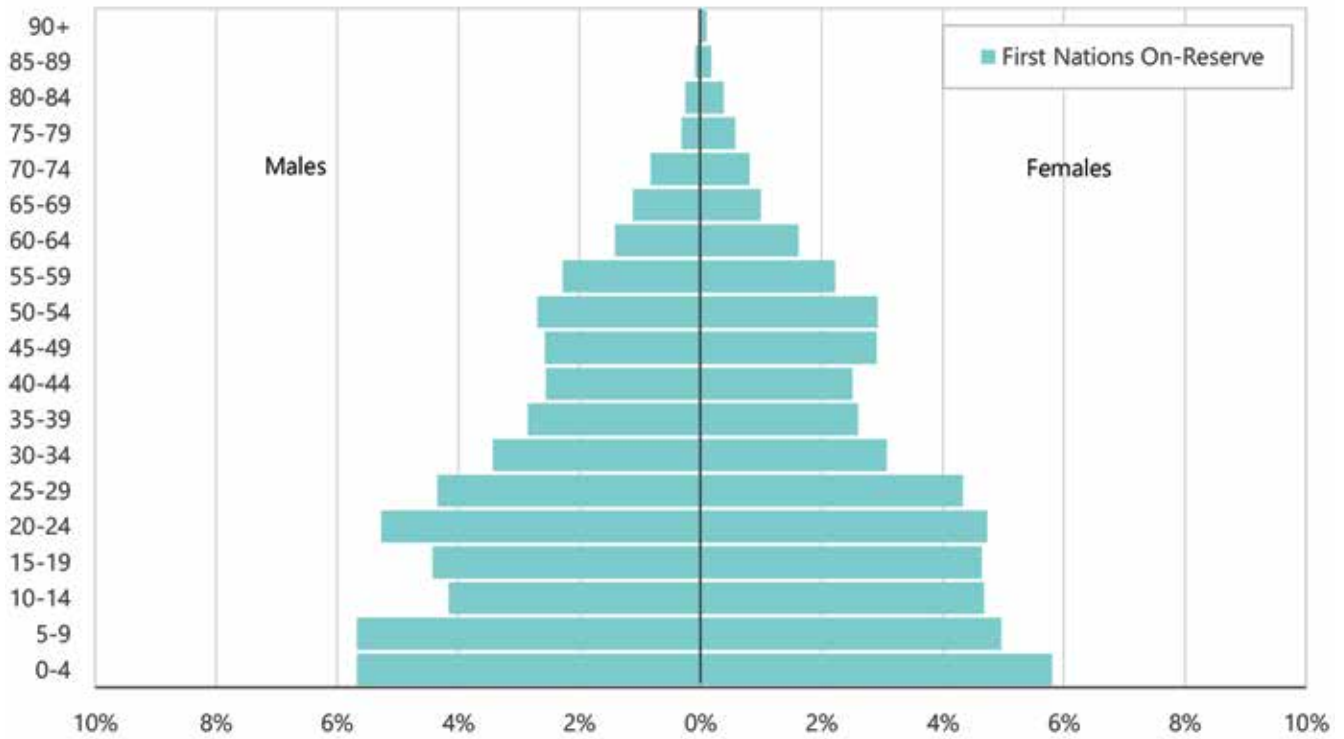


Figure 4.14: Age Profile of First Nations On-Reserve in West Region Tribal Council Area (WRTC), 2016

WRTC: 5,264

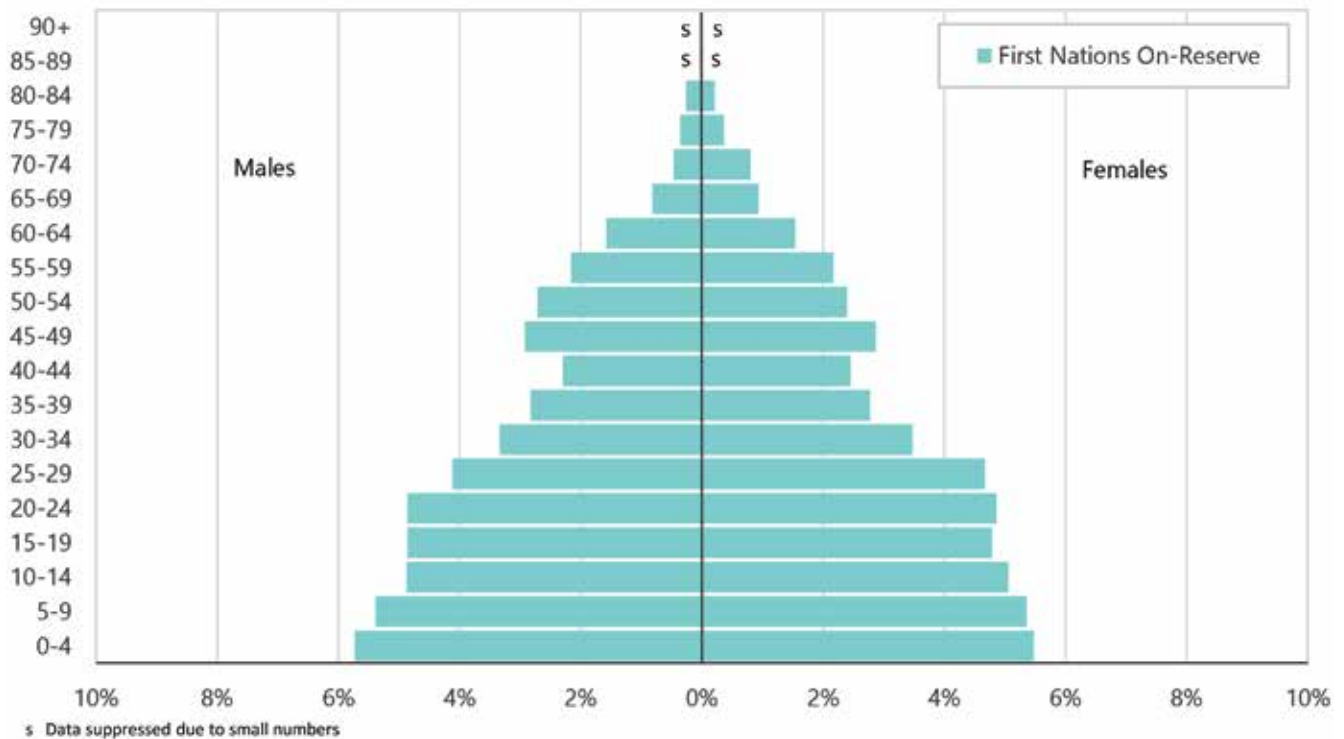


Figure 4.15: Age Profile of First Nations On-Reserve in Independent-North Tribal Council Area, 2016

Independent-North: 19,345

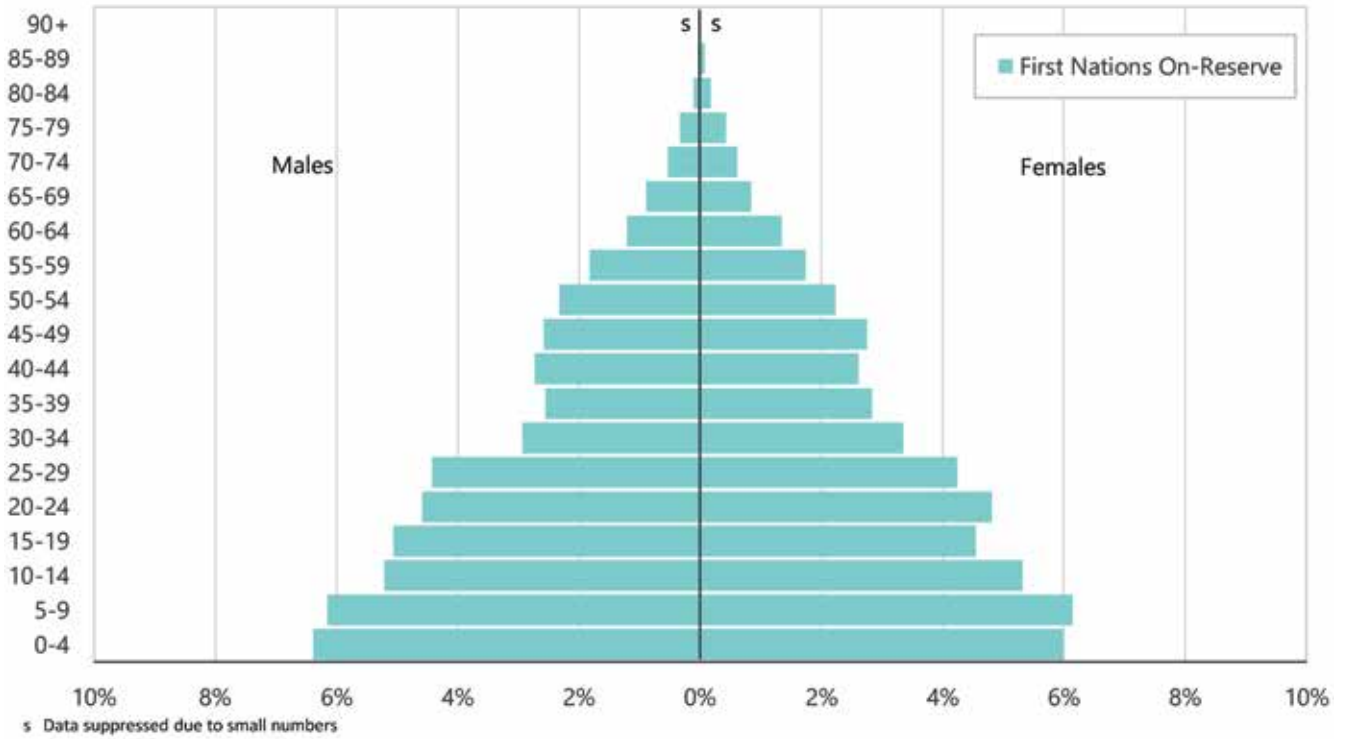


Figure 4.16: Age Profile of First Nations On-Reserve in Swampy Cree Tribal Council Area (SCTC), 2016

SCTC: 8,168

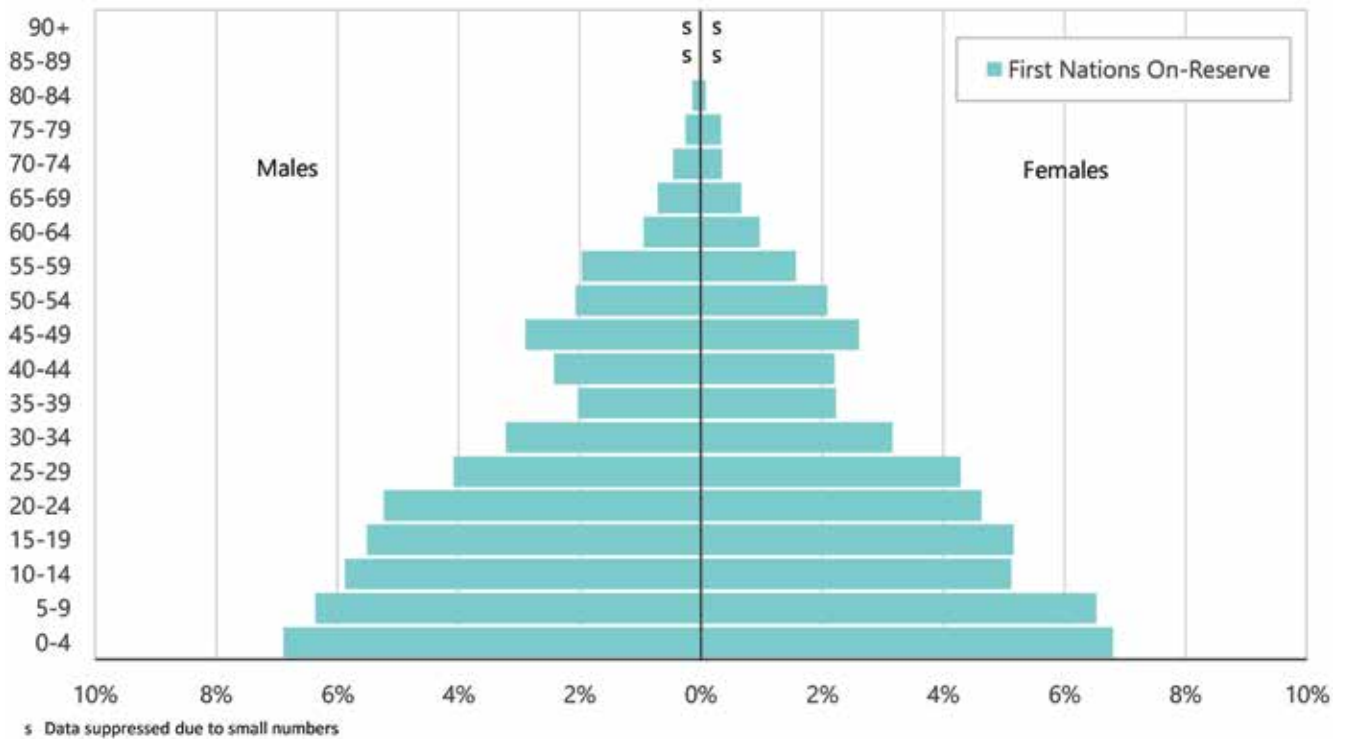


Figure 4.17: Age Profile of First Nations On-Reserve in Keewatin Tribal Council Area (KTC), 2016

KTC: 11,226

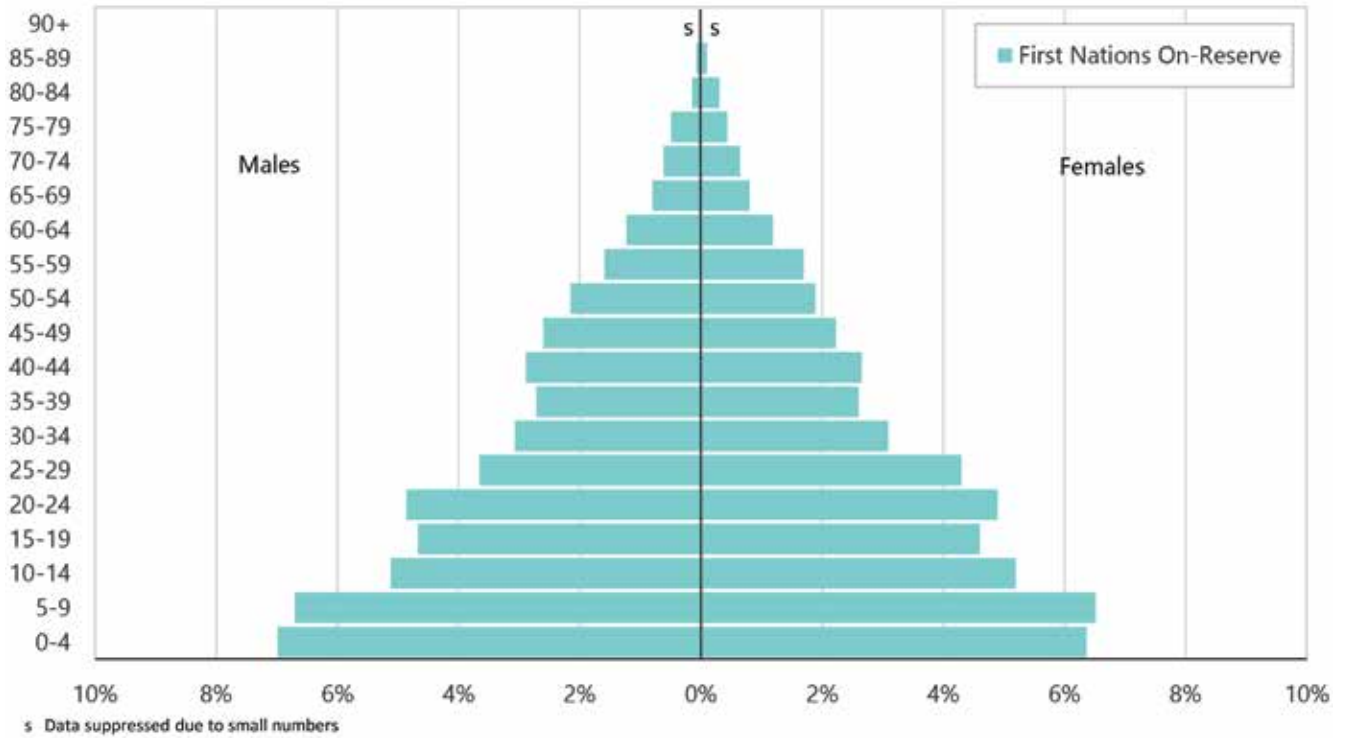


Figure 4.18: Age Profile of First Nations On-Reserve in Independent-South Tribal Council Area, 2016

Independent-South: 14,011

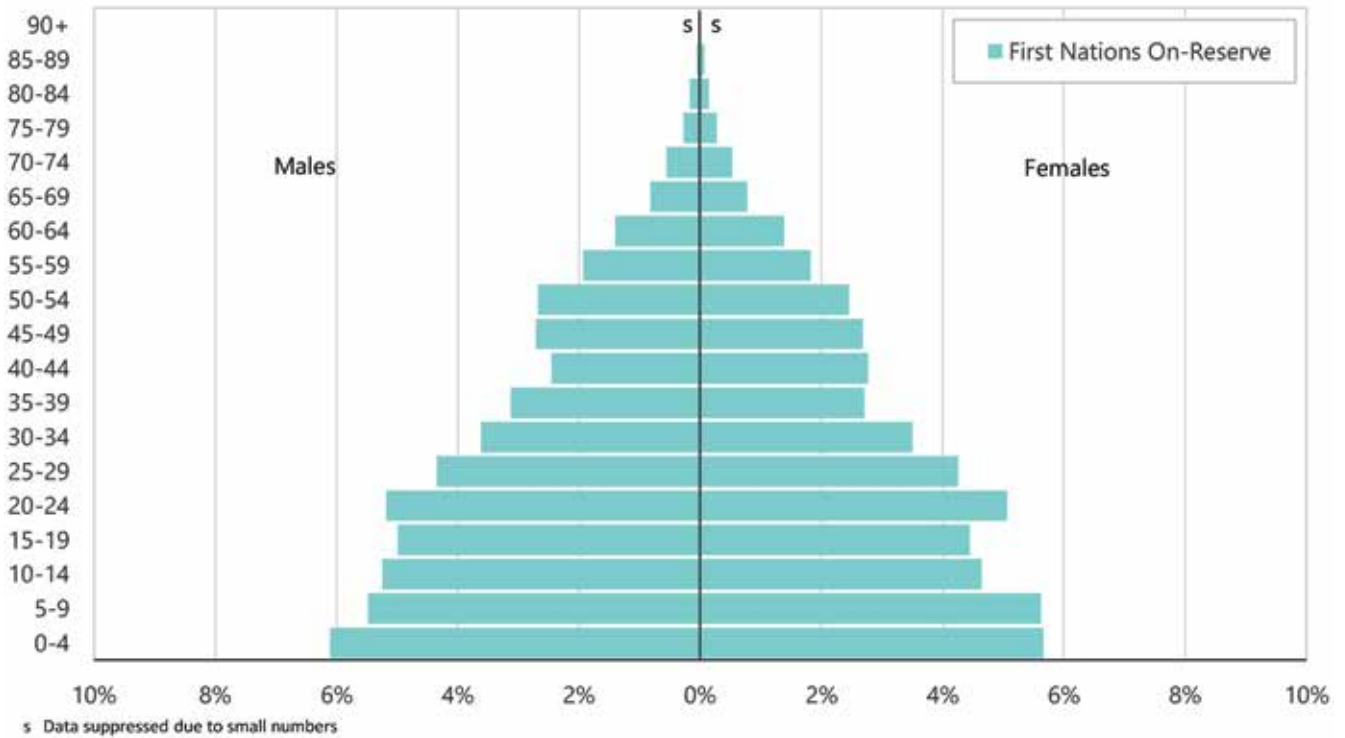


Figure 4.19: Age Profile of First Nations On-Reserve in Dakota Ojibway Tribal Council Area (DOTC), 2016

DOTC: 5,985

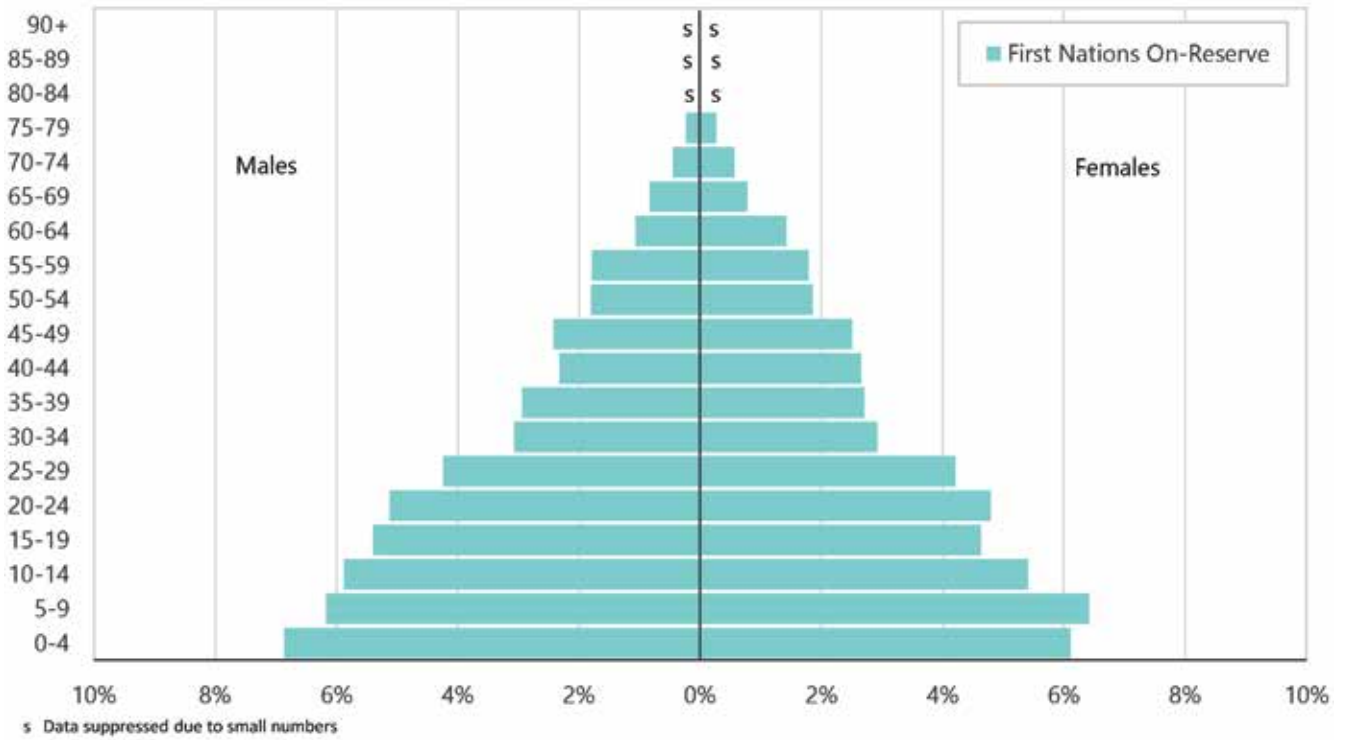


Figure 4.20: Age Profile of First Nations On-Reserve in Southeast Tribal Council Area (SERDC), 2016

SERDC: 6,989

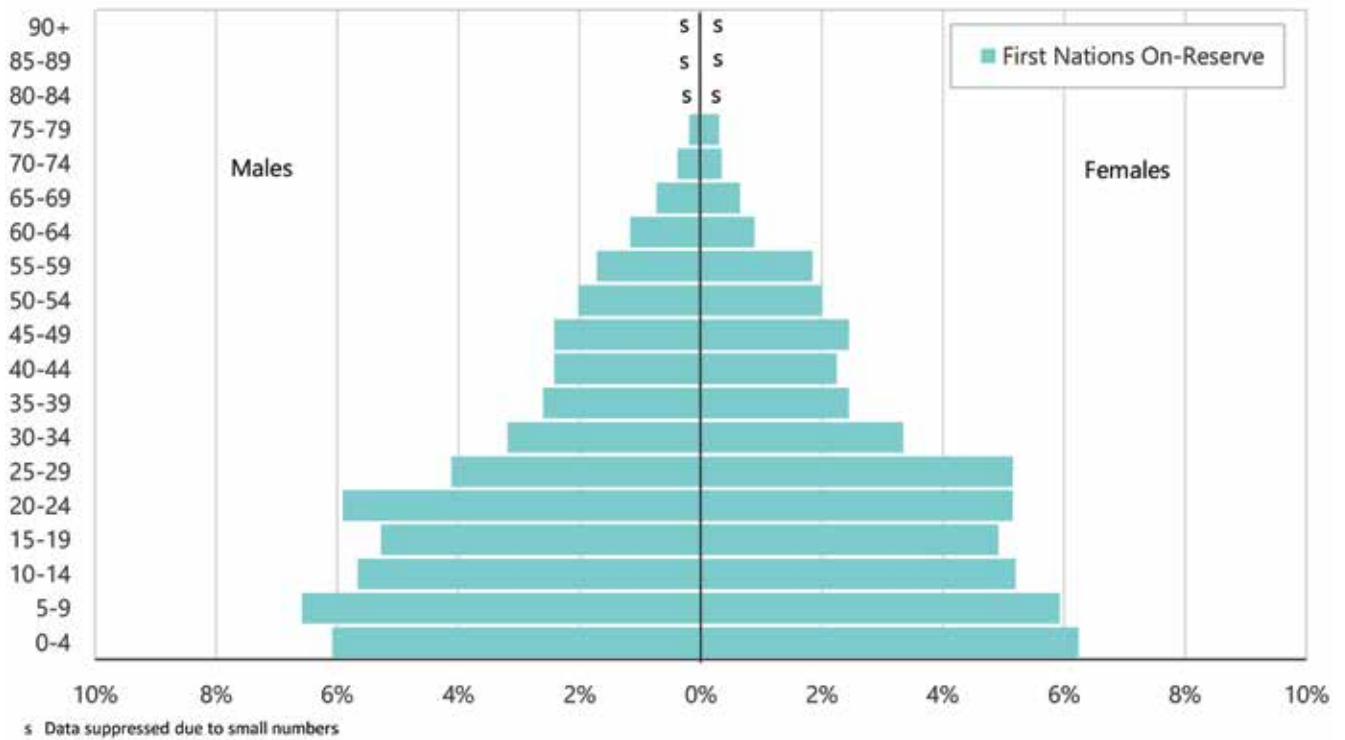


Figure 4.21: Age Profile of First Nations On-Reserve in Island Lake Tribal Council Area (ILTC), 2016

ILTC: 10,85

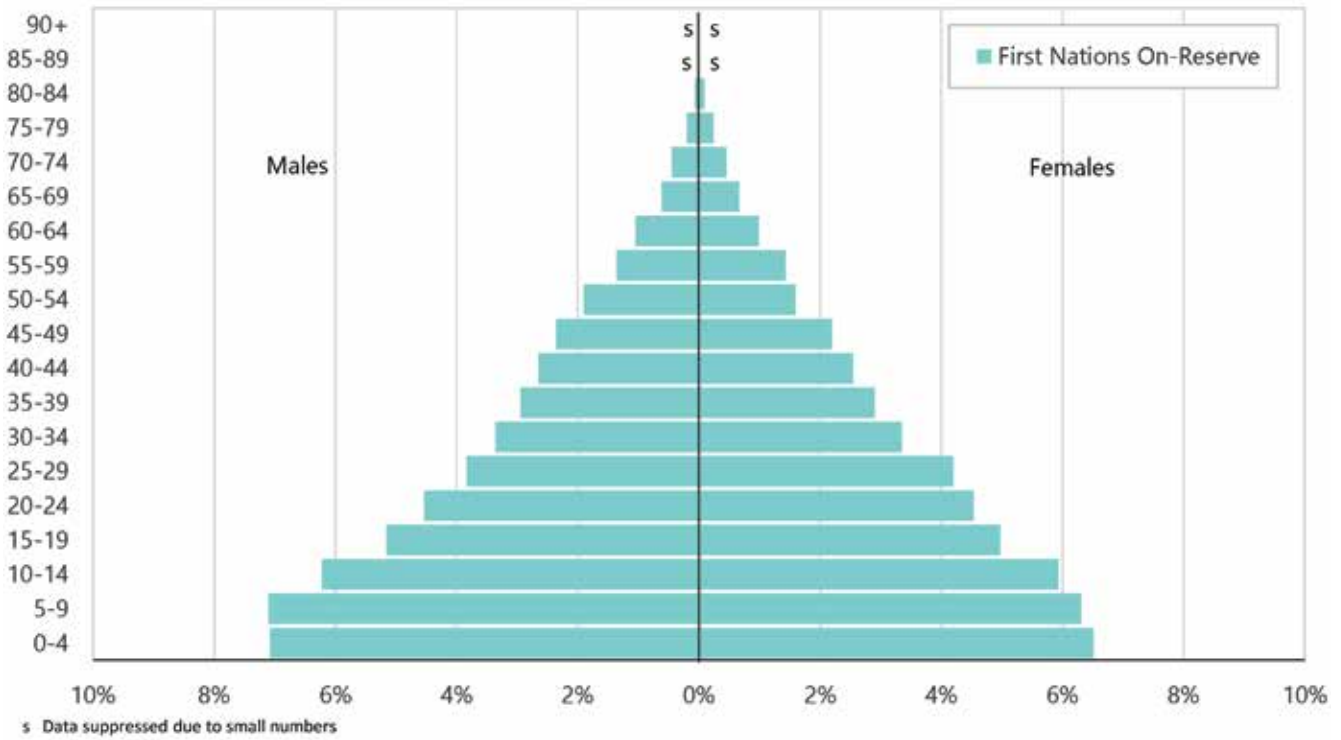
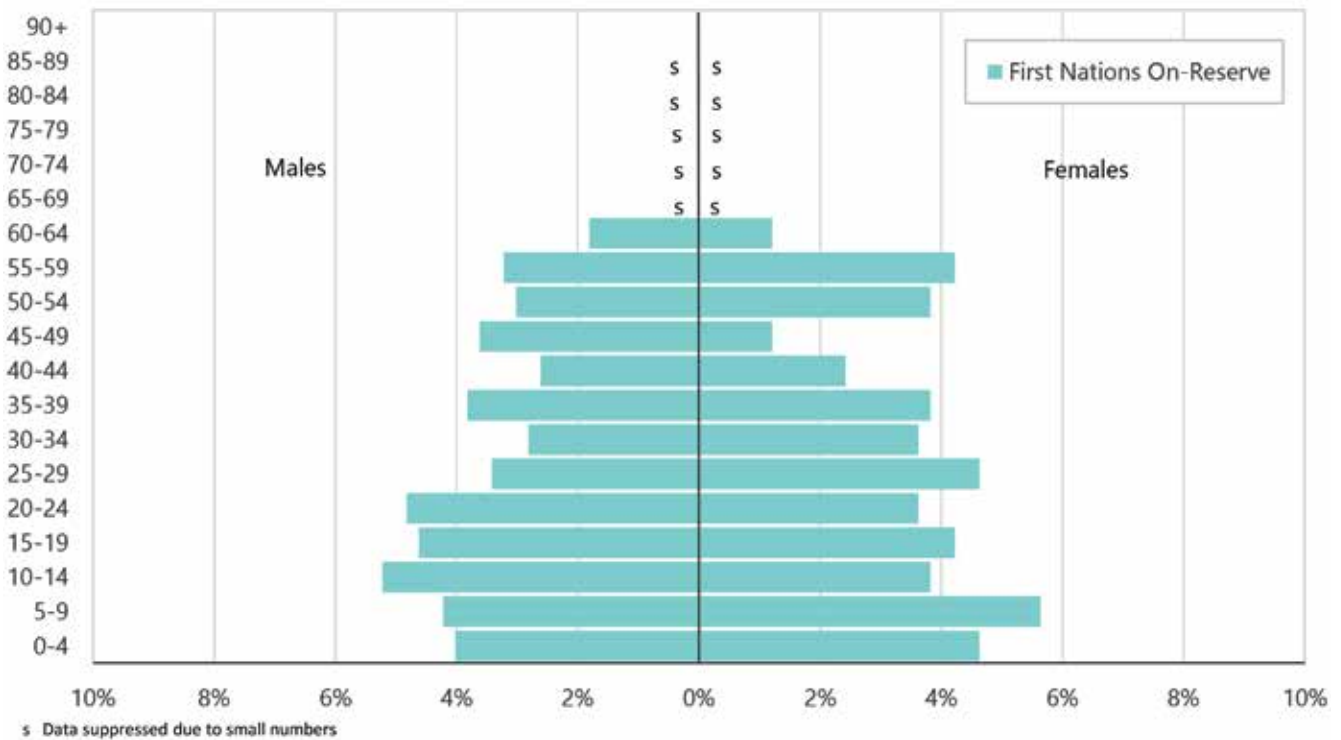


Figure 4.22: Age Profile of First Nations On-Reserve in Non-Affiliated Communities, 2016

Non-Affiliated: 497



Chapter 5: Health Status and Mortality

Introduction

Before we begin using indicators to describe the health of a population, it is important to understand that there are many factors that contribute to poor health. The quote below from King and colleagues places these factors in the context of Indigenous populations (First Nations, Metis and Inuit) in Canada. King describes additional factors that, while not measured or addressed in this report, should be considered when reviewing the results presented in this report.

“The root causes of poor health—the social determinants of health—are generally to blame for the poor state of everyone’s health, but especially Indigenous health. Such determinants are universally thought to include the classic socioeconomic indicators defined, for example, by the 1986 Ottawa Charter for Health Promotion—income, education, employment, living conditions, social support, and access to health services. These factors certainly apply to the health of Indigenous populations. However, and further, Indigenous health is widely understood to also be affected by a range of cultural factors, including racism, along with various Indigenous-specific factors, such as loss of language and connection to the land, environmental deprivation, and spiritual, emotional, and mental disconnectedness. The definition of indigeneity is, therefore, inherently social, and includes major elements of cultural identity. Being isolated from aspects of this identity is widely understood to have a negative effect on Indigenous health.” [36]

The Truth and Reconciliation Commission’s Call to Action #18 calls for all Canadian governments to “acknowledge the current state of Aboriginal [First Nations, Inuit, Metis] health in Canada is a direct result of previous Canadian government policies, including residential schools” [1].

While there are many accepted definitions of health, we presently lack good ways to measure true health. As a result, most measures of population health are actually indicators of ill health. Examples of measures of ill health include Total Mortality Rates, Premature Mortality Rates (PMR) and Potential Years of Life Lost (PYLL). We present findings for these three indicators in this report.

Total Mortality Rates

Definition: The number of people per 1,000 individuals who die per year, measured over a five-year period. The results are adjusted by age and sex to make them comparable between the different populations. The online supplement provides further details.

We note that the Truth and Reconciliation Commission's Call to Action #19 calls for annual reports to identify trends over time in infant mortality, life expectancy, and other measures. Many of these measures are reported either in this report or in MCHP's upcoming First Nation Children's Atlas.

Key Findings

The total mortality rates for All First Nations are higher than the total mortality rates for AOM in all regions and for the province as a whole. The total mortality rate for All First Nations in Manitoba is almost double the rate for AOM.

Regional Health Authorities

- There is no clear gradient in total mortality from south to north across RHAs for any of the populations.
- In all RHAs, the First Nations on-reserve rate is higher than the First Nations off-reserve rate. For Manitoba as a whole, the average rate among First Nations on-reserve is 30% higher than the rate among First Nations off-reserve.
- Although the total mortality rates for off-reserve First Nations in most RHAs look as though they differ from the Manitoba average, only First Nations living off-reserve in Interlake-Eastern RHA have statistically significantly lower rates of death.

Tribal Council Areas

- The Interlake Reserves TCA has the lowest total mortality rate among all on-reserve First Nations.
- There is no consistent statistically significant trend in death rates from south to north.
- Total mortality rate follows the general trend seen for significantly higher PMR (decreasing health status) in Dakota Ojibway, Southeast and Island Lakes TCAs compared to Interlake Reserves TCA.

Income Quintiles

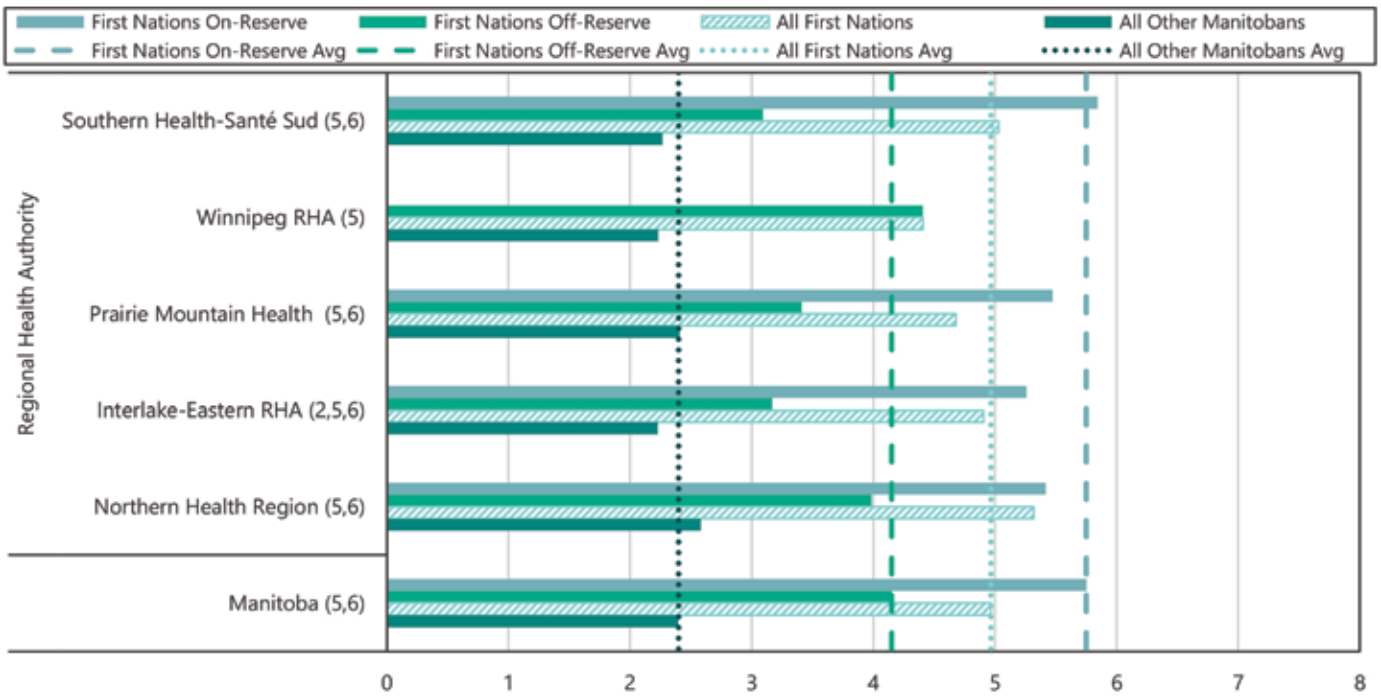
- The total mortality rates for First Nations in urban areas are three times higher than the rates for the lowest income quintile among AOM. The rates for on-reserve First Nations in rural areas are more than three times the rates for AOM in the lowest income quintile, while the rates for off-reserve First Nations are twice as high.

Comparison to Other Findings

- Total mortality rates were not included in the 2002 First Nations Atlas.
- Health Canada (2014) reported crude mortality rates for Western Canada in 2003-2007 at 4.8 per 1,000 [37]. This rate is lower than our crude rate for Manitoba (5.6 per 1,000), reported for 2012-2016 in the online supplement.

Figure 5.1: Total Mortality Rate among On-Reserve First Nations by RHA

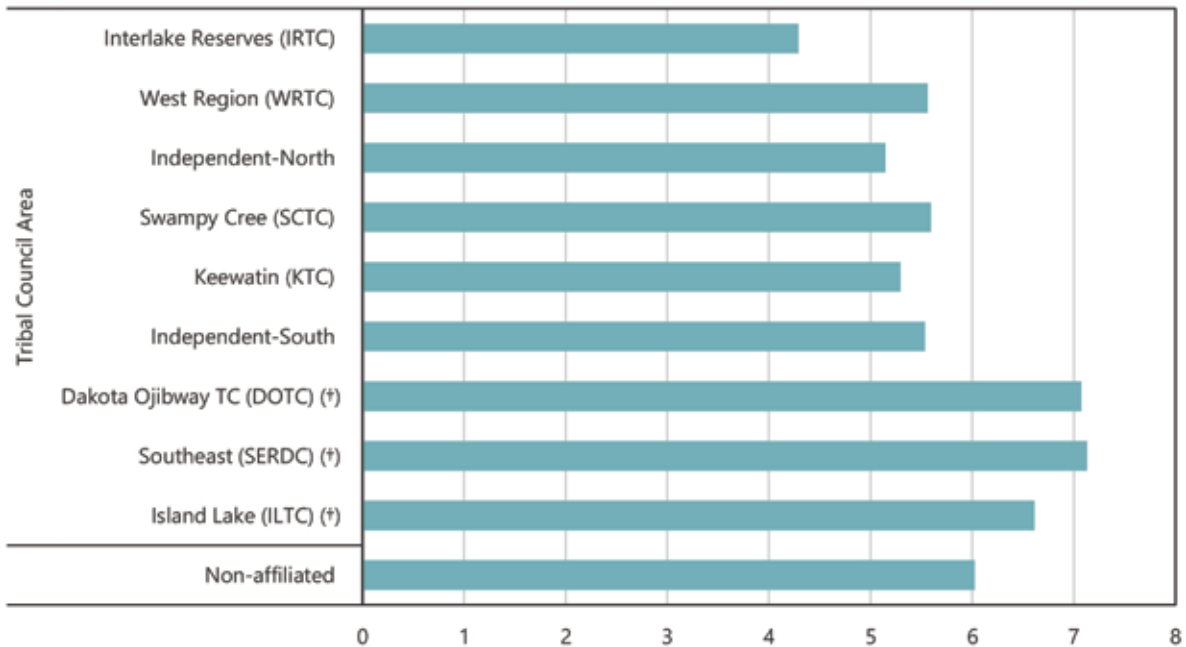
Age- and sex-adjusted, per 1,000 individuals, 2012-2016



Statistically significant differences (p<0.01):
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

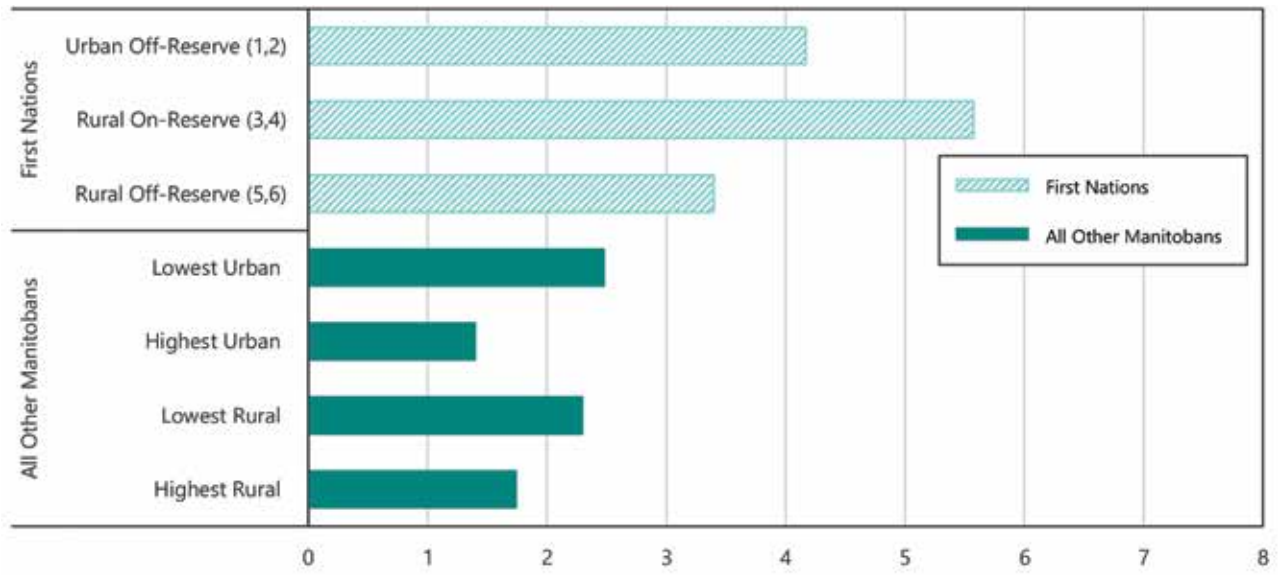
Figure 5.2: Total Mortality Rate among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, per 1,000 individuals, 2012-2016



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the best rate (IRTC)

Figure 5.3: Total Mortality Rate by Income Quintile
 Age- and sex-adjusted, per 1,000 individuals, 2012-2016



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Causes of Death

Definition: Causes of death are recorded by healthcare providers on a deceased individual's death certificate. Then, data extractors in the Vital Statistics branch of the Manitoba Government code these causes. The coding system is designed for international classification systems that do not adequately describe First Nations experiences. For example, the most common category for causes of death in many Manitoba regions is 'external causes', but this tells us very little about the actual causes of death or what we can learn about them. External causes of death may include injuries (accidental or otherwise), poisonings, and many other causes – and so we have provided a more detailed breakdown of the most commonly reported 'external causes' of death in the online supplement.

There is space on death certificates for a healthcare provider to record multiple factors that might predispose people to die, and each of these factors is coded in the data. However, we have limited our analysis to looking at the primary cause of death in this study due to study scope constraints, and also because the secondary and tertiary causes of death are not consistently recorded by the attending physician. This means, for example, that underlying conditions like tuberculosis are not taken into account in our analyses, even though tuberculosis may be a relatively common factor predisposing an individual to dying. Most deaths resulting from tuberculosis would instead be coded as respiratory failure or pneumonia.

Unlike the other mortality indicators in this chapter, the causes of death presented in Figures 5.4 to 5.10 are not adjusted by age and sex. These rates are the crude (real or observed) rates. While the rates are presented for different populations, comparisons should not be made between the populations because the differences in rates may be due to differences in age and sex between the populations.

Key Findings

The three most common causes of death for First Nations are external causes, circulatory diseases, and cancer. Together, these three causes account for more than 50% of deaths (Figure 5.4).

External causes are the most common on-reserve cause of death (24%), but circulatory diseases are the most common off-reserve cause of death (20%).

For AOM, the most common cause is circulatory disease (22%), followed closely by cancer (19%). External causes are not among the ten most common causes of death in AOM.

Figures 5.5-5.9 show the causes of death by RHA and Figure 5.10 shows the causes of death by TCA. The three most common causes are consistent across the populations; however, the order of causes is different.

Comparison to Other Findings

- The 2002 First Nations Atlas did not report causes of death.
- Our findings align with Health Canada's 2014 report on the Health of First Nations, which stated that external causes of death was the leading cause of deaths among First Nations in Western Canada in 2003-2007, followed by diseases of the circulatory system and neoplasms (tumour and cancer growths) [37].

Figure 5.4: Causes of Death in Manitoba
Crude percent of deaths, 2012-2016

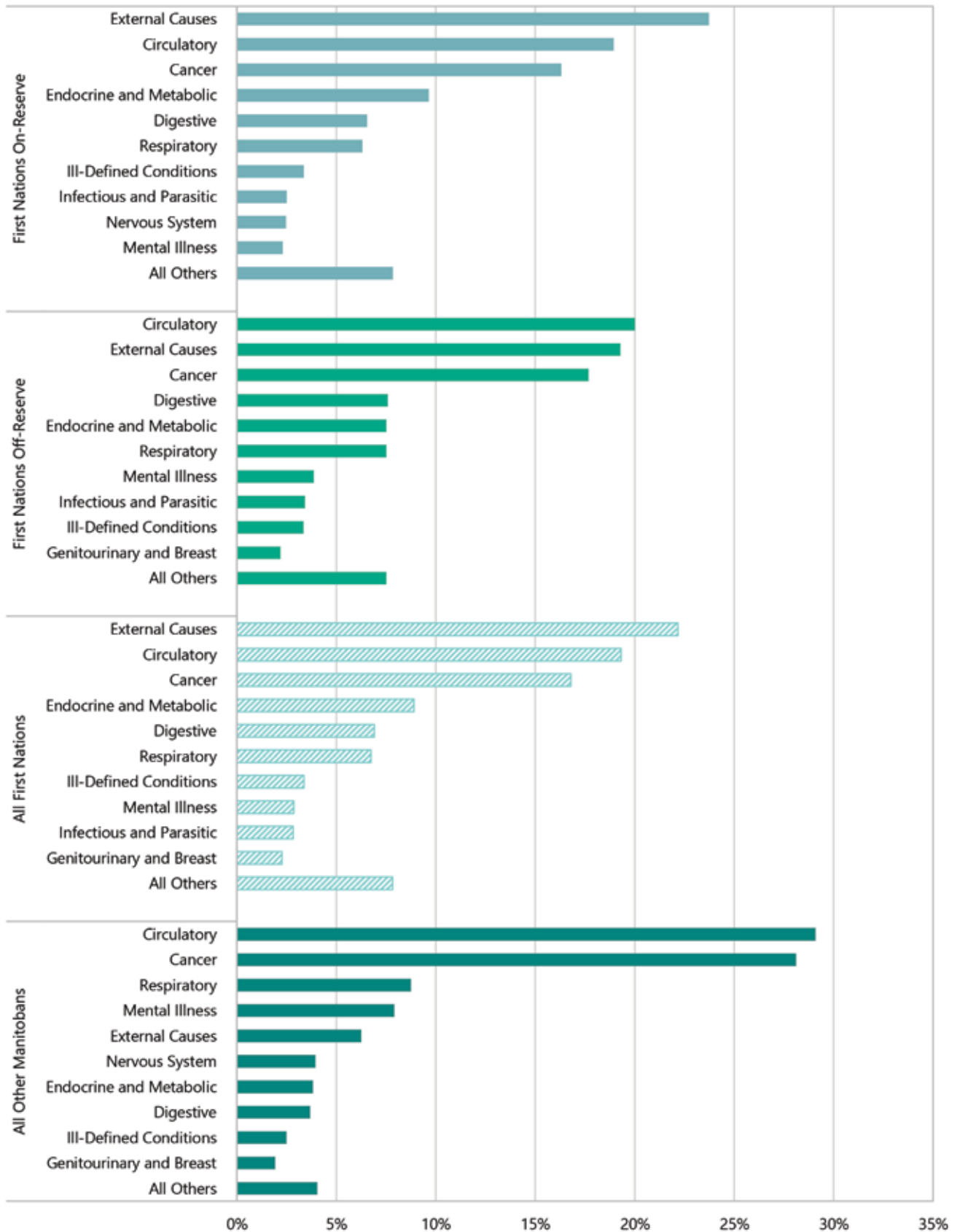


Figure 5.5: Causes of Death in Southern Health-Santé Sud
Crude percent of deaths, 2012-2016

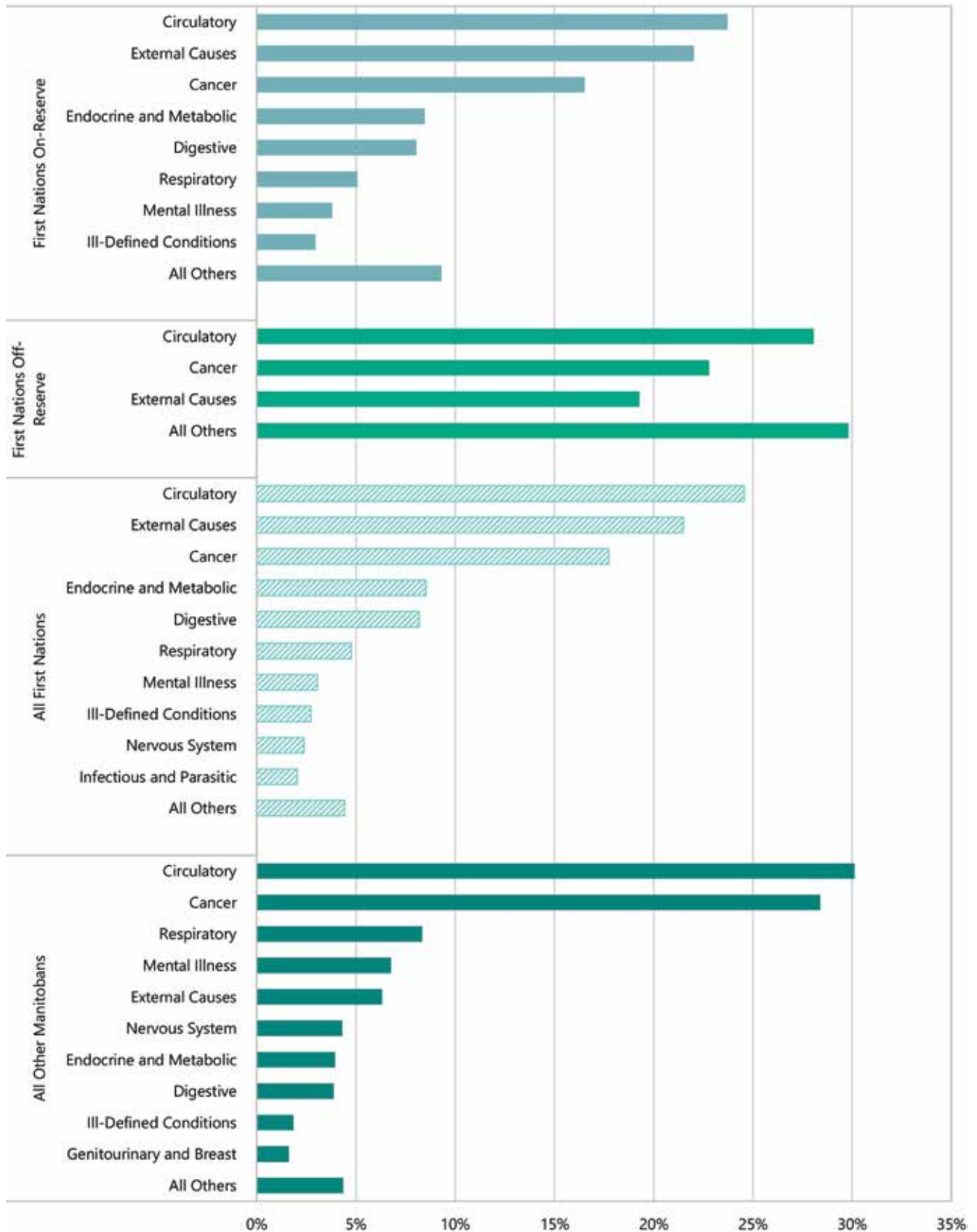


Figure 5.6: Causes of Death in Winnipeg RHA

Crude percent of deaths, 2012-2016

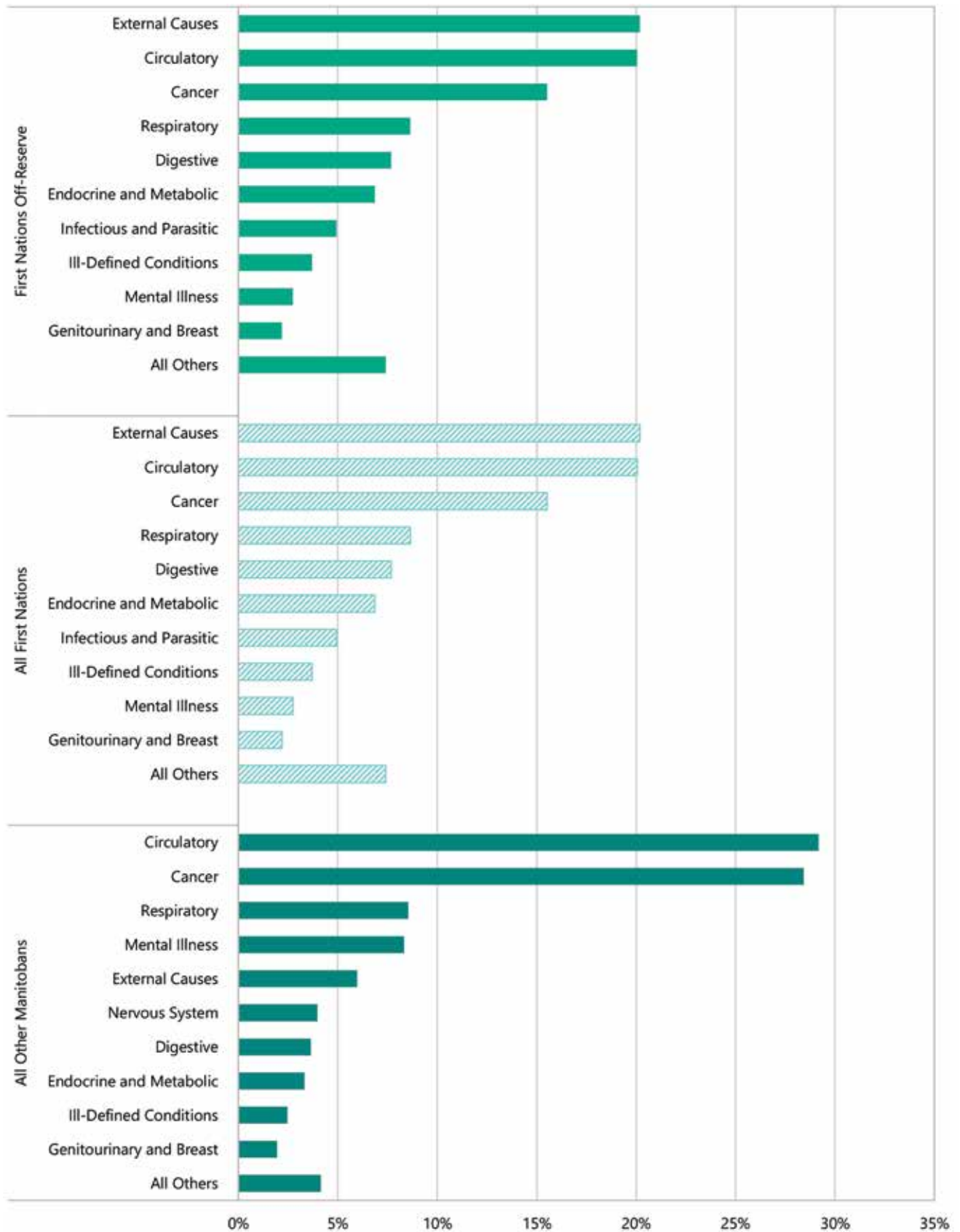


Figure 5.7: Causes of Death in Prairie Mountain Health
Crude percent of deaths, 2012-2016

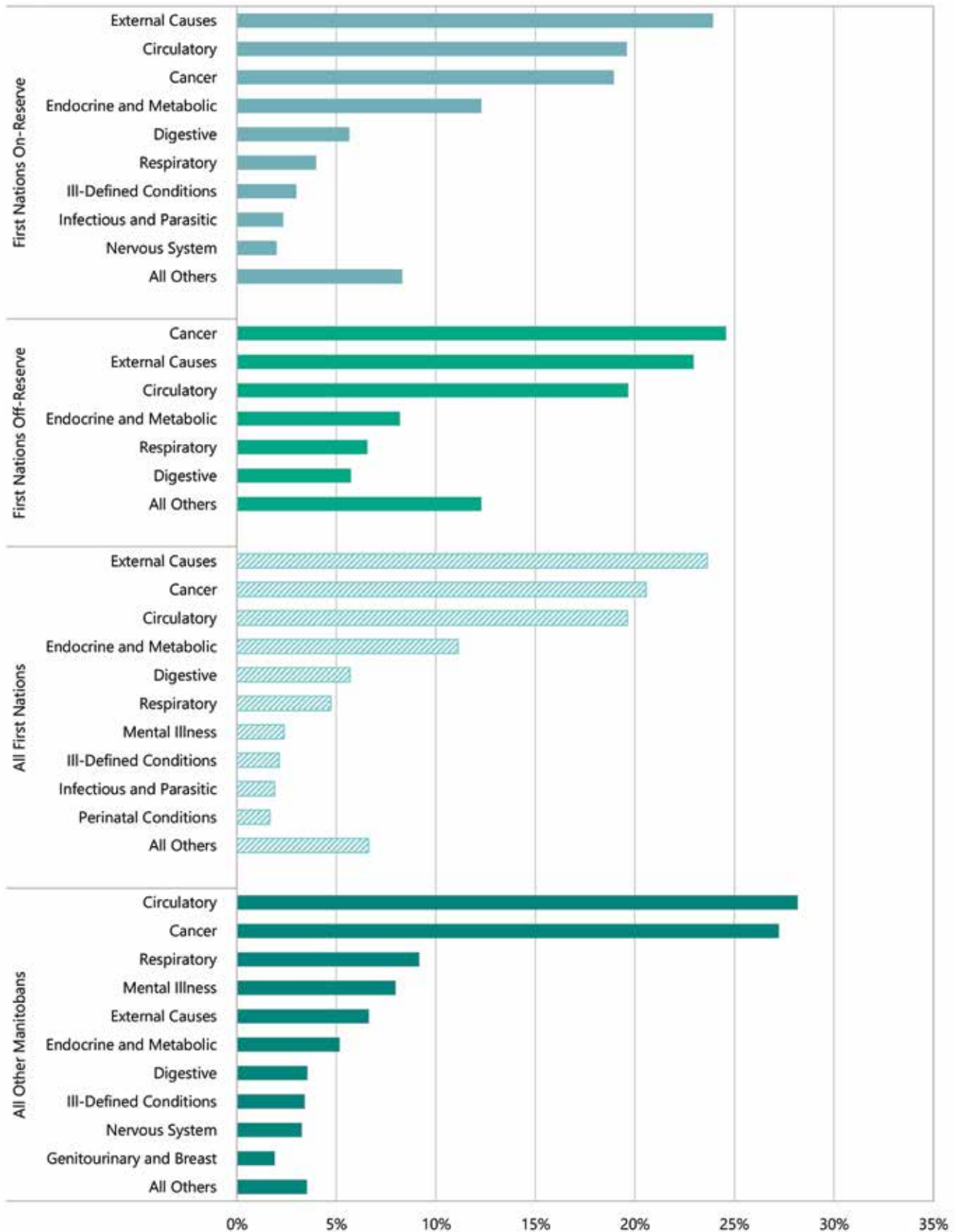


Figure 5.8: Causes of Death in Interlake-Eastern RHA

Crude percent of deaths, 2012-2016

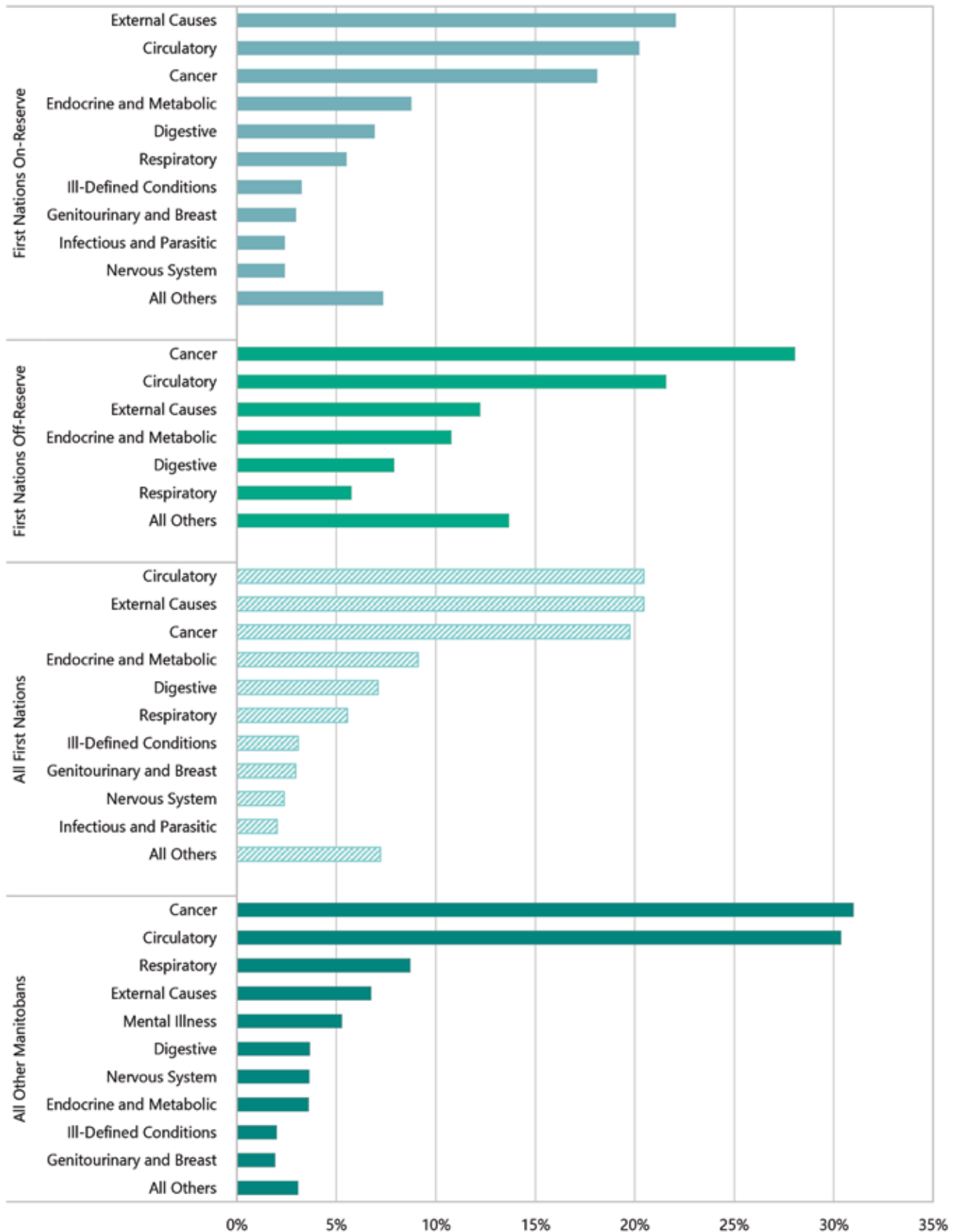


Figure 5.9: Causes of Death in Northern Health Region

Crude percent of deaths, 2012-2016

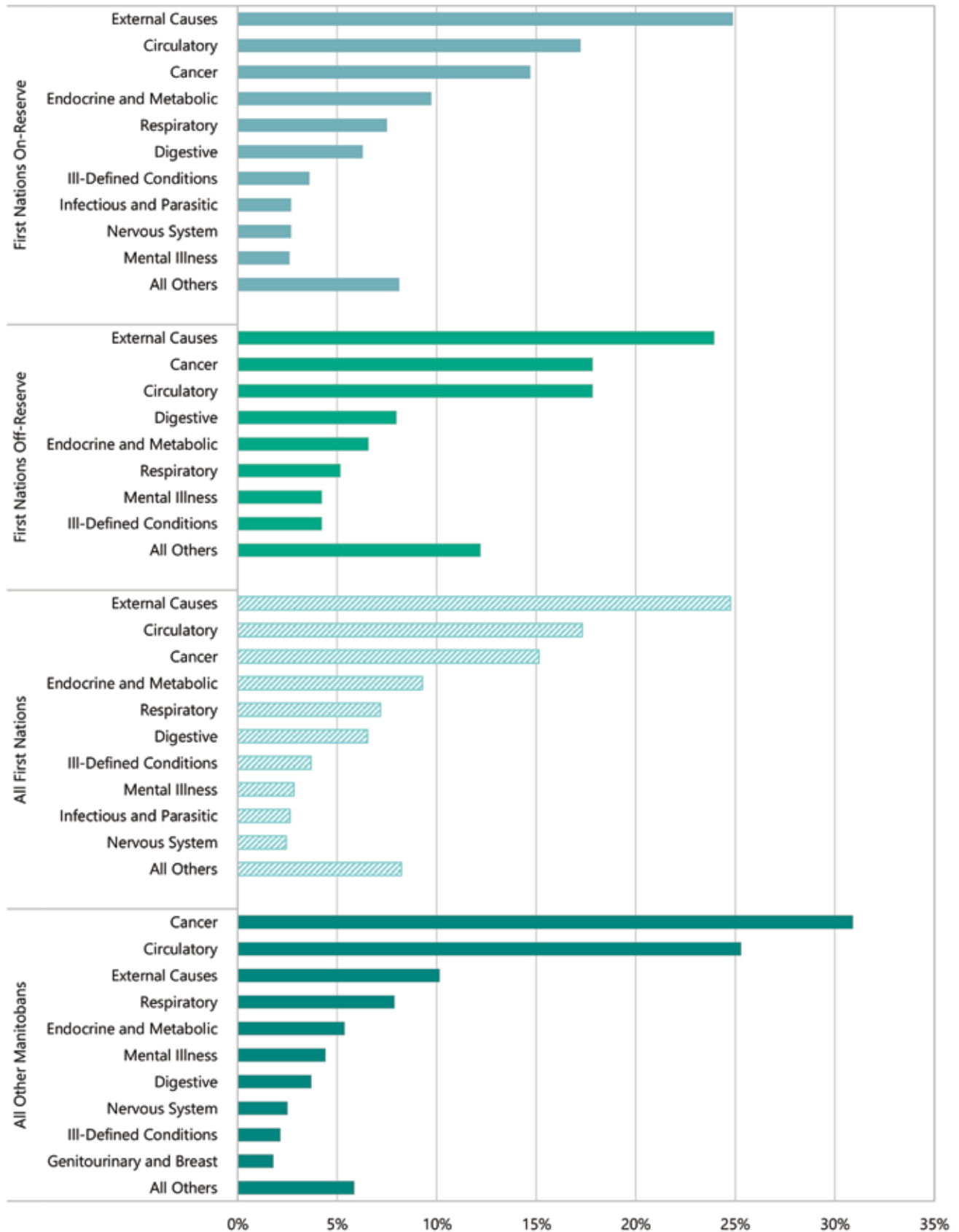


Figure 5.10: Causes of Death by Tribal Council Area

Crude percent of deaths, 2012-2016

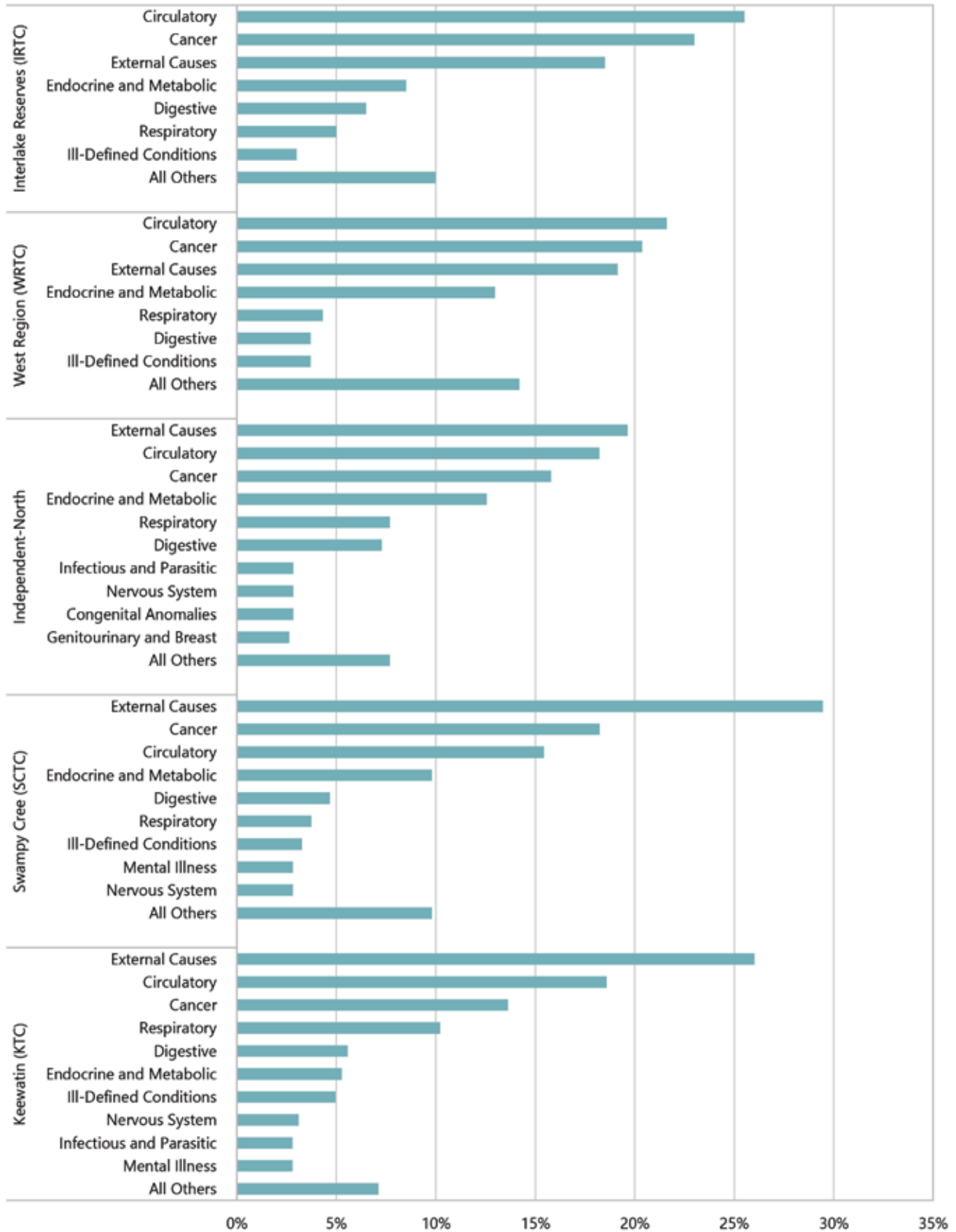
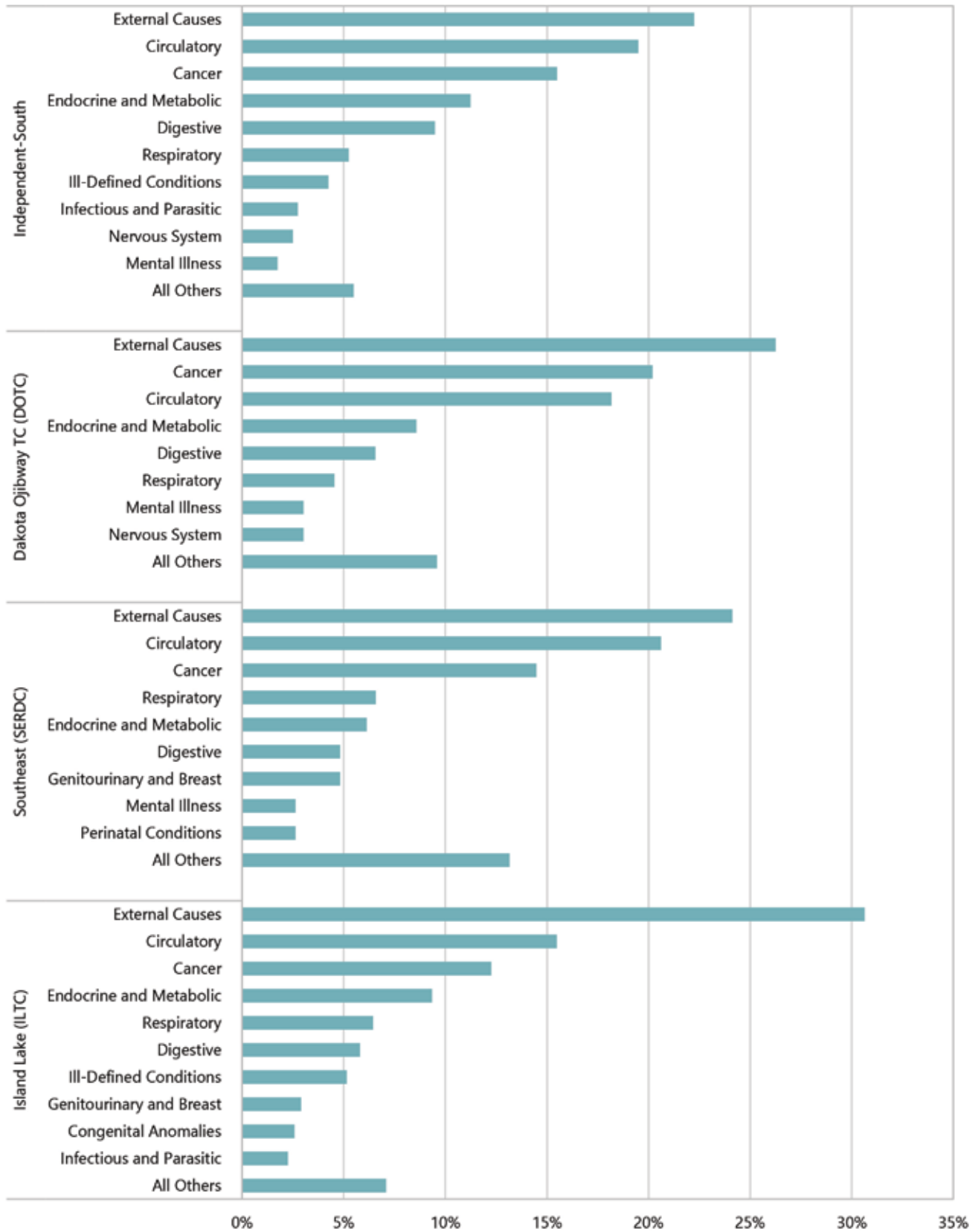


Figure 5.10: Causes of Death by Tribal Council Area, Cont'd

Crude percent of deaths, 2012-2016



Note: Causes of death for Non-Affiliated First Nations communities are not shown due to small numbers.

