PROFILE OF METIS HEALTH STATUS AND HEALTHCARE UTILIZATION IN MANITOBA: A POPULATION-BASED STUDY

June 2010

University of Manitoba | Faculty of Medicine
Community Health Sciences

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How to cite this report:

Martens PJ, Bartlett J, Burland E, Prior H, Burchill C, Huq, S, Romphf L, Sanguins, J, Carter S, Bailly A. Profile of Metis Health Status and Healthcare Utilization in Manitoba: A Population-Based Study. Winnipeg, MB: Manitoba Centre for Health Policy, June 2010.

Legal Deposit:

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ISBN 978-1-896489-53-7

1st printing (June 2010)

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About the Manitoba Centre For Health Policy

The Manitoba Centre for Health Policy (MCHP) is located within the Department of Community Health Sciences, Faculty of Medicine, University of Manitoba. The mission of MCHP is to provide accurate and timely information to health care 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 Population Health 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, health care 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 (MB Health). 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 University of Manitoba, Faculty of Medicine, Health Research Ethics Board 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 MB Health.

UNIVERSITY OF MANITOBA | Faculty of Medicine
Community Health Sciences

Acknowledgements

This atlas-style report was possible only through a huge team effort. The authors wish to acknowledge the contributions of the many individuals whose efforts and expertise made it possible to produce this report, with apologies to those whose names have been inadvertently omitted.

We are indebted to President David Chartrand and the Board of the Manitoba Metis Federation for supporting this collaborative research venture. Although they are also authors, we appreciate the collaboration of and owe a special thanks to the MMF Health and Wellness Department (MMF-HWD) staff who were part of our research team: Dr. Julianne Sanguins and Ms. Sheila Carter. These individuals, and several other MMF-HWD staff that contributed to the clarity of Metis context, were integral to our understanding. Additionally, we thank the MMF Membership Registrar, MMF Region VPs, and MMF Region Membership Clerks for the provision of registry information. Without them, the creation of the Metis population cohort could not have been created.

We also appreciate the staff of MCHP who helped to prepare, review, edit, and layout the report:

- Dr. Dan Chateau, for extensive statistical advice along the way
- Angela Bailly, who did the majority of the detail work, including creating and laying out most graphs, tables, and text, correcting spelling, grammar and style, and formatting references, and final layout of the report
- Michelle Holden, for her work on writing the four-page summary; Wendy Guenette and Jack Rach, who worked on the actual publication of the four-page summary and the pre-printing stage of the report; and Theresa Danuik, who edited the report graphs during the final stages
- Dr. Marni Brownell and Dr. Randy Fransoo, internal MCHP reviewers who assisted greatly in the editing and revisions of the report.
- Dr. Colette Raymond and Dr. Colleen Metge for assistance with pharmaceutical data analysis.

Colleagues who provided assistance and insight include our two external reviewers: Dr. Kue Young (Dalla Lana School of Public Health, University of Toronto), and the second reviewer who wishes to remain anonymous.

We acknowledge the Faculty of Medicine Research Ethics Board for their review of this project. The Health Information Privacy Committee of Manitoba of Manitoba Health is kept informed of all MCHP deliverables for Manitoba Health. Strict policies and procedures were followed in producing this report, to protect the privacy and security of the Repository data. We would like to thank Deborah Malazdrewicz (Executive Director) and the Health Information Management Branch at Manitoba Health for their efforts in making the linkage between the MMF files and the Repository housed at MCHP possible.

This report was prepared at the request of Manitoba Health as part of the contract between the University of Manitoba and Manitoba Health. This work was supported through funding provided by the Department of Health of the Province of Manitoba to the University of Manitoba. The results and conclusions are those of the authors and no official endorsement by Manitoba Health was intended or should be inferred. Data used in this study are from the Population Health Research Data Repository

housed at the Manitoba Centre for Health Policy, University of Manitoba.The information presented is from Profile of Metis Health Status and Healthcare Utilization in Manitoba: A Population-Based Study by Patricia Martens, Judith Bartlett, Elaine Burland, Heather Prior, Charles Burchill, Shamima Huq, Linda Romphf, Julianne Sanguins, Sheila Carter, and Angela Bailly published by the Manitoba Centre for Health Policy, 2010. For more information, please visit http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html

Dr. Patricia Martens would also like to acknowledge the Canadian Institutes of Health Research (CIHR), Institute of Population and Public Health (IPPH), in partnership with the Public Health Agency of Canada (PHAC), for support through her CIHR/PHAC Applied Public Health Chair (2008-2013).

This report builds on previous MCHP reports, so we are grateful to the many MCHP scientists who assisted in the development and validation of many of the indicators replicated in this report.

Sincere thanks,
Dr. Patricia Martens and Dr. Judith Bartlett

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Executive Summary

The Research Team

Although many descriptive studies are available on the health of Metis[1] people living in Canada, the studies are often not specific to Manitoba Metis, nor are they 'population–based', (i.e., a comparison including all Manitoba Metis compared to all other Manitobans). In 2006, the Manitoba Metis Federation contacted the Manitoba Centre for Health Policy to determine interest in undertaking Metis health services research. For the purposes of planning and decision–making, valid data are required on the health status, use of the healthcare system, and various social determinants of health for Metis in Manitoba. At the request of Manitoba Health the Manitoba Centre for Health Policy worked together with the Manitoba Metis Federation to produce such information.

The Manitoba Centre for Health Policy (MCHP) is a unit of the Department of Community Health Sciences in the University of Manitoba's Faculty of Medicine. According to its mission, MCHP is a research centre of excellence that conducts world class population–based research on health services, population and public health, and the social determinants of health. MCHP develops and maintains the comprehensive population–based data repository on behalf of the Province of Manitoba for use by the local, national, and international research community**.** MCHP promotes a collaborative environment to create, disseminate and apply its research. The work of MCHP supports the development of policy, programs, and services that maintain and improve the health of Manitobans.

The Manitoba Metis Federation (MMF) was founded in 1967 as a 'democratic and self–governing body of the Manitoba Metis community'. The MMF promotes, protects, and advances the political, social, and economic interests of Metis in Manitoba. Through negotiated provincial and federal government agreements, the MMF provides a range of programs and services. The MMF–Health & Wellness Department (MMF–HWD), formed in July 2005, undertakes both qualitative and quantitative (aggregate data analysis) research and knowledge translation. The MMF–HWD aim is to ensure Metis participation in health planning to inform provincial health policies and programs. For this study, MMF–HWD researchers and health staff were integral research team members with the MCHP research team. The MMF–HWD provided Metis context for the study and were extensively trained by the MCHP team in descriptive analysis of aggregate data.

[1] Note that in Manitoba, the Manitoba Metis Federation (MMF) uses the term, Metis, without the accent (Métis). This differs throughout Canada, so for some citations and research studies done outside Manitoba, the accent may be used. However, throughout the text of this research where we refer to the Manitoba Metis, the accent will not be used.

The Purpose of This Report

The overall **purpose** of this report is to examine population–based indicators of the health status, healthcare use, and social determinants of health of the Metis of Manitoba; and we ask the following questions about these indicators:

Question #1: for each indicator, is there a difference between the Metis and all other Manitobans[2] both provincially, within each of the 11 Regional Health Authorities (RHAs) of Manitoba, and within each of the three 'aggregated' non–urban areas of Rural South, Mid, and North?

Question #2: for each indicator, is there a difference between the Metis within each of the seven MMF Regions and the overall Metis provincial average?

Question #3: for each indicator, is there a difference between the Metis and all other Manitobans living within each of the 12 Winnipeg Community Areas (CAs) of Winnipeg RHA?

This report is divided into 16 chapters. Chapter 1 is an introduction and explanation of the methods and of how to read the indicator charts. Chapter 2, written by the MMF–HWD, focuses on the historical and contemporary Metis context, the MMF, and the MMF–HWD holistic participatory approach to interpreting research in seven MMF Region Knowledge Networks (KNs) across Manitoba. These KN 'discussion tables' engage MMF Regions and RHA(s) to interpret this study within the context of MMF social programs, RHA health programs and services, Metis citizen experiences, and the health literature. Arising themes are used to develop a plan to adapt existing health services to better meet Metis citizen health needs. Chapters 3–14 and 16 contain indicators all of which are based upon administrative data housed at MCHP, and thus, include data from the entire population of Manitoba. Chapter 15, based upon the Canadian Community Health Survey data from 2001 to 2005, is a representative sample of Manitobans, but does not include those living in First Nations communities.

A list of the chapter titles are as follows:

Chapter 1: Introduction & Methods
Chapter 2: MMF–KT Though a Wellness Lens
Chapter 3: Demographics
Chapter 4: Population Health Status and Mortality
Chapter 5: Prevalence of Physical Illnesses
Chapter 6: Prevalence of Mental Illness
Chapter 7: Preventive and Other Services
Chapter 8: Child Health
Chapter 9: Use of Physician Services
Chapter 10: Use of Hospital Services
Chapter 11: High Profile Surgical and Diagnostic Services
Chapter 12: Use of Home Care and PCH

[2] The reader should be aware that for northern regions in particular, "all other Manitobans" as a comparative group would be comprised of a large portion of First Nations, which is in contrast to the southern regions where First Nations would only comprise a small portion of the population. Therefore, the composition of the comparative group may differ substantially from north to south. Given that the overall health status of First Nations is worse than the Manitoba average, the health status of the comparative group of all other Manitobans in the north is poor, so the Metis group may show similar or better health status regionally. In contrast, the overall health status of all other Manitobans in the south is generally good, so the Metis group may show poorer health status regionally.

Chapter 13: Prescription Use
Chapter 14: Quality of Primary Care
Chapter 15: Health Practices and Personal Characteristics (CCHS)
Chapter 16: Education and Social Services

The Appendices also contain useful information, including a Glossary and crude rate tables (since most indicators in the report are "adjusted" rates to reflect a fair comparison between regions that have very different age structures of their populations).

A Summary of the Key Findings from Each Chapter

- In the complete report, comparative indicators are presented at the provincial level, by Regional Health Authority (RHA), by Manitoba Metis Federation (MMF) Regions, and by Winnipeg Community Areas (CA). There is extensive information in each chapter, which compares results by these geographic areas. For the purposes of the executive summary, only provincial comparisons of Metis to all other Manitobans are given. Key highlights for each chapter are given below, followed by a table which lists the actual provincial rates for Metis compared to all other Manitobans.

Chapter 3: Demographics

- For Manitoba overall, the Metis have a greater proportion of young people, a lower proportion of mid–aged, and a lower proportion of older adults when compared with all other Manitobans. For males and females combined, 0–19 year olds comprised 33.9% of the Metis population compared with 26.4% of the "all other Manitoban" population in 2006. Children less than 15 years old comprised 25.4% of the Metis population of Manitoba and 19.1% of all other Manitobans. In contrast, those aged 65+ comprised 9.1% of the Metis population and 13.9% of the "all other Manitoban" population.

Chapter 4: Population Health Status and Mortality

- Provincially, Metis in general have higher mortality rates compared to all other Manitobans (12–38% higher, depending upon the indicator used).

Chapter 5: Prevalence of Physical Illnesses

- In general, the prevalence of chronic disease conditions is higher in the Metis population compared to all other Manitobans, with the exception of osteoporosis (which is similar). Hypertension is 13% higher; arthritis, total respiratory morbidity (TRM), acute myocardial infarction (AMI), and stroke are in the 20–29% higher range; diabetes and dialysis are in the 30–39% range; and ischemic heart disease, as well as lower limb amputations related to diabetes, are much higher, at 40% and 49% respectively.

Chapter 6: Prevalence of Mental Illnesses

- In general, the age– and sex–adjusted prevalence of mental illness conditions is similar or higher in the Metis population compared to all other Manitobans. Provincially, cumulative mental illness, depression, and schizophrenia prevalence is similar, whereas anxiety disorders are 18% higher, substance abuse is 47% higher, and personality disorders is 19% higher for Metis compared to all others. However, nine of the 11 RHAs show a statistically significantly higher prevalence of cumulative mental illness disorders for the Metis. After

adjusting for differences in income and physical comorbidity, Metis have 1.32 times the likelihood of being diagnosed with one or more of the cumulative mental illness compared to all other Manitobans.

Chapter 7: Preventive and Other Services

- In general, the prevalence of prevention and screening is similar in the Metis population compared to all other Manitobans for both child and adult immunizations, slightly higher (2%) for cervical cancer screening for women aged 18–69 years, but slightly lower (4%) for mammography screening in women aged 50–69 years.

Chapter 8: Child Health

- Some child health indicators show that Metis children have a similar experience to all other Manitoba children: hospital readmission rates of newborns within four weeks of discharge, infant mortality rates, and overall child mortality rates are all similar between the two groups. However, other indicators show that Metis children may be at greater risk, with breastfeeding rates about 7% lower, teen pregnancy rates 50% higher, child injury mortality rates 14% higher, and ADHD prevalence 23% higher.

Chapter 9: Use of Physician Services

- Ambulatory physician service indicators show that Metis have 13% more ambulatory visits and 7% more consults than all other Manitobans, which is a positive finding given their overall poorer health status. As well, 85.1% of Metis have at least one physician visit per year, compared to 81.7% of all other Manitobans. However, Metis are less likely to have 'good' continuity of care, with 65.4% having good continuity, compared to 69.1% of the rest of the population.

Chapter 10: Use of Hospital Services

- Hospital separation rates show that Metis have 26% more hospital separations and 24% more injury–related hospital separations than all other Manitobans. For the Metis, the higher hospitalization rate reflects the overall poorer health status compared to all other Manitobans.

Chapter 11: High Profile Surgical and Diagnostic Services

- For high profile surgical and diagnostic procedures, Metis are either obtaining higher or similar rates of these procedures compared to all other Manitobans.
- For cardiac catheterization, coronary artery bypass graft (CABG) surgery, and knee replacement surgeries, Metis have between 21% and 53% higher rates. In all three of these surgical rates, rates appear to reflect underlying need when looking at aggregate area levels of Rural South, Mid and North with rates increasing with increasing underlying 'need' (i.e., higher PMR). For cardiac procedures, Parkland RHA and The Pas MMF Region appear to have high rates.
- For hip replacements and cataract surgeries, the rates are similar between Metis and all others and between aggregate regions.

- For discretionary surgical procedures, Metis Caesarian Section rates are similar to that of all other women, but hysterectomy rates are 23% higher. However, after adjusting for potential confounders of age differential, income, and comorbidity, hysterectomy rates are similar.

Chapter 12: Use of Home Care and Personal Care Homes

- In general, the prevalence of home care use and personal care home (PCH) use is higher for Metis compared to all other Manitobans, with Metis having 27% higher prevalence of open home care cases (4.2% vs. 3.3%) and 15% higher prevalence of older adults aged 75+ living in a PCH (14.2% vs. 12.3%). However, the provincial admission rate to PCH for those age 75+ (Metis 3.1%, others 2.9%, NS) and the median wait times for PCH (Metis 8.1 weeks, others 7.4 weeks, NS) are similar for both Metis and all other Manitobans. Higher home care and personal care home use may reflect higher morbidity in Metis.

Chapter 13: Prescription Use

- Generally, prescription drug use in the Metis population is significantly higher compared to all other Manitobans, with the exception of defined daily doses per resident for opioids for which rates are similar. Prescriptions for antidepressants were 11% higher, 14% higher for antipsychotics, and 19% higher for antibiotics. In terms of benzodiazepine prescriptions, 44% more Metis had one or more prescriptions in one year (10.8% vs. 7.5 %), and 66% more had repeat prescriptions (i.e., three or more prescriptions in one year) (6.3% vs. 3.8%). The rate of defined daily doses per resident for benzodiazepines was 22% greater for Metis. Thirty–six percent more Metis had a prescription for one or more opioids (20.8% vs. 15.3%), and 75% more (7.7% vs. 4.4%) had repeat prescriptions.

Chapter 14: Quality of Primary Care

- The quality of primary care is similar for Metis and all other Manitobans in terms of antidepressant prescription follow–up, asthma care, and post–AMI care. However, two quality indicators show that the Metis may be receiving lower quality of care: there is a slightly lower referral for annual eye examinations for Metis people with diabetes, and there is a 25% higher prescribing of potentially inappropriate benzodiazepines for community–dwelling Metis older adults aged 75+.

- In general, it is problematic to see such low percentages of people receiving good primary quality of care—around 60% for antidepressant prescription follow–up, around 64% for asthma care, and around 30% for annual eye exams for those having diabetes. The prescribing of beta blockers is a little more promising, at around 80% of those having had an AMI. However, around 20–25% of community dwelling older adults aged 75+ were prescribed benzodiazepines for an extended period of time. Due to health risks associated with benzodiazepine use amongst older adults aged 75+, further study and clinical awareness strategies may be necessary.

Chapter 15: Health Practices & Personal Characteristics

Note: This chapter's indicators are based on survey data from the Canadian Community Health Survey (CCHS), with the limitation that all people living in First Nations communities and some remote communities were excluded from the survey. Hence, the generalizeability of the rates in RHAs that

include a high percentage of First Nations living 'on reserve' (such as Burntwood RHA) is limited by that exclusion.

- In general, the self–rated health of the Metis is poorer than for all other Manitobans, which is not surprising given the higher burden of chronic disease. However, what is somewhat surprising are the similar levels of life satisfaction, emotional well–being, and self–perceived stress (including work stress) of Metis and all other Manitobans. This may be due to an attitudinal approach to life which does not necessarily relate satisfaction, emotional well–being, or stress to physical health or disease.
- In some of the lifestyle factors of health, the Metis have a lower consumption of fruits and vegetables, slightly higher alcohol consumption, and much higher smoking rates (53% higher) including exposure to smoke in the home (63% higher), compared to all other Manitobans. Compared to all other Manitobans, the percentage of Metis being overweight or obese is higher, as is the percentage of Metis reporting limitations of activities due to physical or mental health problems.
- It is somewhat non–intuitive, given the behavioural patterns above, that the Metis have higher total physical activity levels (work, travel time, and leisure combined) compared to all other Manitobans.
- Metis youth have much higher smoking rates (87% higher) and alcohol consumption (50% higher) and were more likely to report ever having had sexual intercourse (57% higher). However, sexually active Metis youth were similar to all other Manitoba youth in terms of use of condoms or contraceptive pills.

Chapter 16: Education and Social Services

- In general, the education and social services outcomes of the Metis are poorer than for all other Manitobans. Metis children are more likely to have transferred schools or to be retained in school. They are less likely to pass the Grade 12 Language Arts or Mathematics Standards Tests or complete high school within six years of enrolling in Grade 9.
- Metis children are over twice as likely to be in families receiving provincial income assistance (IA), or as young adults (ages 18–19), to be receiving IA themselves. Metis children are 24% more likely to be under the care of Child and Family Services.

Table E1: Summary of Indicators, Comparing Rates for Metis and All Other Manitobans at the Provincial Level

Indicator (age– and sex–adjusted unless otherwise indicated) For details as to the description of the indicator, please refer to the Chapter, or to the Glossary in the Appendix	**Provincial difference between Metis and all others** RR = Relative Rate comparison; NS=Not statistically different[1]; otherwise p<.05	**Percentage difference between Metis and all others, if statistically significant. If not, then it is designated by NS[2]**
Chapter 4: Population Health Status and Mortality		
Premature Mortality Rate (PMR—death before the age of 75 years)	4.0 vs. 3.3 per 1000; RR=1.21	21% higher
Total Mortality Rate	9.7 vs. 8.4 per 1000; RR=1.15	15% higher
Injury Mortality Rate	0.58 vs. 0.51 per 1000; RR=1.14	14% higher
Life Expectancy for Females	81.0 vs. 81.8 years; RR=0.99, NS	NS
Life Expectancy for Males	75.0 vs. 76.8 years; RR=0.98	2% lower
Potential Years of Life Lost (age 1–75)	64.6 vs. 54.6 per 1000; RR=1.18	18% higher
Suicide Rate	0.17 vs. 0.15 per 1000; RR=1.13, NS	NS
Suicide or Suicide Attempt Prevalence	0.11% vs. 0.08%; RR=1.38	38% higher
All–Cause 5–year Mortality Rates for Individuals with Diabetes	20.8% vs. 18.6%; RR=1.12	12% higher
All–Cause 5–year Mortality Rates for Individuals with Cumulative Mental Illness	8.2% vs. 7.9%; RR=1.04, NS	NS
Chapter 5: Prevalence of Physical Illnesses		
Hypertension, 19+	27.9% vs. 24.8%; RR=1.13	13% higher
Arthritis, 19+	24.2% vs. 19.9%; RR=1.22	22% higher
Total Respiratory Morbidity, all ages	13.6% vs. 10.6%; RR=1.28	28% higher
Diabetes, 19+	11.8% vs. 8.8%; RR=1.34	34% higher
Rate of Lower Limb Amputations in People with Diabetes, 19+	24.1 vs. 16.2 per 1000; RR=1.49	49% higher
Ischemic Heart Disease, 19+	12.2% vs. 8.7%; RR=1.40	40% higher
Osteoporosis, 50+	12.2% vs. 12.3%; RR=0.99, NS	NS
Dialysis Initiation, 19+	0.46% vs. 0.34%; RR=1.35	35% higher
Rate of Acute Myocardial Infarction, 40+	5.4 vs. 4.3 per 1000; RR=1.26	26% higher
Rate of Stroke Incidence, 40+	3.6 vs. 2.9 per 1000; RR=1.24	24% higher

[1]NS means Not Statistically significantly different between Metis and all others. If the RR does not have an "NS", then there is a statistically significantly difference between the Metis' and the all others' rate (p<.05).

[2]This is calculated by taking the Metis rate minus the all other rate, then dividing this number by the all other rate, and multiplying by 100 to get a percentage difference. For example, for diabetes this calculation would be [(11.8–8.8)/8.8] x100 = 34% higher. Note: if the RR is 1.34, then the percentage difference will be the decimal part, i.e., .34 or 34% higher.

Source: MCHP/MMF, 2010

Chapter 6: Prevalence of Mental Illness		
Cumulative mental illness (prevalence of population experiencing at least one of depression, anxiety disorders, substance abuse, schizophrenia and/or personality disorders)	28.4% vs. 25.9%; RR=1.10, NS	NS (Note: cumulative mental illness prevalence is statistically significantly higher for Metis in nine of the 11 RHAs)
Depression[3]	22.0% vs. 20.4%; RR=1.08, NS	NS
Anxiety Disorders	9.4% vs. 8.0%; RR=1.18	18% higher
Substance Abuse	7.2% vs. 4.9%; RR=1.47	47% higher
Schizophrenia	1.07% vs. 1.14%; RR=0.94, NS	NS
Personality Disorders	1.08% vs. 0.91%; RR=1.19	19% higher
Dementia	12.4% vs. 10.6%; RR=1.17	17% higher
Chapter 7: Preventive and Other Services		
Complete child Immunizations at age two years	72.0% vs. 71.2%; RR=1.01, NS	NS
Adult Influenza Immunization aged 65+	62.2% vs. 62.5%; RR=1.00, NS	NS
Mammography Screening, women aged 50–69 years	59.5% vs. 61.8%; RR=0.96	4% lower
Cervical Cancer Screening, women aged 18–69 years	69.0% vs. 67.8%; RR=1.02, NS	NS
Chapter 8: Child Health		
Breastfeeding Initiation Rates (crude percent of newborns)	76.0% vs. 81.7%; RR=0.93	7% lower
Teen Pregnancy Rates (age–adjusted rate per thousand females aged 15–19 years)	70.2 vs. 46.4 per 1000; RR=1.51	51% higher
Newborn Hospital Readmission Rate within 4 weeks of birth discharge (crude rate per 1000)	35.8 vs. 32.5 per 1000; RR=1.10, NS	NS
Infant Mortality Rate (crude rate per 1000)	5.7 vs. 6.8 per 1000; RR=0.84, NS	NS
Child Mortality Rate (age– and sex–adjusted rate per 1000 aged 1–19 years)	0.33 vs. 0.36 per 1000; RR=0.92, NS	NS
Child Injury Mortality (crude percentage of child mortality rate due to injury)	71.8% vs. 63.1%; RR=1.14	14% higher
ADHD (percentage of children aged 5–19 years)	3.7% vs. 3.0%; RR=1.23	23% higher
Chapter 9: Use of Physician Services		
Ambulatory Physician Visit Rates (visits per person per year, age– and sex–adjusted)	5.4 vs. 4.8; RR=1.13	13% higher
Ambulatory Consultation Rates (visits per person per year, age– and sex–adjusted)	0.30 vs. 0.28; RR=1.07	7% higher
Continuity of Care (percentage of people receiving 'good' continuity of care over a three–year period)	65.4% vs. 69.1%; RR=0.95	5% lower

[3]The five separate components of "cumulative mental illness" include depression, anxiety disorders, substance abuse, schizophrenia and personality disorders. The prevalence of these five will add up to greater than the cumulative mental illness prevalence, due to the degree of co–existing conditions.

Source: MCHP/MMF, 2010

Chapter 10: Use of Hospital Services		
Hospital Separation Rate (hospitalizations per 1000 persons per year, age– and sex–adjusted)	194 vs. 154; RR=1.26	26% higher
Injury Hospital Separation Rate (hospitalizations per 1000 persons per year, age– and sex–adjusted)	10.3 vs. 8.3; RR=1.24	24% higher
Chapter 11: High Profile Surgical and Diagnostic Services		
Cardiac Catheterization rates (per 1000 age 40+)	9.5 vs. 6.6; RR=1.44	44% higher
Coronary Artery Bypass Graft Surgery (CABGs) rates (per 1000 age 40+)	2.3 vs. 1.5; RR=1.53	53% higher
Hip Replacement Rates (per 1000 age 40+)	2.5 vs. 2.4; RR=1.04, NS	NS
Knee Replacement Rates (per 1000 age 40+)	3.5 vs. 2.9; RR=1.21	21% higher
Cataract Surgery Rates (per 1000 age 50+)	29.7 vs. 27.8; RR=1.07, NS	NS
Caesarian Section (% of live births)	19.8% vs. 20.2%; RR=0.98, NS	NS
Hysterectomy Rates (per 1000 age 25+)	4.8 vs. 3.9; RR=1.23	23% higher
Chapter 12: Use of Home Care and PCH		
Annual percentage of population with an Open Home Care Case, all ages, 2005/06–2006/07	4.2% vs. 3.3%; RR=1.27	27% higher
Annual percentage of population aged 75+ with Admission to PCH, 2004/06–2006/07	3.1% vs. 2.9%; RR=1.07, NS	NS
Percentage of population aged 75+ Living in PCH (%), 2004/06–2006/07	14.2% vs. 12.3%; RR=1.15	15% higher
Median Waiting Time (weeks) for PCH Admission, aged 75+, 2004/06–2006/07	8.1 weeks vs. 7.4 weeks; RR=1.09, NS	NS
Chapter 13: Prescription Use		
Antibiotic Use (percent of residents with 1 or more prescriptions in 1 year, age– and sex–adjusted)	41.7% vs. 35.1%; RR= 1.19	19% higher
Antidepressant Use (percent of residents with 2 or more prescriptions in 1 year, age– and sex–adjusted)	8.9% vs. 8.0%; RR= 1.11	11% higher
Antipsychotic Use (percent of residents with 1 or more prescriptions in 5 years, age– and sex–adjusted)	4.2% vs. 3.7%; RR= 1.14	14% higher
Opioid Prescriptions (percent of residents aged 16+ years with 1 or more prescriptions in 1 year, age– and sex–adjusted)	20.8% vs. 15.3%; RR= 1.36	36% higher
Repeated Opioid Prescriptions (percent of residents aged 16+ years with 3 or more prescriptions in 1 year, age– and sex–adjusted)	7.7% vs. 4.4%; RR= 1.75	75% higher
Opioid DDDs (rate of doses per resident aged 16+ years with 1 or more prescriptions in 1 year, age– and sex–adjusted)	88.6 vs. 75.6; RR= 1.17, NS	NS
Benzodiazepine Prescriptions (percent of residents aged 16+ years with 1 or more prescriptions in 1 year, age– and sex–adjusted)	10.8% vs. 7.5%; RR= 1.44	44% higher
Repeated Benzodiazepine Prescriptions (percent of residents aged 16+ years with 3 or more prescriptions in 1 year, age– and sex–adjusted)	6.3% vs. 3.8%; RR= 1.66	66% higher

Source: MCHP/MMF, 2010

Benzodiazepine DDDs (rate of doses per resident aged 16+ years with 1 or more prescriptions in 1 year, age– and sex–adjusted)	180.9 vs. 147.9; RR= 1.22	22% higher
Chapter 14: Quality of Primary Care		
Antidepressant Prescription Follow–Up (crude % of newly depressed patients receiving 3+ physician visits in 4 months)—note: a higher rate indicates "better care"	59.1% vs. 58.8%; RR=1.01, NS	NS
Asthma Care: Controller Medication Use (crude % of people with asthma on appropriate long–term medications)—note: a higher rate indicates "better care"	64.4% vs. 64.2%; RR=1.00, NS	NS
Diabetes Care: Annual Eye Exam (crude % of people with diabetes having an annual eye exam)—note: a higher rate indicates "better care"	32.5% vs. 34.0%; RR=0.96	4% lower
Post AMI Care: Beta Blockers (crude % of AMI patients receiving beta–blocker within 4 months)—note: a higher rate indicates "better care"	78.5% vs. 81.2%; RR=0.97, NS	NS
Potentially Inappropriate Prescribing of Benzodiazepines to Community–Dwelling Older Adults 75+ (crude % seniors with two or more prescriptions or greater than a 30–day supply annually)—note: a lower rate may indicate more appropriate care	24.7% vs. 19.8%; RR=1.25	25% higher
Chapter 15: Health Practices and Personal Characteristics (CCHS)		
Self–Rated Health (% age 12+ reporting excellent or very good health)	48.9% vs. 60.8%; RR=0.80	20% lower
Life Satisfaction (% age 12+ satisfied or very satisfied)	92.8% vs. 91.8%; RR=1.01, NS	NS
Emotional Well–Being (% age 12+ reporting being happy and interested in life)	72.3% vs. 75.5%; RR=0.96, NS	NS
Average Daily Consumption of Fruits and Vegetables (% age 12+ reporting consuming fruits and vegetables five or more times per day)	20.9% vs. 30.6%; RR=0.68	32% lower
Total Physical Activity (% age 15–75 who are physically active—includes work, leisure, and travel time)	37.2% vs. 29.0%; RR=1.28	28% lower
Self–Perceived Stress (% age 15+ with 'quite a bit' to 'extreme' amounts of stress)	23.0% vs. 21.1%; RR=1.09, NS	NS
Self–Perceived Work Stress (% age 15–75 with 'quite a bit' to 'extreme' amounts of work stress)	27.6% vs. 27.5%; RR=1.00, NS	NS
BMI (% age 18+ in the overweight or obese category)	65.1% vs. 55.1%; RR=1.18	18% higher
Frequency of Alcohol Use (% age 12+ having five or more alcoholic drinks on one occasion per month)	21.2% vs. 17.6%; RR=1.20	20% higher
Current Smoking (% age 12+ who smoked daily or occasionally)	33.3% vs. 21.7%; RR=1.53	53% higher
Exposure to Smoke (% age 12+ exposed to smoke inside the home)	27.2% vs. 16.7%; RR=1.63	63% higher
Limitation of Activities (% age 12+ who are restricted in their activities due to physical and/or mental health problem)	39.1% vs. 31.3%; RR=1.25	25% higher

Source: MCHP/MMF, 2010

Youth (ages 12–19 years) only, crude weighted percentages		
Youth: current smoking	26.2% vs. 14.0%; RR=1.87	87% higher
Youth: alcoholic drink in the past week	28.3% vs. 18.9%; RR=1.50	50% higher
Youth: ever had sexual intercourse	63.1% vs. 40.2%; RR=1.57	57% higher
Youth: had sexual intercourse in the past year for those ever having sexual intercourse	89.7% vs. 93.0%; RR=0.96, NS	NS
Youth: used a condom last time they had sex	78.6% vs. 74.5%; RR=1.06, NS	NS
Chapter 16: Education and Social Services		
Grade 3 Students with No School Changes in Four Years (2003–2006) (crude %)	66.4% vs. 78.3%; RR=0.85	15% lower
Grade 12 Language Arts Standards Test Performance On–Time Pass Rate (crude % of 18–year–olds who should have written the test)	46.5% vs. 58.1%; RR=0.80	20% lower
Grade 12 Mathematics Standards Test Performance On–Time Pass Rate (crude % of 18–year–olds who should have written the test)	37.0% vs. 49.3%; RR=0.75	25% lower
High School Completion Rates within Six Years of Enrolling in Grade 9 (crude %)	66.2% vs. 78.4%; RR=0.84	16% lower
Retention Rates (retained at least once) from Kindergarten to Grade 8 (age– and sex–adjusted %)	4.6% vs. 2.8%; RR=1.64	64% higher
Children in families Receiving Provincial Income Assistance (age– and sex–adjusted %)	28.5% vs. 13.1%; RR=2.18	118% higher
Young Adults aged 18–19 Receiving Provincial Income Assistance (age– and sex–adjusted %)	21.1% vs. 9.8%; RR=2.15	115% higher
Prevalence of Children in Care (age– and sex–adjusted %)	4.1% vs. 3.3%; RR=1.24	24% higher

Source: MCHP/MMF, 2010

A Summary of the Key Findings from Regression Modelling

For selected health indicators, more complex regression models were run to analyze the associations with the outcome of interest. Besides age and sex, these included such variables as illness burden, average household income of the area, continuity of care (defined as having the majority of a person's physician visits over a two–year period from the same physician), and geography.

For the Metis of Manitoba, continuity of care was associated with lower amputation rates for people with diabetes (adjusted OR=0.62, p<.05), higher two–year–old immunization rates (aOr=1.5, p<.05), higher mammography rates (aOR=1.6, p<.05), and higher cervical cancer screening rates (aOR=1.96, p<.05).

Average household income of the area of residence was also strongly associated with outcomes for the Metis—the higher the income, the lower the prevalence of diabetes, rate of amputation for people with diabetes, prevalence of mental disorders, and rates of teen pregnancy. As well, the higher the income, the higher were the immunization, mammography, and cervical cancer screening rates.

Even after controlling for a number of predictors, such as age, sex, income, and other physical illnesses, two MMF Regions showed lower than expected rates of diabetes and related amputations and higher than expected rates of mammography and cervical cancer screening—Southeast and Interlake MMF Regions. In contrast, The Pas MMF Region and Thompson MMF Region showed higher than expected diabetes prevalence and lower than expected mammography and cervical cancer screening rates. Winnipeg MMF had somewhat mixed outcomes with lower diabetes prevalence, higher cumulative mental illness prevalence, lower two–year–old immunization rates, lower mammography rates, and higher cervical cancer screening rates. Further discussion with the MMF Regions and RHAs may be able to give context to these and other findings.

In Conclusion

In general, this report found higher mortality rates in the Metis population compared to the rest of Manitobans. As well, the prevalence of physical illnesses (and some mental illnesses) was higher. On the other hand, Metis people appear to be accessing the healthcare system with similar rates of screening and prevention activities and higher use of both physicians and hospitals (which is appropriate, given the greater burden of illness). The continuity of physician care for Metis appears less than that of all other Manitobans, which is a concern given the association of continuity of care with various positive health outcomes. Metis youth show greater risk than the other provincial youth, including higher smoking and alcohol use, lower educational attainment, and higher use of social services. Given the high portion of Metis that are under the age of 30, this is a key area of focus.

It is critical for planners and decision–makers to look at the patterns of health, healthcare, and social services use at the smaller geographical regions (MMF Regions, RHAs, sub–areas of Winnipeg) provided in this report, not just the provincial averages. For every indicator there is wide variation both within the Metis population itself and between the Metis and all others living in those areas. Looking for areas with lower mortality and morbidity, higher use of preventive and screening services, lower youth risk behavior, and higher educational attainment may yield productive discussion and learning opportunities. Such factors are considered by MMF Knowledge Networks (MMF Region/RHA discussion tables) described in this report.

Where to Find the Information from This Report

We hope that this information will be a useful tool in the effort to improve the health and well–being of the Metis population in Manitoba. If you would like to access an **electronic version of this report,** which may help you in creating your own summary presentations, you will find this on the website of the Manitoba Centre for Health Policy, under Publications or through links on the Manitoba Metis Federation website. You will also find **Excel spreadsheets** for the graphs in this report (and graphs from other key reports of interest to planners) by going to Publications from the MCHP website, scrolling to the Metis Atlas, and then selecting the "Data Extras" link.

- The MCHP website address is **http://www.umanitoba.ca/faculties/medicine/units/mchp/**
- The MMF website address, with links to MCHP for the report, is **http://www.mmf.mb.ca/**

Chapter 1: Introduction and Methods

1.1 The Background of the Research Team

Although many descriptive studies are available on the health of Metis[1] people living in Canada, the studies are often not specific to Manitoba Metis, nor are they 'population–based', i.e., a comparison including all Manitoba Metis compared to all other Manitobans. Planners and decision–makers require valid data on health status, the use of the healthcare system, and on various social determinants of health for Metis in Manitoba. For this reason, Manitoba Health requested that the Manitoba Centre for Health Policy (MCHP) work together with the Manitoba Metis Federation (MMF) to produce such information.

The Manitoba Centre for Health Policy (MCHP) is a unit of the Department of Community Health Sciences in the University of Manitoba's Faculty of Medicine. According to its mission, MCHP is a research centre of excellence that conducts world class population–based research on health services, population and public health, and the social determinants of health. MCHP develops and maintains the comprehensive population–based data repository on behalf of the Province of Manitoba for use by the local, national and international research community**.** MCHP promotes a collaborative environment to create, disseminate and apply its research. The work of MCHP supports the development of policy, programs and services that maintain and improve the health of Manitobans.

The Manitoba Metis Federation—Health and Wellness Department (MMF–HWD), formed in July 2005, undertakes both qualitative and quantitative (aggregate data analysis and knowledge translation) research. The Department's main aims are to inform provincial health policies and programs, and to ensure Metis citizens can participate in informing health planning at provincial and regional levels. For this study, MMF–HWD research and health administration staff were integral members of a research team with the MCHP research staff. The MMF members of this research team participated in guiding the study for Metis context and in collaboratively undertaking the descriptive analysis of the aggregate data with the MCHP. Through this joint research team process, the academically trained MMF researchers (MD, PhD, MSc) and experienced health administrators were provided with extensive training and experience in aggregate data analysis.

1.2 Purpose of this Report and Outline of the Chapters

The overall **purpose** of this report is to examine population–based indicators of the health status, healthcare use and social determinants of health of the Metis people of Manitoba, and to ask the following questions about these indicators:

Question #1: for each indicator, is there a difference between the Metis and all other Manitobans provincially, within each of the 11 Regional Health Authorities (RHAs) of Manitoba, and within each of the three 'aggregated' non–urban areas of Rural South, Mid, and North?

Question #2: for each indicator, is there a difference between the Metis within each of the seven MMF Regions and the overall Metis provincial average?

[1] Note that in Manitoba, the Manitoba Metis Federation (MMF) uses the term, Metis, without the accent (Métis). This differs throughout Canada, so for some citations and research studies done outside Manitoba, the accent may be used. However, throughout the text of this research where we refer to the Manitoba Metis, the accent will not be used.

Question #3: for each indicator, is there a difference between the Metis and all other Manitobans living within each of the 12 Winnipeg Community Areas (CAs) of Winnipeg RHA?

The writing of this report was a collaborative undertaking by the MCHP and MMF researchers. Jointly, every graph for all 80+ indicators was reviewed three times—once to ensure there were no obvious problems in the scientific calculation, once to ensure the Metis context was captured, and once to describe each graph in bullet form. A first draft of each chapter, based on the bulleted description, was written by MCHP (Martens for Chapters 3–11, 14–16, and Burland for Chapters 12–13), then reviewed and edited where needed by the MMF—with the exceptions of Chapters 1 and 2. Chapter 1 was written by MCHP (Martens) with only minor edits on the MMF–related content; and Chapter 2 was written by MMF (Bartlett & Carter), again with only minor edits by MCHP.

This report is divided into 16 chapters—Chapters 3 to 16 contain indicators all of which are based upon administrative data housed at MCHP, with the exception of Chapter 15. Chapter 1 is an introduction and explanation of the methods and of how to read the indicator charts. Chapter 2 focuses on the MMF Health and Wellness Department's holistic operational model and its participatory approach to interpretation of research (knowledge translation) into practical applications via seven MMF Region Knowledge Networks (KNs) across Manitoba. The KNs, after receiving extensive training, interpret information from this Metis health status study, MMF social programs, RHA health programs and services, MMF citizen experiences, and the literature. This interpretation is used to create themes that are used in the development of a plan to adapt existing health services to better meet Metis citizen health and social needs.

Chapter 15 uses the Canadian Community Health Surveys (a combination of all cycles of the survey from 2001 to 2005), which have the advantage of obtaining information not available in the Repository (such as smoking status), but the distinct disadvantage of not being population–based. In other words, the CCHS data are based upon a survey of a sample of Manitobans, but excludes all people living in First Nations communities (i.e., 'on–reserve'). For most RHAs, this represents an exclusion of a relatively small percentage of the population. However, for Burntwood RHA in particular, this could represent half or more of the population, so the comparison of Metis to all other Manitobans for indicators based upon the CCHS must be used with caution, particularly in Burntwood and NOR–MAN RHAs. For all other chapters, we used the administrative databases housed at MCHP that contain information about the entire population (including people living in First Nations communities), so those indicators are truly population–based comparisons.

A list of the chapter titles are as follows:

Chapter 11: High Profile Surgical and Diagnostic Services
Chapter 12: Use of Home Care and PCH
Chapter 13: Prescription Use
Chapter 14: Quality of Primary Care
Chapter 15: Health Practices and Personal Characteristics (CCHS)
Chapter 16: Education and Social Services

The Appendices also contain useful information.

- Appendix 1 is the Glossary, where various terms used in the report are defined and sometimes additional information is given beyond that in the relevant chapter.
- Appendix 2 gives crude rate tables, included because most of the indicators in the body of the text give "adjusted" rates to reflect a fair comparison between regions that have very different age structures of their populations (see Chapter 1, Section 1.5 for a further description of crude versus adjusted rates).

1.3 What's in this Report: the Types of Graphs, Tables, and Analyses

The focus of this report is to give insight to policy makers, decision–makers, and planners on patterns of various Metis health status, healthcare use, and social services outcome indicators.

Chapters 4 through 16 have a consistent formatting of information. When previous MCHP research has found little difference by sex, the indicators are combined for both males and females. However, occasionally some indicators are separated by sex—when it is critical to understanding the patterns. In these chapters, you will find the following:

- The first of three bar graphs of the indicator shows a comparison of Metis to all other Manitobans living in the same geographical region—in this case, by the eleven Regional Health Authorities (RHA), by non–urban aggregate areas of Manitoba (Rural South, Mid and North), and overall provincially.
- The second bar graph shows a comparison of the seven MMF Regions, for Metis people only, and how each of these regions compares to the overall Metis provincial average.
- The third bar graph shows a comparison of the twelve Community Areas (CAs) within Winnipeg RHA, comparing Metis to all other Winnipeggers living in the same geographical region.

For a selected number of indicators, there are also **results from two logistic regression models**. One compares Metis and all other Manitobans after controlling for various other explanations of age, sex, socioeconomic status, underlying comorbidity, etc. The other compares Metis only by the MMF Regions (also controlling for various underlying explanations). In other words, for each given outcome indicator, what are the best predictors of who would have high or low rates, or which region would have high or low rates, even after controlling for differences in individuals between regions (such as individuals being sicker, or older, or from a lower socioeconomic group).

Each chapter also includes a Key Findings section at the beginning of the chapter, which summarizes the findings for Metis in a table format. At the end of each chapter, a section is also included that compares results of this study to any other relevant Metis study in the literature.

The outcome indicators reflect both the planning and decision–making needs, and the availability of population–based data to measure these outcomes. As well, previous MCHP research reports have explored the validity of these indicators using administrative data.

1.4 How to Read this Report: Geographical Boundaries

Regional Health Authorities (RHAs) and sub–divisions within Winnipeg RHA:

There are currently 11 RHAs in Manitoba; one is the Winnipeg RHA encompassing the provincial capital city of Winnipeg and the other 10 being non–Winnipeg RHAs. In 1997, the government of Manitoba established 11 non–Winnipeg RHAs. Two of these amalgamated in 2002 to become Assiniboine RHA. This report gives indicator outcome information for both Metis people and all others living in the **11 RHAs: Assiniboine, Brandon, Burntwood, Central, Churchill, Interlake, NOR–MAN[2], North Eastman, Parkland, South Eastman, and Winnipeg.**

Winnipeg planners have worked on several ways in which to sub–divide Winnipeg RHA, and for purposes of this report, we are using the **twelve Winnipeg Community Areas (CAs): Fort Garry, Assiniboine South, St. Boniface, St. Vital, Transcona, River Heights, River East, Seven Oaks, St. James–Assiniboia, Inkster, Downtown, and Point Douglas.**

Aggregate Areas in the RHA graphs:

For purposes of showing differences throughout the province when giving comparisons in the RHA bar graph, the non–urban RHAs have been grouped into "North", "Mid", and "Rural South." At times, due to sample sizes being too small for all 12 Winnipeg CAs, these have also been grouped to three sub–regions of Winnipeg called, "Winnipeg Most Healthy", "Winnipeg Average Health", and "Winnipeg Least Healthy", based upon the premature mortality rates of the areas being lower than, similar to, or higher than the provincial average PMR (see Chapter 2 for further explanation).

In the first bar graph, three aggregate areas for non–urban RHAs (not including Winnipeg and Brandon RHAs) are displayed and defined as follows:
North: an aggregate of Churchill, Burntwood, and NOR–MAN RHAs
Mid: an aggregate of North Eastman, Interlake, and Parkland RHAs
Rural South: an aggregate of South Eastman, Central, and Assiniboine RHAs

Note that these aggregate areas do not include Brandon or Winnipeg RHAs, so to get a complete Manitoba picture, the three rural aggregate areas plus the two urban RHAs must be considered.

Figure 1.1 illustrates the eleven RHA geographical boundaries, as well as the Winnipeg RHA's twelve CAs.

MMF Regions in the graphs:

Figure 1.2 illustrates the seven Manitoba Metis Federation (MMF) Regions geographically. For further details of the MMF Regions, please refer to Chapter 2.

[2] Note: the correct written form of NOR–MAN RHA has capital letters throughout. However, for purposes of this report, NOR–MAN is indicated by Nor–Man in graphs and tables in order to standardize naming of RHAs. The report text will use the correct written form of NOR–MAN.

The **seven MMF Regions** are: **Southeast, Interlake, Northwest, Winnipeg, Southwest, The Pas, and Thompson**. For purposes of this report, they are referred to as MMF Regions (for example, Southeast MMF Region). However, there are some regions which use a slightly different syntax—for example, The Pas uses the term, "MMF Region The Pas." Rather than changing the syntax for certain regions, this report keeps all the names in the former format (i.e., The Pas MMF Region), knowing that this is not necessarily correct for all regions.

Figure 1.3 shows an overlay of the MMF and RHA geographical boundaries. Note that some MMF Regions contain more than one RHA. Table 1.1 gives the population counts for each of the RHAs, Winnipeg CAs and MMF Regions.

Figure 1.1: Map of the 11 Regional Health Authorities (RHAs) of Manitoba and the 12 Community\ Areas of Winnipeg RHA

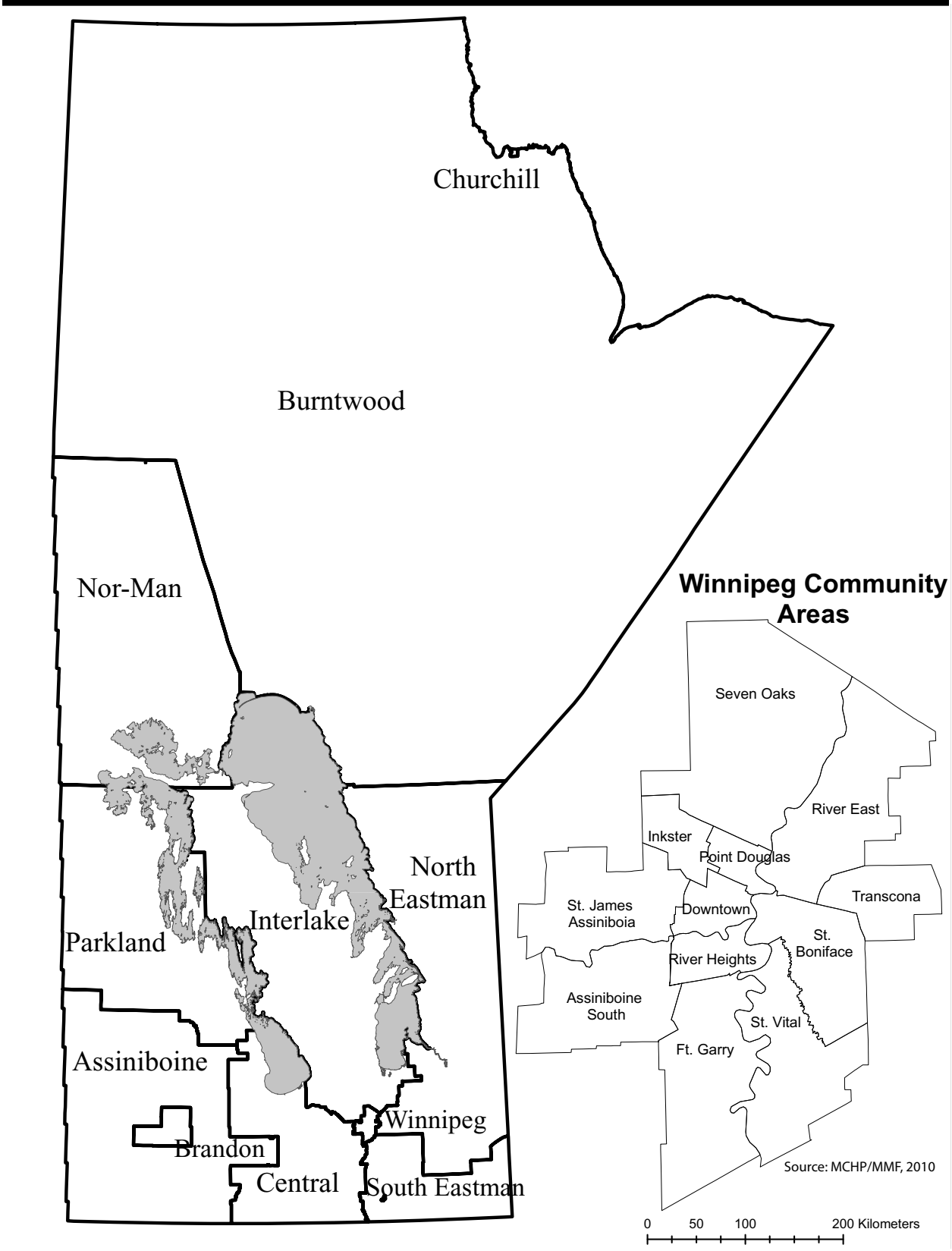


Figure 1.2: Map of the seven Regions of the Manitoba Metis Federation

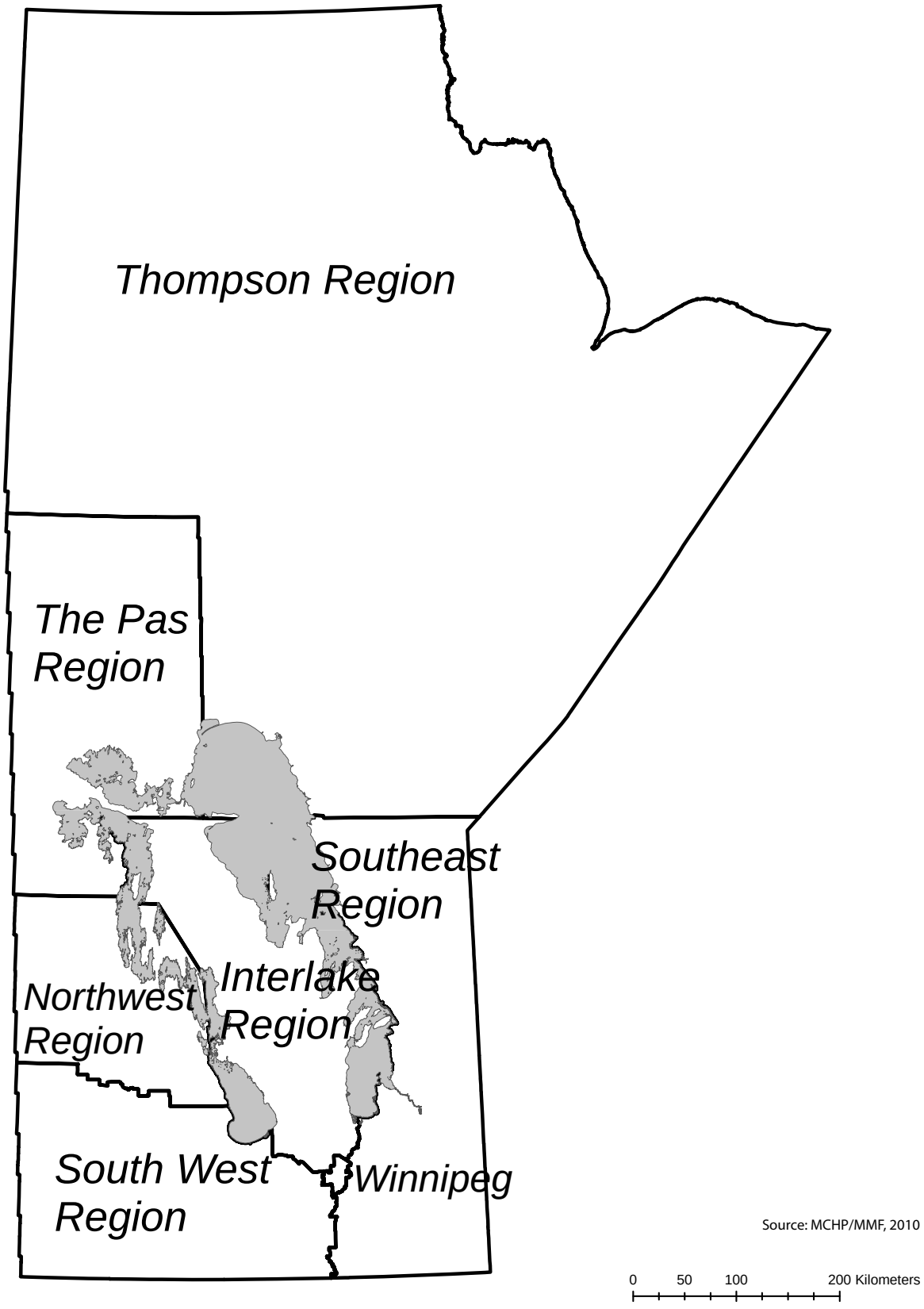


Figure 1.3: Geographical Overlay of the RHAs and the MMF Regions of Manitoba

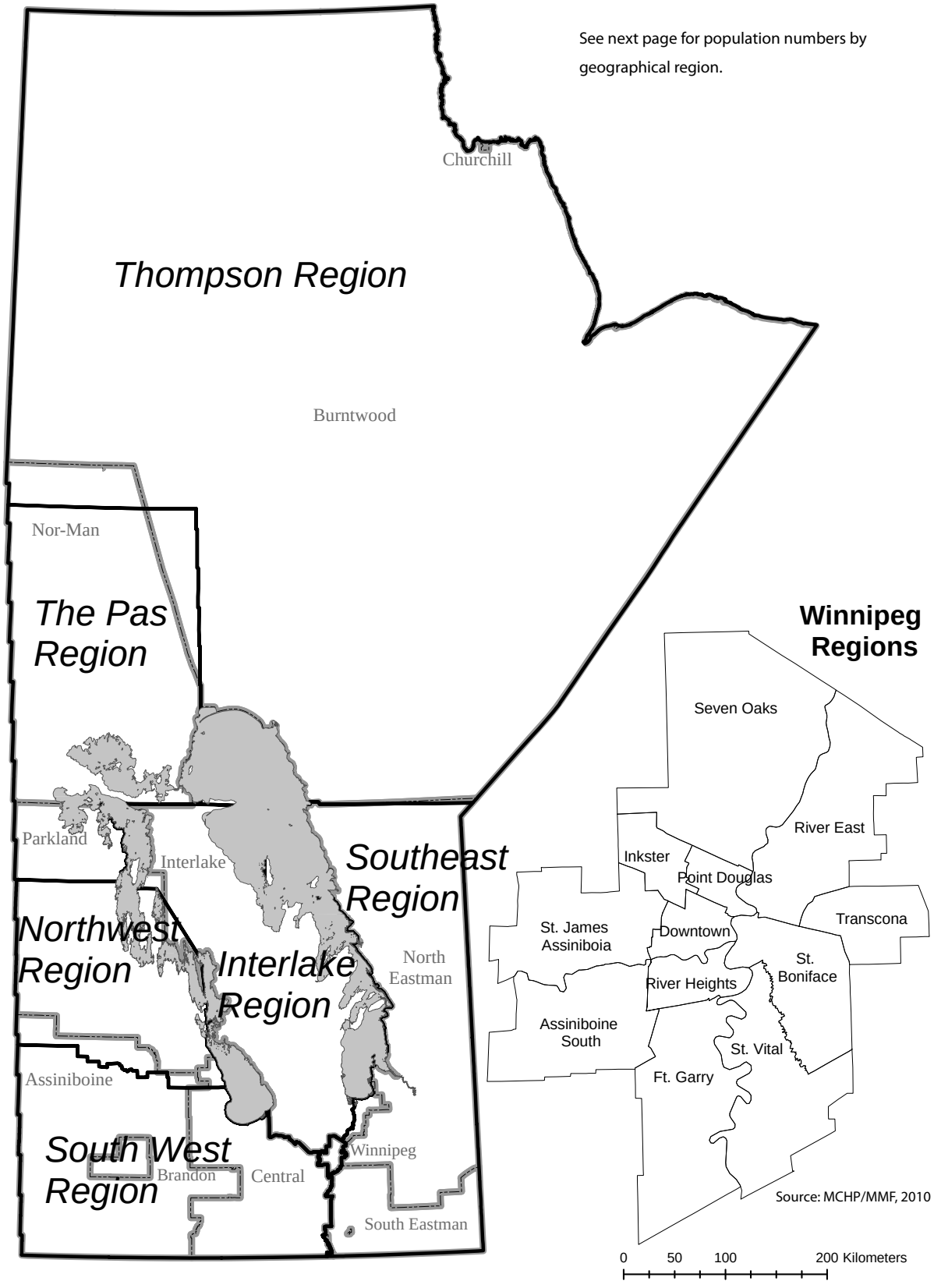
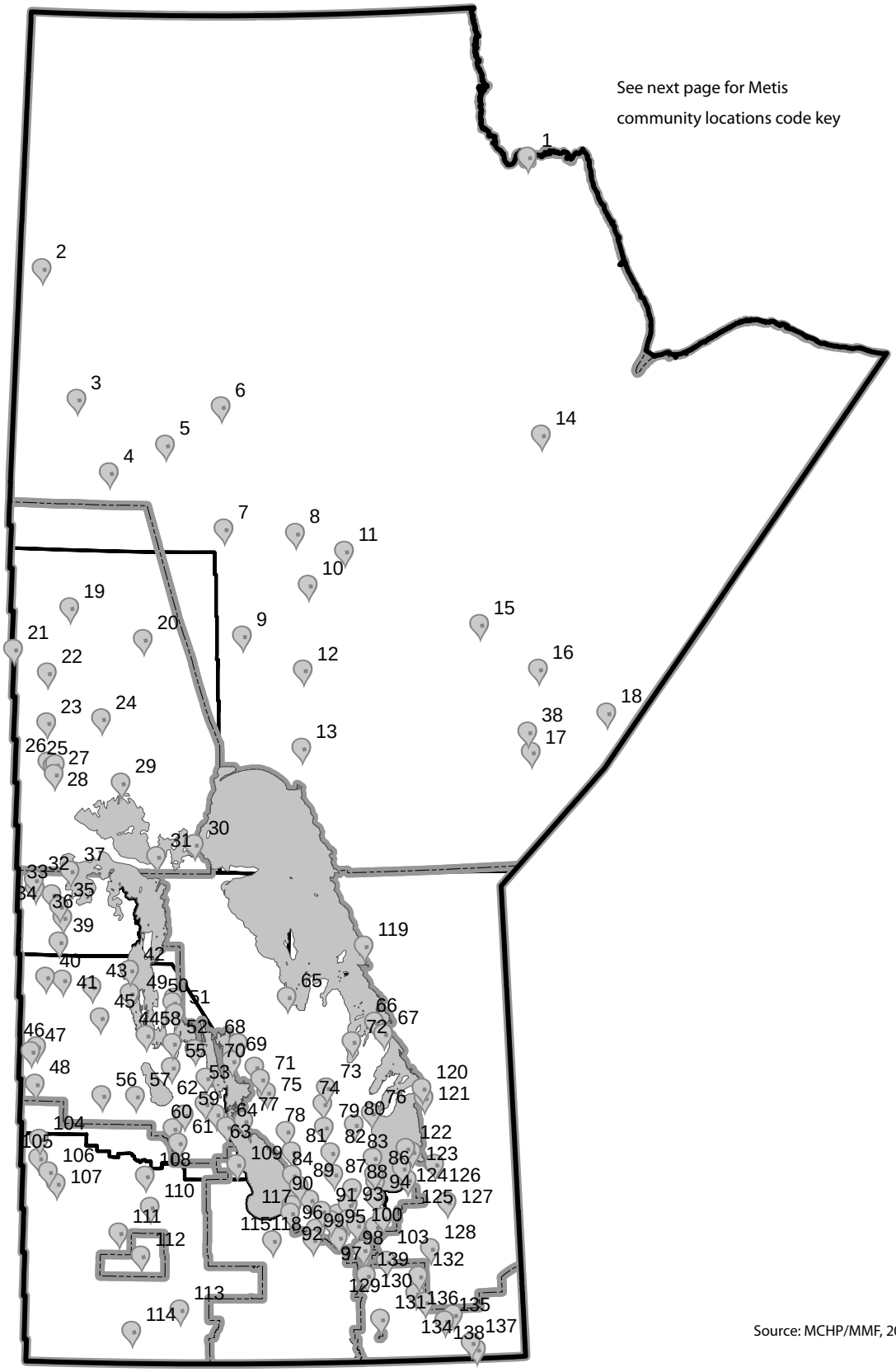


Table 1.1: Population Numbers by Geographical Region

Geographical Region	Population size: Metis	Population size: All others in that region
RHAs		
South Eastman	5688	56390
Central	4558	97358
Assiniboine	2127	65909
Brandon	2336	47185
Winnipeg	31647	633778
Interlake	8817	67990
North Eastman	3470	36809
Parkland	5976	35986
Churchill	220	719
Nor–Man	4073	20126
Burntwood	4104	42422
Winnipeg CAs		
Fort Garry	1785	64498
Assiniboine South	848	35902
St.Boniface	3677	48107
St. Vital	3373	58650
Transcona	2126	31206
River Heights	1679	53971
River East	4419	90056
Seven Oaks	2325	58968
St. James–Assiniboia	2389	55980
Inkster	2022	30119
Downtown	3059	68249
Point Douglas	3945	38072
MMF Regions		
Southeast	9837	**n/a**
Interlake	8151	**n/a**
Northwest	4267	**n/a**
Winnipeg	31647	**n/a**
Southwest	8806	**n/a**
The Pas	5974	**n/a**
Thompson	4334	**n/a**

Source: MCHP/MMF, 2010

Figure 1.4: Villages, Towns, Cities, or Unorganized Territories Where Metis Live in Manitoba, 2009



Source: MCHP/MMF, 2010

Code Key for Metis Community Locations

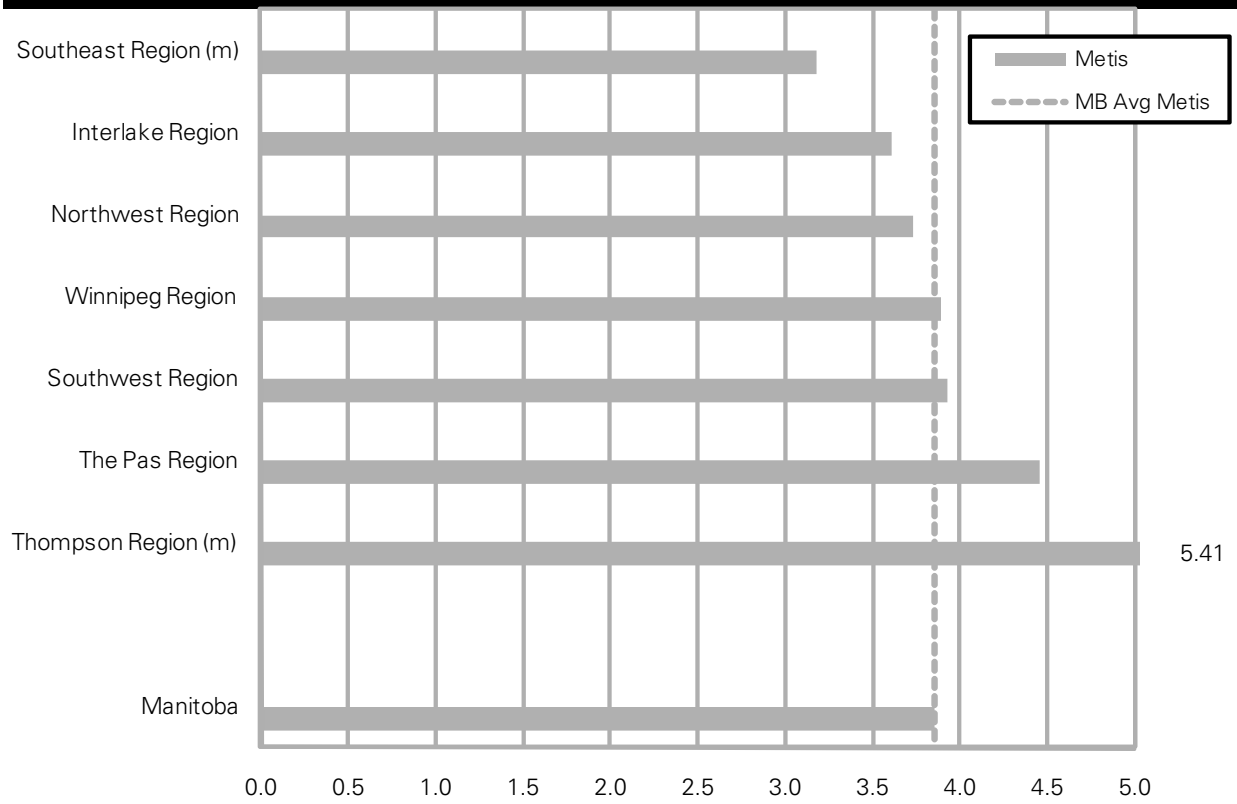
1	Churchill	48	Roblin	95	Warren
2	Brochet	49	Mallard	96	Marquette
3	Lynn Lake	50	Rock Ridge	97	Grosse Isle
4	Granville Lake	51	Waterhen	98	Stonewall
5	Leaf Rapids	52	Spence Lake	99	Rosser
6	South Indian Lake	53	Crane River	100	Stony Mountain
7	Nelson House	54	Cayer	101	Lockport
8	Thompson	55	Rorketon	102	St. Andrews
9	Wabowden	56	Gilbert Plains	103	Selkirk
10	Thicket Portage	57	Dauphin	104	Russell
11	Pikwitonei	58	Winnipegosis	105	Binscarth
12	Cross Lake	59	Ste. Rose	106	St. Lazare
13	Norway House	60	Laurier	107	Birtle
14	Gillam	61	McCreary	108	Erickson
15	Oxford House	62	Eddystone	109	Amaranth
16	Gods Lake Narrows	63	Bacon Ridge	110	Minnedosa
17	Garden Hill	64	Kinosota	111	Rivers
18	Red Sucker Lake	65	Dauphin River	112	Brandon
19	Sherridon	66	Matheson Island	113	Belmont
20	Snow Lake	67	Pine Dock	114	Boissevain
21	Flin Flon	68	Fairford	115	Portage la Prairie
22	Cranberry Portage	69	Steep Rock	116	St. Ambroise
23	Wanless	70	Grahamdale	117	St. Marks
24	Cormorant	71	Moosehorn	118	St. Eustache
25	Umpherville	72	Fisher Bay	119	Berens River
26	Big Eddy Settlement	73	Hodgson	120	Seymourville
27	Young Point	74	Fisher Branch	121	Manigotagan
28	The Pas	75	Ashern	122	Victoria Beach
29	Moose Lake	76	Riverton	123	Traverse Bay
30	Grand Rapids	77	Vogar	124	Grand Marais
31	Easterville	78	Eriksdale	125	Beaconia
32	Red Deer Lake	79	Poplarfield	126	Powerview
33	Barrows	80	Arborg	127	Lac du Bonnet
34	Baden	81	Lundar	128	Ste. Rita
35	Mafeking	82	Narcisse	129	Lorette
36	Bellsite	83	Gimli	130	St. Adolphe
37	Dawson Bay	84	Oak Point	131	St. Malo
38	Pelican Rapids	85	Inwood	132	Richer
39	Birch River	86	Winnipeg Beach	133	La Broquerie
40	Swan River	87	Matlock	134	Marchand
41	Minitonas	88	Teulon	135	Woodridge
42	Duck Bay	89	St. Laurent	136	St. Labre
43	Cowan	90	Lake Francis	137	Vassar
44	Camperville	91	Woodlands	138	South Junction
45	Pine River	92	Argyle	139	Winnipeg
46	Boggy Creek	93	Balmoral		Source: MCHP/MMF, 2010

The way in which the RHAs, MMF Regions and Winnipeg CAs are ordered in this report has special significance. Each **RHA (and aggregate area), MMF Region, and Winnipeg CA graph is ordered consistently** throughout the entire report. This order is based upon the overall population health status of the area, as measured by **the premature mortality rate** of the area over a ten–year period (1996 through 2005). Figure 1.5 below shows the **ten–year** PMR for the MMF Regions. (Note: we use 10 years for stability of rates in the ordering of regions—in Chapter 4, five–year rates are given so that the information is more recent for planners.) Similar ten–year PMR graphs for the RHAs and Winnipeg CAs can be found in the RHA Indicators Atlas 2009 (Fransoo et al., 2009).

Premature mortality rate (PMR) is an age– and sex–adjusted rate of "premature" death, that is, death before the age of 75 years. PMR has been shown to be highly correlated with underlying burden of illness, socioeconomic status and self–rated health. Therefore, **PMR is used as a "surrogate" for the health status of a group of people, and thus their "need" for healthcare** (Eyles, Birch, Chambers, Hurley, & Hutichison, 1991; Eyles & Birch, 1993). PMR has proven to be an important framework for MCHP's analyses of regional healthcare use patterns (Black, Roos, Fransoo, & Martens, 1999; Martens, Frolich, Carriere, Derksen, & Brownell, 2002, Martens et al., 2003; Fransoo et al., 2009). One would expect populations with poorer overall health status to require more healthcare services. MCHP has frequently used PMR as a surrogate for the overall health status of a region's population. Knowing that people who live in areas of socioeconomic risk usually experience more health problems, MCHP looks not only at healthcare use rates but also at the relationship between these rates and the "need" for healthcare (Black, Burchill, & Roos, 1995; Roos, 1999; Roos et al., 1999).

So ordering graphs by PMR essentially gives a framework beyond just the information in a graph. The poorer the health status of a population, the more one would expect that population to use healthcare services. **Therefore, when reading the graphs, ask the question whether the outcome indicator rates make sense from a perspective of underlying health status**—is there some sort of a trend from the top to the bottom? For example, is there a reasonable trend in the use of healthcare services from the top area (the region with the best overall health status) to the bottom area (the region with the poorest overall health status)—sometimes, like in hospitalization, this means that we would expect to see the least healthy area population using the most healthcare services.

Figure 1.5: Premature Mortality Rate by Metis Region, 1996-2005 (New Cohort)
Age- & sex-adjusted annual death rate per 1,000 Metis residents aged 0-74 years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

1.5 Methods Used in this Report

1.5.1 The Meaning of "Population–Based"

This report is mostly a population–based report. What does this mean? First, it means that for all but one of the chapters, the rates or the prevalence are based upon every person living in Manitoba who has a provincial health card. This encompasses all people living in First Nations communities as well. For some indicators, a certain age of population is used. For example, for immunization rates, we look only at two–year–olds; and for mammography screening, we look at women aged 50–69 years old. Each indicator includes definitions for that particular indicator, describing the population included in the analysis both in a paragraph descriptor as well as a subtitle within the graphs themselves. So the rates are not based upon smaller "samples," but rather the entire population fitting these criteria—hence, "population–based".

Furthermore, the information in this report is based on **where you live not where you go for treatment.** For example, a person living in a remote area may be hospitalized in Winnipeg for a certain illness, but the hospitalization is "attributed back" to the population living in that remote area. The rate of hospitalization of the people in a region like Burntwood RHA includes all the hospitalizations of all the people who live in Burntwood, whether that hospitalization took place in a Burntwood hospital or a

hospital in another RHA like Winnipeg or NOR–MAN or Churchill. Thus, the report offers insights into the health and healthcare use patterns of the population *within a geographical region*, no matter where the people of that region received the care.

For Chapter 15, indicators are based upon the Canadian Community Health Surveys (CCHS), which is survey data from Statistics Canada for those aged 12 or older. In our report, we use aggregated survey information derived from amalgamating CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005) to overcome the problem of small sample sizes and allow for rates to be given for RHAs, MMF Regions, and Winnipeg CAs where possible. For this research, we only used those CCHS individual files of people who agreed to have their data available to provincial health departments for research purposes. Knowing it is a survey, indicators in Chapter 15 are not truly population–based, but the samples are selected in such a way as to approximate the true population values. Despite the strength of obtaining self–reported information not available through the administrative databases, **the major limitation of these data are that they exclude people living in First Nations communities** (i.e., 'on reserve'). This may have a dramatic effect on the rates for northern regions such as Burntwood RHA when the "all other Manitoban" rate is calculated.

1.5.2 The Data Sets Used in this Research

MCHP houses sets of data collectively referred to as the **Population Health Research Data Repository** (often referred to as the Repository). These are derived from administrative claims data, that is, data which are obtained to administer the universal health and social services care system within Manitoba (see Martens 2006 for further details). However, prior to MCHP using these data, identifying information such as name and street address are removed. In addition, the true health number (personal health information number or PHIN) is scrambled into a fictitious and encrypted PHIN only used in the Repository housed at MCHP. Therefore, the Repository contains anonymized information, which is only "linkable" across files through a fictitious number assigned to the records, and only linked for purposes of the study after all approvals are met: ethical approval from the Faculty of Medicine's Health Research Ethics Board, approval from the Health Information Privacy Committee of the Government of Manitoba, approvals from various government departments who are custodians of certain databases, and approval from MMF for the use of the anonymized Metis population file.

The Repository includes information of key interest to health and social planners, such as mortality and birth information, physician and hospital use, pharmaceutical use, use of services such as home care and nursing homes (personal care homes), and information derived from education and family services programs. As well, enumeration area information from census data, like average household income for the geographical area, is "attributed" to all people living in that area. This gives insight into how socioeconomic factors affect health patterns or healthcare use.

For purposes of this report, the following database files of the Population Health Research Data Repository were accessed:

- hospital claims (records of hospital admissions)
- medical claims (records of visits to physicians outside of those occurring to a hospital in–patient)
- physician files to identify the type of service provided—a family physician/general practitioner or a specialist (such as a psychiatrist)

- home care (records of the use of provincial home care services)
- personal care homes (records of the use of nursing homes)
- the registry files (records of the time a person is registered as a resident of Manitoba, as well as their age, sex, and area of residence)
- vital statistics (records of births and deaths, causes of death)
- pharmaceutical claims (pharmaceutical use from the Drug Program Information Network)
- the MIMS system (Manitoba Immunization Monitoring System) for records of immunizations of children and adults registered as residents of Manitoba
- the 1990, 1996, 2001 and 2006 census files (for socioeconomic information at the neighbourhood level)
- Canadian Community Health Surveys—CCHS 1.1, 2.1, 2.2 and 3.1
- education enrolment and achievement data deposited by the Ministry of Education, Citizenship, and Youth
- Ministry of Family Services and Housing including information on income assistance beneficiaries and children in care

Depending upon the source of data, rates and prevalence are generated for either fiscal years or calendar years. For example, "2006/07" represents the fiscal year April 1, 2006 to March 31, 2007, whereas 2006 represents calendar year January 1, 2006 to December 31, 2006. Most healthcare use data are reported in fiscal years, whereas most mortality data (like premature mortality rates) are reported by calendar years.

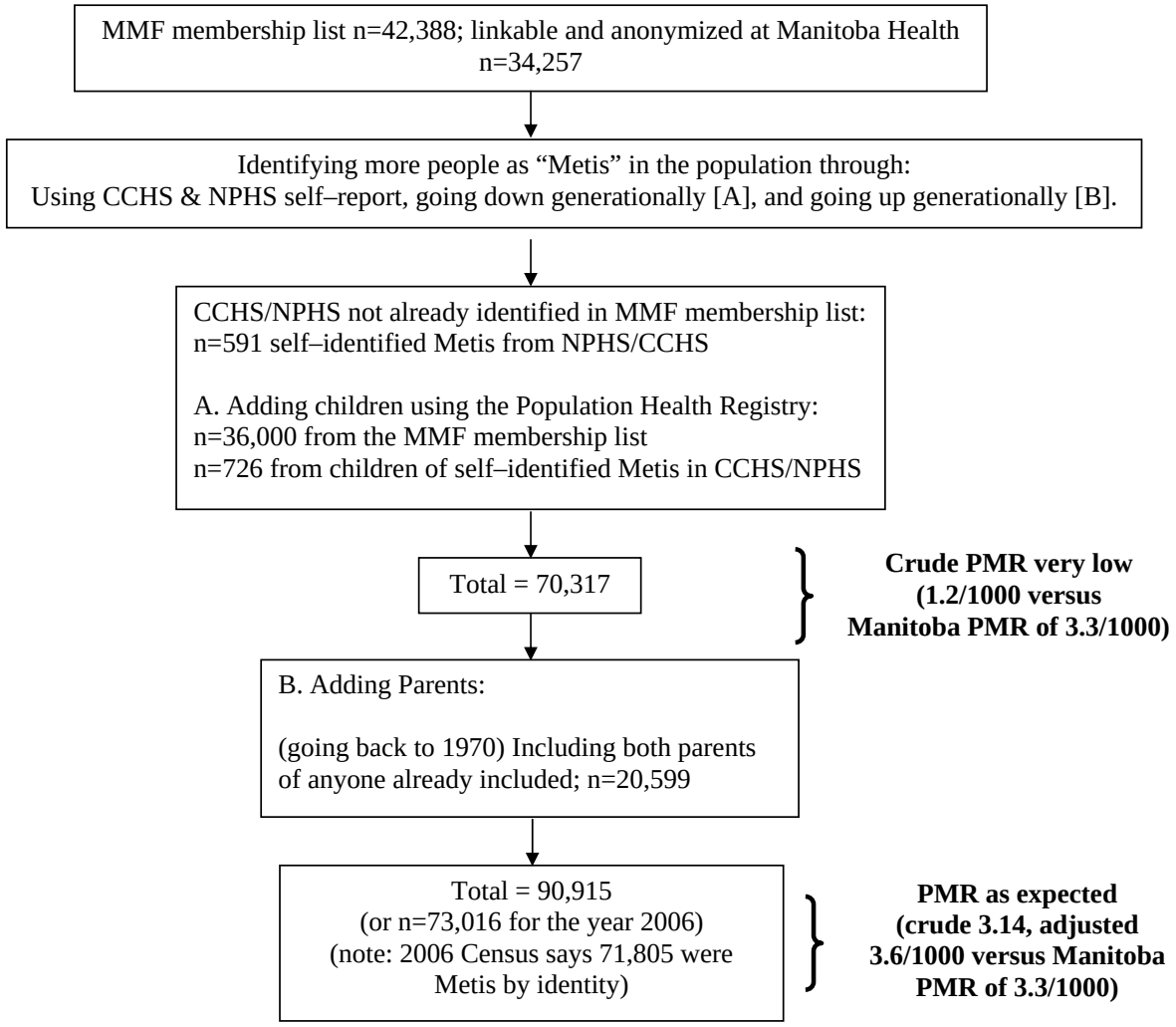
For purposes of this particular study, MCHP obtained ethical approval from the University of Manitoba's Faculty of Medicine Human Research Ethics Board and the Health Information Privacy Committee of the Manitoba government to access the Population Health Research Data Repository. As well, trustees of various non–health data gave permission for use of these data for the report—Manitoba Metis Federation, Ministry of Education, Citizenship and Youth, and Ministry of Family Services and Housing.

1.5.3 How the Metis Population Cohort was Created

For purposes of population–based studies, the Manitoba Metis Federation shared the MMF membership list with Manitoba Health's Health Information Management Branch. The Health Information Management Branch linked the MMF membership list with Personal Health Information Numbers (PHINs). These PHINs were then encrypted (i.e., de–identified with a fictitious number specific to the Repository at MCHP). The MMF "list", including the encrypted PHIN along with the MMF Region of membership, was transferred to MCHP. Because the membership lists were mainly comprised of a select group of people who had to be at least 18 years old, the research team worked with the anonymized MMF membership list, other sources of Metis self–identification (the CCHS and NPHS surveys), and the Repository family linkages to create a Metis cohort that approximated the Metis population size in the 2006 Census year. This cohort gave reasonable results (i.e., results that had face validity and concurrent validity based on previous studies) on such indicators as premature mortality rate (PMR).

The actual process of creating the Metis Population Health Cohort for this research study is shown in the following figure:

Figure 1.6: Creating the Metis Population Cohort Used in this Study



In Chapter 2, details of the Manitoba Metis Federation and its membership criteria are included. Note that to establish a cohort for purposes of this study, Metis may be more inclusive. For example, in order to qualify for membership in the MMF, a person needs to show proof of a certain lineage. However, in our Metis population cohort, we used not only the MMF membership lists, but also those who were related intergenerationally to the members and those who self–reported in CCHS and NPHS that they were Metis. Given the mixing of population sources, there is a potential bias in results. However, the numbers of people added to the cohort through self–identification in CCHS and NPHA is less than 2000 out of the 90,915 total. That an individual self–identifies as Metis and is not a member of the MMF does not mean the individual is not Metis. This factor will work in the direction of reducing the bias potential noted above.

1.5.4 How Rates Were Generated

In many previous MCHP reports showing indicators, rates were age– and sex–adjusted through a statistical technique called direct standardization. This had its limitations, especially when determining rates for areas of smaller population counts. To compare and estimate rates of events in this report, the count of events for each indicator was "modeled" using a statistical technique called a generalized linear model (GLM), suitable for non–normally distributed data such as counts. Various distributions were used for different indicators, including Poisson distribution (very rare events), negative binomial distribution (relatively rare but highly variable), or binomial distribution (two outcomes—yes/no), depending upon which fit the data best. In the models that created the bar graphs, covariates of age and sex were included in the model to "adjust" for differences in underlying regional age/sex distributions. In the logistic regression models of selected indicators, other covariates (such as average household income and mental/physical comorbidity) were also included. To determine differences by region and by Metis/all others, covariates described geography (using Manitoba as the reference) and ethnicity, as well as geography by ethnicity interactions.[3] A list of all covariates for each outcome indicator is available in the 'Data Extras' for this report on the MCHP website. In order to obtain RHA, MMF Region and Winnipeg CA rates for the various bar graphs, relative risks were estimated for each region and ethnicity where appropriate. To estimate relative risks of rates rather than events, the log of the population count in each stratum was included in the model as an offset (see more detail in the Glossary). Estimated rates were calculated for each region/ethnicity by multiplying the Manitoba crude reference rate by the appropriate relative risk estimate.

1.5.5 Adjusted Rates, Crude Rates, and Statistical Testing of Rates

Most of the indicators are given as **adjusted rates,** adjusted for age (and sex where relevant) through the statistical modeling described earlier. This means that the rate has been adjusted to **create a fair comparison among regions with different age distributions**. All rates are adjusted to reflect what the rate would be if each area's population had the same age (and sex, in some indicators) distribution as the Manitoba overall population for that particular time period. A few of the indicators are already age–specific, such as immunization rates for two–year–olds, and these are given as **crude** (i.e., not adjusted) rates in the graphs.

[3] Occasionally, there is a slight discrepancy (very minor) between the Metis provincial rate in the RHA/Winnipeg CA graphs and the MMF Region graph. The reason this arises is that the RHA and Wpg CA rates were generated in a different model than the Metis region rates. In the RHA/CA model, the Manitoba Metis adjusted rate is relative to the Manitoba "all others" crude rate and is calculated based on the "Metis effect" in the model, i.e., the parameter estimate of the Metis covariate. The Metis effect will be slightly different from one model to another, even when modeling the same outcome, as the distribution of geography differs from one model to another. To avoid confusion, the Metis provincial rate stated in the text uses that derived in the RHA/CA model if it differs slightly from that in the MMF Regional model.

Rates are **suppressed** (that is, not reported) where the counts upon which the rates are based represent five events or less (unless the rate is truly 0, in which case it can be reported). This is to avoid breeches of confidentiality and is similar to the way in which Statistics Canada reports data. Throughout the report, the letter "s" in brackets beside the RHA, MMF Region, or Winnipeg CA on the left–hand side of the graph indicates a suppressed rate.

Appendix 2 contains tables listing the **crude rates or prevalence** (the actual count divided by the actual population), without any adjustment for age and sex distributions. These tables also include the 'observed' number of events for each indicator, where possible (unless this information is suppressed to avoid breeches in confidentiality). This type of information is helpful in giving a realistic look at the effect of the population burden of illness on the region's healthcare system—actual numbers of the regional population who will require healthcare services for their illness or condition.

Despite the fact that many of the rates and prevalence graphs in this report are based on several years of data, most graphs are presented as *annualized* rates/prevalence, that is, the average value for **one** year (based on an average over all the years of data used). Exceptions are indicated when they occur.

Statistical testing indicates how much confidence to put in the results. If a difference is "statistically significant," then this difference is large enough that we are confident it is not just due to chance. In other words, if some rate is considered "statistically different" than the Manitoba average, we would say that this difference (either higher or lower than the average) is not due to random fluctuation simply expected by chance, but rather this is most likely (we're 95% 'sure') that it is a real difference. The **notation "p<.05"** means that the probability of seeing a difference as large as this by chance alone is less than 5% (.05 out of 1 is 5%), so we say that there is a statistically significant difference—and we are 95% sure of the fact that this difference is real.

Most of the graphs contain information about **statistical comparisons**. This simply gives an indication as to whether or not an area's rate is statistically higher or lower than the comparison group, or if the rate should be considered similar to the comparison group when no statistical difference is noted. When you see a large difference that is NOT statistically significant, it is telling you that this rate is considered similar to the comparison (usually the provincial average), since it could fluctuate greatly from year to year. This is usually due to the rate being based on small numbers (either a small number of events or a small underlying population), so it could change from year to year and may be higher, similar, or lower than the comparison the next time it is measured. Because of its very small population, Churchill RHA often has highly fluctuating rates; as a result, rarely shows rates that are considered truly statistically different than the Manitoba overall rate unless they are much higher or lower.

In most of the chapters, the three bar graphs given for each indicator show rates by RHAs, then by MMF Regions, and then by Winnipeg CAs. The *RHA and Winnipeg CA graphs* show an age– and sex–adjusted comparison of Metis to all others living in that geographical area. The *MMF graphs* show an age– and sex–adjusted comparison of Metis only, comparing Metis by the region in which they live.

In each graph, the notation provided in brackets beside the name of the RHA, MMF Region or Winnipeg CA indicates statistical significance. Below each graph is an explanation of the statistical notations. The notation **"m"** beside the name of the area means that there is a **statistically significant difference between the Metis rate for this area and the overall Manitoba Metis rate provincially** (which is shown

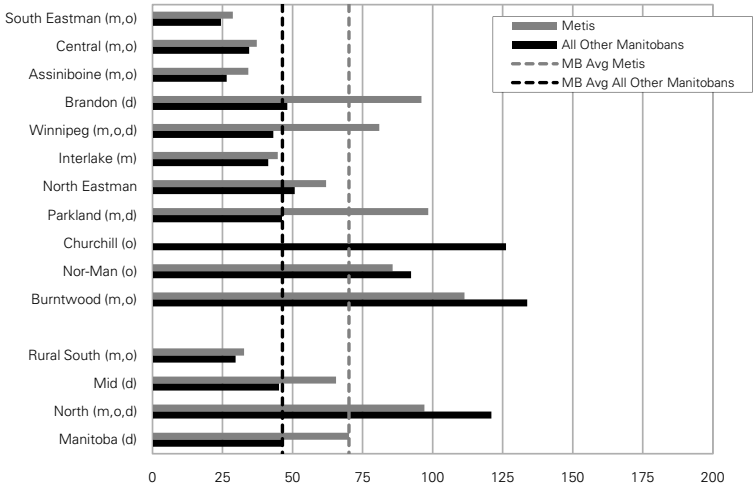
by the dotted vertical grey line and by the grey bar beside the Manitoba Metis overall rate at the bottom of the graph). An **"o"** means that there is a **statistically significant difference between the all other Manitobans rate for that area and the overall "all other" Manitobans' rate provincially** (shown by the dotted vertical black line and by the black bar beside the all other Manitobans' overall rate at the bottom of the graph). A **"d"** means that there is a **statistically significant difference between the Metis and the all other Manitobans rate** within that region. The statistical notations used are similar in the *MMF graphs*, but these age– and sex–adjusted graphs **only include Metis people** and so the **comparison of the regional Metis rates are to the overall Manitoba Metis provincial rate** (shown at the bottom of these graphs and by the dotted vertical grey line). So the only notation used in these graphs is the **"m"**, meaning that the rate of a certain MMF Region is statistically different than the overall Manitoba Metis provincial rate.

Statistical testing is done in such a way that when a difference is "statistically significant", it means that there is an **overall 95% certainty that the difference you see is not due to chance alone, but is a real difference.** However, "statistically significant" differences occur about 5% of the time merely through chance. This chance finding is called a Type I error—finding a statistical difference when in reality there was no difference.

In situations where statistical testing is done repeatedly on the same data, one could potentially have a much larger Type I error than the traditionally allowed 5%. To avoid much larger Type I error, we used a Bonferroni correction factor whereby the traditional $p<.05$ (5%) level of significance is stiffened for each individual test in the series of tests. This helps keep the overall level of Type I error at the allowable 5% level. So when we tested for differences between each RHA, MMF Region, or Winnipeg CA and the Manitoba overall average, the statistical criterion of $p<.01$ was applied for each single test to give an approximate overall $p<.05$, 5%, level of Type I error. The standard statistical criterion of $p<.05$ was used for testing differences between ethnicity **within** each RHA, aggregate area, or Winnipeg CA (i.e., between Metis and All Others in that area). Because it is only one comparison, a Bonferroni correction factor is not required. All data management, programming, and analyses were performed using SAS® software.

Here is an example replicated from Chapter 8 (Figure 8.2.1), to illustrate how to read the statistical notations. Assiniboine RHA has the notation (m,o) beside its name. The "m" notation means that the Metis teen pregnancy rate in Assiniboine RHA (denoted by the grey bar) was a "statistically significant difference"—in this case, it's lower—than the provincial Metis average (the dotted grey line) in this time period of 2002/03–2006/07.

Figure 8.2.1: Teen Pregnancy Rate by RHA, 2002/03-2006/07
Age-adjusted annual rate of teen pregnancies per 1,000 females aged 15-19



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

The "o" means that the same is true for all other female Manitoban teens living in this RHA—Assiniboine's teen pregnancy rate for "all others" (denoted by the black bar) is statistically significantly lower than the provincial "all others" average (black dotted line). There is no "d", meaning that although the grey and black bars are slightly different, there is no statistically significant difference between the teen pregnancy rate of the Metis and all other female teens living in Assiniboine RHA (i.e., we say that they are similar rates and any small fluctuation could be due to random fluctuation in rates over the years). However, at the Manitoba provincial level, the "d" shows that the Metis teen pregnancy rate is statistically significantly higher than that of all other Manitoban teens.

Often Churchill RHA's rates show wide variation from the provincial averages, but are not necessarily statistically significantly different. This is due to the fact that there are very few people living in this RHA. Rates could appear to be different only due to random fluctuation that could easily occur in such a small population but don't reach the statistical significance required. However, in this example Churchill RHA has an "o", meaning that the "all other" rate is statistically significantly higher than the provincial "all other" rate.

1.5.6 Difference Between Prevalence and Rate

Prevalence refers to the percentage of the population having a certain condition at a given point in time (point prevalence) or over a given period of time (period prevalence). In other words, you take the numerator of people with a given condition, over the denominator of the entire population, to figure out what portion of the population has this condition. In our report, we often use the concept of prevalence; for example, we have one indicator which is the period prevalence of diabetes over a three–year time period. This is simply the percentage of people who are diagnosed with diabetes any time during the three–year period. In prevalence, a person can only contribute once to this percentage.

In contrast, a rate refers to the number of new cases of a condition that occur as a proportion of a population, and also involves a time period in which these events occurred. For example, Metis have a rate of hospitalization of 194 per 1000 persons per year, compared to 154 for all other Manitobans. In a rate, a person can contribute more than one event, for example, one person could have more than one hospitalization contributing to this rate during the year.

1.5.7 Logistic Regression Modeling of Selected Outcome Indicators

For selected indicators, the use of **logistic regression** enabled us to determine the **unique contribution of many factors on the outcome indicator** when taking into account other factors besides just age and sex differences in the population, such as differences in average household income (which we know relates to health) or underlying illnesses (as measured by both mental and physical comorbidity measures).

For example, in the case of teen pregnancy (Chapter 8, Table 8.2.1 shown here), we wanted to know the predictors of teen pregnancy in the year 2006/07. Logistic regression is a technique to determine the likelihood of a "yes/no" outcome given certain individual or regional characteristics. These models generate adjusted Odds Ratios (OR). An **OR of greater than 1** (with 95% Confidence Limits both above 1 and a p–value less than 0.05, meaning statistically significant) **means that there is a higher likelihood**. An **OR of less than** 1 (with 95% Confidence Limits both below 1) **means a lower likelihood**. An OR around 1 (or 95% Confidence Limits crossing over 1 and a p–value which is greater than 0.05, meaning not statistically significant) means that this characteristic has no statistically significant effect on the

outcome once you control for the effects of the other variables. An Odds Ratio of 3 means that there is three times the likelihood of this, and an Odds Ratio of 0.5 means there is half the likelihood of this occurring compared to a reference group. Caution needs to be used, however, since a likelihood cannot necessarily be translated into "three times the risk" unless it is a relatively rare event, where Odds Ratios and Relative Risks are similar numbers.

The logistic regression tables include two models—**the first one is a comparison of Metis to all other Manitobans and the second one includes only Metis**. For example, in the Table below, the first part shows a comparison of Metis vs. all other Manitobans, shows differences by aggregate area, and takes into account the age of the teen, age of the teen's mother at time of first birth, area level, income, mental and physical illnesses, and use of contraceptive pills (as indicated in the prescription database for pharmaceutical dispensing). The column "adjusted Odds Ratio" indicates in bold those that are statistically significant effects, after taking into account all the other effects.

Metis and all other Manitobans have a similar teen pregnancy rate after all the other factors have been taken into account (i.e., the OR is 0.954, 95% Confidence Limits cross over 1, and the p–value is greater than 0.05, so this information indicates NS, or not statistically significantly different). However, there are certain areas with lower teen pregnancy rates—the Rural South (OR = 0.596, which is less than 1 and statistically significant, i.e., $p<.05$), and the Mid (OR = 0.869, $p<.05$)—and one area with higher teen pregnancy rates—the North (OR is 1.809, statistically significant). Brandon and Winnipeg are similar to the Manitoba average comparison. Within the 15–19 year old age range for this indicator, the older the teen, the more likely a teen pregnancy occurs (age effect has an Odds Ratio of 1.731, statistically significant). The older the mother of the teen was at the age of her first birth, the less likely the teen will be pregnant (OR = 0.862). As indicated by the Odds Ratios being greater than 1, the greater the burden of underlying mental and physical illnesses, the greater the likelihood of the teen becoming pregnant. Somewhat surprising is the effect of contraceptive pill use (derived from pharmaceutical prescription data in the Repository), which is associated with an increase in the likelihood of teen pregnancy. This may be a surrogate for being sexually active, or it could indicate that the pill may be misused and actually result in an increased likelihood of pregnancy. More research must be done to figure out why this association appeared.

The second part of the table only includes Metis therefore the number of teens included in the analysis is smaller, so some of the Odds Ratios are indicating similar trends to the above but are not statistically significant. Besides many of the same effects as in the first part of the table, there are two regional effects—Southeast MMF Region (OR = 0.427, $p<.05$) shows a lower teen pregnancy rate, and Thompson MMF Region has a higher rate (OR = 1.871, $p<.05$) even adjusting for all other potential indicators.

Table 8.2.1: Logistic Regression Model of the Probability of Teen Pregnancy *

Probability of Teen Pregnancy by Aggregate Region, 2006/07, Females aged 15–19

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	0.954 (0.800, 1.138)	0.6034
Aggregate Regions (ref = Manitoba)		
Rural South	**0.596 (0.527, 0.675)**	**<0.001**
Mid	**0.869 (0.768, 0.983)**	**0.0260**
North	**1.809 (1.612, 2.030)**	**<0.001**
Brandon	0.982 (0.800, 1.207)	0.8655
Winnipeg	1.086 (0.992, 1.189)	0.0742
Age, linear	**1.731 (1.644, 1.822)**	**<0.001**
Age, quadratic	**0.902 (0.871, 0.935)**	**<0.001**
Mother's Age at First Birth	**0.862 (0.850, 0.873)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.787 (0.760, 0.815)**	**<0.001**
Mental Illness ADGs	**1.619 (1.415, 1.852)**	**<0.001**
Major Physical Illness ADGs	**1.180 (1.030, 1.352)**	**0.0169**
Contraceptive Pill Use	**1.147 (1.011, 1.302)**	**0.0333**

Bold = statistically significant results

Probability of Teen Pregnancy by Metis Region, 2006/07, Metis Females aged 15–19

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	**0.427 (0.228, 0.802)**	**0.0082**
Interlake Region	0.891 (0.538, 1.474)	0.6518
Northwest Region	1.136 (0.663, 1.946)	0.6436
Winnipeg Region	1.094 (0.815, 1.467)	0.5502
Southwest Region	0.875 (0.549, 1.394)	0.5740
The Pas Region	1.293 (0.833, 2.007)	0.2527
Thompson Region	**1.871 (1.163, 3.010)**	**0.0098**
Age, linear	**1.639 (1.403, 1.914)**	**<0.001**
Age, quadratic	0.904 (0.809, 1.010)	0.0734
Mother's Age at First Birth	**0.870 (0.828, 0.914)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.847 (0.747, 0.960)**	**0.0094**
Mental Illness ADGs	1.508 (0.990, 2.298)	0.0559
Major Physical Illness ADGs	**1.522 (1.014, 2.284)**	**0.0425**
Contraceptive Pill Use	1.082 (0.735, 1.594)	0.6887

Bold = statistically significant results Source: MCHP/MMF, 2010

* Note: in the logistic regression tables, "age, quadratic" simply refers to the fact that the model required both an age term, and an age–squared term. When the age–squared term is significant (i.e., p<.05), it means that the relationship plateaus. For example, in this table for Metis vs. all others, the age, linear term implies that teen pregnancy rates increase with an increase in the teen's age (aOR=1.73), but the quadratic age term is less than 1 (aOR=0.90), meaning that this effect plateaus in the older ages (presumably 18–19), where there are no longer significant increases. The term ADG refers to Aggregated Diagnostic Groups, and was used to indicate the absence or presence of significant mental illness or physical illness comorbidity. Refer to the Appendix for further description of ADG.

Information in logistic regression models throughout the report may yield **valuable insights into what characteristics at both the individual and regional levels appear to influence the likelihood of a good outcome** (in some indicators, this may mean decreasing the likelihood and in others, an increasing likelihood). After controlling for variations in individual characteristics, those regions of the province that still increase the likelihood of a good outcome could be examined for particularly effective programs or policies. Note that a regression model does NOT mean causation—these may imply associations with a good outcome, but not necessarily causing the good outcome. However, it may give good hints to planners for exploring specific programs or policies to test out the causal nature of the finding.

1.6 Summary

There is a wealth of information, in this report on indicators, of use to planners and decision–makers of Manitoba who are interested in public health and health service programs and policies. The research team hopes that this will prove useful to planners, decision–makers, and policy–makers in each of the MMF Regions, RHAs, and Winnipeg CAs, as well as at the provincial level within MMF and the province of Manitoba. Moreover, it is one of the first atlases at the population level that gives insight into the comparative health of Metis to other Manitobans, using all MMF Regions in the population cohort.

The information can be used in many ways. A region can obtain an overview of the population it is serving. Regions can "cross–compare" their information with other regions. What we are trying to do through this report is to delve down into the somewhat murky waters of "what works" at the population level—where do we see promising rates? Given the wealth of quantitative information in this report, regional planners will need to ask many questions about the context of their results—how do the data add to the knowledge that planners have about their region and its services and what appears to be "working"? Furthermore, this report gives us fertile ground on which to base future evaluations of initiatives both provincially and regionally. We hope that this information will be a useful tool in the effort to improve the health and well–being of the Metis population of Manitoba.

If you would like to access an **electronic version of this report**, which may help you in creating your own summary presentations, you will find this on the website of the Manitoba Centre for Health Policy, under Publications, or on the Manitoba Metis Federation website. You will also find **Excel spreadsheets** for the graphs in this report (and graphs from other key reports of interest to planners) by looking under the MCHP link called "Data Extras."

The MCHP website address is **http://www.umanitoba.ca/faculties/medicine/units/mchp/**

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Chapter 2: Manitoba Metis Federation: Knowledge Translation through a Wellness Lens—How We Are Using this Study

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2.1 Introduction

This chapter provides context and an overview of the many complexities involved in ensuring that the Manitoba Metis Federation, its Health & Wellness Department, MMF Regions, and their affiliated Regional Health Authorities are able to undertake Metis–specific Knowledge Translation through a Wellness Lens.

The Manitoba Metis Federation–Health & Wellness Department (MMF–HWD), through either engaging in partnerships or working independently, undertakes Metis–specific health research along with a province–wide process to enhance the use of this research. Collaboration between the Manitoba Metis Federation (MMF), Manitoba Centre for Health Policy (MCHP), and Manitoba Health (MH) resulted in this Manitoba Metis Atlas, called the Profile of Metis Health Status and Healthcare Utilization in Manitoba: A Population-Based Study. Production of this *Metis Atlas* required the MCHP/MMF–HWD joint research team to meet almost weekly for more than one and a half years. Also central to the production of this report is the activity of the MMF Membership Registrar (and staff in Regions) to ensure that the MMF Membership list is as up to date as possible. Without this list of MMF members, this research would not have happened.

For the MMF–HWD, the *Metis Atlas* is 'the' base research that sets the stage for undertaking a range of new research and related activities intended to positively impact the health and wellbeing of Metis citizens in Manitoba. By having access to reliable and valid information on Metis health status, the provincial health and other sectors, as well as the MMF, will be better positioned to respond to needs. The Metis Population Database (MPDB) created during production of the *Metis Atlas* is an anonymized dataset, which means that there are no names attached. The process ensuring that Metis data is anonymous was described in Chapter 1. A signed Data Sharing Agreement is in place between the MMF and Manitoba Centre for Health Policy (Faculty of Medicine, University of Manitoba) to house the Metis database securely under the ownership, control, access, and stewardship (OCAS) of the MMF. This database will remain the base Metis population for MMF–HWD research and knowledge translation over the next number of years.

The *Metis Atlas* will be widely accessible; but without a specific effort to ensure its use such a report can easily end up being underutilized for program and policy purposes. Thus, a much more time consuming activity for the MMF–HWD over the last several years has been planning, developing, and implementing a 'methodology' (or lens) and 'methods' for research and the use of that research that makes sense to Metis citizens. Undertaking processes to maximize the use of research is often called Knowledge Translation (KT), which essentially means using *'what we know'* from research to influence *'what gets done'* in health and social programs and services in order to improve the health of Metis in Manitoba.

The MMF–HWD needed to secure a lot of financial resources to implement its province–wide KT program and additional research projects. Multiple successful proposals have allowed the building of

complementary research and knowledge use activities that will help the health system and the MMF to better understand, and thus be better situated to address, health and wellbeing needs for Manitoba Metis. The MMF and its HWD also recognize the leadership role played by the Métis National Council in advocating and negotiating to ensure that Metis in Canada and Manitoba were included in the allocation of federal government programs.

The MMF–HWD and MMF Regions collaborated to work through and adjust the methods being used to facilitate implementation of the KT (knowledge use) approach through a Knowledge Network in each MMF Region. A Knowledge Network (KN) is a 'discussion table', led by an MMF Region and supported technically by the MMF–HWD, which engages affiliated Regional Health Authorities to examine the *Metis Atlas* results in their region. This region–specific examination grounds the *Metis Atlas* information with 'meaning', plus additional meaning is added from Metis citizen focus groups, academic publications, and other sources. Each Knowledge Network carefully documents *'what it now knows'*, and this results in a plan for practical *'changes to what is done'* in the health system and MMF program planning. Most Knowledge Networks are well underway, while a couple are still in the planning stage. These KN 'discussion tables' will be ongoing for at least the next several years, with the longer term goal being a continued engagement of some type between MMF Regions and the provincial Regional Health Authorities (RHAs).

This chapter's main focus is to set the overall 'context' for and describe in detail our comprehensive holistic approach to Metis health research and knowledge translation that will maximize use of the *Metis Atlas.* We include a section relating contemporary and historical factors associated with being Metis in Manitoba. Also included is the structure and function within the MMF that has been essential to undertaking Metis health research and knowledge translation. Cognizant of a risk of leaving an impression of organizational 'self–interest', it is nevertheless critical to relay the extent of the MMF–HWD and MMF Region health system engagement and health planning capacity that has been developed. Our goal is to engender confidence and trust that the MMF is *committed to ensuring that Metis citizens have an opportunity, role, and capacity to influence health programs to better meet their needs*. A user–friendly and understandable *Metis–specific methodology (or Metis lens)* and methods that Metis citizens can understand on a personal level was needed and is described in detail in this chapter. Support and active genuine engagement by the Manitoba's RHAs have also made this KT approach more achievable. Finally, the MMF Region led Knowledge Networks structure and operation will be described in detail in this chapter. We end the chapter with 'Where to From Here?' (Section 2.6) to describe the MMF–HWD plan for the future continuing research and knowledge translation activities.

2.2 Who Are the Metis

The Metis are descendants of the early (17th century) economic, social, and political strategic relationships between North American Indians and Europeans (Sprague & Frye, 1983). As time passed, this mixed population formed into a new and distinct people. In 1816, amid tensions between fur trade companies, Metis, in letter to Duncan Cameron, were referred to by Alexander Macdonell as "….the new nation under their leaders are coming forward to clear their native soil of intruders and assassins" (Goulet & Goulet, 2006, p. 60). Though this Metis Nation may have experienced forced dispersal, followed by a century of marginalization and poverty, *it did not disappear*.

Historically in the territory that would become Manitoba, periodic enumerations of the population were completed. Unfortunately these were shown to have significant deficiencies and were no longer completed after 1856 (Sprague & Frye, 1983). In 1875, the Government of Canada collected "genealogical affidavits" … "family histories to decide who would be eligible to receive scrip"….. (…. "out of some of the land they had been promised by the Manitoba Act") (Sprague & Frye, 1983, p. 31).

After the 1885 fall of Batoche, "Metis were denied a separate identity and ignored for a century" (McMillan, 1995). Despite this Metis continued to view themselves as distinct from either of their historical ancestors. This is evident in Section 35 of the Canadian Constitution Act of 1982 (Government of Canada, 1982) that states "(1) The existing aboriginal and treaty rights of the aboriginal people of Canada are hereby recognized and affirmed; and (2) In this Act, "aboriginal peoples of Canada" includes the Indian, Inuit and Métis peoples of Canada." Manitoba is considered the homeland of the Metis where they coalesced into a distinct nation in the late 18th century, 'acting collectively' to maintain their homeland, livelihood, and unique culture. Though marginalized and often forced to live in deplorable conditions, by 1967 when the Manitoba Metis Federation was formed the Metis in Manitoba were reasserting their unique cultural identity and reconstituting a capacity to advocate and function once more in a collective manner.

Since the 1982 Constitution 'recognition of Metis', considerable confusion has remained for many people regarding who is Metis. Such confusion may stem from the differing constructs of '*being of mixed ancestry*', and *'acting as a collective*'. McMillan (1995) states "In western and northern Canada [Metis] generally refers to the distinct Métis society which emerged in the nineteenth century, with beginnings along the Red River. Elsewhere, it is often used to designate anyone of mixed Indian–European heritage."

Metis efforts to bring clarity to uncertainties in who should be considered Métis "were addressed as part of the 1992 constitutional negotiations. An agreement, the Métis Nation Accord, was struck between the Métis National Council, along with provincial and territorial Métis groups, and the federal and corresponding provincial governments. This agreement defined a Métis as an aboriginal person who self–identifies as Métis and is a descendant of those Métis who were entitled to land grants or scrip under the provisions of the Manitoba Act of 1870 or the Dominion Lands Act" (McMillan, 1995). The failure of the Charlottetown Accord left the question of who is Metis with continuing uncertainty.

To proceed in a collective and self–determining manner on the issue of who is Métis, on September 27, 2002, the Métis National Council adopted a definition of Métis as: "Métis means a person who self–identifies as Métis, is of historic Métis Nation Ancestry, is distinct from other Aboriginal Peoples and is accepted by the Métis Nation" (Metis National Council, 2002). The Métis National Council is a body constituted in 1983 by three provincial Metis organizations in Manitoba, Saskatchewan and Alberta (McMillan, 1995), and later joined by provincial Metis organizations in Ontario and British Columbia.

Following soon after, on September 19, 2003, although not making a ruling on who should be considered Metis, the Supreme Court of Canada in the case 'R. v. Powley' "indicated that important components of a future definition [of Metis] for the purpose would require proof of three broad factors as indicia of Metis identity. These three are: self–identification; ancestral connection; and community acceptance" (Goulet & Goulet, 2006, p. 165). The Court also indicated that "Self–identification as a member of a Metis community should not be of recent occurrence, or belatedly made" (Goulet & Goulet, 2006, p. 165).

Between 1875 and the 1982 Constitutional amendment that recognized Metis as one of the aboriginal peoples of Canada, there was essentially no information available on their health status. Institution of the Aboriginal Peoples Survey (and Metis Supplement) provided a starting point for acquiring a better understanding of the health of the Metis population in Canada. Regardless of data availability, Young (2003) reported a significant lack of research publications on the Metis population. In 2004, David Boisvert (MMF) and Dr. Judith Bartlett (UM) were successful co–applicants in an ACADRE (CIHR–IAPH) grant to analyze the 2001 Aboriginal Peoples Survey and Metis supplement. It was realized at this time that sample–based survey data, although important to showing provincial trends in Metis health status across time, was not suitable to determine exactly how to allocate often limited resources.

At the end of this research project, Dr. Bartlett accepted a position with the MMF to develop its health department. She recruited a part–time staff person (Sheila Carter) and over the next year they carefully planned the department to act within a 'policy and research capacity' that would fit with and act in a complementary manner with other social and economic activities already existing in MMF. To understand how the MMF–HWD created this niche within the organization, it is important to have a better understanding of the Manitoba Metis Federation and how it functions. Without this stable political and organizational base, the production of the *Metis Atlas* would have been an impossible undertaking.

2.3 The Manitoba Metis Federation

The Manitoba Metis Federation (MMF) was founded in 1967 as a 'democratic and self–governing body of the Manitoba Metis community'. The MMF membership criteria are consistent to that agreed upon by the MNC and to that referenced in the Powley case. According to the MMF website, to be an Individual Member or Child Member [1] of the Manitoba Metis Federation you must:

1. *Self–identify as Métis*
2. *Show an ancestral connection to the Historic Métis Community*
3. *Be accepted by the contemporary Metis Community*

It is important to note that an individual does not need to have two Metis parents in order to meet the criteria for MMF membership—they need only establish their ancestry, connection, and acceptance criteria.

Over its forty–three year history, the MMF has continuously strived to develop and maintain its capacity to 'act collectively' to successfully promote, protect, and advance the political, social, and economic interests of Metis citizens in Manitoba. The MMF negotiates with the provincial and federal governments to access funding to provide a wide range of programs and services that are more consistent with Metis cultural norms and responsive to health status differentials.

The MMF Board Governance operates multiple Portfolios including: Metis Women of Manitoba; Tripartite Self–government Negotiations; Metis Policy; Metis Justice Institute; Community Housing Managers of Manitoba; Environment and Mining; Economic Development; Metis Survivor Family Wellness Program; Metis Community Liaison Department; Metis Family & Community Institute; Metis Child and Family Services; Human Resources Development & Training; Hydro Training Department; Health and Wellness Department; Michif Language Revitalization; Natural Resources; Membership; Agriculture; Heritage,

[1] 'Child Member' is a new addition by majority vote on a Resolution at the 2009 MMF Annual Assembly.

Sports and Youth; Louis Riel Capital Corporation; Provincial Education; Manitoba Metis Community Investments; Provincial Recruitment Initiative; and Pemmican Publications (MMF website). Each Portfolio has a specific mandate to provide programs and services to Metis citizens across the province. The MMF Home office provides program, service, and policy capacity with a province–wide focus; and MMF Regions offer region–specific programs and services in many of these Portfolio areas.

The Manitoba Metis Federation has a general election every four years and all members are eligible to vote for their Region representatives on the Governing Body and for the MMF President. The MMF is organized into seven 'Regions' across the province and, additionally, has a number of associated subsidiaries and affiliations. Each Region is administered by an elected Vice President and two elected Directors—all of whom sit on the Federation's Governing Body. The MMF Governing Body leads, manages, and guides the strategic direction, objectives, and policies of the Federation and its subsidiaries. The President is the Chief Executive Officer, leader, and spokesperson of the Federation. The MMF has an Executive Director responsible for overseeing the day–to–day operations of the Federation.

About 400 delegates from MMF Regions and Locals attend the MMF Annual General Assembly (AGA) to be advised of the MMF programs, services, and policy–related activities; to approve the audited financial statements; to guide the agenda for the coming year; and to approve resolutions brought in advance of or to the floor of the Assembly.

MMF Locals have been formed wherever a group of Metis citizens decide to form a Local and meet the criteria for forming a Metis Local set out in the MMF Constitution. Representatives from each active Local meet annually at their MMF Region to influence the Region programs, services, and other activities and to approve its audited financial statements. There are currently 139 Metis Locals listed; but given their voluntary nature, activity levels vary over time. Most Locals do not have service delivery infrastructure, although the MMF Governing Body makes effort to have some resources available for Local activities when possible. Whether or not an MMF Local is currently active, its creation provides a 'reference indicator' of where Metis live in Manitoba towns, cities, villages, and unorganized territories.

The long–term existence of the Manitoba Metis Federation is evidence of continued effort by Metis to act collectively and to advocate for equity in an environment in which they have been highly marginalized for a century. The significantly poorer health status of the Metis population apparent in this report is clear evidence of the consequences of such marginalization. At the same time, the current Manitoba societal trend toward more acceptance of the Metis role in the creation of Manitoba is encouraging, for example the naming of the new provincial statutory holiday as 'Louis Riel Day'.

2.3.1 Creating the Manitoba Metis Federation–Health and Wellness Department Strategy

The Manitoba Metis Federation–Health & Wellness Department (MMF–HWD) was created in July 2005 as a Metis–specific 'health knowledge authority' that does research, policy analysis, program adaptation planning, and community wellness development support in order to contribute to improving Metis health status. The MMF–HWD planning process includes the following requirements: high quality operational capacity with expert staff centrally and in Regions, research capacity development, academic links and support, and a high quality and secure database. Planning is achieved centrally through academic and policy research and supports MMF Regions to interpret outcomes for health planning and to help determine what new research needs to be done.

A concise 'Operational Model' was constructed using the usual organizational functions (accountability, strategic planning, priority setting, programs development, and activities implementation) along with a public participation model (IAP2). To this was added the eight 'Wellness Areas'© (Bartlett, 2004). This Operational Model is the 'touchstone' to ensure the MMF–HWD does not lose sight of its structured, organized, and collaborative holistic approach. This approach has been well supported by senior management and MMF leadership through providing sufficient time for careful planning and development.

The newly created MMF–HWD, as part of a national consultation process, was asked to determine Metis health priorities in Manitoba, intended to feed into the Métis National Council's submission for the National Blueprint on Aboriginal Health document. The MMF–HWD staff, with support from the MMF Board Health Portfolio, determined it was more feasible and appropriate to develop a *'process for ongoing planning engagement'* rather than a limited one–off consultation. An initial set of five broad priorities has more recently, through a department–wide Strategic Planning session, been rearticulated as the four following strategic directions that move the MMF–HWD toward:

- building Metis health planning capacity
- using a Metis culture–based holistic health framework
- developing and implementing a Metis health research agenda
- developing Metis health 'expert authority' to advise the health system

Very soon after being created, the MMF–HWD determined that health information was required for effective participation in health planning. Although some self–reported Metis health status information would become available from the 2006 Aboriginal Peoples Survey, such 'sample–based' provincial–level data cannot be used to advise the health system on specific health needs by region. To remedy this situation, the MMF–HWD approached Manitoba Centre for Health Policy (MCHP) in February 2006 to determine interest in pursuing a Metis health status study.

As stated in chapter one, the Metis cohort began with the MMF membership (based on the MMF criteria for membership). This group was then expanded to include the children and parents of this membership. To ensure inclusion of the maximum number of Metis living in Manitoba whether or not they are members of the MMF, it was decided to look for 'self–identified' Metis from additional sources, specifically the Canadian Community Health Survey (CCHS) and the National Population Health Survey (NPHS). This mixing of potentially two differing population could present a potential problem. The group least likely to meet the MMF membership criteria would be a small portion of the individuals and their children derived from the CCHS/NPHS (self–identified) who were not also identified through the MMF membership list. This does not necessarily mean that such individuals 'would not meet' the MMF membership criteria; it may simply mean that such Metis choose not be become MMF members. On the other hand, there will be a proportion of the CCHS/NPHS derived cohort (group) that would not meet the MMF membership criteria. As it turns out, the CCHS/NPHS–derived Metis cohort (group) is less than 2000 individuals, which is quite a small proportion of the total Metis cohort of 90,915.

It is within the context of the long history of Metis living in Manitoba that the Metis Population Database (MPDB)—referred to in Chapter 1 as the Metis cohort (group) was created; and thus, this study has been possible. MMF remains committed to protection of the MPDB and privacy rights of Metis citizens. This is achieved through the formal 'data sharing agreement' between the MMF and MCHP.

Each use of the MPDB requires approval at four levels. The process requires approvals from MMF, MCHP, Manitoba Health's 'Health Information Privacy Committee' (which protects all Manitoba citizens' right to privacy), and the University of Manitoba's Health Research Ethics Board (the group which evaluates academic ethics). Undertaking this study created a productive MCHP/MMF–HWD Research Team and partnership to produce a 'first of its kind' *Metis Atlas* in Canada.

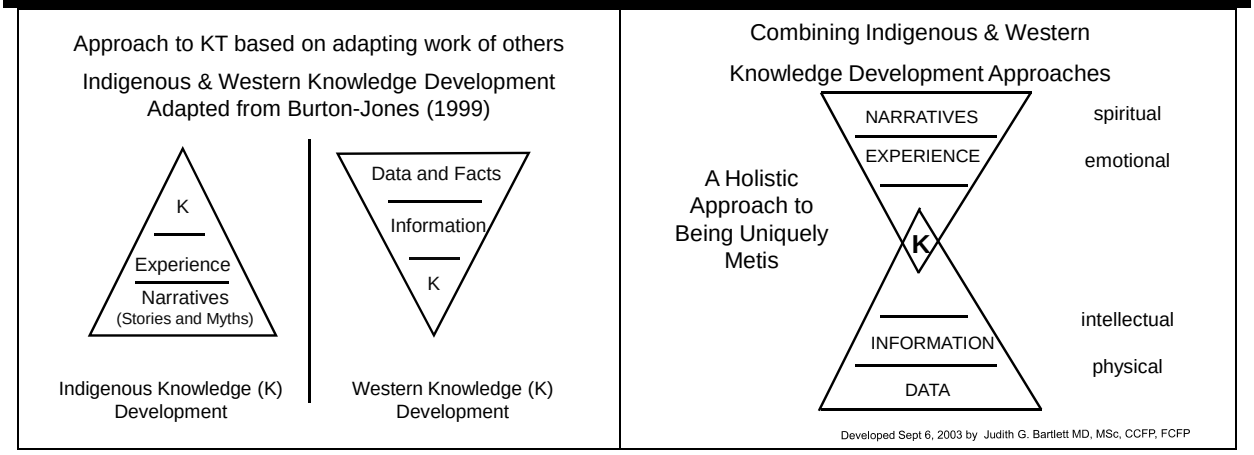
After the initial strategic and operational frameworks were in place, and the Metis health status study was underway, the MMF–HWD strategically pursued multiple funding opportunities to work toward accomplishing its initial broad priorities. The MMF–HWD now has 21 additional experienced management, research, and policy personnel with academic research, health administration, health human resources, program development, and community development expertise. Approximately half of the MMF–HWD activity is funded through Manitoba Health by the federal Aboriginal Health Transition Fund. Comprehensive evaluation of our knowledge translation method is funded by the Canadian Institutes of Health Research–Institute on Aboriginal Peoples Health (CIHR–IAPH). Other CIHR funded research is examining and supporting the Metis health workforce. This *Metis Atlas*—the base information for most MMF–HWD research and KT activity—was funded by Manitoba Health as a "deliverable" (research report) through the grant relationship with MCHP. Two further detailed examinations of two areas (cancer and diabetes) have been funded by the Public Health Agency of Canada (PHAC) and would not have been possible without the creation of the MPDB during this study.

2.4 Description of a Culturally Coherent Metis 'Methodology' or Lens for Wellness

2.4.1 Introduction

Margaret Kovach (2008) states "…Indigenous methodology flows from Indigenous ways of knowing (epistemology), incorporating an Indigenous theoretical perspective and using aligned methods". The MMF–HWD approaches all departmental activities, ranging from strategic planning to research to knowledge translation, from a Metis–specific Methodology (Metis perspective or lens). This Metis lens is rooted in historic Indigenous and European ancestries, which have been integrated to become uniquely Metis 'ways of knowing'. Burton–Jones (1999) discussed the relationship among different forms of knowledge such as narrative, experience, data, and information. Indigenous knowledge development, situated on a wide base of 'myths and stories' and moving to a smaller base of 'experience', may be seen as more personal in nature. Western knowledge development, situated on a wide base of 'data and facts' then moving to a smaller base of 'information', may be seen as more global or systemic in nature. Combining Indigenous and Western knowledge development approaches creates a holistic approach consistent with both ancestral 'ways of knowing'—where holistic Metis knowledge development is considered to include the Indigenous 'myths & stories (spiritual) and 'experiences' (emotional)—and the Western 'data and facts' (physical) and 'information' (intellectual) (Figure 2.1).

Figure 2.1: Metis Framework for Knowledge Translation and Development



Although the validity of this combination has not been formally researched, the first five of seven Knowledge Networks now in place are finding it quite helpful in demystifying the research and knowledge development process. This approach also ensures that both the 'story' and the 'experience' along with the 'data' and the 'information' are included in the *Metis Atlas* interpretation. This way of doing business is further discussed in the section Developing Knowledge—A Holistic Approach. This Metis lens is used to organize and examine health information from the *Metis Atlas* and additional publications within a context of Metis citizen's story and experience, the MMF Region story and experience, and the RHA story and experience.

2.4.2 Holism and Wellness—The Metis Life Promotion Framework© (MLPF©)

The MMF–HWD adapted a holistic framework originally developed for use in a community requested holistic urban Aboriginal community health centre (Bartlett, 1995). For use with Metis, the framework was renamed the Metis Life Promotion Framework© [2] (MLPF©). It is critical to keep in mind that the MLPF© is a tool for holistically organizing thoughts and information. It *is not an ideology* and *does not represent* Metis culture. At the same time, this holism is consistent with Metis women's understandings of health and wellbeing (Bartlett, 2005). While these women thought of 'health' as being about disease and appropriate diet, 'wellbeing' was much broader and included the spiritual, physical, emotional, and mental/intellectual parts of a person.

The MLPF© is made up of 16 important areas of life, with 'wellness' being about finding 'balance' among these areas. First, there is balance within a person's *spiritual*, *emotional*, *physical*, and *intellectual* areas. Next, this personal balance can occur across the different age groups of *children*, *youth*, *adults*, or *elders (seniors)*. Then, we need to remember that people live as *individuals and as members of families*, *communities*, *and nations* – areas that also need balancing. Finally, all of these areas of balance are occurring within the various *cultural*, *social*, *economic*, and *political* environments in which people live. Because these areas have an effect on determining how we live, they are also called 'Determinants of Life'© (Figure 2.2).

[2] Copyright for MLPF© and associated tools and methods retained by Dr. Judith G. Bartlett for protection of Indigenous knowledge.

Certain principles of human behaviour, sometimes called 'seven teachings', underpin this holism and have been selected as representative of principles contained within Aboriginal culture—sharing, caring, kindness, honesty, respect, trust, and humility. The framework was originally created in a medicine wheel form more symbolic of First Nations, as well as in a matrix (square) form for the general population. To respect and honour the Metis link to two ancestral populations, both symbolic forms are included in the Appendix Glossary under the "Life Promotion Framework" heading.

Figure 2.2: Metis Life Promotion Framework© Determinants of Life©

As stated, the MLPF© approach is simply a way of thinking about the complexities of life, and health, and wellbeing. This can be done for the individual and societal levels: for example, defining personal meanings for the 16 areas or documenting a high–level community overview (Bartlett et al., 2004).

In 1996, the framework was taken to the next level to further simplify it in order to look at 'Wellness' from a program or policy development perspective. Thus, the 16 elements were grouped as eight Wellness Areas©. Using eight rather than 16 areas is more manageable for health planning activities as in Knowledge Network work to interpret research outcomes. Based within the overall MLPF©, the Wellness Areas© naturally flow in a circular format around the spokes of a Red River cart, representing constant motion and change (Figure 2.5).

It is neither sufficient nor appropriate to state that these Wellness Areas© are an accepted Metis lens. Every person that is engaged in Metis related health planning must have an opportunity to undertake a process where they learn 'how to create' Wellness Areas based on their own life experience. Once plans are developed to adapt health and social programs and services to meet Metis–determined needs, Metis citizens may be more able to take advantage of such programs and services to support themselves and their family.

2.4.3 Developing MLPF© Wellness Areas©

The development of Wellness Areas© is completed in a stepwise manner through a series of three workshops that take approximately 1.0 to 1.5 hours each to complete. The first workshop is to develop a personal meaning for each of the 16 terms by defining and paraphrasing a statement (four to six words) for each word (an intellectual process), while concurrently grounding this statement 'emotionally'. This grounding process is completed by immediately writing, based on the paraphrased statement, how one is feeling at this moment in time. Because this information is private, it is not shared with other workshop participants. At the same time, it is essential to create personal meanings in order to proceed with the second workshop, which is to develop group meanings for the terms.

Only after having completed the personal meanings, workshop groups are asked to discuss and document all meanings from individuals in the group without trying to find a consensus meaning. This stimulates the development of respect for all voices. After completing this group work, participants are ready to develop Wellness Areas© using the matrix shown below in Figure 2.3. The group is asked to determine a 'name/title' for each row and column—some term that will state what each group of four elements is 'about'. Once this process is completed, each workshop table reports on the 'names' or 'terms' articulated.

Figure 2.3: MLPF© Wellness Areas© Matrix

	SPIRITUAL	EMOTIONAL	PHYSICAL	INTELLECTUAL
	CHILD	YOUTH	ADULT	ELDER
	INDIVIDUAL	FAMILY	COMMUNITY	NATION
	CULTURAL	SOCIAL	ECONOMIC	POLITICAL

Developed by Judith G. Bartlett MD, MSc, CCFP, FCFP

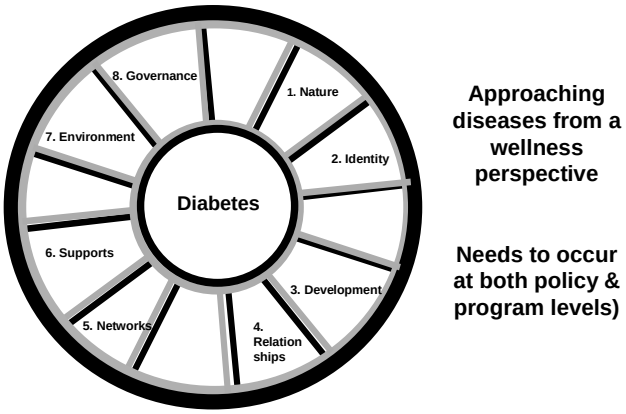
The Wellness Areas©, developed and refined during many such workshops over a ten–year period (1996–2006), are shown in Figure 2.4. This is an extremely brief look at the MLPF©.

Figure 2.4: MLPF© Wellness Areas©

MLPF © Wellness Areas	**2 IDENTITY**- how we want others to see us	**4 RELATIONSHIP** -how we respect and care for one another	**6 FOUNDATION**- what supports us	**8 GOVERNANCE**- how we choose our own destiny and future
1 **NATURE**-who we really are	**SPIRITUAL**	**EMOTIONAL**	**PHYSICAL**	**INTELLECTUAL**
3 **DEVELOPMENT**- what is our age & characteristics	**CHILD**	**YOUTH**	**ADULT**	**ELDER**
5 **NETWORK**-how we interact with one another	**INDIVIDUAL**	**FAMILY**	**COMMUNITY**	**NATION**
7 **ENVIRONMENT**- what system & personal influences	**CULTURAL**	**SOCIAL**	**ECONOMIC**	**POLITICAL**

As can be seen in the above matrix, a question is posed for each Wellness Area©. The Wellness Areas© have been reconstituted into circular format that allows for a more compact practical and stepwise approach that can be applied to policy and program assessment or planning. Using this approach for examining a chronic disease, such as diabetes, is done in this same manner (see Figure 2.5). The person suffering from/experiencing diabetes is placed in the centre of the wheel and a series of questions (Table 2.1) is posed and answered. Similarly, the questions can be posed at a group level.

Figure 2.5: Wellness Model for Examining Diabetes



Judith G Bartlett MD, MSc, CCFP, FCFP (Metis Nation)

Table 2.1: Wellness Area© Question Type

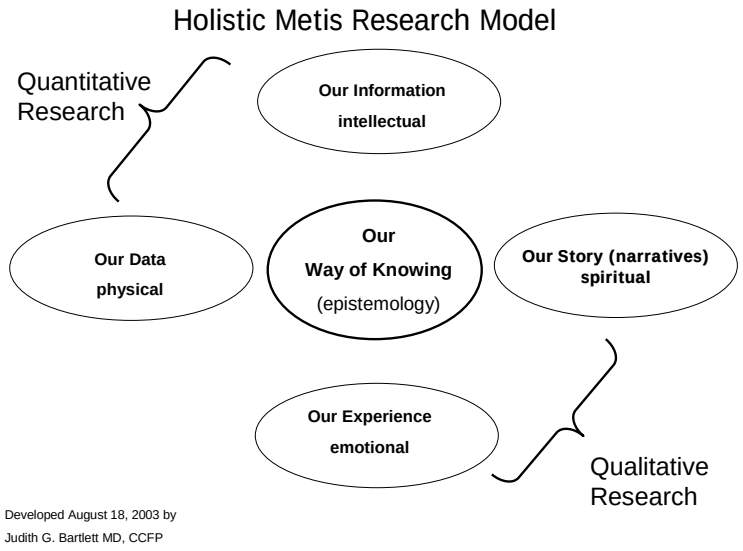
WELLNESS AREA©	QUESTION: How does diabetes affect my:
Nature	–sense of who I really am as a person?
Identity	–experience of how others see me or how I want others to see me?
Development	–sense of age/ability to express the child, youth, adult, and elder parts of me?
Relationship	–ability to respect and care for others?
Network	–ability to interact with others?
Support	–body, ability to work, and be involved in community?
Environment	–cultural, social, economic, and political influence?
Governance	–ability to choose my destiny and future?

2.4.4 Developing Knowledge—A Holistic Approach

To undertake Knowledge Translation, the MMF–HWD had to better understand *Knowledge Development* as shown previously in Figure 2.1. It was necessary to create a 'middle ground' that did not require Metis individuals to choose between two historical ancestries approaches. As a reminder, combining Indigenous and Western knowledge development approaches to create a holistic approach that was uniquely Metis was important.

Ongoing review and reflection resulted in the creation of a practical and demystified approach to thinking about research, thus interpretation of research (Figure 2.6). In this *holistic Metis research model*, the 'way of knowing' (epistemology) can be seen to have both quantitative (our data and information synthesis) and qualitative (our story and experience) components. In Knowledge Networks, this model is shown early in the process so that participants can see how the graphs from the *Metis Atlas* represents one aspect (the physical data) of a full spectrum of knowledge needed to better understand Metis health and wellness status. The model also brings a familiar holistic understanding to the research process.

Figure 2.6: Holistic Research Process



2.5 MMF–HWD Strategic Method

The MMF–HWD planning process includes the following requirements: high quality operational capacity, research capacity development, academic links and support, and a high quality and secure database. Planning is achieved centrally through academic and policy research which supports MMF Region Knowledge Networks to interpret outcomes for health planning and helps KNs determine what new research needs to be done.

2.5.1 Developing Information for Metis Interpretation to Support Health Planning

From the start it was obvious that without high quality health information, there was no possibility of engaging either Region or Local–based Metis citizens in effective health planning. 'Consultation' (asking for Metis individual's input) might reveal some of what was needed, but could not be grounded within 'the numbers' (i.e., why are Metis seeing physicians and what hospital services do they receive). Thus,

after developing the broad MMF–HWD priorities and the operational framework, in April 2006, the MMF–HWD Director, Dr. Bartlett, approached MCHP, Dr. Patricia Martens, and the University of Manitoba to collaborate on a province–wide health status study. With Manitoba Health funding and priority approval, Drs. Martens and Bartlett became Co–Principal Investigators on the Metis Health Status and Healthcare Utilization (HS&HU) study, also known as the *Metis Atlas*.

2.5.2 Developing Knowledge Networks for Knowledge Translation

Knowledge Translation (KT) is a term often made overly complex but is essentially about moving 'information' to 'action'. For our purposes it is a 'method to ensure that outcomes of the *Metis Atlas* are used to maximize benefit for Metis citizens in Manitoba'. To accomplish this, the MMF–HWD developed and is facilitating implementation of an engagement process between the MMF Region offices and their associated Regional Health Authorities (RHAs). This engagement process is in the form of Knowledge Network (KN) 'discussion tables' that examine Metis health information using the previously described Metis–specific holistic wellness lens. The public participation model, previously noted as one of three components of the MMF–HWD operational approach, is used in Knowledge Network (KN) operations (Figure 2.7).

Figure 2.7: Knowledge Translation Model

Transparent Process
for
Understanding and Negotiating Influence & Action

"Metis Need to Know Too Study"
Evaluation of KT Adapting Health Programs & Services for Metis in Manitoba

(funded by Canadian Institutes of Health Research-Institute on Aboriginal Peoples Health)

Influence → / Action ↓	EMPOWER (make final decision)	COLLABORATE (incorporate advice to max extent)	INVOLVE (reflect concerns)	CONSULT (acknowledge concerns)	INFORM (keep Informed)
COMMUNITY [MMF Region]					
PROGRAM DELIVERER [RHA					

Developed by Judith G Bartlett

This KT model functions as a 'participatory method' for understanding and negotiating influence and action. The model is used to negotiate how partners wish to inform, consult, involve, collaborate with, and empower one another. Having a clear understanding of what each partner 'can or cannot' commit to at the beginning of the KN discussion minimizes misunderstandings and frustrations. While implementation of this KT model is being formally evaluated through CIHR funded research in two KNs, it is being used by all Region Knowledge Networks

KNs are led by MMF Region Vice–Presidents. They determine when and how to engage associated RHAs and the level of technical and operational support required from the MMF–HWD central staff. Knowledge Network Coordinators have been hired and are situated in MMF Regions. MMF–HWD central staff develops and provides extensive research training modules and required ongoing technical support to KNs to ensure effective and efficient mobilization of *Metis Atlas* results.