External Causes of Death

Key Findings

The most common type of external cause of death among most First Nations is self-harm by hanging, strangulation or suffocation. This cause accounts for more than 20% of external causes of death (and 4-5% of all causes of death) among First Nations. The second most common cause of external causes of death among most First Nations is accidental poisoning by a medication, drug or alcohol (10-15%). In contrast, the top external cause for death among AOM is an unspecified fall. Results for the three most common causes of death in Manitoba, as well as the most common causes by RHA and TCA, are provided in the online supplement.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Premature Mortality

Definition: Premature mortality rates (PMR) measure the rate of premature death, that is, death before the age of 75 years. It is presented as a rate per 1,000 population. Epidemiologists generally consider PMR to be the best single measure to reflect the health status of a population. Populations with a high PMR may need more healthcare services and more preventive services. Populations with poorer health status (high PMR) are often also experiencing non-health risk factors, including underlying socio-economic issues such as low income, low levels of education, and low employment rates. High PMR underscores the simultaneous need for policy interventions that will boost social and economic supports as well as typical healthcare services.

Key Findings

Premature deaths account for 81% of all deaths among First Nations (80% on-reserve and 82% off-reserve) and 35% among AOM (results not shown). The PMR for All First Nations in Manitoba is three times higher than the rate of AOM, a gap that is consistent across all RHAs.

Regional Health Authorities

- There is no consistent gradient in five-year PMR from south to north, as rates across RHAs for All First Nations and AOM fluctuate around the Manitoba average.
- In Southern RHA, Prairie Mountain RHA and Interlake-Eastern RHA, the rates for on-reserve First Nations are higher than those for off-reserve First Nations.

Tribal Council Areas

- The trends in PMR are similar to the trends in total mortality rates.
- Interlake Reserves TCA has the lowest PMR among all TCAs.
- There is no clear south-to-north gradient in five-year PMR across TCAs, as two TCAs in southern Manitoba (Dakota Ojibway and Southeast TCAs) and one in northern Manitoba (Island Lakes TCA) have statistically significantly higher rates than Interlake TCA.

Income Quintiles

- The analyses by income quintile show the same pattern as the ones for total mortality rates, where First Nations in urban and rural areas have higher PMRs than AOM in the lowest and highest income quintiles. This suggests that AOM (even those with the lowest household incomes) have better health status than First Nations.

Comparison to Other Findings

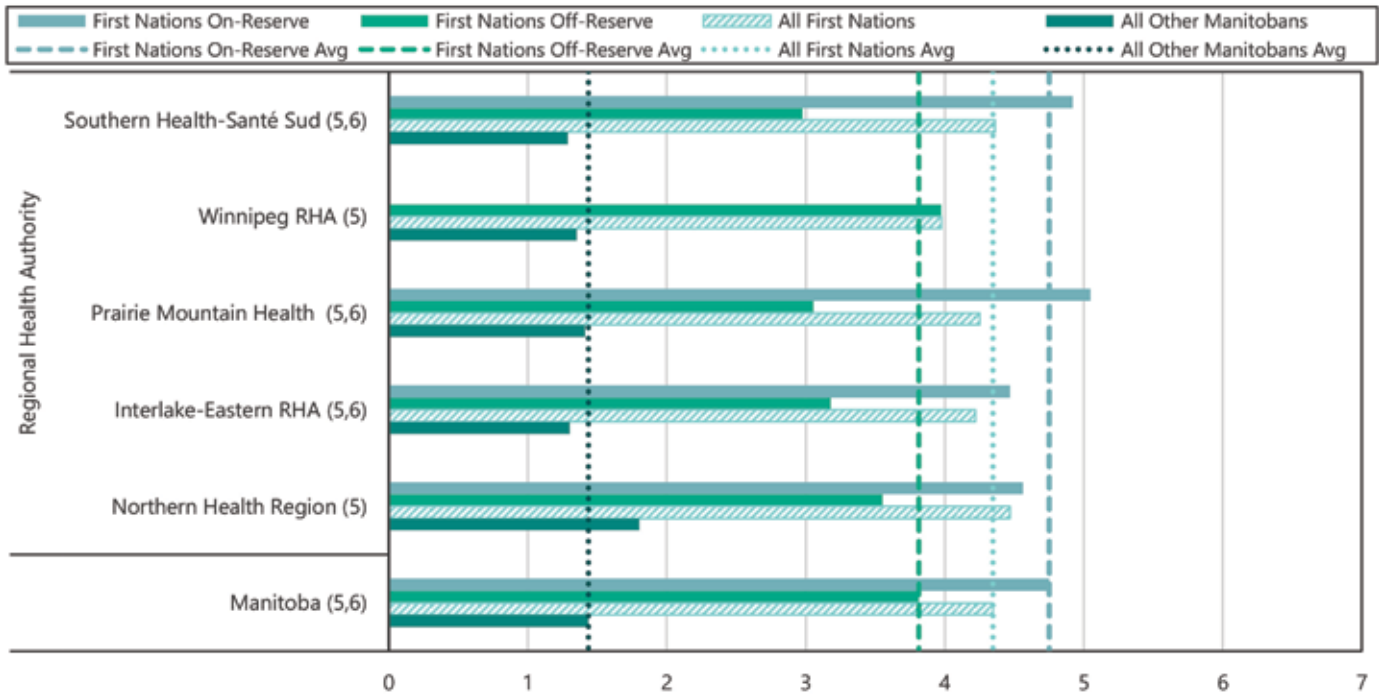
- The PMRs for All First Nations and AOM have declined since the 2002 First Nations Atlas, suggesting increased health status. However, the gap between First Nations and AOM has increased two to three times since the previous atlas [6].
- Tjepkema et al. (2011) reported that registered First Nations age 25-74 have 2.5 times higher risk of premature death than non-Indigenous individuals [38].

Table 5.1: Premature Mortality Rate as a Proportion of the Total Mortality Rate by Regional Health Authority
Crude Percent, age 0-74, 2012-2016

Regional Health Authorities	First Nations			All Other Manitobans
	All First Nations	On-Reserve	Off-Reserve	
Southern Health-Santé Sud	83.92%	83.12%	87.27%	35.35%
Winnipeg RHA	87.01%	n/a	87.01%	35.11%
Prairie Mountain Health	82.10%	83.45%	78.86%	30.36%
Interlake-Eastern RHA	78.06%	78.20%	77.37%	38.68%
Northern Health Region	80.34%	80.53%	79.25%	54.42%
Manitoba	81.16%	80.48%	82.41%	35.11%

n/a: Not applicable

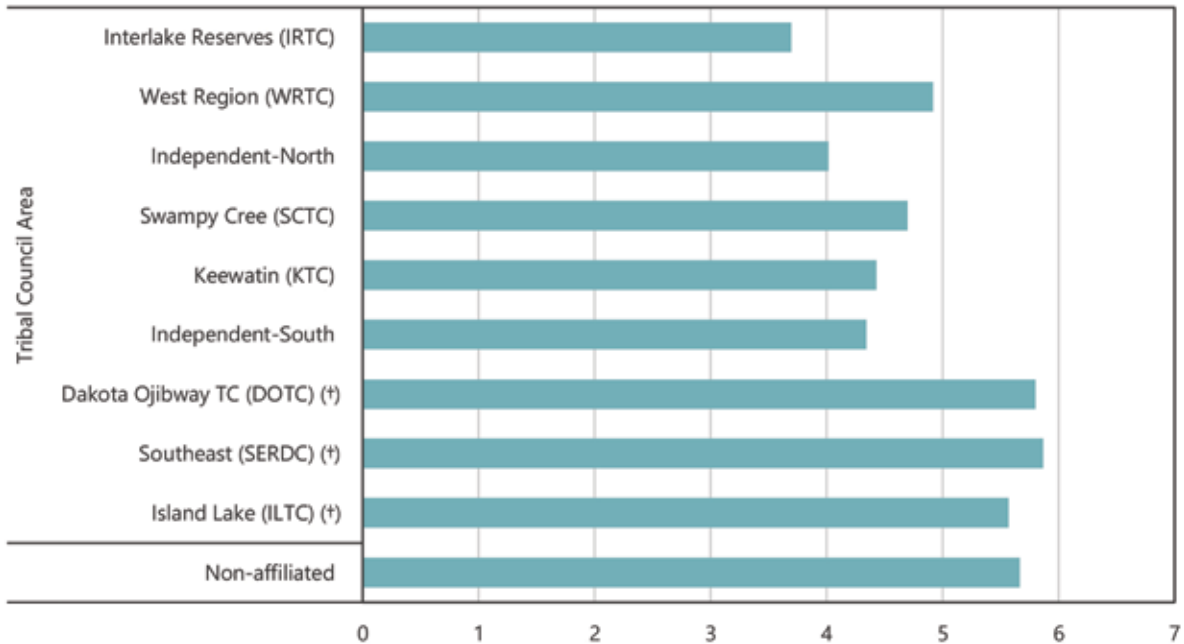
Figure 5.11: Premature Mortality Rate by Regional Health Authority
Age- and sex-adjusted, per 1,000 individuals, age 0-74, 2012-2016



Statistically significant differences ($p < 0.01$):
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 5.12: Premature Mortality Rate among On-Reserve First Nations by Tribal Council Area

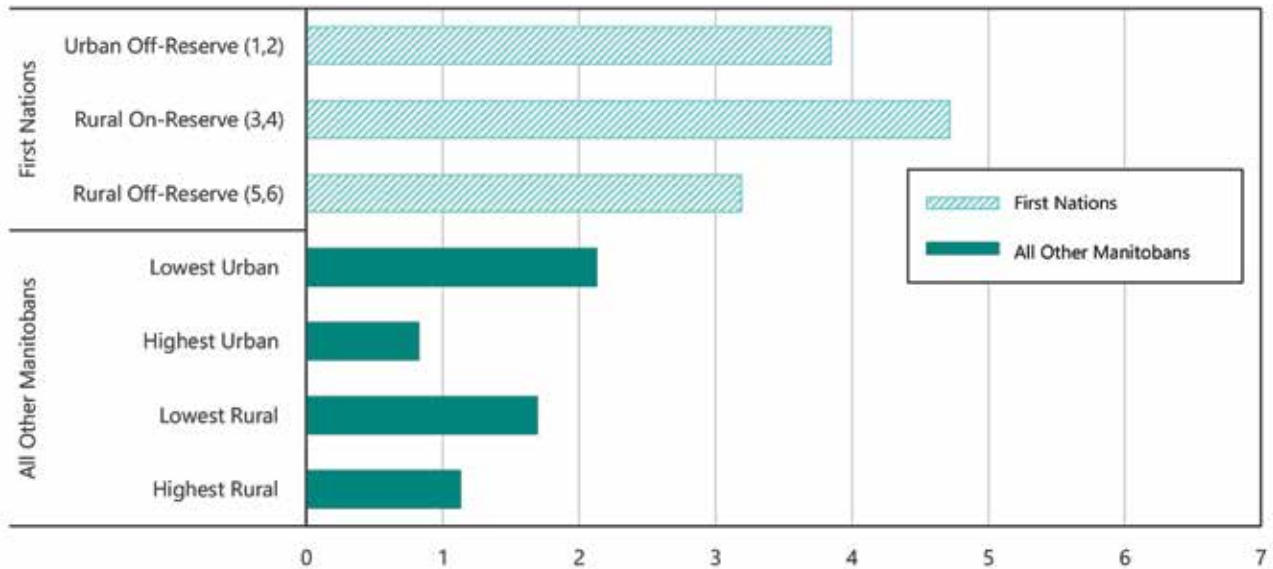
Age- and sex-adjusted, per 1,000 individuals, age 0-74, 2012-2016



Statistically significant differences ($p < 0.01$):
 † - First Nations on-reserve: TCA compared to the best rate (IRTC)

Figure 5.13: Premature Mortality Rate by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, age 0-74, 2012-2016



Statistically significant differences ($p < 0.01$):
 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Causes of Premature Mortality

Definition: The most common causes of death before the age of 75 for Manitoba residents from 2012-2016, as reported on death certificates and grouped into **International Classification of Diseases (ICD-10) categories.**

The causes are presented in decreasing order of frequency (most common cause first) in Figure 5.14-5.20. It should be noted that these are crude rates.

Key Findings

As with causes of death for total mortality rates (see Figures 5.4-5.10), the most common causes of premature death for both First Nations and AOM in Manitoba are similar. External causes, circulatory disease and cancer account for 60% of premature deaths among First Nations and 72% among AOM.

While the most common cause of premature death among AOM (cancer) accounts for almost 40% of these deaths, external causes (the most common cause for First Nation people) only account for 27% of premature deaths among All First Nations.

The ranking of causes across RHAs and TCAs is different for First Nations and AOM, especially for off-reserve First Nations in Southern RHA and Interlake-Eastern RHA.

Comparison to Other Findings

- This indicator was not included in the 2002 First Nations Atlas.
- Health Canada (2014) reported that the leading cause for premature death among First Nations in Western Canada in 2003-2007 was external causes, followed by diseases of the circulatory system and neoplasms (tumours or cancerous growths) [37].

Figure 5.14: Causes of Premature Mortality in Manitoba

Crude percent of deaths, ages 0-74, 2012-2016

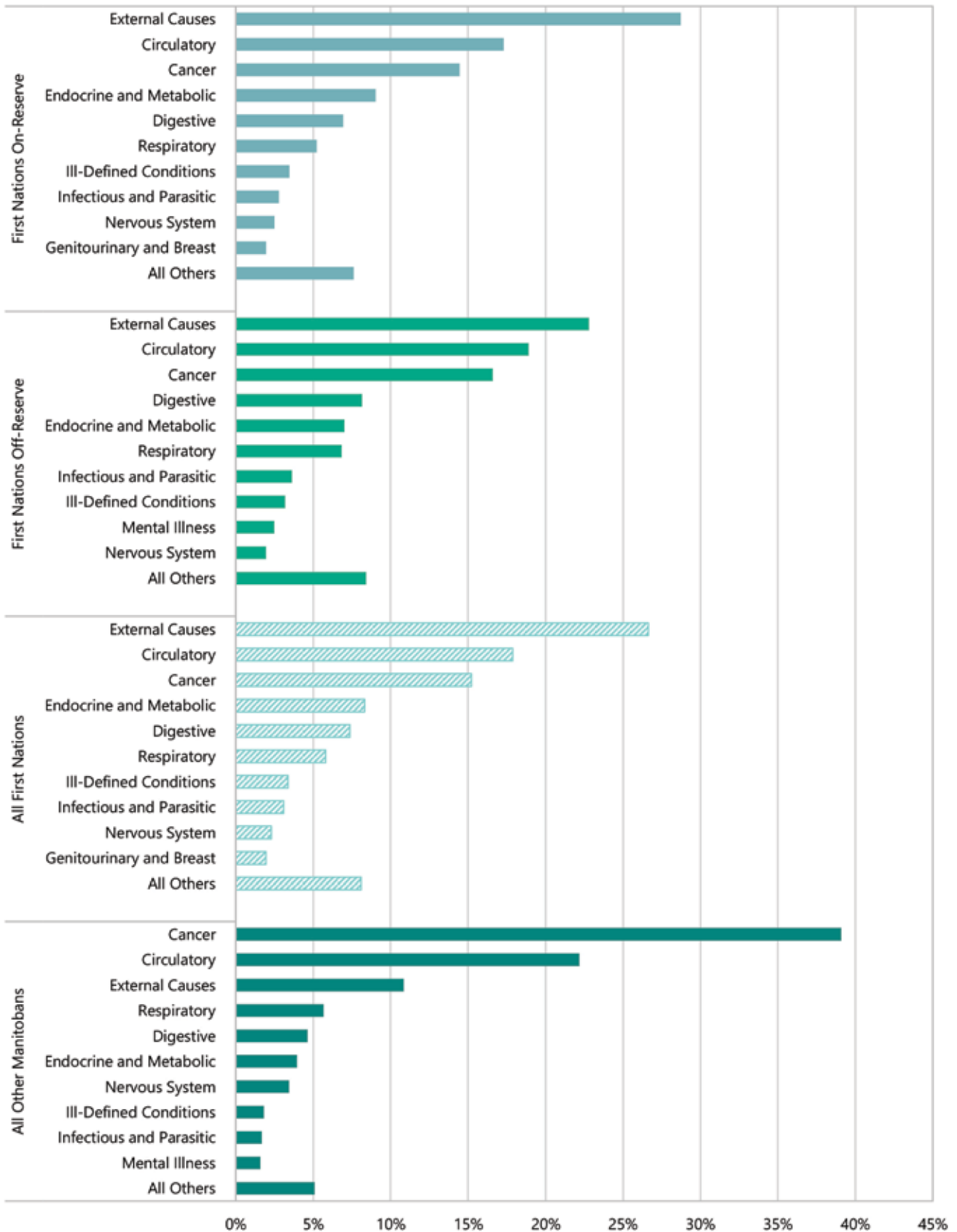


Figure 5.15: Causes of Premature Mortality in Southern Health-Santé Sud

Crude percent of deaths, ages 0-74, 2012-2016

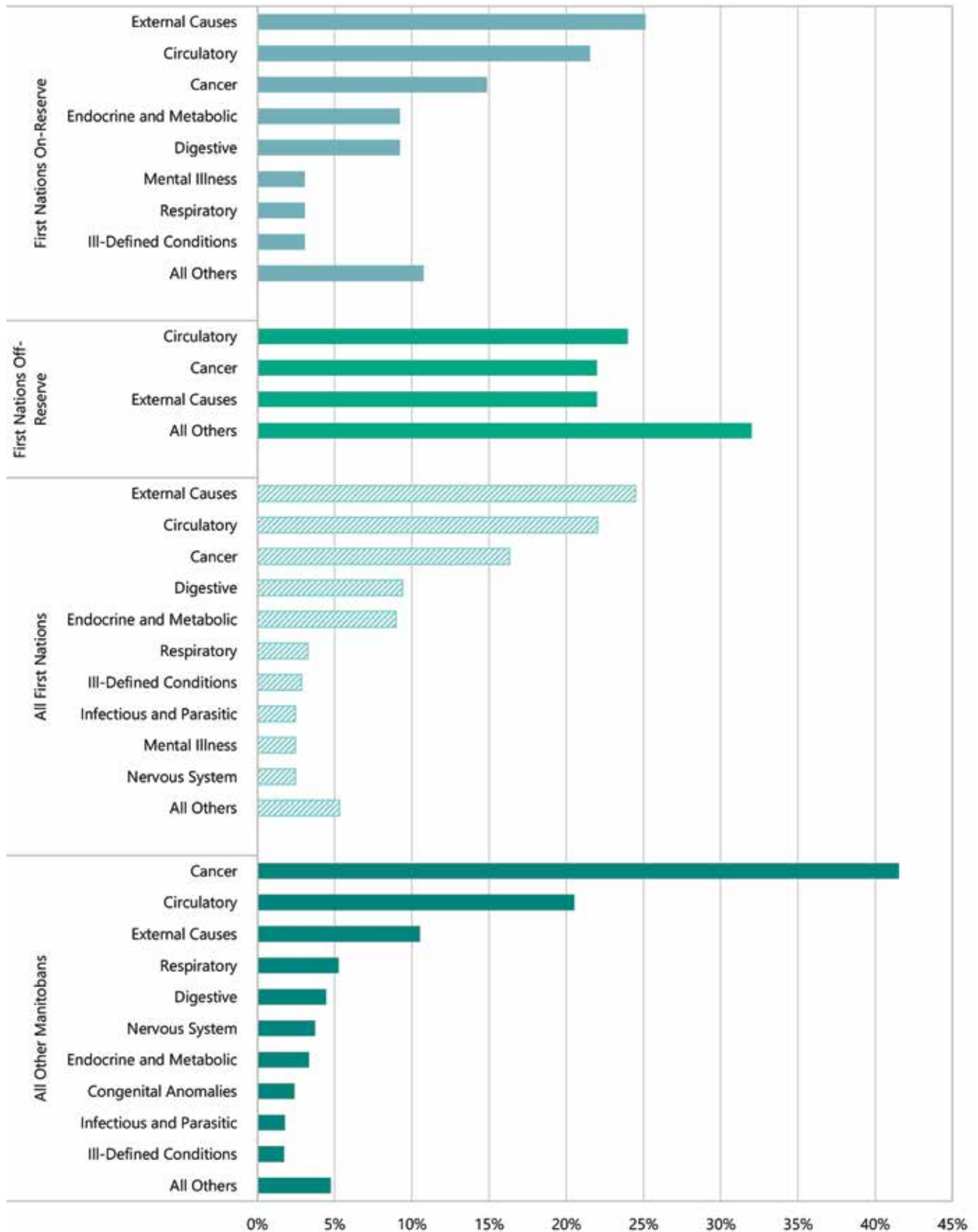


Figure 5.16: Causes of Premature Mortality in Winnipeg RHA

Crude percent of deaths, ages 0-74, 2012-2016

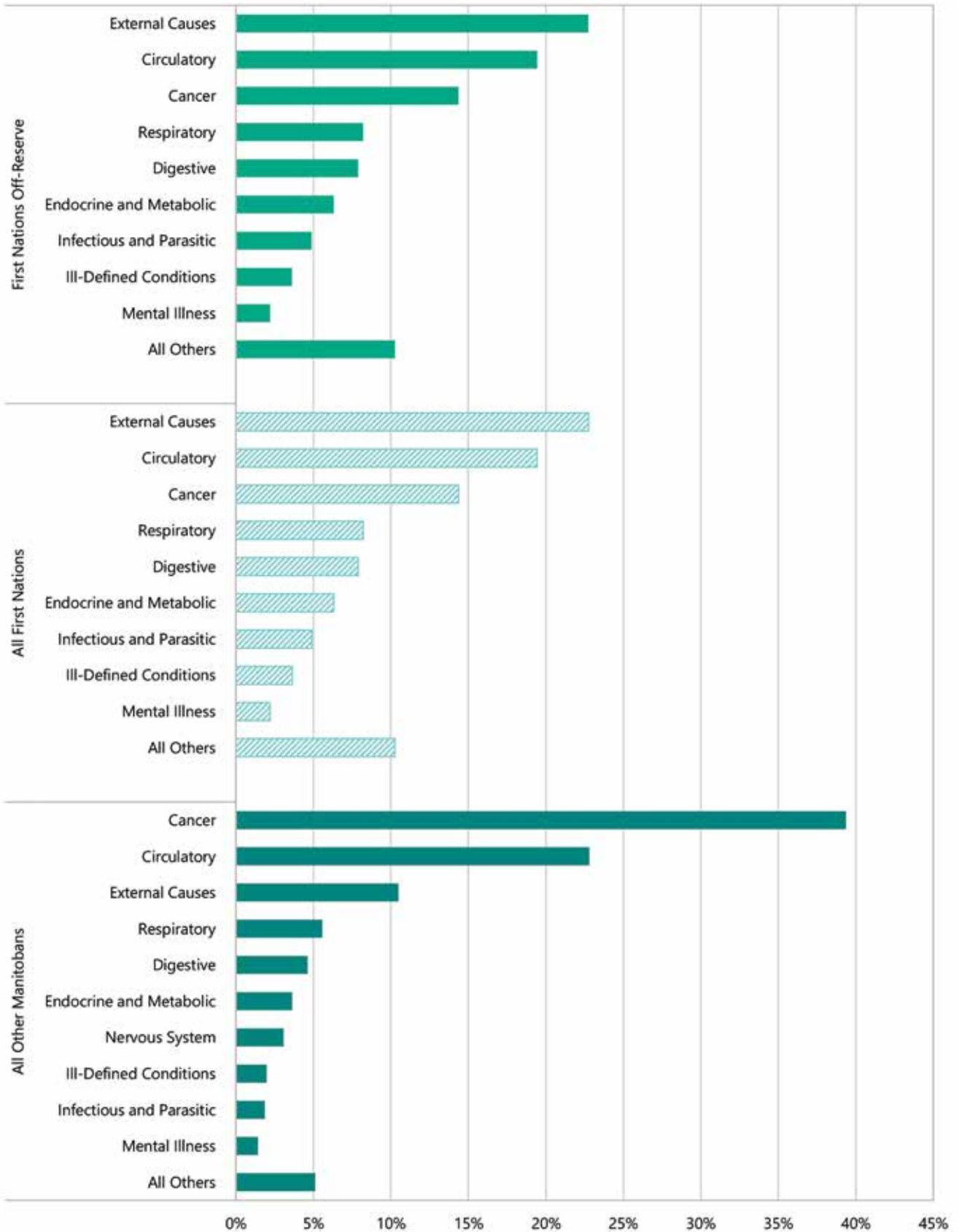


Figure 5.17: Causes of Premature Mortality in Prairie Mountain Health

Crude percent of deaths, ages 0-74, 2012-2016

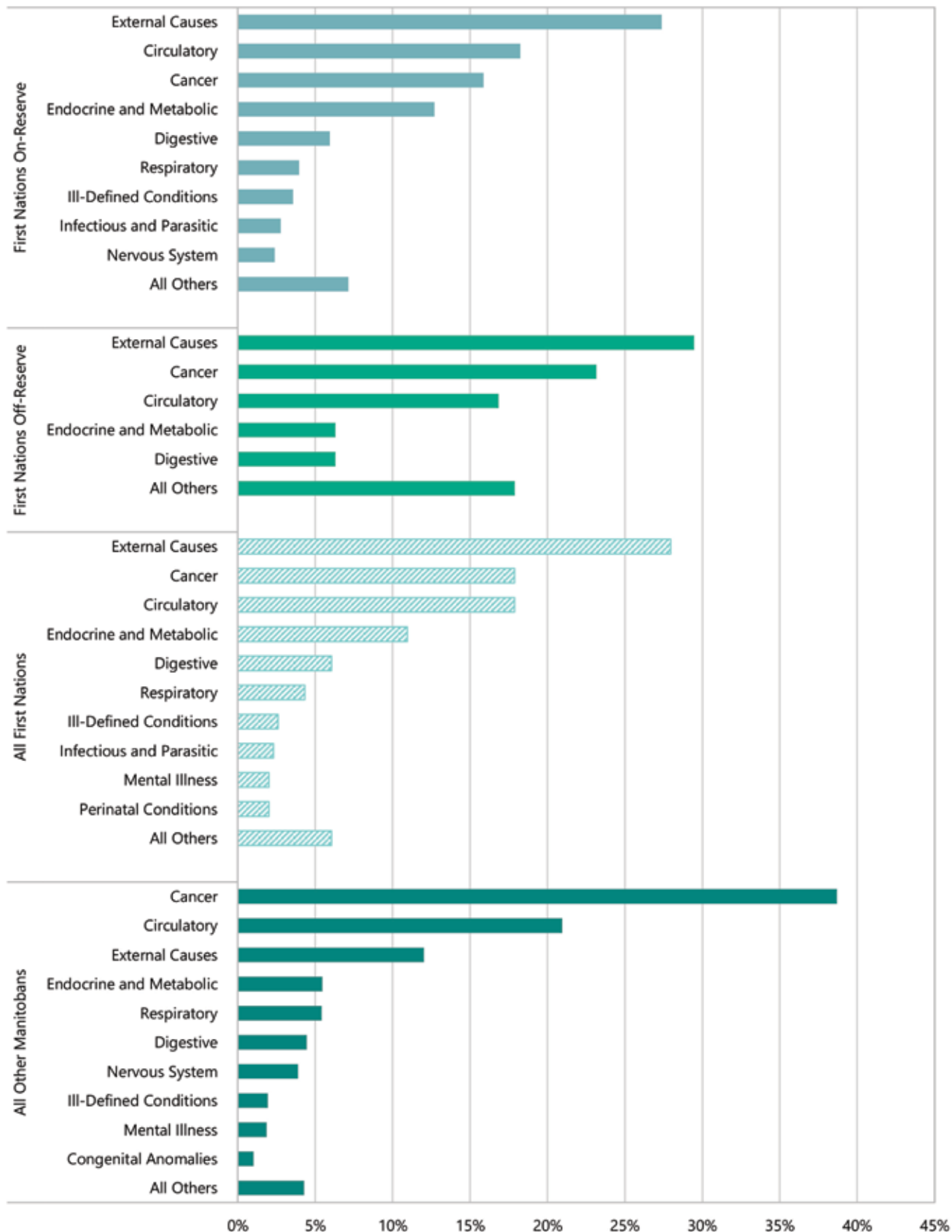


Figure 5.18: Causes of Premature Mortality in Interlake-Eastern RHA

Crude percent of deaths, ages 0-74, 2012-2016

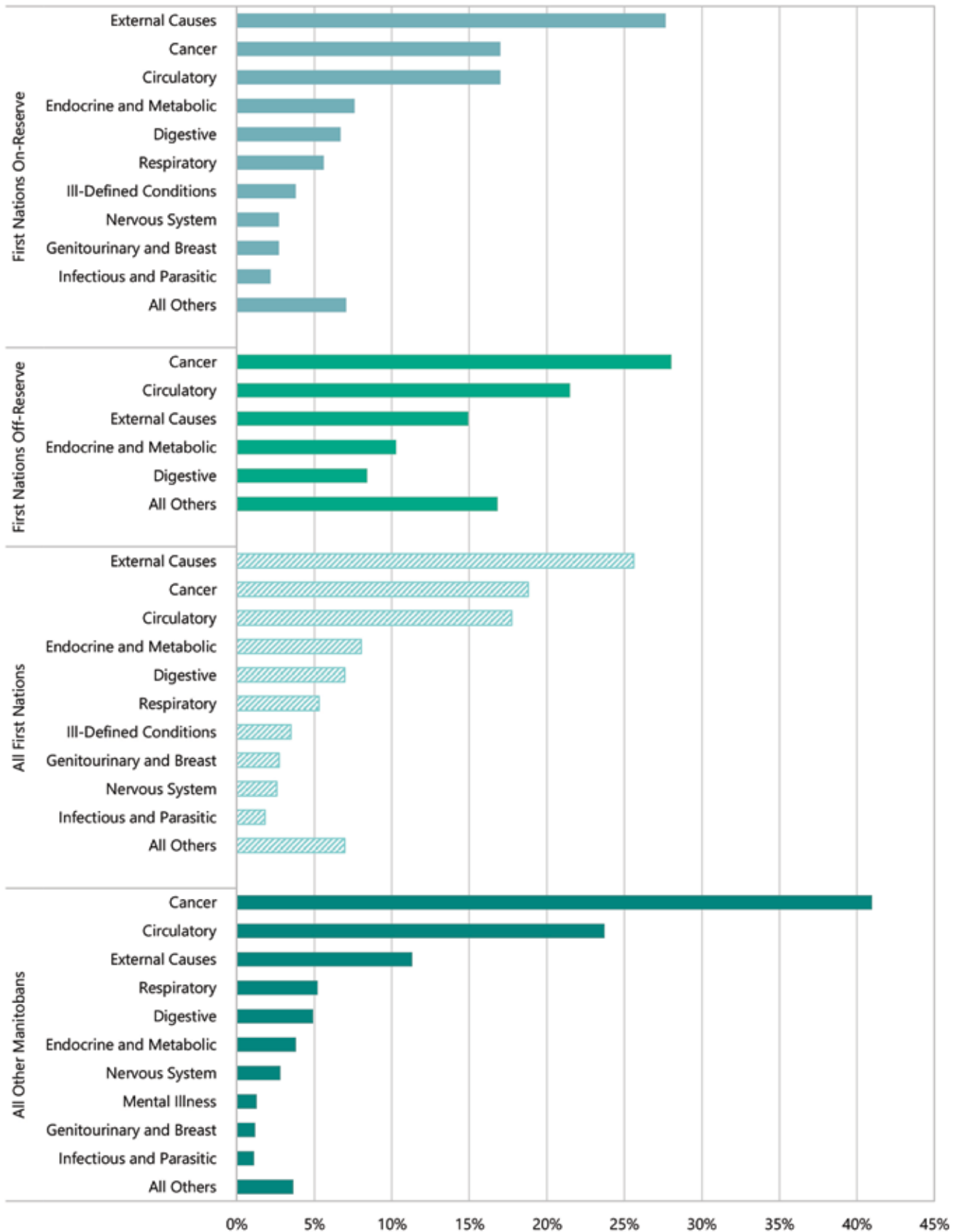


Figure 5.19: Causes of Premature Mortality in Northern Health Region

Crude percent of deaths, ages 0-74, 2012-2016

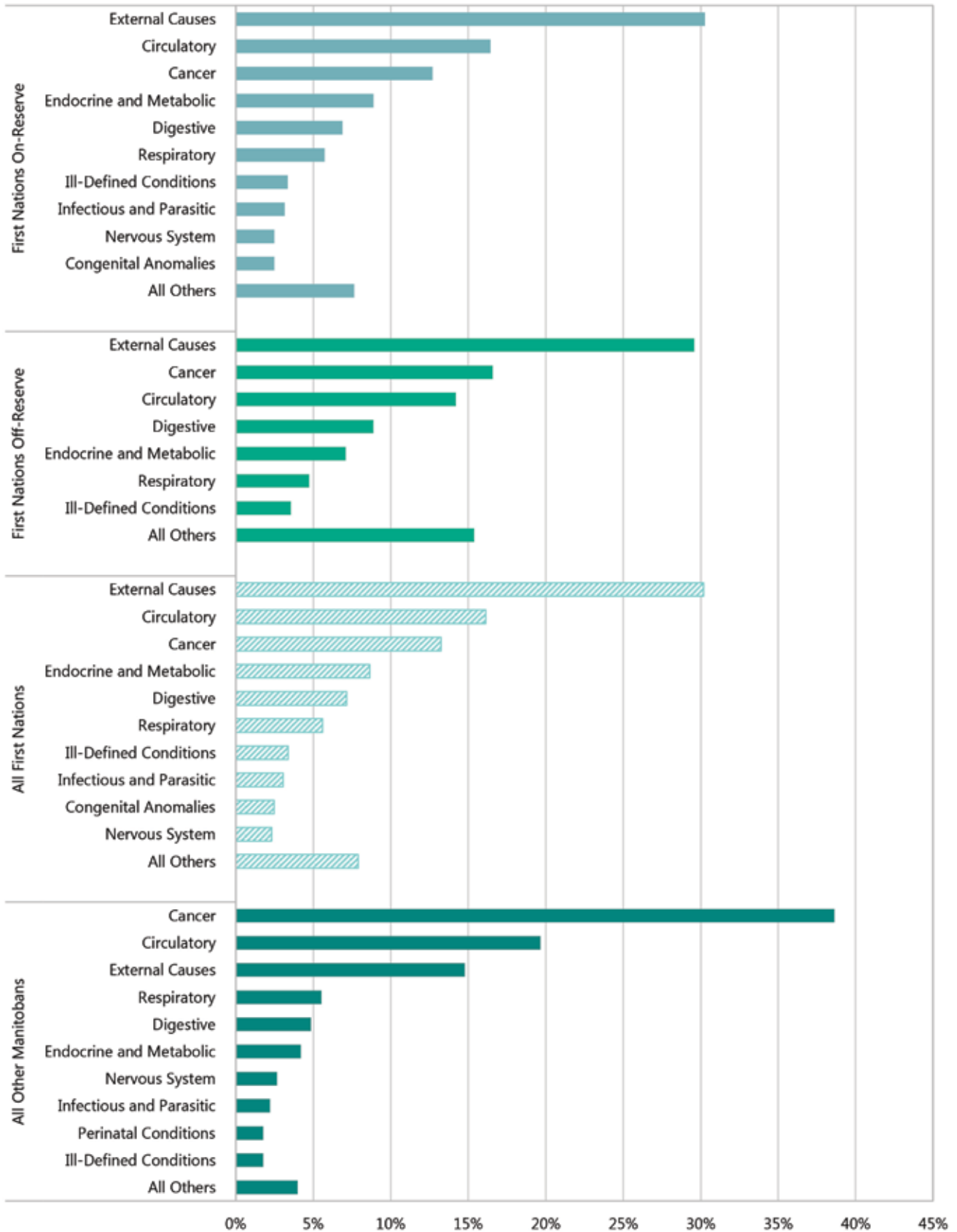


Figure 5.20: Causes of Premature Mortality by Tribal Council Area

Crude percent of deaths, ages 0-74, 2012-2016v

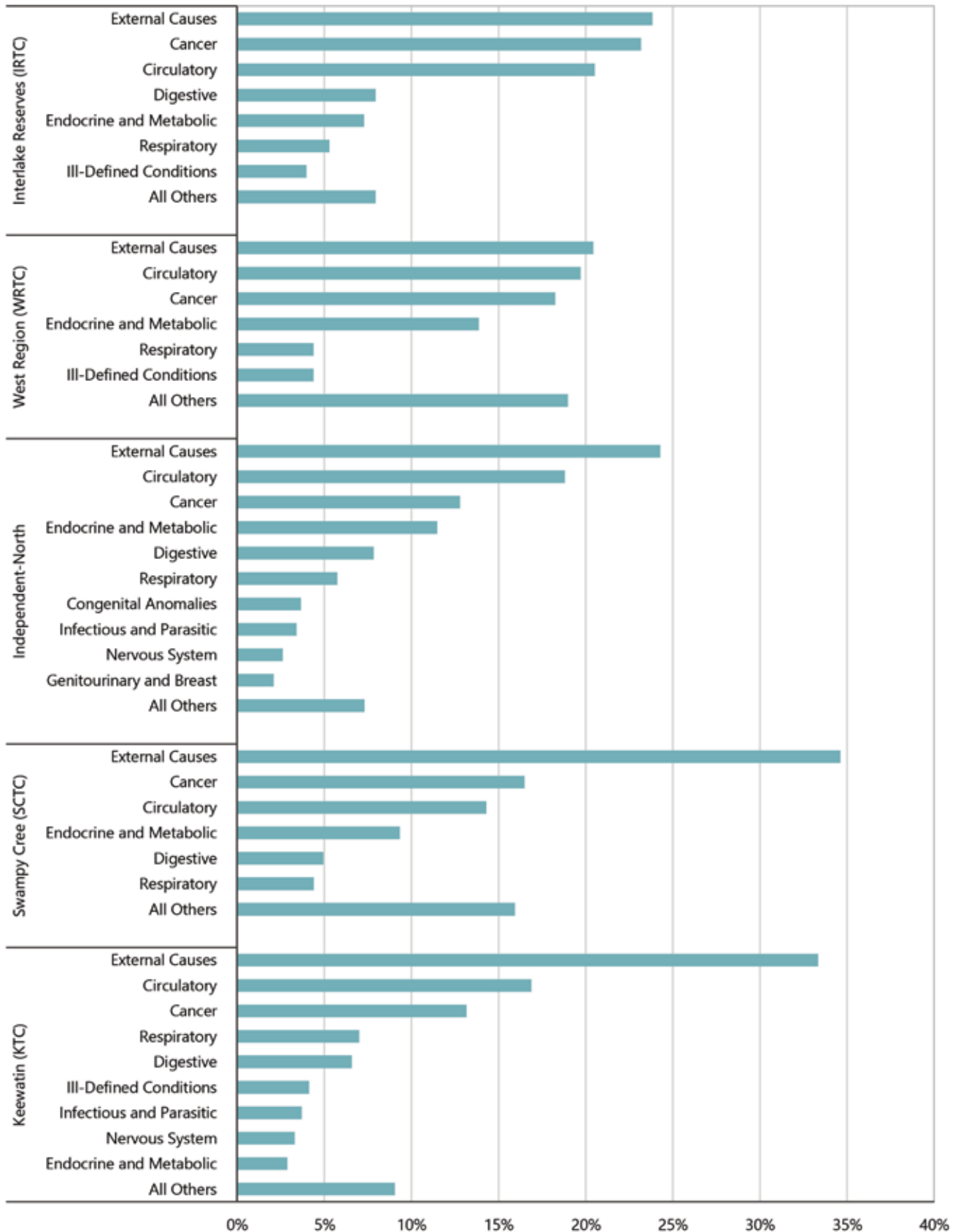
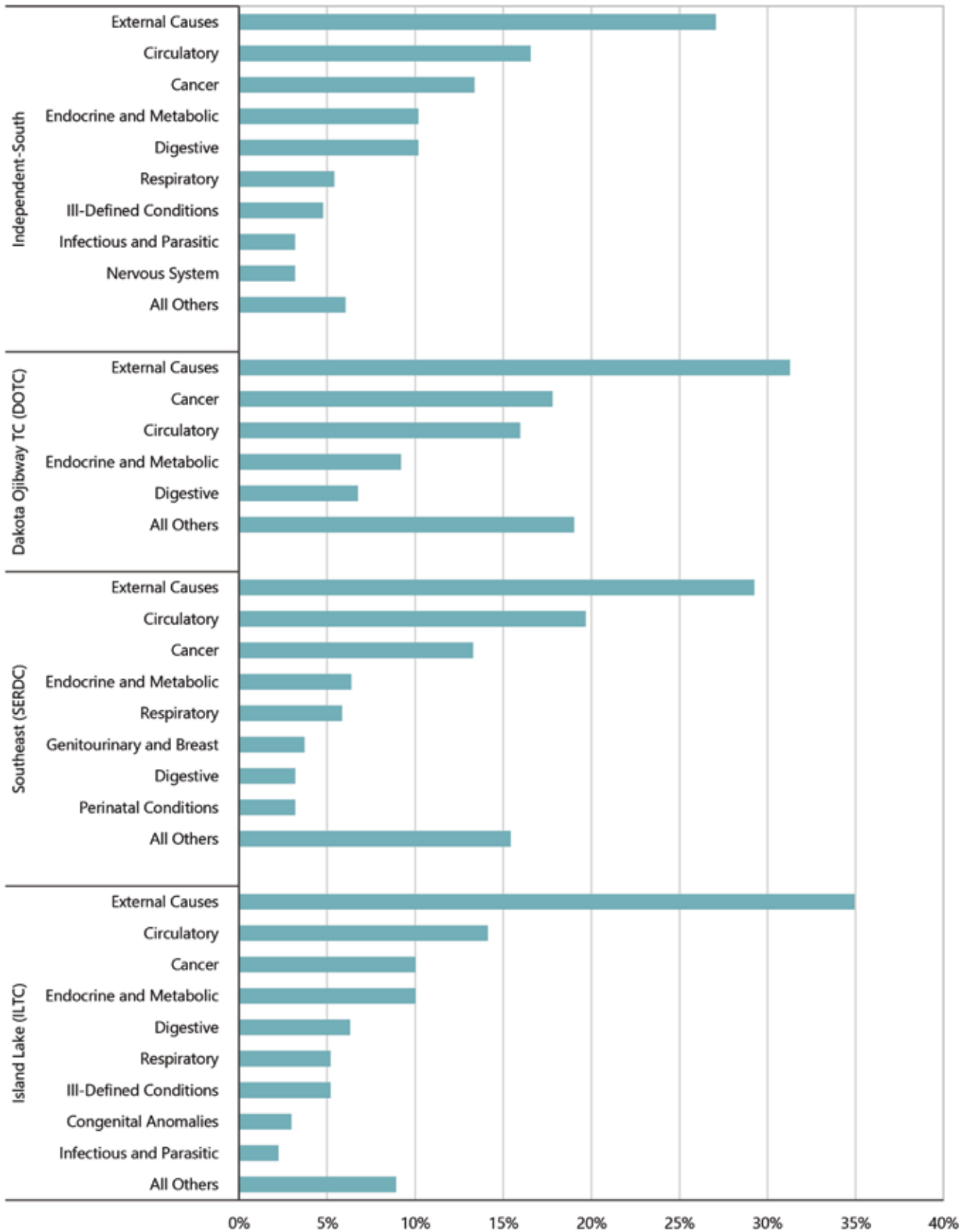


Figure 5.20: Causes of Premature Mortality by Tribal Council Area, Cont'd

Crude percent of deaths, ages 0-74, 2012-2016



Note: Causes of death for Non-Affiliated First Nations communities are not shown due to small numbers.

External Causes of Premature Mortality

Key Findings

The most common type of external cause of premature deaths among First Nations is self-harm by hanging, strangulation or suffocation. This external cause accounts for more than 20% of all external causes of premature death (and for about 5-7% of all causes of premature death). The second most common external cause of premature

death among First Nations is accidental poisoning by a medication, drug or alcohol (10-15% for most groups). In contrast, the most common external cause for premature death among AOM is usually injury in an accident. The three most common causes of premature death in Manitoba and for RHAs and TCAs are presented in the online supplement.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Male Life Expectancy

Definition: Life expectancy is a measure often used for worldwide comparisons. It is based on the life experience of the population, from infants to the elderly. It is the expected length of life (in years) from birth to death. The results are presented as crude (unadjusted) years for males and females separately.

Key Findings

The life expectancy for All First Nations in Manitoba is 68 years. This is 11 years lower than the AOM average life expectancy.

Regional Health Authorities

- Male life expectancy for all on- and off-reserve First Nations varies slightly from the Manitoba average without any significant differences between the RHAs and the Manitoba average. This suggests that there is no strong north-south gradient, despite seemingly higher off-reserve rates in Southern RHA compared with Northern RHA.
- Male life expectancy for off-reserve First Nations is also significantly higher than on-reserve First Nations in all RHAs and in Manitoba overall.

Tribal Council Areas

- Male life expectancy follows the trend in PMR across TCAs: life expectancy is lower in TCAs with higher PMRs (Dakota Ojibway, Southeast and Island Lake TCAs).
- Dakota Ojibway, Southeast and Island Lake TCAs have higher male life expectancy than Interlake Reserves TCA, which has the lowest life expectancy.

Income Quintiles

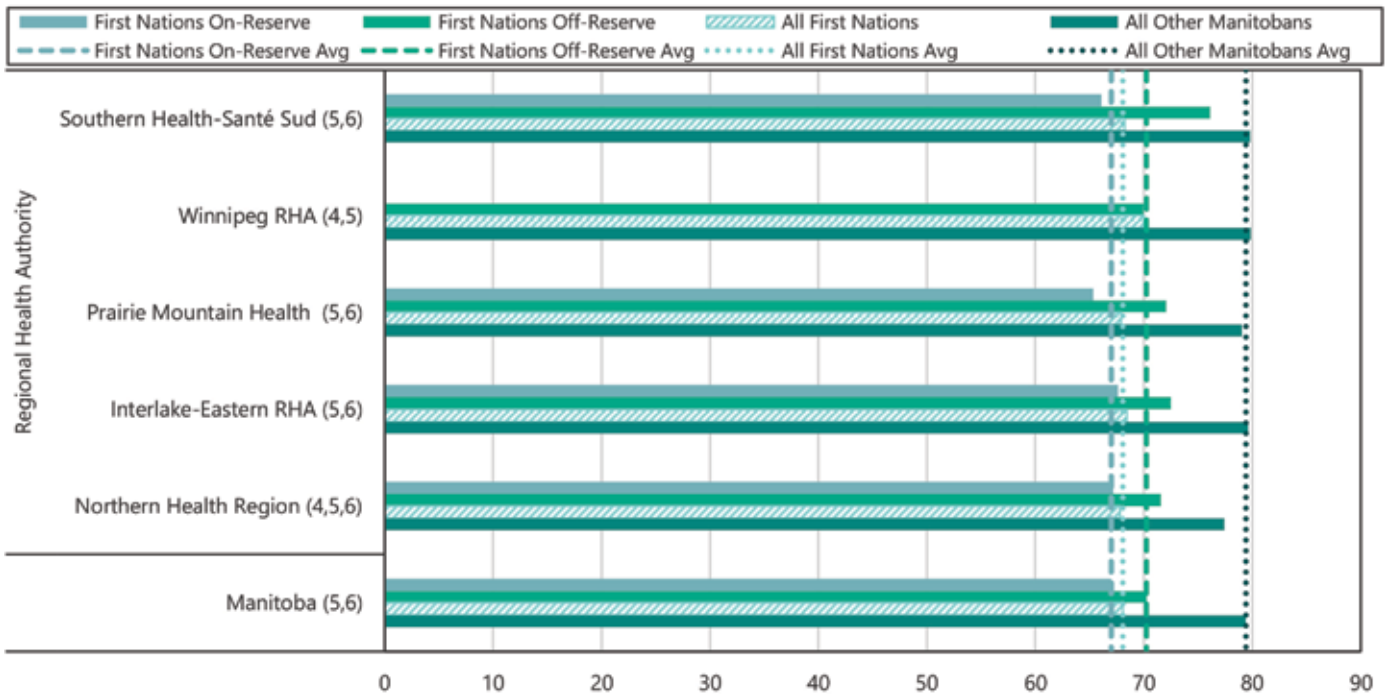
- The analyses by income quintile follow the same pattern as total mortality rates: First Nation males in urban and rural areas have lower life expectancy than AOM in the lowest and highest income quintiles.

Comparison to Other Findings

The difference in male life expectancy between All First Nations and AOM has grown from 7.7 years to 11 years since the 2002 First Nations Atlas. AOM males are now living longer, but there has been no change in life expectancy for First Nation males. There are fewer differences among TCAs in the current report compared to the 2002 First Nations Atlas [6]. The association between PMR and male life expectancy is also less apparent in this report than in the 2002 First Nations Atlas.

Figure 5.21: Male Life Expectancy at Birth by Regional Health Authority

Crude age in years, 2012-2016



Statistically significant differences (p<0.01):
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 5.22: Male Life Expectancy at Birth among On-Reserve First Nations by Tribal Council Area

Crude age in years, 2012-2016

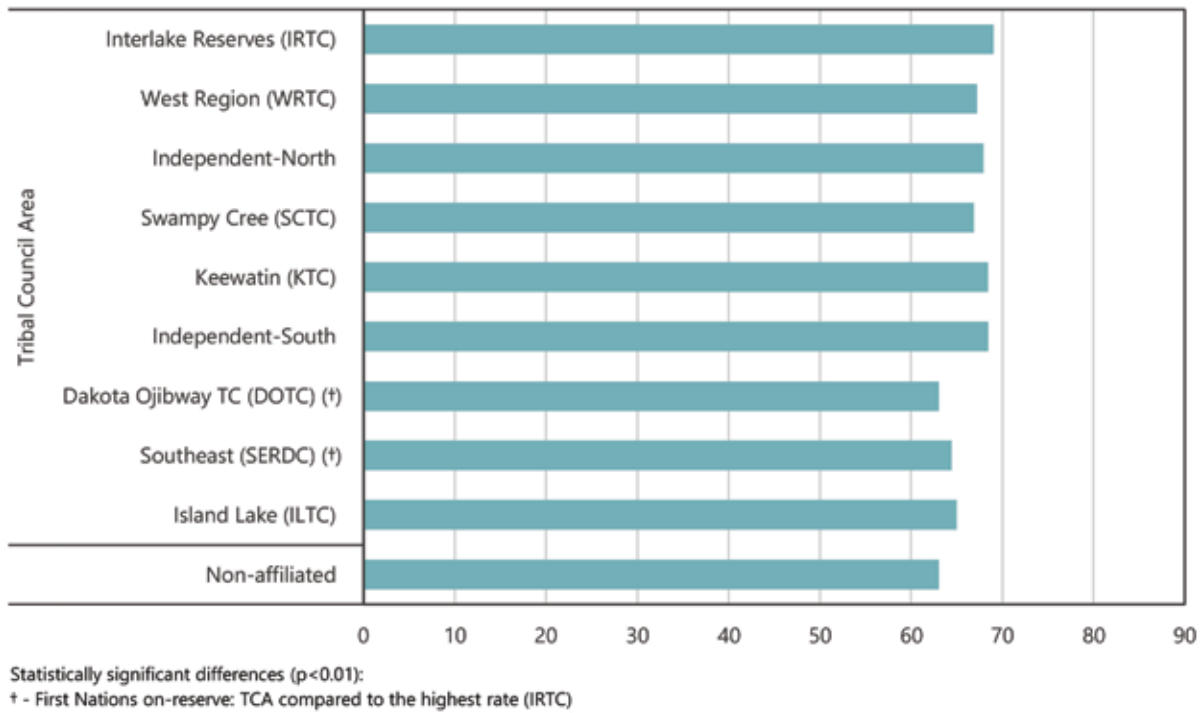
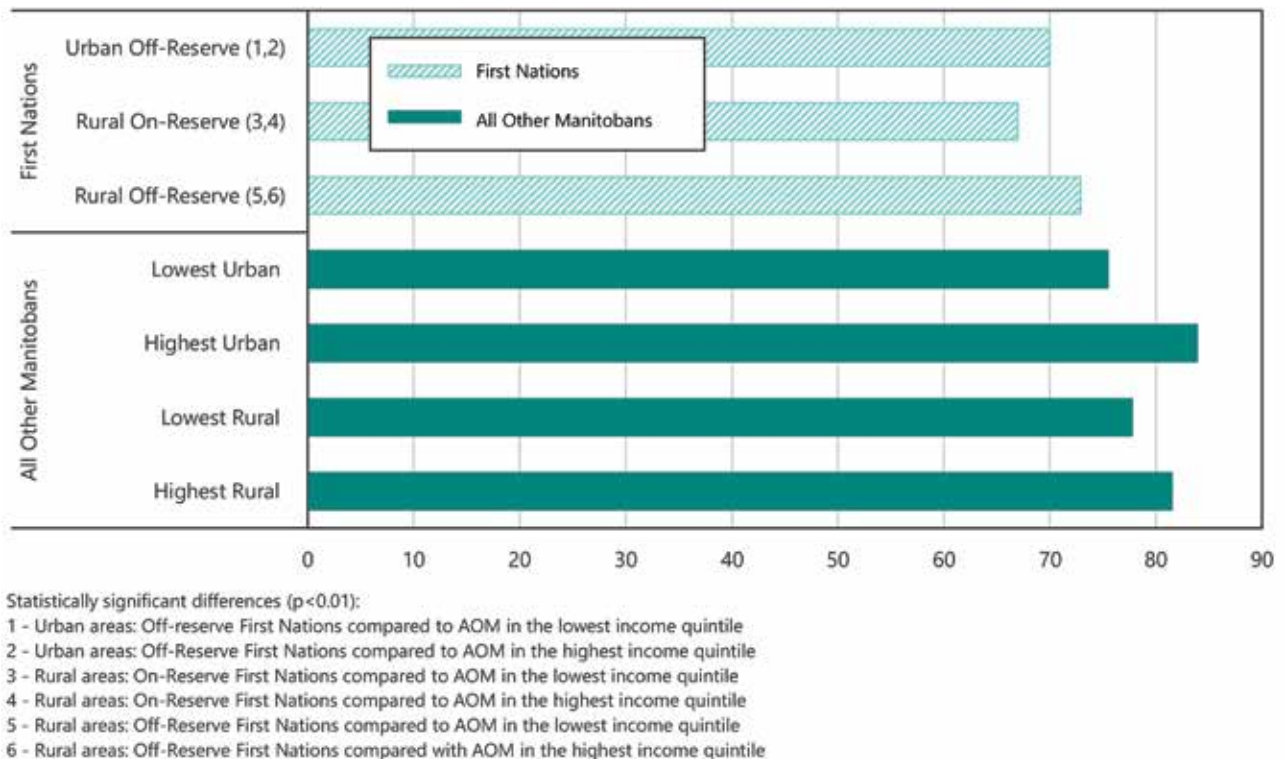


Figure 5.23: Male Life Expectancy at Birth by Income Quintile

Crude age in years, 2012-2016



Female Life Expectancy

Key Findings

Female life expectancy for All First Nations in Manitoba is 72 years. This is significantly lower (by 11 years) than life expectancy for AOM.

Regional Health Authorities

- There is no clear trend in female life expectancy across RHAs.
- There are significant differences between the on-reserve and off-reserve female First Nation life expectancies for Prairie Mountain Health and Interlake-Eastern RHA. The difference between on- and off-reserve (6 years) in Interlake-Eastern RHA is more pronounced than in Prairie Mountain Health.
- In Interlake-Eastern RHA, female life expectancy for off-reserve First Nations is higher than the Manitoba average, and therefore higher than the rates for other RHAs that are not statistically different from the Manitoba average.

Tribal Council Area

- Female life expectancy appears to follow the PMR trend: the TCA with the lowest PMR (Interlake Reserves) has the highest life expectancy, and the TCAs with higher PMR have lower life expectancy.

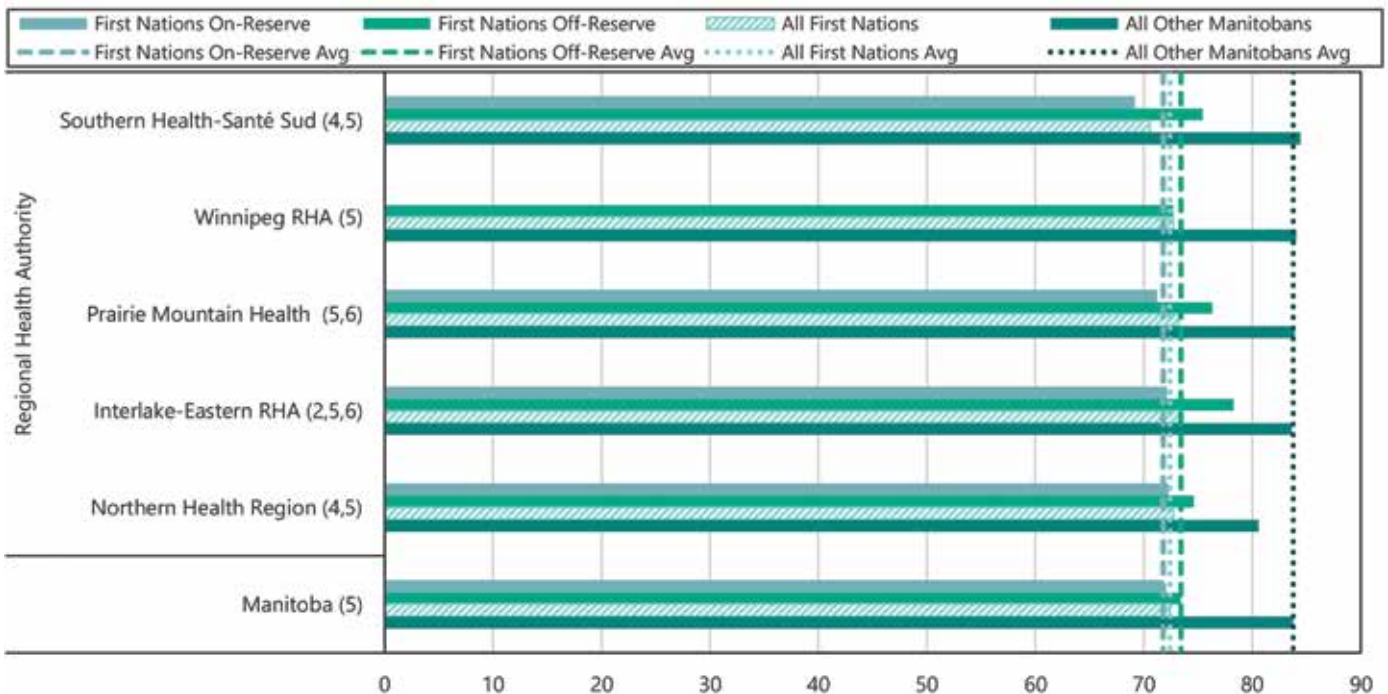
Income Quintiles

- The analyses by income quintile for female life expectancy follow the same pattern as for male life expectancy: First Nations in urban and rural areas have higher PMR and lower life expectancy than AOM in the lowest and highest income quintiles.

Comparison to Other Findings

- As with males, while the AOM life expectancy for females has increased, it is slightly lower when we compare our findings to the results in the 2002 First Nations Atlas. This means the gap between First Nations and AOM has increased from 8 to 11 years since 2002 [6].