In addition to the statistics from this *Metis Atlas*, the KN examines the historical and current Metis 'story and experience' about their health, the RHA 'story and experience' about service delivery, and what they hear from Metis citizens who use those services. To further understand these stories and experiences, the MMF–HWD provides information from the literature that is relevant to the areas of discussion. Additionally, all discussion at KN meetings is documented (along with the above noted statistics, stories, and experiences) and used to produce thematic areas that can be used by the KN in the development of a plan to adapt health services to better meet Metis citizen needs. As can be seen in the following chart, seven MMF Regions are affiliated with one or more RHAs. The MMF Region determines the RHA with whom it will form its initial KN.

Table 2.2: Association of MMF Regions with Specific RHAs

Region Knowledge Networks	
MMF Region	**RHA**
Thompson	Burntwood
	Churchill
Southeast	North Eastman
	South Eastman
Southwest	Brandon
	Assiniboine
	Central
The Pas	NOR–MAN
Northwest	Parkland
Interlake	Interlake
Winnipeg	Winnipeg

Due to the importance of ownership and understanding of study outcomes by both the MMF Regions and their affiliated RHAs, the data charts in this report are displayed by MMF Region and by RHA. This complementary data reporting resulted in observations that would not have been understood had the study report been created by RHA geography alone. See Chapter 1 for maps of MMF Regions, RHAs, and the overlapping boundaries of the two. Interestingly, MMF Regions created in the late 1960s have similar geographical boundaries to the RHAs that were not created until the late 1990s. Some MMF Regions envelop two or three RHAs. Mapping by MMF Region allows for examination of those areas outside of the health system where certain programs and services may be provided by the MMF Region. Due to the way MMF Regions and RHAs provide social and health services respectively, a need to facilitate engagement between KNs for Metis living in overlapping geographical areas has become obvious.

2.5.3 Dissemination of Metis Atlas Outcomes for Interpretation through Knowledge Networks

Knowledge Network meetings, facilitated by central MMF–HWD staff, receive all activities mapped out in the meeting flow schematic (Figure 2.8) at the end of this chapter. An extensive training plan has been developed and is delivered in a 'just in time' manner—i.e., training is followed immediately by the activity. All KN members (MMF and RHA) are included in this training process.

The first two–day session provides the KN with orientation and training on the Metis holistic approach including the Metis holistic 'way of knowing', the Metis Life Promotion Framework (MLPF©), and Wellness Areas©. The participants undertake three workshops to develop first personal meanings, then group meanings, and lastly Wellness Areas©. The KN then uses the Wellness Area© lens, in a workshop format to develop:

1. a ten–year vision for desired future Metis health and wellness
2. a high level scan on perceptions of current Metis health and wellness status

Training also includes modules on reading graphs and understanding chronic diseases. An overview of the chapters contained in the *Metis Atlas* is provided in order to prepare the KN for receiving its first introduction to health information (graphs). In addition, this session provides a graph showing the MMF–Region specific prevalence (by RHA) for the seven major chronic diseases. At this point, the KN *selects three priority areas* of interest to examine in greater detail as they build their shared knowledge. Such priority selection may be based on prevalence of a chronic disease, but may also be based on a chronic disease that is important to the KN for other more local reasons.

The next two–day session begins with KNs receiving relevant training on: the MMF Adaptation Initiative, expectations of Region Knowledge Networks, and the Knowledge Translation (KT) negotiation model. The KN then views additional health information graphs related to each of their three selected chronic diseases priority areas.

The next three one–day sessions build on the KN health information graphs by adding a wide variety of factors including:

- Metis citizen stories and experience with chronic diseases and the health system (from by community Wellness Workshops)
- Protective and risk factors of chronic diseases from literature reviews and from Metis community Wellness Workshops (that undertake the same series of MLPF©/Wellness Area© training before reviewing the chronic diseases)
- Additional priority chronic disease related *Metis Atlas* information not yet reviewed
- Information about social and health programs and services (related to priority chronic diseases selected) delivered by the MMF Region and the Regional Health Authority
- Metis and other health consumer experience known by MMF or RHA members of the Knowledge Network

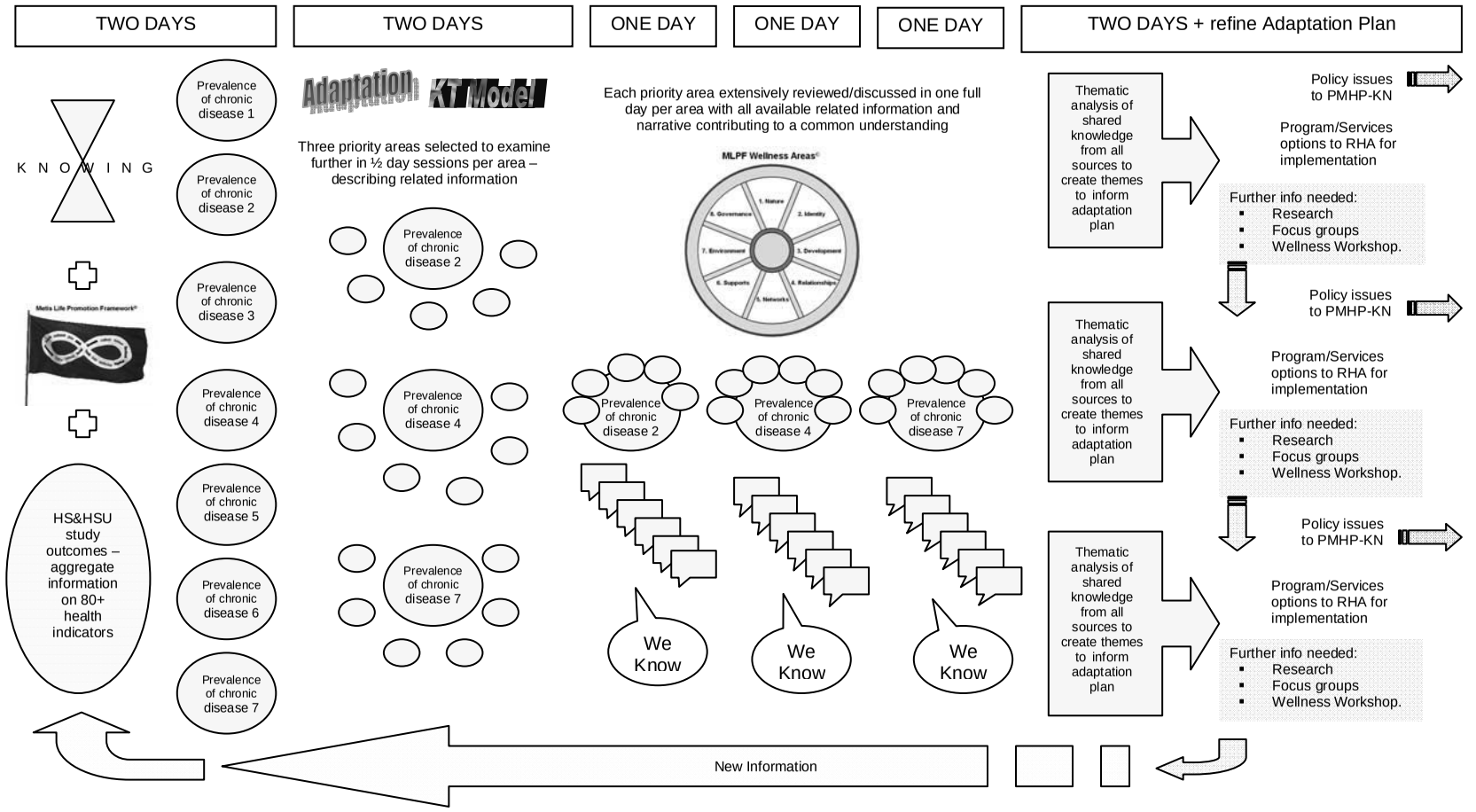
The final two–day session includes reviewing all of the information gathered. The main ideas are transferred to 4x8 inch cards and mapped on a wall around the Wellness Areas©. This view is documented for recalling how ideas where holistically articulated. This holistic mapping also shows where there are still information gaps. Finally, the cards are processed through a group–based thematic analysis workshop. The resulting themes are then used to inform:

- Development of a Region plan to advise their RHA on services adaptations to better meet Metis citizen needs
- Development of an evaluation plan for the adaptation activities
- Identification of policy issues that require analysis at a provincial level

- Identification where further information needs to be pursued through additional research
- Provincial Metis Health Policy Knowledge Network (PMHP–KN)

Currently the MMF–HWD central staff is undertaking background preparation for the institution of a Metis health policy table to examine the *Metis Atlas* provincially. Policy related issues identified by the Region Knowledge Networks and the MMF–HWD central research and policy staff will be assessed by a Provincial Metis Health Policy–Knowledge Network (PMHP–KN). The PMHP–KN, led by MMF–HWD central staff, will include representatives from each Region Knowledge Network, Manitoba Health, Winnipeg Regional Health Authority, and other health experts. The PMHP–KN will begin with review of the top three chronic diseases that have been prioritized by Knowledge Networks (KNs). For example, based on current experience all five active KNs have identified Mental Health as a priority. Given that there is a current provincial Aboriginal Mental Health strategy in place, the PMHP–KN review, which determines whether adaptations are needed for Metis citizens, can be completed in a timely manner. A specific Mental Health policy options paper would be produced for review by the PMHP–KN. Policy adaptation recommendations for the Mental Health Strategy would be developed and submitted to the MMF Governing Body for approval and then submitted to Manitoba Health for consideration.

Figure 2.8: Metis Health Status and Healthcare Utilization Study—Dissemination of Outcomes to Support MMF Region Knowledge Network



2.6 Where to From Here?

The results in the MCHP/MMF *Metis Atlas* provide baseline health information for the Metis population in Manitoba. The MMF–HWD health planning process (Knowledge Networks) and the MMF–HWD health policy analysis process (PMHP–KN) will continue interpreting and using new Metis population health knowledge for health planning. We expect that change will take time, yet our research and knowledge translation efforts will contribute to better health outcomes for Metis in the long term. Our holistic Metis Life Promotion Framework© and eight Wellness Areas© will ensure our endeavours continue to move well beyond health to examine 'life determinants'. Our work will enhance Metis–specific community wellness development being undertaken by multiple MMF Portfolios, Departments, and Regions.

The *Metis Atlas* will continue to be disseminated in a manner that is useful to planning. Currently only the chronic diseases and associated information (physician services, personal care, amputation rate, etc.) have been processed through Knowledge Networks. Given the public release of this report, it is expected that the critical Knowledge Network activity will begin to look at other aspects of the study outcomes—child health, infant mortality, health care use, immunizations, child welfare, and education factors—in the lives of Metis. Although it will not be possible to review specific KN outcomes in this report (KT model evaluation is underway and KN evaluation is in planning), the preliminary positive experience of Knowledge Networks' participants finding common ground in understanding cannot be overstated. Without ongoing, careful, deliberate, and thoughtful holistic approach to Metis health status information, sustained change may be difficult as both MMF Region and RHA staff changes over time. There is a need for both RHAs and MMF Regions to provide programs and services to Metis that reflects Metis health status. Both groups are committed to the best interest for the health of the Metis citizens in their Regions and will be mutually supported with an ongoing 'discussion table'.

The MMF Metis Population Database housed at MCHP is now available for additional studies. The MMF–HWD will carry out increasingly more Metis health research and associated knowledge translation. The Department is currently undertaking two additional studies (funded by the Public Health Agency of Canada) with the MMF Metis Population Data–Base, which will remain housed at Manitoba Centre for Health Policy. Data linkage and data runs (using the MPDB source dataset) are contracted to institutions that undertake such work. For such additional studies the MMF-HWD receives aggregate data and completes all data graphing, scientific analysis for identifying possible anomalies, descriptive analysis, report development, and knowledge translation. We are appreciative of continuing to receive MCHP mentorship and being able to ask questions multiple times until we are absolutely sure we understand the results.

Our *Diabetes in Manitoba Metis* study is near completion and will provide age and sex–specific rates by RHA and aggregate North, Mid, and South. Our *Cancer in Manitoba Metis* study is also near completion and provides cancer rates by type of cancer, sex, age, stage, and stage at treatment by province or aggregate region areas. The MMF has recently signed an agreement with the PHAC to provide the MMF–HWD funding for a five–year Metis Chronic Diseases Surveillance program. This will result in additional 'drill down' studies to ensure that MMF–HWD and Manitoba Health have appropriate health data for policy planning and that MMF Regions and RHAs have the best health information for health planning. The Department is also putting in place policies and protocols that will encourage and facilitate others to assume Metis health studies, for example graduate students and their supervisors. Without having been intricately involved in all aspects of the work to produce the *Metis Atlas* in partnership with Manitoba Centre for Health Policy, the MPDB would not be available for such additional studies.

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Chapter 3: Demographics

For planning and policy purposes, it is important to understand the basic demographics of a population, so that health and social services can meet their needs. This chapter features diagrams called "population pyramids" that map out the demographics of both the Metis and the "All Other Manitobans" populations. Various geographical regions are compared, including Manitoba overall, Regional Health Authorities, and Manitoba Metis Federation Regions.

Key observations from this chapter:

- For Manitoba overall, the Metis population have a greater proportion of young people 0–29, a lower proportion of mid–aged (40–54), and a lower proportion of older adults (70+ years old) when compared to all other Manitobans. For males and females combined, 0–19 year olds comprised 33.9% of the Metis population compared with 26.4% of the "all other Manitoban" population in 2006. Children less than 15 years old comprised 25.4% of the Metis population of Manitoba and 19.1% of all other Manitobans. In contrast, those aged 65+ comprised 9.1% of the Metis population and 13.9% of the "all other Manitoban" population.
- The two urban areas of Winnipeg and Brandon, as well as the RHAs of Parkland and Assiniboine, had noticeably higher proportions of younger Metis people (especially 0–25 years old) compared to all other Manitobans living in those areas.
- The RHA of Burntwood had a particularly young population, with very few older adults (as noted by a truly triangular population pyramid) for both the Metis and all other Manitobans living in this region.
- The MMF Regions vary considerably as to the population pyramid pattern, with Thompson, Northwest and The Pas showing a triangular shape (young population) but Winnipeg, Interlake and Southeast showing more of a "flat" shape upward until age 65+. Interlake and Southeast show a 'waist"—a small proportion of mid–aged people residing in these regions compared to older and younger people. This could be due to urban migration patterns since Winnipeg does not show this particular 'waist' pattern.

3.1 Definition: Population Pyramid (Population Profile)

A population pyramid (profile) is a graph showing the age and sex distribution of the population living in Manitoba in December 2006, based upon the Population Registry in the Repository housed at MCHP. These population pyramids compare the Metis with all other Manitobans living in the geographical area (Manitoba overall, RHAs) and show Metis only for the MMF Regions. Population totals are given in the title.

The percentage of the population within each five–year age bracket (such as 0–4, 5–9, 10–14, and so on, up to 85+ years old) is shown for both males (on the left side of the graph) and females (on the right side). All of these "bars" add up to 100%, meaning the entire population fits into these groupings.

Most developing countries of the world will have a population pyramid triangular in shape, indicating a very young population with few people in the oldest age brackets. (This population would have a high birth rate, high death rate and low life expectancy.) Most developed countries have a population

pyramid that looks more rectangular with the young and middle–aged people representing similar percentages of the population, and many more older adults in the "top part" of the pyramid compared to developing countries. This reflects a population with a stable fertility and mortality pattern, usually with low fertility, low mortality, and long life expectancy. In instances of an aging and relatively healthy population, the 'pyramid' could actually constrict at its base, showing low birth rates and a high proportion of older adults.

Figure 3.1: Age Profile of Manitoba, 2006
Metis Population: 73,016
All Other Manitobans Population: 1,104,672

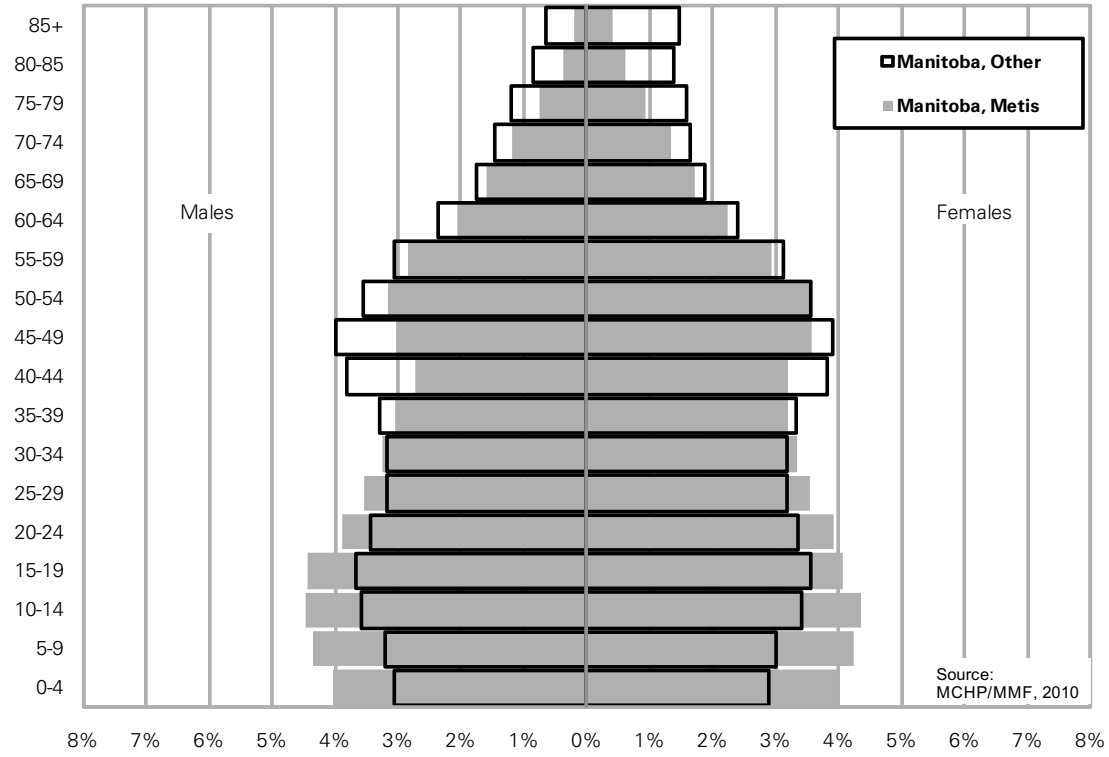


Figure 3.2: Age Profile of Central RHA, 2006
Metis Population: 4,558
All Other Manitobans Population: 97,358

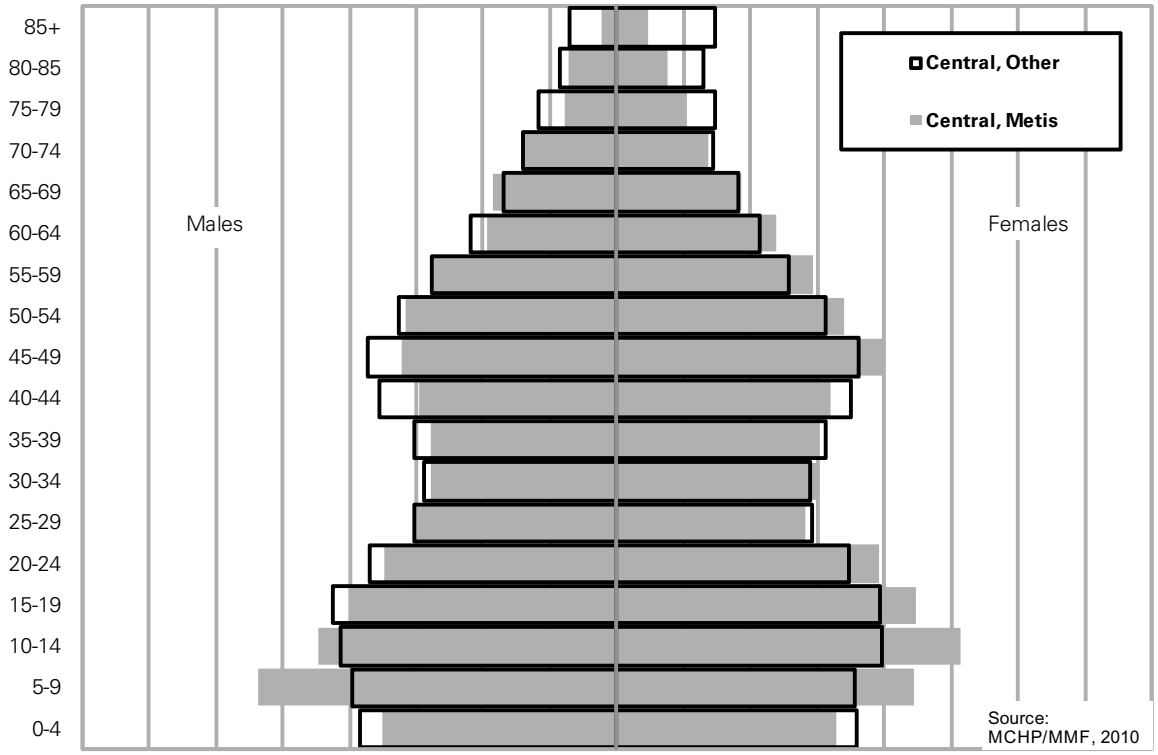


Figure 3.3: Age Profile of North Eastman RHA, 2006
Metis Population: 3,470
All Other Manitobans Population: 36,809

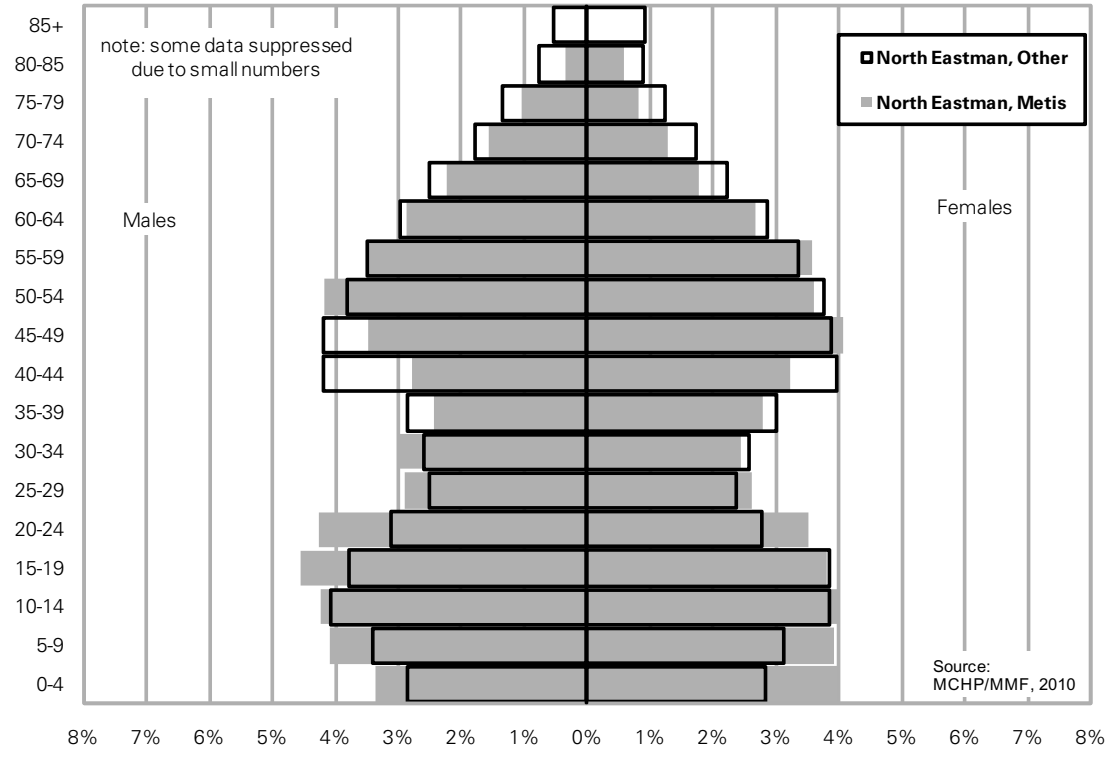


Figure 3.4: Age Profile of South Eastman RHA, 2006
Metis Population: 5,688
All Other Manitobans Population: 56,390

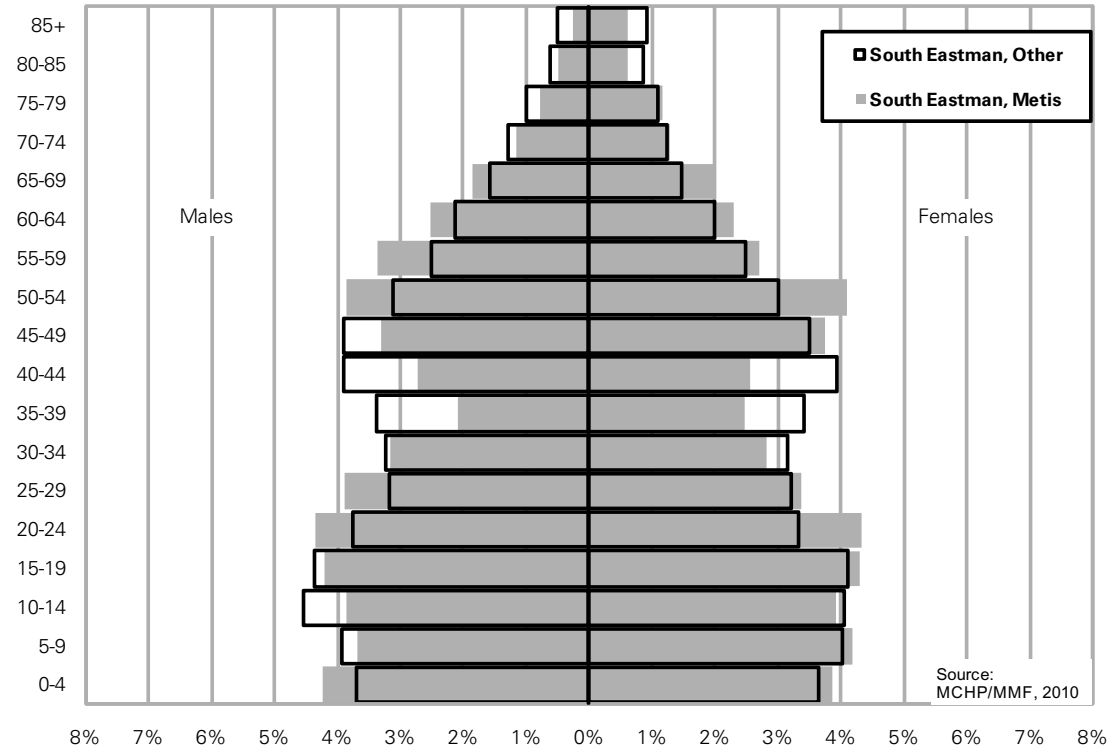


Figure 3.5: Age Profile of Interlake RHA, 2006
Metis Population: 8,817
All Other Manitobans Population: 67,990

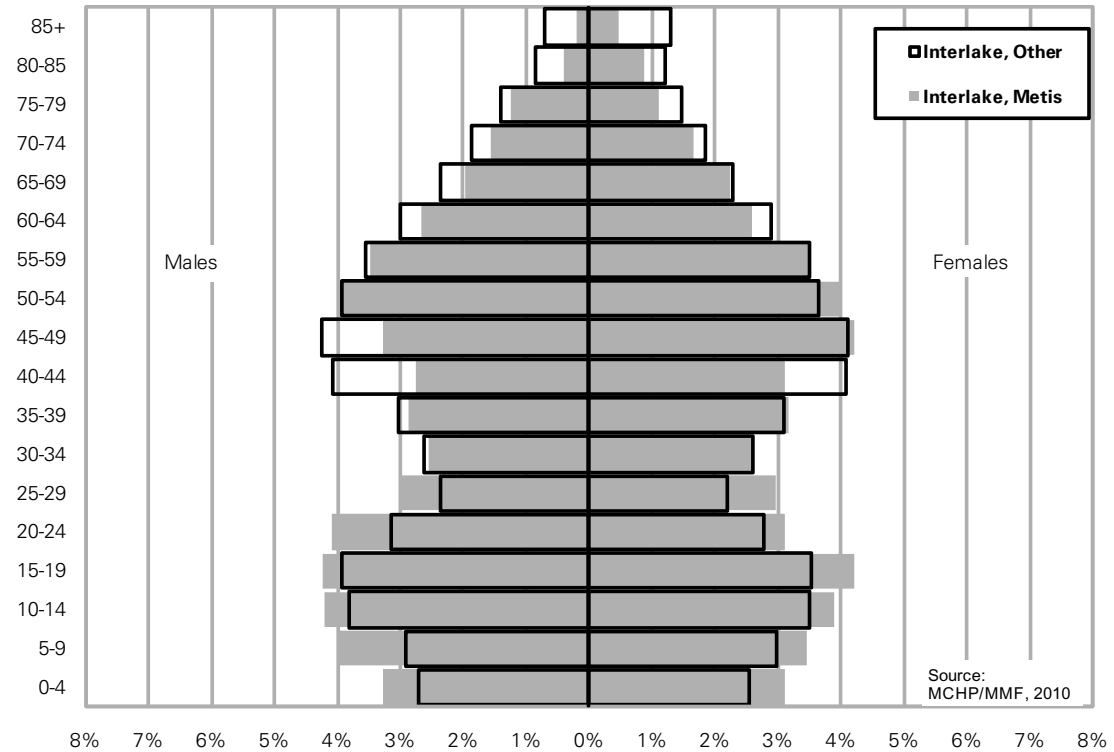


Figure 3.6: Age Profile of Nor-Man RHA, 2006
Metis Population: 4,073
All Other Manitobans Population: 20,126

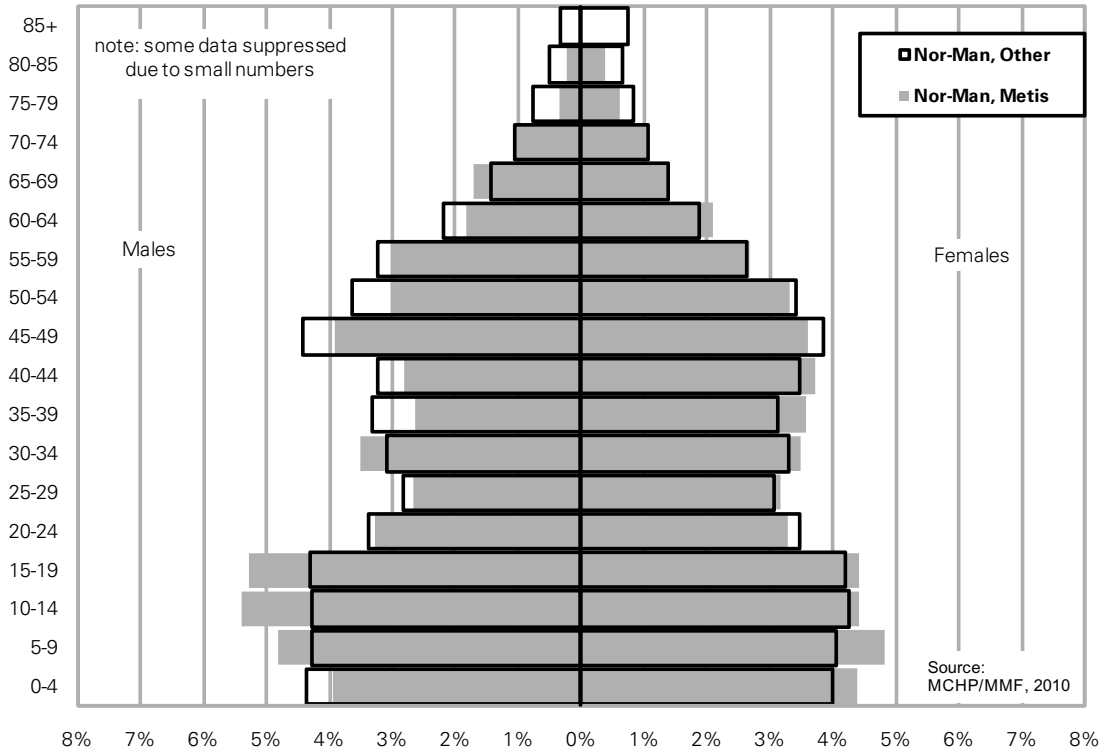


Figure 3.7: Age Profile of Parkland RHA, 2006
Metis Population: 5,976
All Other Manitobans Population: 35,986

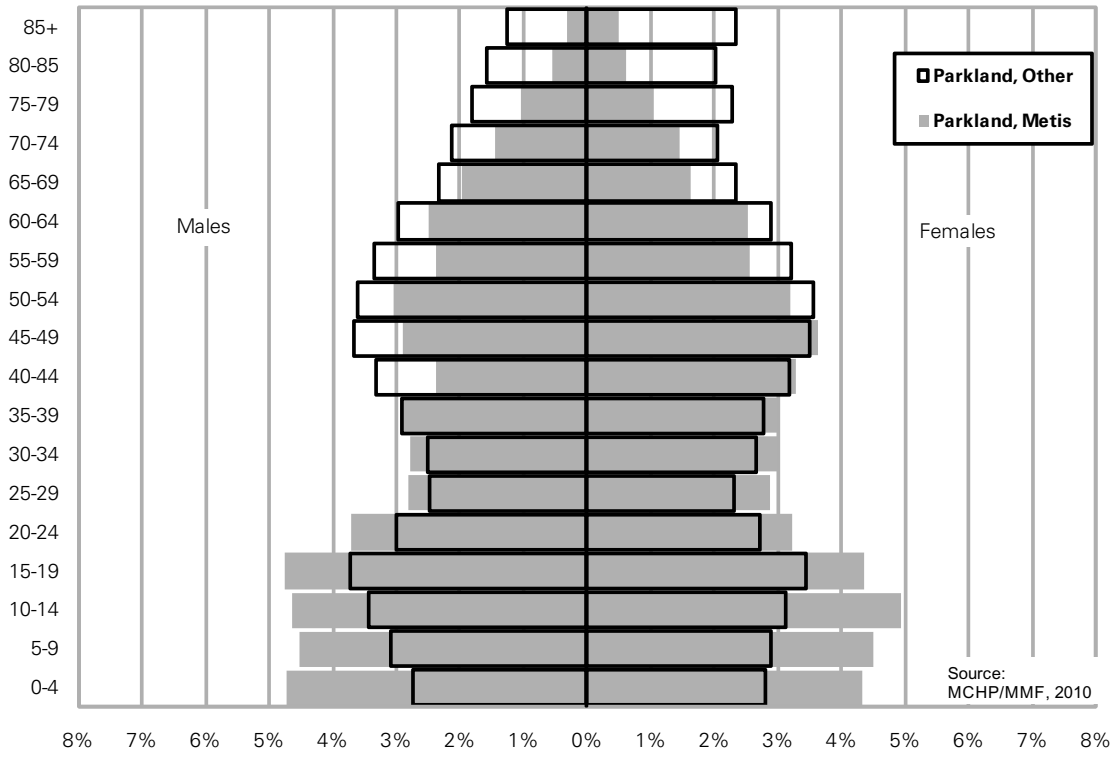


Figure 3.8: Age Profile of Burntwood RHA, 2006
Metis Population: 4,104
All Other Manitobans Population: 42,422

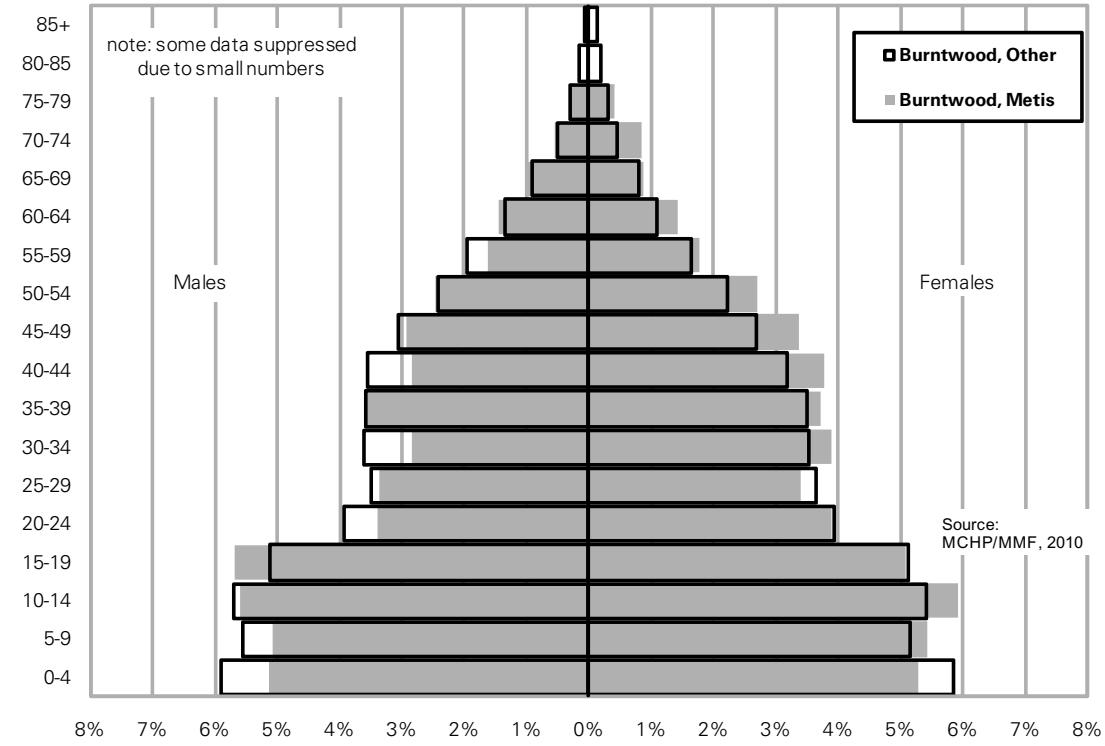


Figure 3.9: Age Profile of Churchill RHA, 2006
Metis Population: 220
All Other Manitobans Population: 719

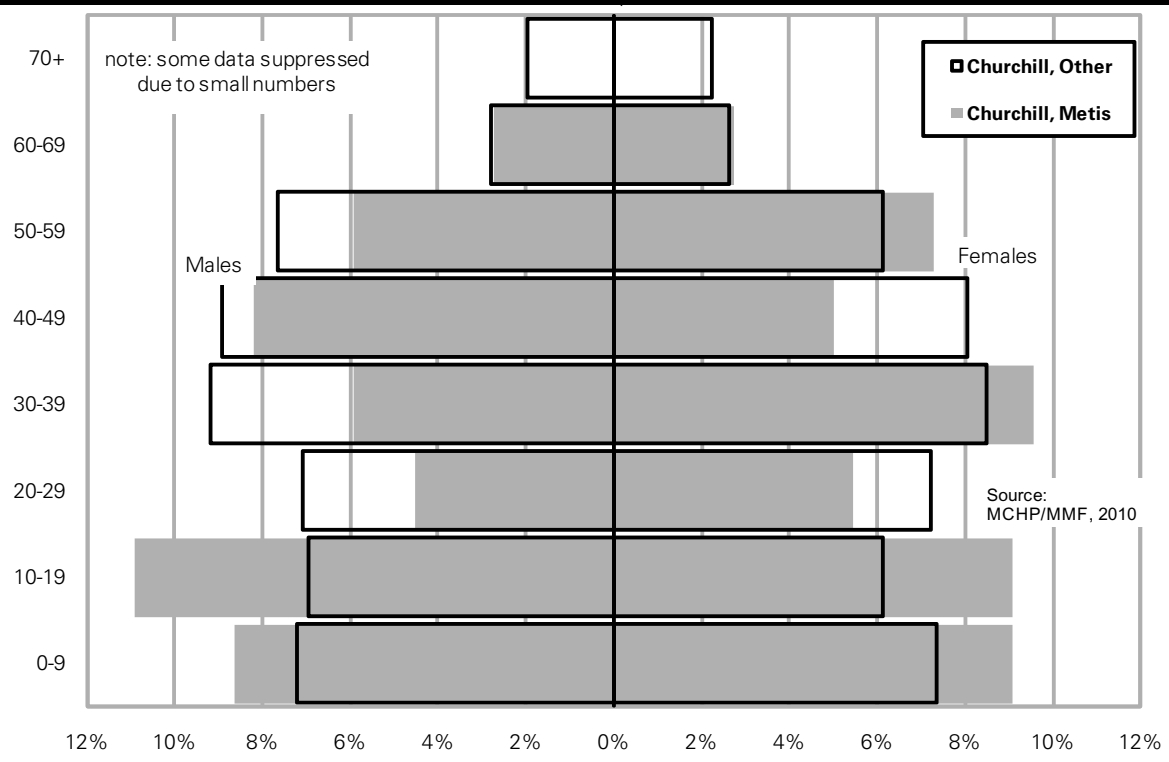


Figure 3.10: Age Profile of Brandon RHA, 2006
Metis Population: 2,336
All Other Manitobans Population: 47,185

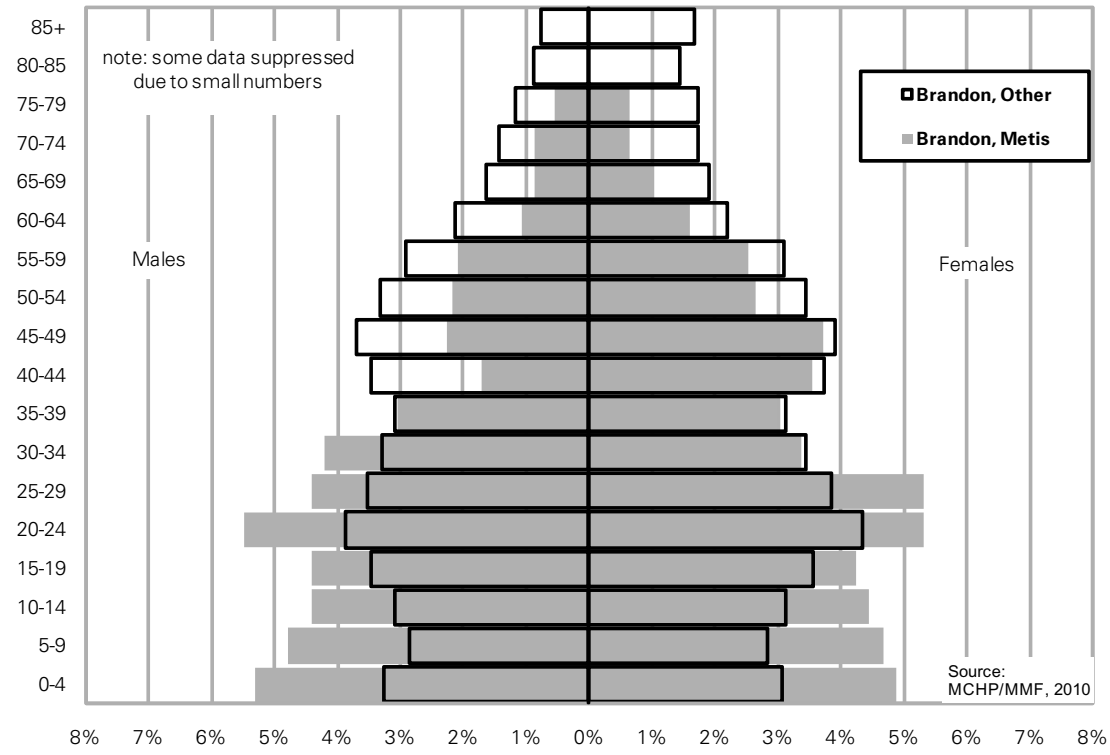


Figure 3.11: Age Profile of Assiniboine RHA, 2006
Metis Population: 2,127
All Other Manitobans Population: 65,909

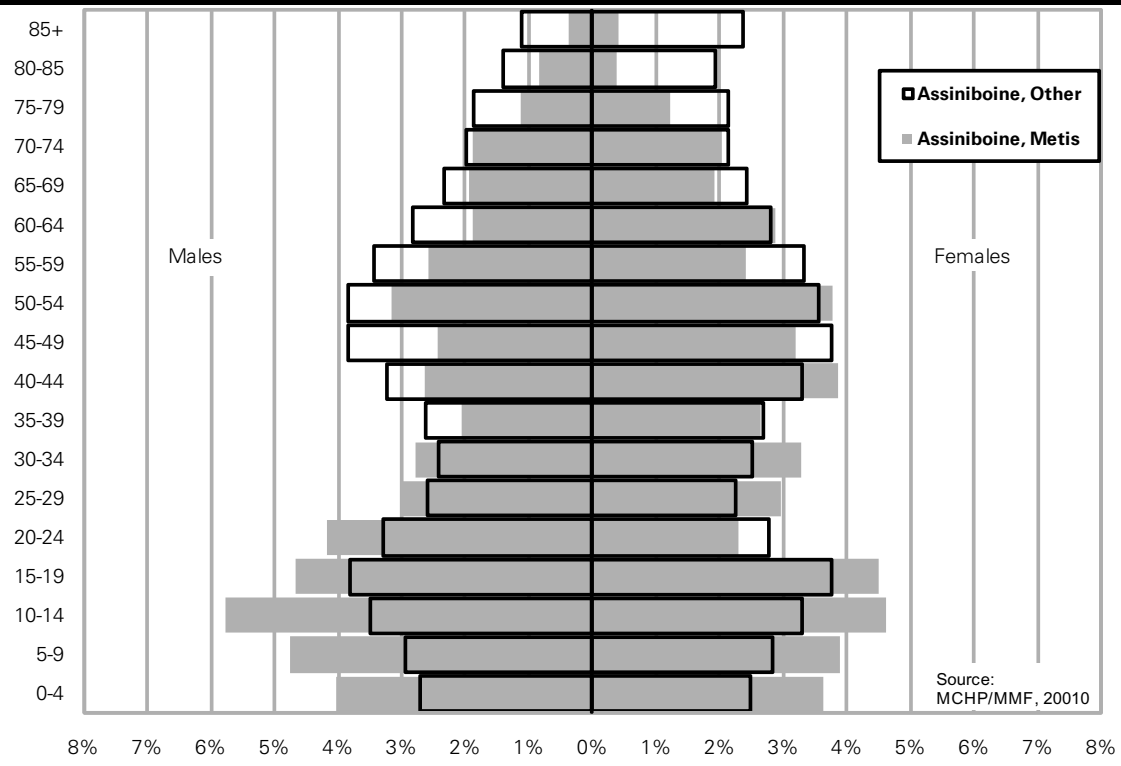


Figure 3.12: Age Profile of Winnipeg RHA, 2006
Metis Population: 31,647
All Other Manitobans Population: 633,778

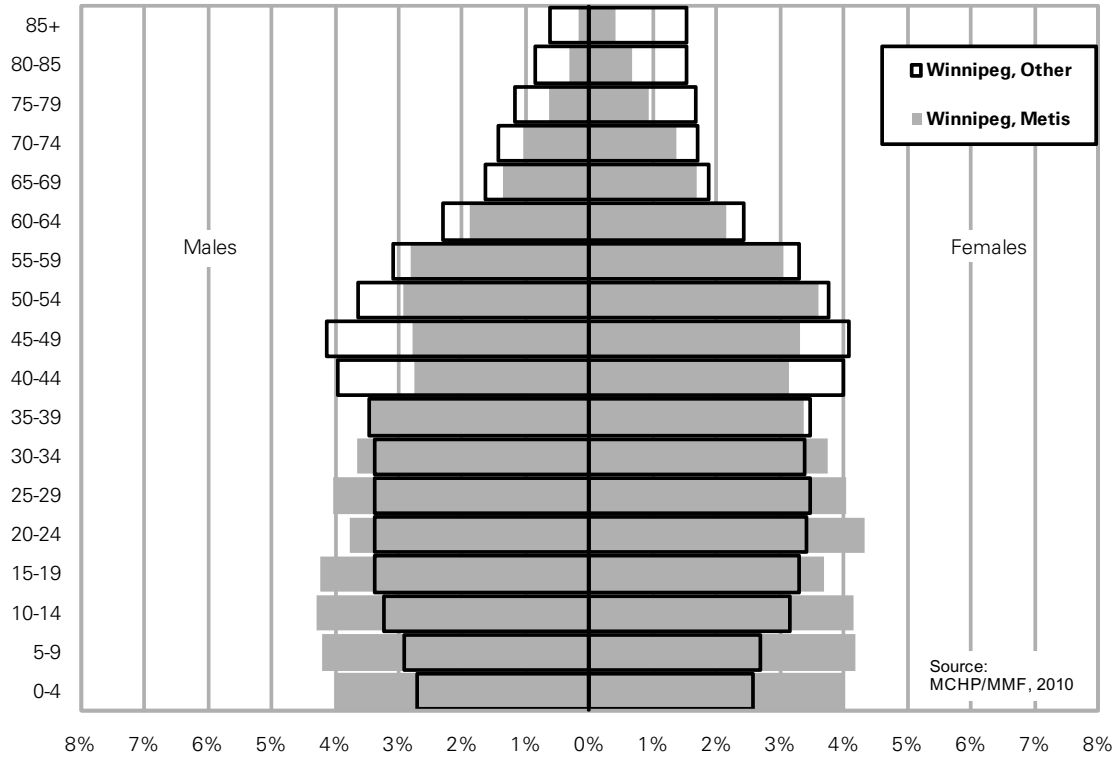


Figure 3.13: Age Profile of Interlake MMF Region, 2006
Metis Population: 8,151
All Other Manitobans Population: 62,161

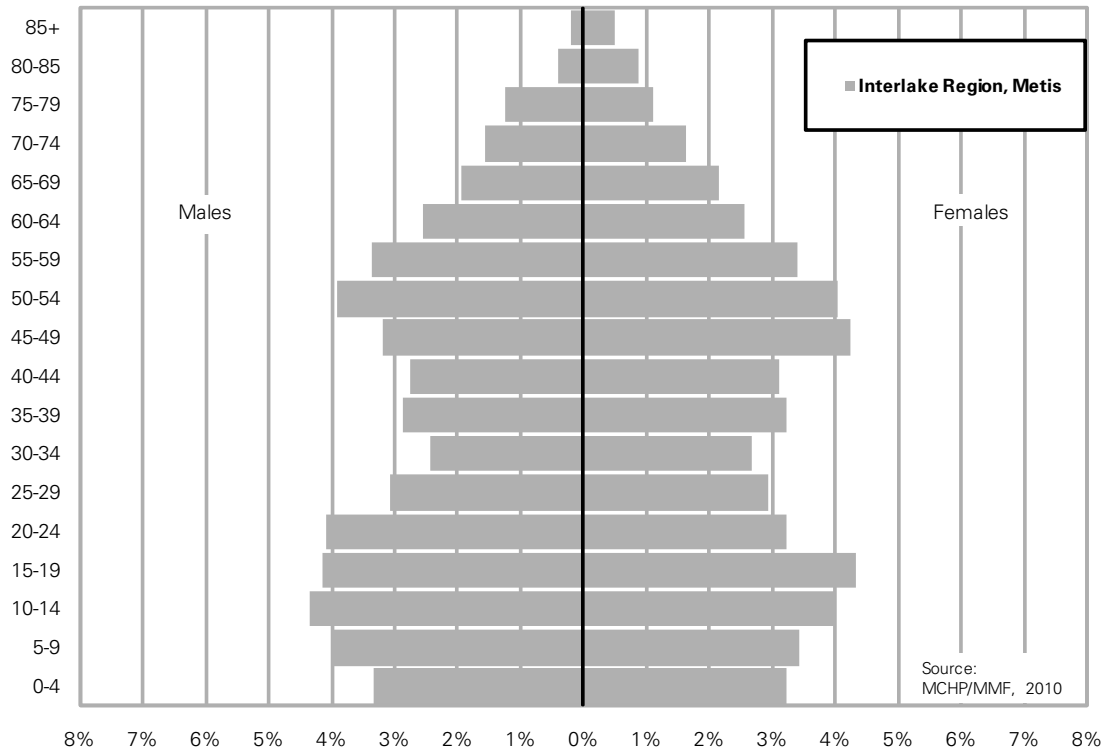


Figure 3.14: Age Profile of Northwest MMF Region, 2006
Metis Population: 4,267
All Other Manitobans Population: 38,361

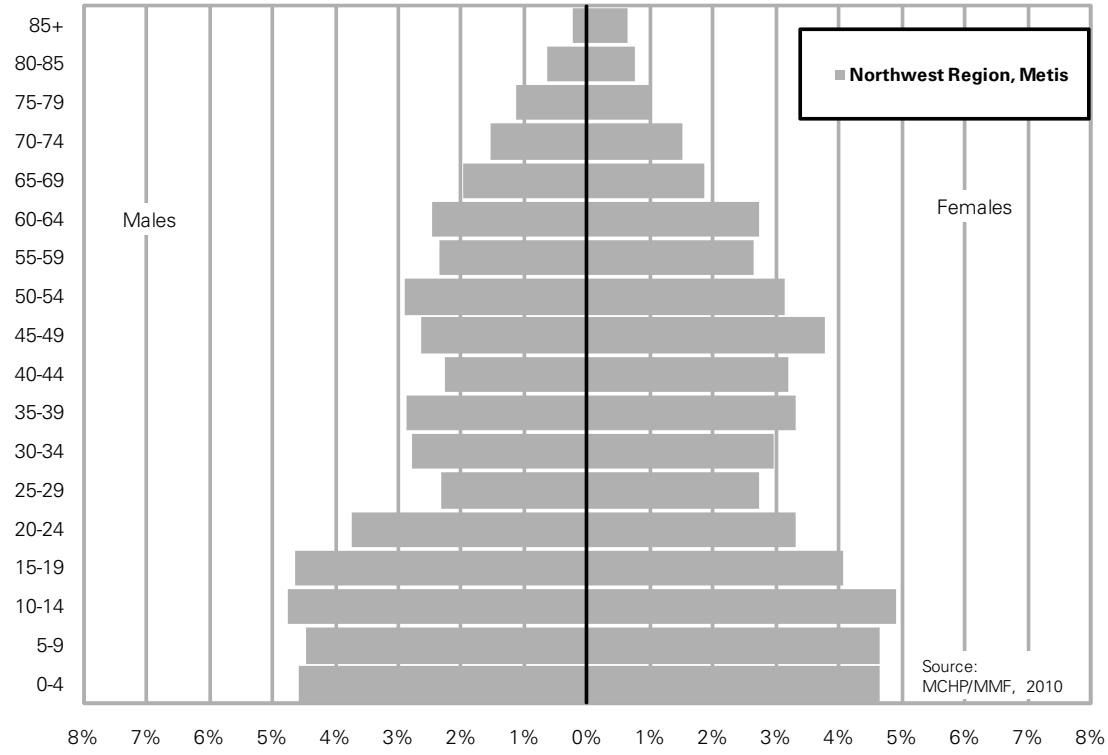


Figure 3.15: Age Profile of Southeast MMF Region, 2006
Metis Population: 9,837
All Other Manitobans Population: 100,177

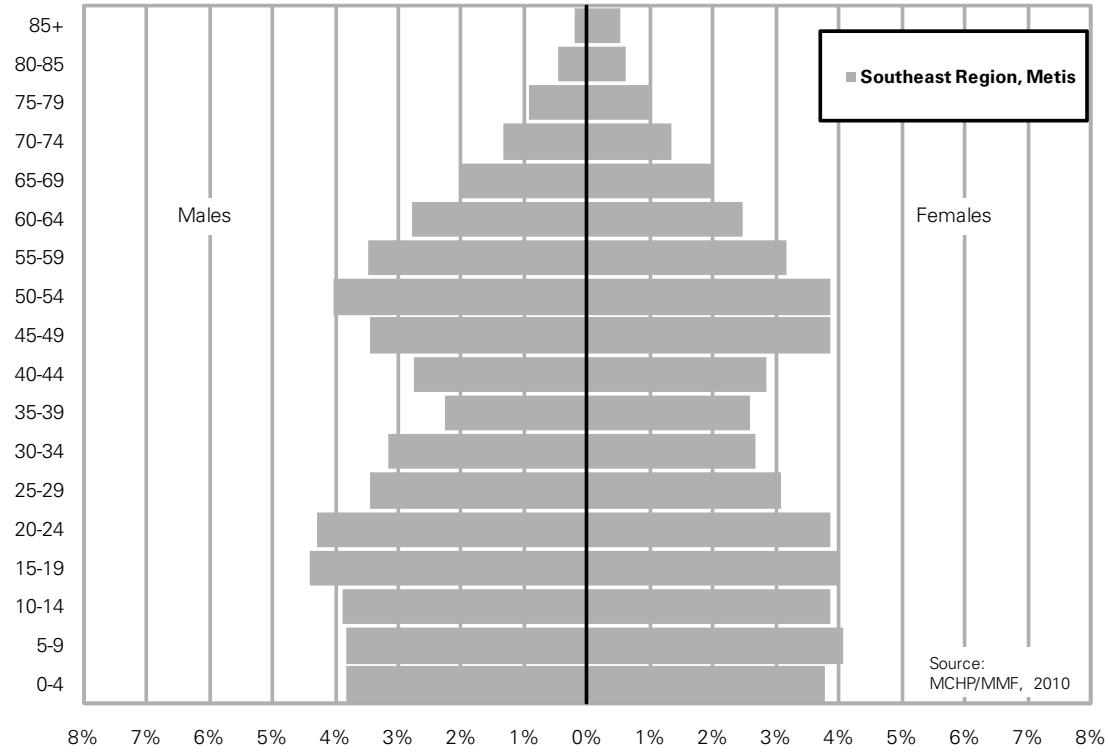


Figure 3.16: Age Profile of Southwest MMF Region, 2006
Metis Population: 8,806
All Other Manitobans Population: 204,451

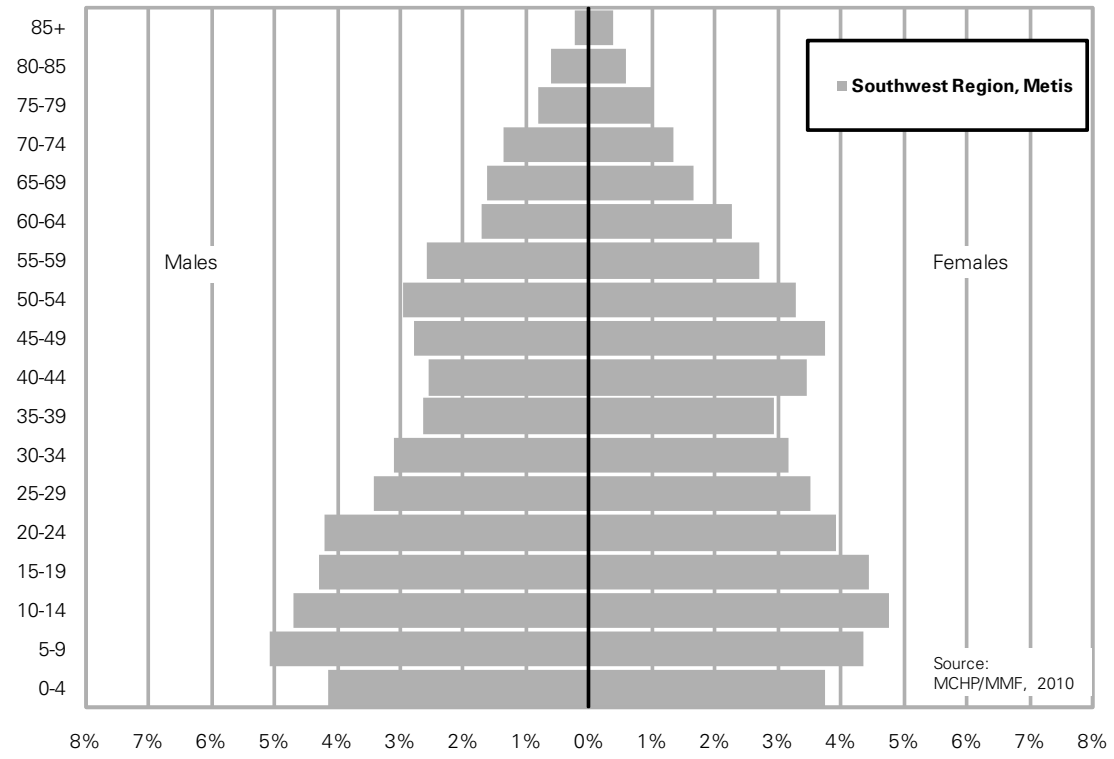


Figure 3.17: Age Profile of Thompson MMF Region, 2006
Metis Population: 4,334
All Other Manitobans Population: 44,359

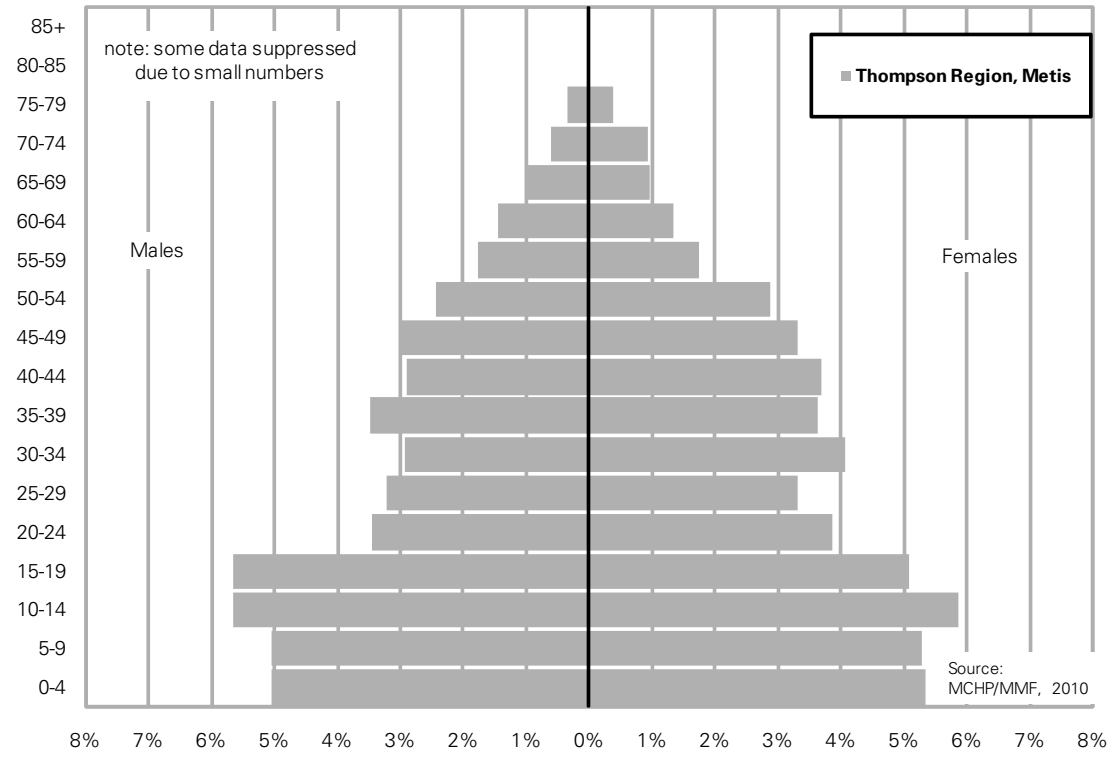


Figure 3.18: Age Profile of The Pas MMF Region, 2006
Metis Population: 5,974
All Other Manitobans Population: 21,385

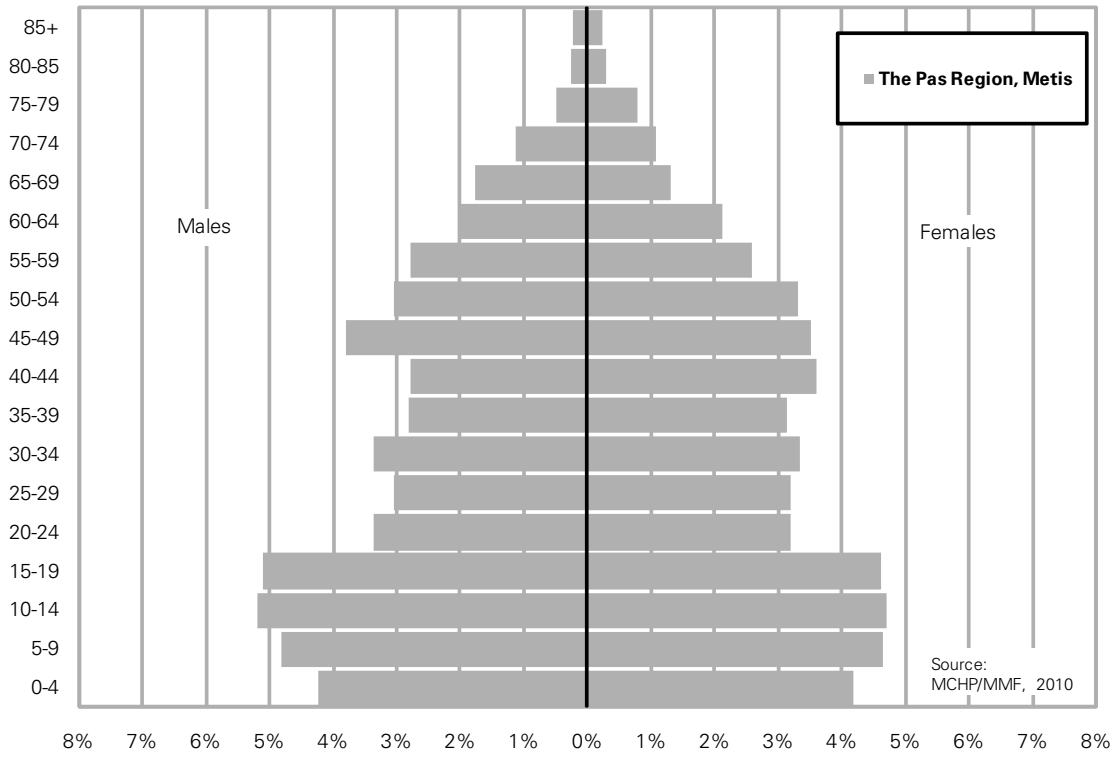
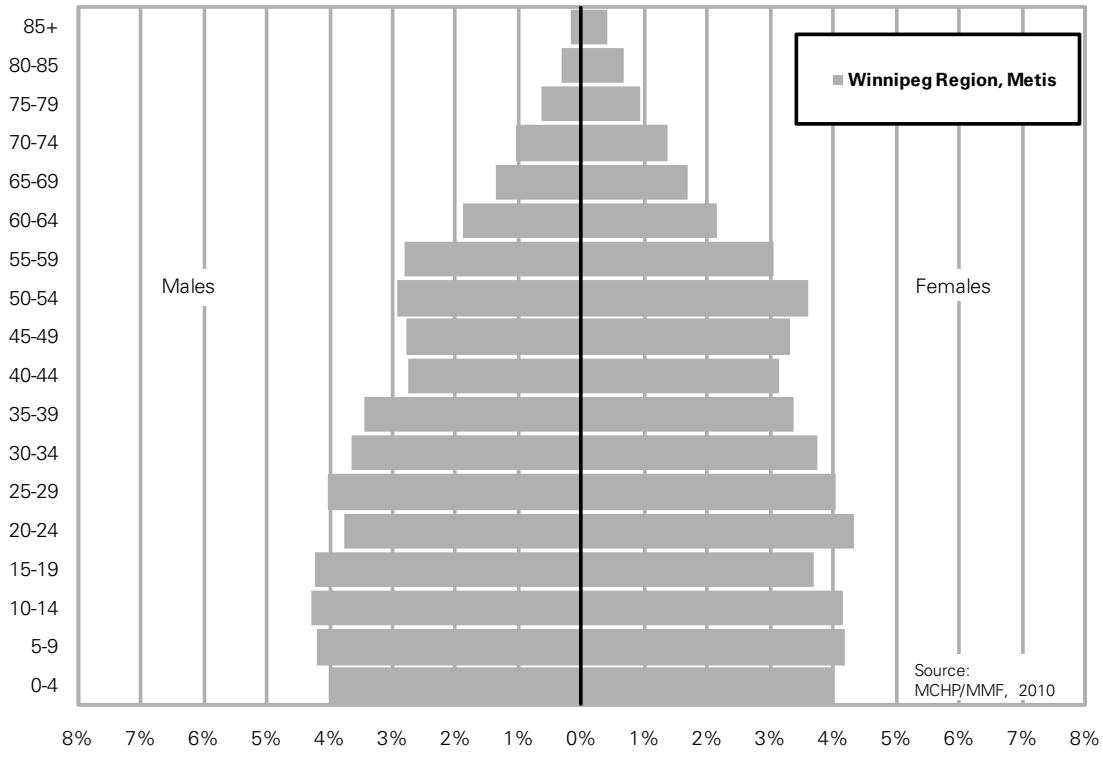


Figure 3.19: Age Profile of Winnipeg MMF Region, 2006
Metis Population: 31,647
All Other Manitobans Population: 633,778



Year (superscript refers to references for each row of data)	% of Manitoba population	# of Metis in Manitoba	# of Manitobans overall	% of Canada's Aboriginal population who are Metis	% of Canadian Metis living in urban areas	% Canadian Metis living in rural areas	% Canadian Metis living 'on reserve'
1991[2, 4]	4.8%	52,095*	1,091,942	26.8	65%	35%	
1996 [1, 2, 3, 6]	3.7%	40,720	1,113,898	26%	67%	33%	
2001 [2, 3, 6]	4.7%	52,095	1,119,583	30% (34.9% of Manitoba Aboriginal population)	68%	29%	
2006 [1, 5]	6.3%	71,805	1,148,401	33%	69%	29%	1%

* Does not count Status Indians who indicated Metis identity.

References for each row of data:

[1] Gionet L, 2009.
[2] Statistics Canada, 2009.
[3] Statistics Canada, 2003.
[4] Normand, 1996.
[5] Statistics Canada, 2008b.
[6] Hallett, 2006.

3.2 Findings from a Literature Review

Various sources of data indicate differing population numbers for Metis people living in Manitoba over time. According to Hallett (2006), from 1996 to 2001, the Census population of Manitoba Status Indians increased from 81,715 to 90,155, or a 10.3% increase—this approximated the natural increase (births minus deaths). However, in contrast, the self–identified Metis increased from 40,720 to 52,095, an increase of 27.9%; but the birth rate for Metis is lower than that of Status Indians. So it is estimated that around two–thirds of this increase was due to ethnic mobility, i.e., people identifying as Metis in 2001 that did not do so in the 1996 Census.

In the 2001 Census (for all of Canada), 29.1% of the Metis were 0–14 years old, 30.9% were 15–29 years old, and 40.0% were 30–65 years old (Hallett, 2006). For Metis, 4% were over 65 years in 2001, compared with 13% for all other Canadians. The median age of Metis was 27 years in 2001 (compared to 37.7 years for all other Canadians), 30 years in 2006 (compared to 39 years for all other Canadians), and is projected to increase to 31.1 years in 2017 (Manitoba Bureau of Statistics, 2005; Manitoba Bureau of Statistics, 2008; Gionet, 2009). In the 2006 Census, the Metis were still younger than the Canadian population (median age 30 years versus 40 years) (Janz, Seto, & Turner, 2006), and 27% of Manitoba Metis were under the age of 15 (Gionet, 2009).

According to Hallett (2006), half of the Metis living in Manitoba in the year 2001 resided in Winnipeg. In northern Manitoba, 13% of northern Aboriginal people were Metis in 2001 (down slightly from 15% in 1996), with 445 living "on–reserve" and 6,995 living elsewhere in the north. The three small urban centres of Thompson, The Pas and Flin Flon accounted for 2,750 Metis in the north, with 4,200 living in scattered settlements (many of which are adjacent to First Nations communities). Metis outnumbered Status Indians in Selkirk, Dauphin, Flin Flon, and Swan River. In southern Manitoba in 2001, 18,485 lived outside Winnipeg and 31,000 lived in Winnipeg; 86% of Manitoba Metis were located in the south (including Winnipeg), as compared to only 46% of First Nations.

According to Janz (2006), 69% of Canadian Metis lived in an urban area. The Census Metropolitan Areas (CMAs) with the largest number of Metis in 2006 were: Winnipeg (40,980), Edmonton (27,740), Vancouver (15,075), Calgary (14,770), Saskatoon (9,610), and Ottawa–Gatineau (7,990). The urban cities with the largest population of Metis has not changed since the 1991 Aboriginal Peoples' Survey (Normand 1996), where Winnipeg and Edmonton were identified as the two highest Metis urban populations (Lamouche 2002). In 2006, 6% of the Manitoba population self–identified as Metis—the most in Canada except for 9% in NWT—for a total population of 71,805 in Manitoba (Statistics Canada, 2008a). This represented 18% of all the Metis in Canada.

Comparing the Literature Review to *This Study's Findings*:

- The 2006 Census findings report that 27% of Metis in Canada were less than 15 years old (down slightly from the 29.1% recorded in the 2001 Census). In our study: children less than 15 years old comprised 25.4% of the Metis population of Manitoba and 19.1% of all other Manitobans. The Manitoba Metis are similar to those throughout Canada, with around ¼ of their population in the 'less than 15' category, indicating a slightly higher fertility rate than the general population of Canadians.
- The 2006 Census findings report that 4% of the Metis in Canada were 65+ years old, and this was consistent with the 2001 Census. *In our study, those aged 65+ comprised 9.1% of the Metis population in 2006 and 13.9% of the "all other Manitoban" population. The Manitoba Metis population appears to be slightly older than the Canadian Metis generally, even though both have a lower percentage of older adults than the rest of the population.*
- The 2006 Census recorded 71,805 Metis people living in Manitoba, which was 6.3% of the population of 1,148,400. *Our study, based upon the Population Health Research Data Repository housed at MCHP, along with the linkage files from the Manitoba Metis Federation and self–reports in surveys, indicate 73,016 Metis living in Manitoba in 2006. This is 6.2% of the total Repository population of 1,177,688. Given the fact that the Census relies on different data collection than the Repository (which is based upon Manitoba Health universal health registry systems), the relative proportion of Metis is very close (6.2–6.3%), and the actual numbers are within 1,211 of each other. This gives confidence in the method used to generate the Metis cohort used in this study.*

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Chapter 4: Population Health Status and Mortality

This chapter focuses on indicators of mortality (death), looking at various measures of mortality. Indicators in this chapter include:

- Premature Mortality Rate
- Total Mortality Rate
- Injury Mortality Rate
- Total Mortality by Cause and Injury Mortality by Cause
- Life Expectancy at Birth
- Potential Years of Life Lost (PYLL)
- Suicide Rate
- Suicide or Suicide Attempt Prevalence
- All Cause Five–Year Mortality Rates for Individuals with Diabetes
- All Cause Five–Year Mortality Rates for Individuals with Cumulative Mental Illness

The Premature Mortality Rate (PMR) is considered a surrogate measure for the overall 'healthiness' of a group of people, since it is easy to measure using vital statistics files. Yet its usefulness goes beyond simply a measure of death before the age of 75—it is highly correlated to socio–economic indices, self–rated health measures, and overall morbidity measures. Knowing that people living in areas of socioeconomic risk usually experience more health problems, MCHP looks not only at healthcare use rates but also on the relationship between these rates and the "need" for healthcare (Black, Burchill, & Roos, 1995; Roos, 1999; Roos, Black, Roos et al., 1999). Premature mortality rate (PMR), or death before the age of 75 years, is used as a "surrogate" for the underlying health status of a group of people, and thus their "need" for healthcare. PMR has proven to be an important framework for MCHP's analyses of healthcare use patterns (Black, Roos, Fransoo, & Martens, 1999; Brownell et al., 2001; Brownell et al., 2003; Martens, Frohlich, Brownell, Carriere, & Derksen, 2002; Martens, Bond, Jebmami et al., 2002). One would expect populations with poorer health status to require greater healthcare services.

As mentioned already in Chapter 1, all of the graphs in this report use PMR as a way in which to order the RHAs, the MMF Regions, and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left-hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. In this chapter, however, the PMR for five years is presented, along with many other ways in which to look at mortality rates.

Overall Key Findings:

- Provincially, Metis in general have higher mortality rates than all other Manitobans (12–38% higher) (see Table 4.0)
- In general, Southeast MMF Region, as well as South Eastman RHA, have lower mortality rates for Metis compared to the Metis provincial average
- In general, the North (Burntwood RHA, Thompson MMF Region) and two CAs within Winnipeg (Downtown and Point Douglas) have higher mortality rates for Metis compared to the Metis provincial average

Table 4.0: Overall Key Findings of Mortality Indicators

Indicator	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically 'better off' regions for Metis compared to Metis provincial average	Statistically 'worse off' regions for Metis compared to Metis provincial average
PMR	4.0 vs. 3.3 per 1000; RR=1.21	Southeast MMF Region	Thompson MMF Region; Downtown CA, Point Douglas CA; North
Total Mortality Rate	9.7 vs. 8.4 per 1000; RR=1.15	South Eastman RHA; Southeast MMF Region	Burntwood RHA; North; Thompson MMF Region; Downtown CA; Point Douglas CA
Injury Mortality Rate	0.58 vs. 0.51 per 1000; RR=1.14		Burntwood RHA; North; Thompson MMF Region; Downtown CA; Point Douglas CA
Life Expectancy for Females	81.0 vs. 81.8 years; RR=0.99, NS	South Eastman RHA; Southeast MMF Region	Burntwood RHA; North; Thompson MMF Region; Downtown CA; Point Douglas CA
Life Expectancy for Males	75.0 vs. 76.8 years; RR=0.98	North Eastman RHA; Southeast MMF Region	Downtown CA
PYLL	64.6 vs. 54.6 per 1000; RR=1.18	Fort Garry CA	North; Thompson MMF Region; Downtown CA; Point Douglas CA
Suicide Rate	0.17 vs. 0.15 per 1000; RR=1.13, NS		
Suicide or Suicide Attempt Prevalence	0.11% vs. 0.08%; RR=1.38	South Eastman RHA; Interlake RHA; Southeast MMF Region; Interlake MMF Region; St. Boniface CA; Transcona CA	Parkland RHA; NOR–MAN RHA; Burntwood RHA; North; The Pas MMF Region; Thompson MMF Region; Downtown CA; Point Douglas CA
All–Cause Five–Year Mortality Rates for Individuals with Diabetes	20.8% vs. 18.6%; RR=1.12	South Eastman RHA	
All–Cause Five–Year Mortality Rates for Individuals with Cumulative Mental Illness	8.2% vs. 7.9%; RR=1.04, NS		Downtown CA

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

4.1 Premature Mortality Rate

The Premature mortality rate (PMR) is often used as an overall indicator of population health, with high premature mortality rates indicating poor health. PMR is the age– and sex–adjusted annual rate of death among residents aged 0 to 74 years per 1,000 residents for calendar years 2002–2006.

Key observations

RHAs:

- Provincially, Metis' PMR is significantly higher, at 4.0 deaths per 1000 people aged 0–74 compared with 3.3 per 1000 for all other Manitobans
- Although there is a trend to a higher PMR for Metis compared to all other residents in most regions, this is only statistically significantly higher (i.e., showing a "d" in the statistical notations) in Central (4.6 vs. 2.8 per 1000) and Winnipeg RHAs (4.2 v.s 3.3 per 1000).
- For all other Manitobans, there is a linear trend. South Eastman is the healthiest region and Burntwood the least healthy. However, the Metis pattern is not as linear—the only significantly higher PMR is found in the North.
- For the aggregate area of the North, PMR is significantly higher than the provincial average for both Metis and all others, at 5.3 per 1000. For the aggregate area of the Rural South, Metis are similar to the provincial average for all Metis (3.8 vs. 4.0 per 1000), even though all others are significantly lower than their corresponding provincial average (2.9 vs. 3.3 per 1000), which results in a higher PMR for Metis in the Rural South. In the Mid region of the province, there are similar PMR values for both Metis and all others (3.5 vs. 3.4 per 1000).

MMF Regions:

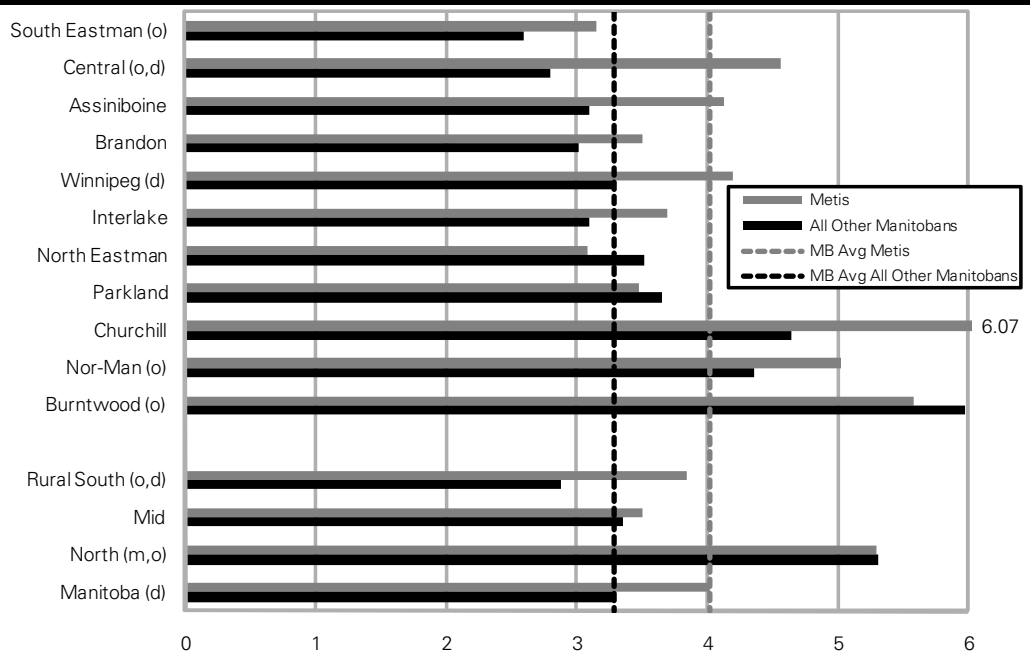
- The Metis PMR follows the PMR pattern of RHAs, with (in general) the most healthy Metis population being in southern Manitoba and the least healthy in northern Manitoba. This is opposite to the findings in the First Nations report by Martens et al. (2003), where the PMR in southern First Nations Tribal Councils was higher (i.e., the First Nations living in the south were the least healthy) compared to the northern Tribal Councils (where the First Nations were the most healthy).
- The northern MMF Regions (The Pas, Thompson) show elevated PMR, but only Thompson is statistically higher than the provincial Metis rate (5.6 vs. 4.0 per 1000).
- The southern and mid MMF Regions are similar to the Metis provincial average, with the exception of a lower PMR in Southeast MMF Region (3.1 vs. 4.0 per 1000). This region may provide an opportunity to look at protective health factors.

Winnipeg CAs:

- The Winnipeg CAs of St. Vital (4.0 vs. 2.6 per 1000), River East (4.0 vs. 2.9 per 1000), Inkster (5.0 vs. 3.4 per 1000), Downtown (7.6 vs. 5.2 per 1000), and Point Douglas (6.2 vs. 5.8 per 1000) show significantly higher PMR for Metis compared to all others living in these areas.

- Winnipeg Downtown and Point Douglas have significantly high PMRs for Metis people, at 7.6 and 6.2 per 1000 respectively. These rates are even higher than Metis living in the North (5.3 per 1000). In the North, Metis and all others have similar PMRs; but in Downtown and Point Douglas, Metis have significantly higher PMRs than all others in those areas. This is particularly concerning, given the high proportion of Metis living in Winnipeg's inner city.
- St. Vital and Inkster somewhat "stick out" as higher PMR than expected for Metis, given the corresponding PMRs of the other residents of the area.

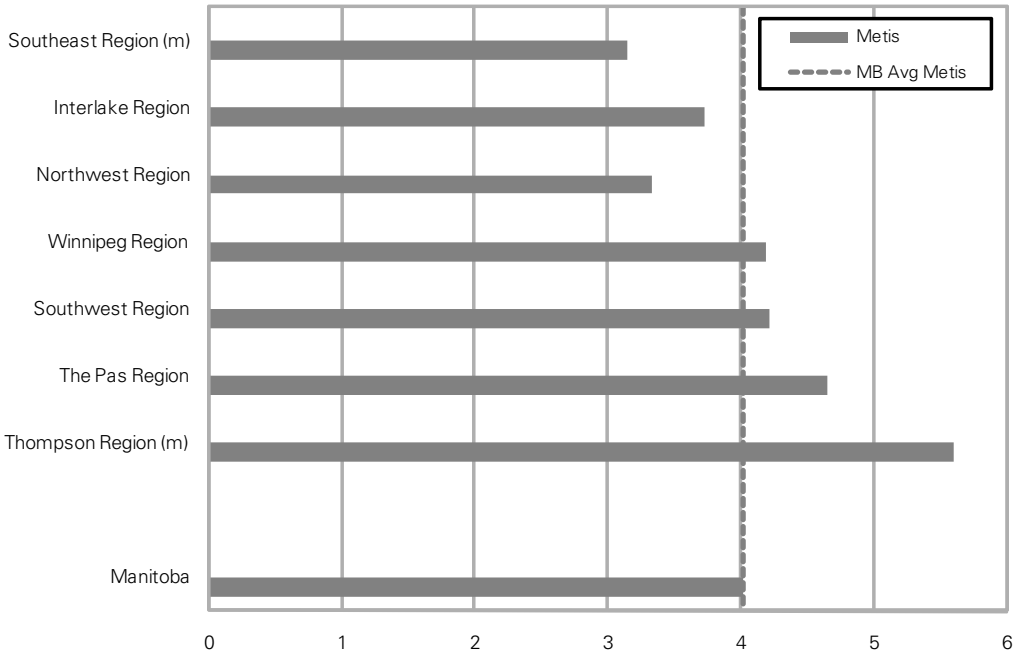
Figure 4.1.1: Premature Mortality Rate by RHA, 2002-2006
Age- & sex-adjusted annual rate per 1,000 residents aged 0-74 years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.1.2: Premature Mortality Rate by Metis Region, 2002-2006
Age- & sex-adjusted annual rate per 1,000 Metis residents aged 0-74 years



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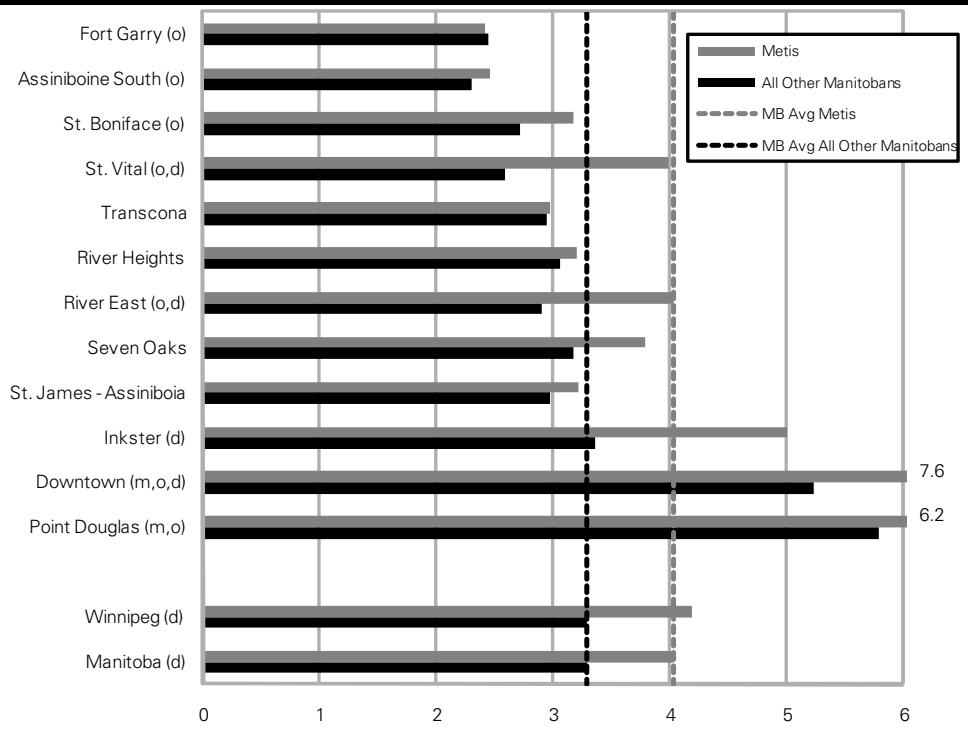
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.1.3: Premature Mortality Rate by Winnipeg Community Area, 2002-2006
Age- & sex-adjusted annual rate per 1,000 residents aged 0-74 years



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

4.2 Total Mortality Rate

The Total Mortality Rate is the age– and sex–adjusted annual rate of death per 1,000 residents for the calendar years 2002–2006. The denominator includes all Manitoba residents as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- The Total Mortality Rate for Metis is higher than for all others provincially (9.7 vs. 8.4 per 1000).
- In the RHAs of Central (10.7 vs. 7.6 per 1000), Brandon (11.0 vs. 7.9 per 1000), and Winnipeg (10.3 vs. 8.2 per 1000), Metis have a significantly higher Total Mortality Rate than all other residents in those regions.
- South Eastman Metis have a significantly lower Total Mortality Rate compared to the overall Metis provincial average (7.3 vs. 9.7 per 1000), as do all others living in this RHA (7.4 vs. 8.4 per 1000).
- Burntwood RHA shows significantly higher Total Mortality Rates for both Metis (13.8 vs. 9.7 per 1000) and for all others (14.5 vs. 8.4 per 1000), compared to their corresponding provincial averages.
- By aggregate areas, the North shows very high Total Mortality Rates for Metis (12.7) and for all others (12.8 per 1000), with no significant difference between the two groups. In contrast, the Rural South and Mid areas show Metis rates similar to the provincial Metis average.
- There is a linear relationship of Total Mortality Rate by RHA for all other Manitobans; but more of a curvilinear or fluctuating rate for the Metis, with the only obvious similarity being the higher rates in the northern RHAs.

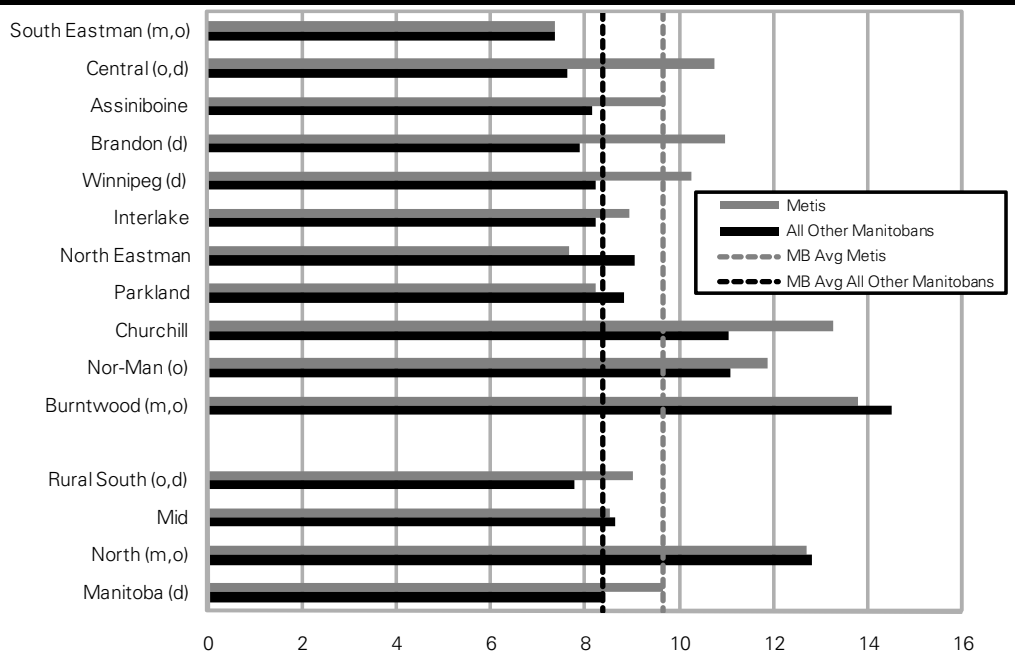
MMF Regions:

- Similar to the PMR (see previous graphs), the Total Mortality Rate is significantly lower for Metis in Southeast MMF Region (7.4) and higher in Thompson (13.6) compared with the overall provincial Metis rate (9.7 per 1000).

Winnipeg CAs:

- Metis living in St. Boniface (9.4 vs. 7.2), River East (10.1 vs. 7.7), Inkster (11.6 vs. 8.4), and Downtown (17.5 vs. 11.1 per 1000) have significantly elevated Total Mortality Rates compared with all others living in these CAs.
- Of particular concern are the elevated mortality rates for Metis in Inkster (11.6), Downtown (17.5), and Point Douglas (13.4 per 1000), which are higher than even the corresponding high rates for all others living there. In Downtown, the Total Mortality Rate for Metis is 1.6 times higher than for all others living there (similar to the ratio for PMR at 1.5 times higher).
- Although not statistically significant, Fort Garry's Total Mortality Rate appears low for Metis and all others, which suggests the potential to look at protective factors in this area.

Figure 4.2.1: Total Mortality Rate by RHA, 2002-2006
Age- & sex-adjusted annual rate of deaths per 1,000 residents



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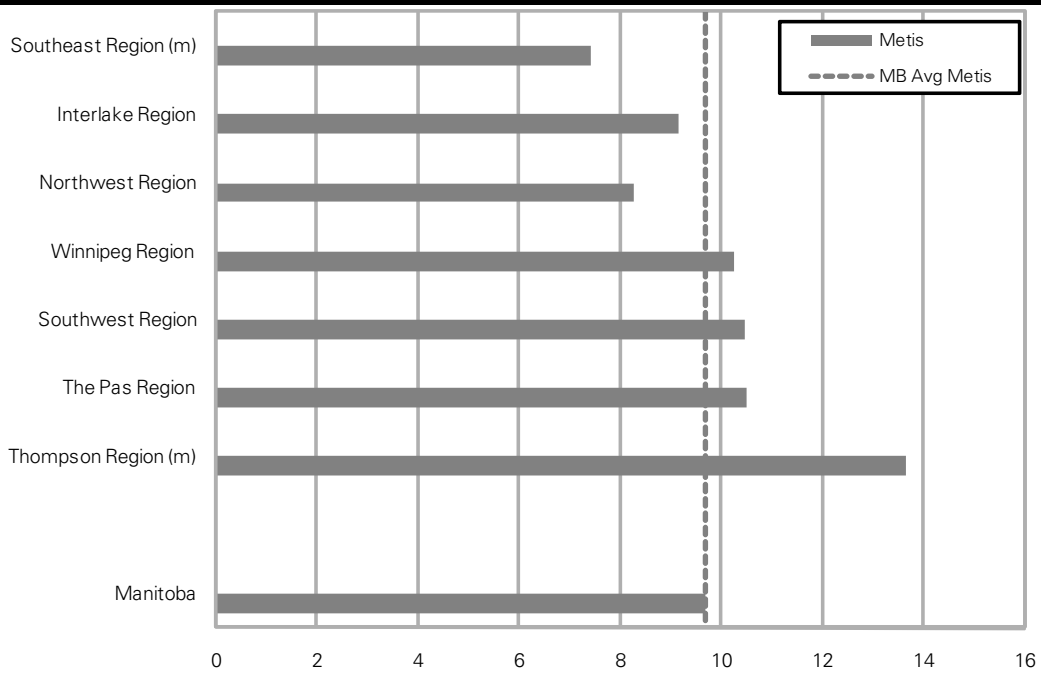
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.2.2: Total Mortality Rate by Metis Region, 2002-2006
Age- & sex-adjusted annual rate of Metis deaths per 1,000 Metis residents



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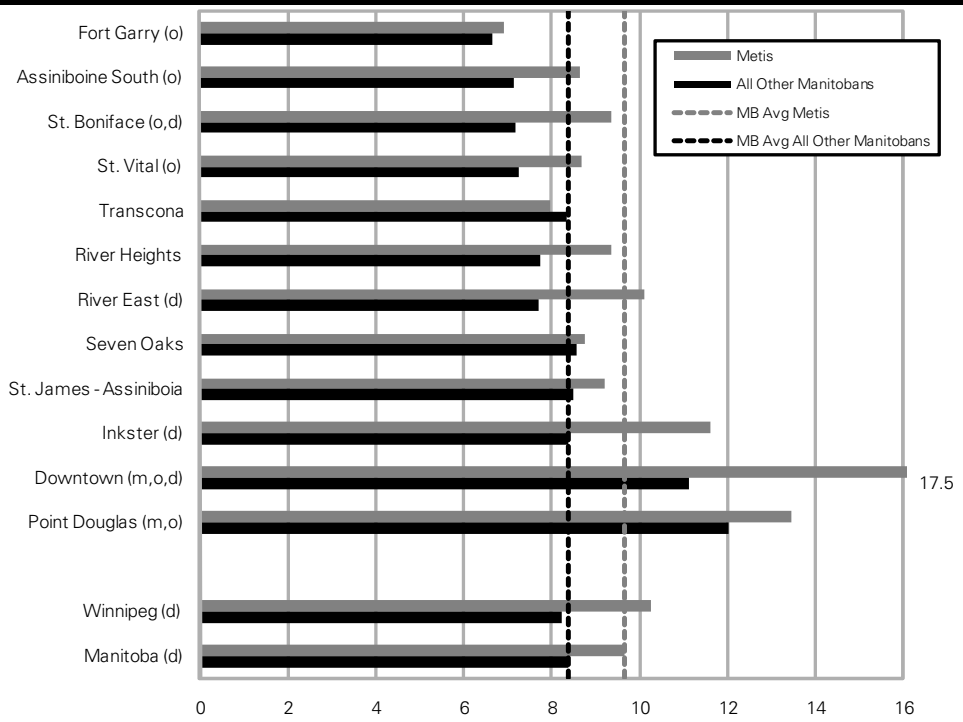
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.2.3: Total Mortality Rate by Winnipeg Community Area, 2002-2006
Age- & sex-adjusted annual rate of deaths per 1,000 residents



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

4.3 Injury Mortality Rate

The Injury Mortality Rate is the age– and sex–adjusted annual rate of mortality due to injury per 1000 residents, averaged over 10 calendar years, 1997–2006. The denominator includes all Manitoba residents as of December 31 of each year (1997–2006). Violence to Self (suicide) is included within Injury Mortality rates. Sections 4.7 and 4.8 will specifically address both suicide and suicide attempts.

Death due to injury is defined by the presence of one of the ICD–9–CM E–codes or ICD–10–CA equivalent codes on the Vital Statistics death record. Excluded from the count of deaths due to injury are those related to medical error and drug complications as follows:

- misadventures during surgical or medical care: ICD–9–CM codes E870–E876; ICD–10–CA codes Y60–Y69, Y88.1
- reactions or complications due to medical care: ICD–9–CM codes E878–E879; ICD–10–CA codes Y70–Y84, Y88.2, Y88.3
- adverse effects due to drugs: ICD–9–CM codes E930–E949; ICD–10–CA codes Y40–Y59, Y88.0

Key observations:

RHAs:

- Metis have a slightly but significantly higher injury mortality rate provincially compared to all other Manitobans (0.58 vs. 0.51 per 1000).
- Injury mortality is a relatively rare event, so rates can fluctuate widely. Most regions show no statistical difference in injury rates between Metis and all others living in that area, with the exception of Winnipeg RHA. In Winnipeg, the Metis rate is higher (0.56 vs. 0.45 per 1000), mainly due to a significantly lower "all other" rate and a similar Metis rate compared to the provincial averages.
- The injury mortality rates in Burntwood are extremely high for both Metis and all others (1.32 vs. 1.35), both over double their respective provincial rates.
- South Eastman RHA shows significantly lower injury mortality rates for all others (0.41) and a trend to a low rate for the Metis living in this region (0.44 per 1000).
- For the aggregate area of the North, the elevated injury mortality is seen for both Metis (0.98) and others (1.11 per 1000).

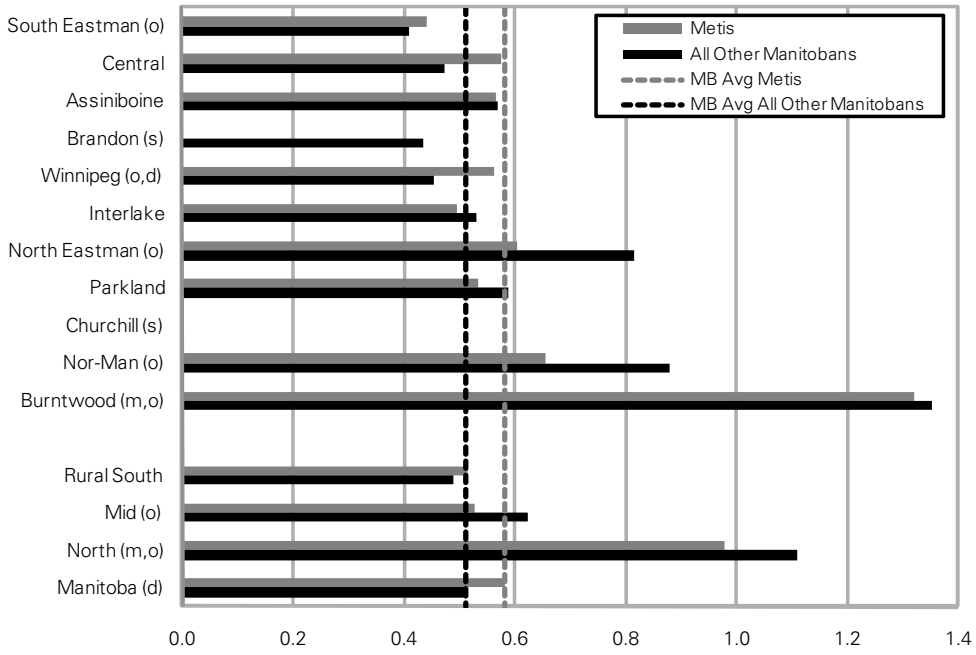
MMF Regions:

- Most MMF Regions show similar injury mortality rates to the provincial Metis average (0.58 per 1000) with the exception of the extremely elevated Thompson Region (1.31 per 1000), at 2.3 times the Metis provincial average.

Winnipeg CAs:

- The Winnipeg CAs of St. Vital (0.60 vs. 0.33), Inkster (0.72 vs. 0.39), and Point Douglas (1.23 vs. 0.81 per 1000) show elevated injury mortality rates for the Metis compared to others living in that CA. Although not statistically significant, Downtown also shows a similar pattern with higher Metis injury mortality rates (1.05 vs. 0.80 per 1000).
- The injury mortality rates in Downtown (1.05) and Point Douglas (1.23) are extremely high for the Metis, at 1.8 to 2.1 times the corresponding Metis provincial average (0.58 per 1000).

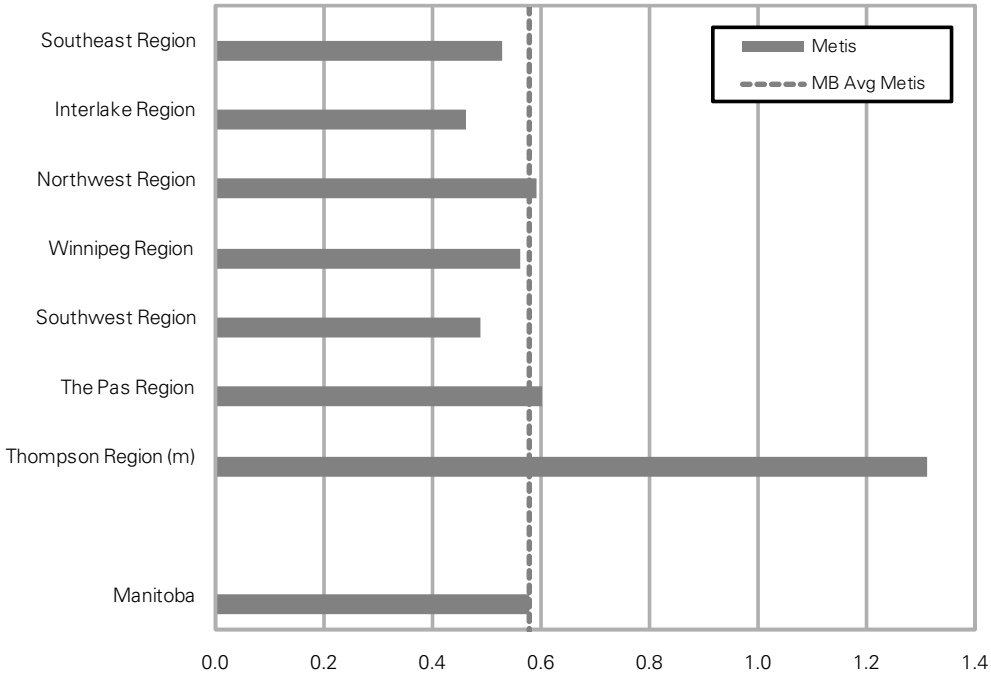
Figure 4.3.1: Injury Mortality Rate by RHA, 1997-2006
Age- & sex-adjusted annual rates of deaths from all injuries per 1,000 residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

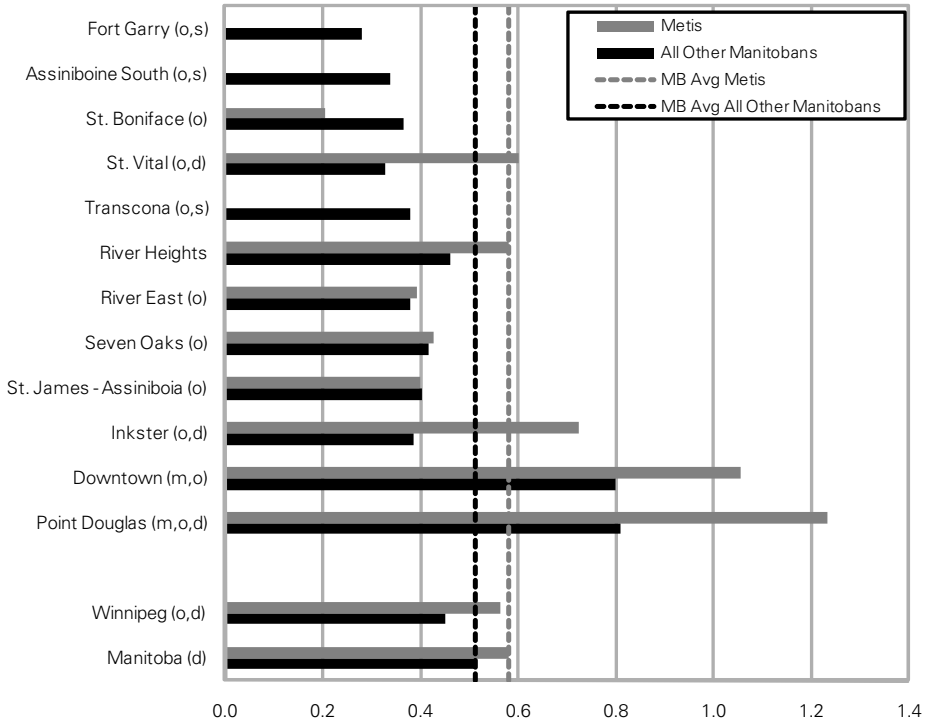
Figure 4.3.2: Injury Mortality Rate by Metis Region, 1997-2006
Age- & sex-adjusted annual rates of Metis deaths from all injuries per 1,000 Metis residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.3.3: Injury Mortality Rate by Winnipeg Community Area, 1997-2006
Age- & sex-adjusted annual rates of deaths from all injuries per 1,000 residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

4.4 Total Mortality by Cause and Injury Mortality by Cause

The most frequent causes of total mortality for Manitobans were reported for five calendar years, 2002–2006. Causes of death from the Vital Statistics death records, as of January 1, 2000, were recorded using ICD–10–CA codes.

Due to the rarity of injury mortality events, the most frequent causes of injury mortality for Manitobans were reported for 10 calendar years, 1997–2006, double the time period for total mortality causes. Causes of death due to injury were identified from the Vital Statistics death records and grouped into injury categories [see Injury Categories (External Causes, ICD–9–CM) in the Glossary for a complete list]. Causes of death were coded in ICD–9–CM codes prior to January 1, 2000 and then coded in ICD–10 codes after that date. When necessary, injury deaths coded in ICD–10–CA were converted to ICD–9–CM codes before grouping them into injury categories. Excluded from the count of deaths due to injury are those related to medical error and drug complications.

Key observations:

Total Mortality by Cause:

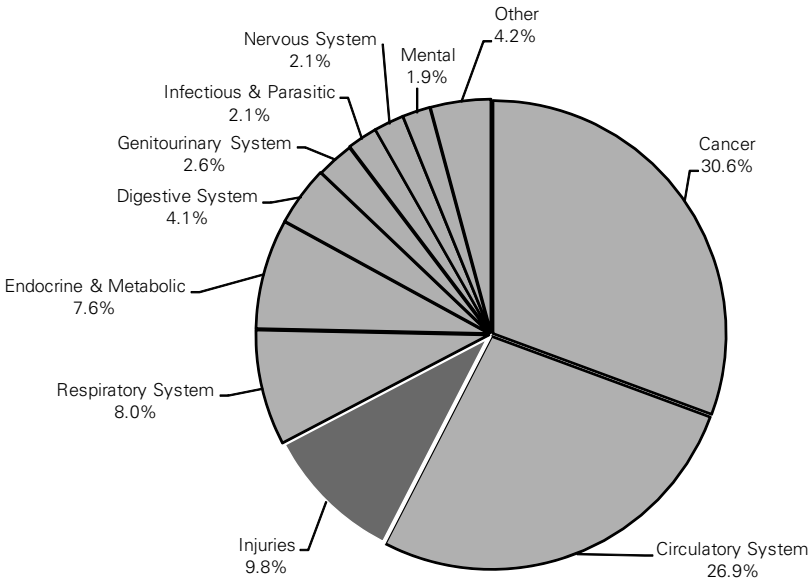
- For the Metis, the top four causes of death were: Cancer (30.6%), Circulatory System (26.9%), Injuries (9.8%), and Respiratory System (8.0%). In comparison, the top four causes of death for all other Manitobans were: Circulatory System (33.0%); Cancer (27.8%); Respiratory System (8.2%); and Injuries (6.5%).
- Caution needs to be used in interpreting these crude rates due to the slightly younger age of the Metis population. However, cancer appears slightly elevated for Metis, as do injuries as a cause of death.

Injury Mortality by Cause:

- For the Metis, the top three causes of death due to injury were: Violence to Self (23.6%), Motor Vehicle Accidents[1] (23.0%), and Poisoning (12.6%). In comparison, the top three causes of death for all other Manitobans were: Violence to Self (22.1%), Accidental Falls (19.0%), and Motor Vehicle Accidents (17.4%).
- Caution needs to be used in interpreting these crude rates due to the slightly younger age of the Metis population. Knowing that "falls" is often a cause of death in the older adult, it is therefore not surprising that Accidental Falls is elevated for all other Manitobans compared to Metis (19.0% vs. 4.7%). Motor Vehicle Accidents are a more frequent cause of injury mortality for Metis compared to other Manitobans (23.0% vs. 17.4%). Violence to Self (23.6% vs. 22.1%) and Violence by Others (6.9% vs. 5.7%) are similar, but Poisoning is higher for Metis (12.6% vs. 8.2%).

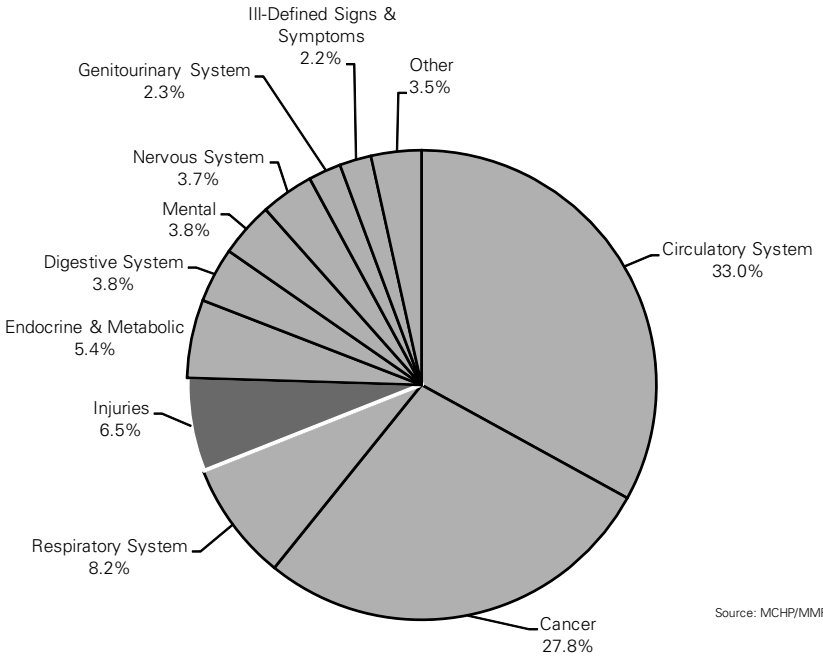
[1] Note: The term, "accident" implies that this is not preventable, but injuries are mostly preventable. Therefore, injury experts would use the term, "motor vehicle crash" rather than "motor vehicle accident". We are keeping the language of "accident" only because this is the way in which it is coded into the ICD system.

Figure 4.4.1: Total Mortality by Cause (ICD-9-CM) for Metis, 2002-2006



Source: MCHP/MMF, 2010

Figure 4.4.2: Total Mortality by Cause (ICD-9-CM) for all other Manitobans, 2002-2006



Source: MCHP/MMF, 2010

Figure 4.4.3: Injury Mortality by Cause (ICD-9-CM) for Metis, 1997-2006

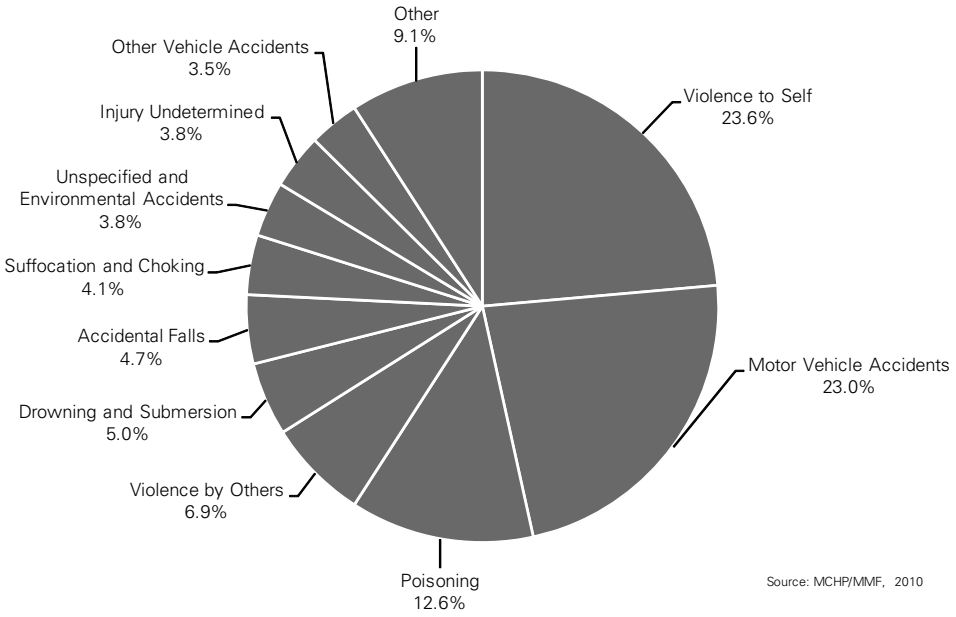
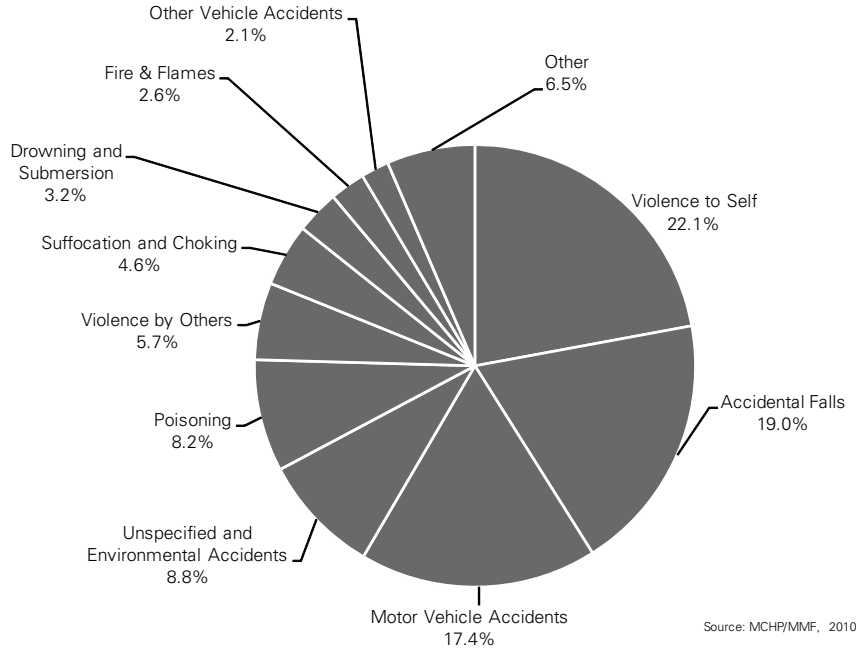


Figure 4.4.4: Injury Mortality by Cause (ICD-9-CM) for all other Manitobans, 1997-2006



4.5 Life Expectancy at Birth

This is the expected length of life from birth, based on the mortality of the population for calendar years 2002–2006.

Key observations:

RHAs:

- Provincially, Metis females have a similar life expectancy compared to all other Manitoba females (81.0 vs. 81.8 years). However, Metis males have a slightly lower life expectancy compared to all other Manitoba males (75.0 vs. 76.8 years).
- The RHAs with the highest life expectancy are South Eastman for Metis females (88.0), Central for other females (83.6), North Eastman for Metis males (82.9), and South Eastman for other males (78.8 years).
- The RHAs with the lowest life expectancy are Burntwood for Metis females (74.0) and other females (75.6), NOR–MAN for Metis males (72.4, although the difference is not statistically significant), and Burntwood for other males (69.9 years).
- Metis females live significantly longer in South Eastman (88.0 vs. 83.3 years), but do not live as long as their "all other" female counterparts in Central (79.2 vs. 83.6) and Assiniboine (77.6 vs. 83.0).
- Metis males do not live as long as their "all other" counterparts in Central (73.8 vs. 77.6), Brandon (72.7 vs. 77.3), Winnipeg (74.6 vs. 77.1), and Interlake (74.5 vs. 77.1 years).
- Aggregate areas: Metis males and females have similar life expectancies to all other males and females with the following exception—in the Rural South, Metis male life expectancy is significantly shorter than that of all other males in that area (75.6 vs. 77.5 years). Females living in the North, whether they be Metis (76.6 vs. 81.0 years) or all others (76.7 vs. 81.8 years), have lower life expectancy than the provincial average. Males living in the North also have a lower life expectancy compared to their corresponding provincial average (Metis 72.1 vs. 75.0 years, but not statistically significant; all others 71.4 vs. 76.8 years).

MMF Regions:

- The highest life expectancy for both Metis females and males is in Southeast Region (84.4 and 78.0 respectively), and the lowest in Thompson Region (74.5 and 72.1 respectively).

Winnipeg CAs:

- For Metis females, the highest life expectancy in Winnipeg is in Transcona (86.7, but not statistically significant), and the lowest is in Downtown (73.6 years). For other females, the highest is in Fort Garry (84.4) and the lowest is in Point Douglas (76.1 years)
- For Metis males, the highest life expectancy in Winnipeg is in Seven Oaks (79.8, but not statistically significant), and the lowest is in Downtown (68.3 years). For other males, the highest is in Fort Garry and Assiniboine South (both 80.3), and the lowest is in Point Douglas (71.5 years).
- Metis females do not live as long as their "all other" female counterparts in the CA of Downtown (73.6 vs. 79.2 years). Metis males do not live as long as their "all other" male counterparts in the CAs of St. Boniface (76.2 vs. 79.0), St. Vital (74.4 vs. 79.3), River East (75.2 vs. 78.4), and Downtown (68.3 vs. 71.9 years).

Table 4.5.1: Life Expectancy for Males and Females, by Region and by Metis vs. All Others

Region	FEMALE Life Expectancy (years)		MALE Life Expectancy (years)	
	Metis	All Others	Metis	All Others
RHAs and aggregate areas				
South Eastman	88.0 (m,d)	83.3 (o)	76.9	78.8 (o)
Central	79.2 (d)	83.6 (o)	73.8 (d)	77.6 (o)
Assiniboine	77.6 (d)	83.0 (o)	75.2	76.5
Brandon	80.5	82.9 (o)	72.7 (d)	77.3
Winnipeg	81.0	81.8	74.6 (d)	77.1
Interlake	83.4	82.4	74.5 (d)	77.1
North Eastman	82.7	80.9	82.9 (m)	75.3
Parkland	82.3	81.1	76.7	75.7
Churchill		78.5		75.2
Nor–Man	79.3	77.8 (o)	72.4	73.6 (o)
Burntwood	74.0 (m)	75.6 (o)	72.6	69.9 (o)
Rural South	81.6	83.1 (o)	75.6 (d)	77.5 (o)
Mid	82.6	81.5	76.0	76.2
North	76.6 (m)	76.7 (o)	72.1	71.4 (o)
Manitoba	**81.0**	**81.8**	**75.0** (d)	**76.8**
MMF Regions				
Southeast	84.4 (m)	n/a	78.0 (m)	n/a
Interlake	82.8	n/a	74.2	n/a
Northwest	81.5	n/a	77.4	n/a
Winnipeg	81.0	n/a	74.6	n/a
Southwest	79.1	n/a	74.0	n/a
The Pas	83.7	n/a	73.9	n/a
Thompson	74.5 (m)	n/a	72.1	n/a
Winnipeg CAs				
Fort Garry	83.5	84.4 (o)	79.0	80.3 (o)
Assiniboine South	81.0	82.9	78.1	80.3 (o)
St. Boniface	82.1	83.9 (o)	76.2 (d)	79.0 (o)
St. Vital	84.2	83.6 (o)	74.4 (d)	79.3 (o)
Transcona	86.7	82.0	76.5	77.6
River Heights	81.2	83.0 (o)	74.5	78.0 (o)
River East	81.6	82.7 (o)	75.2 (d)	78.4 (o)
Seven Oaks	80.5	81.3	79.8	77.4
St. James–Assiniboia	83.6	82.2	75.1	77.6
Inkster	79.3	81.5	74.3	77.1
Downtown	73.6 (m,d)	79.2 (o)	68.3 (m,d)	71.9 (o)
Point Douglas	74.8 (m)	76.1 (o)	75.9	71.5 (o)

Each of these is specific for the male or female groupings.
'm' indicates the area's rate for Metis was statistically different from the Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates a significant difference between Metis and other.
Blank cells = suppressed data due to small numbers.

Source: MCHP/MMF, 2010

4.6 Potential Years of Life Lost (PYLL)

PYLL is an indicator of early death (before age 75), which gives greater weight to deaths occurring at a younger age than to those at later ages. PYLL emphasizes the loss to society of the potential contribution that younger individuals can make. By emphasizing the loss of life at an early age, PYLL focuses attention on the need to deal with the major causes of early deaths, such as injury, in order to improve health status.

In this study, for each death, PYLL = 75 minus the age at death. These values are aggregated over the entire population. Although measured over calendar years 2002–2006, the values have been annualized. The denominator includes all Manitoba residents aged 1–74 as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- At the provincial level, Metis have a significantly higher PYLL than all other Manitobans (64.6 vs. 54.6 per 1000). In other words, Metis are dying younger than others.
- Because of relatively small numbers, there are no RHAs showing statistically higher PYLLs for Metis compared to the provincial Metis average. However, several RHAs show lower PYLLs for all other Manitobans compared to their corresponding provincial average, including South Eastman, Central, Brandon, and Winnipeg. Within RHAs, significant differences in PYLL are apparent in Central (78.5 vs. 50.1 per 1000) and Winnipeg (65.9 vs. 52.2 per 1000) where Metis rates are higher (i.e., Metis are dying younger) than others residing in those areas. However, the Metis rate is actually lower (i.e., others are dying younger) in the RHA of North Eastman (46.4 vs. 81.1 per 1000). There is no statistical difference in rates between Metis and others living in South Eastman (46.3 vs. 49.3 per 1000), and both trend to low rates.
- The aggregate area of Rural South shows an average PYLL for Metis, but a lower than average for all others, resulting in a significant difference (62.0 vs. 50.7 per 1000). In contrast, the Mid rate shows an average PYLL for Metis, but an elevated rate for all others (58.8 vs. 64.5 per 1000), resulting in no significant difference between the two groups. Finally, the North has high rates for both Metis and all others (84.6 vs. 102.2 per 1000), but these rates are not statistically different from each other. So all residents of the North, whether they are Metis or other, are dying younger than the provincial average.

MMF Regions:

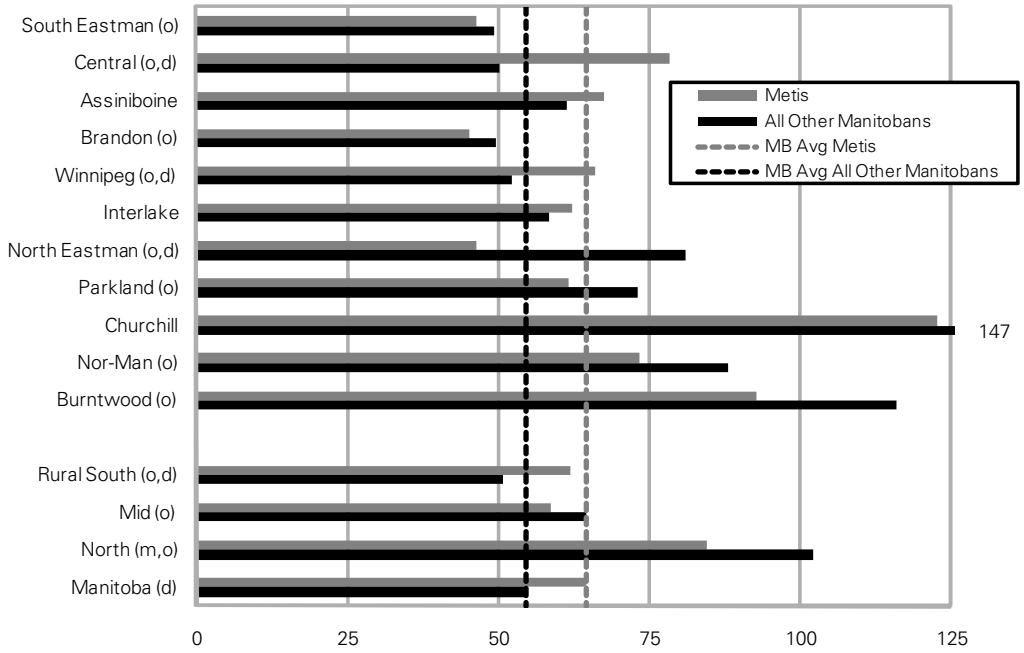
- Compared to the overall Metis PYLL rate (64.6 per 1000), the only MMF Region with a higher rate is Thompson Region (94.2 per 1000), which means Thompson Metis are dying younger than Metis across Manitoba.

Winnipeg CAs:

- Metis PYLL rates tend to be similar to all others residing in the Winnipeg CAs with the exceptions of comparatively higher Metis rates in River East (61.2 vs. 49.0 per 1000) and Inkster (76.2 vs. 55.7 per 1000).
- In Winnipeg, the PYLL for Metis is similar to the Metis provincial average (65.9 vs. 64.6 per 1000), but the PYLL for all others is lower than the "all other" provincial average (52.2 vs. 54.6 per 1000).

- Two areas of Winnipeg are particularly concerning due to very high PYLLs for both Metis and others residing in those areas—Downtown (117.2 and 98.5 per 1000 respectively) and Point Douglas (113.4 and 114.1 per 1000 respectively). These rates are higher than any other area in the province, with the possible exception of Churchill RHA. However, Churchill has a very small population, so the very high rates (122.6 for Metis, 147.5 for others per 1000) may be misleading since they are actually not considered statistically different than the averages due to the potential for high fluctuations based on small numbers of events.

Figure 4.6.1: Potential Years of Life Lost by RHA, 2002-2006
Age- & sex-adjusted annual rate of PYLL per 1,000 residents aged 1-74



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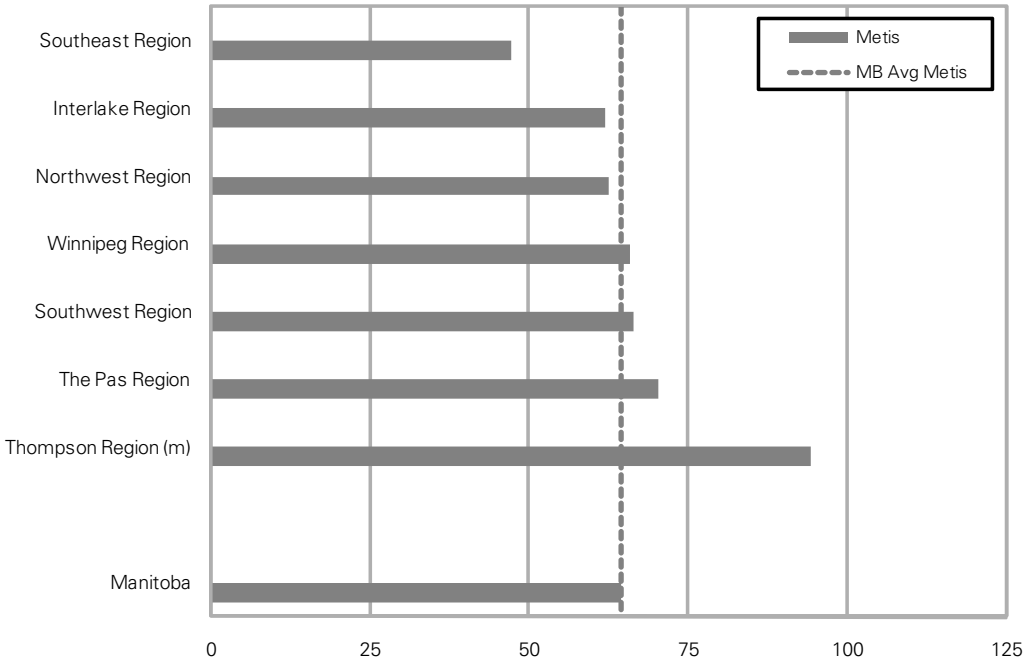
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.6.2: Potential Years of Life Lost by Metis Region, 2002-2006
Age- & sex-adjusted annual rate of PYLL per 1,000 Metis residents aged 1-74



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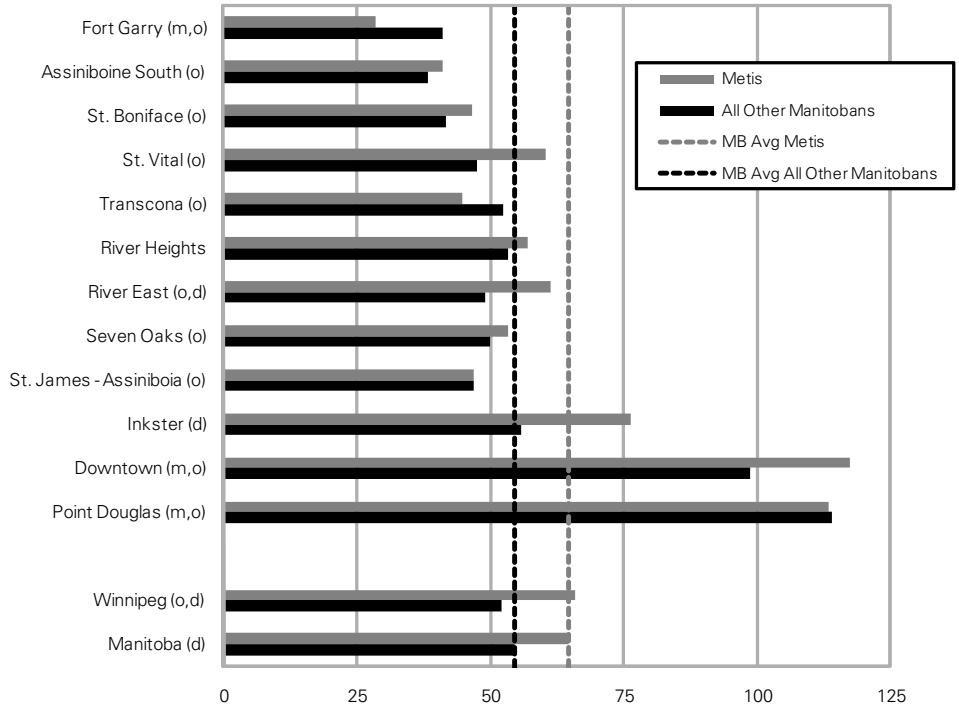
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.6.3: Potential Years of Life Lost by Winnipeg Community Area, 2002-2006
Age- & sex-adjusted annual rate of PYLL per 1,000 residents aged 1-74



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

4.7 Suicide Rate

In this study, the age– and sex–adjusted average annual suicide rate per thousand residents aged 10 and older was measured for calendar years 1997–2006. The denominator includes all Manitoba residents aged 10 and older as of December 31 of each year (1997–2006). The ICD–9–CM and ICD–10–CA coding used in this analysis are described in the Glossary, under "Suicide Rate." Because of the rarity of this event, data could only be shown for aggregate areas (Rural South and Brandon combined, Mid, North and Winnipeg) and for some of the MMF Regions.

Key observations:

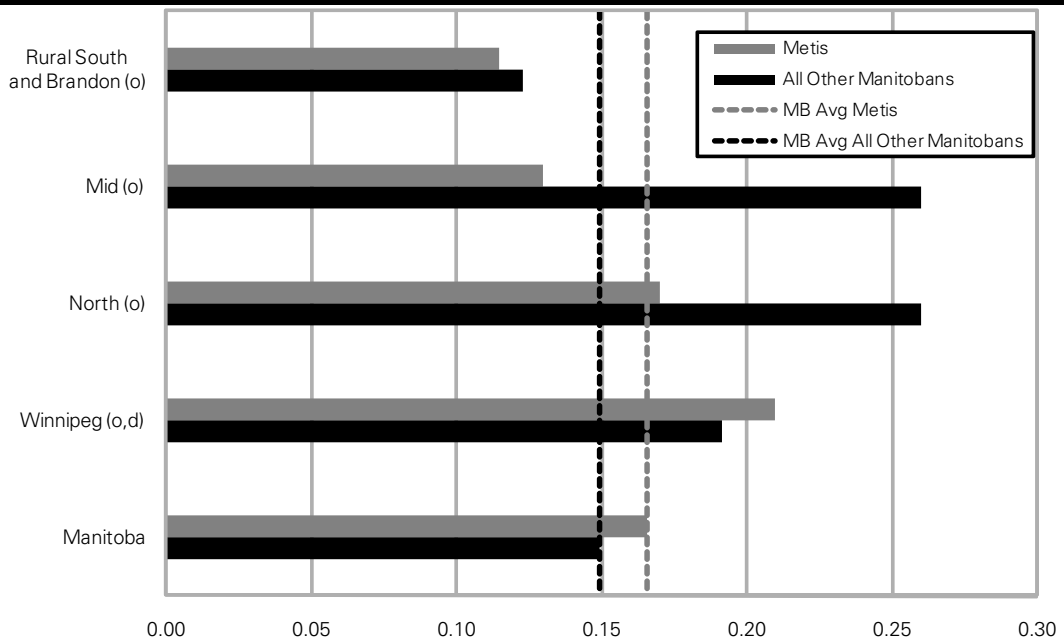
Aggregate areas:

- Provincially, the suicide rate for Metis and all others is similar (0.17 vs. 0.15 per 1000).
- In all aggregate areas, the Metis suicide rate is similar to the provincial average. However, the rates show a linear trend, with increases in suicide rate from Rural South/Brandon (0.11) to Mid (0.13) to North (0.17), but with a trend towards an increased rate in Winnipeg (0.21 per 1000). In contrast, all others show a different trend where Rural South/Brandon rate (0.12) is lower than the corresponding provincial average for all others, Mid and North are similar (0.26), and Winnipeg is somewhere between those rates (0.19 per 1000).
- Winnipeg RHA is the only region showing a higher rate of suicide for Metis compared to other residents of Winnipeg (0.21 vs. 0.19 per 1000), but the difference is relatively small. Although not statistically significant, it appears that there is a large gap between suicide rates in Mid and North, with Metis being lower than other residents.
- The number of suicides for the ten-year period 1997–2006 was 94 persons for Metis, with over half of these (51) occurring in Winnipeg. For all others, the ten-year number of suicides was 1411, with over half (771) also occurring in Winnipeg. Therefore, the average annual number of suicides was 9.4 Metis people compared to 141.1 all other Manitobans.