Figure 5.24: Female Life Expectancy at Birth by Regional Health Authority
Crude age in years, 2012-2016



Statistically significant differences (p<0.01):
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 5.25: Female Life Expectancy among On-Reserve First Nations by Tribal Council Area
Crude, 2012-2016

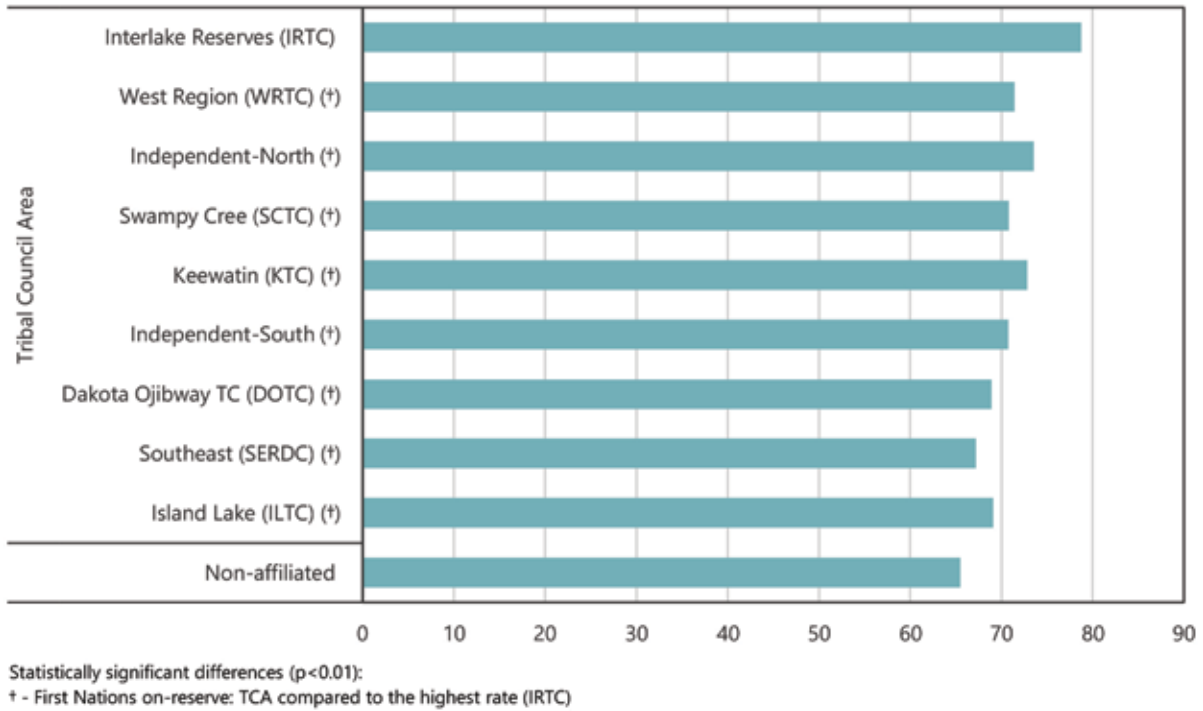
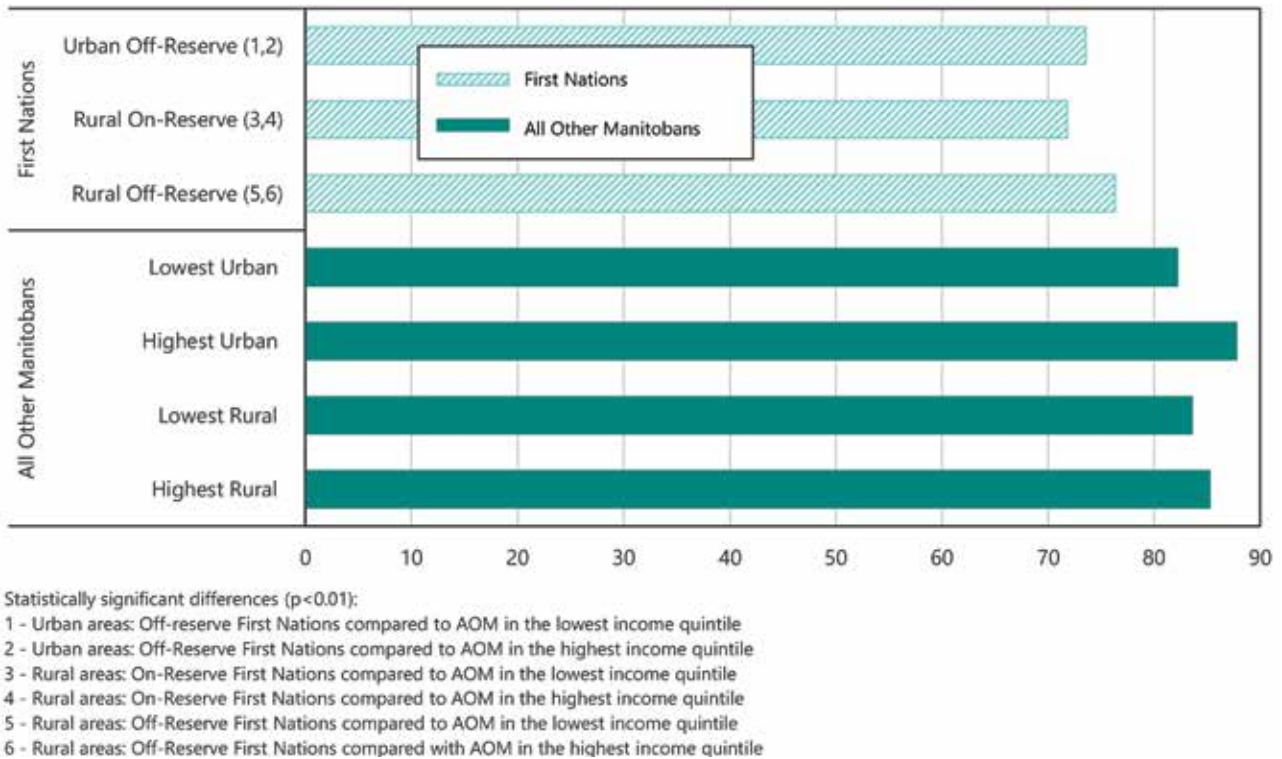


Figure 5.26: Female Life Expectancy at Birth by Income Quintile
Crude age in years, 2012-2016



Potential Years of Life Lost

Definition: Potential years of life lost (PYLL) is similar to PMR but gives greater weight to the death of a younger person. It adds up the number of years “lost” when a person dies before the age of 75. The rate is given as years per 1,000 population. PYLL is a larger number if there is a high death rate among young or middle-age individuals in a population – probably because of injuries or diseases that may cause death at an early age. PYLL is a smaller number if most of the deaths in a population occur later in life – for example, from conditions such as heart problems or chronic disease [39]. The results are age- and sex-adjusted.

Key Findings

The PYLL for First Nations is dramatically higher than for AOM across all regions and for Manitoba as a whole.

Region Health Authorities

- PYLL does not follow the trend in PMR; instead, it varies around the Manitoba average for most RHAs.
- The PYLLs in Interlake-Eastern, Prairie Mountain and Southern RHAs are significantly higher for on-reserve First Nations than off-reserve.
- The off-reserve PYLL in Prairie Mountain Health is lower than the average off-reserve PYLL rate.

Tribal Council Areas

- PYLL appears to follow an overall trend of increasing PYLL as PMR increases.
- Southeast TCA and Island Lake TCA have higher rates of PYLL than Interlake Reserves TCA, which has the lowest PYLL among all on-reserve First Nations.

Income Quintiles

- PYLL for First Nations is consistently significantly higher than for AOM, even in the lowest income quintile in urban and rural areas.
- PYLL for on-reserve First Nations in rural areas is three times higher than for AOM in the lowest rural income quintile.
- PYLL for off-reserve First Nations is twice as high as for AOM in the lowest income quintile in urban and rural areas.

Comparison to Other Findings

- The gap in PYLL has grown by approximately 10 years since the 2002 First Nations Atlas. The First Nation PYLL is now almost four times higher than the PYLL for AOM, compared to the 2.6 times higher PYLL in 2002 [6].

Figure 5.27: Potential Years of Life Lost by Regional Health Authority

Age- and sex-adjusted, per 1,000 individuals, 2012-2016

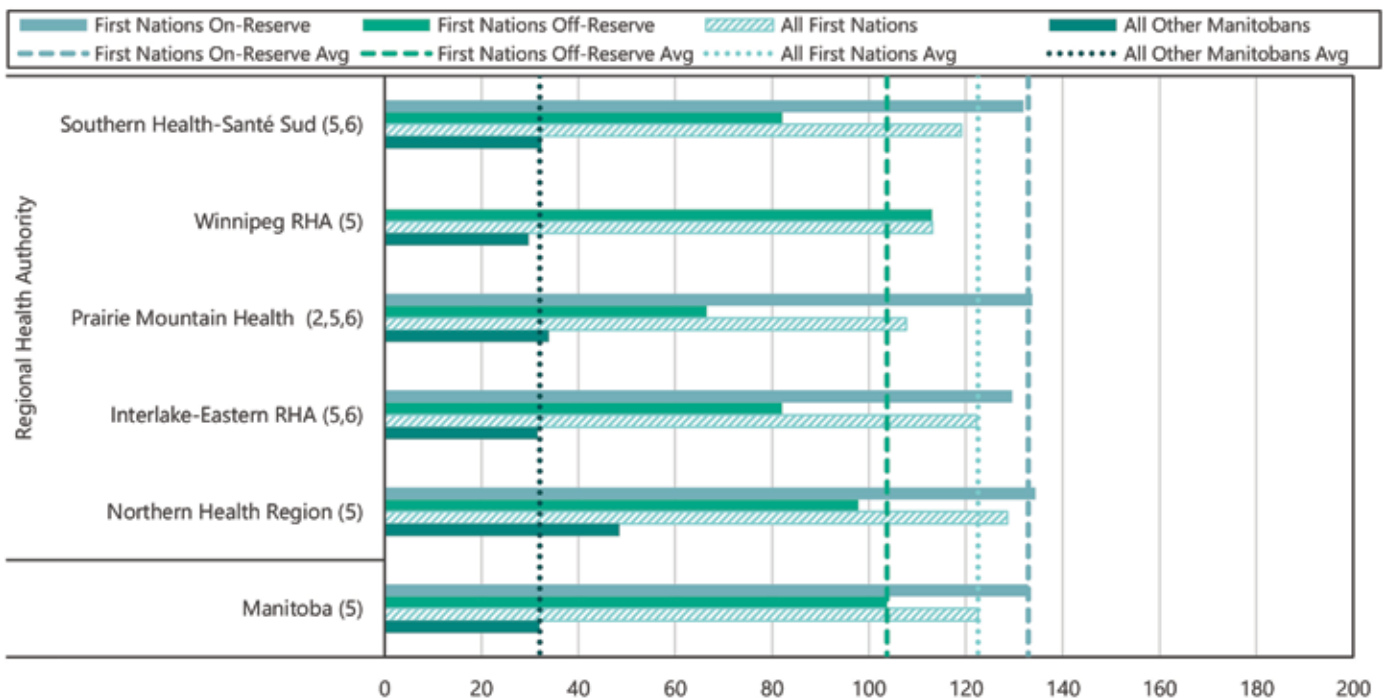
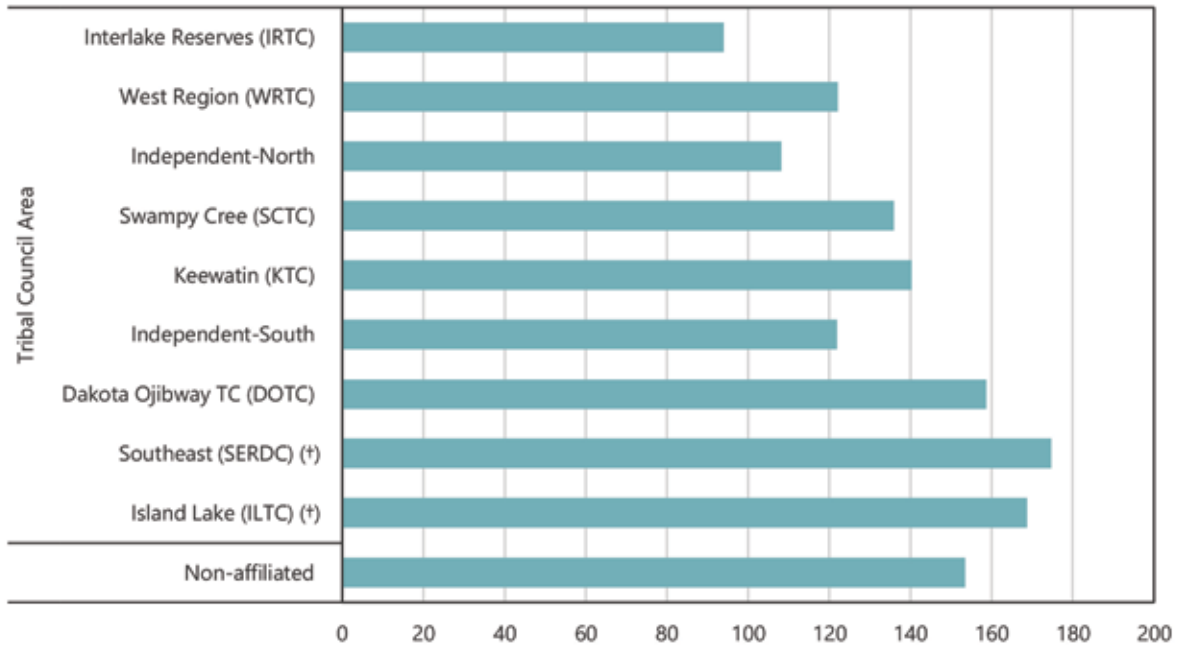


Figure 5.28: Potential Years of Life Lost among On-Reserve First Nations by Tribal Council Area

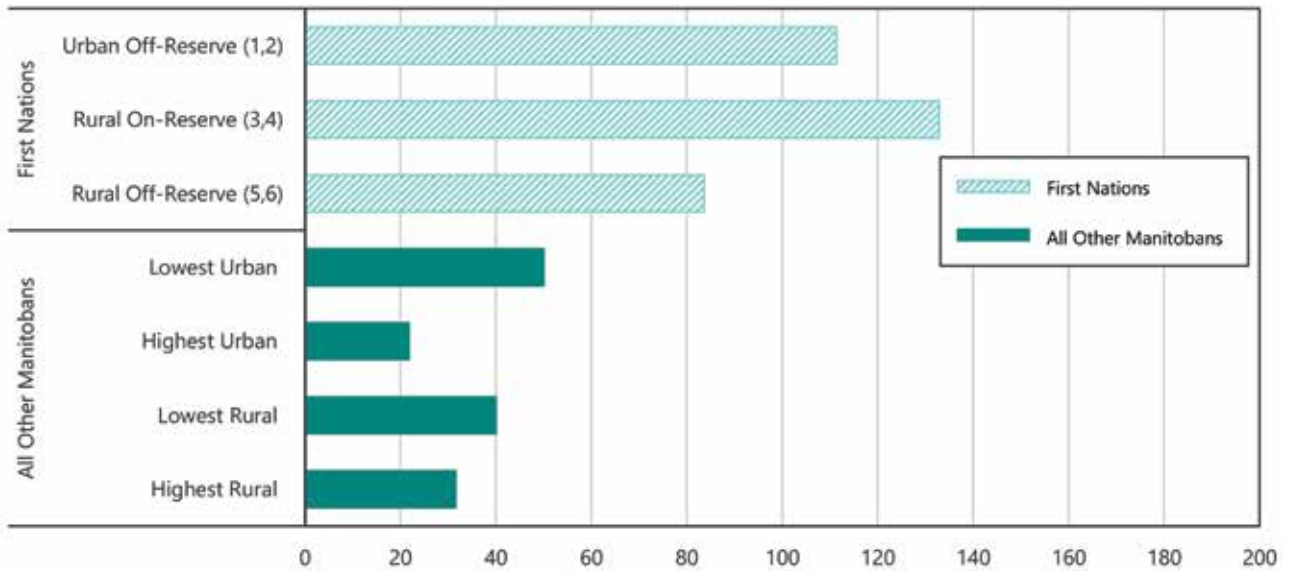
Age- and sex-adjusted, per 1,000 individuals, 2012-2016



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the best rate (IRTC)

Figure 5.29: Potential Years of Life Lost by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, 2012-2016



Statistically significant differences (p<0.01):
 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Chapter 6: Cancer

Introduction

Cancer has become an important concern for First Nation populations in Canada, as the **incidence** (new cases) of cancer and number of deaths from cancer have increased among First Nations. The gap between First Nations and non-Indigenous populations is also growing [35,40–43].

Cancer is among the most common causes of premature mortality (death before age 75) in both First Nations and AOM (see Figures 5.14-5.20). While there are similar elements among all cancers, there are also many different types of cancer with different causes; not all cancers affect people the same way or are treated the same way. Research has shown that over one third of cancers are preventable [44], and early diagnosis is a critical factor in the outcome of many cancers [45]. With early diagnosis, treatment is more likely to be curative and may have a lesser impact on the patient.

In Manitoba, screening is recommended as a strategy for prevention and early diagnosis for three types of cancer [46]. Current policies support screening for breast cancer (by mammography), colorectal cancer (by fecal occult blood testing) and cervical cancer (by pap tests). The Manitoba Cancer Registry in the Repository includes information on all cancers diagnosed in Manitoba, including the stage of the cancer at the time of diagnosis. Cancer stage is a reflection of how advanced the cancer is. Early-stage cancers (stages 1-2) are often diagnosed via screening and have better outcomes (such as cure). Late-stage cancers usually have poorer outcomes than early stage cancers of the same type.

Screening is intended to identify precancerous lesions that can be treated, thereby preventing a cancer diagnosis. If cancer has already developed, screening can help accelerate the diagnosis and treatment to improve survivorship and quality of life. While the screening programs for breast and cervical cancer have been in place in Manitoba for over 20 years, the screening program for colorectal cancer is relatively new. Thus, we would expect that early diagnosis is more likely for breast and cervical cancer but less likely for colorectal cancer until the colorectal screening program is fully established. **Cancer is a relatively rare condition**, so our data for these indicators span a 10-year period. Because the colorectal screening program was introduced during this 10-year period, the screening program will not yet have had its full impact. Effective screening programs should reduce the incidence and ensure a high rate of early diagnosis for new cancers by RHA or TCA.

Despite the availability of screening tests for breast, cervical and colorectal cancers in Manitoba, registered First Nations may not be able to access the screening tests due to lack of transportation, a lack of screening availability on-reserve, or a lack of awareness of the programs.

In this chapter, we present the frequency of diagnosis for the ten most common cancer types in Manitoba. This is followed by screening rates for, the incidence (new cases) of, and the early detection rates for breast, colorectal and cervical cancers.

Key Findings

The most common cancer types across all populations in this study are colorectal, lung, and breast cancer (Table 6.1). The percent of breast cancer diagnoses among off-reserve First Nations is higher than among on-reserve First Nations, and the percent of colorectal cancer diagnoses among all First Nation groups is higher than among AOM. Kidney cancer is three times more common in First Nations than AOM, while prostate cancer is less common among First Nations.

Frequency of Cancer Diagnoses

Definition: Percent of individuals diagnosed with specific invasive cancer types amongst all those diagnosed with any cancer from 2005 to 2015.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Table 6.1: Distribution of the 10 Most Common Cancers in Manitoba, 2005-2015
Percent of diagnosed individuals, age 18+, 2005-2015

Cancer Type	All First Nations	All Other Manitobans	First Nations	
			On-Reserve	Off-Reserve
Colorectal	17.05%	13.48%	17.29%	16.67%
Lung	13.99%	14.54%	13.79%	14.30%
Breast	13.77%	13.85%	12.03%	16.48%
Kidney	9.50%	3.32%	10.98%	7.19%
Prostate	8.04%	11.55%	8.59%	7.19%
Non-Hodgkin Lymphoma	3.99%	4.42%	3.62%	4.55%
Cervical	2.99%	n/a	2.45%	3.83%
Uterine	2.92%	3.63%	2.98%	2.82%
Skin	n/a	3.09%	n/a	n/a
All Others	27.76%	32.12%	28.27%	26.96%

'n/a' indicates that this cancer is not among the top 10 types for this population.

Screening

Mammography (Breast Cancer Screening)

Definition: Mammography screening is offered to women between the ages of 50 and 74 in Manitoba via the provincial BreastCheck screening program. Tests are performed in Winnipeg, Brandon, Winkler, and Thompson, and by the mobile screening machines that tour the province on a two-year cycle [40]. There are many First Nations not reached by the mobile service, and in these instances, First Nation women need to leave the communities for breast cancer screening. The rate shown is the number of women eligible for screening who had a mammogram in a two-year period.

Key Findings

The rates of breast cancer screening are significantly lower for First Nations than for AOM in all RHAs and provincially.

Regional Health Authorities

- There is no clear gradient in mammography rates from north to south or with decreasing PMR.
- AOM screening rates are 1.5 times higher than First Nations rates in Northern RHA, and twice as high in Prairie Mountain Health and Southern Health.
- The on-reserve and All First Nations rates in Southern Health RHA are lower than the provincial averages.
- In Interlake-Eastern RHA, the off-reserve rates are higher than the provincial average.

Tribal Council Areas

- Screening rates among on-reserve First Nations do not follow a north-south gradient or the PMR trend.
- The Swampy Cree TCA has the highest screening rate for on-reserve First Nations. Independent South communities, Dakota Ojibway TCA, and the Island Lake TCA have lower rates of screening than Swampy Cree TCA.

Income Quintiles

- Mammography rates among First Nations are significantly lower than rates among AOM, even in the lowest income quintiles in urban and rural areas. This gap is more pronounced for on-reserve First Nations in rural areas.

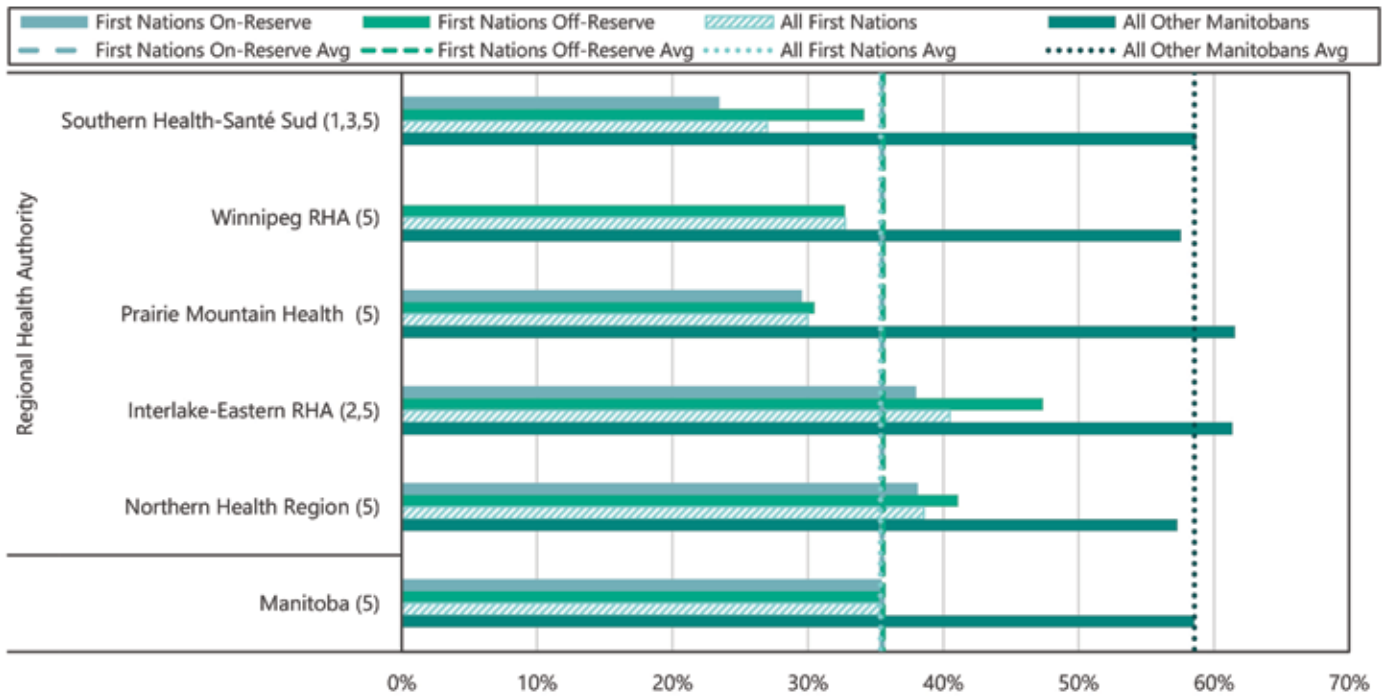
Comparison to Other Findings

In the 2002 First Nations Atlas, the mammography rate for First Nation women in Manitoba was less than half the rate for AOM women, with substantial variation between regions. The screening rates for both First Nations and AOM women have increased since 2002, with First Nations rates increasing more and resulting in the gap between First Nations and AOM being reduced by 14% [6].

The screening rates in this report are comparable with findings by Demers et al. (2015) for Manitoba women in 1999-2008 [47]. Demers et al. (2015) and Mazereeuw et al. (2017) also reported gaps in mammography rates between First Nations and AOM in Manitoba and Ontario, respectively [47,48]. However, Mazereeuw et al. (2017) reported higher mammography rates in Ontario for both groups and a smaller gap [48].

Figure 6.1: Mammogram Rate by Regional Health Authority

Age-adjusted, percent of females, age 50-74, 2014/15-2015/16

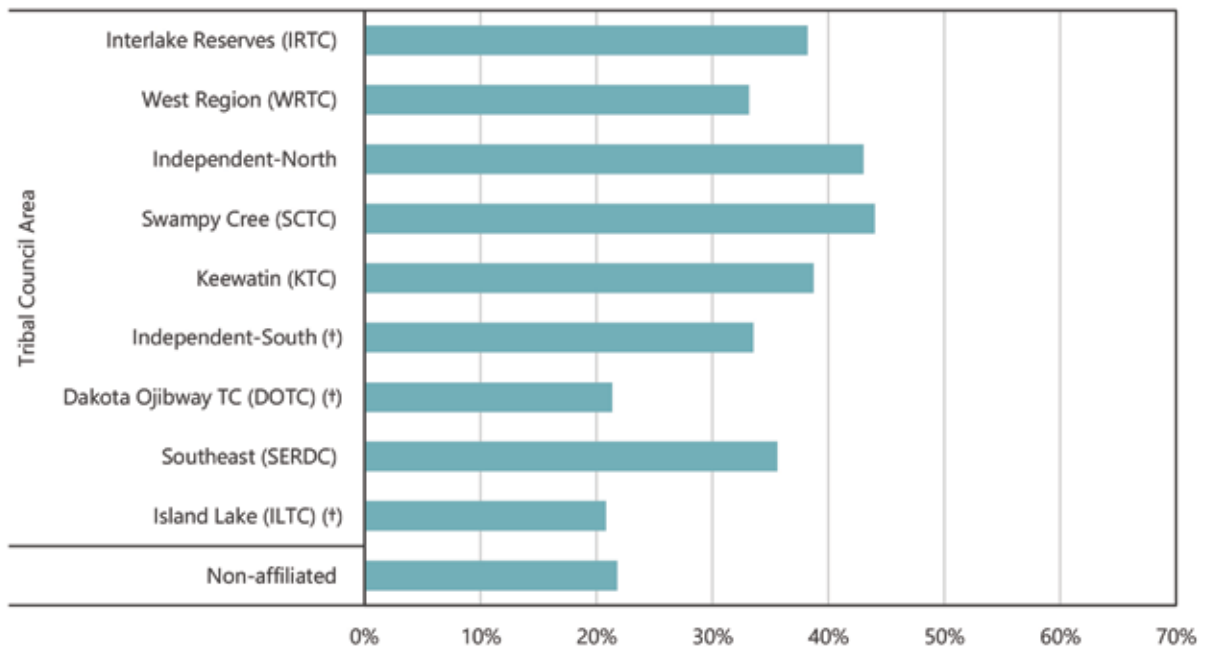


Statistically significant differences (p<0.01):

- 1 - First Nations on-reserve: RHA compared to the Manitoba average
- 2 - First Nations off-reserve: RHA compared to the Manitoba average
- 3 - All First Nations: RHA compared to the Manitoba average
- 5 - All First Nations compared to All Other Manitobans

Figure 6.2: Mammogram Rate among On-Reserve First Nations by Tribal Council Area

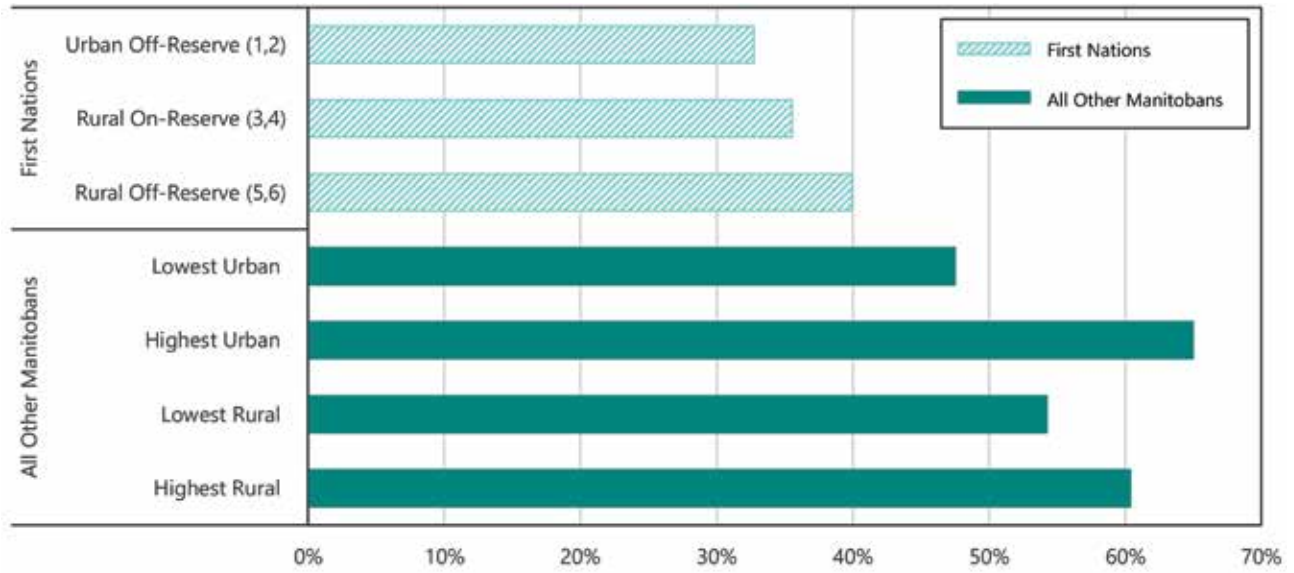
Age-adjusted, percent of females, age 50-74, 2014/15-2015/16



Statistically significant differences (p<0.01):

- † - First Nations on-reserve: TCA compared to the best rate (SCTC)

Figure 6.3: Mammogram Rate by Income Quintile
 Age-adjusted, percent of females, age 50-74, 2014/15-2015/16



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Fecal Occult Blood Tests (Colorectal Cancer Screening)

Definition: The ColonCheck program, run by CancerCare Manitoba, sends invitations to all Manitobans between 50 and 74 years old to participate by submitting stool samples through the mail every two years. Tests done as part of the program are recorded in the screening data. The test is also available through other laboratories and can even be performed in nursing stations or physician offices. Unfortunately, tests performed outside of the ColonCheck screening program are not recorded in the data analyzed for this study. The results therefore under-report the use of colorectal cancer screening in Manitoba generally, but especially in the North, where there are large number of federally funded nursing stations (see map of nursing stations in the online supplement). Details on the indicator definition are available in the online supplement.

The most recent colorectal cancer screening program rates available in the Repository are for 2014-2015. The provincial screening program was in the early stages of implementation at that time, and was not immediately implemented in all parts of Manitoba. The rates of colorectal screening provided by ColonCheck are therefore considerably lower in general than those for breast and cervical cancer screening.

Key Findings

The provincial colorectal cancer screening rates for AOM are dramatically higher (two to five times) than for First Nations in all RHAs and in Manitoba overall.

Regional Health Authorities

- Colorectal cancer screening rates do not appear to follow the PMR trend across RHAs, nor do they follow a north-to-south gradient.
- The rates for First Nations off-reserve are higher than for First Nations on-reserve; we see this trend for Manitoba overall and across all regions. The rates are almost four times higher for First Nations off-reserve in Manitoba overall.
- Screening rates for all populations in Northern RHA are significantly lower than the provincial averages.

- The off-reserve and All First Nations rates in Southern, Prairie Mountain and Northern RHA are below the Manitoba averages.
- Screening rates are the highest for First Nations in Winnipeg RHA compared to the Manitoba average and, therefore, all other RHAs. This gap is dramatic when compared with Southern, Prairie Mountain and Northern RHAs.

Tribal Council Areas

- Colorectal cancer screening rates across TCAs do not appear to follow the PMR trend, nor do they follow a north-to-south gradient.
- Interlake Reserves TCA has the highest rates of colorectal cancer screening, though they are much lower than screening rates for breast cancer (Figure 6.5).
- West Region, Keewatin, Island Lake TCAs, and Independent Northern First Nations have lower rates of screening than Interlake Reserves TCA.

Income Quintiles

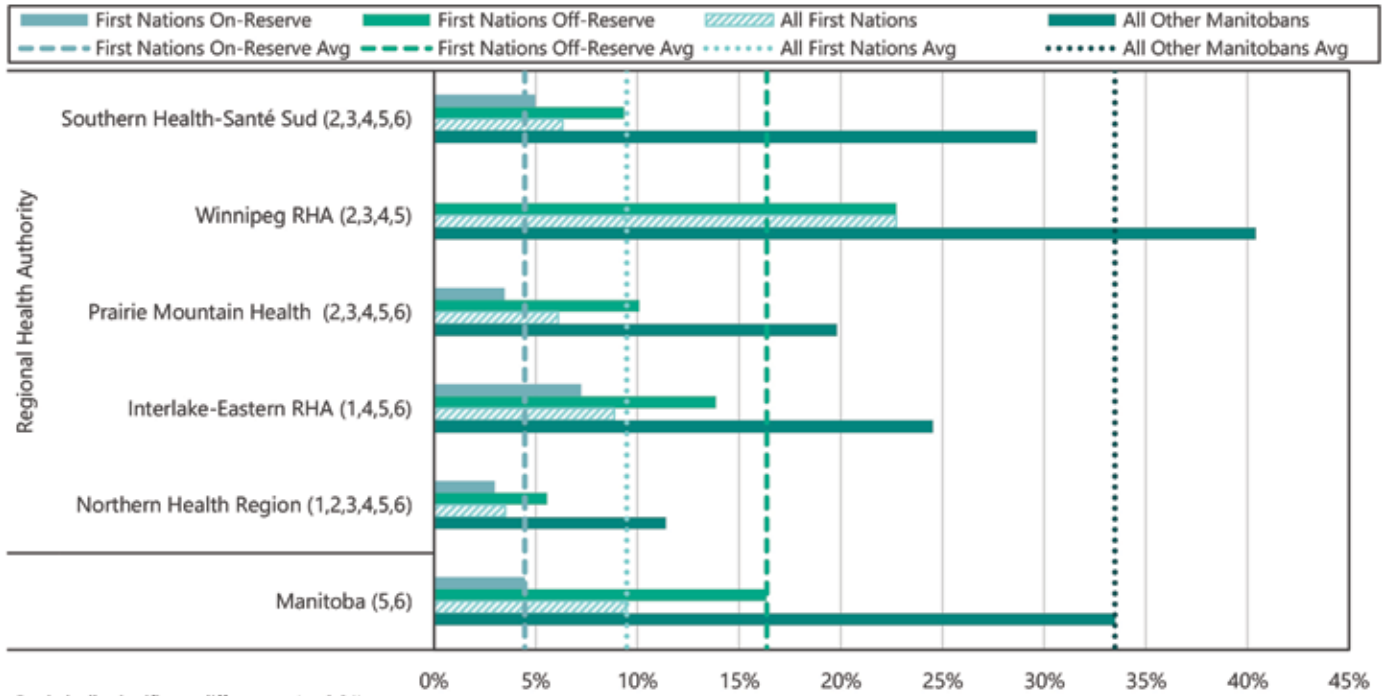
- Colorectal screening rates among First Nations in urban and rural areas are significantly lower than the rates for AOM in the lowest income quintiles. This gap is very pronounced in rural areas, where on-reserve First Nations screening rates are more than four times lower than those for AOM in the lowest income quintile.
- Off-reserve First Nations in urban areas also appear to have up to five times higher screening rates than on-reserve First Nations.

Comparison to Other Findings

- Colorectal cancer screening was not included in the 2002 First Nations Atlas.
- Our findings for colorectal cancer screening rates in Winnipeg RHA are almost double the rates reported by Decker et al. (2015) for 2008 [49]. This suggests that the gap between First Nations and AOM screening rates may have shrunk by as much as 24%.

Figure 6.4: Colorectal Cancer Screening (FOBT) Rate by Regional Health Authority

Age- and sex-adjusted, percent of individuals age 50-74, 2014-2015

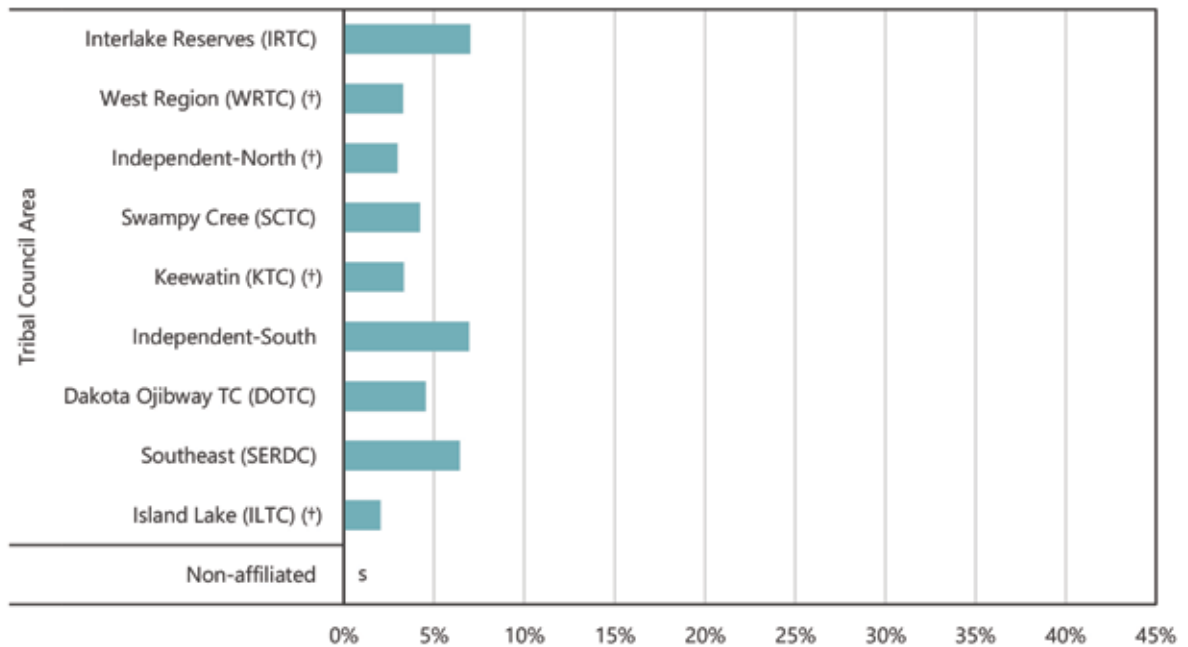


Statistically significant differences (p<0.01):

- 1 - First Nations on-reserve: RHA compared to the Manitoba average
- 2 - First Nations off-reserve: RHA compared to the Manitoba average
- 3 - All First Nations: RHA compared to the Manitoba average
- 4 - All Other Manitobans: RHA compared to the Manitoba average
- 5 - All First Nations compared to All Other Manitobans
- 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 6.5: Colorectal Cancer Screening (FOBT) Rate among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, percent of individuals age 50-74, 2014-2015

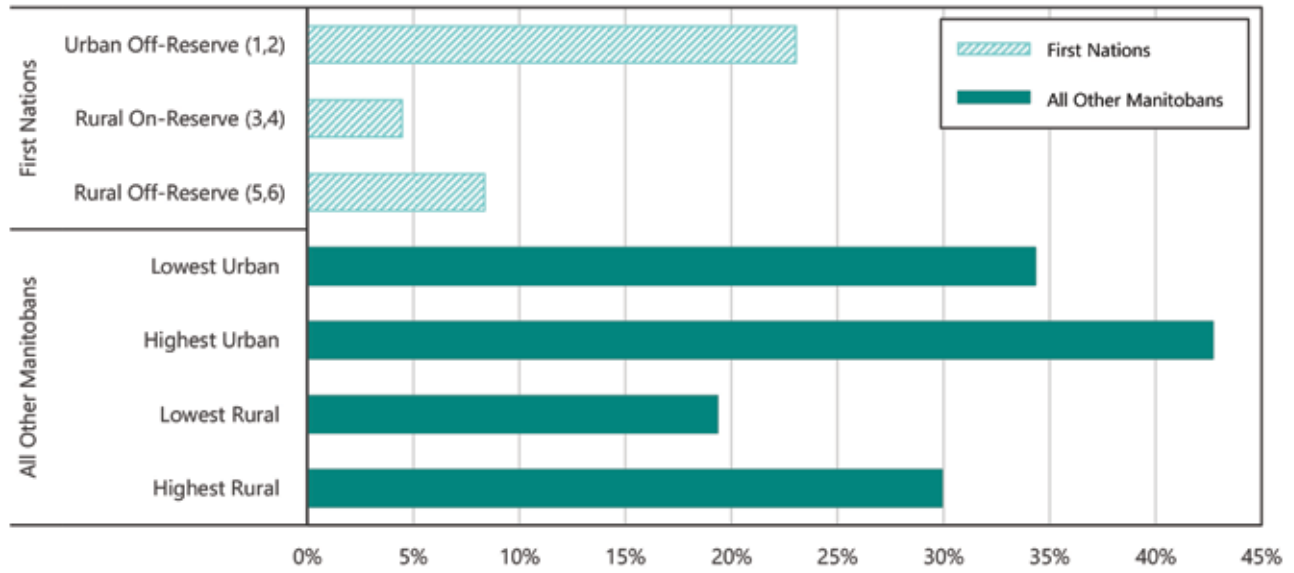


Statistically significant differences (p<0.01):

- † - First Nations on-reserve: TCA compared to the best rate (IRTC)
- s - Data suppressed due to small numbers

Figure 6.6: Colorectal Cancer Screening (FOBT) Rate by Income Quintile

Age- and sex-adjusted, percent of individuals age 50-74, 2014-2015



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Pap Tests (Cervical Cancer Screening)

Definition: Cervical cancer screening was introduced many years before the breast and colorectal cancer screening programs. The CervixCheck program has evolved over time, with the recommended frequency of screening decreasing from annual screening to testing every three years, and the age of initiation of screening has increased over the past 10 years. The current recommendation has guided our indicator: percentage of women age 21-69 who have had a Pap test over the previous three years. Details on this definition are available in the online supplement.

Key Findings

Cervical cancer screening rates are higher across regions and populations than screening rates for other cancers we measured. The gap between First Nations and AOM appears to be smaller.

Screening rates for First Nation women are lower than rates for women in the AOM group across RHAs and for Manitoba overall.

Regional Health Authorities

- The cervical cancer screening rates for off-reserve First Nation women are higher than on-reserve First Nation women for the province as a whole. The gap between these populations can also be seen in Northern and Interlake-Eastern RHAs, where PMR is the highest (and therefore health status the lowest).
- In Winnipeg, the screening rates for First Nation women are higher than the provincial average for First Nation women.
- In Interlake-Eastern, the screening rates are higher for AOM women than the Manitoba average for AOM women.

Tribal Council Areas

- Cervical cancer screening rates across TCAs appear to follow a slight trend along with PMR, with higher rates in TCAs that have lower PMR, and lower rates in TCAs that have high PMR. However, screening rates do not appear to follow a north-to-south gradient

- The West Region TCA, which has the second-lowest PMR, has the highest rate of Pap tests.
- Both Dakota Ojibway TCA and Island Lake TCA, which have among the highest PMRs, also have lower screening rates than West Region TCA.

Income Quintiles

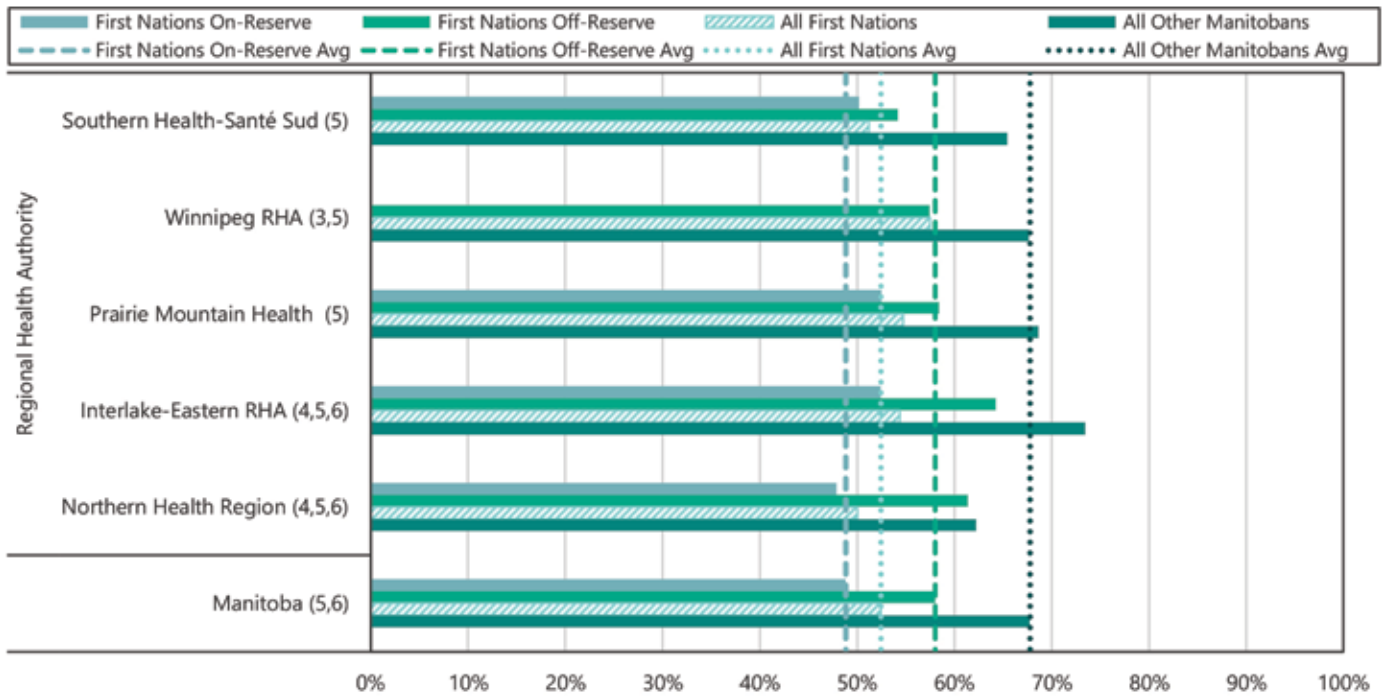
- Screening rates among off-reserve First Nations in urban and rural areas are significantly lower than rates among AOM in the highest urban and rural income quintiles, respectively. However, off-reserve First Nations have comparable rates to AOM in the lowest income quintiles. This trend differs from most other indicators, where the rates for First Nations are often considerably lower than AOM in the lowest income quintile.
- Rates for on-reserve First Nations in rural areas are significantly lower than AOM, even in the lowest rural income quintiles.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Our findings for cervical cancer screening among both First Nations and AOM appear lower than rates reported for Ontario [48]. Mazereeuw et al. (2017) found similar rates among on- and off-reserve First Nations and AOM, unlike our findings of significant gaps between these populations [48].
- Our findings for First Nation women appear slightly lower than rates reported by Decker et al. (2015) for 2006-2008 [50]. While we found significant differences between First Nations and AOM, Decker et al. (2015) concluded that the two groups were not different from each other in regards to their cervical cancer screening rates [50].

Figure 6.7: Pap Test Rate by Regional Health Authority

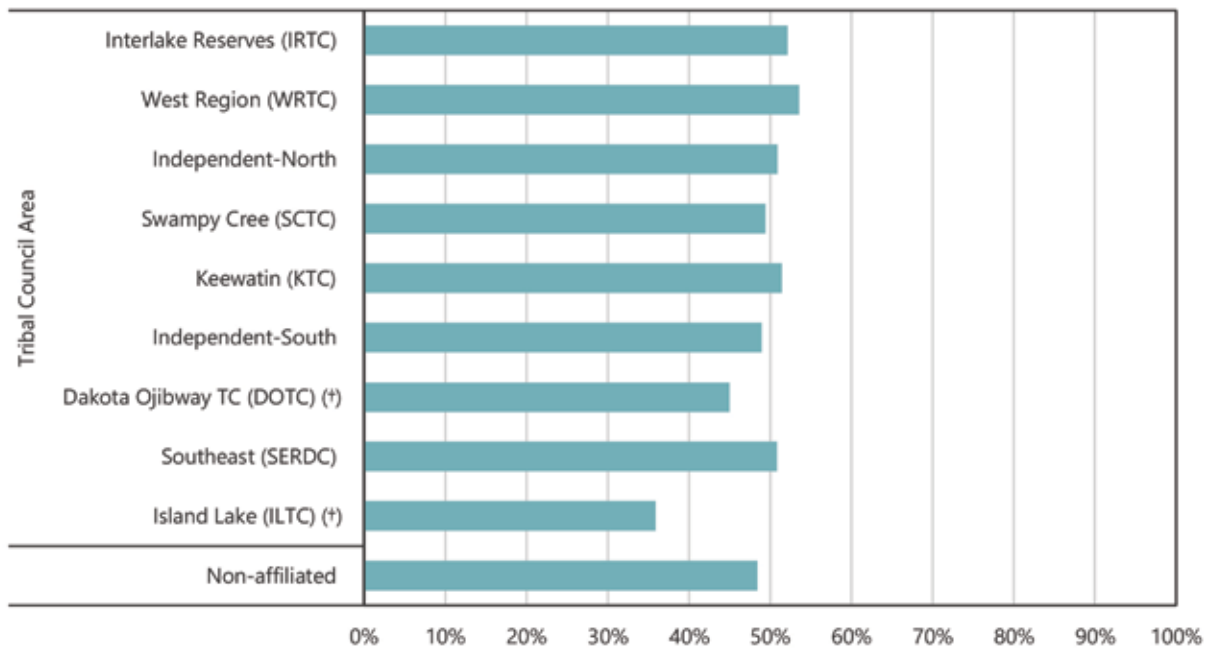
Age-adjusted, percent of females, age 21-69, 2013-2015



Statistically significant differences ($p < 0.01$):
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 6.8: Pap Test Rate among On-Reserve First Nations by Tribal Council Area

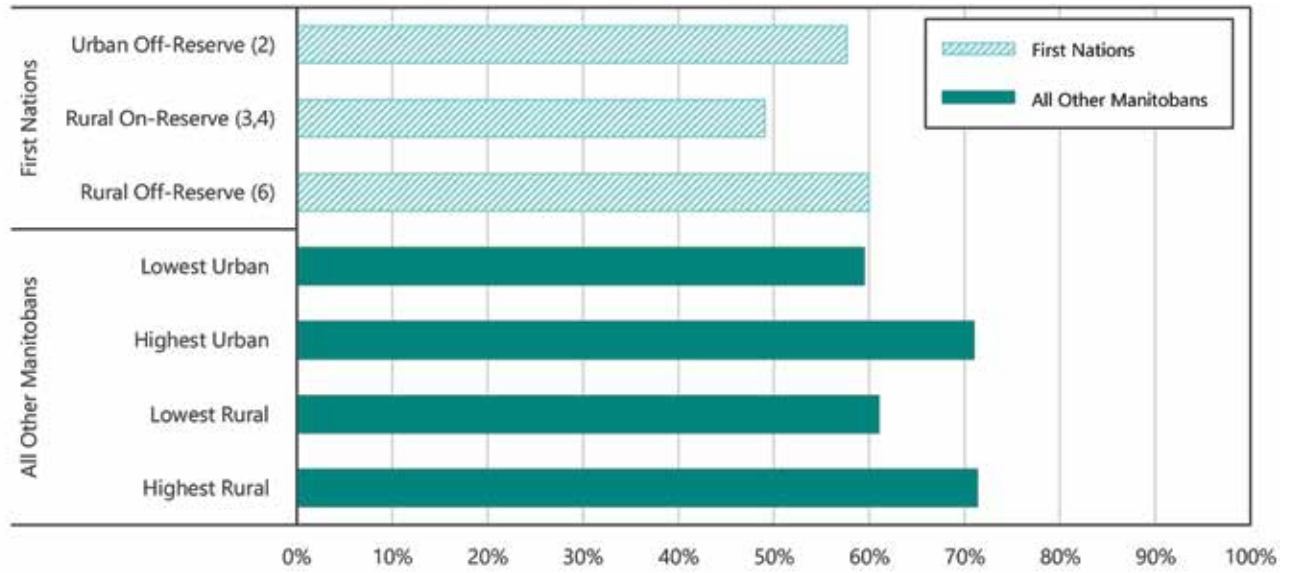
Age-adjusted, percent of females, age 21-69, 2013-2015



Statistically significant differences ($p < 0.01$):
 † - First Nations on-reserve: TCA compared to the best rate (WRTC)

Figure 6.9: Pap Test Rate by Income Quintile

Age-adjusted, percent of females, age 21-69, 2013-2015



Statistically significant differences (p<0.01):

- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Cancer Incidence

This indicator is designed to capture the increasing burden of cancer in First Nations by measuring new cases of cancers.

Overall Cancer Incidence

Definition: The rate per 100,000 individuals living in Manitoba (age 18 or older) with any new invasive cancer diagnosis from 2005 to 2015.

Key Findings

The cancer incidence rates for All First Nations are higher than rates for AOM for Manitoba.

Regional Health Authorities

- The incidence rate of all cancers does not appear to follow the PMR trend across RHAs, nor does it follow a north-to-south gradient.
- The cancer incidence rate for All First Nations is higher than the rate for AOM in Winnipeg, Prairie Mountain and Interlake-Eastern RHAs, as well as in Manitoba.

Tribal Council Areas

- While the rates may appear to vary across TCAs, these differences are not statistically different, likely due to the small number of events.

Income Quintiles

- The rate of cancer incidence for off-reserve First Nations in urban areas is higher than the rate for AOM in the highest urban income quintile, but comparable to the rate for AOM in the lowest income quintile. In rural areas, on-reserve rates are comparable to AOM rates in the lowest and highest income quintiles. However, off-reserve rates for First Nations in rural areas are higher than the rates for AOM, even in the lowest income quintile.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 6.10: Cancer Incidence Rate by Regional Health Authority
Age- and sex-adjusted, per 100,000 individuals, age 18+, 2005-2015

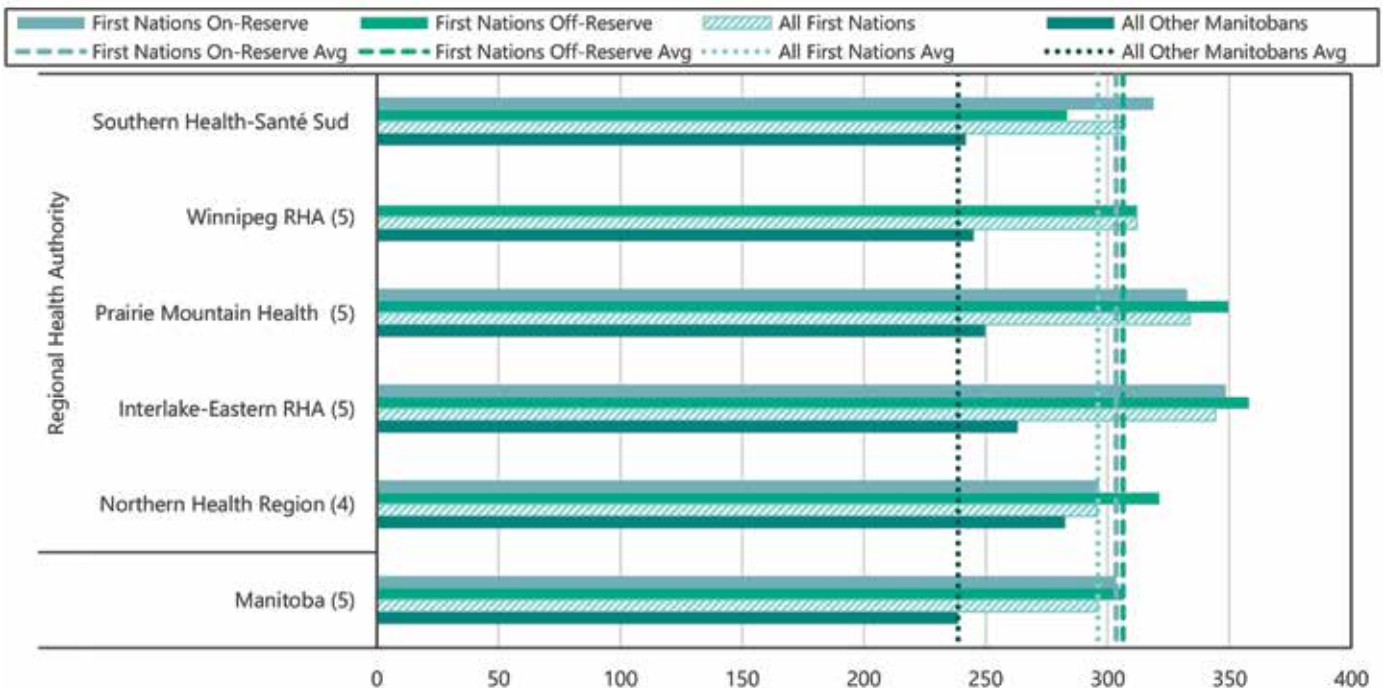


Figure 6.11: Cancer Incidence Rate among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, per 100,000 individuals, age 18+, 2005-2015

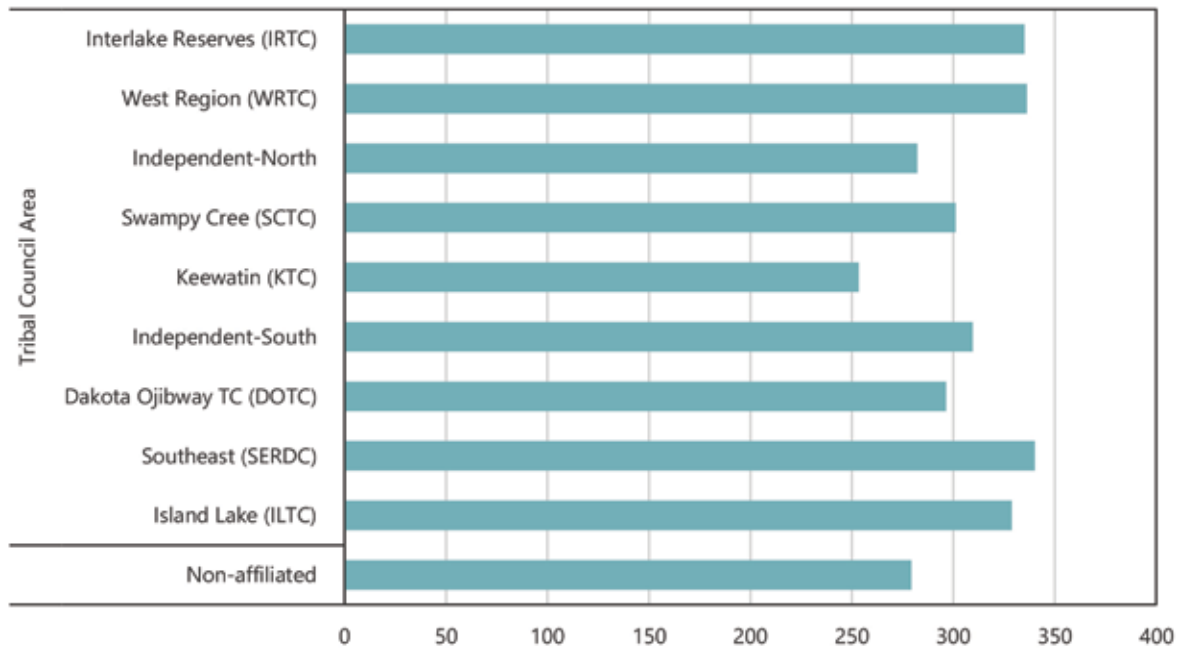
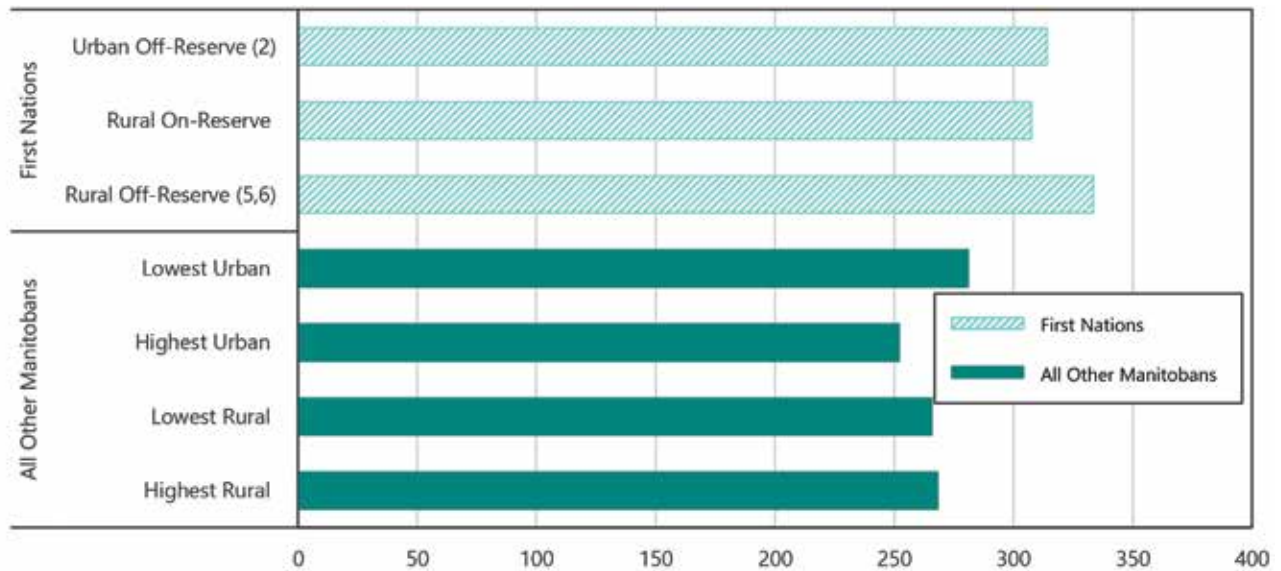


Figure 6.12: Cancer Incidence Rate by Income Quintile

Age- and sex-adjusted, per 100,000 individuals, age 18+, 2005-2015



Statistically significant differences ($p < 0.01$):

- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Incidence by Cancer Type

In this section, we focus on the increasing burden of cancers for which Manitoba offers screening programs. We report findings for breast, colorectal and cervical cancer.

Breast Cancer

Definition: The rate per 100,000 individuals living in Manitoba (age 18 or older) with a new diagnosis of invasive breast cancer from 2005 to 2015.

While breast cancer incidence appears to vary across RHAs, TCAs, and income quintiles, there are no statistically significant differences or trends across regions or populations. This is likely due to the small sample size.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Both our findings and those of Decker et al. (2016) show that breast cancer incidence among First Nations is comparable to the incidence among AOM [35].

Figure 6.13: Breast Cancer Incidence Rate by Regional Health Authority
Age-adjusted, per 100,000 females, age 18+, 2005-2015

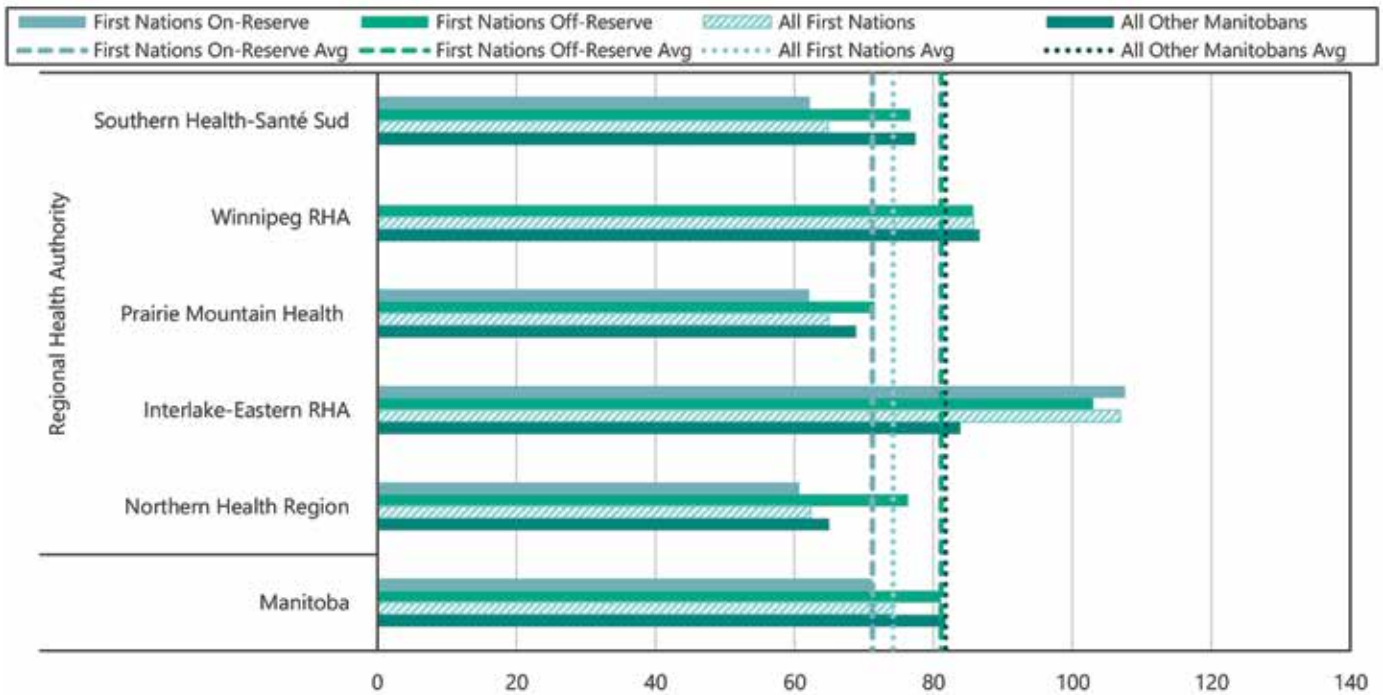


Figure 6.14: Breast Cancer Incidence Rate among On-Reserve First Nations by Tribal Council Area

Age-adjusted, per 100,000 females, age 18+, 2005-2015

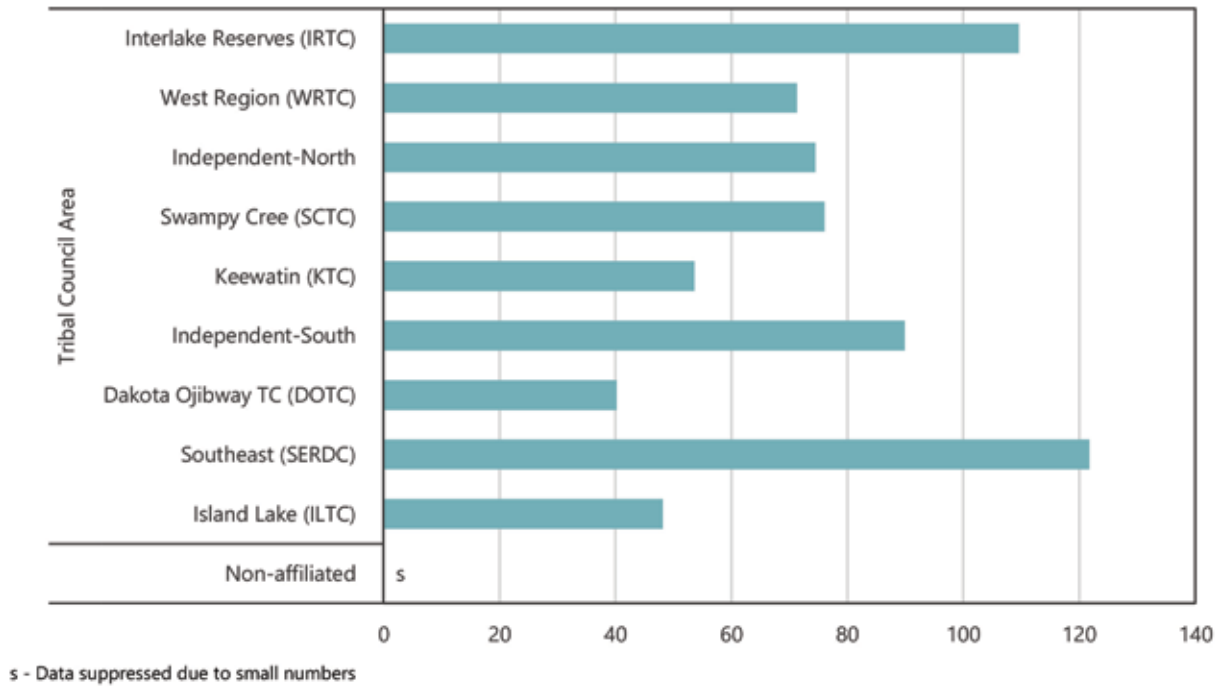
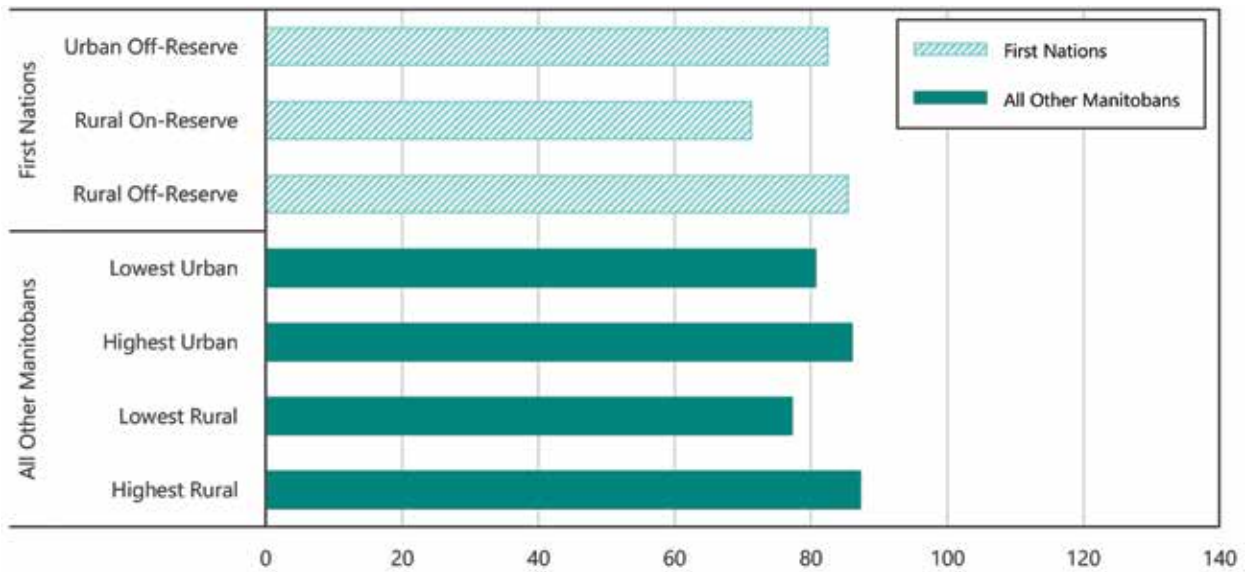


Figure 6.15: Breast Cancer Incidence Rate by Income Quintile

Age-adjusted, per 100,000 females, age 18+, 2005-2015



Colorectal Cancer

Definition: The rate per 100,000 individuals living in Manitoba (age 18 or older) with a new diagnosis of invasive colorectal cancer from 2005 to 2015.

While colorectal cancer is the most common type of cancer among First Nations in Manitoba (Table 6.1), the incidence of colorectal cancer is much lower than the incidence of breast and cervical cancer (Figures 6.14, 6.16 and 6.19). The incidence rates for First Nations are consistently higher than rates for AOM across regions (except Winnipeg) and in Manitoba overall.

Regional Health Authorities

- The incidence of colorectal cancer does not follow the north-to-south or PMR gradients.
- The incidence rates for First Nations are significantly higher than for AOM in all regions except Winnipeg.