MMF Regions:

- All MMF Regions that have non–suppressed rates show rates similar to the Metis provincial average.

Figure 4.7.1: Suicide Rate by Aggregate RHA Area, 1997-2006
Age- & sex-adjusted annual rate per 1,000 residents aged 10+ years



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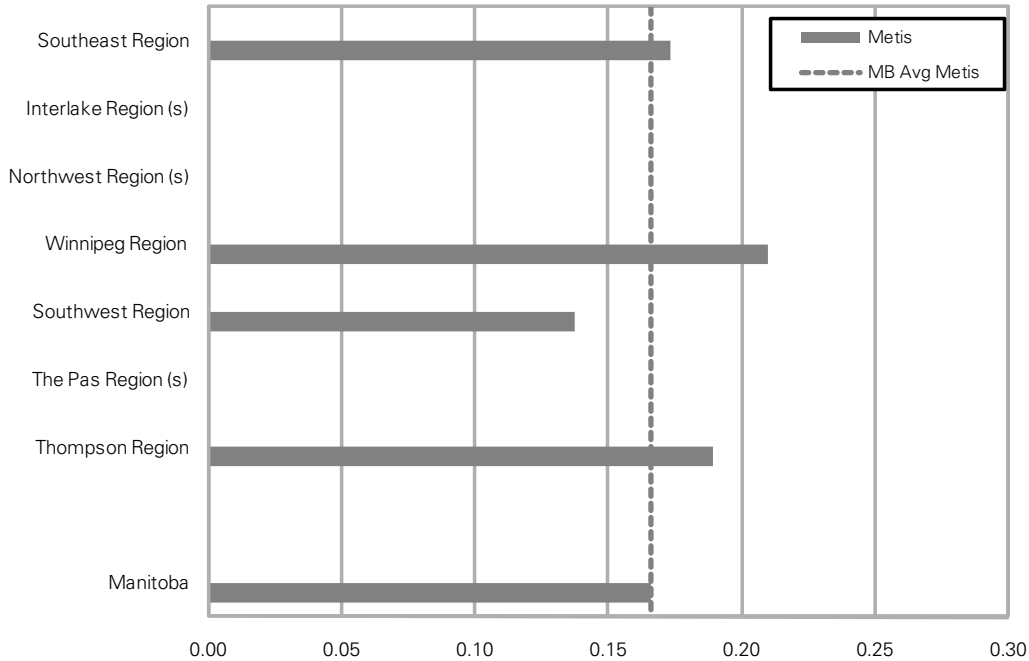
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.7.2: Suicide Rate by Metis Region, 1997-2006
Age- & sex-adjusted annual rate per 1,000 Metis residents aged 10+ years



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

4.8 Suicide or Suicide Attempt Prevalence

In this study, this indicator measures the proportion of the population that completed or attempted suicide. Age– and sex–adjusted annual prevalence[2] (given as a percentage) of suicide or suicide attempts for residents age 10 and older was measured for calendar years 1997–2006. In other words, this yields the percentage of the population who, in an average year over the 10 year period, either attempted or completed suicide. The most recent event in the calendar year period (suicide or suicide attempt) is counted, with region of residence assigned and age calculated at the time of the event. Suicides were defined as any death record in Vital Statistics data with self–inflicted injury or poisoning listed as the primary cause of death (for specific ICD–9–CM and ICD–10 codes, see Suicide Rate). For ICD–9–CM and ICD–10–CA codings for suicide attempts, refer to the Glossary. The denominator includes all Manitoba residents age 10 and older as of December 31 of each year (1997–2006).

Key observations:

RHAs:

- At the provincial level, completed or attempted suicide prevalence among Metis is 1.4 times that of all other Manitobans (0.11% versus 0.08%).
- There is a steep gradient in prevalence, with low rates in South Eastman for both Metis and others (both at 0.05%) and very high rates in Burntwood for both (0.26% vs. 0.34%).
- Those RHAs where completed or attempted suicide prevalence among Metis is significantly higher than others living in the same region are: Assiniboine (0.17% vs. 0.08%), Winnipeg (0.10% vs. 0.06%), and Parkland (0.20% vs. 0.12%).
- Completed/attempted suicide prevalence is particularly low for both Metis and others in South Eastman (0.05% for both) and Interlake (0.06% for both). This may point to promising practices and programs in these areas. In contrast, the prevalence is particularly high for both Metis and others in NOR–MAN (0.19% for both) and Burntwood (0.26% for Metis, 0.34% for others).

MMF Regions:

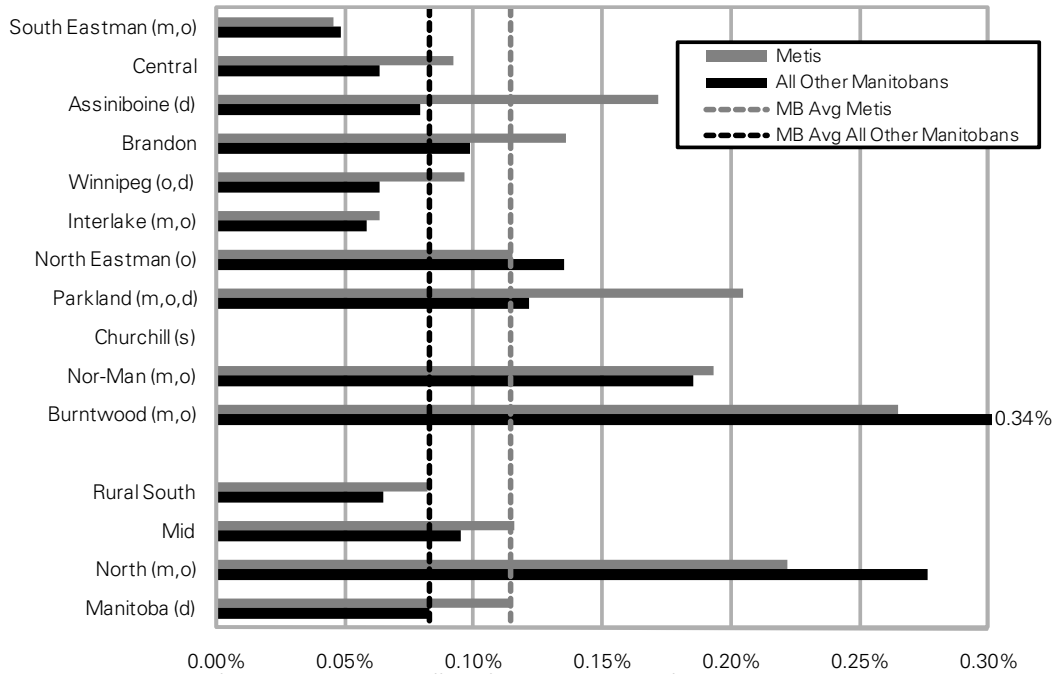
- The two MMF Regions of Southeast (0.07%) and Interlake (0.06%) both have significantly lower completed/attempted suicide prevalence compared to the overall provincial Metis average (0.11%).
- The two MMF Regions of The Pas (0.23%) and Thompson (0.26%) both have significantly higher completed/attempted suicide prevalence compared to the overall provincial Metis average (0.11%).
- There is a steep gradient within the MMF Regions, with the highest rate in Thompson being 3.7 times that of the lowest rate in Southeast MMF Region.

[2] For comparison to other MCHP reports: In *the What Works report* (Martens et al., 2008), the percentage of residents age 10+ who either completed or attempted suicide was 0.174% for 1996/97–2003/04. However, this was an average two–year prevalence. Hence it is approximately double the prevalence found in this current report, which shows an average one–year prevalence of 0.086% overall for Metis and all other Manitobans combined. In the *Mental Illness report* (Martens et al., 2004), the average one–year prevalence was 0.084% for 1997–2001, very similar to the current report.

Winnipeg CAs:

- In Winnipeg, the prevalence of complete/attempted suicide for Metis is similar to the provincial average for Metis, but "all others" are significantly lower than their provincial average. As such, there is a significant difference, with Metis being higher than others residing in Winnipeg (0.10% vs. 0.06%).
- Two Winnipeg CAs have significantly lower prevalence for both Metis and others residing in these areas—St. Boniface (both at 0.05%) and Transcona (0.04% Metis, 0.05% others). Some other CAs show a trend to low prevalence for Metis, but probably due to the nature of this rare event, it is not statistically significant.
- Three Winnipeg CAs have significant differences in completed/attempted suicide prevalence between Metis and others with the Metis rate being similar to the provincial Metis average, but the 'other' rate being relatively low—St. Vital (0.11% vs. 0.04%), River Heights (0.12% vs. 0.06%) and Inkster (0.12% vs. 0.04%).
- Two areas have significantly higher (or trending to higher) completed/attempted suicide prevalence for both Metis and others—Downtown (0.19% and 0.12% respectively) and Point Douglas (0.18% and 0.11% respectively). In both these areas, Metis have a significantly higher rate than others living in these areas. This may be of particular concern for policy makers.

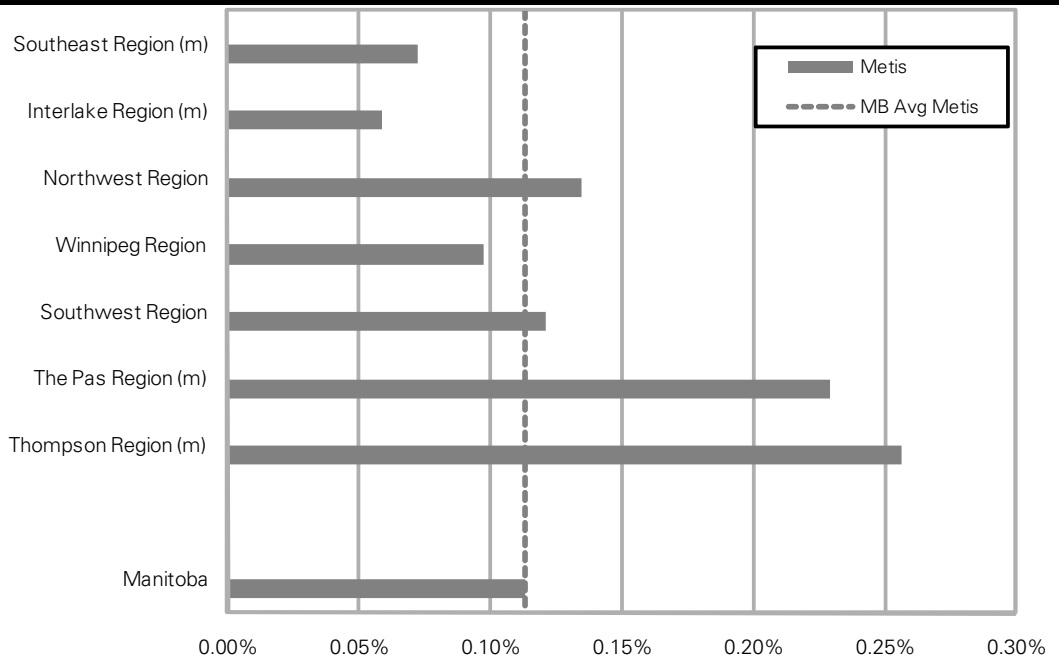
Figure 4.8.1: Prevalence of Individuals Completing or Attempting Suicide by RHA, 1997-2006
Age- & sex-adjusted annual percent of residents aged 10+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.8.2: Prevalence of Individuals Completing or Attempting Suicide by Metis Region, 1997-2006
Age- & sex-adjusted annual percent of Metis residents aged 10+ years



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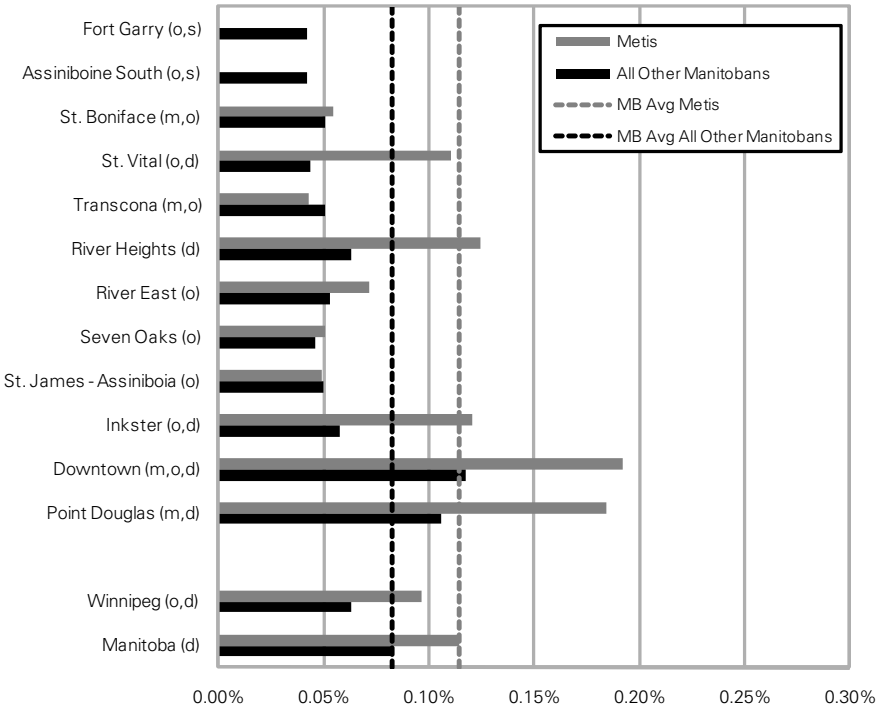
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.8.3: Prevalence of Individuals Completing or Attempting Suicide by Winnipeg Community Area, 1997-2006
Age- & sex-adjusted annual percent of residents aged 10+ years



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

4.9 All Cause Five–Year Mortality Rates for Individuals with Diabetes

This is the age– and sex–adjusted mortality rate (given as a percentage, i.e., deaths per 100) for residents aged 19 and older with diabetes. A cohort diagnosed or treated for diabetes was identified using three fiscal years of data (1999/00–2001/02)—see the Glossary for the ICD coding used for this calculation. The all–cause mortality rate of this cohort was then calculated in the subsequent five–year period: 2002/03–2006/07. The diabetes cohort included Manitoba residents aged 19 and older as of April 1, 2002 who had at least three years of coverage prior to April 1, 2002 and were registered with Manitoba Health as recipients of universal healthcare coverage up to and including March 31, 2007 or up to the time of death.

Key observations:

RHAs:

- Provincially, Metis with diabetes are significantly more likely to die within a five–year period than other Manitobans with diabetes (20.8% vs. 18.6%). For both groups, however, this percentage is high, with around one in five Manitobans with diabetes dying within a five–year period (compared with the whole population experience, at one in 17 dying within a five–year period[3]).
- Although there is no obvious gradient in the graph by RHA, there is a tendency for people with diabetes to have a higher five–year mortality rate in the northern areas, whereas southern areas the rates are very similar.
- Two RHAs show statistically higher mortality rates for Metis compared to others living in those areas—Central (27.3% vs. 19.0%) and Winnipeg (21.6% vs. 18.4%).
- South Eastman RHA shows a statistically lower mortality rate for Metis with diabetes, compared to the overall Metis provincial average (16.4% vs. 20.8%).
- Burntwood RHA shows a statistically higher mortality rate for the "all other" group compared to their respective provincial average (23.1% vs. 18.6%). Although not statistically significant, it appears as the five–year mortality rate is also higher for Metis with diabetes who are living in Burntwood (25.3%).
- By aggregate area, only the North shows higher–than–average five–year mortality rates, and this is only significant for the "all other" group (22.8% vs. the provincial "all other" group average of 18.6%).

MMF Regions:

- All MMF Regions show similar five–year mortality rates for Metis with diabetes. However, there appears to be a trend towards increasing mortality with Thompson Region showing the highest (25.8%).

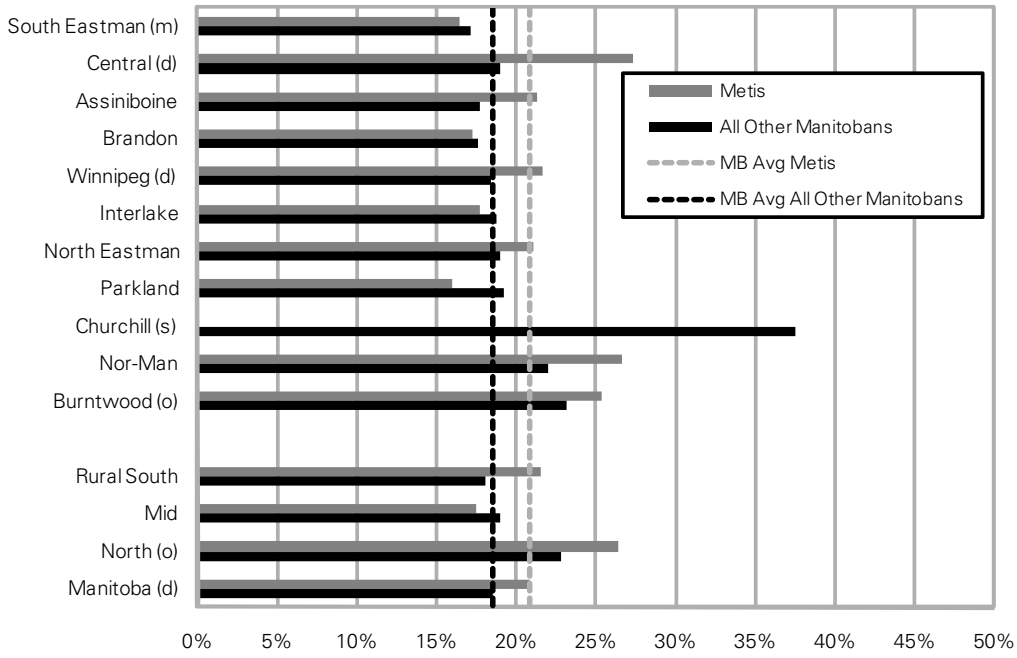
Winnipeg CAs:

- Five–year mortality rates for people with diabetes living in WRHA show very little variation. Metis living in St. Boniface have a higher rate than the other people living in that CA (24.9% vs. 17.1%).

[3] Note: the all–cause five–year mortality rate for the entire population aged 19+ of Manitoba for 2002/03–2006/07 is 6.07%.

- The only statistically significant difference with provincial averages is for the Downtown area, where "all other" people with diabetes have higher rates than the provincial average (22.1% vs. 18.6%).
- It is somewhat surprising that there isn't a greater gradient apparent within Winnipeg.

Figure 4.9.1: All Cause Five-Year Mortality Rates for Individuals with Diabetes by RHA, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



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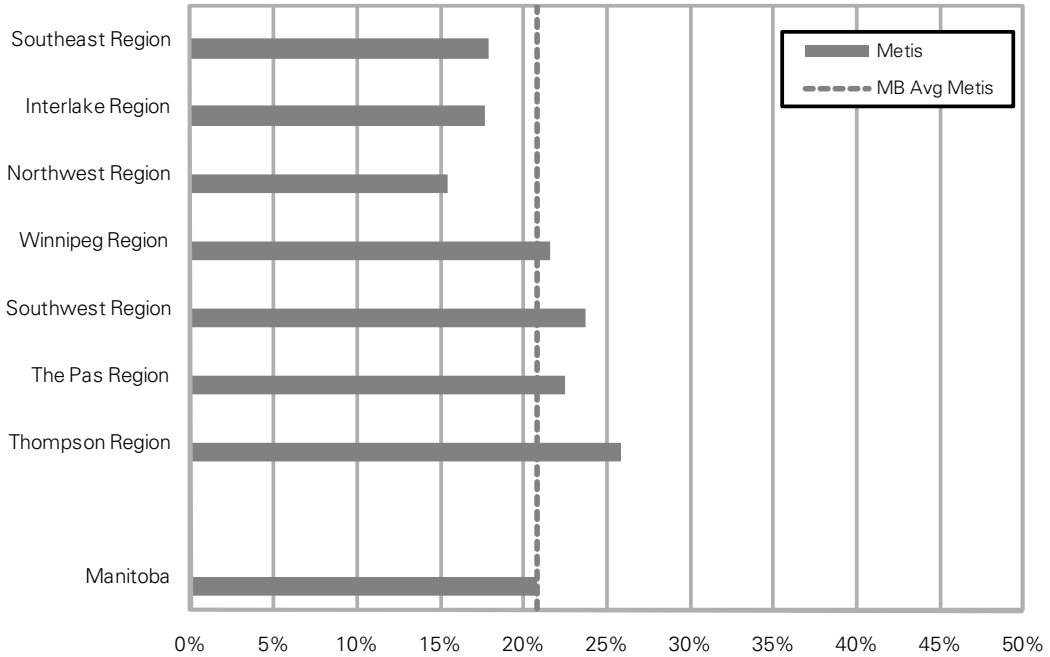
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.9.2: All Cause Five-Year Mortality Rates for Individuals with Diabetes by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent of Metis residents aged 19+ years



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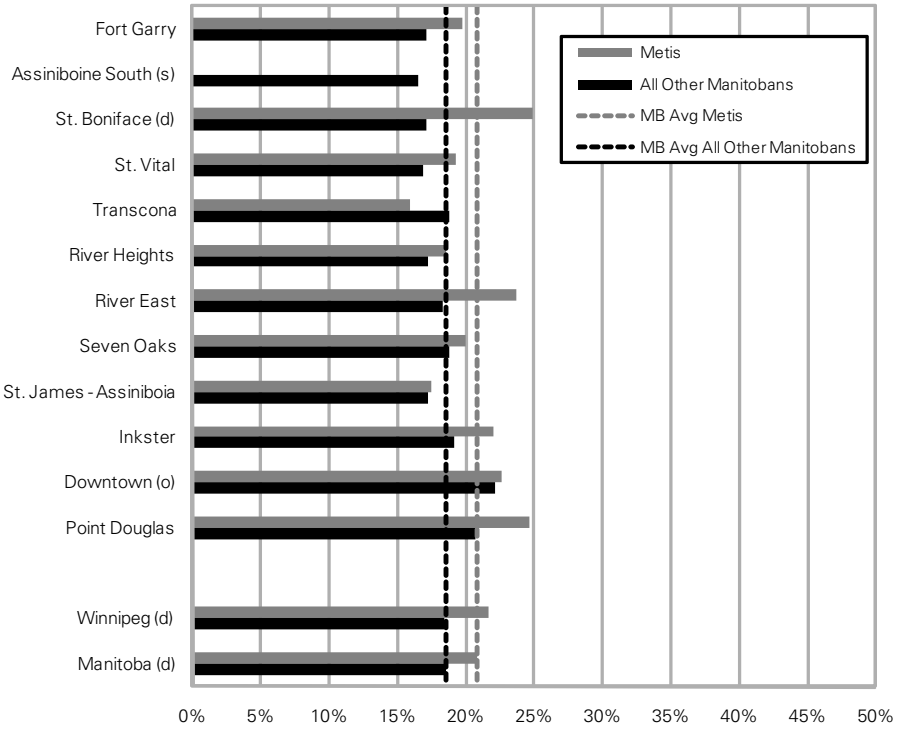
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.9.3: All Cause Five-Year Mortality Rates for Individuals with Diabetes by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

4.10 All Cause Five–Year Mortality Rates for Individuals with Cumulative Mental Illness

This is the age– and sex–adjusted mortality rate (given as a percentage, i.e., deaths per 100) for residents aged 19 and older with cumulative mental illness disorders. A cohort diagnosed or treated for one or more of depression, anxiety disorders, substance abuse, personality disorder, or schizophrenia was identified (see Glossary for the codes used to define each of these) using five fiscal years of data: 1997/98–2001/02. Then the all–cause mortality rate was calculated in the subsequent five year period: 2002/03–2006/07. The cumulative mental illness cohort includes Manitoba residents aged 19 and older as of April 1, 2002 who had at least five years of coverage prior to April 1, 2002 and who were registered with Manitoba Health until March 31, 2007 or death.

Key observations:

RHAs:

- Provincially, Metis with mental illness have a similar all–cause five–year mortality rate compared with all other Manitobans with mental illness (8.2% vs. 7.9%). So around one in 12 Manitobans with mental illness die within a five–year period, compared to the provincial mortality rate[4] for all Manitobans at one in 17.
- There does not appear to be a consistent gradient in all–cause five–year mortality for Metis with mental illness. There does appear to be a gradient effect for others with mental illness, where mortality rates increase with increasing PMR (premature mortality rate—see Chapter one for an explanation of the ordering of RHAs).
- There are no statistically significant differences in all–cause five–year mortality rates by RHA for Metis and others with mental illness.
- For people with mental illness living in Burntwood, there is a trend towards a higher all–cause five–year mortality rate for Metis (12.1%) and a significantly higher rate for others (12.6%) compared to the provincial average respectively (Metis 8.2%, others 7.9%).
- By aggregate area, comparing Metis and others with mental illness, the all–cause five–year mortality rates are similar in the Rural South (8.1% vs. 7.7%), lower for Metis in the Mid (6.7% vs. 8.3%), and similar in the North (10.3% vs. 11.1%).

MMF Regions:

- Although there are no statistically significant differences by MMF Region in all–cause five–year mortality rates for Metis with mental illness, there is a gradient. The lowest rate is in Southeast Region (6.2%) and the highest, at double the rate, is in Thompson Region (12.4%).

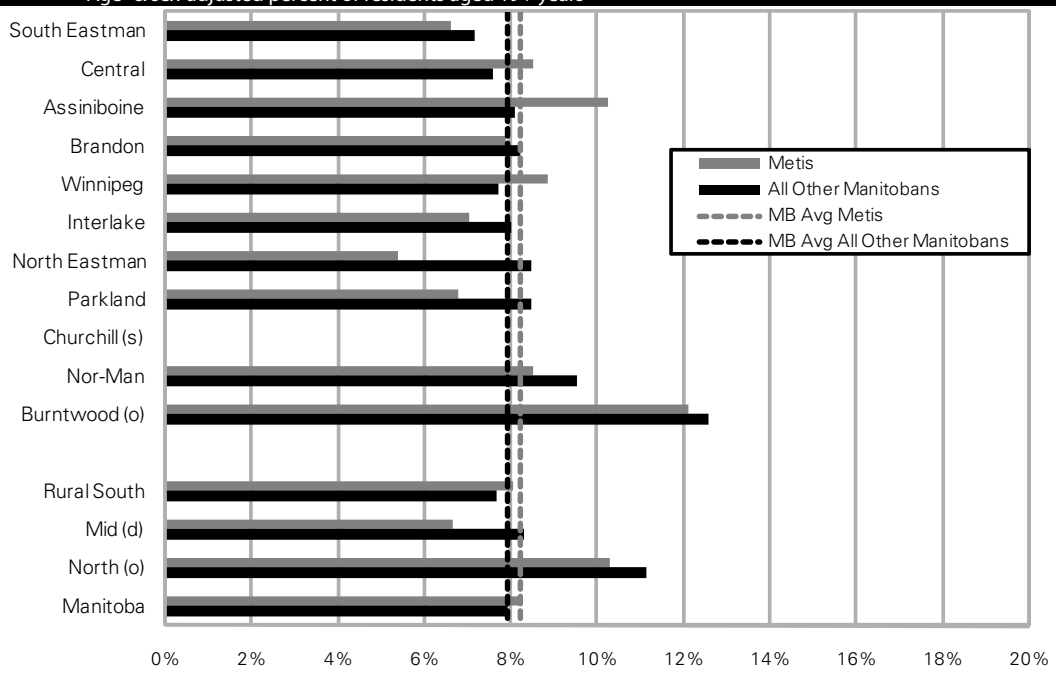
Winnipeg CAs:

- For people with mental illness living in Winnipeg, there appears to be a gradient of all–cause five–year mortality rate for "all others", but this is not as clear for Metis.
- For people with mental illness, three CAs show higher all–cause five–year mortality rates for Metis compared to others in the same area—St. Boniface (9.3% vs. 6.7%), River East (10.4% vs. 7.4%), and Downtown (14.6% vs. 10.5%).

[4] Note: the all–cause five–year mortality rate for the entire population aged 19+ of Manitoba for 2002/03–2006/07 is 6.07%.

- Only Downtown has a significantly elevated all–cause five–year mortality rate for Metis with mental illness, compared to the provincial Metis average (14.6% vs. 8.2%). However, for all others, two CAs show lower rates compared to the "all other" provincial rate of 7.9%—Assiniboine South and St. Boniface (both 6.7%)—and two CAs show higher rates—Downtown (10.5%) and Point Douglas (10.1%).

Figure 4.10.1: All Cause Five-Year Mortality Rates for Individuals with Cumulative Mental Illness by RHA, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



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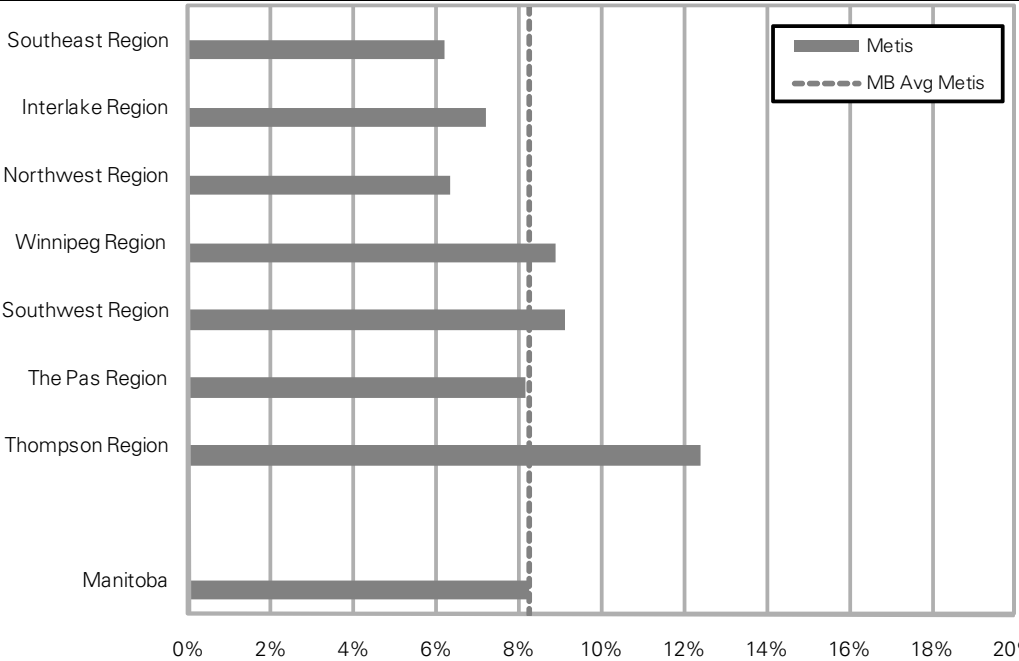
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 4.10.2: All Cause Five-Year Mortality Rates for Individuals with Cumulative Mental Illness by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent of Metis residents aged 19+ years



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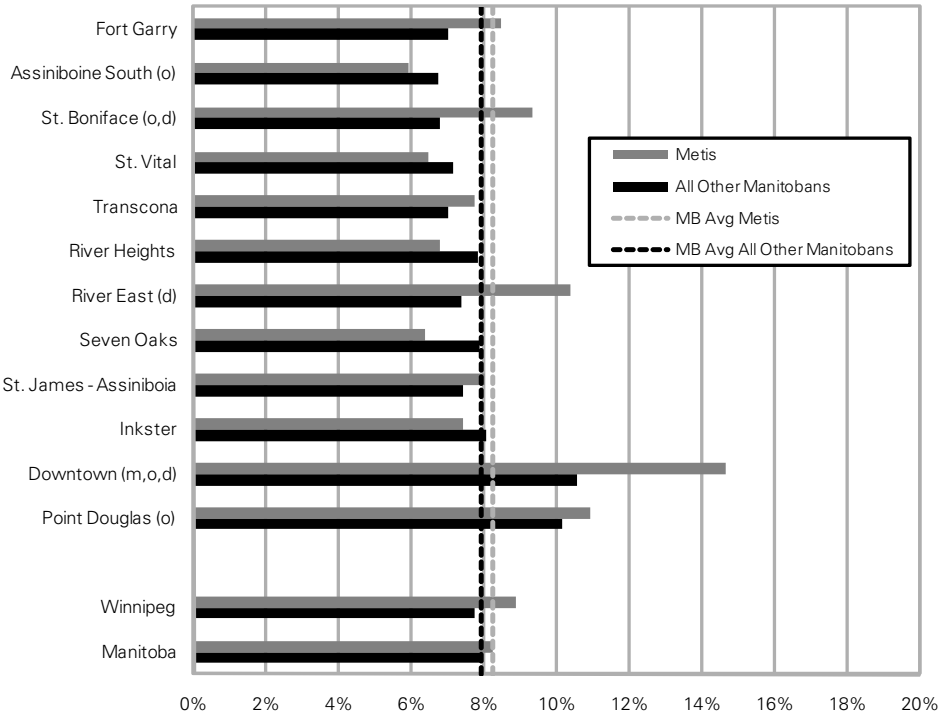
Source: MCHP/MMF, 2010

Figure 4.10.3: All Cause Five-Year Mortality Rates for Individuals with Cumulative Mental Illness by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



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Source: MCHP/MMF, 2010

4.11 Findings from Literature Review

(*compared to the results in this study—in italics*)

Life expectancy, premature mortality rate (PMR):

According to various studies, life expectancy for Metis people is lower than that of the general population. Various studies differ slightly on the estimates: 70.0 years for males in 2002 and 77.3 years for females in 2001 (Manitoba Bureau of Statistics, 2005; Hallett, 2006) or 77.7 years for Metis women compared to 82.2 years for all Canadian women (Mann, 2005; National Council of Welfare, 2007). Projected Metis life expectancy, according to the Manitoba Bureau of Statistics (2005), is 79.1 years for females in 2021 and 72.9 for males in 2022. Kinnon (1994) commented over a decade ago that people living in poverty experience more chronic health conditions and lower life expectancy, so knowing that the majority of Metis live on low incomes would lead to the expectation of lower life expectancy in this population group.

However, O'Donnell and Tait (2003) examined the tremendous population growth of Metis from 1996 to 2001, a 43% increase compared to the Canadian population overall increase of 3.4%. Beyond improved enumeration (i.e., greater numbers self–reporting Metis identity), O'Donnell and Tait also attributes this growth to increased life expectancy and higher birth rates.

In 2002, MCHP released a Manitoba First Nations health atlas (Martens et al. 2002) using Repository data similar to this Metis research study. For 1995-1999, the provincial First Nations PMR was 6.6 deaths per thousand, ranging from a low of 4.8 per thousand in Keewatin Tribal Council and a high of 9.3 per thousand in Dakota Ojibway Tribal Council. The First Nations life expectancy was 8 years lower than all other Manitobans both for males (68.4 vs. 76.1 years) and females (73.2 vs. 81.4 years).

In our study, there was no statistically significant difference in female life expectancy at the provincial level between Metis women and all other women (81.0 vs. 81.8 years). However, Metis males had a lower life expectancy (75.0 vs. 76.8 years). This is slightly different than the information from other sources—our information shows higher Metis life expectancies than those reported previously. As well, there appear to be much greater gaps in life expectancy (8 years) for Manitoba First Nations populations compared to the rest of the population.

In the majority of RHAs and Winnipeg CAs, Metis life expectancy was similar to that of all other residents of the region. At the aggregate area levels, the only significant difference was in Metis males, who had a lower life expectancy than other males living in Winnipeg, Brandon, and the Rural South.

However, there were large variations in Metis life expectancy by region. Metis females live longer in South Eastman and not as long in Burntwood RHA, Thompson MMF Region, and the two Winnipeg CAs of Downtown and Point Douglas when compared to the Metis female provincial average. Similarly, Metis males lived longer in North Eastman RHA and Southeast MMF Region, but not as long in the Winnipeg CA of Downtown when compared to the Metis male provincial average.

In general, Metis living in southern areas of Manitoba have higher life expectancy and lower PMR (i.e., healthier) compared to those living in northern areas. This is in contrast with First Nations, where higher life expectancy and lower PMR were apparent in the northern areas, and the least healthy Tribal Council areas were in southern Manitoba.

Cause of death:

Kliewer, Mayer, and Wadja (2002) found that injury and poisoning hospitalization rates were substantially higher for Metis males compared to the provincial male rate from 1995–1997, but Metis females had a lower hospitalization rate for injury and poisonings than the provincial females. Physician visit rates, however, were only slightly higher for Metis compared to the general population.

In our study, Metis had a slightly higher injury mortality rate provincially compared to all other Manitobans (0.58 vs. 0.51 per 1000). This varies widely by area of the province, with injury mortality rates substantially higher for both Metis and all others living in the North (particularly Burntwood RHA and the MMF Region of Thompson) and the Winnipeg CAs of Downtown and Point Douglas.

Suicide:

According to the Health Council of Canada (2005), very little is known about mortality rates for Metis, including rates of suicide and potential years of life lost due to intentional injuries. A relatively new Manitoba Youth Suicide Prevention Strategy includes community–based, culturally relevant programming and resources to be delivered in communities across the province with a focus on breaking down barriers to meet the needs of Aboriginal youth (MHHL 2008). As well, Alberta has a Metis Suicide Prevention Strategy that addresses Aboriginal suicide, with links to the Alberta Injury Control & Research program (Hyndman, 2003).

Our study shows that in all the injury deaths, the crude proportion attributed to "violence to self" (i.e., suicide) is 23.6% for Metis and 22.1% for all other Manitobans for the years 1997–2006. This needs to be viewed with caution, given the younger population of Metis and that the crude percentages do not control for age differences between Metis and others.

However, the suicide rate at the provincial level shows no significant difference between Metis and all other Manitobans (0.17 vs. 0.15 per 1000). There appears to be a trend for the Metis where suicide rates appear higher in Winnipeg and possibly lower in the Rural South, Brandon and mid areas. This is somewhat different than suicide rates for all other Manitobans, showing elevated rates in Winnipeg, Mid, and North aggregate areas and lower rates in Rural South/Brandon.

Prevalence of individuals completing or attempting suicide is primarily driven by attempts. Metis prevalence is significantly higher than all others—provincially, in certain RHAs (Assiniboine, Winnipeg, and Parkland), and certain Winnipeg CAs (St. Vital, River Heights, Inkster, Downtown, and Point Douglas CAs). The MMF Regions of The Pas and Thompson have elevated prevalence and Southeast and Interlake have lower prevalence compared to the Manitoba Metis prevalence.

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Chapter 5: Prevalence of Physical Illness

This chapter focuses on indicators of physical illness. Note that the regions in each of the graphs are all ordered by PMR (Premature Mortality Rate)—see Chapter 1 for a description of and rationale for this ordering.

Indicators in this chapter include:

- Hypertension
- Arthritis
- Total Respiratory Morbidity (TRM)
- Diabetes
- Lower Limb Amputation Rate for People with Diabetes
- Ischemic Heart Disease (IHD)
- Osteoporosis
- Dialysis Initiation Rates
- Acute Myocardial Infarction (AMI) Incidence Rates
- Stroke Incidence Rates

Overall Key Findings:

- In general, the prevalence of chronic disease conditions is higher in the Metis population compared to all other Manitobans, with the exception of osteoporosis (which is similar). Hypertension is 13% higher; arthritis, TRM, AMI and stroke are in the 20–29% higher range; diabetes and dialysis are in the 30–39% range; and ischemic heart disease, as well as lower limb amputations related to diabetes, are much higher, at 40% and 49% respectively.
- Many of the southern regions, whether they be RHAs, MMF Regions, or the aggregate Rural South, show lower prevalence of chronic conditions for the Metis compared to the Metis provincial average. Notable regions having at least two conditions with statistically lower prevalence—South Eastman RHA, Assiniboine RHA, Interlake RHA, Interlake MMF Region, Southeast MMF Region, and St. Boniface CA. For both diabetes prevalence and lower limb amputation for people with diabetes, the Rural South, and specifically Brandon RHA, show lower risk.
- Many of the northern regions, whether they be RHAs, MMF Regions, or the aggregate North, show high prevalence of chronic conditions for the Metis compared to the Metis provincial average. Notable regions having at least three conditions with statistically higher prevalence—Parkland RHA, Burntwood RHA, Brandon RHA (for arthritis and TRM), Thompson MMF Region, The Pas MMF Region, Downtown CA, Point Douglas CA, and the aggregate area of the North.

Table 5.0: Overall Key Findings of Physical Illness Indicators

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically 'better off' regions for Metis compared to Metis provincial average	Statistically 'worse off' regions for Metis compared to Metis provincial average
Hypertension, 19+	27.9% vs. 24.8%; RR=1.13	Assiniboine South CA, St. Boniface CA	Parkland RHA, Burntwood RHA, Mid, North, Thompson MMF Region,
Arthritis, 19+	24.2% vs. 19.9%; RR=1.22	South Eastman RHA, Assiniboine RHA, Interlake RHA, Rural South, Interlake MMF Region	Brandon RHA, North Eastman RHA, Parkland RHA, Northwest MMF Region, The Pas MMF Region, Downtown CA, Point Douglas CA
Total Respiratory Morbidity, all ages	13.6% vs. 10.6%; RR=1.28	South Eastman RHA, Assiniboine RHA, Churchill RHA, NOR–MAN RHA, Burntwood RHA, Rural South, North, Southeast MMF Region, Thompson MMF Region, St. Boniface CA	Brandon RHA, Parkland RHA, Inkster CA, Downtown CA, Point Douglas CA
Diabetes, 19+	11.8% vs. 8.8%; RR=1.34	South Eastman RHA [in logistic regression: for the full model—South, Mid, Brandon, Winnipeg; for the Metis model only—MMF Regions of Southeast, Interlake, Northwest, Winnipeg, Southwest]	Parkland RHA, Burntwood RHA, North, The Pas MMF Region, Thompson MMF Region, Downtown CA, Point Douglas CA [in logistic regression: for the full model—North; for the Metis model only—MMF Regions of The Pas, Thompson]
Rate of Lower Limb Amputations for People with Diabetes, 19+	24.1 vs. 16.2 per 1000; RR=1.49	– [in logistic regression: in the full model—South, Brandon]	– [in logistic regression: in the full model—Mid, North]
Ischemic Heart Disease, 19+	12.2% vs. 8.7%; 1.40	Assiniboine RHA, Interlake RHA, Interlake MMF Region	Parkland RHA, Northwest MMF Region, The Pas MMF Region
Osteoporosis, 50+	12.2% vs. 12.3%; RR=0.99, NS	–	–
Dialysis Initiation, 19+	0.46% vs. 0.34%; RR=1.35	Southeast MMF Region	Burntwood RHA, Point Douglas CA
Rate of Acute Myocardial Infarction, 40+	5.4 vs. 4.3 per 1000; RR=1.26	–	–
Rate of Stroke Incidence, 40+	3.6 vs. 2.9 per 1000; RR=1.24	–	–

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

5.1 Hypertension

Primary hypertension is often referred to as high blood pressure. The "tension" in hypertension describes the vascular tone of the smooth muscles in the artery and arteriole walls. It accounts for over 90% of all cases of hypertension in the U.S. and develops without apparent causes. Hypertension is a major health problem, especially because it often has no symptoms. If left untreated, hypertension can lead to heart attack, stroke, enlarged heart, or kidney damage.

The age– and sex–adjusted prevalence of hypertension was measured for residents aged 19 and older in one fiscal year, 2006/07. Crude prevalence is available in the appendix. The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006. Residents were considered to have hypertension if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of hypertension: ICD–9–CM codes 401–405; ICD–10–CA codes I10–I13, I15
- one or more physician visits with a diagnosis of hypertension (ICD–9–CM codes as above)
- two or more prescriptions for medications to treat hypertension—see Glossary for a list of prescription

Key observations:

RHAs:

- Hypertension is a substantial problem affecting at least one in four Manitobans. At the provincial level, the Metis prevalence of hypertension is higher than that of all other Manitobans (27.9% vs. 24.8%).
- There may be a slight gradient with PMR, where hypertension prevalence appears to increase as one goes from the Rural South (and Winnipeg and Brandon) to the Mid to the North aggregate areas of the province.
- In every RHA in the south and mid regions of Manitoba, with the exception of Brandon RHA (a similar trend, but not significant), the hypertension prevalence is significantly higher for Metis compared to all others living in those RHAs. Overall, the Rural South prevalence for Metis compared to all others is 26.8% vs. 24.3%, and the Mid aggregate area is 29.9% vs. 26.6%.
- In the North aggregate area there is no difference in hypertension prevalence between Metis and others, but both are elevated compared to their provincial averages (31.4% Metis, 33.0% others). These elevated rates are particularly evident in the RHA of Burntwood (36.1% Metis, 38.4% others).

MMF Regions:

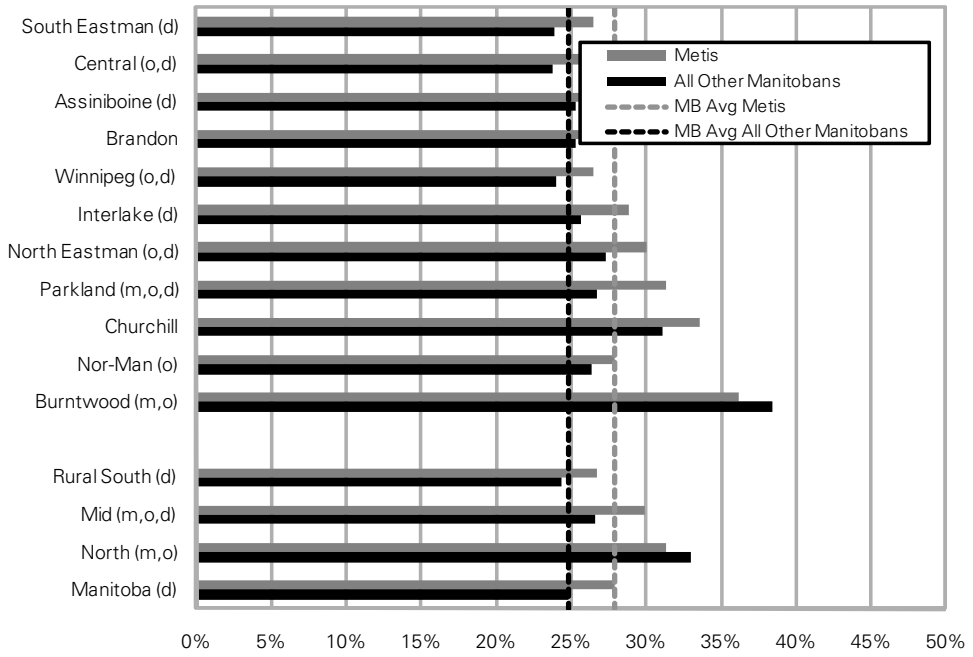
- There is no obvious gradient of hypertension prevalence by PMR. All MMF Regions have similar rates to the overall Metis provincial average prevalence of hypertension (27.9%), with the exception of an elevated prevalence in Thompson MMF Region (35.9%).

Winnipeg CAs:

- Metis in Winnipeg RHA have a significantly higher hypertension prevalence compared to all other residents (26.5% vs. 23.9%), but the Metis living in Winnipeg have a rate similar to the Metis provincial average of 27.9%.

- Two Winnipeg CAs show lower hypertension prevalence for both the Metis and others living in that area—Assiniboine South (20.9% Metis; 22.4% others) and St. Boniface (24.5% Metis; 23.0% others).
- Several Winnipeg CAs show hypertension prevalence of the Metis significantly higher than for all others living in that area: St. Vital (26.0% vs. 23.4%), Transcona (28.4% vs. 24.8%), River Heights (25.7% vs. 22.6%), River East (27.5% vs. 24.0%), and Downtown (27.2% vs. 24.3%).

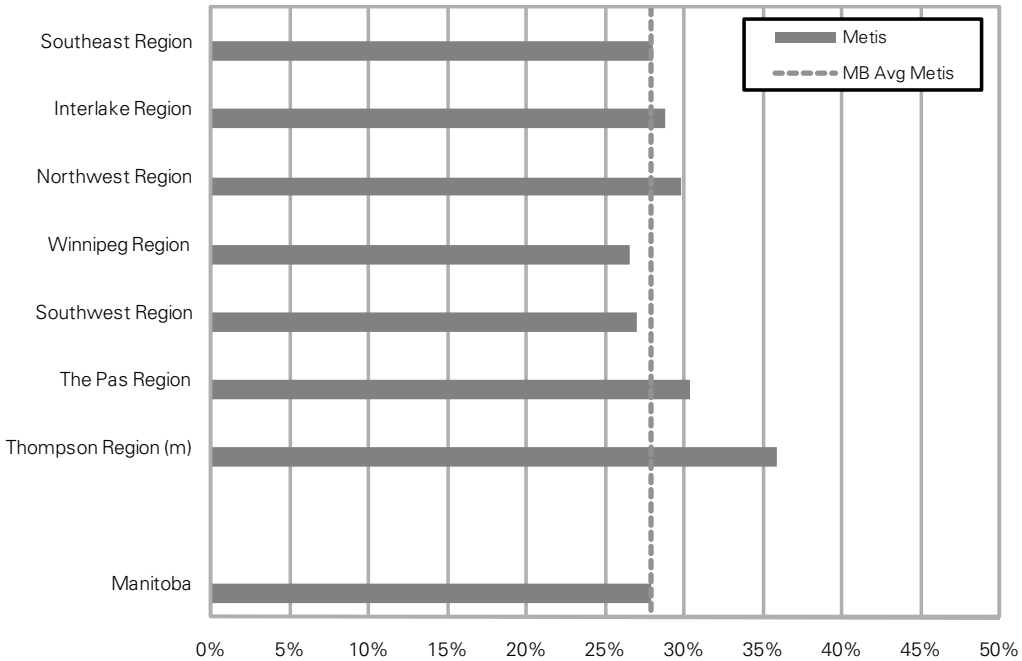
Figure 5.1.1: Hypertension Prevalence by RHA, 2006/07
Age- & sex-adjusted percent of residents treated for high blood pressure aged 19+



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.1.2: Hypertension Prevalence by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents treated for high blood pressure aged 19+



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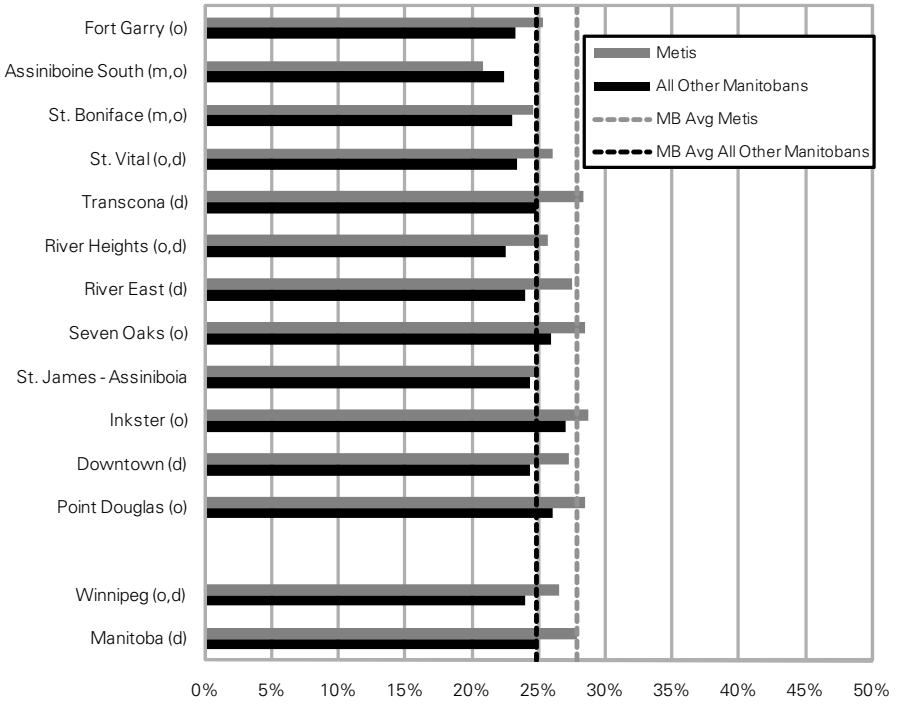
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.1.3: Hypertension Prevalence by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents treated for high blood pressure aged 19+



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

5.2 Arthritis

Arthritis is a group of conditions that affect the health of the bone joints in the body.

The age– and sex–adjusted prevalence of arthritis was measured for residents aged 19 and older over a two–year period: 2005/06–2006/07. Crude prevalence is available in the appendix. Residents were considered to have arthritis if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of arthritis: ICD–9–CM codes 274, 446, 710–721, 725–729, 739; ICD–10–CA codes M00–M03, M05–M07, M10–M25, M30–M36, M65–M79
- two or more physician visits with a diagnosis of arthritis (ICD–9–CM codes as above)
- one physician visit with a diagnosis of arthritis (ICD–9–CM codes as above) and two or more prescriptions for medications to treat arthritis (see glossary)

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006.

Key observations:

RHAs:

- Metis have a higher arthritis prevalence provincially compared to all other Manitobans (24.2%[1] vs. 19.9%)
- Metis have higher arthritis prevalence in all three aggregate areas of Rural South (21.6% vs. 18.6%), Mid (24.8% vs. 20.9%) and North (25.8% vs. 22.1%) and in Winnipeg (24.9% vs. 19.9%) and Brandon RHAs (28.7% vs. 20.9%).
- By specific RHAs, Metis arthritis prevalence is significantly higher in Central, Brandon, Winnipeg, Interlake, North Eastman, Parkland, and Burntwood compared to the rest of the people living in those RHAs.
- The highest prevalence of arthritis for Metis is found in Brandon (28.7%), North Eastman (27.5%), and Parkland (28.8%) and the lowest in South Eastman (20.9%), Interlake (21.5%), and Assiniboine (19.9%) when compared with the Metis provincial average.
- Although arthritis prevalence is high, affecting around one in four Metis and one in five other Manitobans, there is very little gradient throughout the province. In other words, arthritis prevalence is similar, no matter what the underlying health status of the population.

MMF Regions:

- Prevalence of arthritis is similar amongst the MMF Regions, with no apparent gradient by PMR.
- Interlake MMF Region has a lower prevalence (21.7%); and Northwest (28.0%) and The Pas (27.4%) MMF Regions have higher prevalence compared with the overall Metis provincial average of 24.4%.

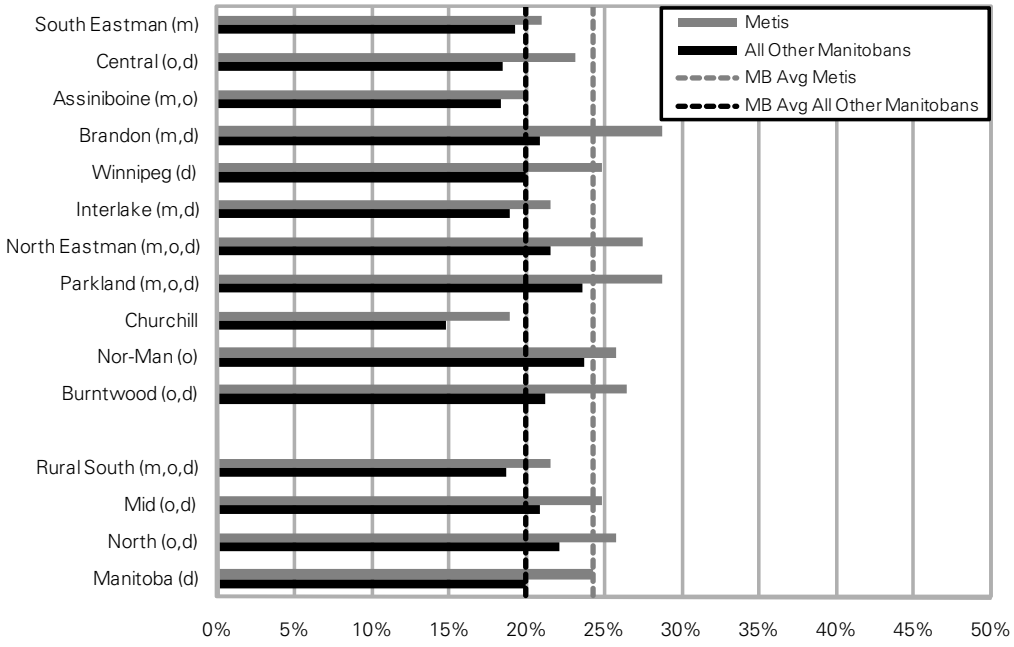
Winnipeg CAs:

- At the Winnipeg level (24.9% vs. 19.9%) and in every Winnipeg CA, the Metis have a higher arthritis prevalence compared to other residents.

[1] Due to slight differences in the modeling for the RHA/WRHA graphs compared to the MMF Region graphs, there are sometimes slight discrepancies in the provincial Metis prevalence in the RHA/WRHA graphs compared to the MMF Region graphs. For example, for arthritis, the former graph shows 24.2%, whereas the latter graph shows 24.4%. In general, the RHA/WRHA graph result will be used to report the Metis provincial rate.

- The two CAs of Downtown (31.9% vs. 21.8%) and Point Douglas (31.3% vs. 24.5%) have very high prevalence of arthritis for Metis and for others, with the Metis being significantly higher than all others living in those CAs. In these two CAs, almost one out of three Metis people have a diagnosis of arthritis.

Figure 5.2.1: Arthritis Prevalence by RHA, 2005/06-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



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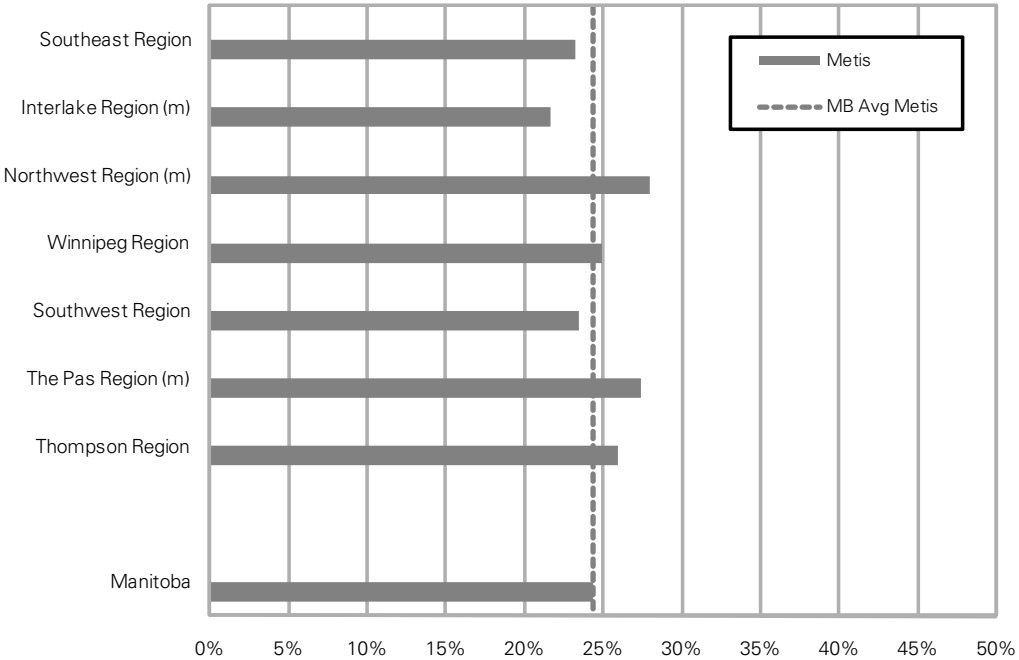
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.2.2: Arthritis Prevalence by Metis Region, 2005/06-2006/07
Age- & sex-adjusted percent of Metis residents aged 19+ years



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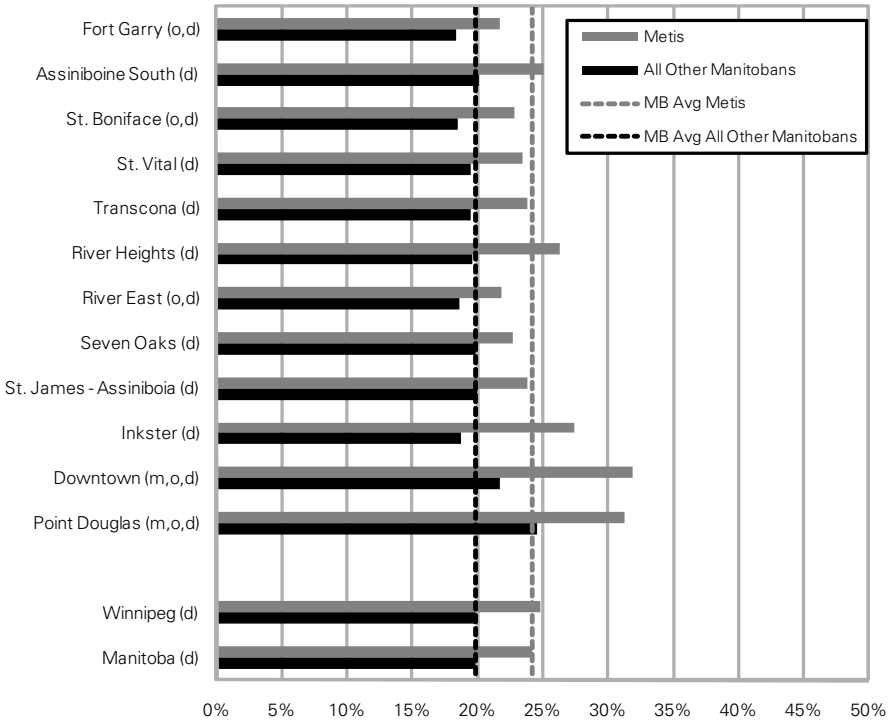
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.2.3: Arthritis Prevalence by Winnipeg Community Area, 2005/06-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

5.3 Total Respiratory Morbidity (TRM)

Total respiratory morbidity (TRM) is a measure of the burden of all types of respiratory illnesses in the population and includes the following diseases: asthma, chronic or acute bronchitis, emphysema, and chronic airway obstruction. This combination of diagnoses is used to overcome problems resulting from different physicians (or specialists) using different diagnosis codes for the same underlying illness (e.g., asthma versus chronic bronchitis).

The age– and sex–adjusted prevalence of TRM was measured for all residents over in fiscal year: 2006/07. Crude prevalence is available in the appendix. Residents were considered to have TRM if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of asthma, chronic or acute bronchitis, emphysema, or chronic airway obstruction: ICD–9–CM codes 466, 490, 491, 492, 493, or 496; ICD–10–CA codes J20, J21, J40–J45
- one or more physician visits with a diagnosis of asthma, chronic or acute bronchitis, emphysema, or chronic airway obstruction (ICD–9–CM codes as above)

The denominator includes all Manitoba residents as of December 31, 2006.

Key observations:

RHAs:

- Provincially, Metis have a higher prevalence of TRM compared to all other Manitobans (13.6% vs. 10.6%). There is no apparent gradient with PMR.
- In all RHAs with the exceptions of Assiniboine and Churchill, the Metis prevalence of TRM is higher than all others living in that area.
- Five RHAs have TRM prevalence lower than the provincial average for both Metis and others—South Eastman (10.3% Metis, 7.7% others); Assiniboine (9.3% for both); Churchill (4.6% Metis, 5.6% others); NOR–MAN (9.6% Metis, 8.0% others); and Burntwood (8.8% Metis, 6.9% others).
- Two RHAs have TRM prevalence higher than the provincial average for both Metis and others—Brandon (16.9% Metis, 12.9% others) and Parkland (18.4% Metis, 12.1% others).
- Both the aggregate areas of Rural South (11.1% Metis, 8.3% others) and the North (9.3% Metis, 7.4% others) have lower prevalence of TRM than the provincial average, but Metis rates are significantly higher in both areas. In contrast, the Mid area has similar rates to the provincial average (14.1% Metis, 10.8% others), but the difference still exists whereby Metis prevalence is higher.

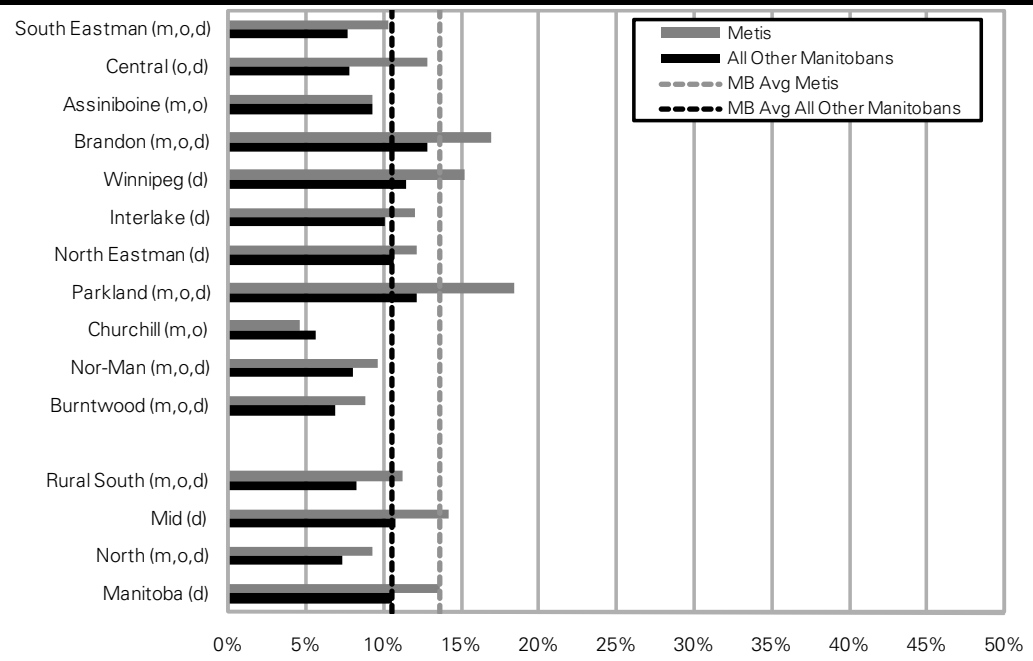
MMF Regions:

- There is no obvious gradient in the MMF Regions between prevalence of TRM and the PMR ordering.
- Both Southeast MMF Region (11.1%) and Thompson MMF Region (8.7%) have lower prevalence of TRM compared with the Manitoba Metis average overall (13.6%).

Winnipeg CAs:

- Although both have similar TRM prevalence to their provincial averages, the Metis prevalence is significantly higher than that of all others living in Winnipeg (15.2% vs. 11.4%). This difference is observed in every CA with the exception of Assiniboine South (where there is a trend to higher Metis prevalence, but this is not statistically significant).
- Within Winnipeg, there is evidence of a slight gradient of TRM prevalence with the least healthy areas having the highest prevalence.
- St. Boniface has a lower TRM prevalence for the Metis (11.5%), whereas Inkster (19.0%), Downtown (18.7%), and Point Douglas (17.8%) have very high TRM prevalence in comparison with the provincial Metis average (13.6%).

Figure 5.3.1: Total Respiratory Morbidity Rate by RHA, 2006/07
Age- & sex-adjusted percent of residents



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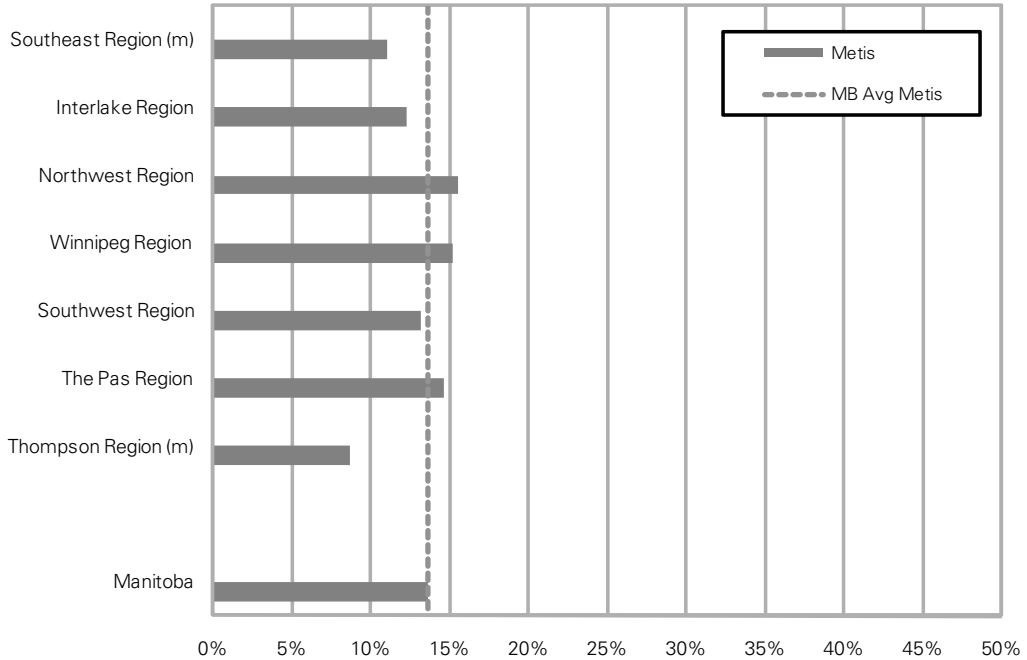
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.3.2: Total Respiratory Morbidity Rate by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents



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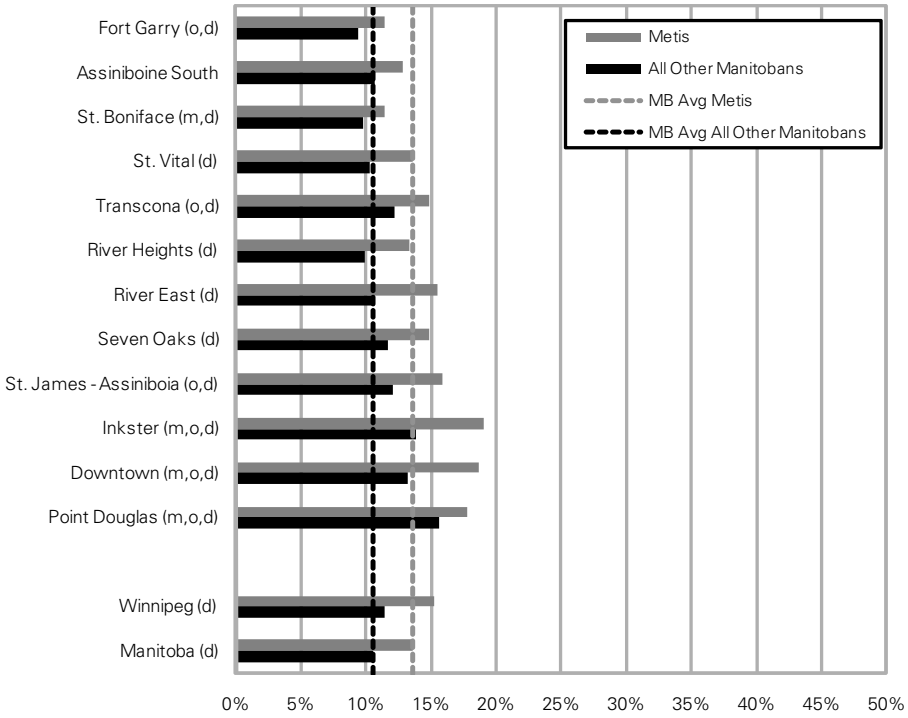
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.3.3: Total Respiratory Morbidity Rate by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents



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Source: MCHP/MMF, 2010

5.4 Diabetes

Diabetes mellitus is a chronic condition in which the pancreas no longer produces enough insulin (type 1 diabetes) or when cells stop responding to the insulin that is produced (type 2 diabetes), so that glucose in the blood cannot be absorbed into the cells of the body. The most common endocrine disorder, diabetes mellitus affects many organs and body functions, especially those involved in metabolism, and can cause serious health complications including renal failure, heart disease, stroke, lower limb amputation, and blindness.

The age– and sex–adjusted prevalence of diabetes was measured for residents aged 19 or older over three fiscal years: 2004/05–2006/07. The crude prevalence is given in the appendix. Residents were considered to have diabetes if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of diabetes: ICD–9–CM code 250, ICD–10–CA codes E10–E14
- two or more physician visits with a diagnosis of diabetes (ICD–9–CM codes as above)
- one or more prescriptions for medications to treat diabetes (listed in glossary)

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006. Note that this measure of diabetes combines type 1 and type 2 diabetes, as physician claims data do not allow separate identification. Note that gestational diabetes has a separate diagnosis code and is not specifically included here, but some cases may be included in this definition if gestational diabetes was not properly coded.

Key observations:

RHAs:

- Provincially, Metis have a significantly higher prevalence of diabetes compared to all other Manitobans (11.8% vs. 8.8%). There is also a steep gradient of diabetes prevalence with PMR, with the least healthy regions having the highest prevalence.
- In most RHAs, the Metis diabetes prevalence is higher than others living in that region, with the exceptions of South Eastman (where prevalence is similar—8.3% Metis, 7.1% others); North Eastman (similar at 10.8% Metis, 10.7% others); NOR–MAN (similar at 13.9% Metis, 14.0% others); and Burntwood (where Metis diabetes prevalence is significantly lower at 17.9% vs. 22.3%). Churchill has a wide discrepancy in prevalence (19.7% Metis, 14.8% others), but this is not statistically significantly different. It is important to note that a large proportion of the population in northern RHAs is First Nation, and thus the within-RHA comparisons for Burntwood, NOR–MAN and Churchill reflect a population of "all others" that has high diabetes rates themselves.
- Compared to the provincial Metis average (11.8%), Metis living in South Eastman have a lower prevalence of diabetes (8.3%), but a statistically higher prevalence in Parkland (15.0%) and Burntwood (17.9%).
- People living in the aggregate areas of the Rural South (10.0% Metis, 7.8% others) and Mid (12.3% Metis, 9.7% others) have rates similar to their provincial averages, but the Metis prevalence is significantly higher than that of all others residing in these areas. In contrast, the diabetes prevalence of Metis and others living in the North are both elevated (15.7%, 18.4%), but not significantly different from each other.

MMF Regions:

- There is a steep gradient of diabetes prevalence and PMR for the MMF Regions, with the least healthy regions showing the highest prevalence.
- The Pas (16.4%) and Thompson MMF Region (18.0%) have significantly higher diabetes prevalence compared to the overall Manitoba Metis average (11.7%).

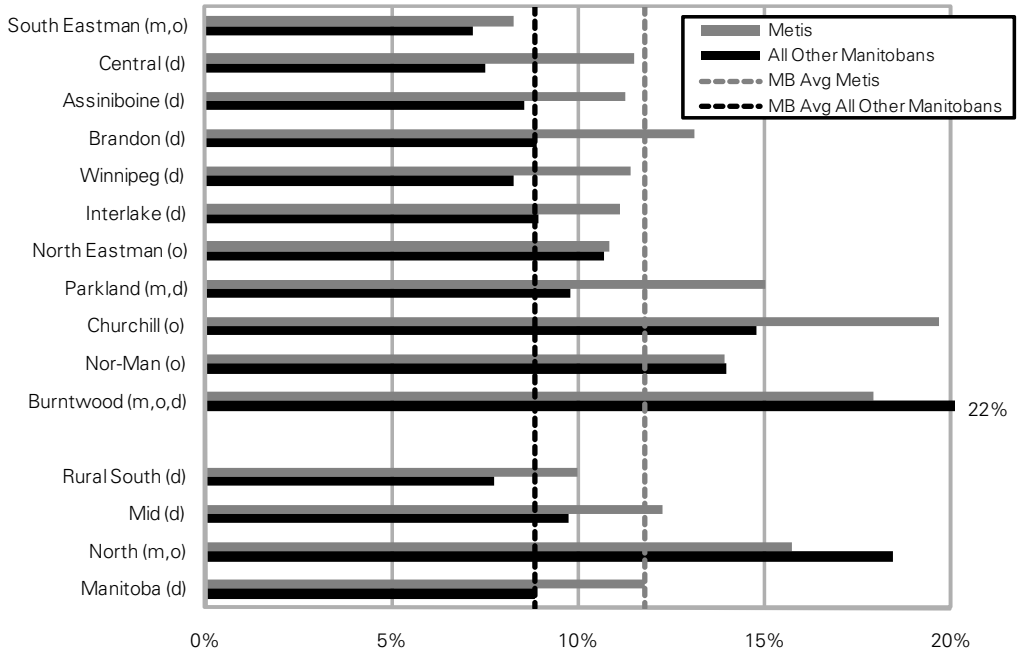
Winnipeg CAs:

- In Winnipeg, both Metis and all others have rates similar to their corresponding provincial averages. However, the Metis prevalence of diabetes is significantly higher than that of all other residents of Winnipeg RHA (11.4% vs. 8.8%).
- There is a gradient of diabetes prevalence with PMR, with the least healthy areas showing the highest prevalence for both Metis and others in Winnipeg.
- The Metis have a higher prevalence of diabetes than all other residents of most CAs throughout Winnipeg (most are statistically higher, but Assiniboine South and Transcona are trending in the same direction, but the difference was not significant).
- Metis diabetes prevalence is higher than all others in the area in the two CAs of Downtown (16.0% vs. 10.6%) and Point Douglas (15.5% vs. 11.4%). In both groups, their prevalence is higher than the corresponding provincial averages.
- Metis in the Winnipeg CAs of Downtown (16.0% vs. 10.6%) and Point Douglas (15.5% vs. 11.4%) have a higher prevalence of diabetes compared to all others residing in those CAs.

Logistic Regression for the risk of diabetes (controlling for income, sex, geographic area, age, and mental and physical comorbidities—see Table 5.4.1):

- Comparing Metis and all others:
- Metis are at greater risk of diabetes compared to all other Manitobans (aOR 1.29, 95% CI 1.25–1.34, p<.001)
- In this full model including all Manitobans, the risk is higher for males (aOR 1.14, 95% CI 1.12–1.16, p<.001).
- Comparing within MMF Regions:
- Demographics—the risk of diabetes is greater for those living in lower neighbourhood income areas, those with greater physical comorbidities, and those who are older (although as age increases, risk increases and then levels off). There is no difference in risk between males and females among the Metis, and no difference in risk for those having mental illness comorbidities.
- Metis living in the MMF Regions of The Pas (aOR 1.22, 95% CI 1.11–1.33) and Thompson (aOR 1.66, 95% CI 1.49–1.86) have significantly higher risk of diabetes compared to other Metis in Manitoba. All other MMF Regions (Southeast, Interlake, Northwest, Winnipeg, and Southwest) have significantly lower risk of diabetes.

Figure 5.4.1: Diabetes Prevalence by RHA, 2004/05-2006/07
Age- & sex-adjusted percent of population aged 19+ years



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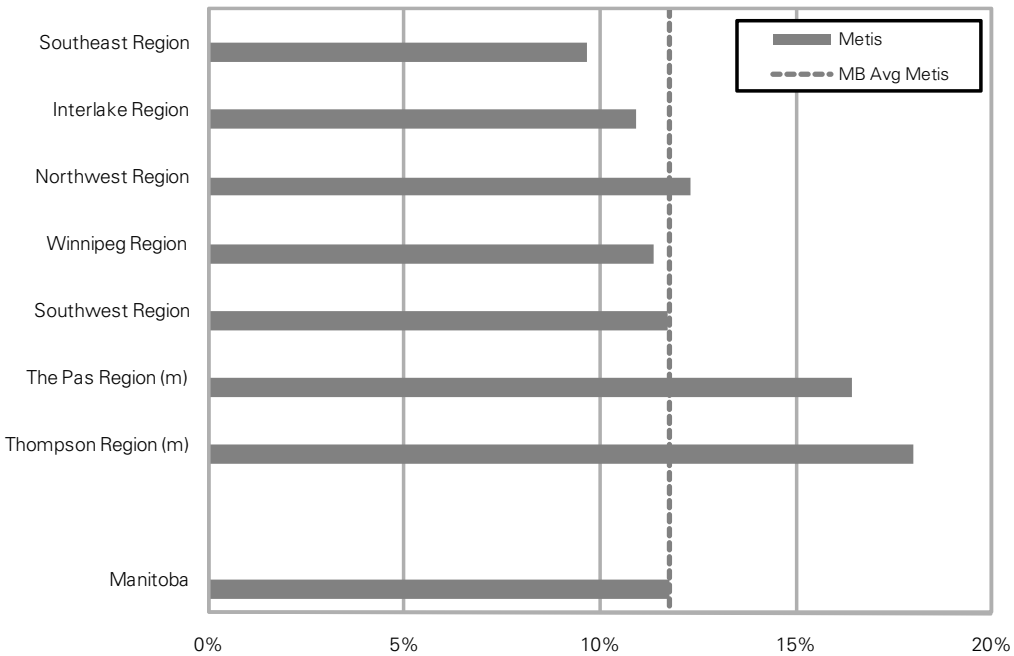
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.4.2: Diabetes Prevalence by Metis Region, 2004/05-2006/07
Age- & sex-adjusted percent of Metis population aged 19+ years



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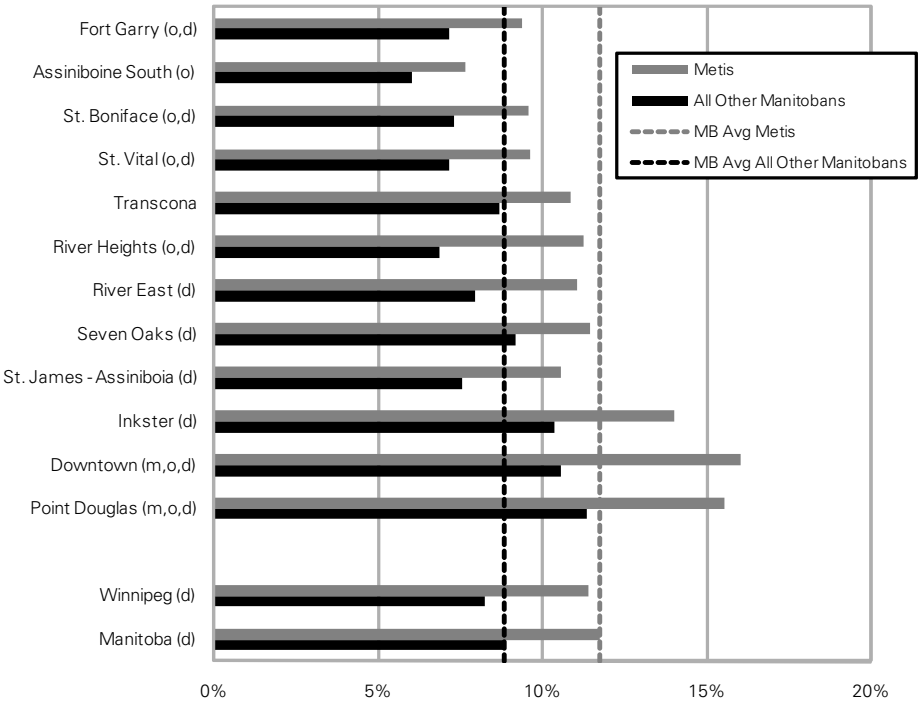
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.4.3: Diabetes Prevalence by Winnipeg Community Area, 2004/05-2006/07
Age- & sex-adjusted percent of population aged 19+ years



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 5.4.1: Logistic Regression Modeling of the Risk of Diabetes

Probability of Diabetes by Aggregate Region, 2004/05–2006/07, All Manitobans aged 19+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	**1.293 (1.253, 1.335)**	**<0.001**
Aggregate Regions (ref = Manitoba)		
Rural South	**0.730 (0.717, 0.744)**	**<0.001**
Mid	**0.906 (0.889, 0.923)**	**<0.001**
North	**1.936 (1.888, 1.986)**	**<0.001**
Brandon	**0.882 (0.855, 0.911)**	**<0.001**
Winnipeg	**0.885 (0.872, 0.897)**	**<0.001**
Age, linear	**1.191 (1.187, 1.194)**	**<0.001**
Age, quadratic[1]	**0.999 (0.999, 0.999)**	**<0.001**
Males (vs. Females)	**1.141 (1.123, 1.159)**	**<0.001**
Average Household Income of Neighbourhood	**0.892 (0.889, 0.896)**	**<0.001**
Mental Illness ADGs[2]	**1.029 (1.008, 1.050)**	**0.0058**
Major Physical Illness ADGs	**1.640 (1.613, 1.667)**	**<0.001**

Bold = statistically significant results

Probability of Diabetes by Metis Region, 2004/05–2006/07, only Metis aged 19+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	**0.789 (0.728, 0.855)**	**<0.001**
Interlake Region	**0.849 (0.782, 0.922)**	**<0.001**
Northwest Region	**0.877 (0.785, 0.981)**	**0.0215**
Winnipeg Region	**0.921 (0.872, 0.972)**	**0.0030**
Southwest Region	**0.911 (0.838, 0.991)**	**0.0306**
The Pas Region	**1.219 (1.114, 1.333)**	**<0.001**
Thompson Region	**1.664 (1.488, 1.860)**	**<0.001**
Age, linear	**1.199 (1.184, 1.215)**	**<0.001**
Age, quadratic	**0.999 (0.999, 0.999)**	**<0.001**
Males (vs. Females)	1.003 (0.943, 1.066)	0.9319
Average Household Income of Neighbourhood	**0.875 (0.856, 0.893)**	**<0.001**
Mental Illness ADGs	1.061 (0.983, 1.145)	0.1270
Major Physical Illness ADGs	**1.652 (1.551, 1.761)**	**<0.001**

Bold = statistically significant results Source: MCHP/MMF, 2010

[1] Many of the regression models include a quadratic age term, which means that the model fit was improved through the use of both the age term and an age-squared term. The way in which this can be interpreted is that the likelihood increases with age (since the aOR of the age term is greater than 1 and statistically significant), but that this effect levels off at higher ages (since the aOR of the quadratic age-squared term is less than 1, and statistically significant).

[2] Note: ADGs refers to Aggregated Diagnostic Groups, a measure of comorbidity (co-existing conditions) that can be grouped into either co-existing mental illnesses or major physical illnesses. See the Glossary for further explanation.

5.5 Lower Limb Amputation Rate for People with Diabetes

A lower limb amputation among people with diabetes refers to the removal of the lower limb (below or including the knee, and including toes) by amputation among those with a diagnosis of diabetes.

The age– and sex–adjusted rate of lower limb amputations due to complications of diabetes was measured per 1,000 people with diabetes aged 19 and older in five fiscal years: 2002/03–2006/07. Crude rates can be found in the appendix. Amputation was defined by a hospitalization with a surgery for a lower limb amputation, identified by ICD–9–CM procedure codes 84.10–84.17 and CCI codes 1.VC.93, 1.VG.93, 1.VQ.93, 1.WA.93, 1.WE.93, 1.WJ.93, 1.WL.93, and 1.WM.93. This definition does not include all amputations, but only those for which there was an existing condition of diabetes coded with the amputation; therefore the hospital abstract for the amputation must also indicate a diagnosis of diabetes (defined by ICD–9–CM diagnosis code 250 and ICD–10–CA codes E10–E14). Amputations due to accidental injury (defined by ICD–9–CM diagnosis codes 895, 896, 897 and ICD–10–CA codes S78, S88, S98, T05.3, T05.4, T05.5, T13.6) were excluded.

Key observations:

Lower limb amputation among people with diabetes is a rare event. Thus, the RHA graph has some "suppressed" (s) rates; and the Winnipeg graph could only display three aggregated areas of Winnipeg—Most Healthy, Average, and Least Healthy (see Glossary for definitions of each). Caution must be exerted in interpreting rates based on very small numbers, due to the potential of huge variations from one time period to the next. A rate is different than a prevalence—prevalence refers to the percentage of the population with at least one amputation, whereas a rate allows for more than one amputation per person.[2]

RHAs:

- Provincially, Metis have an elevated rate of lower limb amputation in those with diabetes compared to all other Manitobans (24.1 vs. 16.2 per 1000).
- Although not statistically significant, both the Rural South (22.8 vs. 16.0 per 1000) and the Mid (28.3 vs. 22.3 per 1000) show a trend towards higher rates for Metis compared to others. However, the North shows the opposite trend with lower rates for Metis (27.5 vs. 36.4 per 1000). This is most likely due to the fact that in the north, the comparison group is comprised of a large portion of First Nations, with a correspondingly high amputation rate due to diabetes.
- For all other Manitobans, there is a strong gradient of lower limb amputation in people with diabetes, with the least healthy RHAs showing the highest rates (with the exception of Central RHA). However, the trend is not obvious for the Metis.
- Although not statistically significant, and thus use with caution, Central RHA shows a very high lower limb amputation rate for the Metis (36.2 per 1000) and has higher–than–expected for others residing in this RHA (21.9 per 1000) given its overall good health status.

[2] In the time period 2002/03–2006/07:
The crude prevalence of Metis with diabetes having at least one lower limb amputation was 1.56%. There were a total of 135 amputations amongst 5,846 Metis people with diabetes (the majority, 5755, had 0 amputations; but 61 had 1 amputation and 22 had 2 amputations, with variations from 0–5 amputations).
For all other Manitobans with diabetes, the crude prevalence having at least one lower limb amputation was 1.22%. There were a total of 1,340 amputations amongst 82,748 other Manitobans with diabetes (the majority, 81,739, had 0 amputations; but 743 had 1 amputation and 217 had two amputations, with variations from 0–6 amputations).

- The only RHA which shows a statistically significant difference in lower limb amputation rates between Metis and other residents is Winnipeg (21.3 vs. 12.7 per 1000). In Winnipeg, the rate for all other residents is lower than the corresponding provincial average (12.7 Winnipeg "others", 16.2 per 1000 Manitoba "others"), whereas the Metis rate is similar to the provincial Metis average (21.3 vs. 24.1 per 1000).

MMF Regions:

- Although there appears to be some variation by MMF Region in lower limb amputation rates for people with diabetes, none of these rates are significantly different than the overall Metis provincial average (23.9 per 1000).

Winnipeg Aggregated Areas[3]:

- In Winnipeg, Metis were more likely to have a lower limb amputation in people with diabetes compared to other residents of Winnipeg (21.3 vs. 12.7 per 1000). However, the Metis rate in Winnipeg was similar to the provincial average for Metis (24.1 per 1000), whereas the rate for all other Winnipeggers was lower than their provincial average (16.2 per 1000).
- Winnipeg's Most Healthy area had similar lower limb amputation rates in people with diabetes for Metis and others (10.8 Metis, 7.9 per 1000 for others), as did Winnipeg's Least Healthy area (22.7 Metis, 19.0 per 1000 for others). However, in the Average Health area, there was a significantly higher rate of lower limb amputation in Metis people with diabetes compared to others (31.3 vs. 12.8 per 1000).

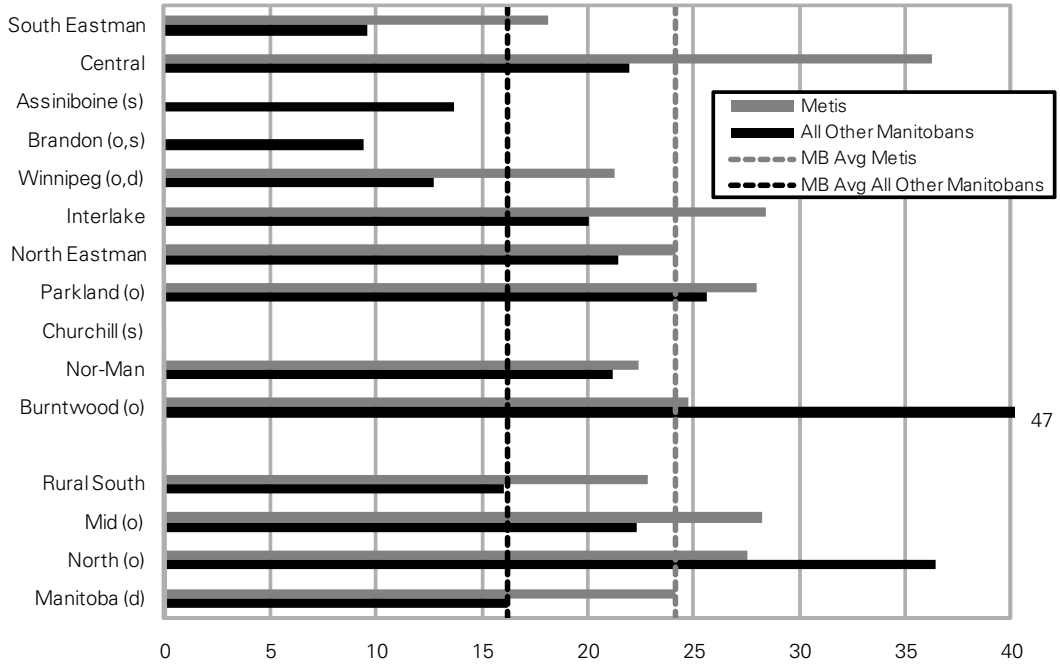
Logistic Regression for the risk of lower limb amputation in people with diabetes (controlling for income, sex, geographic area, age, mental and physical comorbidities, and continuity of care—see Glossary for definition of continuity of care; see Table 5.5.1 for results):

- Comparing Metis and all others:
- Metis are at a similar risk of lower limb amputation in people with diabetes, compared to all other Manitobans, after controlling for the above (aOR 1.13, 95% CI 0.90–1.40, NS)
- In this full model including all Manitobans, the risk is higher for males (aOR 1.94, 95% CI 1.71–2.21, p<.001). As well, the risk is higher for those living in lower neighbourhood income areas and those with physical comorbidities. The older the person, the more likely is a lower limb amputation; but this effect eventually plateaus.
- In this full model, continuity of care (seeing the same physician for at least one-half of their visits over a two–year period) was associated with lower risk of amputation (aOR 0.71, 95% CI 0.62–0.81, p<.001).
- In this full model, the risk of lower limb amputation in people with diabetes was elevated in the Mid and North aggregate areas, similar in Winnipeg, and lower in the South and in Brandon.
- Brandon RHA is especially notable, having a very low risk of amputation (aOR 0.59, 95% CI 0.43–0.80, p<.001). According to MMF, this is a relevant finding that given there is a program in Brandon that is targeted to people living with diabetes.
- Comparing within MMF Regions:

[3] Note that due to relatively small numbers of events at the Winnipeg CA level, only aggregate area rates could be shown. The MCHP suppression rule is that if a rate is based upon 1 to 5 events, the rate must be suppressed for that geographical area.

- Demographics—the risk of lower limb amputation in people with diabetes is greater for those living in lower neighbourhood income areas, those with greater physical comorbidities (aOR 2.88, 95% CI 1.78–4.67, p<.001), and those who are older (although as age increases, risk increases and then levels off).
- There is a high risk of amputation in Metis males compared to Metis females (aOR 2.36, 95% CI 1.50–3.71, p<.001).
- There is no difference in risk by MMF Region. All show similar amputation rates.
- Continuity of care is associated with a much lower risk for lower limb amputation in Metis people with diabetes (aOR 0.62, 95% CI 0.40–0.96, p<.04).

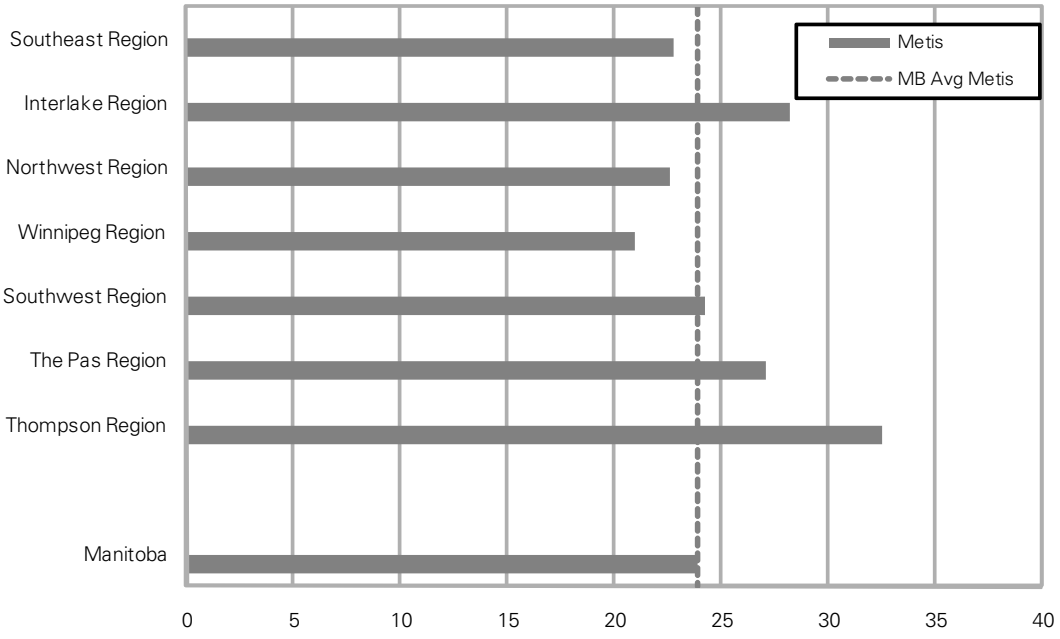
Figure 5.5.1: Diabetes-Related Lower Limb Amputation Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 people with diabetes aged 19+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.5.2: Diabetes-Related Lower Limb Amputation Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 Metis people with diabetes aged 19+ years



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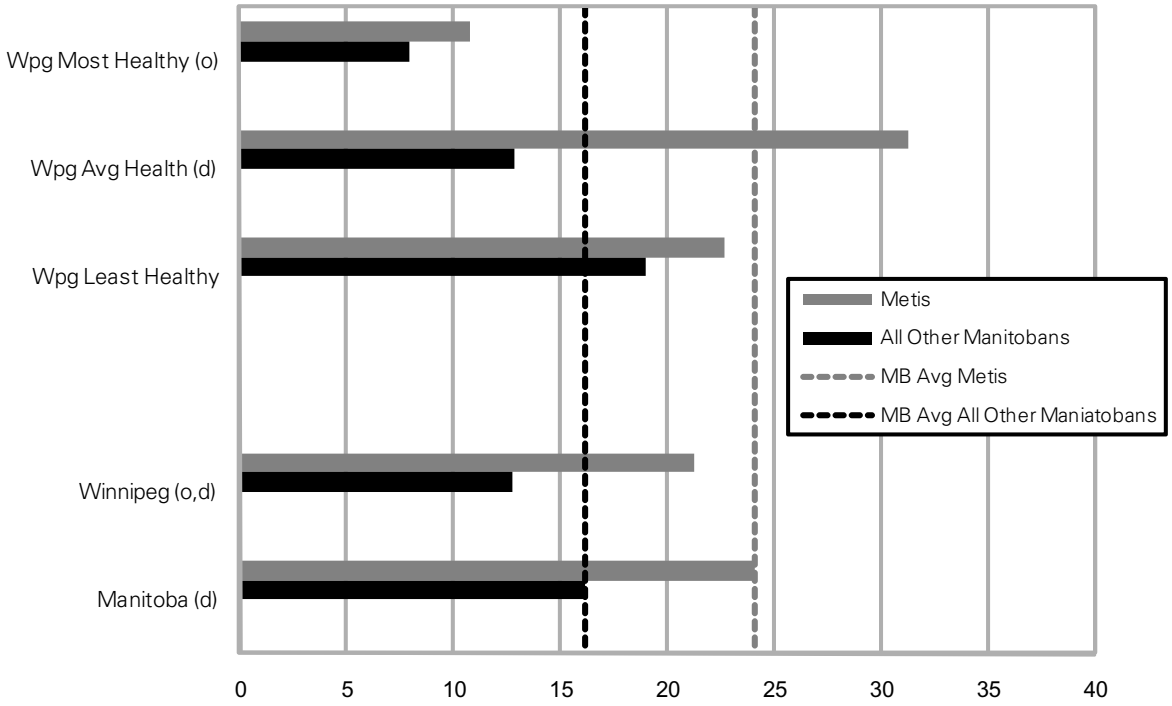
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.5.3: Diabetes-Related Lower Limb Amputation Rate by Winnipeg Aggregate Areas, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 people with diabetes aged 19+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 5.5.1: Logistic Regression Modeling of the Risk of Diabetes–Related Lower Limb Amputation

Probability of Lower Limb Amputation by Aggregate Region, 2002/03–2006/07, All Manitobans with Diabetes aged 19+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	1.126 (0.904, 1.402)	0.2900
Aggregate Regions (ref = Manitoba)		
Rural South	**0.851 (0.734, 0.986)**	**0.0320**
Mid	**1.219 (1.063, 1.398)**	**0.0046**
North	**1.806 (1.530, 2.131)**	**<0.001**
Brandon	**0.585 (0.429, 0.796)**	**<0.001**
Winnipeg	0.913 (0.813, 1.026)	0.1265
Age, linear	**1.145 (1.106, 1.184)**	**<0.001**
Age, quadratic	**0.999 (0.999, 0.999)**	**<0.001**
Males (vs. Females)	**1.944 (1.711, 2.209)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.790 (0.757, 0.823)**	**<0.001**
Continuity of Care	**0.709 (0.624, 0.806)**	**<0.001**
Mental Illness ADGs	0.945 (0.808, 1.106)	0.4834
Major Physical Illness ADGs	**3.251 (2.823, 3.743)**	**<0.001**

Bold = statistically significant results

Probability of Lower Limb Amputation by Metis Region, 2002/03–2006/07, only Metis with Diabetes aged 19+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	0.648 (0.327, 1.284)	0.2137
Interlake Region	1.294 (0.781, 2.145)	0.3168
Northwest Region	0.730 (0.328, 1.624)	0.4402
Winnipeg Region	0.997 (0.682, 1.456)	0.9863
Southwest Region	0.947 (0.526, 1.705)	0.8554
The Pas Region	1.282 (0.736, 2.232)	0.3804
Thompson Region	1.351 (0.641, 2.847)	0.4283
Age, linear	**1.212 (1.044, 1.406)**	**0.0115**
Age, quadratic[1]	**0.999 (0.997, 1.000)**	**0.0235**
Males (vs. Females)	**2.362 (1.504, 3.710)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.840 (0.713, 0.989)**	**0.0368**
Continuity of Care	**0.618 (0.397, 0.962)**	**0.0330**
Mental Illness ADGs[2]	0.773 (0.430, 1.388)	0.3888
Major Physical Illness ADGs	**2.881 (1.779, 4.665)**	**<0.001**

Bold = statistically significant results Source: MCHP/MMF, 2010

[1] Many of the regression models include a quadratic age term, which means that the model fit was improved through the use of an age term and an age-squared term. The way in which this can be interpreted is that the likelihood increases with age (since the aOR of the age term is greater than 1 and statistically significant), but that this effect levels off at higher ages (since the aOR of the quadratic age-squared term is less than 1, and statistically significant).

[2] Note: ADGs refers to Aggregated Diagnostic Groups, a measure of comorbidity (co-existing conditions) that can be grouped into either co-existing mental illnesses or major physical illnesses. See the Glossary.

5.6 Ischemic Heart Disease (IHD)

Ischemia is a condition in which the blood flow (and thus oxygen) is restricted to a part of the body. Cardiac ischemia is the name for lack of blood flow and oxygen to the heart muscle. Thus, the term 'ischemic heart disease' refers to heart problems caused by narrowed heart arteries. When arteries are narrowed, less blood and oxygen reaches the heart muscle. This is also called coronary artery disease and coronary heart disease. It can ultimately lead to heart attack.

The age– and sex–adjusted prevalence of IHD was measured for residents aged 19 and older over five fiscal years: 2002/03–2006/07. The crude prevalence of IHD is in the appendix. Residents were considered to have IHD if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of IHD: ICD–9–CM codes 410–414; ICD–10–CA codes I20–I22, I24, I25
- two or more physician visits with a diagnosis of IHD (ICD–9–CM codes as above)
- one physician visit with a diagnosis of IHD (ICD–9–CM codes as above) and two or more prescriptions for medications to treat IHD (listed in glossary)

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006.

Key observations:

RHAs:

- Provincially, the prevalence of IHD was higher for Metis compared to all other Manitobans (12.2% vs. 8.7%), with no obvious gradient across RHAs.
- Several RHAs show Metis IHD prevalence significantly higher than for others living in that RHA—South Eastman, Central, Brandon, Winnipeg, Interlake, North Eastman, Parkland, and NOR–MAN.
- Metis prevalence of IHD was lower than the Metis provincial average (12.2%) in the RHAs of Assiniboine (8.8% Metis, 7.3% others) and Interlake (10.6% Metis, 8.0% others), but higher in Parkland (16.5% Metis, 11.3% others).

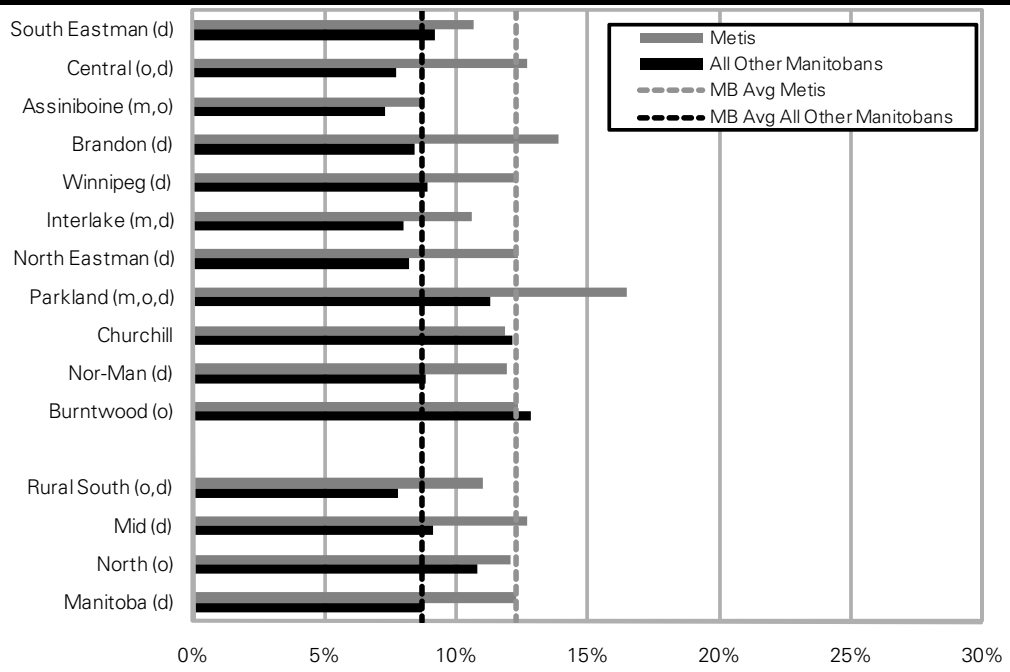
MMF Regions:

- The Interlake MMF Region has a lower prevalence of IHD compared to the provincial Metis prevalence (10.3% vs. 12.1%).
- The prevalence of IHD for Metis living in Northwest MMF Region (14.6%) and The Pas MMF Region (15.1%) was higher than the provincial Metis prevalence of 12.1%.

Winnipeg CAs:

- In Winnipeg, Metis have a significantly higher prevalence of IHD compared to all other Winnipeggers (12.3% vs. 8.9%). There is a gradient of IHD for Metis, with the least healthy CAs having the highest IHD prevalence. However, there is very little evidence of a gradient by PMR for all other Winnipeggers. Most CAs show a higher prevalence for the Metis compared to all others living in that CA. However, all CAs have Metis IHD prevalence similar to the Metis provincial average (12.2%).

Figure 5.6.1: Ischemic Heart Disease Prevalence by RHA, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+



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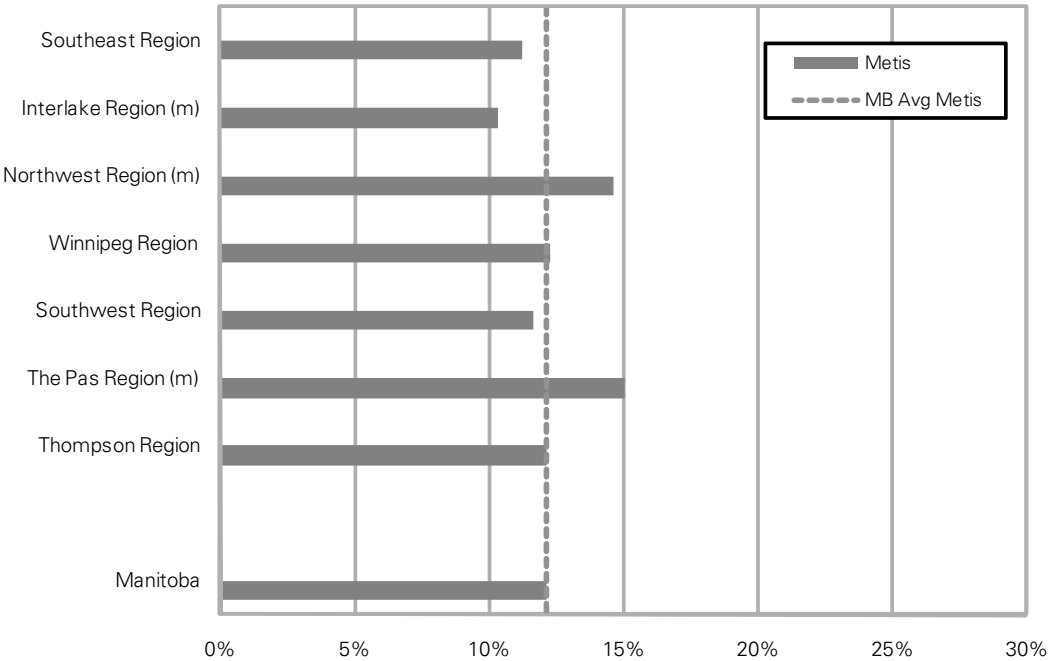
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.6.2: Ischemic Heart Disease Prevalence by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent of Metis residents aged 19+



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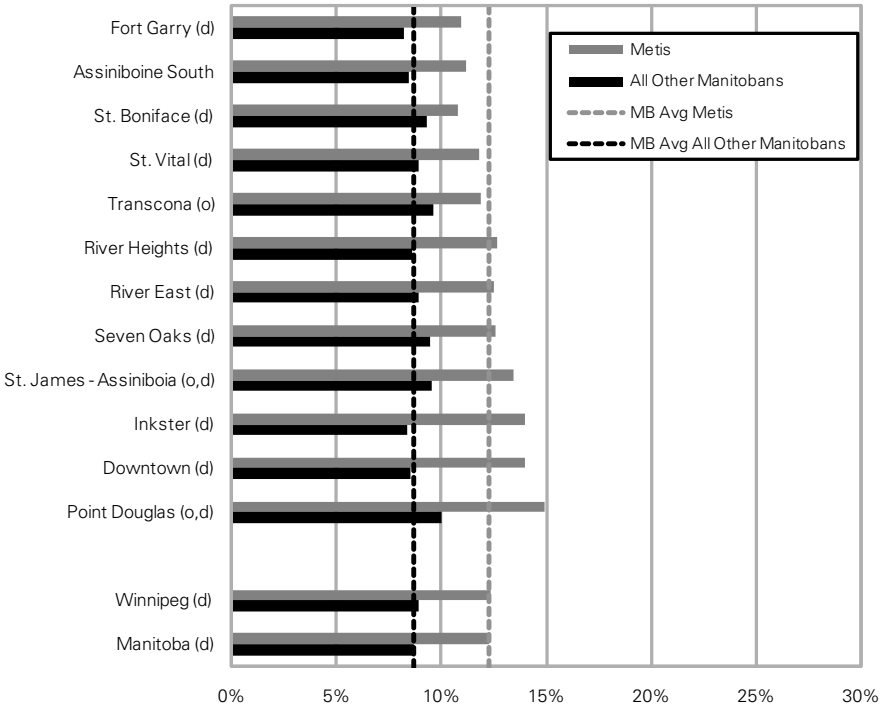
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.6.3: Ischemic Heart Disease Prevalence by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

5.7 Osteoporosis

Osteoporosis is a disease that leads to a reduction in bone density and causes the bones to become weak and more likely to break.

The age– and sex–adjusted prevalence of residents aged 50 and older with osteoporosis (including fractures) was measured over three fiscal years: 2004/05–2006/07. The crude prevalence of osteoporosis is given in the appendix. Residents were considered to have osteoporosis if they met one of the following conditions:

- one or more hospitalizations with one of the following diagnoses:
- osteoporosis: ICD–9–CM code 733.0, ICD–10–CA code M81
- hip fracture: ICD–9–CM code 820–821, ICD–10–CA code S72
- spine fracture: ICD–9–CM code 805; ICD–10–CA codes S12.0–S12.2, S12.7, S12.9, S22.0, S22.1, S32.0–S32.2, T08
- humerus fracture: ICD–9–CM code 812, ICD–10–CA codes S42.2–S42.4
- wrist fracture (radius, ulna and carpal bones): ICD–9–CM code 813–814; ICD–10–CA codes S52, S62.0, S62.1
- one or more physician visits with one of the following diagnoses:
- osteoporosis: ICD–9–CM code 733
- hip fracture: ICD–9–CM codes 820–821
- spine fracture : ICD–9–CM code 805
- humerus fracture : ICD–9–CM code 812
- wrist fracture: ICD–9–CM codes 813–814
- one or more prescriptions for medications to treat osteoporosis (listed in the glossary)

The denominator includes all Manitoba residents aged 50 and older as of December 31, 2006.

Key observations:

RHAs:

- Provincially, osteoporosis prevalence is similar between Metis and all other Manitobans (12.2% vs. 12.3%). There is no consistent relationship between osteoporosis prevalence and PMR.
- In Churchill, the osteoporosis prevalence is significantly higher than for "all others" living in that RHA (19.4% vs. 4.8%).

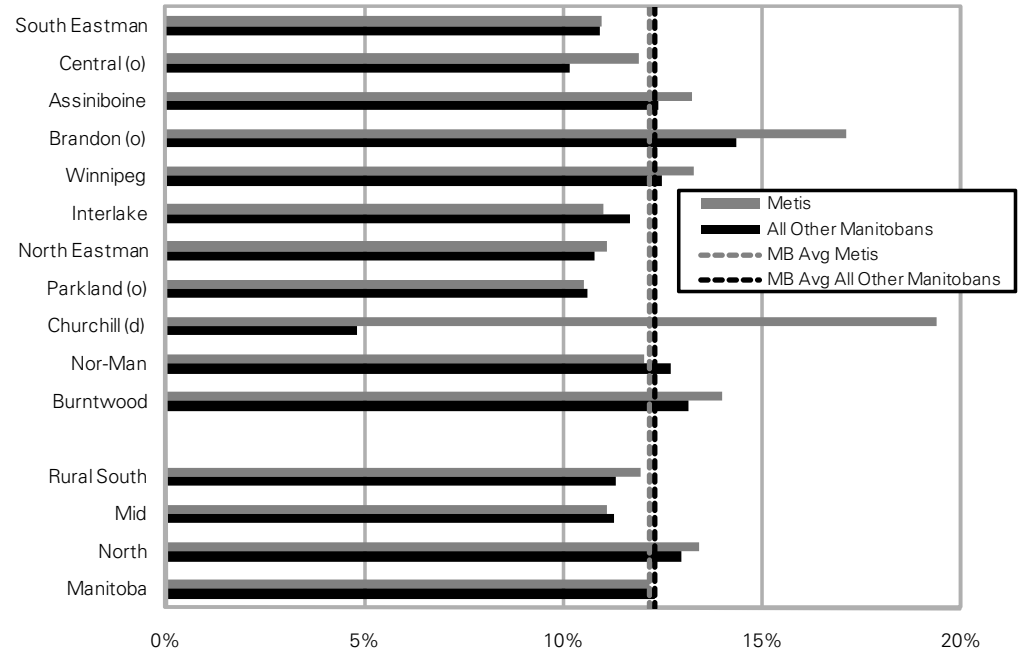
MMF Regions:

- The overall osteoporosis prevalence for Metis (and all others who are 50 and over) is 12.4%.
- MMF Regions show similar prevalence of osteoporosis, with none being statistically different than the overall provincial average. There may be a slight trend towards higher osteoporosis prevalence as PMR increases.

Winnipeg CAs:

- In Winnipeg, the osteoporosis prevalence is similar for Metis and all other Winnipeggers (13.2% vs. 12.5%), with no evidence of a gradient by PMR.
- There is a significantly lower prevalence of osteoporosis in Transcona for all others compared to the corresponding provincial average (10.0% vs. 12.3%). Although the Transcona Metis prevalence (9.9%) is similar to all other residents of Transcona (implying a trend to a low prevalence like for other residents), this is not significantly lower than the Metis provincial average of 12.2%—probably due to small numbers.
- The prevalence of osteoporosis for Metis living in Inkster CA is significantly higher than for all others living in that CA (12.9% vs. 9.4%).

Figure 5.7.1: Osteoporosis Prevalence by RHA, 2004/05-2006/07
Age- & sex-adjusted percent of residents aged 50+



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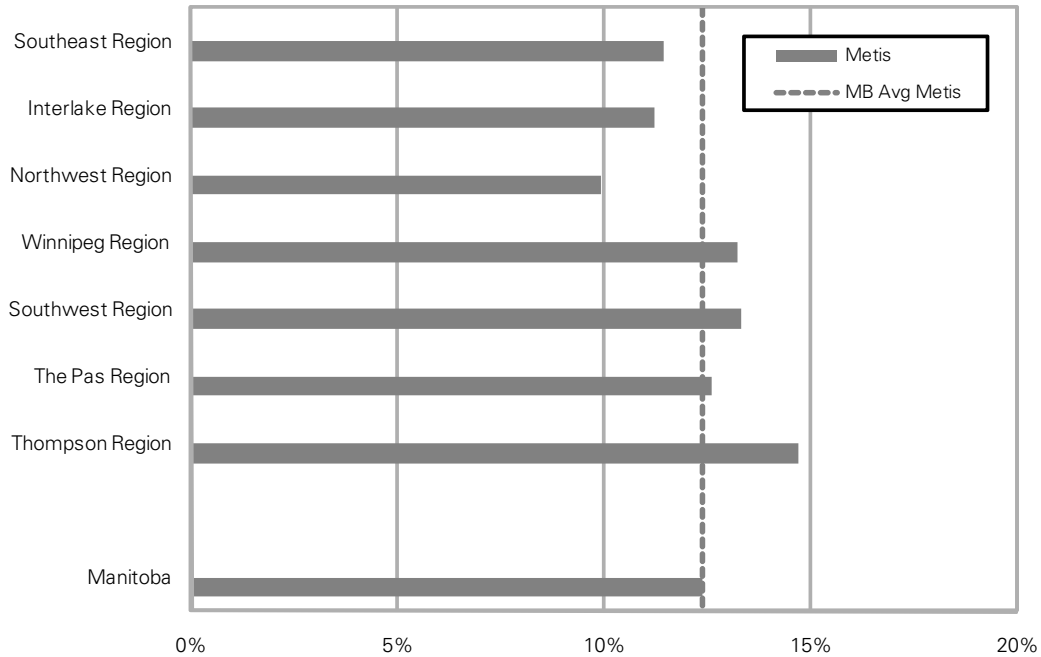
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.7.2: Osteoporosis Prevalence by Metis Region, 2004/05-2006/07
Age- & sex-adjusted percent of Metis residents aged 50+



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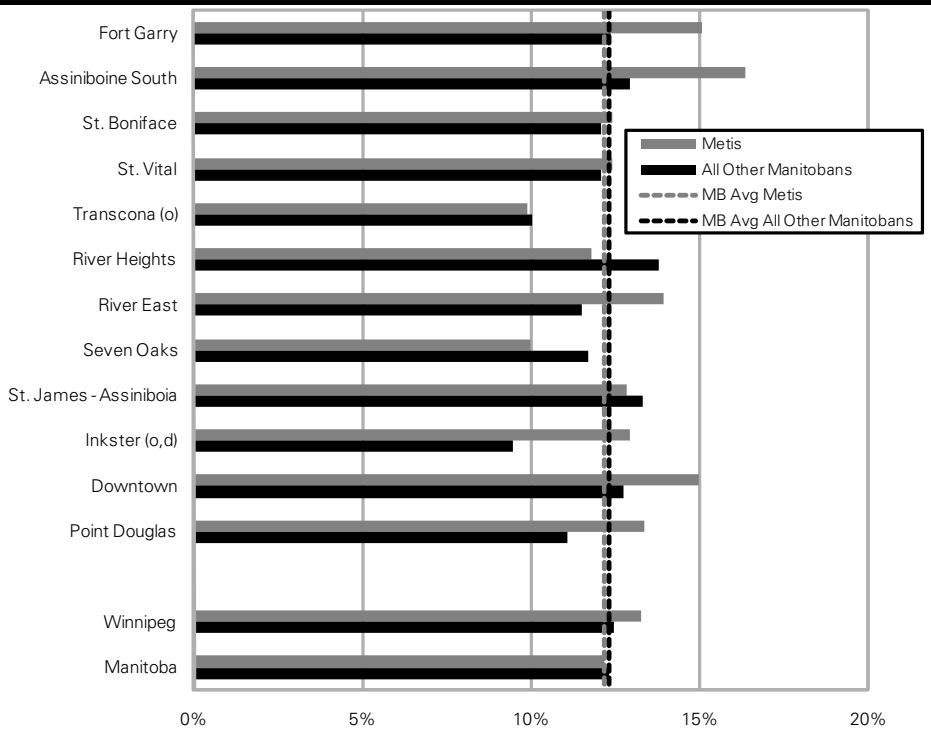
Source: MCHP/MMF, 2010

Figure 5.7.3: Osteoporosis Prevalence by Winnipeg Community Area, 2004/05-2006/07
Age- & sex-adjusted percent of residents aged 50+



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

5.8 Dialysis Initiation Rates

Dialysis is a treatment for people in the end stage of chronic renal insufficiency (kidney failure). This treatment cleans the blood and removes wastes and excess water from the body.

The age– and sex–adjusted rate of dialysis initiation for residents aged 19 and older was measured over five fiscal years: 2002/03–2006/07. The crude incidence rates are available in the appendix. Dialysis initiation rate was defined by one or more physician visits with Manitoba tariff codes.

- 9610—chronic ambulatory peritoneal dialysis, in hospital, per day
- 9798—acute renal failure initial hemodialysis
- 9799—acute renal failure subsequent hemodialysis
- 9801—chronic renal failure initial hemodialysis
- 9802—chronic renal failure subsequent hemodialysis
- 9805—acute renal failure initial peritoneal dialysis, complete medical management, up to two weeks
- 9806—chronic renal failure initial peritoneal dialysis, first 24 hours
- 9807—acute renal failure subsequent (peritoneal) dialysis, after two weeks
- 9819—chronic renal failure intermittent subsequent (peritoneal) dialysis
- 9820—home (peritoneal) dialysis and self–care dialysis weekly retainer for administration, routine visits, and supervision. This fee is not applicable if the patient is admitted to hospital as an in–patient
- 9821—chronic renal failure home dialysis and self–care dialysis and self–care dialysis weekly retainer

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2004. Note that this indicator only captures individuals who begin dialysis in the study period. Individuals who began their dialysis treatment prior to April 1, 2002 would not be included here.

Key observations:

RHAs:

- Provincially, the dialysis initiation rate was higher for Metis than all other Manitobans (0.46% vs. 0.34%). There is a gradient apparent with the North higher than the other regions—however, the gradient is more obvious for all other Manitobans than for the Metis.
- The graphs if dialysis initiation incidence rates mirror the diabetes prevalence graphs, reflecting the fact that diabetes is a main driver of renal failure.
- Dialysis initiation rates are significantly higher for Metis compared to all others in Central (0.59% vs. 0.27%) and Winnipeg (0.53% vs. 0.35%).
- Burntwood has a particularly high dialysis initiation rate for both the Metis (0.93% vs. Metis provincial rate of 0.46%) and for all others living in Burntwood (1.22% vs. other provincial rate of 0.34%). There is no statistical difference between Metis and others living in Burntwood.

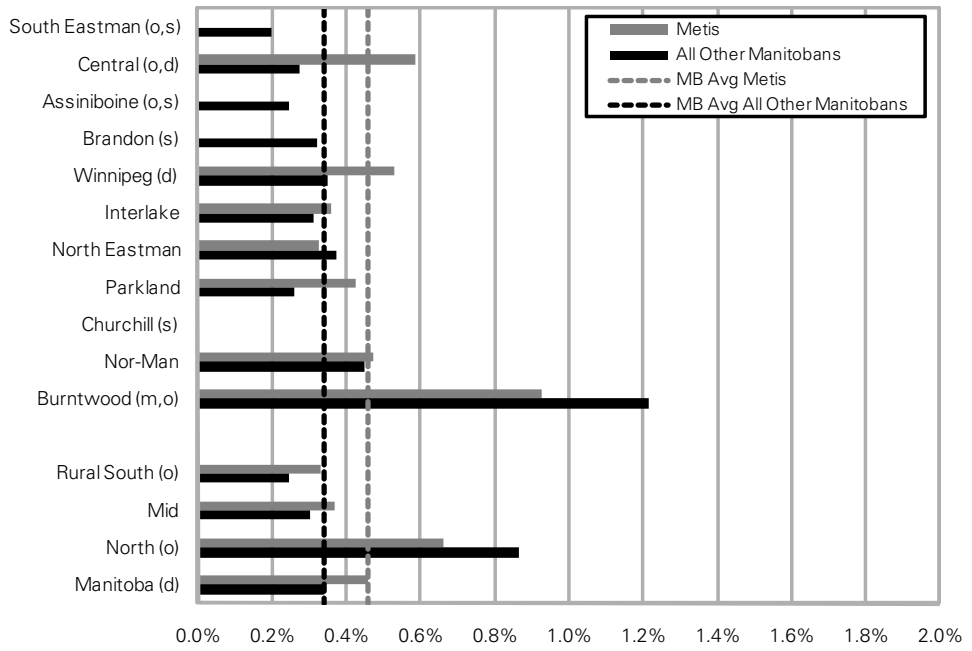
MMF Regions:

- There is an obvious gradient with PMR for the MMF Regions with the least healthy regions showing the highest dialysis initiation rates.
- Compared to the overall provincial Metis rate of 0.45%, Southeast MMF Region has a significantly lower dialysis initiation rate (0.21%), and there is a trend (although not statistically significant) to a high rate in Thompson MMF Region (0.89%).

Winnipeg CAs:

- There is a higher dialysis initiation rate for the Metis living in Winnipeg compared to all others (0.53% vs. 0.35%). There is a gradient within Winnipeg CAs with the least healthy areas having the highest dialysis initiation rates. (note: many of the Metis rates are suppressed due to small numbers)
- Two CAs show a significantly higher dialysis initiation rate for the Metis compared to others living in that area—St. Vital (0.54% vs. 0.29%—although both rates are similar to their provincial averages) and Point Douglas (1.05% vs. 0.53%—where both rates are higher than their provincial averages).
- The Metis dialysis initiation rate for Point Douglas (1.05%) is the highest in the province for Metis people and is statistically higher than the Metis provincial rate of 0.46%. In Point Douglas, about one in 100 people have initiated dialysis. This could be a mark of people moving there to be close to services; dialysis is provided at Health Sciences Centre near Point Douglas CA. The high rate could also mirror the high diabetes prevalence of the area.

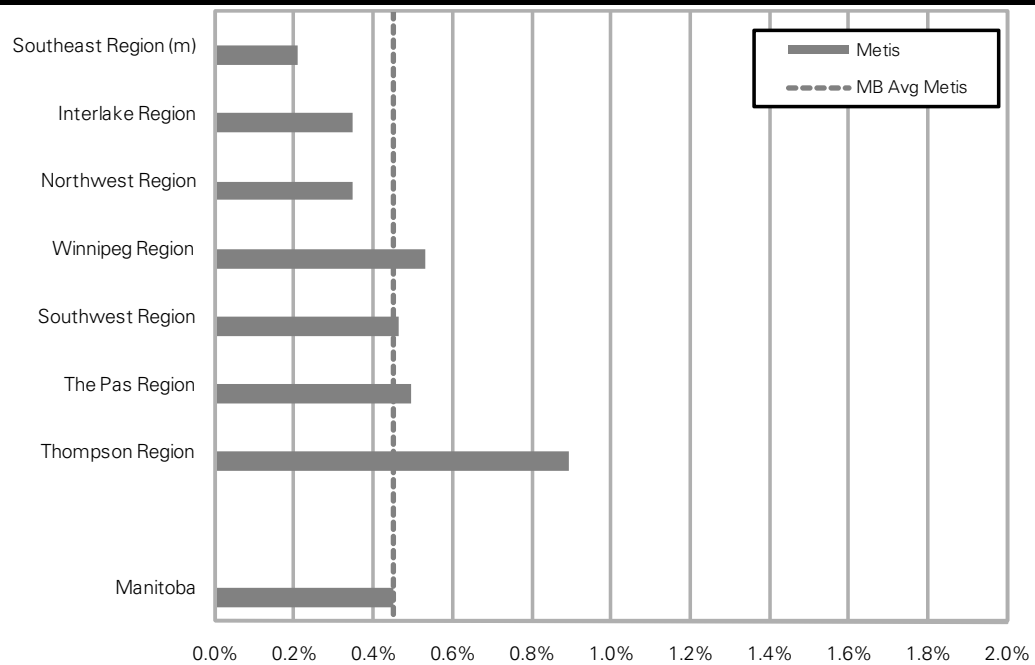
Figure 5.8.1: Dialysis Initiation Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.8.2: Dialysis Initiation Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent of Metis residents aged 19+ years



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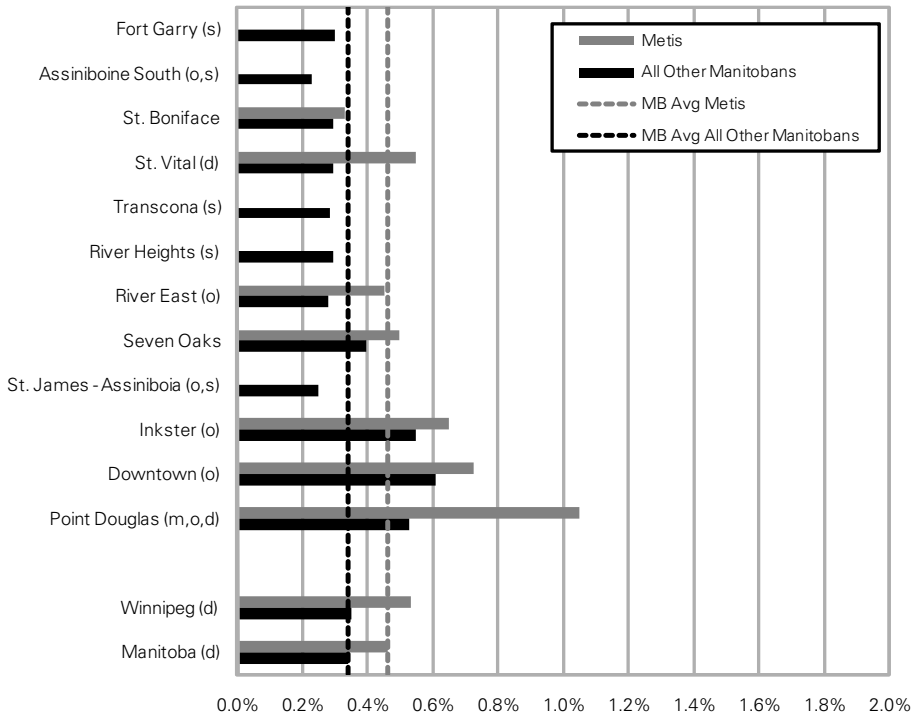
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.8.3: Dialysis Initiation Rate by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent of residents aged 19+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

5.9 Acute Myocardial Infarction (AMI) Incidence Rates

Also known as a heart attack, an acute myocardial infarction (AMI) occurs when the heart muscle (the myocardium) experiences sudden (acute) deprivation of circulating blood. The interruption of blood is usually caused by narrowing of the coronary arteries leading to a blood clot. The clogging is usually initiated by cholesterol accumulating on the inner wall of the blood vessels that distribute blood to the heart muscle.

The age– and sex–adjusted incidence of AMI for residents aged 40 and older was measured in five fiscal years: 2002/03–2006/07. Crude incidence rates are available in the appendix. AMI was defined as:

- an inpatient hospitalization with the most responsible diagnosis of AMI and a length of stay of three or more days (unless the patient died in hospital)
- a death with AMI listed as the primary cause of death on the Vital Statistics death record.

Diagnosis codes used to identify an AMI include ICD–9–CM code 410 and ICD–10–CA code I21. Hospitalizations for less than three days were excluded as likely 'rule out' AMI cases; transfers between hospitals were tracked to ensure all 'true' AMI cases staying at least three days in hospital(s) were counted. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- Provincially, the AMI rate was higher for Metis compared to all other Manitobans (5.4 vs. 4.3 per 1000). There is no obvious gradient across RHAs for Metis; but there is a strong gradient for all others, where the AMI rate increases with increasing PMR.
- The Metis experienced a higher AMI rate in the following RHAs compared to others living in those areas: Central (6.1 vs. 4.1 per 1000), Winnipeg (5.6 vs. 4.3 per 1000), and Parkland (7.5 vs. 5.3 per 1000).
- The Metis AMI rates are consistent across the aggregate areas of the Rural South (5.0 per 1000), Mid (5.5 per 1000), and North (5.1 per 1000) and similar to the Metis provincial average of 5.4 per 1000. In contrast, all other Manitobans show an elevated rate in the North compared to their provincial average (5.5 vs. 4.3 per 1000). Metis living in the Mid aggregate area have statistically higher AMI rates compared to others living in that area.

MMF Regions:

- All MMF Regions have similar AMI rates to the overall Metis provincial average of 5.4 per 1000. However, there may be a trend towards higher rates in the Northwest (6.9 per 1000) and The Pas MMF Regions (6.8 per 1000).

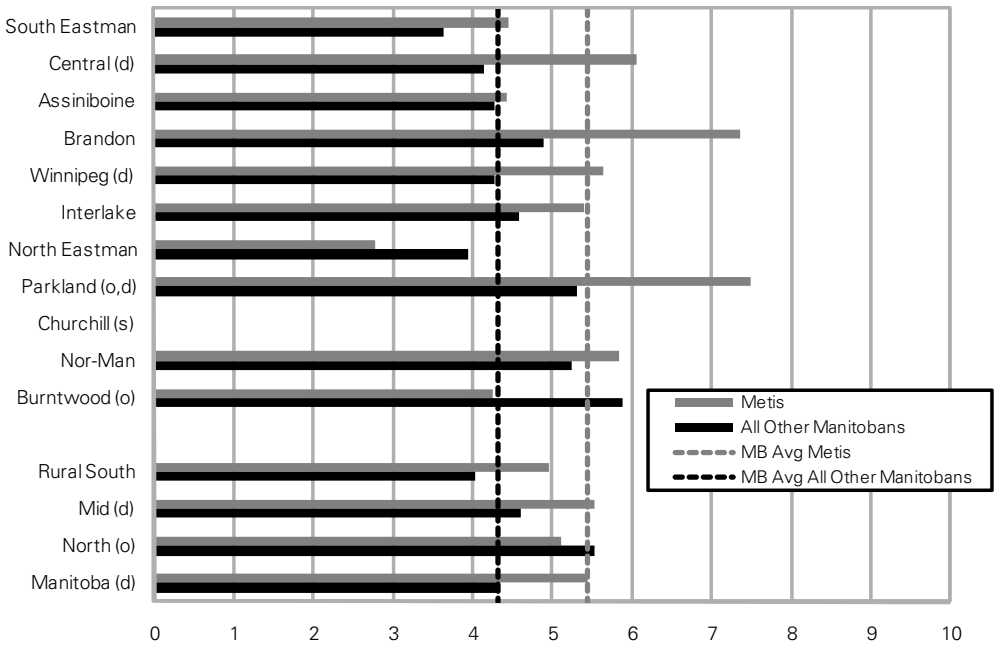
Winnipeg Aggregated Areas[4]:

- In Winnipeg, Metis have higher AMI rates compared with all other Winnipeggers (5.6 vs. 4.3 per 1000). There appears to be a gradient, with the least healthy having the highest rates for both groups.