Tribal Council Areas

- Incidence rates across TCAs do not appear to follow any trend.
- Rates in West Region TCA are almost double the rates in Interlake Reserves TCA, which has the lowest incidence of colorectal cancer.

Income Quintiles

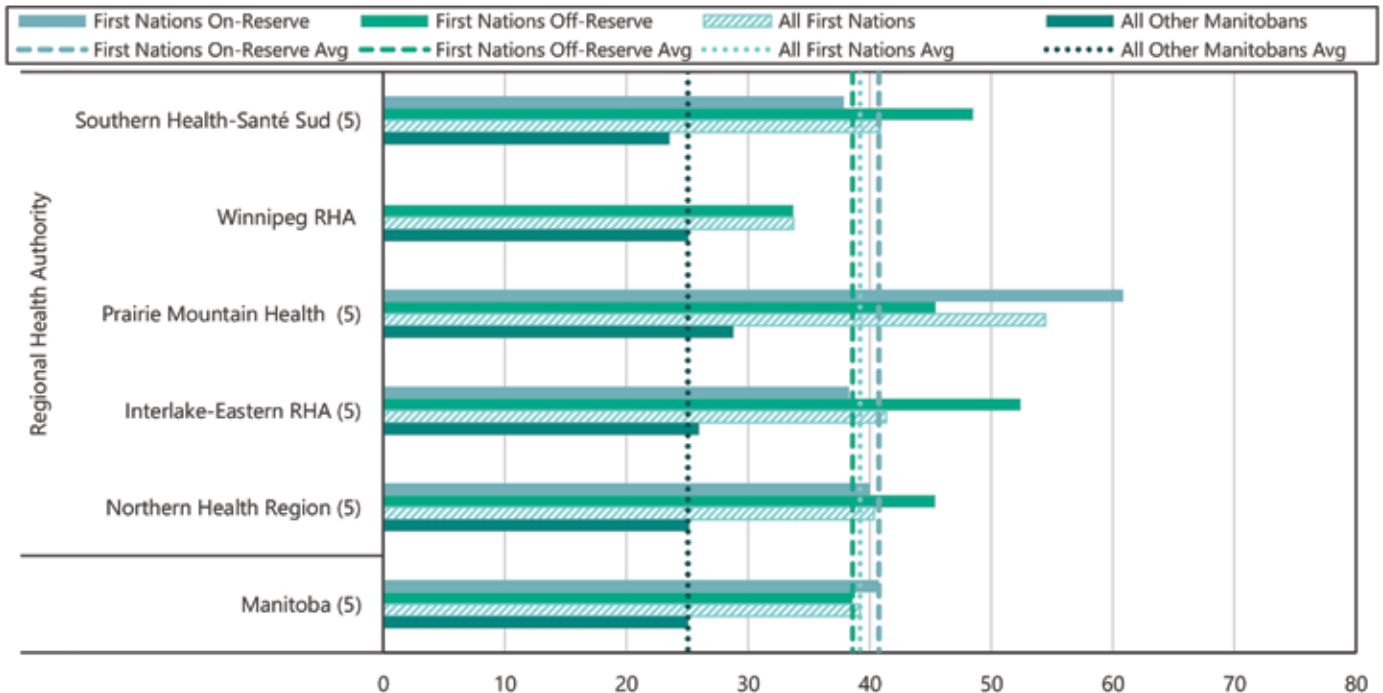
- Incidence rates of colorectal cancer among First Nations in urban areas are comparable to incidence rates for AOM in both the lowest and highest urban income quintiles.
- In rural areas, the rates for both on- and off-reserve First Nations are higher than rates for AOM in both the lowest and highest income quintiles. This suggests that the burden of disease among First Nations is higher than that for AOM, even in the lowest income quintiles.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Our findings for First Nations are comparable to the findings reported for invasive colorectal cancer in Manitoba for 2004-2008 (Decker et al. 2016), once we account for methodological differences [35]. The gaps that we observed between First Nations and AOM are also consistent with findings by Decker et al. (2016) for 2004-2008 [35].
- The gap we observed between First Nations and AOM is consistent with similar studies from Ontario and British Columbia [51,52].

Figure 6.16: Colorectal Cancer Incidence Rate by Regional Health Authority

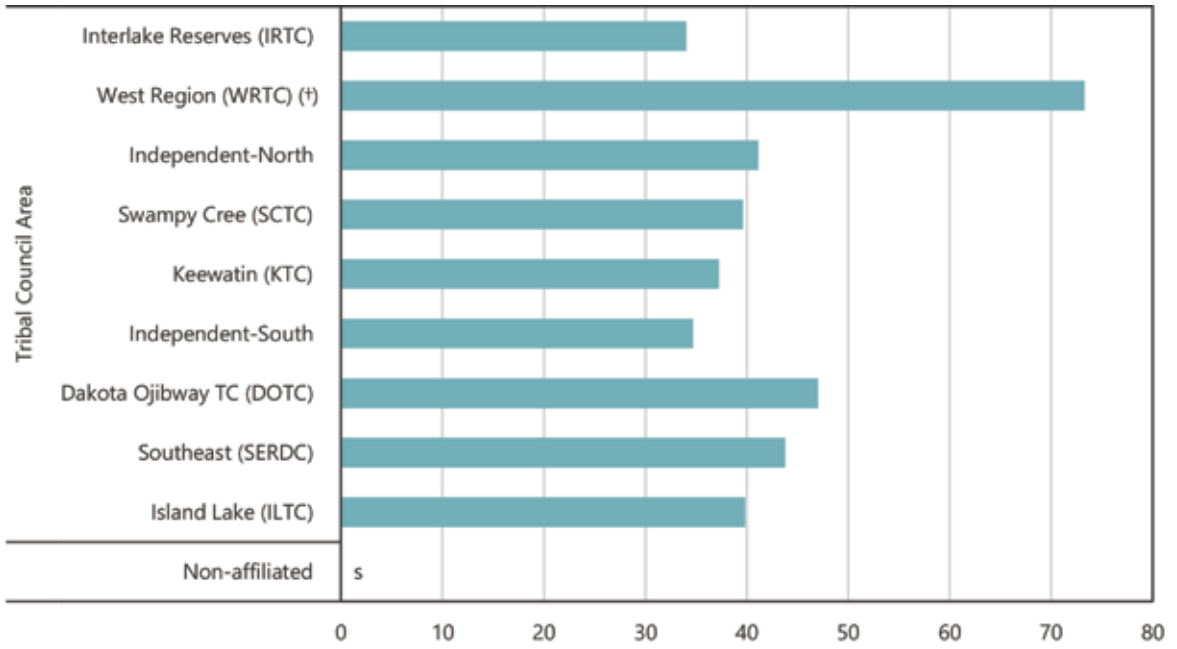
Age- and sex-adjusted, per 100,000 individuals, age 18+, 2005-2015



Statistically significant differences (p < 0.01):
5 - All First Nations compared to All Other Manitobans

Figure 6.17: Colorectal Cancer Incidence Rate among On-Reserve First Nations by Tribal Council Area

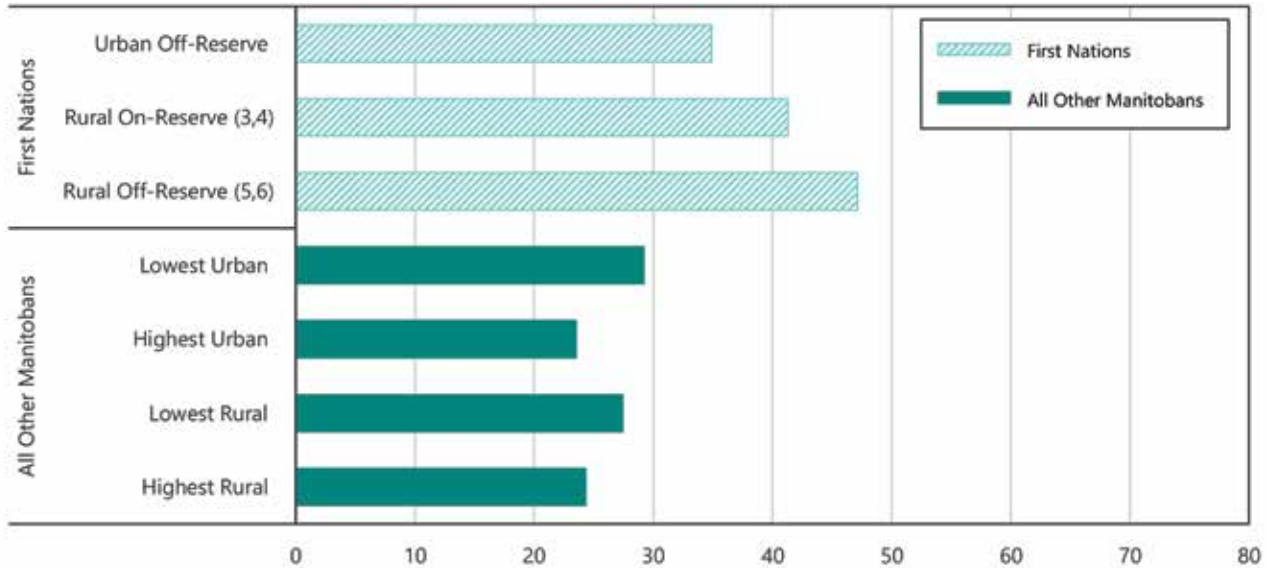
Age- and sex-adjusted, per 100,000 individuals, age 18+, 2005-2015



Statistically significant differences ($p < 0.01$):
 † - First Nations on-reserve: TCA compared to the lowest rate (IRTC)
 s - Data suppressed due to small numbers

Figure 6.18: Colorectal Cancer Incidence Rate by Income Quintile

Age- and sex-adjusted, per 100,000 individuals, age 18+, 2005-2015



Statistically significant differences ($p < 0.01$):
 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Cervical Cancer

Definition: The rate per 100,000 individuals living in Manitoba (age 18 or older) with a new diagnosis of invasive cervical cancer from 2005 to 2015.

Cervical cancer incidence rate among First Nations is almost three times as high as the rate for AOM province-wide.

Regional Health Authorities

- There are no significant differences in cervical cancer incidence rates between RHAs and provincial averages.
- The incidence rates for All First Nations are higher than incidence rates for AOM across RHAs. However, the gap between the two populations is only statistically significant for Winnipeg and Southern RHA (more than four times higher among First Nations).

Tribal Council Areas

- The rates are suppressed due to the low incidence by TCA.

Income Quintiles

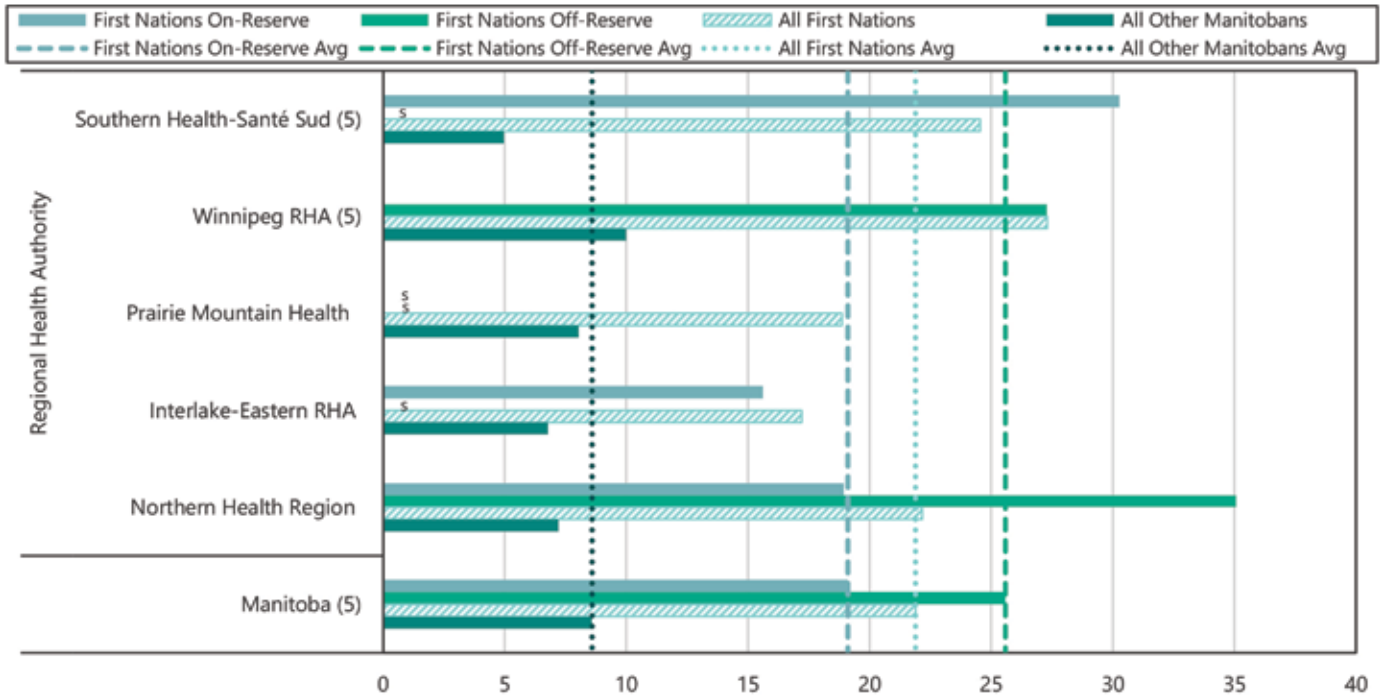
- Incidence rates among First Nations in urban areas are significantly higher than rates among AOM in the highest urban income quintiles. The gap between First Nation rates and AOM rates in the lowest income quintile is not significant.
- In rural areas, incidence rates among First Nations both on- and off-reserve are significantly higher than AOM, in both the lowest and highest income quintiles.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Both our findings and those of McGahan et al. (2017) show that cervical cancer incidence among First Nations is higher than the incidence among AOM [52].

Figure 6.19: Cervical Cancer Incidence Rate by Regional Health Authority

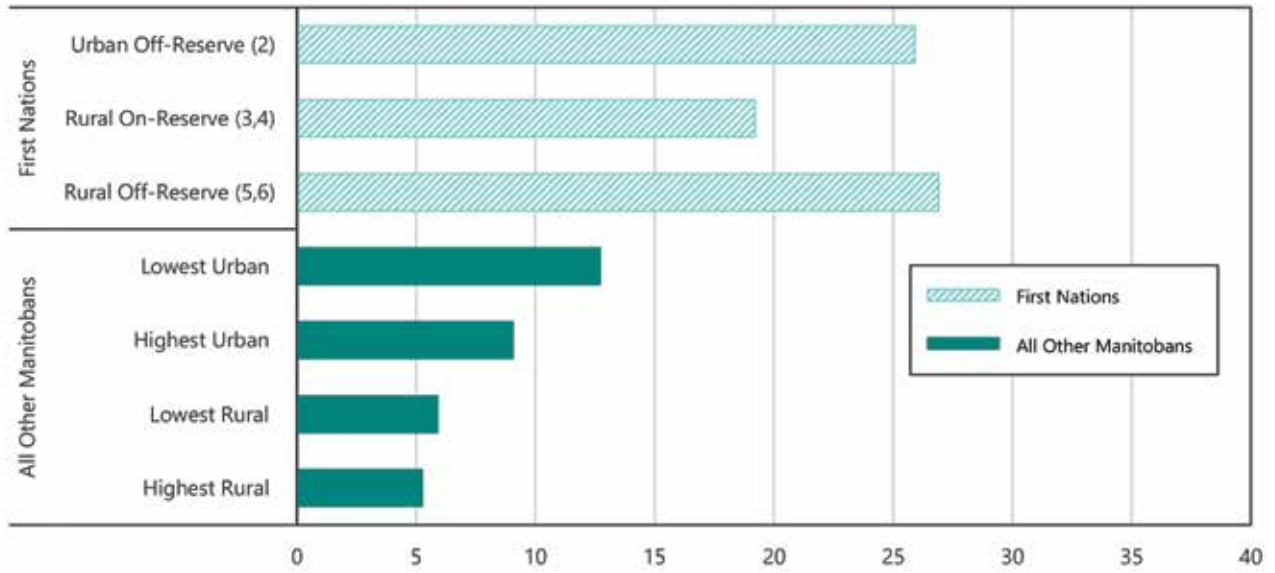
Age-adjusted, per 100,000 females, age 18+, 2005-2015



Statistically significant differences ($p < 0.01$):
 s - All First Nations compared to All Other Manitobans
 s - Data suppressed due to small numbers

Figure 6.20: Cervical Cancer Incidence Rate by Income Quintile

Age-adjusted, per 100,000 females, age 18+, 2005-2015



Statistically significant differences (p<0.01):

- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Early-Stage Detection of Cancer

A number of strategies to reduce the suffering caused by cancer have been proposed. These include prevention, early-stage detection, and cancer treatment. Early-stage detection may occur through screening (finding cancer before it causes symptoms) or through patient, physician and NP responses to early symptoms when they occur. Early-stage detection is therefore dependent on access to screening programs, participation in these programs, and access to responsive medical care.

Definition: The percent of individuals who receive an early-stage (stage 1) cancer diagnosis. Early stage can also be defined as including both Stage 1 and stage 2 cancers, as is reported by CancerCare Manitoba.

Additional results for early-stage cancer diagnosis that include stages 1-2 are available in the online supplement for this chapter.

Overall Key Findings

Among the three cancers for which Manitoba has established screening programs, rates of early-stage diagnosis of cervical cancer were highest, followed by breast cancer. The percent of individuals who were diagnosed with early-stage colorectal cancer was low (less than 50%). These findings are consistent with the higher rates of cervical cancer screening, slightly lower rates of breast cancer screening, and much lower rates of colorectal cancer screening. Overall, early-stage diagnosis of these three cancers did not follow any pattern across RHAs, TCAs or income quintiles, and no differences among groups we compared were statistically significant (see online supplement).

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Table 6.2: Early Stage Cancer Detection in Manitoba
Diagnosed individuals, 2005-2015

Cancer Type	All First Nations vs. All Other Manitobans (Adjusted Rates)*		On-Reserve vs. Off-Reserve First Nations (Adjusted Rates)*	
	All First Nations	All Other Manitobans	On-Reserve	Off-Reserve
Breast Cancer	40.24%	45.17%	37.18%	44.18%
Colorectal Cancer	18.58%	21.61%	16.03%	22.64%
Cervical Cancer*	36.59%	46.07%	s	s

* Crude rates only for early stage cervical cancer detection
 's' Data suppressed due to small numbers



Chapter 7: Mental Illness

MCHP's Mental Health of Manitoba Adults study in 2018 [53] reported that over 27% of Manitobans had been diagnosed with a mental illness. The most commonly diagnosed illness was a mood or anxiety disorder. Our First Nation partners recognize how common mental illness is amongst those living on-reserve and off-reserve, and advocated for the inclusion of this chapter in this report. Our findings also show that mood and anxiety disorders are the most common of the mental disorders that we investigated, followed by drug and substance abuse, and psychotic disorders.

Mood and Anxiety Disorders

Definition: The definition for mood and anxiety disorders is based on the diagnoses recorded in provider billings and hospital discharge abstracts over a five-year period. At least two provider billings or one hospital discharge diagnosis are required for someone to be included in our analysis as being diagnosed with a mood or anxiety disorder. The diagnostic codes for depression and anxiety disorders are often used interchangeably by providers. It is therefore common practice to combine the two groups of disorders in research using administrative data. The details are provided in the online supplement.

Key Findings

Mood and anxiety disorder prevalence among All First Nations is higher than the prevalence among AOM.

Regional Health Authorities

- The prevalence of mood and anxiety disorders does not appear to follow a north-to-south gradient or PMR trend. However, prevalence among on-reserve First Nations is higher than AOM in RHAs with higher PMR (Prairie Mountain, Interlake-Eastern and Northern).
- Southern and Northern RHAs appear to have the lowest prevalence of mood and anxiety disorders among All First Nations groups, as the rates among their First Nation populations are below the provincial averages.
- Mood and anxiety disorder prevalence among All First Nations is higher than the prevalence for AOM in Winnipeg, Prairie Mountain and Northern RHAs.
- First Nations living off-reserve have a higher prevalence of mood and anxiety disorders than those living on-reserve in Manitoba as a whole and in Prairie Mountain Health.
- Winnipeg and Prairie Mountain stand out as having a significantly higher prevalence of mood and anxiety disorders among all First Nation populations than the provincial average. For Winnipeg, this includes only First Nations living off-reserve, while in Prairie Mountain these findings apply to both on- and off-reserve First Nations.

Tribal Council Areas

- The prevalence of mood and anxiety disorders among First Nations on-reserve does not appear to follow a north-to-south gradient or PMR trend.
- The prevalence of mood and anxiety disorders among on-reserve First Nations is consistently and significantly lower in Keewatin TCA (one of the northern TCAs) compared to all other TCAs.

Income Quintiles

- The prevalence of mood and anxiety disorders among off-reserve First Nations in both urban and rural areas is higher compared to AOM in the high and low income quintiles. The gap appears to be greater in urban areas.
- The prevalence among on-reserve First Nations is comparable to AOM in rural areas.

First Nations Regional Health Survey

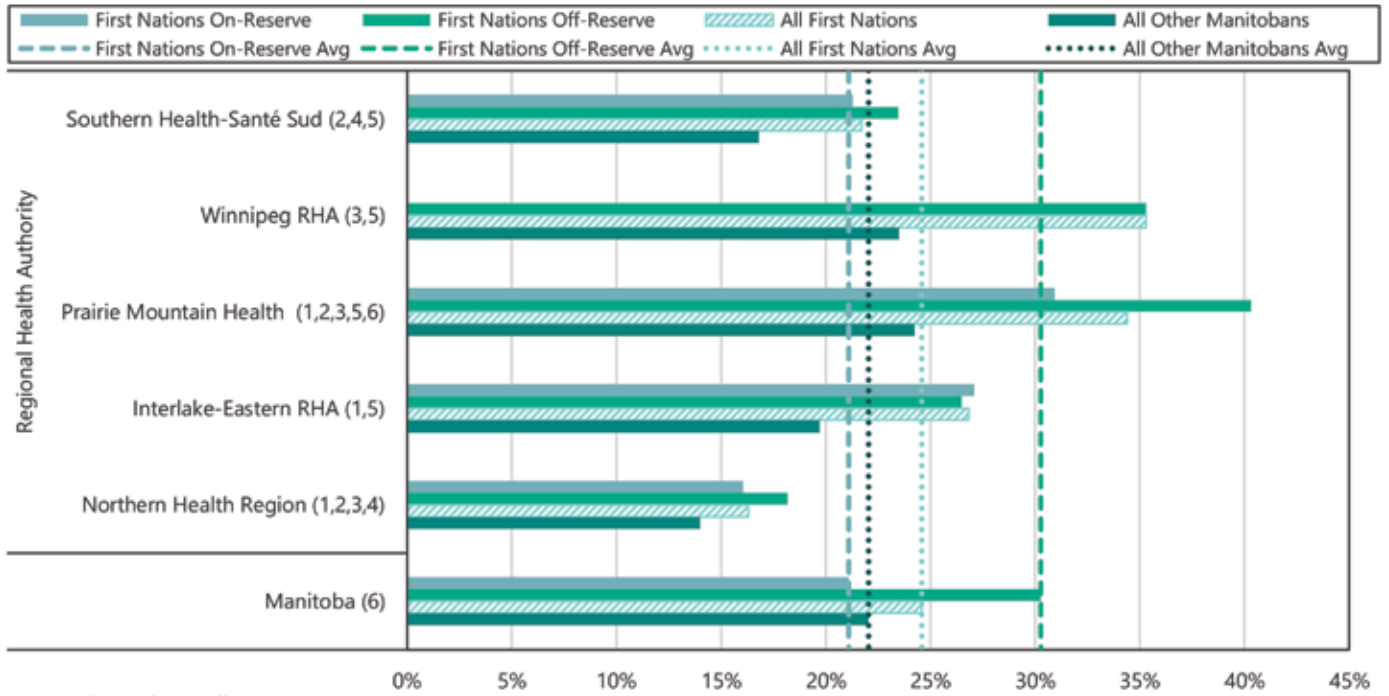
- Self-reported (survey) rates of mood and anxiety disorders among Manitoba First Nations living on-reserve are almost four times lower than the prevalence measured using administrative data (also see Chapter 11). The question in the RHS specifically asks if the respondent was told that they had a diagnosis of anxiety or depression. The difference we see in self-reported vs. administrative data may therefore represent a communication gap between First Nation patients and their doctors.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- King et al. (2009) reported higher rates of depression among on-reserve First Nations in Canada overall from the 2002-03 National RHS [36].
- Our findings are consistent with other studies, which report a higher rate of mood and anxiety disorders among on- and off-reserve First Nations compared to a non-Indigenous population group [54,55].

Figure 7.1: Mood and Anxiety Disorders Prevalence by Regional Health Authority

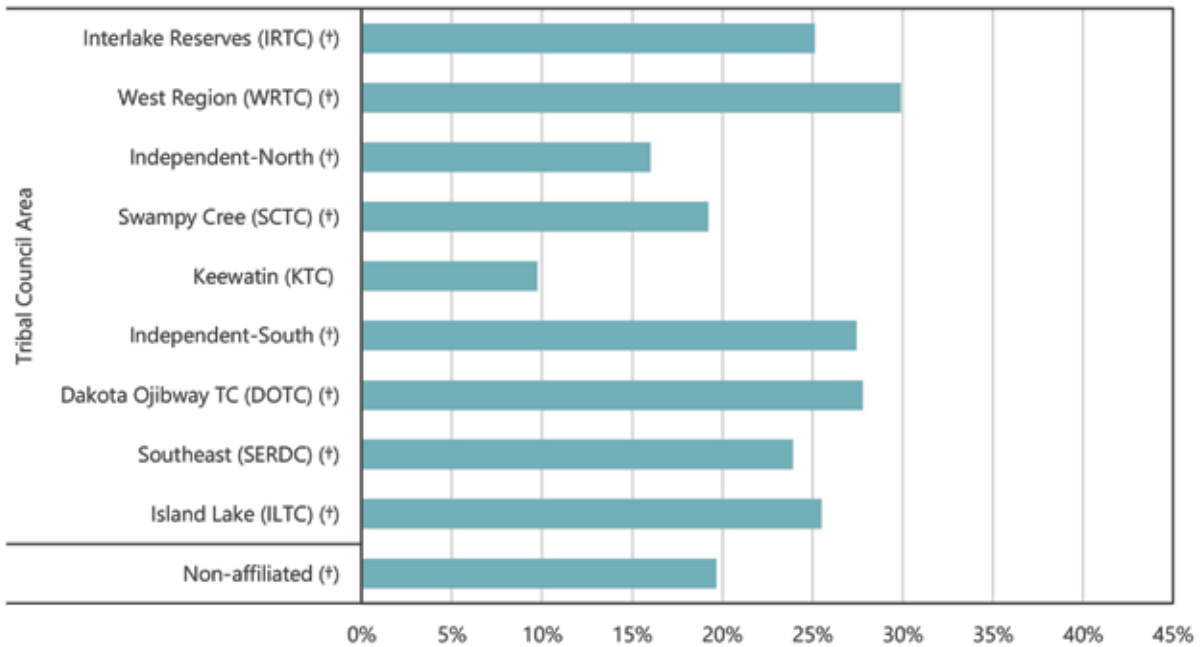
Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences (p<0.01):
 1 - First Nations on-reserve: RHA compared to the Manitoba average
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 7.2: Mood and Anxiety Disorders Prevalence among On-Reserve First Nations by Tribal Council Area

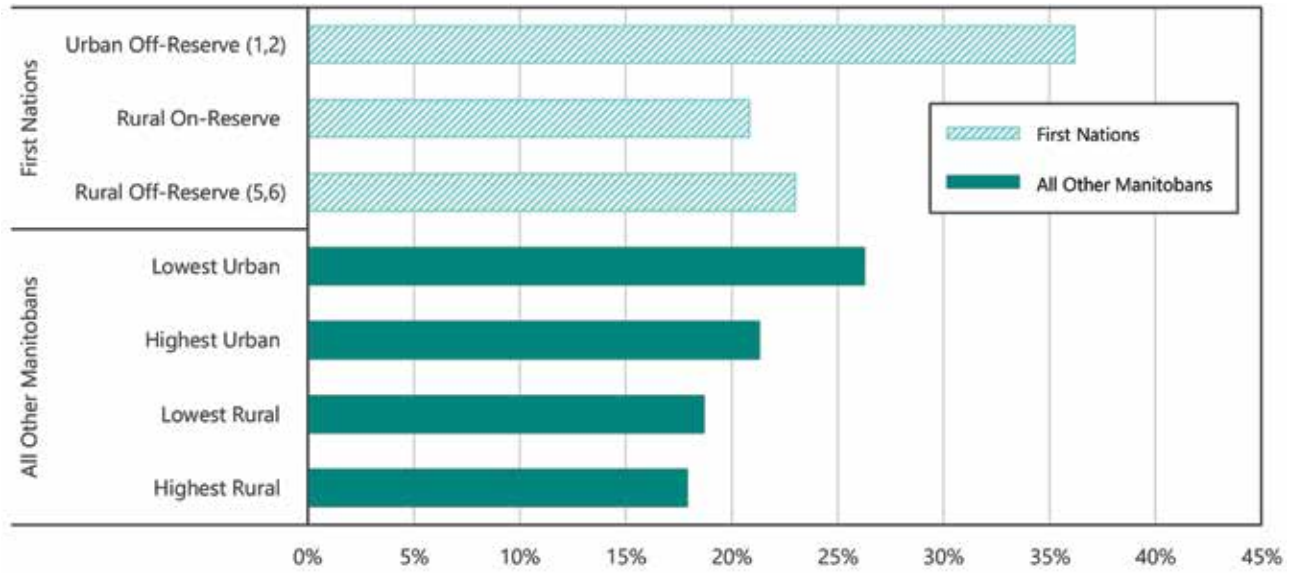
Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the lowest rate (KTC)

Figure 7.3: Mood and Anxiety Disorders Prevalence by Income Quintile

Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Drug and Substance Use Disorder

Definition: The definition of drug and substance use is based on a medical diagnosis from a provider visit or a hospitalization over the past five years. We use this term because it is the term in the diagnostic code the providers use. There may be individuals who use drugs and other substances inappropriately who have not been diagnosed with a drug and substance use disorder by a physician or nurse practitioner. There is also literature that suggests that patients often self-medicate with drugs or alcohol rather than seeking medical care for underlying mental illness (Bolton 2009).

Key Findings

The most striking observation is the large consistent gap in rates of drug and substance use disorder between First Nations (two to four times higher) and AOM across all RHAs and in Manitoba overall.

Regional Health Authorities

- The rate of drug and substance use disorder diagnoses does not appear to follow a north-to-south gradient or PMR trend. The rates in each RHA vary around the Manitoba averages, without any significant differences.
- The First Nation rates do not vary significantly on- or off-reserve.

Tribal Council Areas

- The rate of drug and substance use disorder among on-reserve First Nations does not appear to follow a PMR or north-to-south gradient.

- The Island Lake Tribal Council Area has the lowest rate among all TCAs.
- Independent-North, Keewatin, and Dakota Ojibway TCAs, as well as the Non-Affiliated communities, have significantly higher rates than Island Lake TCA.

Income Quintiles

- The rates of drug and substance use disorder among First Nations in rural and urban areas, as well as on- and off-reserve, are three times higher than the rates among AOM, even in the lowest income quintiles.
- The rates among First Nations are twice as high as rates among AOM in the highest income quintiles in rural areas and almost nine times higher in urban areas.

First Nations Regional Health Survey

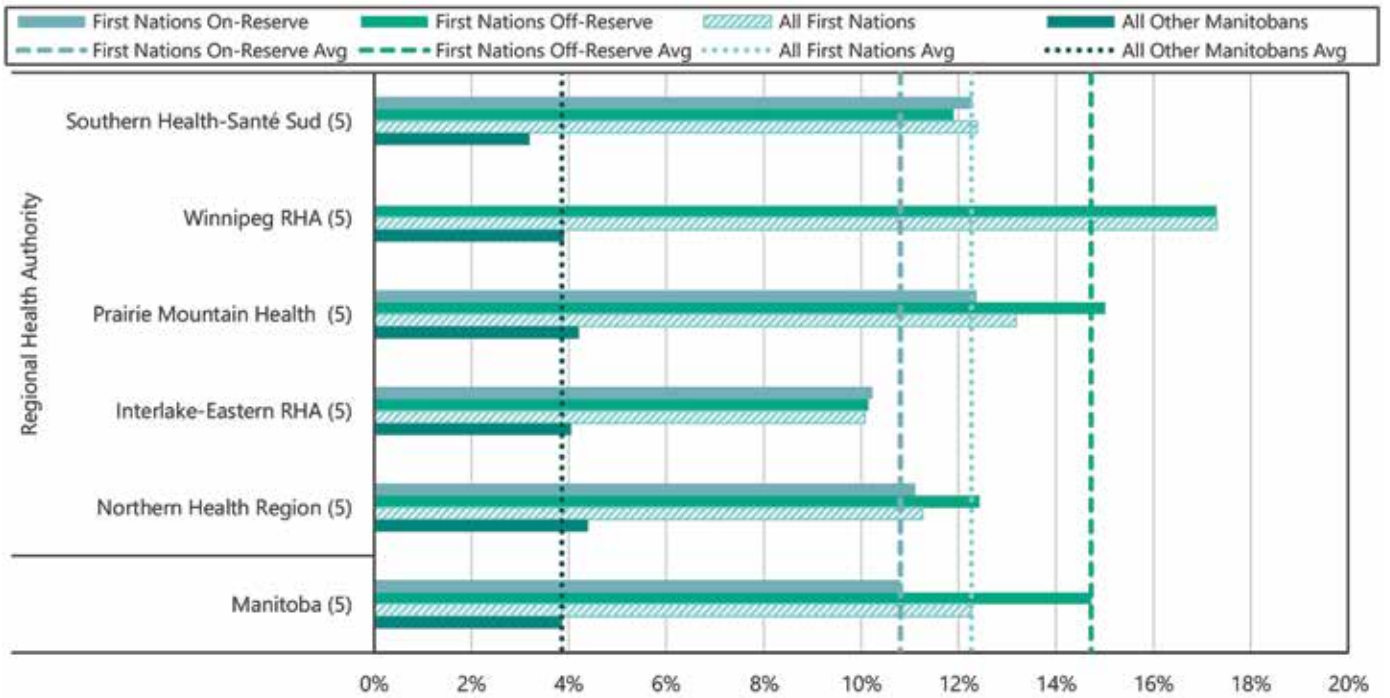
- Despite the difference in how self-reported rates (in Chapter 11) and the rates based on administrative data) are defined and measured, the two sets of findings for on-reserve First Nations are similar.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Carrière et al. (2018) reported that there was a four- to six fold gap between First Nations and AOM for hospitalizations for a substance use-related diagnosis in Canada in 2006/07-2008/09 [54]. These findings are similar to our findings on drug and substance use disorder diagnoses based on physician and NP visits and hospitalizations.

Figure 7.4: Drug and Substance Use Disorder Prevalence by Regional Health Authority

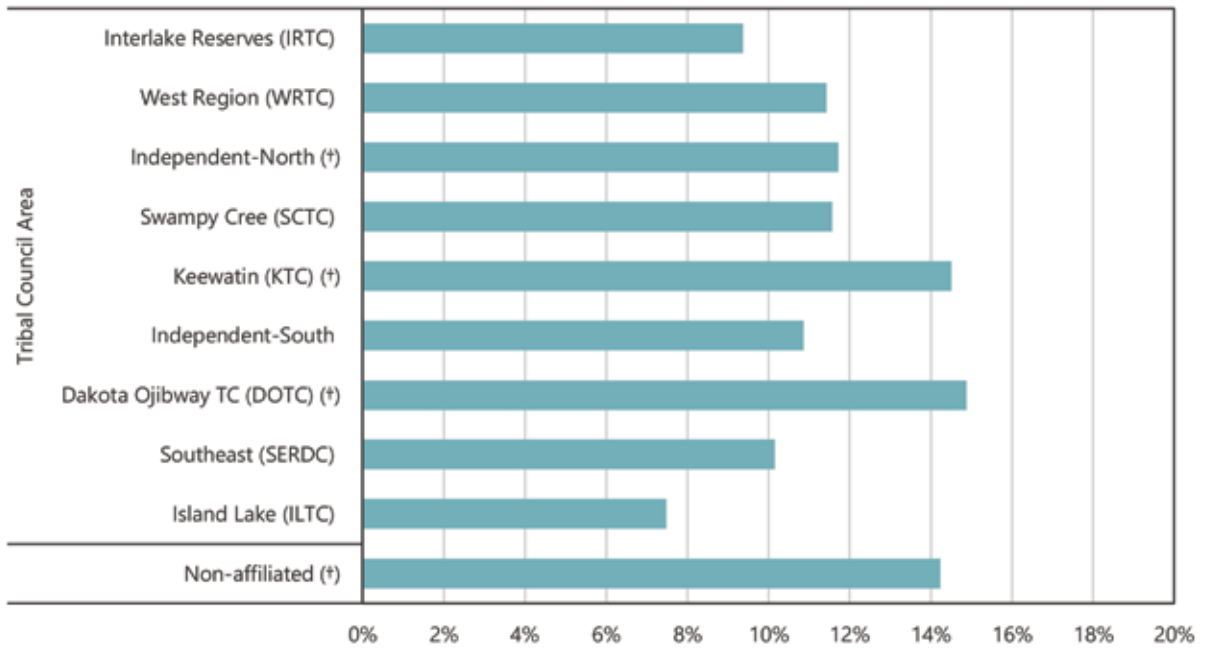
Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences (p<0.01):
5 - All First Nations compared to All Other Manitobans

Figure 7.5: Drug and Substance Use Disorder Prevalence among On-Reserve First Nations by Tribal Council Area

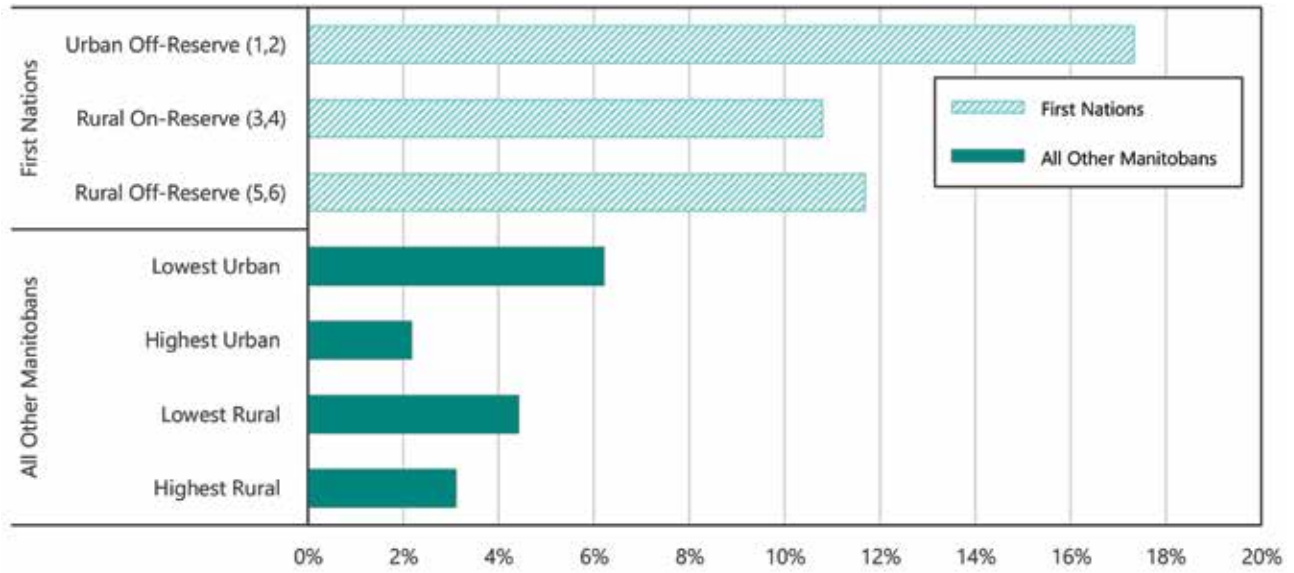
Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences (p<0.01):
† - First Nations on-reserve: TCA compared to the best rate (ILTC)

Figure 7.6: Drug and Substance Use Disorder Prevalence by Income Quintile

Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Psychotic Disorders

Definition: The percent of individuals age 10 and older diagnosed with psychosis (e.g., schizophrenia, delusional disorder, or other psychoses) in a 5-year period.

Key Findings

The prevalence of psychotic disorders in Manitoba is relatively low when compared with mood and anxiety disorders, which are about 10 times more prevalent.

Regional Health Authorities

- The prevalence of psychotic disorders does not appear to follow a north-to-south or PMR gradient across RHAs. However, the prevalence among off-reserve First Nations seems to follow a PMR gradient from Winnipeg to Northern RHA.
- The prevalence among All First Nations and off-reserve First Nations in Interlake-Eastern RHA and Northern RHAs is significantly lower than the Manitoba average.
- The prevalence of psychotic disorders among All First Nations is significantly higher than AOM in Manitoba overall and in all RHAs except Prairie Mountain.
- The prevalence of psychotic disorders between on- and off-reserve First Nations is different only in Northern RHA and Manitoba overall.
- Winnipeg RHA stands out among the RHAs as having a significantly higher prevalence of psychotic disorders among All First Nations than the Manitoba average.

Tribal Council Areas

- The prevalence of psychotic disorders among on-reserve First Nations does not appear to follow a north-to-south or PMR gradient. However, the prevalence in Southeast and Island Lake TCAs, which have some of the highest PMRs, also have the highest prevalence of psychotic disorders.
- West Region TCA has the lowest prevalence of psychotic disorders among on-reserve First Nations. The prevalence in other TCAs is not significantly different from WRTC.

Income Quintiles

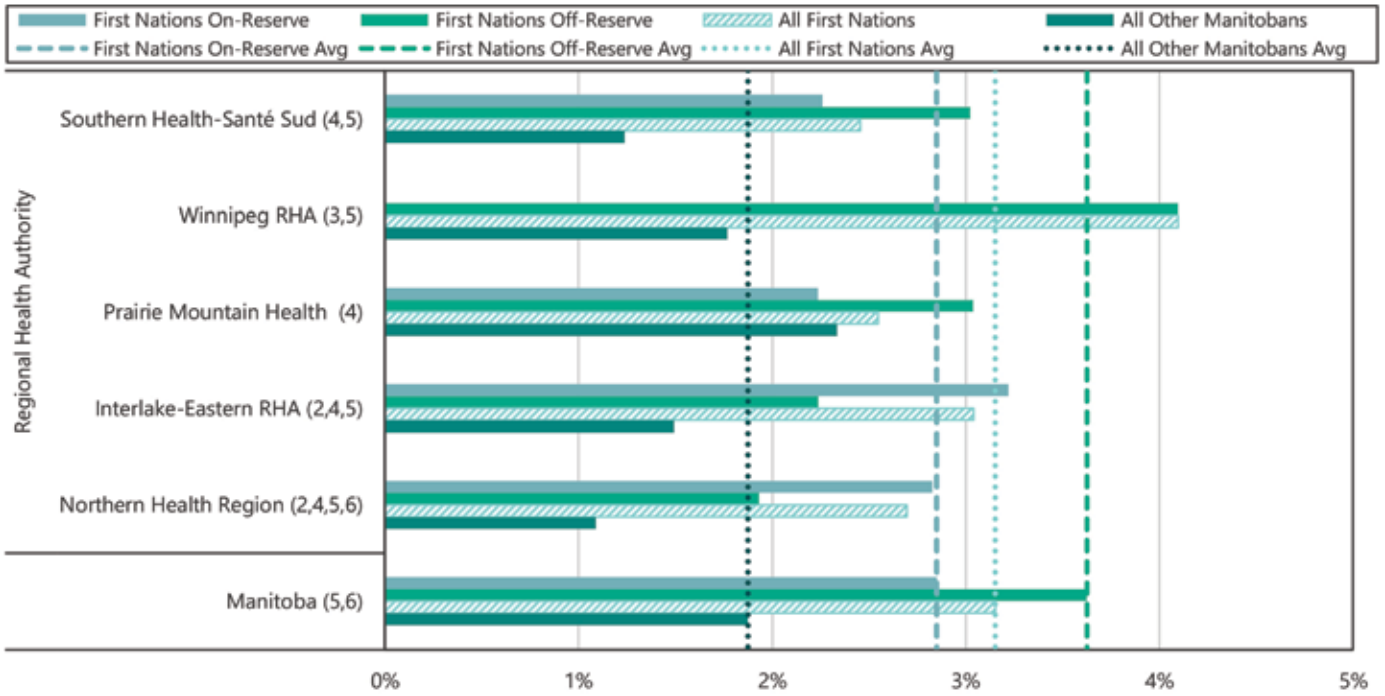
- The prevalence of psychotic disorders among all First Nations populations in urban and rural areas is significantly higher than the prevalence among AOM in both the highest and lowest quintiles.
- The gap between First Nations and AOM appears consistent both for on- and off-reserve First Nations and for urban and rural areas.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Our findings for psychotic disorder prevalence align with the gap in hospitalizations for psychotic disorders between First Nations and non-Indigenous populations reported by Carrière et al. (2018) for Canada in 2006/07-2008/09 [54]. However, Carrière et al. (2018) found the rates of hospitalizations for psychotic disorders among on- and off-reserve First Nations to be similar [54].

Figure 7.7: Psychotic Disorder Prevalence by Regional Health Authority

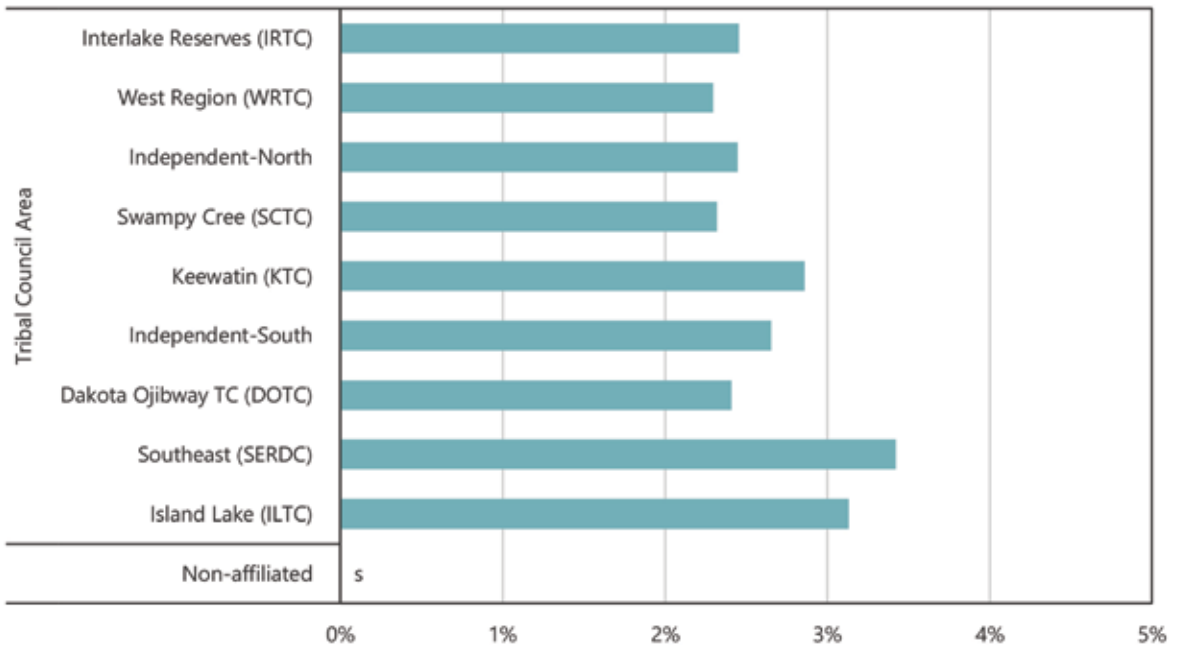
Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences (p<0.01):
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 7.8: Psychotic Disorder Prevalence among On-Reserve First Nations by Tribal Council Area

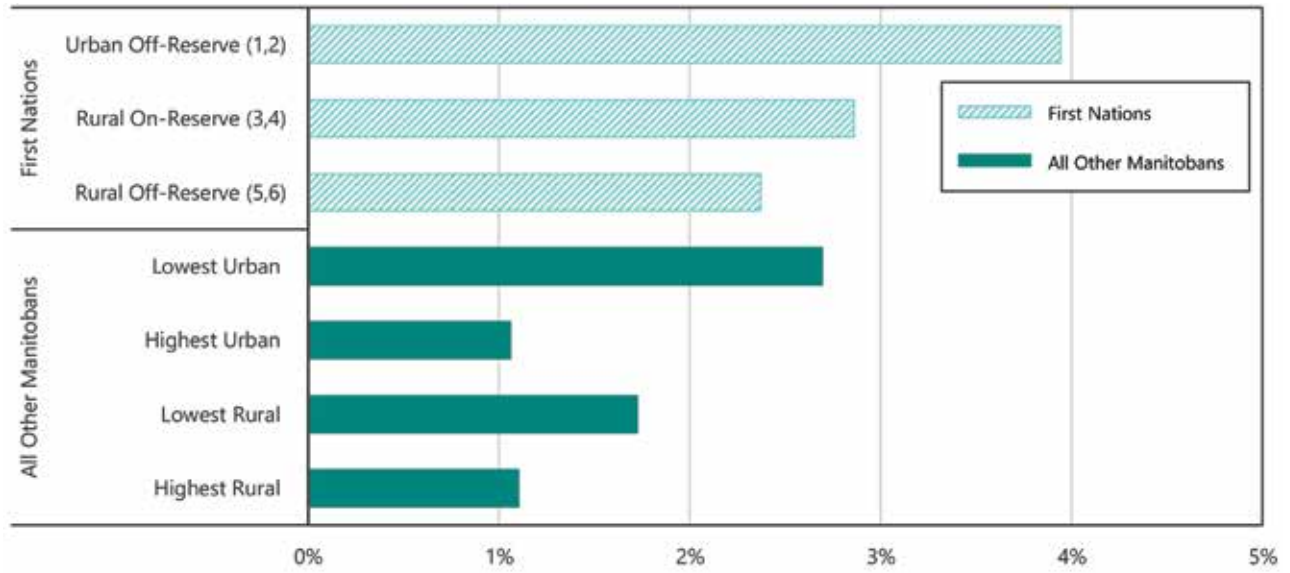
Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



s - Data suppressed due to small numbers

Figure 7.9: Psychotic Disorder Prevalence by Income Quintile

Age- and sex-adjusted percent of individuals, age 10+, 2012/13-2016/17



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Suicide Attempts

In this report, we present several ways of measuring frequency of suicide attempts among First Nations, as each of these approaches helps to build a more comprehensive understanding of mental health status. However, our choice of measurements is limited by the data available, which are based on provider visits and/or hospitalizations.

Rate of Hospitalizations for Suicide Attempts

Definition: The rate of hospitalizations for a suicide attempt per 10,000 individuals in a 5-year period, including poisoning of undetermined intent, injury of undetermined intent, or accidental poisoning.

Key Findings

The rate of hospitalizations for suicide attempts is five- to six times higher among All First Nations than AOM in Manitoba overall.

Regional Health Authorities

- The rate of hospitalizations for suicide attempts does not follow a north-to-south or PMR trend across RHAs.
- The Prairie Mountain region stands out for having dramatically (two to three times) higher rates for All First Nation populations compared to other RHAs. First Nation rates in Prairie Mountain are six times higher than the rates among AOM.
- Although all rates in Southern and Interlake-Eastern RHAs appear to be below the Manitoba averages, only the on-reserve rates for Southern RHA are lower than the Manitoba average. While the rates among First Nations on-reserve appear lower than off-reserve rates in RHAs with lower PMRs (Southern, Prairie Mountain), this pattern reverses in Interlake-Eastern and Northern RHAs where PMRs are higher.

Tribal Council Areas

- The rate among on-reserve First Nations does not appear to follow a north-to-south or PMR gradient. However, the rate in the TCA with the lowest PMR (Interlake Reserves) is lower than Island Lake, the TCA with the highest PMR.
- Surprisingly, West Region TCA has significantly higher on-reserve rates than Interlake Reserves, despite having one of the lowest PMRs and being located in southern Manitoba.

Income Quintiles

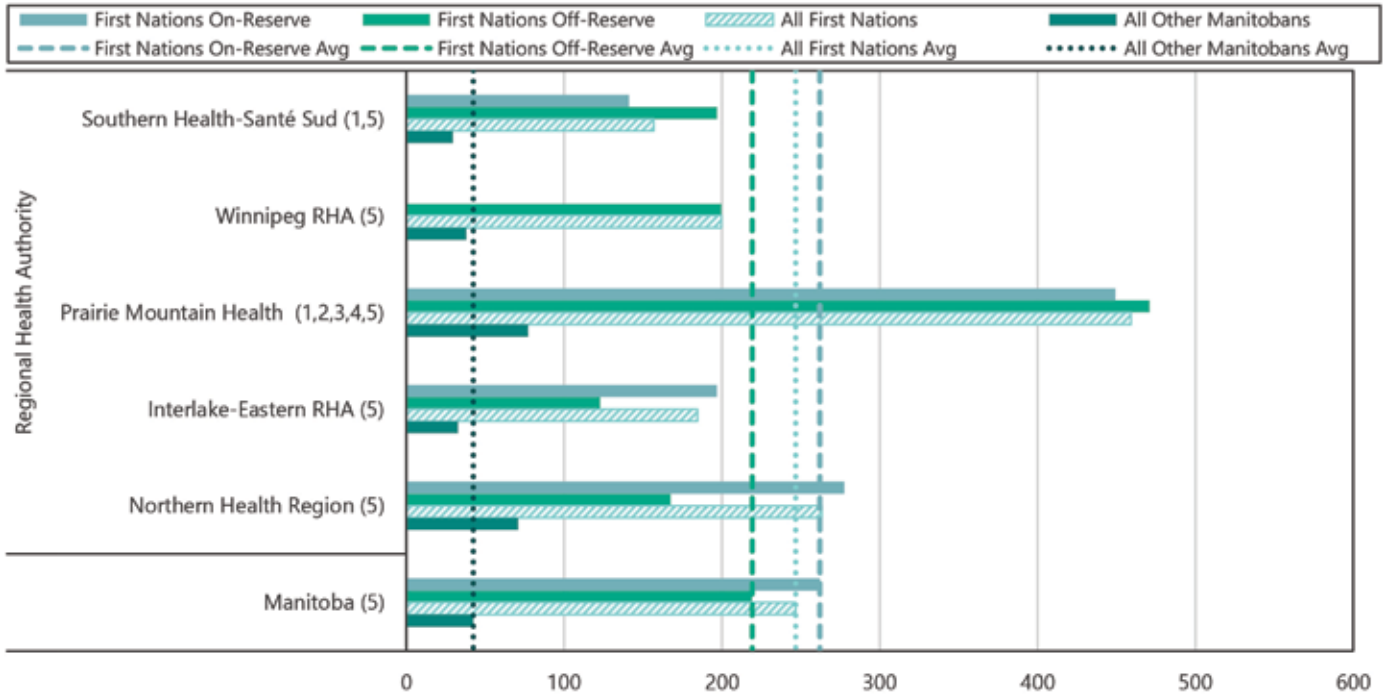
- The rates among First Nations in urban and rural areas are consistently higher (two- to nine times) than rates among AOM in the highest and lowest income quintiles. The rates among First Nations are two to three times higher than even AOM in the lowest income quintile, who generally have poorer health status.
- The gaps in rates of hospitalization for suicide attempts are greatest for on-reserve First Nations in rural areas.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 7.10: Hospitalization Rate for a Suicide Attempt by Regional Health Authority

Age- and sex-adjusted, per 100,000 individuals, age 10+, 2012/13-2016/17

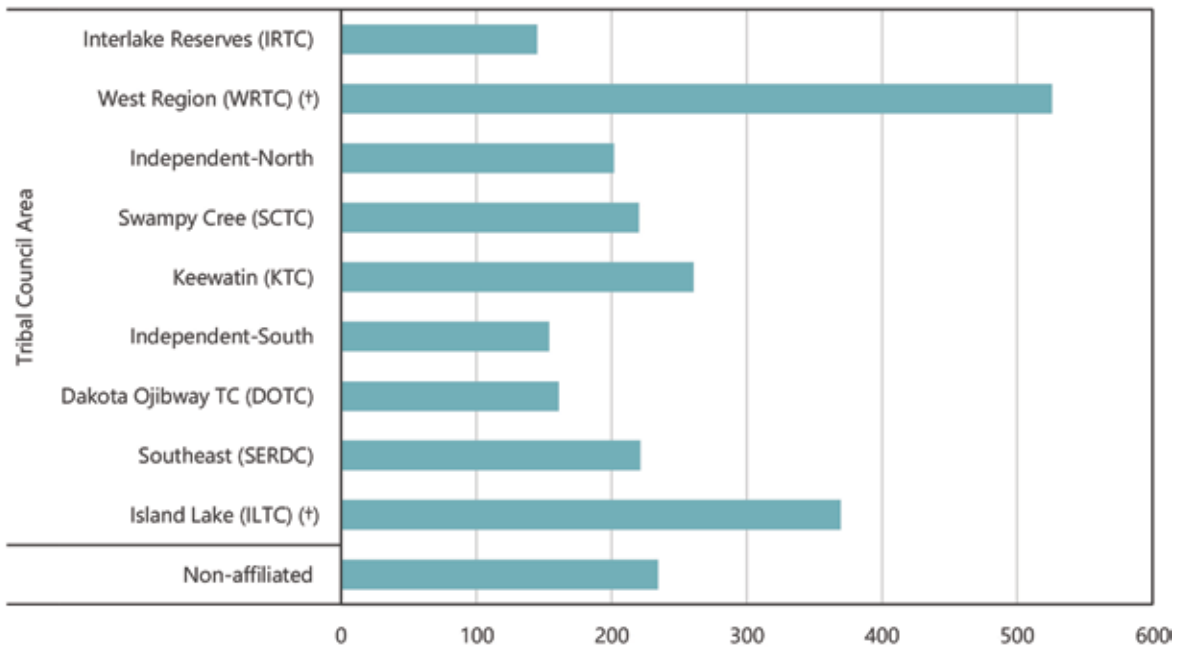


Statistically significant differences (p<0.01):

- 1 - First Nations on-reserve: RHA compared to the Manitoba average
- 2 - First Nations off-reserve: RHA compared to the Manitoba average
- 3 - All First Nations: RHA compared to the Manitoba average
- 4 - All Other Manitobans: RHA compared to the Manitoba average
- 5 - All First Nations compared to All Other Manitobans

Figure 7.11: Hospitalization Rate for a Suicide Attempt among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, per 100,000 individuals, age 10+, 2012/13-2016/17

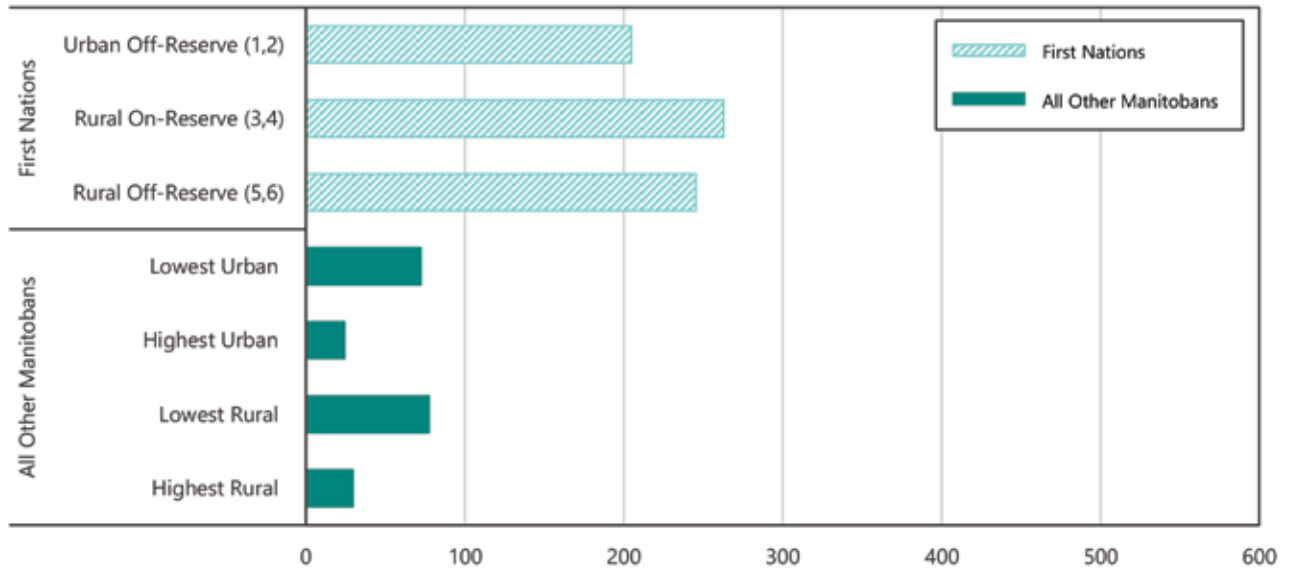


Statistically significant differences (p<0.01):

- † - First Nations on-reserve: TCA compared to the best rate (IRTC)

Figure 7.12: Hospitalization Rate for a Suicide Attempt by Income Quintile

Age- and sex-adjusted, per 100,000 individuals, age 10+, 2012/13-2016/17



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Percent of Individuals with One or More Hospitalizations for Suicide Attempts

Definition: Percent of individuals with at least one hospitalization for a suicide attempt over five years. For this indicator, each individual can only be counted once, while in the previous indicator, individuals could be counted more than once.

Key Findings

The trends for this indicator are almost identical to the trends for the previous indicator, rate of hospitalizations for suicide attempts. Overall, a very small percent of Manitobans are admitted to hospital for suicide attempts.

All First Nations have five to six times higher rates of hospitalizations for suicide attempts than AOM for Manitoba overall.

Regional Health Authorities

- The percent of individuals with one or more hospitalizations for a suicide attempt does not follow a north-to-south or PMR trend across RHAs.
- The Prairie Mountain region stands out for having a two to three times higher percent of First Nation peoples hospitalized for a suicide attempt compared to the percent of First Nation peoples in other RHAs.

Tribal Council Areas

- The percent of on-reserve First Nation peoples hospitalized for a suicide attempt does not follow a north-to-south or PMR gradient. However, the rate in the TCA with the lowest PMR (Interlake Reserves) is lower than Island Lake, the TCA with the highest PMR.
- West Region TCA has a higher percent of on-reserve First Nation peoples hospitalized for a suicide attempt than the percent for Interlake Reserves, despite having one of the lowest PMR and being located in southern Manitoba.

Income Quintiles

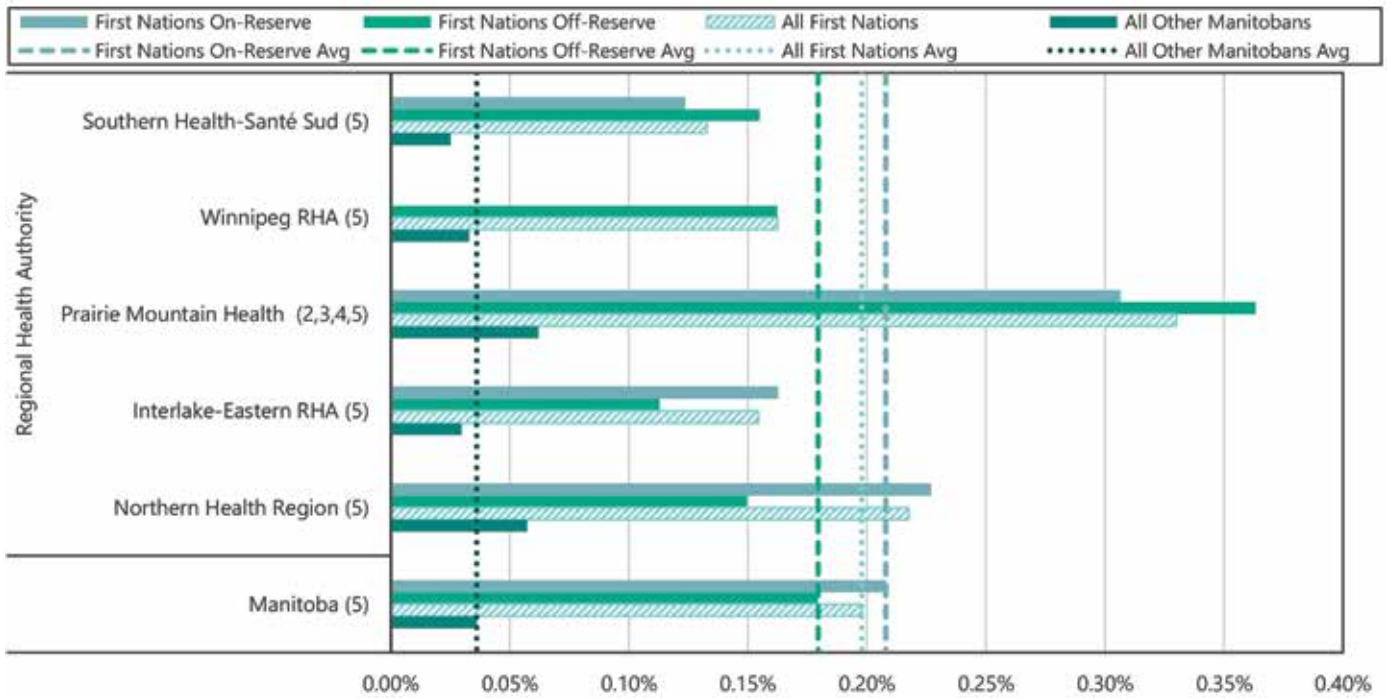
- The percent of First Nation peoples hospitalized for a suicide attempt in urban and rural areas is consistently higher (two- to nine times) than the percent of AOM in the highest and lowest income quintiles. The percent of First Nations hospitalized for a suicide attempt is two to three times higher than even the percent of AOM in the lowest income quintiles, who generally have poor health status.
- The gaps are greatest for on-reserve First Nations in rural areas.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 7.13: Percent of Individuals With One or More Hospitalizations for Suicide Attempts by Regional Health Authority

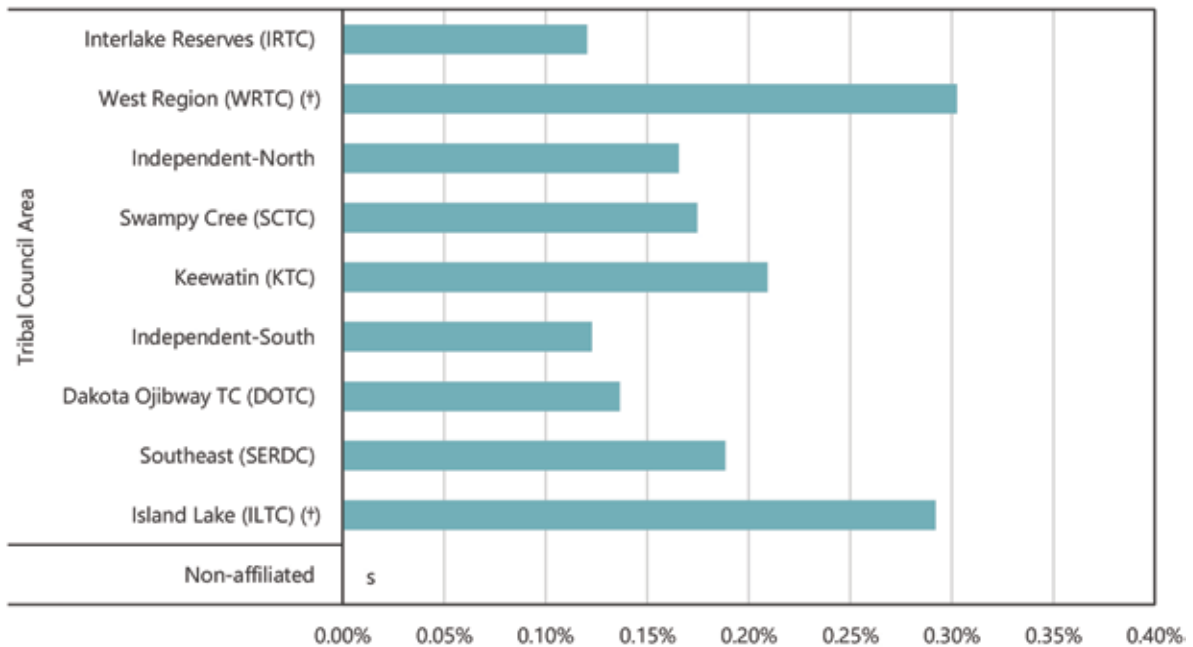
Age- and sex-adjusted, percent of individuals, age 10+, 2011/12-2015/16



Statistically significant differences (p<0.01):
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans

Figure 7.14: Percent of Individuals With One or More Hospitalizations for Suicide Attempts among On-Reserve First Nations by Tribal Council Area

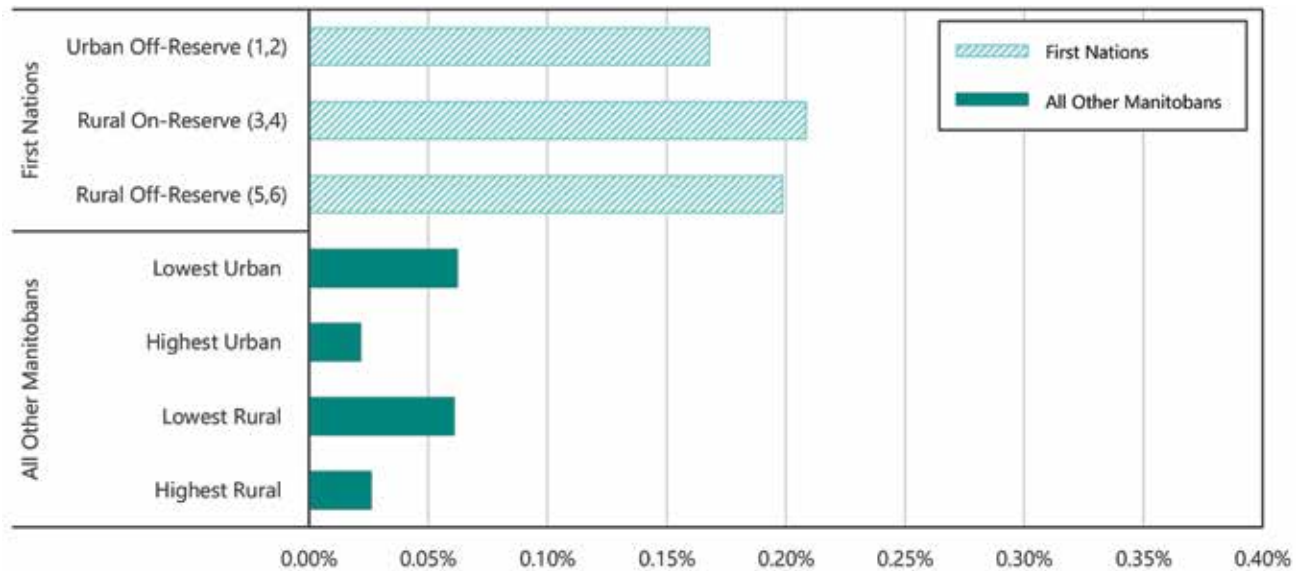
Age- and sex-adjusted, percent of individuals, age 10+, 2011/12-2015/16



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the best rate (IRTC)
 s - Data suppressed due to small numbers

Figure 7.15: Percent of Individuals With One or More Hospitalizations for Suicide Attempts by Income Quintile

Age- and sex-adjusted, percent of individuals, age 10+, 2011/12-2015/16



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Self-Reported Rate of Suicide Attempts and Suicide Ideation (Regional Health Survey)

The administrative data indicate that rates of hospitalizations and percent of First Nations hospitalized for a suicide attempt are considerably lower among on-reserve First Nations than what the RHS reports for rates of suicide attempts (9.32%) and suicide ideation (10.57%) (also see Chapter 11). On-reserve First Nations self-report much higher rates than what is captured through contacts with physicians, nurse practitioners or hospitals.