[4] Note that due to relatively small numbers of events at the Winnipeg CA level, only aggregate area rates could be shown. The MCHP suppression rule is that if a rate is based upon 1 to 5 events, the rate must be suppressed for that geographical area.

- Rates of AMI are similar between Metis and others in the Winnipeg Most Healthy (4.2 vs. 3.8 per 1000) and Average Health (6.1 vs. 4.7 per 1000) areas. However, Metis rates are higher in the Least Healthy area (7.0 vs. 5.0 per 1000), but this rate is still similar to the Metis provincial average (5.4 per 1000). This may be due to small numbers.

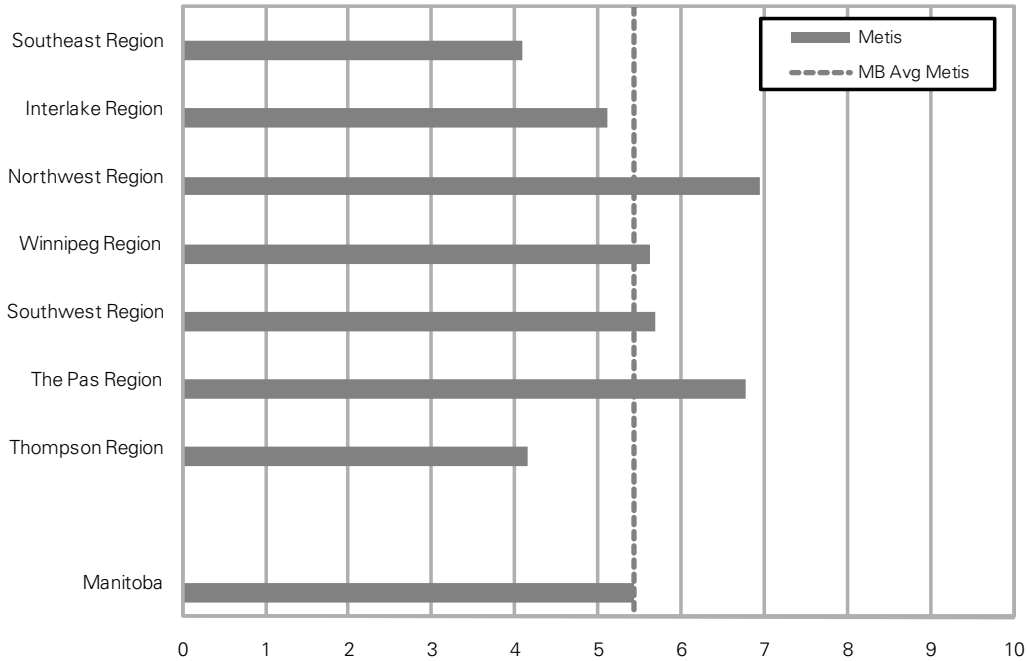
Figure 5.9.1: Heart Attack (AMI) Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted annual rate of death or hospitalization (3+ days) for AMI, per 1,000 residents aged 40+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

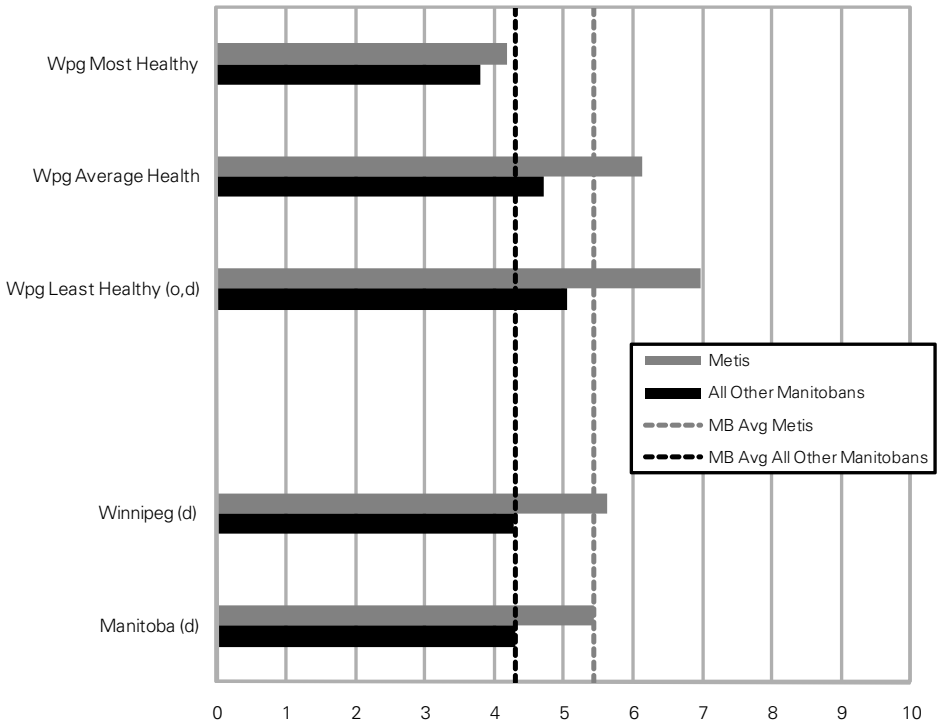
Figure 5.9.2: Heart Attack (AMI) Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted annual rate of death or hospitalization (3+ days) for AMI, per 1,000 Metis residents aged 40+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.9.3: Heart Attack (AMI) Rate by Winnipeg Aggregate Area, 2002/03-2006/07
Age- & sex-adjusted annual rate of death or hospitalization (3+ days) for AMI, per 1,000 residents aged 40+ years



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

5.10 Stroke Incidence Rates

A stroke occurs when there is a sudden death of brain cells due to a lack of oxygen when the blood flow to the brain is impaired by blockage or rupture of an artery to the brain.

The age– and sex–adjusted incidence of stroke for residents aged 40 and older was measured over five fiscal years: 2002/03–2006/07. Crude incidence rates are available in the appendix. Stroke was defined as:

- an inpatient hospitalization with the most responsible diagnosis of stroke and a length of stay of one or more days (unless the patient died in hospital)
- a death with stroke listed as the cause of death on the Vital Statistics death record.

Diagnosis codes used to identify strokes include ICD–9–CM codes 431, 434, 436 and ICD–10–CA codes I61, I63, I64. Transfers between hospitals were tracked and only hospital episodes were counted, not individual separations, to avoid double–counting. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- Provincially, the stroke rate for Metis is higher than for all other Manitobans (3.6 vs. 2.9 per 1000). There is a strong gradient for all other Manitobans with stroke rate increasing with PMR of the RHAs, but this is not evident for the Metis.
- Regions having significantly higher stroke rates for Metis compared to all others living in those areas include: Assiniboine (4.7 vs. 2.8 per 1000), Brandon (5.3 vs. 2.0 per 1000—a very large discrepancy), and Winnipeg (3.5 vs. 2.7 per 1000).
- Although not statistically higher than the provincial Metis stroke rate (3.6 per 1000), the three RHAs of Assiniboine (4.7), Brandon (5.3), and Burntwood (5.8 per 1000) show a trend towards high rates for the Metis.
- There is a significant difference in stroke rates between Metis and others in Rural South (3.6 vs. 2.8 per 1000), but similar rates in the Mid (3.4 vs. 3.6 per 1000) and the North (4.6 vs. 5.1 per 1000).

MMF Regions:

- There is a steep gradient, with stroke rates increasing as PMR increases, for the MMF Regions. Although not statistically significant, the lowest stroke rates are in Southeast and Interlake MMF Regions (3.2 per 1000); and the highest rates are in Thompson MMF Region (5.3 per 1000). The overall Metis rate is 3.6 per 1000.

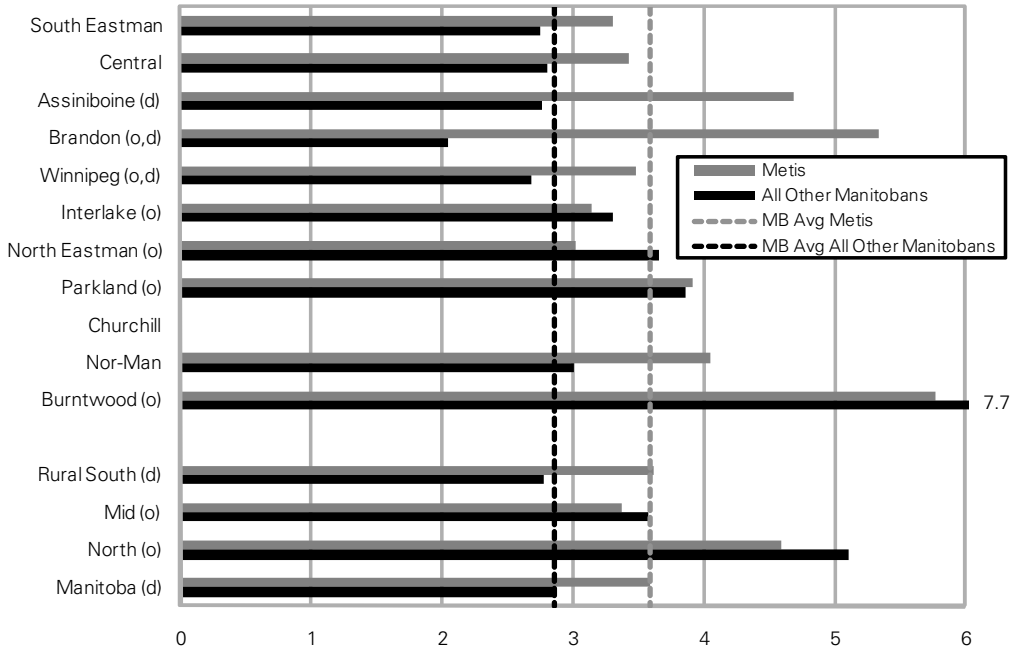
Winnipeg Aggregated Areas[5]:

- In Winnipeg, Metis stroke rates are higher than those for all other Winnipeggers (3.5 vs. 2.7 per 1000). However, this is driven by the fact that the stroke rate of "all others" is lower than their provincial average (2.9); whereas the Metis Winnipeg rate is similar to their provincial average (3.6 per 1000).

[5] Note that due to relatively small numbers of events at the Winnipeg CA level, only aggregate area rates could be shown. The MCHP suppression rule is that if a rate is based upon 1 to 5 events, the rate must be suppressed for that geographical area.

- Metis stroke rates are higher than all others living in two aggregate Winnipeg areas—Winnipeg Most Healthy (3.6 vs. 2.6 per 1000) and Winnipeg Least Healthy (3.9 vs. 2.9 per 1000). There is no apparent gradient by PMR for Metis living in Winnipeg. However, there is a gradient for all others with two of the three areas (Most Healthy at 2.6 per 1000, and Average Health at 2.5 per 1000) having lower stroke rates than the "other" provincial average at 2.9 per 1000.

Figure 5.10.1: Figure 5.10.1: Stroke Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted annual rate of death or hospitalization for stroke per 1,000 residents aged 40+ years



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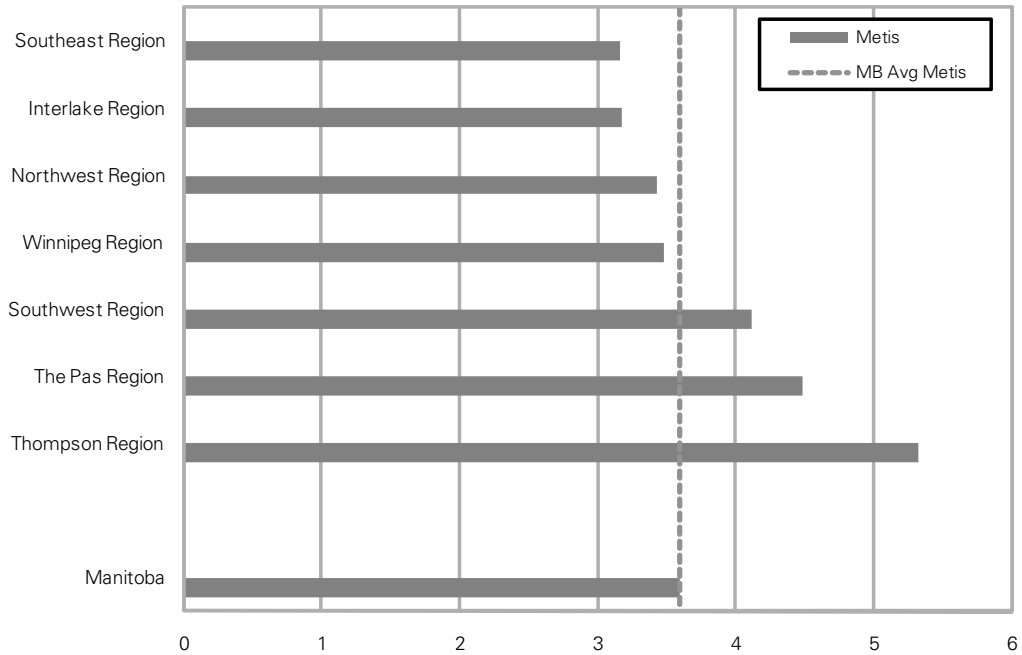
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.10.2: Figure 5.10.2: Stroke Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted annual rate of death or hospitalization for stroke, per 1,000 Metis residents aged 40+ years



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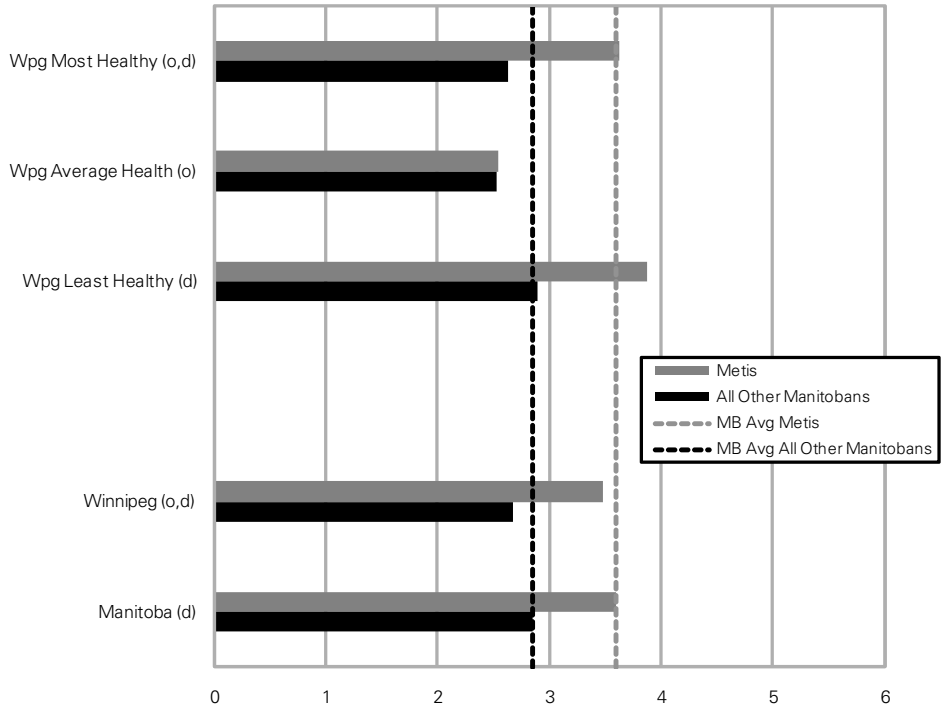
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 5.10.3: Figure 5.10.3: Stroke Rate by Winnipeg Aggregate Area, 2002/03-2006/07
Age- & sex-adjusted annual rate of death or hospitalization for stroke, per 1,000 residents aged 40+ years



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

5.11 Findings from Literature Review

(*compared to the results of this study—in italics*)

Prevalence of diabetes and associated risk factors:

- According to Hallett (2006), the 2001 Canadian Metis diabetes prevalence of 5.9% increased from 5.5% since 1991. By comparison, the Canadian age–standardized rate was 2.3%. However, in 2006, 7% of Metis reported having been diagnosed with diabetes, in comparison with a national prevalence of 4% (Janz, Seto, & Turner, 2009). Metis men and women reported similar prevalence of diabetes (Janz et al., 2009).
- According to Bruce (2000a, 2000b), the crude diabetes prevalence among Western Canadian Metis (6.1%) was twice the rate reported for the general Canadian population for the same geographic region (3%) in the mid 1990s. The directly standardized diabetes prevalence of 9% among the Metis was at least three times the diabetes rate among the general population.
- As well, inter–provincial differences in diabetes prevalence were found between Aboriginal groups. Diabetes prevalence among Manitoba and Saskatchewan Metis was significantly less than their respective First Nations provincial populations, whereas the opposite was found in Alberta. However, this last issue may be due to a sampling problem in the Alberta First Nations populations.
- A more recent rural Alberta screening project database found that despite higher prevalence of pre–diabetes for Metis individuals, there was no difference in the prevalence of undiagnosed diabetes between First Nations, Metis and Non–Aboriginals (Oster & Toth, 2009).
- For Metis aged 65–74, 37% of males and 40% of females had a diagnosis of diabetes (Kliewer, Mayer, & Wadja, 2002; Hallett, 2006; Bruce, 2000a, 2000b[6]). The young age structure of the population indicates that the full extent of the situation will not be realized for several years.
- It is estimated that undiagnosed diabetes constitutes about one–third of all cases of diabetes (Young & Mustard 2001; Bruce, Kliewer, Young, Mayer, & Wadja, 2003). Ultimately, the only solution to overcoming this is community–based screening (Bruce et al., 2003).
- In the fall of 2006, Métis Nation British Columbia (MNBC) conducted their first provincial survey. The survey was distributed to households through local MNBC affiliates and collected data from those who self–identified as Métis. Diabetes was reported by 40.7% of those surveyed; however, there are questions regarding the generalizeability of the methodology to yield a population prevalence ("Pathways to Health", 2009).
- The MCHP First Nations report (Martens et al., 2002) found a four-fold prevalence of diabetes comparing First Nations to all other Manitobans (189 vs. 45 per 1000) for 1996/97-1998/99. Although not equivalent to the definition used in this Metis report (which reports amputation rates of those with diabetes), the First Nations report found First Nations amputation rates related to diabetes to be sixteen times higher than for all other Manitobans (3.1 vs. 0.19 amputations per thousand – this is the entire population, not the people with diabetes only).

[6] It is important to note that a previous study (Bruce 2000a, 2000b) used a sample of Metis from the MMF Northwest Region. However, in our current study, of all the MMF Regions used to link data and create a population–based cohort, Northwest Region had the lowest percentage of linkable data and required further work on the membership databases to improve this linkage. Therefore, previous prevalence estimates may have been affected by the potentially biased Metis linkage.

In our study, the overall Manitoba age– and sex–adjusted prevalence of diabetes was elevated for Metis compared to all other Manitobans (11.8% vs. 8.8%; Relative Risk [RR] = 1.34). Areas showing the highest diabetes prevalence for Metis include: Burntwood RHA (17.9%); Thompson MMF Region (18.0%); and in Winnipeg, the Downtown CA (16.0%). In the logistic regression model controlling for such factors as age, income, geographical area, and existing comorbidities, the Metis have an elevated odds of having diabetes compared to the rest of the Manitoba population (aOR=1.29, 95% CI 1.25–1.34, p<.001). Although the prevalence of diabetes in the Metis population is elevated in Manitoba, this report did not find a doubling or tripling effect as in other Metis studies previously, nor the four-fold effect of First Nations compared to all other Manitobans. This may relate to the fact that there may be underlying undiagnosed diabetes or the rest of the Manitoba population rate is much higher than in some other provinces or the Manitoba sample was different than our population–based cohort approach. There is an elevated risk of lower limb amputation for the Metis having diabetes compared to the rest of the population having diabetes (24.1 vs. 16.2 per 1000). However, this may be less of a gap when comparing the sixteen-fold difference within First Nations populations in the Martens et al. (2002) study.

- Bruce et al. (2003) found that factors independently associated with a risk of diabetes were: sex, age, BMI, and level of education. Diabetes prevalence was 1.6 times higher for Metis males and 2.0 times higher for Metis females compared to their provincial Manitoba counterparts. As age increased, so did the risk of diabetes. Risk also increased with increasing BMI (with three–fold increases for those having BMIs of 30 or more). Those having less than Grade 9 education had twice the diabetes rate than those with at least Grade 9 education.
- Among the Metis populations of Manitoba, Saskatchewan, and Alberta, the risk of diabetes increased with age and was greater among females than males. (Bruce, 2000a, 2000b). However, the prevalence of diabetes for rural Metis (7.1%) was not significantly different than among urban Metis (5.7%).
- Metis with diabetes were more likely to have a diagnosis of arthritis or rheumatism, emphysema and tuberculosis compared with Metis not having diabetes. Thus, the extent of comorbidity among Western Canadian Metis is considerable (Bruce, 2000a, 2000b)
- Among the Metis populations of Manitoba, Saskatchewan, and Alberta there were no significant relationships between diabetes and annual income and employment status. (Bruce, 2000a, 2000b). However, it may be incorrect to conclude that diabetes among these groups is not associated with lower socioeconomic status because the distribution of the annual income variable was very narrow. For example, half of the Metis reported an annual income of less than $10,000, and only 6% reported greater than $40,000 annual income. As well, the data for this study was from a relatively low income Metis area (Northwest Region).
- Individuals with diabetes are at increased risk for hypertension, cardiovascular disease, peripheral vascular disease, stroke, nephropathy, and visual impairments (Harris, 1995; Barcelo, 1996; Bruce, 2000a, 2000b). After adjusting for age and sex, Metis with diabetes were almost three times more likely to report having high blood pressure and heart disease and twice as likely to report a sight impairment than Metis participants without diabetes. Métis with diabetes were significantly more likely to report their health status as poor, to have limitations in their daily activities, and to report comorbidities compared to those without diabetes. (Bruce et al., 2003)

In our study, a logistic regression yielding the probability of having diabetes and only including the Metis gave results similar to those in the literature (see Table 5.4.1 for the logistic regression model). Age and physical comorbidities are associated strongly. The risk of having diabetes was elevated by age but plateaus at older age groups (aOR=1.66, 95% CI 1.49–1.86; also a quadratic effect of age–squared, aOR=0.99 meaning it plateaus) and by the presence of physical comorbidities (aOR=1.65, 95%CI 1.55–1.76).

The effect of gender is specific to the logistic regression—in the modeling with all Manitobans, males were at a higher risk of diabetes than females (aOR=1.14, 95% CI 1.12–1.16). However, in the model only including Metis, there was no statistically significant difference in the risk of diabetes between males and females (aOR=1.00, 95% CI 0.94–1.07, NS). This corresponds with the finding of Janz et al. (2009), but is contradictory to the finding of Bruce where females had a higher prevalence (2000a, 2000b).

In contrast to Bruce (2000a, 2000b), the average household income of the neighbourhood (aOR=0.875, 95% CI 0.86–0.89 for each $10,000 increase) was a significant effect in the logistic regression for Metis only. Also in contrast to Bruce et al. (2003) where geographical area did not show variation, our study found that all of the southern and mid–province MMF Regions had lower risk of diabetes (including the urban area of Winnipeg MMF Region, aOR=0.92, 95% CI 0.87–0.97), but the two northern MMF Regions (The Pas aOR 1.22, 95%CI 1.11–1.33; Thompson aOr 1.66, 95% CI 1.49–1.86) both had elevated risk. This may be due to sample size, since Bruce's conclusions were based upon a survey, and the prevalence in the survey showed a trend towards higher rural diabetes prevalence compared to urban (7.1% vs. 5.7%, NS).

Prevalence of chronic conditions other than diabetes:

- The six most prevalent chronic conditions for the Métis population of Canada were: arthritis or rheumatism, high blood pressure, asthma, stomach problems or intestinal ulcers, diabetes, and heart problems (O'Donnell & Tait, 2003). In 1991, arthritis was the most common Metis health problem with 40% self–reporting the disease; other illnesses were reported at 27% for high blood pressure, 25% for bronchitis, 16% for heart problems, 16% for asthma, 13% for diabetes, 13% for emphysema, and 6% for tuberculosis (Normand 1996).
- In 2006 (Janz et al., 2009), just over half (54%) of all Metis aged 15 and over reported that they had been diagnosed with a chronic condition, about the same as in 2001. Of these, about 25% reported one condition, whereas 28% had two or more chronic conditions. The most commonly reported chronic health conditions among Metis aged 15 and over in 2006 were arthritis and/or rheumatism (21%), high blood pressure (16%), asthma (14%), and stomach problems or intestinal ulcers[7] (12%); all are similar to the percentages reported in 2001. These rates were higher than those reported in the total population of Canada after age standardizing[8]. For example, almost double the percentage of Métis reported asthma (14%) and diabetes (7%) as compared with the total population (8% and 4% respectively).

[7] Total population of Canada comparisons could be made with arthritis/rheumatism, high blood pressure, and asthma but were not available for "stomach problems or intestinal ulcers."

[8] Age standardizing is a technique used to make percentages for the Métis population, which is young, comparable to those for the total population of Canada, which is relatively older. It is important to consider the different age structures of these two populations when analyzing and interpreting Aboriginal Peoples Survey data. Figures have been standardized to the Métis age structure.

- In 2006, Métis women were more likely (57%) than men (50%) to indicate they had at least one chronic condition. They were also more likely to report two or more chronic conditions (31%) relative to men (24%). The chronic conditions that were reported more often by Métis women than men were arthritis and/or rheumatism (24% versus 18%), asthma (17% versus 11%), and bronchitis (8% versus 5%). Métis women and men reported similar rates of high blood pressure, ulcers, diabetes, and heart problems. (Janz et al., 2009)
- Parents or guardians reported that the most common chronic health conditions among Métis children aged 6 to 14 were allergies (19%), asthma (15%), and ear infections or ear problems (9%)[9]. Older Métis children (aged 11 to 14) were more likely to have allergies, while younger children (6 to 10) were more likely to have chronic ear infections. In 2006, parents reported that 21% of older children had allergies, compared with 18% of young children; while 11% of young children had chronic ear infections, compared with 7% of older children. A smaller share of Métis girls (12%) had asthma relative to boys (18%). Asthma was, however, more prevalent among Métis children living in urban (16%) than rural (12%) areas. (Janz et al., 2009)

In our study, the age– and sex–adjusted prevalence of various chronic diseases in the Metis population compared to all other Manitobans, from most to least common, were: hypertension (27.9% vs. 24.8%, RR=1.13); arthritis (24.2% vs. 19.9%, RR=1.22); total respiratory morbidity (13.6% vs. 10.6%, RR=1.28); ischemic heart disease (12.2% vs. 8.7%, RR=1.40); diabetes (11.8% vs. 8.8%, RR=1.34); osteoporosis (12.2% vs. 12.3%, RR=0.99), AMI (5.4 vs. 4.3 per 1000, RR=1.26), and stroke (3.6 vs. 2.9 per 1000, RR=1.24).

In many ways, these results are similar to other recent studies—O'Donnell and Tait (2003) found arthritis/rheumatism, high blood pressure, and asthma to be the top three conditions; and Janz et al. (2009) found similar results in 2006 with arthritis/rheumatism at 21%, high blood pressure at 16%, and asthma at 14%. However, our study's hypertension rates are much higher than those reported in the literature, whereas the arthritis rates are similar.

The literature also reports often double the prevalence of conditions for the Metis compared to the overall Canadian population. However, our results do not show this doubling effect—the effects range from 13% higher for hypertension to 40% higher for ischemic heart disease. That being said, the prevalence is elevated for the Metis in most of the chronic conditions, with the exception of osteoporosis being slightly lower (1% lower).

Arthritis/Rheumatism:

- The most commonly reported chronic health conditions among Métis aged 15 and over in 2006 was arthritis or rheumatism (21%), similar to the percentages reported in 2001 but higher than the 13% reported in the total population of Canada. Métis women were more likely than men to have arthritis or rheumatism (24% versus 18%) (Janz et al., 2009).
- In 2000–01, 19.5% Metis vs. 19.1% of other Canadian adults were diagnosed with arthritis (Reading & Wien, 2009)
- Arthritis was the most commonly reported chronic condition for the Métis people completing the 2006 Metis Nation British Columbia survey, with over 54 percent of households surveyed having at least one person in their household with the condition. ("Pathways to Health", 2009).

[9] Comparable data were not available for the total population of Canada.

In our study, 24.2% of the Metis population aged 19+ had a diagnosis of arthritis/rheumatism. This is similar to the 19–21% reported in the literature (Janz et al., 2009; Reading & Wien, 2009). It was the second most common condition in our study, just slightly lower than hypertension.

High blood pressure:

- High blood pressure was the second most common condition; it was reported by 16% of Métis and 12% of the total population, with Metis females and males reporting similar rates (Janz et al., 2009).
- In the MCHP First Nations report (Martens et al., 2002), hypertension prevalence was statistically significantly higher for First Nations compared to all other Manitobans (22.1% versus 20.2%) for the years 1996/97-1998/99.

In our study, prevalence of hypertension was much higher than that reported in the literature—at 27.9% of the Metis population of Manitoba aged 19+ (and 24.8% of all other Manitobans). These results are almost double those reported by Janz et al. (2009) based on self-report.

Heart disease:

- In the fall of 2006, Métis Nation British Columbia (MNBC) conducted their first provincial survey. The survey was distributed to households through local MNBC affiliates and collected data from those who self–identified as Métis. Heart disease was reported by 32.5% of the population ("Pathways to Health", 2009).

In our study, prevalence of various "heart disease" conditions were analyzed separately—hypertension (27.9%), ischemic heart disease (12.2%), and AMI (5.4 per 1000). If one were to combine all three, knowing that these are presumably often comorbid conditions, it is not surprising that about one–third of Metis in BC reported some sort of heart disease.

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Chapter 6: Prevalence of Mental Illness

The indicators used for prevalence of mental illness (aged 10+) were derived from the MCHP report on mental illness (Martens et al., 2005). Note that there may be diagnostic "shift" between some of the indicators, depending upon who is diagnosing the condition. Thus, the working group for the 2005 mental illness report decided that a combined prevalence, called "cumulative mental illness", was desirable to ensure that diagnostic shift was taken into account. This cumulative indicator includes anyone having at least one diagnosis of five mental illnesses—depression, anxiety, substance abuse, schizophrenia, and personality disorders. In this chapter, we not only give the prevalence of this cumulative mental illness indicator, but also each of the components of it separately. As well, dementia prevalence is given—a key indicator for the older adult population.

Indicators in this chapter:

- Cumulative Mental Illness
- Depression
- Anxiety
- Substance Abuse
- Schizophrenia
- Personality Disorders
- Dementia

Overall Key Findings:

- In general, the age- and sex-adjusted prevalence of mental illness conditions is similar or higher in the Metis population compared to all other Manitobans. Cumulative mental illness, depression and schizophrenia prevalence is similar between Metis and others (see Table 6.0 for prevalence of each condition). The prevalence of anxiety disorders is 18% higher (9.4% vs. 8.0%) for Metis compared to all other Manitobans, the prevalence of substance abuse is 47% higher (7.2% vs. 4.9%), and the prevalence of personality disorders is 19% higher (1.08% vs. 0.91%). Depression has the highest prevalence as a diagnosis, statistically similar in both groups at 22.0% of Metis and 20.4% of all other Manitobans
- The age- and sex-adjusted prevalence of cumulative mental illness disorders (one or more of depression, anxiety disorders, substance abuse, personality disorders, and schizophrenia) is similar in the Metis compared to all other Manitobans (28.4% vs. 25.9%, NS). However, 9 of the 11 RHAs show a statistically significantly higher prevalence of cumulative mental illness disorders for the Metis compared to all other area residents. As well, after adjusting for differences in income and physical comorbidity (i.e., in the logistic regression model), Metis have 1.32 times the likelihood of being diagnosed with one or more of the cumulative mental illnesses.

- Many of the southern regions, whether they be RHAs, MMF Regions, or the aggregate Rural South, have lower prevalence of mental illness conditions for the Metis compared to the Metis provincial average. Notable regions having at least three conditions with statistically lower prevalence are: South Eastman RHA, Interlake RHA, Rural South aggregate area, Southeast MMF Region, and Interlake MMF Region.
- The two urban areas of Winnipeg and Brandon show high prevalence of mental illness conditions for the Metis compared to the Metis provincial average. This may be migration, since people may move to access the services given in these two major urban centres of Manitoba. Notable regions having at least three conditions with statistically higher prevalence include: Brandon RHA; and the two Winnipeg CAs of Downtown, and Point Douglas.
- Using crude prevalence, 30.2% of Metis and 25.7% of all other Manitobans had one or more of the following diagnoses in a five-year period—depression, anxiety, substance abuse, schizophrenia, personality disorders, and/or dementia. As well, 10.6% of Metis and 8.2% of all other Manitobans had comorbid mental illness conditions; the most common are depression/anxiety disorders (5.4% Metis, 4.0% others), depression/substance abuse (1.7% Metis, 1.1% others), and depression/anxiety disorders/substance abuse (1.3% Metis, 0.6% others).

Table 6.0: Overall Key Findings of Mental Illness Indicators

Indicator (age of inclusion for this indicator) Note: all of these are five–year period prevalence	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate).	Statistically "better off" regions for Metis compared to Metis provincial average	Statistically "worse off" regions for Metis compared to Metis provincial average
Cumulative Mental Illness	28.4% vs. 25.9%; RR=1.10, NS	Interlake MMF Region [in the logistic regression for Metis only: Southeast, Interlake and Northwest MMF Regions]	Brandon RHA, Downtown CA, Point Douglas CA [in the logistic regression for Metis only: Winnipeg MMF Region, Southwest MMF Region]
The five separate components of "cumulative mental illness" [Note: this will add up to greater than the cumulative mental illness prevalence due to the degree of co–existing conditions.]			
Depression	22.0% vs. 20.4%; RR=1.08, NS	Burntwood RHA, North aggregate area, Thompson MMF Region	Brandon RHA, River Heights CA, Downtown CA, Point Douglas CA
Anxiety Disorders	9.4% vs. 8.0%; RR=1.18	Central RHA, Interlake RHA, North Eastman RHA, Rural South aggregate area, Interlake MMF Region, Thompson MMF Region	Brandon RHA, The Pas MMF Region, Transcona CA, Downtown CA
Substance Abuse	7.2% vs. 4.9%; RR=1.47	South Eastman RHA, Central RHA, Interlake RHA, Rural South aggregate area, Mid aggregate area, Southeast MMF Region, Interlake MMF Region, St. Vital CA	Churchill RHA, Burntwood RHA, North aggregate area, Thompson MMF Region, Downtown CA, Point Douglas CA
Schizophrenia	1.07% vs. 1.14%; RR=0.94, NS	South Eastman RHA, Rural South aggregate area, Southeast MMF Region	River Heights CA, Downtown CA, Point Douglas CA
Personality Disorders	1.08% vs. 0.91%; RR=1.19	South Eastman RHA; Interlake RHA; North Eastman RHA; the aggregate areas of Rural South, Mid, and North; Southeast MMF Region; Interlake MMF Region	Winnipeg RHA, Winnipeg MMF Region, River Heights CA, Downtown CA, Point Douglas CA
Dementia	12.4% vs. 10.6%; RR=1.17	All regions similar to the overall provincial Metis prevalence	All regions similar to the overall provincial Metis prevalence

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

6.1 Cumulative Mental Illness

Cumulative mental illness disorders include residents who received treatment for one or more of the five following mental illnesses: depression, anxiety disorders, substance abuse, personality disorder, and schizophrenia. See the specific diagnoses for details regarding definitions used.

The age– and sex–adjusted prevalence of cumulative mental illness disorders was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Crude prevalence is available in the appendix. Residents were considered to have a cumulative mental illness disorder if they met the definition for any of the five mental illnesses above. The denominator includes all Manitoba residents aged 10 and older in the five–year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

Key observations

RHAs:

- Provincially, Metis had a similar five–year period prevalence (i.e., not statistically significantly different) of cumulative mental illness than all other Manitobans (28.4% vs. 25.9%, NS).
- There is very little evidence of a gradient in cumulative mental illness prevalence by PMR for either the Metis or all other Manitobans. There may be a small gradient by aggregate area for Metis. Prevalence increases from Rural South (24.7%) to Mid (25.1%) to North (27.7%).
- For Metis and for all other residents, the highest prevalence of cumulative mental illness is in the two urban centres of Winnipeg (32.7% Metis, 27.5% others) and Brandon (36.1% Metis, 28.6% others). This may, in part, be due to migration for mental health services both in the past and in the present, or may be due to diagnostic screening by physicians, or may be a truly increased prevalence.
- Within the majority of RHAs, Metis had a higher prevalence of cumulative mental illness than the other residents of that RHA, with the exceptions of South Eastman, Central, Interlake, and Churchill.
- Metis living in Brandon (36.1%) had a significantly higher prevalence of cumulative mental illness than the Metis provincial average.

MMF Regions:

- There is no apparent gradient of cumulative mental illness prevalence with PMR for the MMF Regions.
- Interlake MMF Region (23.3%) had a significantly lower cumulative mental illness prevalence compared to the Metis provincial average (28.4%). Although the Winnipeg MMF Region prevalence (32.4%) appears to be higher than the Metis provincial average, this was not statistically significantly different.

Winnipeg CAs:

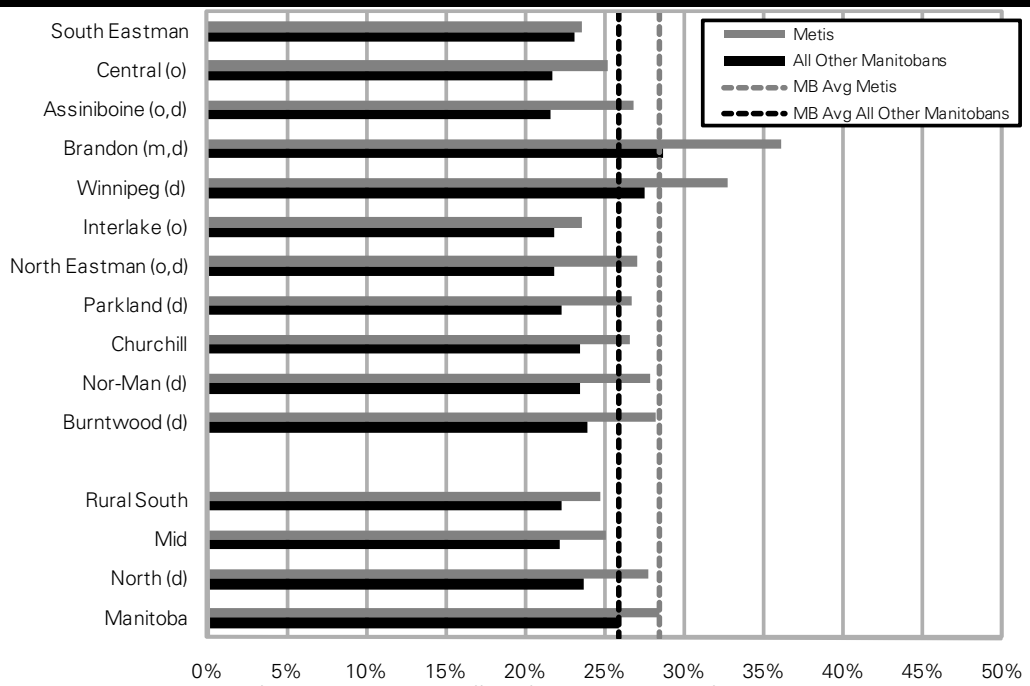
- In Winnipeg, Metis had a significantly higher prevalence of cumulative mental illnesses than all other Winnipeggers (32.7% vs. 27.5%).
- The trend to higher prevalence for Metis is seen in every CA of Winnipeg, and all are statistically significantly higher except for St. Boniface, St. Vital, Transcona, and St. James.

- There is an extremely high prevalence of cumulative mental illness for Metis living in Downtown (41.9%) and Point Douglas (38.8%). This is also statistically significantly higher than the prevalence for all other residents of Downtown (30.1%) and Point Douglas (30.3%). These two Winnipeg CAs had the highest area prevalence in the province for Metis.

Logistic Regression for the risk of having a diagnosis of cumulative mental illness (controlling for income, sex, geographic area, age, and physical comorbidities—see Table 6.1.1):

- After controlling for the above factors, the Metis have a statistically significantly higher likelihood of having a cumulative mental illness compared to other Manitobans (aOR=1.32, 95% CI 1.29–1.35).
- Within the Metis population only, after controlling for age, sex, income and physical comorbidity:
  - Three geographical MMF Regions have a statistically lower likelihood of cumulative mental illness: Southeast, Interlake, and Northwest.
  - Two geographical regions have a statistically higher likelihood of cumulative mental illness: Winnipeg MMF Region (aOR=1.35, 95% CI 1.31–1.40) and Southwest MMF Region (aOR=1.06, 95% CI 1.01-1.11).
  - As age increases, so does the risk of cumulative mental illness (however, this plateaus)
  - As average household income of the area of residence increases, the risk of cumulative mental illness decreases (for every $10,000 increase, aOR=0.93, 95% CI 0.92–0.94)
  - Males had a much lower risk of cumulative mental illness compared to females (aOR=0.47, 95% CI 0.46–0.49). [Note: this was also true in the logistic regression involving all Manitobans.]
  - There is a strong relationship between physical comorbidity and increased risk of cumulative mental illness (aOR=1.73, 95% CI 1.66–1.80).

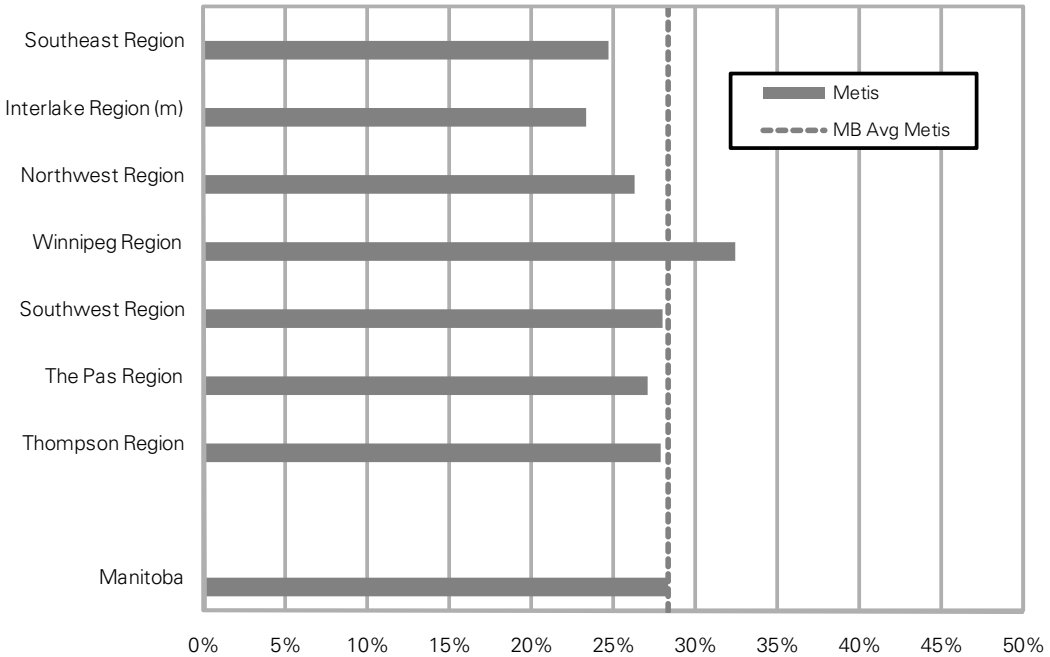
Figure 6.1.1: Prevalence of Cumulative Mental Illness Disorders by RHA, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.1.2: Prevalence of Cumulative Mental Illness Disorders by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for Metis residents aged 10+



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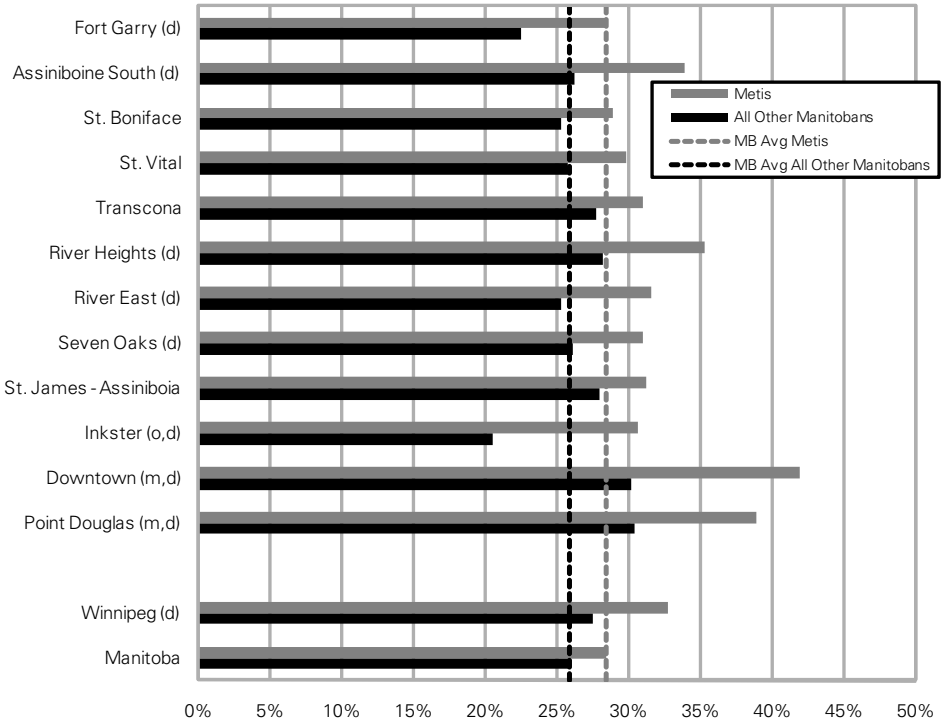
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.1.3: Prevalence of Cumulative Mental Illness Disorders by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 6.1.1: Logistic Regression Modeling of Cumulative Mental Illness[1]

Probability of Cumulative Mental Illness by Aggregate Region, 2002/03–2006/07, All Manitobans aged 10+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	**1.324 (1.299, 1.350)**	**<0.001**
Aggregate Regions (ref = Manitoba)		
South	**0.813 (0.804, 0.822)**	**<0.001**
Mid	**0.871 (0.861, 0.882)**	**<0.001**
North	**0.972 (0.955, 0.988)**	**0.0007**
Brandon	**1.248 (1.226, 1.271)**	**<0.001**
Winnipeg	**1.164 (1.154, 1.174)**	**<0.001**
Age, linear	**1.060 (1.059, 1.061)**	**<0.001**
Age, quadratic	**0.999 (0.999, 0.999)**	**<0.001**
Males (vs. Females)	**0.537 (0.532, 0.542)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.949 (0.947, 0.951)**	**<0.001**
Major Physical Illness ADGs	**1.831 (1.811, 1.850)**	**<0.001**

Bold = statistically significant results

Probability of Cumulative Mental Illness by Metis Region, 2002/03–2006/07, only Metis aged 10+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	**0.929 (0.884, 0.976)**	**0.0034**
Interlake Region	**0.870 (0.825, 0.917)**	**0.0000**
Northwest Region	**0.899 (0.835, 0.967)**	**0.0042**
Winnipeg Region	**1.354 (1.310, 1.399)**	**0.0000**
Southwest Region	**1.058 (1.006, 1.114)**	**0.0284**
The Pas Region	0.994 (0.937, 1.054)	0.8325
Thompson Region	0.968 (0.899, 1.042)	0.3861
Age, linear	**1.087 (1.082, 1.092)**	**<0.001**
Age, quadratic	**0.999 (0.999, 0.999)**	**<0.001**
Males (vs. Females)	**0.473 (0.455, 0.491)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.930 (0.920, 0.941)**	**<0.001**
Major Physical Illness ADGs	**1.728 (1.657, 1.801)**	**<0.001**

Bold = statistically significant results

Source: MCHP/MMF, 2010

[1]Many of the regression models include a quadratic age term, which means that the model fit was improved through the use of both the age term and an age-squared term. The way in which this can be interpreted is that the likelihood increases with age (since the aOR of the age term is greater than 1 and statistically significant), but that this effect levels off at higher ages (since the aOR of the quadratic age-squared term is less than 1, and statistically significant).

Note: ADGs refers to Aggregated Diagnostic Groups, a measure of comorbidity (co-existing conditions) that can be grouped into either co-existing mental illnesses or major physical illnesses. See the Glossary for further explanation.

6.2 Depression

Depression is a mood disorder characterized by feelings of sadness, anger, frustration, and a lack of interest in activities that persist to the point that they interfere with daily life for an extended period of time.

The age– and sex–adjusted prevalence of depression was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. The crude prevalence is available in the appendix. Residents were considered to have depression if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for depressive disorder, affective psychoses, neurotic depression or adjustment reaction: ICD–9–CM codes 296.2–296.8, 300.4, 309 or 311; ICD–10–CA codes F31, F32, F33, F341, F38.0, F38.1, F41.2, F43.1, F43.2, F43.8, F53.0, F93.0
- one or more physician visits with a diagnosis for depressive disorder, affective psychoses or adjustment reaction: ICD–9–CM codes 296, 309 or 311
- one or more hospitalizations with a diagnosis for anxiety disorders: ICD–9–CM code 300; ICD–10–CA codes F32.0, F34.1, F40, F41, F42, F44, F45.0, F451, F452, F48, F68.0, or F99 AND one or more prescriptions for an antidepressant or mood stabilizer: ATC codes N03AB02, N03AB52, N03AF01, N05AN01, N06A
- one or more physician visits with a diagnosis for anxiety disorders: ICD–9–CM code 300 AND one or more prescriptions for an antidepressant or mood stabilizer: ATC codes N03AB02, N03AB52, N03AF01, N05AN01, N06A

The denominator includes all Manitoba residents aged 10 and older in the five–year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

Key observations:

RHAs:

- Provincially, Metis have a similar prevalence of depression compared to all other Manitobans (22.0% vs. 20.4%). There is very little evidence of a gradient by PMR.
- There is a higher prevalence of depression for Metis, compared to all other RHA residents in Assiniboine, Brandon, Winnipeg, North Eastman, Parkland, Nor-Man, and Burntwood RHAs. All other RHAs show a similar trend, but these are not statistically significant differences.
- There is a higher prevalence of depression for Metis in the urban RHA of Brandon (28.9%) compared to the Metis provincial average. The prevalence for all others is 22.9%, which is similar to their corresponding provincial average.
- The northern RHA of Burntwood (Metis 17.3%, others 13.8%), as well as the aggregate area of the North (Metis 17.5%, others 14.1%) have significantly lower prevalence of depression compared to the provincial averages. Caution must be exerted—this may be a diagnostic shift, since we see similar cumulative mental illness prevalence in the North compared to other regions of the province. At the same time, as will be later shown, other mental illnesses may be contributing more to the cumulative mental illness in these northern RHAs.
- The only RHA where the prevalence of depression for Metis is lower than the provincial Metis average of 22.0% is Burntwood, at 17.3%.

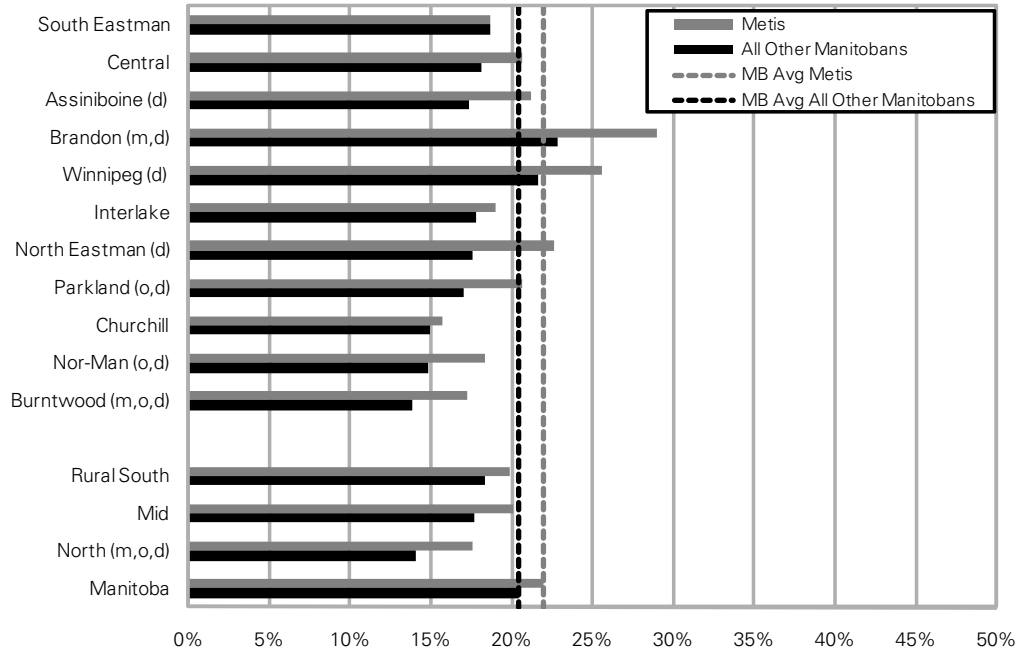
MMF Regions:

- Thompson MMF Region (16.9%) has a lower prevalence, compared to the Metis provincial average (22.0%). However, this may be due to underdiagnosis, so caution needs to be exerted when interpreting this result.

Winnipeg CAs:

- In Winnipeg, Metis have a significantly higher prevalence of depression compared to all other Winnipeggers (25.5% vs. 21.7%).
- Metis prevalence of depression is consistently higher than for all others in every CA in Winnipeg, but this is not significant in Transcona and St. James.
- For the Metis, prevalence of depression is particularly high in the CAs of River Heights (27.6%), Downtown (31.1%) and Point Douglas (29.2%) when compared to the Metis provincial average (22.0%).
- The Metis prevalence of depression in the inner city of Winnipeg (Downtown at 31.1%, and Point Douglas at 29.2%) is particularly of concern. This is also much higher than for other residents of those same areas – Downtown 21.8%, Point Douglas at 22.7%).

Figure 6.2.1: Prevalence of Depression by RHA, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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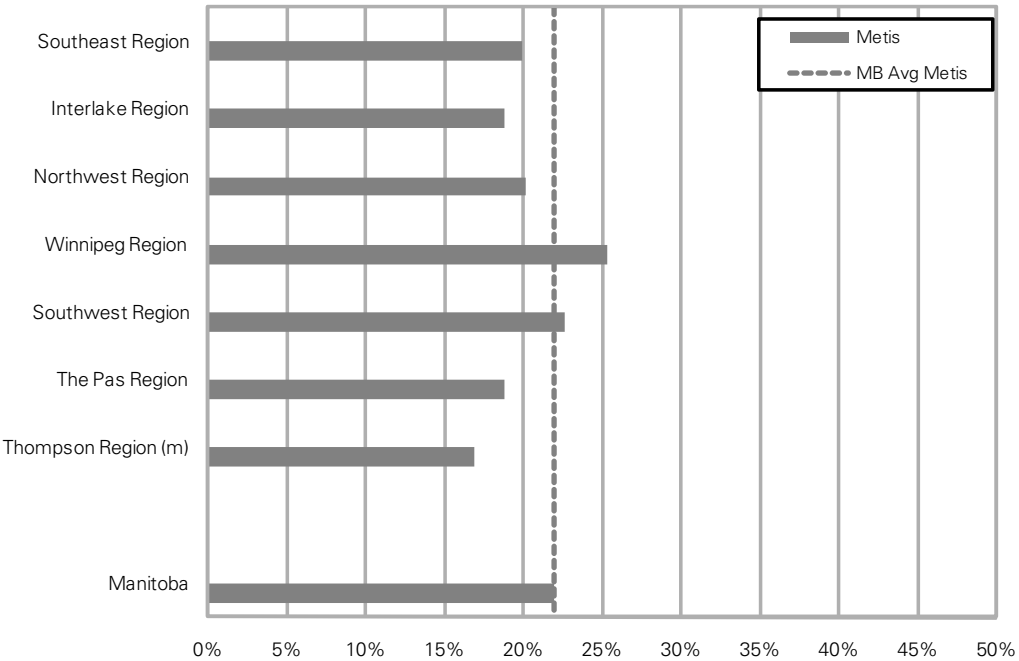
Source: MCHP/MMF, 2010

Figure 6.2.2: Prevalence of Depression by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for Metis residents aged 10+



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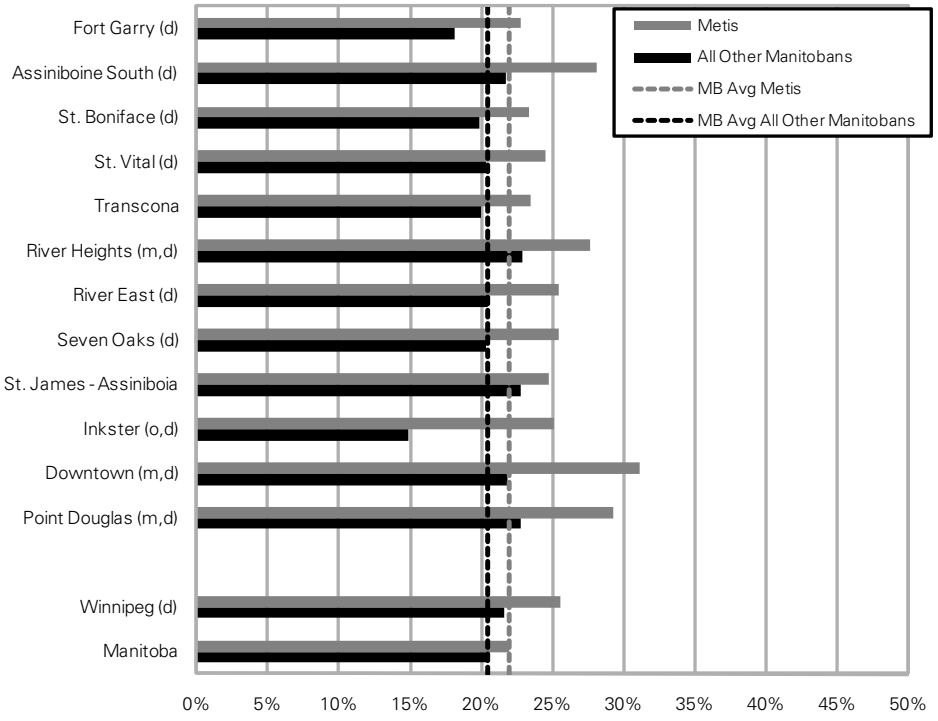
Source: MCHP/MMF, 2010

Figure 6.2.3: Prevalence of Depression by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

6.3 Anxiety

Anxiety disorders can include excessive feelings of apprehension or fear.

The age– and sex–adjusted prevalence of anxiety disorders was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Crude prevalence is available in the appendix. Residents were considered to have an anxiety disorder if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for anxiety states, phobic disorders or obsessive–compulsive disorders: ICD–9–CM codes 300.0, 300.2, 300.3; ICD–10–CA codes F40, F41.0, F41.1, F41.3, F41.8, F41.9, F42
- three or more physician visits with a diagnosis for anxiety disorders: ICD–9–CM code 300

The denominator includes all Manitoba residents aged 10 and older in the five year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

Key observations:

RHAs:

- Provincially, the Metis have a higher prevalence of anxiety disorders compared to all other Manitobans (9.4% vs. 8.0%). At the individual RHA level, there is no evidence of a gradient by PMR. However, at the aggregate area level, it appears as if the Metis prevalence increases from Rural South to Mid to North, whereas the prevalence for all others does not show this pattern.
- In every RHA of the province, the Metis prevalence of anxiety disorder is statistically higher than that of all other RHA residents (with the exception of Churchill, Central, and Interlake, but these shows the same trend).
- Brandon RHA has a higher prevalence of anxiety disorders for both Metis (14.6%) and for all others (9.8%), compared to their provincial averages (Metis provincial average of 9.4%, other at 8.0%). NOR–MAN RHA also has an elevated prevalence of anxiety disorders for the Metis (11.6%).
- RHAs with lower prevalence of anxiety disorders for the Metis, compared to their provincial average of 9.4%, include: Central (6.9%), Interlake (6.3%), and North Eastman (7.0%).

MMF Regions:

- There is no obvious gradient in the prevalence of anxiety disorders by PMR for the MMF Regions.
- Two MMF Regions show lower prevalence of anxiety disorders for Metis, compared to their provincial average of 9.2%—Interlake (6.4%), and Thompson (7.1%); whereas The Pas MMF Region (12.4%) is higher.

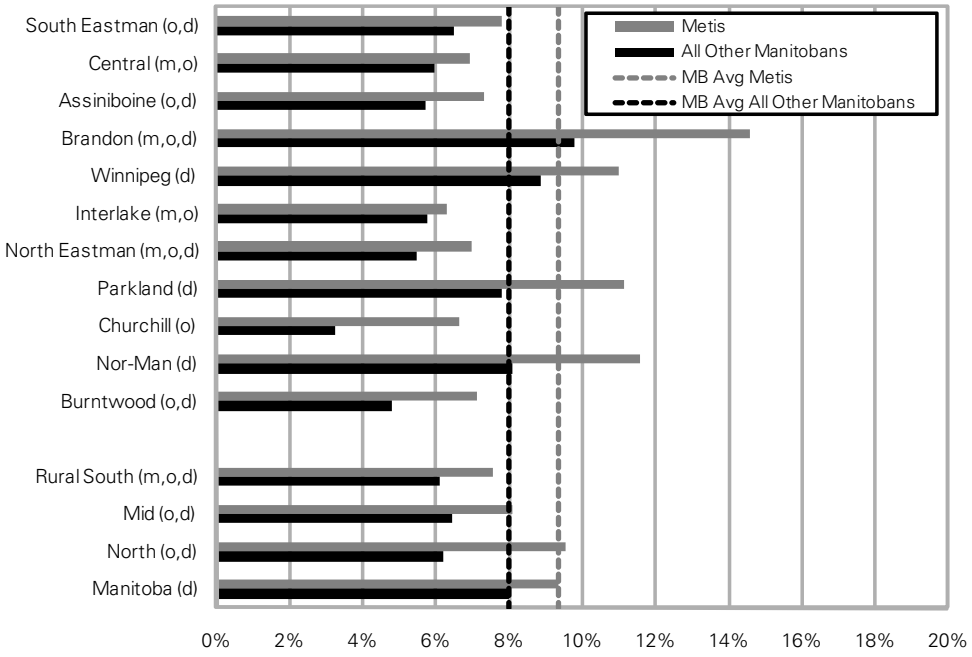
Winnipeg CAs:

- Metis in Winnipeg have a higher prevalence of anxiety disorders compared to all other Winnipeggers (11.0% vs. 8.0%), but there is no apparent gradient by PMR within Winnipeg.
- Many Winnipeg CAs show the same pattern, with Metis prevalence of anxiety disorders being statistically higher than others living in the same area. The six exceptions—Fort Garry,

Assiniboine South, St. Boniface, St. Vital, Transcona, and Seven Oaks—show trends towards the same direction, although these are not statistically significant.

- The Winnipeg CA with very high prevalence of anxiety disorders for both Metis and others living in that area, compared with their corresponding provincial averages, is: Transcona (13.9% Metis, 12.0% others).

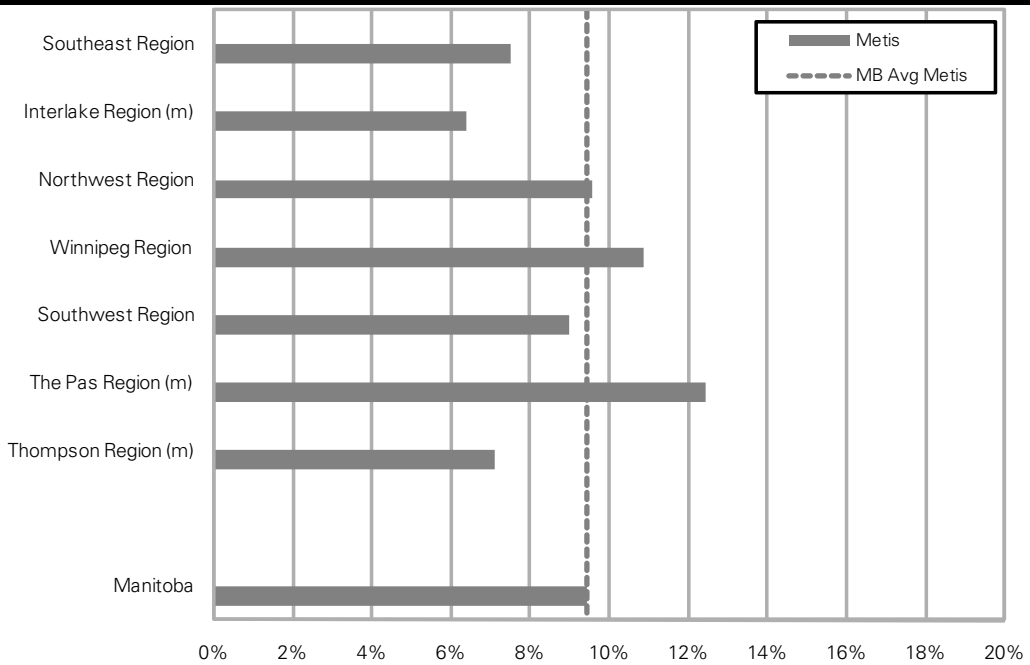
Figure 6.3.1: Prevalence of Anxiety Disorders by RHA, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.3.2: Prevalence of Anxiety Disorders by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for Metis residents aged 10+



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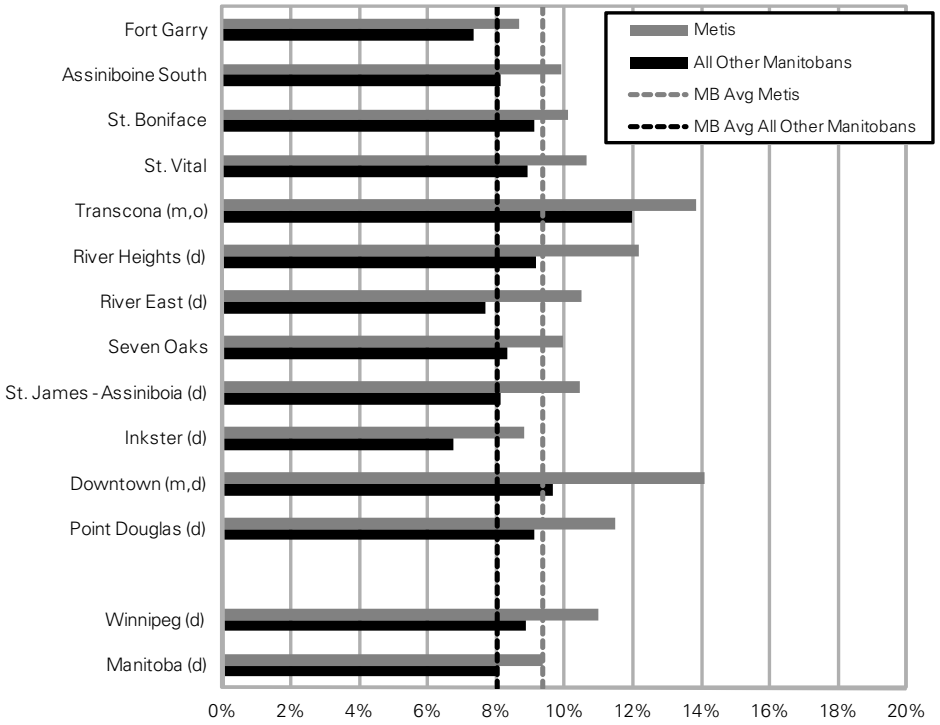
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.3.3: Prevalence of Anxiety Disorders by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

6.4 Substance Abuse

Substance abuse is the excessive use of and reliance on a drug, alcohol, or other chemical that leads to severe negative effects on the individual's health and well–being or to the welfare of others.

The age– and sex–adjusted prevalence of substance abuse was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Crude prevalence is given in the appendix. Residents were considered to abuse substances if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for alcoholic or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs: ICD–9–CM codes 291, 292, 303, 304 or 305; ICD–10–CA codes F10–F19, F55
- one or more physician visits with a diagnosis for alcoholic or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs (ICD–9–CM codes as above)

The denominator includes all Manitoba residents aged 10 and older in the five–year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

Key observations:

RHAs:

- Provincially, Metis prevalence of substance abuse was statistically significantly higher than all other Manitobans (7.2% vs. 4.9%). There appears to be somewhat of a gradient between substance abuse and PMR, with the least healthy RHAs having the highest prevalence of substance abuse. However, the urban areas of Brandon and Winnipeg show higher prevalence than one would expect in the gradient. This may be a mobility effect, where people may be migrating for treatment.
- The provincial difference in prevalence of substance abuse, with Metis prevalence being higher than all others, is observable in the following RHAs: Central, Assiniboine, Brandon, Winnipeg, Interlake, and Parkland.
- In the aggregate areas, the Rural South has lower prevalence of substance abuse, compared to their provincial average for both Metis (5.1% vs. 7.2% provincially) and all others (3.8% vs. 4.9% provincially). In the Mid aggregate area, the prevalence of substance abuse for Metis is lower than the Metis provincial average (5.6% vs. 7.2%), whereas the prevalence for all others living in that area is similar to their provincial average (4.2% vs. 4.9% provincially). In the North, both groups have significantly higher prevalence (Metis 10.9%, others 10.4%). It is important to note that in the North, the comparative population is largely First Nations, so the Metis and this "all other" population have similar and very high prevalence of substance abuse (affecting 1 in 10).
- Three RHAs have significantly lower prevalence of substance abuse for Metis compared to their provincial average of 7.2%—South Eastman (4.2%), Central (5.2%), and Interlake (4.8%). Two RHAs have significantly higher prevalence of substance abuse for Metis compared to their provincial average—Churchill (14.1%), and Burntwood (12.9%). The remaining RHAs (Assiniboine, Brandon, Winnipeg, North Eastman, Parkland, and NOR–MAN) have similar prevalence of substance abuse for Metis compared to their provincial average.

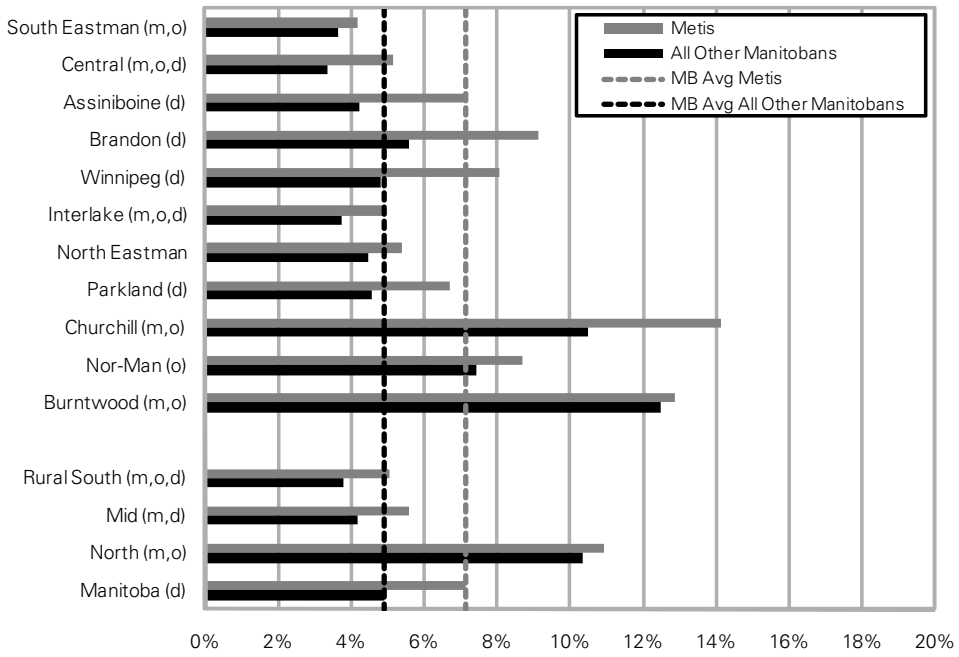
MMF Regions:

- There appears to be a gradient in prevalence of substance abuse with PMR in the MMF Regions, with the least healthy region showing the highest prevalence.
- Compared to the provincial average for Metis (7.2%), two MMF Regions have lower prevalence of substance abuse (Southeast and Interlake, both at 4.8%) and Thompson MMF Region is substantially higher at 13.2%.

Winnipeg CAs:

- Metis prevalence of substance abuse in Winnipeg is higher than the prevalence of all other Winnipeg residents (8.1% vs. 4.8%). This gap persists in every CA of Winnipeg.
- There appears to be a gradient of the prevalence of substance abuse and the PMR of the CAs, with the least healthy CAs having the highest prevalence.
- In the CA of St. Vital, both Metis (5.1%, provincially 7.2%) and others (3.7%, provincially 4.9%) have lower prevalence of substance abuse compared to their corresponding provincial averages.
- Both Metis and all other residents of Downtown (14.5% Metis, 8.0% others) and Point Douglas (12.8% Metis, 8.7% others) have statistically significantly higher prevalence of substance abuse compared to their provincial counterparts. These two Winnipeg CAs are of concern for the Metis, given the extremely high prevalence of substance abuse. Other geographic areas having extremely high Metis prevalence of substance abuse are Churchill RHA (14.1%), Burntwood RHA (12.9%), and Thompson MMF Region (13.2%).

Figure 6.4.1: Prevalence of Substance Abuse by RHA, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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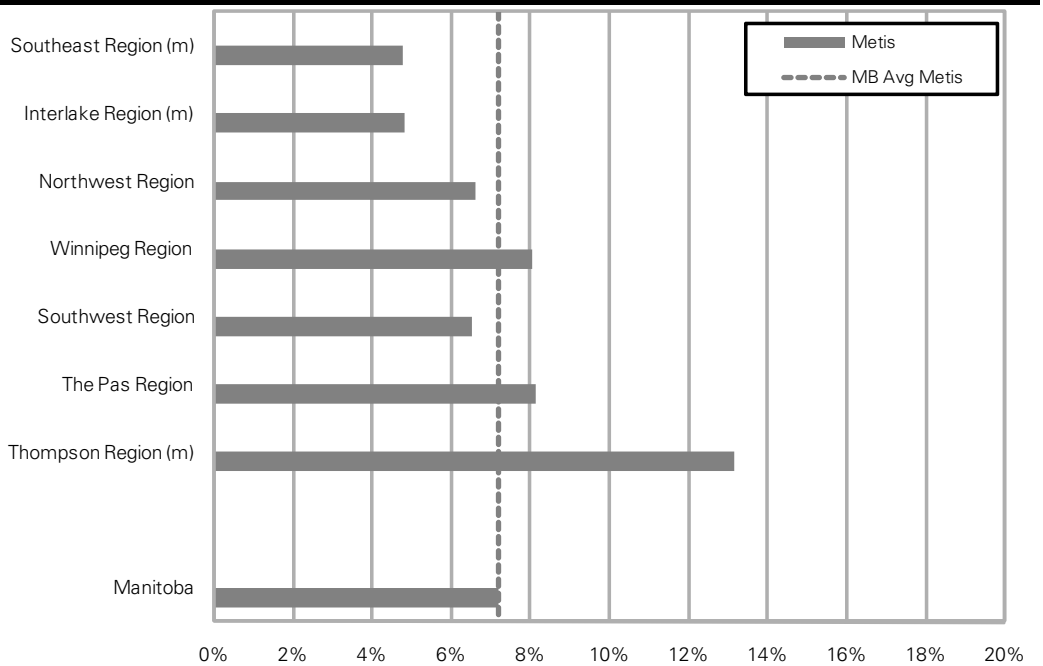
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.4.2: Prevalence of Substance Abuse by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for Metis residents aged 10+



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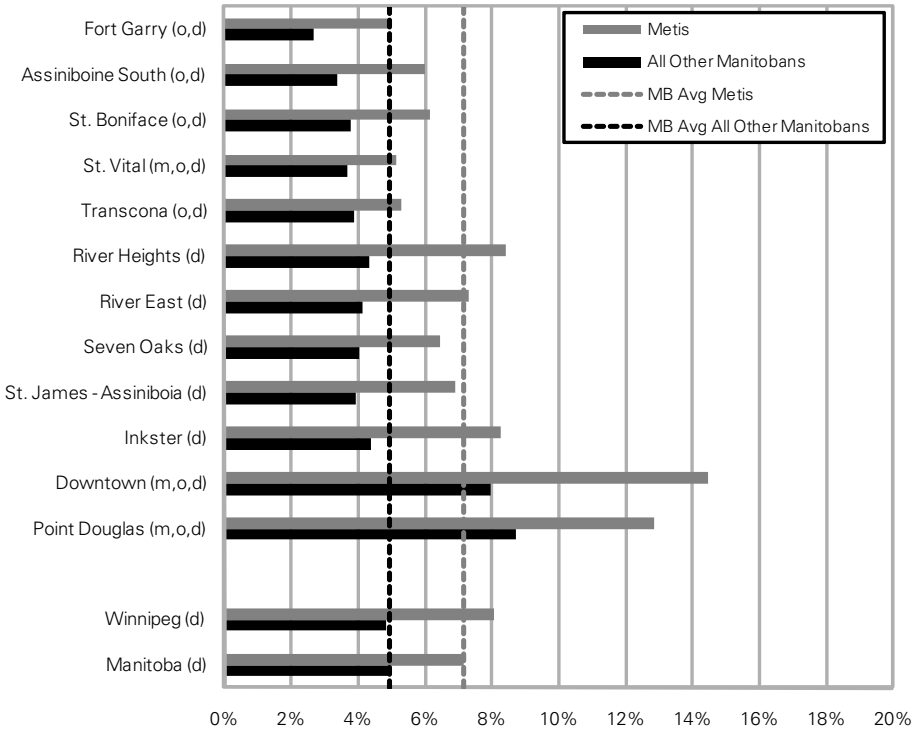
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.4.3: Prevalence of Substance Abuse by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

6.5 Schizophrenia

Schizophrenia is a long–term mental illness that affects how a person thinks, feels and acts. Symptoms of the illness include auditory hallucinations, delusions, difficulty in expressing emotions, or disorganized speech and thought.

The age– and sex–adjusted prevalence of schizophrenia was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Crude prevalence is given in the appendix. Residents were considered to have schizophrenia if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for schizophrenia: ICD–9–CM code 295; ICD–10–CA codes F20, F21, F23.2, F25
- one or more physician visits with a diagnosis for schizophrenia: ICD–9–CM code 295

The denominator includes all Manitoba residents aged 10 and older in the five–year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

Key observations:

RHAs:

- Provincially, the prevalence of schizophrenia is similar for both Metis and all other Manitobans (1.07% Metis vs 1.14% others). Although there is no obvious pattern by RHA, there appears to be a gradient, with prevalence of schizophrenia increasing from Rural South (0.60% Metis, 0.69% others) to Mid (0.94% Metis, 0.85% others) to North (1.02% Metis, 1.06% others). None of these show a statistically significant gap in prevalence between Metis and all others.
- By RHA, the prevalence of schizophrenia for Metis and all others is lower in South Eastman (0.40% Metis, 0.80% others).
- Although not statistically significant, there is a trend towards higher prevalence of schizophrenia in the two urban centres of Winnipeg (Metis 1.37%, others 1.34%) and Brandon (Metis 1.54%, others 1.19%) and the RHA of Parkland (Metis 1.43%, others 1.27%), when compared to the provincial average. The urban prevalence may be influenced by availability to treatment.

MMF Regions:

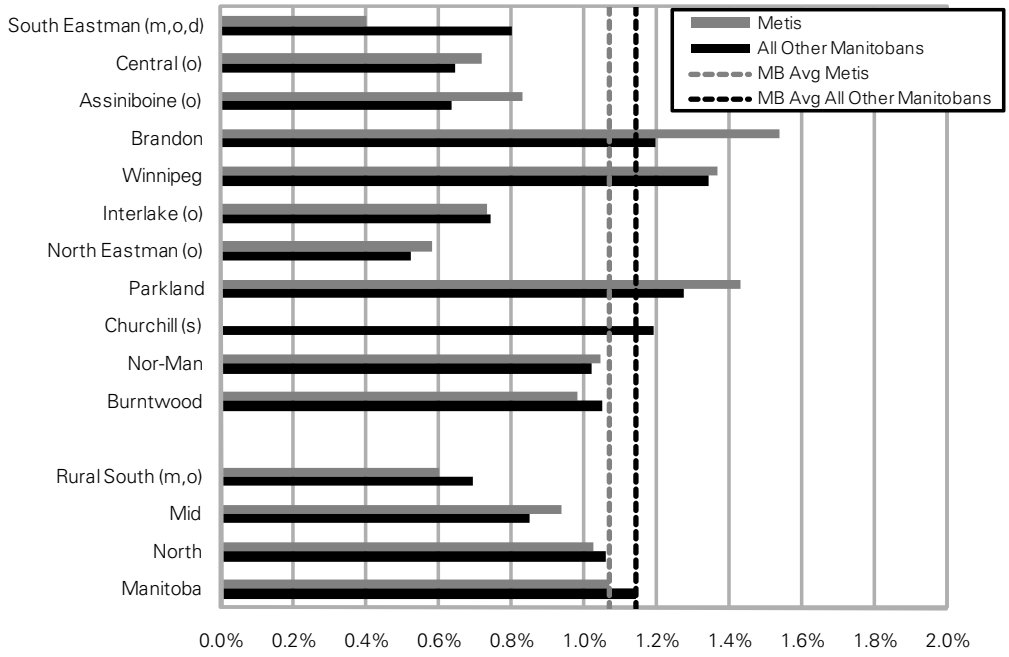
- Only Southeast MMF Region (0.54%) shows a significant difference (i.e., lower) in prevalence of schizophrenia compared to the Metis provincial average of 1.07%.
- No gradient is apparent in the MMF Regions between prevalence of schizophrenia and PMR.

Winnipeg CAs:

- In Winnipeg, there is no significant difference in the prevalence of schizophrenia between Metis and all other Winnipeg residents (1.37% vs. 1.34%). There appears to be somewhat of a gradient with River Heights being a notable exception with higher prevalence than expected.
- Metis living in the Downtown (3.5%) and Point Douglas CAs (2.0%) both show higher prevalence of schizophrenia compared to the Metis provincial average of 1.07%.

- In two CAs, both Metis and others have a significantly higher prevalence of schizophrenia compared to their provincial averages – Downtown (3.5% Metis, 3.0% others) and Point Douglas (2.0% Metis, 2.1% others).

Figure 6.5.1: Prevalence of Schizophrenia by RHA, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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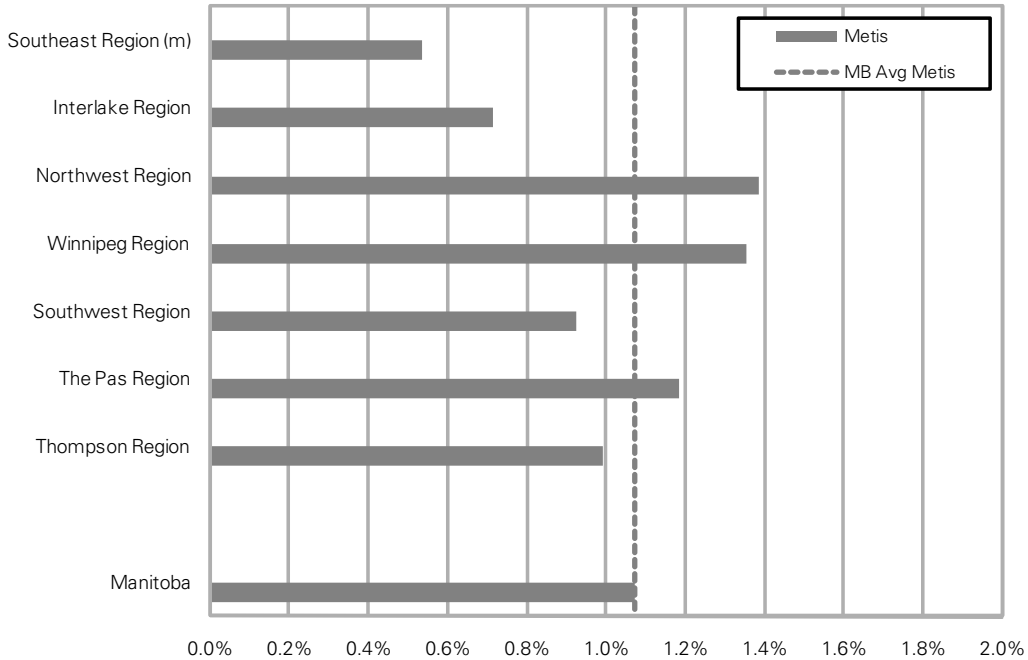
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.5.2: Prevalence of Schizophrenia by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for Metis residents aged 10+



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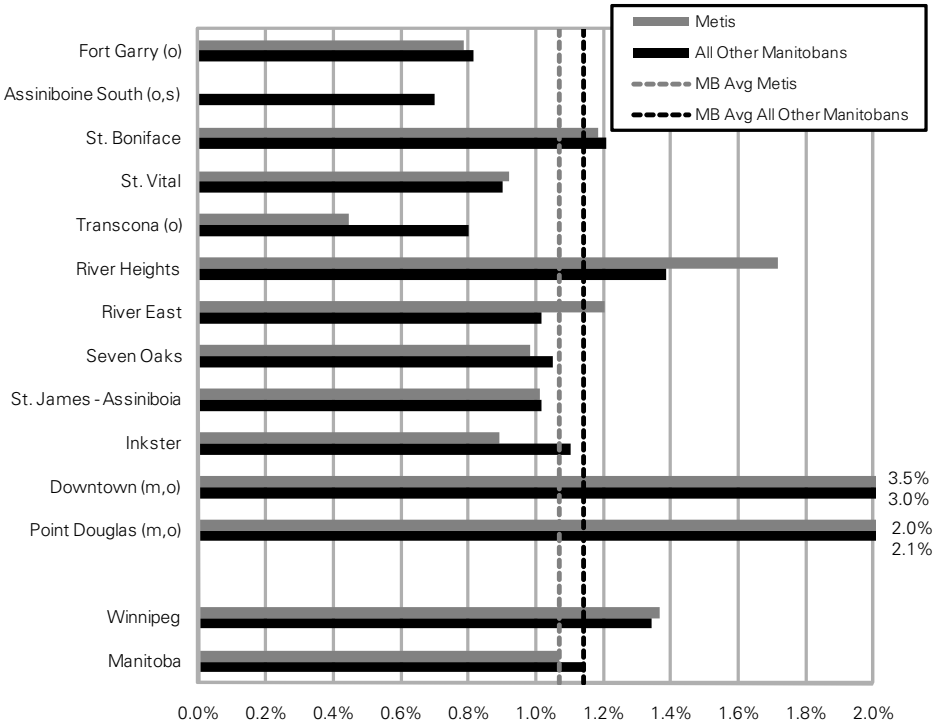
Source: MCHP/MMF, 2010

Figure 6.5.3: Prevalence of Schizophrenia by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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Source: MCHP/MMF, 2010

6.6 Personality Disorders

Personality disorders are a class of mental illnesses characterized by chronic behavioral and relationship patterns that often cause serious personal and social difficulties, as well as a general impairment of functioning.

The age– and sex–adjusted prevalence of personality disorders was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Crude prevalence is given in the appendix. Residents were considered to have a personality disorder if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for a personality disorder: ICD–9–CM code 301; ICD–10–CA codes F34.0, F60, F61, F62, F68.1, F68.8, F69
- one or more physician visits with a diagnosis for a personality disorder: ICD–9–CM code 301

The denominator includes all Manitoba residents aged 10 and older in the five–year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

Key observations:

RHAs:

- Provincially, Metis have a higher prevalence of personality disorders compared to all other Manitobans (1.08% vs. 0.91%). There is no evidence of a gradient by PMR.
- Three RHAs show a significantly higher prevalence of personality disorders for Metis compared to all others living in that region— Brandon (1.44% vs. 0.87%), Winnipeg (1.52% vs. 1.09%), and Parkland (1.44% vs. 0.96%). As well, there is a higher prevalence in the Mid aggregate area for the Metis compared to all others (0.84% vs. 0.62%).
- Interestingly, all three non–urban aggregate areas have lower prevalence of personality disorders than the overall Manitoba average—Rural South (0.60% Metis, 0.56% others); Mid (0.84% Metis, 0.62% others); and North (0.66% Metis, 0.63% others). This highlights the fact that the provincial prevalence of personality disorders is driven by higher rates in the urban areas. This may be due to urban migration effects of people living with personality disorders, or possibly diagnostic differences.
- Three RHAs show a low prevalence of personality disorders for both the Metis and all others living in the area—South Eastman (0.39% Metis, 0.50% others); Interlake (0.57% Metis, 0.51% others); and North Eastman (0.50% Metis, 0.46% others).
- Only one RHA has a significantly higher prevalence of personality disorders than their corresponding provincial averages for both Metis as well as for others—Winnipeg RHA (1.52% Metis, 1.09% others).

MMF Regions:

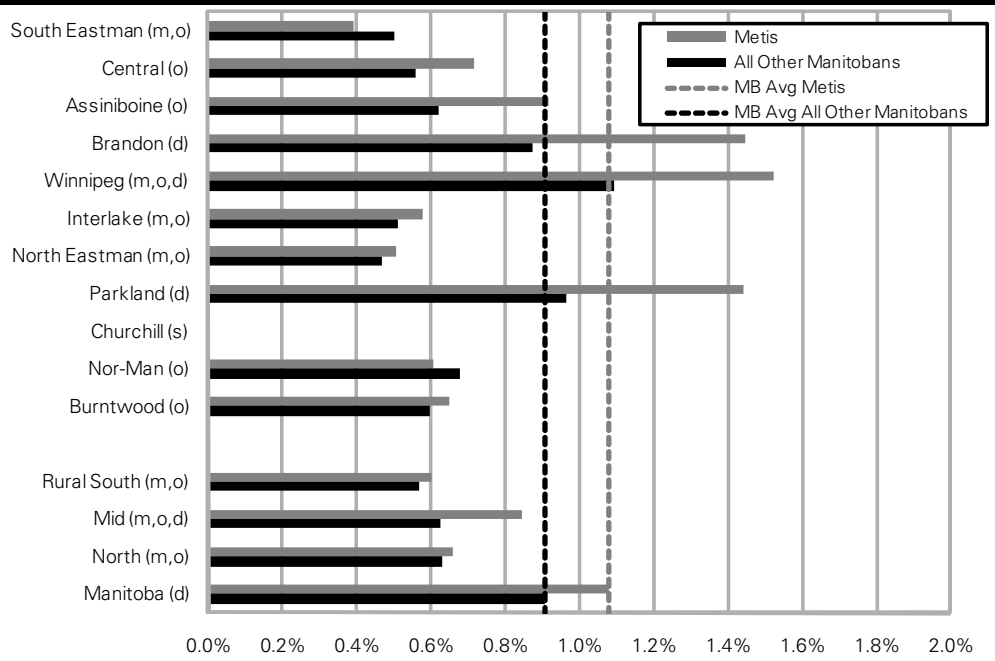
- Compared to the overall Metis provincial prevalence of personality disorders of 1.08%, Southeast MMF Region (0.43%) and Interlake MMF Region (0.60%) have a lower prevalence and Winnipeg MMF Region is higher at 1.52%.
- There is no obvious gradient by PMR.

- Northwest MMF Region trends toward a high prevalence of personality disorders (1.42%) compared to the provincial average, but this is not statistically significant.

Winnipeg CAs:

- In Winnipeg overall, Metis have a higher prevalence of personality disorders compared to all other Winnipeggers (1.52% vs. 1.09%), and both Metis and all others have prevalence rates higher than the provincial averages of 1.08% and 0.91% respectively.
- The prevalence of personality disorders is higher than the provincial average for both Metis and others living in the following areas: River Heights (1.96% Metis, 1.81% others, NS); Downtown (Metis 3.06%, others 1.73%); and Point Douglas (Metis 1.87%, others 1.22%).
- Metis prevalence of personality disorders is significantly higher than all others in the following CAs: River East (1.35% vs. 0.81%), Inkster (1.19% vs. 0.65%), Downtown (3.0% vs. 1.96%), and Point Douglas (1.88% vs. 1.39%).
- The highest prevalence of personality disorders for Metis in the entire province is in the Downtown CA; the prevalence of 3.0% is three times higher than the Metis provincial average of 1.08%.

Figure 6.6.1: Prevalence of Personality Disorders by RHA, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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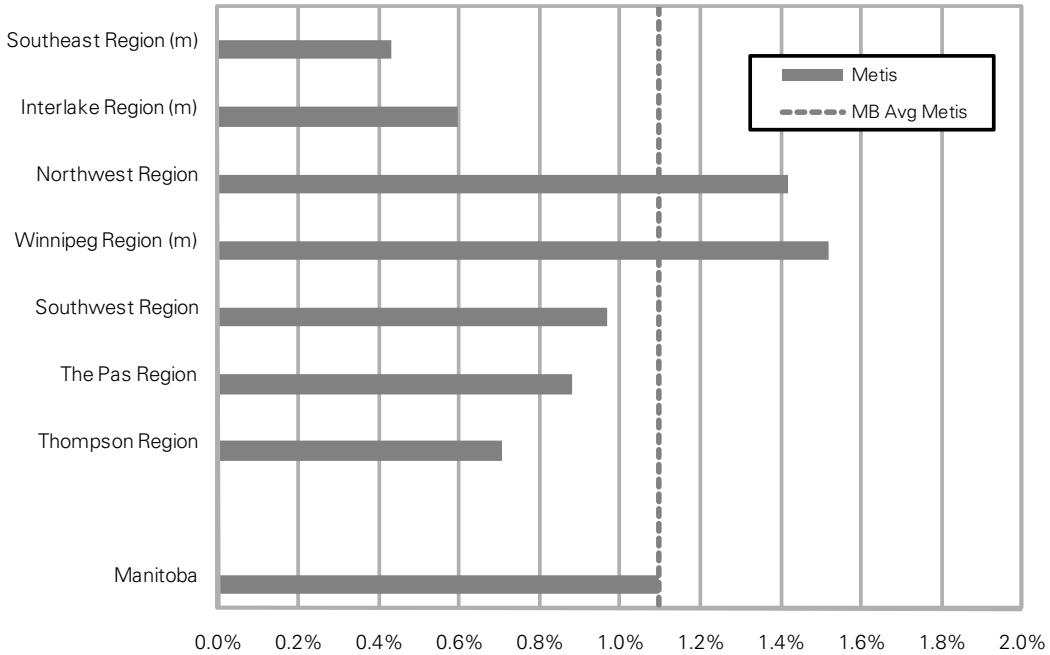
Source: MCHP/MMF, 2010

Figure 6.6.2: Prevalence of Personality Disorders by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for Metis residents aged 10+



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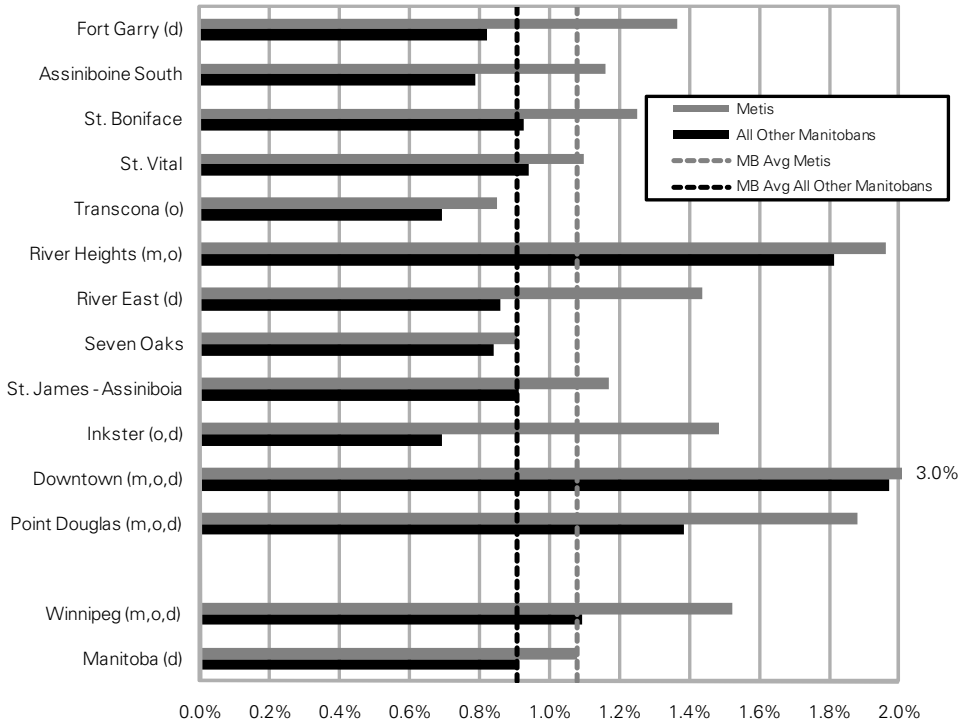
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.6.3: Prevalence of Personality Disorders by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 10+



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's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

6.7 Dementia

Dementia is a loss of brain function. It is not a single disease, but a group of illnesses that involve memory, behavior, learning, and communication problems. The problems are progressive, which means they slowly get worse over time.

The age– and sex–adjusted prevalence of dementia was measured for residents aged 55 and older over five fiscal years: 2002/03–2006/07. Crude prevalence is given in the appendix. Residents were considered to have dementia if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for dementia, including organic psychotic conditions, cerebral degenerations, and senility: ICD–9–CM codes 290, 291, 292, 294, 331, 797; ICD–10–CA codes F00, F01, F02, F03, F04, F05.1, F06.5, F06.6, F06.8, F06.9, F09, F10–F19, G30, G31.0, G31.1, G31.9, G32.8, G91, G93.7, G94, R54 (but not including: F10.0, F10.1, F10.2, F10.3, F10.4, F10.8, F10.9, F11.1, F11.2, F12.1, F12.2, F13.1, F13.2, F14.1, F14.2, F15.1, F15.2, F16.1, F16.2, F17.1, F17.2, F18.1, F18.2, F19.1, F19.2)
- one or more physician visits with a diagnosis for dementia (ICD–9–CM codes as above)

The denominator includes all Manitoba residents aged 55 and older in the five–year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

Key observations:

RHAs:

- Provincially, Metis age 55+ have a higher prevalence of dementia compared to all other Manitobans age 55+ (12.4% vs. 10.6%).
- There is no apparent gradient of the prevalence of dementia with PMR although a slight trend may be seen at the aggregate area level. At that level, the prevalence of dementia may be higher in the less healthy aggregate areas.
- Throughout all RHAs, the Metis prevalence of dementia is similar to the Metis overall provincial average.
- The prevalence of dementia is statistically significantly higher for Metis compared to all others in Brandon RHA (18.7% vs. 8.6%).
- The prevalence of dementia is statistically significantly higher for Metis compared to all others in the aggregate areas of Rural South (11.3% vs. 9.1%) and Mid (12.0% vs. 9.5%). However, this is not the case in the North, where the prevalence of dementia is similar between the Metis and all others (10.9% vs. 10.2%, NS).

MMF Regions:

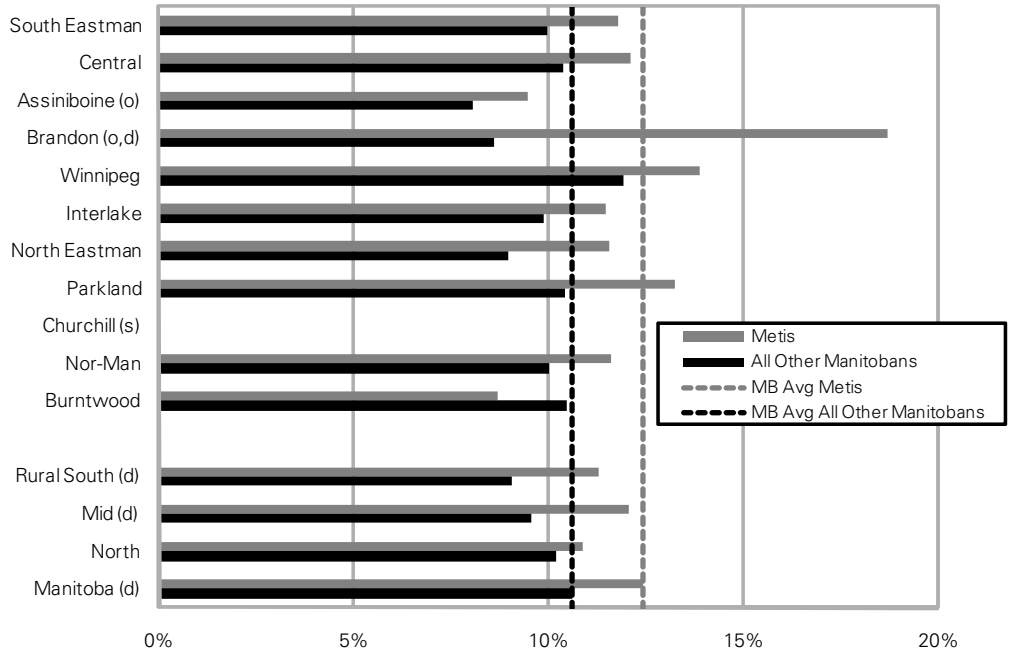
- The prevalence of dementia is similar throughout all MMF Regions, with no statistically significant difference from the Manitoba Metis prevalence of 12.4%. There is no apparent gradient of dementia prevalence by PMR of the MMF Regions.

Winnipeg CAs:

- Metis and all others living in Winnipeg RHA have similar prevalence of dementia, at 13.9% and 11.9% respectively. There is no obvious gradient of dementia with PMR.

- Throughout the Winnipeg CAs, the prevalence of dementia for Metis is similar to the overall provincial Metis average of 13.9%.
- Only one CA shows a significant difference in dementia between Metis and all others—River Heights (21.1% vs. 12.1%), but neither group are statistically different than the overall provincial average for each.

Figure 6.7.1: Prevalence of Dementia by RHA, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 55+



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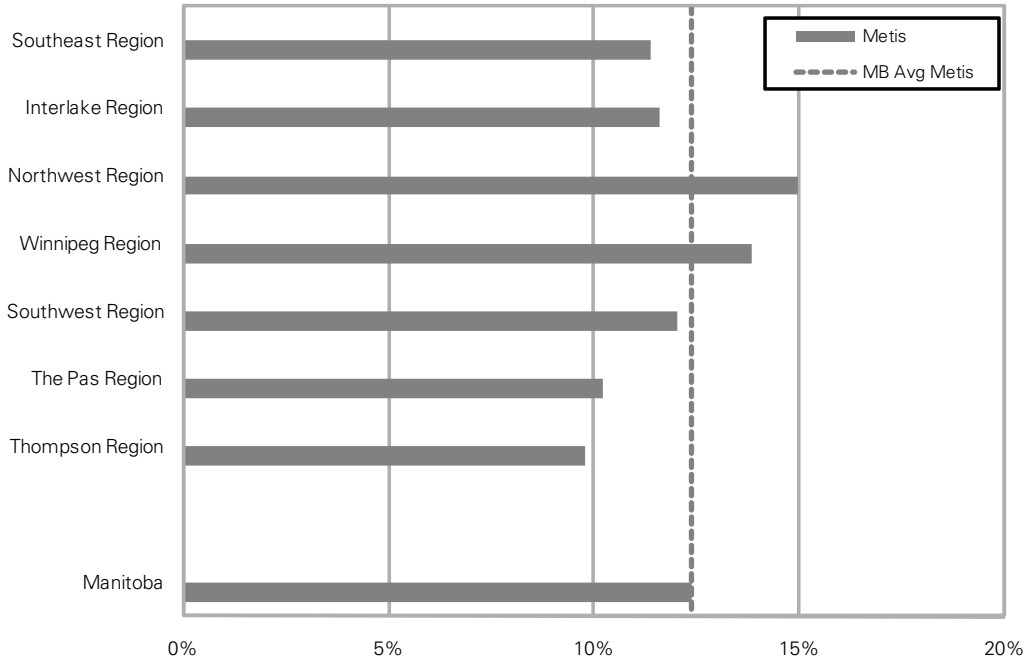
Source: MCHP/MMF, 2010

Figure 6.7.2: Prevalence of Dementia by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for Metis residents aged 55+



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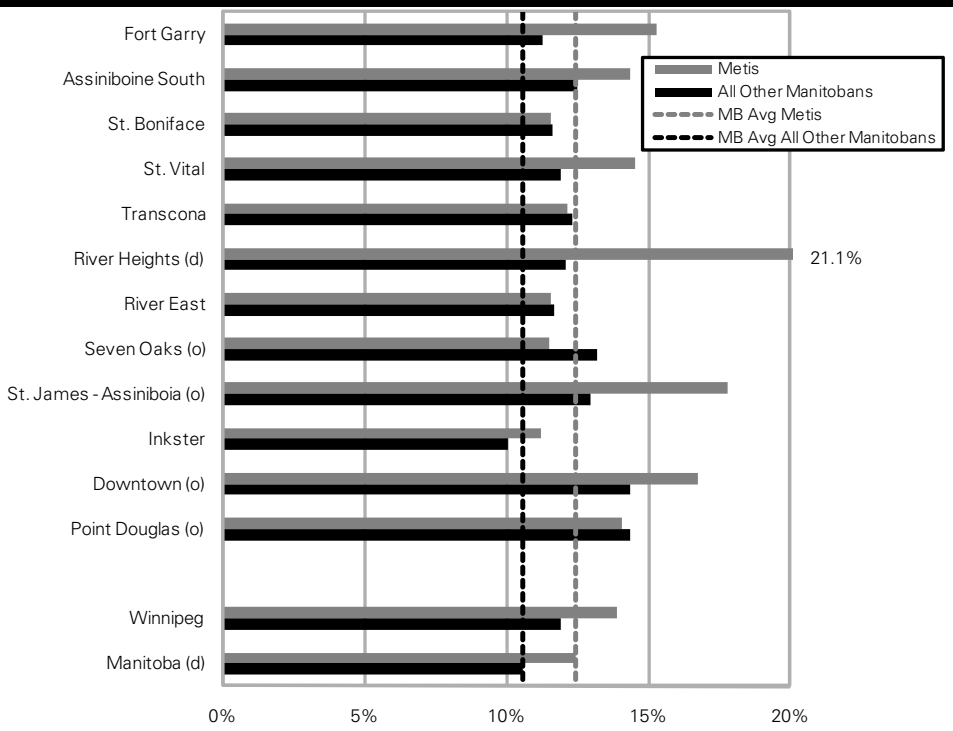
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 6.7.3: Prevalence of Dementia by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent in a five year period for residents aged 55+



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

6.8 Comorbidity of Mental Illness Diagnoses

The crude rate tables below show the percentage of Metis aged 10 and older having a certain combination of mental illness diagnoses, compared with a similar table for all other Manitobans aged 10+. The first row represents those people that have none of the following diagnosis within the five–year period of 2002/03–2006/07: depression, anxiety, substance abuse, schizophrenia, personality disorders, or dementia. This represents 70.26% of the population. Note that this has not been age– or sex–adjusted; these are observed numbers.

Key observations:

- Using crude prevalence, 69.78% of Metis (and 74.26% of all other Manitobans) aged 10+ had no diagnosis of mental illness (depression, anxiety, substance abuse, schizophrenia, personality disorders, and dementia) in a five–year period. So 30.22% of Metis and 25.74% of all other Manitobans had one or more diagnoses of these mental illness conditions in the five–year period.
- 19.56% of the Metis (compared to 17.52% of all other Manitobans) aged 10+ had a single diagnosis with no other comorbid mental illness diagnosis—13.07% depression only (11.43% others), 3.35% substance abuse only (2.28% others), 2.14% anxiety disorder only (2.10% others), 0.67% dementia only (1.36% others), 0.25% schizophrenia only (0.29% others), and 0.093% personality disorder only (0.067% others).
- 10.64% of the Metis (compared to 8.18% of all other Manitobans) aged 10+ had comorbid mental illness diagnoses. The most frequent combinations of diagnoses were: 5.37% depression and anxiety disorder (3.99% others); 1.79% depression and substance abuse (1.11% others); and 1.26% depression, anxiety disorder, and substance abuse (0.64% others). The remaining 2.22% of Metis (2.44% of all other Manitobans) had other combinations with each representing less than 1% of the population.
- 23.31% of Metis (compared to 19.29% of all other Manitobans) had a diagnosis of depression—either a single (13.07% Metis, 11.43% others) or comorbid diagnosis (10.24% Metis, 7.86% others).
- 7.28% of Metis (compared to 4.63% of all other Manitobans) had a diagnosis of substance abuse—either a single (3.35% Metis, 2.28% others) or comorbid diagnosis (3.93% Metis, 2.35% others).
- 9.76% of Metis (compared to 7.63% of all other Manitobans) had a diagnosis of anxiety disorder—either a single (2.14% Metis, 2.10% others) or comorid diagnosis (7.62% Metis, 5.53% others).

Table 6.8.1: Comorbidities Among Specified Mental Illness Disorders for the Manitoba Metis Population aged 10+, 2002/03–2006/07*

Depression	Anxiety	Substance Abuse	Schizophrenia	Personality Disorder	Dementia	Total Number	Percent
0	0	0	0	0	0	41099	69.78
0	0	0	0	0	1	393	0.67
0	0	0	0	1	0	55	0.09
0	0	0	1	0	0	149	0.25
0	0	0	1	0	1	6	0.01
0	0	0	1	1	0	7	0.01
0	0	0	1	1	1	0	0.00
0	0	1	0	0	0	1972	3.35
0	0	1	0	0	1	31	0.05
0	0	1	0	1	0	13	0.02
0	0	1	1	0	0	19	0.03
0	0	1	1	1	0	9	0.02
0	0	1	1	1	1	0	0.00
0	1	0	0	0	0	1258	2.14
0	1	0	0	0	1	11	0.02
0	1	0	1	0	0	10	0.02
0	1	0	1	1	0	0	0.00
0	1	0	1	1	1	0	0.00
0	1	1	0	0	0	109	0.19
0	1	1	0	1	1	0	0.00
0	1	1	1	0	1	0	0.00
0	1	1	1	1	1	0	0.00
1	0	0	0	0	0	7698	13.07
1	0	0	0	0	1	180	0.31
1	0	0	0	1	0	117	0.20
1	0	0	0	1	1	8	0.01
1	0	0	1	0	0	130	0.22
1	0	0	1	0	1	10	0.02
1	0	0	1	1	0	15	0.03
1	0	1	0	0	0	1057	1.79
1	0	1	0	0	1	16	0.03
1	0	1	0	1	0	63	0.11
1	0	1	1	0	0	55	0.09
1	0	1	1	1	0	20	0.03
1	0	1	1	1	1	0	0.00
1	1	0	0	0	0	3164	5.37
1	1	0	0	0	1	55	0.09
1	1	0	0	1	0	131	0.22
1	1	0	1	0	0	62	0.11
1	1	0	1	1	0	22	0.04
1	1	1	0	0	0	740	1.26
1	1	1	0	0	1	15	0.03
1	1	1	0	1	0	105	0.18
1	1	1	0	1	1	0	0.00
1	1	1	1	0	0	37	0.06
1	1	1	1	1	0	29	0.05

* The "1" and "0" notation in the first six columns refers to either having the diagnosis (1) or not (0). For example, in the first row, 41,099 Metis people (69.78% of the Metis population) had none of the six listed diagnoses. Looking at the very last row, 29 Metis (0.05% of the Metis population) had diagnosis for depression, anxiety, substance abuse, schizophrenia, and personality disorder, but not for dementia.

Note: Some combinations of illnesses are suppressed due to small numbers. True zeros are reported.

Source: MCHP/MMF, 2010

Table 6.8.2: Comorbidities Among Specified Mental Illness Disorders for All Other Manitobans aged 10+, 2002/03–2006/07

Depression	Anxiety	Substance Abuse	Schizophrenia	Personality Disorder	Dementia	Total Number	Percent
0	0	0	0	0	0	731398	74.26
0	0	0	0	0	1	13418	1.36
0	0	0	0	1	0	657	0.07
0	0	0	0	1	1	185	0.02
0	0	0	1	0	0	2824	0.29
0	0	0	1	0	1	412	0.04
0	0	0	1	1	0	101	0.01
0	0	0	1	1	1	17	0.00
0	0	1	0	0	0	22408	2.28
0	0	1	0	0	1	559	0.06
0	0	1	0	1	0	111	0.01
0	0	1	0	1	1	13	0.00
0	0	1	1	0	0	290	0.03
0	0	1	1	0	1	17	0.00
0	0	1	1	1	0	58	0.01
0	0	1	1	1	1	0	0.00
0	1	0	0	0	0	20639	2.10
0	1	0	0	0	1	434	0.04
0	1	0	0	1	0	90	0.01
0	1	0	0	1	1	7	0.00
0	1	0	1	0	0	162	0.02
0	1	0	1	0	1	15	0.00
0	1	0	1	1	0	15	0.00
0	1	1	0	0	0	963	0.10
0	1	1	0	0	1	20	0.00
0	1	1	0	1	0	18	0.00
0	1	1	1	0	0	30	0.00
0	1	1	1	1	0	10	0.00
0	1	1	1	1	1	0	0.00
1	0	0	0	0	0	112554	11.43
1	0	0	0	0	1	6734	0.68
1	0	0	0	1	0	1825	0.19
1	0	0	0	1	1	255	0.03
1	0	0	1	0	0	2285	0.23
1	0	0	1	0	1	370	0.04
1	0	0	1	1	0	303	0.03
1	0	0	1	1	1	65	0.01
1	0	1	0	0	0	10938	1.11
1	0	1	0	0	1	438	0.04
1	0	1	0	1	0	671	0.07
1	0	1	0	1	1	30	0.00
1	0	1	1	0	0	512	0.05
1	0	1	1	0	1	41	0.00
1	0	1	1	1	0	250	0.03
1	0	1	1	1	1	7	0.00
1	1	0	0	0	0	39258	3.99
1	1	0	0	0	1	1711	0.17
1	1	0	0	1	0	1783	0.18
1	1	0	0	1	1	126	0.01
1	1	0	1	0	0	1072	0.11
1	1	0	1	0	1	124	0.01
1	1	0	1	1	0	351	0.04
1	1	0	1	1	1	34	0.00
1	1	1	0	0	0	6327	0.64
1	1	1	0	0	1	175	0.02
1	1	1	0	1	0	965	0.10
1	1	1	0	1	1	23	0.00
1	1	1	1	0	0	371	0.04
1	1	1	1	0	1	21	0.00
1	1	1	1	1	0	353	0.04
1	1	1	1	1	1	10	0.00

Note: Some combinations of illnesses are suppressed due to small numbers. True zeros are reported.

Source: MCHP/MMF, 2010

6.9 Findings from Literature Review

(*compared to the results in this study—in italics*)

Depression:

- Feelings of depression, sadness or "the blues" are more common in Metis than in the general population. Of the 1,509 Métis households surveyed during the 2006 Métis Nation British Columbia Survey, 648 households indicated that at least one member of their family suffered from at least one of the following mental health conditions: Depression, Personal Problems, Anxiety Attacks, Isolation, Schizophrenia ("Pathways to Health", 2006).
- The MNBC survey results showed depression as the most significant problem (32.2 %), followed by personal problems and anxiety attacks at approximately 17.4 and 14.8 % respectively ("Pathways to Health", 2006).
- More Métis women (30%) than Métis men (19%) reported they have feelings of sadness, the blues, or depression. The Métis population had higher rates of being sad/blue (8.2 %) compared to 5.8% of the non–aboriginal population, based upon the condition occurring for at least two weeks continuously (Statistics Canada Aboriginal People's Survey 2001; Metis Centre, 2007).
- For Métis, reporting feelings of sadness, the blues, or depression was associated with activity limitations, reporting a number of health conditions (such as diabetes, asthma, etc.) and lower overall health status (Statistics Canada Aboriginal People's Survey, 2001; Metis Centre, 2007).
- Given the levels of depression in Metis women, it would be advisable that primary healthcare professionals, including nurses, offer postnatal screening for women who may be at risk for postpartum depression (Clarke, 2008).

In our report, we found that depression was the most prevalent mental illness condition in the Metis population aged 10+ with an age– and sex–adjusted prevalence of 22.0%, higher than for all other Manitobans at 20.4%. We also found that the prevalence of anxiety disorders was 9.4% for Metis and 8.0% for all other Manitobans. In a five–year period 2002/03–2006/07, 23.3% of the Metis population was diagnosed with depression, or depression along with another comorbid mental illness, compared to 19.3% of all other Manitobans (see Tables 6.8.1 and 6.8.2) . This is probably similar to the Statistics Canada Aboriginal Peoples Survey of 2001. The BC survey asks about a household rather than an individual prevalence, so it is not surprising that this yields higher prevalence (32.2%), since people are reporting depression existing in others, not necessarily themselves.

Substance abuse:

- Kinnon (1994) did a qualitative research study where a number of key informants expressed concern about Métis youth who have lost a sense of family and community and lost contact with elders and the Métis culture. According to the key informants, this was linked to possible involvement in drug and alcohol abuse.
- Hyndman (2003) found that substance abuse and mental health issues were in the top four of health concerns for the Metis people (the four were family violence, diabetes, substance abuse, and mental health issues).

In our study, the prevalence of substance abuse for Metis aged 10+ was 7.2%, compared with 4.9% of all other Manitobans. This was especially high in the North (10.9% Metis, 10.3% others). Referring to Tables 6.8.1 and 6.8.2, 7.3% of Metis (compared to 4.6% of all other Manitobans) had a diagnosis of substance abuse—either a single diagnosis or with other comorbidities.

It is also important to note that the indicator used in this report (prevalence of cumulative mental illness disorders) takes into account shifting diagnostic categories. For example, the North has a low prevalence of depression diagnoses, but high prevalence of substance abuse diagnoses. Yet when diagnoses are all combined, the North does not have an elevated prevalence of cumulative mental illness diagnoses. So there may be similar underlying prevalence of mental illness, but differing ways that this is expressed. For example, people may have a diagnosis of substance abuse as a form of 'self–medicating' for depression.

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Chapter 7: Prevention and Screening Services

Indicators in this chapter:

- Child Immunization: Immunizations for Two–Year–Olds
- Adult Immunization: Immunizations for Influenza
- Mammography
- Cervical Cancer Screening

Overall Key Findings:

- In general, the prevalence of prevention and screening is similar in the Metis population compared to all other Manitobans for both child and adult immunizations, slightly higher (2% higher) for cervical cancer screening in women aged 18–69 years, but slightly lower (4% lower) for mammography screening in women ages 50–69 years.
- According to Table 7.0, notable regions having at least two indicators with statistically higher prevalence of screening and prevention are: Interlake MMF Region and Brandon RHA.
- In general, the North aggregate area, and in particular Thompson MMF region, shows particularly low rates of prevention and screening in at least three indicators.

Table 7.0: Overall Key Findings of Prevention and Screening Indicators

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate).	Statistically "better off" regions for Metis compared to the Metis provincial average	Statistically "worse off" regions for Metis compared to the Metis provincial average
Complete Child Immunizations at age two years	72.0% vs. 71.2%; RR=1.01, NS [trend towards higher rates in Churchill RHA but NS]	–	Inkster CA, Point Douglas CA, Winnipeg MMF Region in the logistic regression
Adult Influenza Immunization age 65+	62.2% vs. 62.5%; RR=1.00, NS	– [trend towards higher rates in Churchill RHA but NS] [In the logistic regression: Interlake MMF Region, Winnipeg MMF Region, Southwest MMF Region, Brandon RHA, Winnipeg RHA]	Burntwood RHA, Thompson MMF Region [in the logistic regression: Thompson MMF Region, the North aggregate area]
Mammography Screening for women aged 50–69 years	59.5% vs. 61.8%; RR=0.96	South Eastman RHA, Interlake RHA, Southeast MMF Region [logistic regression: Southeast MMF Region, Interlake MMF Region, aggregate areas of Rural South and Mid, Brandon RHA]	Downtown CA, Point Douglas CA. [in the logistic regression: Winnipeg MMF Region, The Pas MMF Region, Thompson MMF Region, the North aggregate area, Winnipeg RHA]
Cervical Cancer Screening for women aged 18–69 years	69.0% vs. 67.8%; RR=1.02, NS	Fort Garry CA, St. Boniface CA [logistic regression: for Metis—Southeast MMF Region, Interlake MMF Region, Winnipeg MMF Region, Southwest MMF Region. For all—Rural South and Mid aggregate areas, Brandon RHA, Winnipeg RHA]	Parkland RHA, Churchill RHA, NOR–MAN RHA, Burntwood RHA, North aggregate area, The Pas MMF Region, Thompson MMF Region, [logistic regression: The Pas MMF Region, Thompson MMF Region, the North aggregate area]

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

7.1 Child Immunization: Immunizations for Two–Year–Olds

The recommended immunization schedule for children changes over time; the guidelines used for this report were those recommended as of fiscal year 2002/03. For two–year–olds, it is recommended that they receive:

- Four Diphtheria, acellular Pertussis, Tetanus, and Polio (DaPTP) Immunizations
- Four Haemophilus Influenzae B (HIB) Immunizations
- One Measles, Mumps and Rubella (MMR) Immunization

In this study, the crude percentage of two–year–old children (born 2003/04–2004/05) who had a complete immunization schedule was measured in fiscal years 2005/06–2006/07. The denominator includes all Manitoba children born in fiscal years 2003/04–2005/06 who were continuously registered with Manitoba Health up to their second birthday.

Note that new vaccines became free on October 1, 2004 for children born on or after January 1, 2004. These include: four PCV7 (pneumococcal) vaccines, one varicella (chicken pox) vaccine, and one influenza vaccine. These vaccines will not be included in the "complete" count of immunizations in this study so as to not penalize children whose parents may not have been willing or able to pay for them prior to that date. Rates using an older immunization schedule (as above) were calculated for all children. Only 25% of Metis children were considered completely immunized if all the newer vaccinations were included.

Key observations:

RHAs:

- Provincially, Metis two–year–olds had a similar complete immunization rate compared to all other Manitoban two–year–olds (72.0% vs. 71.2%, NS). There appears to be little or no gradient of immunization rates by PMR for Metis children by RHA, with only a slight gradient by aggregate area of Rural South, Mid, and North. No RHA or aggregate area has a statistically significantly higher or lower immunization rate for Metis children in comparison with the overall Metis provincial average.
- Only two RHAs show a statistically significant difference in two–year–old complete immunization rates between Metis and others living in the region—Winnipeg, where the Metis rate is slightly lower (69.4% vs. 75.0%); and Burntwood, where the Metis rate is substantially higher (69.2% vs. 52.2%) compared to all other children living in that area.
- All three non–urban aggregate areas show a similar trend, with Metis two–year–old complete immunization rates higher than for all other children, mainly due to the fact that the "other" rate is statistically lower than the overall provincial rate—Rural South (77.1% Metis, 69.2% others); Mid (74.1%, Metis, 69.8% others); North (72.5% Metis, 56.6% others).
- Four RHAs show significantly lower two–year–old complete immunization rates for the "all other Manitoban" children living in those areas—Central, Interlake, North Eastman, and Burntwood—whereas Metis children living in those same areas have rates equivalent to the overall Metis provincial rate.
- Although not statistically significant due to very small numbers, Churchill RHA shows very high two–year–old complete immunization rates for both Metis (100.0%) and other children (90.0%).

MMF Regions:

- All MMF Regions have two–year–old complete immunization rates similar to the overall Metis provincial average of 72.0%. However, there is a trend towards slightly higher rates for Southeast MMF Region (78.3%) and Northwest MMF Region (77.4%).

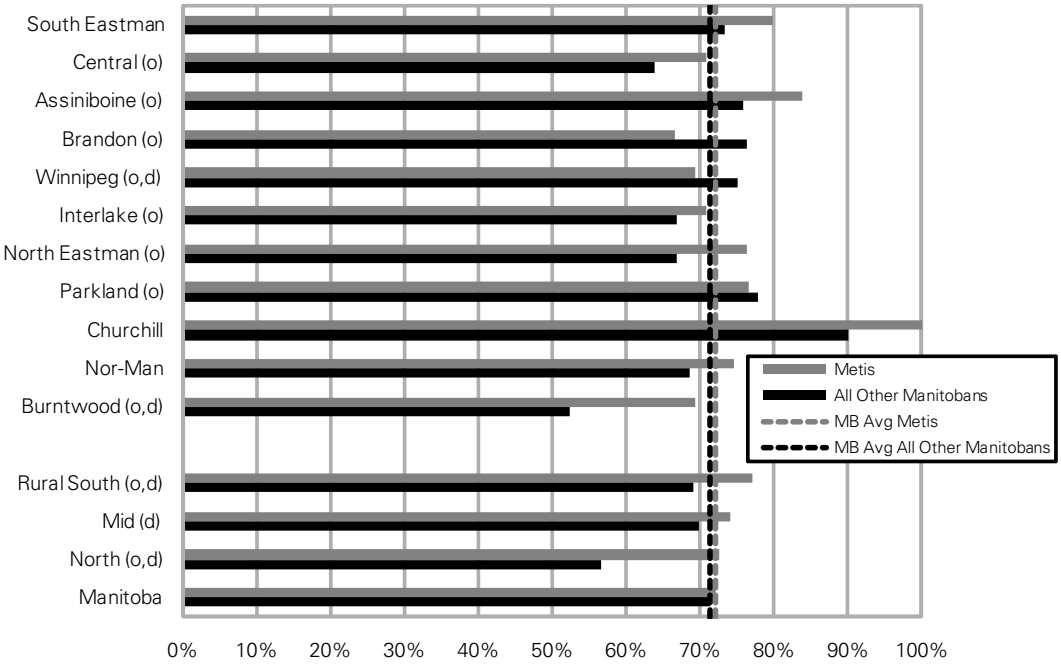
Winnipeg CAs:

- In Winnipeg RHA, Metis children have a significantly lower two–year–old complete immunization rate compared to all other Winnipeg children (69.4% vs. 75.0%). The rate for both Metis and other children also shows a gradient by PMR, with the least healthy CAs showing the lowest immunization rates.
- Two CAs show substantially lower two–year–old complete immunization rates for Metis children compared to their provincial average—Inkster (55.2% Metis, 70.4% others, significant difference between the two groups) and Point Douglas (53.6% Metis, 60.8% others, rates similar and lower than their respective provincial averages of 72.0% and 71.2%).
- Most Winnipeg CAs show two–year–old complete immunization rates for all other children that are higher than the provincial average of 71.2%, with the exceptions of Inkster, Downtown, and Point Douglas. In general, the Metis children's rates show similar trends, but these are not statistically higher (may be due to a small sample).

Logistic regression modeling of the probability of having complete immunizations at age two years:

- For the logistic regression including everyone:
  - In comparing the crude rates of two–year–old complete immunization rates, Metis and all other Manitoban rates were not significantly different (72.0% vs. 71.2%, NS). However, the logistic regression model allowed us to control for possible confounding facts. After controlling for the effects of geography, income, sex, breastfeeding status, gestational age at birth, continuity of care, and maternal age at first birth, the likelihood of Metis two–year–olds to have complete immunizations was higher than for other Manitobans (aOR=1.22, 95% CI 1.10–1.35).
- For the logistic regression including the Metis population only:
  - There was no effect of sex, breastfeeding status, or gestational age (preterm vs. not) on the probability of two–year–old complete immunizations for Metis.
  - The higher the neighbourhood income and the higher the mother's age when she gave birth to her first baby, the more likely the child had two–year–old complete immunizations.
  - Continuity of care (i.e., receiving at least 50% of physician care over a three–year period from the same physician) was associated with a higher probability of two–year–old complete immunization (aOR=1.48, 95% CI 1.20–1.82)
  - When all factors were taken into account, Winnipeg MMF Region had a lower probability of two–year–old complete immunizations.

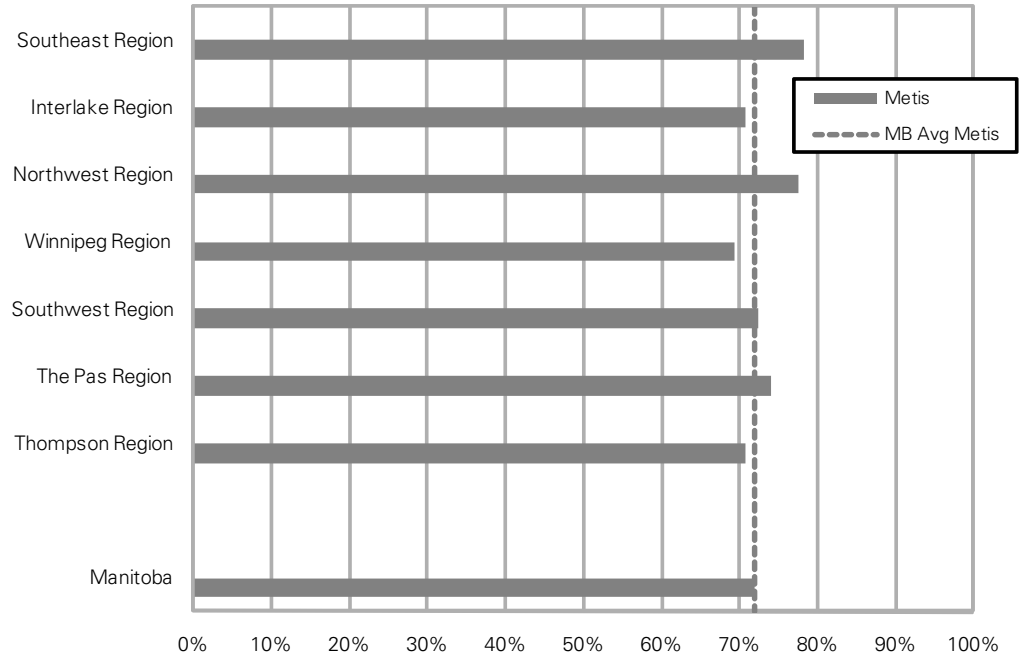
Figure 7.1.1: Proportion of Children Born in 2003/04-2004/05 with Complete Immunizations at Two Years, by RHA
Crude percent of continuously registered two-year-olds



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 7.1.2: Proportion of Children Born in 2003/04-2004/05 with Complete Immunizations at Two Years, by Metis Region
Crude percent of continuously registered Metis two-year-olds

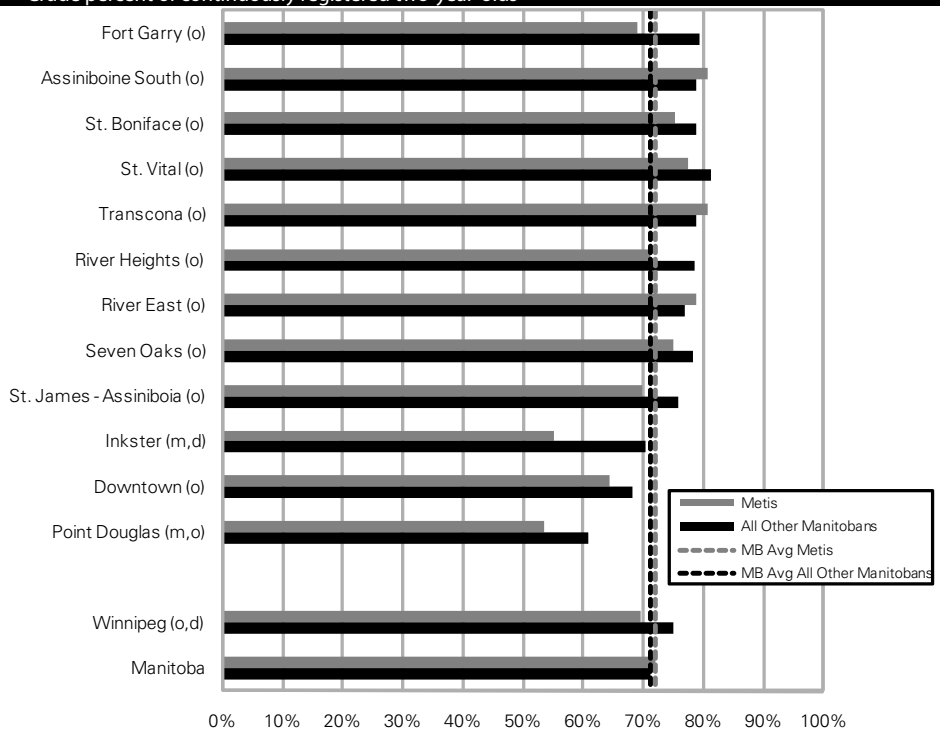


'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 7.1.3: Proportion of Children Born in 2003/04-2004/05 with Complete Immunizations at Two Years, by Winnipeg Community Area

Crude percent of continuously registered two-year-olds



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 7.1.1: Logistic Regression Model of the Probability of a Complete Set of Immunizations for Two–Year–Olds

Probability of Complete Immunization Schedule by Aggregate Region, children born in 2003/04–2004/05

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	**1.218 (1.100, 1.349)**	**<0.001**
Aggregate Regions (ref = Manitoba)		
Rural South	0.946 (0.890, 1.007)	0.0801
Mid	1.035 (0.959, 1.117)	0.3760
North	**0.809 (0.750, 0.873)**	**<0.001**
Brandon	**1.295 (1.145, 1.464)**	**<0.001**
Winnipeg Most Healthy	1.024 (0.952, 1.102)	0.5198
Winnipeg Average Health	1.071 (0.982, 1.168)	0.1224
Winnipeg Least Healthy	**0.889 (0.832, 0.950)**	**<0.001**
Males (vs. Females)	0.999 (0.944, 1.057)	0.9726
Mother's Age at First Birth	**1.068 (1.062, 1.075)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.060 (1.040, 1.081)**	**<0.001**
Breastfed	**1.084 (1.008, 1.166)**	**0.0302**
Preterm (less than 37 weeks)	**0.851 (0.765, 0.946)**	**0.0029**
Continuity of Care Since Birth	**1.629 (1.531, 1.734)**	**<0.001**

Bold = statistically significant results

Probability of Complete Immunization Schedule by Metis Region, Metis children born in 2003/04–2004/05

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	1.069 (0.807, 1.416)	0.6401
Interlake Region	0.750 (0.558, 1.008)	0.0569
Northwest Region	1.440 (0.962, 2.156)	0.0762
Winnipeg Region	**0.758 (0.637, 0.902)**	**0.0018**
Southwest Region	0.898 (0.681, 1.185)	0.4470
The Pas Region	1.296 (0.959, 1.750)	0.0911
Thompson Region	0.981 (0.710, 1.356)	0.9079
Males (vs. Females)	0.949 (0.780, 1.155)	0.6032
Mother's Age at First Birth	**1.099 (1.074, 1.125)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.081 (1.007, 1.161)**	**0.0306**
Breastfed	1.230 (0.979, 1.547)	0.0760
Preterm (less than 37 weeks)	0.837 (0.580, 1.208)	0.3415
Continuity of Care Since Birth	**1.479 (1.200, 1.823)**	**<0.001**

Bold = statistically significant results

Source: MCHP/MMF, 2010

7.2 Adult Immunization: Immunizations for Influenza

Immunizations are an intervention to initiate or increase resistance against infectious disease. Influenza vaccinations are the most effective preventive measure to prevent influenza and the complications arising from it in high–risk populations, such as seniors. The Canadian National Advisory Committee on Immunization (1999) recommends influenza vaccination for people at high risk. This includes people aged 65 and above, adults and children with certain chronic medical conditions, nursing home residents, healthcare workers who are in contact with people in the high–risk groups, and household contacts of people at risk who either cannot be vaccinated or may respond inadequately to vaccination. Influenza vaccination is available free of charge in Manitoba for the target groups identified by the National Advisory Committee on Immunization.

The age– and sex–adjusted percentage of residents aged 65 and older who received an influenza vaccine (flu shot) was measured over in fiscal year 2006/07. Crude rates are available in the appendix. Flu shots were defined by physician tariff codes 8791, 8792, 8793, and 8799 in MIMS data. The denominator includes all Manitoba residents aged 65 and older as of December 31, 2006.

Key observations:

RHAs:

- At the provincial level, Metis and all other adults age 65+ have similar influenza immunization rates (62.2% vs. 62.5%, NS). The pattern does not necessarily follow a PMR gradient.
- The only RHA having a significantly lower influenza immunization rate for Metis compared to the Metis provincial average is Burntwood (40.3% for Metis), which is also low for all other Manitobans living in that region (37.8%).
- Although not statistically significant, Metis rates appear to be slightly higher in Winnipeg (64.8%) and Churchill (70.5%) compared to their provincial average of 62.2%.
- Only one RHA shows a statistically significant difference between Metis influenza immunization rates and "all others" living in that region. South Eastman Metis have a significantly higher influenza immunization rate compared to other residents of that region (61.9% vs. 55.3%)—the Metis rate in South Eastman RHA is comparable to the Metis provincial average, but the "other" rate is lower than their corresponding provincial average.

MMF Regions:

- Metis living in most MMF Regions have influenza immunization rates similar to the overall provincial average of 62.4%[1], with the exception of an extremely low rate in Thompson MMF Region (43.3%).

[1] Because different modeling was used for the RHA/WRHA graphs and the MMF Region graphs, there may be slight discrepancies in the Metis provincial rate between the two.

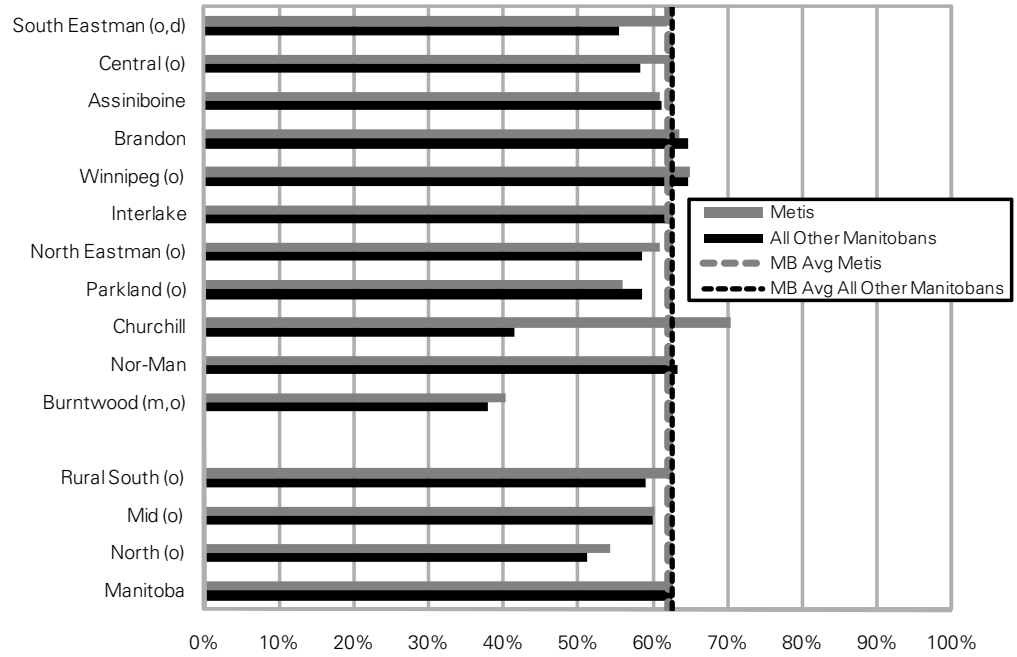
Winnipeg CAs:

- In Winnipeg, influenza immunization rates for Metis and all other Winnipeggers are similar (64.8% Metis, 64.6% others). The 'other' rate is significantly higher than the corresponding provincial average, whereas the Metis rate is not—though this is probably due to small sample size of the Metis 65+ population in Winnipeg (1,177 according to the crude rate tables in the Appendix).
- Every Winnipeg CA has an influenza immunization rate for Metis that is similar to the provincial average for Metis.
- Only one CA, Seven Oaks, shows a statistically significant different influenza immunization rate between the Metis and others, where the Metis rate is significantly higher than that of "all others" living in the CA (75.4% vs. 63.2%).
- Although not statistically significantly lower than the overall Metis provincial average, Metis living in the Downtown CA had the lowest influenza immunization rate in Winnipeg at 54.3%. All others living in that CA also had a lower rate (56.0%), which was statistically lower than their provincial rate.

Logistic regression modeling of the probability of having an immunization for influenza for those aged 65+:

- In the logistic regression with all Manitobans included, there is no statistically significant difference in the probability of influenza immunization between the Metis and all other Manitobans aged 65+. This result is similar to that in the age– and sex–adjusted analysis given in the graphs.
- In the logistic regression for Metis only:
  - There is a higher probability of having an influenza immunization as age increases (and this effect plateaus at higher ages) as average household income of the area of residence increases and as the degree of physical comorbidity increases.
  - Metis males are less likely to have an influenza immunization compared to Metis females (aOR=0.89, 95% CI 0.81–0.99).
  - Metis having good continuity of care (i.e., at least 50% of their visits from the same physician over a two–year period) are more likely to have an influenza immunization compared to those not having good of continuity of care (aOR=1.61, 95% CI 1.44–1.80).
  - After controlling for all other factors, Metis are more likely to have an influenza immunization if they live in one of three MMF Regions—Interlake (aOR=1.23, 95% CI 1.08–1.40); Winnipeg (aOR=1.15, 95% CI 1.04–1.26); and Southwest (aOR=1.18, 95% CI 1.03–1.35)—but far less likely if they live in Thompson MMF Region (aOR=0.56, 95% CI 0.43–0.72).

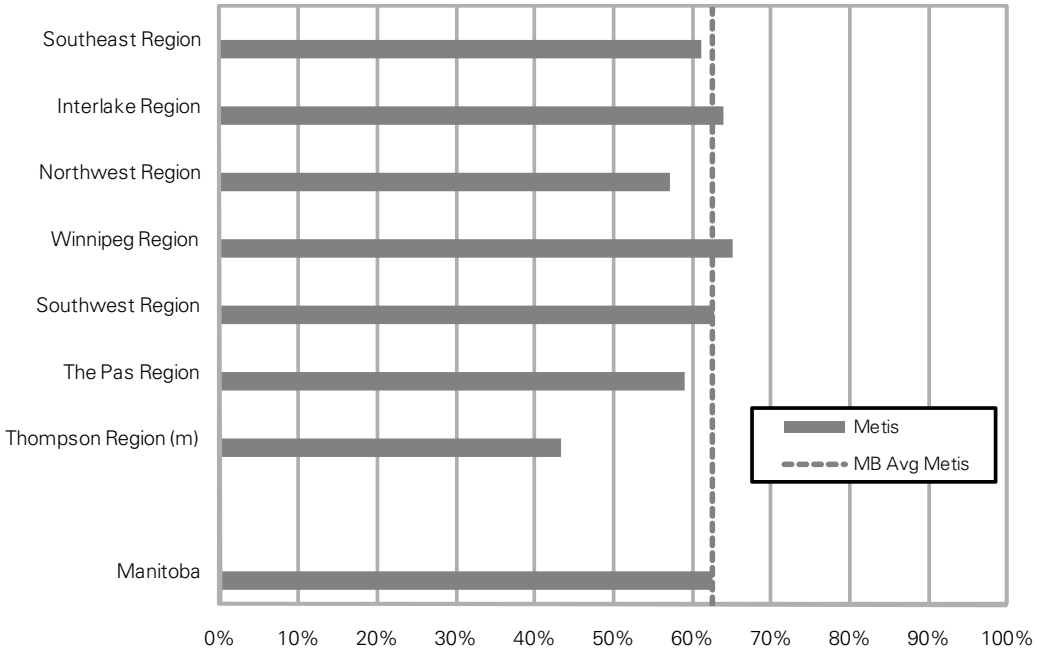
Figure 7.2.1: Adult Influenza Immunization Rates by RHA, 2006/07
Age- & sex-adjusted percent of residents aged 65+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 7.2.2: Adult Influenza Immunization Rates by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents aged 65+ years



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'd' indicates the difference between the two groups' rates was statistically significant for this area
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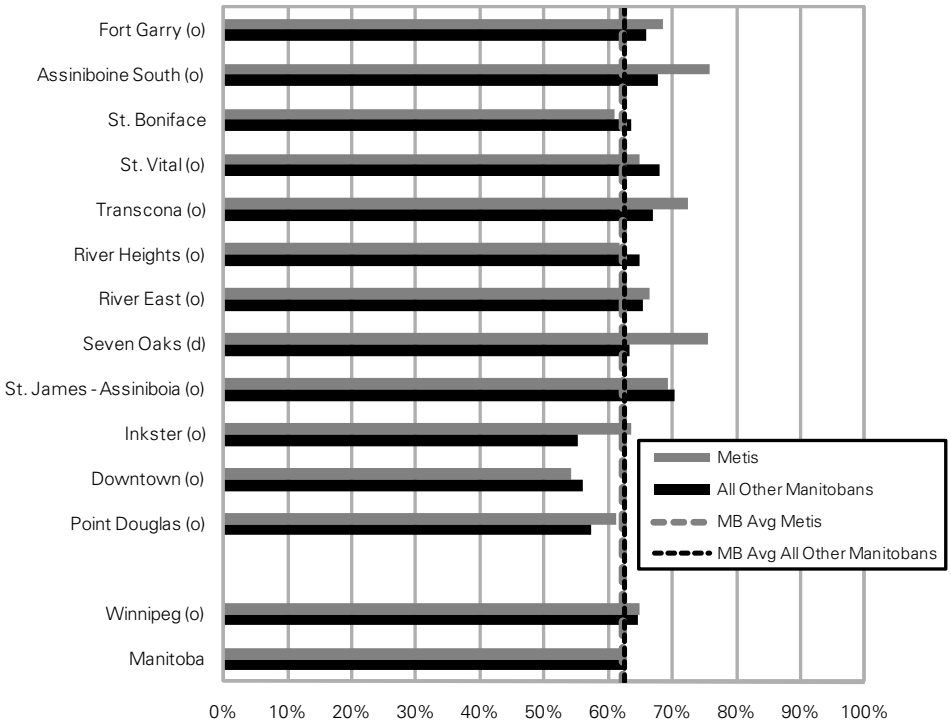
Source: MCHP/MMF, 2010

Figure 7.2.3: Adult Influenza Immunization Rates by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents aged 65+ years



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 7.2.1: Logistic Regression Model of the Probability of an Influenza Immunization*

Probability of Influenza Immunization by Aggregate Region, 2006/07, seniors aged 65+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	1.038 (0.985, 1.093)	0.1626
Aggregate Regions (ref = Manitoba)		
Rural South	0.988 (0.963, 1.013)	0.3535
Mid	1.021 (0.994, 1.049)	0.1297
North	**0.786 (0.745, 0.829)**	**<0.001**
Brandon	**1.116 (1.068, 1.165)**	**<0.001**
Winnipeg	**1.130 (1.106, 1.155)**	**<0.001**
Age, linear	**1.298 (1.267, 1.330)**	**<0.001**
Age, quadratic	**0.999 (0.998, 0.999)**	**<0.001**
Males (vs. Females)	**0.953 (0.933, 0.973)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.027 (1.022, 1.033)**	**<0.001**
Continuity of Care	**1.966 (1.921, 2.011)**	**<0.001**
Mental Illness ADGs	**1.201 (1.168, 1.235)**	**<0.001**
Major Physical Illness ADGs	**1.570 (1.537, 1.603)**	**<0.001**

Bold = statistically significant results

Probability of Influenza Immunization by Metis Region, 2006/07, Metis seniors aged 65+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	1.087 (0.957, 1.235)	0.2007
Interlake Region	**1.231 (1.079, 1.404)**	**0.0020**
Northwest Region	1.030 (0.867, 1.224)	0.7333
Winnipeg Region	**1.149 (1.044, 1.264)**	**0.0045**
Southwest Region	**1.181 (1.029, 1.354)**	**0.0178**
The Pas Region	0.965 (0.811, 1.148)	0.6845
Thompson Region	**0.555 (0.428, 0.719)**	**<0.001**
Age, linear	**1.231 (1.063, 1.427)**	**0.0056**
Age, quadratic	**0.999 (0.998, 1.000)**	**0.0167**
Males (vs. Females)	**0.893 (0.807, 0.990)**	**0.0309**
Average Household Income of Neighbourhood (per $10,000)	**1.066 (1.030, 1.102)**	**<0.001**
Continuity of Care	**1.611 (1.444, 1.798)**	**<0.001**
Mental Illness ADGs	1.094 (0.958, 1.250)	0.1861
Major Physical Illness ADGs	**1.658 (1.497, 1.837)**	**<0.001**

Bold = statistically significant results

Source: MCHP/MMF, 2010

* Many of the regression models include a quadratic age term, which means that the model fit was improved through the use of both the age term and an age-squared term. The way in which this can be interpreted is that the likelihood increases with age (since the aOR of the age term is greater than 1 and statistically significant), but that this effect levels off at higher ages (since the aOR of the quadratic age-squared term is less than 1, and statistically significant).

Note: ADGs refers to Aggregated Diagnostic Groups, a measure of comorbidity (co-existing conditions) that can be grouped into either co-existing mental illnesses or major physical illnesses. See the Glossary for further explanation.

7.3 Mammography

Mammography is a procedure to determine if a woman has breast cancer; it is commonly used for breast cancer screening. Manitoba introduced a province–wide breast screening program in 1995 which is operated by the Manitoba Breast Screening Program. It is recommended that all women between 50 and 69 years of age be screened every two years for breast cancer.

The age–adjusted percentage of women, aged 50–69, who had at least one mammogram for breast cancer screening or diagnosis was measured in two fiscal years: 2005/06–2006/07. Crude rates are available in the appendix. Diagnostic or screening tariffs used to identify a mammography are listed in the Glossary. The denominator includes all Manitoba female residents aged 50–69 as of December 31, 2005 or 2006.

Key observations:

RHAs:

- Provincially, mammography rates for women aged 50–60 are lower for Metis compared to all other Manitobans (59.5% vs. 61.8%). There is no apparent gradient with PMR, except that North rates appear lower than Rural South or Mid, and those in turn appear higher than the Winnipeg rates.
- Two RHAs show significantly higher mammography rates for both Metis and all other women living in those regions—South Eastman (69.8% Metis, 65.4% others) and Interlake (66.0% Metis, 65.8% others)—compared to their corresponding provincial averages.
- Mammography rates are significantly lower for Metis compared to all other women living in the RHAs of Assiniboine (52.1% vs. 66.1%), Winnipeg (57.2% vs. 60.4%), and Parkland (53.1% vs. 65.2%).

MMF Regions:

- There appears to be a steep gradient of mammography rates by PMR in the MMF Regions, with the healthiest regions having the highest rates.
- Only one region, Southeast MMF Region (68.6%) has a significantly higher mammography rate than the overall Manitoba Metis average of 59.5%. Thompson (51.0%) and The Pas (52.5%) MMF Regions appear low, but are not statistically significantly different than the overall Metis average.

Winnipeg CAs:

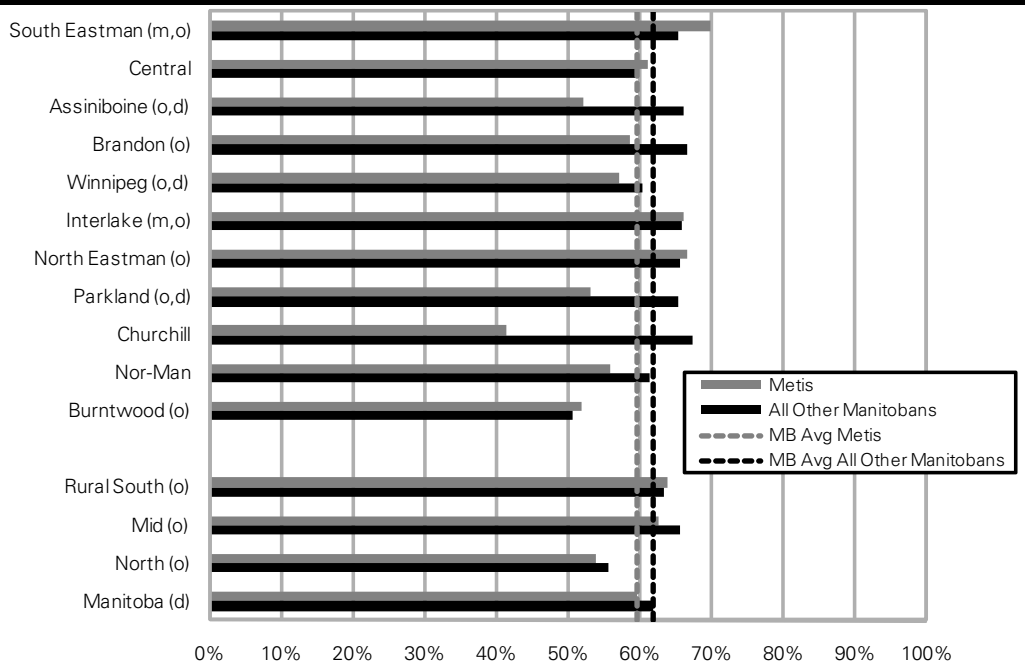
- In Winnipeg RHA, Metis women have a lower mammography rate compared to all other Winnipeg women (57.2% vs. 60.4%). The Winnipeg rate for "'all others'" is also significantly lower than the corresponding Manitoba "all other" rate of 61.8%.
- There appears to be a gradient by PMR, mainly driven by the very low mammography rates in the least healthy CAs.
- Only two CAs have significantly lower mammography rates for Metis women compared to the overall Metis provincial average of 59.5%—Downtown CA (45.2%) and Point Douglas CA (44.9%). Both of these areas show very low rates for all other women as well—Downtown at 45.2% and Point Douglas at 43.5%—and there is no statistical difference between the Metis

and the other rate in these two areas. Inkster CA appears low for Metis (53.4%, though not statistically different than the Metis provincial average) and for "all others" in the area (53.3%, statistically lower than the "other" provincial average).

Logistic regression modeling of the probability of having mammography for women aged 50–69 years:

- For the model including everyone, Metis women are less likely to have a mammogram compared to all other Manitoban women (aOR=0.93, 95% CI 0.88–0.98), after adjusting for geographic region, age, income, mental and physical comorbidity, and continuity of care.
    - in this 'full model', women living in the aggregate areas of Rural South, Mid, and the urban area of Brandon are more likely to have a mammogram, whereas those living in the North or Winnipeg are less likely.
- For the model with only Metis:
    - Metis women who are older (although the effect plateaus) or reside in an area of higher average household income (aOR=1.15, 95% CI 1.12–1.19) are more likely to have a mammogram
    - Metis women with good continuity of care are more likely to have a mammogram (aOR=1.62, 95% CI 1.45–1.80).
    - Metis women with a mental illness comorbid condition are less likely to have a mammogram (aOR=0.89, 95% CI 0.80–0.99).
    - Metis women living in Southeast MMF (aOR=1.48, 95% CI 1.30–1.68) and Interlake MMF Region (aOR=1.38, 95% CI 1.21–1.57) are more likely to have a mammogram
    - Metis women living in Winnipeg MMF Region (aOR=0.81, 95% CI 0.74–0.88); The Pas MMF Region (aOR=0.81, 95% CI 0.70–0.95); and Thompson MMF Region (aOR=0.71, 95% CI 0.57–0.88) are less likely to have a mammogram.

Figure 7.3.1: Mammography by RHA, 2005/06-2006/07
Age-adjusted percent of women aged 50-69



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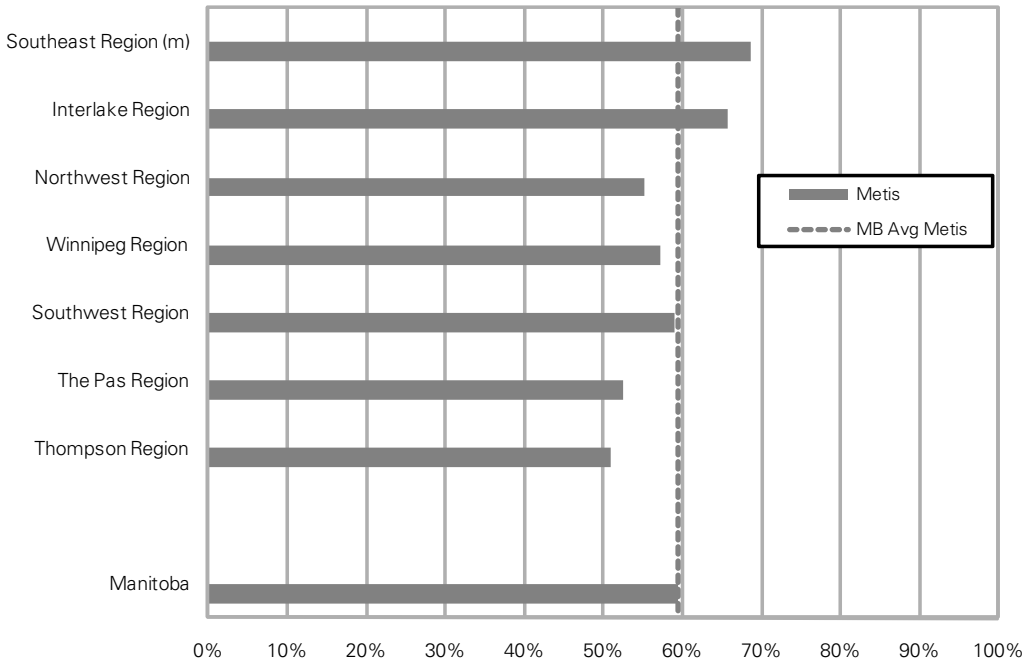
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 7.3.2: Mammography by Metis Region, 2005/06-2006/07
Age-adjusted percent of Metis women aged 50-69



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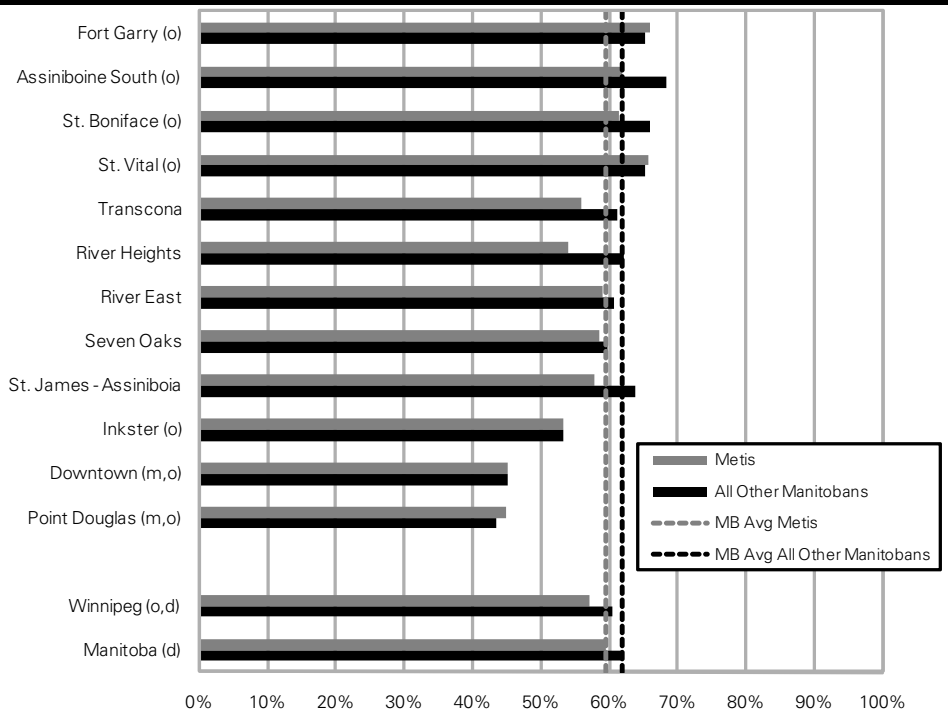
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 7.3.3: Mammography by Winnipeg Community Area, 2005/06-2006/07
Age-adjusted percent of women aged 50-69



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 7.3.1: Logistic Regression Model of the Probability of a Mammography*

Probability of Mammogram by Aggregate Region, 2005/06–2006/07, women aged 50–69

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	**0.928 (0.883, 0.975)**	**0.0031**
Aggregate Regions (ref = Manitoba)		
Rural South	**1.136 (1.104, 1.169)**	**<0.001**
Mid	**1.198 (1.162, 1.235)**	**<0.001**
North	**0.824 (0.785, 0.865)**	**<0.001**
Brandon	**1.178 (1.120, 1.238)**	**<0.001**
Winnipeg	**0.757 (0.740, 0.775)**	**<0.001**
Age, linear	**1.658 (1.581, 1.739)**	**<0.001**
Age, quadratic	**0.996 (0.996, 0.996)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.121 (1.114, 1.127)**	**<0.001**
Continuity of Care	**2.127 (2.074, 2.182)**	**<0.001**
Mental Illness ADGs	**0.966 (0.937, 0.995)**	**0.0213**
Major Physical Illness ADGs	**1.118 (1.088, 1.147)**	**<0.001**

Bold = statistically significant results

Probability of Mammogram by Metis Region, 2005/06–2006/07, Metis women aged 50–69

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	**1.477 (1.302, 1.675)**	**<0.001**
Interlake Region	**1.378 (1.210, 1.570)**	**<0.001**
Northwest Region	1.037 (0.868, 1.239)	0.6903
Winnipeg Region	**0.809 (0.741, 0.883)**	**<0.001**
Southwest Region	1.016 (0.890, 1.160)	0.8168
The Pas Region	**0.813 (0.695, 0.953)**	**0.0104**
Thompson Region	**0.709 (0.574, 0.875)**	**0.0013**
Age, linear	**1.808 (1.485, 2.201)**	**<0.001**
Age, quadratic	**0.995 (0.994, 0.997)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.154 (1.119, 1.189)**	**<0.001**
Continuity of Care	**1.616 (1.454, 1.796)**	**<0.001**
Mental Illness ADGs	**0.891 (0.795, 0.999)**	**0.0475**
Major Physical Illness ADGs	0.963 (0.869, 1.067)	0.4701

Bold = statistically significant results

Source: MCHP/MMF, 2010

* Many of the regression models include a quadratic age term, which means that the model fit was improved through the use of both the age term and an age-squared term. The way in which this can be interpreted is that the likelihood increases with age (since the aOR of the age term is greater than 1 and statistically significant), but that this effect levels off at higher ages (since the aOR of the quadratic age-squared term is less than 1, and statistically significant).

Note: ADGs refers to Aggregated Diagnostic Groups, a measure of comorbidity (co-existing conditions) that can be grouped into either co-existing mental illnesses or major physical illnesses. See the Glossary for further explanation.

7.4 Cervical Cancer Screening

Also called a Pap (Papanicolau) test, cervical cancer screening is based on the examination of cells collected from the cervix to reveal pre–malignant (before cancer) and malignant (cancer) changes as well as changes due to non–cancerous conditions such as inflammation from infections.

Cervical cancer screening was measured as the age–adjusted proportion of women aged 18–69 who received at least one Pap test in three fiscal years: 2004/05–2006/07. Crude rates are available in the appendix. See Glossary for tariff codes used. The denominator includes all Manitoba female residents aged 18–69 as of December 31, 2005. Women who have had a complete hysterectomy surgery were excluded from both the numerator and denominator.

Rates for northern and remote areas served by nursing stations may be underestimated due to missing data.

Key observations:

RHAs:

- Provincially, Metis women have a similar cervical cancer screening rate compared to all other women (69.0% vs. 67.8%). There appears to be a gradient by PMR, with the least healthy regions having the lowest Pap test rates (however, caution needs to be exerted regarding the "other" rate, since some of the First Nations northern nursing stations may not be reporting into the administrative data).
- Most RHAs have rates for Metis and other women that are similar to the corresponding provincial averages. However, for Metis women, four RHAs show cervical cancer screening rates that are lower than the corresponding provincial Metis average of 69.0%—Parkland (58.9%), Churchill (17.8%), NOR–MAN (49.9%), and Burntwood (50.2%). In three of these, the rates are also lower for all other women, compared to their provincial average of 67.8%—Churchill (31.4%), NOR–MAN (50.9%), and Burntwood (34.6%). As well, the aggregate North area has very low rates for both Metis (48.9%) and "all others" (40.0%).
- Two RHAs have significantly higher cervical cancer screening rates for Metis compared to other women in the area—South Eastman RHA (75.5% vs. 67.0%) and Burntwood (50.2% vs. 34.6%). As well, this trend is seen in the aggregate North area (Metis 48.9%, others 40.0%).

MMF Regions:

- Compared to the overall Metis cervical cancer screening rate of 68.9%, The Pas MMF Region (49.9%) and Thompson MMF Region (48.2%) are significantly lower. Although not statistically significant, Winnipeg MMF Region appears to be higher at 75.0%.
- There is a gradient of cervical cancer screening rates with PMR in the MMF Regions, with the least healthy areas having the lowest rates.

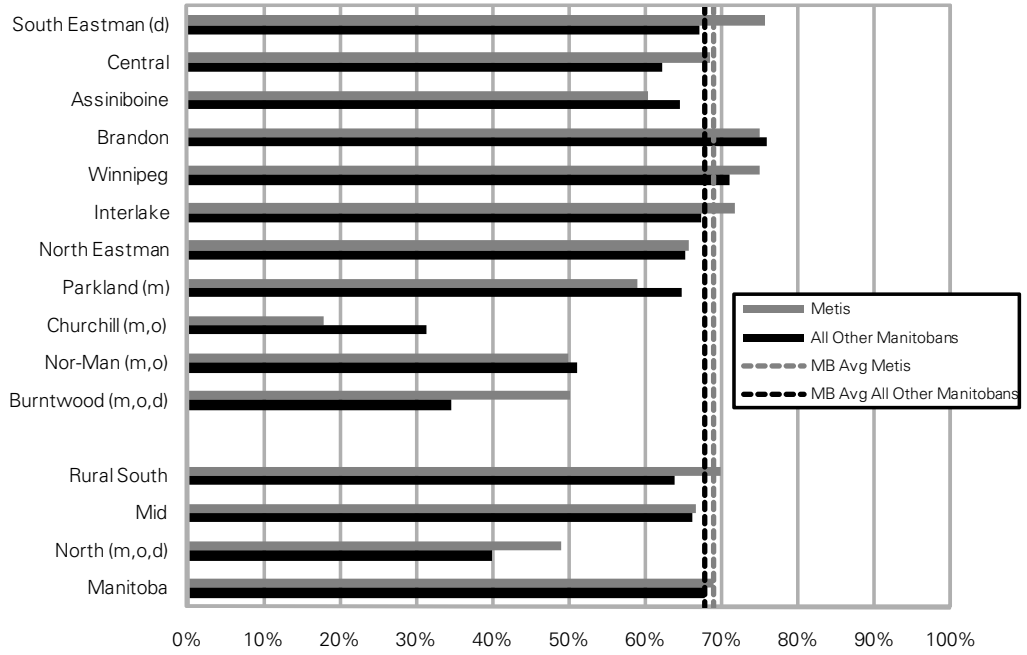
Winnipeg CAs:

- In Winnipeg RHA overall, cervical cancer screening rates are similar for both Metis women (75.0%) and "all others" living in the area (70.9%). There appears to be a gradient, with the least healthy CAs having the lowest rates. That being said, even the least healthy CAs of Winnipeg show Metis cervical cancer screening rates that are comparable to the provincial Metis average and the most healthy CAs show rates higher than the provincial average.
- Metis women have a higher cervical cancer screening rate, compared to their provincial average of 75.0%, in the CAs of Fort Garry (83.7%) and St. Boniface (82.0%).
- Although similar to the Metis provincial average, Metis women living in three CAs have a statistically higher rate than others living in those areas—Seven Oaks (77.7% vs. 67.2%), Inkster (71.7% vs. 61.0%), and Downtown (69.7% vs. 60.3%).

Logistic regression modeling of the probability of having a Pap test for women aged 18–69:

- For the logistic regression model including everyone:
  - After controlling for geographical area, age, income, mental and physical comorbidities, and continuity of care, Metis women are more likely than other Manitoba women to receive a cervical cancer screening test (aOR=1.25, 95% CI 1.21–1.29).
  - A woman is more likely to receive a Pap test if she is living in the Rural South or Mid aggregate areas, Winnipeg RHA, or Brandon RHA. Brandon RHA has a particularly high likelihood (aOR=1.73, 95% CI 1.67–1.78) compared to other areas.
  - Compared to women age 40-49, all other age groups are less likely to have a Pap test with the exception of those age 30-39, who are more likely.
- For the logistic regression model only including Metis women:
  - Metis women have a greater likelihood of receiving a Pap test if they are living in a neighbourhood with high household income and if they have either mental or physical comorbidities.
  - Compared to Metis women aged 40–49, younger women (18–29 and 30–39) are more likely to have a Pap test, whereas women age 50–59 and 60–69 are less likely.
  - Metis women living in the following MMF Regions are more likely to have a Pap test: Southeast (aOR=1.34, 95% CI 1.23–1.45); Interlake (aOR=1.34, 95% CI 1.24–1.46); Winnipeg (aOR=1.51, 95% CI 1.43–1.60); and Southwest (aOR=1.22, 95% CI 1.12–1.32). However, Metis living in The Pas MMF Region (aOR=0.52, 95% CI 0.47–0.57) and Thompson MMF Region (aOR=0.55, 95% CI 0.50–0.62) are less likely.
  - Metis women with good continuity of care are more likely to have a Pap test (aOR=1.96, 95% CI 1.84–2.09) compared to Metis women who do not have good continuity of care.

Figure 7.4.1: Cervical Cancer Screening Rate by RHA, 2004/05-2006/07
Age-adjusted percent of women aged 18-69 years



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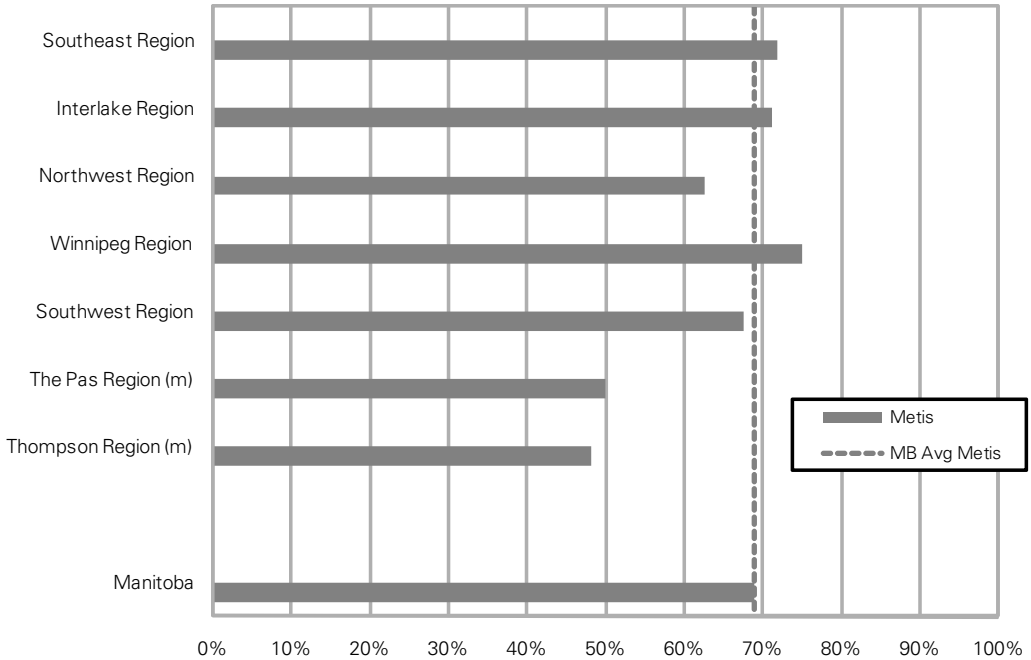
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

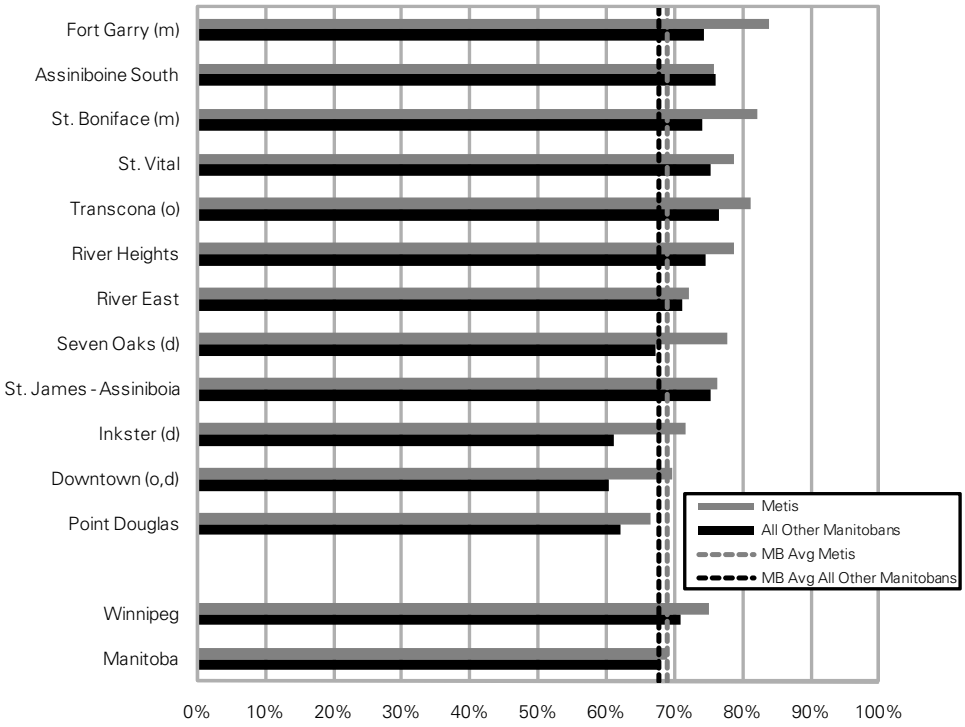
Figure 7.4.2: Cervical Cancer Screening Rate by Metis Region, 2004/05-2006/07
Age-adjusted percent of Metis women aged 18-69 years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 7.4.3: Cervical Cancer Screening Rate by Winnipeg Community Area, 2004/05-2006/07
Age-adjusted percent of women aged 18-69 years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 7.4.1: Logistic Regression Model of the Probability of a Pap Test for Cervical Cancer

Probability of Pap Test by Aggregate Region, 2004/05–2006/07, women aged 18–69

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	**1.247 (1.209, 1.287)**	**<0.001**
Aggregate Regions (ref = Manitoba)		
Rural South	**1.092 (1.073, 1.110)**	**<0.001**
Mid	**1.084 (1.064, 1.105)**	**<0.001**
North	**0.416 (0.405, 0.427)**	**<0.001**
Brandon	**1.725 (1.673, 1.778)**	**<0.001**
Winnipeg	**1.177 (1.162, 1.194)**	**<0.001**
Age 18–29 (vs. 40–49)	**0.881 (0.863, 0.900)**	**<0.001**
Age 30–39 (vs. 40–49)	**1.159 (1.133, 1.185)**	**<0.001**
Age 50–59 (vs. 40–49)	**0.858 (0.839, 0.878)**	**<0.001**
Age 60–69 (vs. 40–49)	**0.571 (0.556, 0.586)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.109 (1.105, 1.113)**	**<0.001**
Continuity of Care	**2.562 (2.523, 2.601)**	**<0.001**
Mental Illness ADGs	**1.383 (1.356, 1.410)**	**<0.001**
Major Physical Illness ADGs	**1.200 (1.178, 1.223)**	**<0.001**

Bold = statistically significant results

Probability of Pap Test by Metis Region, 2004/05–2006/07, Metis women aged 18–69

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	**1.341 (1.238, 1.453)**	**<0.001**
Interlake Region	**1.343 (1.235, 1.461)**	**<0.001**
Northwest Region	1.055 (0.944, 1.179)	0.3441
Winnipeg Region	**1.514 (1.434, 1.598)**	**<0.001**
Southwest Region	**1.217 (1.122, 1.319)**	**<0.001**
The Pas Region	**0.516 (0.470, 0.566)**	**<0.001**
Thompson Region	**0.554 (0.497, 0.617)**	**<0.001**
Age 18–29 (vs. 40–49)	**1.209 (1.106, 1.320)**	**<0.001**
Age 30–39 (vs. 40–49)	**1.149 (1.045, 1.263)**	**0.0041**
Age 50–59 (vs. 40–49)	**0.835 (0.756, 0.923)**	**<0.001**
Age 60–69 (vs. 40–49)	**0.495 (0.442, 0.555)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.141 (1.118, 1.164)**	**<0.001**
Continuity of Care	**1.962 (1.841, 2.090)**	**<0.001**
Mental Illness ADGs	**1.409 (1.307, 1.519)**	**<0.001**
Major Physical Illness ADGs	**1.117 (1.038, 1.201)**	**0.0030**

Bold = statistically significant results

Source: MCHP/MMF, 2010

7.5 Findings from Literature Review

(*compared to the results in this study—in italics*)

In the Manitoba First Nations report (Martens et al., 2002), First Nations had much lower two-year-old complete immunization rates compared to the rest of the population (45% vs. 77%). As well, mammography screening rates for 1997-1998 were also lower for First Nations compared to all other Manitobans (26% vs. 56%).

There is no comparable Metis data for preventive or screening indicators with which to compare results in this chapter. However, the Metis prevention and screening rates are similar (or better than) the rest of the population provincially in 2006/07, in contrast with the much lower rates of First Nations observed in 1997 and 1998 in the Martens et al. (2002) report.

It is important to note the presence of Aboriginally-governed health and social service delivery organizations in the inner city of Winnipeg, and how this could potentially be positively affecting the observed rates of immunization and cancer screening tests for Winnipeg inner city Metis due to access to Aboriginal health services (Bartlett et al., 2004). Being in Winnipeg MMF Region in our study was associated with a higher rate of adult (65+) influenza immunization and cervical cancer screening for women aged 18–69 years. This may also increase the percentage of women having good continuity of care (i.e., receiving at least 50% of physician care over a three–year period from the same physician).

In our study, for the Metis population (from the regression model only including Metis), good continuity of care was highly associated with a higher probability of: two–year–old complete immunization (aOR=1.48, 95% CI 1.20–1.82); influenza immunization for those aged 65+ (aOR=1.61, 95% CI 1.44–1.80); mammography tests for women aged 50–60 (aOR=1.62, 95% CI 1.45–1.80); and Pap tests for women aged 18–69 (aOR=1.96, 95% CI 1.84–2.09).

Reference List

Bartlett JG, Laberero C, Harper P, Redsky S, Knatz N, Seymour D. Eagle's Eye View: An Environmental Scan of the Aboriginal Community in Winnipeg. United Way of Winnipeg. 2004. http://www.unitedwaywinnipeg.mb.ca/pdf/eagleseyeview–04.pdf. Accessed October 17, 2009.

Martens P, Bond R, Jebamani L, Burchill C, Roos NP, Derksen S, Beaulieu M, Steinbach C, MacWilliam L, Walld R, Dik N, Sanderson D, Health Information and Research Committee AoMC, Tanner-Spence M, Leader A, Elias B, O'Neil J. *The Health and Healthcare Use of Registered First Nations People Living in Manitoba: A Population–Based Study.* Manitoba Centre for Health Policy. 2002. http://mchp-appserv.cpe.umanitoba.ca/reference/rfn_report.pdf. Accessed April 20, 2010.

Chapter 8: Child Health

Indicators in this chapter:

- Breastfeeding Initiation Rate of Newborns
- Teen Pregnancy Rate (females aged 15–19)
- Newborn Hospital Readmission Rate Within Four Weeks of Birth Discharge
- Infant Mortality Rate
- Child Mortality Rate (aged 1–19 years)
- ADHD Prevalence (aged 5–19 years)

Overall Key Findings:

- Some child health indicators show that Metis children have a similar experience to all other Manitoba children: hospital readmission rates of newborns within four weeks of discharge, infant mortality rates, and overall child mortality rates are all similar between the two groups. However, other indicators show that Metis children may be at greater risk with breastfeeding rates about 7% lower, teen pregnancy rates 50% higher, child injury mortality rates 14% higher, and ADHD prevalence 23% higher.
- According to Table 8.0, notable regions having at least two indicators with statistically lower child health "risk": South Eastman RHA, the Rural South aggregate area, Southeast MMF Region, and St. Boniface CA. It is also worthy of note that the hospitals with the greatest likelihood of newborn breastfeeding initiation (after controlling for other factors) are also both in the Rural South—Boundary Trails (Winkler/Morden) and Bethesda (Steinbach).
- The North aggregate area, and in particular Parkland RHA, Burntwood RHA, The Pas MMF Region, and Thompson MMF Region show particularly high risk for poor child health in at least two indicators. As well, the Point Douglas CA is of particular high risk. It is also worthy of note that the two major urban and rural hospitals with the lowest likelihood of newborn breastfeeding initiation (after controlling for other factors) are mainly found in high risk areas—Thompson Hospital and Dauphin Hospital, Portage La Prairie Hospital in Central RHA also has a significantly lower likelihood of newborn breastfeeding initiation.
- It is difficult to know whether a high ADHD rate is a warning flag for the health of children in the area, or whether this indicates differing diagnostic criteria or better access to child health specialists. Given this limitation of diagnostic bias, it appears that the urban areas of Winnipeg and Brandon have a higher risk of ADHD. However, if it is a flag for better access, then these two areas could be considered better off, not worse off, in this indicator. Similarly, the North, with its low rates, could be considered either a better–off area with low rates or a worse–off area with poorer access.

Table 8.0: Overall Key Findings of Child Health Indicators

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average	Statistically "worse off" regions for Metis compared to the Metis provincial average
Breastfeeding Initiation Rates (crude percent of newborns)	76.0% vs. 81.7%; RR=0.93	South Eastman RHA, Winnipeg RHA, Rural South aggregate area, Southeast MMF Region, Winnipeg MMF Region, St. Boniface CA, St. Vital CA, River East CA [logistic regression: Rural South aggregate area, Hospitals of Boundary Trails (Winkler/Morden) and Steinbach Bethesda]	Parkland RHA, Burntwood RHA, Mid and North aggregate areas, Northwest MMF Region, The Pas MMF Region, Thompson MMF Region, Point Douglas CA [logistic regression: The Pas MMF Region, North aggregate area, Hospitals of: Thompson, Portage, Dauphin]
Teen Pregnancy Rates (age–adjusted rate per thousand females aged 15–19 years)	70.2 vs. 46.4 per 1000; RR=1.51	South Eastman RHA, Central RHA, Assiniboine RHA, Interlake RHA, Rural South aggregate area, Southeast MMF Region, Interlake MMF Region, Southwest MMF Region, St. Boniface CA, Transcona CA [logistic regression: Southeast MMF Region, Rural South and Mid aggregate areas]	Winnipeg RHA, Parkland RHA, Burntwood RHA, North aggregate area, The Pas MMF Region, Thompson MMF Region, Inkster CA, Downtown CA, Point Douglas CA [logistic regression: Thompson MMF Region, North aggregate area]
Newborn Hospital Readmission Rate within four weeks of birth discharge (crude rate per 1000)	35.8 vs. 32.5 per 1000; RR=1.10, NS	–	Parkland RHA
Infant Mortality Rate (crude rate per 1000)	5.7 vs. 6.8 per 1000; RR=0.84, NS	–	–
Child Mortality Rate (age– and sex–adjusted rate per 1000 aged 1–19 years)	0.33 vs. 0.36 per 1000; RR=0.92, NS	–	–

Child Injury Mortality (crude percentage of child mortality rate due to injury)	71.8% vs. 63.1%; RR=1.14	n/a	n/a
ADHD (percentage of children aged 5–19 years)	3.7% vs. 3.0%; RR=1.23	North Eastman RHA, NOR–MAN RHA, Burntwood RHA, Mid and North aggregate areas, The Pas MMF Region, Thompson MMF Region	Winnipeg RHA, Winnipeg MMF Region, St. Vital CA

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

8.1 Breastfeeding Initiation Rate

The crude percentage of newborns (live births) in a Manitoba hospital who were exclusively or partially breastfed upon discharge from the hospital was measured over three fiscal years, 2004/05–2006/07. The denominator includes all live born babies in a Manitoba hospital that have breastfeeding information in the hospital discharge abstract. Note that out of province birth records, birth records without breastfeeding information, or breastfed coded as NPO (nothing by mouth) were excluded from both the numerator and denominator.

Key observations:

RHAs:

- Provincially, Metis newborn breastfeeding initiation rates are lower than for all other newborns (76.0% vs. 81.7%).
- There is a strong gradient by PMR, with lower breastfeeding rates in regions with poorer overall health status.
- Metis have significantly lower breastfeeding initiation rates in the aggregate areas of Rural South (83.6% vs. 87.8%) and Mid (69.6% vs. 76.4%) and in the two urban areas of Brandon RHA (77.9% vs. 84.5%) and Winnipeg RHA (79.1% vs. 84.7%) compared to all others living in these regions. However, Metis breastfeeding initiation rates are higher in the North aggregate area compared to all others (67.6% vs. 59.5%).
- Metis breastfeeding initiation rates are significantly lower than for all other newborns in many of the RHAs: Central (79.4% vs. 86.7%), Assiniboine (73.9% vs. 85.1%), Brandon (77.9% vs. 84.5%), Winnipeg (79.1% vs. 84.7%), and Parkland (56.1% vs. 73.6%). However, Metis rates are significantly higher in Burntwood RHA (65.8% vs. 56.5%).
- Metis breastfeeding initiation rates are statistically higher than the corresponding Metis provincial average of 76.0% in the following RHAs: South Eastman (90.0%); and Winnipeg (79.1%). Churchill RHA has very high rates for Metis (92.3%), but this is not statistically significant (probably due to very small population numbers).
- Metis breastfeeding initiation rates are statistically lower than the corresponding Metis provincial average of 76.0% in the following RHAs: Parkland (56.1%) and Burntwood (65.8%). There is also a trend to low rates in Nor-Man RHA (68.6%), though it is not statistically significant.

MMF Regions:

- Compared to the Metis provincial average of 76.0%, Metis breastfeeding initiation rates are significantly higher in Southeast MMF Region (83.1%) and Winnipeg Region (79.1%), but significantly lower in Northwest (62.8%), The Pas (60.3%), and Thompson (67.0%) MMF Regions.
- In the MMF Regions, the gradient of Metis breastfeeding initiation rates by PMR is somewhat evident, but Northwest MMF Region appears to be an anomaly with much lower rates than expected.

Winnipeg CAs:

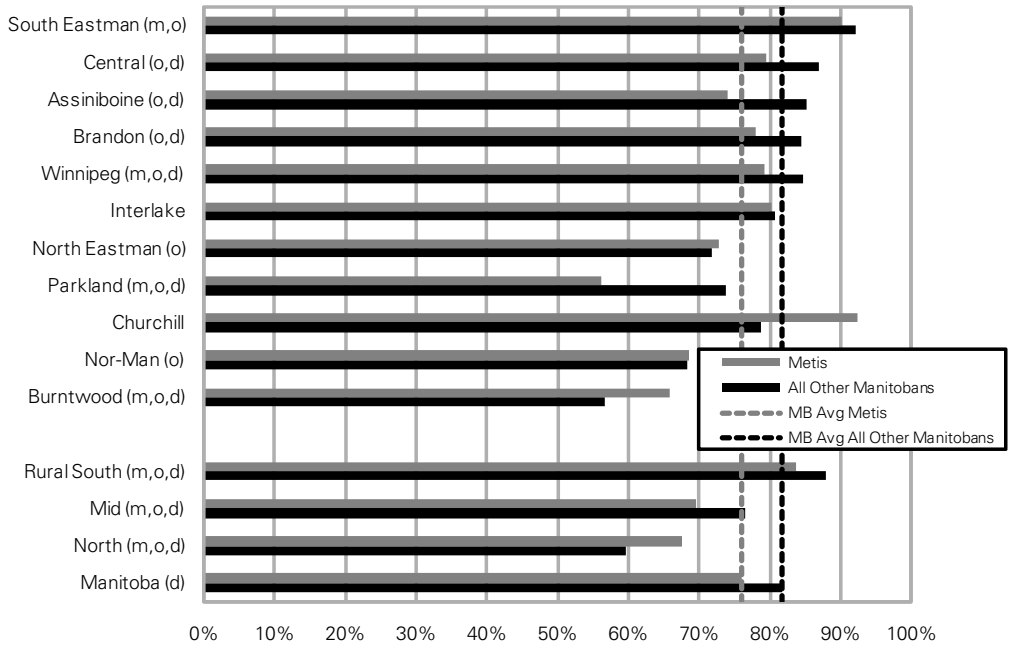
- In Winnipeg RHA, both Metis (79.1%) and all other newborn (84.7%) breastfeeding initiation rates are higher than their corresponding provincial averages (Metis 76.0%, all others 81.7%), but the Metis rate is significantly lower than the rate for all other Winnipeg newborns. There is also a strong gradient with PMR, which showed that breastfeeding initiation rates are lowest in the least healthy CAs.
- Although there is a trend towards slightly lower breastfeeding initiation rates for Metis compared to all others living in each CA, only the Downtown CA has a significant difference (68.3% vs. 75.1%).
- There is a significantly lower breastfeeding initiation rate for Metis compared to all other newborns in the CA of Downtown (68.3% vs. 75.1%). In Point Douglas, both Metis and all other residents have similar rates (63.6% vs. 69.4%), and these are lower rates than their corresponding provincial averages.
- Metis breastfeeding initiation rates are higher than the provincial Metis average in the CAs of St. Boniface (89.8%), St. Vital (86.5%), and River East (85.0%). Many of the other CAs show a similar trend.
- Metis breastfeeding initiation rates are lower than the provincial Metis average in the CA of Point Douglas (63.6%), and the CAs of Inkster (71.0%) and Downtown (68.3%) show a trend towards low rates.

Logistic regression modeling of the probability of a newborn being breastfed (in the year 2006/07):

- For the logistic regression including everyone:
  - Metis are less likely to breastfeed compared to all other Manitobans (aOR=0.83, 95% CI 0.71–0.97).
  - Women living in the South aggregate area are more likely to breastfeed compared to all Manitobans (after controlling for the effects of maternal age, income, comorbidities, newborn birthweight and gestational age, hospital of birth, etc.), whereas those living in the North are less likely.
  - Women are less likely to breastfeed if they have had a C–Section, given birth to multiples, have physical comorbidities, or have a newborn of lower gestational age. A woman is also less likely to breastfeed if she resides in an area of lower average household income, has other children (multiparous), or if she is younger at the birth of her first child.
  - Women giving birth in Boundary Trails Hospital (aOR=2.33, 95% CI 1.63–3.34) and Steinbach's Bethesda Hospital (aOR=2.41, 95% CI 1.47–3.96) are more likely to initiate breastfeeding, whereas women giving birth in Thompson Hospital (aOR=0.55, 95% CI 0.43–0.70), Portage Hospital (aOR=0.46, 95% CI 0.34–0.63), and Dauphin Hospital (aOR=0.74, 95% CI 0.55–0.99) are less likely to initiate breastfeeding, after controlling for demographics and maternal/newborn characteristics.

- For the logistic regression only including the Metis population:
  - Metis women residing in The Pas MMF Region are less likely to initiate breastfeeding (aOR=0.63, 95% CI 0.41–0.97). There is a trend to women from Southeast MMF Region being more likely to breastfeed (aOR=1.52, 95% CI 0.96–2.42, p<.08, NS) and women from Northwest MMF Region being less likely (aOR=0.63, 95% bCI 0.39–1.03, p<.07, NS), but neither of these are statistically significant.
  - Because of small sample size for the modeling of only Metis, many of the other variables do not show significance. However, they are in a similar direction to the effects that show up in the complete model, which trends toward a less likelihood of breastfeeding after a C–Section, multiple birth, newborn of lower gestational age, or maternal comorbidities present.
  - The higher the maternal age at first birth, the greater the likelihood of breastfeeding a newborn (aOR=1.11, 95% CI 1.07–1.15)
  - The higher the average neighbourhood income, the higher the likelihood of initiating breastfeeding (aOR=1.18, 95% CI 1.05–1.32, for every $10,000 incremental increase in income).
  - The higher the parity of the mother (i.e., the more children born to the mother), the less likely that a newborn will be breastfed.

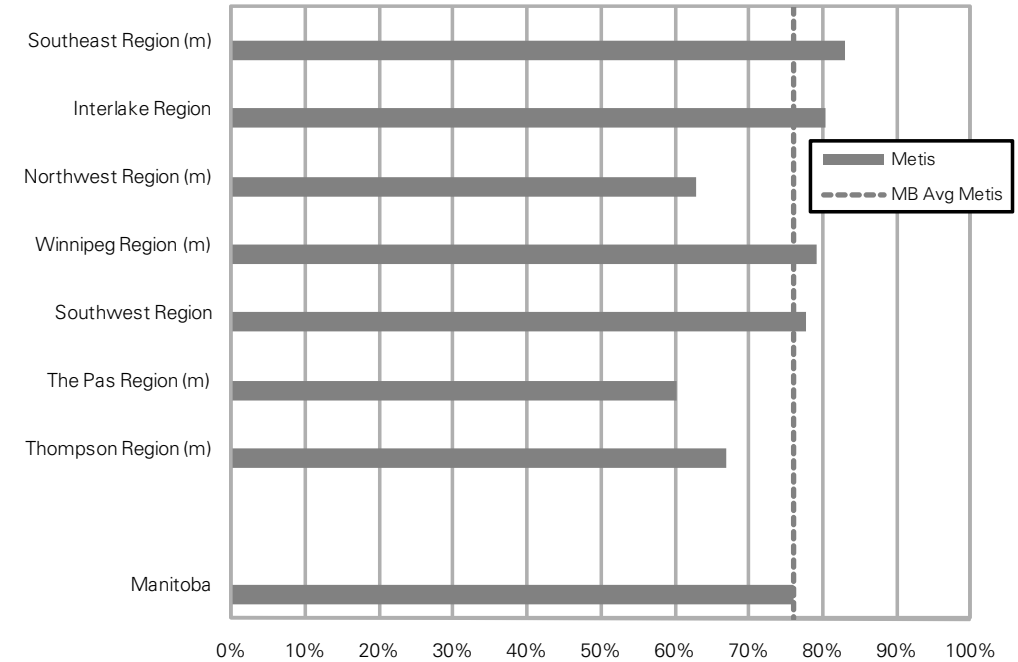
Figure 8.1.1: Breastfeeding Initiation Rate by RHA, 2004/05-2006/07
Crude percent of newborns breastfeeding at hospital discharge



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

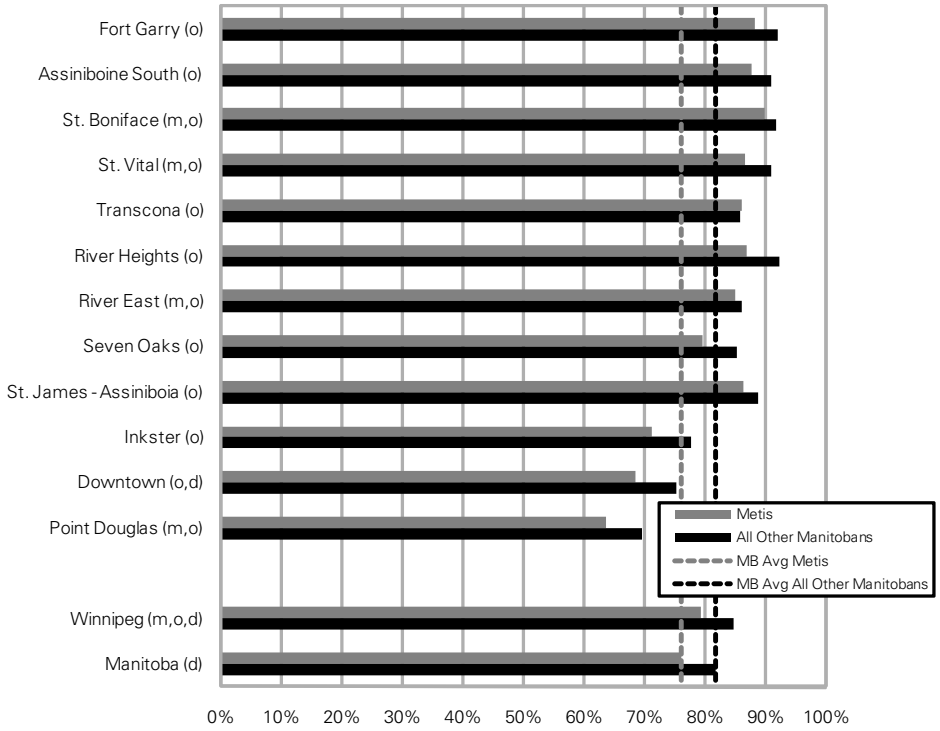
Figure 8.1.2: Breastfeeding Initiation Rate by Metis Region, 2004/05-2006/07
Crude percent of Metis newborns breastfeeding at hospital discharge



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 8.1.3: Breastfeeding Initiation Rate by Winnipeg Community Area, 2004/05-2006/07
Crude percent of newborns breastfeeding at hospital discharge



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 8.1.1: Logistic Regression Model of the Probability of Newborn Breastfeeding Initiation

Probability of Breastfeeding Initiation by Aggregate Region, 2006/07, newborns

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	**0.830 (0.712, 0.967)**	**0.0171**
Aggregate Regions (ref = Manitoba)		
Rural South	**1.482 (1.285, 1.709)**	**<0.001**
Mid	0.871 (0.750, 1.011)	0.0688
North	**0.545 (0.455, 0.652)**	**<0.001**
Brandon	1.291 (0.987, 1.690)	0.0625
Winnipeg	1.102 (0.976, 1.244)	0.1181
Hospitals (ref = Health Sciences Centre)		
Brandon	0.836 (0.643, 1.088)	0.1822
St Boniface	1.040 (0.891, 1.215)	0.6183
Boundary Trails, Winkler–Morden	**2.330 (1.625, 3.340)**	**<0.001**
Dauphin	**0.743 (0.554, 0.997)**	**0.0474**
Flin Flon	1.296 (0.696, 2.414)	0.4140
Portage	**0.464 (0.344, 0.625)**	**<0.001**
Selkirk	0.882 (0.601, 1.294)	0.5201
Steinbach	**2.413 (1.470, 3.960)**	**<0.001**
Swan River	0.618 (0.374, 1.020)	0.0596
The Pas	0.944 (0.700, 1.274)	0.7068
Thompson	**0.550 (0.433, 0.698)**	**<0.001**
Intermediate Rural	**2.100 (1.094, 4.030)**	**0.0256**
Small Rural	1.223 (0.696, 2.148)	0.4838
Gestational Age (weeks)	**1.083 (1.017, 1.152)**	**0.0128**
Gestational Weight (kg)	1.512 (0.653, 3.499)	0.3344
Gestational Age by Weight Interaction	0.993 (0.972, 1.015)	0.5205
APGAR Score (0–6 vs. 7–10)	0.845 (0.677, 1.055)	0.1375
Mother's Age at First Birth	**1.178 (1.140, 1.216)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**1.101 (1.090, 1.113)**	**<0.001**
Parity (1 child vs. 0)	**0.651 (0.578, 0.734)**	**<0.001**
Parity (2+ children vs. 0)	**0.586 (0.520, 0.659)**	**<0.001**
C–section Birth	**0.748 (0.663, 0.844)**	**<0.001**
Multiple Birth	**0.724 (0.552, 0.951)**	**0.0202**
Mental Illness ADGs	0.944 (0.838, 1.062)	0.3372
Major Physical Illness ADGs	**0.755 (0.665, 0.856)**	**<0.001**

Bold = statistically significant results

Source: MCHP/MMF, 2010

8.2 Teen Pregnancy Rate

Teenage pregnancy includes live births, stillbirths, abortions, and ectopic pregnancies of women under the age of twenty.

The age–adjusted rates of teenage pregnancy are calculated for females aged 15–19 in five fiscal years: 2002/03–2006/07. Crude rates are available in the appendix. Teenage pregnancy is defined as a hospitalization with one of the following diagnoses:

- live birth: ICD–9–CM code V27, ICD–10–CA code Z37
- missed abortion: ICD–9–CM code 632, ICD–10–CA code O02.1
- ectopic pregnancy: ICD–9–CM code 633, ICD–10–CA code O00
- abortion: ICD–9–CM codes 634–637, ICD–10–CA codes O03–O07
- intrauterine death: ICD–9–CM code 656.4, ICD–10–CA code O36.4

Or, a hospitalization with one of the following procedures:

- surgical termination of pregnancy: ICD–9–CM codes 69.01, 69.51, 74.91; CCI codes 5.CA.89, 5.CA.90
- surgical removal of extrauterine (ectopic) pregnancy: ICD–9–CM codes 66.62, 74.3; CCI code 5.CA.93
- pharmacological termination of pregnancy: ICD–9–CM code 75.0, CCI code 5.CA.88
- interventions during labour and delivery: CCI codes 5.MD.5, 5.MD.60

The denominator includes all Manitoba female residents aged 15–19 as of December 31 of each year (2002–2006). Note that abortions performed in private clinics are not included in the count of teenage pregnancies. The rate of pregnancies in teenage girls aged 10–14 was not analyzed due to very the small number of events.

Key Observations:

RHAs:

- Provincially, the Metis teen pregnancy rate is higher compared to that of all other Manitoba teens (70.2 vs. 46.4 per 1000).
- There is a steep gradient with PMR, where the teen pregnancy rate is higher in the less healthy RHAs.
- The aggregate areas show very different rates—the Rural South has teen pregnancy rates lower than the provincial averages for both groups (Metis 32.7 per 1000; others 29.6 per 1000, NS); Mid area teens are both similar to the provincial averages (Metis 65.6, others 45.2 per 1000, Metis statistically higher than others); and North teens have higher rates than the provincial averages (Metis 97.0, others 121.0 per 1000, Metis statistically lower than the other North teens). It is important to note that the North aggregate area "all others" group has a high proportion of First Nations teens, so the comparison between Metis and all others may be influenced by the patterns of First Nations teen pregnancy.

- Several RHAs show Metis teen pregnancy rates lower than the Metis provincial average—South Eastman (28.7), Central (37.3), Assiniboine (34.2), and Interlake (44.7 per 1000). Other RHAs show Metis teen pregnancy rates higher than the Metis provincial average—Winnipeg (81.0), Parkland (98.4), and Burntwood (111.4 per 1000). Although not statistically significant, Brandon RHA has a high rate at 96.0 per 1000.
- The Metis teen pregnancy rate is higher than that of all other residents of the RHA in Brandon (96.0 vs. 48.1 per 1000), Winnipeg (81.0 vs. 43.1 per 1000), and Parkland (98.4 vs. 46.2 per 1000). In all other RHAs, rates are similar between the two groups.

MMF Regions:

- Three MMF Regions show lower teen pregnancy rates compared to the overall Metis provincial average of 70.2 per 1000: Southeast (41.5), Interlake (43.6), and Southwest (50.0 per 1000). In contrast, two MMF Regions show higher rates: The Pas (101.0) and Thompson (106.0 per 1000).
- In the MMF Regions, there is a relatively steep gradient with PMR, whereby the least healthy regions have the highest teen pregnancy rates.

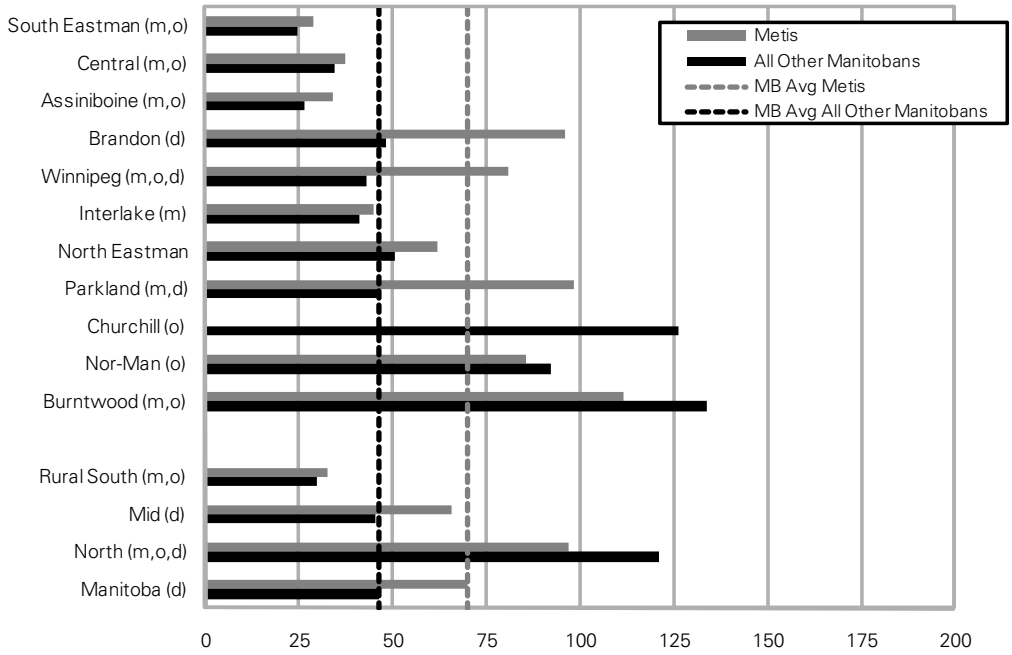
Winnipeg CAs:

- Metis teen pregnancy rates are higher in Winnipeg compared to all other Winnipeg teens (81.0 vs. 43.1 per 1000), at almost double the rate. The Winnipeg Metis rate is actually statistically higher than the overall Metis provincial average (81.0 vs. 70.2 per 1000), whereas the Winnipeg "all other" rate is statistically lower (43.1 vs. 46.4 per 1000).
- There is a steep gradient in Winnipeg, with the highest teen pregnancy rate in the least healthy CAs.
- Low teen pregnancy rates for Metis teens are seen in the CAs of St. Boniface (38.5) and Transcona (35.7 per 1000) compared to the Metis provincial average, whereas high rates are seen in the CAs of Inkster (128.0), Downtown (162.5), and Point Douglas (156.6 per 1000). Although not statistically significant, the CAs of River Heights (92.8) and River East (82.4 per 1000) show a trend to relatively high Metis teen pregnancy rates. With the exceptions of Inkster, Downtown, and Point Douglas, all other CAs in Winnipeg have lower teen pregnancy rates for "all other" teens, compared to their provincial rate of 46.4 per 1000.
- Several CAs of Winnipeg show statistically higher rates of teen pregnancy for Metis compared to others residing in that area: St. Vital (50.2 vs. 25.4), River Heights (92.8 vs. 31.4), River East (82.4 vs. 36.5), Seven Oaks (60.0 vs. 37.6), Inkster (128.0 vs. 63.1), Downtown (162.5 vs. 93.3), and Point Douglas (156.6 vs. 112.3 per 1000). Of special concern are the three least healthy CAs of Inkster, Downtown and Point Douglas, where rates for Metis teens are extremely high (the highest in the province and 1.4 to 2.0 times the rate for other teens living in those areas).

Logistic regression modeling of the probability of a teen pregnancy (in the year 2006/07):

- For the logistic regression including everyone:
    - The logistic regression model showed the teen pregnancy rates of Metis and others to be similar (aOR=0.95, 95% CI 0.80–1.14, p=.60, NS) after adjusting for the effects of income, physical and mental comorbities, demographics, and age of the teen's mother at first birth. So the fact that the age–adjusted rates of teen pregnancy for Metis were statistically significantly higher provincially compared to all others, this can be explained by differences in other factors, not in ethnicity.
    - By aggregate area, after controlling for confounding effects, all teens living in the South (aOR=0.60, 95% CI 0.53–0.68) and Mid (aOR=0.87, 95% CI 0.77–0.98) are less likely to become pregnant, whereas those living in the North are more likely (aOR=1.81, 95% CI 1.61–2.03). Brandon and Winnipeg are both similar to the overall provincial likelihood.
    - There is an increased likelihood of teen pregnancy as the teen's age increases, and teens with mental and physical comorbidities are more likely to become pregnant.
    - The age at first birth of the teen's mother influences the likelihood of the teen becoming pregnant herself—as the mother's age at first birth increases, the likelihood of her teenage daughter becoming pregnant decreases.
    - There is a decreased likelihood of teen pregnancy as the average household income of the neighbourhood increases.
    - Teens taking a prescribed oral contraceptive (at least one contraceptive prescription, oral or transdermal patch) in the year prior) are slightly more likely to experience a teen pregnancy (aOR=1.15, 95% CI 1.01–1.30). This may be due to oral contraceptives being an indicator of being sexually active, especially given the fact that oral contraceptive use could be limited to only one prescription. However in teens, there may be a higher risk of pills being missed, increasing the risk of unintended pregnancy.
- For the logistic regression only including the Metis population:
    - Metis teens living in Southeast MMF Region (aOR=0.43, 95% CI 0.23–0.80) are less likely, but those living in Thompson MMF Region (aOR=1.87, 95% CI 1.16–3.01) are more likely to become pregnant compared with the overall provincial Metis likelihood.
    - There is an increased likelihood of teen pregnancy as the age of the teen increases, the average household income of the neighbourhood decreases, the teen's physical comorbidities increase, and the age of the teen's mother at first birth decreases. Although not significant, the presence of a mental comorbidity shows a trend to increased likelihood of teen pregnancy (the model with all Manitobans in it showed this to be statistically significant, probably due to greater sample size).

Figure 8.2.1: Teen Pregnancy Rate by RHA, 2002/03-2006/07
Age-adjusted annual rate of teen pregnancies per 1,000 females aged 15-19



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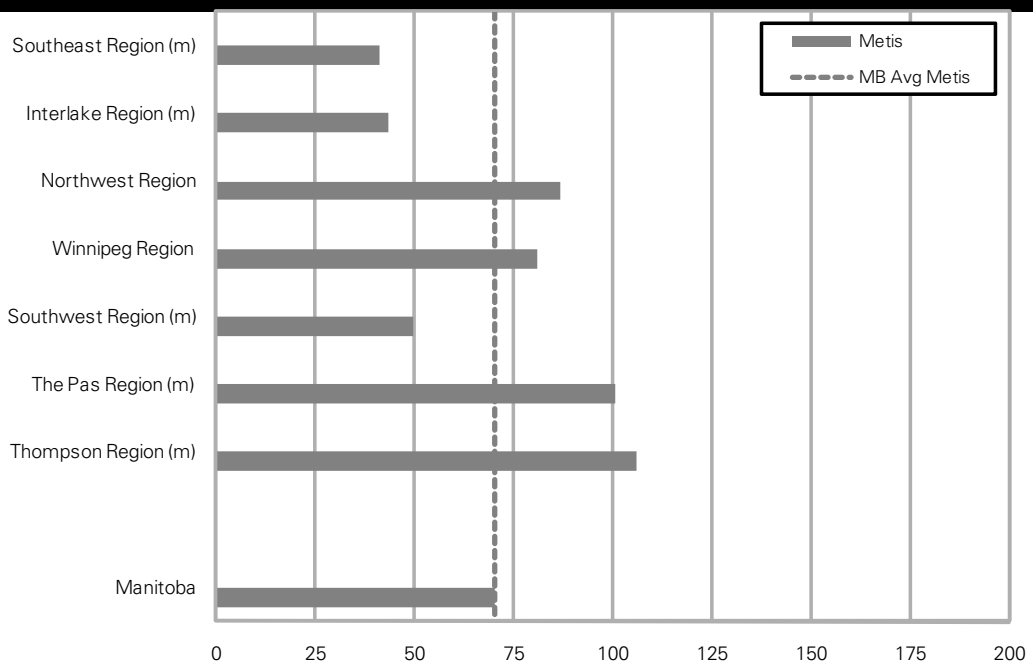
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 8.2.2: Teen Pregnancy Rate by Metis Region, 2002/03-2006/07
Age-adjusted annual rate of teen pregnancies per 1,000 Metis females aged 15-19



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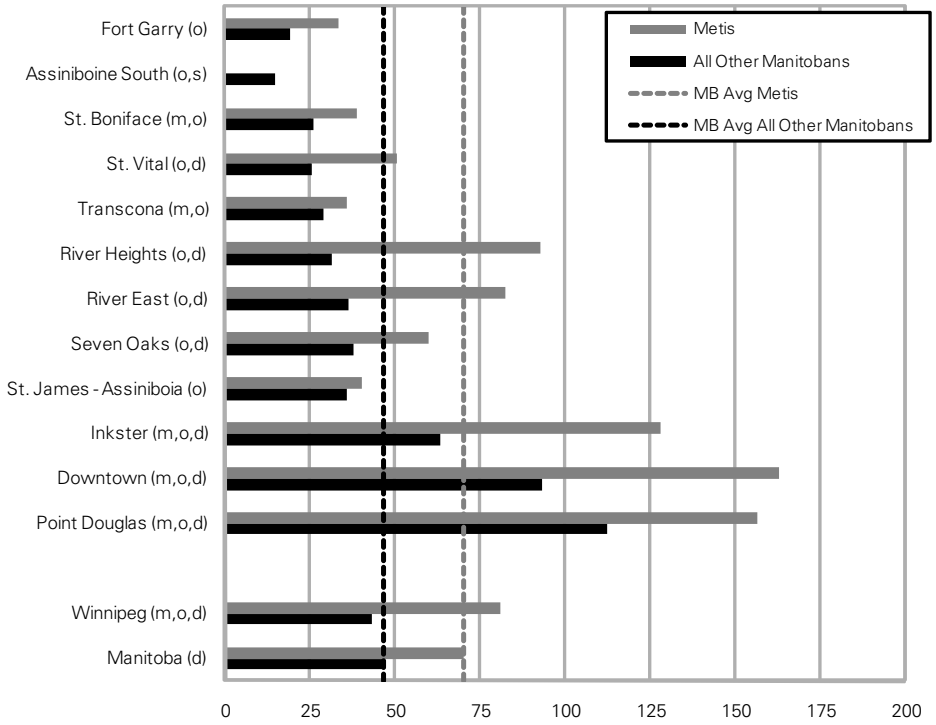
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 8.2.3: Teen Pregnancy Rate by Winnipeg Community Area, 2002/03-2006/07
Age-adjusted annual rate of teen pregnancies per 1,000 females aged 15-19



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 8.2.1: Logistic Regression Model of the Probability of Teen Pregnancy

Probability of Teen Pregnancy by Aggregate Region, 2006/07, females aged 15–19

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	0.954 (0.800, 1.138)	0.6034
Aggregate Regions (ref = Manitoba)		
Rural South	**0.596 (0.527, 0.675)**	**<0.001**
Mid	**0.869 (0.768, 0.983)**	**0.0260**
North	**1.809 (1.612, 2.030)**	**<0.001**
Brandon	0.982 (0.800, 1.207)	0.8655
Winnipeg	1.086 (0.992, 1.189)	0.0742
Age, linear	**1.731 (1.644, 1.822)**	**<0.001**
Age, quadratic	**0.902 (0.871, 0.935)**	**<0.001**
Mother's Age at First Birth	**0.862 (0.850, 0.873)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.787 (0.760, 0.815)**	**<0.001**
Mental Illness ADGs	**1.619 (1.415, 1.852)**	**<0.001**
Major Physical Illness ADGs	**1.180 (1.030, 1.352)**	**0.0169**
Contraceptive Pill Use	**1.147 (1.011, 1.302)**	**0.0333**

Bold = statistically significant results

Probability of Teen Pregnancy by Metis Region, 2006/07, Metis females aged 15–19

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	**0.427 (0.228, 0.802)**	**0.0082**
Interlake Region	0.891 (0.538, 1.474)	0.6518
Northwest Region	1.136 (0.663, 1.946)	0.6436
Winnipeg Region	1.094 (0.815, 1.467)	0.5502
Southwest Region	0.875 (0.549, 1.394)	0.5740
The Pas Region	1.293 (0.833, 2.007)	0.2527
Thompson Region	**1.871 (1.163, 3.010)**	**0.0098**
Age, linear	**1.639 (1.403, 1.914)**	**<0.001**
Age, quadratic	0.904 (0.809, 1.010)	0.0734
Mother's Age at First Birth	**0.870 (0.828, 0.914)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	**0.847 (0.747, 0.960)**	**0.0094**
Mental Illness ADGs	1.508 (0.990, 2.298)	0.0559
Major Physical Illness ADGs	**1.522 (1.014, 2.284)**	**0.0425**
Contraceptive Pill Use	1.082 (0.735, 1.594)	0.6887

Bold = statistically significant results

Source: MCHP/MMF, 2010

8.3 Newborn Hospital Readmission Rate Within Four Weeks of Birth Discharge:

The crude annual rate of infant readmission to the hospital within four weeks of hospital discharge of birth hospitalization was measured over five calendar years: 2002–2006. One baby could potentially have more than one readmission, hence this is a rate not a prevalence. The denominator includes all live births (in hospital) in the study period.

Key observations:

RHAs:

- Provincially, the Metis newborn hospital readmission rate is similar to that of all other newborns (35.8 vs. 32.5 per 1000).
- There appears to be a gradient of newborn hospital readmission rate with PMR, the least healthy regions having the highest rate. However, Parkland RHA shows up as a slight anomaly by having a much higher hospitalization rate than one would expect given its underlying health status.
- Because of the rarity of this event, statistical differences do not show up in most regions. However, Parkland has an elevated newborn hospital readmission rate for both the Metis (60.8) and other newborns (54.6 per 1000), 1.7 times the corresponding provincial rates in both cases.
- Although not statistically significant, there appears to be somewhat of a lower newborn hospital readmission rate for Metis compared to other newborns in NOR–MAN (37.1 vs. 47.1 per 1000) and Burntwood (36.4 vs. 43.7 per 1000). In most other RHAs and at the aggregate Rural South (31.1 vs. 26.8 per 1000) and Mid (39.1 vs. 34.5 per 1000) levels, the trend goes in the opposite direction with Metis rates slightly higher than all others in the region.

MMF Regions:

- Because of the rarity of the event, no MMF Region has a statistically higher or lower newborn hospital readmission rate compared to the Metis provincial average of 35.8 per 1000.
- There is evidence of a slight gradient in MMF Regions of newborn hospital readmission rate by PMR, with the most healthy having the lowest rate and the least healthy the highest. Both Northwest and The Pas MMF Regions appear to have elevated newborn hospital readmissions at 53.5 and 50.0 per 1000 respectively.

Winnipeg Aggregate Areas[1]:

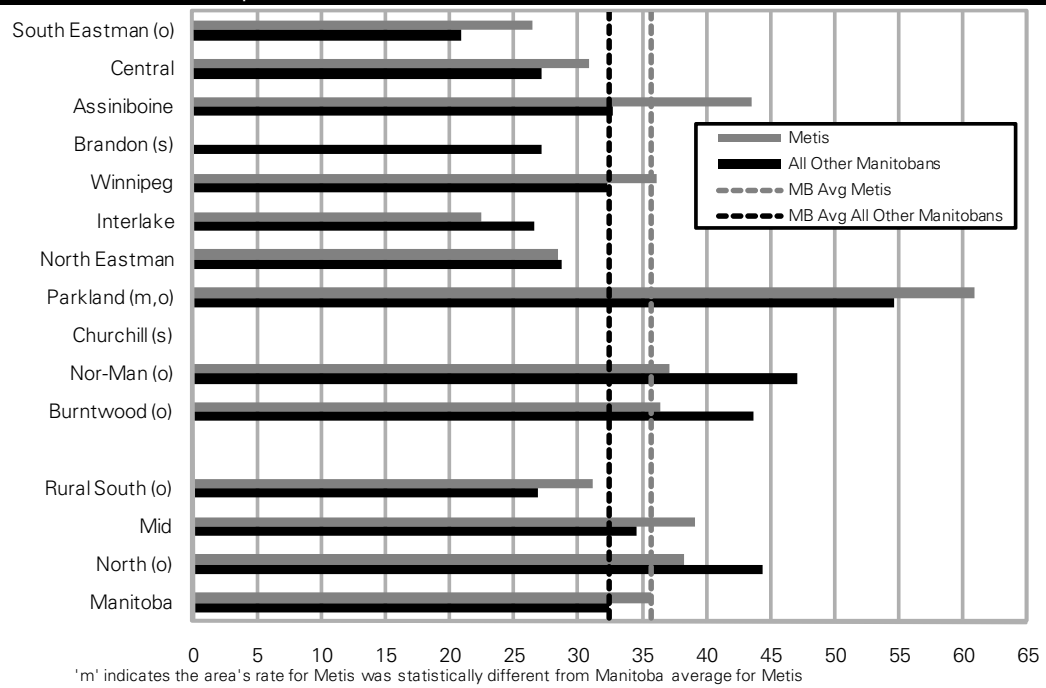
- In Winnipeg RHA, the newborn hospital readmission rate is similar between Metis and other newborns (36.1 vs. 32.3 per 1000, NS).
- Only one Winnipeg Aggregate Area has a statistically higher rate for Metis compared to all others—Winnipeg Average Health (51.7 vs. 30.5 per 1000). The two other areas have similar rates between the two groups.

[1] Note that due to relatively small numbers of events at the Winnipeg CA level, only aggregate area rates could be shown. The MCHP suppression rule is that if a rate is based upon 1 to 5 events, the rate must be suppressed for that geographical area.

Reasons for newborn hospital readmission within four weeks of birth discharge:

- The reasons for newborn hospital readmission are very similar between Metis and all other Manitobans, with the top five being: respiratory system (Metis 18.0%, others 16.7%); jaundice (Metis 17.6%, others 16.5%); accompanying a sick person' (Metis 14.6%, others 15.4%); congenital anomalies (Metis 9.8%, others 8.7%); and infectious/parasitic (Metis 9.3%, others 8.2%).

Figure 8.3.1: Newborn Hospital Readmission Rates Within Four Weeks of Birth Discharge by RHA, 2002-2006
Crude annual rate per 1,000 newborns



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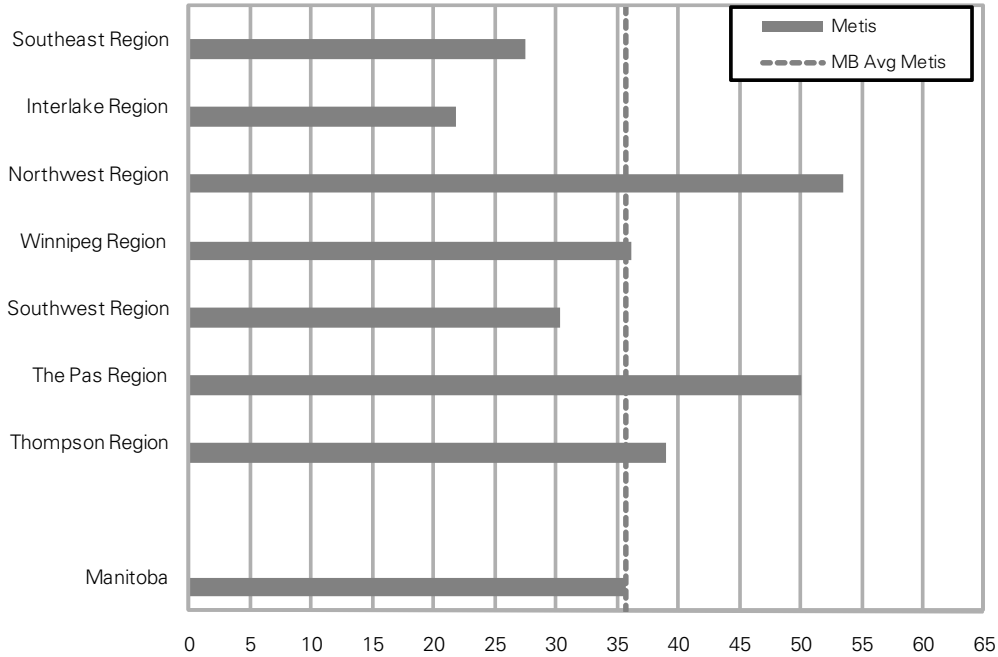
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 8.3.2: Newborn Hospital Readmission Rates Within Four Weeks of Birth Discharge by Metis Region, 2002-2006
Crude annual rate of 1,000 Metis newborns



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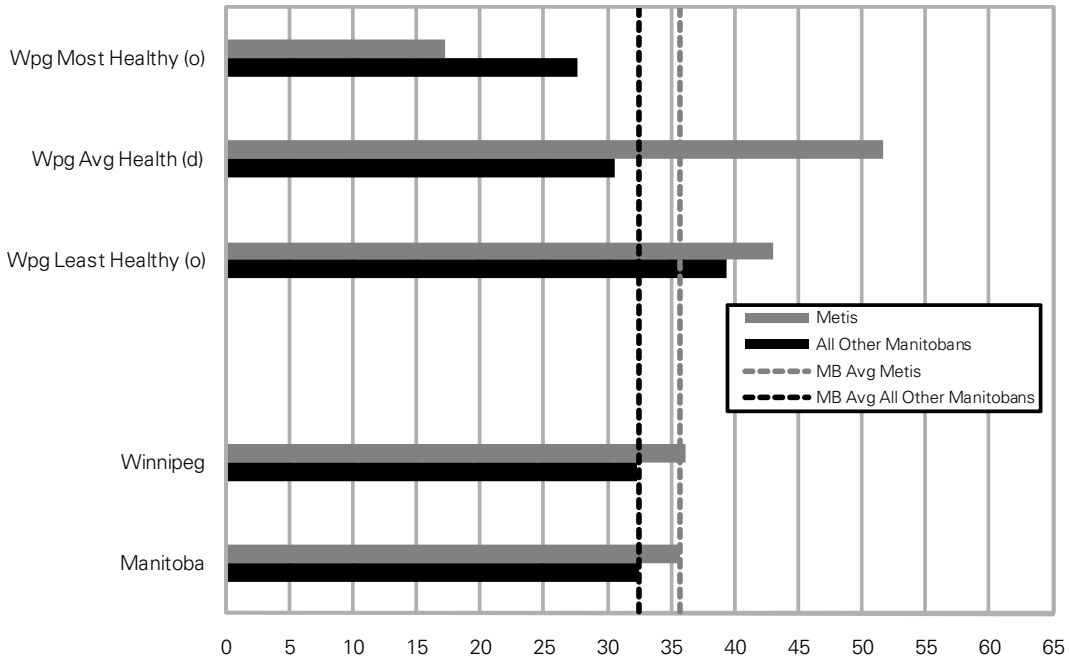
Source: MCHP/MMF, 2010

Figure 8.3.3: Newborn Hospital Readmission Rates Within Four Weeks of Birth Discharge by Winnipeg Aggregate Area, 2002-2006
Crude annual rate of 1,000 newborns



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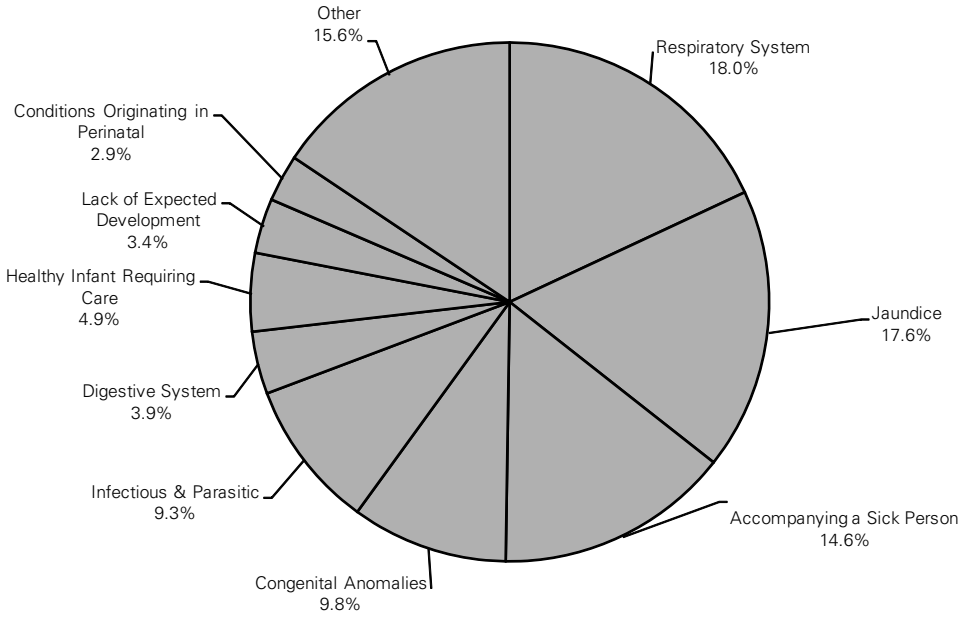
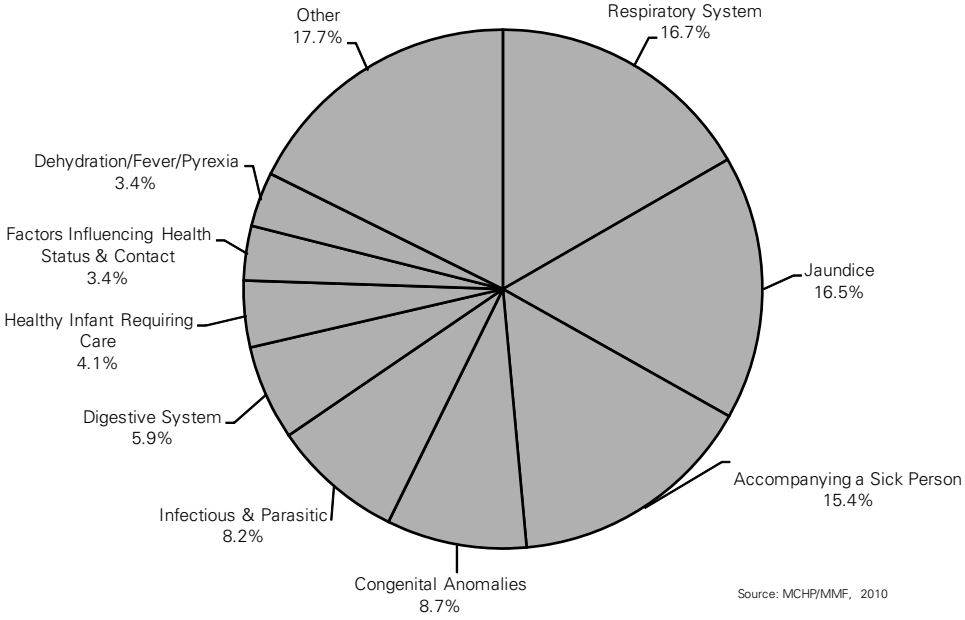
Source: MCHP/MMF, 2010

Figure 8.3.4: Reasons for Newborn Hospital Readmission Within 4 Weeks of Birth Discharge for Metis, 2002-2006



Source: MCHP/MMF, 2010

Figure 8.3.5: Reasons for Newborn Hospital Readmission Within 4 Weeks of Birth Discharge for All Other Manitobans, 2002-2006



Source: MCHP/MMF, 2010

8.4 Infant Mortality Rate

This is an indicator of death among infants within one year of birth. Infant mortality is seen as a possible indicator of overall health status, access to healthcare in an area, and/or the effectiveness of prenatal care.

The crude annual rate of infant deaths within the first year of life was measured over 10 calendar years 1997–2006, per 1000 newborns aged 0–364 days. The denominator includes all live births (in hospital) in the study period. Live births are identified during 1996–2005 calendar years and deaths are identified up to each child's first birthday.

Due to the rarity of the event, rates were generated at the large aggregate areas to avoid suppression of data.

Key observations:

RHA Aggregate Areas:

- Provincially, the infant mortality rate for Metis infants is similar to that of all other Manitoba infants (5.7 vs. 6.8 per 1000).
- There is a very small gradient for Metis, but a large gradient for other infants, with the highest infant mortality rate in the least healthy aggregate area of the North.
- The trend to slightly lower mortality rates for Metis, although not statistically significant, is present in every aggregate area—Rural South & Brandon (5.4 vs. 6.2), Mid (5.4 vs. 6.6), North (6.2 vs. 9.2), and Winnipeg (5.9 vs. 6.6 per 1000).

MMF Regions:

- Because of the rarity of the event (and its highly fluctuating rate due to small numbers), there are no significantly different rates between any of the MMF Regions and the provincial Metis average of 5.7 per 1000.

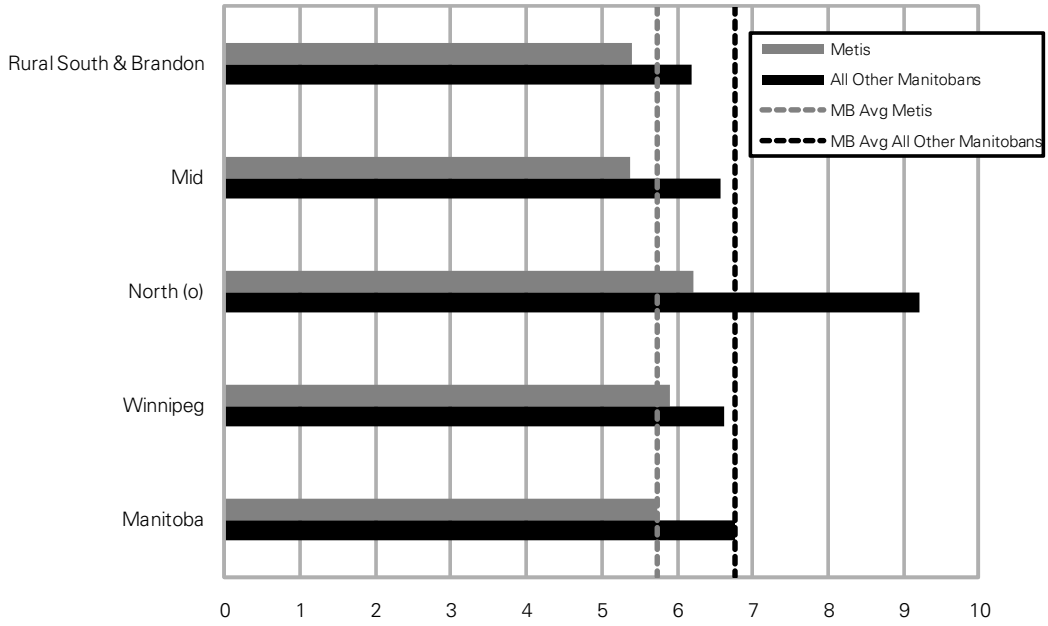
Causes of infant mortality:

- The top two causes of infant mortality are similar for Metis and other infants—congenital anomalies (25.4% vs. 28.7%) and short gestation/low birth weight (9.0% vs. 11.1%).
- SIDS represents 9.0% of Metis infant deaths and 6.6% of other infant deaths. External causes of injury represent 9.0% of Metis infant deaths and 4.8% of other infant deaths.

Neonatal and post–neonatal infant mortality rates:

- Although not shown in the graphs, the rates of the two components of infant mortality—neonatal mortality (0–28 days) and post–neonatal mortality (28–364 days)—are similar between Metis and other infants. The neonatal mortality rates for Metis and others are 3.9 and 4.6 per 1000; the post–neonatal mortality rates for Metis and others are 1.8 and 2.2 per 1000 respectively.

Figure 8.4.1: Infant Mortality Rate by Aggregate RHA Area, 1997-2006
Crude annual rate per 1,000 newborns aged 0-364 days



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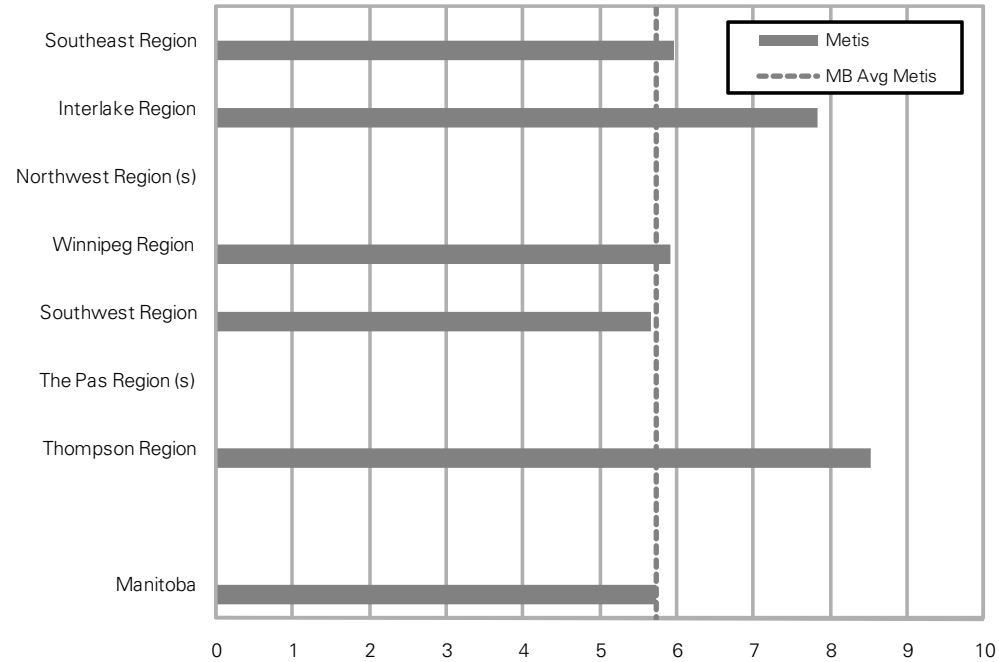
Source: MCHP/MMF, 2010

Figure 8.4.2: Infant Mortality Rate by Metis Region, 1997-2006
Crude annual rate per 1,000 Metis newborns aged 0-364 days



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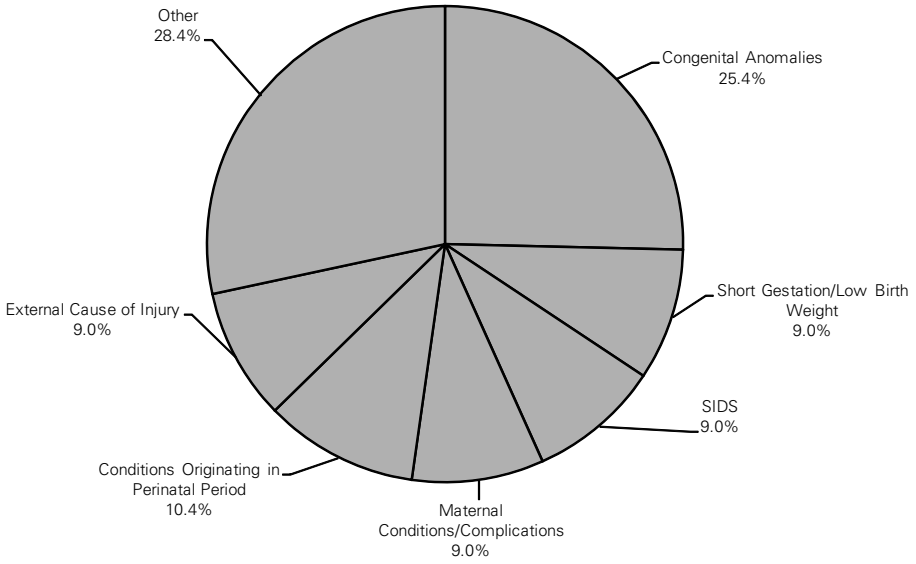
Source: MCHP/MMF, 2010

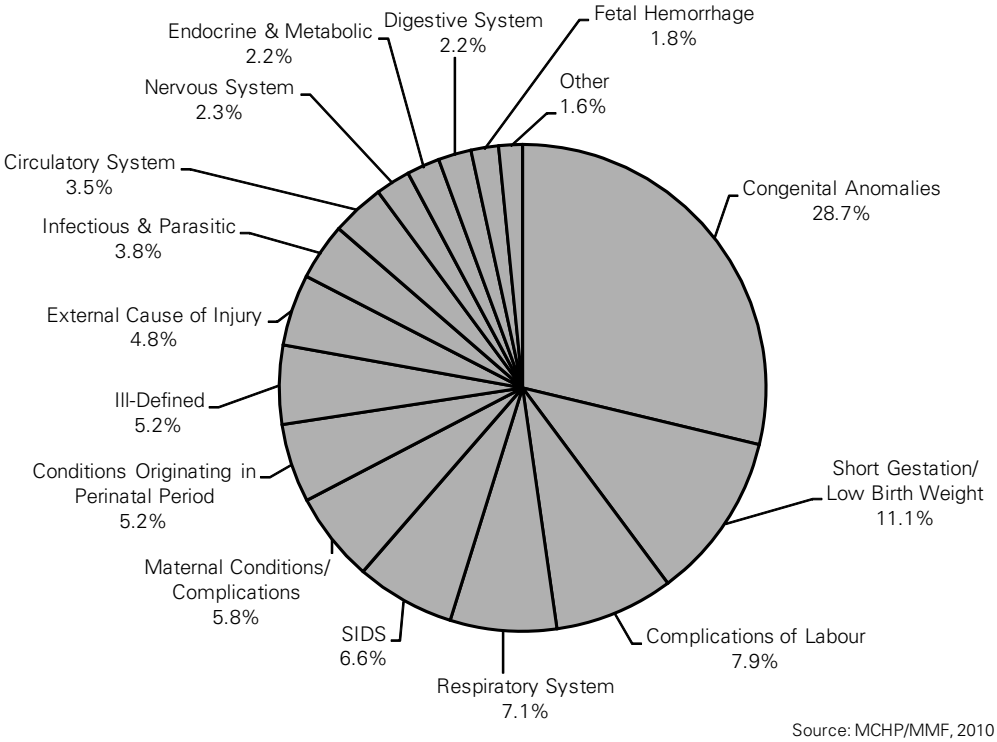
Figure 8.4.3: Causes of Infant Mortality for Metis, 1997-2006*
Percent of live born newborns aged 0-364 days



Source: MCHP/MMF, 2010

* Note: due to rare events, and the need to suppress any rate based upon 1-5 events, the infant mortality categories for the Metis cannot be given in as much detail. Those categories that are not listed separately have been aggregated in the "other" category.

Figure 8.4.4: Causes of Infant Mortality for All Other Manitobans, 1997-2006
Percent of live born newborns aged 0-364 days



Source: MCHP/MMF, 2010

8.5 Child Mortality Rate

The child mortality rate is the age– and sex–adjusted rate of deaths per 1,000 residents aged 1 through 19 calculated for the calendar years 1997–2006. The denominator includes all Manitoba children age 1–19 as of December 31 of each year (1997–2006).

Due to the rarity of the event, rates were generated at the large aggregate areas to avoid suppression of data.

Key observations:

RHA Aggregate Areas:

- Provincially, child mortality rates of Metis are similar to all other Manitoba children (0.33 vs. 0.36 per 1000). There is a steep gradient with PMR, showing the most healthy areas of Rural South/ Brandon having the lowest rate and the least healthy area of the North the highest rate for both Metis and others.
- The North rate is elevated compared to the overall provincial rate, both for the Metis (0.58 vs. 0.33, NS, but RR=1.8) and for other children (0.88 vs. 0.36, statistically higher, RR=2.4).
- Winnipeg RHA appears to have the lowest rate at 0.25 per 1000 for both Metis and others. However, this is only statistically lower than the corresponding provincial average for the "other" group.

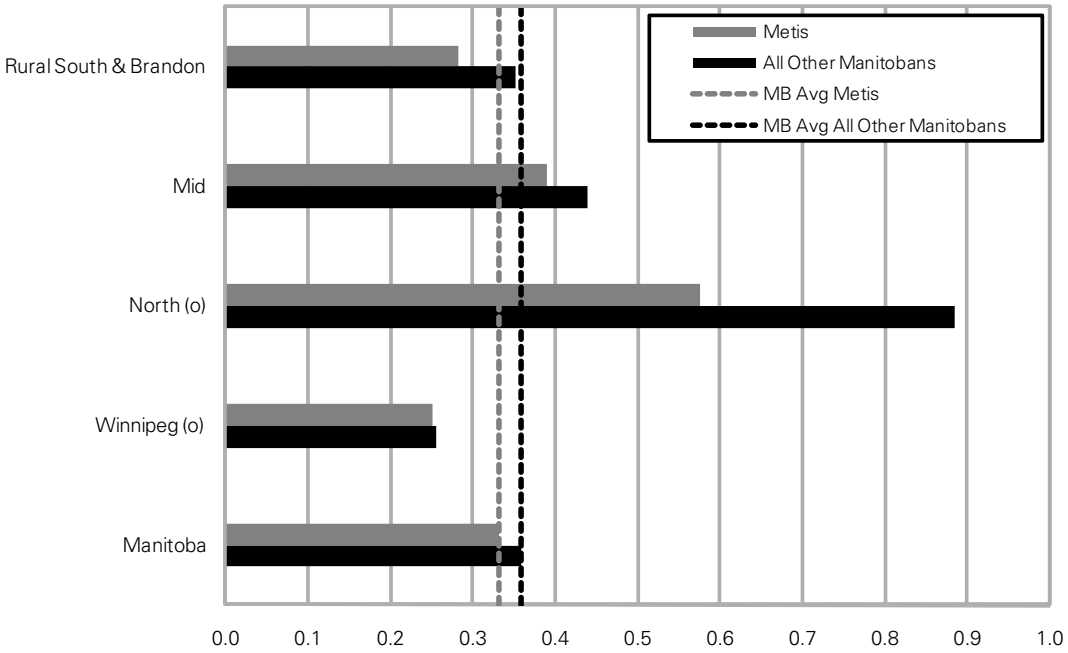
MMF Regions:

- Although the rarity of the event precludes statistically significant differences, most MMF Regions have child mortality rates similar to the provincial Metis average of 0.33 per 1000. Thompson MMF Region appears to be elevated, but this is not statistically significant (0.73 per 1000, NS, but RR=2.2 times the provincial Metis rate). Winnipeg MMF Region appears to have a lower rate, but this is also not statistically significant (0.25 per 1000, NS, but RR=0.76).

Causes of child mortality:

- The top two causes of child mortality are the same for Metis and for other children: External Cause of Injury (Metis 71.8%, others 63.1%) and Cancer (Metis 7.7%, others 7.0%).
- Injury is still the leading cause of death for children 1–19 years old. Looking at the table which indicates injury by age group, 61.5% of the deaths of Metis children aged 1 to 4 are due to injury, compared to 48.7% for other children. Similarly, Metis have a higher percentage of deaths due to injury for ages 5–14 compared to other children (56.5% vs. 48.6%). This is also true for ages 15–19 (Metis 79.5% vs. others 71.8%).

Figure 8.5.1: Child Mortality Rate by Aggregate RHA Area, 1997-2006
Age- & sex-adjusted annual rate per 1,000 residents aged 1-19 years



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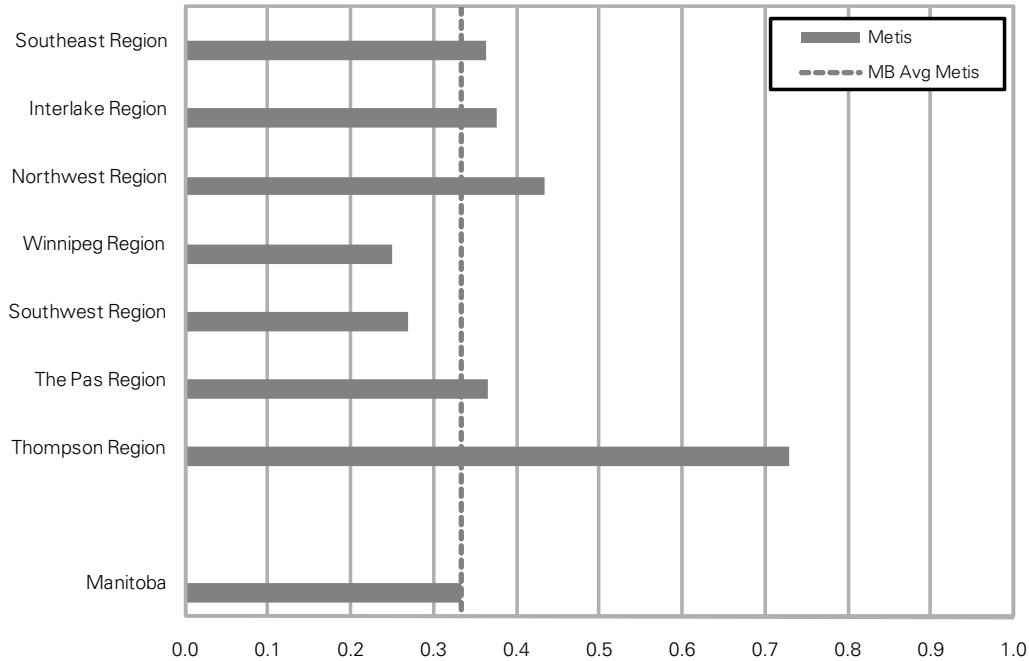
Source: MCHP/MMF, 2010

Figure 8.5.2: Child Mortality Rate by Metis Region, 1997-2006
Age- & sex-adjusted annual rate per 1,000 Metis residents aged 1-19 years



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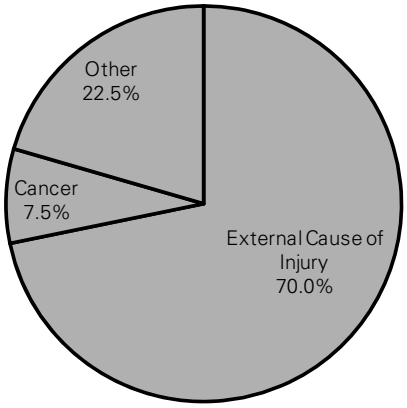
Source: MCHP/MMF 2010

Figure 8.5.3: Causes of Child Mortality for Metis, 1997-2006
Percent of children aged 1-19 years

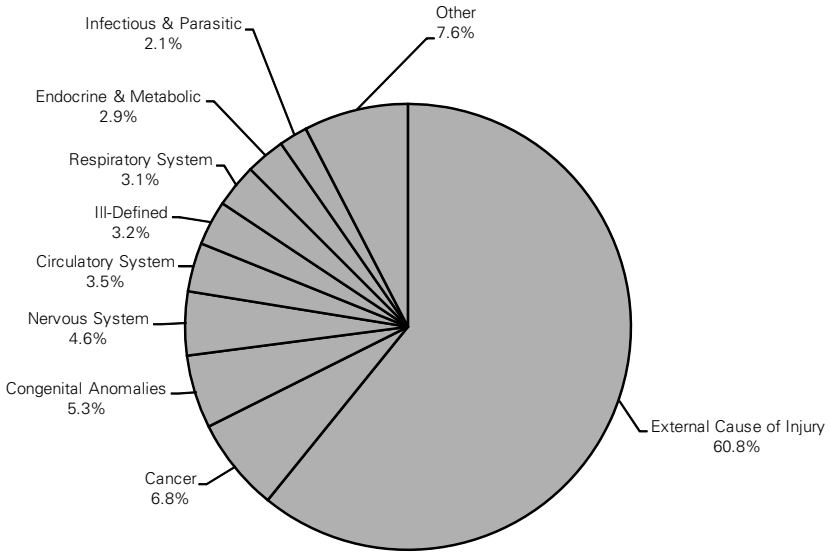


Source: MCHP/MMF, 2010

Proportion of Deaths due to Injury by Age Group, 1997-2006, aged 1-19

	Age (years)	Number of Injury Deaths	Number of Total Deaths	Percent of Injury Death
Metis	1 to 4	8	13	61.5%
	5 to 14	13	23	56.5%
	15 to 19	35	44	79.5%
All Other Manitobans	1 to 4	93	191	48.7%
	5 to 14	141	290	48.6%
	15 to 19	384	535	71.8%

Figure 8.5.4: Causes of Child Mortality for All Other Manitobans, 1997-2006
Percent of children aged 1-19 years



Source: MCHP/MMF, 2010

8.6 Attention Deficit Hyperactivity Disorder Prevalence (ADHD)

Attention–Deficit Hyperactivity Disorder (ADHD) is a neurobehavioral developmental disorder that typically presents during childhood and is characterized by a persistent pattern of impulsiveness and inattention. In the literature, it has been found that ADHD occurs more commonly in boys as in girls.

The age– and sex–adjusted prevalence of ADHD was measured for children aged 5–19 in fiscal year 2006/07. The crude rates are available in the appendix. ADHD was defined as:

- one or more hospitalizations with a diagnosis of hyperkinetic syndrome: ICD–9–CM code 314, ICD–10–CA code F90
- one or more physician visit with a diagnosis of hyperkinetic syndrome: ICD–9–CM code 314
- two or more prescriptions for ADHD drugs without a diagnosis of:
  - conduct disorder: ICD–9–CM code 312; ICD–10–CA codes F63, F91, F92
  - disturbance of emotions: ICD–9–CM code 313; ICD–10–CA codes F93, F94
  - cataplexy/narcolepsy: ICD–9–CM code 347, ICD–10–CA code G47.4

Children whose postal code corresponded with the Winnipeg Child and Family Services Office building were reassigned to their previous residence where possible. The denominator includes all Manitoba residents aged 5–19 as of December 31, 2006.

Key observations:

RHAs:

- Provincially, Metis children have a higher prevalence of ADHD compared to all other Manitoban children (3.7% vs. 3.0%). There is no consistent gradient between PMR and ADHD. There appears to be higher rates in the urban areas (Brandon, Winnipeg) and lower rates in the North. At the aggregate area level (excluding urban areas), especially for the Metis, there appears to be a reverse gradient such that the healthiest area (Rural South) has the highest ADHD prevalence (Metis 3.7%, other 2.1%), followed by Mid (Metis 2.7%, other 2.6%), and then by the North (Metis 2.0%, other 2.0%).
- Several southern RHAs show a higher prevalence of ADHD for Metis when compared to other children. These include South Eastman (4.1% vs. 1.7%), Central (2.8% vs. 1.7%), Assiniboine (4.7% vs. 3.1%), and Winnipeg (4.6% vs. 3.5%).
- The region showing statistically higher prevalence of ADHD for Metis children compared to the provincial Metis average of 3.7% is Winnipeg (4.6%). There is a trend to a higher prevalence in Brandon (5.3%), but it is not statistically significant (p=.04, not meeting the criteria of 0.01).
- Those regions showing a statistically lower prevalence of ADHD for Metis children compared to the provincial Metis average are: North Eastman (1.7%), NOR–MAN (1.8%), and Burntwood RHAs (2.2%). It is difficult to know whether this is a true physiological finding, whether there is a different criteria being applied to those areas, or whether there is lack of access to pediatric specialists (i.e., under–diagnosing). As well, both the Mid (2.7%) and North (2.0%) aggregate areas show lower than average prevalence of ADHD for Metis children.

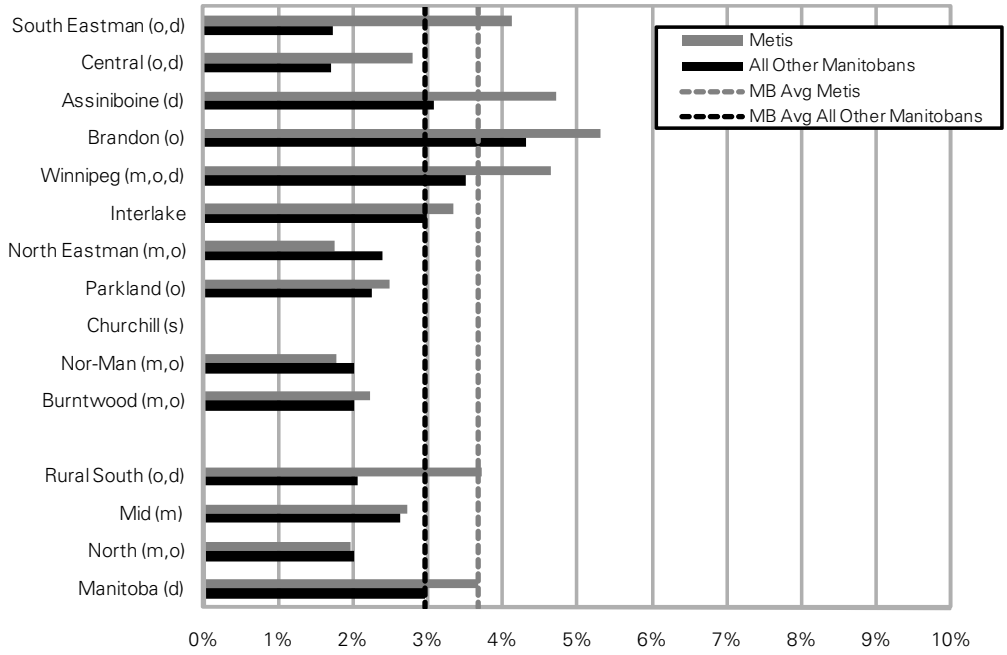
MMF Regions:

- There is no apparent gradient of the prevalence of ADHD by PMR at the Manitoba MMF Region level. The provincial Metis prevalence of ADHD is 3.7%.
- Winnipeg MMF Region (4.6%) has an elevated prevalence of ADHD compared to the Metis provincial average, whereas The Pas (1.9%) and Thompson (2.1%) MMF Regions have a lower prevalence.

Winnipeg CAs:

- For Winnipeg RHA, Metis children have a higher prevalence of ADHD compared to all other Winnipeg children (4.6% vs. 3.5%).
- There is no gradient of the prevalence of ADHD by PMR in the Winnipeg CAs—most areas have very similar prevalence, with a possible "outlier" of St. Vital (6.9%) for Metis children.
- Three CAs show a statistically significant difference with Metis children having a higher prevalence of ADHD compared to other children in that CA: St. Boniface (5.1% vs. 3.6%), St. Vital (6.9% vs. 3.5%), and Inkster (5.1% vs. 2.3%).
- Only one Winnipeg CA shows a higher prevalence of ADHD for Metis children compared to the provincial Metis average of 3.7%—St. Vital (6.9%).

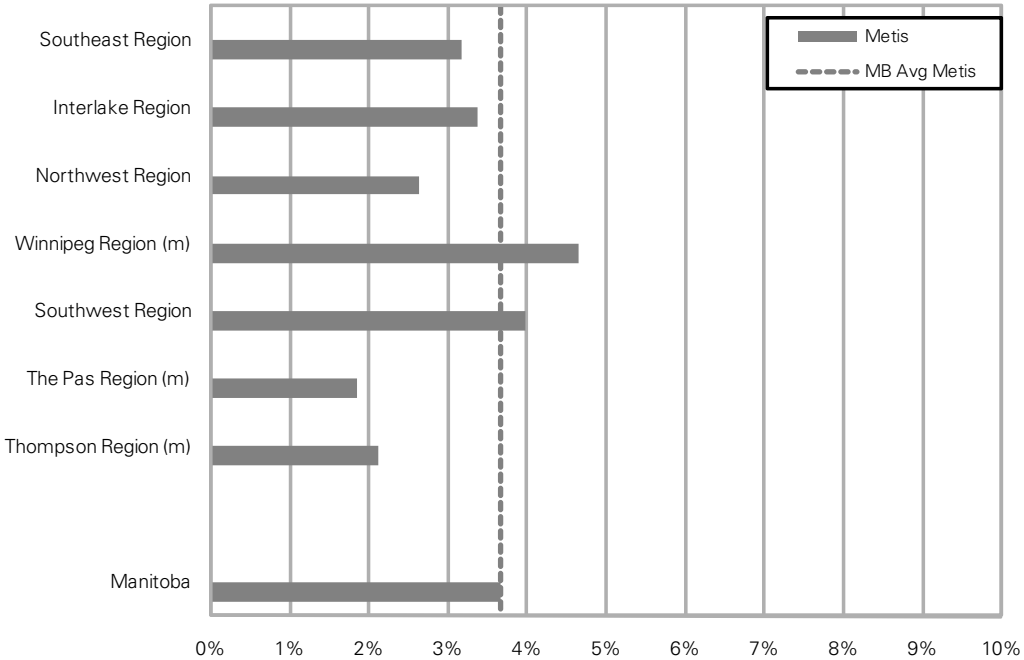
Figure 8.6.1: ADHD Prevalence by RHA, 2006/07
Age- & sex-adjusted percent of residents aged 5 -19



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 8.6.2: ADHD Prevalence by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents aged 5 -19



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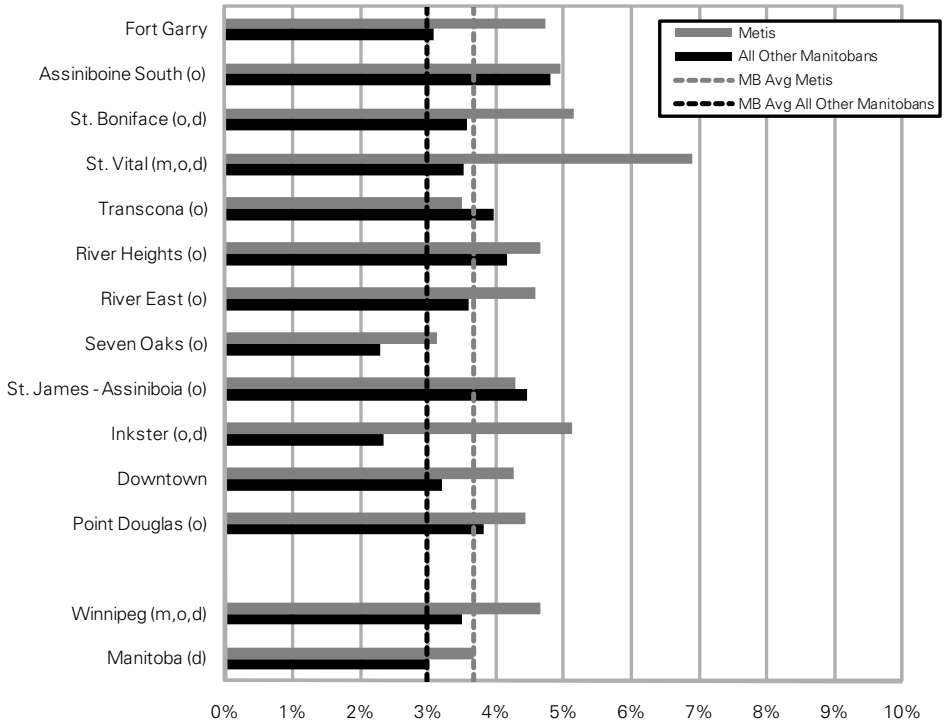
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 8.6.3: ADHD Prevalence by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents aged 5 -19



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

8.7 Findings from Literature Review

(compared to the results in this study—in italics)

In a document by the Health Council of Canada (2005), the lack of data for Metis health status is commented upon—such basic indicators as life expectancy, infant mortality, low birth weight, and cancer incidence are not available for the Métis population. This is similarly reflected by information from the National Aboriginal Health Organization (NAHO, 2008), where the organization states that there is a paucity of Métis–specific information on maternal child health and midwifery, which is in contrast to other areas of Métis health. Maternal child health is central to the holistic concept of health for the Métis, often connecting physical health with broader determinants such as income, housing, spirituality, and community. Maternal and child health is also seen as connected to both the health of the family and the health of the community (NAHO, 2008).

Breastfeeding initiation rates:

- According to a document by the Métis National Council (2006a), breastfeeding rates tend to be lower among Métis peoples, thereby potentially increasing their risk of Type 2 Diabetes. In their summary of information concerning the indicators and related measures that were identified as areas of priority in relation to Métis population health/well–being status, the Metis National Council recommend measuring "Ever breastfed, Still breastfed at 6 & 12 months, mother's education, maternal marital status, and Poverty Income Ratio" (Métis National Council 2006b).
- Statistics Canada (2004) reported that there were no significant differences in the incidence of breastfeeding between Inuit, First Nations, and Métis children. However, marked differences may be observed between the three major Aboriginal groups with respect to the average duration of breastfeeding. According to the Aboriginal People's Survey (APS), the average duration of breast–feeding for Metis children was estimated as seven months, shorter than the eight months for First Nations, and the 15 months for Inuit children.

In our study, we found that breastfeeding initiation rates of Metis newborns were lower than other newborns (76.0% vs. 81.7%). This trend held true in the Rural South (83.6% vs. 87.8%) and Mid (69.6% vs. 76.4%) aggregate areas and the two urban cities of Brandon (77.9% vs. 84.5%) and Winnipeg (79.1% vs. 84.7%). However, the picture alters in the North aggregate area, where Metis breastfeeding initiation rates were higher than for all others in the North (67.6% vs. 59.5%). This is particularly true in the RHA of Burntwood (65.8% vs. 56.5%), with a similar trend (though NS) in Churchill RHA (92.3% vs. 78.8%).

Teen pregnancy:

- According to Hallett (2006), Manitoba has the highest rate of teen pregnancy in Canada (63.2 per 1000 live births) compared to the Canadian average of 40.2 per 1000. But rates vary dramatically within Manitoba and are much higher than average for Status Indians and Metis. Hallett reports that 45% of unmarried adolescent mothers in Manitoba are Aboriginal, varying as much as up to 75% in the northern NOR–MAN/Thompson region and 70% in central Winnipeg.
- Over a decade ago, Kinnon (1994) commented that high teen pregnancy rates are a problem particularly affecting Aboriginal youth (including Metis youth).

- In a recent survey conducted by the Métis Nation of British Columbia ("Pathways to Health", 2009), approximately 66% of the Métis households surveyed in 2006 identified teen pregnancy as an important issue.

In our study, the overall Metis teen pregnancy rate (70.2 per 1000) was higher than for all other Manitoba teens (46.4 per 1000) and was indeed higher than the reported teen pregnancy rate by Hallett (2006) at 63.2 per 1000. However, there are many RHAs and MMF Regions where the Metis teen pregnancy rate approximated the rate of all other residents of that area and were also much lower than the Canadian average—South Eastman (Metis 28.7, other 24.5); Central (Metis 37.3, other 34.5); Assiniboine (Metis 34.2, other 26.5); Interlake (Metis 44.7, other 41.3); and North Eastman (Metis 62.0, other 46.4 per 1000). Particular areas of concern with very high teen pregnancy rates for Metis teens include: Brandon RHA (96.0), Winnipeg RHA (81.0), Parkland RHA (98.4), NOR–MAN RHA (85.7), and Burntwood RHA (111.4 per 1000). Compared to the Metis overall provincial average of 70.2 per 1000, the MMF Regions of The Pas (101.0) and Thompson (106.0) are also of particular concern and are 1.6–1.7 times higher than the Canadian average. Many of the Winnipeg CAs also show excessively high Metis teen pregnancy rates, including River Heights (92.8), River East (82.4), Inkster (128.0), Downtown (162.5) and Point Douglas (156.6 per 1000), with the highest areas at 2.5 times the Canadian teen pregnancy rate.

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Chapter 9: Use of Physician Services

Indicators in this chapter:

- Ambulatory Physician Visit Rates and Causes of Visits
- Ambulatory Physician Visit Rates, by age and sex
- Ambulatory Consultation Rates
- Continuity of Care Rates

Overall Key Findings:

- Metis have 13% more ambulatory visits and 7% more consults than all other Manitobans, which is a positive finding given their overall poorer health status. As well, 85.1% of Metis have at least one physician visit per year, compared to 81.7% of all other Manitobans. However, Metis are less likely to have continuity of care, with 65.4% having continuity compared to 69.1% of the rest of the population.
- According to Table 9.0, notable promising regions having at least two indicators with statistically significantly higher ("better") rates[1] of ambulatory physician service indicators are: Winnipeg RHA; Winnipeg MMF Region; and three sub–regions of Winnipeg—Inkster CA, St. Vital CA, and River East CA. The Winnipeg effect reflects many MCHP reports that find ambulatory physician visit rates higher in the urban regions of Manitoba, but hospitalization rates lower in the urban regions compared to rural and northern regions.
- According to Table 9.0, notable regions that have at least two indicators "worse off" in the ambulatory physician service indicator rates are: Central RHA, Burntwood RHA, Northwest MMF Region, and the two aggregate areas of Rural South and the North. The Rural South and North aggregate areas are low on all three indicators—ambulatory physician visit rates (which may, in part, be explained by missing data from salaried physicians), consult rates, and prevalence of continuity of care.

[1] Given that the Metis PMR is 21% higher (range 12-38% higher) than that of "all other" Manitobans, one might have expected even larger difference in physician visit rates for Metis vs. Others. Also, one might expect more consultations for Metis given their statistically higher prevalence of chronic diseases (hypertension 13% higher; arthritis, TRM, AMI, and stroke in the 20-29% higher range; diabetes and dialysis are in the 30-39% range; and IHD and lower limb amputations related to diabetes are 40% and 49% higher respectively).

Table 9.0: Overall Key Findings of Physician Services

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average NOTE: Although this may or may not be a correct assumption, a high rate will be considered 'better off' for this indicator, i.e., possibly good access.	Statistically "worse off" regions for Metis compared to the Metis provincial average NOTE: Although this may or may not be a correct assumption, a low rate will be considered 'worse off' for this indicator, i.e., possible lack of access.
Ambulatory Physician Visit Rates (visits per person per year, age– and sex–adjusted)	5.4 vs. 4.8; RR=1.13	Brandon RHA, Winnipeg RHA, Parkland RHA, Winnipeg MMF Region, River Heights CA, Inkster CA, Downtown CA, Point Douglas CA	South Eastman RHA, Central RHA, Interlake RHA, Churchill RHA (may be missing data), Burntwood RHA, Rural South and North aggregate areas, Interlake MMF Region, Thompson MMF Region
Ambulatory Consultation Rates (visits per person per year, age– and sex–adjusted)	0.30 vs. 0.28; RR=1.07	Winnipeg RHA, Winnipeg MMF Region, Fort Garry CA, Assiniboine South CA, St. Boniface CA, St. Vital CA, River East CA, St. James–Assiniboia CA, Inkster CA	Assiniboine RHA, Parkland RHA, NOR–MAN RHA, Rural South aggregate area, North aggregate area, Northwest MMF Region, The Pas MMF Region
Continuity of Care (percentage of people receiving continuity of care over a three–year period)	65.4% vs. 69.1%; RR=0.95	North Eastman RHA, Winnipeg MMF Region, St. Vital CA, Transcona CA, River East CA, Seven Oaks CA [trend to very high rate in Churchill RHA, but NS]	Central RHA, Brandon RHA, Burntwood RHA, Rural South aggregate area, North aggregate area, Northwest MMF Regin, Southwest MMF Region, Thompson MMF Region

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

9.1 Ambulatory Physician Visit Rates (All Physicians) and Cause of Visits

Ambulatory visits includes almost all contacts with physicians (GP/FPs and specialists): office visits, walk–in clinics, home visits, personal care home (nursing home) visits, visits to outpatient departments, and some emergency room visits (where data are recorded). Excluded are services provided to patients while admitted to hospital and visits for prenatal care. Note: 'pregnancy and birth' are included in the Ambulatory Visits by Cause pie charts.

The age– and sex–adjusted ambulatory visit rate per resident was measured for fiscal year 2006/07. Overall crude rates are available in the appendix. Also shown are graphs of the ambulatory physician visit rates for both Metis and all other Manitobans by five–year age groups and by sex for the urban RHAs of Winnipeg and Brandon; the aggregate areas of Rural South, Mid, and North; and Manitoba overall. The denominator includes all Manitoba residents as of December 31, 2006. There is a possibility that there is missing data for this indicator because of an inability to pick up nursing station visits, especially for Metis who access medical services in a First Nations community. Also, rates may be under-estimated because of incomplete records from salaried MDs and NPs, who are expected to complete "shadow" billing claims, but may not always do so.

The age– and sex–adjusted percentage of the population having at least one ambulatory physician visit in the year 2006/07 is given in Table 9.1.1.

The pie charts showing the reason for ambulatory visits are based on the crude rates, not adjusted rates. These also include visits for pregnancy as part of the reasons for visits.