It is difficult to compare the rates between the RHS (which asks respondents about suicide attempts and considering suicide over the course of their life) and the Repository data (which report hospitalization for attempted suicide over the most recent five-year period). There are also no data on the likelihood of a suicide attempt leading to hospitalization. Some attempts may not result in any medical care, while others may result in medical care being provided at a nursing station or through an outpatient department. None of these circumstances would be captured in the rate we calculated from the hospitalization data in the Repository. The data in the Repository only record the more severe outcomes that result in transfer to or admission to hospital.

Suicide

Definition: The rate of death by suicide per 10,000 individuals in a five-year period, as recorded in death certificates.

Key Findings

Suicide rates are consistently significantly higher among All First Nations compared to AOM in all RHAs and in Manitoba overall.

Regional Health Authorities

- Suicide rates follow the trend of increasing premature mortality rate, with the highest rates occurring in Northern RHA. This trend is consistent among All First Nations and on-reserve First Nations. However, the rates among off-reserve First Nations in Southern and Interlake-Eastern RHAs are too low to report.

Tribal Council Areas

- Suicide rates among on-reserve First Nations appear to increase from south to north.
- There are no differences between the TCA with the lowest rates (West Region) and other TCAs.

Income Quintiles

- The rate of suicides is consistently higher among First Nations than AOM in the lowest and highest income quintiles in urban and rural areas.

- The gap is most pronounced between on-reserve First Nations and AOM in rural areas.
- The gap between First Nations and AOM in the highest and lowest income quintiles in rural areas appears similar.

First Nations Regional Health Survey

- Approximately 23% of First Nations living on-reserve identified suicide as a community challenge (see Chapter 11). Less than 10% of First Nations on-reserve identified low suicide rates as a community strength, and only 2% identified suicide as an area of community progress.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Indigenous Queensland Australians die by suicide at a rate twice as high as the non-Indigenous population, yet they are significantly less likely to seek professional help for mental health concerns [56].
- Since 1999, suicide rates among First Nations in Canada have remained twice as high as the Canadian average [57]. However, these trends vary across individual communities over time [58,59].

Figure 7.16: Suicide Rate by Regional Health Authority
Age- and sex-adjusted, per 100,000 individuals, age 10+, 2012-2016

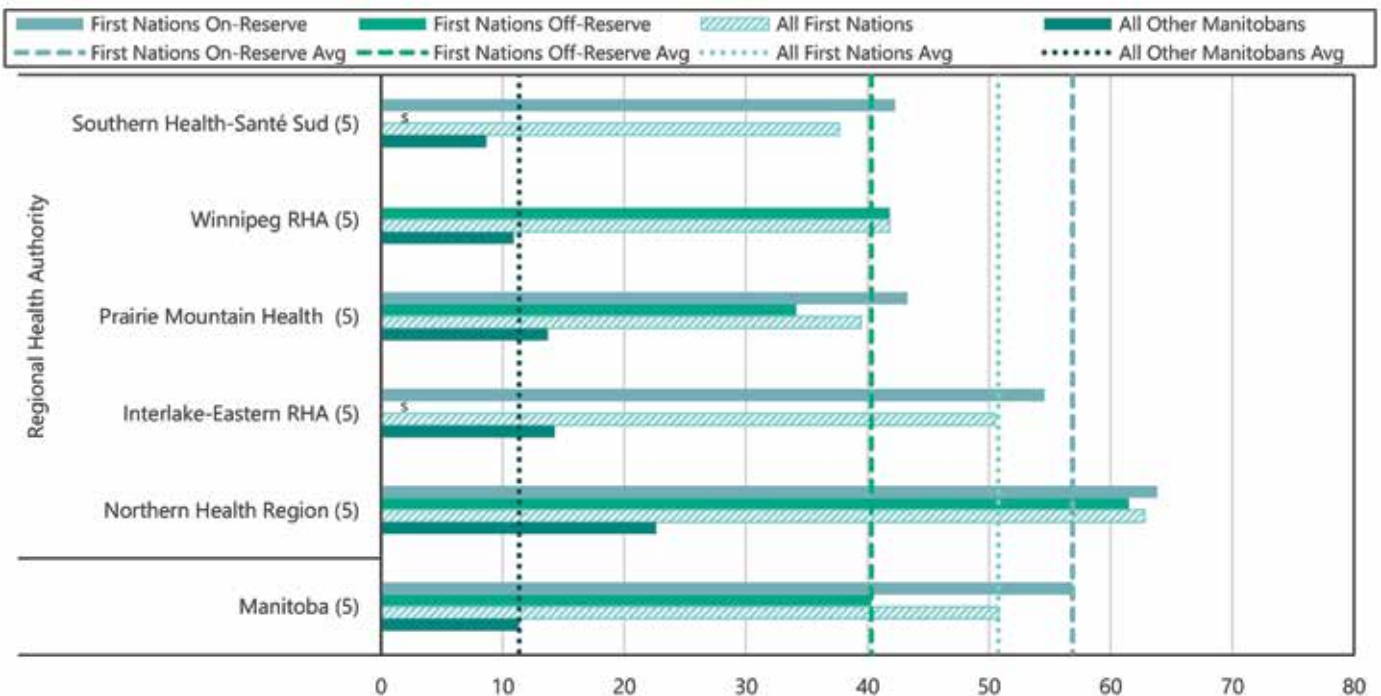


Figure 7.17: Suicide Rate among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, per 100,000 individuals, age 10+, 2012-2016

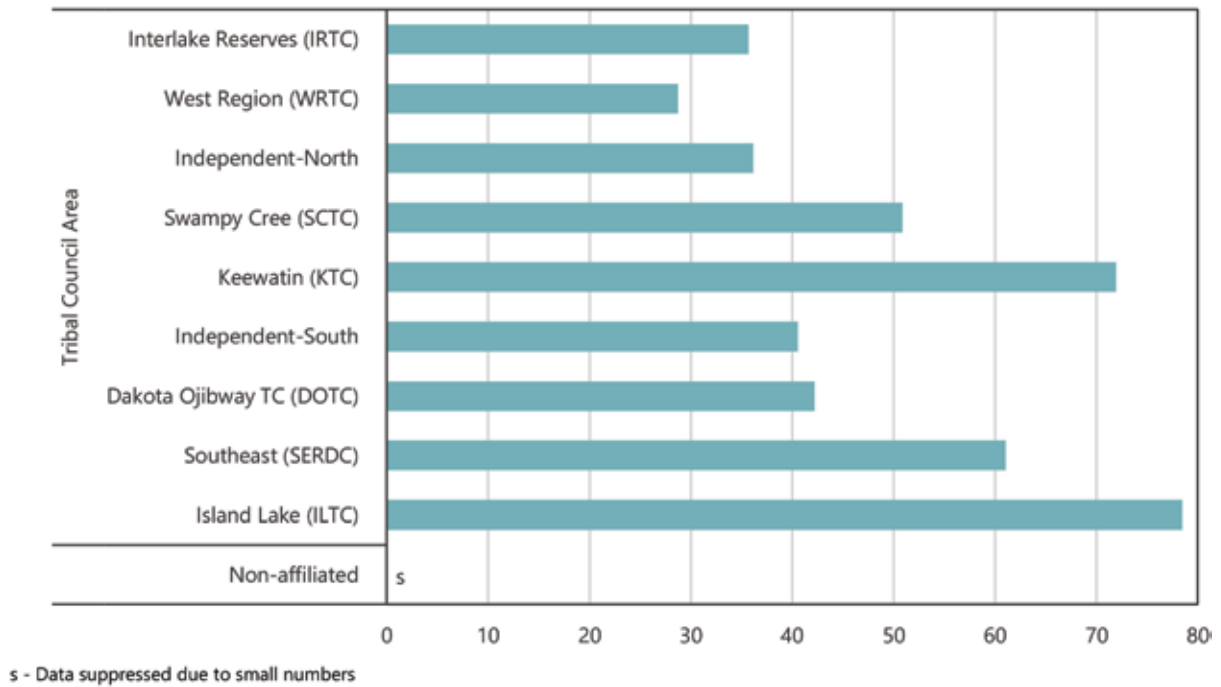
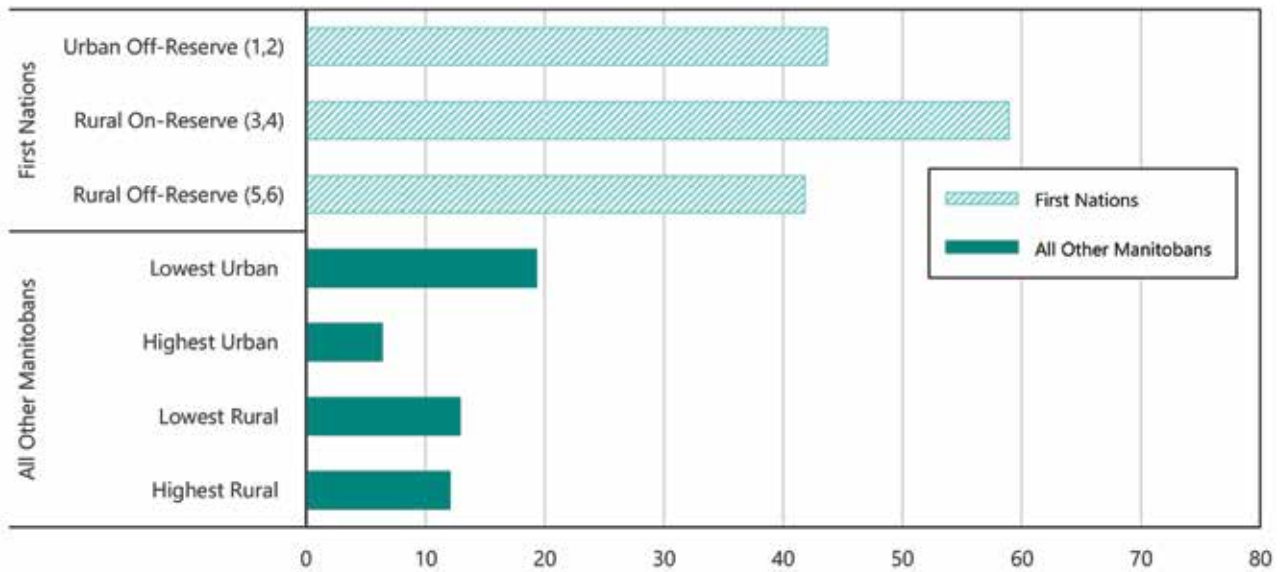



Figure 7.18: Suicide Rate by Income Quintile

Age- and sex-adjusted, per 100,000 individuals, age 10+, 2012-2016



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile



Chapter 8: Use of Physician and Nurse Practitioner Services

Introduction

For First Nations living on-reserve, access to medical services is highly variable, both in terms of the types of care available and in terms of gaining access to those services in different regions of the province. There are multiple models of funding in operation in Manitoba. Some services are funded and administered by the federal and provincial governments, and some First Nations have control over their own services through transfer of funding from the federal government. This patchwork of funding arrangements results in inequities in access to physician and nursing services. Some First Nations rely on primary care services provided by off-reserve fee-for-service physicians and NPs at the discretion of the provider, while others have on-reserve providers – primarily nurses and (to a lesser extent) physicians.

Federal funding for on-reserve services does not recognize the presence of non-registered (non-status) residents, who also receive care from on-reserve providers. Therefore, the on-reserve rates of physician and NP service use are underestimates of the total health services (such as ambulatory visits) actually delivered.

In general, records of the care provided by nurses working in nursing stations are federal data and are not included in the Repository. In addition, the Repository data do not include the care provided by providers such as psychologists and dieticians.

As previously mentioned, it is important to recognize the impact of the 2011 flood on the First Nations in Interlake Reserves TCA [2,3]. Our approach to the inclusion of these First Nations is described in Chapter 2.

Ambulatory Primary Care Visits

Definition: The number of visits per person to a primary care physician or a nurse practitioner in an outpatient setting in Manitoba over one year. Outpatient settings generally include office visits, walk-in clinics and home visits. Visits by patients who are inpatients (admitted to an acute care hospital or personal care home) are not considered ambulatory visits. Outpatient surgeries and diagnostic tests and procedures are also not considered ambulatory visits.

Key Findings

Regional Health Authorities

- The rate of primary care visits among All First Nations appears to follow overall trend in PMR from Winnipeg RHA (the second lowest PMR) to Northern RHA (the highest PMR). There is also a general north-to-south pattern with higher rates in the North.
- Winnipeg RHA and Prairie Mountain Health stand out with higher rates among All First Nations than other RHAs. In Prairie Mountain, both the on- and off-reserve rates of primary care visits are higher than the Manitoba averages and most other RHAs.
- In Southern RHA, the on-reserve First Nations rate is higher than the overall Manitoba rate.
- The on-reserve First Nations rate of primary care visits is lower than the rate for off-reserve First Nations.
- In Northern RHA, the rates for off-reserve First Nations and All First Nations are lower than the Manitoba averages, and therefore lower than all other RHAs. The gap is more pronounced when we compare Northern RHA to Southern, Winnipeg, and Prairie Mountain RHAs, where the rates of some First Nation groups are higher than the Manitoba averages.

Tribal Council Areas

- The rate of primary care visits among on-reserve First Nations seems to follow a north-to-south gradient, where rates in northern TCAs (Keewatin, Island Lake, Swampy Cree and Independent-North) appear lower than rates in southern TCAs.
- The West Region TCA has the highest rate of visits.
- The rates in all TCAs except Independent-South and Dakota Ojibway TCAs, are lower than West Region TCA.

Income Quintiles

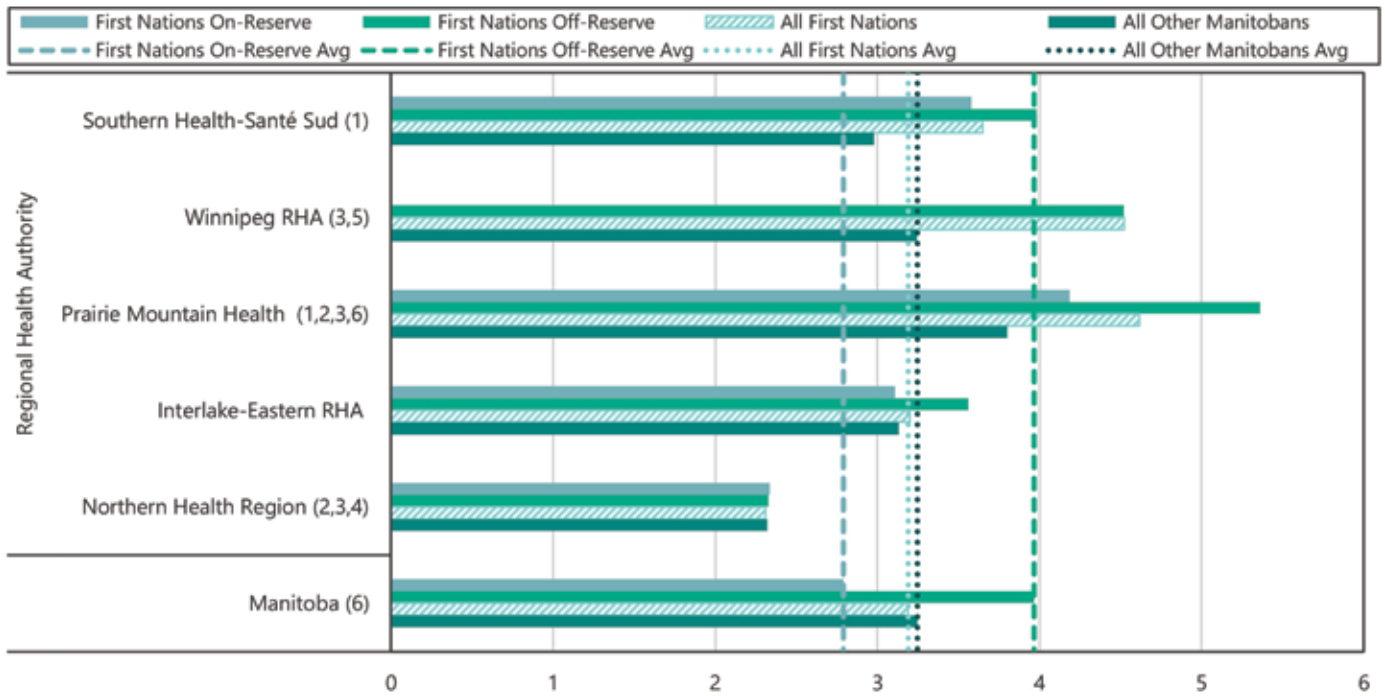
- The rate of primary care visits among off-reserve First Nations in urban areas is higher than AOM in both the lowest and highest urban income quintiles.
- In rural areas, the rates of visits among First Nations are similar to AOM in both the lowest and highest rural income quintiles.

Comparison to Other Findings

- Rates of ambulatory physician visits in the 2002 First Nations Atlas included both primary care and specialist visits [6]. Therefore, we cannot make a meaningful comparison between the above findings and those in the 2002 First Nations Atlas.

Figure 8.1: Ambulatory Primary Care Visit Rate by Regional Health Authority

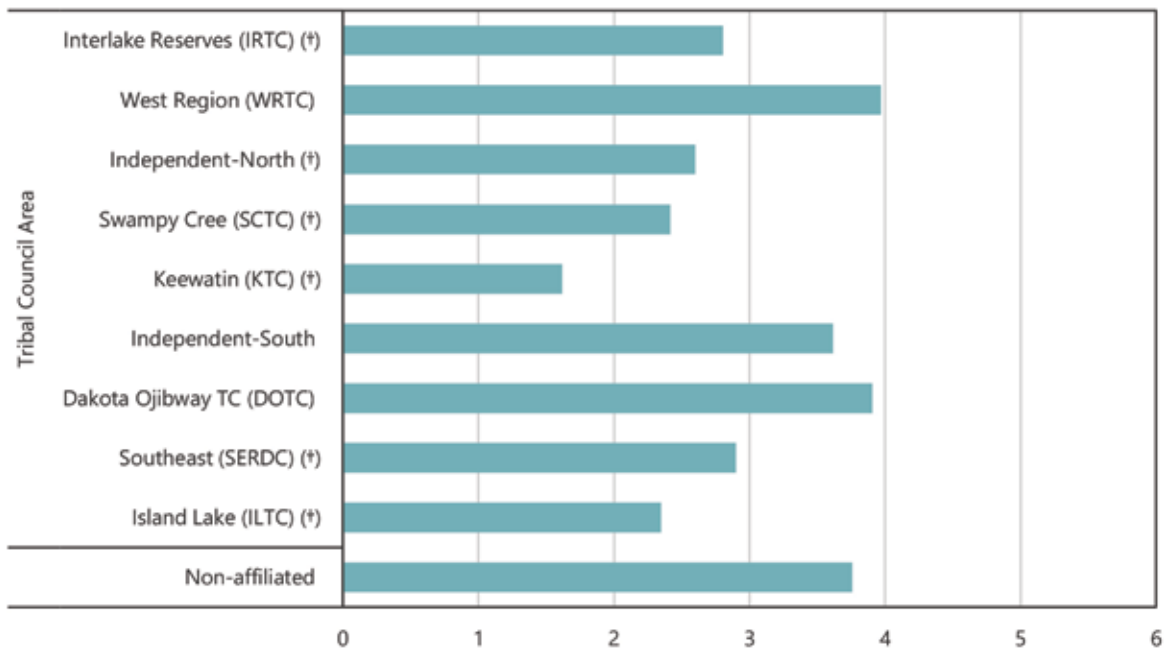
Age- and sex-adjusted, per individual, 2016/17



Statistically significant differences (p<0.01):
 1 - First Nations on-reserve: RHA compared to the Manitoba average
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 8.2: Ambulatory Primary Care Visit Rate among On-Reserve First Nations by Tribal Council Area

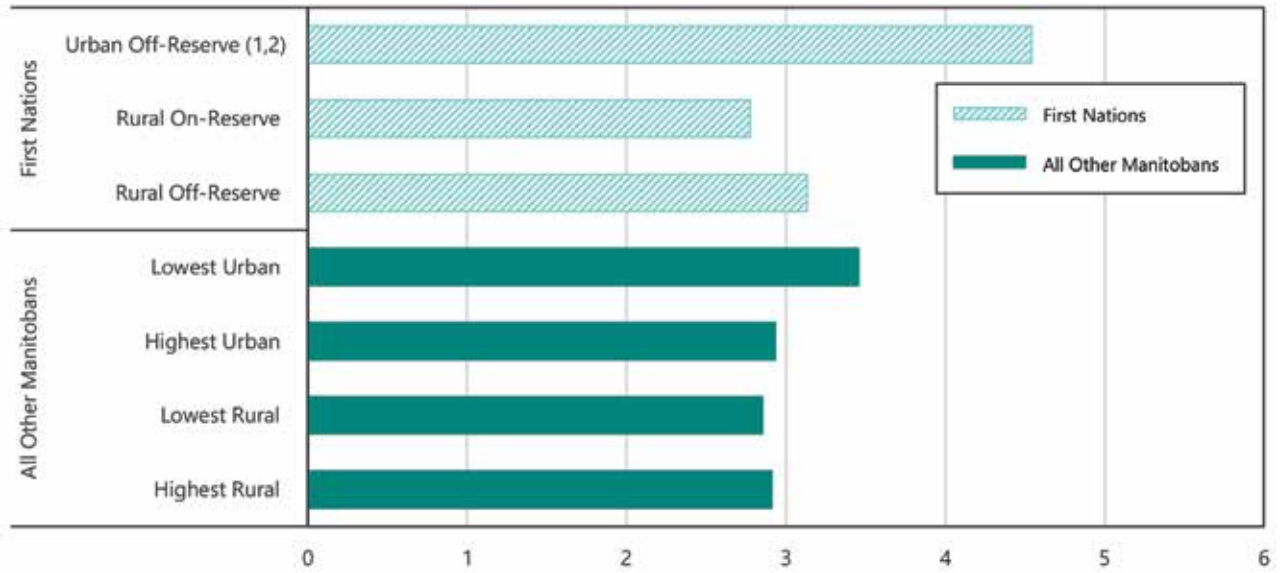
Age- and sex-adjusted, per individual, 2016/17



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the highest rate (WRTC)

Figure 8.3: Ambulatory Primary Care Visit Rate by Income Quintile

Age- and sex-adjusted, per individual, 2016/17



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile

Ambulatory Specialist Visits

Definition: The average number of visits per person to a specialist physician (such as a surgeon, pediatrician or gynaecologist) when not admitted to a hospital or personal care home during one fiscal year.

Key Findings

Regional Health Authorities

- Overall, the rate of specialist visits per First Nation individual is low, with rates in Southern, Prairie Mountain and Northern RHAs below the Manitoba average of 1 visit per person in a year. Only the rates in Winnipeg RHA are above the Manitoba average.
- The rate of ambulatory specialist visits does not follow a north-to-south or PMR gradient.
- Rates among All First Nations are higher than rates for AOM only in Northern RHA. The rates between the two populations are similar in all other RHAs, and the overall gap in Manitoba is not statistically significant.
- The specialist visit rate for First Nations off-reserve is higher than for First Nations on-reserve in Southern and Northern RHAs, as well as in Manitoba overall.

Tribal Council Areas

- The rate of ambulatory specialist visits appears to follow a PMR trend, where TCAs with lower PMR also have lower specialist visit rates. The only exception is Interlake Reserves TCA, which has the lowest PMR but the third highest rate of ambulatory specialist visits.

- The rates do not follow a north-to-south gradient.
- The Island Lake TCA has the highest specialist visit rate of the TCAs and is higher than all other TCAs.

Income Quintiles

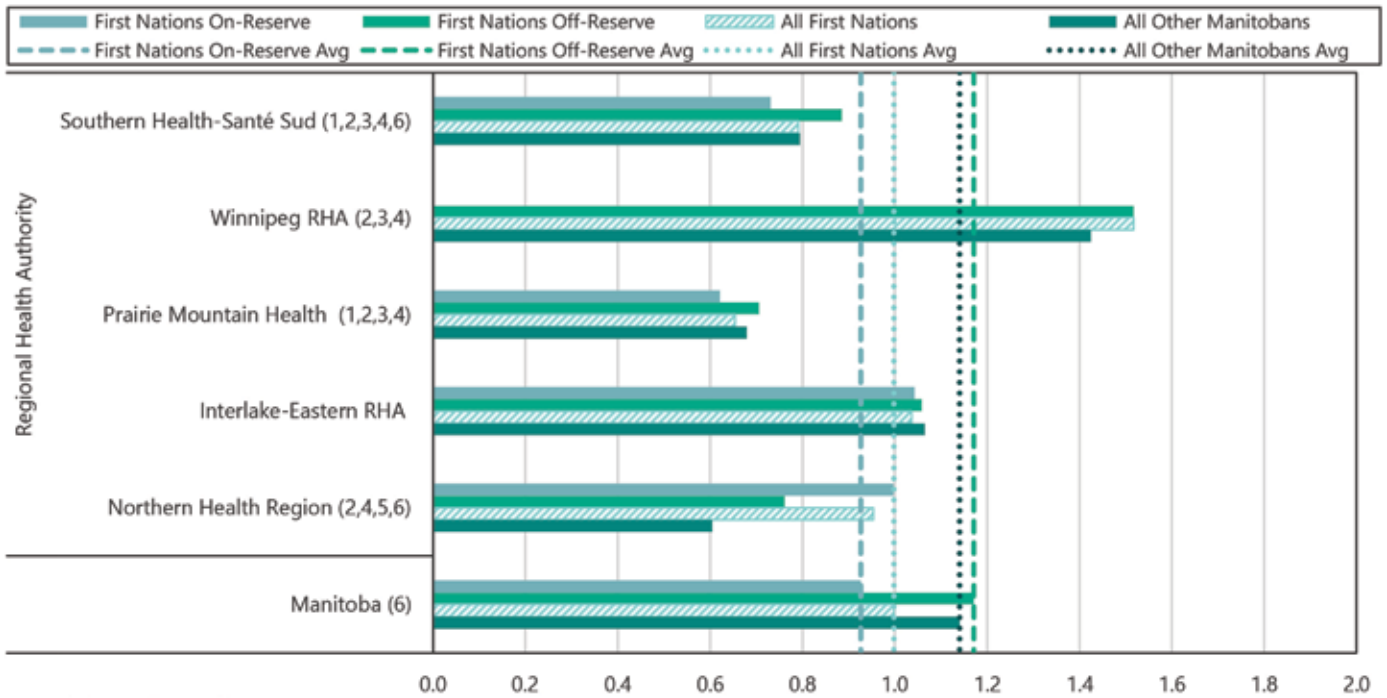
- Both the on-reserve and off-reserve First Nations rates in rural areas are higher than AOM in the lowest rural income quintiles.
- However, First Nation rates in rural areas are lower than AOM rates in the highest rural income quintile.
- The rates among First Nations in urban areas are similar to AOM rates.

Comparison to Other Findings

- Our findings suggest that the gap in ambulatory specialist visit rates between All First Nations and AOM has decreased from 42% to 14% since the 2002 First Nations Atlas. Similarly, the gap between on-reserve and off-reserve First Nations rates has decreased from 73% to 26% since 2002.
- The pattern in rates across TCAs remains similar to the 2002 First Nations Atlas, where rates among on-reserve First Nations were highest in Island Lake and lowest in West Region [6].

Figure 8.4: Ambulatory Specialist Visit Rate by Regional Health Authority

Age- and sex-adjusted, per individual, 2016/17

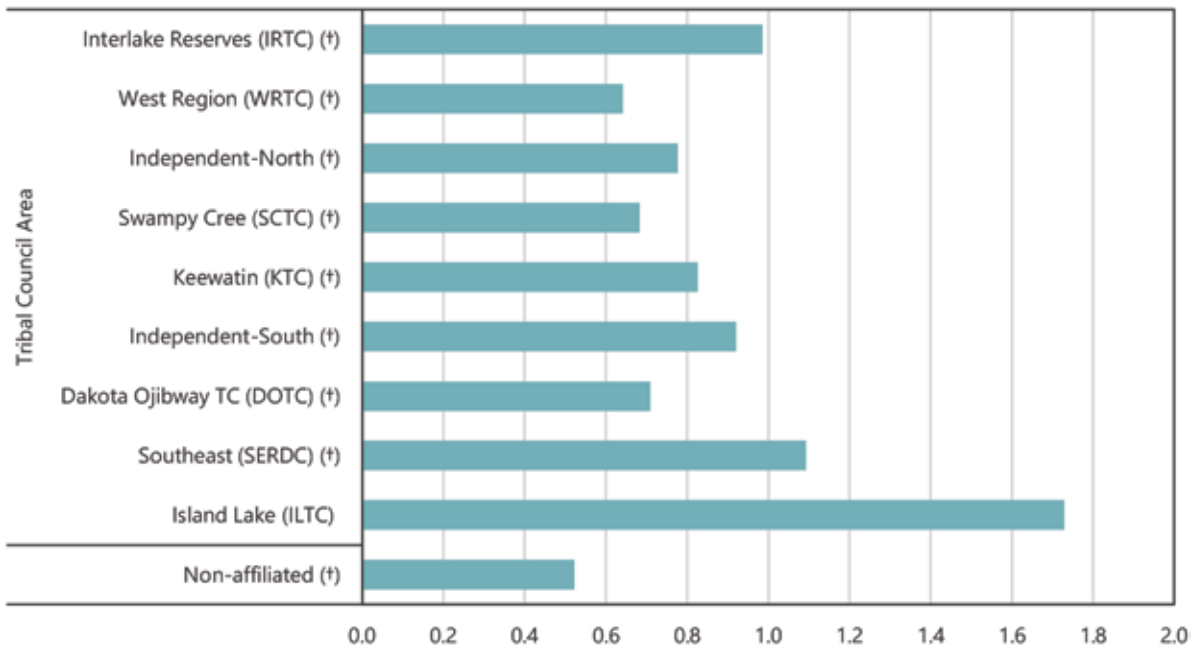


Statistically significant differences (p<0.01):

- 1 - First Nations on-reserve: RHA compared to the Manitoba average
- 2 - First Nations off-reserve: RHA compared to the Manitoba average
- 3 - All First Nations: RHA compared to the Manitoba average
- 4 - All Other Manitobans: RHA compared to the Manitoba average
- 5 - All First Nations compared to All Other Manitobans
- 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 8.5: Ambulatory Specialist Visit Rate among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, per individual, 2016/17

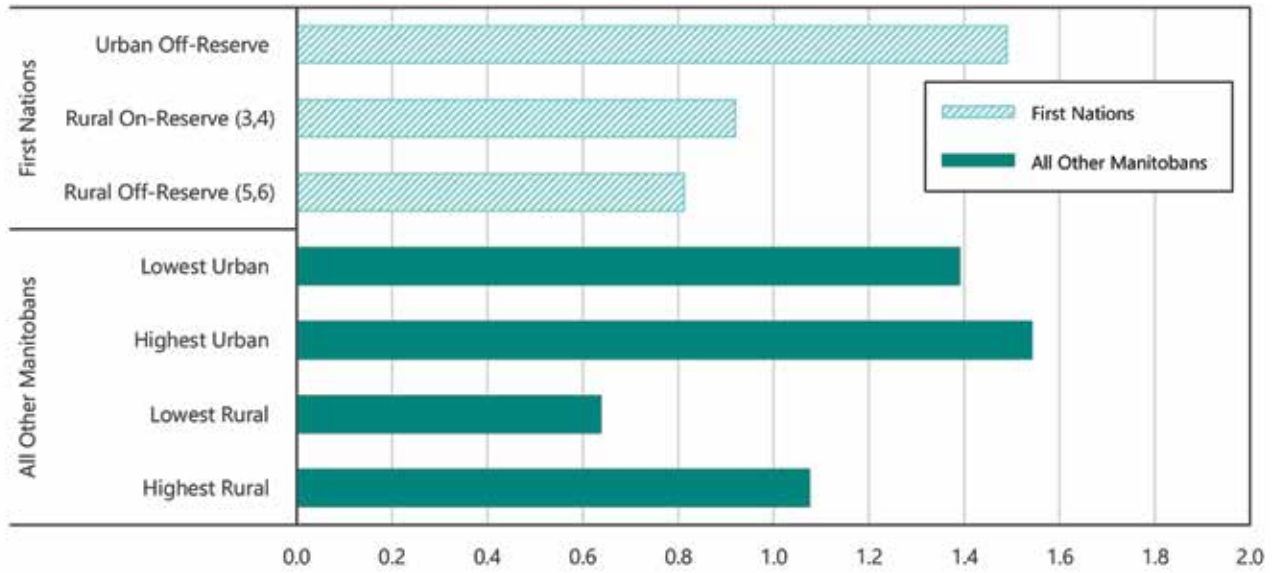


Statistically significant differences (p<0.01):

- † - First Nations on-reserve: TCA compared to the highest rate (ILTC)

Figure 8.6: Ambulatory Specialist Visit Rate by Income Quintile

Age- and sex-adjusted, per individual, 2016/17



Statistically significant differences (p<0.01):

- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Continuity of Care

Definition: The Continuity of Care (COC) Index is an indicator that weighs both the frequency of ambulatory visits to primary care providers and the dispersion of ambulatory visits between family physicians and nurse practitioners. The possible index values range from just greater than zero (where all visits are made to different physicians or NPs) to one (all visits made to the same physician or NP). This indicator includes only Manitoba residents who have had at least 3 visits in 3 years to a primary care provider.

Key Findings

Continuity of care among All First Nations was lower than AOM overall and across all RHAs.

Regional Health Authorities

- COC does not follow a north-to-south or PMR gradient.
- In Interlake-Eastern, the COC index for on-reserve First Nations was lower than off-reserve First Nations. On-reserve COC indices were higher in Southern and Northern RHAs.
- In Southern and Interlake-Eastern RHAs, COC among off-reserve First Nations was below the Manitoba average.

Tribal Council Areas

- COC among on-reserve First Nations did not follow a PMR gradient. However, three northern TCAs (Keewatin, Swampy Cree and Independent-North) have the highest COC index values for on-reserve First Nations.
- All TCAs other than these three northern TCAs have a lower COC index than Independent-North, the TCA with the highest COC.

Income Quintiles

- COC among off-reserve First Nations in urban areas is lower than among AOM in both the highest and lowest urban income quintiles.
- In rural areas, COC among First Nations is lower than AOM in the highest rural income quintiles. COC among First Nations is similar to AOM in the lowest income quintiles.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 8.7: Continuity of Care by Regional Health Authority

Age- and sex-adjusted index values, 2014/15-2016/17

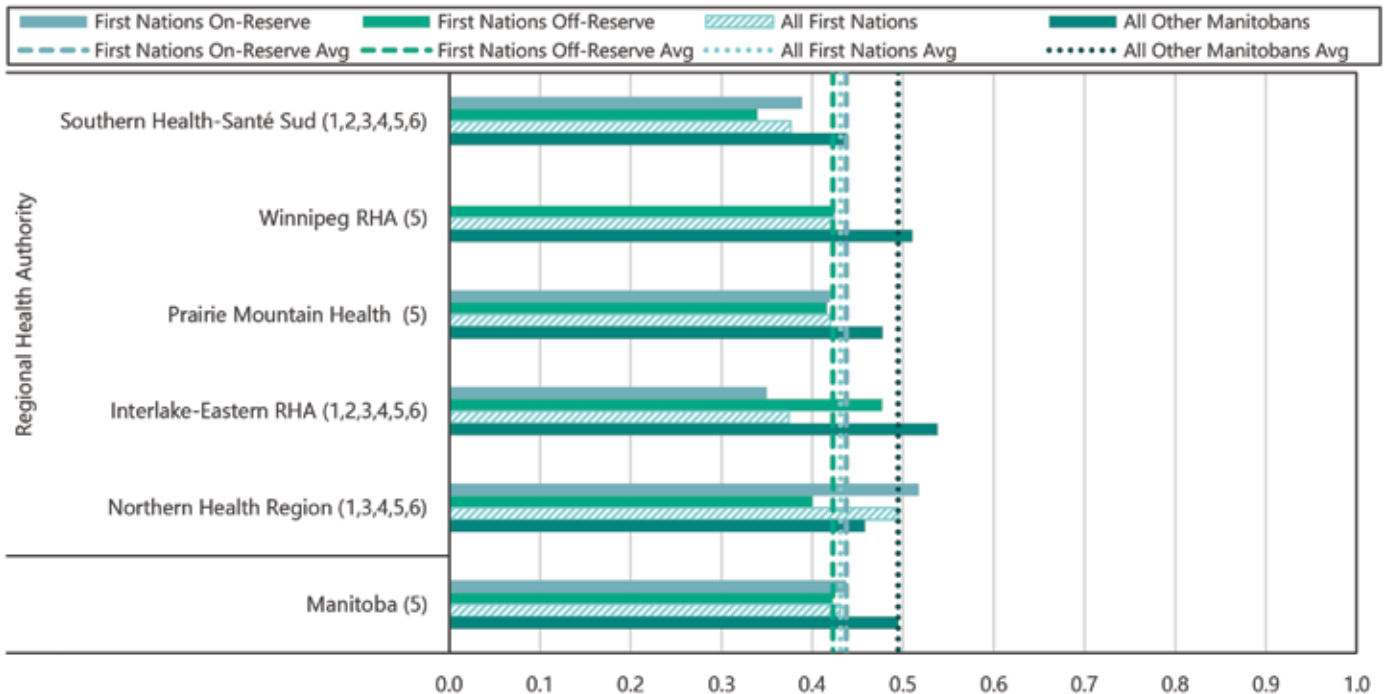
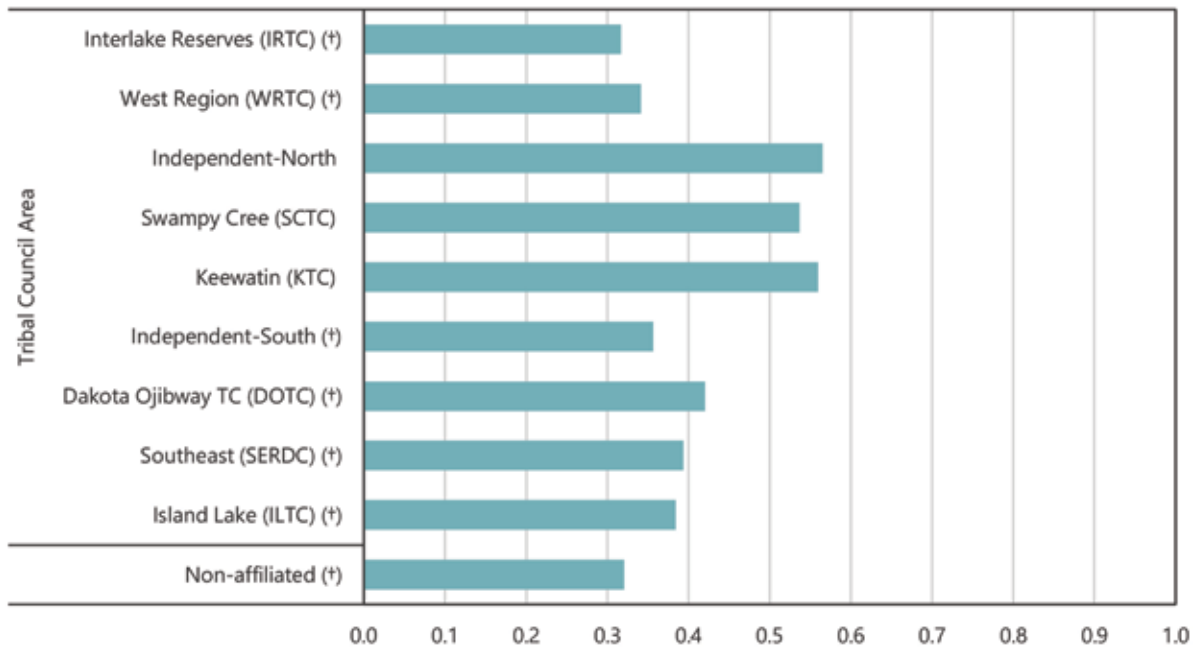


Figure 8.8: Continuity of Care among On-Reserve First Nations by Tribal Council Area

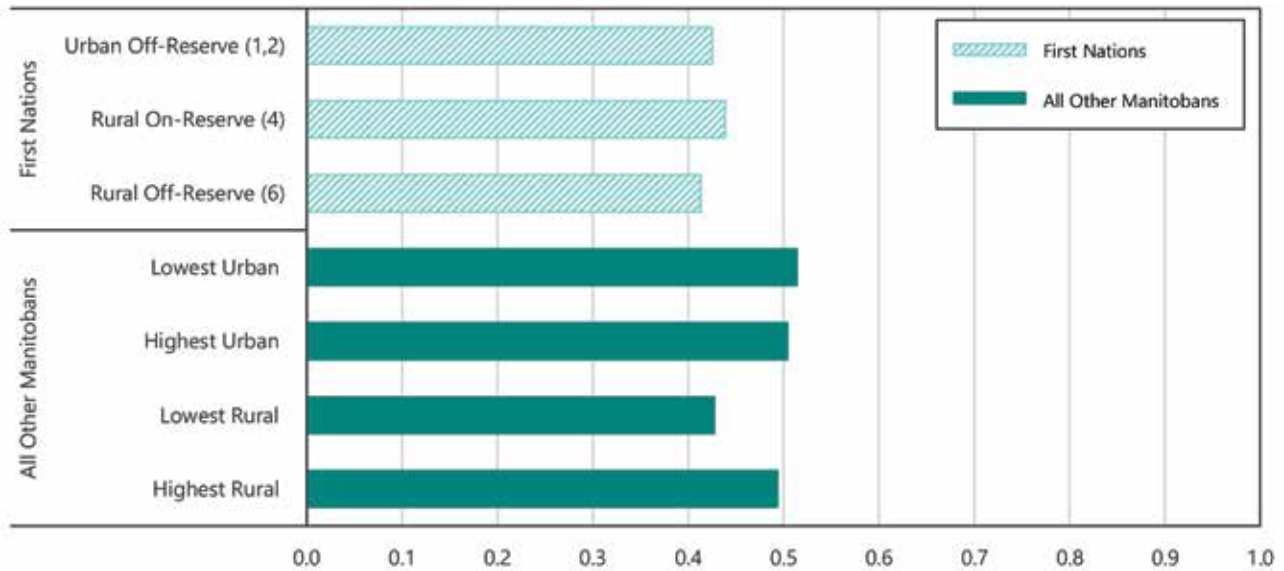
Age- and sex-adjusted index values, 2014/15-2016/17



Statistically significant differences ($p < 0.01$):
 † - First Nations on-reserve: TCA compared to the highest rate (Independent-North)

Figure 8.9: Continuity of Care Index by Income Quintile

Age- and sex-adjusted index values, 2015/16



Statistically significant differences ($p < 0.01$):
 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Location of Primary Care Visits

Definition: This indicator is included because of concerns about equity in access to primary care services. It is defined as the percent of primary care visits made by First Nations and AOM of each area to family physicians and nurse practitioners:

- Within their home district
- Elsewhere in their home health region
- In Winnipeg
- In another health region

The results are presented by home district, home RHA, Winnipeg RHA, and other RHA based on residence at the time of first visit. We did not statistically compare these results.

Regional Health Authorities

- The location of primary care visits across RHAs does not follow a PMR or north-to-south pattern.
- Almost all primary care visits by First Nations in Winnipeg RHA are within their home district. However, less than 30% of primary care visits by All First Nations in Southern and Interlake-Eastern RHAs are within a person's home district. In Northern RHA, 40% of visits are within the home district.
- Overall, more primary care visits among off-reserve than on-reserve First Nations across RHAs and in Manitoba overall are within the home district. In Southern, Prairie Mountain and Northern RHAs, fewer visits among off-reserve than on-reserve First Nations are elsewhere in the home RHA.
- All First Nations groups have a higher percent of primary care visits to Winnipeg than expected, with under 20% for Prairie Mountain RHA and up to 60% in Interlake-Eastern. Interlake-Eastern has a strikingly higher (two to four times) percent of primary care visits to Winnipeg compared to other RHAs. This likely reflects the fact that many "on-reserve" First Nations from this region relocated to Winnipeg because of the flood in 2011.
- As high as 9% of All First Nations in Southern visit primary care providers in other RHAs, outside of their home RHA and Winnipeg.

Tribal Council Areas

- The location of primary care visits by on-reserve First Nations across TCAs does not follow an overall north-to-south or PMR gradient.
- Two TCAs in Northern Manitoba (Independent-North and West Region) have the highest percent of visits in people's home districts. However, Keewatin is the TCA with the lowest percent of in-district visits.
- Over 60% of visits in West Region, Independent-North, Dakota Ojibway, and Non-Affiliated First Nation Communities are within the home RHA. Less than 40% of visits in Island Lake, Interlake Reserves, and Southeast are within the home RHA.
- Overall, on-reserve First Nations visit primary care providers in Winnipeg more than expected. More than 50% of visits by First Nations in Interlake Reserves, Independent-South, Southeast, and Island Lake are to providers in Winnipeg.
- As many as 8-10% of visits by on-reserve First Nations in Swampy Cree and Non-Affiliated communities are to providers in RHAs other than Winnipeg and their home RHA.
- There is a clear difference in the patterns of visits between the RHAs (which is influenced by the mechanism of provincial funding) and the TCAs. These findings suggest that the current funding approach, where funding is provided to RHAs to provide services to all residents, needs adjusting since First Nation peoples do not necessarily access services in the region in which they live.

Comparison to Other Findings

- There has been a remarkable shift of primary care visits to Winnipeg since the 2002 First Nations Atlas [6]. Our findings suggest that primary care visits within the home RHA (including the home district) have declined by 10%, while visits to Winnipeg providers have more than doubled. This is concerning as it indicates a deterioration of local access to primary care services.
- The patterns in visits among on-reserve First Nations have also shifted dramatically since 2002 [6]. The percent of visits within the home RHA has declined from 60% or more to as low 29%. The percent of visits to providers in Winnipeg is two to three times higher in some TCAs.

Figure 8.10: Location of Visits to Primary Care Providers by Regional Health Authority among First Nations and All Other Manitobans
Percent of visits, 2016/17

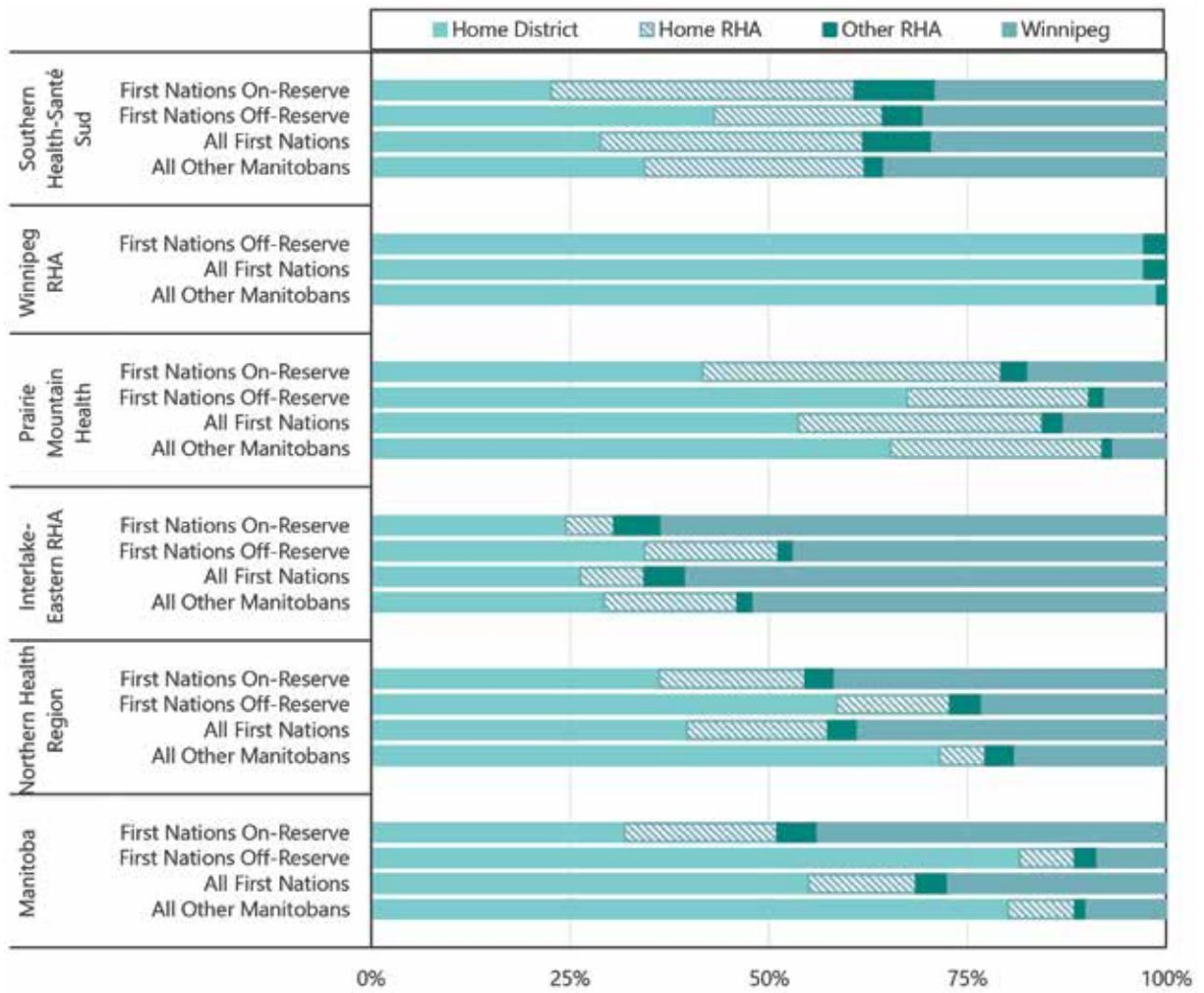
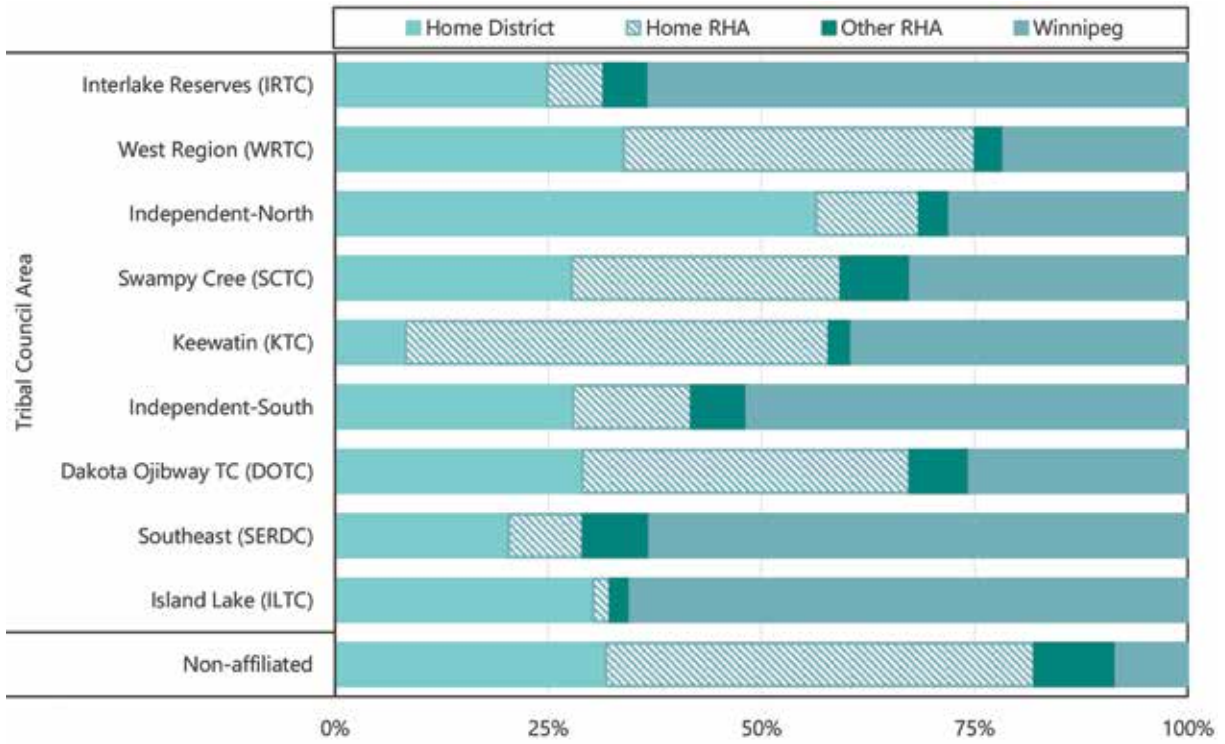


Figure 8.11: Location of Visits to Primary Care Providers by Tribal Council Area among First Nations

Percent of visits, 2016/17



Chapter 9: Use of Hospital Services

Introduction

When people's health is poor or when they suffer from specific diseases, they may require care that can only be provided in a hospital. This chapter includes a number of indicators that together provide a detailed description of the use of hospitals by First Nations and All Other Manitobans. Each of the indicators looks at a slightly different aspect of hospital services. Hospital episodes and hospital days of care describe the overall use of hospitals, while the reasons for hospitalizations (i.e., the specific medical conditions) are provided in separate analyses. The prevalence of these medical conditions points to the underlying health challenges that First Nation peoples face, and is important information for decision makers who can work to address the reasons for hospitalization with specific interventions. Many hospitalizations can be prevented by offering good access to high quality primary care. We include an analysis of hospitalizations due to 'ambulatory care sensitive conditions', an indicator commonly used to measure access to quality primary care.

It should be noted that the differences we see between groups in rates of hospital admissions (episodes), days spent in hospital, and even readmission rates is not only because of how ill a patient may be. All of these outcomes can be influenced by other issues such as the number of hospital beds available to a population in a specific region, the types and experience of the providers working in the region (e.g., whether there is access to specialist physicians), the proximity of a community to a hospital, and/or the presence of racism amongst hospital staff.

MCHP data do not include details of care provided at federal nursing stations in the northern regions of the province, so we cannot capture treatment rates there. However, we do have records of transfers from nursing stations to hospitals. Twenty-two percent of the transfers for which we have data resulted in a hospital admission, which we have captured in the hospital discharge dataset. The remaining 78% of the nursing station-to-hospital transfers in our data comprises those who end up in a Winnipeg Emergency Department or those who die; we were not able to track hospital-related outcomes for these individuals, leaving an important information gap.

Hospital Episodes

Definition: Hospital episodes are counted as the rate of hospital admissions, including any transfers between hospitals. Time spent in a nursing station is not included as a hospital admission; however, people who seek care at a nursing station show up in the Repository hospital data if they are transferred from the nursing station to a hospital and admitted to the hospital. Out-of-province hospitalizations are also included. The hospital admissions data includes women who are hospitalized while giving birth, but does not include a separate record for newborns (i.e., newborns do not contribute to the rate of hospital episodes).

Key Findings

The First Nation hospital episodes rate is higher than the rate for All Other Manitobans for the province as a whole.

Regional Health Authorities

- The rate of hospital episodes among First Nations does not follow a PMR gradient.
- The rate for on-reserve First Nations is higher than for off-reserve First Nations. The on-reserve rate is almost three times that of AOM and the off-reserve rate is twice that of AOM.
- The hospital episodes rate for First Nations is higher than AOM in all regions. The Winnipeg RHA rate for First Nations is lower than the average Manitoba rate for First Nations.
- The Prairie Mountain rates are higher for off-reserve First Nations compared to the Manitoba off-reserve rate.
- Interlake-Eastern RHA has a lower hospital episodes rate for off-reserve First Nations than the Manitoba off-reserve average but a higher rate for First Nations compared to AOM.

- The hospital episodes rate for First Nations in Northern RHA is higher than for AOM, and the rate for AOM is higher than the Manitoba average; the rate for First Nations on-reserve is higher than for First Nations off-reserve in Northern RHA.

Tribal Council Areas

- The rate of hospital episodes does not follow a north-to-south or PMR gradient.
- Island Lake is the only TCA with a hospital episodes rate that is higher than the Independent-North TCA, which has the lowest rate.

Income Quintiles

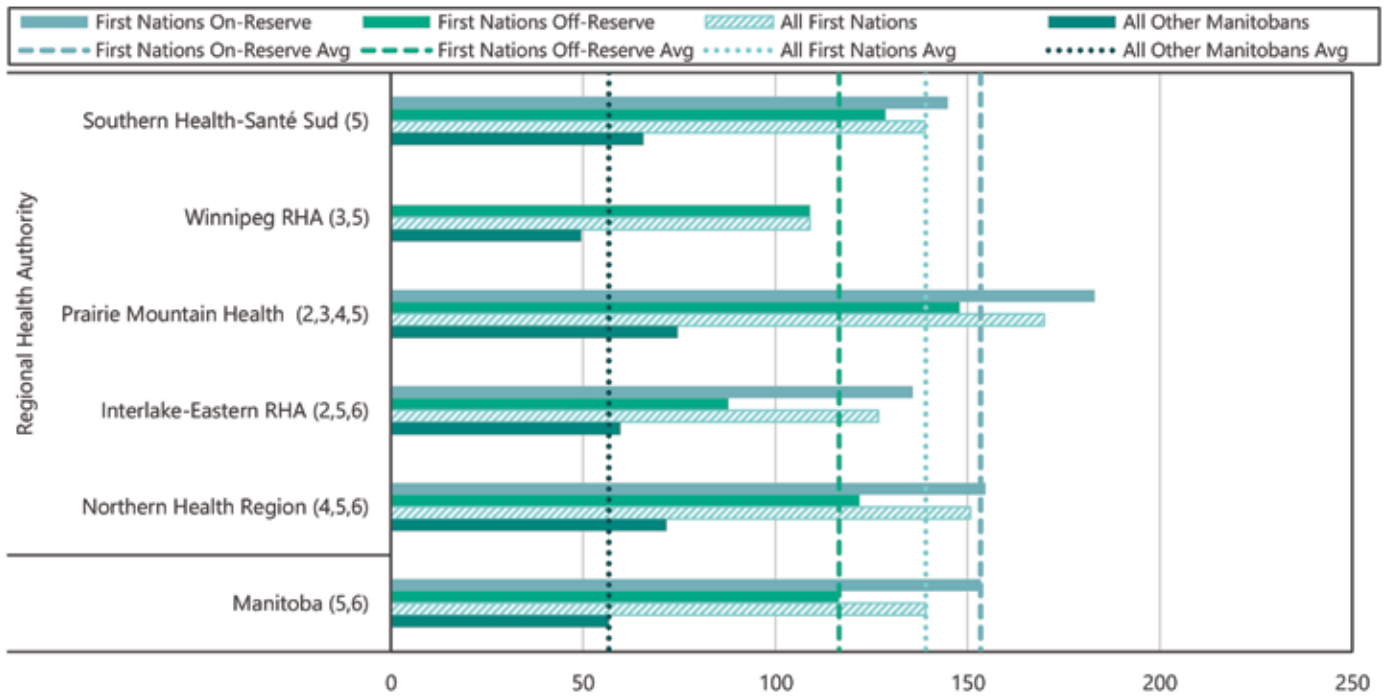
- The rates of hospital episodes among First Nations in both urban and rural areas are higher (up to two times) than AOM in the lowest and highest urban and rural income quintiles.
- There are also large gaps between First Nations in urban areas and AOM, and between on-reserve First Nations in rural areas and AOM.

Comparison to Other Findings

- We cannot make direct comparisons with the 2002 First Nations Atlas because of different methods used [6]. The RHA boundaries have changed since 2002, as has the method of standardization, which means that the numbers will be different. In both reports, the numbers are adjusted, but this has been done using different methods. However, the patterns of hospital episodes in both reports are very similar: the off-reserve rates are higher than the on-reserve rates for First Nations, and the First Nations rate is twice that of All Other Manitobans [6].

Figure 9.1: Hospital Episodes by Regional Health Authority

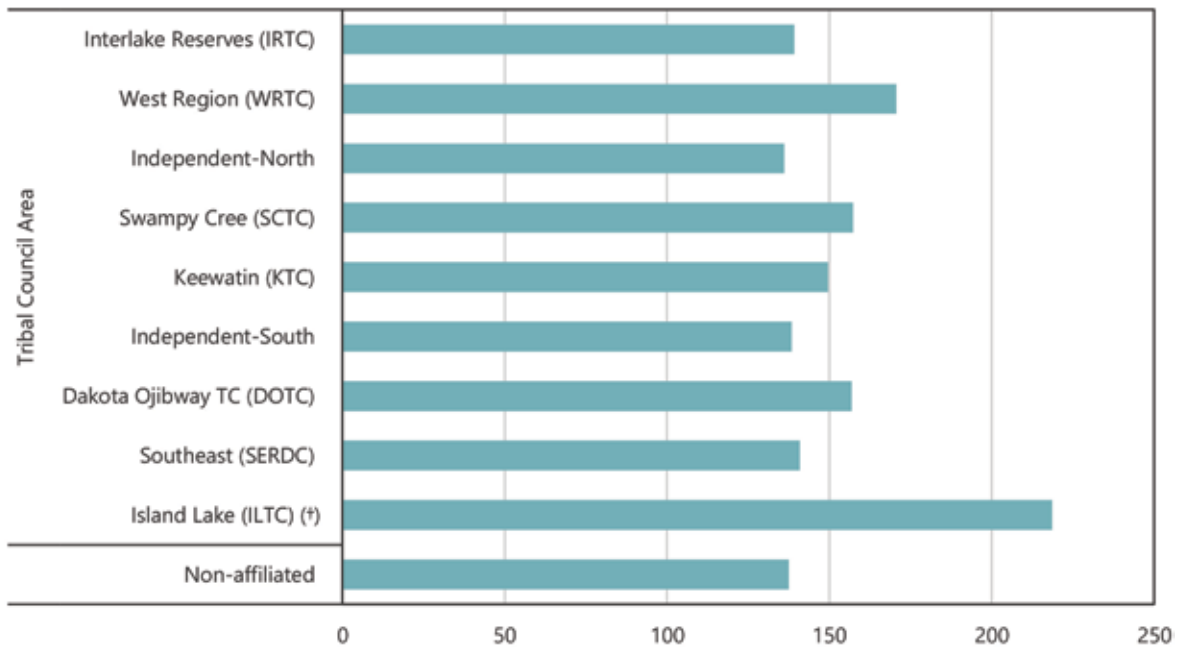
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 9.2: Hospital Episodes among On-Reserve First Nations by Tribal Council Area

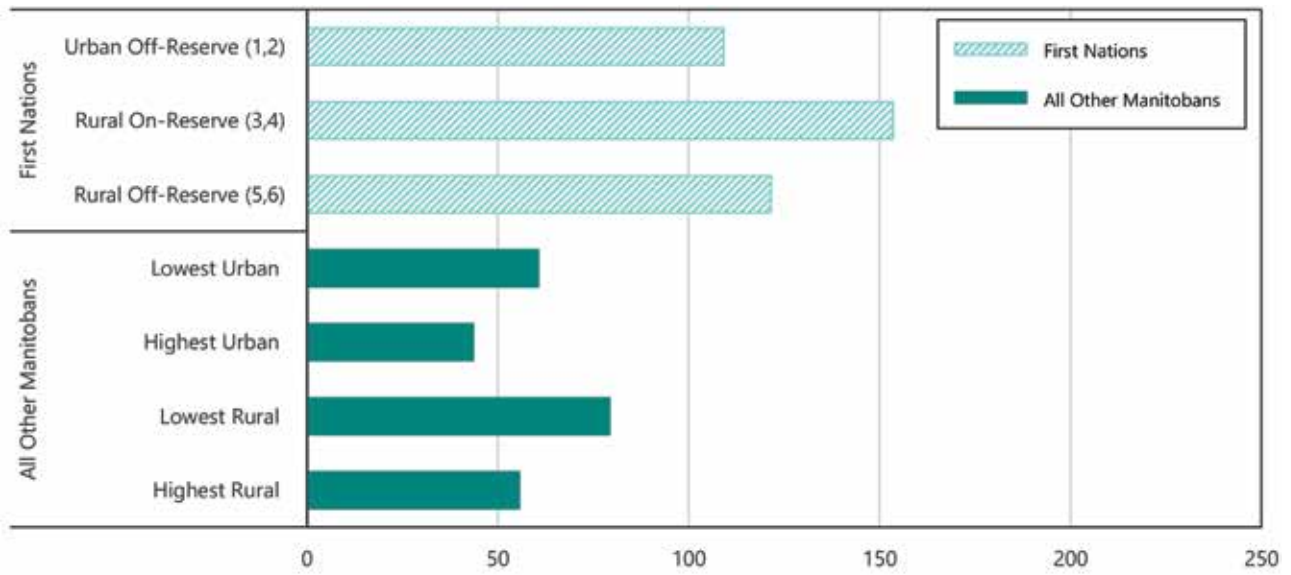
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the lowest rate (Independent-North)

Figure 9.3: Hospital Episodes by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Hospital Days of Care

Definition: The sum of all days spent in hospital in 2016/17.

Key Findings

The number of hospital days of care for All First Nations is twice as high as for AOM in all RHAs and Manitoba overall.

Regional Health Authorities

- The number of hospital days among First Nations does not follow the PMR gradient. However, the gap between First Nations and AOM across RHAs decreases with increasing PMR in all RHAs, with the exception of Southern RHA.
- In Interlake-Eastern RHA, the off-reserve First Nations number of hospital days is lower than the Manitoba average; the on-reserve number of days is 70% higher than the off-reserve number of days.

Tribal Council Areas

- The number of hospital days of care for on-reserve First Nations appears to follow the PMR gradient, whereby the number of hospital days is higher in TCAs with a higher PMR.
- Southeast and Island Lake TCAs have significantly higher numbers of hospital days than Independent-North TCA, which has the lowest number of hospital days.

Income Quintiles

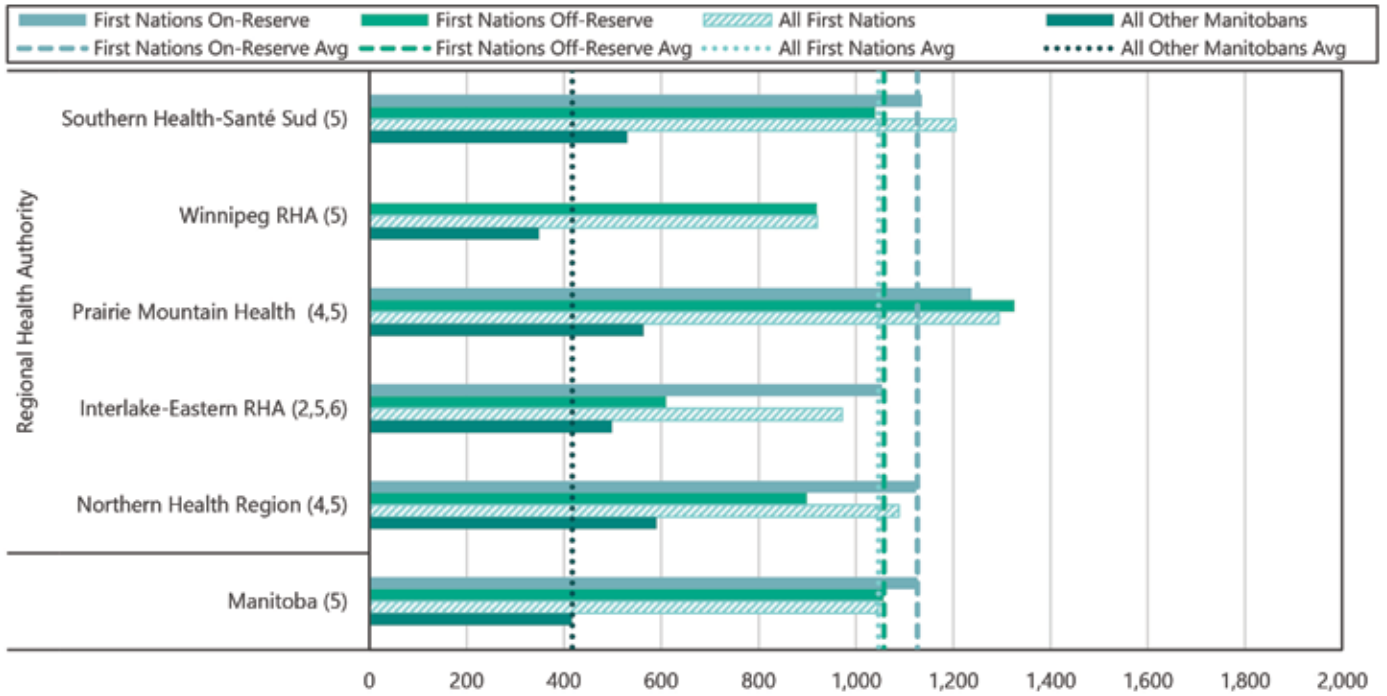
- The number of hospital days of care for First Nations is up to three times higher than for AOM in both the lowest and highest income quintiles.
- The smallest gap is between off-reserve First Nations in rural areas and AOM in the lowest rural income quintile. The number of hospital days of care for First Nations are three times higher than AOM in the highest income quintiles.