Key observations:

RHAs:

- Provincially, Metis people have a higher physician visit rate than all other Manitobans (5.4 vs. 4.8 visits per year). There is very little evidence of a PMR gradient with physician visit rates. However, there appears to be a slightly higher rate of visits by people living in the two urban areas of Brandon RHA (Metis 6.7, others 5.5) and Winnipeg RHA (Metis 5.9, others 5.1) compared to other areas of the province. There may be some data issues with some of the northern areas, where on-reserve nursing station visits to nurses are not recorded and salaried physician visits may be under counted in the administrative health records if they do not shadow bill.
- In every RHA except Churchill (where there are missing data claims for 2006/07), there is a persistent significantly higher ambulatory physician visit rate for Metis compared to others living in that region.
- At the aggregate area level, Metis ambulatory physician visit rates are higher than others: Rural South (4.8 vs. 4.2), Mid (5.3 vs. 4.5), and North (4.8 vs. 4.0 visits per year). Both the Rural South and the North have lower visit rates compared to the provincial average of 5.4 visits for Metis and 4.8 visits for all others; the Mid area has similar visits to the provincial average. In contrast, Brandon RHA (Metis 6.7, others 5.5) has higher rates than the corresponding provincial averages; Winnipeg RHA has a higher rate for the Metis (5.9) compared to the Metis average of 5.4 visits per person, but the Winnipeg rate for all other residents is similar to the provincial average.

- RHAs with lower ambulatory physician visit rates for Metis compared to the Metis provincial average of 5.4 visits per year include: South Eastman (4.8), Central (4.9), Interlake (4.8), Churchill (2.4, although this may reflect missing data), and Burntwood (4.3 visits per year).
- RHAs with higher ambulatory physician visit rates for Metis compared to the Metis provincial average of 5.4 visits per year include: Brandon (6.7), Winnipeg (5.9), and Parkland (6.0 visits per year).

MMF Regions:

- Provincially, the ambulatory physician visit rate for Metis is 5.4 visits per year. There is no apparent gradient of ambulatory physician visit rates by PMR (i.e., by underlying 'need' for healthcare).
- Interlake MMF Region (4.7) and Thompson MMF Region (4.1) both have lower rates than the provincial Metis average of 5.4 visits per year; Winnipeg MMF Region (5.9) has higher than average.

Winnipeg CAs:

- The ambulatory physician visit rate for Metis living in Winnipeg RHA is higher than that of all other Winnipeg residents (5.9 vs. 5.1 visits per year). There may be some evidence of a gradient by PMR in the CAs within Winnipeg, with visit rates increasing as population health decreases. This is more apparent for the Metis than for others living in Winnipeg RHA.
- All CAs of Winnipeg show a Metis ambulatory physician visit rate that is higher than the corresponding visit rate for all others in that CA with the exception of Assiniboine South CA (where the trend appears to be in the same direction).
- Several CAs show Metis ambulatory physician visit rates that are higher than the Metis provincial average of 5.4 visits per year: St. Vital (6.1), River Heights (6.1), Inkster (6.3), Downtown (6.7), and Point Douglas (6.6 visits per year). All other CAs have Metis rates similar to the provincial Metis average. No CA showed a lower than average rate.

Reasons for ambulatory physician visits:

- Care must be taken in interpreting the distribution of reasons for visits since these are based upon the number of all visits and are not adjusted for differences in population size and age/sex structure. This may be important given the slightly younger age structure of the Metis population compared to all other Manitobans.
- The top six reasons for visiting a physician were the same for Metis and for all others with a slight difference in the ordering:
    - Metis—Respiratory (13.2%), Ill–Defined Signs & Symptoms (9.4%), Mental Health (8.6%), Circulatory (8.1%), Health Status & Contact (8.1%), and Musculoskeletal (7.6%).
    - Others—Respiratory (11.0%), Circulatory (9.8%), Mental Health (8.9%), Musculoskeletal (8.8%), Health Status & Contact (8.3%), and Ill–Defined Signs & Symptoms (8.2%).

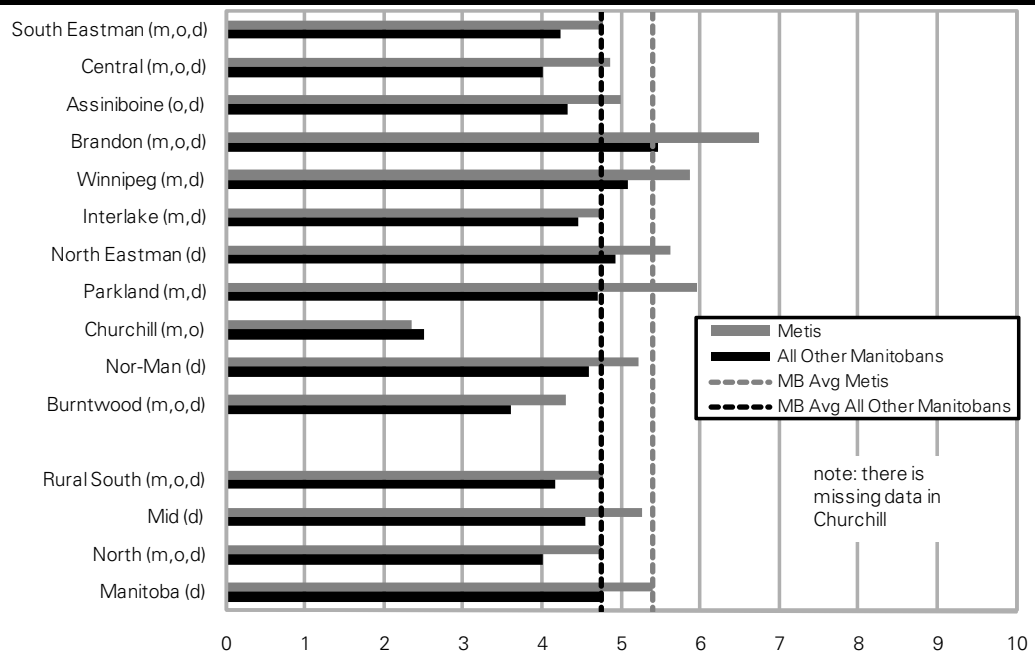
Percentage of the population having at least one ambulatory physician visit in 2006/07:

- Provincially, a higher age– and sex–adjusted percentage of Metis has at least one physician visit annually compared to all others (85.1% vs. 81.7%). This difference is maintained in all of the RHAs, with the exception of Churchill RHA. There may be data issues with Churchill RHA, where billing claims may not have been submitted.

Crude ambulatory physician visit rates by age and sex:

- Provincially, both male and female Metis ambulatory physician visit rates show similar patterns to those of all other Manitobans, but noticeably higher starting at around the 15–19 year age group for females and the 35–39 year age group for males.
- Metis children have higher physician visit rates (Metis boys 5.7, Metis girls 5.1, other males 5.1, and other females 4.7 visits per year) than all other children up to the age of 19. The highest ambulatory physician visit rates are in older adults, with around 10 to 12 visits per year for those aged 80 and above.
- Similar patterns to the above are shown in each aggregate area of Manitoba, even though Brandon and Winnipeg rates tend to be slightly higher, Mid rates tend to be around the same as the provincial average, and Rural South and North rates are slightly lower.

Figure 9.1.1: Ambulatory Visit Rate by RHA, 2006/07
Age- & sex-adjusted rate of ambulatory visits to all physicians per resident



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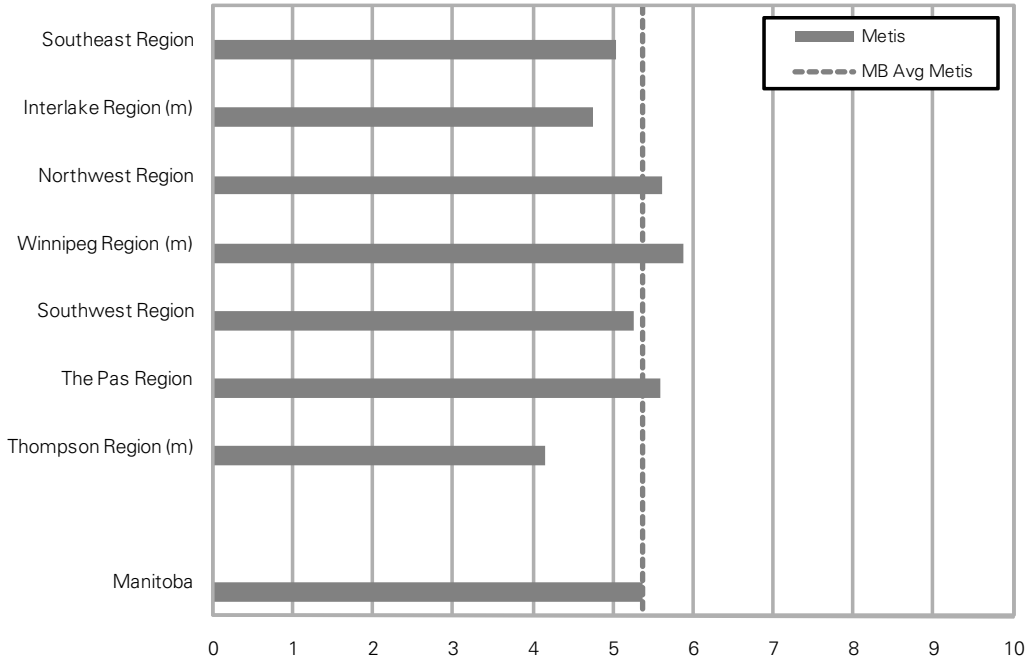
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 9.1.2: Ambulatory Visit Rate by Metis Region, 2006/07
Age- & sex-adjusted rate of ambulatory visits to all physicians per Metis resident



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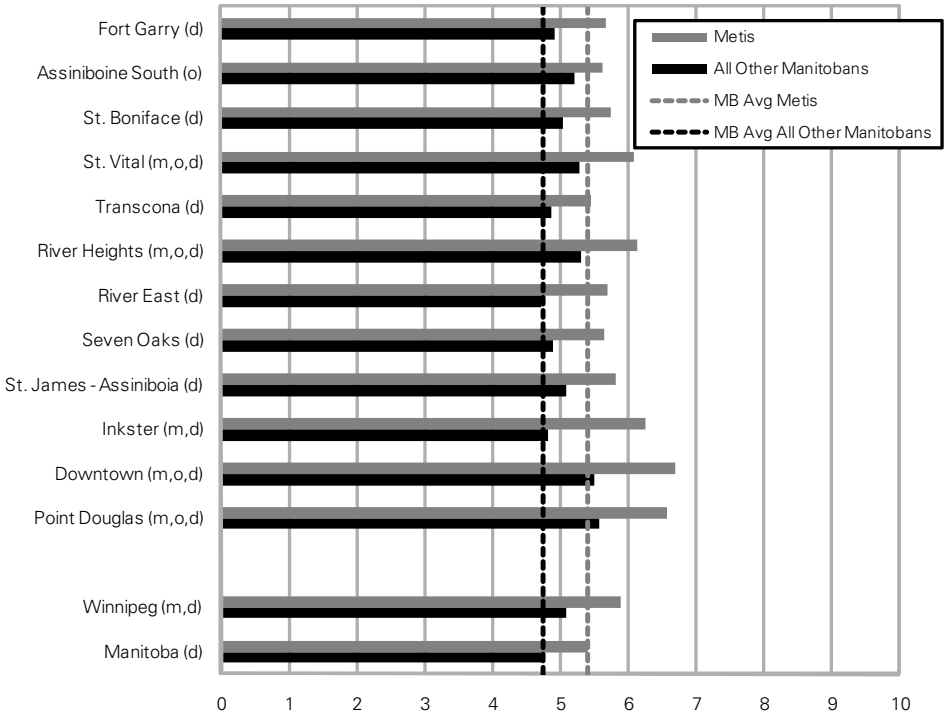
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 9.1.3: Ambulatory Visit Rate by Winnipeg Community Area, 2006/07
Age- & sex-adjusted rate of ambulatory visits to all physicians per resident



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

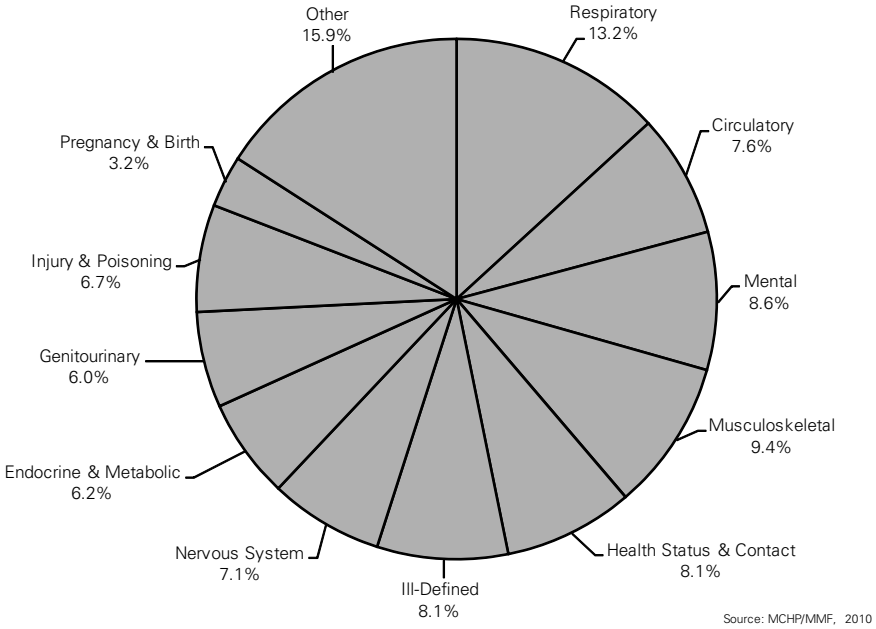
Table 9.1.1: Percentage of Population (age– and sex–adjusted) Having at Least One Physician Visit in 2006/07

Region	FEMALE Life Expectancy (years)		MALE Life Expectancy (years)	
	Metis	All Others	Metis	All Others
RHAs and aggregate areas				
South Eastman	88.0 (m,d)	83.3 (o)	76.9	78.8 (o)
Central	79.2 (d)	83.6 (o)	73.8 (d)	77.6 (o)
Assiniboine	77.6 (d)	83.0 (o)	75.2	76.5
Brandon	80.5	82.9 (o)	72.7 (d)	77.3
Winnipeg	81.0	81.8	74.6 (d)	77.1
Interlake	83.4	82.4	74.5 (d)	77.1
North Eastman	82.7	80.9	82.9 (m)	75.3
Parkland	82.3	81.1	76.7	75.7
Churchill		78.5		75.2
Nor–Man	79.3	77.8 (o)	72.4	73.6 (o)
Burntwood	74.0 (m)	75.6 (o)	72.6	69.9 (o)
Rural South	81.6	83.1 (o)	75.6 (d)	77.5 (o)
Mid	82.6	81.5	76.0	76.2
North	76.6 (m)	76.7 (o)	72.1	71.4 (o)
Manitoba	**81.0**	**81.8**	**75.0** (d)	**76.8**
MMF Regions				
Southeast	84.4 (m)	n/a	78.0 (m)	n/a
Interlake	82.8	n/a	74.2	n/a
Northwest	81.5	n/a	77.4	n/a
Winnipeg	81.0	n/a	74.6	n/a
Southwest	79.1	n/a	74.0	n/a
The Pas	83.7	n/a	73.9	n/a
Thompson	74.5 (m)	n/a	72.1	n/a
Winnipeg CAs				
Fort Garry	83.5	84.4 (o)	79.0	80.3 (o)
Assiniboine South	81.0	82.9	78.1	80.3 (o)
St. Boniface	82.1	83.9 (o)	76.2 (d)	79.0 (o)
St. Vital	84.2	83.6 (o)	74.4 (d)	79.3 (o)
Transcona	86.7	82.0	76.5	77.6
River Heights	81.2	83.0 (o)	74.5	78.0 (o)
River East	81.6	82.7 (o)	75.2 (d)	78.4 (o)
Seven Oaks	80.5	81.3	79.8	77.4
St. James–Assiniboia	83.6	82.2	75.1	77.6
Inkster	79.3	81.5	74.3	77.1
Downtown	73.6 (m,d)	79.2 (o)	68.3 (m,d)	71.9 (o)
Point Douglas	74.8 (m)	76.1 (o)	75.9	71.5 (o)

Each of these is specific for the male or female groupings.
'm' indicates the area's rate for Metis was statistically different from the Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates a significant difference between Metis and other.
Blank cells = suppressed data due to small numbers.

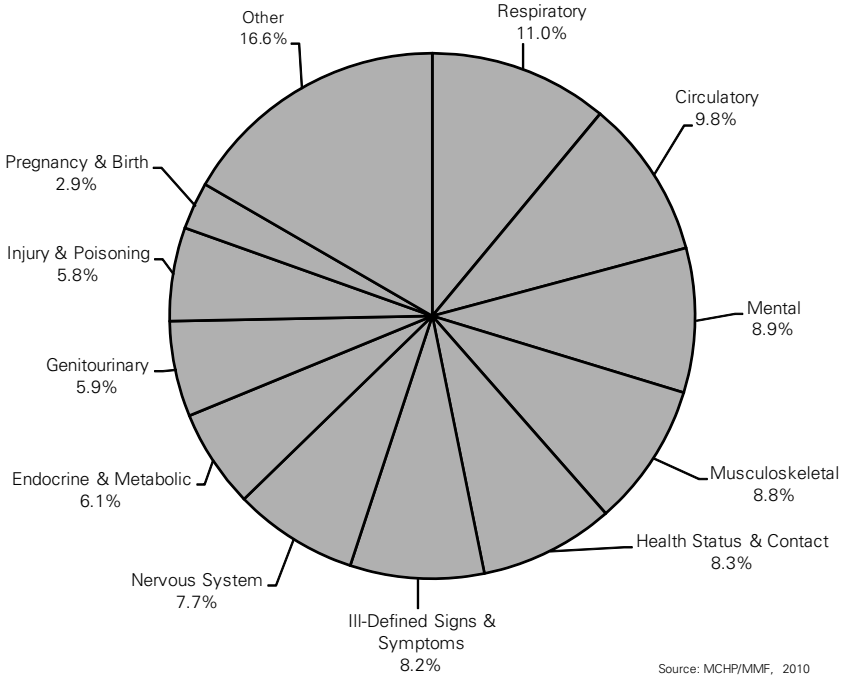
Source: MCHP/MMF, 2010

Figure 9.1.4: Ambulatory Visits by Cause (ICD-9 CM) for Metis, 2006/07



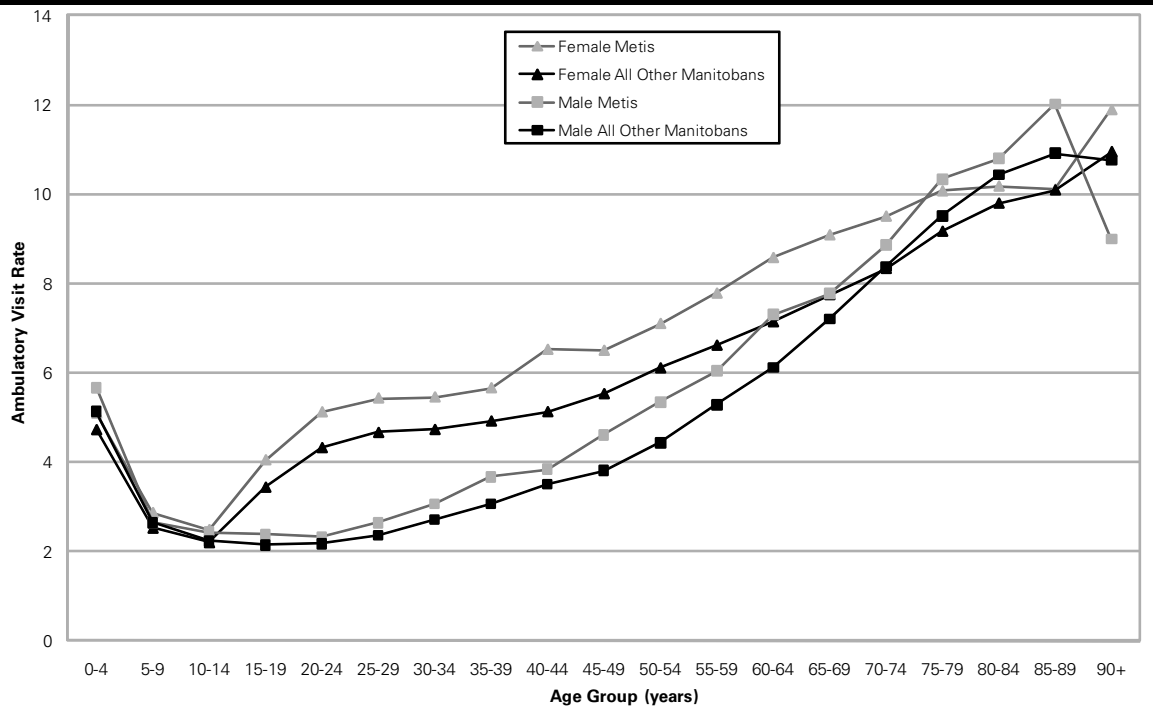
Source: MCHP/MMF, 2010

Figure 9.1.5: Ambulatory Visits by Cause (ICD-9 CM) for All Other Manitobans, 2006/07



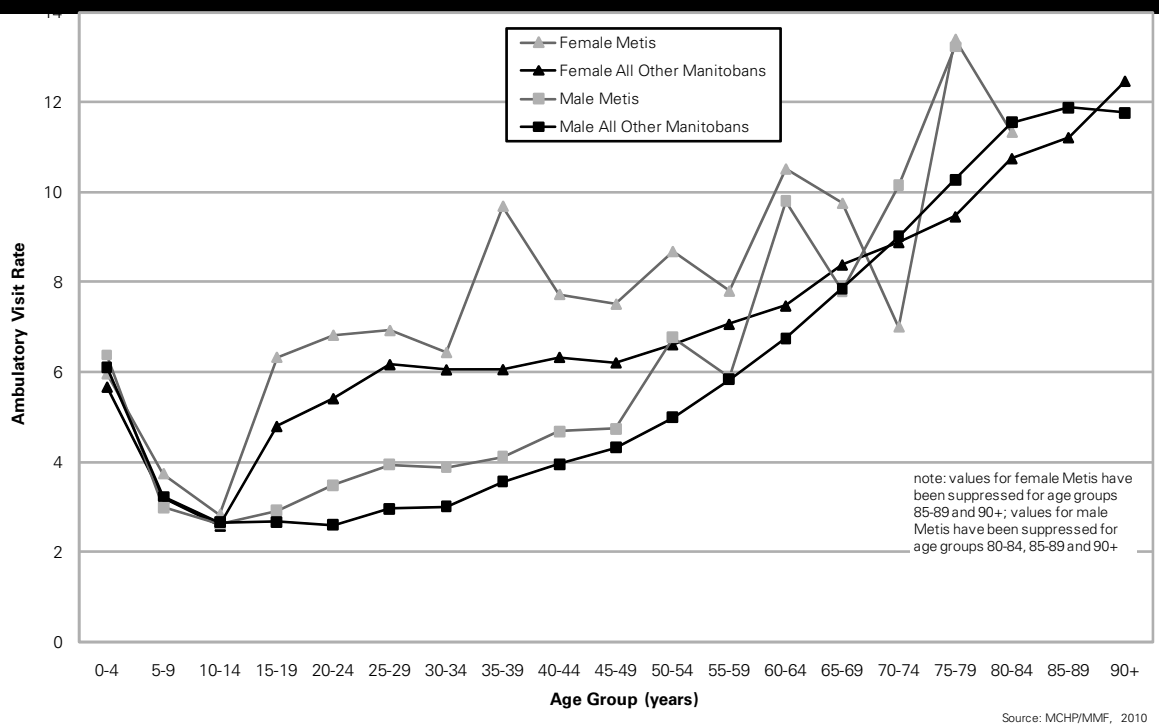
Source: MCHP/MMF, 2010

Figure 9.1.6: Ambulatory Visit Rates by Age and Sex, Manitoba
Crude average annual ambulatory visits to all physicians per resident



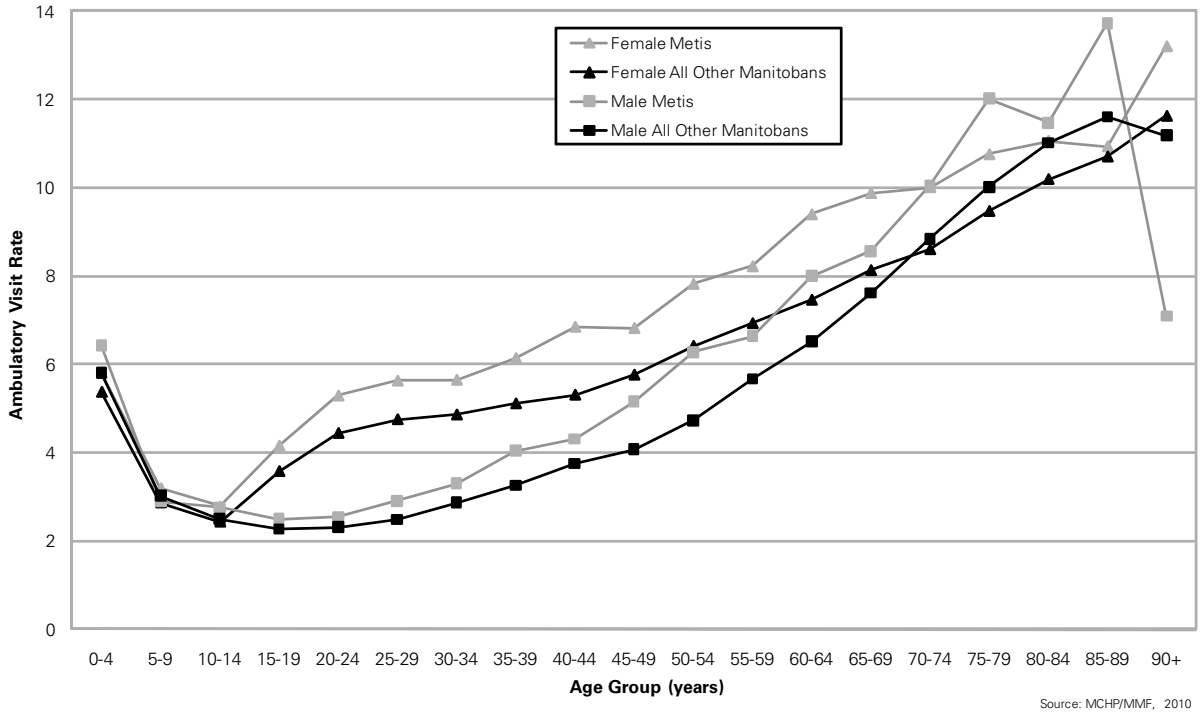
Source: MCHP/MMF, 2010

Figure 9.1.7: Ambulatory Visit Rates by Age and Sex, Brandon
Crude average annual number of visits to all physicians per resident



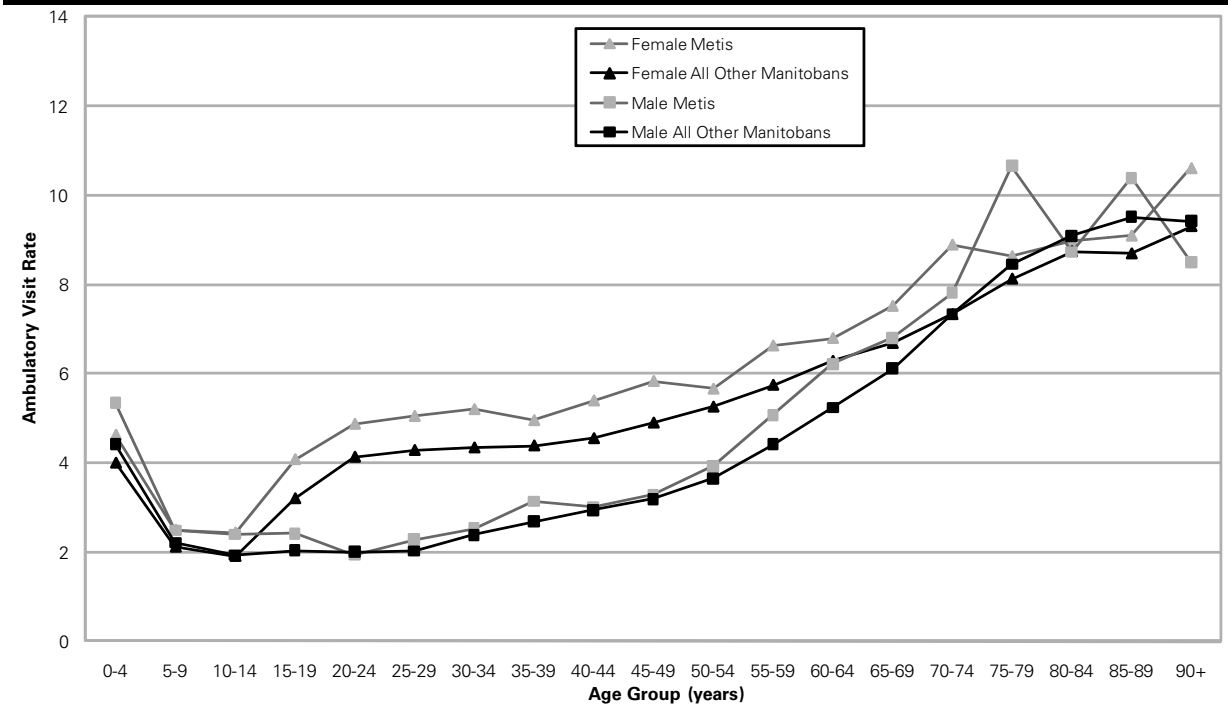
Source: MCHP/MMF, 2010

Figure 9.1.8: Ambulatory Visit Rates by Age and Sex, Winnipeg
Crude average annual number of visits to all physicians per resident



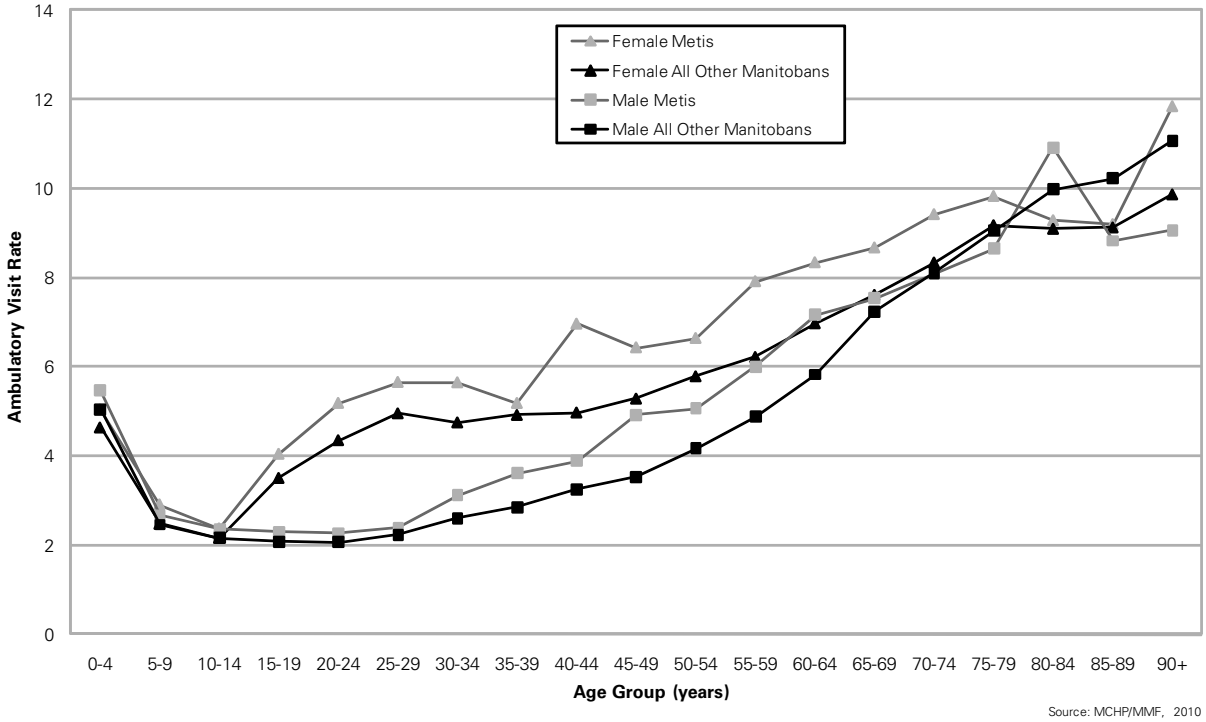
Source: MCHP/MMF, 2010

Figure 9.1.9: Ambulatory Visit Rates by Age and Sex, Rural South
Crude average annual number of visits to all physicians per resident



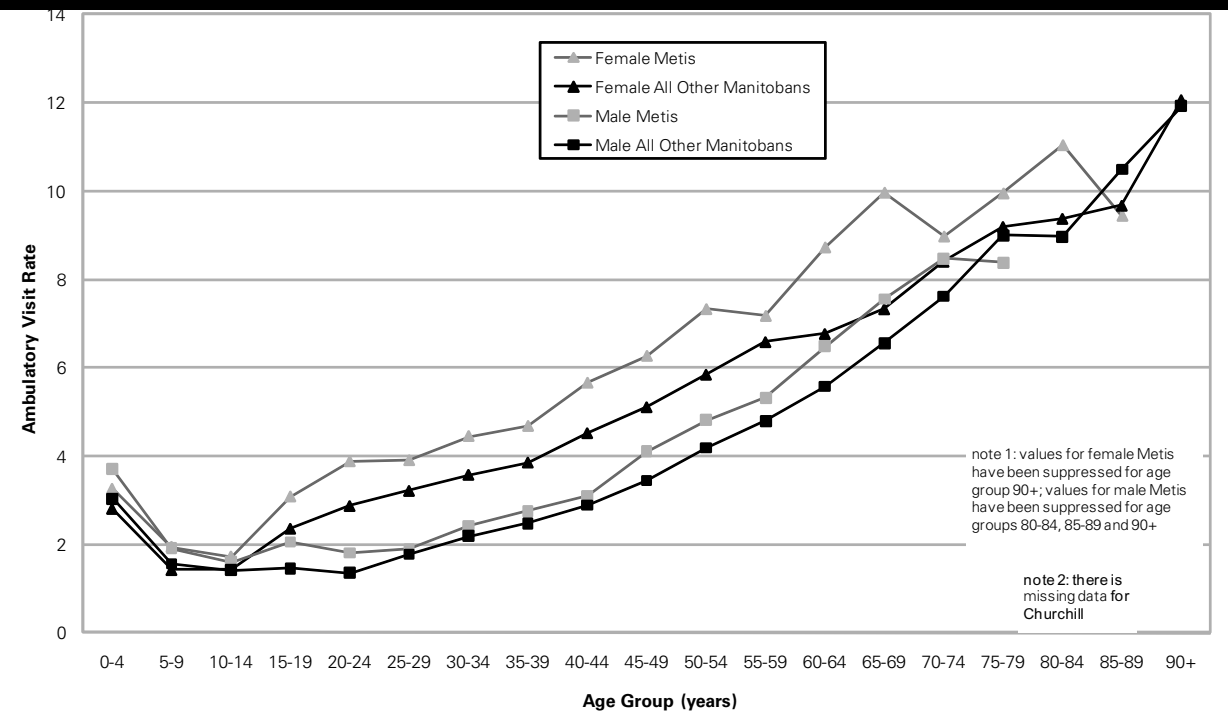
Source: MCHP/MMF, 2010

Figure 9.1.10: Ambulatory Visit Rates by Age and Sex, Mid
Crude average annual number of visits to all physicians per resident



Source: MCHP/MMF, 2010

Figure 9.1.11: Ambulatory Visit Rates by Age and Sex, North
Crude average annual number of visits to all physicians per resident



Source: MCHP/MMF, 2010

9.2 Ambulatory Consultation Rates

Consultations are a subset of ambulatory visits: they occur when one physician refers a patient to another physician (usually a specialist or surgeon) because of the complexity, obscurity, or seriousness of the condition, or when the patient requests a second opinion. A consultation can be with either a general practitioner/family practitioner (GP/FP) or a specialist, after which the patient usually returns to their GP/FP for ongoing management.

The rate of consultations is a measure of 'initial' access to specialist care. People in urban areas often have much higher overall rates of specialist care, since they may continue to see the specialist rather than being referred back to their GP/FP. That is why the consultation rate, rather than the overall specialist visit rate, is used as an indicator of access to specialist care.

The age– and sex–adjusted ambulatory consultation rate per resident was measured for fiscal year 2006/07. Crude rates are available in the appendix. See the Glossary for the physician tariff codes used in this definition. The denominator includes all Manitoba residents as of December 31, 2006.

Key observations:

RHAs:

- Provincially, Metis have a higher ambulatory consultation rate than all other Manitobans (0.30 vs. 0.28 visits per year). There is no apparent gradient of consultation rate with PMR. This appears to be more driven by location of residence, where the RHA of Winnipeg shows the highest rates in the province for both Metis and other residents.
- In most of the southern RHAs, there is a consistently higher ambulatory consultation rate for Metis compared to all others: South Eastman (0.28 vs. 0.25), Central (0.28 vs. 0.23), Assiniboine (0.23 vs. 0.19), Brandon (0.32 vs. 0.28), and Winnipeg (0.34 vs. 0.31 visits per year). All other RHAs show similar trends (though not statistically significant) with the exception of Burntwood, where Metis and others have similar rates (Metis 0.27, others 0.28, NS).
- In the aggregate areas, Rural South rates are below the provincial average for both Metis and others, but the Metis rate is significantly higher than all other residents (0.27 vs. 0.22). Mid rates are similar to the provincial averages for both Metis and others and also similar to each other (Metis 0.27, others 0.26 visits per year, NS). North rates are both lower than the provincial averages but similar to each other (Metis 0.24, others 0.25 visits per year, NS).
- RHAs showing ambulatory consultation rates for Metis that are lower than the Metis provincial average of 0.30 visits per year are: Assiniboine (0.23); Parkland (0.26); and NOR–MAN (0.23).

MMF Regions:

- The provincial Metis ambulatory consultation rate is 0.30 visits per year. There is no apparent gradient of consultation rate with PMR—most of the difference shows up as a high rate in the urban area of Winnipeg MMF Region (with the highest rate of 0.34).

- Two MMF Regions have a lower ambulatory consultation rate compared to the Metis provincial average of 0.30: Northwest MMF Region (0.26) and The Pas MMF Region (0.23 visits per year). Only one MMF Region has a higher rate—Winnipeg MMF Region at 0.34 visits per year.

Winnipeg CAs:

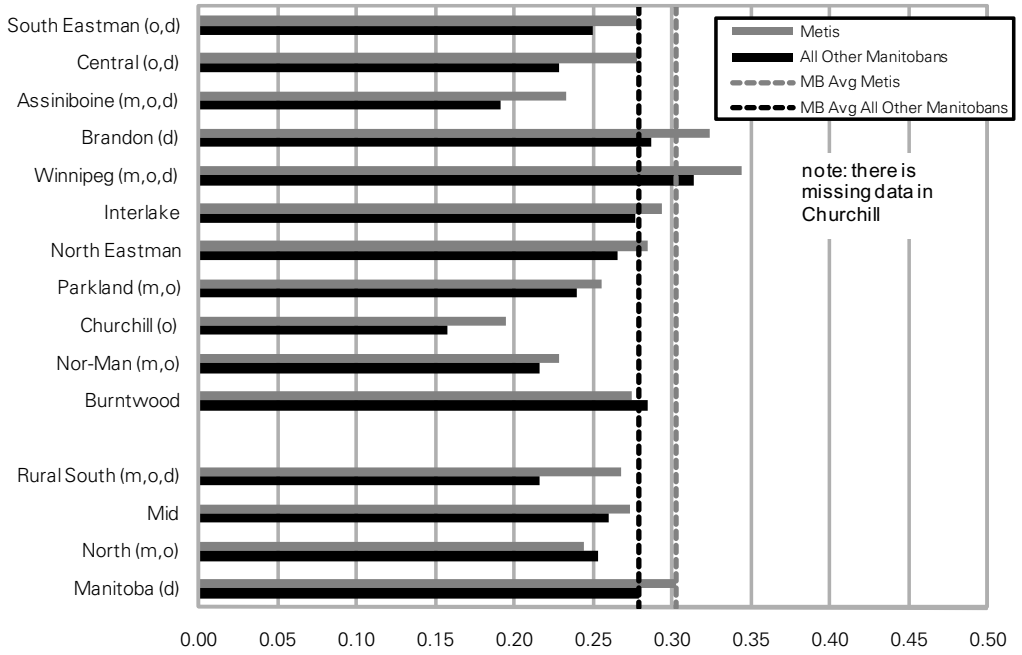
- Metis living in Winnipeg RHA have a higher ambulatory consultation rate compared to all others (0.34 vs. 0.31 visits per year), which may reflect their overall poorer health status. There may be a slight inverse gradient of consult visit rates by PMR in Winnipeg: the healthiest CAs appear to have higher rates and the least healthy have lower rates.[2]
- The CAs showing higher ambulatory consultation rates for Metis compared to others are: Assiniboine South (0.41 vs. 0.35), St. Vital (0.38 vs. 0.34), River East (0.35 vs. 0.30), Seven Oaks (0.34 vs. 0.30), Inkster (0.36 vs. 0.28), Downtown (0.33 vs. 0.29), and Point Douglas (0.32 vs. 0.29 visits per year). All other CAs show a similar trend, but the difference is not statistically significant.
- Compared to the provincial Metis average ambulatory consultation rate of 0.30 visits per year, many of the CAs show higher rates: Fort Garry (0.37), Assiniboine South (0.41), St. Boniface (0.34), St. Vital (0.38), River East (0.35), St. James–Assiniboia (0.37), and Inkster (0.36 visits per year).

Percentage of the population having at least one consult visit in 2006/07:

- The age– and sex–adjusted percentage of Metis having at least one consult during 2006/07 is slightly higher than for all other Manitobans, at 21.7% vs. 20.2%. This represents the percentage of the population having at least one visit, so only counts a person once (in contrast to the ambulatory consult rate which allows for one person to have more than one consult, and each consult is counted).

[2] Note that a physician may refer a person to further examination through a consultation. However, if the person does not attend the specialist appointment, the visit will not be collected in the physician claims files. The non-attendance of a person to a consult may be due to many barriers, including lack of transportation, no child care available, or inability to take time off work.

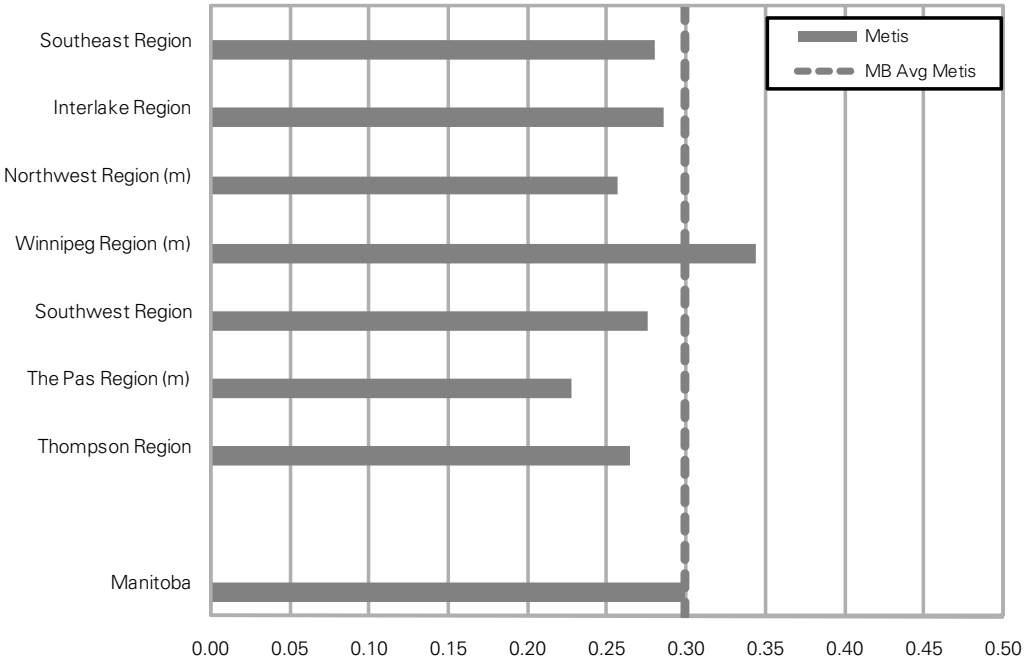
Figure 9.2.1: Ambulatory Consultation Rate by RHA, 2006/07
Age- & sex-adjusted rate per resident



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 9.2.2: Ambulatory Consultation Rate by Metis Region, 2006/07
Age- & sex-adjusted rate per Metis resident



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
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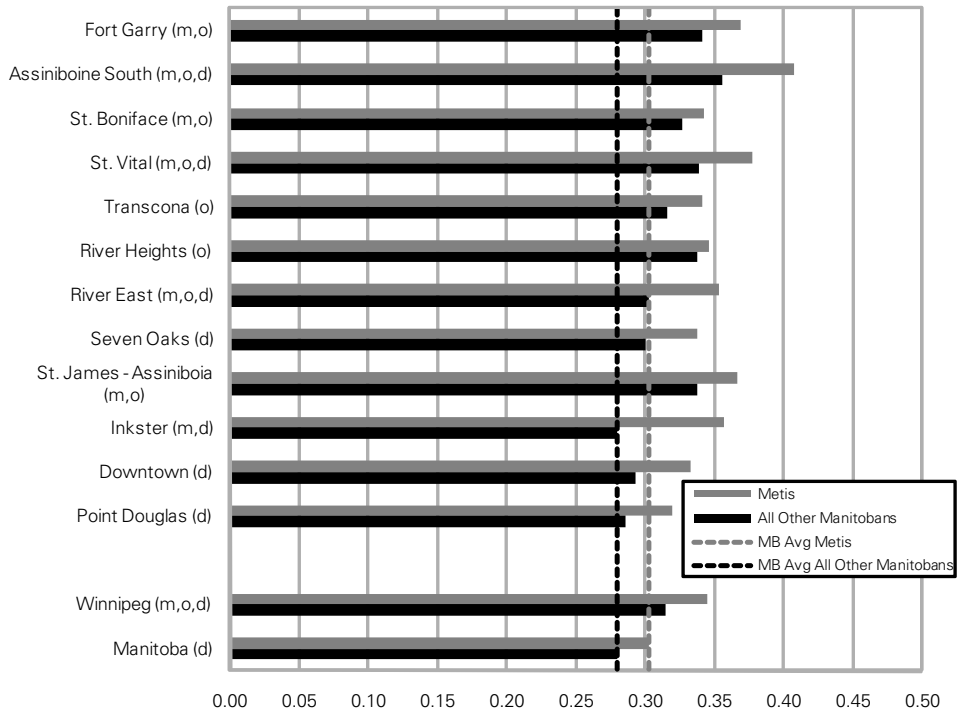
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 9.2.3: Ambulatory Consultation Rate by Winnipeg Community Area, 2006/07
Age- & sex-adjusted rate per resident



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

9.3 Continuity of Care Prevalence

Continuity of care is the extent to which individuals see a given healthcare provider over a specified period of time. Individuals with a regular provider may have improved health outcomes as a result of one provider managing their healthcare needs over an extended period of time. However, the limitation of Repository data is that only physician contacts can be quantified.

In this report, the prevalence of continuity of care is the age– and sex–adjusted percentage of residents receiving at least 50% of their ambulatory visits from the same physician for fiscal years 2005/06–2006/07. Crude percentages are available in the appendix. For children aged 0–14, the physician could be either a GP/FP or a paediatrician; for residents aged 15–59, only GP/FPs could be the physician; and for seniors aged 60 and older, the physician could be either a GP/FP or an internal medicine specialist. Residents with less than three ambulatory visits over the two–year period are excluded from analyses[3]. The denominator includes all Manitoba residents with three or more physician visits in fiscal years 2005/06–2006/07.

Key observations:

RHAs:

- Provincially, the prevalence of continuity of care is lower for Metis than for all other Manitobans (65.4% vs. 69.1%). There is little evidence of a gradient of continuity of care by PMR. Some urban, rural, and remote settings show higher prevalence of continuity of care, whereas others show much lower prevalence.
- In the aggregate areas of the Rural South (Metis 60.2%, others 61.9%) and the North (Metis 58.7%, others 57.2%), both Metis and other residents have lower prevalence of continuity of care compared to the corresponding provincial averages (65.4% Metis, 69.1% others). In the Mid aggregate area, prevalence of continuity of care is similar between the two groups (Metis 67.3%, others 67.5% others) and similar to the corresponding provincial averages.
- Churchill RHA has the highest prevalence of continuity of care of any RHA in the province for both Metis (86.7%) and other residents (83.1%) although not statistically significantly higher for Metis (but higher for all others).
- The prevalence of continuity of care for Metis is lower than the Metis provincial average of 65.4% in the following RHAs: Central (56.5%), Brandon (48.7%), and Burntwood (47.3%). It is higher than the Metis provincial average in North Eastman (71.6%).
- There is a significantly lower prevalence of continuity of care for Metis compared to other residents of the area in Brandon (48.8% vs. 58.9%) and Winnipeg (69.3% vs. 73.7%).

MMF Regions:

- The provincial Metis prevalence of continuity of care is 65.4%. There is no apparent gradient of continuity of care by PMR for the MMF Regions.

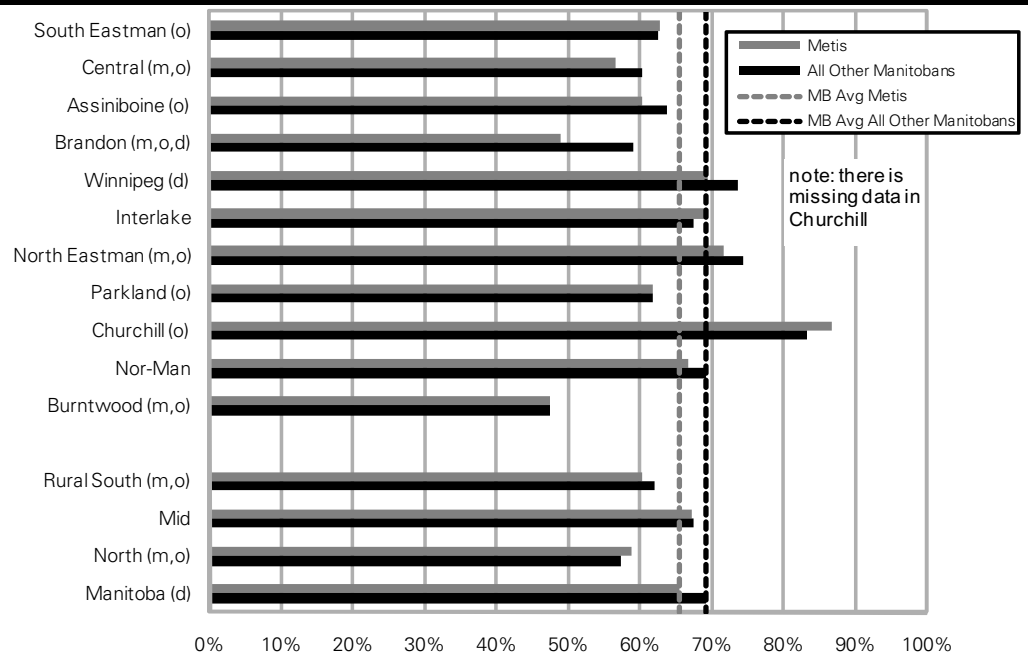
[3] The percentage (and number out of the total) of people excluded from this analysis due to having less than three visits in two years was as follows: Metis 18.9% excluded (12,885 people out of 68,092) and all others 20.7% excluded (208,613 people out of 1,007,543).

- The prevalence of continuity of care for Metis is lower than the Metis provincial average (65.4%) in the MMF Regions of Northwest (58.2%), Southwest (55.6%), and Thompson (49.1%), but higher in Winnipeg MMF Region (69.1%).

Winnipeg CAs:

- Metis living in Winnipeg have a lower prevalence of continuity of care compared to all other Winnipeggers (69.3% vs. 73.7%). There is some evidence of a gradient of continuity of care with PMR at the CA level, with the least healthy CAs having the lowest prevalence of continuity of care.
- In all CAs of Winnipeg, Metis have a prevalence of continuity of care that is lower than for all other residents, but at the same time the Metis prevalence is similar to or higher than the Metis provincial average (65.4%). Those CAs with higher–than–average prevalence of continuity of care for Metis include: St. Vital (71.8%), Transcona (80.3%), River East (73.8%), and Seven Oaks (73.2%).
- Despite the fact that Winnipeg rates tend to be similar or higher than the provincial average, Metis have a lower prevalence of continuity of care compared to other residents in the CAs of River East (73.8% vs. 79.5%), Seven Oaks (73.2% vs. 79.4%), Inkster (66.2% vs. 72.9%), Downtown (60.9% vs. 68.7%), and Point Douglas (60.9% vs. 69.4%). lower than that for all other residents, but
- It is interesting to note that Metis ambulatory physician visit rates and consult rates appear to be higher in the areas of Downtown and Point Douglas, but continuity of care is lower for the Metis.

Figure 9.3.1: Continuity of Care by RHA, 2005/06-2006/07
Age- & sex-adjusted percent of residents with at least 50% of visits to the same physician



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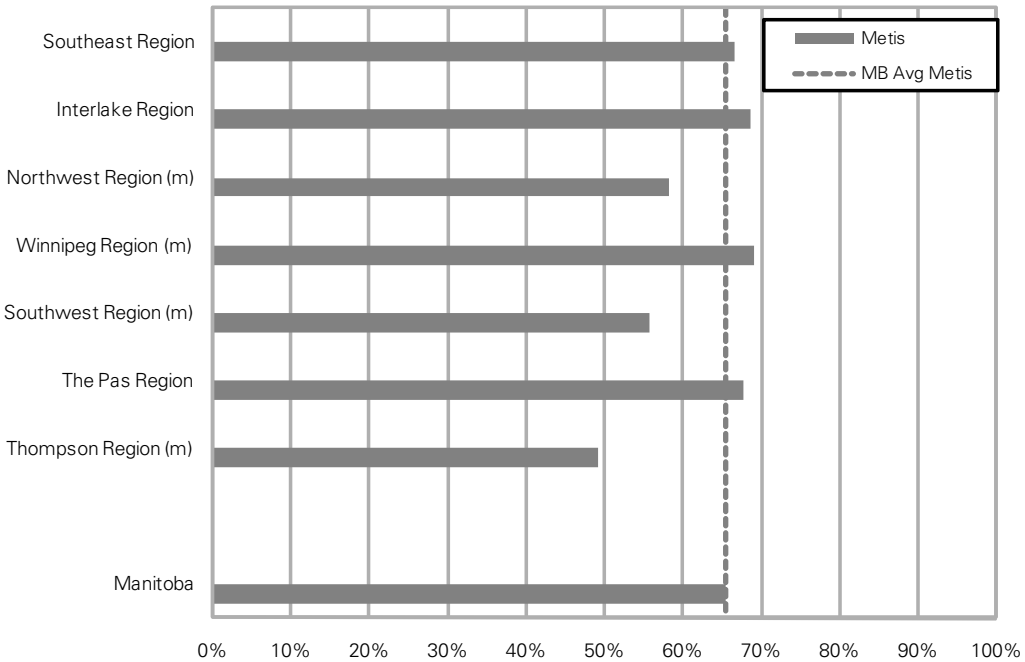
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

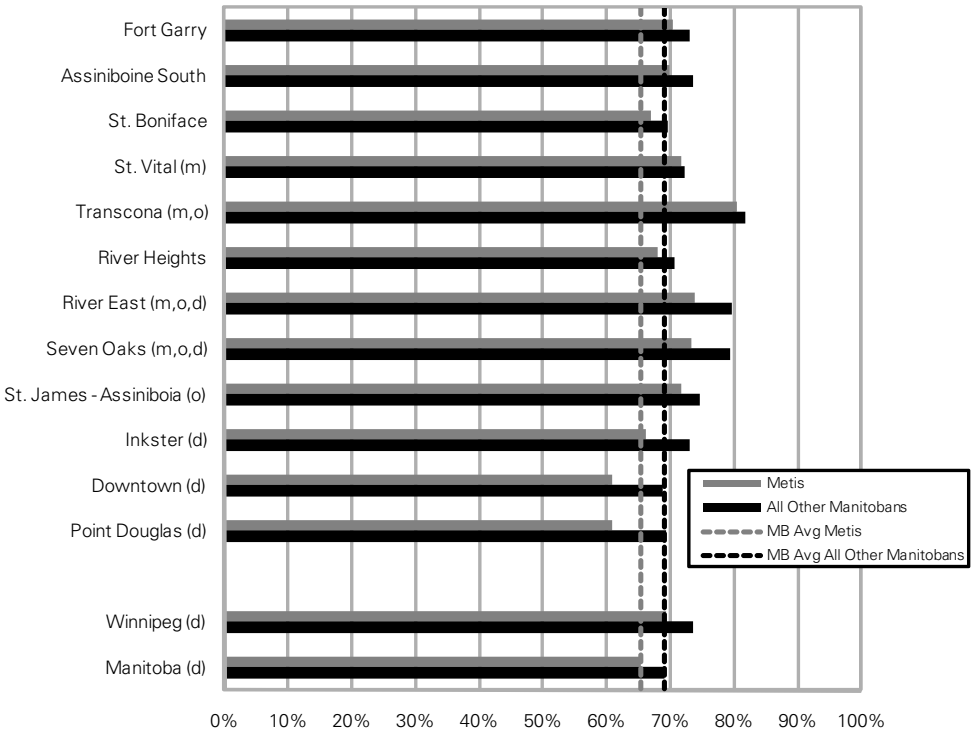
Figure 9.3.2: Continuity of Care by Metis Region, 2005/06-2006/07
Age- & sex-adjusted percent of Metis residents with at least 50% of visits to the same physician



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 9.3.3: Continuity of Care by Winnipeg Community Area, 2005/06-2006/07
Age- & sex-adjusted percent of residents with at least 50% of visits to the same physician



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

9.4 Findings from Literature Review

(*compared to the results in this study—in italics*)

Visits to physicians

Children

- According to Normand (1996), 76% of Metis children under age 15 consulted a healthcare professional in 1991, with the majority (90%) of those visits being to a physician.
- Janz, Seto, and Turner (2009) found that self–report survey data from 2006 showed that 54% of Métis children aged 6 to 14 had seen a family doctor[4] in the past year—32% have seen a medical specialist, 18% have seen a nurse, and 82% received dental care. All figures were similar for Métis boys and girls. The findings were also consistent with 2001 except that Métis children were slightly more likely to have seen a medical specialist in 2006 (32%) than in 2001 (27%)[5]. In 2006, younger children aged 6 to 10 were more likely to have seen a doctor than older children aged 11 to 14 (58% versus 49%). As well, 57% of urban Métis children saw a family doctor, compared with 46% of their rural counterparts; 20% of rural children saw a nurse compared with 17% of urban children.

Adults

- In the 1991 Aboriginal Peoples Survey, 72% of Métis reported contact with a physician during the previous year, highest among all Aboriginal people, but still lower than the Canadian average of 82%. Seventy-six percent reported contact with a health professional (Statistics Canada, 1993; Health Canada, 2001). Normand (1996) reported higher results from a survey in 1991, with 96% of Metis women and 93% of Metis men aged 15 and over consulted a medical doctor on at least one occasion in the past year.
- In 2006, 81% of Métis adults reported they had a family doctor[6], slightly less than the total population of Canada (86%). However, there were not differences in urban versus rural populations (Janz et al., 2009). Compared to the total population of Canada, a similar proportion of Metis said that in the last year there was a time when they needed healthcare but did not receive it (12% vs. 11%). Métis who reported fair or poor health were slightly more likely to report having a family doctor than those who were in excellent or very good health (85% versus 80%). (Sanmartin & Ross, 2006; Janz et al., 2009).
- In a population–based study by Kliewer, Mayer, and Wadja (2002) for the years 1995–1997, where records from 2,177 members of MMF (mostly from Interlake district) were linked to Manitoba Health data, Metis males had a lower crude ambulatory physician visit rate compared to the Manitoba male population overall (5.7 vs. 5.9 visits per year). The reverse was true for Metis females compared to the Manitoba female population (9.3 vs. 8.9 visits per year). When this was age–standardized, the ratio for Metis males/total males was 0.95 and Metis females/total females was 1.02. Rural Metis were found to consult with physicians less often than the general population, but Metis women were two to three times more likely to have seen a physician in the past year compared to Metis males (Kliewer et al., 2002).

[4] Family doctor also includes pediatricians and general practitioners. Also note that the question in 2006 differed from 2001. In 2006, the question was, "In the past 12 months, have you seen or talked on the phone with a paediatrician, general practitioner or family physician about ___'s physical, emotional, or mental health?" Whereas in 2001, respondents were asked about pediatricians separately from general practitioners and family doctors.

[5] Comparable data for children in the total population of Canada are not available.

[6] Family doctor includes regular medical doctor and general practitioner.

- In the 1995–1997 study by Kliewer et al. (2002), the average annual number of physician visits increased with advancing age; and in general for all age groups and both genders, the Metis rate was higher compared to all other Manitobans.
- Approximately 73% of the Métis households surveyed during the 2006 Métis Nation British Columbia survey reported that their major source of healthcare information came from healthcare professionals ("Pathways to Health", 2009).
- In the Manitoba First Nations report (Martens et al., 2002) for the year 1998/99, the ambulatory physician visit rate was statistically significantly higher at 6.1 visits per person per year for First Nations compared to 4.9 visits per person per year for all other Manitobans. In 1998, 78.2% of First Nations and 83.1% of all other Manitobans made at least one ambulatory visit to a physician. The consult rates were similar between groups, with 0.27 visits per person per year for First Nations vs. 0.29 visits per person per year for all other Manitobans (not statistically significantly different).

In our study, 85.1% of Metis compared with 81.7% of all other Manitobans had at least one ambulatory visit during the year 2006/07. These rates are somewhat comparable to the findings of Janz et al. (2009), with both the Canadian rates and our study's rates over 80%. However, the Canadian study found Metis rates lower than the overall Canadian population, whereas our study found Metis rates higher for ambulatory physician visit rates. Our study also showed a slightly higher percentage of Metis receiving at least one consult per year compared to all other Manitobans (21.7% vs. 20.2%).

In our study, overall ambulatory physician visit rates were higher for Metis than for the rest of the Manitoba population (5.4 vs. 4.8 visits per person per year in 2006/07) with a ratio of 1.13, which is higher than that reported by Kliewer et al. (2002). In the study by Martens et al. (2002), First Nations' ambulatory physician visit rates were also higher than the rest of the population (6.1 visits per person per year vs. 4.9), and may be higher than Metis visit rates.

We also found that both female and male Metis show elevated physician visit rates at almost every age grouping compared to all other Manitobans with the largest gaps in the middle–aged and the lowest differences in the young. This is in contrast to the findings of Kliewer et al. (2002) where male Metis rates were lower than the general male population.

In our study, ambulatory physician visit rates of people living in the Rural South and the North aggregate areas were lower than the provincial average, both for Metis (Rural South 4.8, North 4.8, provincial Metis average 5.4 visits per year) and all other Manitobans (Rural South 4.2, North 4.0, provincial average for all others 4.8 visits per year). However, those living in the Mid area of the province had rates similar to the provincial averages (Metis 5.3, others 4.5 visits per year). Those living in Brandon (Metis 6.7, other 5.5) and Winnipeg (Metis 5.9, other 5.1 visits per year) show elevated rates for Metis compared to the provincial Metis average. Note that in ALL aggregate areas, as well as in the two urban areas of Brandon and Winnipeg, our data shows higher Metis rates compared to all others living in that area, similar to what is seen at the provincial level (5.4 vs. 4.8 visits per year), which may reflect the greater burden of disease in the Metis.

In our study, Metis consult rates were statistically significantly higher than for all other Manitobans (0.30 vs. 0.28 visits per year). The Martens et al. (2002) report found the opposite for First Nations in 1998/99, with lower consult rates for First Nations compared to the rest of the population (0.27 vs. 0.29 visits per year).

Reasons for physician visits:

- Kliewer et al. (2002) found that Metis had elevated rates of physician visits for Endocrine, Circulatory Disorders, Injury & Poisonings, Genitourinary (males only), and Respiratory (females only), but fewer Neoplasm and Infectious & Parasitic diagnoses.

Our study analyzed percentages of total visits by cause, using the crude rates, but not separating these out by gender. Caution must be exercised when interpreting these percentages, since these are based on crude rates that are unadjusted for potential age differences between Metis and all others.

For the Metis, the following percentages of total visits by cause were slightly higher compared to all other Manitobans: Respiratory (13.2% vs. 11.0%), Genitourinary (6.7% vs. 5.9%), and Injury & Poisoning (6.2% vs. 5.8%).

The following percentages of total visits by cause were slightly lower for Metis compared to all other Manitobans: Circulatory (8.1% vs. 9.8%), Mental Health (8.6% vs. 8.9%), Musculoskeletal (7.6% vs. 8.8%), Nervous System (7.1% vs. 7.7%), and Endocrine & Metabolic (6.0% vs. 6.1%).

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Chapter 10: Use of Hospital Services

Indicators in this chapter:

- Hospital Separation Rate
- Where Residents Went for Hospital Separations
- Hospital Separations by Cause
- Injury Hospitalization Rate
- Injury Hospitalization Causes

Overall Key Findings:

- Hospital separation rates show that Metis have 26% more hospital separations and 24% injury–related hospital separations than all other Manitobans. In some ways, the higher hospitalization rate reflects the overall poorer health status, but the injury hospitalization rate is a cause for concern.
- According to Table 10.0, the areas of South Eastman RHA/Southeast MMF Region and Winnipeg RHA/Winnipeg MMF Region (and many of the CAs in Winnipeg) exhibit low hospitalization rates (even for injury hospitalization). This may be a reflection of the way in which hospital beds are used in these areas (especially in the case of Winnipeg) or the overall good health status of the region (in the case of South Eastman).
- According to Table 10.0, regions showing high hospitalization rates are the RHAs and MMF Regions in the North, which may reflect the poorer overall health status of the population or the possibility that clients who live in remote communities may be more likely to be hospitalized. There are also higher than expected hospitalization rates in Parkland RHA, Northwest MMF Region, and The Pas MMF Region. For injury hospitalizations, two CAs of Winnipeg—Downtown and Point Douglas—are areas of concern for Metis, showing very high injury–related hospitalizations even in comparison with other residents of the area (although both are statistically significantly higher than their corresponding provincial averages). These two CAs are in sharp contrast to most other CAs of Winnipeg that have much lower than average injury hospitalization rates for both Metis and all other residents.

Table 10.0: Overall Key Findings of Hospital Services*

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average NOTE: Although this may or may not be a correct assumption, a high rate will be considered 'better off' for this indicator, i.e., possibly good access.	Statistically "worse off" regions for Metis compared to the Metis provincial average NOTE: Although this may or may not be a correct assumption, a low rate will be considered 'worse off' for this indicator, i.e., possible lack of access.
Ambulatory Physician Visit Rates (visits per person per year, age– and sex–adjusted)	5.4 vs. 4.8; RR=1.13	Brandon RHA, Winnipeg RHA, Parkland RHA, Winnipeg MMF Region, River Heights CA, Inkster CA, Downtown CA, Point Douglas CA	South Eastman RHA, Central RHA, Interlake RHA, Churchill RHA (may be missing data), Burntwood RHA, Rural South and North aggregate areas, Interlake MMF Region, Thompson MMF Region
Ambulatory Consultation Rates (visits per person per year, age– and sex–adjusted)	0.30 vs. 0.28; RR=1.07	Winnipeg RHA, Winnipeg MMF Region, Fort Garry CA, Assiniboine South CA, St. Boniface CA, St. Vital CA, River East CA, St. James–Assiniboia CA, Inkster CA	Assiniboine RHA, Parkland RHA, NOR–MAN RHA, Rural South aggregate area, North aggregate area, Northwest MMF Region, The Pas MMF Region
Continuity of Care (percentage of people receiving continuity of care over a three–year period)	65.4% vs. 69.1%; RR=0.95	North Eastman RHA, Winnipeg MMF Region, St. Vital CA, Transcona CA, River East CA, Seven Oaks CA [trend to very high rate in Churchill RHA, but NS]	Central RHA, Brandon RHA, Burntwood RHA, Rural South aggregate area, North aggregate area, Northwest MMF Regin, Southwest MMF Region, Thompson MMF Region

NS means Not Statistically significantly different between Metis and all others

* This table is somewhat different than 'overall key findings' tables in other chapters due to the need for careful interpretation of the context. Rather than state which RHA/MMF Regions are statistically 'worse' or 'better' off, this table states which RHA/MMF Regions are statistically lower or higher. While Metis in one region may have statistically lower hospital separations, this must be examined together with other indicators for Metis regional health to see if this lower rate is appropriate given health status.

Source: MCHP/MMF, 2010

10.1 Hospital Separation Rate

A separation from a hospital occurs anytime a patient (or resident) leaves because of death, discharge or transfer. The number of separations is the most commonly used measure of the utilization of hospital services. Separations, rather than admissions, are used because hospital abstracts for patient care are based on information gathered at the time of discharge. The words 'separation', 'discharge', 'admission', and 'stay' are equivalent.

The age– and sex–adjusted rate of hospitalizations per 1,000 residents was measured in fiscal year 2006/07. Crude rates are available in the appendix. Both inpatient hospital stays and surgical outpatient records are included; newborn (birth) hospitalizations were excluded (i.e., the mother's record is counted, the baby's is not). Multiple admissions of the same person were counted as separate events. However, transfers between hospitals for the same episode of care are only counted as one event. All Manitoba hospitals were included; PCHs and Long–term Care facilities were excluded (Riverview, Deer Lodge, Rehabilitation Centre for Children, and Adolescent Treatment Centre). For consistency over time, outpatient hospital separations with a principal procedure code for a biopsy were also excluded. Surgical outpatients only attending the hospital for a biopsy did not require a hospital abstract as of April 1, 2001. The denominator includes all Manitoba residents as of December 31, 2006.

Key Observations:

RHAs:

- Provincially, Metis have a higher hospital separation rate compared to all other Manitobans (194 vs. 154 per 1000 residents per year), possibly mirroring the poorer overall health status of Metis. There appears to be a gradient of hospital separation rates with PMR, showing response to an underlying "need" for acute services.
- Many RHAs show a similar picture to the provincial rate, with Metis having statistically higher hospitalization rates compared to all other residents: Central (200 vs. 176), Assiniboine (216 vs. 186), Brandon (214 vs. 166), Winnipeg (165 vs. 125), and Parkland (287 vs. 224 per 1000 residents per year).
- The RHA of Burntwood shows a trend opposite that of the provincial averages. Metis living in Burntwood having a significantly lower hospital separation rate compared to all others (309 vs. 374 per 1000 residents per year). South Eastman, Interlake, North Eastman, and NOR–MAN all have similar hospital separation rates for Metis and others living in the region.
- RHAs that have Metis hospital separation rates lower than the provincial Metis average of 194 per 1000 residents per year include South Eastman (162) and Winnipeg (165). RHAs that have Metis hospital separation rates higher than the provincial Metis average include Parkland (287), NOR–MAN (237), and Burntwood (309 per 1000 residents per year).
- The Rural South aggregate area shows rates similar to the provincial averages for both Metis and all others with no differences between the two groups. Mid aggregate area has a higher rate for Metis compared to all others (213 vs. 185); and the North has the highest rates—higher than the provincial averages for Metis and others, but with the "other" rate even higher than that of the Metis (271 vs. 309 per 1000 residents per year).

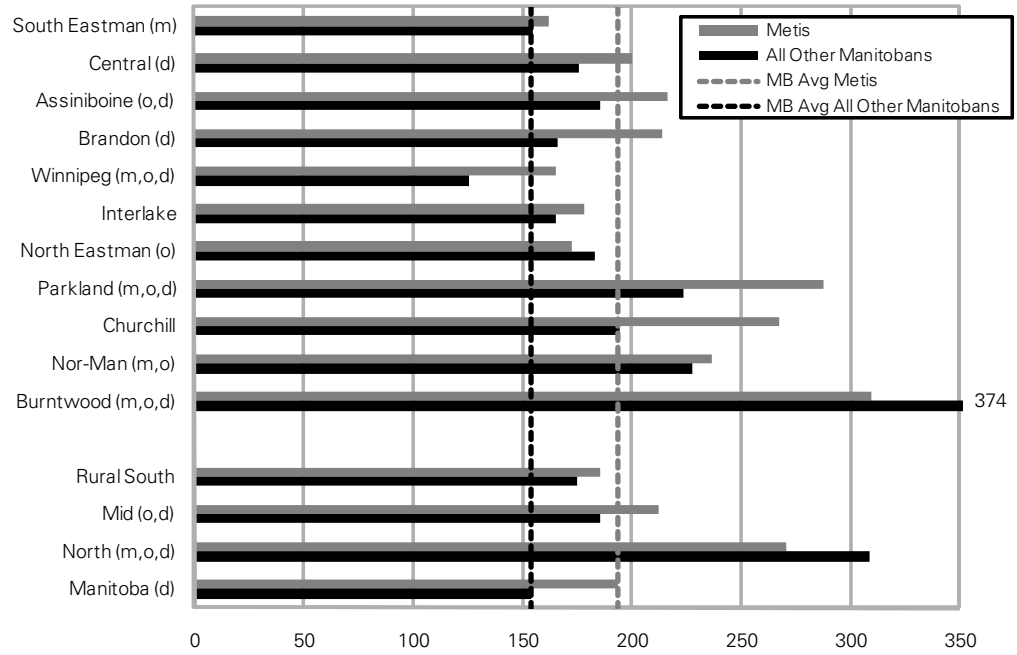
MMF Regions:

- The Manitoba Metis overall average hospital separation rate is 194 per 1000 residents per year. The gradient of hospital separation rate with PMR is very strong, with the regions of lower PMR having lower rates. The one anomalous region is Northwest MMF Region, which shows a hospital separation rate somewhat higher than one would expect (271 per 1000 residents per year) given the health status of the Metis people living there.
- Southeast MMF Region (163) and Winnipeg MMF Region (166) both have hospital separation rates for Metis that are lower than the provincial average of 194 per 1000 residents per year.
- Northwest (271), The Pas (268), and Thompson (308) MMF Regions have hospital separation rates substantially higher than the provincial average of 194 per 1000 residents per year.

Winnipeg CAs:

- Metis living in Winnipeg have a higher hospital separation rate compared to all other Winnipeg residents (165 vs. 125 per 1000 residents per year). However, both of these rates are statistically lower than their corresponding provincial averages (Metis 194, others 154).
- There is a strong gradient of hospital separation rate with PMR in the Winnipeg CAs, with the least healthy CAs having the highest hospital separation rates.
- Winnipeg, in general, has the lowest hospital separation rates in the province. This is mirrored in most CAs with the exceptions of: Seven Oaks, Inkster, Downtown and Point Douglas for Metis and Downtown and Point Douglas for all other Winnipeggers.
- Many of the Winnipeg CAs show higher rates for Metis compared to others: St. Boniface (145 vs. 119), St. Vital (157 vs. 124), River Heights (145 vs. 118), River East (161 vs. 128), Seven Oaks (169 vs. 124), Inkster (176 vs. 120), Downtown (211 vs. 145), and Point Douglas (202 vs. 157 per 1000 residents per year).

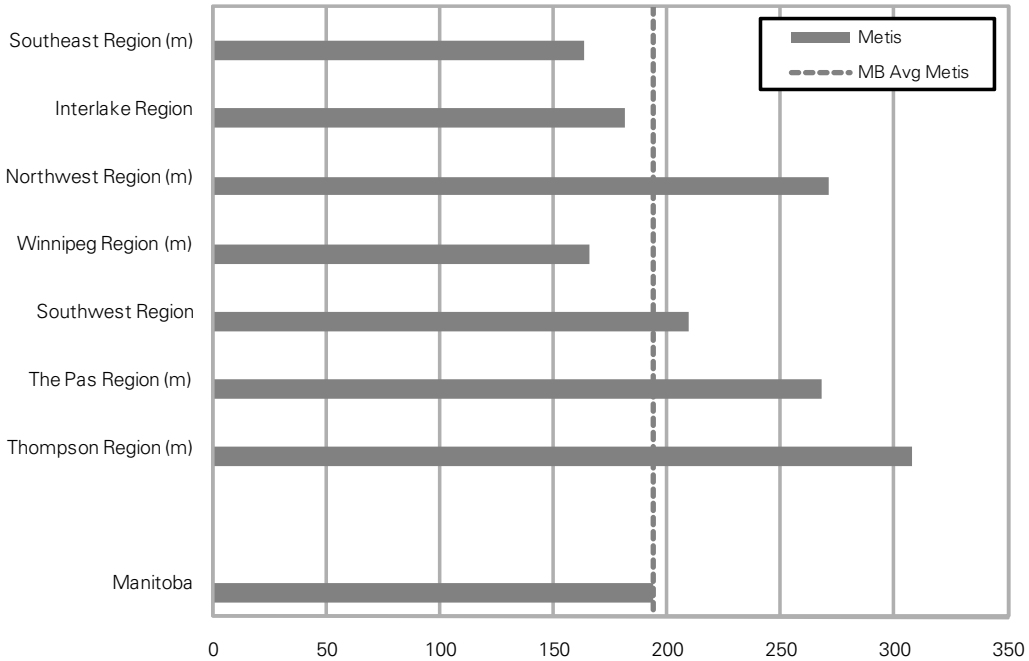
Figure 10.1.1: Total Hospital Separation Rate by RHA, 2006/07
Age- & sex-adjusted rate of hospital separations per 1,000 residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

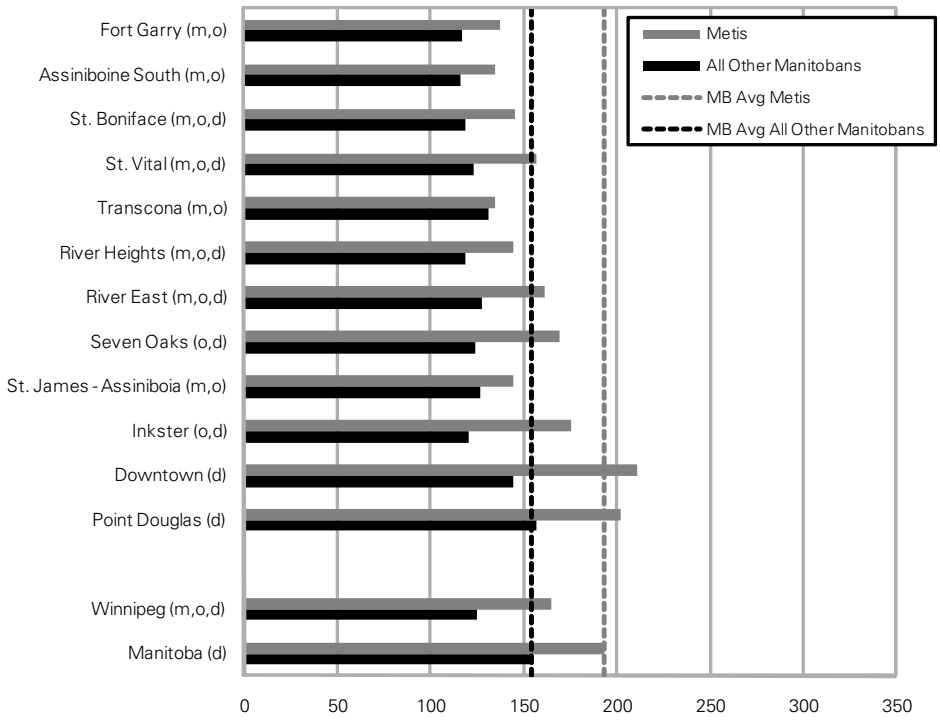
Figure 10.1.2: Total Hospital Separation Rate by Metis Region, 2006/07
Age- & sex-adjusted rate of hospital separations per 1,000 Metis residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 10.1.3: Total Hospital Separation Rate by Winnipeg Community Area, 2006/07
Age- & sex-adjusted rate of hospital separations per 1,000 residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

10.2 Where RHA Residents Went for Hospitalization

The location of hospitalization for residents of each RHA is shown in Table 10.2.1, and graphically in Figure 10.2.1. This is based on counts (percentage of the total separations), not age– or sex–adjusted rates.

Key findings:

- The highest percentages of RHA residents having a hospitalization in their own RHA are in the RHAs of Winnipeg (92.3% for both Metis and others) and Brandon (77.6% for Metis, 80.4% for others). Other RHAs with high percentages of their residents being hospitalized within the RHA include: Parkland (73.3% Metis, 70.2% others); NOR–MAN (64.2% Metis, 63.7% others); and Burntwood (70.1% Metis, 66.2% others).
- In general, the North aggregate area shows much higher percentages of residents staying within their RHA to be hospitalized (66.6% Metis, 65.3% others)—about two-thirds of hospitalizations stay within RHA compared to only one-half in Mid (52.7% Metis, 47.1% all others) or Rural South (46.5% Metis, 52.8% all others).

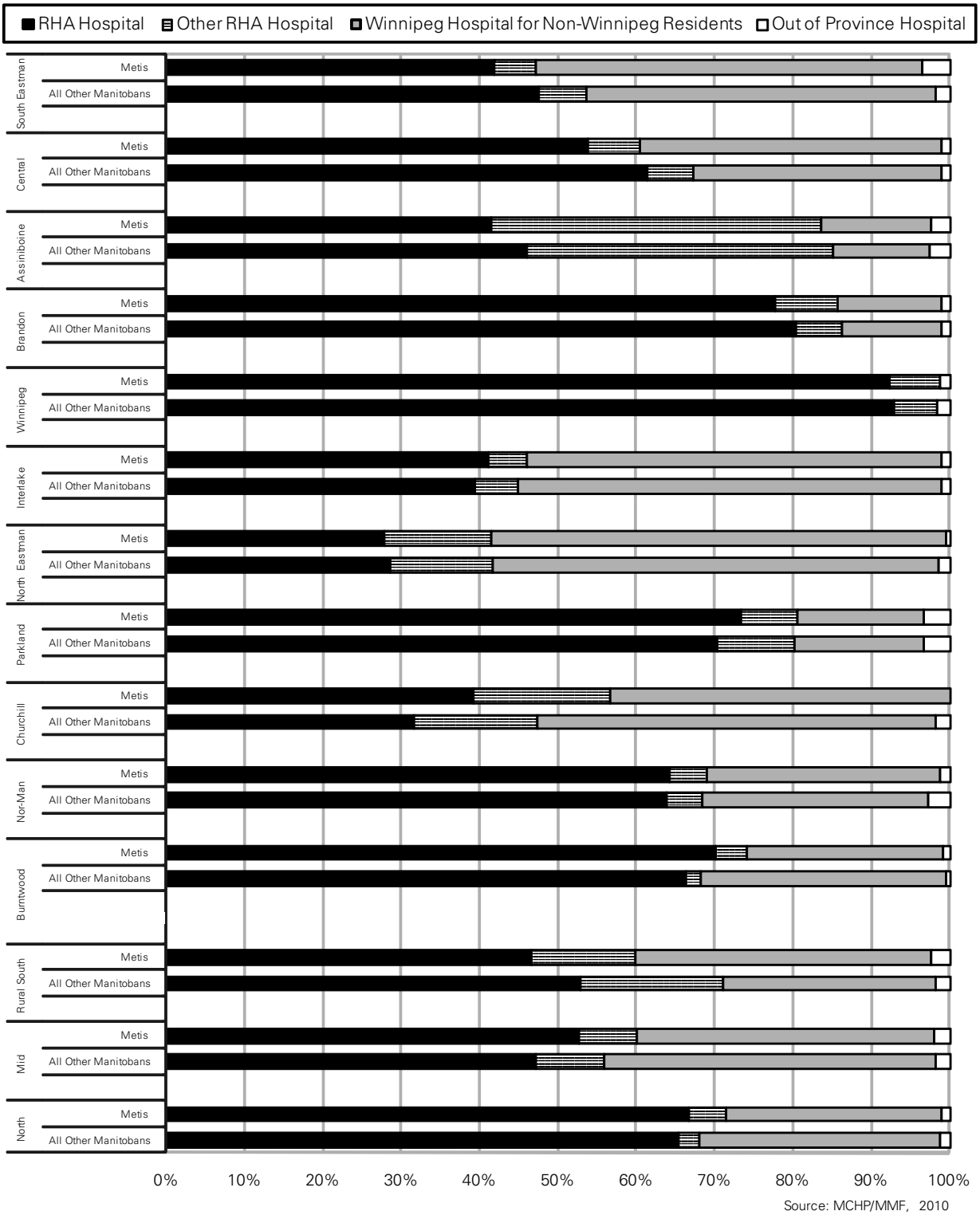
Table 10.2.1: Where RHA Residents Went for Hospital Separations, 2006/07

RHA		Total Separations Used by RHA Residents	RHA Hospital	Other RHA Hospital	Winnipeg Hospital	Out of Province Hospital
South Eastman	Metis	816	41.8%	5.3%	49.4%	3.6%
	All Other Manitobans	7,798	47.4%	6.2%	44.5%	1.9%
Central	Metis	806	53.8%	6.6%	38.5%	1.1%
	All Other Manitobans	16,109	61.3%	5.8%	31.7%	1.1%
Assiniboine	Metis	415	41.4%	42.2%	14.0%	2.4%
	All Other Manitobans	13,891	45.9%	39.1%	12.3%	2.7%
Brandon	Metis	375	77.6%	8.0%	13.3%	1.1%
	All Other Manitobans	7,970	80.4%	5.7%	12.9%	1.0%
Winnipeg	Metis	4,385	92.3%	6.5%	.	1.2%
	All Other Manitobans	82,744	92.3%	5.5%	.	1.6%
Interlake	Metis	1,487	41.0%	5.0%	52.9%	1.1%
	All Other Manitobans	11,496	39.4%	5.4%	54.2%	1.0%
North Eastman	Metis	523	27.7%	13.8%	57.9%	0.6%
	All Other Manitobans	6,372	28.6%	13.1%	57.0%	1.4%
Parkland	Metis	1,483	73.3%	7.2%	16.1%	3.4%
	All Other Manitobans	8,956	70.2%	9.9%	16.5%	3.3%
Churchill	Metis	46	39.1%	17.4%	43.5%	.
	All Other Manitobans	114	31.6%	15.8%	50.9%	1.8%
Nor-Man	Metis	746	64.2%	4.7%	29.8%	1.3%
	All Other Manitobans	3,790	63.7%	4.5%	28.9%	2.8%
Burntwood	Metis	869	70.1%	4.0%	25.0%	0.9%
	All Other Manitobans	10,776	66.2%	1.9%	31.3%	0.5%
Rural South	Metis	2,037	46.5%	13.3%	37.8%	2.4%
	All Other Manitobans	37,798	52.8%	18.2%	27.2%	1.9%
Mid	Metis	3,493	52.7%	7.3%	38.0%	2.0%
	All Other Manitobans	26,824	47.1%	8.7%	42.3%	1.9%
North	Metis	1,661	66.6%	4.7%	27.6%	1.1%
	All Other Manitobans	14,680	65.3%	2.7%	30.9%	1.2%

. = suppressed data due to small numbers

Source: MCHP/MMF, 2010

Figure 10.2.1: Where RHA Residents Went for Hospital Separations, 2006/07



Source: MCHP/MMF, 2010

10.3 Hospital Separations by Cause

These graphs are based on all hospital separations (both inpatient and outpatient[1]), and show the percentage attributed to each group of causes during hospitalizations, based upon the "Most Responsible" diagnoses. These are coded in ICD-10-CA. Note that these are not age– and sex–adjusted, so the underlying differences in Metis versus all other Manitoban age distribution may affect the results.

Key findings:

- The top three causes of hospitalizations in 2006/07 were similar for Metis and all other Manitobans, except that Pregnancy & Birth was the top reason for Metis, compared to Digestive being the top reason for all others. Caution must be exercised since some of the difference may be due to crude percentages being used and the fact that the Metis population is younger than all other Manitobans.
    - Metis causes of hospital separations by percentage of total: Pregnancy & Birth (13.4%), Digestive (12.1%), and Circulatory (10.2%). Injury & Poisonings represented 7.6%, whereas Cancer represented 6.0% of all hospital separations.
    - The causes of hospital separations for all other Manitobans, by percentage of total: Digestive (12.0%), Pregnancy & Birth (11.2%), and Circulatory (10.6%). Injury & Poisonings represented 7.2%, whereas Cancer represented 7.6% of all hospital separations.

[1] Note: in the RHA Indicators Atlas (Fransoo et al., 2009), the proportions differ due to the fact that only inpatient hospital separations were included. This report includes both inpatient and outpatient hospitalizations.

Figure 10.3.1: Hospital Separations by Cause (ICD-9 CM) for Metis, 2006/07

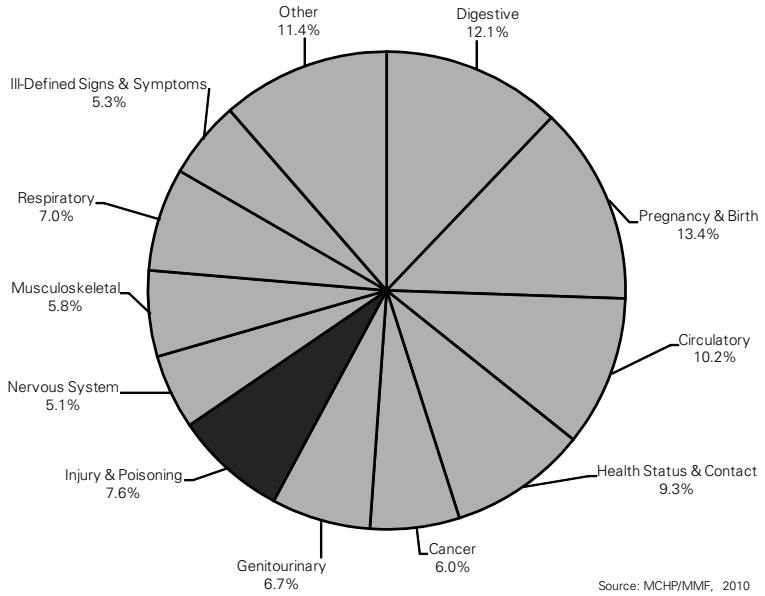
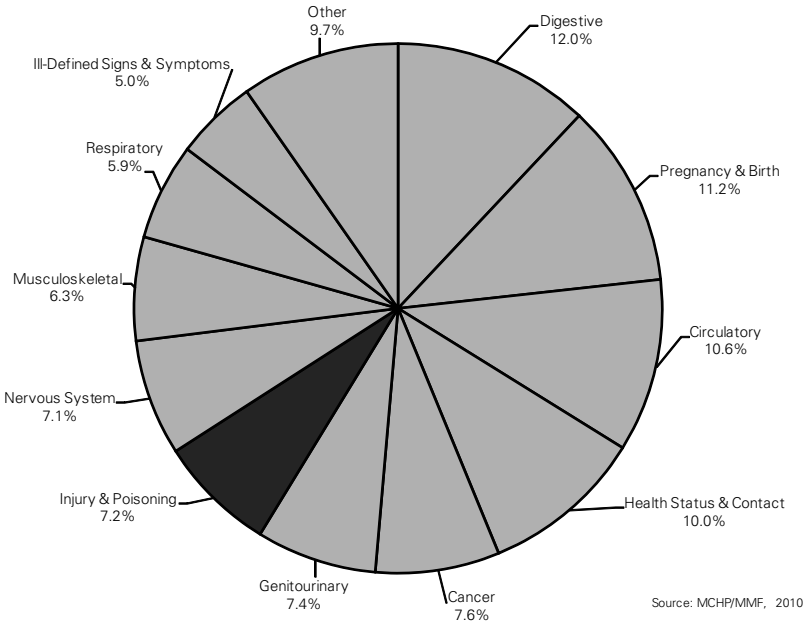


Figure 10.3.2: Hospital Separations by Cause (ICD-9 CM) for All Other Manitobans, 2006/07



10.4 Injury Hospitalization Rate

The age– and sex–adjusted rate of hospitalizations for injury per 1,000 residents was measured over five fiscal years: 2002/03–2006/07. Crude rates are available in the appendix. Injury Hospitalizations were defined as any inpatient hospitalization with an external cause of injury diagnosis code (also known as an E–code): ICD–9–CM codes E800–E999*, ICD–10–CA codes V01–Y89* in the "Most Responsible" field. *Excluded from the count of hospitalizations due to injury are those related to medical error and drug complications as follows:

- misadventures during surgical or medical care: ICD–9–CM codes E870–E876; ICD–10–CA codes Y60–Y69, Y88.1
- reactions or complications due to medical care: ICD–9–CM codes E878–E879; ICD–10–CA codes Y70–Y84, Y88.2, Y88.3
- adverse effects due to drugs: ICD–9–CM codes E930–E949; ICD–10–CA codes Y40–Y59, Y88.0

Transfers between hospitals were tracked and only hospital episodes were counted, not individual separations, to reduce double–counting. All Manitoba hospitals were included; PCHs and Long–term Care facilities were excluded (Riverview, Deer Lodge, Rehabilitation Centre for Children and Adolescent Treatment Centre). Newborn birth injuries or deaths, stillbirths, and brain deaths are excluded. The denominator includes all Manitoba residents as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- Provincially, Metis injury hospitalization rates are higher than those for all other Manitobans (10.3 vs. 8.3 per 1000 per year). There is a strong gradient with PMR, where the regions with the least healthy populations have the highest injury hospitalization rates.
- Two RHAs show Metis injury hospitalization rates that are lower than the Metis provincial average of 10.3 per 1000 per year—South Eastman (5.9) and Winnipeg (8.7). However, several RHAs show Metis rates higher than the Metis provincial average—Parkland (16.0), Churchill (21.6), NOR–MAN (13.0), and Burntwood (20.2 per 1000 per year).
- There is a statistically higher Metis injury hospitalization rate compared to other residents in Central (10.5 vs. 8.9), Brandon (10.1 vs. 7.7), Winnipeg (8.7 vs. 6.5), and Parkland (16.0 vs. 12.3 per 1000 per year). However, injury hospitalization rates for Metis are lower than all others in Burntwood (20.2 vs. 29.9).
- In aggregate areas, Rural South shows no difference between Metis and all others (8.6 vs. 8.7), but the Metis rate is lower than the Metis provincial average of 10.3 per 1000 per year. In the Mid area, the Metis rate approximates the Metis provincial average, but the "all other" rate is higher than their provincial average of 8.3. For Mid, Metis rates are higher than for all others (Metis 11.4, all others 10.0 per 1000 per year). The opposite is true in the North aggregate area, where Metis rates are significantly lower than all others living in the North (16.3 vs. 22.7 per 1000 per year) even though both rates are higher than their corresponding provincial averages.

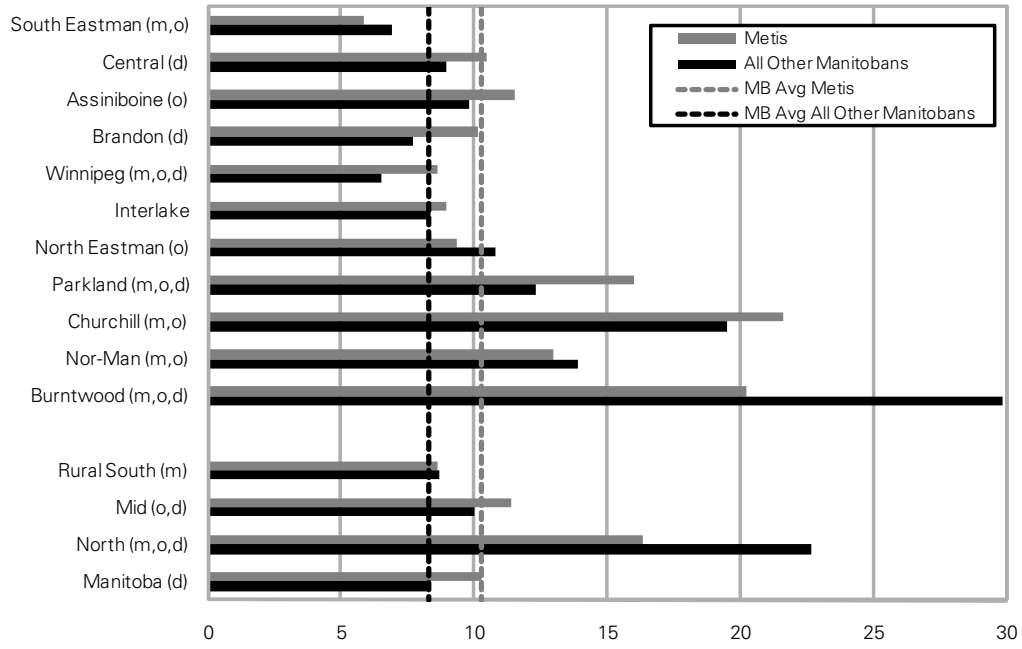
MMF Regions:

- Provincially, the Metis injury hospitalization rate is 10.3 per 1000 per year. There is a strong gradient with PMR: healthier MMF Regions have lower injury hospitalization rates. Northwest MMF Region is somewhat anomalous, showing slightly higher rates than expected—this could be due to either higher injury rates or greater hospital admission rates for injuries as compared with other regions).
- Two MMF Regions show injury hospitalization rates lower than the provincial Metis average—Southeast MMF Region (7.3) and Winnipeg MMF Region (8.6 per 1000 per year). Three MMF Regions show higher injury hospitalization rates—Northwest (14.0), The Pas (15.0), and Thompson MMF Region (20.2 per 1000 per year).

Winnipeg CAs:

- In Winnipeg RHA, Metis have a higher injury hospitalization rate than other Winnipeg residents (8.7 vs. 6.5 per 1000 per year). However, this trend is only evident in the following CAs: St. Vital (7.0 vs. 5.3), River East (7.4 vs. 5.7), Inkster (10.0 vs. 5.8), Downtown (15.7 vs. 10.4), and Point Douglas (16.0 vs. 10.7 per 1000 per year).
- There is somewhat of a gradient of injury hospitalization rates by PMR, mostly driven by the fact that the two least healthy areas (Downtown CA and Point Douglas CA) have rates that are double the rates in most other CAs.
- In most of the CAs (Fort Garry, St. Boniface, St. Vital, Transcona, River East, Seven Oaks, and St. James–Assiniboia), both Metis and other residents have injury hospitalization rates below their corresponding provincial averages. This is also true for Winnipeg overall (Metis 8.7, other 6.5), where the rates are lower than the corresponding provincial averages (Metis 10.3, other 8.3 per 1000 per year).
- In the two CAs of Downtown (Metis 15.7, other 10.4) and Point Douglas (Metis 16.0, other 10.7), the injury hospitalization rates are higher than the corresponding provincial averages. The injury hospitalization rate in these two CAs is 1.5 times higher for the Metis compared to the Metis provincial average and 1.25 times higher for all others compared to their provincial average.

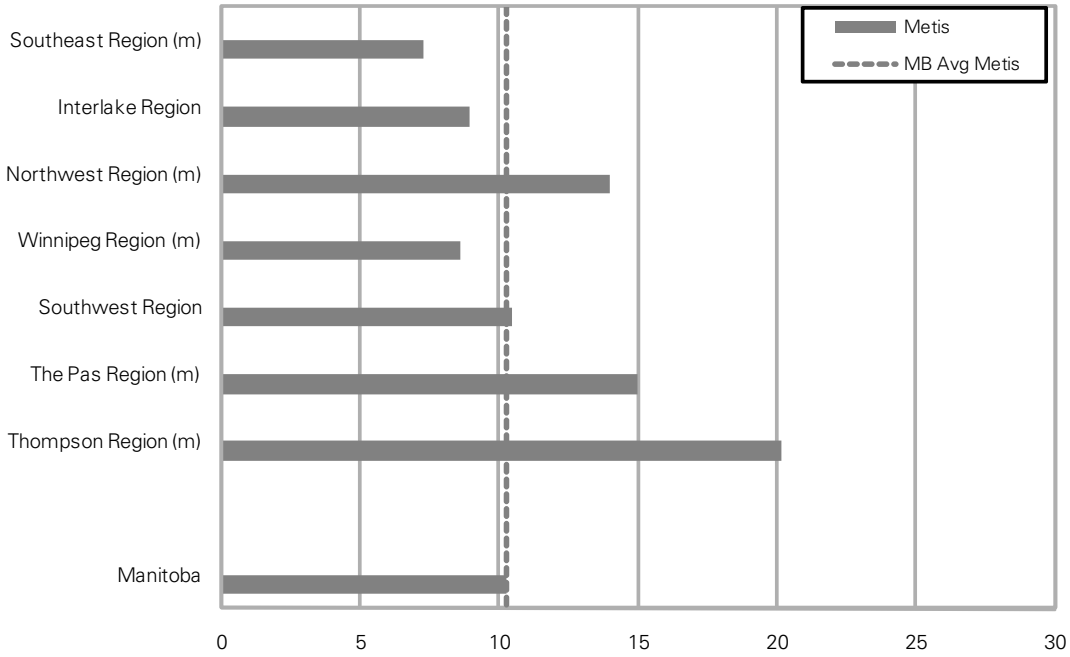
Figure 10.4.1: Injury Hospitalization Separation Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

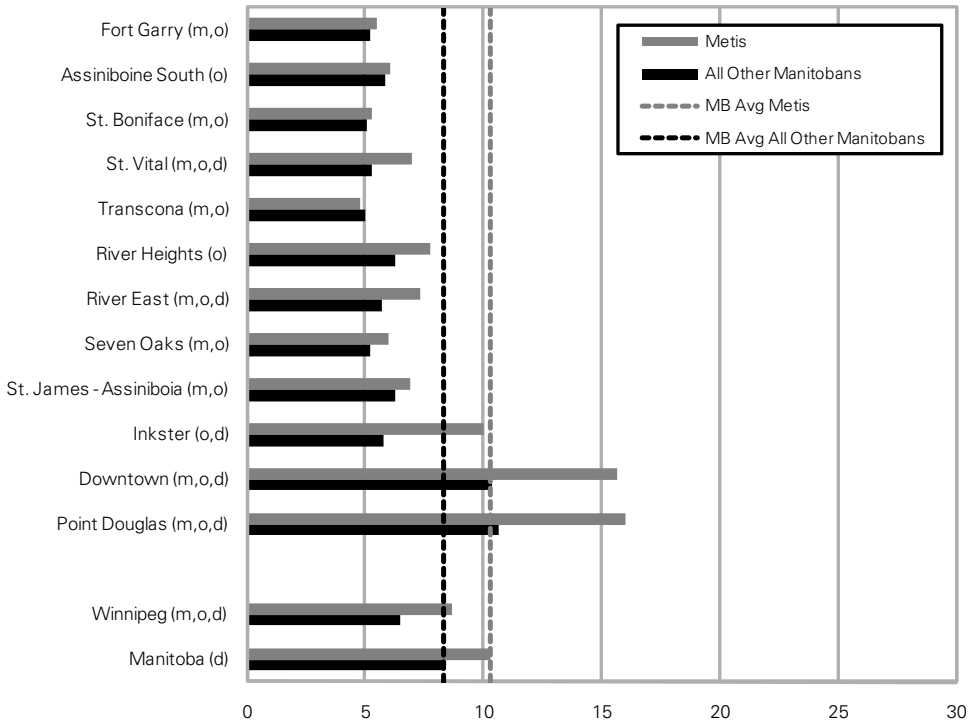
Figure 10.4.2: Injury Hospitalization Separation Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 Metis residents



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 10.4.3: Injury Hospitalization Separation Rate by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 residents



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

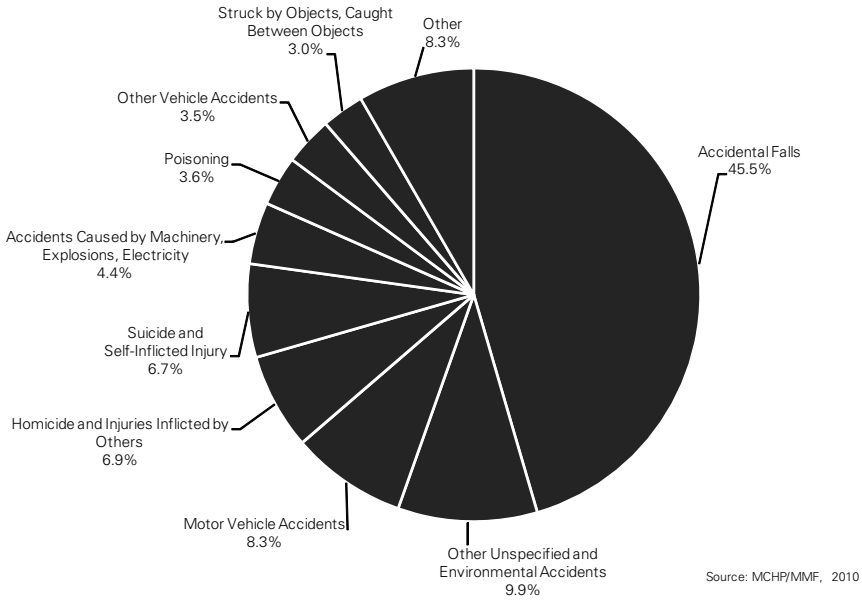
10.5 Injury Hospitalization Causes

The most frequent causes of hospitalization due to injury for Manitobans were reported for five fiscal years: 2002/03–2006/07. Causes of injury were identified from the hospital abstract and grouped into injury categories (see 'injury categories' in Section 10.4). Causes of injury were coded in ICD–9–CM codes prior to April 1, 2004 and then coded in ICD–10–CA codes after that date. For 2002/03–2003/04, injuries coded in ICD–10–CA were converted to ICD–9–CM codes before grouping them into injury categories. Excluded from the count of hospitalizations due to injury are those related to medical error and drug complications as noted in Section 10.4. These percentages are not adjusted for age or sex.

Key findings:

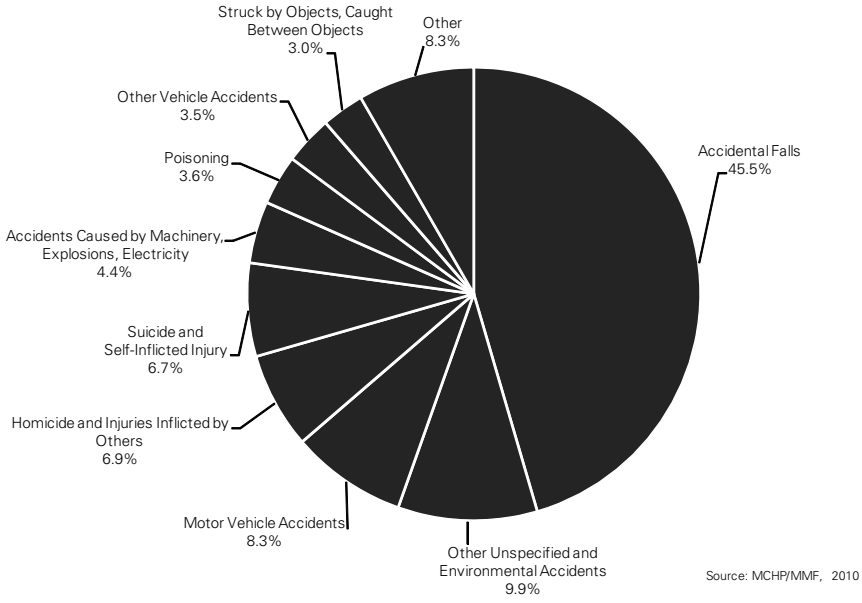
- Provincially, the top five causes of injury hospitalizations are similar for the Metis and all other Manitobans.
    - For Metis the top five causes are: Accidental Falls (32.4%), Homicide and Injuries Inflicted by Others (10.9%), Suicide and Self–Inflicted Injury (10.6%), Motor Vehicle Accidents (10.5%), and Other Unspecified and Environmental Accidents (6.9%).
    - For all other Manitobans the topic five causes are: Accidental Falls (45.5%), Other Unspecified and Environmental Accidents (9.9%), Motor Vehicle Accidents (8.3%), Homicide and Injuries Inflicted by Others (6.9%), and Suicide and Self–Inflicted Injury (6.7%).
- One striking difference between the causes of injury hospitalizations for Metis and all others is the high degree of falls for all others at 46%, compared to 32% for the Metis. This may in part due to the fact that this is a crude rate and has not been adjusted for the younger demographics of the Metis population, since a high proportion of falls in the population are among older adults. There is also a higher percentage of injury hospitalizations for Metis due to Suicide and Self–Inflicted Injury (10.6% vs. 6.7%) compared to all other Manitobans.

Figure 10.5.1: Injury Hospital Separations by Cause (ICD-9 CM) for Metis, 2002/03-2006/07



Source: MCHP/MMF, 2010

Figure 10.5.2: Injury Hospital Separations by Cause (ICD-9 CM) for All Other Manitobans, 2002/03-2006/07



Source: MCHP/MMF, 2010

10.6 Findings from Literature Review

(compared to the results in this study—in italics)

In Manitoba, an earlier study using data from 1995–1997 (Kliewer, Mayer, & Wadja, 2002) found that the Metis had higher age–adjusted hospitalization rates compared to the provincial rate (males: 293 vs. 229 per 1000, RR=1.28; females 454 vs. 302 per 1000, RR=1.50). This study also found that the higher rates tended to occur among all age groups with the exception of the 25– to 34–year–olds. The largest difference showed up in the age 65– to 74–year–olds.

The Manitoba First Nations report (Martens et al., 2002) found that First Nations hospital separation rates were more than double the rates for all other Manitobans (348 per 1000 vs. 156 per 1000) in the year 1998/99.

Our study found that Manitoba Metis had a higher hospital separation rate compared to all other Manitobans (194 vs. 154 per 1000 per year, RR=1.26) in 2002/03–2006/07, possibly mirroring the poorer overall health status of Metis. Separate analyses were not done by sex. However, the relative rates were similar to the results found by Kliewer and others a decade before (or possibly slightly lower than, given that Kliewer's average would have been around 1.4) (Kliewer, Mayer & Wadja, 2002). Comparing the Metis rates in this report to the First Nations rates in Martens et al. (2002), the First Nations rates appear to be substantially higher than either the Metis or the "all other Manitoban" rates.

Causes of hospitalization in the 1995–1997 study by Kliewer et al. (2002) found that the rate of Unknown diagnoses was over six times more likely for Metis, and Infectious Diseases and Injury & Poisonings were 1.4 times more likely for Metis males compared to the provincial hospitalization rate for all male Manitobans. However, rates of Mental Illness (0.50), Endocrine (0.67), Genitourinary Disorders (0.73), and Neoplasms (0.73) were much lower for Metis males compared to the provincial male hospitalization rates for these diseases. In contrast, Metis females had higher hospitalization rates for Nervous (1.7), Endocrine (1.6), Respiratory (1.5), and Ill–Defined (1.5) conditions, but lower rates for Injury & Poisonings (0.66) compared to all Manitoba females.

Our study was not exactly parallel since separate diagnoses rates for hospitalizations was not done except in the case of injuries. Provincially, Metis injury hospitalization rates were 1.24 times higher than those for all other Manitobans (10.3 vs. 8.3 per 1000 per year), but this was not done by sex.

Reference List

Kliewer E, Mayer K, Wajda A. The health of Manitoba's Métis population and their utilization of medical services: a pilot study. CancerCare Manitoba and Manitoba Health. 2002. http://www.onemda.unimelb.edu.au/docs/dP18.pdf. Accessed June 20, 2008.

Martens P, Bond R, Jebamani L, Burchill C, Roos NP, Derksen S, Beaulieu M, Steinbach C, MacWilliam L, Walld R, Dik N, Sanderson D, Health Information and Research Committee AoMC, Tanner-Spence M, Leader A, Elias B, O'Neil J. *The Health and Healthcare Use of Registered First Nations People Living in Manitoba: A Population–Based Study.* Manitoba Centre for Health Policy. 2002. http://mchp-appserv.cpe.umanitoba.ca/reference/rfn_report.pdf. Accessed April 20, 2010.

Chapter 11: High Profile Surgical and Diagnostic Services

Indicators in this chapter:

- Cardiac Catheterization Rates
- Coronary Artery Bypass Graft (CABG) Surgery Rates
- Hip Replacement Rates
- Knee Replacement Rates
- Cataract Surgery Rates
- Caesarian Section (C–Section) Rates
- Hysterectomy Rates

Overall Key Findings:

- For high profile surgical and diagnostic procedures, Metis are receiving either similar or higher rates compared to all other Manitobans.
    - For cardiac catheterization, CABGs, and knee replacement surgeries, Metis have between 21% and 44% higher rates. In all three of these, rates appear to reflect underlying need when looking at aggregate area levels of Rural South, Mid, and North, with rates higher in areas with higher PMR. Parkland RHA and The Pas MMF Region appear to have high rates.
    - For hip replacements and cataract surgeries, the rates are similar between Metis and all others and between aggregate regions.
- For discretionary surgical procedures, Metis Caesarian Section rates are similar to that of all other women, but hysterectomy rates are 23% higher. However, after adjusting for potential confounders of age, income, and physical or mental comorbidity, hysterectomy rates are similar.
    - In Winnipeg RHA, the Caesarian Section rate for Metis is statistically significantly lower than for all others living in Winnipeg.
    - Geographical areas of concern for high discretionary rates:
        - High Caesarian Section rates are observed in Parkland RHA and in the MMF Regions of Northwest and The Pas. Although not statistically significantly higher for Metis, the statistically high rates of Caesarian Section for other women in Assiniboine, Brandon, and Nor-Man RHAs are mirroring the high Metis rates in those areas.
        - High hysterectomy rates are observed in South Eastman RHA and Southeast MMF Region. In contrast, Winnipeg RHA shows statistically lower rates.

Table 11.0: Overall Key Findings of High Profile and Diagnostic Services

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average (NOTE: see footnote)*	Statistically "worse off" regions for Metis compared to the Metis provincial average (NOTE: see footnote)*
High profile procedures		**i.e., higher rates**	**i.e., lower rates**
Cardiac Catheterization Rates (per 1000 age 40+)	9.5 vs. 6.6; RR=1.44	Parkland RHA, The Pas MMF Region	St. James–Assiniboia CA
Coronary Artery Bypass Graft (CABG) Surgery Rates (per 1000 age 40+)	2.3 vs. 1.5; RR=1.53	–	–
Hip Replacement Rates (per 1000 age 40+)	2.5 vs. 2.4; RR=1.04, NS	–	–
Knee Replacement Rates (per 1000 age 40+)	3.5 vs. 2.9; RR=1.21	–	–
Cataract Surgery Rates (per 1000 age 50+)	29.7 vs. 27.8; RR=1.07, NS	St. Vital CA, Seven Oaks CA	–
Discretionary procedures		**i.e., lower rates**	**i.e., higher rates**
Caesarian Section (% of live births)	19.8% vs. 20.2%; RR=0.98, NS	–	Parkland RHA, Northwest MMF Region, The Pas MMF Region
Hysterectomy Rates (per 1000 age 25+)	4.8 vs. 3.9; RR=1.23	– (in logistic regression for all Manitobans—Winnipeg RHA was lower)	South Eastman RHA (in logistic regression for Metis—Southeast MMF Region; In logistic regression for all Manitobans—Rural South and Mid were higher)

NS means Not Statistically significantly different between Metis and all others

* The higher rates of high profile diagnostic and surgical procedures are assumed to be a positive indicator (hence "high" is "better"), whereas the higher rates of the discretionary procedures may indicate the need for further exploration as to why these rates are higher than the provincial average.

Source: MCHP/MMF, 2010

11.1 Cardiac Catheterization Rates

The most accurate method for evaluating and defining ischemic heart disease (IHD), also known as coronary artery disease, cardiac catheterization is used to identify the exact location and severity of the disease.

The age– and sex–adjusted annual rate of cardiac catheterizations per 1,000 Manitobans aged 40 and older over was measured over three fiscal years: 2004/05–2006/07. Crude rates are available in the appendix. Cardiac catheterization was defined by hospital separations with ICD–9–CM procedure codes 37.21 to 37.23, and 88.52 to 88.57 and CCI codes 2.HZ.28 and 3.IP.10. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2004–2006).

Key observations:

RHAs:

- Provincially, Metis cardiac catheterization rates are significantly higher than for all others (9.5 vs. 6.6 per 1000).
- The higher Metis rates may reflect the higher rates of heart disease and AMI compared to other Manitobans.
- Although the rates are not particularly associated with underlying PMR for all other Manitobans by RHA, a gradient is apparent in the aggregate areas. The Rural South has the lowest rates (Metis 8.0, others 5.8), the Mid has intermediate rates (Metis 10.0, others 6.9), and the North has the highest rates for both Metis and others (Metis 10.8, others 7.5 per 1000).
- Only one RHA shows statistically higher rates for Metis compared to the Metis provincial average of 9.5 per 1000—Parkland at 12.8 per 1000.
- RHAs with statistically lower cardiac catheterization rates for all others, compared to their provincial average of 6.6 per 1000: Central (5.5), Assiniboine (5.0), and Brandon (5.5 per 1000). RHAs with significantly higher rates for all others are: South Eastman (7.9), North Eastman (7.7), and Burntwood (8.3 per 1000).
- RHAs that show statistically significantly higher rates for Metis compared to all others include: Central (9.9 vs. 5.5), Winnipeg (9.2 vs. 6.8), Interlake (9.0 vs. 6.1), Parkland (12.8 vs. 7.4), and NOR–MAN (11.2 vs. 6.6). This is also reflected in all three aggregate areas—Rural South (8.9 vs. 5.8), Mid (10.0 vs. 6.9), and North (10.8 vs. 7.5).

MMF Regions:

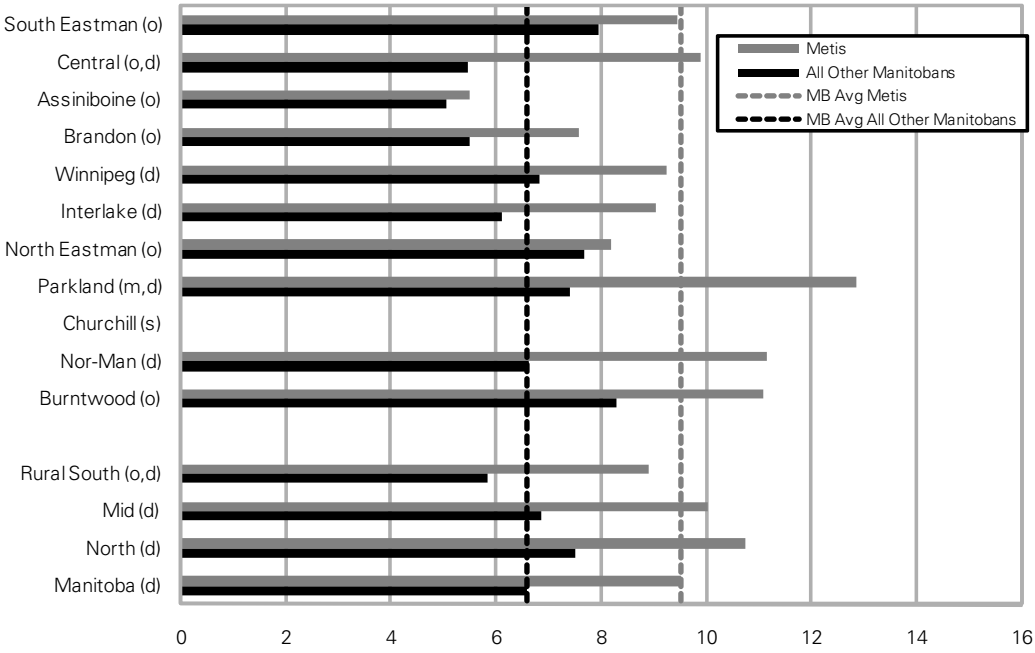
- Provincially, the overall Metis cardiac catheterization rate is 9.5 per 1000. Most MMF Regions have rates similar to this average with one exception—The Pas MMF Region has a higher rate (12.9 per 1000). There is no relationship with PMR by MMF Region.

Winnipeg CAs:

- In Winnipeg overall, the Metis cardiac catheterization rate is higher than the rate for all other Winnipeggers (9.2 vs. 6.8 per 1000).
- There is no apparent pattern of PMR with the cardiac catheterization rate within the CAs of Winnipeg.

- The only CA that has a statistically significantly lower rate for Metis compared to the Metis provincial average of 9.5 per 1000 is St. James–Assiniboia CA at 4.3 per 1000. This is also the only CA where the Metis rate is statistically significantly lower than the all other rate.
- Four Winnipeg CAs show Metis cardiac catheterization rates significantly higher than for all others: Fort Garry (12.7 vs. 6.2), Inkster (11.6 vs. 7.5), Downtown (10.1 vs. 6.4), and Point Douglas (11.1 vs. 7.3 per 1000).

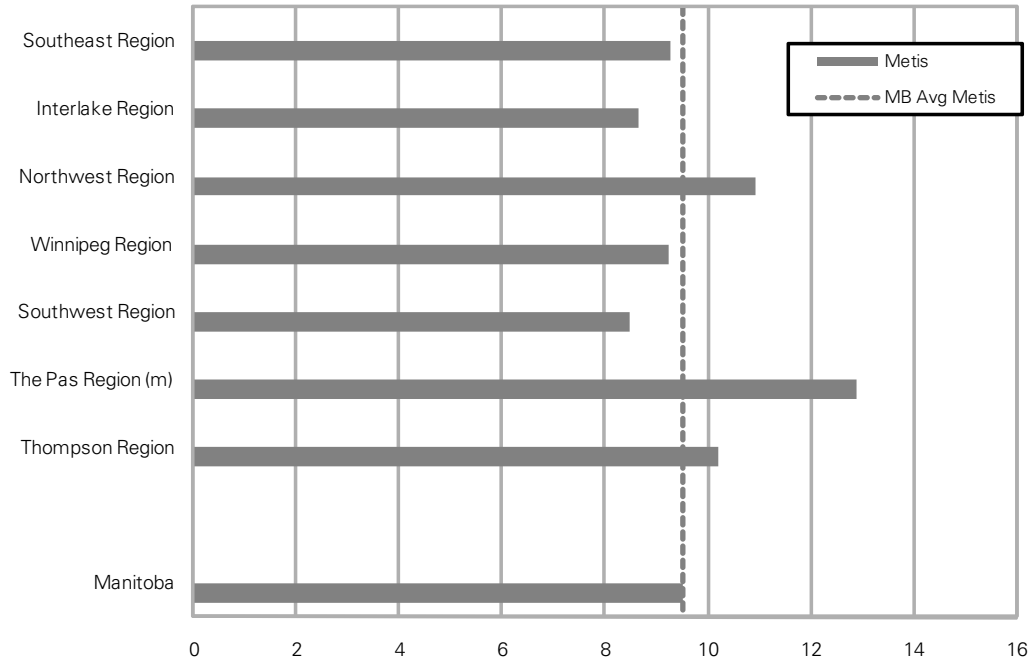
Figure 11.1.1: Cardiac Catheterization Rate by RHA, 2004/05-2006/07
Age- & sex-adjusted annual cardiac catheterization rates per 1,000 residents aged 40+



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 11.1.2: Cardiac Catheterization Rate by Metis Region, 2004/05-2006/07
Age- & sex-adjusted annual cardiac catheterization rates per 1,000 Metis residents aged 40+



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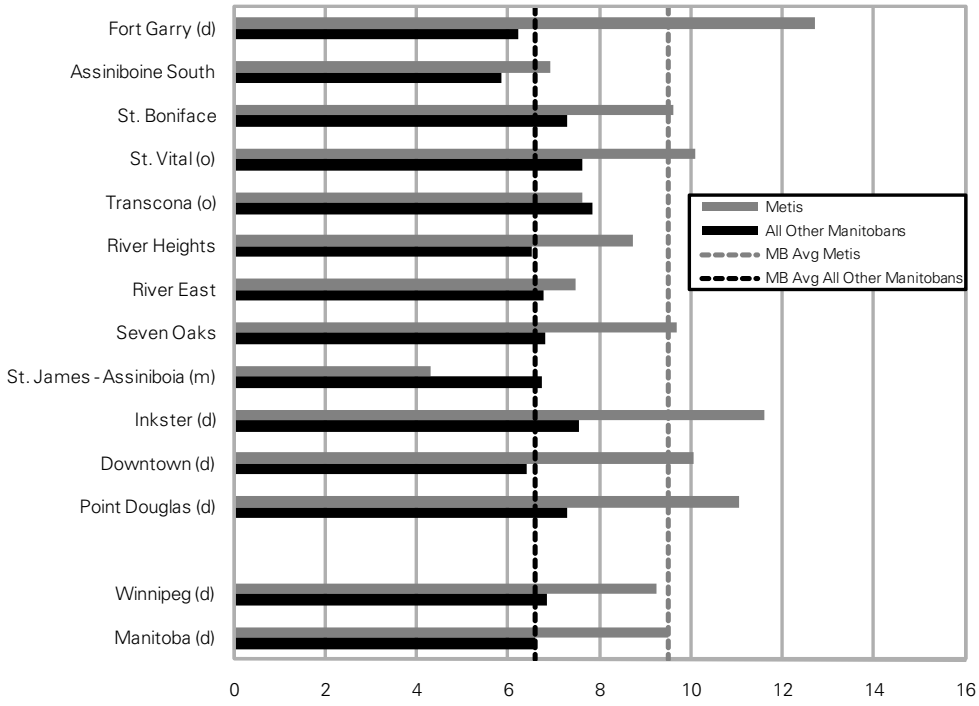
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 11.1.3: Cardiac Catheterization Rate by Winnipeg Community Area, 2004/05-2006/07
Age- & sex-adjusted annual cardiac catheterization rates per 1,000 residents aged 40+



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

11.2 Coronary Artery Bypass Graft (CABG) Surgery Rates

CABG surgery is performed on patients with significant narrowing or blockage of multiple heart arteries (coronary artery disease) permitting increased blood flow to deliver oxygen and nutrients to the heart.

The age– and sex–adjusted annual rate of CABG surgeries per 1,000 Manitobans aged 40 and older was measured over five fiscal years: 2002/03–2006/07. Crude rates are available in the appendix. CABG surgeries were defined by hospital separations with ICD–9–CM procedure codes 36.10 to 36.14 and 36.19 and CCI code 1.IJ.76. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Key Observations:

RHAs:

- Provincially, the rate of coronary artery bypass graft surgery is higher for Metis compared to all others (2.3 vs. 1.5 per 1000). There appears to be a relationship between the rate of coronary artery bypass graft surgery and PMR for all other Manitobans, with lower rates in the most healthy and higher rates in the least healthy RHAs, but this relationship is not obvious for Metis. For Metis, the rates appear high throughout the province.
- Metis have higher rates of coronary artery bypass graft surgery in the aggregate areas of Rural South (2.5 vs. 1.4) and Mid (2.1 vs. 1.5), as well as in Winnipeg RHA (2.4 vs. 1.6 per 1000). This trend is also evident in the North (2.4 vs. 1.9 per 1000), but it is not statistically different. Among RHAs, South Eastman (3.0 vs. 1.5), Central (2.9 vs. 1.5), Interlake (2.2 vs. 1.5), and Parkland (2.4 vs. 1.6 per 1000) also show the same trend, with Metis having statistically higher coronary artery bypass graft surgery rates compared to all others.
- Although some rates appear higher or lower than the Metis or "all other" provincial averages, none of these are statistically significant except for the relatively low rate for others living in Assiniboine RHA (1.2 vs. the provincial "all other" rate of 2.3 per 1000).

MMF Regions:

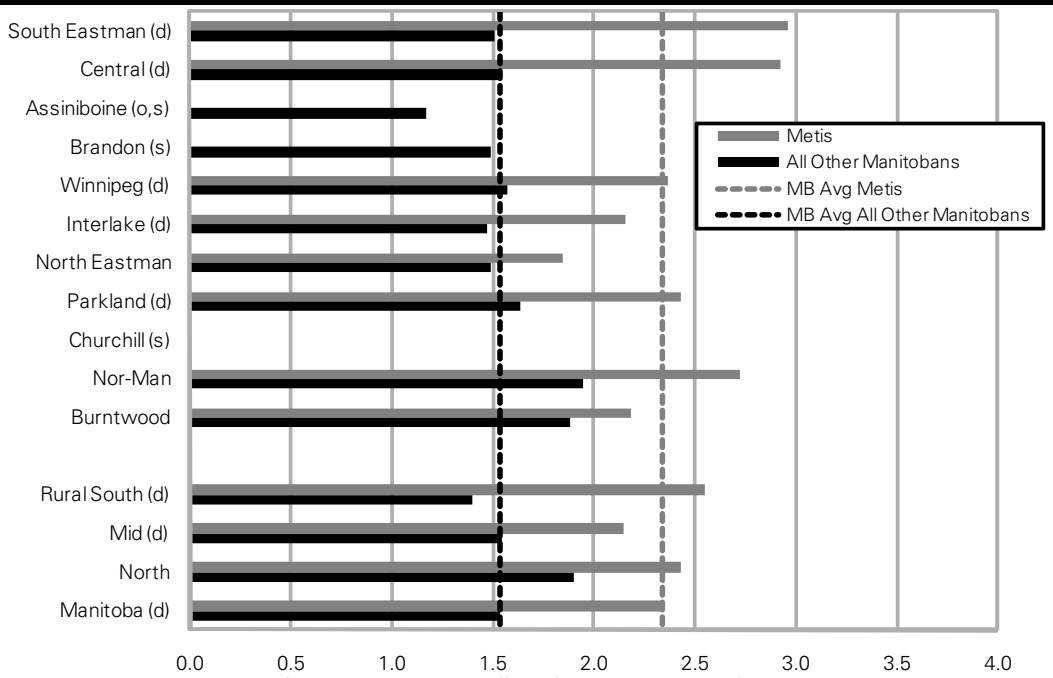
- Provincially, the Metis rate of coronary artery bypass graft surgery is 2.3 per 1000 aged 40+. There appears to be no relationship between PMR and coronary artery bypass graft surgery rate at the MMF Region level.
- Although not statistically significant, the rate of coronary artery bypass graft surgery for Metis in The Pas MMF Region (3.4) appears higher than the provincial Metis rate of 2.3 per 1000. This mirrors the equally high cardiac catheterization rate in The Pas MMF Region (see previous section). The Northwest MMF Region rate appears to be low (1.4 per 1000), but this is also not statistically significant.

Winnipeg CAs:

- Metis living in Winnipeg have a higher rate of coronary artery bypass graft surgery compared to all other Winnipeggers (2.4 vs. 1.6 per 1000). There appears to be no relationship between this rate and the PMR of the Winnipeg CAs.

- In general, the rates of coronary artery bypass graft surgery rates for Metis in Winnipeg CAs are higher than that of all others living in the same CA, but this is only a statistically significant effect in the following CAs: St. Boniface (2.9 vs. 1.8), St. Vital (3.1 vs. 1.8), Inkster (3.5 vs. 1.6), and Downtown (2.6 vs. 1.3 per 1000).
- It is surprising that Metis in the Point Douglas CA do not have a high rate for coronary artery bypass graft surgery given the higher rate of catheterization (noted in Section 11.1) and the fact that Metis have the highest ischemic heart disease in the Point Douglas CA (see Chapter 5).

Figure 11.2.1: Coronary Artery Bypass Graft Surgery Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted annual coronary artery bypass graft surgery rates per 1,000 residents aged 40+



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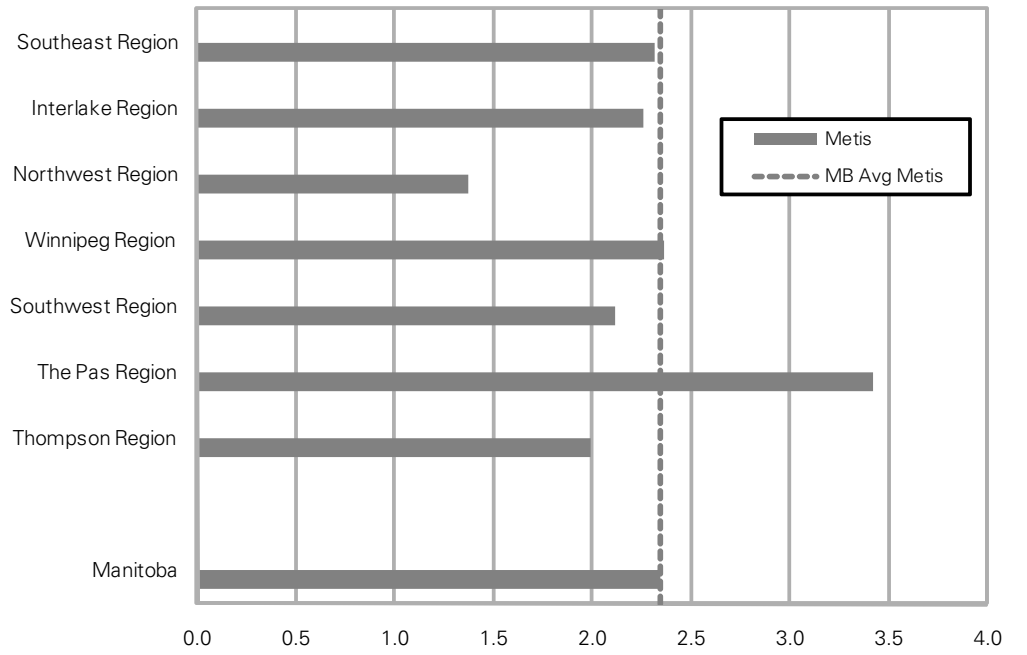
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 11.2.2: Coronary Artery Bypass Graft Surgery Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted annual coronary artery bypass graft surgery rates per 1,000 Metis residents aged 40+



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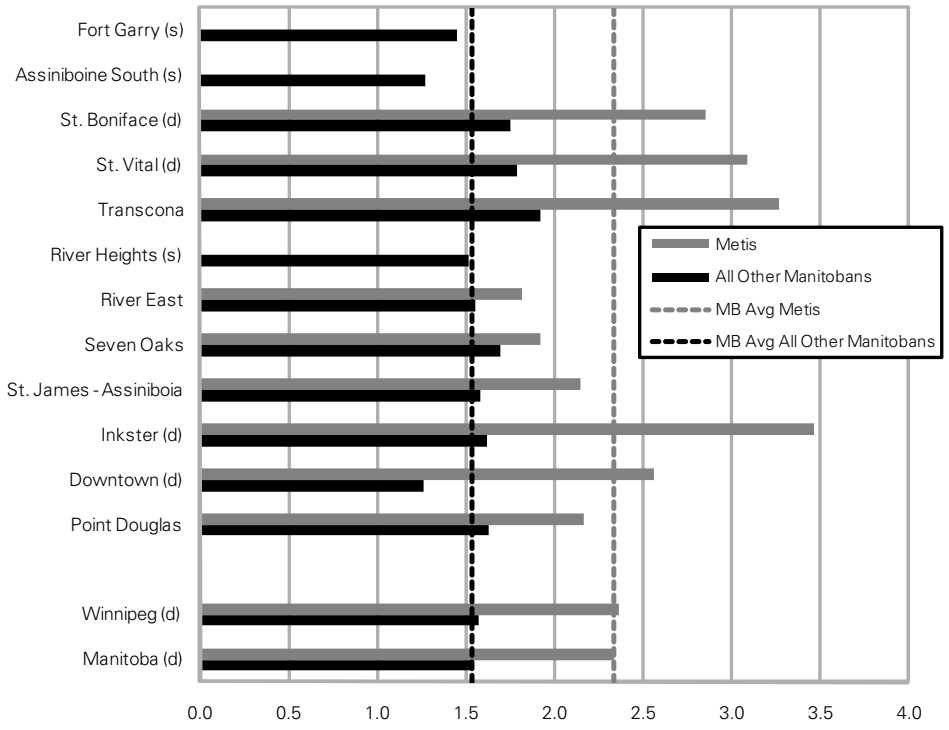
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 11.2.3: Coronary Artery Bypass Graft Surgery Rate by Winnipeg Community Area, 2002/03-2006/07

Age- & sex-adjusted annual coronary artery bypass graft surgery rates per 1,000 residents aged 40+



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

11.3 Hip Replacement Rates

During hip replacement surgery, the ball and socket of the hip joint are completely removed and replaced with artificial materials.

The age– and sex–adjusted annual rate of hip replacement surgery per 1,000 residents aged 40 and older was measured over five fiscal years: 2002/03–2006/07. Hip replacement surgeries were defined by hospital separations with ICD–9–CM procedure codes 81.50, 81.5,1 and 81.53 and CCI code 1.VA.53. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- Provincially, both the Metis and all other Manitobans have a similar hip replacement rate at 2.5 vs. 2.4 per 1000 aged 40+. There appears to be no relationship between PMR and hip replacement rates with rates all fluctuating around the provincial average rates for both Metis and all other Manitobans.
- No statistically significant differences between Metis and others, or comparing Metis/others to their corresponding provincial average, exist by RHA or by aggregate area.