Comparison to Other Findings

- The analyses in this report are not directly comparable to those in the 2002 First Nations Atlas due to differences in methods (different adjustment/standardization), and reporting (per 1,000 individuals in this report compared to number of days per individual in the 2002 First Nations Atlas) [6].
- Our findings suggest that the gap between All First Nations and AOM has decreased from 67% in the 2002 First Nations Atlas to 51% in the current report. On the other hand, while the above-reported number of days for on- and off-reserve First Nations were similar to what was reported in the 2002 First Nations Atlas [6], this report suggests that there may be a small gap of 6%.

Figure 9.4: Hospital Days by Regional Health Authority

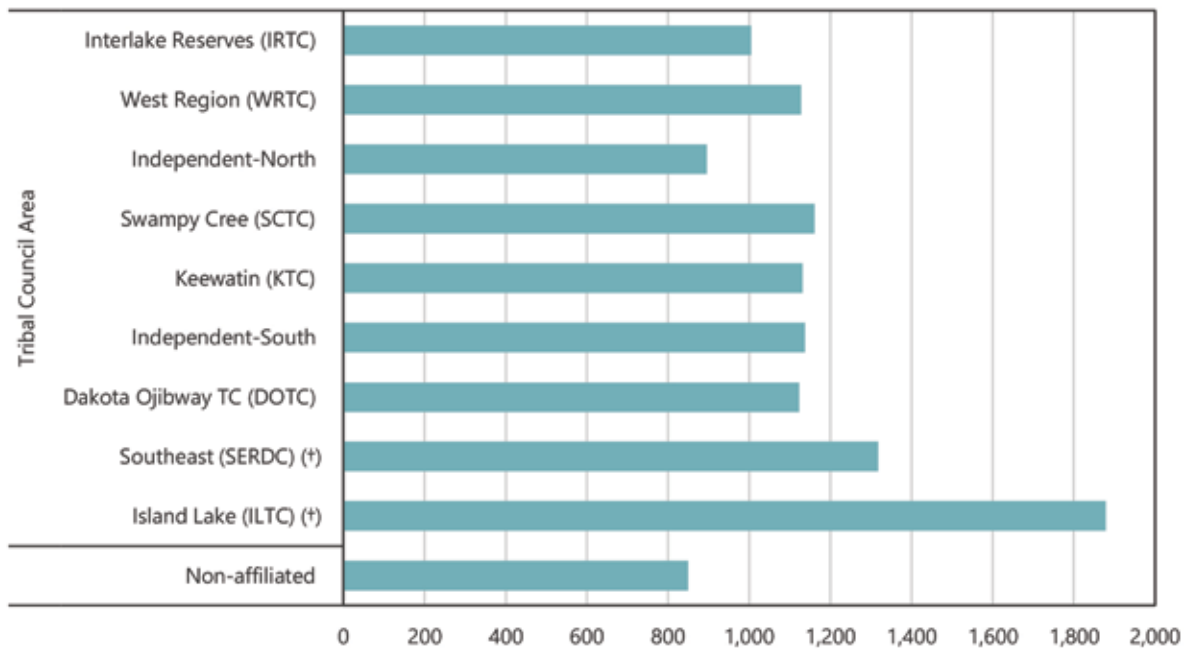
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

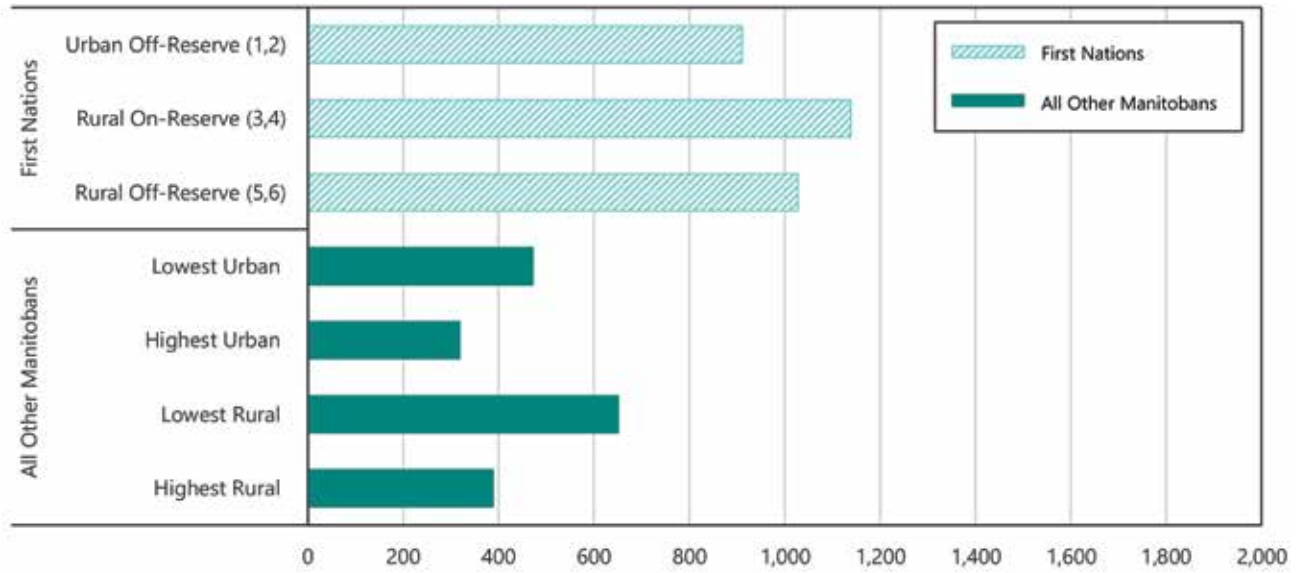
Figure 9.5: Hospital Days among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the lowest rate (Independent-North)

Figure 9.6: Hospital Days by Income Quintile
 Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Hospital Episodes for Mental Disorders

Definition: The hospital discharge abstracts provide the reason that was most responsible for the hospitalization. Here we look at all hospital episodes where the ‘most responsible reason’ for hospitalization was a mental disorder.

Key Findings

The rates of hospital episodes for specific conditions such as mental disorders are low, which means that we would expect there to be fewer statistically different results. In Manitoba, the rates of hospital episodes for mental disorders comprise 10% of all hospital episodes for All First Nations (9% for on-reserve and 11% for off-reserve).

Regional Health Authorities

- The rates of hospital episodes for mental disorders among First Nations do not follow the PMR gradient across RHAs.
- The gaps between All First Nations and AOM rates are significant only in Winnipeg RHA, Prairie Mountain, and Manitoba overall.
- The rates in Prairie Mountain and Northern RHA appear to be higher than other RHAs and Manitoba overall. This finding is consistent with the higher rates of mental disorders in these RHAs (see Chapter 7).

Tribal Council Areas

- The rates of hospital episodes for mental disorders among on-reserve First Nations do not follow a north-to-south or PMR gradient across TCAs.
- Swampy Cree is the only TCA with significantly higher rates (three times higher) than Interlake Reserves, the TCA with the lowest rate.

Income Quintiles

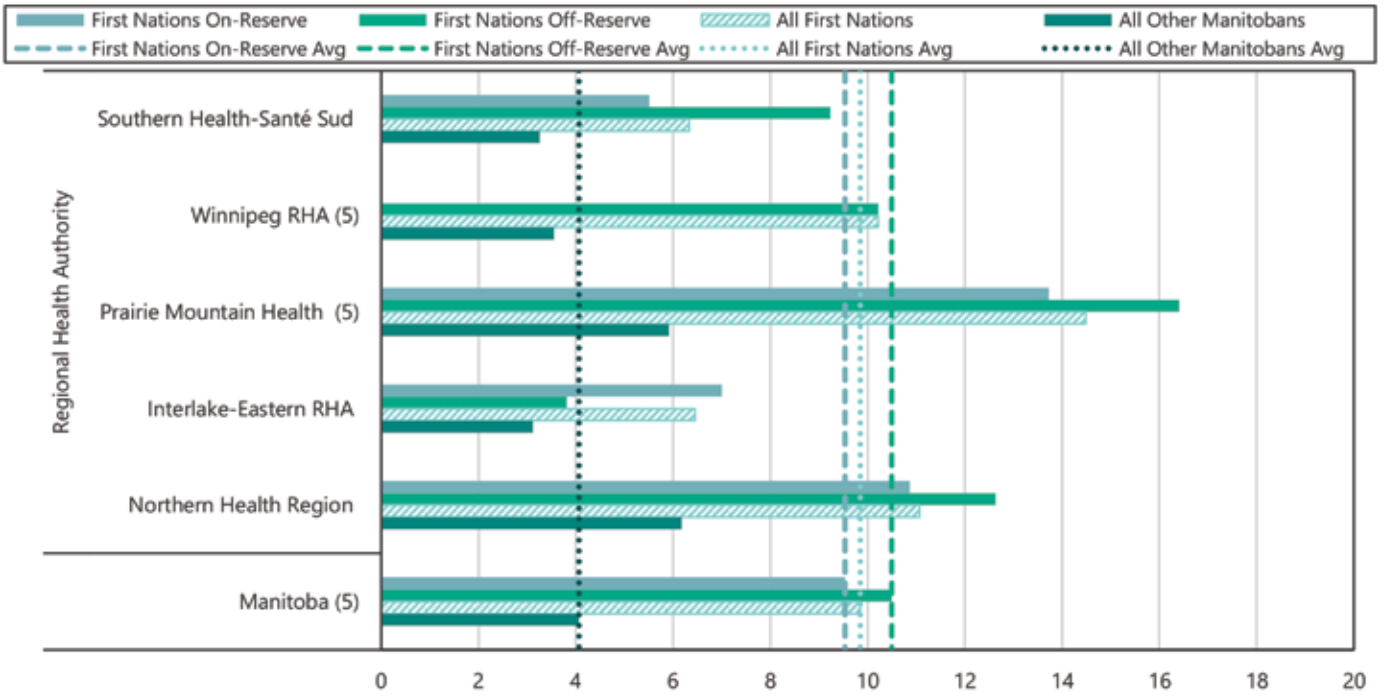
- The rates of hospital episodes for mental disorders among off-reserve First Nations in urban and rural areas are almost five times higher than the rate for AOM in the highest urban income quintile.
- Similarly, the rates of hospital episodes for mental disorders among on-reserve First Nations are almost five times higher than AOM in the highest income quintile in rural areas.
- Rates for on-reserve First Nations in rural areas are also twice as high as AOM in the lowest rural income quintile.

Comparison to Other Findings

- This indicator was not included in the 2002 First Nations Atlas.
- Our findings align with those reported for Canada (excluding Ontario and Quebec) by Carrière (2018) in 2006/2007-2008/2009, where the rate of hospitalizations for schizophrenia and other psychotic disorders was almost twice as high among First Nations compared with all others, and higher among off-reserve First Nations compared with on-reserve First Nations [54].
- In contrast, Lavoie et al. (2018) reported higher hospitalization rates for mental disorders among First Nations living on-reserve in British Columbia in 1994-2010 when compared with off-reserve rates [60].

Figure 9.7: Hospital Episode Rate for Mental Disorders by Regional Health Authority

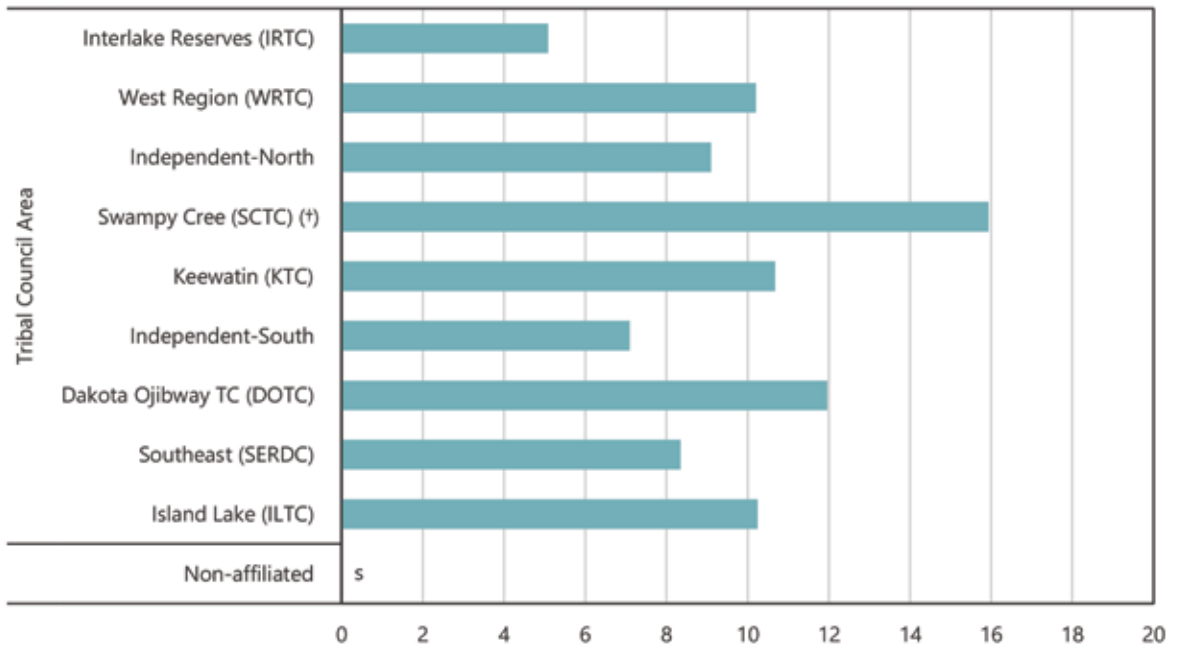
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p < 0.01):
 5 - All First Nations compared to All Other Manitobans

Figure 9.8: Hospital Episode Rate for Mental Disorders among On-Reserve First Nations by Tribal Council Area

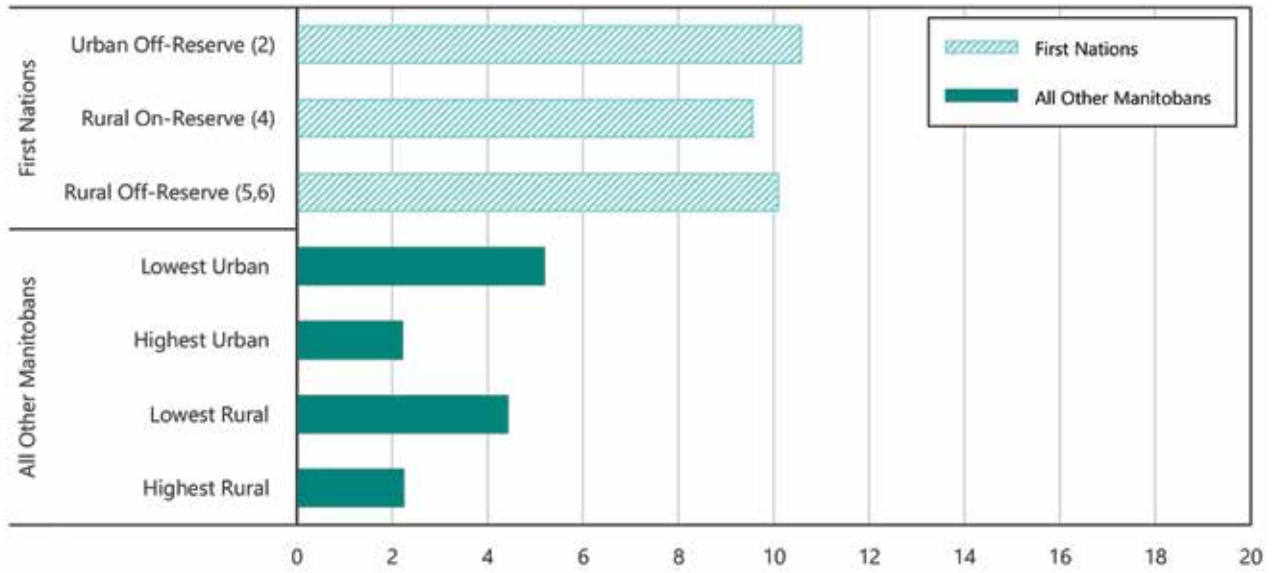
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p < 0.01):
 † - First Nations on-reserve: TCA compared to the lowest rate (IRTC)
 s - Data suppressed due to small numbers

Figure 9.9: Hospital Episode Rate for Mental Disorders by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences ($p < 0.01$):

- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Hospital Days for Mental Disorders

Definition: The number of inpatient hospital days for mental disorders per 1,000 residents per year (2016/17).

Key Findings

Regional Health Authorities

- There are no statistically significant differences between the populations within each RHA or when compared to the Manitoba average.
- The rate of hospital days used for mental disorders among First Nations does not follow the PMR trend.

Tribal Council Areas

- The number of hospital days for mental disorders among on-reserve First Nations does not follow a north-to-south or PMR gradient.
- The TCA with the lowest number of hospital days is Interlake Reserves.
- The rates in Swampy Cree and Island Lake TCAs are higher than Interlake Reserves. While the results for Swampy Cree TCA are consistent with the rate of

hospital episodes for mood and anxiety disorders, the rate of hospital episodes for mental disorders is not as high in Island Lake.

- The rate of hospital episodes for mental disorders for Island Lake was not significantly higher than Interlake Reserves, but the very high number of days in hospital suggests much longer hospital stays. The reasons for this are unknown. Island Lake TCA does not have the highest rates of psychotic disorders (Southeast TCA), mood and anxiety disorders (West Region TCA) or suicide attempts (West Region TCA). Island Lake TCA does, however, have the highest rate of suicide.

Income Quintiles

- The number of hospital days for mental disorders among First Nations in urban and rural areas is not significantly different from the number of hospital days for AOM in the lowest and highest urban and rural income quintiles.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 9.10: Hospital Days for Mental Disorders by Regional Health Authority
Age- and sex-adjusted, per 1,000 individuals, 2016/17

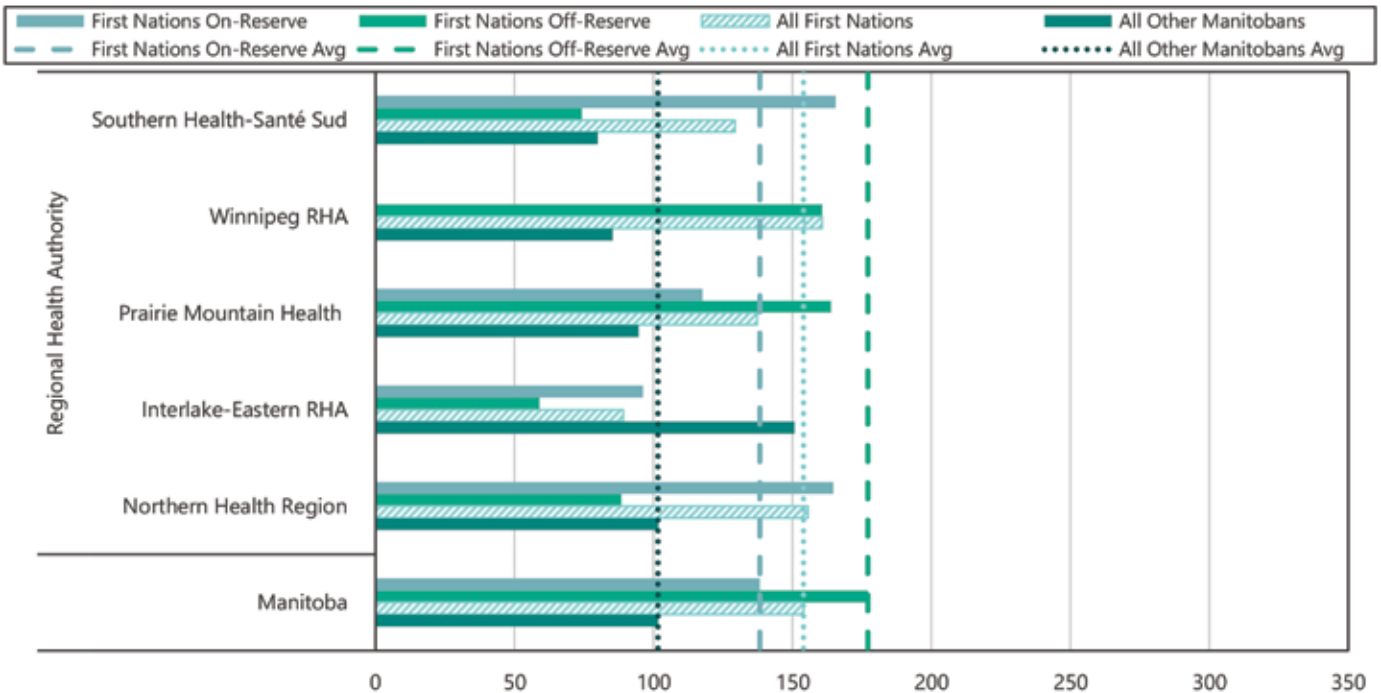


Figure 9.11: Hospital Days for Mental Disorders among On-Reserve First Nations by Tribal Council Area

Age- and sex-adjusted, per 1,000 individuals, 2016/17

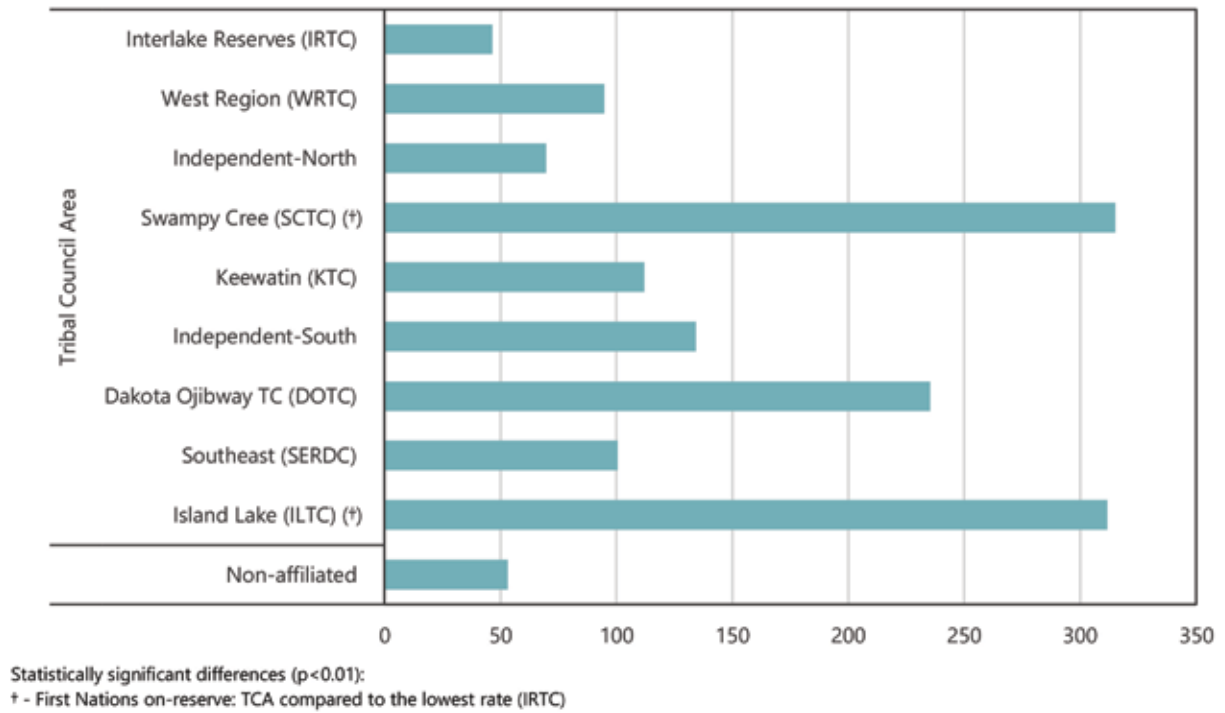
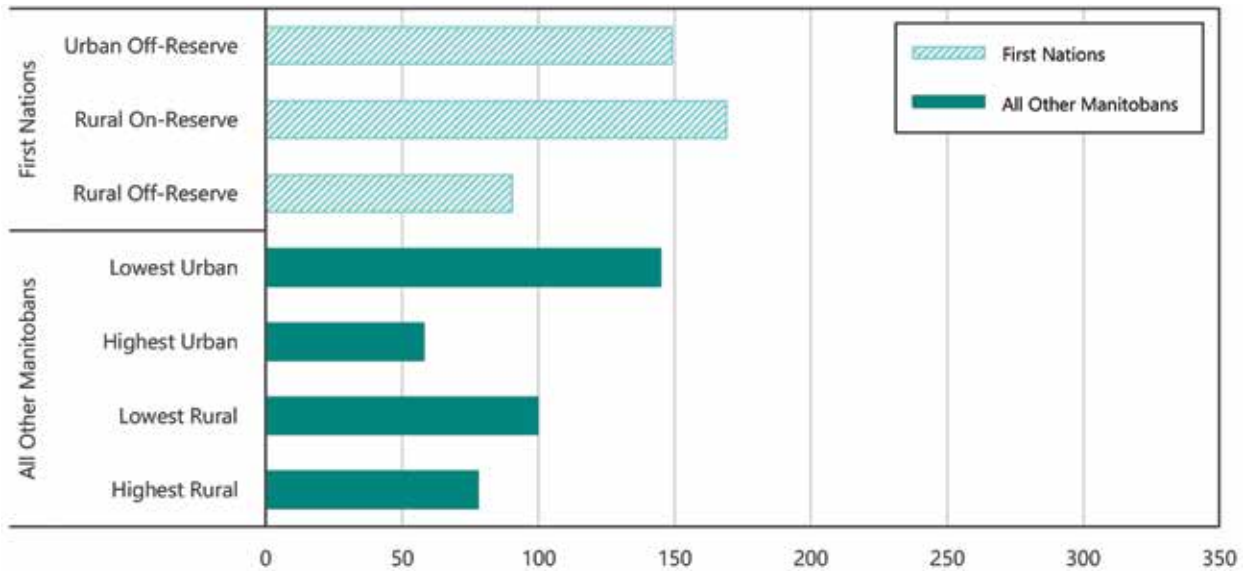


Figure 9.12: Hospital Days for Mental Disorders by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, 2016/17



Hospitalizations or Deaths due to Injury

Definition: This indicator includes any hospitalization or death with a diagnosis code for external cause of injury recorded in any of the diagnostic fields in the hospital discharge abstract in one year. This includes intentional (inflicted) and unintentional (accidental) harm to oneself or by others.

Key Findings

The rates of hospitalization or death due to injury among All First Nations are two to three times higher than for AOM in all RHAs and Manitoba overall.

Regional Health Authorities

- The biggest gaps between All First Nations and AOM are in Winnipeg RHA and Prairie Mountain Health.
- The rates among on-reserve First Nations are more than 70% higher than rates among off-reserve First Nations for Interlake-Eastern and Northern RHAs.
- Prairie Mountain Health stands out for higher rates among First Nations than other RHAs, and significantly higher rates than the Manitoba average.

Tribal Council Areas

- The rates of hospitalization or death due to injury do not follow an overall north-to-south or PMR gradient.

- Island Lake TCA has a 55% higher rate than Independent-South, the TCA with the lowest rate.

Income Quintiles

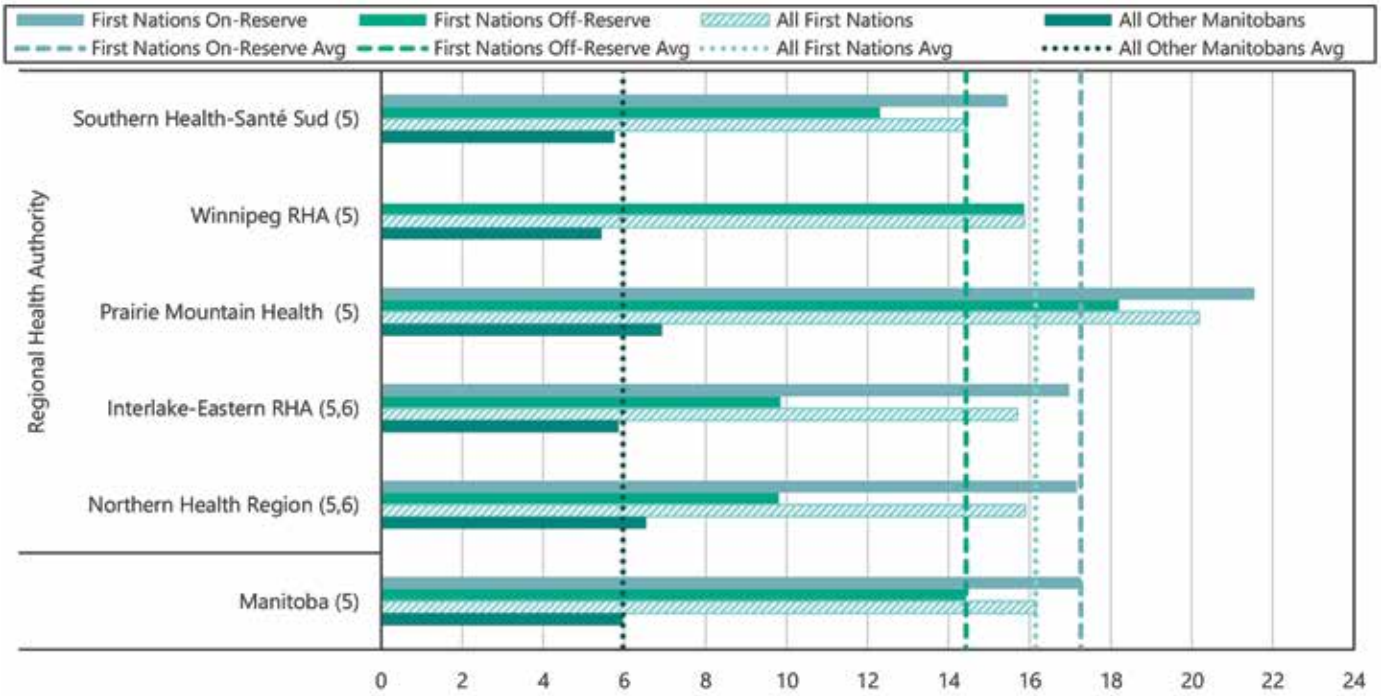
- The rates of hospitalization or death due to injury among First Nations in urban and rural areas are two to four times higher than AOM in the lowest and higher urban and rural income quintiles.
- The gap is bigger when comparing First Nations in urban areas and on-reserve First Nations in rural areas with AOM.

Comparison to Other Findings

- The results presented include both hospitalization and death from injury, while the 2002 First Nations Atlas did not include death due to injury in this indicator. The 2002 analyses therefore did not capture the most severe injuries that resulted in death prior to hospitalization [6]. The results are therefore not comparable.
- Our findings of a two- to three-fold gap between First Nations and AOM are comparable with findings reported by Fantus et al. (2009) about all-cause injury rates in Ontario [61]. Fantus et al. (2009) reported rates for individuals living in First Nation communities (19.4 per 1,000) almost three times higher than rates in northern and southern communities (7.9 and 6.5 per 1,000 respectively) [61].

Figure 9.13: Hospitalization or Death Due to Injury by Regional Health Authority

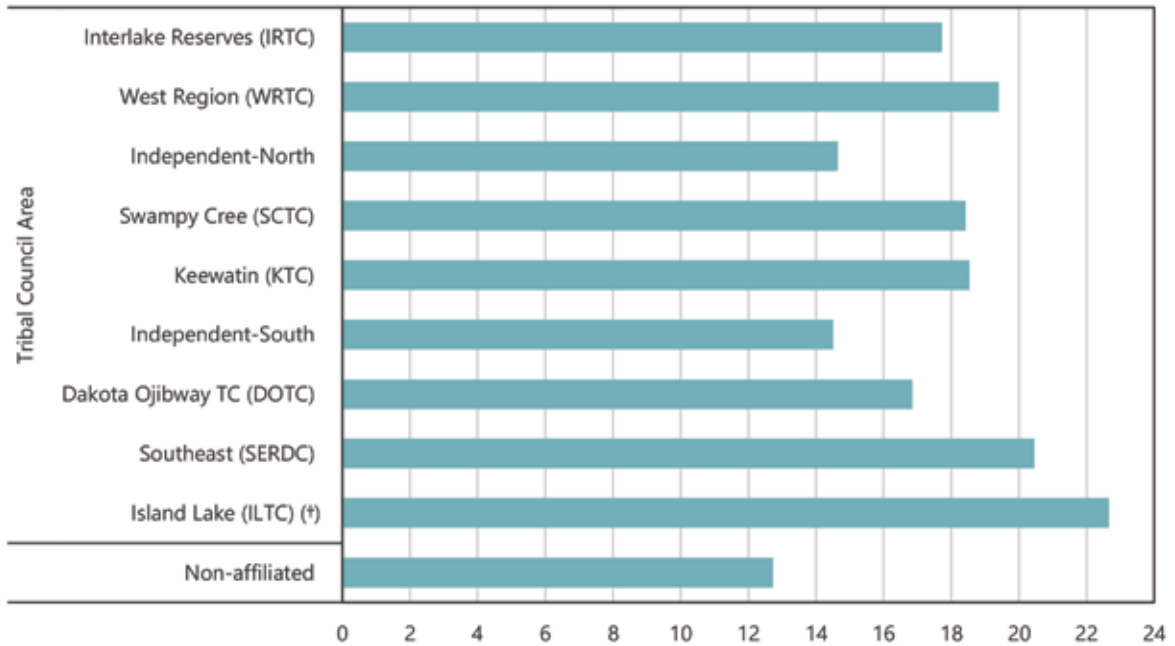
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 9.14: Hospitalization or Death Due to Injury among On-Reserve First Nations by Tribal Council Area

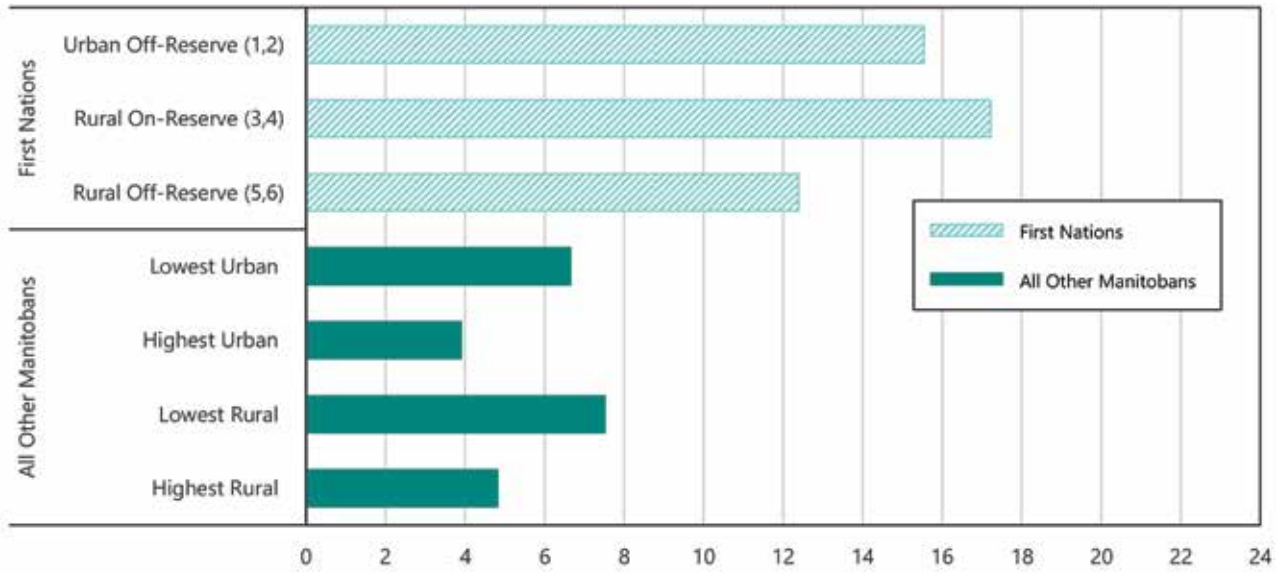
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the lowest rate (Independent-South)

Figure 9.15: Hospitalization or Death Due to Injury by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Hospitalization or Death due to Intentional Injury

Definition: Any hospitalization or death due to intentional (inflicted) injury, as recorded with a diagnosis code in any of the diagnostic fields in the hospital discharge abstract in one year. Examples of intentional injuries include intentional self-harm, poisoning, and assault.

Key Findings

The rates of hospitalization or death due to intentional injury among All First Nations are dramatically higher than AOM in all RHAs and Manitoba overall. However, the rates of hospitalization or death due to intentional injury among First Nations are still relatively low. Therefore, any seemingly large differences between groups are unlikely to be statistically significant.

Regional Health Authorities

- The rates of hospitalization or death due to intentional injury among First Nations do not follow the PMR trend. However, the gap between First Nations and AOM declines with increasing PMR.
- The rates for First Nations are nine times higher than AOM in most RHAs. The biggest gap is in Southern RHA (19 times high), while the smallest is in Northern RHA (four times higher).

Tribal Council Areas

- The rates of hospitalization or death due to intentional injury among on-reserve First Nations seem to follow the PMR order, where the rate increases as PMR increases.
- However, there are no statistically significant differences between the TCA with the lowest rate (Independent-South) and other TCAs.

Income Quintiles

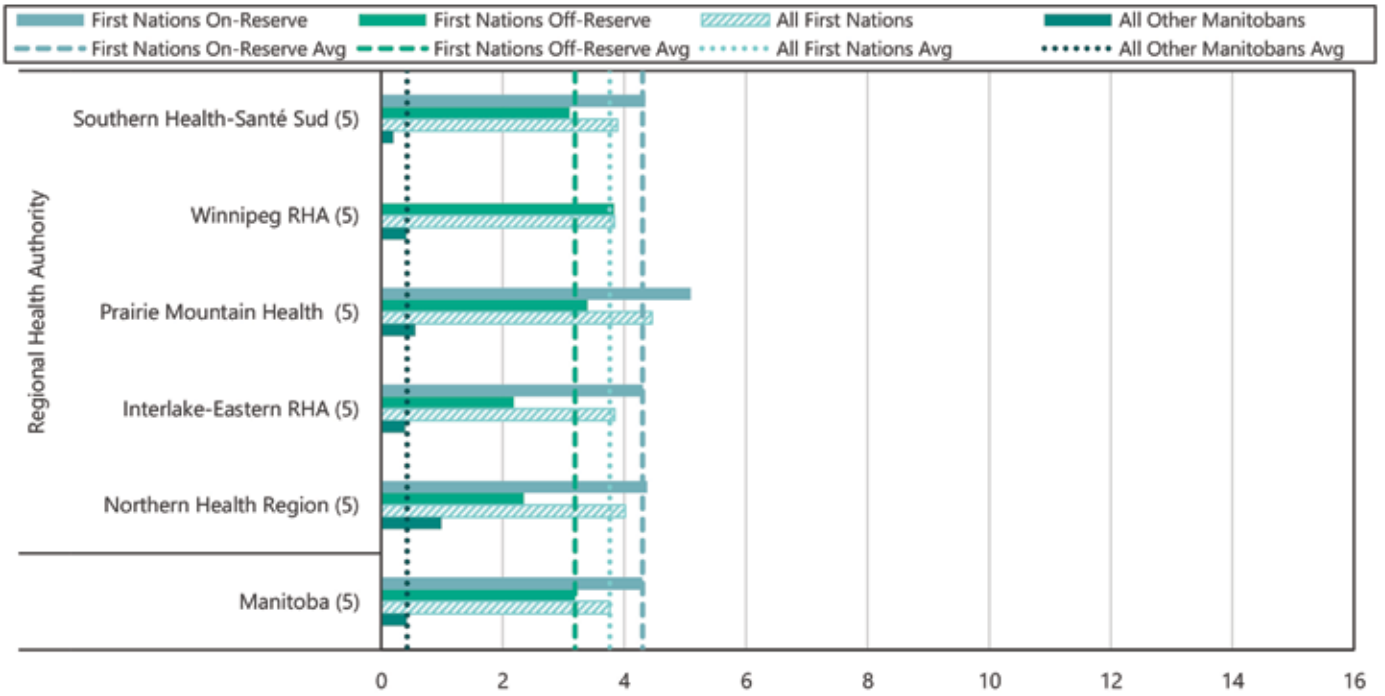
- The rates of hospitalization or death due to intentional injury among off-reserve First Nations in urban areas are two to three times higher than rates among AOM in the lowest and highest urban income quintiles. The rate among First Nations in rural areas is also higher than AOM in the lowest (40-80%) income quintiles and two to three times higher than AOM in the highest income quintiles. The gaps are bigger between on-reserve First Nations and when comparing First Nations to AOM in the highest income quintile.

Comparison to Other Findings

- This indicator was not included in the 2002 First Nations Atlas.
- Our findings are consistent with the five times higher rates of intentional or self-inflicted injury among Indigenous populations (2.4-4.5 per 1,000) than rates in the overall population (0.5-0.8 per 1,000) in British Columbia in 1991-2010 [62]. Similarly, George et al. (2017) reports higher rates among First Nations on-reserve compared with off-reserve [62].
- Our findings are also consistent with consistent with a Canada-wide study (excluding Quebec) about age-standardized rates of hospitalization for intentional injuries during 2004/05-2009/10 [63]. Oliver et al. (2009) reported considerably higher rates in areas with higher percent of Indigenous populations when compared with areas with a low percent of Indigenous populations. Rates of hospitalization for self-inflicted injuries were at least three times higher and rates for hospitalizations due to an assault-related injury were at least five times higher [63].

Figure 9.16: Hospitalization or Death Due to Intentional Injury by Regional Health Authority

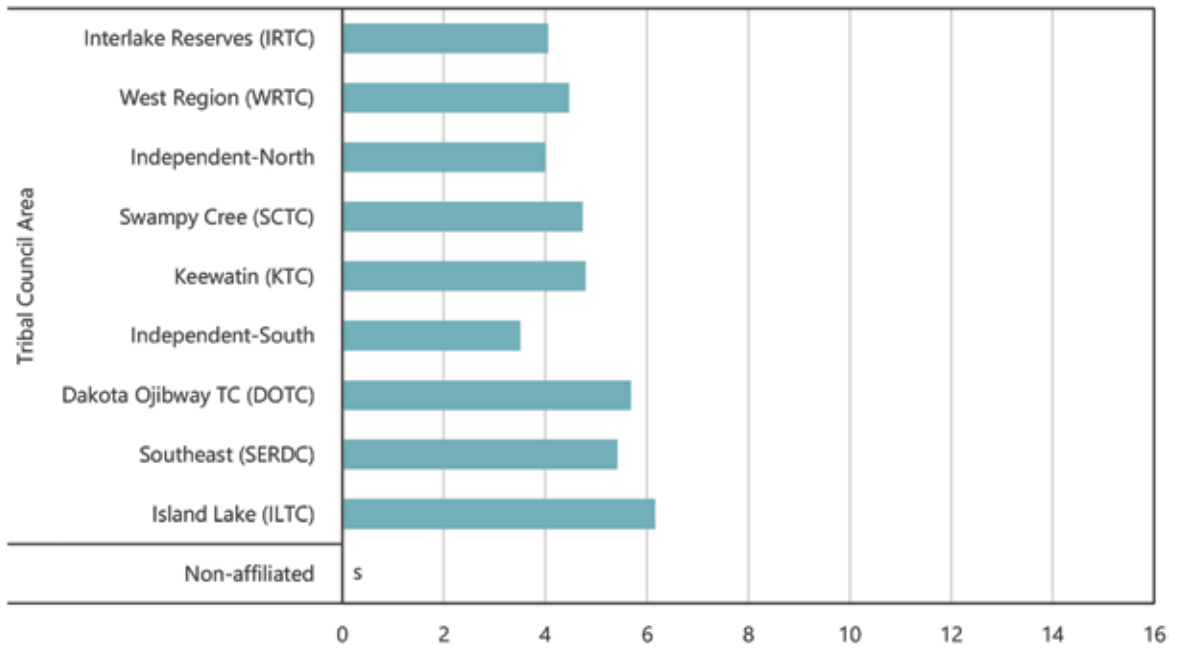
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):
 5 - All First Nations compared to All Other Manitobans

Figure 9.17: Hospitalization or Death Due to Intentional Injury among On-Reserve First Nations by Tribal Council Area

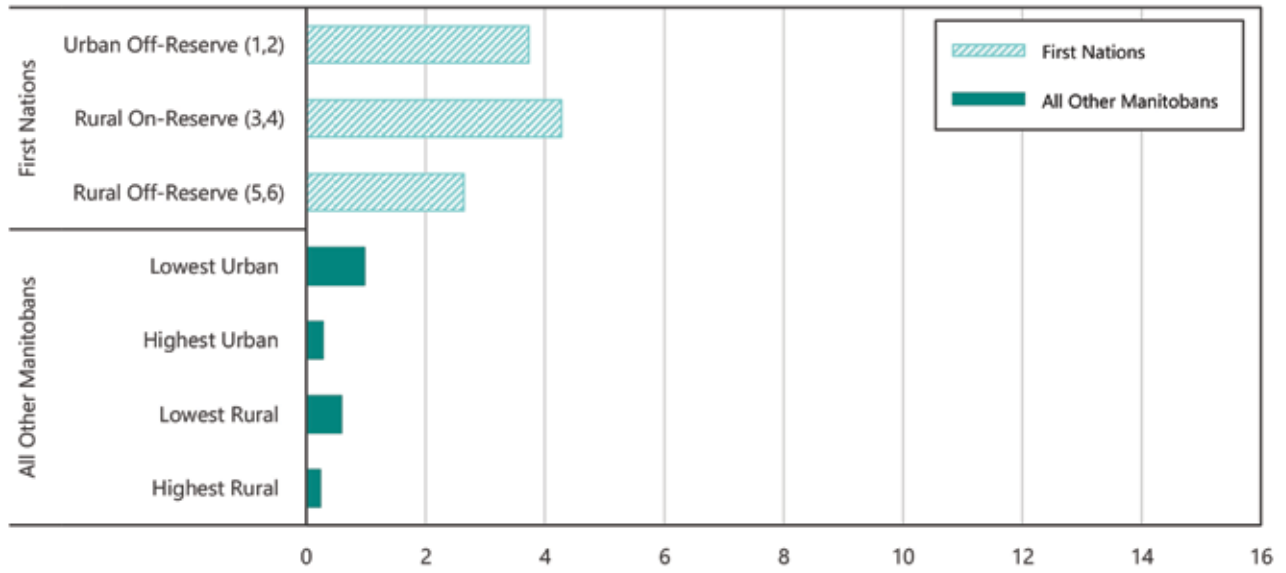
Age- and sex-adjusted, per 1,000 individuals, 2016/17



s - Data suppressed due to small numbers

Figure 9.18: Hospitalization or Death Due to Intentional Injury by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Hospitalization or Death due to Unintentional Injury

Definition: Any hospitalization or death with an external cause of unintentional (accidental) injury diagnosis code in any of the diagnostic fields in the hospital discharge abstract in one year. Examples of unintentional injuries include accidental falls, vehicle collisions, drowning, and poisoning.

Key Findings

Overall, the rates of hospitalization or death due to unintentional injury among All First Nations are two times higher than the rates for AOM.

Regional Health Authorities

- The rates of hospitalization or death due to of unintentional injury among First Nations do not follow the PMR gradient.
- The rate among on-reserve First Nations is two times higher than among AOM in all RHAs and Manitoba overall, with the smallest gap in Southern RHA and the biggest gap in Prairie Mountain and Winnipeg RHA.
- The rates among on-reserve First Nations appear consistently higher than off-reserve rates across RHAs, but only the gap in Northern RHA (70%) is statistically significant.

Tribal Council Areas

- The rates of hospitalization or death due to unintentional injury do not follow an overall north-to-south or PMR gradient.

- Independent-North TCA has the lowest on-reserve rates.
- The rate in Island Lake TCA is 50% higher than Independent-North TCA.

Income Quintiles

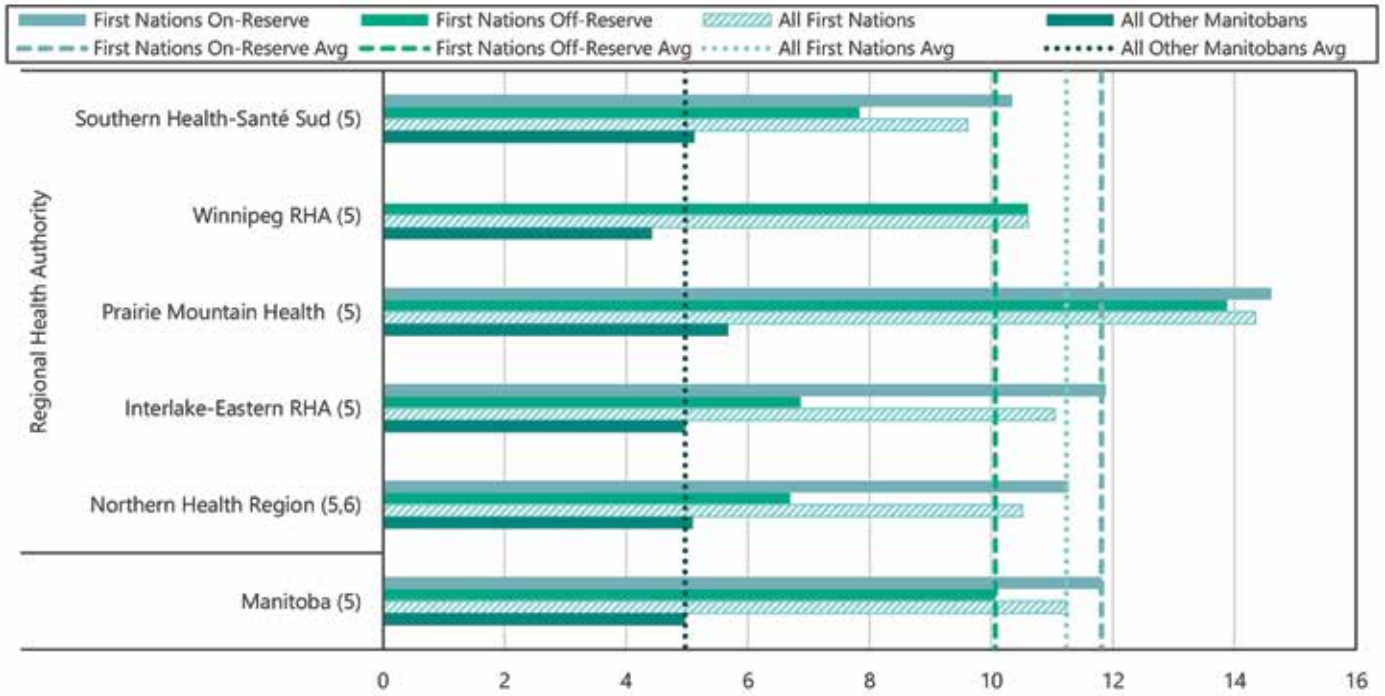
- The rates of hospitalization or death due to unintentional injury among off-reserve First Nations in urban areas are two to three times higher than rates among AOM in the lowest and highest urban income quintiles.
- The rates among First Nations in rural areas are also higher than AOM in the lowest and highest rural income quintiles. The gaps are bigger between on-reserve First Nations and when comparing First Nations to AOM in the highest income quintile.

Comparison to Other Findings

- This indicator was not included in the 2002 First Nations Atlas.
- Our findings are consistent with an Ontario study about age-standardized rates of hospitalization for unintentional injuries [61]. Fantus et al. (2009) reported two to three times higher rates in areas with higher percent of Indigenous populations (14.6 per 1,000) when compared with areas with a low percent of Indigenous population (5.5 per 1,000) [61]. Bougie et al. (2014) reported that some of these differences in rates are related to the socio-economic conditions and remote location of the areas [64].

Figure 9.19: Hospitalization or Death Due to Unintentional Injury by Regional Health Authority

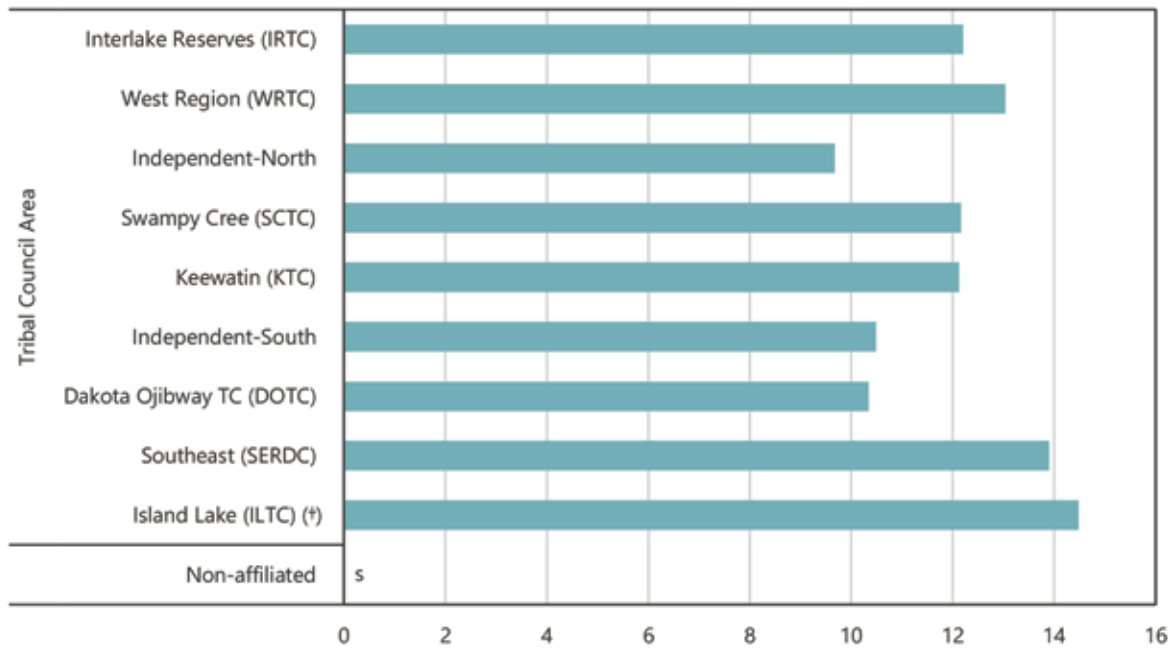
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences ($p < 0.01$):
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 9.20: Hospitalization or Death Due to Unintentional Injury among On-Reserve First Nations by Tribal Council Area

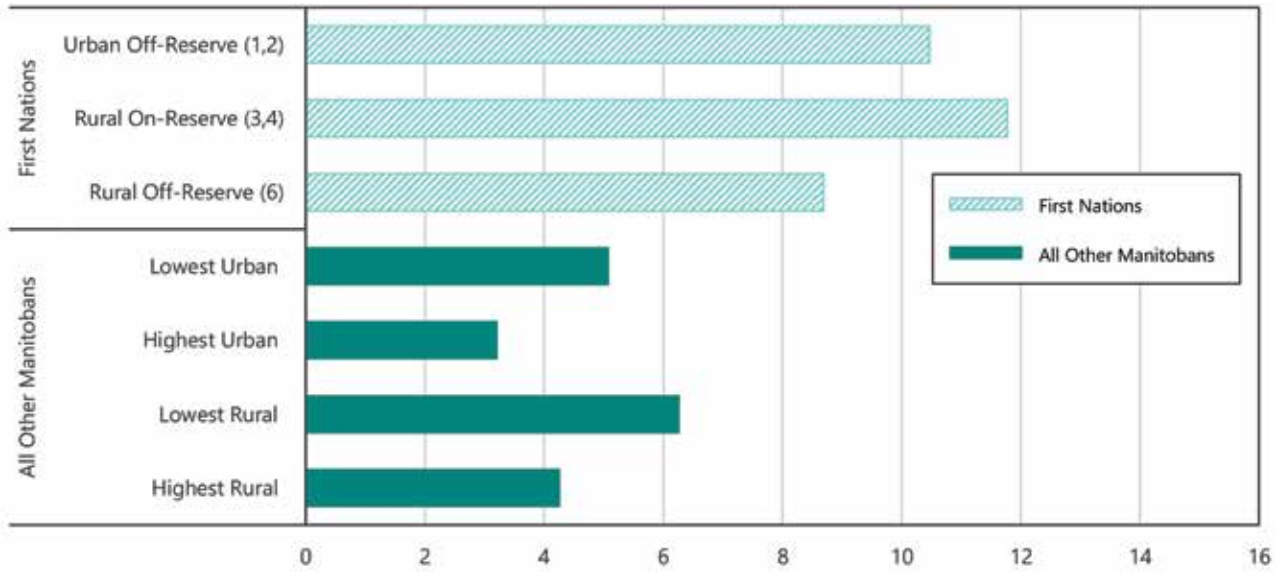
Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences ($p < 0.01$):
 † - First Nations on-reserve: TCA compared to the lowest rate (Independent-North)
 s - Data suppressed due to small numbers

Figure 9.21: Hospitalization or Death Due to Unintentional Injury by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, 2016/17



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Hospital Readmission

Definition: This indicator points to one of two possible signs of inadequate care. A hospital readmission occurs when the patient was discharged from hospital too early (before being ready to be cared for outside of the hospital), or when the care provided outside the hospital after discharge was inadequate. There are, however, likely to be some readmissions even when excellent out-of-hospital care is provided, so it is the comparisons that are most important, rather than the rates of readmissions themselves.

This indicator includes all unplanned inpatient hospitalizations in an acute care hospital within 30 days of discharge from a hospital.

Key Findings

The rates for All First Nations are higher than for AOM across RHAs and Manitoba overall.

Regional Health Authorities

- Readmission rates among First Nations do not follow the PMR gradient.
- Prairie Mountain stands out with consistently high rates in all First Nation groups, though it is not significantly different from the Manitoba average.

Tribal Council Areas

- Readmission rates among on-reserve First Nations do not follow a north-to-south or PMR gradient.
- The rate in Dakota Ojibway TCA is 79% higher than the rate in Interlake Reserves TCA, which is the lowest rate among the TCAs.

Income Quintiles

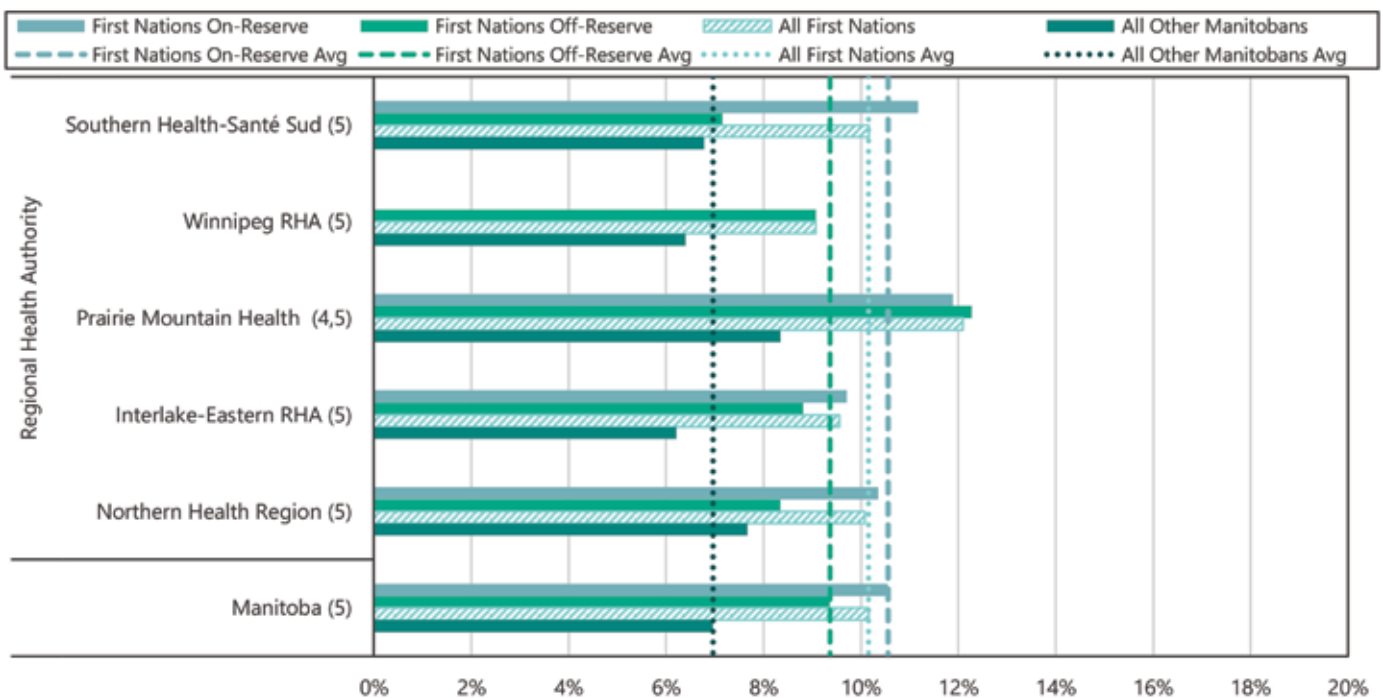
- Readmission rates among off-reserve First Nations in urban areas are 30% higher than AOM in the lowest income quintile and 70% higher than AOM in the highest income quintiles.
- Rates among on-reserve First Nations in rural areas are 28% higher than AOM in the lowest rural income quintile and 42% higher than AOM in the highest income quintile.
- Rates among off-reserve First Nations in rural areas are higher only than AOM in the highest rural income quintile by 42%.

Comparison to Other Findings

- This indicator was not included in the 2002 First Nations Atlas.

Figure 9.22: Hospital Readmission Rate by Regional Health Authority

Age- and sex-adjusted percent percent of hospital episodes, 2016/17



Statistically significant differences ($p < 0.01$):

4 - All Other Manitobans: RHA compared to the Manitoba average

5 - All First Nations compared to All Other Manitobans

Figure 9.23: Hospital Readmission Rate among On-Reserve First Nations by Tribal Council Area
Age- and sex-adjusted percent percent of hospital episodes, 2016/17

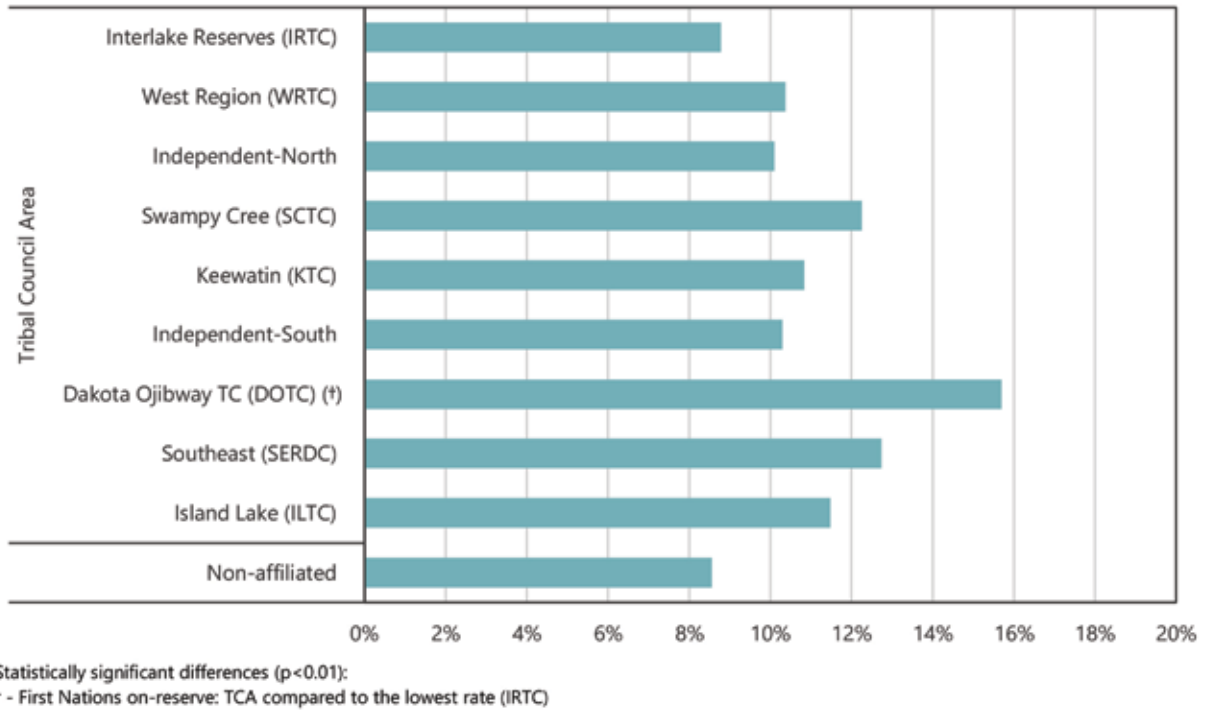
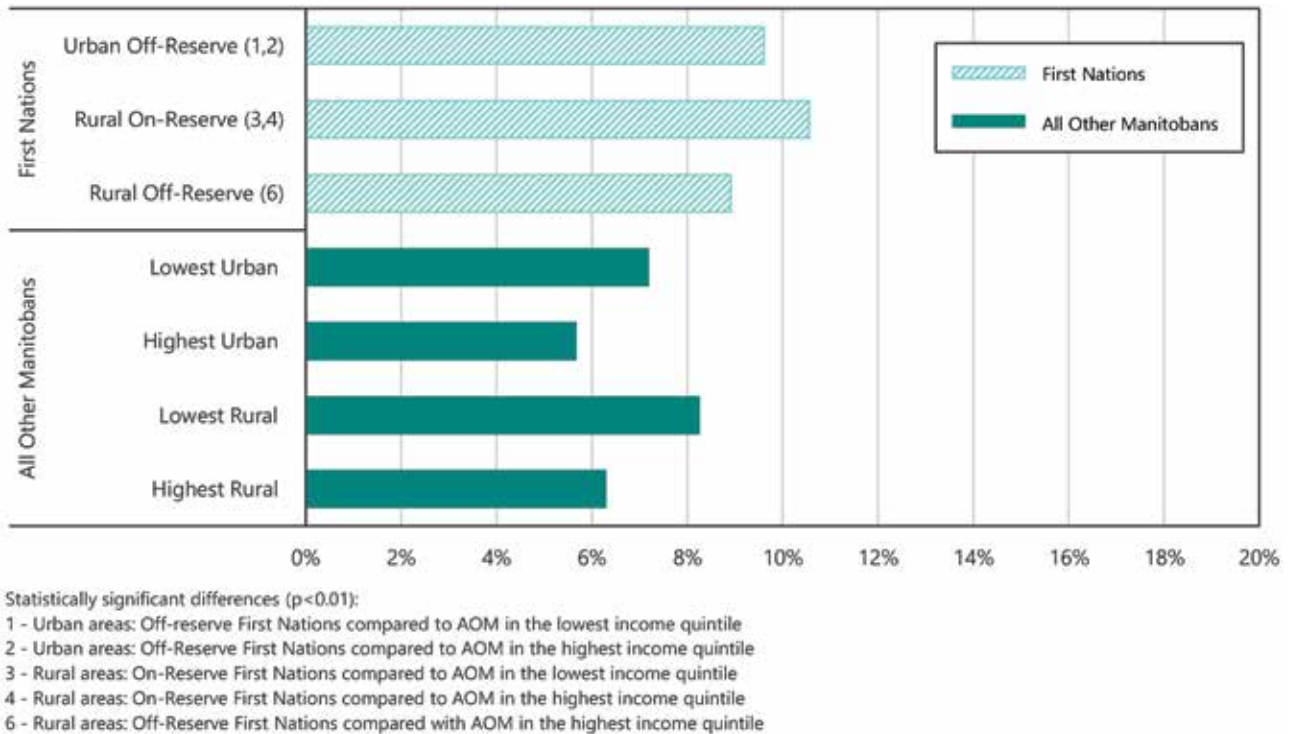


Figure 9.24: Hospital Readmission Rate by Income Quintile
Age- and sex-adjusted percent percent of hospital episodes, 2016/17



Hospitalizations for Ambulatory Care Sensitive Conditions

Definition: Hospitalizations for Ambulatory Care Sensitive Conditions (ACSC) is an indicator commonly used to reflect the outcomes of primary care. Previous studies at MCHP have included this indicator to describe access to quality primary care. When interpreting the results for this indicator, we should take into account the previous results presented for ambulatory visits to primary care providers (Chapter 8) and hospital episode rates (earlier in Chapter 9).

Hospitalizations for ACSC is defined as hospital discharges (person age 74 or less) for any of the 25 ACSC conditions listed in the online supplement.

Key Findings

The rate of hospitalizations for ACSC comprises 11% of all hospitalizations among All First Nations (8% among on-reserve and 15% among off-reserve First Nations). The rate for First Nations is three times higher than the rate for AOM.

Regional Health Authorities

- The rate of hospitalizations for ACSC does not follow the PMR gradient.
- The biggest gaps between First Nations and AOM are in Southern and Interlake-Eastern RHAs and Manitoba overall.
- The rates are different for off-reserve First Nations in Winnipeg and on-reserve First Nations in Interlake-Eastern.

- In Northern RHA, the on-reserve First Nations rate is higher than the off-reserve rate.

Tribal Council Areas

- The rate of hospitalizations for ACSC among on-reserve First Nations does not follow a north-to-south or PMR gradient.
- The lowest rate is for Southeast TCA. West Region, Keewatin, Dakota Ojibway, and Island Lake TCAs have higher rates than Southeast TCA. The rates in Island Lake TCA were three times higher than Southeast TCA.

Income Quintiles

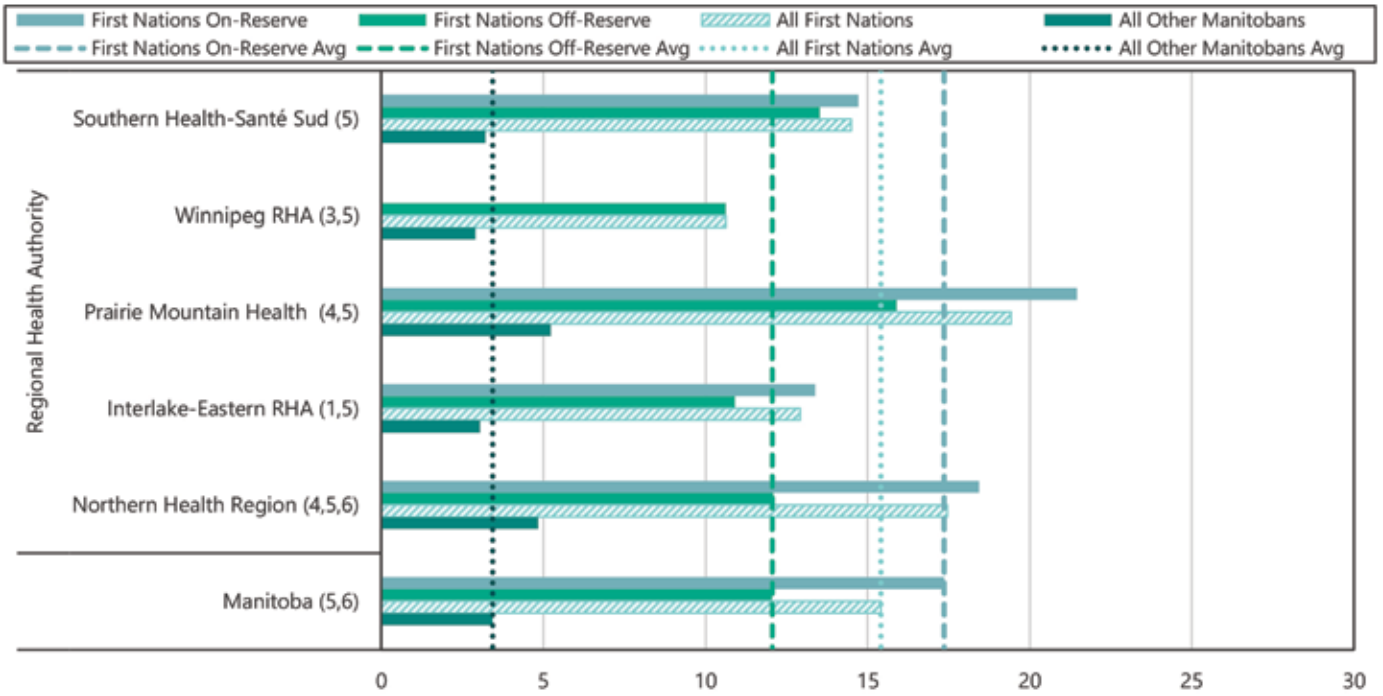
- The rate of hospitalizations for ACSC among First Nations in urban areas is two times higher than among AOM in the lowest urban income quintile and six times higher than among AOM in the highest income quintile.
- The rate among off-reserve First Nations in rural areas is two to five times higher than among AOM in the highest and lowest income quintiles, respectively.
- The rate among on-reserve First Nations in rural areas is three to seven times higher than among AOM in the lowest and highest rural income quintiles, respectively.

Comparison to Other Findings

- The 2002 First Nations Atlas did not include this indicator.

Figure 9.25: Hospitalization Rate for Ambulatory Care Sensitive Conditions by Regional Health Authority

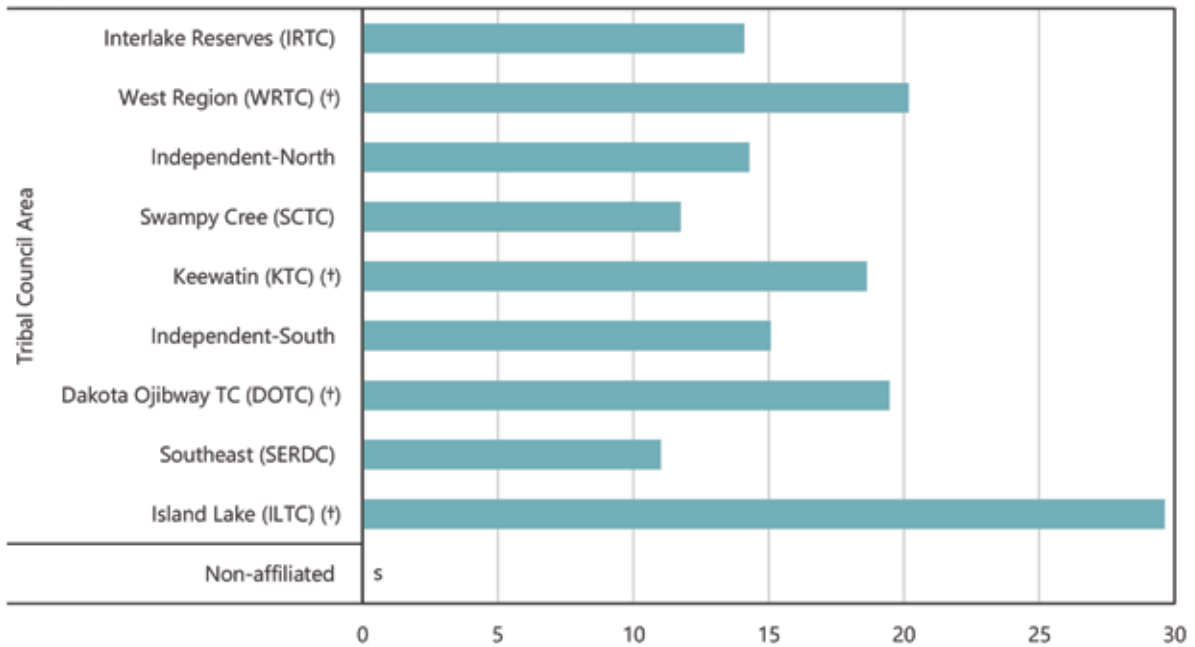
Age- and sex-adjusted, per 1,000 individuals, age 0-75, 2016/17



Statistically significant differences (p<0.01):
 1 - First Nations on-reserve: RHA compared to the Manitoba average
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 9.26: Hospitalization Rate for Ambulatory Care Sensitive Conditions among On-Reserve First Nations by Tribal Council Area

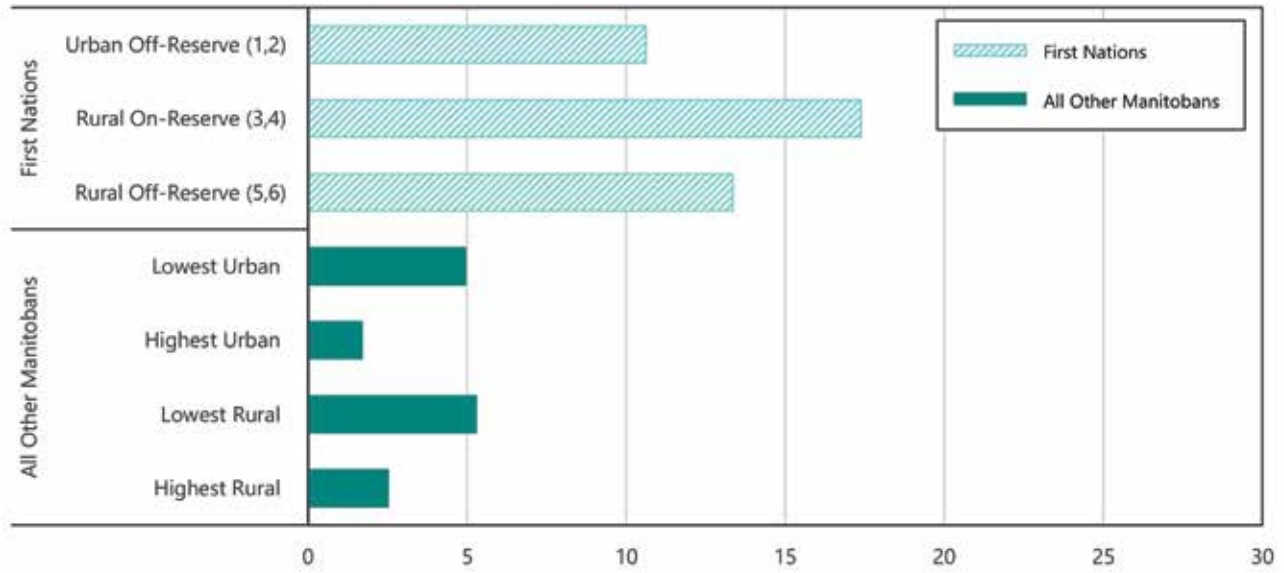
Age- and sex-adjusted, per 1,000 individuals, age 0-75, 2016/17



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the lowest rate (SERDC)
 s - Data suppressed due to small numbers

Figure 9.27: Hospitalization Rate for Ambulatory Care Sensitive Conditions by Income Quintile

Age- and sex-adjusted, per 1,000 individuals, age 0-75, 2016/17



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Location of Hospitalizations

Definition: Looking at the location of hospitalization helps us to understand how far people have to travel for hospital care. Travelling long distances for hospital care adds to the risk of poor outcomes for emergent care, and makes social support from family and friends less accessible.

Locations of hospitalizations were grouped as 'home RHA hospital' (region where the person lives), 'other RHA hospital' (hospital in a different region in Manitoba, excluding Winnipeg), 'Winnipeg hospital' or 'out of province hospital'.

Key Findings

These results are presented differently than for previous indicators. The single horizontal bar for each population in the region is divided to show the percentage of the population that went to the different locations for hospitalization.

Overall, the majority of hospitalizations among First Nations occur in the home RHA and in Winnipeg. Very few hospitalizations occur in another RHA (up to 8%) or outside of Manitoba (up to 1%).

Regional Health Authorities

- The distribution of hospitalization location does not follow the PMR trend.
- First Nations living in Southern, Winnipeg, and Prairie Mountain RHAs have the highest percent of hospitalizations within their home RHAs. In Southern RHA, approximately 50% of hospitalizations occur in this RHA, with almost all of the rest in Winnipeg. In Prairie Mountain RHA, almost 80% of First Nation hospitalizations are within Prairie Mountain, with 16-20% in Winnipeg.
- The patterns for Interlake-Eastern and Northern RHA are very different from the rest of the RHAs. The majority of hospitalizations occur in Winnipeg, and the second-highest percentage is in the home RHA. In these RHAs, off-reserve First Nation peoples are more likely to be hospitalized in their home RHA, while hospitalizations among on-reserve First Nation peoples occur mainly in Winnipeg.

Tribal Council Areas

- The distribution of hospitalization location among on-reserve First Nations appears to follow the PMR order, where most TCAs with low PMR have a higher percent of hospitalizations in the home RHA (as high as 74%) and a lower percent in Winnipeg (as low as 23%).

- Most TCAs with high PMR have low percent of home-RHA hospitalizations (as low as 1%) and a higher percent of hospitalizations in Winnipeg (up to 98%).
- Overall, a relatively small percent of hospitalizations (under 10%) in all TCAs occur in an RHA outside of the home RHA and Winnipeg.
- Over 75% of hospitalizations in Non-Affiliated First Nation communities occur in the home RHA and 18% occur in Winnipeg.
- Out-of-province hospitalizations comprise up to 1% of hospitalizations across all RHAs.

Comparison to Other Findings

- Since the 2002 Atlas was published, there has been a distinct shift in which region First Nations in all RHAs and TCAs are hospitalized [6].
- The percent of hospitalizations among All First Nations in the home RHA has declined from 62% in 2002 [6] to 53% in the current report. The percent of hospitalizations of First Nations outside of their home RHA in Winnipeg has increased from 32% in 2002 [6] to 44% in the current report.
- While in the 2002 First Nations Atlas, over 60% of hospitalizations among on-reserve First Nations were in the home RHA and about 30% in Winnipeg [6], we now report that about 20% of hospitalizations have shifted from home RHA to Winnipeg. Among off-reserve First Nations, more hospitalizations occur in the home RHA and fewer in other RHAs (but not in Winnipeg).
- Overall, the gap between on- and off-reserve hospitalizations in the home RHA has increased four times since the 2002 Atlas [6].
- These findings have important implications for the distribution of resources to support hospital services and for patients needing to travel for care.

Figure 9.28: Hospital Location: Hospitalizations by Regional Health Authority

Crude percent of hospitalizations, 2014/15

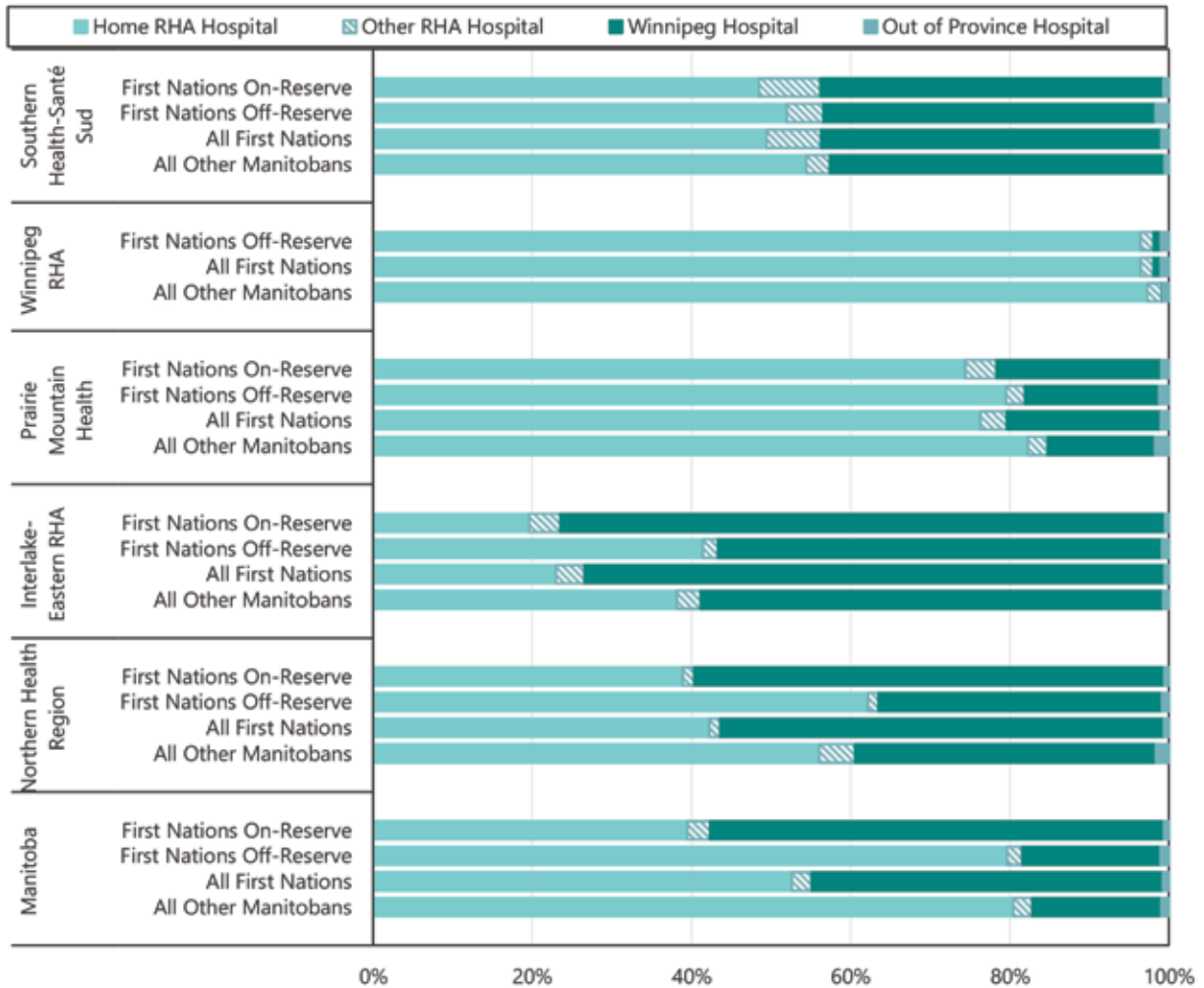
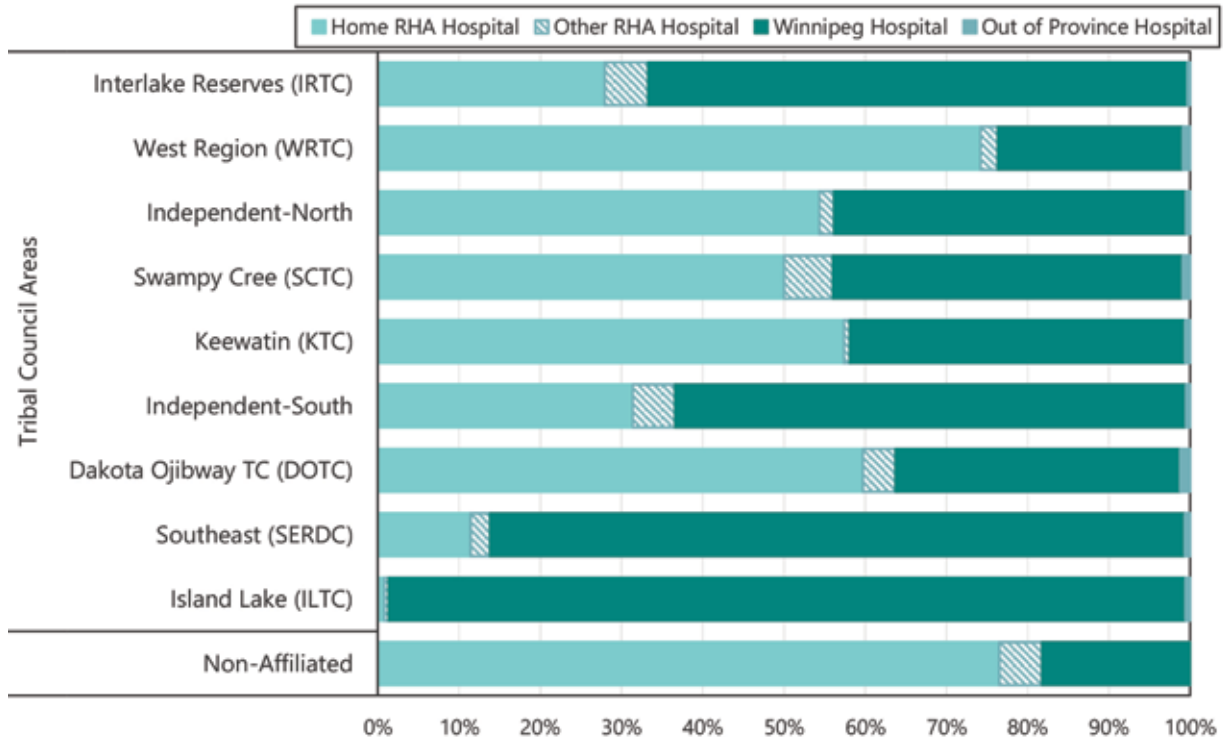


Figure 9.29: Hospital Location: Hospitalizations by Tribal Council Area

Crude percent of hospitalizations, 2014/15



Location of Hospital Days of Care

Definition: Using the same categories as for the location of hospitalizations, this indicator shows the distribution of all days spent in hospital.

The patterns of hospital days (which represent the length of stay in hospital) mirror the patterns for location of hospitalization.

Key Findings

Regional Health Authorities

- The percent of hospital days First Nation people spend in Winnipeg hospitals is slightly less than the percent of their hospitalizations in Winnipeg (see previous indicator), with a bigger gap for off-reserve First Nations in Southern and Interlake-Eastern RHAs (13% and 23%, respectively).
- However, a greater percent of hospital days are spent in the home RHA when compared with the percent of hospitalizations. In other words, for First Nation people, the length of stay in Winnipeg hospitals was shorter than the length of stay in hospitals in home RHAs.

- Overall, the majority of hospital days among First Nations occur in the home RHA and Winnipeg. Very few hospitalizations occur in another RHA (up to 7%) or outside of Manitoba (up to 2%).

Tribal Council Areas

- The pattern in location of hospital days among on-reserve First Nations by TCA is almost identical to the pattern for hospitalization location (see previous indicator).
- A similar overall difference between the distribution of hospital days and hospitalizations can be seen in some TCAs, where the length of stay in Winnipeg hospitals is shorter than in hospitals in the home RHA. These TCAs include West Region, Independent-North, Keewatin, Island Lake, and Non-Affiliated First Nation communities. The opposite trend can be observed for Interlake Reserves, Swampy Cree, Independent-South, Dakota Ojibway, and Southeast.

Comparison to Other Findings

- This indicator was not included in the 2002 First Nations Atlas.

Figure 9.30: Hospital Location: Days in Hospital by Regional Health Authority

Crude percent of days in hospital, 2014/15

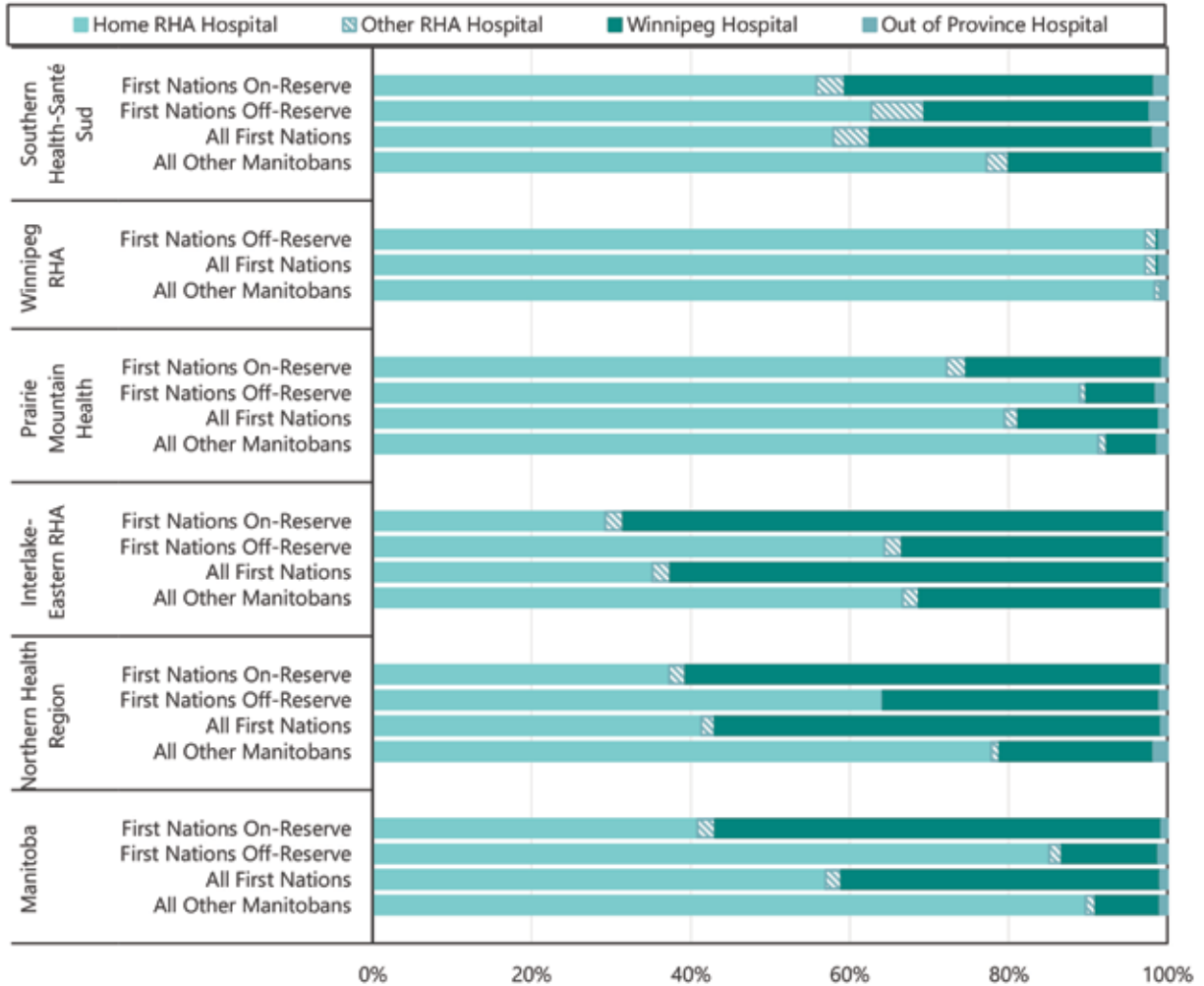
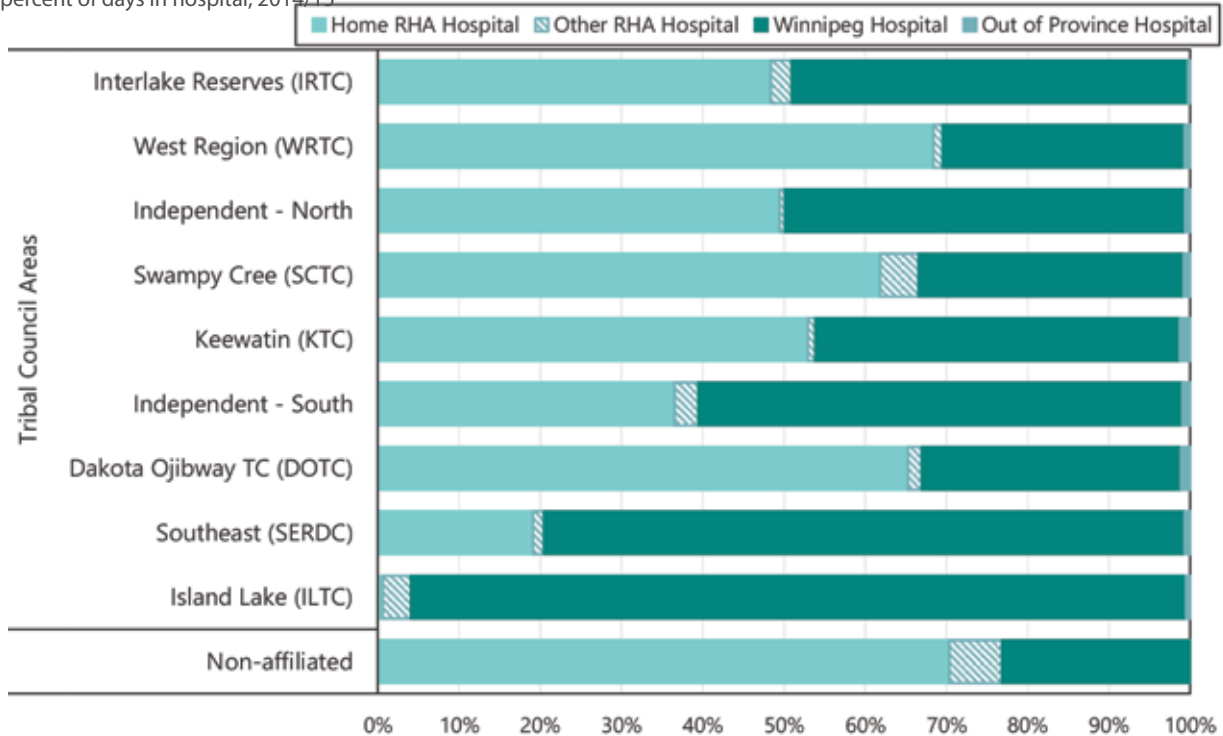


Figure 9.31: Hospital Location: Days in Hospital by Tribal Council Area

Crude percent of days in hospital, 2014/15





Chapter 10: Use of Prescription Drugs

Introduction

Medication use is a good indicator of population health. We can learn a number of things from looking at the use of prescription drugs in administrative data – we can confirm medical diagnoses in the administrative data, we can use the data to indicate a health issue even when a diagnosis is not available, we can detect potentially harmful drug-prescribing practices, and we can flag the potential for harmful use of prescribed medications. Prescriptions for medications are provided to patients by doctors and nurse practitioners. Those prescriptions are usually taken to a pharmacy where the medication is dispensed to the patient. In the case of some First Nation communities where prescriptions are provided in nursing stations, the prescriptions are sent to a pharmacy that sends the medication back to the nursing station to be dispensed to the patient. **While we do not have records of which drugs a patient actually consumes**, researchers use records of which drugs were dispensed from pharmacies as a proxy for the drugs taken by patients.

The Repository includes files from the Drug Program Information Network (DPIN) that provide comprehensive information about drugs dispensed from Manitoba pharmacies to Manitobans who are not in hospital. Research has shown that these data are also valid for dispensation of prescribed medications for on-reserve First Nations, including dispensations covered by the First Nations and Inuit Health Branch (FNIHB) of Health Canada through the Non-Insured Health Benefits program. While nurses working in on-reserve nursing stations may provide patients with short-term medications for use until prescribed medications can be dispensed from a pharmacy, the vast majority of prescriptions are ultimately dispensed from a pharmacy and recorded in the DPIN data.

The analyses that follow use the DPIN data to describe drug dispensations among First Nations in Manitoba.

Location of Drug Dispensations

The Repository does not include an address for each pharmacy. We have allocated each pharmacy to a district and RHA based on the home postal code of the majority of Manitobans filling prescriptions at that pharmacy. For example, when the majority of dispensations from a pharmacy are for people with postal codes in a specific Northern Health Region district, we assign that pharmacy to the specific district in the Northern region. This method of allocation has been used and validated for physicians in Manitoba in past MCHP research [65].

Definition: The location of drug dispensation indicator provides information about travel needed to see a provider or have a prescription filled at a pharmacy. When First Nations travel out of their area of residence to see a provider, they are likely to have their prescriptions from the visit filled at the nearest pharmacy.

The graphs for this indicator are similar to the location of hospitalization indicator in Chapter 9. The single horizontal bar for each population in a region is divided to show the percent of the population that went to different pharmacy locations to have their medications dispensed.

Key Findings

Overall, a smaller percent of prescriptions among All First Nations were filled within their home district or home RHA when compared to AOM. Also, a bigger percent of prescriptions among First Nations were filled in Winnipeg compared to AOM.

Regional Health Authorities

- The distribution of drug dispensation locations among All First Nations does not follow a north-to-south or PMR gradient.
- Over 60% of prescriptions to First Nation populations living in any RHA except Interlake-Eastern, were filled in pharmacies within the home RHAs (either within or outside of the home district). Dispensations in pharmacies within the home district were most common among First Nation populations in Prairie Mountain.
- Prairie Mountain stands out as having the lowest percent of dispensations from Winnipeg pharmacies (9%). All other RHAs have a noticeable percent of dispensations in Winnipeg. This may represent patients receiving specialist care in Winnipeg; as well, some people may be living outside of the RHA but working and getting routine care in the Winnipeg region.

- Off-reserve First Nations fill more prescriptions in their home district than on-reserve First Nations, with the biggest gap in Southern and Northern RHAs (24%) and the smallest gap in Prairie Mountain Health (12%).
- On-reserve First Nations fill more prescriptions in Winnipeg compared to off-reserve First Nations, with the biggest gap (21%) between the two populations in Interlake-Eastern RHA.
- Prescription dispensations in RHAs other than the home RHA and Winnipeg RHA were rare among First Nations in all RHAs, except for Interlake-Eastern RHA, where on-reserve First Nations filled 12% of dispensations in other RHAs.

Tribal Council Areas

- The location of drug dispensations across TCAs does not follow a north-to-south or PMR gradient.
- The highest percent (60-70%) of dispensations in home district pharmacies on-reserve occur in Independent-North and Island Lake TCAs, as well as in Non-Affiliated First Nation communities. First Nations living in Island Lake TCA do not fill any prescriptions outside of their home district in their home RHA.
- The lowest percent of dispensations in the home district are for on-reserve First Nations in Keewatin (3%) and Swampy Cree (13%), the two TCAs that include the most northern parts of Manitoba. The majority of dispensations in these TCAs occur in pharmacies within their home RHA (Northern) but outside their home district.
- West Region, Independent-South and Dakota Ojibway TCAs have similar percent of in-district dispensations (39-46%). However, on-reserve First Nations in Independent-South fill a smaller percent of prescriptions within home RHA (outside of the home district) and a higher percent in Winnipeg RHA.
- The highest proportion of dispensations in Winnipeg RHA are for on-reserve First Nations living in Independent-South, Southeast, Interlake Reserves and Island Lake TCAs (38-45%).
- The findings by TCA reflect local access to pharmacies and should be useful for First Nations to plan improvements in access to pharmacy services.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 10.1: Pharmacy Location: Where Manitobans Went to Fill Prescriptions by Regional Health Authority

Percent of drug dispensations, 2016/17

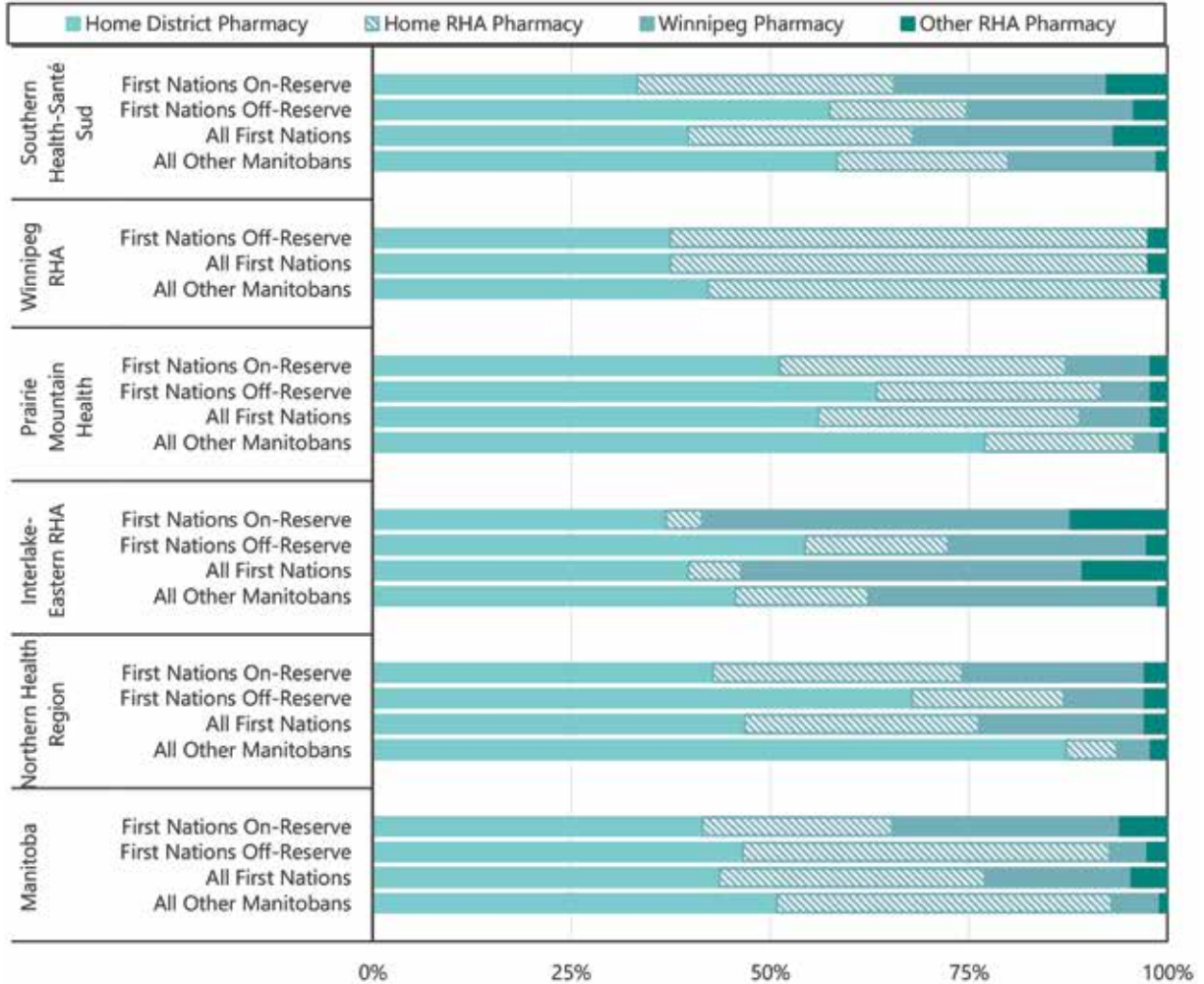
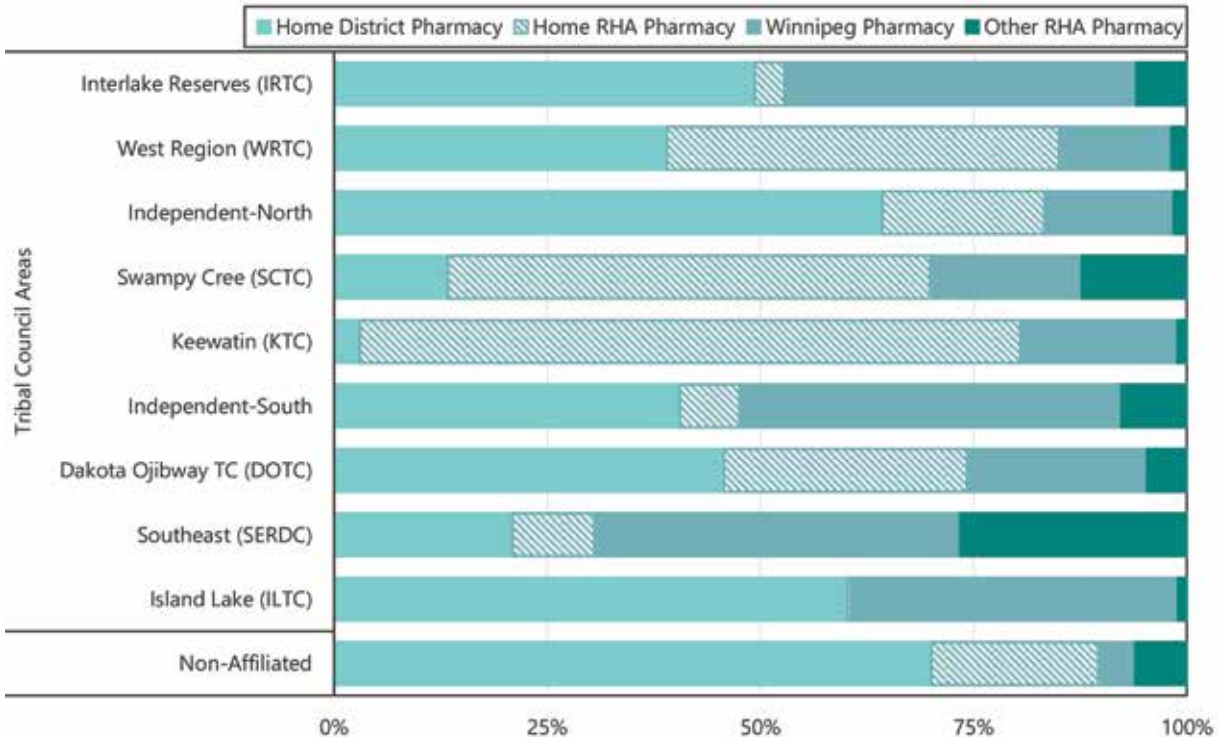


Figure 10.2: Pharmacy Location: Where First Nations Living On-Reserve Went to Fill Drug Prescriptions by Tribal Council Area

Percent of drug dispensations, 2016/17



Benzodiazepine Dispensations for Community-Dwelling Older Adults

Definition: Benzodiazepines are sedative drugs that are highly addictive. They should not be used chronically, as over time users develop tolerance and higher doses of the medication are required to achieve the intended effect. There are also negative side effects associated with long-term use of these medications. This indicator is a reflection of overprescribing of benzodiazepines to older adults (age 75 and older), as this population is at increased risk of side effects from prolonged use of these drugs.

Key Findings

The rates of benzodiazepine prescribing among older adults among First Nations are not consistently different from rates among AOM.

Regional Health Authorities

- The rates of benzodiazepine prescribing for community-dwelling older adults in First Nations populations do not follow a north-to-south or PMR gradient.
- The rates among on-reserve First Nations are two times lower than off-reserve rates in Northern RHA and 6% lower than rates in Manitoba overall. Prairie Mountain stands out, with all rates being higher than other regions and Manitoba overall.
- Northern RHA stands out because the rates for all populations (except off-reserve First Nations) are lower than other RHAs and Manitoba overall.

Tribal Council Areas

- The rates of benzodiazepine dispensations for community-dwelling older adults do not follow a PMR gradient. However, TCAs in northern Manitoba have lower rates than TCAs in southern Manitoba.
- The rates for Interlake Reserves, West Region, Independent-South, Dakota Ojibway and Southeast TCAs are statistically higher than Island Lake TCA, which has the lowest rate.

Income Quintiles

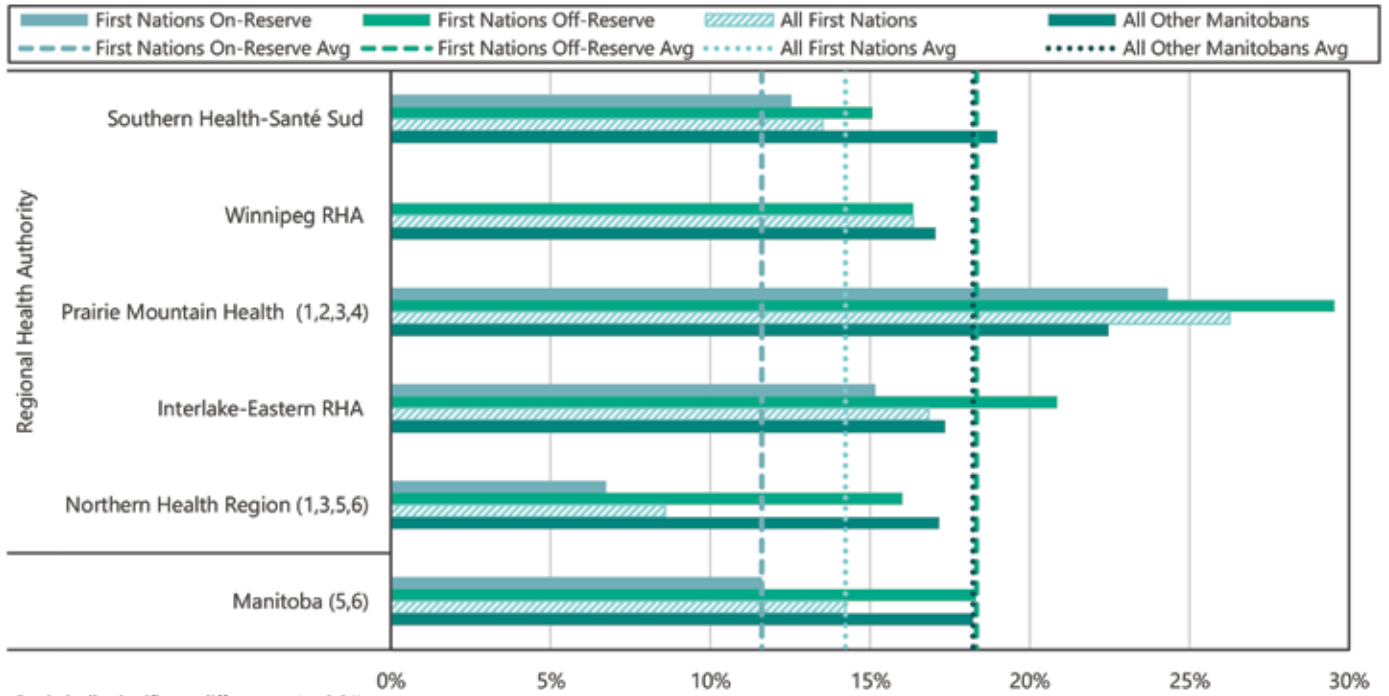
- The rates of benzodiazepine dispensations for community-dwelling older adults among off-reserve First Nations in urban and rural areas are comparable to AOM in the lowest and highest income quintiles in these areas.
- Only the rates for rural on-reserve First Nations are lower than AOM in the lowest and highest rural income quintiles, with a gap of 6-9%.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Our age- and sex-adjusted rates of benzodiazepine dispensations among First Nations in Manitoba are comparable with the crude age-stratified rates for First Nations living in Atlantic Canada in 2015 (12% among males and 18% among females age 60 and older), based on the Non-Insured Health Benefits (NIHB) Pharmacy Claims database [66].

Figure 10.3: Benzodiazepine Prescribing among Community-Dwelling Older Adults by Regional Health Authority

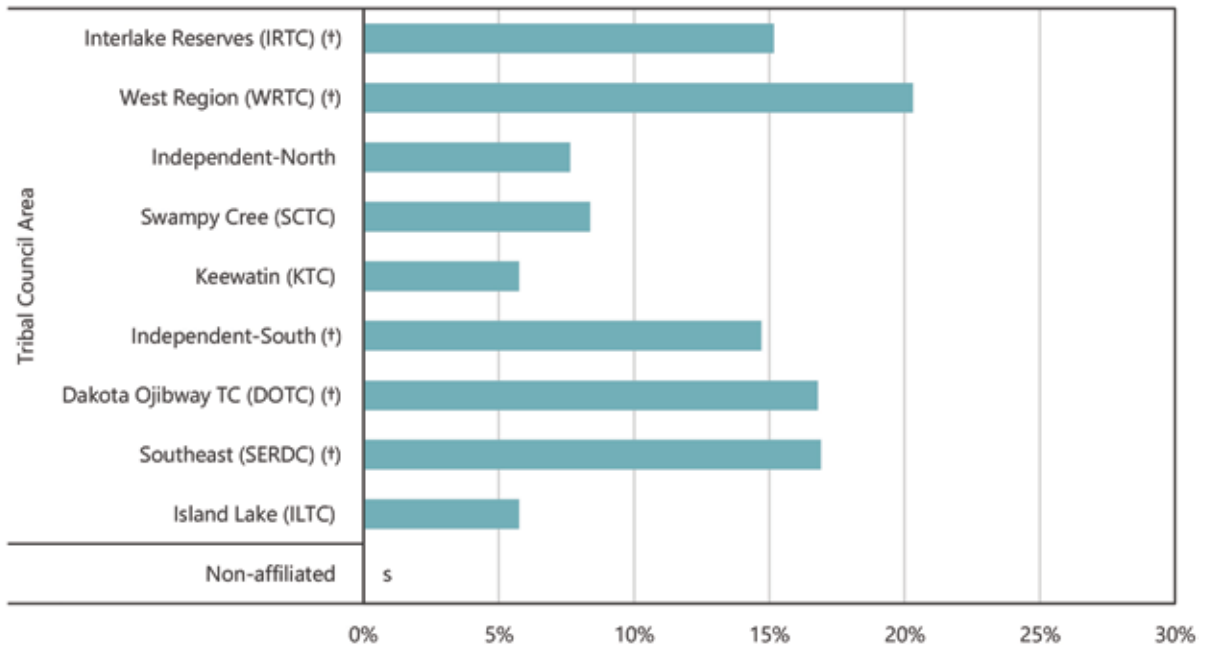
Age- and sex-adjusted, percent of older adults age 75+, 2015-2016



Statistically significant differences (p<0.01):
 1 - First Nations on-reserve: RHA compared to the Manitoba average
 2 - First Nations off-reserve: RHA compared to the Manitoba average
 3 - All First Nations: RHA compared to the Manitoba average
 4 - All Other Manitobans: RHA compared to the Manitoba average
 5 - All First Nations compared to All Other Manitobans
 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 10.4: Benzodiazepine Prescribing for Community-Dwelling Older Adults among On-Reserve First Nations by Tribal Council Area

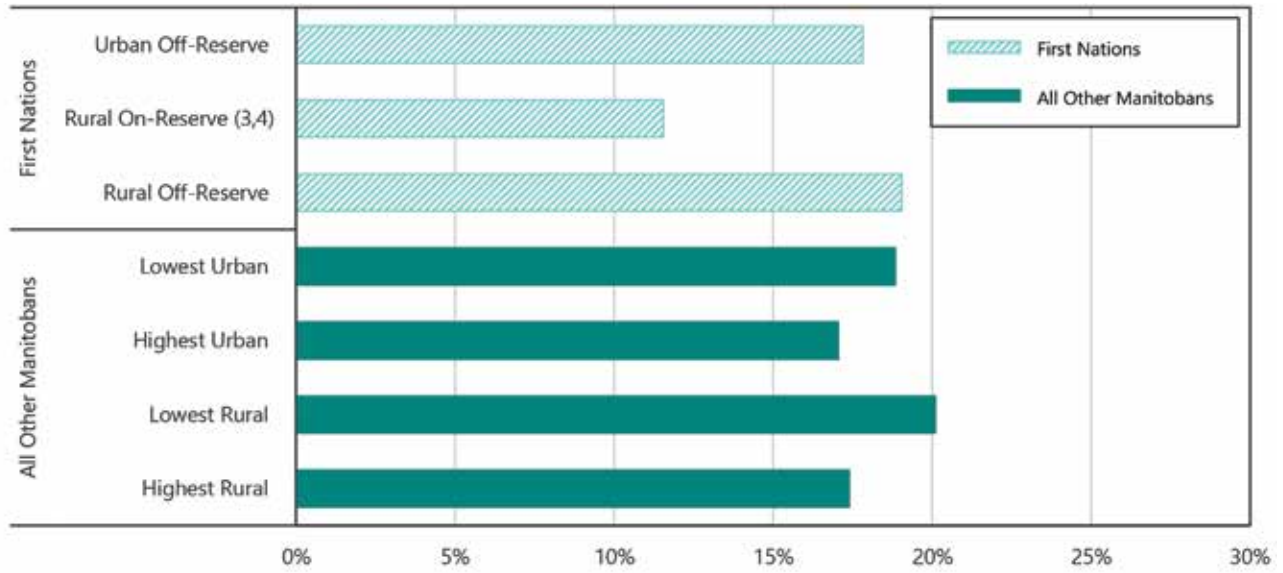
Age- and sex-adjusted, percent of older adults age 75+, 2015-2016



Statistically significant differences (p<0.01):
 † - First Nations on-reserve: TCA compared to the best rate (ILTC)
 s - Data suppressed due to small numbers

Figure 10.5: Benzodiazepine Prescribing for Community-Dwelling Older Adults by Income Quintile

Age- and sex-adjusted, percent of older adults age 75+, 2015-2016



Statistically significant differences ($p < 0.01$):

- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile

Dispensation of Prescribed Opioids

Over the last decade, use of prescription opioid analgesics in North America has increased significantly, leading to a major public health crisis of opioid-related side effects, including death. High rates of prescribed opioid use are linked to greater opioid-related misuse, addiction and dependence, higher rates of admissions to hospitals and/or treatment programs, overdoses, and more deaths from opioid-related poisoning [67].

However, not all prescriptions for opioids are inappropriate. People who fill a single prescription have usually experienced a health event warranting short-term opioid use. Examples include surgery or traumatic injury, which often require pain killers for short-term pain management. When comparing opioids use across populations, it is important to consider whether factors being experienced in one population more often warrant the legitimate short-term use of opioids compared to another population.

Definition: Percent of residents with one or more opioid prescriptions dispensed from a community-based pharmacy or nursing station in a First Nation community in Manitoba in the 2016/17 fiscal year. We excluded dispensations for opioid addiction treatment (presented later in this chapter) and dispensations by inpatient facilities.

For this indicator, as well as for the other two indicators related to opioid dispensations that follow, we present findings for on-reserve and off-reserve First Nations by TCA. The overall number of off-reserve First Nations in the analyses by TCAs is slightly smaller than the overall number of off-reserve First Nations in the analyses by RHAs. This is because First Nation peoples who move to Manitoba from elsewhere do not have a band affiliation (i.e., no First Nation community affiliation).

Key Findings

The most striking finding for this indicator is the consistent two- to three times higher rates among all First Nation groups compared to AOM across RHAs.

Regional Health Authorities

- The rate for one or more opioid dispensations does not appear to follow a north-to-south or PMR gradient.
- Prairie Mountain stands out with higher rates for on-reserve First Nations and All First Nations compared to the Manitoba average. Prairie Mountain therefore has higher rates than all other RHAs.

- The rates in First Nation groups in all other RHAs are not statistically different from the Manitoba average, despite the apparently large differences.

Tribal Council Areas

- The rates of one or more opioid dispensations among on-reserve and off-reserve First Nations do not appear to follow a north-to-south or PMR gradient. However, the highest rate among on-reserve First Nations is in the most southern TCA (Dakota Ojibway), and the lowest is in the most northern TCA (Keewatin).
- The rate among on-reserve First Nations in all TCAs and Non-Affiliated communities (except Independent-North) are higher than Keewatin, the TCA with the lowest rates.
- The rates among off-reserve First Nations are comparable across TCAs.
- Three TCAs have rates that differ between the on-reserve First Nation peoples and off-reserve First Nation people. The off-reserve rates are higher than on-reserve rates in Independent-North and Keewatin TCAs and lower in the Dakota Ojibway TCA.

Income quintiles

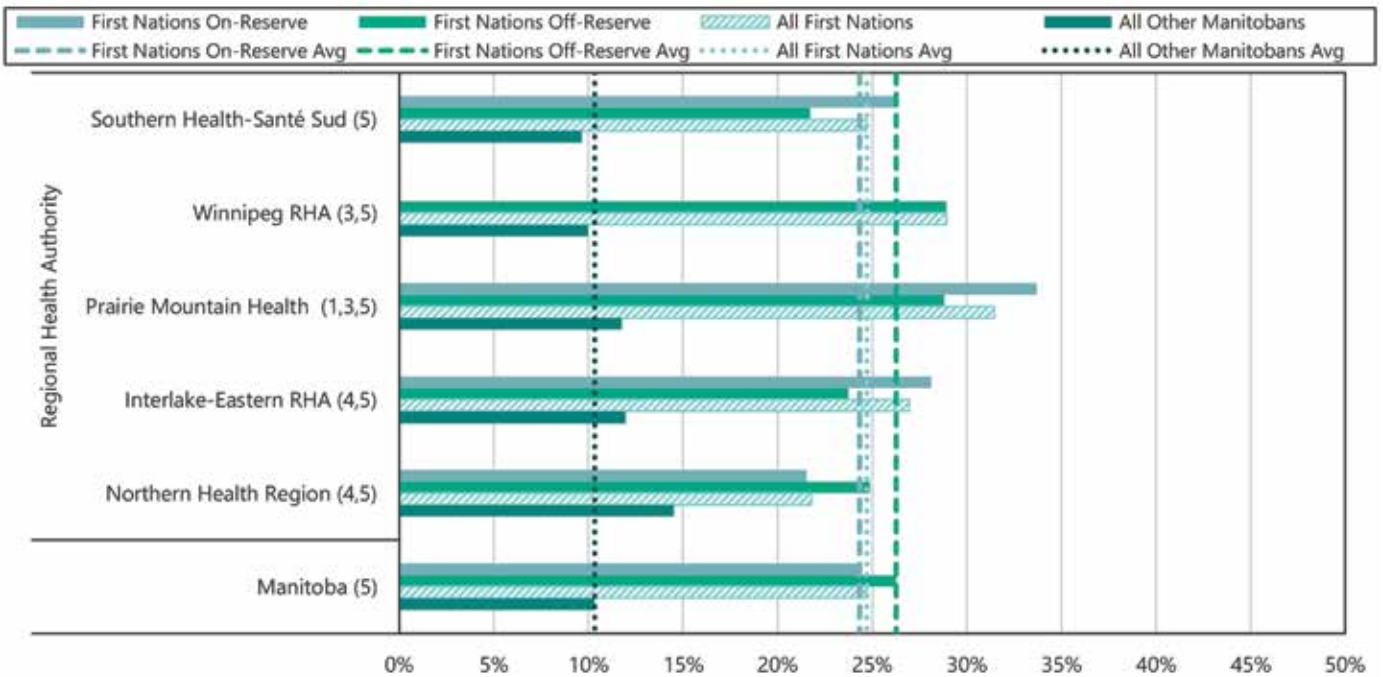
- The rates of one or more opioid dispensations among First Nations in rural areas are twice as high as AOM, regardless of the income quintile for AOM.
- In urban areas, the rates among off-reserve First Nations are twice as high as AOM in the lowest income quintile, and three times higher than AOM in the highest income quintile.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.
- Our findings are comparable with other studies in Canada:
- The rate of opioid dispensations among Canadians in Manitoba, Saskatchewan and British Columbia was 13% in 2015-2016, while the chronic dispensations of opioids (two or more claims per year) was 17% in 2015-2016 [68].
- In Alberta, the rates of opioid dispensations in 2013-2015 among First Nations (27-28%) was twice as high as rates among non-First Nations (14-15%) [69].

Figure 10.6: One or More Opioid Dispensations by Regional Health Authority

Age- and sex-adjusted percent of individuals, age 10+, 2016/17

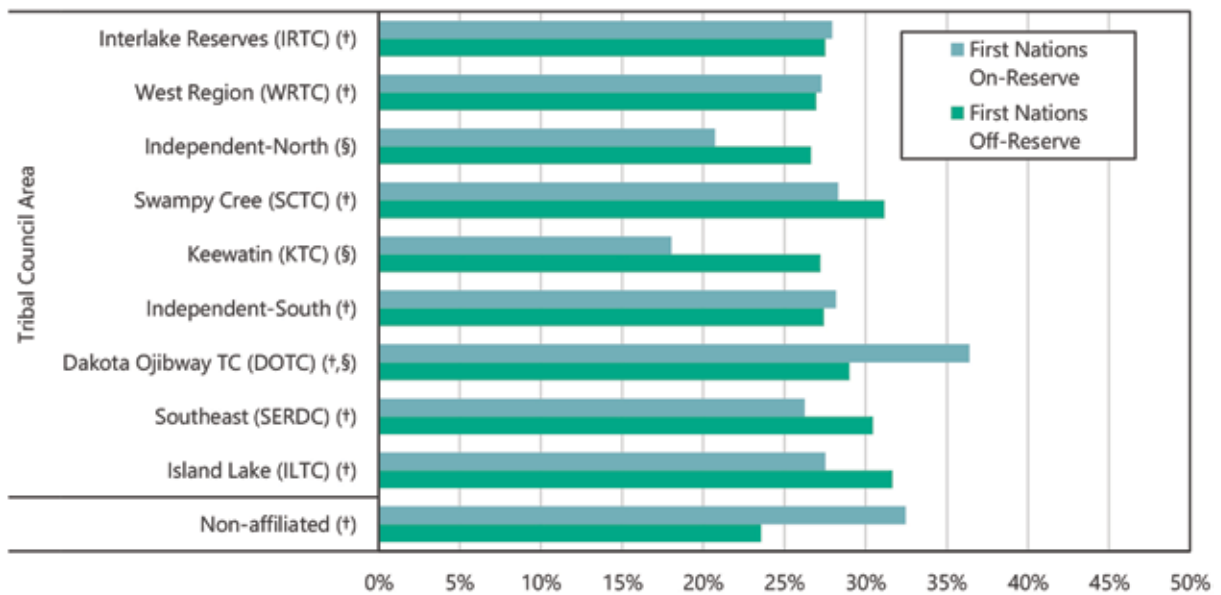


Statistically significant differences (p<0.01):

- 1 - First Nations on-reserve: RHA compared to the Manitoba average
- 3 - All First Nations: RHA compared to the Manitoba average
- 4 - All Other Manitobans: RHA compared to the Manitoba average
- 5 - All First Nations compared to All Other Manitobans

Figure 10.7: One or More Opioid Dispensations among First Nations by Tribal Council Area

Age- and sex-adjusted percent of individuals, age 10+, 2016/17

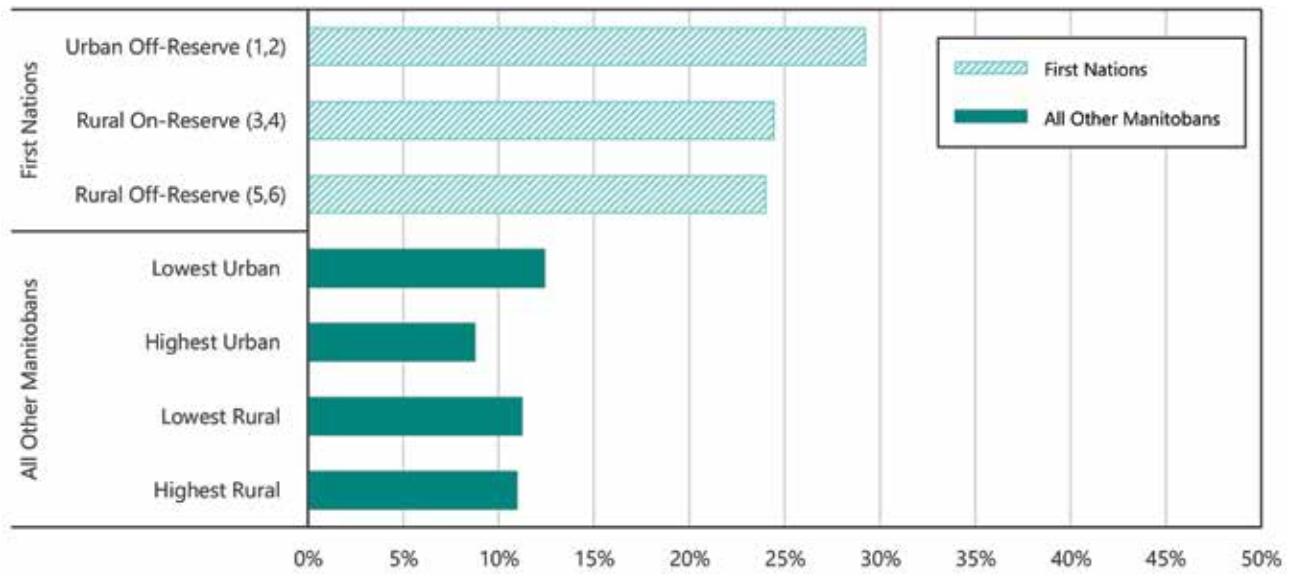


Statistically significant differences (p<0.01):

- † - First Nations on-reserve: TCA compared to the lowest rate (KTC)
- § - First Nations on-reserve compared to First Nations off-reserve

Figure 10.8: One or More Opioid Dispensations by Income Quintile

Age- and sex-adjusted percent of individuals, age 10+, 2016/17



Statistically significant differences (p<0.01):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Repeated Dispensations of Prescribed Opioids

While some repeated prescriptions of opioids are justifiable due to chronic and severely painful conditions (e.g., cancer), repeated dispensations should be much less frequent than single dispensations.

Definition: Percent of individuals with three or more opioid prescriptions dispensed from a community-based pharmacy or a nursing station in a First Nation community in Manitoba in the 2016/17 fiscal year.

Key Findings

The rate of repeated dispensations among All First Nations groups are even higher (two to almost six times) than AOM and are statistically significantly higher in all regions and for Manitoba as a whole.

Regional Health Authorities

- The rate of three or more opioid dispensations does not appear to follow a north-to-south or PMR gradient.
- The gap between All First Nations and AOM is the greatest in Winnipeg and Prairie Mountain RHA (more than six times higher among First Nations), and smallest in Northern RHA (two times higher).
- As expected, the percent of residents with three or more dispensations is much lower than the total rate of dispensations, indicating that the majority of dispensations were a single dispensation.
- Prairie Mountain stands out with higher rates than the Manitoba averages among all populations.
- Northern RHA stands out as having the lowest rates of repeated opioid dispensations among the RHAs and compared to Manitoba overall.

- The rates among on-reserve First Nations in all RHAs (except for Northern RHA) are above the Manitoba average. The rates among off-reserve First Nations are above the Manitoba average only for Prairie Mountain.

Tribal Council Areas

- The rates of repeated opioid dispensations among on-reserve and off-reserve First Nations do not appear to follow a north-to-south or PMR gradient. However, the lowest rates among on-reserve First Nations are in three northern TCAs (Keewatin, Independent-North, and Island Lake).
- Keewatin has the lowest on-reserve dispensation rate. The rates for all the other TCAs are higher except for Independent North TCA.
- The rates among off-reserve First Nations are comparable across TCAs.
- The on-reserve dispensation rates are lower than the off-reserve rates in three northern TCAs (Independent-North, Keewatin, Island Lake). The rates on-reserve are higher than off-reserve rates in Dakota Ojibway TCAs.

Income Quintiles

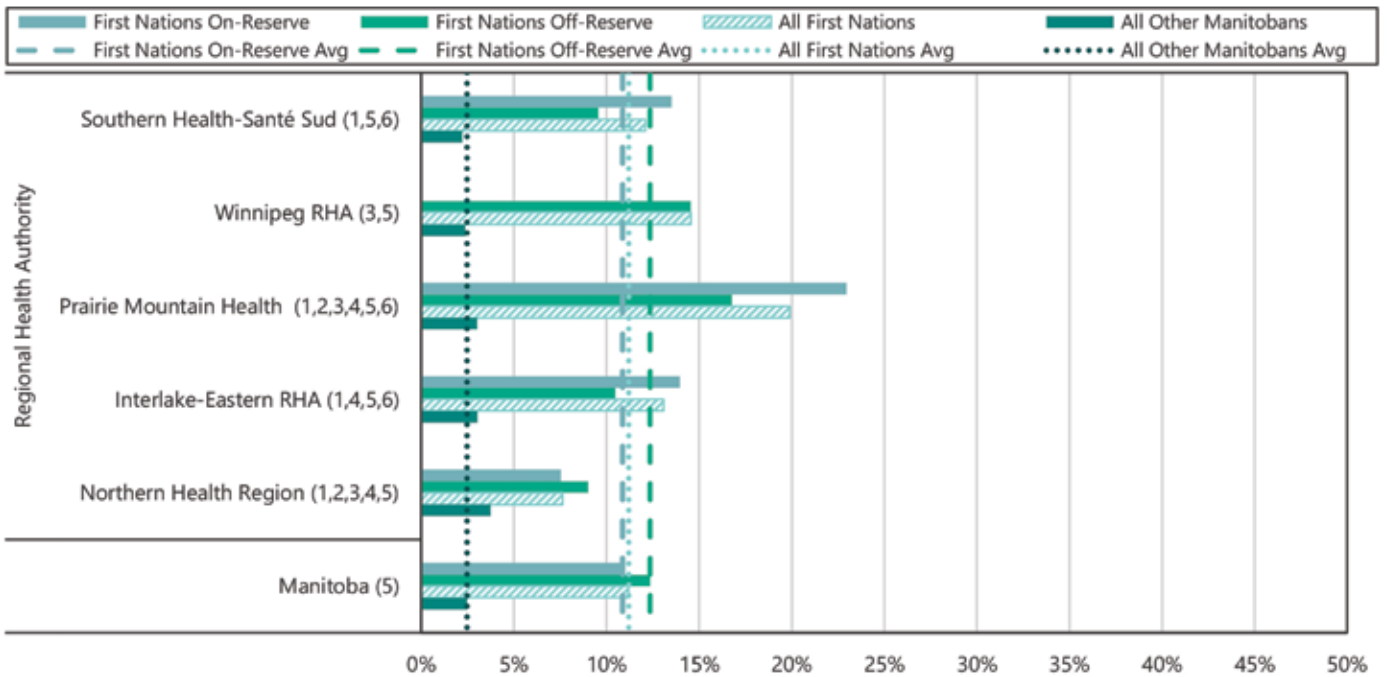
- The rates of repeated opioid dispensations among First Nations in rural areas are three times higher than those for AOM in the lowest income quintiles and up to five times higher than AOM in the highest income quintile.
- These gaps are bigger in urban areas, where the rates among off-reserve First Nations are ten times higher than AOM in the highest quintile in urban areas.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 10.9: Repeated Opioid Dispensations by Regional Health Authority

Age- and sex-adjusted percent of individuals, age 10+, 2016/17

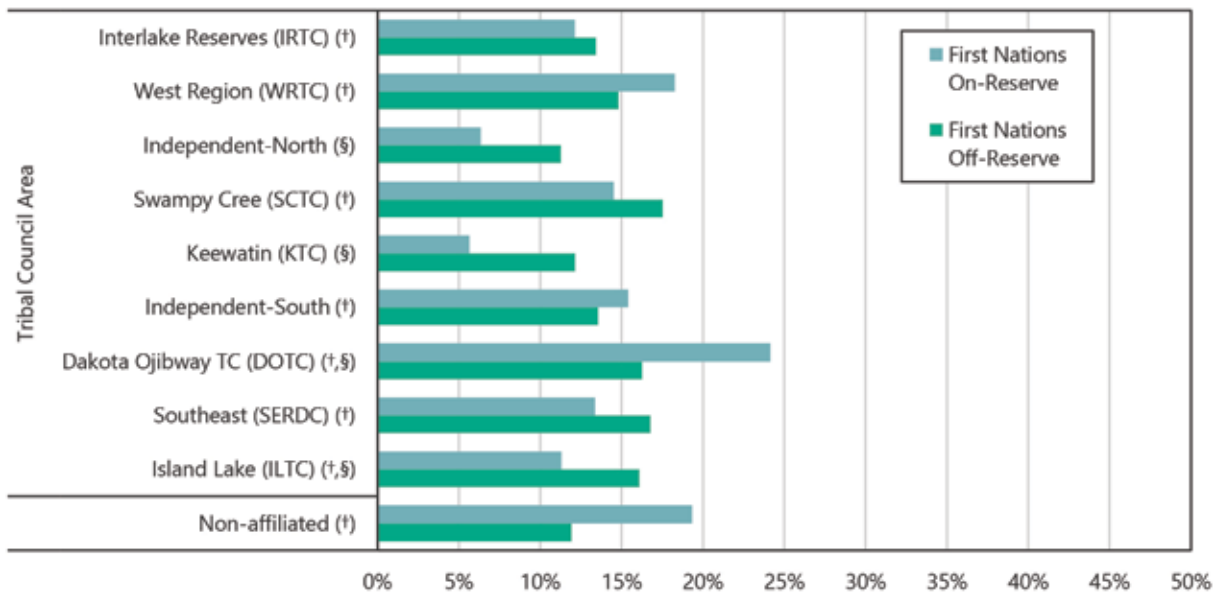


Statistically significant differences (p<0.01):

- 1 - First Nations on-reserve: RHA compared to the Manitoba average
- 2 - First Nations off-reserve: RHA compared to the Manitoba average
- 3 - All First Nations: RHA compared to the Manitoba average
- 4 - All Other Manitobans: RHA compared to the Manitoba average
- 5 - All First Nations compared to All Other Manitobans
- 6 - First Nations on-reserve compared to First Nations off-reserve

Figure 10.10: Repeated Opioid Dispensations among First Nations by Tribal Council Area

Age- and sex-adjusted percent of individuals, age 10+, 2016/17

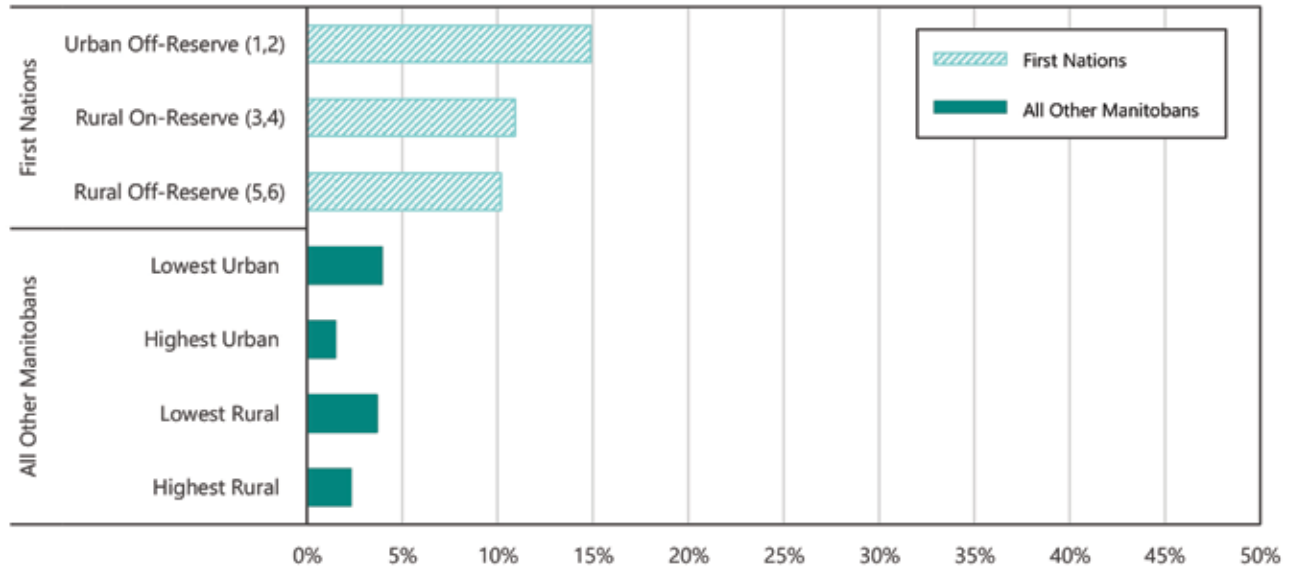


Statistically significant differences (p<0.01):

- † - First Nations on-reserve: TCA compared to the lowest rate (KTC)
- § - First Nations on-reserve compared to First Nations off-reserve

Figure 10.11: Repeated Opioid Dispensations by Income Quintile

Age- and sex-adjusted percent of individuals, age 10+, 2016/17



Statistically significant differences ($p < 0.01$):

- 1 - Urban areas: Off-reserve First Nations compared to AOM in the lowest income quintile
- 2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile
- 3 - Rural areas: On-Reserve First Nations compared to AOM in the lowest income quintile
- 4 - Rural areas: On-Reserve First Nations compared to AOM in the highest income quintile
- 5 - Rural areas: Off-Reserve First Nations compared to AOM in the lowest income quintile
- 6 - Rural areas: Off-Reserve First Nations compared with AOM in the highest income quintile

Opioid Agonist Treatment for Opioid Dependence

Chronic opioid use commonly leads to a chemical addiction. When this happens, withdrawal from opioids can be both extremely distressing and potentially dangerous. The use of opioid agonists, such as methadone, to treat opioid dependence is widely recognized as good medical practice.