MMF Regions:

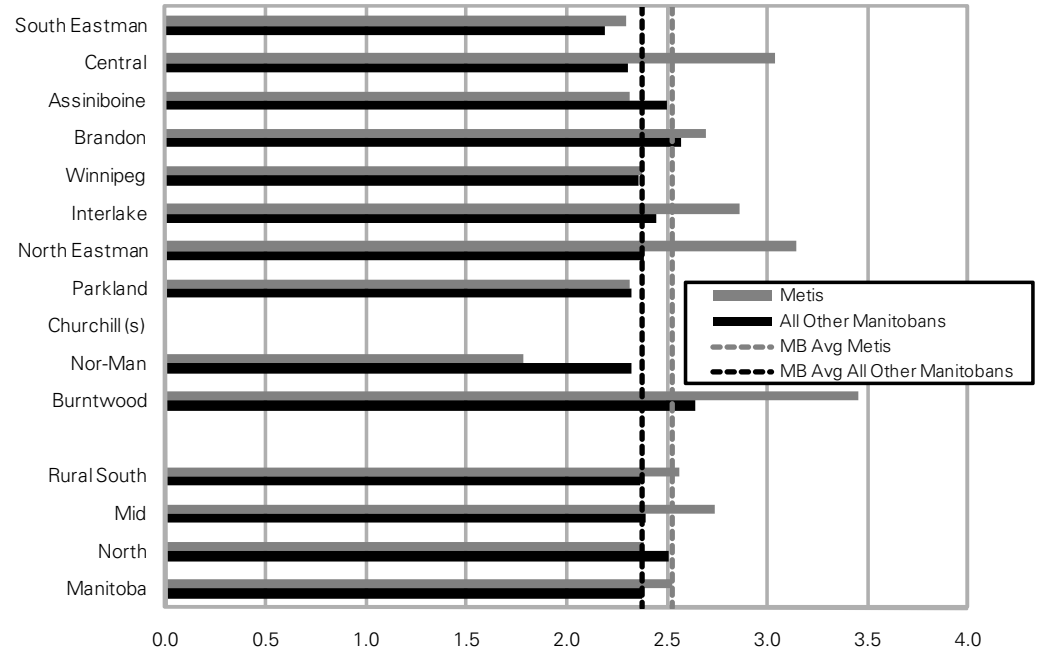
- Provincially, the Metis hip replacement rate is 2.5 per 1000 age 40+. No relationship with this rate and PMR exists at the MMF Region level.
- All MMF Regions have hip replacement rates similar to the overall provincial Metis average.

Winnipeg Aggregate Areas[1]:

- In Winnipeg, the hip replacement rates of Metis and other Winnipeggers is similar (2.4 vs. 2.4 per 1000).
- There may be evidence of a slight gradient of hip replacement rates with PMR in Winnipeg, with the most healthy Winnipeg area having higher hip replacement rates than the least healthy area.
- The Winnipeg Least Healthy area shows a hip replacement rate for "all others" lower than that of the provincial average (2.1 vs. provincial rate of 2.4 per 1000). The Metis rate for the Winnipeg Least Healthy area also looks lower than the corresponding Metis provincial average (2.2 vs. 2.5 per 1000), but this is not statistically significant.
- All Winnipeg aggregate areas have similar hip replacement rates for Metis and all others living in that area (Most Healthy 2.7 vs. 2.5, Average Health 2.2 vs. 2.3, and Least Healthy 2.2 vs. 2.1 per 1000).

[1] Note that due to relatively small numbers of events at the Winnipeg CA level, only aggregate area rates could be shown. The MCHP suppression rule is that if a rate is based upon 1 to 5 events, the rate must be suppressed for that geographical area.

Figure 11.3.1: Hip Replacement Surgery Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted annual hip replacement surgeries per 1,000 residents aged 40+



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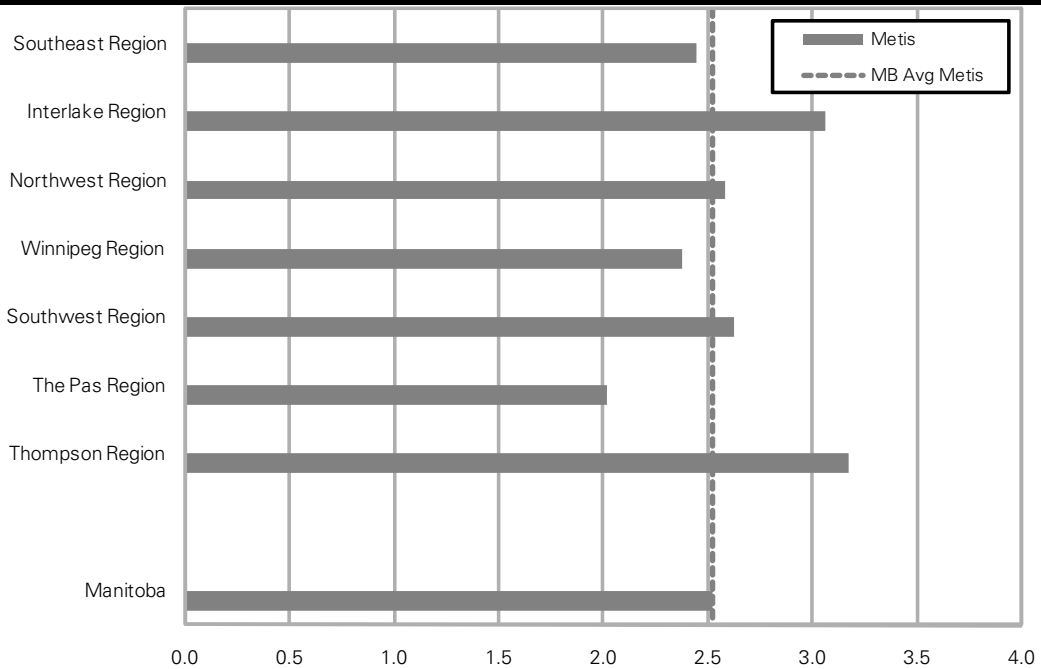
Source: MCHP/MMF, 2010

Figure 11.3.2: Hip Replacement Surgery Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted annual hip replacement surgeries per 1,000 Metis residents aged 40+



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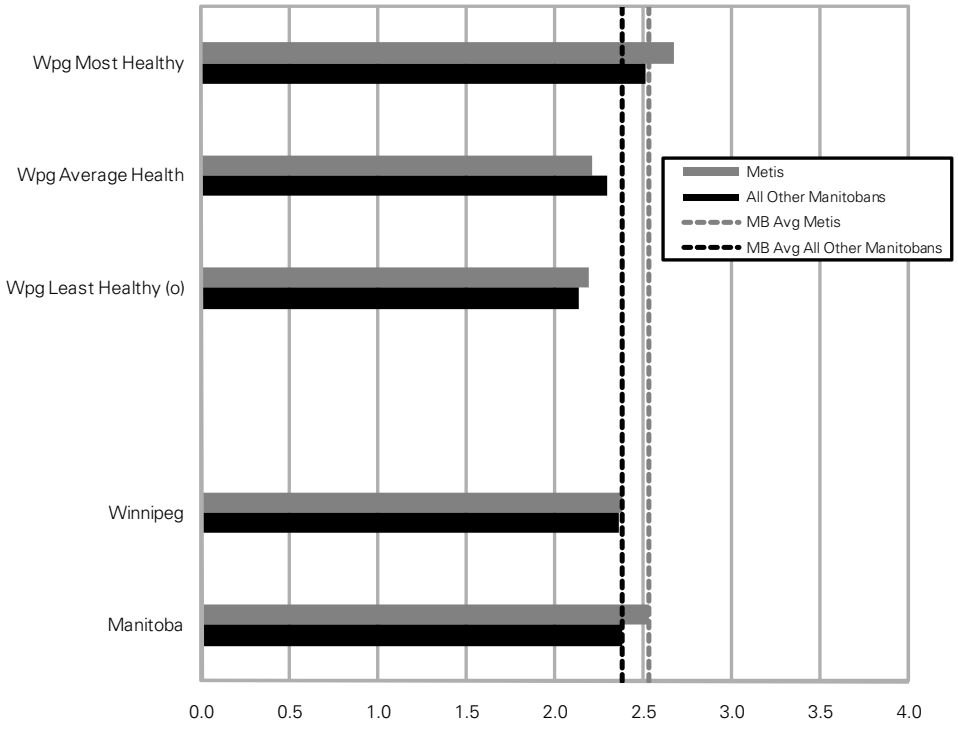
Source: MCHP/MMF, 2010

Figure 11.3.3: Hip Replacement Surgery Rate by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted annual hip replacement surgeries per 1,000 residents aged 40+



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's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

11.4 Knee Replacement Rates

In knee replacement surgery, parts of the knee joint are replaced with prosthetic components.

The age– and sex–adjusted annual rate of knee replacement surgery per 1,000 residents aged 40 and older was measured over five fiscal years: 2002/03–2006/07. Knee replacement surgeries were defined by hospital separations with ICD–9–CM procedure codes 81.54 and 81.55 and CCI code 1.VG.53. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- Provincially, the Metis knee replacement rate is higher than that of all other Manitobans (3.5 vs. 2.9 per 1000). Although the gradient of knee replacement rates with PMR is not obvious for either Metis or 'all other Manitobans' at the RHA level, there appears to be a relationship for both groups at the aggregate area level, with the Rural South (Metis 3.2, others 2.8) having a lower rate than the Mid (Metis 3.5, others 3.0) and the Mid lower than the North (Metis 3.7, others 3.4 per 1000) for both Metis and all others.
- In two RHAs, the Metis knee replacement rate is higher than the rate of all others living in that region: Central (4.4 vs. 2.7) and Winnipeg (3.6 vs. 2.9 per 1000). All other RHAs show statistically similar rates between the two groups.
- No RHAs have rates for Metis or others that are different than their corresponding provincial averages.

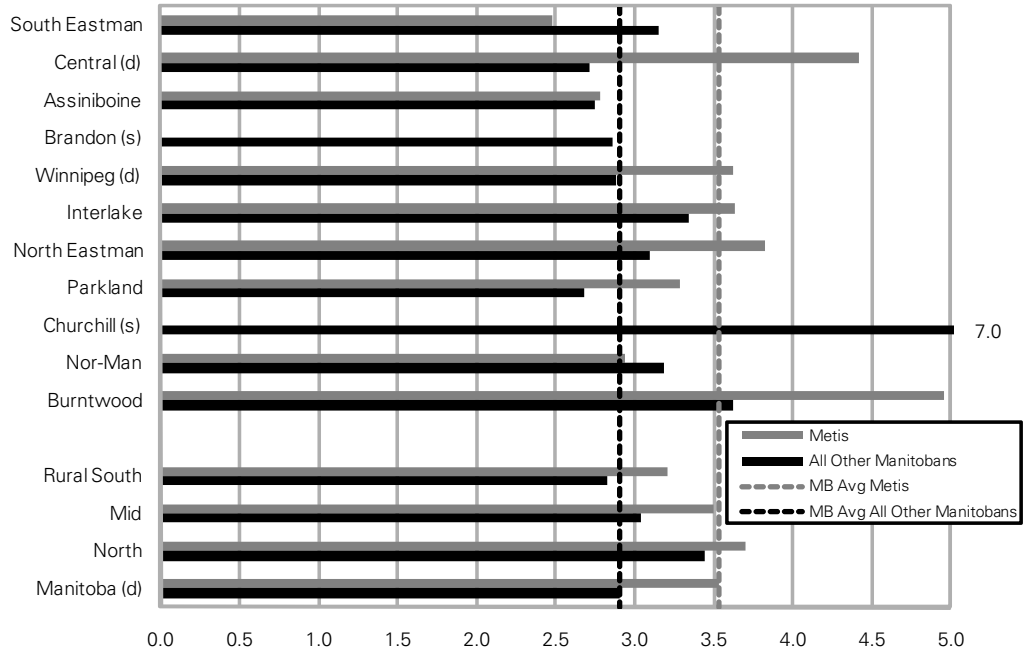
MMF Regions:

- Provincially, the Metis knee replacement surgery rate is 3.5 per 1000 age 40+. There is no relationship between this rate and PMR at the MMF Region level, although the least healthy MMF Region, Thompson, appears to have the highest rate (4.7 per 1000), though this is not statistically significantly higher.

Winnipeg CAs:

- In Winnipeg RHA, Metis have a higher knee replacement surgery rate compared to all other Winnipeggers (3.6 vs. 2.9 per 1000). There is no relationship between this rate and the PMR of the Winnipeg CAs.
- Three Winnipeg CAs show higher knee replacement surgery rates for the Metis compared to others: St. Boniface (4.7 vs. 2.6), St. James–Assiniboia (5.4 vs. 3.4), and Downtown (5.3 vs. 2.1 per 1000). All other CAs show similar rates between the two groups.
- One particularly interesting area is Downtown, where the knee replacement surgery rate for "all others" is lower than the corresponding provincial average (2.1, vs. provincial "all others" average of 2.9), but the Metis rate is much higher at 5.3 per 1000.
- Inkster CA has low rates for both Metis (2.0) and all others (1.9), though the Metis rate is not significantly lower than the provincial Metis rate.

Figure 11.4.1: Knee Replacement Surgery Rate by RHA, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 residents aged 40+ years



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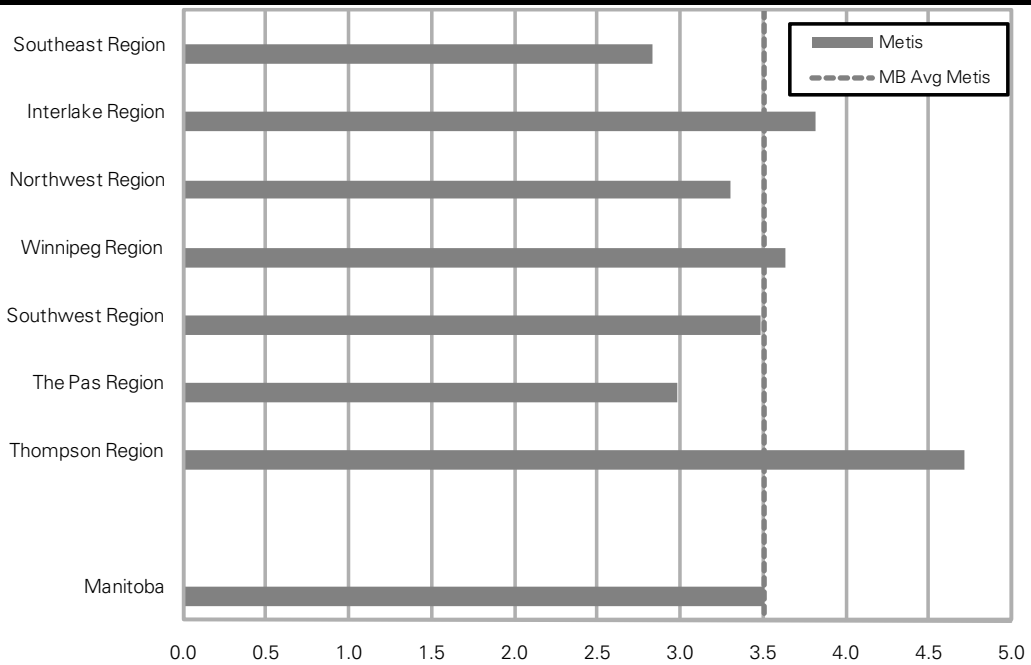
Source: MCHP/MMF, 2010

Figure 11.4.2: Knee Replacement Surgery Rate by Metis Region, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 Metis residents aged 40+ years



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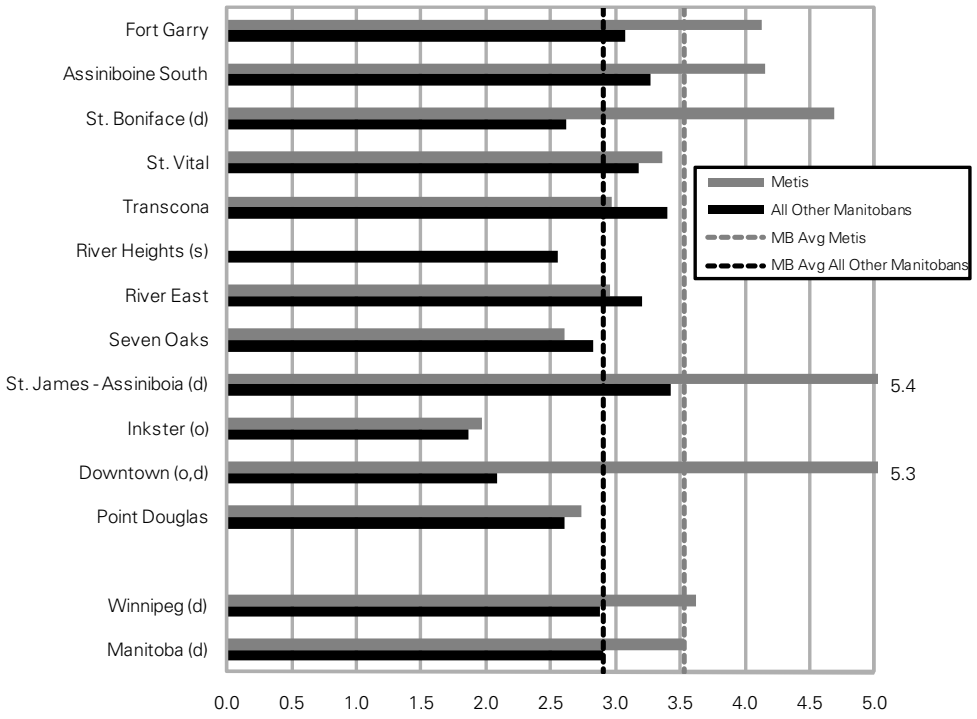
Source: MCHP/MMF, 2010

Figure 11.4.3: Knee Replacement Surgery Rate by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted annual rate per 1,000 residents aged 40+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

11.5 Cataract Surgery Rates

Cataracts occur when the lens of the eye becomes cloudy and normal vision is impaired.

The age– and sex–adjusted annual rate of cataract surgeries per 1,000 Manitobans aged 50 and older was measured over three fiscal years: 2004/05–2006/07. Crude rates are available in the appendix. Cataract surgery was defined by a physician claim with tariff codes 5611, 5612 and tariff prefix 2 (surgery) or a hospital separation with ICD–9–CM procedure codes 13.11, 13.19, 13.2, 13.3, 13.41, 13.42, 13.43, 13.51 and 13.59 and CCI code 1.CL.89. Additional cataract surgeries for Manitoba residents were added from out of province medical claims, including Alberta (tariff code 27.72) and Saskatchewan (tariff codes 135S, 136S, 226S, and 325S). The denominator includes all Manitoba residents aged 50 and older as of December 31 of each year (2004–2006).

Key observations:

RHAs:

- Provincially, the Metis cataract surgery rate is similar to the rate of all other Manitobans (29.7 vs. 27.8 per 1000). There is no relationship between the cataract surgery rate and the PMR of the RHAs or the aggregate areas.
- All RHAs have cataract surgery rates similar to the provincial average for both the Metis and all others, with the exception of Churchill RHA. Churchill has a particularly high rate for all other Manitobans compared to the corresponding provincial average (57.6 vs. 27.8 per 1000). It is unknown whether the Metis rate in Churchill is similarly high, since a small number of events produced a suppressed rate.
- Two RHAs have cataract surgery rates that are higher for Metis than for others: Central (32.5 vs. 25.5) and Winnipeg (33.3 vs. 28.7 per 1000). All other RHAs have similar rates for Metis and all others in the region, which is consistent with the Manitoba overall effect.

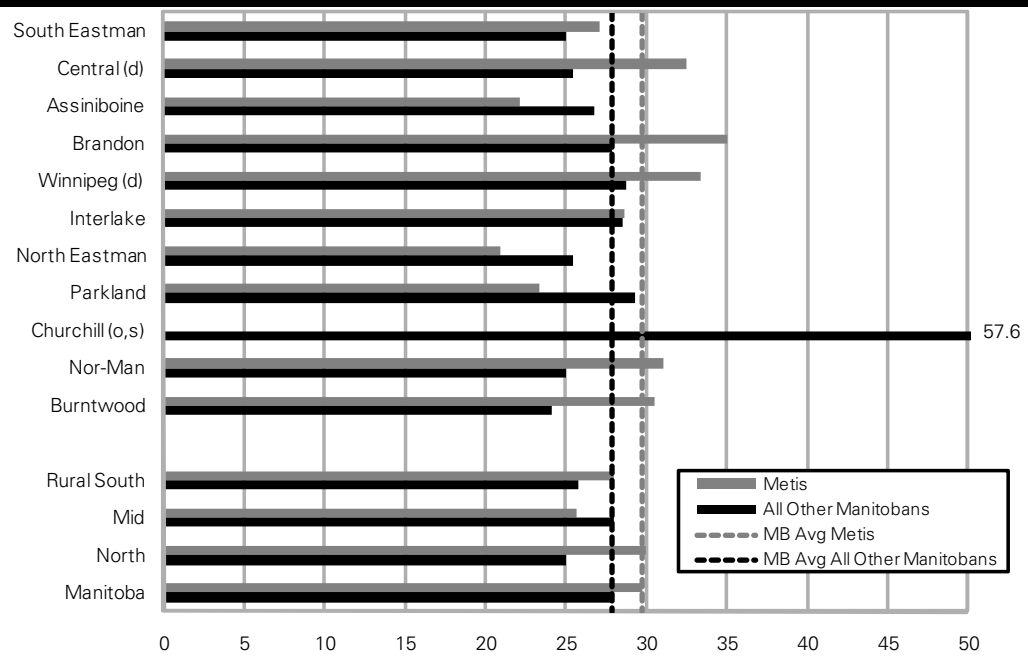
MMF Regions:

- Provincially, the Metis cataract surgery rate is 29.7 per 1000 age 50+. There is no obvious effect of PMR with cataract surgery rate. However, the lowest rates are in Southeast MMF Region and Northwest MMF Region, two healthier regions.

Winnipeg CAs:

- In Winnipeg, the Metis have a higher cataract surgery rate compared with all other Winnipeggers (33.3 vs. 28.7 per 1000), possibly reflecting the higher burden of diabetes. There is no gradient of cataract surgery rates with PMR in the Winnipeg CAs. Most CAs have rates similar to the corresponding provincial Metis and "all other" averages.
- Two CAs have Metis cataract surgery rates that are higher than the Metis provincial average: St. Vital (44.7) and Seven Oaks (51.8), compared with the provincial Metis average of 29.7 per 1000 age 50+. Seven Oaks has a large nursing home with many Metis clients, so this may affect the cataract surgery rate for the area. Only one CA has a cataract surgery rate for "all others" that is higher than the corresponding provincial average for "all others"—Inkster (33.0 vs. the provincial average of 27.8 per 1000).
- In three CAs, Metis cataract surgery rates are higher than for all others: St. Vital (44.7 vs. 31.0), Transcona (38.9 vs. 26.5), and Seven Oaks (51.8 vs. 28.8 per 1000).

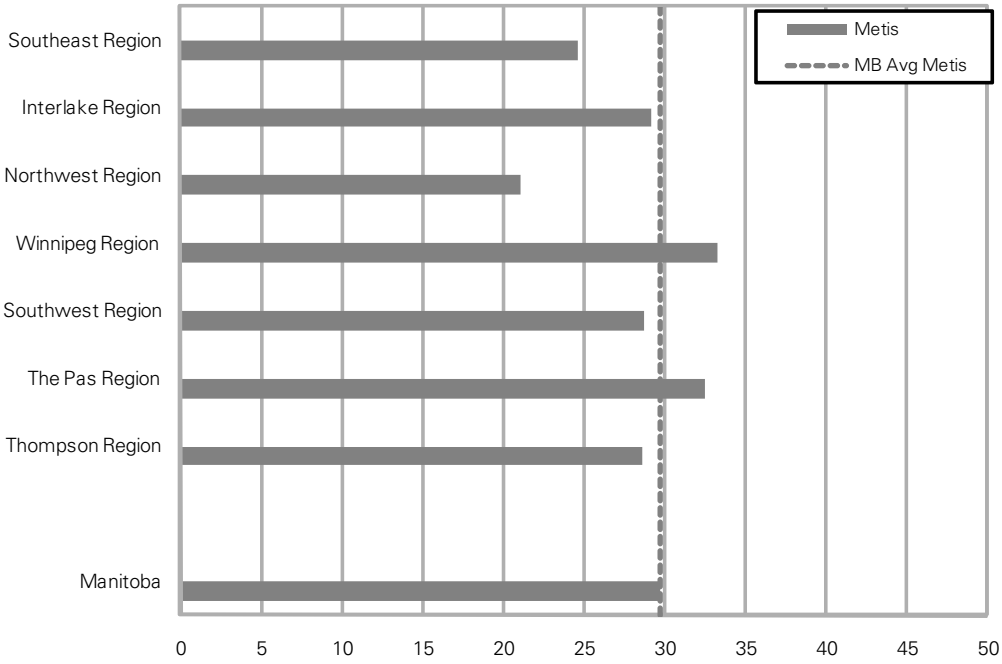
Figure 11.5.1: Cataract Surgery Rate by RHA, 2004/05-2006/07
Age- & sex-adjusted annual rate per 1,000 residents aged 50+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

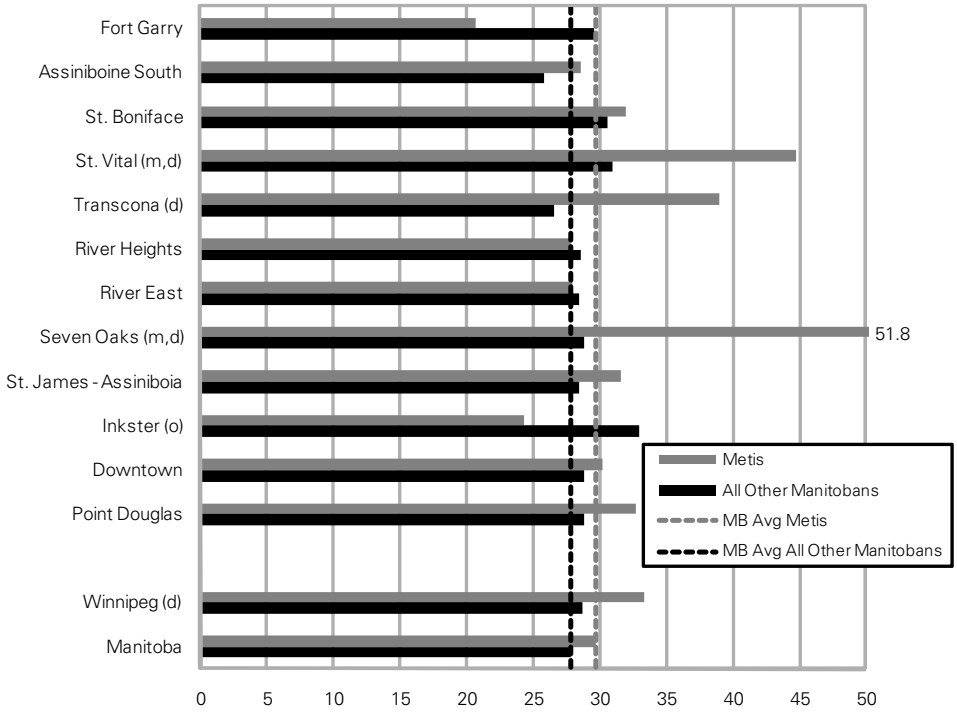
Figure 11.5.2: Cataract Surgery Rate by Metis Region, 2004/05-2006/07
Age- & sex-adjusted annual rate per 1,000 Metis residents aged 50+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 11.5.3: Cataract Surgery Rate by Winnipeg Community Area, 2004/05-2006/07
Age- & sex-adjusted annual rate per 1,000 residents aged 50+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

11.6 Caesarian Section (C–Section) Rates

A Caesarian section is a procedure in which a baby, rather than being born vaginally, is surgically extracted (removed) from the uterus. According to the World Health Organization, C–Section rates of 15% or lower are considered appropriate.[2]

The maternal age–adjusted annual percent of Caesarian section births (i.e., number per 100 live births) was measured over five fiscal years: 2002/03–2006/07. Crude percentages are available in the appendix. Caesarean sections were defined by hospital separations with the ICD–9–CM procedure codes 74.0, 74.1, 74.2, 74.4, and 74.9 and CCI code 5.MD.60. The denominator includes all maternal birth records with a diagnosis code for a live birth on hospital abstract, ICD–9–CM code V27 and ICD–10–CA code Z37.

The C–Section rate is often considered a discretionary rate, dependent upon physician practice. There may also be an effect of distance to acute hospitals. If women are close to acute care settings, then the physician may be more willing to do a vaginal birth during a complicated delivery, whereas if acute care settings are further away, a C–Section may be more likely.

Key observations:

RHAs:

- Provincially, the Metis Caesarian section rate is similar to the rate for all other Manitoba women (19.8% vs. 20.2% of all births). There is no relationship between PMR and C–Section rate for Metis or 'all other Manitoba' women for the RHAs, nor for the aggregate areas. Rates are highly variable throughout the regions.
- Parkland RHA has elevated C–Section rates for both the Metis and all others in the region (Metis 28.4%, others 23.6%). RHAs with particularly high C–Section rates for all other Manitobans compared to their corresponding provincial average (and a trend, though not statistically significant, for Metis) include: Assiniboine (24.1% Metis, 25.1% others); Brandon (25.6% Metis, 25.1% others); and NOR–MAN (25.7% Metis, 25.0% others).
- RHAs with particularly low C–Section rates for all others, and a similar (though not statistically lower) rate for Metis, include: North Eastman (17.2% Metis, 16.7% others) and Burntwood (19.1% Metis, 17.7% others). This is surprising, given the high rate of diabetes in the north and the correspondingly larger birth weight of infants, which would be expected to result in a higher C-Section rate.

MMF Regions:

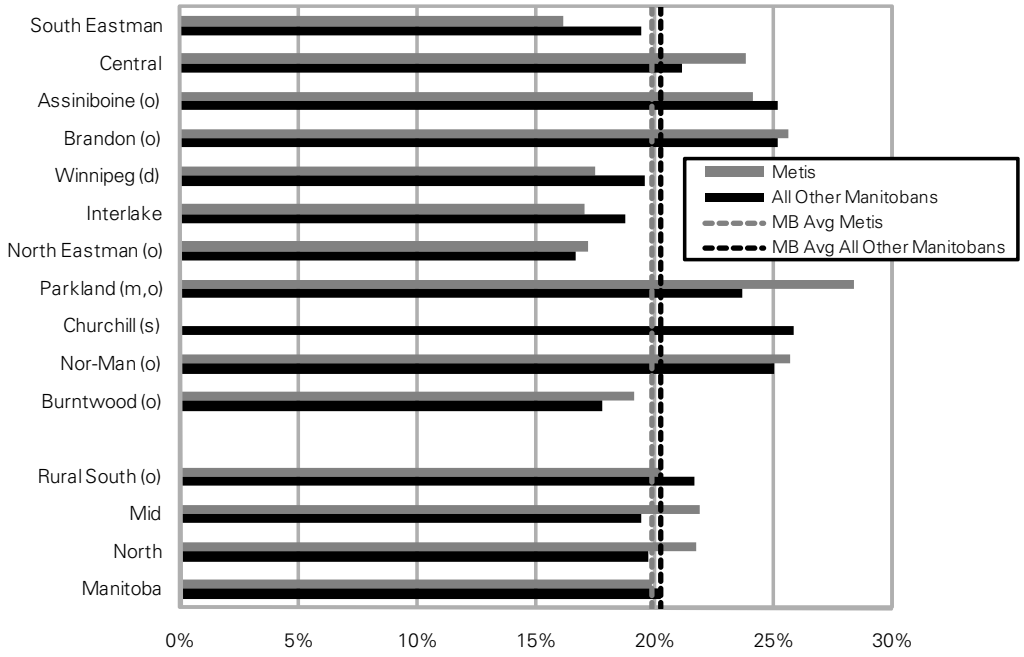
- Provincially, the Metis C–Section rate is 19.8%. There is no apparent gradient of C–Section rate with PMR in the MMF Regions.
- The two MMF Regions of Northwest (28.1%) and The Pas (26.2%) have higher C–Section rates than the provincial Metis average of 19.8%. All other MMF Regions are similar to the provincial average.

[2] The World Health Organization (Chalmers, Mangiaterra, & Porter, 2001) has stated that "Cesarean [sic] section rates should range from about 5% to 15% in any facility, depending on its level. Use the simplest technology available rather than more sophisticated techniques provided this is supported by sound evidence." On the other hand, there is debate in the literature regarding the WHO rate and whether this is realistic given current medical opinion (Dosa, 2001). However, the USA "Healthy People 2010" guidelines still recommend a 15% C–Section rate for nulliparous women in low risk situations of giving birth to a singleton, full–term, normal presentation (Declercq, Menacker, & MacDorman, 2006).

Winnipeg CAs:

- In Winnipeg, the Metis C–Section rate is lower than the rate for all other Winnipeggers (17.5% vs. 19.5%). There may be a slight reverse gradient with the most healthy CAs of Winnipeg having slightly higher C–Section rates and the least healthy areas slightly lower C–Section rates.
- The only statistically significantly different C–Section rate in Winnipeg is in the CA of Point Douglas, where the other rate is lower than the corresponding provincial all other rate (16.9% vs. 20.2%).
- Although not statistically different, all three of the least healthy CAs of Winnipeg have low rates for both Metis and others: Inkster (16.9% vs. 17.9%), Downtown (16.4% vs. 18.5%), and Point Douglas (15.7% vs. 16.9%).
- For Metis, many of the rates in Winnipeg CAs are based upon very small numbers, so despite large differences in Transcona, Seven Oaks or Point Douglas between the Metis rate and the corresponding Metis provincial average. The small numbers make this rate potentially highly fluctuating from year to year.

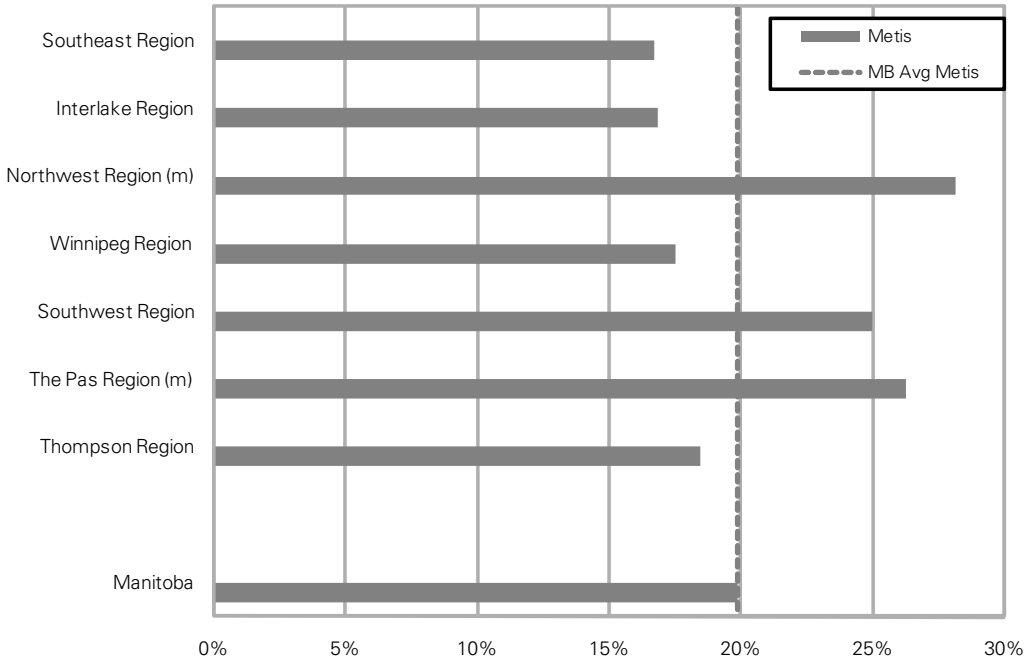
Figure 11.6.1: C-Section Rate by RHA, 2002/03-2006/07
Age-adjusted annual percent of births delivered by Caesarian Section



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

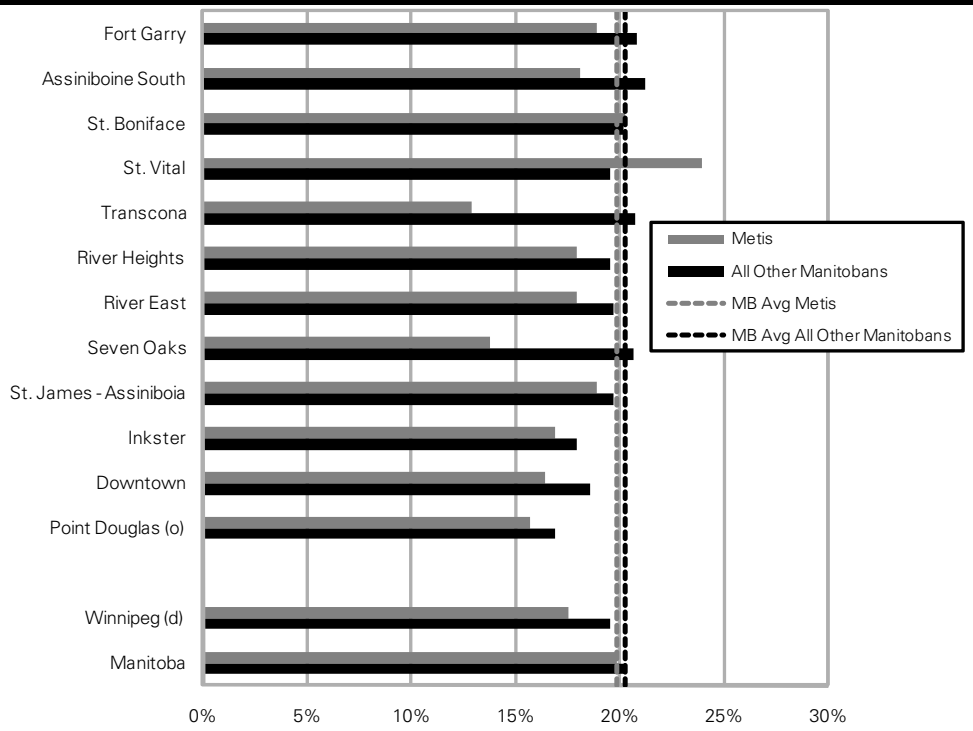
Figure 11.6.2: C-Section Rate by Metis Region, 2002/03-2006/07
Age-adjusted annual percent of Metis births delivered by Caesarian Section



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 11.6.3: C-Section Rate by Winnipeg Community Area, 2002/03-2006/07
Age-adjusted annual percent of births delivered by Caesarian Section



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

11.7 Hysterectomy Rates

Hysterectomy is a surgical operation to remove the uterus and, sometimes, the cervix.

The age–adjusted annual rate of hysterectomy per 1,000 women aged 25 and older was measured over five fiscal years: 2002/03–2006/07. Crude rates are available in the appendix. Hysterectomy surgeries were defined by hospital separations with ICD–9–CM procedure codes 68.4, 68.5, and 68.9 and CCI codes 1.RM.89, 5.CA.89.CK, .CA.89.DA, 5.CA.89.GB, 5.CA.89.WJ, and 5.CA.89.WK. The denominator includes all Manitoba female residents aged 25 and older as of December 31 of each year (2002–2006).

Key observations:

RHAs:

- Provincially, the hysterectomy rate of women aged 25+ is higher for Metis compared to all others (4.8 vs. 3.9 per 1000). There is no obvious relationship of hysterectomy rate with PMR at the RHA level.
- South Eastman RHA is the only RHA that has statistically higher hysterectomy rates for both the Metis and for all other residents (8.3 Metis, 5.6 others) compared to their corresponding provincial averages (4.8 Metis, 3.9 others per 1000). As well, this RHA shows a statistically higher rate for Metis compared to others.
- The Rural South aggregate area is showing higher rates for all others compared to their provincial average (4.8 vs. 3.9 per 1000), and the Metis rate is statistically higher than the all other rate for that area (6.6 vs. 4.8 per 1000). The Metis rate in Rural South also shows a trend to being higher than the corresponding Metis provincial rate, but it is not statistically significant.
- At the aggregate area level, there appears to be somewhat of a reverse gradient of hysterectomy rates with PMR; the Rural South having the highest rates for both Metis and others (6.6 Metis, 4.8 others); Mid having low rates for Metis and mid–range rates for others (4.7 Metis, 4.4 others); and the North having mid–range rates for Metis and low rates for others (5.6 Metis, 4.2 per 1000 others).

MMF Regions:

- The overall Manitoba Metis hysterectomy rate is 4.8 per 1000. There is no obvious gradient of hysterectomy rates with PMR. However, Southeast MMF Region's rate has a trend towards being the highest MMF region in the province at 7.0 per 1000, though this is not statistically significantly higher.

Winnipeg CAs:

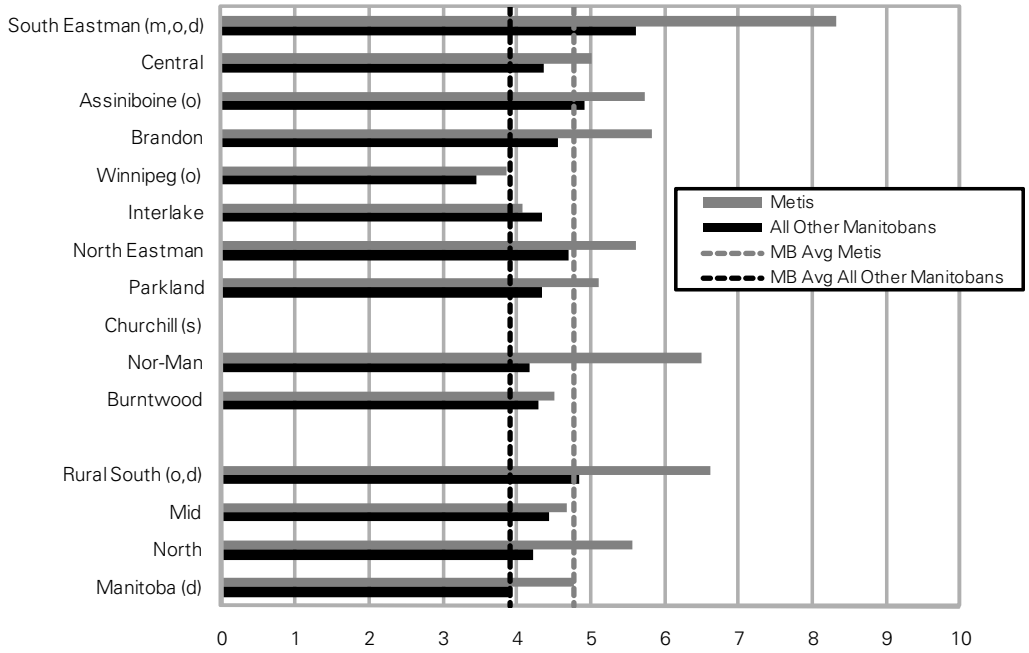
- In Winnipeg RHA, the hysterectomy rate for Metis is not statistically significantly different than the provincial Metis average (3.9 vs. 4.8 per 1000), whereas the rate for all other Winnipeggers is statistically significantly lower than their provincial average (3.4 vs. 3.9 per 1000). There is no statistically significant difference between hysterectomy rates of Metis and other women living in Winnipeg (3.9 vs. 3.4 per 1000), which is different than at the provincial level where Metis rates are higher (4.8 vs. 3.9 per 1000).

- Possibly due to very small numbers, all Winnipeg CAs show Metis hysterectomy rates similar to the Metis provincial average of 4.8 per 1000. However, the trend suggests lower rates in most of the CAs, even though they are not statistically lower. Similarly, all Winnipeg CAs show "other" hysterectomy rates similar to the "other" provincial average of 3.9 per 1000, with the exceptions of three CAs with lower rates: Fort Garry (2.9), River Heights (2.6), and Downtown (2.4 per 1000).
- Given that hysterectomies are considered a discretionary procedure with highly variable rates often dependent upon physician pattern of practice, it is important to note the tendency to lower hysterectomy rates in the urban area of Winnipeg.

Logistic regression analysis of hysterectomy rates for women aged 25+ in the fiscal year 2006/07:

- In the logistic regression with all Manitobans included, there is no statistically significant difference in the probability of hysterectomies for Metis and all other Manitoba women (aOR=0.96, 95% CI 0.76–1.20) after adjusting for potential confounders of age, geographical variations, mental and physical comorbidities, and average household income. This result is somewhat different to the graphs using only age–adjustment, where the Metis rate was higher (4.8 vs. 3.9 per 1000). Therefore the higher rate may be biased by individual factors of age, geographical residence, comorbidity or income.
  - In the "all Manitobans" model, Winnipeg RHA had a lower hysterectomy rate (aOR=0.82, 95% CI 0.74–0.90), whereas both the Rural South (aOR=1.2, 95% CI 1.1–1.4) and the Mid (aOR=1.2, 95% CI 1.0–1.3) had elevated rates. There is a higher probability of having a hysterectomy as a woman's age and the degree of her physical and/or mental illness comorbidity increases.
- In the logistic regression for Metis only:
  - There is a higher probability of having a hysterectomy as age increases (this effect plateaus at higher ages), but there is no significant effect of average household income or physical or mental comorbitidy.
  - After controlling for all other factors, Metis women are more likely to have a hysterectomy if they live in Southeast MMF Region (aOR=2.2, 95% CI 1.3–3.6).

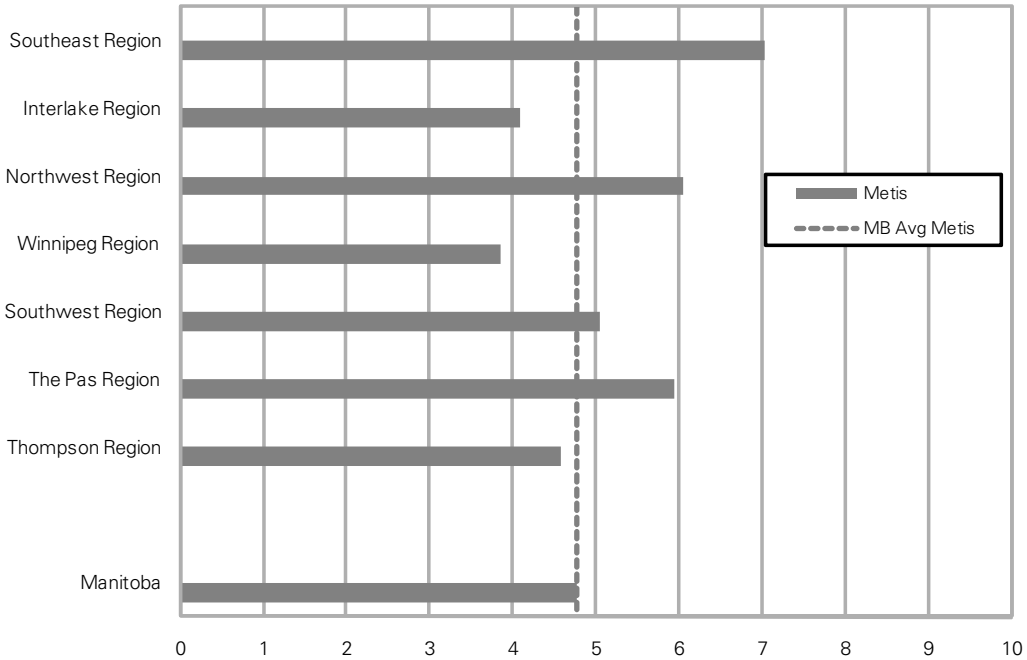
Figure 11.7.1: Hysterectomy Rate by RHA, 2002/03-2006/07
Age-adjusted annual rate per 1,000 women aged 25+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

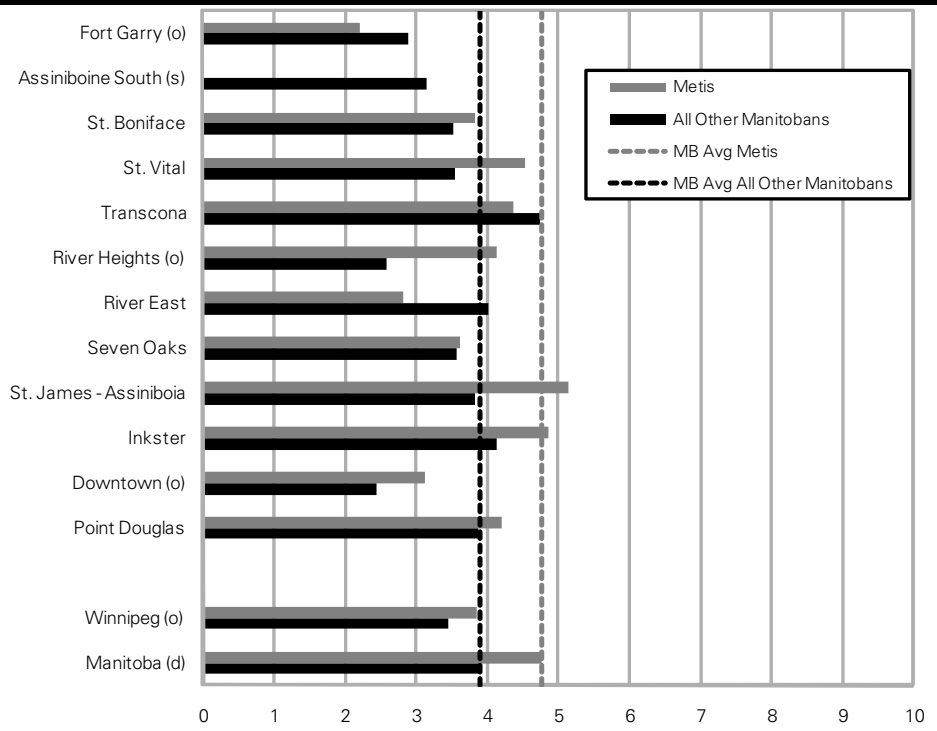
Figure 11.7.2: Hysterectomy Rate by Metis Region, 2002/03-2006/07
Age-adjusted annual rate per 1,000 Metis women aged 25+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 11.7.3: Hysterectomy Rate by Winnipeg Community Area, 2002/03-2006/07
Age-adjusted annual rate per 1,000 women aged 25+ years



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 11.7.1: Logistic Regression Model of the Probability of Having a Hysterectomy

Probability of Having a Hysterectomy by Aggregate Region, 2006/07, women aged 25+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Metis (vs. All Others)	0.960 (0.762, 1.210)	0.7318
Aggregate Regions (ref = Manitoba)		
South	**1.203 (1.070, 1.354)**	**0.0021**
Mid	**1.157 (1.016, 1.316)**	**0.0274**
North	0.807 (0.645, 1.008)	0.0588
Brandon	1.093 (0.893, 1.337)	0.3897
Winnipeg	**0.815 (0.737, 0.902)**	**0.0001**
Age, linear	**1.257 (1.223, 1.291)**	**<0.001**
Age, quadratic	**0.998 (0.998, 0.998)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	1.005 (0.982, 1.029)	0.6644
Mental Illness ADGs	**1.339 (1.186, 1.511)**	**<0.001**
Major Physical Illness ADGs	**1.305 (1.161, 1.468)**	**<0.001**

Bold = statistically significant results

Probability of Having a Hysterectomy by Metis Region, 2006/07, Metis women aged 25+

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p–value
Manitoba Metis Federation Regions (ref = Manitoba)		
Southeast Region	**2.188 (1.345, 3.561)**	**0.0016**
Interlake Region	0.813 (0.402, 1.643)	0.5635
Northwest Region	1.718 (0.831, 3.553)	0.1442
Winnipeg Region	0.802 (0.505, 1.273)	0.3495
Southwest Region	1.433 (0.806, 2.550)	0.2208
The Pas Region	0.525 (0.191, 1.444)	0.2119
Thompson Region	0.542 (0.160, 1.842)	0.3265
Age, linear	**1.422 (1.214, 1.666)**	**<0.001**
Age, quadratic	**0.996 (0.995, 0.998)**	**<0.001**
Average Household Income of Neighbourhood (per $10,000)	0.988 (0.853, 1.145)	0.8750
Mental Illness ADGs	1.521 (0.938, 2.465)	0.0892
Major Physical Illness ADGs	0.815 (0.476, 1.395)	0.4560

Bold = statistically significant results

Source: MCHP/MMF, 2010

11.8 Findings from Literature Review

(compared to the results of this study—in italics)

- No references specific to Metis were found.
- In the First Nations report (Martens et al., 2002), the 1996/97-1998/99 age-adjusted C-Section rates of First Nations women were statistically significantly lower compared to all other Manitoba women (14.2% vs. 17.3%). For the years 1994-1999, age-adjusted hysterectomy rates were similar for First Nations and all other Manitoba women (5.0 per thousand).

In our report, the C-Section rates for Metis and all other Manitoba women were similar (19.8% vs. 20.2%), but the hysterectomy rates for Metis women were higher (4.8 vs. 3.9 per 1000). Therefore, quite different patterns are apparent for Metis women compared to First Nations women in relationship to all other Manitoba women (although the First Nations data are from the 1990s). This may be an artifact of geography, i.e., where the majority of Metis, First Nations and other Manitoba women live, and what are the geographical area's patterns of these two discretionary procedures.

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Chapter 12: Use of Home Care and Personal Care Homes (PCH)

Indicators in this chapter:

- Open Home Care Cases (Prevalence)
- Admissions to PCH (personal care homes, or nursing homes)
- Residents in PCHs
- Median Waiting Times for PCH Admission

Overall Key Findings:

- In general, the prevalence of home care use and personal care home (PCH) use is higher for Metis compared to all other Manitobans. Metis have a 27% higher prevalence of open home care cases (4.2% vs. 3.3%) and 15% higher prevalence of older adults aged 75+ living in a PCH (14.2% vs. 12.3%). However, the provincial admission rate to PCH for those aged 75+ (Metis 3.1%, others 2.9%, NS) and the median wait times for PCH (Metis 8.1 weeks, others 7.4 weeks, NS) are similar for both Metis and all other Manitobans.

Table 12.0: Overall Key Findings of Home Care and PCH Indicators**

Indicator (age of inclusion for this indicator) Note: all of these are age– and sex–adjusted	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Metis having statistically lower rates compared to provincial Metis average	Metis having statistically higher rates compared to provincial Metis average
Annual percentage of population with an Open Home Care Case, all ages, 2005/06–2006/07	4.2% vs. 3.3%; RR=1.27	Assiniboine RHA, Interlake RHA, North Eastman RHA, Southeast MMF Region	Winnipeg RHA, Winnipeg MMF Region, Downtown CA, Point Douglas CA
Annual percentage of population age 75+ with Admission to PCH, 2004/05–2006/07	3.1% vs. 2.9%; RR=1.07, NS	–	–
Percentage of population aged 75+ Living in PCH (%),2004/05–2006/07	14.2% vs. 12.3%; RR=1.15	–	Brandon RHA, St. James–Assiniboia CA
Median Waiting Time (weeks) for PCH Admission, aged 75+, 2004/05–2006/07	8.1 weeks vs. 7.4 weeks; RR=1.09, NS	–	Southeast MMF Region

NS means Not Statistically significantly different between Metis and all others

**In this table, we have not made a 'value judgment' as to whether a low or high prevalence of home care and PCH use is "better" or "worse".

Source: MCHP/MMF, 2010

12.1 Open Home Care Cases

The Manitoba Home Care Program, established in 1974, is the oldest comprehensive, province–wide, universal home care program in Canada. Home Care is provided within one's own home, free of charge, to Manitobans of all ages assessed as having inadequate informal resources to return home from hospital or to remain at home in the community.

In this study, open home care cases were defined as the age– and sex–adjusted percentage of residents registered with the Home Care program for at least one day in the fiscal year, for two fiscal years: 2005/06 and 2006/07. Crude rates are available in the appendix. Only the first open case per home care client per year was counted. The denominator includes all Manitoba residents as of December 31, 2005 and 2006.

Use of home care is identified outside of Winnipeg using clients receiving home care services in the Manitoba Support Services Payroll (MSSP) system. Within Winnipeg home care was identified using the Winnipeg Regional Health Authority MDS–Home Care database. In cases where individuals were found in both the MSSP and MDS data, the MDS data was used.

Key observations:

RHAs:

- Provincially, Metis have a statistically higher prevalence of open home care cases compared to all other Manitobans (4.2% vs. 3.3%), which may reflect the additional burden of chronic disease.
- Although not apparent at the RHA level, there is evidence of a gradient with PMR at the aggregate area level for both Metis and all others, with the lowest home care prevalence in the Rural South (4.0% vs. 2.7%), followed by Mid (4.0% vs. 3.2%), and the highest prevalence in the North (5.0% vs. 3.3%), which has the least healthy population. The urban centre of Winnipeg has a particularly high prevalence of home care for both Metis and others (5.5% vs. 3.8%), higher than expected in a PMR gradient.
- The prevalence of home care use for Metis is statistically higher than for all other Manitobans in most RHAs (or showing a similar pattern although NS in Churchill and Assiniboine RHAs). The one exception is North Eastman (Metis 2.5%, others 3.0%), where the prevalence is similar between groups.
- The prevalence of home care for the Metis is consistently and significantly higher than all other Manitobans in every aggregate area.

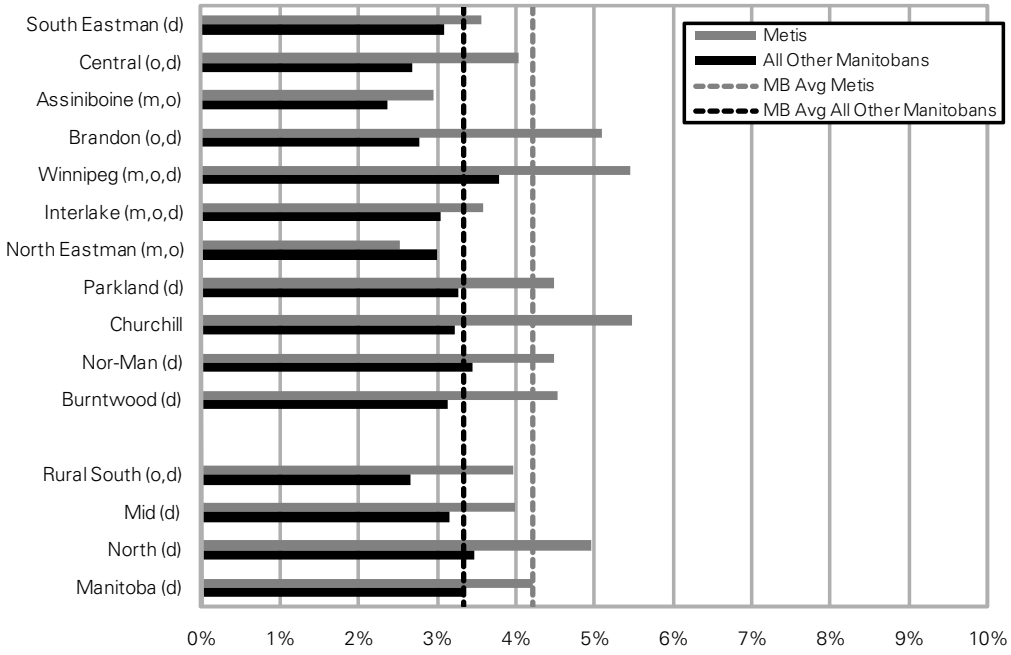
MMF Regions:

- The overall prevalence of home care for Metis provincially is 4.2%. There is somewhat of a gradient of prevalence of home care by PMR for the MMF Regions, with the most healthy showing the lowest prevalence.
- Two MMF Regions differ from the Manitoba average for Metis (4.2%)—Southeast MMF Region is lower (3.3%), which is expected given their low PMR, and Winnipeg MMF Region is higher (5.1%).

Winnipeg CAs:

- In Winnipeg RHA, both the Metis (5.5%) and all others living in Winnipeg (3.8%) have higher prevalence of home care use compared to their corresponding provincial averages of 4.2% and 3.3% respectively. As well, the prevalence of home care use for the Metis is statistically higher than that for all other Winnipeggers.
- There is somewhat of a gradient of home care prevalence with PMR, but mostly showing as a very high percentage using home care in the least healthy CAs of Downtown and Point Douglas.
- In many of the CAs, Metis have significantly higher prevalence of home care compared to all others residing in those CAs: Fort Garry (4.4% vs. 3.0%), St. Boniface (4.6% vs. 3.8%), River Heights (5.3% vs. 3.8%), River East (4.7% vs. 3.7%), St. James–Assiniboia (4.7% vs. 3.5%), Inkster (5.3% vs. 3.3%), Downtown (8.8% vs. 5.3%), and Point Douglas (7.0% vs. 4.9%). In the other CAs, the trend is similar though not statistically significant.
- Two Winnipeg CAs have a very high prevalence of open home care cases that is statistically significant for both Metis and all other Manitobans compared to their corresponding provincial averages—Downtown (Metis 8.8%, others 5.3%) and Point Douglas (Metis 7.0%, others 4.9%).

Figure 12.1.1: Open Home Care Cases by RHA, 2005/06-2006/07
Age- & sex-adjusted annual percent of residents with an open home care case



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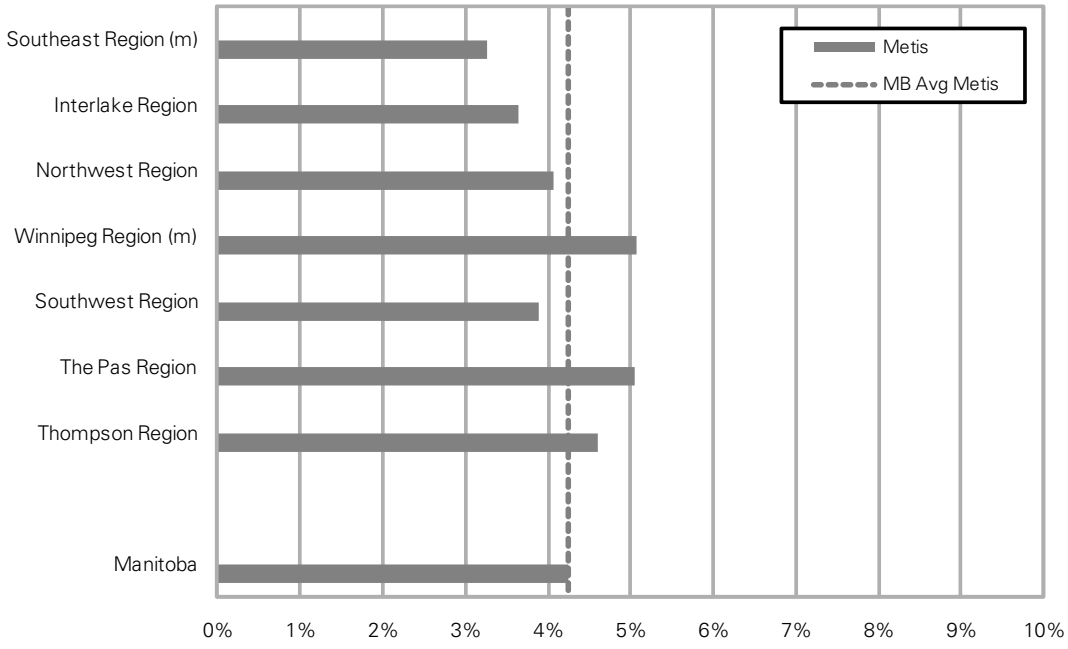
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 12.1.2: Open Home Care Cases by Metis Region, 2005/06-2006/07
Age- & sex-adjusted annual percent of Metis residents with an open home care case



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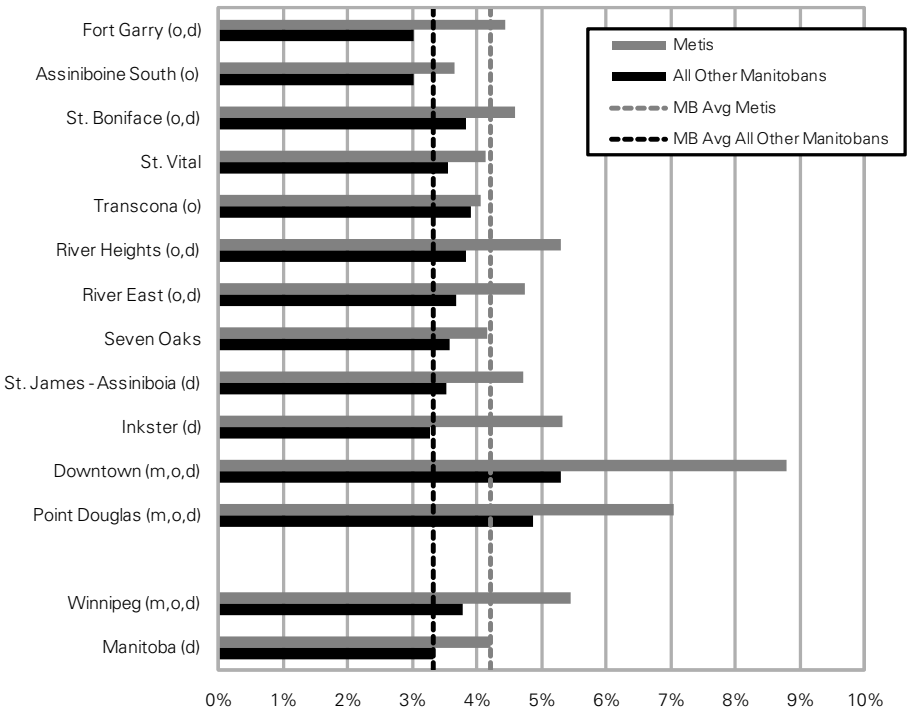
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 12.1.3: Open Home Care Cases by Winnipeg Community Area, 2005/06-2006/07
Age- & sex-adjusted annual percent of residents with an open home care case



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's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

12.2 Admissions to PCHs

Admission rates to PCHs represent how many people from each area entered PCH's (anywhere in Manitoba) each year, according to where they lived prior to being admitted to a PCH.

The age– and sex–adjusted percentage of residents aged 75 and older who were admitted to a PCH for the first time was measured over three fiscal years: 2004/05–2006/07. Crude percentages are available in the appendix. The denominator includes all Manitoba residents aged 75 and older as of December 31 of each year (2004–2006). Region assignment in the numerator was based on where the resident lived before admission to the PCH.

Key observations:

RHAs:

- At the provincial level, there is no statistically significant difference between Metis and all other Manitobans in the percentage of the population aged 75+ admitted to PCHs annually (3.1% vs. 2.9%). There is no obvious PMR gradient with the percentage of the population aged 75+ admitted to PCH. Rates appear to be consistent throughout the province with very little variation.
- Brandon RHA has a statistically higher percentage of Metis aged 75+ admitted to PCHs (8.5% vs. 3.4%) compared to all others living in Brandon (and the "all other" percentage is statistically higher than the corresponding provincial average of 2.9%). However, despite the very high Metis percentage, this is not statistically significantly different from the Metis provincial average, but is very close to significance (the cutoff is $p<.01$ and this rate has a p–value of $p=.0101$).
- Interestingly, for the all other Manitobans group living in Brandon RHA, the percentage of the population aged 75+ admitted to PCHs annually is significantly higher than the provincial average, yet their prevalence of home care use is significantly lower than their provincial average. However, for Metis living in Brandon, both these indicators are similar to the Metis provincial averages (with a trend to higher, but NS).

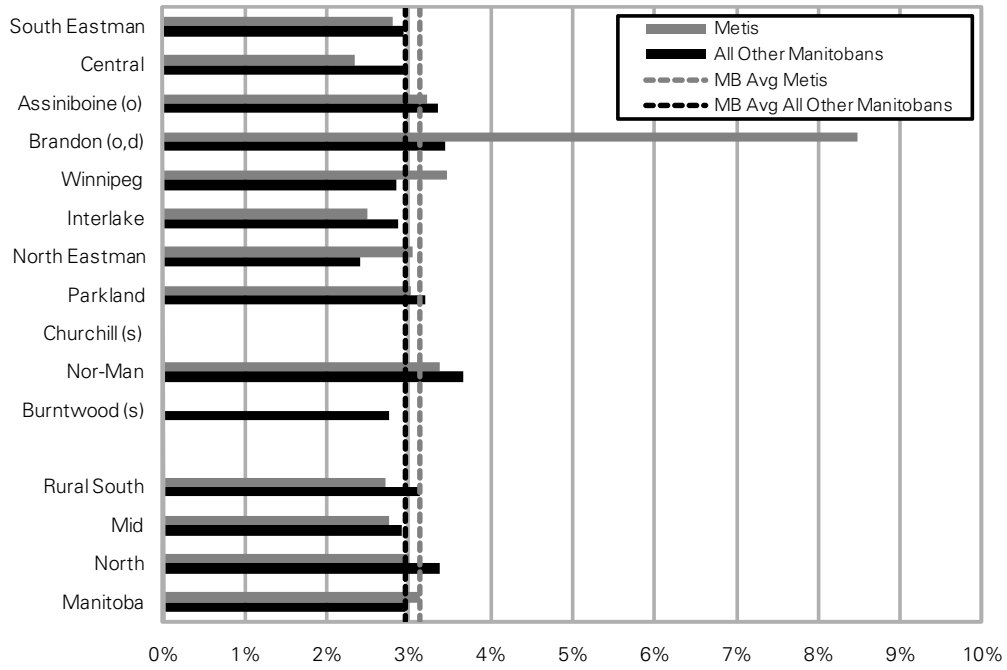
MMF Regions:

- The overall provincial percentage of the Metis population aged 75+ admitted to PCHs annually is 3.1%. There is no obvious gradient by PMR of the MMF Regions, and all regions show similar percentages to the provincial average (i.e., not statistically different, probably due to fluctuating rates based on small numbers).

Winnipeg CAs:

- In Winnipeg RHA, both the Metis (3.5%) and all other Winnipeggers (2.8%) have a similar percentage of the population aged 75+ admitted to PCHs annually compared to their provincial averages (Metis 3.1%, others 2.9%).
- There is no evidence of a gradient of PCH admissions by PMR in the Winnipeg aggregate regions. All show similar to provincial averages with the exception of Winnipeg "Average Health", which has a lower percentage for "all others" (2.5%) compared to the their provincial average of 2.9%.

Figure 12.2.1: Admissions to Personal Care Homes by RHA, 2004/05-2006/07
Age- & sex-adjusted annual percent of provincial PCH admissions for residents, by region of residence prior to PCH admission aged 75+



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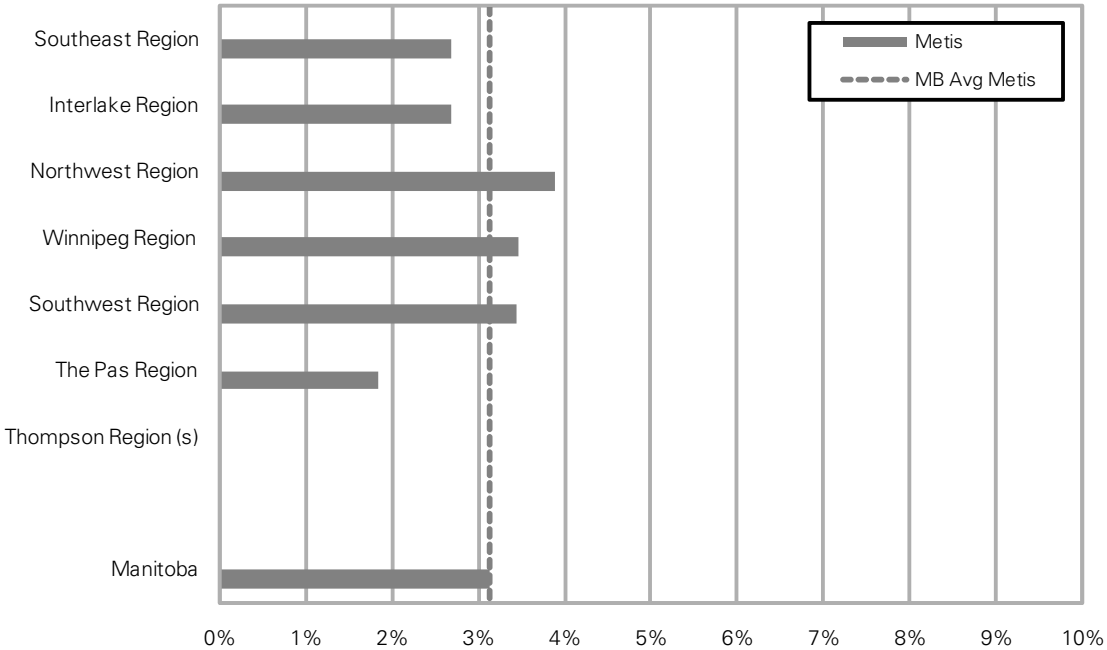
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 12.2.2: Admissions to Personal Care Homes by Metis Region, 2004/05-2006/07
Age- & sex-adjusted annual percent of provincial PCH admissions for Metis residents, by region of residence prior to PCH admission aged 75+



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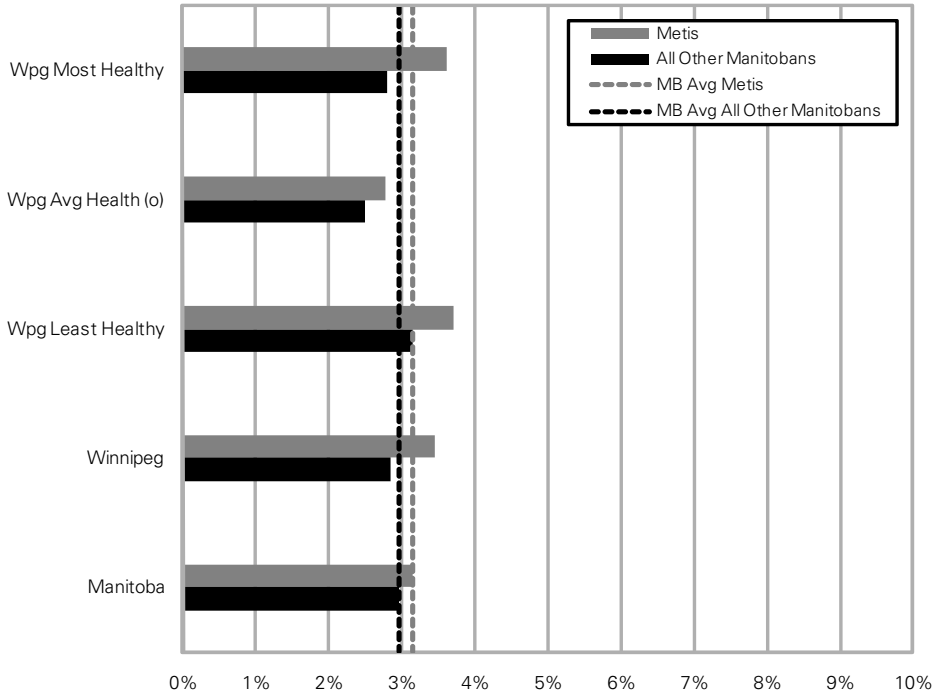
Source: MCHP/MMF, 2010

Figure 12.2.3: Admissions to Personal Care Homes by Winnipeg Community Area, 2004/05-2006/07
Age- & sex-adjusted annual percent of provincial PCH admissions for residents, by region of residence prior to PCH admission aged 75+



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'd' indicates the difference between the two groups' rates was statistically significant for this area
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Source: MCHP/MMF, 2010

Table 12.2.1: Where RHA Residents Went for PCH Admission, 2004/05-2006/07

RHA		PCH in Home RHA (%)
South Eastman	Metis	100%
	All Other Manitobans	91%
Central	Metis	100%
	All Other Manitobans	94%
Assiniboine	Metis	86%
	All Other Manitobans	96%
Brandon	Metis	86%
	All Other Manitobans	98%
Winnipeg	Metis	97%
	All Other Manitobans	99%
Interlake	Metis	92%
	All Other Manitobans	90%
North Eastman	Metis	86%
	All Other Manitobans	86%
Parkland	Metis	100%
	All Other Manitobans	98%
Churchill	Metis	0%
	All Other Manitobans	0%
Nor-Man	Metis	100%
	All Other Manitobans	93%
Burntwood	Metis	50%
	All Other Manitobans	70%
Rural South	Metis	97%
	All Other Manitobans	95%
Mid	Metis	94%
	All Other Manitobans	93%
North	Metis	88%
	All Other Manitobans	85%
Manitoba	Metis	95%
	All Other Manitobans	97%

's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Where RHA residents went for PCH Admission:

- at the provincial level, Metis and all other Manitobans had similar rates of residents being admitted to a PCH in their own RHA (95% vs. 97%).
- at the RHA level, Metis and all other Manitobans had similar rates in several regions and very different rates in other regions
  - of the regions that were different, more Metis stayed in their home RHA in South Eastman, Central, and NOR–MAN
  - more Metis in Assiniboine, Brandon, and Burntwood went to a PCH that was not in their home RHA

NOTE: these are crude percentages and have not been statistically tested for differences.

12.3 Residents in PCHs

The age– and sex–adjusted percentage of residents aged 75 and older who were in a PCH for at least one day in the fiscal year was measured over three fiscal years: 2004/05–2006/07. Crude percentages are available in the appendix. The denominator includes all Manitoba residents aged 75 and older as of December 31 of each year (2004–2006). Region assignment in the numerator was based on where the resident lived just prior to admission to the PCH.

Key observations:

RHAs

- Provincially, there are significantly more Metis residents aged 75+ in PCHs than all other Manitobans (14.2% vs. 12.3%), but this is mainly driven by Winnipeg RHA (15.9% vs. 11.9%) and Brandon RHA (26.7% vs. 14.8%).
- There is no apparent association between PMR and the percent of residents aged 75+ in PCHs.
- In NOR–MAN, there is a statistically significantly higher percentage of all other Manitobans aged 75+ who are PCH residents compared to their corresponding provincial average (14.4% vs. 12.3%). This trend is also seen for the Metis, although it is not statistically significantly different than the Metis provincial average (17.4% vs. 14.2%).
- There is a statistically significantly lower percentage of all other Manitobans aged 75+ residing in a PCH in Burntwood RHA (9.3%), and higher percentage in Churchill RHA (34.6%), compared to their corresponding provincial average (12.3%).

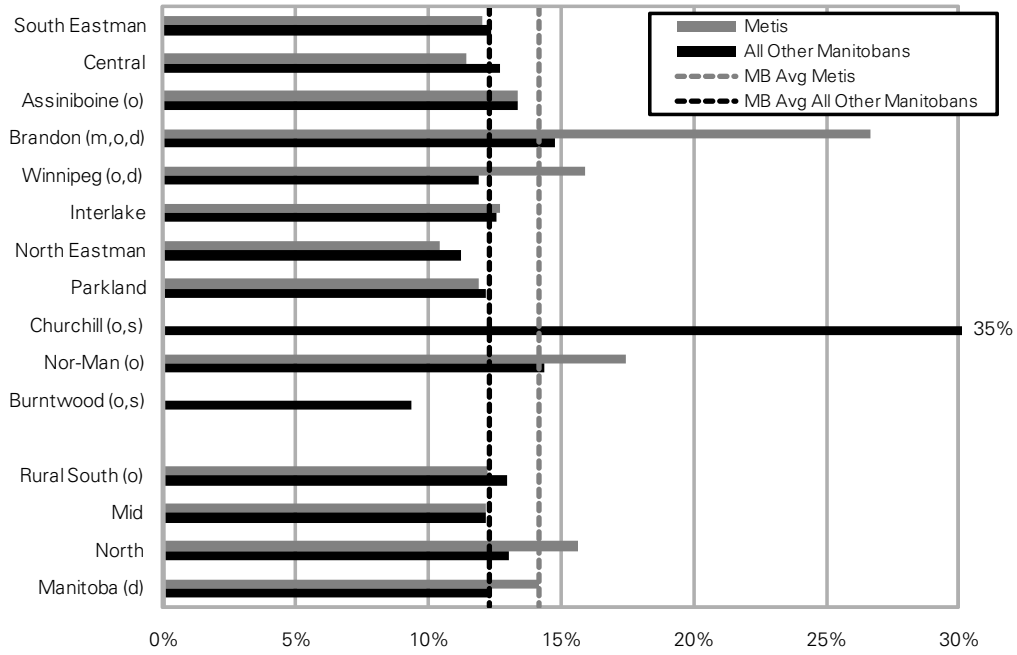
MMF Regions

- Provincially, the percent of Metis residents aged 75+ in PCHs is 14.2%. There is little evidence of a gradient by PMR—probably the most obvious 'gradient' is urban versus rural. Winnipeg MMF Region and Southwest MMF Region (containing Brandon) show a trend to slightly higher percentages.
- There are no MMF Regions that are significantly different from the Metis provincial average.

Winnipeg CAs

- In the Winnipeg RHA, there is a statistically significant difference between the percent of residents aged 75+ in PCHs for Metis compared to all other Winnipeggers (15.9% vs. 11.9%).
- There is no obvious gradient of percent of residents aged 75+ in PCHs by PMR for the Winnipeg CAs. However, there appears to be a trend to very low percentages in the two least healthy CAs of Downtown and Point Douglas.
- The percent of residents aged 75+ in PCHs is statistically higher for Metis compared to others living in that CA for the following: Fort Garry (18.8% vs. 8.8%), St. Boniface (14.8% vs. 9.5%), River Heights (21.3% vs. 10.2%), and St. James–Assiniboia (27.9% vs. 13.6%).
- The percentage of Metis aged 75+ living in PCHs is 1.5 to two times that of all others aged 75+ living in that area in the CAs of Fort Garry (18.6% vs. 12.3%), River Heights (21.3% vs. 10.2%), and St. James–Assiniboia (27.9% vs. 13.6%).

Figure 12.3.1: Residents in Personal Care Homes by RHA, 2004/05-2006/07
Age- & sex-adjusted annual percent of residents living in a provincial PCH aged 75+



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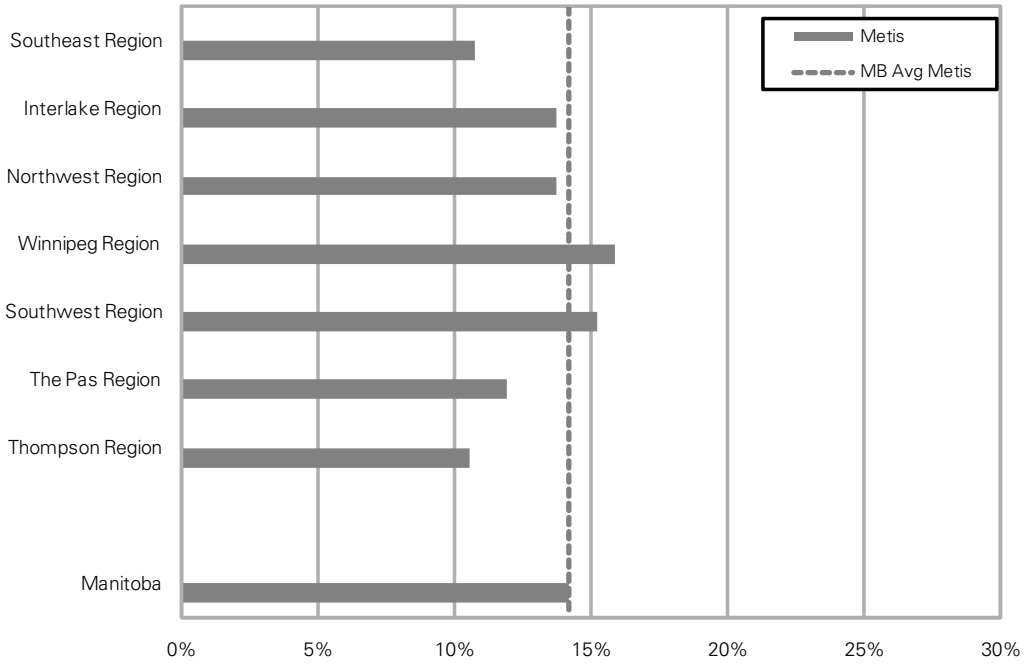
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 12.3.2: Residents in Personal Care Homes by Metis Region, 2004/05-2006/07
Age- & sex-adjusted annual percent of Metis residents living in a provincial PCH aged 75+



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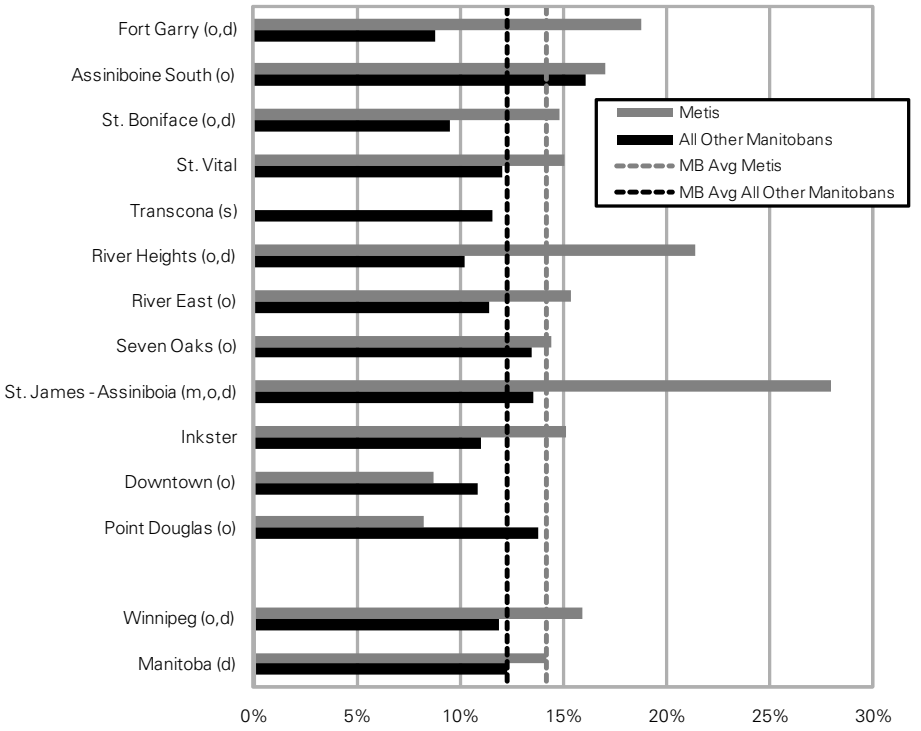
Source: MCHP/MMF, 2010

Figure 12.3.3: Residents in Personal Care Homes by Winnipeg Community Area, 2004/05-2006/07
Age- & sex-adjusted annual percent of residents living in a provincial PCH aged 75+



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Source: MCHP/MMF, 2010

Table 12.3.1: Metis and All Other Manitoban Use of PCHs - in Home RHA and Another RHA

RHA		Total PCH Admissions Used by RHA Residents (n)	PCH in Home RHA (n)	PCH in Home RHA (%)	PCH in Other RHA (n)	PCH in Other RHA (%)
South Eastman	Metis	16	16	100%	0	0%
	All Other Manitobans	268	244	91%	24	9%
Central	Metis	9	9	100%	0	0%
	All Other Manitobans	644	605	94%	39	6%
Assiniboine	Metis	s	s	s	s	s
	All Other Manitobans	823	790	96%	33	4%
Brandon	Metis	s	s	s	s	s
	All Other Manitobans	395	386	98%	9	2%
Winnipeg	Metis	s	s	s	s	s
	All Other Manitobans	4,811	4,760	99%	51	1%
Interlake	Metis	s	s	s	s	s
	All Other Manitobans	474	428	90%	46	10%
North Eastman	Metis	s	s	s	s	s
	All Other Manitobans	152	131	86%	21	14%
Parkland	Metis	19	19	100%	0	0%
	All Other Manitobans	449	439	98%	10	2%
Churchill	Metis	s	s	s	s	s
	All Other Manitobans	s	s	s	s	s
Nor-Man	Metis	6	6	100%	0	0%
	All Other Manitobans	88	82	93%	6	7%
Burntwood	Metis	s	s	s	s	s
	All Other Manitobans	33	23	70%	10	30%
Rural South	Metis	s	s	s	s	s
	All Other Manitobans	1,735	1,639	95%	96	6%
Mid	Metis	51	48	94%	3	6%
	All Other Manitobans	1,075	998	93%	77	7%
North	Metis	s	s	s	s	s
	All Other Manitobans	123	105	85%	18	15%
Manitoba	Metis	183	174	95%	9	5%
	All Other Manitobans	8,139	7,888	97%	251	3%

's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

- Because of small numbers, many Metis rates have been suppressed. The data that are available indicates that most people residing in a PCH came from the RHA in which the PCH is located, with the lowest percentage being in the Mid aggregate area (94%).

12.4 Median Waiting Times for PCH Admission

The median wait time for PCH admission is the amount of time it took (in weeks) for 50% of all residents to be admitted after being assessed as requiring PCH placement. For example, in the three year period 2004/05–2006/07, the median for Manitoba Metis was eight weeks, so half of all Metis PCH admittants waited approximately eight weeks or less from assessment to placement, while half waited longer. This only includes provincial PCH beds, not federal beds, due to lack of information on federal beds in the provincial database.

Key observations:

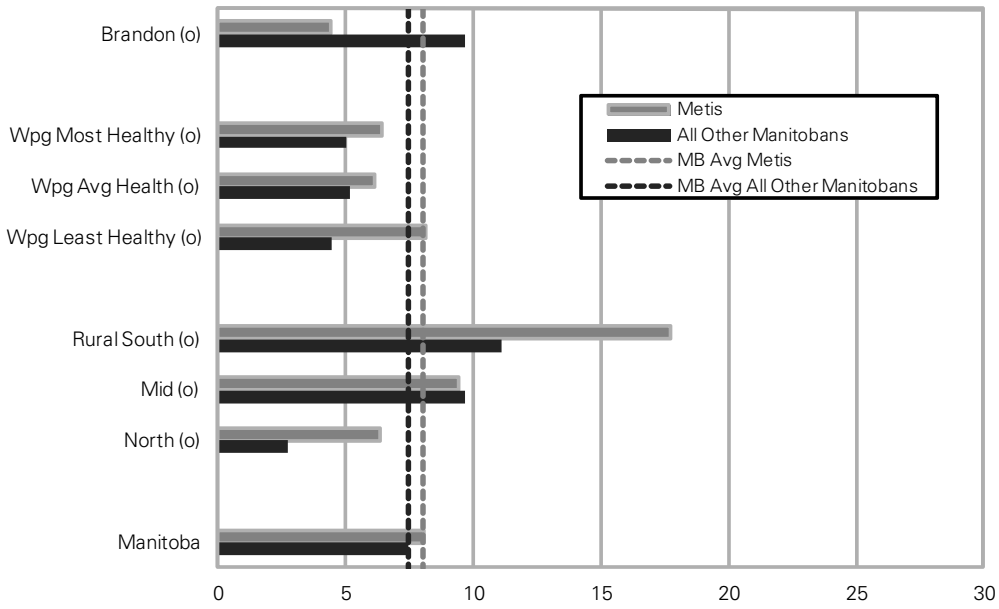
Aggregate Rural Areas and Aggregate Winnipeg Areas

- At the provincial level, the median wait times for PCH admission for Metis and all other Manitobans are similar (8.1 vs. 7.4 weeks). While these rates might seem low, it is important to remember that the median is the middle value—half of the people waited longer than seven to eight weeks for PCH admission. (Note: the median is a more appropriate measure than the mean when analyzing highly skewed distributions because it is less influenced by extreme outliers.)
- At the aggregate rural area level, there is a strong association between median wait times and PMR for both groups—the less healthy the region (i.e., the higher the PMR), the lower the median wait times for PCH admission.
- Median wait times for Metis are not significantly different from the Manitoba Metis average in any of the Winnipeg sub-areas, nor in the aggregate areas of Rural South, Mid, North, or Brandon. The number of Metis included in the analysis in each of these areas is small (see Appendix crude rate tables), so the rates are highly variable.
- For all other Manitobans, the overall provincial median wait time for PCH is 7.4 weeks. Areas that have statistically significantly higher wait times are: Brandon RHA (9.7 weeks); Rural South (11.1 weeks); and Mid aggregate area (9.7 weeks). Wait times are shorter in all sub-regions of Winnipeg (Most Health 5.0; Average Health 5.1; Least Healthy 4.4), and in the North aggregate area (2.7 weeks).
- In Brandon RHA, the median wait time is significantly higher for all other Manitobans (9.7 weeks) compared to the provincial average of 7.4 weeks. This may be related to the significantly higher percentage of "all other" residents aged 75+ residing in PCHs in Brandon, compared to the provincial average. However, for the Metis living in Brandon, the wait is similar (4.4 weeks) to the Metis provincial average of 8.1 weeks (and possibly trending to lower), despite a very high percentage of Metis aged 75+ living in a PCH.

MMF Regions

- Provincially, the median wait time for PCH admission for those aged 75+ is 8.1 weeks. There is no apparent gradient of wait time in MMF Region by PMR.
- The Southeast MMF Region has a significantly longer median waiting time (27.5 weeks) than the Metis provincial average (8.1 weeks) and is definitely an anomaly in terms of any other MMF Region. This region shows an average, or possibly below average, percentage of those aged 75+ living in PCHs, so it may be a matter of numbers of PCHs available rather than high percentages of older adults in PCHs.
- In all the other MMF regions, Metis PCH waiting times are similar to the Metis provincial average.

Figure 12.4.1: Median Waiting Times for PCH Admission by Aggregate RHA, Brandon RHA, and Winnipeg Areas, 2004/05-2006/07
Median # weeks from assessment to admission, by residence prior to admission, per 1,000 aged 75+



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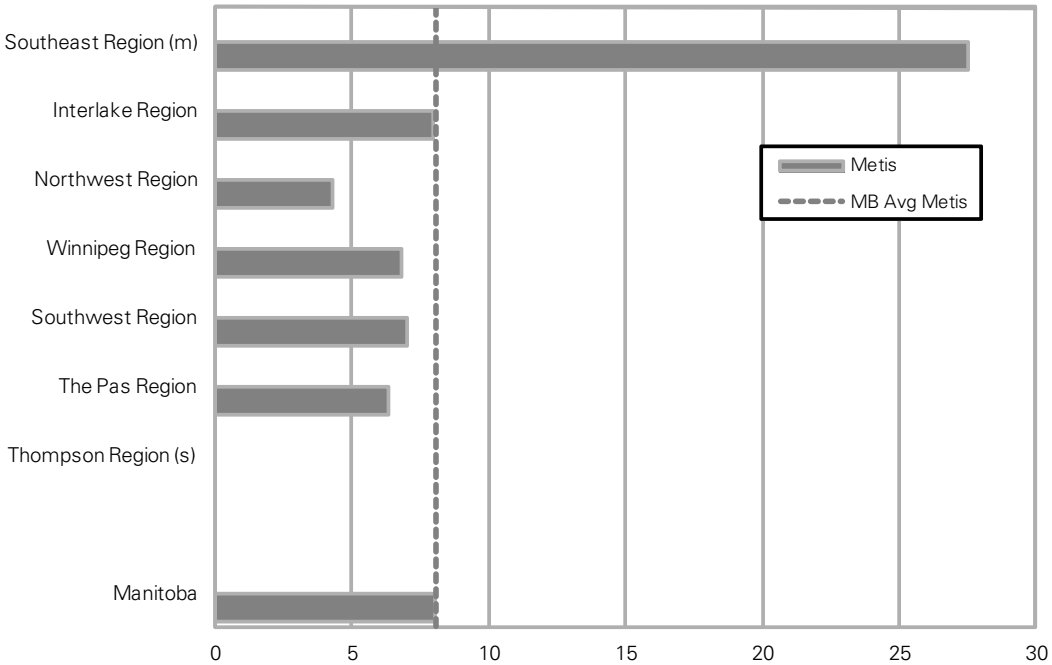
's' indicates data suppressed due to small numbers
Statistical testing comparing Metis and all other Mantiobans could not be performed on these 'medians' with the method we used.

Source: MCHP/MMF, 2010

Figure 12.4.2: Median Waiting Times for PCH Admission by Metis Region, 2004/05-2006/07
Median # weeks from assessment to admission, by residence prior to admission, per 1,000 aged 75+, Metis only



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Statistical testing comparing Metis and all other Mantiobans could not be performed on these 'medians' with the method we used.

Source: MCHP/MMF, 2010

12.5 Findings from Literature Review

(compared to the results in this study—in italics)

When it comes to receiving care, it has been suggested that Aboriginal seniors are generally in an advantageous position because they tend to have large families and community support network and due to the importance that Aboriginal cultures place on Elders (Magilvy & Congdon, 2000; Kreig & Martz, 2008). However, given the realities of poverty and low employment rates in many remote and northern Aboriginal communities, many seniors lack the needed informal healthcare and social support provided by adult children who have moved away in search of employment (Buchignani & Armstrong–Esther, 1999; Kreig & Martz, 2008). Moreover, home care funding in many remote communities is short–term and irregular, and the availability of healthcare providers is limited (Morgan, Semchuk, Stewart, & D'arcy, 2002; Minore, Boone, Katt, Kinch, & Birch, 2004; Kreig & Martz, 2008). For Metis people, this situation is exacerbated by the fact that they are not eligible for most federal programs included in the *Indian Act* (Lamouche, 2002).

A report by the Aboriginal Women's Health and Healing Research Group (2006) outlines numerous resources required specifically by Metis women, including access to sufficient numbers of seniors' homes, personal care homes, and independent living supports.

In 2002, the Standing Committee on Social Affairs, Science, and Technology (SSCSAST) proposed that the federal government collaborate with the provinces, territories, and representatives from all Aboriginal groups to develop a National Action Plan on Aboriginal Health to improve inter–jurisdictional coordination of healthcare delivery (Lamouche, 2002). In 2004, the First Ministers met with Aboriginal leaders and committed $700 million to developing the Blueprint on Aboriginal Health to improve Canadian Aboriginal Peoples' health status and health services and close the gap between them and the rest of Canadians (Health Council of Canada, 2006). In 2007, a $100 million Health and Human Resources Initiative was announced, with $10 million aimed at improving the health of Metis people. The intent of this initiative is to increase the number of Metis students training for careers in health sciences and strengthening the ability of Metis organizations to participate in health human resource planning that responds to the unique needs and diversity of Metis, First Nations, and Inuit people (Canada NewsWire, 2007).

Home care:

In our study, we found that, with the exception of North Eastman, Metis in every RHA and aggregate region had a higher prevalence of open home care cases than all other Manitobans; this difference was not significant in only two of them (Assiniboine and Churchill). In North Eastman, these groups were not significantly different from each other, but both were significantly below their respective Manitoba averages. Moreover, at the aggregate level, the highest percent of open home care cases was in the north.

At the MMF region level, aside from the Winnipeg MMF Region, the MMF Regions with the highest percent of open home care cases were in the north (Northwest, The Pas, and Thompson).

Personal care homes:

In our study we found that at the provincial level, there was no significant difference between Metis and all other Manitobans in terms of median waiting times for, or admission to, a PCH. However, Metis were significantly higher than all other Manitobans in terms of the percent of residents living in a provincial PCH (14.2% vs. 12.3%). Presumably, this is a reflection of the additional healthcare needs and higher prevalence of chronic conditions among the Metis. In the northern RHAs of Churchill and Burntwood, rates for PCH admissions and residents had to be suppressed because of small numbers; but in terms of waiting times for PCH admission, the Metis in the northern aggregate area waited much less time compared to Metis in the Mid or Rural South aggregate area (2.7 vs. 9.4 vs. 17.7 weeks respectively).

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Chapter 13: Prescription Use

Indicators in this chapter:

- Antibiotic Prescriptions
- Antidepressant Prescriptions
- Antipsychotic Prescriptions
- Opioid Prescriptions
- Repeated Opioid Prescriptions
- Opioid Defined Daily Doses (DDDs)
- Benzodiazepine Prescriptions
- Chronic Benzodiazepine Prescriptions
- Benzodiazepine DDDs

Overall Key Findings:

- Generally, prescription drug use in the Metis population is significantly higher compared to all other Manitobans, with the exception of defined daily doses per resident for Opioids for which rates are similar. Prescriptions for antidepressants were 11% higher, 14% higher for antipsychotics, and 19% higher for antibiotics. In terms of benzodiazepine use, 44% more Metis had one or more prescriptions in one year; and 66% more were repeat users (i.e., three or more prescriptions in one year). The rate of defined daily doses per resident for benzodiazepines was 22% greater for Metis. Thirty–six percent more Metis had a prescription for one or more Opioids, and 75% more were repeat users.
- Despite the Metis prescription drug use being statistically significantly higher compared to all other Manitobans, rates varied substantially by the geographical location of the Metis. Many regions in the south and north, whether they be RHAs, MMF regions, or aggregate areas, show lower prevalence of prescription drug use for the Metis compared to their Metis provincial average. Notable regions having at least three indicators with statistically lower prevalence include: South Eastman RHA; NOR–MAN RHA; Burntwood RHA; Southeast MMF Region; Interlake MMF Region; Thompson MMF Region; the Rural South aggregate area; the North aggregate area; and the three Winnipeg CAs of Fort Garry, St. Boniface and St. Vital.
- Several Mid–regions, whether RHAs, MMF regions, and the Mid aggregate area, show a high prevalence of prescription drug use compared to the Metis provincial average. Notable regions having at least three indicators with statistically higher prevalence include: Brandon RHA; Parkland RHA; Northwest MMF Region; The Pas MMF Region; the Mid aggregate area; and the three Winnipeg CAs of Inkster, Downtown, and Point Douglas.

Note: There are a group of Metis communities in the northern part of the Parkland RHA, and Parkland RHA overlaps with The Pas MMF region. This overlap is influencing the rates and statistics—when the Parkland region rates are high, they are also high in The Pas region.

Table 13.0: Overall Key Findings for Prescription Use

Indicator (age of inclusion for this indicator) Note: these are annual rates for 2006/07 with the exception of a five–year period prevalence for antipsychotic use	**Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)**	**Statistically "better off" regions for Metis compared to the Metis provincial average** **i.e., lower rates**	**Statistically "worse off" regions for Metis compared to the Metis provincial average** **i.e., higher rates**
Antibiotic Use (percent of residents with one or more prescriptions in one year, age– and sex–adjusted)	41.7% vs. 35.1%; RR= 1.19	South Eastman RHA, St. Boniface CA	Brandon RHA, Parkland RHA, Northwest MMF Region, Inkster CA, Point Douglass CA
Antidepressant Use (percent of residents with two or more prescriptions in one year, age– and sex–adjusted)	8.9% vs. 8.0%; RR= 1.11	NOR–MAN RHA, Burntwood RHA, North aggregate area, The Pas MMF Region, Thompson MMF Region	Brandon RHA, River Heights CA, Downtown CA, Point Douglass CA
Antipsychotic Use (percent of residents with one or more prescriptions in five years, age– and sex–adjusted)	4.2% vs. 3.7%; RR= 1.14	South Eastman RHA, Rural South aggregate area, Southeast MMF Region	Brandon RHA, Downtown CA, Point Douglas CA
Opioid Prescriptions (percent of residents aged 16+ years with one or more prescriptions in one year, age– and sex–adjusted)	20.8% vs. 15.3%; RR= 1.36	South Eastman RHA, Central RHA, Assiniboine RHA, Interlake RHA, Rural South aggregate area, Southeast MMF Region, Interlake MMF Region, Southwest MMF Region, Fort Garry CA, St. Boniface CA	Winnipeg RHA, Parkland RHA, Winnipeg MMF Region, The Pas MMF Region, Inkster CA: Downtown CA, Point Douglas CA
Repeated Opioid Prescriptions (percent of residents aged 16+ years with three or more prescriptions in one year, age– and sex–adjusted)	7.7% vs. 4.4%; RR= 1.75	South Eastman RHA, Assiniboine RHA, Rural South aggregate area, Southeast MMF Region, Interlake MMF Region, Fort Garry CA, Assiniboine South CA, St. Boniface CA, St. Vital CA	Parkland RHA, Northwest MMF Region, The Pas MMF Region, Inkster CA, Downtown CA, Point Douglas CA
Opioid DDDs (rate of doses per resident aged 16+ years with one or more prescriptions in one year, age– and sex–adjusted)	88.6 vs. 75.6; RR= 1.17, NS	Churchill RHA, NOR–MAN RHA, Burntwood RHA, North aggregate area, Thompson MMF Region, St. Vital CA	Parkland RHA, Mid aggregate area, Northwest MMF Region, The Pas MMF Region
Benzodiazepine Prescriptions (percent of residents aged 16+ years with one or more prescriptions in one year, age– and sex–adjusted)	10.8% vs. 7.5%; RR= 1.44	South Eastman RHA, NOR–MAN RHA, Rural South aggregate area, Southeast MMF Region, Fort Garry CA, Assiniboine South CA, St. Vital CA	Parkland RHA, Mid aggregate area, Northwest MMF Region, The Pas MMF Region, Downtown CA, Point Douglas CA

Repeated Benzodiazepine Prescriptions (percent of residents aged 16+ years with three or more prescriptions in one year, age– and sex–adjusted)	6.3% vs. 3.8%; RR= 1.66	South Eastman RHA, North Eastman RHA, Burntwood RHA, Rural South aggregate area, North aggregate area, Southeast MMF Region, Thompson MMF Region, St. Vital CA	Parkland RHA, Mid aggregate area, Northwest MMF Region, The Pas Region, Inkster CA, Downtown CA, Point Douglas CA
Benzodiazepine DDDs (rate of doses per resident aged 16+ years with one or more prescriptions in one year, age– and sex–adjusted)	180.9 vs. 147.9; RR= 1.22	South Eastman RHA, Interlake RHA, North Eastman RHA, Churchill RHA, Burntwood RHA, Rural South aggregate area, North aggregate area, Southeast MMF Region, Interlake MMF Region, Southwest MMF Region, Thompson MMF Region, St. Vital CA, Transcona CA	Parkland RHA, Mid aggregate area, Northwest MMF Region, The Pas MMF Region, Downtown CA, Point Douglas CA

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

13.1 Antibiotic Prescriptions

Antibiotics are a type of medication typically prescribed to treat bacterial infections.

The age– and sex–adjusted percentage of residents with one or more prescriptions for antibiotics was measured in fiscal year 2006/07. Crude percentages are available in the appendix. Antibiotic medications were identified by ATC codes J01 and G04A. The denominator includes all Manitoba residents as of December 31, 2006.

Key observations

RHAs:

- Overall, there is a statistically significantly higher proportion of Manitoba's Metis population with one or more antibiotic prescriptions per year compared to all other Manitobans (41.7% vs. 35.1%). There is no relationship between antibiotic use and PMR within the RHAs or the aggregate areas.
- Every single RHA shows a statistically significantly higher percentage of the Metis population with one or more antibiotic prescriptions per year compared to all others living in that RHA (with the exception of Churchill RHA, which shows the same trend, but NS due to small numbers). This may reflect the poorer overall health status of the Metis.
- Antibiotic use in Brandon (50.5%) and Parkland RHAs (50.7%) was significantly higher for Metis compared to the Manitoba average for Metis (41.7%); antibiotic use for all other Manitobans in Brandon and Parkland (both 42.5%) was also significantly higher than their Manitoba average (35.1%). In South Eastman RHA, Metis' use of antibiotics was significantly lower than the Metis provincial average (35.9% vs. 41.7%).

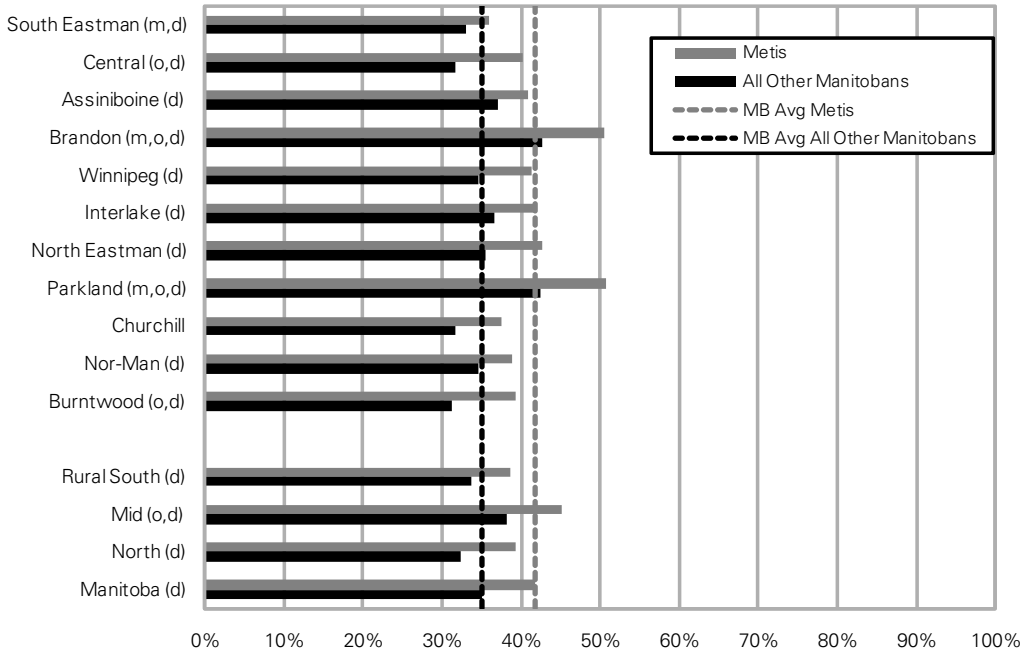
MMF Regions:

- Provincially, 41.7% of Metis have one or more antibiotic prescriptions in one year. There is very little evidence of a gradient of antibiotic use by PMR of the MMF Regions.
- None of the MMF Regions are significantly different from the Metis provincial average except for the Northwest MMF Region, which is higher (47.7% vs. 41.7%).

Winnipeg CAs:

- In Winnipeg RHA, Metis have a higher percentage of one or more antibiotic prescriptions in one year compared to all others living in Winnipeg (41.4% vs. 31.5%).
- There appears to be an association between antibiotic use and PMR—the less healthy the CA (i.e., higher the PMR), the greater the prevalence of antibiotic use. This makes sense given the higher burden of illness.
- In all CAs, Metis have higher antibiotic use than all others, and this difference is significant in all but Assiniboine South.
- Metis living in two Winnipeg CAs have a statistically higher percentage of one or more antibiotic prescriptions in one year in comparison to the overall provincial Metis average of 41.7%: Inkster (47.7%) and Point Douglas (47.7%).

Figure 13.1.1: Antibiotic Prescriptions by RHA, 2006/07
Age- & sex-adjusted percent of residents with 1 or more prescriptions for antibiotics in one year



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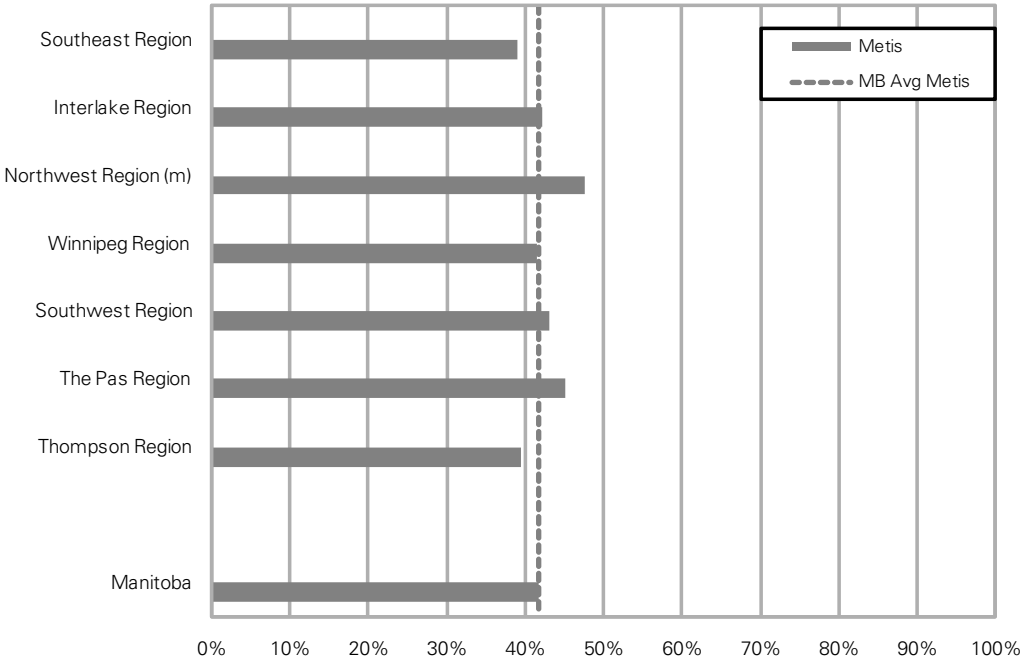
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.1.2: Antibiotic Prescriptions by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents with 1 or more prescriptions for antibiotics in one year



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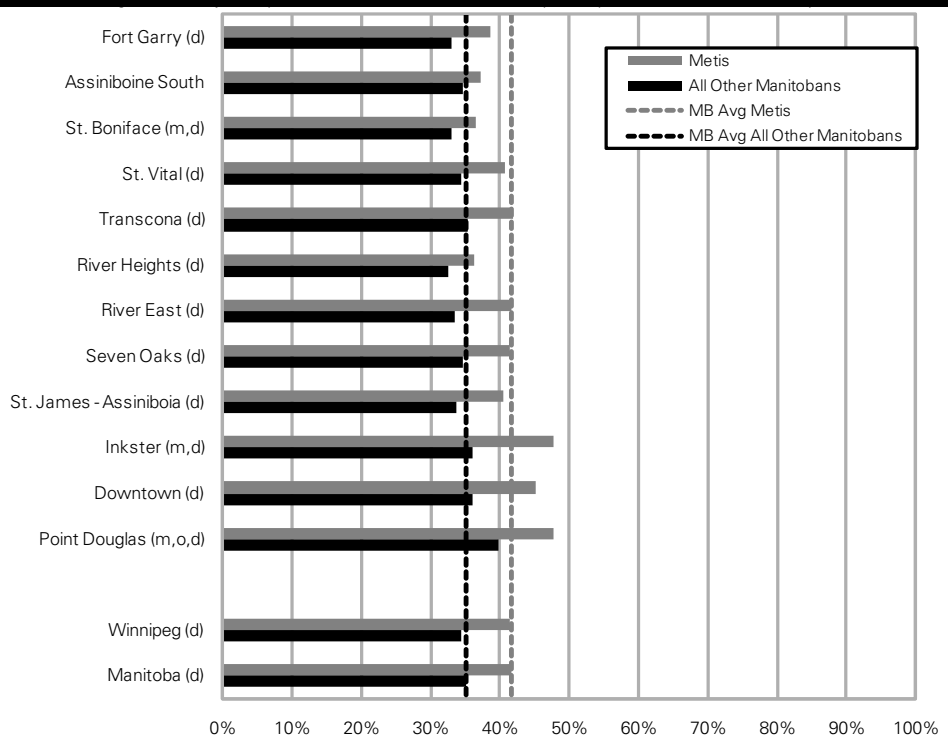
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.1.3: Antibiotic Prescriptions by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents with 1 or more prescriptions for antibiotics in one year



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Source: MCHP/MMF, 2010

13.2 Antidepressant Prescriptions

Antidepressants are medicines used to help people who have depression, other mood and anxiety disorders and numerous other conditions.

This is the age– and sex–adjusted percentage of residents with at least two prescriptions for any kind of antidepressant in a year, measured in fiscal year 2006/07. Crude percentages are available in the appendix. Antidepressants are defined by ATC code N06A. The denominator includes all Manitoba residents as of December 31, 2006.

Key observations

RHAs:

- Metis have significantly greater antidepressant use compared to all others provincially (8.9% vs. 8.0%). There appears to be a gradient with PMR where the healthiest RHAs have the highest use of antidepressants. This pattern is also evident for the aggregate areas, with the North having the lowest prevalence. This is similar to the pattern for depression in the RHAs, but not the pattern for cumulative mental illnesses where rates are just as high in the North. So the underlying mental illness prevalence may be similar throughout the province, but this may be manifesting itself in differing ways and diagnostic categories depending upon the geographic area.
- There is a higher percentage of Metis receiving 2 or more antidepressants in a year compared to all other Manitobans living in several RHAs: Assiniboine (9.9% vs. 8.5%); Winnipeg (10.0% vs. 7.9%); and North Eastman (9.1% vs. 7.3%).
- In Brandon, antidepressant use is higher than in all other RHAs for both Metis (11.5%) and all others (10.1%).
- In the aggregate areas, the Rural South (Metis 8.5%, others 8.2%) and Mid (Metis 8.1%, others 7.5%) both have antidepressant prevalence similar to the corresponding provincial averages; but in the North, both groups are lower (Metis 6.2%, others 5.7%)than their corresponding provincial averages.
- There appears to be a discrepancy between prevalence of depression and antidepressant rates —provincially, 22% of Metis have been diagnosed with depression, but only 8.9% are on antidepressants. This is especially evident in the North where NOR–MAN (6.3%) and Burntwood (7.0%) are statistically lower than the Metis provincial average of 8.0% (and statistically lower for all others living in that area as well). Moreover, in Brandon, Interlake, Parkland, NOR–MAN, and Burntwood RHAs, Metis rates of antidepressant use are not statistically different from all other Manitobans despite significantly higher rates of depression in Metis for all of these areas.

MMF Regions:

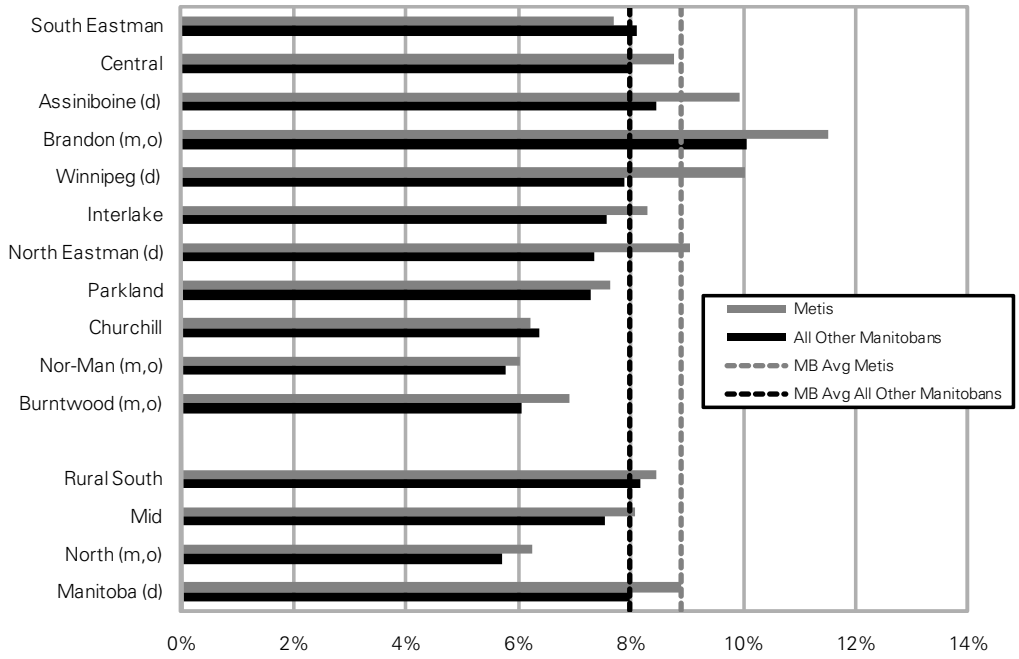
- Provincially, the percentage of Metis receiving two or more antidepressants in a year is 8.9%. There is very little evidence of antidepressant prevalence being associated with PMR. The prevalence appears higher in those MMF Regions that contain urban centres (Winnipeg and Southwest MMF Regions).

- The use of antidepressants in The Pas (6.4%) and Thompson (6.8%) MMF Regions is significantly lower than the Metis provincial average (8.9%), which could be an indication of under–diagnosis or under–treatment in the North.

Winnipeg CAs:

- In Winnipeg RHA, both the Metis and all others have percentages for receiving two or more antidepressants in a year that are similar to their provincial averages. However, the Metis Winnipeg prevalence is statistically higher than that of all other Winnipeggers (10.0% vs. 8.0%).
- The percentage of Metis receiving two or more antidepressants in a year is somewhat associated with PMR in Winnipeg CAs, with the least healthy CAs having a higher prevalence. However, this is not the case with the all other group in Winnipeg.
- The use of antidepressants among Metis is greater than that for all other Manitobans in every Winnipeg CA. This difference is statistically significant in all CAs except Assiniboine South. As with the RHAs, the general pattern matches that for depression, except for Assiniboine South where the rate of depression for Metis is significantly higher than the Metis provincial average but antidepressant use is not.
- In Downtown and Point Douglas, Metis antidepressant use is significantly higher than the Metis provincial average (12.7% and 10.8% vs. 8.9%) which is consistent with PMR and the mental illness burden. However, in Point Douglas, this is not consistent for all other Manitobans—their antidepressant use is not significantly different from their Manitoba average, but their PMR and mental illness burden is high.

Figure 13.2.1: Antidepressant Prescriptions by RHA, 2006/07
Age- & sex-adjusted percent of residents with two or more prescriptions for antidepressants in one year



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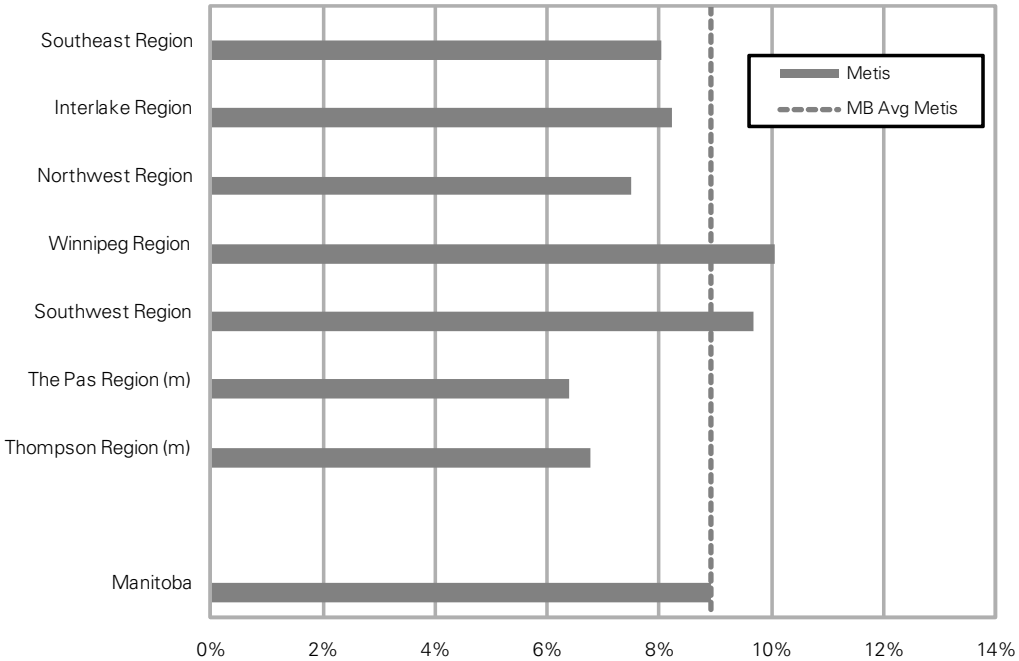
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.2.2: Antidepressant Prescriptions by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents with two or more prescriptions for antidepressants in one year



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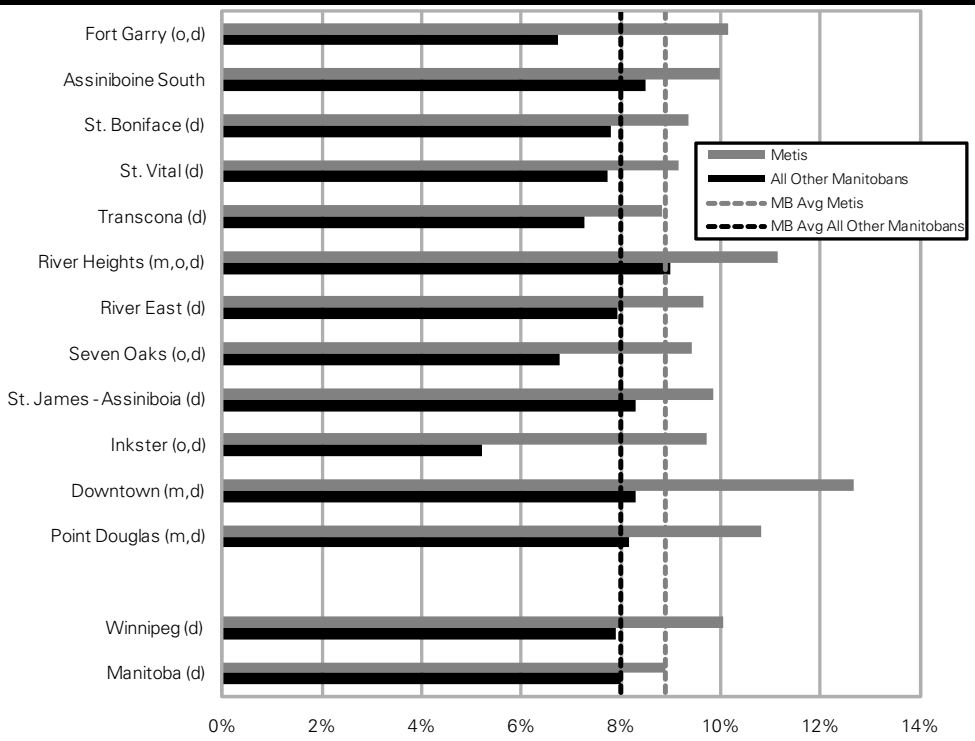
Source: MCHP/MMF, 2010

Figure 13.2.3: Antidepressant Prescriptions by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents with two or more prescriptions for antidepressants in one year



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Source: MCHP/MMF, 2010

13.3 Antipsychotic Prescriptions

Antipsychotics are a type of medication typically prescribed to treat psychosis, and other psychiatric disorders, but also have been used as anti–nauseants.

The prevalence of antipsychotic prescription use is the age– and sex–adjusted percentage of residents who have had at least one prescription of antipsychotic drugs, calculated over five fiscal years: 2002/03–2006/07. Crude percentages are available in the appendix. Antipsychotic drugs were identified by ATC codes N05AA, N05AB, N05AC, N05AG, N05AD, N05AF, N05AK, N05AH01, N05AH02, N05AH03, N05AN01, N05AX02, and N05AX08. The denominator includes all Manitoba residents as of December 31, 2004 (the mid–point population).

Key observations

RHAs:

- At the provincial level, Metis have significantly more antipsychotic drug use than all other Manitobans (4.2% vs. 3.7%). However, it is interesting to note that their rates of schizophrenia are the same (1.04%). There does not appear to be any association between antipsychotic use and PMR at the RHA or aggregate area level.
- In the Rural South aggregate area, both Metis (3.2%) and all other Manitobans (3.2%) are statistically significantly lower than their corresponding Manitoba averages. In the Mid and North aggregate areas, the Metis have similar antipsychotic drug use to the Metis provincial average use.
- Metis living in South Eastman RHA (3.2%) have a significantly lower percentage of one or more antipsychotic drug use compared to the Metis provincial average of 4.2%.
- Three RHAs show significantly higher percentages for the Metis compared to all others living in that region: Brandon (6.7% vs. 4.5%), Winnipeg (4.6% vs. 3.9%), and NOR–MAN (3.4% vs. 2.6%).
- In Brandon, antipsychotic use is significantly higher than the Manitoba average for both Metis (6.7%) and all other Manitobans (4.5%). As well, the Metis prevalence of antipsychotic drug use is significantly higher than that of all others living in Brandon RHA. This may be consistent with the fact that many people who were formerly being treated in the Brandon Mental Health Centre may have located in various parts of Brandon RHA, making the prevalence of psychoses higher in this city compared to the provincial average.
- In NOR–MAN RHA, even though the Metis rate is significantly higher than that for all others living in that area (3.4% and 2.6%), both rates are among the lowest in the province.

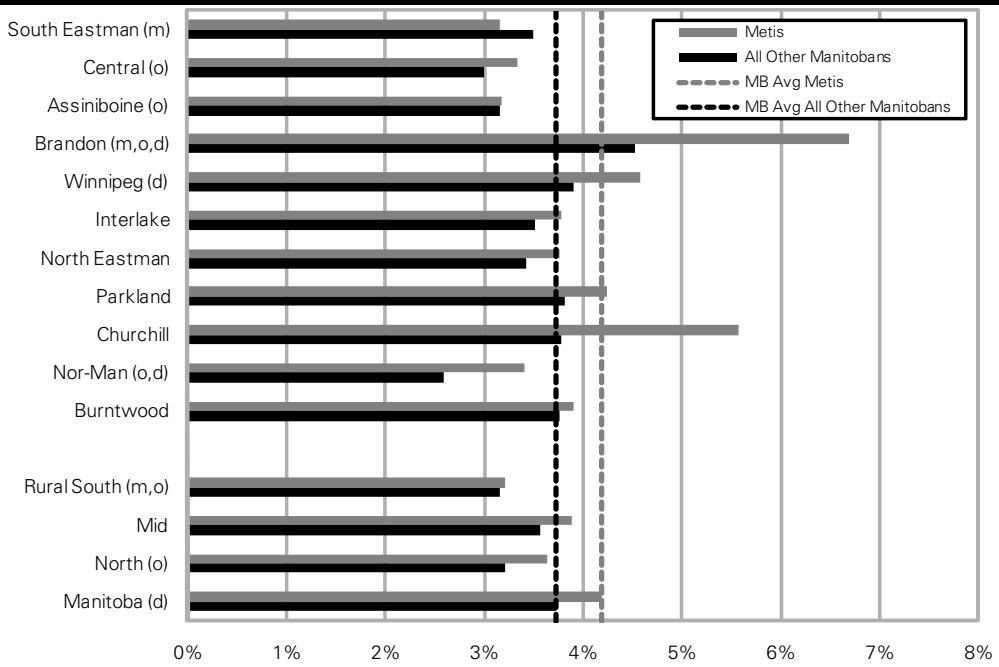
MMF Regions:

- Provincially, the percentage of Metis people receiving antipsychotic drugs was 4.2%. There is little evidence of a gradient by PMR, except that the most healthy region (lowest PMR) also shows the lowest use.
- The Southeast MMF Region has a significantly lower rate compared to the Metis provincial average (3.3% vs. 4.2%), but all of the other regions are similar to the average.

Winnipeg CAs:

- In Winnipeg RHA, the percentage of people receiving antipsychotic drugs was higher for Metis compared to all others living in Winnipeg (4.6% vs. 3.9%), but both of these are similar to their corresponding provincial averages.
- Within Winnipeg, there appears to be a relationship between antipsychotic drug use and PMR for both the Metis and all others, with the healthiest CAs having the lowest percentages of people using antipsychotics. For both groups, the highest percentages are in Downtown (Metis 8.8%, others 5.6%) and Point Douglas (Metis 5.4%, others 5.3%); both are significantly higher than their corresponding provincial averages (Metis 4.2%, others 3.7%).
- In two CAs, the Metis percentage receiving antipsychotic drugs was higher than for all others living in that CA: Inkster (4.4% vs. 3.2%) and Downtown (8.8% vs. 5.6%).

Figure 13.3.1: Antipsychotic Prescriptions by RHA, 2002/03-2006/07
Age- & sex-adjusted percent of residents with one or more prescriptions for an antipsychotic in five years



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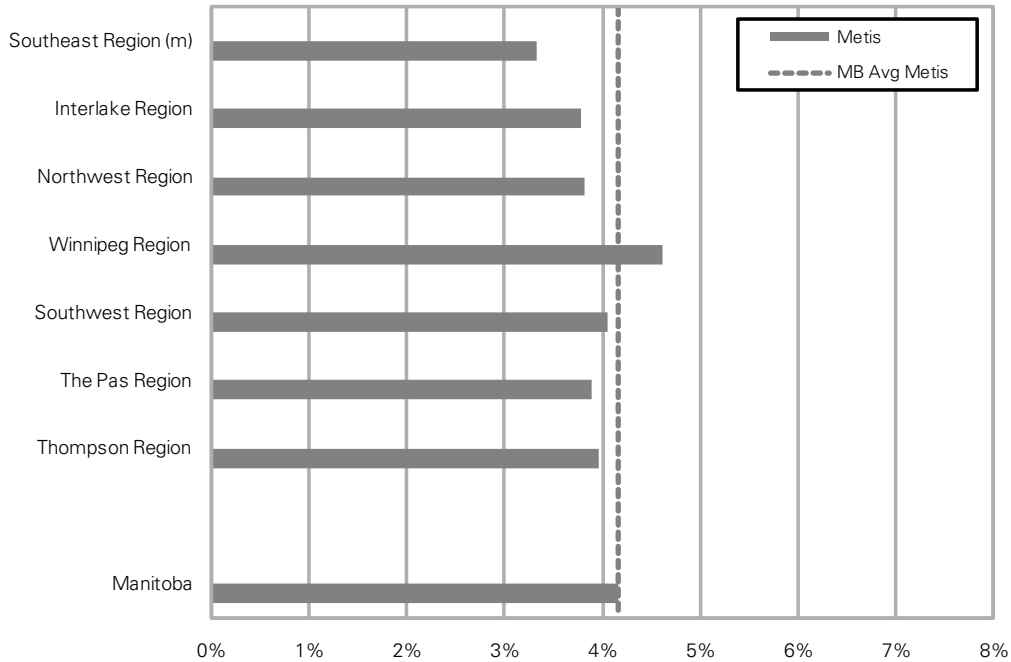
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.3.2: Antipsychotic Prescriptions by Metis Region, 2002/03-2006/07
Age- & sex-adjusted percent of Metis residents with one or more prescriptions for an antipsychotic in five years



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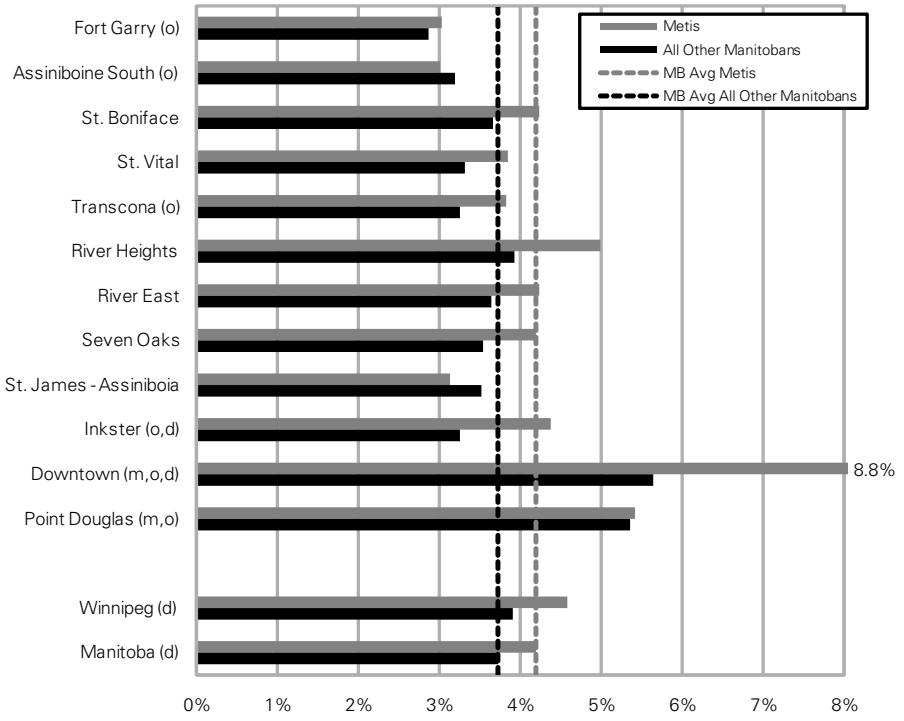
Source: MCHP/MMF, 2010

Figure 13.3.3: Antipsychotic Prescriptions by Winnipeg Community Area, 2002/03-2006/07
Age- & sex-adjusted percent of residents with one or more prescriptions for an antipsychotic in five years



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Source: MCHP/MMF, 2010

13.4 Opioid Prescriptions

Opioids are a group of medications that are used in the symptomatic treatment of acute and chronic pain and also as cough medications.