Definition: This indicator reports dispensations of an opioid agonist medication during the 2016/17 fiscal year.

Key Findings

Regional Health Authorities

- The rates of opioid agonist dispensations by RHA do not follow a north-to-south or PMR order.
- While Figure 10.12 seems to indicate dramatic differences between populations in each RHA (and between RHA rates and Manitoba averages), the only statistically significant difference is that the rate of opioid agonist dispensations for First Nations are six times higher than AOM in Winnipeg RHA.

Tribal Council Areas

- The on- and off-reserve rates of opioid agonist dispensations by TCA do not follow a north-to-south or PMR order. This can be attributed to the small number of individuals receiving opioid agonist treatment, which leads to large fluctuations in rates across TCAs and poor statistical power for comparisons.
- The rates for off-reserve dispensations in Independent-North and Island Lake TCAs are two to nine times higher than the on-reserve rates in these TCAs.

Income Quintiles

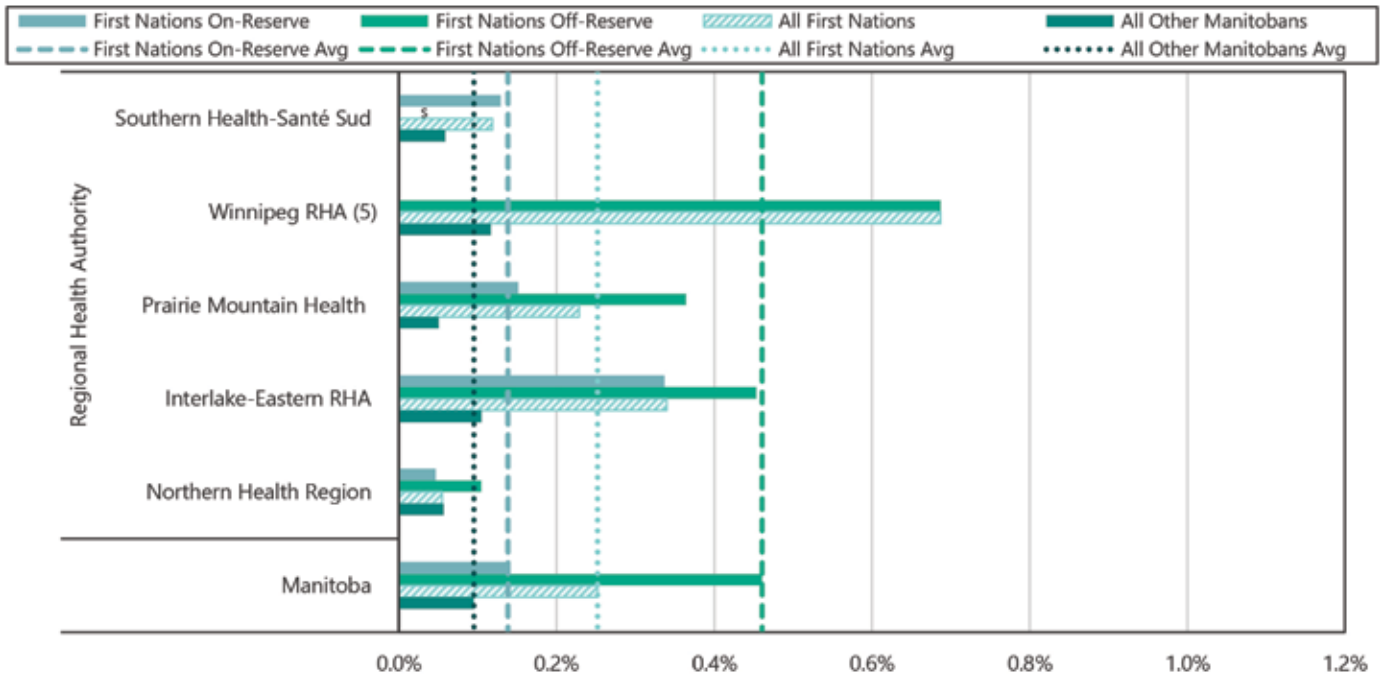
- The rates of opioid agonist dispensations among off-reserve First Nations in urban areas are 12 times higher than for AOM in the highest urban income quintile and three times higher than those for AOM in the lowest income.
- The rates among First Nations in rural areas are similar to those for AOM in the lowest and highest income quintiles.

Comparison to Other Findings

- This indicator was not reported in the 2002 First Nations Atlas.

Figure 10.12: Opioid Agonist Dispensations by Regional Health Authority

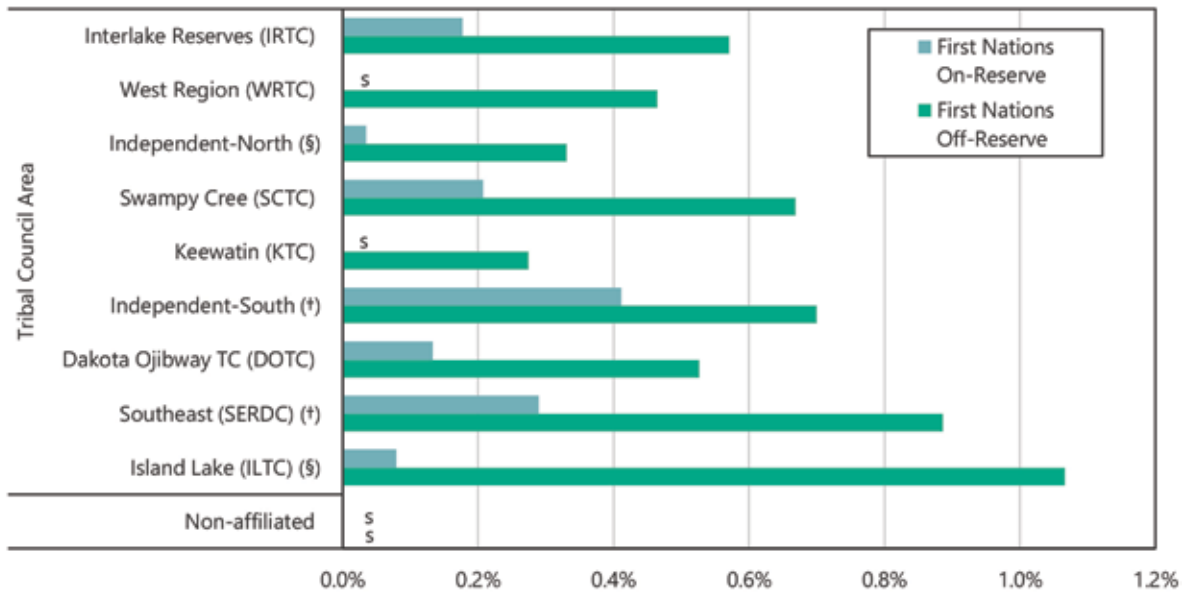
Age- and sex-adjusted percent of individuals, age 10+, 2016/17



Statistically significant differences (p<0.01):
 5 - All First Nations compared to All Other Manitobans
 s - Data suppressed due to small numbers

Figure 10.13: Opioid Agonist Dispensations among First Nations by Tribal Council Area

Age- and sex-adjusted percent of individuals, age 10+, 2016/17



Statistically significant differences (p<0.01):

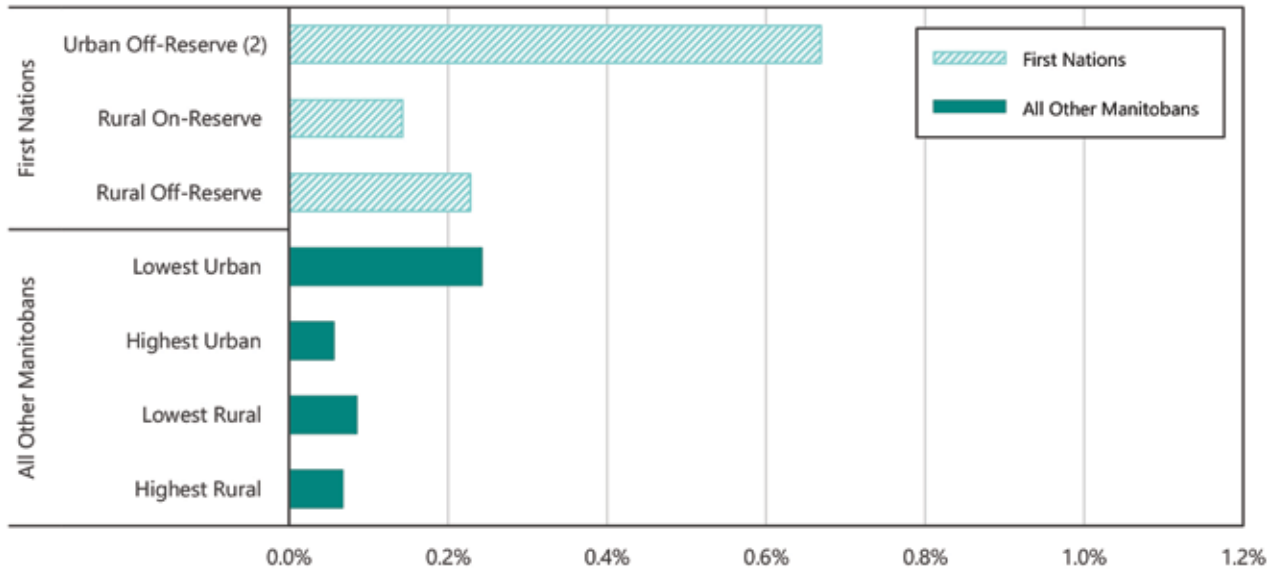
† - First Nations on-reserve: TCA compared to the lowest rate (Independent-North)

§ - First Nations on-reserve compared to First Nations off-reserve

s - Data suppressed due to small numbers

Figure 10.14: Opioid Agonist Dispensations by Income Quintile

Age- and sex-adjusted percent of individuals, age 10+, 2016/17



Statistically significant differences (p<0.01):

2 - Urban areas: Off-Reserve First Nations compared to AOM in the highest income quintile

Chapter 11:

Self-Reported Health Status and Healthcare Service Use in Phase 3 of the First Nations Regional Health Survey

Introduction

The First Nations Regional Health Survey (RHS) was launched in 1997 as a pilot survey in response to the Federal Government's decision in 1994 to exclude First Nations living on-reserve from the three major national population surveys [26]. The RHS, a new First Nations Survey designed and delivered by First Nations, was established through negotiations between First Nation leaders and Health Directors and Health Canada¹⁶. The RHS asks questions based on western and traditional understandings of health and well-being, which enables the collection of health-related information about First Nations living on-reserve (including northern First Nation communities). The survey continues to be carried out by the First Nations Information Governance Centre (FNIGC), a non-profit First Nation organization established by the Assembly of First Nations Chiefs in Assembly, and regional organizations across Canada, representing all 10 provinces and 2 territories (as Nunavut is Inuit territory). Each of the ten regional partner organizations (for Manitoba, this partner is FNHSSM) carries out the RHS and reports its findings at the regional level. These findings are rolled into a national report published by FNIGC (<http://fnigc.ca>). The RHS data are used to support policy and programming at the community, regional and national levels.

Phase 1 of the RHS in 2002-2003 sought to develop a cultural framework for future RHS phases and resulting research to inform research processes and organize how the data were interpreted [26]. Phase 2 of the RHS occurred in 2008-2010, and Phase 3 in 2015-2016. This report looks at data collected this third phase of the RHS.

Phase 3 of the First Nations RHS

Phase 3 of the RHS is a cross-sectional survey of First Nation children (age 0-11), youth (age 12-17) and adults (age 18 and older) living on First Nation reserves and in northern First Nation communities across Canada. In all provinces and territories (excluding Nunavut), a separate survey was designed for each of the three age groups to collect information on health, well-being and the determinants of health.

¹⁶ The 1997 RHS also included Inuit collecting Inuit data; however, after that first phase, the Inuit took their own path of self-determination in research (<http://www.itk.ca>).

Data Collection and Preparation for Analysis

First Nation community members received training from FNIGC'S regional partner organizations to administer the surveys in their communities and surrounding areas¹⁷. Surveys were typically conducted in the home using laptop computers equipped with a customized survey software. Child surveys were completed by the primary caregiver, usually a parent. Youth and adults completed their own surveys. Data collection occurred from March 2015 to December 2016, with an average data collection period of 14.3 months.

The survey strategy was based on population counts on-reserve (and in northern communities in the Yukon and Northwest Territories), as recorded in the 2014 First Nations Registry File [70]. The population included 630 communities and about 467,800 individuals.

First Nation communities were stratified by region (into ten provinces and two territories), sub-region and community size. The size of communities was based on community population (small: under 300 members; medium: 300-1,500 members; large: more than 1,500 members). All large communities were surveyed, while medium and small communities were selected by randomization within their own community size groups. Communities with a population of fewer than 75 individuals were not surveyed, as they represented less than 1% of the total population. Community members were identified based on band membership in the Manitoba First Nations Research File.

Survey data were gathered for 23,764 individuals in 253 communities, with a 78% response rate [70]. After data cleaning and exclusion of incomplete surveys, 23,167 individuals from 253 communities were included in further analysis (response rate 76%). In the final datasets, the survey responses of 6,062 children (age 0-11) were included to represent the 94,234 children in the on-reserve First Nation population; 4,968 youths (age 12-17) represented the 47,918 youth in the population; and 12,137 adults (age 18 and older) represented the 282,129 adults in the population. The national sample ratio for Phase 3 of the RHS (5.5%) is similar to the sample ratios for Phase 1 and Phase 2 (5.9% and 5.3%, respectively).

Individual responses were weighted using population counts in the Manitoba First Nations Research File to reflect the representation of the population with greater accuracy [70]. The 2018 FNIGC report provides additional information about Phase 3 of the RHS survey, including data collection and preparation for analysis (<http://fnigc.ca>).

The Manitoba Context

In Manitoba, the goal of Phase 3 of the RHS was to provide a better understanding of the health challenges and healthcare gaps among Manitoba First Nations, as well as to identify community strengths and sources of wellness and resilience. The survey results were intended to facilitate conversations about strategies to increase access to equitable healthcare, to improve programs that support First Nation health and wellness, and to support policy change and development.

Within the Manitoba region, consent to link individual responses was provided at a collective level by Manitoba First Nation leadership and on an individual basis by the participants themselves. Governance and oversight was provided by HIRGC, who gave approval for the linkage of the RHS to administrative data held at MCHP. Only participants who consented to their individual RHS being linked to the administrative data through their Personal Health Identification Number (PHIN) were used in the linkage and analysis for this report.

Demographic Profile

Phase 3 of the RHS surveyed 35 First Nation communities in Manitoba, including both remote and accessible communities [71]. The survey data represent the five language territories in Manitoba: Cree, Ojibway, Anishinew, Dakota, and Dene. The 4,104 completed surveys represent 85.5% (3,509 individuals) of the Manitoba population, which includes 1,813 adults (51.7%), 789 youth (22.5%), and 907 children (25.8%). Older adults (ages 55 and older) comprised 22.2% of all survey respondents. Approximately 52% of respondents were female and 48% male, with comparable sex distribution across age groups. Approximately 1 in 5 adults (19.5%) and 16.2% of youth identified as two-spirited and/or transgender. The FNHSSM report on Phase 3 of the RHS provides additional information about the demographics of the surveyed First Nations [70].

¹⁷ The First Nations RHS Phase 3 questionnaires can be accessed through FNIGC'S website (<https://fnigc.ca/first-nations-data-centre/questionnaires-and-data-dictionaries.html>) [97]

Results for the RHS in Manitoba

Select responses from Phase 3 of the RHS conducted in Manitoba have been linked to the Manitoba Population Research Data Repository for inclusion in this report. Many of the questions in the survey do not match up with the indicators we examined here. For this reason, only a select number of survey questions from the RHS are included in this report.

Findings from the RHS are presented in this chapter as well as in Chapter 7 in this report, where they align with similar indicators from the administrative data. All findings presented in this chapter are weighted based on the representation of the on-reserve First Nation population in Manitoba by the survey respondents. The 2002 First Nations Atlas did not include information from an RHS. Instead, [6] Martens et al. (2002) included information from the Indian and Northern Affairs Canada (INAC) 1998/99 report: Housing and Infrastructure Assets Summary Report [72].

Information gathered by the RHS provides context for the findings presented in Chapters 5-10. Understanding the context of each First Nation community is critical to understanding their current reality described by the findings in this report and to exploring potential solutions. The Indigenous determinants of health represent one component of that context. While for some populations, determinants of health might be captured by measurable indicators (such as education level, income, early life health and healthcare use), the Indigenous determinants of health are more difficult to measure. The RHS provides information about some of these determinants, such as the quality of people's physical and social environments, their history of health issues that may not be captured by doctor and hospital visits, whether they have experienced racism and marginalization (such as having been exposed to residential schools). Some of these factors may help to mitigate the negative health outcomes that we have measured with administrative data. Other determinants may contribute to or worsen negative health outcomes.

Household Income

Definition: The percent of individuals whose total household income before deductions falls within:

- income categories defined in the RHS (Table 11.1) and
- income categories defined based on the 2016 Census area-level total household income quintiles for rural Manitoba (Table 11.2 [73])

Key Findings

The self-reported distribution of total household income among on-reserve First Nations is very different from that of the rural Manitoba population as a whole (Table 11.1).

Table 11.2 shows that almost all First Nation people (89%) fall within the lowest income quintile.

Comparison to Other Findings

- Neither the 2002 First Nations Atlas nor the 2008-2010 RHS reported total household income.
- The distribution of self-reported household income in this report is slightly different from that reported by First Nations living on-reserve in Atlantic Canada in 2014-2015 [66]:
 - 40% of First Nations living on-reserve in Atlantic Canada reported household income up to \$20,000, compared with 32% in Manitoba (this report).
- 26% reported income in the \$20,000-\$40,000 range in Atlantic Canada compared with 48% in this report.
- 35% reported income of at least \$40,000 in Atlantic Canada compared with 20% in this report.
- A similar percent of First Nation households in Atlantic Canada (57%; [66]) and Manitoba (54%) have a total income under \$30,000, which is well below the poverty line for 2015:
 - Canada's official poverty line is defined as a household income (after taxes) for a family of four that does not provide a modest living based on the annual local cost of clothing and footwear, transportation, nutritious food, shelter (including electricity, heat, and clean water), as well as other goods and services (personal care, phone, recreation, etc.). Employment and Social Development Canada defines this as the income that allows individuals access to "resources, means, choices and power necessary to acquire and maintain a basic level of living standards and to facilitate integration and participation in society" [74].
- The poverty line in 2015 was \$33,000-\$41,000 per year [74]:
 - around \$37,000 per year after taxes for areas of Manitoba with fewer than 30,000 residents
 - around \$35,500 in rural Manitoba
 - around \$36,500 in Winnipeg

Table 11.1: Self-Reported Total Household Income Among Manitoba First Nations Living On-Reserve by Income Categories*

Crude weighted percent of individuals, age 18+, 2016 ††

Total Household Income Categories	Weighted Crude Rate (%)	
	First Nations On-Reserve†	All Manitobans‡
No Income	4.86%	1.89%
Below \$5,000	6.97%	
\$5,000-\$9,999	7.32%	1.67%
\$10,000-\$14,999	7.69%	2.34%
\$15,000-\$19,999	4.98%	3.73%
\$20,000-\$24,999	9.19%	4.37%
\$25,000-\$29,999	12.98%	3.89%
\$30,000-\$39,999	25.57%	8.76%
\$40,000-\$49,999	5.75%	8.76%
\$50,000-\$59,999	3.65%	8.23%
\$60,000-\$69,999	2.71%	7.75%
\$70,000-\$79,999	2.16%	7.01%
\$80,000-\$89,999	4.03%	6.45%
\$90,000-\$99,999	1.22%	5.56%
At Least \$100,000	0.92%	29.57%

* Defined based on self-reported household income in the 2016 Manitoba First Nations Regional Health Survey

† Based on the First Nations Regional Health Survey, 2016

‡ Based on the Canadian Census 2016 [73]

Table 11.2: Self-Reported Total Household Income Among Manitoba First Nations Living On-Reserve by Income Quintile Range* and Tribal Council Area

Crude weighted percent of individuals, age 18+, 2016**

Tribal Council Area	Rural Area-Level Household Income Quintile Ranges Based on Census 2016				
	R1 (Lowest): Up to \$59,575	R2: \$59,612- \$72,377	R3: \$72,412- \$81,348	R4: \$81,488- \$95,903	R5: (Highest): At Least \$95,941
Interlake Reserves (IRTC)	92.31%	2.70%	0.00%	2.33%	2.67%
West Region (WRTC)	80.25%	10.83%	0.79%	8.12%	0.00%
Independent-North	94.34%	0.75%	0.88%	2.69%	1.34%
Swampy Cree (SCTC)	97.28%	0.85%	0.33%	0.00%	1.54%
Keewatin (KTC)	99.78%	0.00%	0.22%	0.00%	0.00%
Independent-South	90.51%	0.00%	4.72%	4.78%	0.00%
Dakota Ojibway TC (DOTC)	99.66%	0.00%	0.34%	0.00%	0.00%
Southeast (SERDC)	47.09%	2.08%	15.89%	28.27%	6.68%
Island Lake (ILTC)	84.41%	10.69%	0.00%	0.00%	4.90%
Non-Affiliated	95.81%	4.19%	0.00%	0.00%	0.00%
First Nations On-Reserve	88.96%	2.71%	2.16%	4.03%	2.14%

* Defined based on 2016 Census area-level total household income ranges

** Based on the First Nations Regional Health Survey, 2016

Physical & Social Environments and Marginalization

There are a number of indicators related to the social and Indigenous determinants of health that can be derived from the RHS questions. We have presented these in Table 11.3. The details are presented in the list below so the reader knows what the indicators in the table refer to.

- Crowded housing: The percent of individuals whose home has more than one person per room.
- Housing needs repairs: The percent of individuals whose home needs repairs or has had mold or mildew in the past year.
- Availability of safe drinking water: the percent of individuals who consider the main water supply in their home safe for drinking.
- Residential school: percent of individuals who attended a residential school or whose family member(s) attended residential school.
- Food security: The percent of individuals who have a secure food source.
- Smoking: The percent of individuals who smoke daily or occasionally at the present time.
- Exposure to second-hand smoke: The percent of individuals who are exposed to second-hand smoke frequently at home or in a vehicle.

Key Findings

- The findings in Table 11.3 show that First Nations living on-reserve in Manitoba live in environments that are often associated with poor health and social outcomes or have experienced marginalization.
- While crowding is an oft-cited problem in housing on-reserve, 59% of First Nation people do not live in crowded housing and 41% of houses do not require repairs.

- Fifty-five percent of First Nation people have access to safe drinking water in their home, and 34% have food security.
- Almost a quarter of on-reserve First Nations have experienced marginalization (measured here as having a family member who attended a residential school).
- The majority of on-reserve First Nations are either smoke (57%) or are exposed to second-hand smoke (50%).

Comparison to Other Findings

- Our findings suggest that crowding in households has not changed much since the 2008-2010 RHS, which reported that 43% of households were overcrowded [75].
- It is difficult to determine whether the availability of safe drinking water and food security have improved since 2008-2010 because of differences in methodology and/or indicators. The 2008-2010 RHS reported that 72% of communities had potable drinking water in over 60% of homes. Approximately 24% of adults reduced the size of a meal or skipped a meal once or twice a month; 64% of adults were always able to afford a balanced meal for their children; and 55% never had to rely on low-cost foods to feed their children because of insufficient funds [75].
- In the 2008-2010 RHS, over 19% of adults attended a residential school and up to 48% of children had a grandparent who attended a residential school [75]. In Atlantic Canada, 35% of First Nation adults living on reserve in 2014-2015 reported direct or family involvement with the residential school system [66].
- Indicators of smoking and second-hand smoking were also reported differently in 2008-2010 and could not be compared to our findings. In Atlantic Canada, 40% of First Nations on-reserve in 2014-2015 reported being daily smokers and 14% reported being occasional smokers [66].

Table 11.3: Self-Reported Rates of Physical and Social Environment Factors and Experiencing Marginalization among Manitoba First Nations Living On-Reserve

Crude weighted percent of individuals, 2016*

Regional Health Survey Indicators	Weighted Crude Rate (%)	
	Average	95% Confidence Interval
Housing Needs Repairs	59.16%	53.03-65.28%
Crowded Housing	40.98%	36.06-45.89%
Daily or Occasional Smoker	57.12%	51.33-62.92%
Exposure to Second-Hand Smoke	50.36%	44.20-56.52%
Safe Drinking Water	55.10%	48.73-61.47%
Food Security	34.04%	28.64-39.43%
Family Member Attended Residential School	24.72%	19.76-29.67%

* Based on the First Nations Regional Health Survey, 2016

Physical Health

Table 11.4 provides information on the physical characteristics of RHS respondents. The details about these indicators are provided below:

- **Average Body Mass Index (BMI):** The average BMI value is calculated based on height and weight reported in the RHS.
- **BMI Categories:** Percent of individuals within each of the four BMI categories of underweight, normal weight, overweight, and obese. The allocation of each individual to a single category is based on the BMI values reported in the RHS and the BMI categories defined by the World Health Organization [76].
- **Physical Activity:** The percent of individuals who are active for at least one hour every day.

Key Findings

Almost 50% of on-reserve First Nations self-reported that they have a BMI within the overweight or obese range.

Only 31% of on-reserve First Nations reported that they are physically active for at least one hour per day.

Comparison to Other Findings

- The 2008-2010 RHS did not report weight, height or BMI values [75].
- In 2008-2010, 26% of youth and 69% of adults on-reserve reported being engaged in physical activity for at least one hour per day [75].
- Based on the Ontario portion of the CCHS data (2007-2013), the prevalence of obesity was significantly higher among First Nation adults (18 and older) living on-reserve (48.1% for men, 49.4% for women) and off-reserve (33.0% for men, 7.9% for women) compared to non-Aboriginal adults (18.7% for men, 16.2% for women) [48].

Table 11.4: Self-Reported Physical Health Indicators among Manitoba First Nations Living On-Reserve
Crude weighted percent of individuals, 2016*

Regional Health Survey Indicators	Weighted Crude Rate (%)	
	Average	95% Confidence Interval
Body Mass Index (BMI) Categories**		
Obese (BMI: At Least 30)	19.76%	16.46-23.06%
Overweight (BMI: 25-29.9)	30.48%	26.24-34.71%
Normal Weight (BMI: 18.5-24.9)	48.65%	44.04-53.26%
Underweight (BMI: Below 18.5)	0.47%	0.17-0.77%
Physically Active	30.65%	26.91-34.38%

* Based on the First Nations Regional Health Survey, 2016

** Average BMI and 95% Confidence Interval: 29.97 (29.27-30.68)

Mental Health

Table 11.5 presents the self-reported mental health status of RHS respondents. It is useful to compare these responses to the indicators of mental health that are available from the medical diagnoses reported by healthcare providers. The details of the indicators in the table are presented below:

- **Mood and anxiety disorders:** the percent of individuals who have been told that they have a mood disorder (depression, bipolar disorder, mania, dysthymia) or anxiety disorder (phobia, obsessive-compulsive disorder, panic disorder)
- **Alcohol and substance use diagnosis and treatment:** The percent of individuals who in the past year:
 - have had several alcoholic drinks on one occasion (females – 4 or more; males – 5 or more) more than once a week or every day; or
 - have sought treatment for alcohol use or addiction; or
 - have sought treatment for substance abuse or addiction.
- **Attempted suicide:** the percent of individuals who have ever attempted a suicide.
- **Considered suicide:** The percent of individuals who have ever seriously considered suicide.
- **Community strength:** percent of individuals who consider a specific mental disorder to be community strength.
- **Community challenge:** percent of individuals who consider a specific mental disorder to be community challenge.
- **Community progress:** percent of individuals who consider the status of a specific mental disorder to represent community progress.

Key Findings

The mental health indicators are also presented in Chapter 7, where we note that the self-reported survey rates of mental health are higher than those measured using medical claims data for mood anxiety disorder diagnoses only.

Self-reported rates of alcohol and substance use diagnoses and treatment are similar to administrative data rates.

Findings about suicide attempts and suicide ideation are dramatically higher than what we captured using hospital data to measure suicide attempts. This may be due in part to defining self-reported rates as “ever attempted” or “ever considered”, while the administrative data analysis was limited to hospitalizations for suicide attempts over a fixed five-year time period.

First Nation communities have shown significant resilience. The RHS survey sought to understand how respondents understood the strengths and weaknesses of their communities (Tables 11.6 and 11.7). Almost 10% of the weighted responses reported low suicide rates as a community strength, while 24% reported suicide as a community challenge, and 2% saw progress in their community with respect to suicide.

The variation in responses with regard to suicide-related community strengths and challenges point to opportunities to support the communities in the northern Tribal Council Areas, which identified fewer suicide-related strengths.

Over half of on-reserve First Nations see alcohol and substance use as a challenge for their communities, and a very small percent consider their efforts to decrease substance use disorders a community strength or an indicator of progress (Table 11.7).

Comparison to Other Findings

- Mood and anxiety disorders were not included in the 2008-2010 RHS [75].
- The percent of on-reserve First Nations who considered suicide declined from 20% among adults and 14% among youth in the 2008-2010 RHS [75] to 11% overall in this report.
- Similarly, the percent of those who attempted suicide declined from 13% in adults and in 2008-2010 to 9% overall in this report.
- It is difficult to compare our findings on alcohol and substance use and treatment to the 2008-2010 RHS due to the different survey questions and analytical methods.

Table 11.5: Self-Reported Rates of Mental Health Issues among Manitoba First Nations Living On-Reserve
Crude weighted percent of individuals, 2016*

Regional Health Survey Indicators	Weighted Crude Rate (%)	
	Average	95% Confidence Interval
Mood and Anxiety Diagnosis	5.80%	3.82-7.77%
Alcohol or Substance Use Diagnosis and Treatment	10.62%	7.62-13.61%
Considered Suicide	10.57%	7.53-13.62%
Attempted Suicide	9.32%	6.54-12.10%

* Based on the First Nations Regional Health Survey, 2016

Table 11.6: Self-Reported Community Strengths, Challenges and Progress Related to Suicides Among Manitoba First Nations Living On-Reserve

Crude weighted percent of individuals, age 12+, 2016*

Tribal Council Area	Strength	Progress	Challenge
Interlake Reserves (IRTC)	17.23%	2.05%	16.95%
West Region (WRTC)	16.75%	3.26%	35.99%
Independent-North	3.00%	0.50%	29.54%
Swampy Cree (SCTC)	9.49%	9.50%	8.09%
Keewatin (KTC)	4.34%	0.00%	14.12%
Independent-South	10.72%	1.27%	42.94%
Dakota Ojibway TC (DOTC)	11.14%	6.02%	17.06%
Southeast (SERDC)	21.98%	0.00%	3.77%
Island Lake (ILTC)	17.69%	0.00%	53.21%
Non-affiliated	41.81%	12.56%	0.00%
First Nations On-Reserve	9.68%	2.08%	23.98%

* Based on the First Nations Regional Health Survey, 2016

Table 11.7: Self-Reported Community Strengths, Challenges and Progress Related to Alcohol and Substance Use Disorder Treatment Among Manitoba First Nations Living On-Reserve

Crude weighted percent of individuals, age 12+, 2016*

Tribal Council Area	Strength	Progress	Challenge
Interlake Reserves (IRTC)	4.25%	0.90%	66.35%
West Region (WRTC)	0.00%	2.56%	83.85%
Independent-North	2.75%	0.92%	42.77%
Swampy Cree (SCTC)	0.48%	1.10%	42.09%
Keewatin (KTC)	4.34%	0.41%	49.50%
Independent-South	4.68%	1.67%	76.93%
Dakota Ojibway TC (DOTC)	3.20%	3.29%	75.31%
Southeast (SERDC)	1.88%	0.00%	87.91%
Island Lake (ILTC)	9.57%	0.00%	65.09%
Non-affiliated	0.00%	0.00%	86.98%
First Nations On-Reserve	3.47%	0.94%	54.14%

* Based on the First Nations Regional Health Survey, 2016

Traditional Medicine

The Repository does not include any information about the use of traditional healing or the factors that influence its use. The table below provides context for our findings about the use of the healthcare system by describing First Nations use of traditional healers. The details of the indicators presented in the table are in the list below:

- Use of traditional medicine: The percent of individuals who:
 - Have taken or are taking traditional medicine for injury, diabetes or other reasons; or
 - Have consulted a traditional healer in the past year, two years ago, or more than 2 years ago; or
 - Have consulted a traditional healer on the phone about emotional or mental health; or
 - Have used traditional methods to quit smoking.

- Barriers to traditional medicine: The percent of respondents who have experienced any barriers to accessing traditional medicine.

Key findings

The use of traditional medicine is seen as a sign of cultural continuity. Communities with strong identification with their Indigenous cultural roots tend to be healthier. Thirty six percent of First Nation members report using traditional medicine and 25% report experiencing difficulty accessing traditional medicine.

Comparison to Other Findings

- In the 2008-2010 RHS, 53% of on-reserve First Nations used traditional medicine, traditional ceremonies or a traditional healer, while 27% experienced barriers to accessing traditional medicine [75].

Table 11.8: Self-Reported Access and Use of Traditional Medicine Among Manitoba First Nations Living on Reserve
Crude weighted percent of individuals, 2016*

Regional Health Survey Indicators	Weighted Crude Rate (%)	
	Average	95% Confidence Interval
Use of Traditional Medicine	35.88%	29.79-41.97%
Difficulties Accessing Traditional Medicine	25.16%	17.99-32.34%

* Based on the First Nations Regional Health Survey, 2016

Chapter 12: Discussion

Call to Action #19 from the Truth and Reconciliation Commission of Canada

“We call upon the federal government, in consultation with Aboriginal peoples, to establish measurable goals to identify and close the gaps in health outcomes between Aboriginal and non-Aboriginal communities, and to publish annual progress reports and assess long-term trends. Such efforts would focus on indicators such as: infant mortality, maternal health, suicide, mental health, addictions, life expectancy, birth rates, infant and child health issues, chronic diseases, illness and injury incidence, and the availability of appropriate health services.” [1]

The Truth and Reconciliation Commission’s Call to Action #19 calls for annual reports to describe trends in infant mortality, life expectancy, and other important measures of health. This report, together with a number of other MCHP reports like the upcoming First Nation Children’s Atlas, begins to answer this Call by offering new insights into the health and healthcare use of Manitoba First Nations. The report also provides essential information on the health inequities in Manitoba and points to potential actions that could improve the health of First Nations.

Healthcare should be planned based on the needs of the population it serves. The population pyramids presented in Chapter 4 demonstrate a need for services focusing on the First Nation younger population. While this report focuses primarily on adults, a separate report (the Manitoba First Nation Children’s Atlas) addressing the needs of young First Nation peoples will be released in 2020. The population pyramids in Chapter 4, which show that First Nation populations have fewer older people than All Other Manitobans, align with the Chapter 5 findings of high premature mortality rates in First Nations. There are many factors which contribute to the high premature mortality among First Nations, including the determinants of health and the role of racism in the healthcare system – and only some of these can be addressed by improving healthcare services. Addressing these issues will require a partnership approach focused on the indicators in this report that demonstrate the greatest inequities.

Our understanding is that to achieve equity, we need to allocate greater resources to those with greatest need. **The gap in life expectancy between First Nations and All Other Manitobans is greater than 10 years.** The gaps in premature mortality, total mortality and potential years of life lost between First Nations and All Other Manitobans and have grown since the 2002 First Nations Atlas. Based on this clear inequity in health, First

Nations must receive special attention in the allocation and management of healthcare services. The new resources should be culturally safe and respectful, of high quality and easily accessible.

Cancer

Cancer causes significant suffering and costs to patients and their families. While improved cancer treatments have significantly increased survival, the treatments are often long and arduous. Cancer is still amongst the top three causes of death and premature death in all regions for First Nation peoples living in Manitoba (Figures 5.4 and 5.14). Getting access to treatment often requires long periods away from one's home community and/or significant amounts of travel.

In this report, we focused on the three cancers with provincial screening programs designed to improve the chances of early diagnosis. These screening programs should provide the opportunity for treatment and lead to better outcomes. At the outset, we expected to find differences in screening between First Nations and AOM, regionally between First Nations, and between First Nations on and off-reserve. We expected these differences to result in later-stage diagnoses for the regions and populations where screening rates were lower. However, despite differences in screening rates, the early stage detection rates are similar between First Nations and All Other Manitobans. One possible explanation for this is the low numbers of people in each community diagnosed with cancer. There is a need to explore the reasons for the differences in screening rates and to address the inequities we observe.

As well, higher cancer rates among First Nations in Prairie Mountain, Interlake Eastern and Winnipeg RHAs warrant further investigation. Overall, rates of kidney, colorectal and cervical cancers are higher among First Nations than among other Manitobans. Cancer screening programs need to ensure that mammograms and Pap smears are offered in culturally respectful ways to First Nation women living throughout the province. While there are no screening tests available for kidney cancer, the high rates of this cancer among First Nations warrant further studies to explore the causes of these higher-than-expected rates.

Mental Health

The most striking findings for mental health are the low rates of mood and anxiety diagnoses for the Northern RHA and the corresponding Keewatin TCA. One possible reason for the lower rates is that people living in the north may have better access to healthy outlets in their connection to the land and waters, the animals, natural foods and medicines. However, there are other likely

explanations. Because the rates of mood and anxiety disorders in this report are based on medical diagnoses, they may be influenced by a lack of access to medical care from physicians (most care in the north is provided by nurses, who do not submit billing claims to the Repository) or differences in how symptoms are interpreted by physicians who provide care in this region. Most of the physicians providing care in the north are not First Nations themselves, which may lead to challenges in interpreting symptoms of depression. In addition, historical challenges in breaching this cultural gap may result in those experiencing depression not seeking care from non-First Nation physicians. First Nation patients may believe that the physicians are unlikely to respond appropriately.

The self-reported RHS results indicate that 25% of First Nation individuals on-reserve are more likely to connect with their own traditional healers than seek care from a physician. As well, 32.5% had used traditional medicines before and almost half of First Nation adults reported no difficulties in accessing traditional medicine.

Further information on access to medical care is provided in Chapter 8. Figure 8.1 in Chapter 8 confirms that in Northern RHA, there are fewer visits to primary care providers among All First Nations and off-reserve First Nations when compared to the Manitoba average. The same pattern is present for Prairie Mountain, with the higher visit rate for AOM mirroring the higher rate of mood and anxiety disorders. The two figures representing the rates of mood and anxiety disorders and primary care visits across TCAs (Figure 7.2 in Chapter 7, and Figure 8.2 in Chapter 8) demonstrate a remarkably similar pattern, suggesting that primary care visits are a major contributing factor to the diagnosis of mood and anxiety disorders.

The suicide rate among First Nations is disturbingly high – five times the rates of All Other Manitobans. It is beyond the scope of this report to fully explore the causes of the higher rate in suicide among First Nations. However, this finding does warrant action within the broader context of mental health and well-being. Despite the low rates of provider visits in some areas (see Chapter 8), the rates of diagnosed substance use disorders are high. The extraordinary finding of First Nations having three times the rate of drug and substance use disorder compared to AOM needs to be understood in the context of other mental health issues, like mood and anxiety disorders. Both of these indicators are based on provider-generated diagnostic codes, and there are objective criteria for deciding on which diagnosis to make – but a significant amount of subjective interpretation also contributes to each diagnosis. People with mood and anxiety disorders may choose to seek help from a healthcare provider, or may alternatively choose to self-medicate with drugs and alcohol [77]. There is also evidence that those with post-traumatic stress disorder (PTSD) [78] are more likely to self-medicate than seek professional help. PTSD is highly prevalent among survivors of the residential school system [79].

Our results suggest that some First Nations are more likely than AOM to receive a diagnosis of substance use disorder than a diagnosis of a mood disorder when seen by a provider. Since many of our perceptions of mental health are culturally-based, healthcare providers need further training on the underlying Indigenous determinants of health, and they need support to develop effective strategies to address the challenges resulting from these health determinants. A dynamic well-resourced tripartite partnership between First Nations, the federal government and the government of Manitoba is an essential component of resolving the mental health and suicide crises described in Chapter 7. Addressing the issues underlying these crises will require upstream thinking to develop a sustained, meaningful response to these challenges [80].

Healthcare Services

While changes to healthcare services cannot address all the underlying social causes of the differences in First Nations' and All Other Manitobans' health status, it is clear that access to more high quality services would address some inequities in health status. Despite some gaps in our data for on-reserve primary care service delivery, the picture painted in Chapter 8 confirms the inequities in healthcare provision, particularly with regard to access to specialist visits and the location of services. First Nation peoples are not accessing specialist or even primary healthcare services close to home. When looking at the location of visits to primary care providers (at least those captured in the Repository), we see that the majority of First Nations travel outside of their home TCAs and RHAs to seek care. This finding points to a gap in the provision of culturally safe and responsive primary care services close to First Nation communities. Thus, there is a need to examine possible remedial actions in the current funding model where the allocation of provincial funds is based on RHAs – despite the fact that the services are not being accessed where the funding is allocated. Further information on the services provided on-reserve by First Nations under the governance of federal agencies would add to our understanding of service provision and what is missing from current services offered. The necessity of documenting First Nations health supportive services is now obvious. The lack of cooperation from these federal agencies in allowing access to nursing station and other relevant data should be addressed.

An additional indication of the inequities in primary care service provision is the higher hospitalization rate for Ambulatory Care Sensitive Conditions, which measures access to quality primary care. It is not clear whether this high hospitalization rate among First Nations is due primarily to poor access or to the quality of care available. Further exploration into this matter is recommended. We would expect specialist visit rates to be higher for First Nations than for AOM, as First Nations' specialized

care needs are greater due to their poorer health status. Northern RHA is the only region where the First Nation rates are higher than those of AOM. Access to specialist care is a problem in most regions, although in the Northern RHA, it is facilitated by Ongomiizwin Health Service (formally known as the Northern Medical Unit) and AMDOCS+™¹⁸. But most specialist care in Manitoba adults is dependent on a referral from a primary care provider. The low rates of referral in populations with poor health status may be a further indicator of poor quality primary care.

The findings of poor access and poor quality of care are concerning. They add impetus to the Truth and Reconciliation Commission's Calls to Action, in keeping with the standard of "equity of outcomes" in healthcare for First Nations and other Indigenous peoples recommended by the Royal Commission on Aboriginal People [11].

Opioid Dispensations

The dispensation of opioids is significantly higher for First Nations than for AOM: twice as high for single dispensations and three times as high for three or more dispensations. There are also significant regional variations in dispensation of opioids.

Our analyses do not explore the reason for these differences in opioid prescriptions or whether the prescriptions are appropriate. We have, however, highlighted significant differences between populations that warrant further exploration. The differences in regional dispensations for opioids point to differences in prescribing rates that are not supported by the health status findings. This suggests that prescribing rates are likely influenced by local factors, such as individual provider prescribing patterns. The high rates of several ill health indicators in Prairie Mountain RHA, including benzodiazepine prescribing and hospital readmission, also warrant further exploration.

Results from the Regional Health Survey

While the results from the RHS are based on different questions than we can ask using Repository data, they provide important context to the administrative data analyses. The RHS results highlight the extreme poverty that the vast majority of First Nation peoples in Manitoba experience. But despite this poverty, many TCAs report community strengths in addressing mental health issues, such as cultural continuity and other Indigenous determinants of health. These community strengths should be recognized and supported to reduce the inequities we have identified.

¹⁸ For more information about services provided by AMDOCS+™, visit <http://www.amdocshealth.com/services>.

The RHS results also point to opportunities to develop specific strategies to address other challenges. Poor access to affordable nutritious foods is likely to be a contributing factor to the high rates of overweight reported in the RHS. While traditional medicine services are not covered by either the provincial or federal healthcare systems (other than travel), over a third of respondents report accessing these services, demonstrating their importance for First Nation communities.

Strengths and Limitations of this Study

All research studies have strengths and limitations, and this study is no exception. We identified the following limitations of our study:

- The vast majority of the results presented in the report are based on secondary analysis of administrative data, which were collected for purposes such as managing and funding the healthcare system. Because the data were not collected specifically for use in our analyses, they often lack details that would be helpful to better understand what the data mean. We also rely on providers and hospital data extractors who code the data into categories that we then use in our analyses. The coding systems are not designed with our analyses in mind and may not always meet our needs. For example, the diagnosis codes providers use for mood disorders and anxiety disorders overlap with each other, which means that we must combine these two groups of conditions into one category in our Chapter 7 analyses.
- The Red River Valley flood of 2011 resulted in the evacuation of many communities in Interlake TCA and relocation to Winnipeg. Little Saskatchewan, Dauphin River, Pinaymootang, and Lake St. Martin were affected the most [2-4]. The Lake St. Martin community is now an independent First Nation community in southern Manitoba. Many of the relocated people were still in Winnipeg at the time of these analyses. However, the Manitoba First Nations Research File includes these individuals as living on-reserve. This is likely to have had an impact on all the results we report for Interlake TCA and Independent-South, particularly with regard to the comparisons between areas. The nature of the mental, physical and spiritual impacts on individuals needs to be considered but is not well documented at this time.
- The time delay between the provision of health services and the availability of the data for analysis in our Repository is also a limitation. Most of the Repository data are updated annually (with a delay from the end of the fiscal year until the acquisition of the data by MCHP), but some data are updated less frequently. For most of our analyses, we use data up to

2016/17, but all cancer indicators in this report use data that are less current (up to 2015) due to the extensive process of validation that CancerCare Manitoba undertakes to ensure the accuracy of the data.

- MCHP data do not include details of care provided at nursing stations, so we cannot capture treatment provided there. However, we do have records of transfers from nursing stations to hospitals. Twenty two percent of these transfers result in a hospital admission, which we capture via hospital discharge data. Of the remaining 78%, our data will allow us to capture only those who end up in a Winnipeg Emergency Department or those who die. This limitation leaves an information gap for the rest of the transfers from nursing stations.
- The data provide limited opportunities to describe the strengths of Manitoba First Nation peoples. Our indicators are very deficit-focused due to this limitation.

The following aspects of the study were identified as strengths:

- The Repository data are highly comprehensive, and include almost all contacts Manitobans had with the healthcare system. As such, the analyses provide a comprehensive description of the health and health services use of the Manitoba population. Most other research that does not include the whole population, relies on statistical methods to ensure that the results obtained apply to people not included in the study. While we also use statistical methods to understand the value of the comparisons described in this report, our data includes the whole population.
- The Manitoba First Nations Regional Health Survey provides us with self-reported health and social data from a portion of the on-reserve population who agreed to complete the survey. The inclusion of this survey in this report is a unique strength. This is the first time comparisons have been made between self-reported health status using the RHS and administrative data analyses for on-reserve First Nations in Canada.
- We have been able to compare many of the results reported in this report with those of the 2002 First Nations Atlas, providing us with a sense of whether differences between First Nations and AOM have increased, decreased, or stayed the same.
- This report exemplifies a strong partnership between the First Nations Health and Social Secretariat of Manitoba and the Manitoba Centre for Health Policy. We have worked together closely from study inception to completion of this study to provide a report that respects Manitoba First Nations and their health needs.

Future Directions

Overall, this study found that inequities between First Nations and all other Manitobans exist within many of the indicators, and that the gap between the two groups has widened for many indicators since the 2002. This report provides the evidence to support change in how Manitoba supports the health and well-being of First Nations. Being able to bring about change depends first and foremost on having the measures and numbers to demonstrate the need for a different approach. As we have now documented that health inequities have increased since 2002, we propose the following specific actions:

1. Annual reporting on progress in addressing gaps in health and access to healthcare;
2. Development of strategic initiatives for equitable access to intervention and prevention measures (including addressing racism in the health system through mandatory cultural safety training for all staff, hiring of First Nation providers, new human resource policies for safe reporting of racist incidents);
3. Development of short- and long-term plans for the training and hiring of First Nation healthcare professionals;
4. Further development of research partnerships among MCHP, MHSAL, FNHSSM and Manitoba First Nations;
5. Setting First Nations on the path to borderless healthcare delivery by improving access to primary care healthcare that is designed and delivered through First Nations-led partnerships.

The impact of colonization has been severely damaging to Manitoba First Nations, who are honoured at the beginning of this report. Crown governance has enforced its policies of separating the First Peoples from their lands, families, children, languages, cultures, and has led to generations of their peoples living in poverty and denied access to thriving economically in what has become Canada. As stated previously, the horrendous effects of colonization are best described by the Final Report of the Truth and Reconciliation Commission as “cultural genocide” [1]. But despite the cultural genocide and the negative impacts experienced by Indigenous peoples of Canada, the First Peoples continue on with resiliency as a population.

As former Supreme Court Justice Antonio Lamer said in 1997, “We are all here to stay” [81]. It is up to us all to work together with First Nation leadership for positive change, continuing efforts to achieve equitable health within a culturally respectful, effective, and borderless healthcare system.

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Glossary

'A' Code

A **municipal code** that is assigned to First Nation individuals (who are registered as status under the federal Indian Act (1876)) in the Manitoba Health Insurance Registry dependent on their band of membership.

Adjusted Rates

Crude rate values that are statistically adjusted to control for different age and sex distributions of different geographical regions to ensure that the rates for all regions (and over time) can be fairly compared. The adjusted values are those that the region would have had if their age and sex distribution was the same as for a standard population, which in this study is the overall Manitoba population in 2016.

Administrative Data

Data generated through the routine administration of programs. While not originally intended for research, administrative data can be a rich source of information. The Manitoba Population Research Data Repository, housed at MCHP, holds administrative data from a variety of government department administrative datasets, such as healthcare, education, social/families, and others. For more information see the **Manitoba Population Research Data Repository (Repository)** term in this glossary.

Band

A **First Nation (community)** that is governed under the Indian Act (1876) on the condition of having **reserve land**, having a trust fund held by the government for the community's use and benefit, or being declared as a band by the Governor General [82,83]. This term is specific to the Indian Act (1876) and is used rarely today.

Confidence Interval (CI)

An estimated range of values that is likely to include an unknown population parameter, such as the average rate of an indicator included in this report. In this report, the estimated range is calculated from relevant data, such as administrative health data [84].

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)

A federal government department (formerly part of the now-dissolved Indian and Northern Affairs Canada (INAC)) that is responsible for renewing the relationship between Indigenous peoples (First Nations, Inuit and Metis) and Canada, leading government work in the North, and updating government structures and policies that "enable Indigenous peoples to build capacity and support their vision of self-determination" [25]. CIRNAC provides services and information related to:

- Indigenous peoples and communities (including First Nation profiles and other statistics)
- Laws and regulations (including obtaining Indian Status)
- Treaties, agreements and negotiations
- Northern affairs and initiatives (including the Arctic Policy Framework)
- New ways of working with Indigenous partners (including bilateral mechanisms to identify joint priorities, co-develop policy and monitor progress)
- Truth and Reconciliation Commission
- National inquiry into missing and murdered Indigenous women and [25].

Crude Rate

The number of events or individuals with a given condition divided by the number of people living in that region; often expressed as a rate per 1,000 or more individuals for less frequent events. Crude rates are helpful in determining the burden of disease and the actual number of residents who have an illness or have experienced an event. This is in contrast to **adjusted rates**, which statistically adjust the crude rates to arrive at an estimate of what a region's rate might have been if the local population's age and sex distribution was the same as that for the entire province. Crude rates can potentially be affected by the age and sex distribution of a region; hence most rates are adjusted for fair comparisons between regions.

Data Suppression

The non-reporting of data when the number of persons or events involved is five or less. However, data are not suppressed when the actual count is zero. This process of suppressing data are conducted to protect confidentiality and anonymity of data.

Dissemination Area

A "small area composed of one or more neighbouring blocks, with a population of 400 to 700 persons. All of Canada is divided into dissemination areas" [85].

Family Physicians

Physicians who operate a family practice and are not certified in another specialty in Manitoba.

Fee-for-Service

A method of payment whereby providers bill for each service rendered, according to a pre-arranged schedule of fees and services. Providers who are paid on a fee-for-service basis file a claim for each service rendered and are responsible for their operating costs. Other providers are compensated under an alternate payment plan, also referred to as **shadow billing**.

First Nations

Indigenous peoples in Canada who are legally referred to as "Indians" in the Constitution Act 1982, s.35. In Manitoba, First Nation peoples include the Cree, Dakota (Assiniboine), Dakota, Anishinaabe, Anishinew, and Dene (see the "Acknowledgement of the First Peoples of this land" section of the report for more information).

First Nation Community

In this report, this term refers to the 63 identified First Nations in Manitoba and includes both status and non-status residents on reserve. The federal Indian Act (1876) specifies that First Nation communities or nations of Indigenous peoples in Canada can be made up of several **bands** [82,83]. This term is sometimes used instead of "**First Nation Reserve**". For additional information see glossary terms **Registered (Status) First Nation** and **Non-Status First Nation**.

Fiscal Year

The period starting on April 1 and ending the following March 31. For example, the 2016 fiscal year would be April 1, 2016 to March 31, 2017, inclusive. It is typically used by government agencies and healthcare institutions for accounting and budgeting purposes and hence how the administrative data used in our research is provided.

Generalized Linear Model (GLM)

A flexible regression technique that can be used to investigate relationships between explanatory (e.g., patient characteristics) and outcome variables (e.g., hospital visits). The models estimate the probability of an outcome as a function of other factors (explanatory variables). Different types of GLMs are used, depending on the type of outcome variables.

First Nations and Inuit Health Branch (FNIHB)

A branch of **Indigenous Services Canada** that “works with numerous partners to carry out many activities aimed at helping people stay healthy and promoting wellness”. They “fund or deliver” community-based health promotion and disease prevention programs; primary, home and community care services; programs to control communicable diseases and address environmental health issues; and non-insured health benefits to supplement those provided by provinces, territories and private insurer” [86]. FNIHB was formerly part of Health Canada.

Health Regions (Regions)—see Regional Health Authorities (RHAs)

Hospital Episode

A single, continuous stay in the hospital system, irrespective of transfers between hospitals.

Incidence

The number of new cases of a given event over a specified time period. The incidence rate counts only new cases in the numerator; individuals with a history of the condition are not included in either the numerator or denominator. Thus, the denominator for incidence rates only includes the population at risk of developing the disease or having the event.

Income Quintile

A grouping of the population by average household income. Income quintiles are first divided into two population categories: urban (Winnipeg and Brandon) and rural (all other Manitoba areas), and then into five groups (quintiles) within each population category, with approximately 20% of the population in each group. The groups are ordered from lowest to highest income. As a result of this process, the income range within each quintile may not be equal across quintiles. Income quintiles are often used as a proxy measure of socio-economic status. The quintiles are based on dissemination area (DA)-level average household income values from public-use census files. Each person within a DA is “attributed” the average household income of the DA, so this is an area-level income measure not an individual income measure.

Indian and Northern Affairs Canada (INAC)

INAC was a federal government department that has been dissolved and replaced by two new departments – **Indigenous Services Canada (ISC)** and **Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)**. Please see the CIRNAC definition for information about its mandate.

Indigenous Peoples in Canada

Also known as “Aboriginal peoples”. This term refers to peoples belonging to one of three groups of Aboriginal peoples whose rights are recognized and affirmed in the Canadian constitution – First Nation, Metis, and Inuit [83]. These are three separate peoples with unique histories, geographies, languages, cultural practices and spiritual beliefs.

Indigenous Services Canada (ISC)

A federal government department (formerly part of the now-dissolved Indian and Northern Affairs Canada (INAC)) that is responsible for working “collaboratively with partners to improve access to high quality services for First Nations, Inuit and Métis” and “to support and empower Indigenous peoples to independently deliver services and address the socio-economic conditions in their communities.” [87]. ISC provides services and information related to:

- Indigenous health (including healthcare services, non-insured health benefits, treatment of drug and substance use disorders, environmental health)
- Water safety and housing on reserve
- First Nation community infrastructure (including support programs)
- Education and social programs and initiatives

- Governance
- Consultation, engagement and duty to consult
- Emergency resources (to prevent, respond and recover) [87].

Inpatient Hospitalizations

Hospitalizations during which patients are formally admitted to the hospital for diagnostic, medical, or surgical treatment and typically stay for one or more days. Multiple admissions of the same person are counted as separate events. Out-of-province hospitalizations for Manitoba residents are also included.

International Classification of Diseases (ICD)

A classification system of disease, health conditions, and procedures. The 9th version with clinical modifications (ICD-9-CM) and the 10th version (ICD-10) were developed by the **World Health Organization (WHO)**. The Canadian version of this disease classification (ICD-10-CA) was developed by the Canadian Institute for Health Information (CIHI) and is based on the ICD-10. The ICD-10-CA chapters are:

- certain infectious and parasitic diseases
- neoplasms (cancers)
- diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism
- endocrine, nutritional and metabolic diseases
- mental and behavioural disorders
- diseases of the nervous system
- diseases of the eye and adnexa
- diseases of the ear and mastoid process
- diseases of the circulatory system
- diseases of the respiratory system
- diseases of the digestive system
- diseases of the skin and subcutaneous tissue
- diseases of the musculoskeletal system and connective tissue
- diseases of the genitourinary system
- pregnancy, childbirth and the puerperium
- certain conditions originating in the perinatal period
- congenital malformations, deformations, and chromosomal abnormalities
- symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified,
- injury, poisoning and certain other consequences of external causes
- external causes of morbidity and mortality
- factors influencing health status and contact with health services
- codes for special purposes

Inuit

A term used to describe one of three distinct groups of people recognized as Indigenous in the Constitution Act (1982), the others being First Nation and Métis. The Inuit reside all over Canada, but their original communities are located across Inuit Nunangat (across northern Canada); that is Inuvialuit (Northwest Territories), Nunavut (largest territory), Nunavik (Northern Quebec), and Nunatsiavut (Labrador) [88].

Manitoba Population Research Data Repository ('the Repository')

A comprehensive collection of administrative, registry, survey, and other data from residents of Manitoba. This repository is housed at the Manitoba Centre for Health Policy (MCHP) at the University of Manitoba. It was developed to describe and explain patterns of healthcare and profiles of health and illness, facilitating inter-sectoral research in areas such as healthcare, education, and social services. The administrative health data, for example, hold records for virtually all contacts with the provincial healthcare system, the Manitoba Health Services Insurance Plan (including physicians, hospitals, personal care homes (PCHs), home care, and pharmaceutical prescriptions) of all registered individuals. MCHP acts as a steward of the information in the Repository for agencies such as Manitoba Health.

Metis

One of three distinct groups of people recognized as "Aboriginal" in the Constitution Act (1982), the others being First Nation and Inuit. The Metis are known as "the children of the Fur Trade", whose origin was mixed First Nation and European ancestry. The Metis have a unique culture and language (Michif) in the world that draws on their diverse ancestral origins, such as Ojibway, Cree, Gaelic and French. For more information please visit: http://www.mmf.mb.ca/michif_language.php.

Municipal Code

A code assigned to each municipality in Manitoba for administrative and funding purposes. Every individual eligible for coverage by Manitoba Health is assigned a municipal code, in order to capture their place of residence.

Non-Status First Nations

A First Nation individual who is not registered as having "Indian" status under the Indian Act (1876). This may be due to many reasons such as his or her ancestors were ignored and never registered, or because he or she lost status under the 1876 Indian Act [89] and successive amendments.

Nurse Practitioners

Registered nurses who have additional education and nursing experience, which enables them to autonomously diagnose and treat illnesses, order and interpret tests, prescribe medications, and perform medical procedures [90].

Nursing Stations

A healthcare clinic, usually located in the northern isolated communities of Manitoba, where most care is provided by nursing personnel. There are 22 federal nursing stations in Manitoba and 3 provincial ones; all are located on reserves.

Off-Reserve First Nations

In this report, this term includes **Registered (Indian Act Status) First Nations** who live outside of the First Nation community with which they are affiliated in the First Nations Research File in 2016. For more information about the First Nations Research File, see MCHP's online Concept Dictionary (http://umanitoba.ca/faculties/health_sciences/medicine/units/chs/departmental_units/mchp/resources/concept_dictionary.html).

On-Reserve First Nations

In this report, this term includes **Registered (Indian Act Status) First Nations** who live within the First Nation community with which they are affiliated in the First Nations Research File in 2016. For more information about the First Nations Research File, see MCHP's online Concept Dictionary (http://umanitoba.ca/faculties/health_sciences/medicine/units/chs/departmental_units/mchp/resources/concept_dictionary.html).

Personal Health Identification Number (PHIN)

A unique nine-digit numeric identifier assigned by Manitoba Health to every person registered for health insurance in Manitoba, and to non-residents who are treated in Manitoba at facilities which submit claims electronically. At MCHP,

the PHIN is either a scrambled (encrypted) version of the Manitoba Health PHIN or an alphanumeric identifier assigned by MCHP to individuals who do not have scrambled numeric PHINs. For more information, see the sections on “Personal Health Identification Number (PHIN)” and “De-Identified Data” in MCHP’s online Concept Dictionary (http://umanitoba.ca/faculties/health_sciences/medicine/units/chs/departmental_units/mchp/resources/concept_dictionary.html).

Population Pyramids (Population Profile)

A graphic representation of the age and sex distribution of a population. Most developing countries have a population pyramid triangular in shape, indicating a very young population with few people in the oldest age brackets. Most developed countries have a population pyramid that looks more rectangular with more elderly expanding the “top part” of the pyramid.

The crude (unadjusted) percent and number of residents within each five-year age group (0 to 4, 5 to 9, etc., up to 90 and older years old) are shown for both males (on the left side of the graph) and females (on the right side).

Prevalence

The proportion of the population that has a given disease at a given time. The **administrative data** used for this study do not directly indicate who has a disease, but rather who received health services treatment for that disease; that is, they received some combination of physician/nurse practitioner visits, hospitalizations, or prescription drugs. Period prevalence is the measure of a disease or condition in a population during a given period of time.

Primary Care

The first contact of a patient with the healthcare system. “In Manitoba, this is one of the core services provided by the primary healthcare system. It includes assessment, diagnosis and treatment of common illnesses generally provided by family physicians and nurses” [91].

Public Guardian and Trustee

“A provincial government Special Operating Agency that manages and protects the affairs of Manitobans who are unable to do so themselves and have no one else willing or able to act. This includes mentally incompetent and vulnerable adults, deceased estates, and children” [92]. Because this office has total responsibility for such persons (wards of the Public Guardian and Trustee), their address of record in the Manitoba Health Insurance Registry is that of the Public Guardian and Trustee Office.

p-value

A number denoting the probability of obtaining a significant test statistic or estimate, for example when comparing indicator rates between groups of individuals. When the p-value is below the set significance value (in this report, 0.01), then the hypothesis of no significant difference between the groups is rejected and the obtained estimate is statistically significant.

Region of Residence

The area where people live at any given point in time, and where their healthcare use is allocated, regardless of where the service was provided. For example, if a resident of the Northern Regional Health Authority travels to Winnipeg for a physician visit, that visit contributes to the visit rate for individuals living in Northern RHA. For additional information, see Chapter 3 of this report.

Regional Health Authorities (RHAs)

Also called health regions, these are regional governance structure set up by the provincial government to be responsible for the delivery and administration of provincially funded health services in a specific geographical area. As of April 17, 2012, there are five RHAs: Interlake–Eastern RHA (includes the former Interlake and North Eastman RHAs), Northern Health Region (includes the former Burntwood and NOR–MAN RHAs), Prairie Mountain Health (includes the former Assiniboine, Brandon, and Parkland RHAs), Southern Health—Santé Sud (includes the former Central and South Eastman RHAs), and Winnipeg RHA (includes former Churchill and Winnipeg proper RHAs).

Registered (Status) First Nation Individual

A First Nation individual with the legal status of a person who is registered as an “Indian” under the Indian Act (1876) and therefore receiving entitlements of sharing reserve land, voting rights, and Band membership and residency [89]. Also called “Status First Nation Individual”.

Reserve

A tract of land, the legal title to which is held by the Crown, set apart for the use and benefit of a First Nation band (Indian Act, 1876) [89]. Some “bands” (Indian Act terminology) have more than one reserve. Many First Nations now prefer the terms “**First Nations**” or “**First Nation community**” (see glossary definition).

Shadow Billing

Claims (billings) submitted to the provincial government by providers on alternate payment plans for services they provide. Unlike provider claims submitted by fee-for-service providers for payment, these claims are for administrative purposes only (i.e., as a record of services provided). Also known as “Evaluation Claims” and “Dummy Claims”.

Significant – see Statistically Significant

Statistically Significant

A term used when the probability that an observed significant result would have occurred by chance is very small (usually 5% or less). Statistically significant results are often reported along with **p-values**, which express the level of certainty that the statistical significance is not due to chance.

Tribal Council (TC)

“For the purpose of accessing Tribal Council Program funding, a Tribal Council is a grouping of bands, (bands as defined by the Indian Act), with common interests who voluntarily join together to provide advisory and/or program services to member bands” [93]. They “must be legally incorporated and accountable to their member bands [usually at least 5] through representation of each band in decision making and review of service delivery” [93]. TCs provide information, expertise and/or assistance to the Chief, Councils and the communities relating to “band government, financial management, community planning, technical services and economic development” [93].

Tribal Council Area (TCA)

In this report, TCAs are groupings of First Nation communities affiliated with the seven official **Tribal Councils (TCs)**, as well as Independent and Non-Affiliated First Nation communities. The official TCs include: Dakota Ojibway TC, Interlake Reserves TC, Island Lake TC, Keewatin TC, Southeast Resource Development Council, Swampy Cree TC, and West Region TC. Chapter 2 of this report provides a full list of First Nation communities affiliated with each TC, as well as independent and non-affiliated communities.

World Health Organization (WHO)

The United Nations agency for health. One role of the organization is to set healthcare standards for classifying and coding diseases, diagnoses, and procedures, such as the **International Classification of Disease (ICD)**.





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