The age– and sex–adjusted percentage of residents aged 16 and older with at least one prescription for opioids was measured in fiscal year 2006/07. Crude percentages are available in the appendix. Opioids were identified by ATC codes N02A, N07BC02, R05DA01, R05DA03–R05DA06, R05DA12, R05DA20, R05FA01, and R05FA02. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006.

Key observations

RHAs:

- Provincially, the percentage of people aged 16+ using one or more prescriptions of opioids is higher for the Metis compared to all other Manitobans (20.8% vs. 15.3%).
- There appears to be a gradient with PMR for all other Manitobans, with the least healthy areas showing the highest prevalence of opioid prescriptions. But this gradient is not apparent for the Metis at the RHA level. Both groups, however, show a gradient at the aggregate area level: the Rural South has the lowest prevalence of opioid prescriptions and the North has the highest, possibly reflecting an underlying need. This may represent an underlying requirement for opioid prescriptions in the least healthy population.
- Most of the RHAs show the same relationship as the provincial level—a higher prevalence of opioid prescriptions in the Metis compared to all others. The only exceptions are Assiniboine (where the trend is in the same direction but not significant) and Churchill (where prevalence is similar between the two groups).
- RHAs that have a lower percentage of Metis receiving a prescription for opioids compared to the Metis provincial average of 20.8% are: South Eastman (14.9%), Central (18.1%), Assiniboine (14.6%), and Interlake (18.4%).
- RHAs that have a higher percentage of Metis receiving a prescription for opioids compared to the Metis provincial average of 20.8% are Winnipeg (22.7%) and Parkland (25.2%). Note that the prevalence is also high in Brandon (22.5%), but this is not statistically significantly different than the overall provincial Metis prevalence.

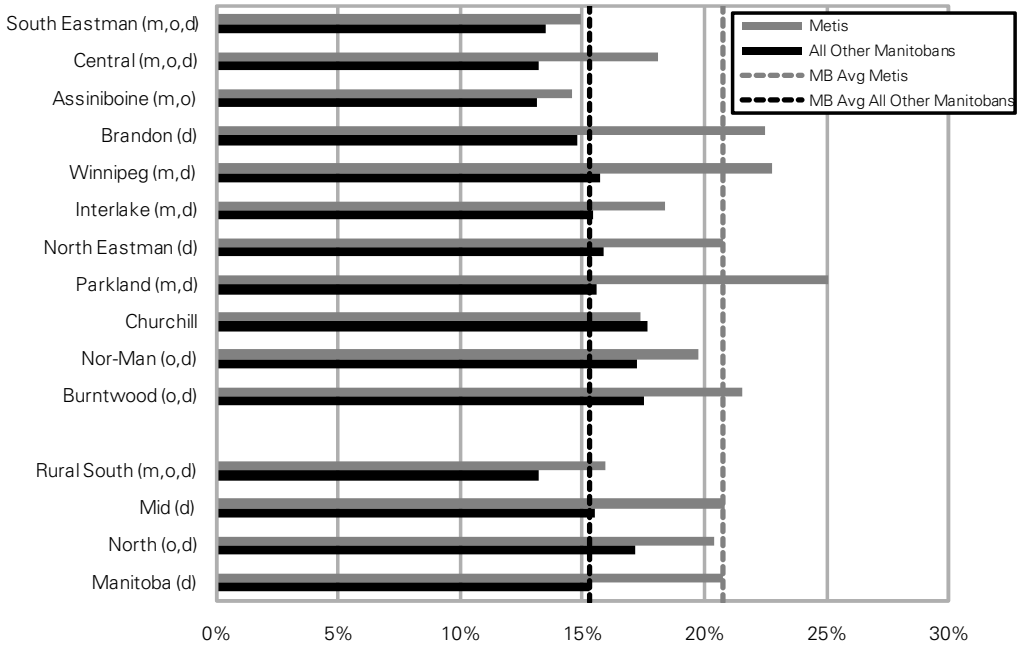
MMF Regions:

- There appears to be a slight PMR gradient—the percent of Metis receiving opioid prescriptions generally increases with increasing PMR (i.e., less healthy regions).
- There is considerable variation in the MMF Regions—the Southeast (17.2%), Interlake (18.2%), and Southwest (18.2%) MMF Regions are significantly lower than the Metis provincial average (20.8%); and the Winnipeg (22.7%) and The Pas (24.4%) MMF Regions are significantly higher.

Winnipeg CAs:

- In Winnipeg RHA, the percentage of Metis aged 16+ with one or more prescription for opioids is higher than for all others living in Winnipeg (22.7% vs. 15.8%). This percentage is also higher than the provincial Metis average of 20.8%.
- There is a strong association between opioid prescriptions and PMR among the Winnipeg CAs both for the Metis and for all other Winnipeggers, with opiod use in areas of higher PMR (the less healthy).
- In all of the CAs, the prescription rate of opioids is significantly higher for Metis compared to all others. There is an extremely high prevalence of Metis receiving opiod prescriptions in the CAs of Inkster (28.9%), Downtown (31.5%), and Point Douglas (34.6%)—all are significantly higher than the Manitoba average for Metis (20.8%).
- Fort Garry (14.5%) and St. Boniface (18.0%) are the only two CAs with Metis rates significantly lower than the Metis provincial average.

Figure 13.4.1: Opioid Prescriptions by RHA, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years with one or more prescriptions for opioids in one year



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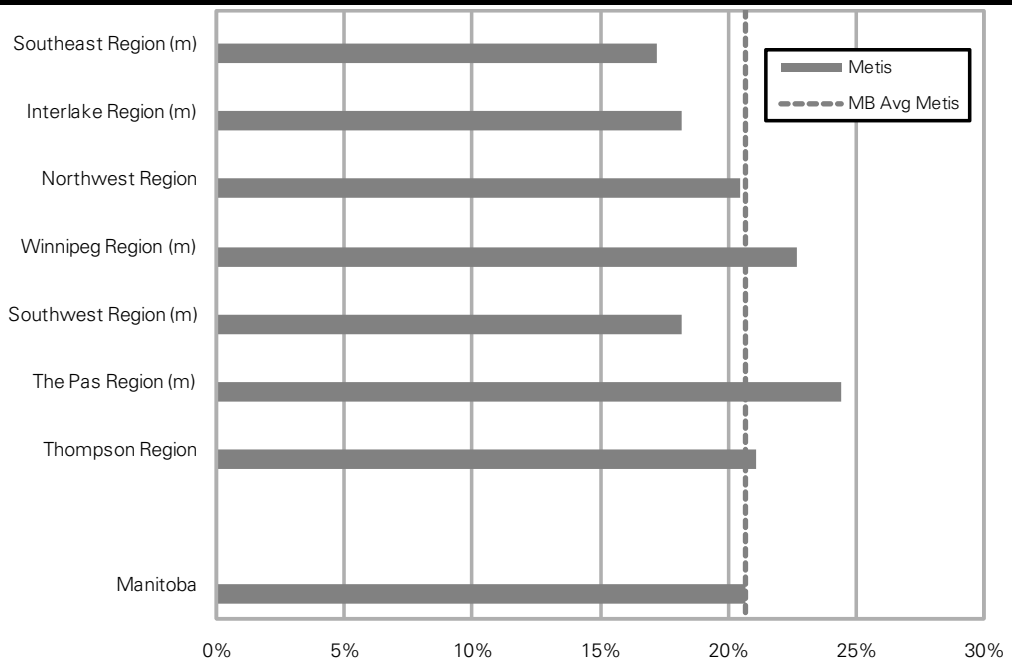
Source: MCHP/MMF, 2010

Figure 13.4.2: Opioid Prescriptions by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents aged 16+ years with one or more prescriptions for opioids in one year



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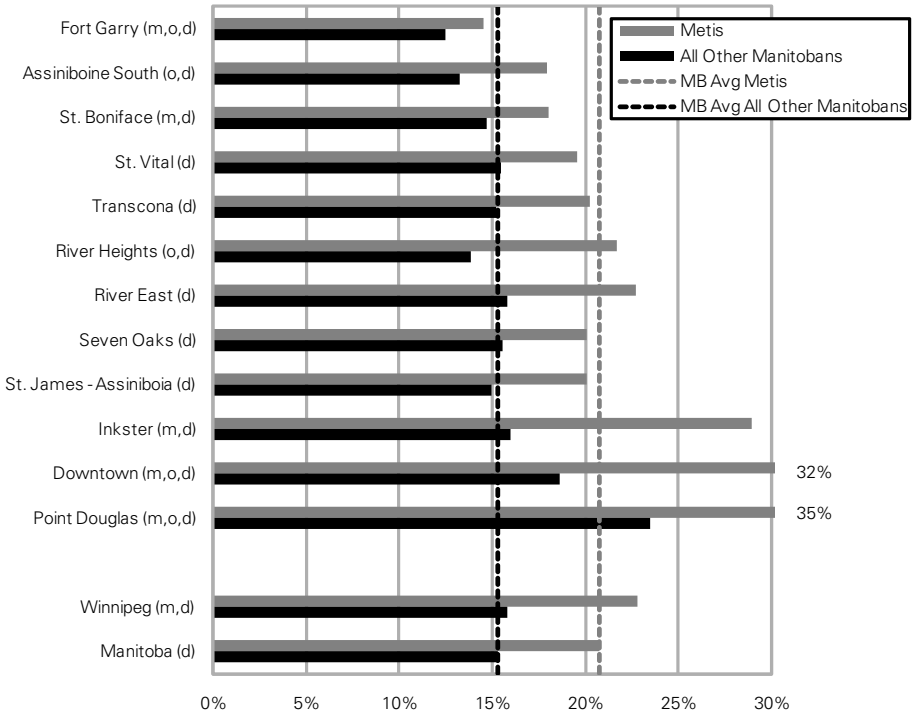
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.4.3: Opioid Prescriptions by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years with one or more prescriptions for opioids in one year



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

13.5 Repeated Opioid Prescriptions

The prevalence of repeated opioid prescriptions is the age– and sex–adjusted percentage of the population prescribed three or more opioid prescriptions in one year. Crude percentages are available in the appendix (and Table 13.4.1). In this study, repeated opioid prescriptions was defined as at least three prescriptions in the fiscal year. Opioids were identified by ATC codes N02A, N07BC02, R05DA01, R05DA03–R05DA06, R05DA12, R05DA20, R05FA01, and R05FA02. The denominator includes all Manitoba residents age 16 and older as of December 31, 2006.

Key observations

RHAs:

- The percentage of Metis that have at least three prescriptions of opioids per year is significantly higher than for all others at the provincial level (7.7% vs. 4.4%). There is no PMR gradient among the RHAs for the Metis, but for all other Manitobans, there is a slight trend to higher repeated opioid prescriptions as PMR increases (i.e., the less healthy RHAs).
- Two RHAs show a lower prevalence of repeated opioid prescriptions for Metis compared to their provincial average of 7.7%: South Eastman (3.9%) and Assiniboine (4.6%).
- Throughout every RHA, Metis prevalence of repeated opioid prescriptions is statistically higher than for all others living in the same RHA. Exceptions are South Eastman and Assiniboine, where the trend is similar but NS.
- At the aggregate area level, there is also significantly higher prevalence for Metis compared to all others: Rural South (5.0% vs. 3.5%), Mid (8.9% vs. 5.0%), and North (6.9% vs. 4.9%). There is somewhat of a gradient at this level with Rural South prevalence lower than provincial averages for both Metis and all others, but Mid and North are similar to corresponding provincial averages.
- Metis have a very high prevalence of repeated opioid prescriptions in Parkland (14.8%). Moreover, these high prescription rates can also be seen consistently in The Pas MMF Region, which overlaps with the Parkland RHA.

MMF Regions:

- The provincial Metis prevalence of repeated opioid prescriptions is 7.7%. There is no obvious gradient of prescription rate by PMR for the MMF Regions.
- There is a lot of variation in the MMF Regions. The Southeast (5.1%) and Interlake (6.1%) MMF Regions are significantly lower than the Metis provincial average (7.7%). The Northwest (10.0%) and The Pas (12.6%) regions are significantly higher.

Winnipeg CAs:

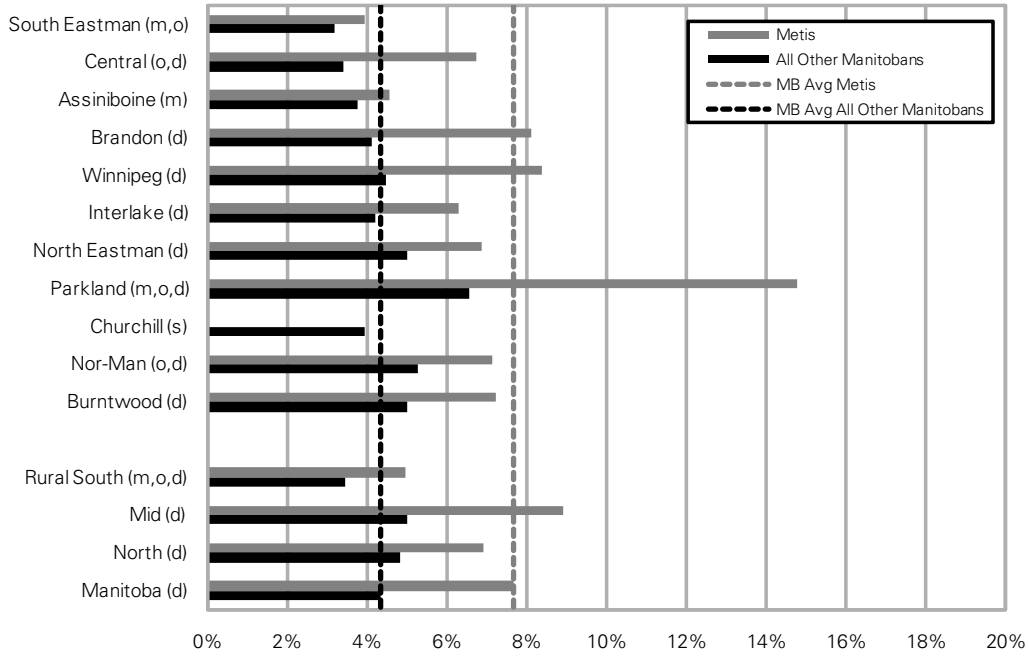
- In Winnipeg RHA, the proportion of Metis receiving repeated prescriptions for opioids is significantly higher than for all other Winnipeggers (8.4% vs. 4.4%). Both groups have rates similar to their overall corresponding provincial averages. There is a strong gradient of prescription rate with PMR, with the least healthy areas showing the highest prevalence of repeated opioid prescriptions for both Metis and for all others living in those CAs. This may reflect an underlying need for opioids in the least healthy populations.

- The prevalence of those having repeated prescriptions of opioids among Metis is significantly higher than for all others in all Winnipeg CAs except Assiniboine South.
- The prevalence of those having repeated opioid prescriptions for Metis is significantly lower than the Metis provincial average in the following CAs: Fort Garry (4.6%), Assiniboine South (4.0%), St. Boniface (5.7%), and St. Vital (5.5%). Metis prevalence is significantly higher than their provincial average in the CAs of: Inkster (12.2%), Downtown (16.8%), and Point Douglas (17.3%). These three significantly higher CAs are the same ones that are significantly higher for opioid prescriptions (one or more prescriptions annually), and are influencing the overall rate for all of Winnipeg.

Crude Rates of Opioid Prescriptions (see Table 13.5.1):

- The crude prevalence of opioid prescriptions, both for the one or more and the three or more (repeated) prescriptions, is higher for Metis compared to all other Manitobans in almost every age group for both males and females. This difference is consistent between males and females and lessens for older adults.
- For repeated opioid prescriptions, Metis rates are often double those for all other Manitobans for the younger age groups, but this difference levels off amongst the older adult age groupings at 75+ years.

Figure 13.5.1: Repeated Opioid Prescriptions by RHA, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years with three or more prescriptions in one year



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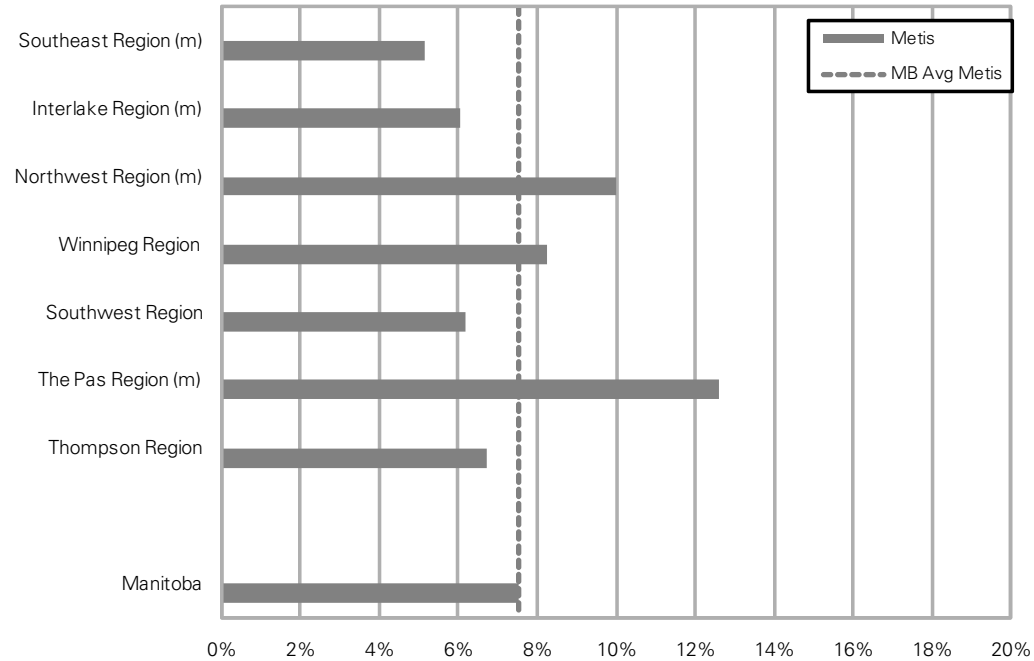
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.5.2: Repeated Opioid Prescriptions by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents aged 16+ years with three or more prescriptions in one year



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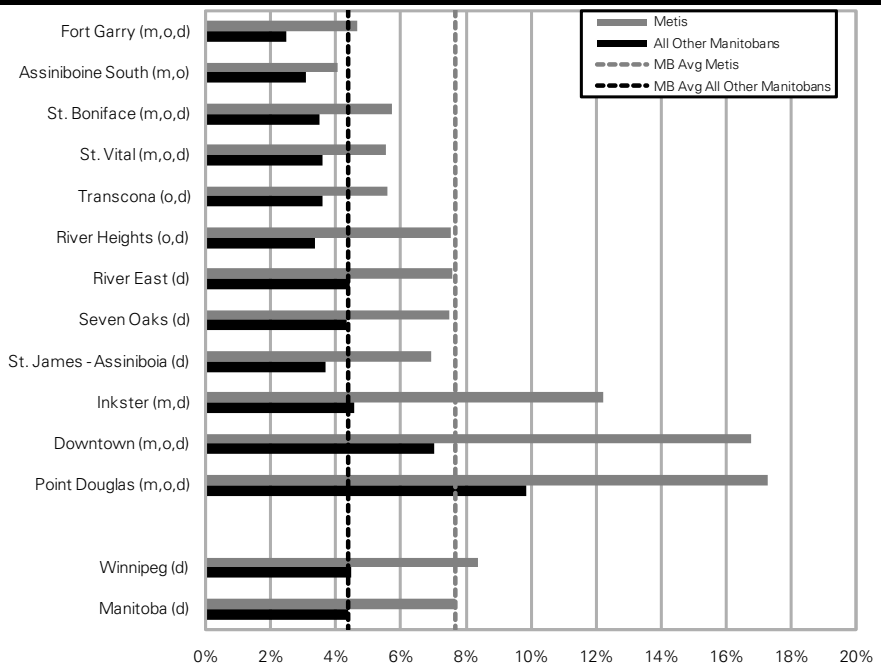
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.5.3: Repeated Opioid Prescriptions by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years with three or more prescriptions in one year



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Source: MCHP/MMF, 2010

Table 13.5.1: Crude Percent of Opioid Use by Age and Sex, 2006/07
Percent of residents aged 16+ years

	Opioid Prevalence (one or more prescriptions)				Repeated Opioid Use (three or more prescriptions)			
	Male		Female		Male		Female	
age	Metis	Other	Metis	Other	Metis	Other	Metis	Other
16-19	10.63	8.93	12.98	10.48	0.78	0.42	1.16	0.59
20-24	12.52	10.89	18.68	14.34	1.59	1.20	3.29	1.72
25-29	15.12	11.34	21.69	15.01	2.90	1.80	5.85	2.78
30-34	17.61	12.62	21.91	15.64	5.00	2.48	6.47	3.35
35-39	20.06	13.60	23.41	16.03	6.75	3.31	8.52	4.39
40-44	20.92	14.62	23.69	15.80	7.98	4.20	9.32	4.55
45-49	22.29	14.66	23.47	16.08	9.73	4.45	10.24	4.75
50-54	22.23	15.26	24.52	16.41	9.30	4.90	11.47	5.40
55-59	21.60	16.05	23.30	16.98	10.27	5.32	11.89	5.93
60-64	25.08	16.92	24.97	17.35	12.38	5.73	12.36	6.31
65-69	23.20	17.33	24.42	17.44	10.10	5.83	12.73	6.64
70-74	25.87	18.12	23.70	18.53	12.24	6.26	13.18	7.24
75-79	24.50	18.69	24.12	19.74	9.73	6.40	11.99	8.34
80-84	23.64	19.64	25.45	20.63	8.00	6.69	11.61	9.34
85-89	31.96	19.75	21.84	20.96	9.40	7.64	11.17	10.67
90+	24.39	19.19	28.41	23.13		7.15	15.91	12.40

*Metis male age groups 85-89 and 90+ combined to avoid suppression

Source: MCHP/MMF, 2010

13.6 Opioid DDDs

The age– and sex–adjusted average annual rate of opioid defined daily doses (DDDs) among residents aged 16 and older with at least one prescription for opioids was measured in fiscal year 2006/07. DDD measures the assumed average maintenance dose per day for a drug indicated for adults, so a DDD of 365 means that a person would be taking the assumed daily maintenance dose every day of the year.

Opioids were identified by ATC codes N02A, N07BC02, R05DA01, R05DA03–R05DA06, R05DA12, R05DA20, R05FA01, and R05FA02. DDDs were calculated only for solid forms of the drug, such as capsules, tablets, suppositories, and patches; DDDs cannot be calculated for opioids in liquid or injectionable forms. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006 with at least one prescription for opioids in the fiscal year.

Key observations

RHAs:

- At the provincial level for those taking opioids, there is no significant difference between Metis and all other Manitobans in opioid DDDs (88.6 vs. 75.6, NS). This translates into people taking the assumed daily dose for around 80 days out of 365.
- There is an inverse association with PMR for all other Manitobans, with the healthier RHAs showing higher DDDs for those prescribed opioids, which is unexpected given the lower expected burden of illness.
- There are only two RHAs where there is a significant difference between Metis and all others, with both areas showing higher DDDs for Metis compared to all other Manitobans living in the area: South Eastman (101.5 vs. 78.1) and Parkland (162.7 vs. 114.3).
- For those taking opioids, the Metis DDD is significantly higher than the Metis provincial average in Parkland RHA (162.7 vs. 88.6) and significantly lower in Churchill (50.4), NOR–MAN (50.0), and Burntwood (48.6) RHAs.
- Of particular interest is the very high rate of opioid DDDs for those taking opioids in Parkland RHA. Both the Metis (162.7) and all other Manitobans living in this area (114.3) are statistically higher than their corresponding provincial averages and have the highest rates in the province.

MMF Regions:

- Provincially, the average rate of opioid DDDs for those Metis taking at least one opioid is 88.6. There is no obvious gradient of DDDs with PMR for the MMF Regions.
- There is a lot of variation in the MMF regions with the Northwest Region (138.1) and The Pas Region (112.0) being significantly higher than the Metis provincial average (88.6), whereas the Thompson Region (48.5) is significantly lower. The high rate in the Northwest Region is parallelled by the high rate in the Parkland RHA.

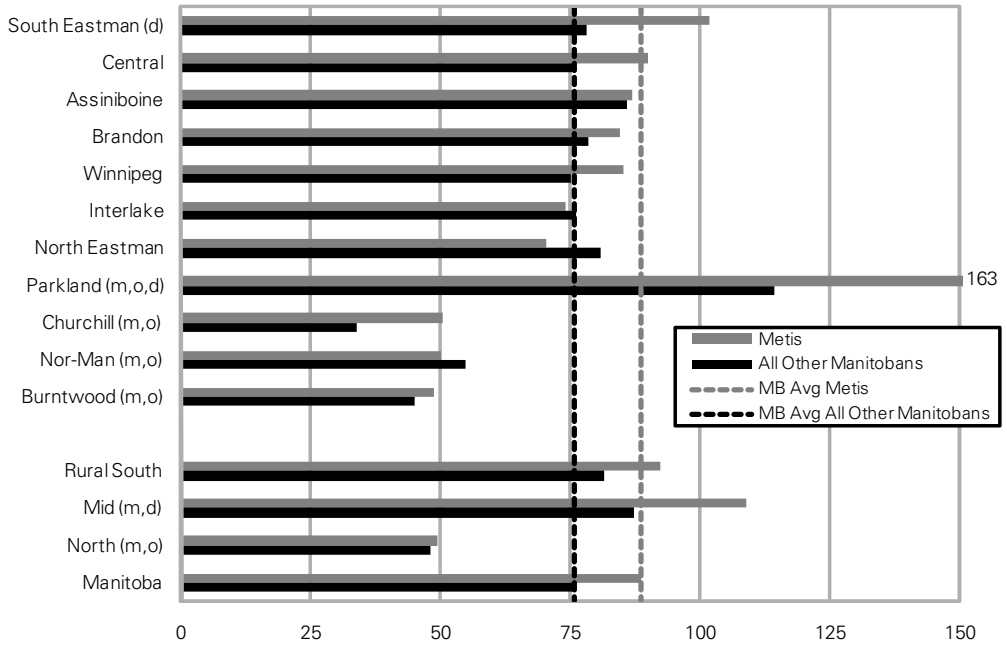
Winnipeg CAs:

- For people taking opioids in the Winnipeg RHA, the Metis DDD rate is similar to that of all others living in Winnipeg (85.1 vs. 75.0), with both groups similar to their provincial averages as well. There appears to be somewhat of an expected gradient in Winnipeg (especially for the "all

others"), with the least healthy CAs having a higher opioid DDD rate compared with the most healthy CAs.

- The Metis rates for the Winnipeg CAs of Assiniboine South (102.5 vs. 63.9), Transcona (85.4 vs. 65.8), River Heights (86.8 vs. 64.1), Seven Oaks (103.2 vs. 72.5), Inkster (82.2 vs. 62.8), and Downtown (113.0 vs. 84.9) are all significantly higher than the rates for all others living in these CAs.
- Given the high rate of repeated opioid prescriptions in Point Douglas, it is surprising that the DDD rate for this area (86.1 DDDs for Metis, 87.4 DDDs for all others) is similar to the overall provincial average for both Metis and all others. This may indicate that although there are repeat prescriptions, the doses may be lower than expected.

Figure 13.6.1: Opioid Defined Daily Doses (DDD) Rate by RHA, 2006/07
Age- & sex-adjusted rate of defined daily doses per resident aged 16+ years with one or more prescriptions in one year



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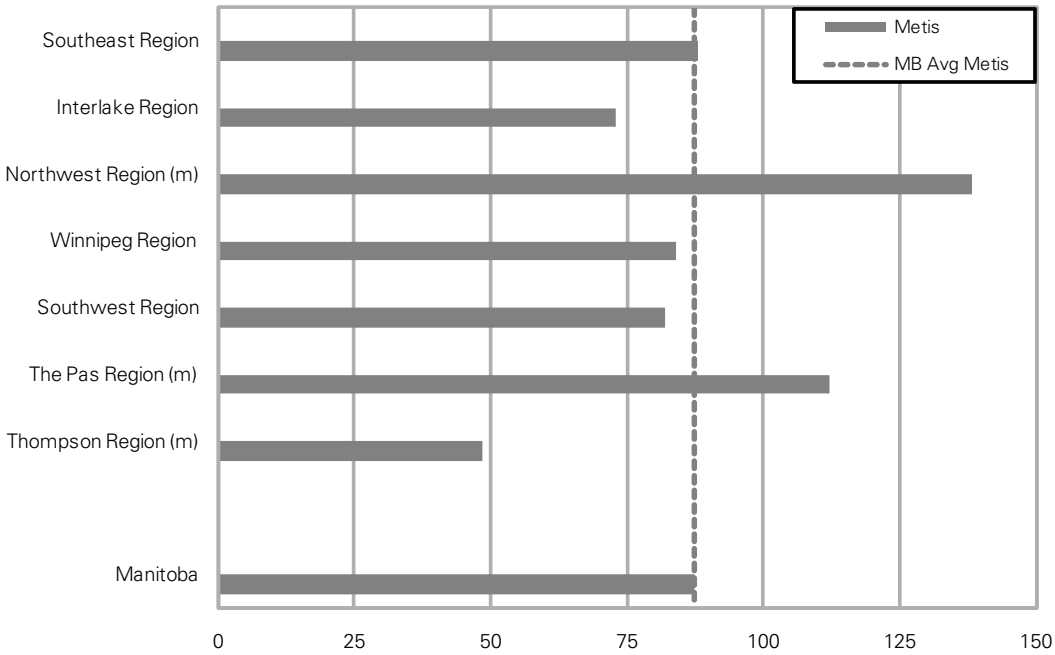
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.6.2: Opioid Defined Daily Doses (DDD) Rate by Metis Region, 2006/07
Age- & sex-adjusted rate of defined daily doses per Metis resident aged 16+ years with one or more prescriptions in one year



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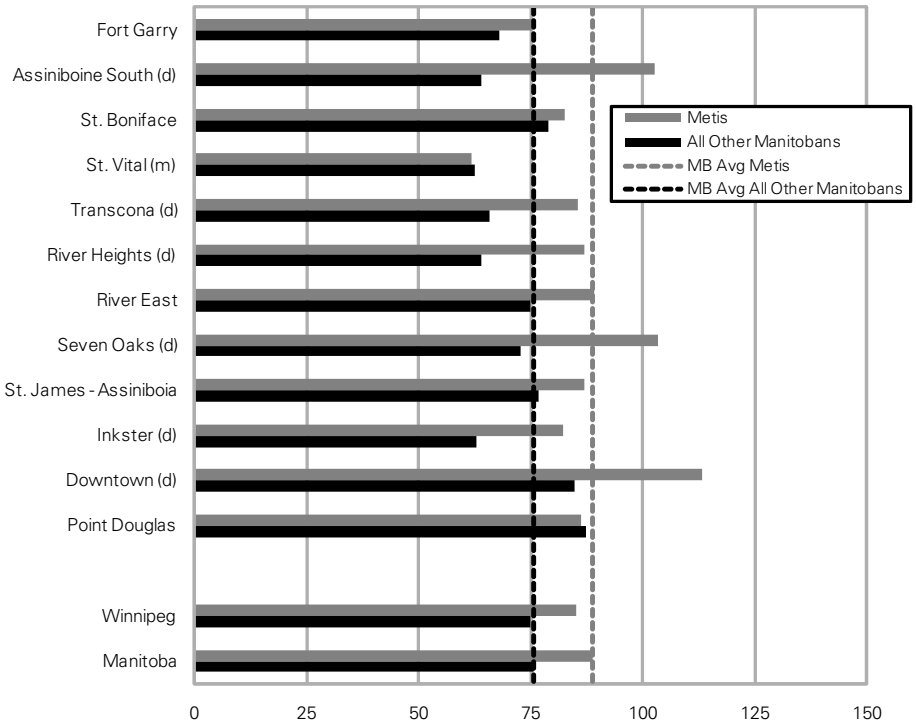
Source: MCHP/MMF, 2010

Figure 13.6.3: Opioid Defined Daily Doses (DDD) Rate by Winnipeg Community Area, 2006/07
Age- & sex-adjusted rate of defined daily doses per resident aged 16+ years
with one or more prescriptions in one year



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Source: MCHP/MMF, 2010

13.7 Benzodiazepine Prescriptions

Benzodiazepines are a class of medications, which can be used to treat anxiety disorders, panic disorders, insomnia, seizures, muscle spasticity, alcohol withdrawal, and as a perioperative adjunct to anesthesia.

The age– and sex–adjusted percentage of residents aged 16 and older with at least one prescription for benzodiazepines was measured in fiscal year 2006/07. Crude percentages are available in the appendix. Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05, and N05CD07 and generic drug names diazepam, chlordiazepoxide, oxazepam, clorazepate potassium, lorazepam, bromazepam, alprazolam, flurazepam, nitrazepam, triazolam, and temazepam. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006.

Key observations

RHAs:

- The prevalence of Metis prescribed benzodiazepines is significantly higher than for all other Manitobans at the provincial level (10.8% vs. 7.5%), and this difference is mirrored in all of the RHAs except Churchill.
- RHA health status as measured by PMR does not seem to be related to the proportion of residents prescribed benzodiazepines, either for Metis or for all others.
- At the aggregate area level, the Rural South has the lowest prevalence of people receiving a benzodiazepine prescription for the Metis (lower than the corresponding Metis provincial average), but it is still significantly higher than for all others living in that area (8.8% vs. 6.9%). The Mid area has the highest prescription prevalence. The Metis are higher than its corresponding provincial average and all others living in the Mid area (12.7% vs. 8.2%). In the North, Metis prevalence is similar to the provincial average, but higher than for all others living in the North (9.3% vs. 6.4%). Moreover, the "all other" North prevalence is actually lower than the corresponding "all other" provincial average.
- The prevalence of people receiving a benzodiazepine prescription for Metis in South Eastman (7.6%) and NOR–MAN (8.7%) RHAs are significantly lower than the Manitoba average for Metis (10.8%), and the rate in Parkland (18.6%) is significantly higher.

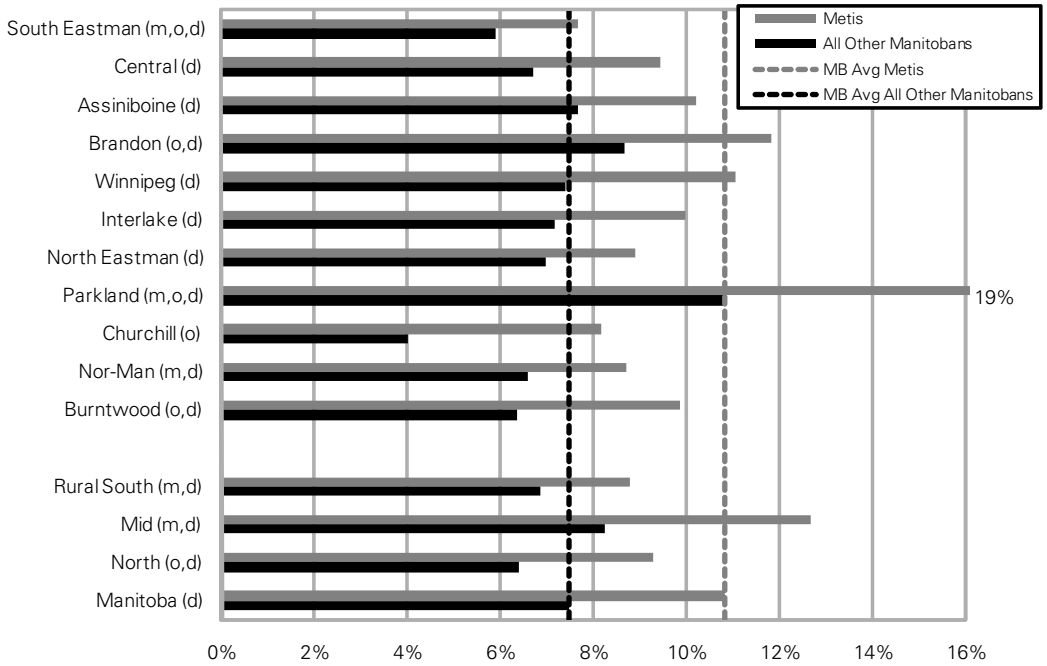
MMF Regions:

- Provincially, the prevalence of people receiving a benzodiazepine prescription for the Metis is 10.8%. There is no evidence of a gradient of benzodiazepine prescriptions with PMR at the MMF Region level.
- The prevalence of people receiving a benzodiazepine prescription among the MMF Regions is quite variable—Southeast MMF Region (8.3%) is significantly lower than the provincial Metis average, but Northwest (14.5%) and The Pas MMF Regions (14.9%) are significantly higher.

Winnipeg CAs:

- Metis have a significantly higher prevalence of benzodiazepine prescription use than all others in Winnipeg as a whole (11.0% vs. 7.4%) and in every Winnipeg CA except Assiniboine South.
- In several CAs, Metis prevalence of people receiving a benzodiazepine prescription is significantly lower than the Metis provincial average: Fort Garry (7.5%), Assiniboine South (5.8%), and St. Vital (8.7%) CAs and significantly higher in Downtown (14.9%) and Point Douglas (15.6%) CAs.
- There is an obvious PMR gradient for both Metis and all other Manitobans—the higher the PMR, the higher the prevalence of people receiving a benzodiazepine prescription.

Figure 13.7.1: Benzodiazepine Prescriptions by RHA, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years
with one or more prescriptions for benzodiazepines in one year



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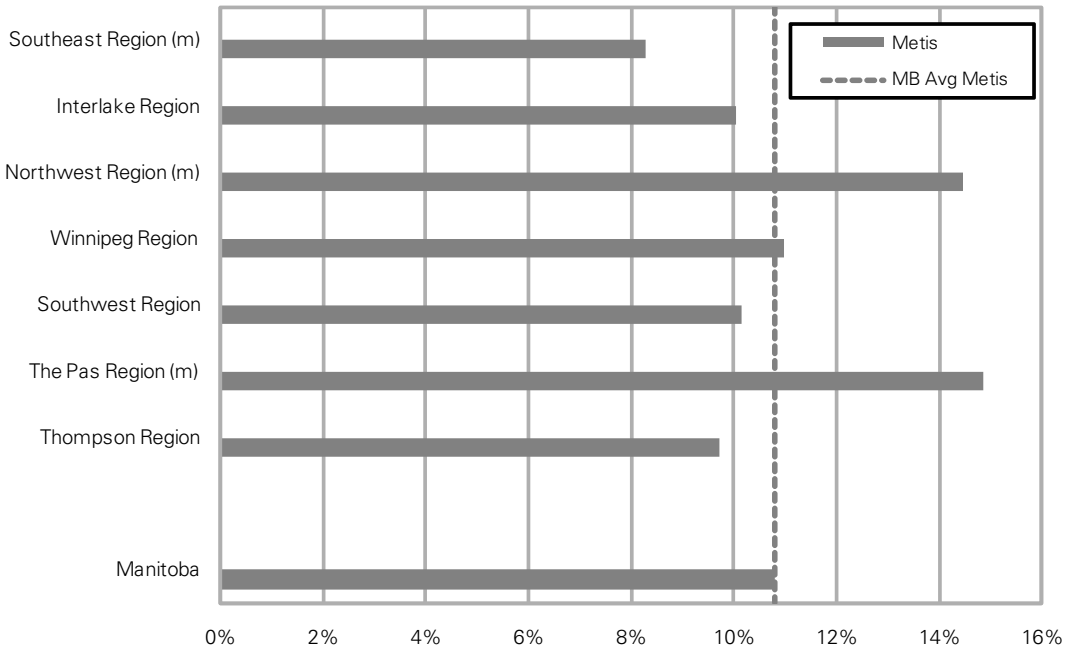
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.7.2: Benzodiazepine Prescriptions by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents aged 16+ years
with one or more prescriptions for benzodiazepines in one year



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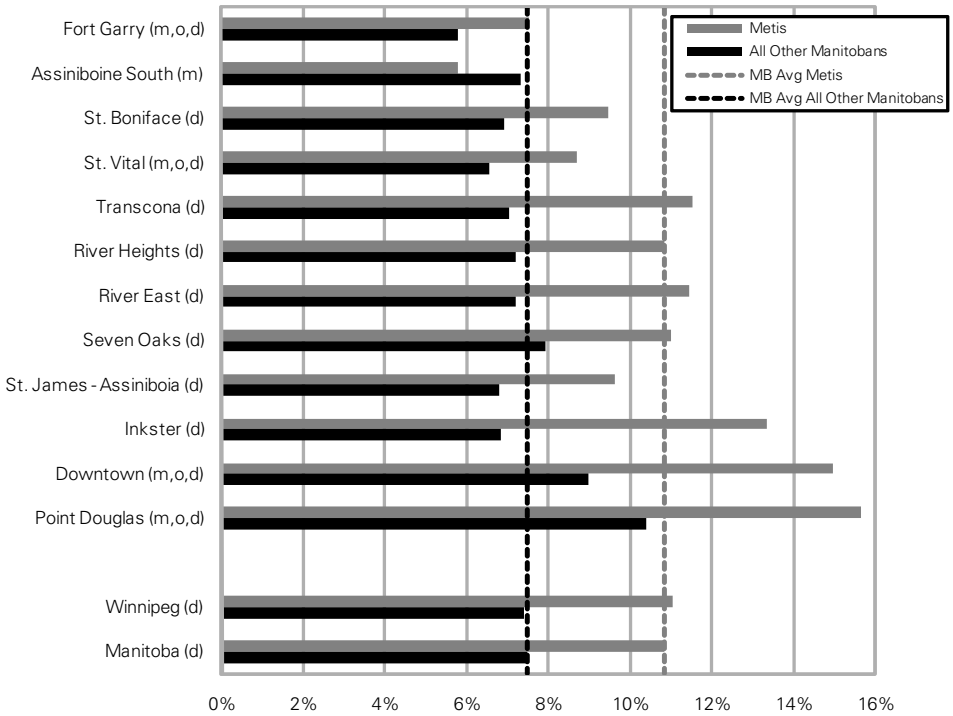
Source: MCHP/MMF, 2010

Figure 13.7.3: Benzodiazepine Prescriptions by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years
with one or more prescriptions for benzodiazepines in one year



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Source: MCHP/MMF, 2010

13.8 Repeated Benzodiazepine Prescriptions

In this study, repeated benzodiazepine prescriptions was defined as at least three prescriptions in fiscal year 2006/07. Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05, and N05CD07 and generic drug names diazepam, chlordiazepoxide, oxazepam, clorazepate potassium, lorazepam, bromazepam, alprazolam, flurazepam, nitrazepam, triazolam, and temazepam. This is an age– and sex–adjusted prevalence of repeated benzodiazepine prescriptions. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006.

Key observations

RHAs:

- Metis have a higher prevalence of repeated benzodiazepine prescriptions provincially (6.3% vs. 3.8%). This is seen in every RHA except North Eastman (where prevalence is similar).
- There is no PMR gradient among the RHAs for prevalence of repeated benzodiazepine prescriptions.
- The Metis prevalence of repeated benzodiazepine prescriptions is significantly lower than the Manitoba Metis average of 6.3% in the following RHAs: South Eastman (3.9%), North Eastman (3.7%), and Burntwood (4.0%).
- In Parkland, the prevalence of repeated benzodiazepine prescriptions is significantly higher—at least double—for Metis (14.5%) and for all others living in that RHA (7.4%) compared to their corresponding provincial averages. As well, the Metis prevalence in Parkland is statistically higher than that for all others living in Parkland.

MMF Regions:

- Provincially, the prevalence of repeated benzodiazepine prescriptions for Metis is 6.3%. There is no obvious gradient of repeated benzodiazepine prescriptions by PMR of the MMF Regions.
- The prevalence of repeated benzodiazepine prescriptions for Metis is higher than their provincial average in the Northwest (9.9%) and The Pas (11.2%) MMF Regions. However, it is significantly lower in the Southeast and Thompson MMF Regions (both 3.8%).

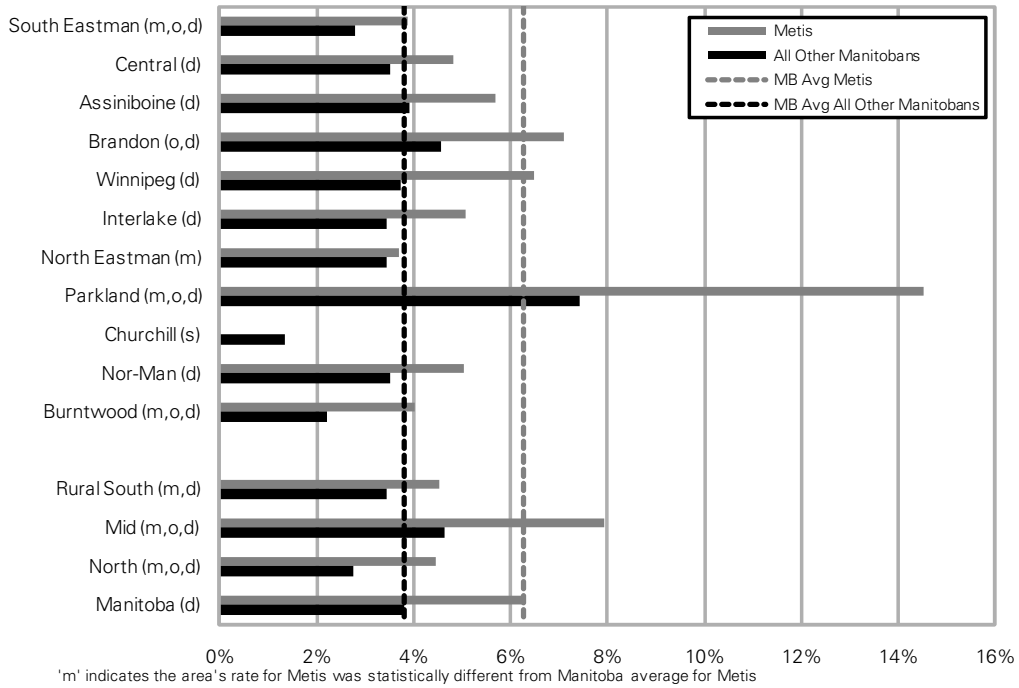
Winnipeg CAs:

- In Winnipeg RHA, the prevalence of repeated benzodiazepine prescriptions for Metis is higher than for all other Winnipeggers (6.5% vs. 3.8%). There is a PMR gradient among the Winnipeg CAs with higher prevalence of repeated benzodiazepine prescriptions in the areas with higher PMR (i.e., poorer health status).
- Metis prevalence of repeated benzodiazepine prescriptions is significantly higher than the prevalence for all others living in the CA for every Winnipeg CA, with the exception of Assiniboine South.
- The prevalence of repeated benzodiazepine prescriptions for Metis is statistically higher than the Metis provincial average in the three Winnipeg CAs of Inkster (8.9%), Downtown (10.5%), and Point Douglas (10.7%) and statistically lower in the CA of St. Vital (4.3%).

Crude Prevalence of Benzodiazepine Prescriptions (see Table 13.8.1):

- The crude prevalence and repeated prescriptions of benzodiazepines is higher for Metis compared to all other Manitobans in almost every age group for both males and females. This difference is consistent between males and females, but lessens for older adults. Notably, Metis females aged 90+ have much higher use than "all other" females of that age.
- For repeated benzodiazepine prescriptions, Metis prevalence is often double that of all other Manitobans for the younger age groups, but this difference lessens among the older age groups.

Figure 13.8.1: Repeated Benzodiazepine Prescriptions by RHA, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years with three or more prescriptions in one year



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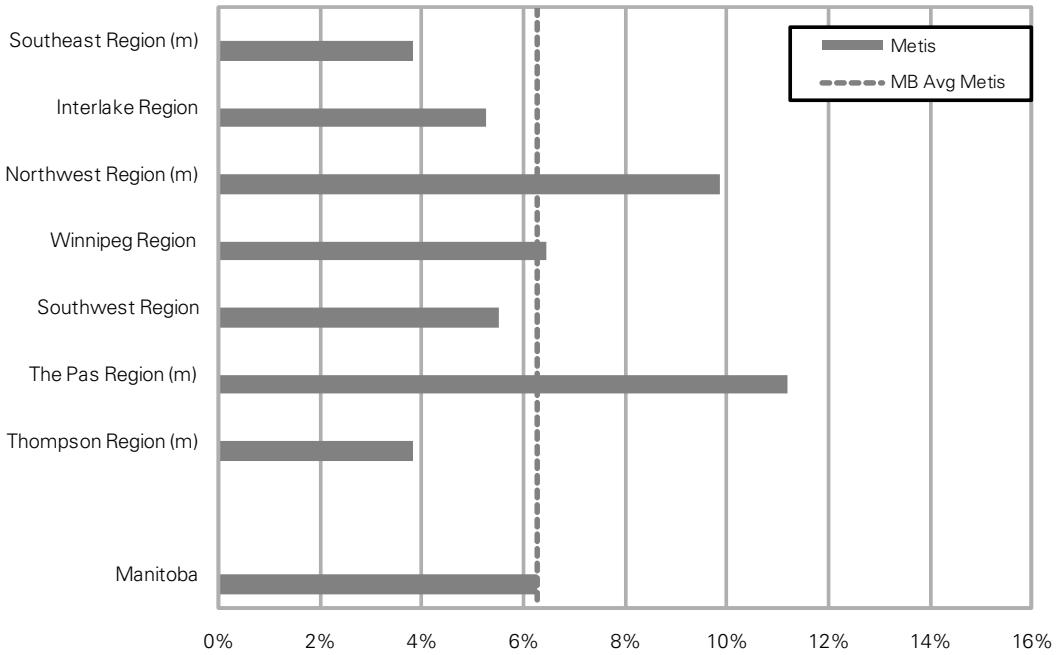
Source: MCHP/MMF, 2010

Figure 13.8.2: Repeated Benzodiazepine Prescriptions by Metis Region, 2006/07
Age- & sex-adjusted percent of Metis residents aged 16+ years with three or more prescriptions in one year



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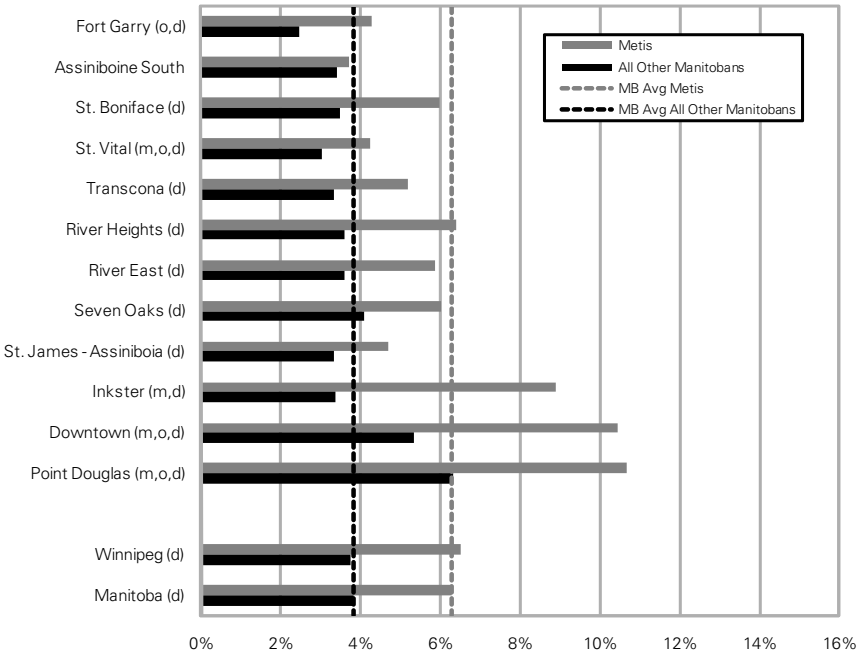
Source: MCHP/MMF, 2010

Figure 13.8.3: Repeated Benzodiazepine Prescriptions by Winnipeg Community Area, 2006/07
Age- & sex-adjusted percent of residents aged 16+ years with three or more prescriptions in one year



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Table 13.8.1: Crude Percent of Benzodiazepine Use by Age and Sex, 2006/07
Percent of residents aged 16+ years

	Benzodiazepine Prevalence (one or more prescriptions)				Repeated Benzodiazepine Use (three or more prescriptions)			
	Male		Female		Male		Female	
age	Metis	Other	Metis	Other	Metis	Other	Metis	Other
16-19	1.36	0.74	1.84	1.53	0.31	0.18	0.92	0.22
20-24	2.19	1.56	5.14	3.21	0.67	0.47		0.80
25-29	3.48	2.40	8.02	4.71	1.43	0.83	3.02	1.46
30-34	4.41	3.18	10.48	5.88	2.23	1.16	4.50	2.10
35-39	5.49	3.97	10.71	6.66	2.70	1.75	4.60	2.65
40-44	7.12	4.68	14.71	7.80	3.54	2.18	7.57	3.27
45-49	7.72	5.14	13.80	8.95	4.11	2.48	7.34	3.95
50-54	8.87	5.87	16.05	10.24	4.50	3.05	8.58	4.78
55-59	8.34	6.46	17.41	11.73	5.40	3.28	11.18	5.85
60-64	11.12	7.69	18.91	13.98	6.35	4.21	11.87	7.55
65-69	11.39	8.32	23.94	15.49	7.62	4.57	15.29	8.84
70-74	16.17	9.86	24.51	17.31	10.39	6.16	15.32	10.70
75-79	13.33	12.00	26.17	19.37	9.37	7.26	19.01	12.52
80-84	16.73	13.85	24.55	20.88	11.27	8.60	18.97	13.82
85-89	25.77	15.50	26.70	21.36	18.12	9.92	18.93	14.52
90+	19.51	15.79	34.09	21.69		10.06	21.59	14.47

*Metis male age groups 85-89 and 90+ combined to avoid suppression
*Metis female age groups 16-19 and 20-24 combined to avoid suppression

Source: MCHP/MMF, 2010

13.9 Benzodiazepine DDDs

The age– and sex–adjusted average annual rate of benzodiazepine DDDs among residents aged 16 and older with at least one prescription for benzodiazepines was measured in fiscal year 2006/07. DDD measures the assumed average maintenance dose per day for a drug indicated for adults, so a DDD of 365 means that a person would be taking the assumed daily maintenance dose for every day of the year. Crude rates are available in the appendix.

Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05, and N05CD07, and generic drug names diazepam, chlordiazepoxide, oxazepam, clorazepate potassium, lorazepam, bromazepam, alprazolam, flurazepam, nitrazepam, triazolam, and temazepam. DDDs were calculated only for solid forms of the drug, such as capsules, tablets, suppositories and patches; DDDs were not calculated for benzodiazepines in liquid or injectionable forms. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006 with at least one prescription for benzodiazepines in the fiscal year.

Key observations

RHAs:

- The rate of benzodiazepine DDDs for those having at least one benzodiazepine prescription is significantly higher for Metis than for all other Manitobans at the provincial level (180.9 vs. 147.9). There is no apparent gradient with PMR in the RHAs.
- The rate of benzodiazepine DDDs is higher for Metis compared to all others living in the following RHAs: Winnipeg (179.1 vs. 146.4), Parkland (374.8 vs. 238. 8), and in the Mid (238.8 vs. 167.3) and North (122.2 vs. 97.9) aggregate areas. The rate of benzodiazepine DDDs is lower for Metis compared to all others living in Churchill.
- In Parkland, the benzodiazepine DDD rates for both Metis and all other Manitobans are significantly higher than their respective Manitoba averages (Metis 374.8 vs.180.9, others 238.8 vs. 147.9).
- Compared to the Manitoba average for Metis (180.9), rates of benzodiazepine DDDs were significantly lower for Metis in South Eastman (109.8), Interlake (106.6), North Eastman (116.2), Churchill (48.0), and Burntwood (66.3) RHAs.

MMF Regions:

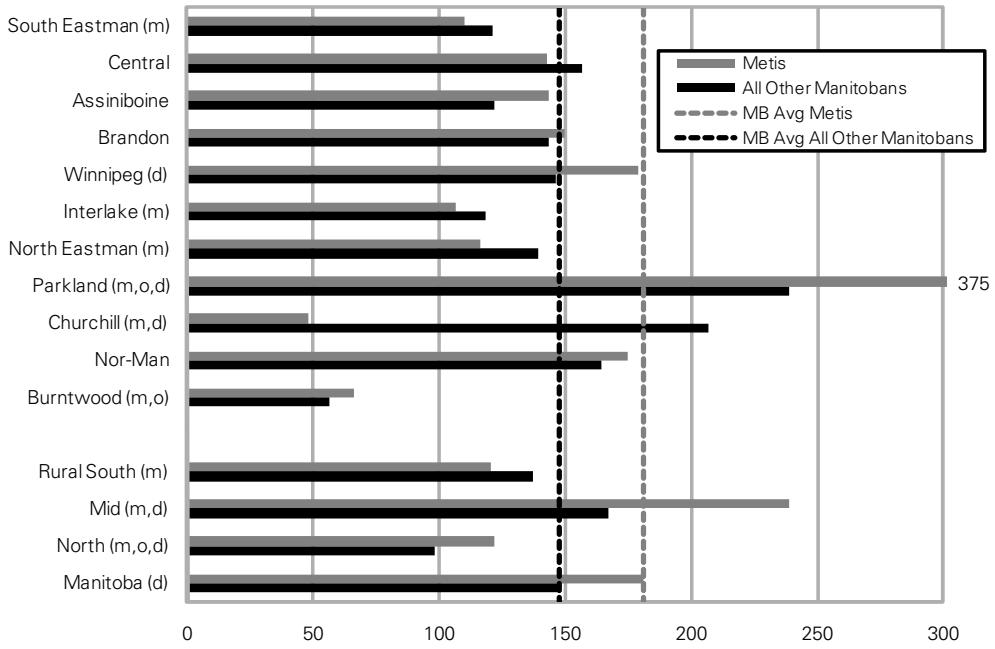
- Provincially, the Metis rate of benzodiazepine DDDs for those having at least one benzodiazepine prescription is 180.9. There is no evidence of a PMR gradient—rates among the MMF regions vary considerably.
- Metis rates of benzodiazepine DDDs are statistically (and substantially) higher than the provincial Metis average in the Northwest (287.7) and The Pas (374.1) MMF Regions. This is consistent with the effect of the overlap of the Parkland RHA and The Pas MMF Region evident with other indicators. This is also consistent with anxiety disorder rates in these areas. Prevalence of anxiety disorders for Metis is significantly higher than all other Manitobans in both Parkland and NOR–MAN (10.7% vs. 7.3% and 11.8% vs. 7.4%).

- Rates for benzodiazepine DDDs are significantly lower than the Manitoba average for Metis (180.9) in the following MMF Regions: Southeast (110.4), Interlake (106.6), Southwest (134.8), and Thompson (67.4).

Winnipeg CAs:

- For those having at least one benzodiazepine prescription, Metis have significantly higher rates of benzodiazepine DDDs than all others living in Winnipeg (179.1 vs. 146.4). There is evidence of a PMR gradient for Metis and all other Manitobans among the Winnipeg CAs—the less healthy the CA (i.e., the higher the PMR), the higher the benzodiazepine DDDs.
- Metis rates of benzodiazepine DDDs are statistically higher than for all others living in the following Winnipeg CAs: Fort Garry (175. 5 vs. 107.0), St. Boniface (180.6 vs. 135.8), River Heights (164.1 vs. 125.8), River East (169.8 vs. 135.2), Inkster (199.5 vs. 137.2), Downtown (251.7 vs. 182.9), and Point Douglas (287.0 vs. 183.8).
- Metis rates of benzodiazepine DDDs are significantly lower than the Manitoba average for Metis (180.9) in the CAs of St. Vital (117.9) and Transcona (103.2).
- Metis rates of benzodiazepine DDDs are significantly higher than the Manitoba Metis average in the CAs of Downtown (251.7) and Point Douglas (287.0).

Figure 13.9.1: Benzodiazepine Defined Daily Doses (DDD) Rate by RHA, 2006/07
Age- & sex-adjusted rate of defined daily doses per resident aged 16+ years with one or more prescriptions in one year



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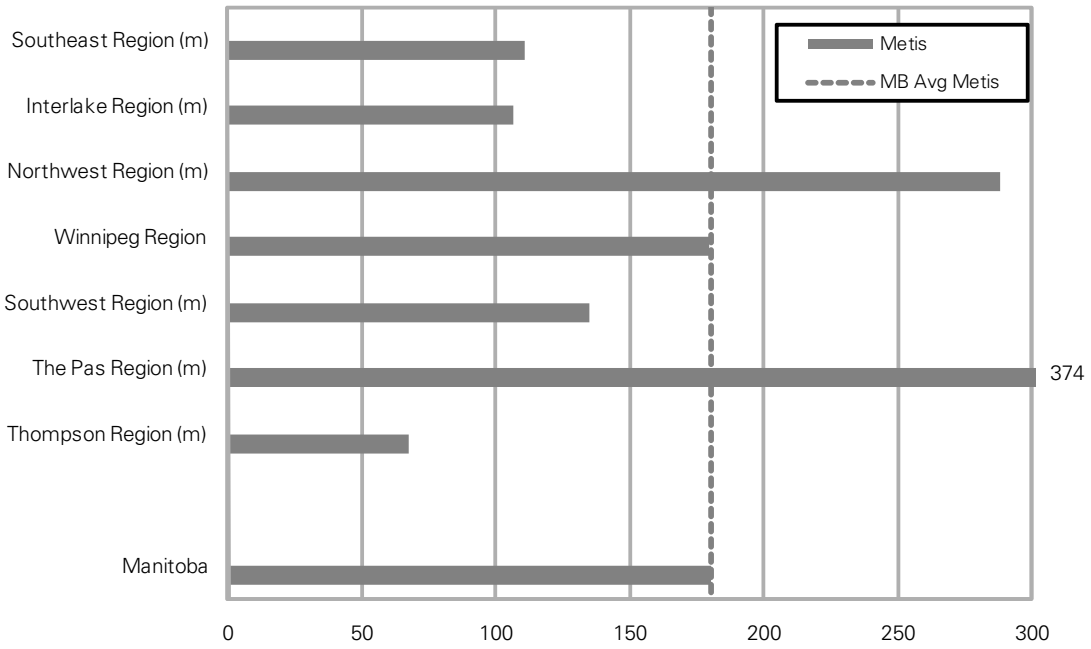
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 13.9.2: Benzodiazepine Defined Daily Doses (DDD) Rate by Metis Region, 2006/07
Age- & sex-adjusted rate of defined daily doses per Metis resident aged 16+ years with one or more prescriptions in one year



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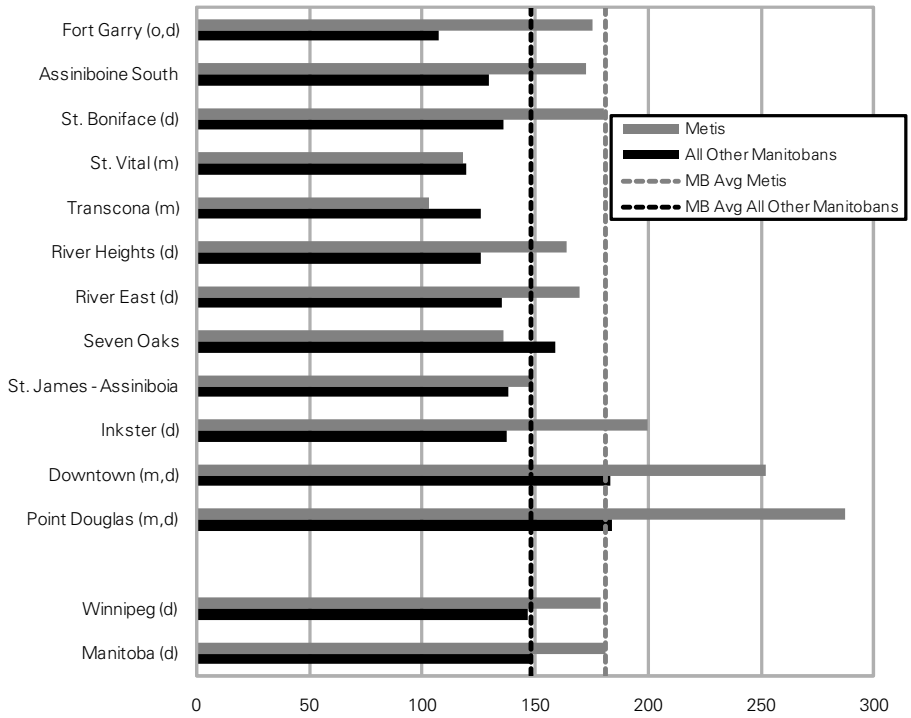
Source: MCHP/MMF, 2010

Figure 13.9.3: Benzodiazepine Defined Daily Doses (DDD) Rate by Winnipeg Community Area, 2006/07
Age- & sex-adjusted rate of defined daily doses per resident aged 16+ years
with one or more prescriptions in one year



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

13.10 Findings from Literature Review

(compared to the results in this study—in italics)

No articles or reports were found on the prevalence of prescription use specific to Metis.

Antibiotic use:

In northeastern Saskatchewan, of the 180 cases of methicillin resistant Staphylococcus aureus (MRSA) in 2002, 76% occurred in three First Nations and Métis communities (MacDougall, 2002), with some people considering MRSA endemic in the various First Nations and Metis communities between 2000 and 2002 (Canadian Pediatric Society, 2005). According to the Canadian Pediatric Society (2005), crowding, lack of quality running water, and heavy antibiotic use may be additional reasons for the high rates of MRSA observed in First Nations communities in Canada.

In our study, higher prevalence of antibiotic use was found among Metis compared to all other Manitobans—the age and sex–adjusted percent of Metis with one or more prescriptions for antibiotics was significantly higher compared to all other Manitobans at the provincial level, in all three aggregate areas, in every RHA except Churchill, and in every Winnipeg CA except Assiniboine South.

Reference List

Canadian Paediatric Society. Methicillin–resistant Staphylococcus aureus in First Nations communities in Canada. Position Statement: FNIH 2005–02. *Paediatr Child Health.* 2005;10:557–9

Lader M, Tylee A, Donoghue J. Withdrawing benzodiazepines in primary care. *CNS Drugs.* 2009:23(1):19–34.

MacDougall L. *MRSA outbreak in three Aboriginal communities in northern Saskatchewan. Melfort, Saskatchewan: Field Epidemiology Training Program.* Ottawa, ON: Health Canada, 2002.

Chapter 14: Quality of Primary Care

Indicators in this chapter:

- Antidepressant Prescription Follow–Up
- Asthma Care: Controller Medication Use
- Diabetes Care: Prevalence of Annual Eye Exam
- Post–AMI Care: Beta Blockers
- Potentially Inappropriate Prescribing of Benzodiazepines to Community–Dwelling Older Adults

Note: for quality of care indicators, we use crude rates (not age– and sex–adjusted rates), since patients should receive the same quality of care regardless of age.

Overall Key Findings:

- In general, the quality of primary care show similar results for Metis and all other Manitobans in terms of antidepressant prescription follow–up, asthma care, and post–AMI care. However, two quality indicators show that the Metis may be receiving lower quality of care: there is a slightly lower referral for annual eye examinations for Metis people with diabetes, and there is a 25% higher rate of prescribing of potentially inappropriate benzodiazepines to community–dwelling Metis aged 75+.
- According to Table 14.0a, there are no particular regions having more than one of the five measured indicators of good quality of primary care.
- According to Table 14.0a, there is one RHA that has statistically significantly poorer quality in at least two quality of care indicators: Central RHA.
- In general, it is problematic to see such poor results of people receiving good primary quality of care—around 60% for antidepressant prescription follow–up, around 64% for asthma care, and around 30% for annual eye exams for those having diabetes. The prescribing of beta blockers is a little more promising at around 80% of those having had an AMI. But around 20–25% of community dwelling adults aged 75+ receiving benzodiazepines for an extended period of time. This needs further study and clinical awareness strategies, due to the fact that benzodiazepine use may be related to adverse outcomes in the older adult.

Table 14.0a: Overall Key Findings of Quality of Primary Care Indicators, where higher rates indicate "better off"

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average i.e., higher rates	Statistically "worse off" regions for Metis compared to the Metis provincial average i.e., lower rates
Antidepressant Prescription Follow–Up (crude % of newly depressed patients receiving three or more physician visits in four months)	59.1% vs. 58.8%; RR=1.01, NS	–	Central RHA
Asthma Care: Controller Medication Use (crude % of asthmatics on appropriate long–term medications)	64.4% vs. 64.2%; RR=1.00, NS	–	Central RHA
Diabetes Care: Annual Eye Exam (crude % of people with diabetes with annual eye exam)	32.5% vs. 34.0% RR=0.96	–	–
Post–AMI Care: Beta Blockers (crude % of AMI patients receiving beta–blocker within four months)	78.5% vs. 81.2%; RR=0.97, NS	–	–

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

Table 14.0b: Overall Key Findings of Quality of Primary Care Indicators, where lower rates indicate "better off"

Indicator (age of inclusion for this indicator)	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average i.e., lower rates	Statistically "worse off" regions for Metis compared to the Metis provincial average i.e., higher rates
Potentially Inappropriate Prescribing of Benzodiazepines to Community–Dwelling Older Adults 75+ (crude % seniors with two or more prescriptions or greater than a 30–day supply annually)	24.7% vs. 19.8% RR=1.25	Interlake RHA	Parkland RHA

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

14.1 Antidepressant Prescription Follow–Up

Regular monitoring of persons prescribed antidepressants after the initial diagnosis of depression is essential to track the patient response to the medication and modify treatment if necessary. Often antidepressant medications do not begin to have a clinical effect for some time after initiating therapy. As well, persons diagnosed with a major depression may be at risk of suicide, which makes follow–up a critical part of treatment for depression.

The crude percentage of residents with a new prescription for antidepressants (ATC codes N06AA, N06AB, N06AF, N06AG, N06AX) and a diagnosis of depression (ICD–9–CM codes 296 or 311) within two weeks of each other (it is assumed that the prescription date comes after the physician visit) who had three subsequent ambulatory visits within four months of the prescription being filled was measured over three fiscal years: 2004/05–2006/07. To be included in the analysis, patients had to be alive for the entire follow–up period. To be included as a newly depressed patient, residents could not have had a prescription for antidepressants or a physician visit with a diagnosis of depression in the two years prior to the index event.[1]

Key observations:

RHAs:

- Provincially, Metis and all other Manitobans have similar prevalence of antidepressant prescription follow–up at 59.1% and 58.8% respectively. It is important to note that only a little more than half of newly depressed patients are receiving at least three physician visits in four months, an indicator of quality of follow–up primary care. There is room for improvement in virtually all regions of the province.
- There is no evidence of a PMR gradient with rate of antidepressant prescription follow–up—this makes sense given the fact that the denominator is only those with depression diagnoses, not the entire population of the region, so it should make very little difference where you live in the province.
- Central RHA has particularly low prevalence of follow–up (41.3% Metis, 58.8% others) with both Metis and others statistically lower than their corresponding provincial averages. Metis are also statistically lower than all others. Although not statistically lower for Metis, prevalence of antidepressant prescription follow–up is lower for all other Manitobans residing in the following RHAs: Assiniboine (Metis 55.9%, others 54.1%); Interlake (Metis 53.4%, others 53.7%); and Burntwood (Metis prevalence suppressed; others 58.8%).
- The RHA of Brandon appears to have good followup care for those given antidepressant medication. Brandon has particularly high prevalence of antidepressant prescription follow–up for all others residing in Brandon compared to their provincial average (67.7% in Brandon, all others' provincial average 58.8%); and although the Metis prevalence is not statistically significantly different than the Metis provincial average, this also appears to be higher (75.8% in Brandon, Metis provincial average 59.1%).

[1] Note that although there is no age restriction on this indicator, around 95% of the people included in the analysis were at least 18 years old.

- The aggregate areas of the Rural South (Metis 54.8%, others 55.1%) and the North (Metis 42.6%, others 43.1%) show statistically lower prevalence of antidepressant prescription follow–up for "all others", with similar trends (although not statistically significant) for the Metis of these areas. The North is almost statistically significantly lower for Metis (p=0.014, just slightly higher than p=.01 criteria for multiple testing).

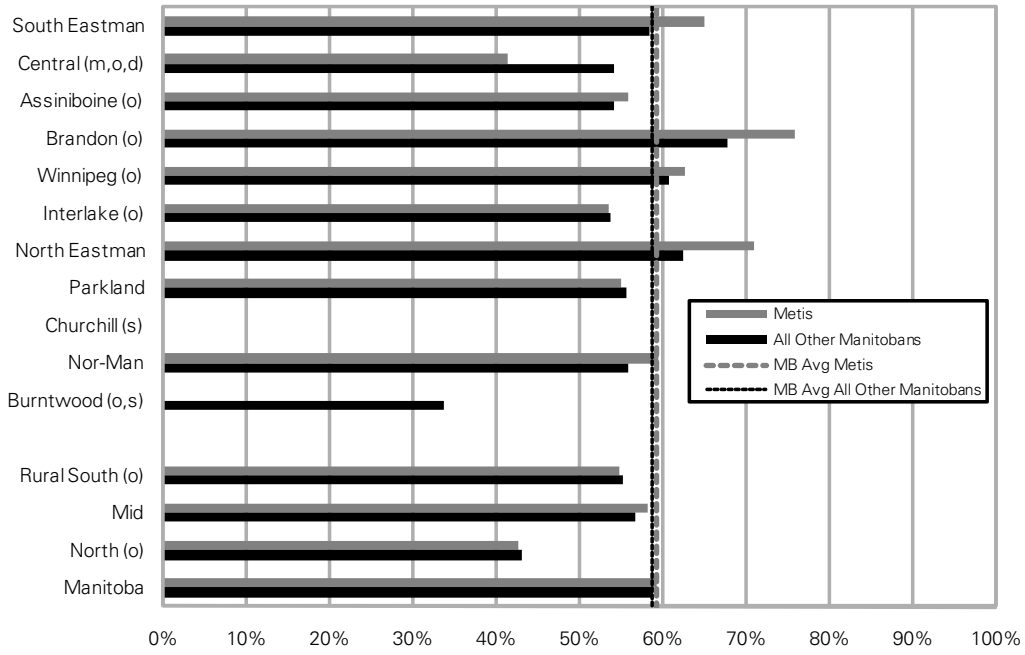
MMF Regions:

- The overall Metis prevalence of antidepressant prescription follow–up is 59.1%, with very little variation amongst the MMF Region prevalence. There is no relationship between underlying PMR of the regions and the follow–up.

Winnipeg CAs:

- In Winnipeg, the prevalence of antidepressant prescription follow–up for Metis and all other Winnipeggers is similar (62.6% Metis, 60.7% others). The other prevalence in Winnipeg is statistically higher than the provincial all other prevalence of 58.8%. There is no relationship between PMR and the prevalence of antidepressant prescription follow–up for the Winnipeg CAs.
- All CAs in Winnipeg have a prevalence of antidepressant prescription follow–up similar to the provincial averages for both Metis and all others.
- In River East CA, the Metis prevalence of antidepressant prescription follow–up is significantly higher than that of all others residing in the CA (72.7% vs. 58.8%).

Figure 14.1.1: Antidepressant Prescription Follow-Up by RHA, 2004/05-2006/07
Crude percent of newly depressed patients who had at least three physician visits in four months



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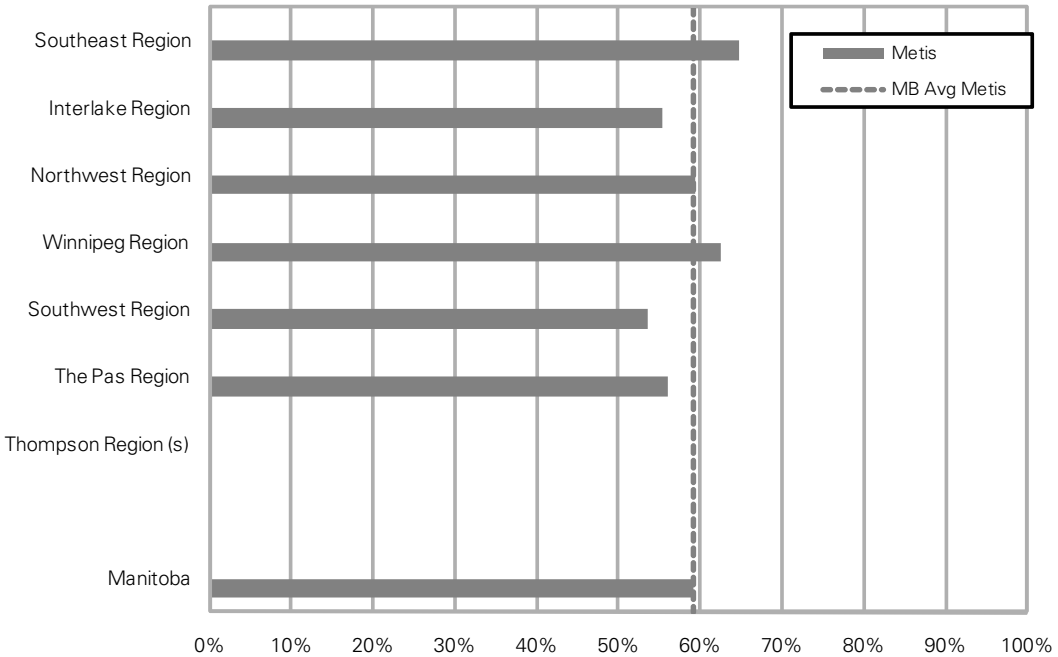
Source: MCHP/MMF, 2010

Figure 14.1.2: Antidepressant Prescription Follow-Up by Metis Region, 2004/05-2006/07
Crude percent of newly depressed Metis patients who had at least three physician visits in four months



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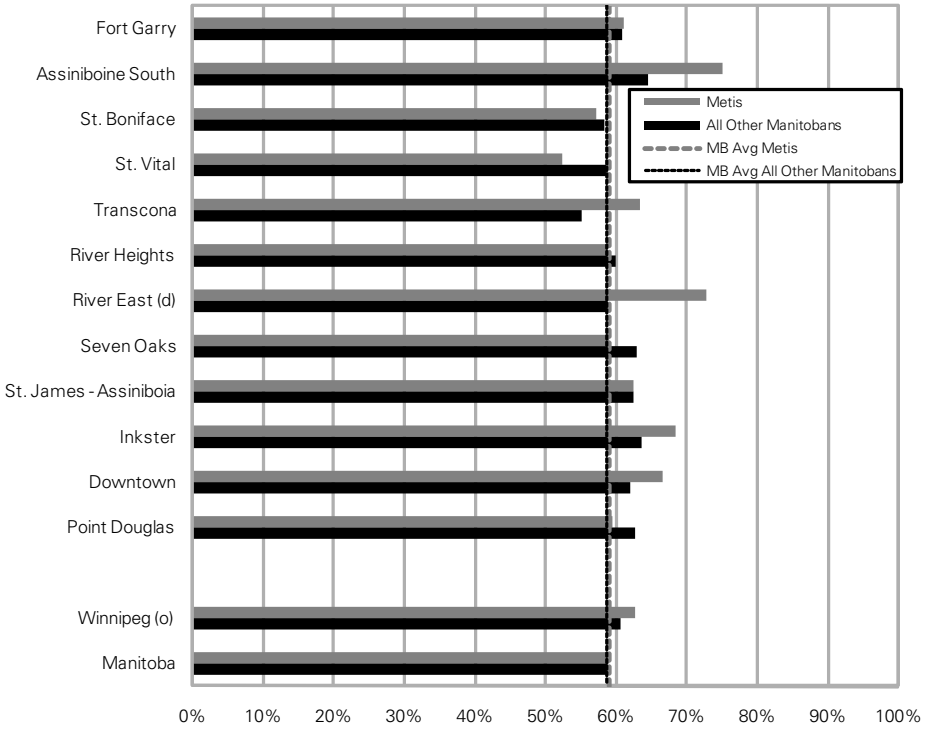
Source: MCHP/MMF, 2010

Figure 14.1.3: Antidepressant Prescription Follow-Up by Winnipeg Community Area, 2004/05-2006/07
Crude percent of newly depressed patients who had at least three physician visits in four months



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Source: MCHP/MMF, 2010

14.2 Asthma Care: Prevalence of Controller Medication Use

Guidelines for the treatment of asthma recommend that all patients who require the use of acute treatment medication (e.g., Beta 2–agonists) more than once a day should also be treated with long–acting anti–inflammatory medication for long–term control (Becker et al., 2003).

In this study, the percentage of asthmatics that filled a prescription for medications recommended for long–term control of asthma was measured for fiscal year 2006/07. Asthmatics were defined as individuals with a repeat prescription (i.e., two or more) for Beta 2–agonists (ATC codes R03AA, R03AB, or R03AC). Long–term asthma medications include inhaled corticosteroids (ATC code R03BA), Leukotriene modifiers (ATC code R03DC), or other drugs for obstructive airway diseases (ATC code R03AK). This analysis excluded COPD patients as defined through one or more prescriptions of Ipratropium Bromide (ATC codes R01AX03, R03AK04, or R03BB01).

Key observations:

RHAs:

- Provincially, the prevalence of appropriate long–term medication use for asthma care is similar for Metis and "all others" (64.4% vs. 64.2%, NS). There is no gradient of prevalence of appropriate long–term medication use for asthma care with PMR, which makes sense given the fact that the denominator is people with asthma, and their need for quality of care should not vary by underlying health of the region's population.
- Central RHA has low prevalence of appropriate long–term medication use for asthma care for the Metis compared to their provincial average (53.8% vs. provincial Metis average of 64.4%). This prevalence is also lower than for "all others" in the region (53.8% Metis vs. 63.5% others).
- Brandon RHA shows a low prevalence of appropriate long–term medication use for asthma care for all others (58.6%). This same trend appears to be also evident for the Metis (54.9%) though it is not statistically lower than the corresponding provincial average.
- By aggregate area, the prevalence of appropriate long–term medication use for asthma care for Metis and others is similar to the provincial averages in the Rural South (62.1% Metis, 63.9% others) and the Mid (64.2% Metis, 62.9% others). In the North, the prevalence is similar to the Metis provincial average; but "all others" prevalence is higher than the "all other" provincial average (64.1% Metis, 67.7% others).

MMF Regions:

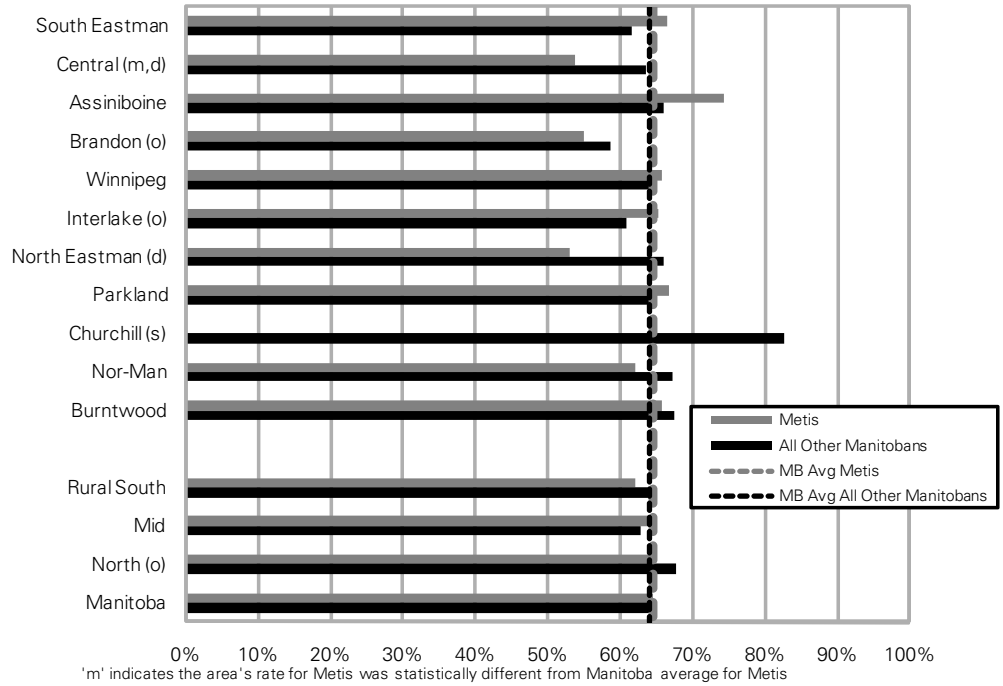
- The Metis prevalence of appropriate long–term medication use for asthma care is 64.4% provincially. All MMF Regions have similar prevalence, with no gradient by PMR.

Winnipeg CAs:

- In Winnipeg, the prevalence of appropriate long–term medication use for asthma care for Metis and all other Winnipeggers is similar to the corresponding provincial averages, and similar between the two groups (Metis 65.8%, others 64.6%). Within Winnipeg CAs, there is no gradient of PMR with the prevalence of appropriate long–term medication use for asthma care.

- In Fort Garry CA, all others living in the CA have a statistically higher prevalence of appropriate long–term medication use for asthma care compared to the corresponding provincial average; and although not statistically significant, the same trend appears for the Metis living in this CA (Metis 81.6%, others 68.8%). The opposite shows up in St. Boniface CA, with statistically lower prevalence for "all others" and a similar trend for the Metis although not statistically significant (Metis 60.6%, others 59.7%).

Figure 14.2.1: Asthma Care: Controller Medication Use by RHA, 2006/07
Crude percent of asthmatics on appropriate long-term medications (one or more prescriptions for inhaled steriods)



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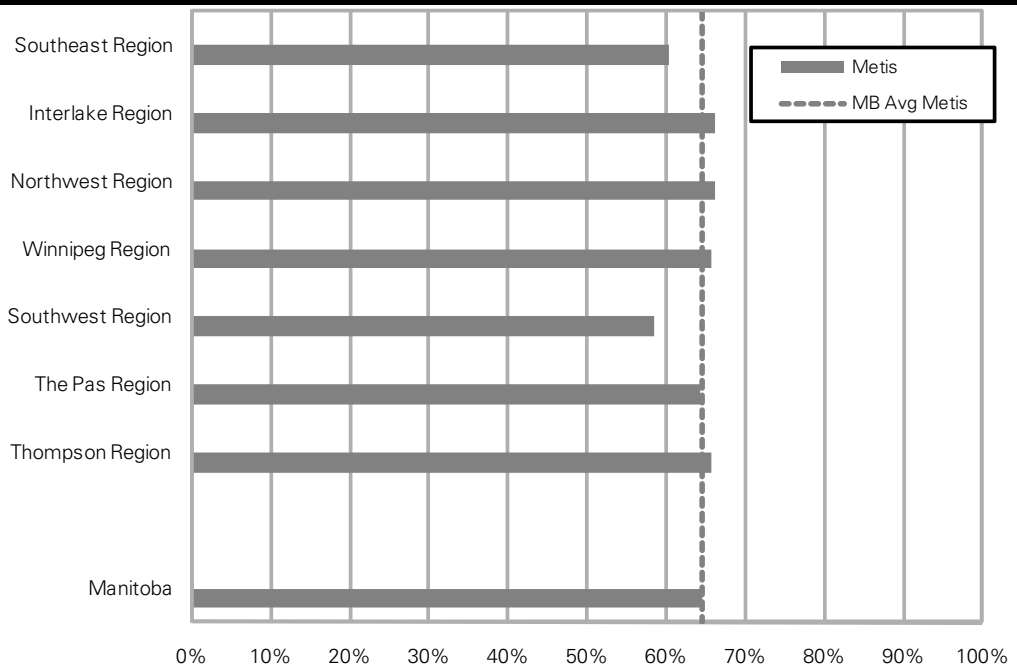
Source: MCHP/MMF, 2010

Figure 14.2.2: Asthma Care: Controller Medication Use by Metis Region, 2006/07
Crude percent of Metis asthmatics on appropriate long-term medications
(one or more prescriptions for inhaled steriods)



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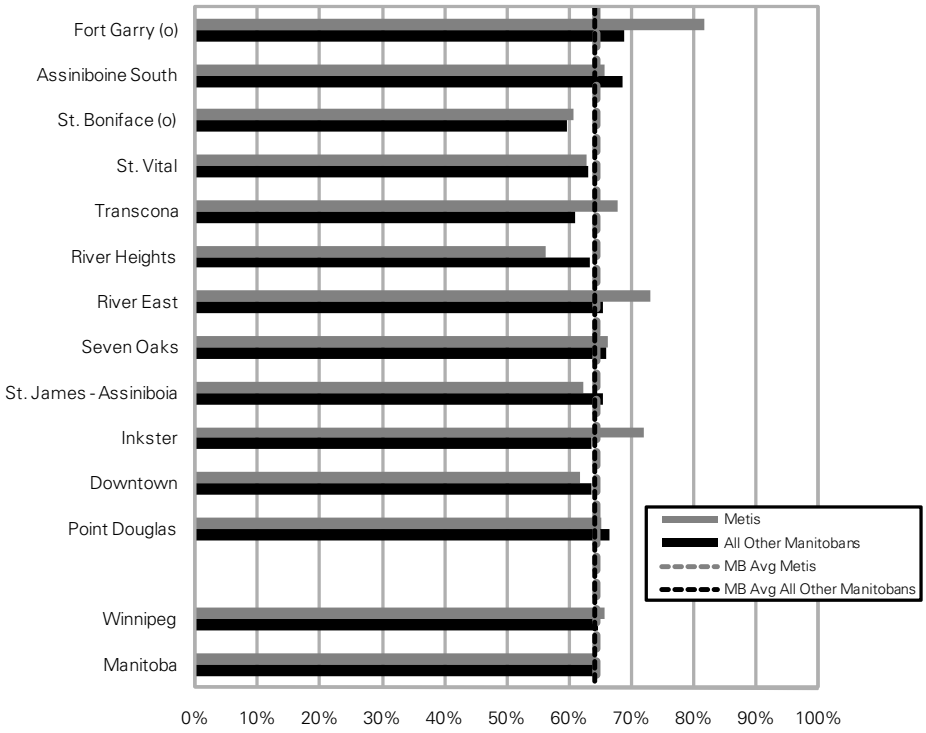
Source: MCHP/MMF, 2010

Figure 14.2.3: Asthma Care: Controller Medication Use by Winnipeg Community Area, 2006/07
Crude percent of asthmatics on appropriate long-term medications (one or more prescriptions for inhaled steriods)



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Source: MCHP/MMF, 2010

14.3 Diabetes Care: Prevalence of Eye Exams

Individuals with diabetes are at a greater risk of damage to the retina than the general population. In the later stages of diabetes, individuals may develop diabetic retinopathy, which causes the swelling of blood vessels in the retina and leaking of fluid or the abnormal growth of new blood vessels on the surface of the retina. Diabetic retinopathy can develop without symptoms. When left untreated, it may cause loss of vision, so regular eye examinations for people with diabetes help to diagnose retinopathy early and initiate treatment to slow its progression.

The crude percentage of persons with diabetes aged 19 and older who had at least one eye examination by an ophthalmologist or optometrist was measured in fiscal year 2006/07. Eye examinations were identified through physician tariff codes in the medical claims data, and as such, only those ophthalmologists or optometrists who billed Manitoba Health would be captured here. People with diabetes who paid the physician for the eye examination directly, or through third–party insurance, would not be counted here. However, all people with diabetes are eligible for a free eye examination as required or at the discretion of the physician (Health Services Insurance Act—Optometric Services Insurance Regulation 50/93, 1993).

Key observations:

RHAs:

- Provincially, the percentage of people with diabetes who had an eye examination in 2006/07 was statistically significantly lower for Metis than for all other Manitobans (32.5% vs. 34.0%). However, both of those percentages are far lower than should be considered acceptable, given the propensity for those with diabetes to develop diabetic retinopathy.
- There is very little relationship between PMR and percentage of either Metis or all other Manitobans with diabetes who had an annual eye examination by RHA. At the aggregate level, a trend for all other Manitobans can be seen—that is, those in the 'most healthy' area (Rural South) have a higher percentage of people with diabetes who had an annual eye examination and those in the 'least healthy' area (North) have a lower percentage. For Metis at an aggregate level, there was no relationship between PMR and the percentage of Metis with diabetes who had an annual eye examination.
- Two RHAs showed a higher percentage of people with diabetes who had an annual eye examination for "all others", and a similar trend (although not statistically significant) for Metis: Assiniboine (37.2% Metis, 42.1% others) and NOR–MAN (38.5% Metis, 38.7% others).
- In Brandon RHA, the percentage of Metis with diabetes who had an annual eye examination is statistically lower than for all other Manitobans (31.2% vs. 41.2%). Metis are similar to their overall provincial average of 32.5%, but other residents of Brandon are higher than their corresponding provincial average of 34.0%.
- In Parkland RHA, the percentage of Metis with diabetes who had an annual eye examination is significantly lower than for "all other Manitobans" (29.9% vs. 34.3%).

- At the aggregate level, the Rural South shows a statistically lower percentage of Metis with diabetes who had an annual eye examination than for all other Manitobans (33.3% vs. 38.6%), but the Metis percentage is similar to the Metis provincial average. In the Mid aggregate area, both groups are similar to each other and to their corresponding provincial averages (31.4% Metis, 33.3% others). In the North, the Metis percentage is similar to the provincial average for Metis, but it is significantly higher than that of all other Manitobans (32.9% vs. 28.0%). All other Manitobans in the North are statistically lower than their provincial average.

MMF Regions:

- Overall the percentage of Metis people with diabetes who had an annual eye examination is 32.5%. The percentages throughout the MMF Regions are remarkably similar to this, with only Thompson MMF Region showing a trend (not statistically significant) to a slightly lower rate of 27.6%.

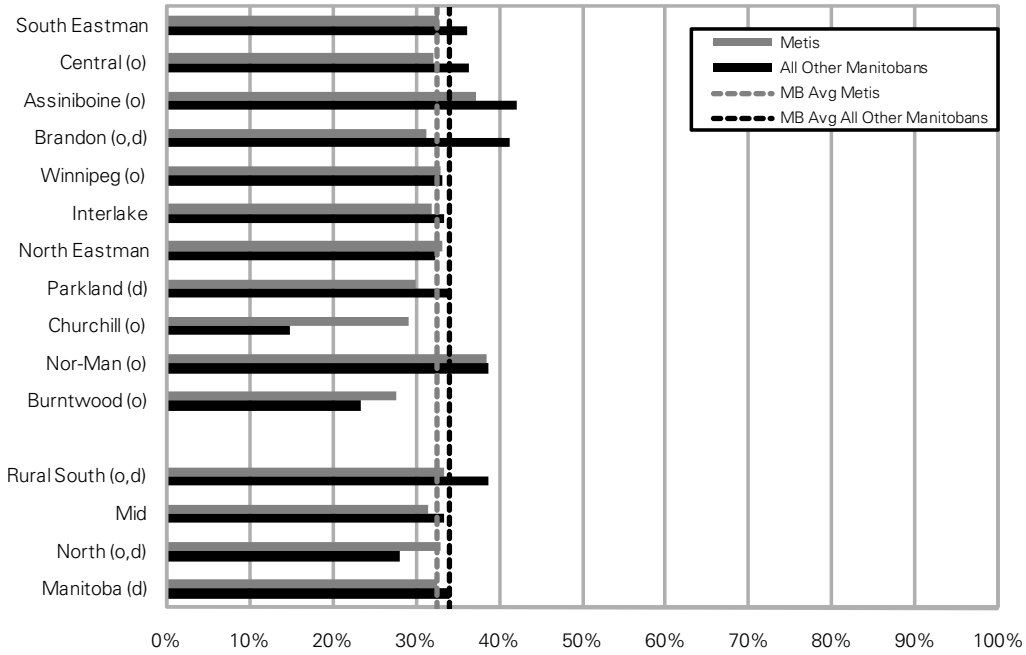
Winnipeg CAs:

- In Winnipeg RHA, both the Metis and all other Winnipeggers have similar percentages of people with diabetes who had an annual eye examination (33.0% Metis, 33.1% others). Because of the high numbers of "all others" in Winnipeg, this rate is lower than the corresponding provincial average of 34.0%, whereas the Metis rate is similar to their corresponding provincial average of 32.5%.

- The association of the percentage of people with diabetes who had an annual eye examination with PMR in the Winnipeg CAs is not obvious, except for the fact that the least healthy CAs of Downtown (Metis 29.2%, others 25.9%) and Point Douglas (Metis 27.4%, others 26.8%) appear to have low percentage for both Metis and all other residents. In those two CAs, it is a statistically lower percentage for all others (but not for Metis, probably due to small numbers).

- The only CA showing a statistically lower percentage of people with diabetes who had an annual eye examination for the Metis compared to all others is St. James–Assiniboia (27.7% vs. 35.9%).

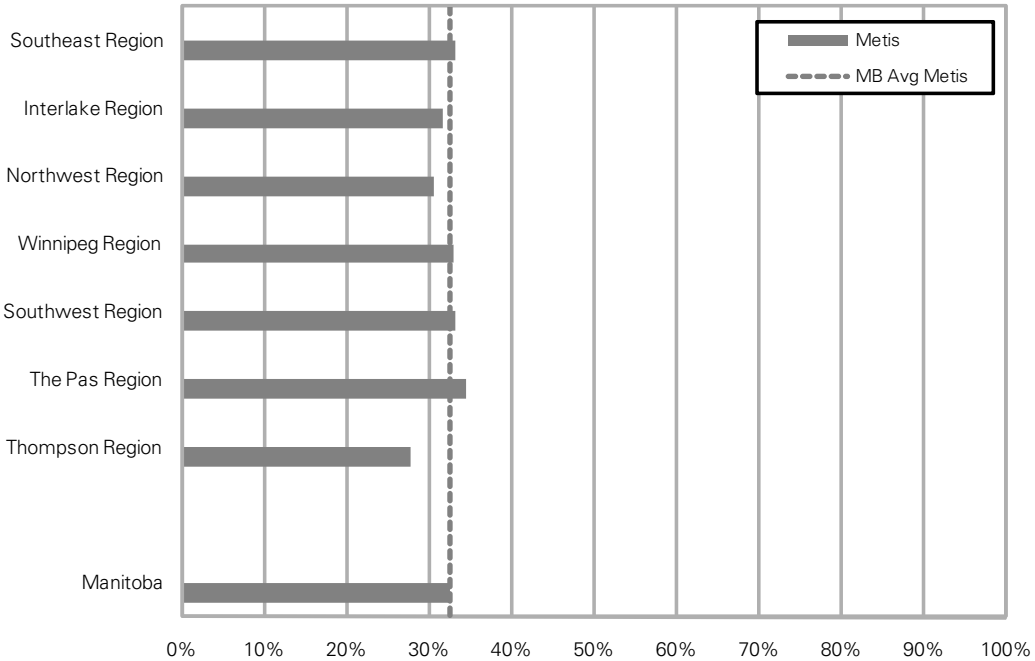
Figure 14.3.1: Diabetes Care: Annual Eye Exams by RHA, 2006/07
Crude percent of diabetics who had an annual eye examination



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

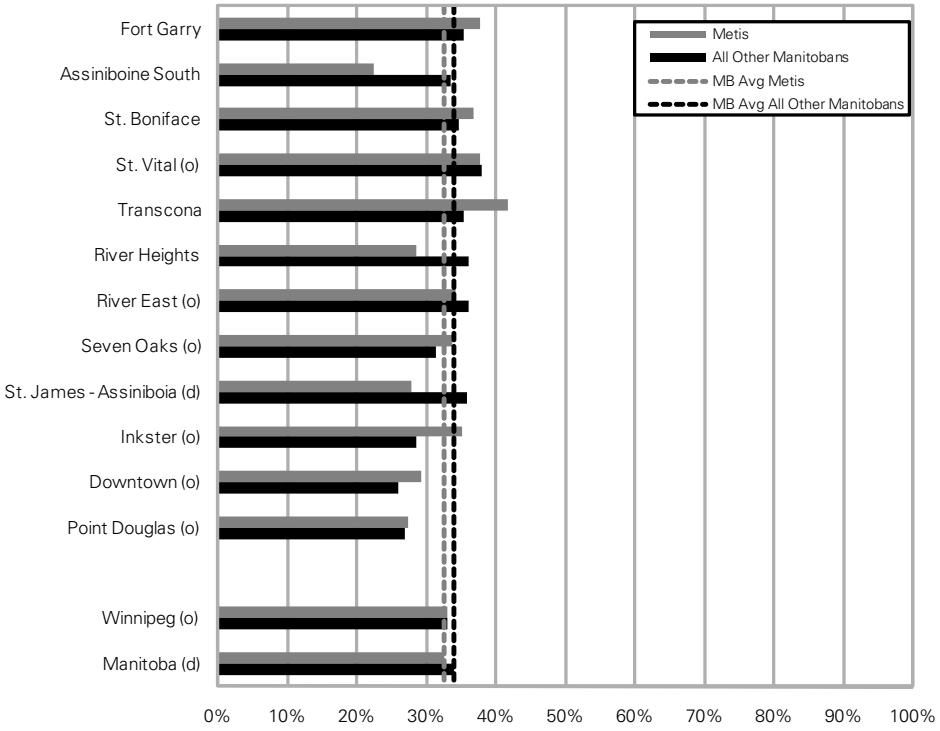
Figure 14.3.2: Diabetes Care: Annual Eye Exams by Metis Region, 2006/07
Crude percent of Metis diabetics who had an annual eye examination



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 14.3.3: Diabetes Care: Annual Eye Exams by Winnipeg Community Area, 2006/07
Crude percent of diabetics who had an annual eye examination



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

14.4 Post–AMI Care: Beta Blockers

Beta–blockers, properly known as beta–adrenergic blocking drugs, have been shown to lower the risk of subsequent heart attacks after patients have suffered an AMI (acute myocardial infarction).

In this study, the crude percentage of AMI patients who filled at least one prescription for a beta–blocker within four months of hospital discharge was measured over five fiscal years: 2002/03–2006/07. AMI patients were identified by a hospitalization with a diagnosis of AMI (ICD–9–CM code 410 or ICD–10–CA code I21). Beta–blocker medications were defined by ATC codes C07AA and C07AB. To be included in the analysis, patients had to be alive for the entire four month follow–up period. Patients with a previous hospitalization for an AMI in the three years prior to the index AMI hospitalization were excluded from analyses. Patients with the following diagnoses in hospital in the three years prior to the index event were also excluded from analyses as these diseases are contraindicated to the use of beta–blockers:

- asthma: ICD–9–CM code 493, ICD–10–CA code J45
- chronic obstructive pulmonary disease: ICD–9–CM codes 491 and 492, ICD–10–CA codes J41–J44
- peripheral vascular disease: ICD–9–CM codes 443 and 459; ICD–10–CA codes I73, I79.2, I87

Age was calculated as of December 31 of each year, based on the record of their first AMI in the study period. Only patients aged 20 and older are included. Region assignment was based on the record of their first AMI in the study period.

Key observations:

RHAs:

- Provincially, the percentage of AMI patients receiving beta–blocker prescriptions within four months of hospital discharge is similar for Metis and all others (78.5% vs. 81.2%). There appears to be very little association between this percentage and the PMR of the region.
- Only Burntwood RHA appears to be very low on this quality of care indicator at 57.9% for Metis and 73.5% for all other residents. The all other rate is lower than their corresponding provincial average, whereas the Metis rate is not statistically significantly different (most likely an artifact of small numbers).

MMF Regions:

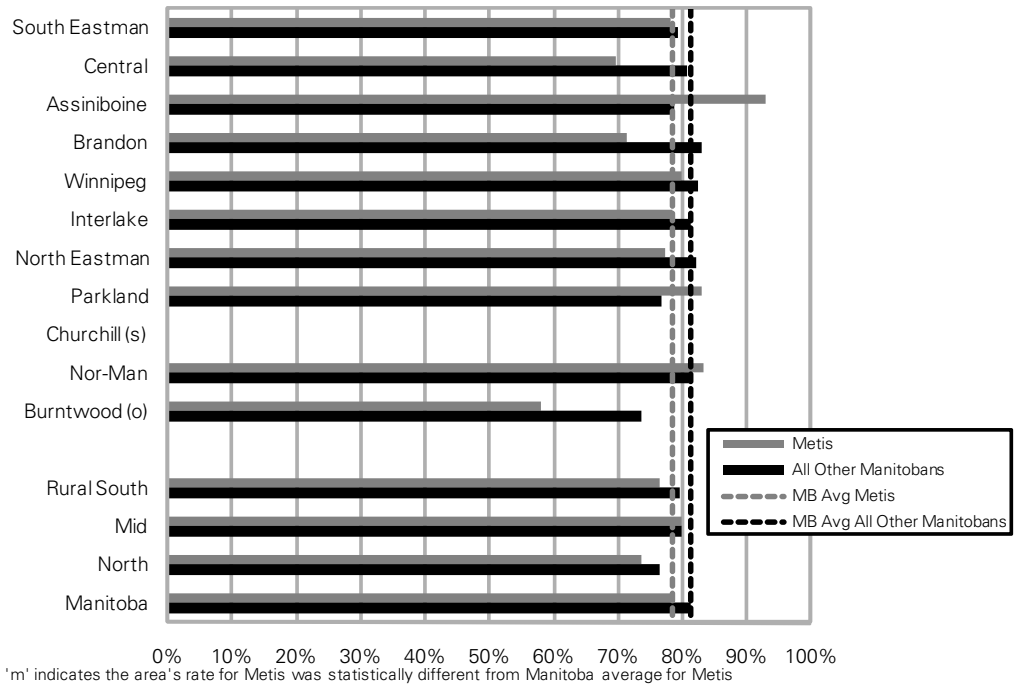
- Provincially, the percentage of Metis AMI patients with beta–blocker prescriptions within four months of hospital discharge is 78.5%.
- All MMF Regions have a similar rate to the overall provincial Metis average. The Thompson MMF Region, however, shows a strong trend to a lower percentage at 57.9%.

Winnipeg CAs:

- In Winnipeg RHA, both Metis and all other Winnipeggers have similar percentages (79.8% Metis, 82.3% others). For the Metis Winnipeggers, there appears to be a gradient with PMR: those living in the most healthy CAs have higher percentages than those in the least healthy CAs. However, this gradient does not show up for all other Winnipeggers.
- In St. James–Assiniboia, there is a statistically significantly lower percentage for the Metis compared to all other residents (63.6% vs. 83.8%).

- Although not statistically significant, there appears to be a trend for the Metis to have low percentages in the three least healthy CAs of Inkster (71.4% Metis, 82.8% others); Downtown (65.0% Metis, 82.0% others); and Point Douglas (70.4% Metis, 79.7% others). This needs further exploration, to detect if this is a problem with prescription costs for those not on social assistance, or a lack of continuity of care.

Figure 14.4.1: Post-Acute Myocardial Infarction (AMI) Care: Beta-Blocker Prescribing by RHA, 2002/03-2006/07
Crude percent of AMI patients who received a prescription for a beta-blocker within four months



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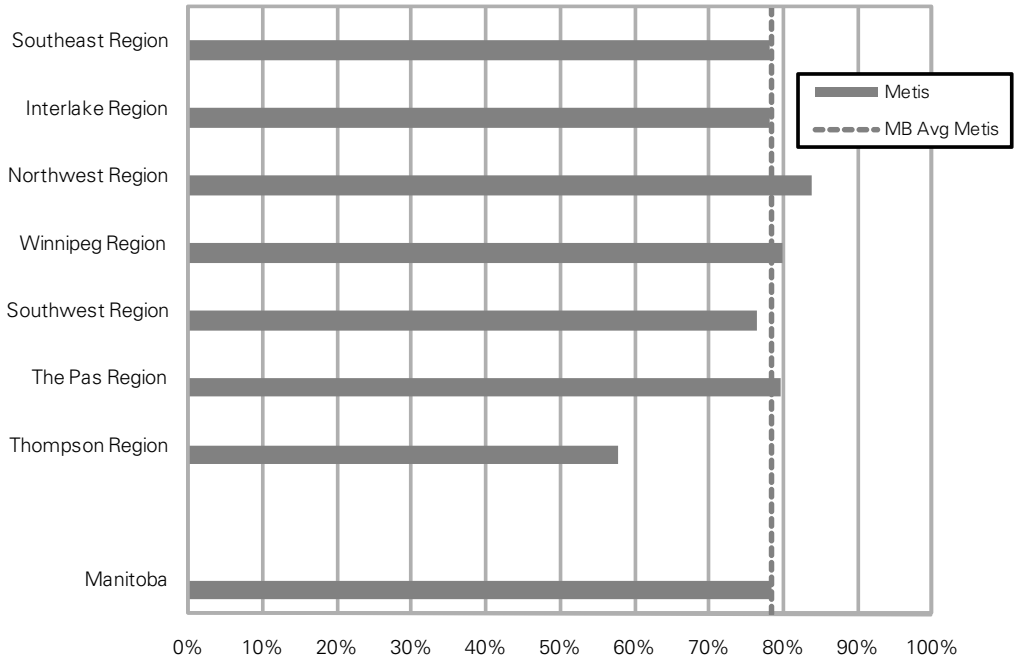
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 14.4.2: Post-Acute Myocardial Infarction (AMI) Care: Beta-Blocker Prescribing by Metis Region, 2002/03-2006/07
Crude percent of Metis AMI patients who received a prescription for a beta-blocker within four months



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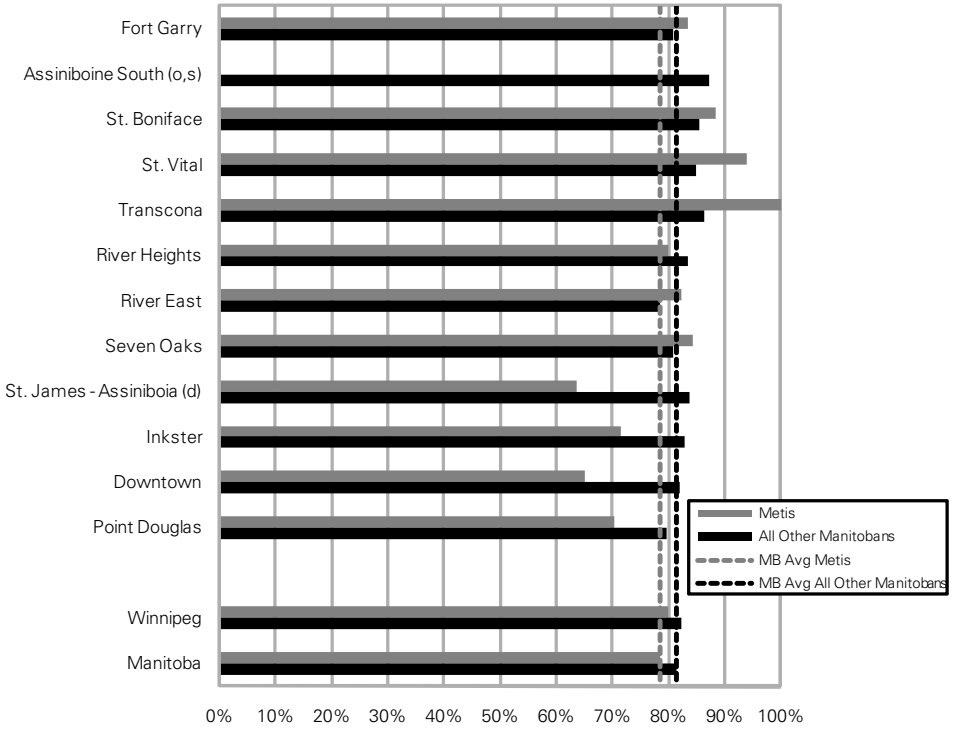
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 14.4.3: Post-Acute Myocardial Infarction (AMI) Care: Beta-Blocker Prescribing by Winnipeg Community Area, 2002/03-2006/07
Crude percent of AMI patients who received a prescription for a beta-blocker within four months



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

14.5 Potentially Inappropriate Prescribing of Benzodiazepine to Community–Dwelling Older Adults

Benzodiazepines belong to the group of medicines called central nervous system (CNS) depressants. They are used to slow down the nervous system and are typically classified as having short, intermediate, or a long–acting half–life in order to reflect how long these medications remain active in the body. Benzodiazepines can be used to treat: anxiety disorders, panic disorders, insomnia, seizures, muscle spasticity, alcohol withdrawal, and as a perioperative adjunct to anesthesia (Repchinsky, 2007). Tolerance and physical and psychological dependence may occur with prolonged use (Repchinsky, 2007).

Potentially inappropriate benzodiazepine use was defined as the crude percentage of people aged 75 and older who had at least two prescriptions for benzodiazepines or at least one prescription for benzodiazepines with a greater than 30–day supply, measured annually for three fiscal years: 2004/05–2006/07. Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05, N05CD07, and N05CF01. Rates are provided for community–dwelling seniors only; seniors residing in nursing homes, known as Personal Care Homes (PCH), are excluded. If a resident lived in a PCH for one or more days during the study period, they were categorized as a senior residing in a PCH and were excluded from analyses. The denominator includes all Manitoba residents aged 75 and older as of April 1, 2004. Note that if an individual died during the fiscal year, then prescriptions are looked at one year before death.

Key observations:

RHAs:

- Provincially, the Metis have a higher percentage of community–dwelling older adults on benzodiazepines compared to all other Manitobans age 75+ (24.7% vs. 19.8%). Due to the fact that these are potentially inappropriate drugs that could lead to falls in the elderly and knowing that one in five, and even up to one in four, older adults are taking these drugs, they are something that needs further study. However, this higher percentage of community–dwelling adults aged 75+ on benzodiazepines may not be surprising, given that Metis show a statistically higher prevalence of anxiety disorder (see Chapter 6) compared to all other Manitobans.
- There is no apparent RHA gradient with PMR. However in the aggregate areas, the Rural South shows the highest inappropriate prescribing rates, and the North has the lowest rates (i.e., the best quality of care) for both the Metis and all others. Aggregate area rates are: Rural South (Metis 25.1%, others 21.9%); Mid (Metis 22.8%, others 19.8%); and North (Metis 21.4%, others 12.3%).
- Many RHAs show high percentages of community–dwelling older adults on potentially inappropriate benzodiazepines for all others when compared to their provincial average of 19.8%: South Eastman (22.7% others), Central (21.4% others), Assiniboine (22.2% others), Brandon (23.2% others), and Parkland (25.0% others). For Metis, only the RHA of Parkland has a Metis percentage (33.2%) higher than the provincial Metis average (24.7%). Those RHAs with percentages that are lower for all other residents compared to their provincial average include Winnipeg (19.0%), Interlake (17.0%), North Eastman (16.1%), NOR–MAN (14.6%), and Burntwood (9.4%).

- The RHA of Parkland shows particularly high percentages both for the Metis and for all other residents compared to their provincial averages. The Metis rate is statistically higher than that of all other Parkland residents (Metis 33.2%, others 25.0%). The RHA of Assiniboine shows a statistically higher rate for Metis compared to all other residents of that region (Metis 31.0%, others 22.2%).
- The RHA of NOR–MAN shows a statistically higher rate for the Metis compared to all other residents (Metis 26.7%, others 14.6%), mainly driven by the very low rate for all others.

MMF Regions:

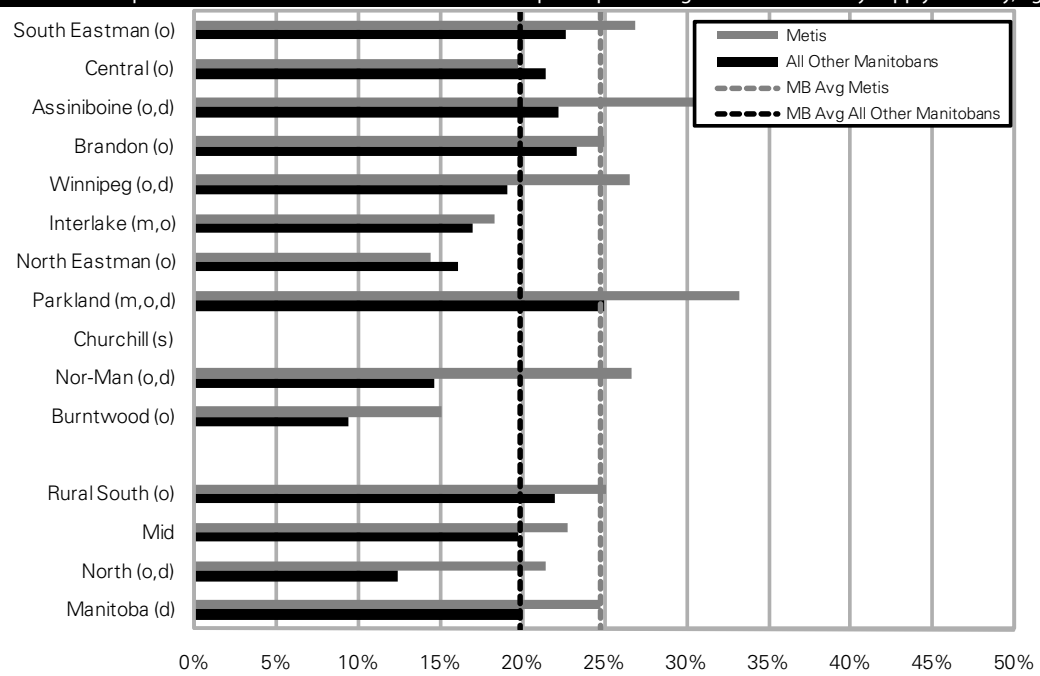
- The provincial Metis percentage of community–dwelling older adults on potentially inappropriate benzodiazepines is 24.7%.
- There is a highly fluctuating pattern of benzodiazepine use by MMF Region, none showing statistical differences with the overall Metis rate. However, there is a trend to a very low percentage in Thompson MMF Region (14.0%) and a trend to high percentages in Northwest MMF Region (29.8%) and The Pas MMF Region (33.8%).

Winnipeg CAs:

- In Winnipeg RHA, Metis have a higher percentage of community–dwelling older adults age 75+ on potentially inappropriate benzodiazepines compared to all other Winnipeggers (26.5% vs. 19.0%). This reflects the trend at the provincial level. However, there is no association between PMR and this percentage at the CA level for the Metis. For all other Winnipeggers though, it appears as if the least healthy CAs have the lowest prescribing rate or potentially better quality of care.
- Several CAs have a higher percentage of community–dwelling older adults on benzodiazepines for the Metis compared to all others living in that area: St. Boniface (30.2% vs. 22.5%), St. Vital (27.4% vs. 20.4%), Seven Oaks (32.7% vs. 20.2%), St. James–Assiniboia (30.6% vs. 19.1%), and Point Douglas (30.6% vs. 16.6%). Most other areas (with exception of River Heights) show the same general trend of slightly higher Metis rates compared to all others, though not statistically higher.
- No CA shows lower rates for the Metis compared to their provincial average, although the following show lower rates for all others compared to their provincial average: Fort Garry (17.4% others), Inkster (12.6%), Downtown (16.2%), and Point Douglas (16.6%). It is interesting to note that the three least healthy CAs of Winnipeg show very low percentages of potentially inappropriate benzodiazepine use, which is interesting given the fact that these areas may have the residents with the highest comorbidities.

Figure 14.5.1: Potentially Inappropriate Prescribing of Benzodiazepines to Community-Dwelling Older Adults by RHA, 2004/05-2006/07

Crude percent of non-PCH seniors with two or more prescriptions or greater than a 30 day supply annually, aged 75+



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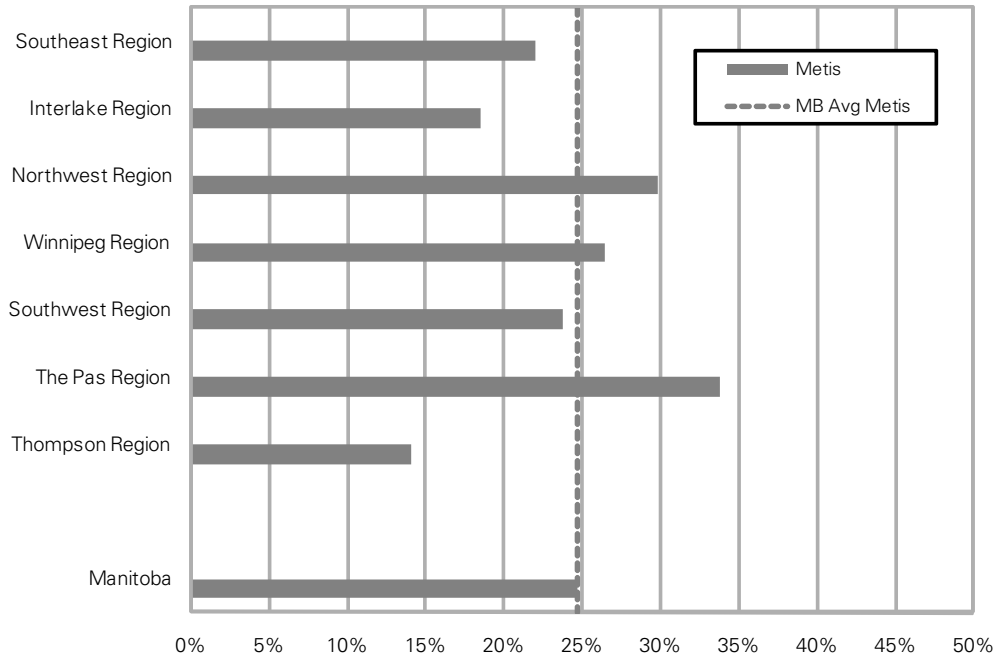
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 14.5.2: Potentially Inappropriate Prescribing of Benzodiazepines to Community-Dwelling Older Adults by Metis Region, 2004/05-2006/07

Crude percent of Metis non-PCH seniors with two or more prescriptions or greater than a 30 day supply annually, aged 75+

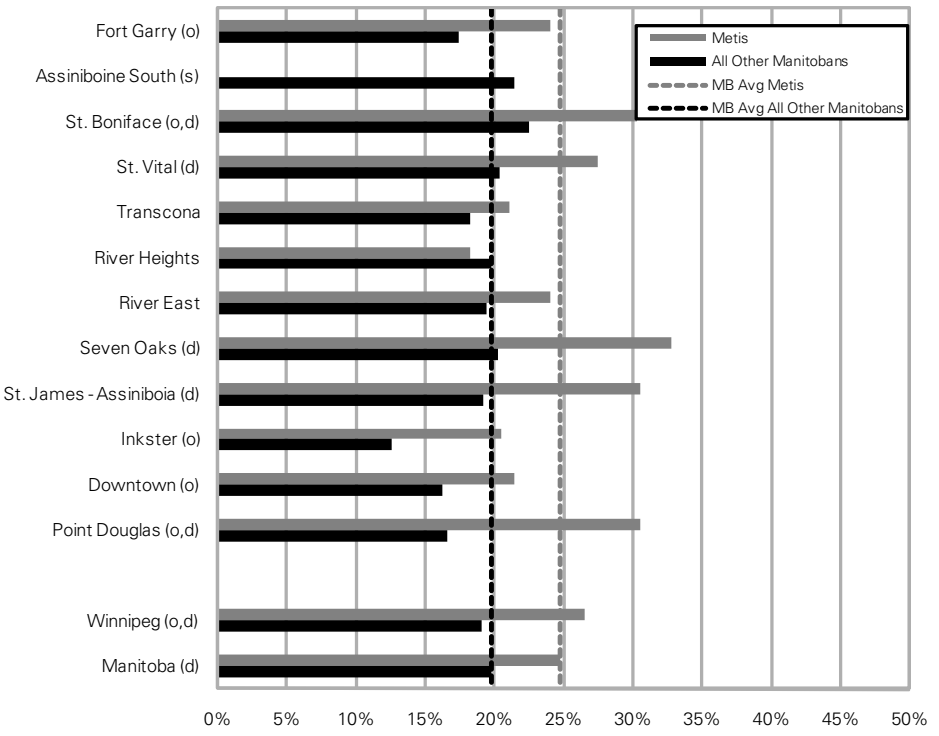


'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 14.5.3: Potentially Inappropriate Prescribing of Benzodiazepines to Community-Dwelling Older Adults by Winnipeg Community Area, 2004/05-2006/07

Crude percent of non-PCH seniors with two or more prescriptions or greater than a 30 day supply annually, aged 75+



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'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

14.6 Findings from Literature Review

(compared to the results in this study—in italics)

Diabetes care: eye exams:

According to a study by Krieg and Martz (2008), rural residents may be at risk for not receiving appropriate eye care due to the extensive travel time (between two and six hours) to larger urban centres that have specialist care such as this. Regular eye care examinations, critical for those living with diabetes, seems to be problematic. When asked about whether they had seen eye doctor/specialist about their health in past 12 months, 47% of those without diabetes had contact compared to 38% those with diabetes (Bruce, 2000).

In our study, we found that amongst those with diabetes, 32.5% of Metis and 34.0% of other Manitobans had an eye examination in 2006/07. This is very close to the 38% reported by Bruce (2000). Those areas of most concern, i.e., with very low percentages of annual eye examinations, are remote areas such as Burntwood RHA and Thompson MMF Region, which may indicate lack of access to such services. Within Winnipeg, supposedly with good access, there appear to be sub–regions where access rates are low (Inkster, Downtown, and Point Douglas). These may be areas where people do not necessarily know that they are entitled to or lacking the mechanism for accessing a free annual eye examination if they have diabetes. The working poor may avoid an annual eye examination from an optometrist since they may need to pay if the doctor is not aware of the fact that Manitoba Health should be billed directly. It may pose a financial burden to them. Universal implementation of clinical guidelines recommending that all individual with diabetes have a referral to an ophthalmologist would potentially eliminate this problem through universal, upfront coverage.

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Chapter 15: Health Practices and Personal Characteristics from the CCHS

The Canadian Community Health Survey (CCHS) is a **biennial** survey conducted by Statistics Canada to provide regular and timely cross–sectional estimates of health determinants, health status, and health system utilization for 136 health regions in Canada, including the territories. Survey respondents were sampled from 11 regions in Manitoba. Respondents were 12 years of age and older; the sampling methodology was designed to ensure over–representation of youth under 19 years of age and seniors 65 years of age and older. Although the CCHS asks several questions on Metis ancestry, such as, "To which ethnic or cultural group(s) did your ancestors belong? (For example: French, Scottish, Chinese, East Indian, Metis), these questions have their limitations[1].

It is very important to note that the **CCHS survey excludes populations living in First Nations communities (i.e., 'Indian Reserves')**, on Canadian Forces Bases, in some remote areas, and those not living in households. Hence, the generalizeability of the rates in RHAs that include a high percentage of First Nations living 'on reserve' (such as Burntwood RHA) is limited by that exclusion.

It is also important to note that **this chapter relies on a sample, not the entire population** of Manitobans as is the case for all other chapters that use the Repository, which includes all Manitobans. The sample size for each of the indicators is given in the appendix in the crude tables. Sample sizes were too small to be able to give rates for the Winnipeg CAs, so only the RHA and MMF Region rates are shown.

Because of the many limitations of solely relying on the CCHS self-identification question, for purposes of this chapter the CCHS survey was linked to the Metis cohort in the Repository housed at MCHP. This cohort was derived from various sources, including MMF registry files (see Chapters 1 and 2 for details) as well as self-identification in both CCHS and NPHS.

Indicators in this chapter, all based upon CCHS survey data, include:

- Self–Rated Health
- Self–Perceived Stress
- Self–Perceived Work Stress
- Life Satisfaction
- Emotional Well–Being

[1] Note from Dr. J. Bartlett: In the Aboriginal People's Survey, the question to identify Metis has two different measures: 'Metis identity population', and 'Metis ancestry population'. The critique from Metis in the past has been that those who state only 'ancestry' may have better health status (having integrated into the general population to a higher extent, which often depends on where you live and whether or not you appear more Indian). These critics state that there will be an underestimation of the burden of suffering. As more people 'identify' as belonging to the Metis community, the APS 'identity' and 'ancestry' population counts will become more similar. Given the 91% increase in Metis identification over the last decade, it is certainly likely that this will have had an effect on the rates we now find in the survey data alone, i.e., the differences between Metis and all others may be greater than the current data show. Thus, in the rest of this report where the Metis cohort may be more extensive, the effects are more evident in underlying health differences (such as the PMR in Chapter 3); whereas without the more complete "identification" that the population–based file provides there may not be as much difference by region.

- Body Mass Index (BMI)
- Average Daily Consumption of Fruits and Vegetables Consumption
- Frequency of Having Five or More Drinks with Alcohol
- Current Smokers
- Exposure to Smoke Inside the Home
- Total Physical Activity Levels
- Limitation of Activities
- Youth Smoking, Drinking, and Sexual Behaviour

Overall Key Findings:

- In general, the self–rated health of the Metis is poorer than for all other Manitobans, which is not surprising given the higher burden of chronic disease. However, what is somewhat surprising are the similar levels of life satisfaction, emotional well–being, and self–perceived stress (including work stress) of Metis and all other Manitobans. This may be due to an attitudinal approach to life (see the literature review at the end of this chapter) which does not necessarily relate satisfaction, emotional well–being, or stress to physical health or disease. Or this could reflect the differences in interpretation of questions by different cultural groups.
- In some of the lifestyle factors of health, the Metis have a lower consumption of fruits and vegetables, slightly higher alcohol consumption, and much higher smoking rates (53% higher), including exposure to smoke in the home (63% higher), when compared to all other Manitobans. The percentage of Metis being overweight or obese is also higher, as is the percentage of Metis reporting limitations of activities due to physical or mental health problems, compared to all other Manitobans.
- The Metis have higher total physical activity levels (work and leisure combined) compared to all other Manitobans, given the previously noted behavioural patterns.
- Metis youth have much higher smoking rates (87% higher) and alcohol consumption (50% higher) and were more likely to report ever having had sexual intercourse (57% higher). However, sexually active Metis youth were similar to all other Manitoba youth in terms of use of condoms or contraceptive pills.

Table 15.0: Overall Key Findings of Health Practices and Personal Characteristics

Indicator (age of inclusion for this indicator) These are age– and sex–adjusted unless otherwise indicated.	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average	Statistically "worse off" regions for Metis compared to the Metis provincial average
		i.e., higher rates	**i.e., lower rates**
Self–Rated Health (% aged 12+ reporting excellent or very good health)	48.9% vs. 60.8% RR=0.80	–	Burntwood RHA
Life Satisfaction (% aged 12+ satisfied or very satisfied)	92.8% vs. 91.8%, NS RR=1.01	Central RHA, Winnipeg RHA, Winnipeg MMF Region	Brandon RHA
Emotional Well–Being (% aged 12+ reporting being happy and interested in life)	72.3% vs. 75.5%; RR=0.96, NS	–	–
Average Daily Consumption of Fruits and Vegetables (% aged 12+ consuming fruits and vegetables five or more times per day)	20.9% vs. 30.6% RR=0.68	–	–
Total Physical Activity Levels (% aged 15–75 who are physically active—includes work, leisure, and travel time)	37.2% vs. 29.0% RR=1.28	–	–
		i.e., lower rates	**i.e., higher rates**
Self–Perceived Stress (% aged 15+ with 'quite a bit' to 'extreme' amounts of stress)	23.0% vs. 21.1%; RR=1.09, NS	NOR–MAN RHA, Burntwood RHA, North aggregate area, Thompson MMF Region	–
Self–Perceived Work Stress (% aged 15–75 with 'quite a bit' to 'extreme' amounts of work stress	27.6% vs. 27.5%; RR=1.00, NS	Burntwood RHA, Thompson MMF Region	–
BMI (% aged 18+ in the overweight or obese category)	65.1% vs. 55.1% RR=1.18	–	Interlake RHA, Interlake MMF Region
Frequency of Alcohol Use (% aged 12+ having five or more alcoholic drinks on one occasion per month)	21.2% vs. 17.6% RR=1.20	–	Brandon RHA
Current Smokers (% aged 12+ who smoked daily or occasionally)	33.3% vs. 21.7% RR=1.53	South Eastman RHA, Rural South aggregate area, Southeast MMF Region	Burntwood RHA, Thompson MMF Region
Exposure to Smoke (% aged 12+ exposed to smoke inside the home)	27.2% vs. 16.7% RR=1.63	–	North aggregate area

Limitation of Activities (% aged 12+ who are restricted in their activities due to physical and/or mental health problem)	39.1% vs. 31.3% RR=1.25	–	North Eastman RHA
Youth only, crude weighted percentages (ages 12–19 years)			
Youth: Current Smoking	26.2% vs. 14.0% RR=1.87	n/a	n/a
Youth: Alcoholic Drink in the Past Week	28.3% vs. 18.9% RR=1.50	n/a	n/a
Youth: Ever Had Sexual Intercourse	63.1% vs. 40.2% RR=1.57	n/a	n/a
Youth: Had Sexual Intercourse in the Past Year for those Ever Having Sexual Intercourse	89.7% vs. 93.0%; RR=0.96, NS	n/a	n/a
Youth: Used a Condom Last Time They Had Sex	78.6% vs. 74.5%; RR=1.06, NS	n/a	n/a

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

15.1 Self–Rated Health

Self–rated health has been found to be an excellent predictor of the overall health status of the population and is highly correlated with other population health status measures such as premature mortality rate. It can reflect aspects of health not captured in other measures, such as: incipient disease, disease severity, aspects of positive health status, physiological and psychological reserves, and social and mental function.

In the CCHS, all respondents were asked the question, "In general, would you say your health is: (excellent, very good, good, fair, or poor)?" They were also given the clarification, "By health, we mean not only the absence of disease or injury but also physical, mental and social wellbeing." Respondents could also answer "don't know."

The age– and sex–adjusted weighted proportion of respondents with excellent or very good overall self–rated health was calculated by taking the ratio of the number of respondents who rated their health as excellent or very good to the number of all respondents. Crude rates are available in the appendix. Respondents who answered "don't know" were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2 and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

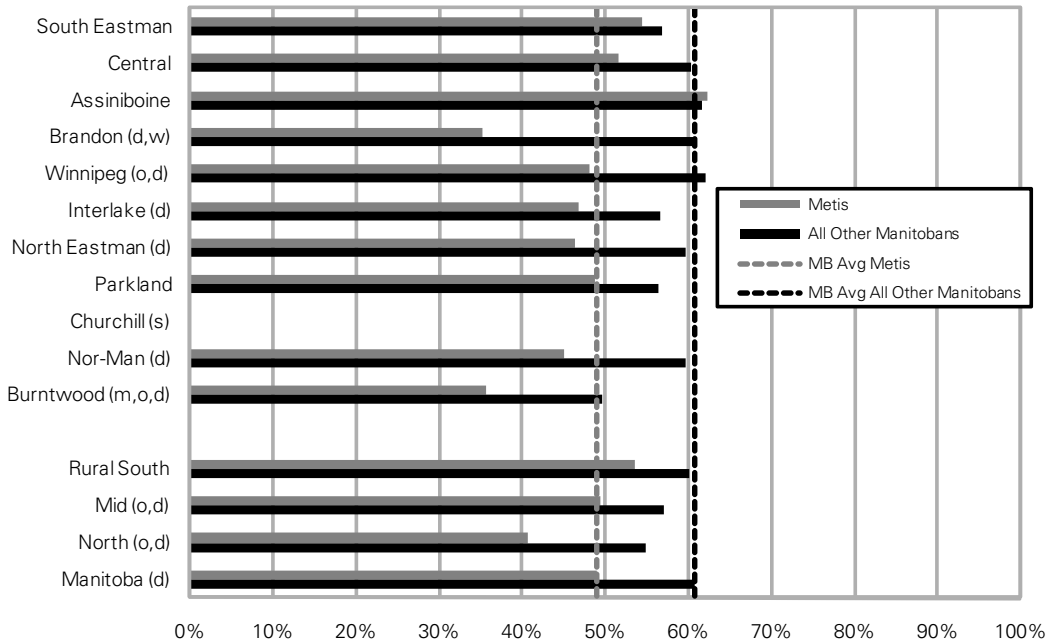
- Provincially, the Metis have a lower percentage of people reporting excellent or very good health compared to all other Manitobans (48.9% vs. 60.8%). For the Metis, there appears to be a gradient of PMR by self–rated health at the RHA level, with healthier regions showing better self–rated health scores. This gradient is not as apparent in the all other Manitobans group.
- At the aggregate area level, there is a strong gradient of self–rated health for both groups, with the highest reporting of excellent/very good health in the Rural South (Metis 53.5%, others 60.0%), followed by Mid (Metis 49.4%, others 57.1%), and the lowest in the North (Metis 40.7%, others 54.9%). In the Mid and the North, the difference between Metis and others is statistically significant. Although the same trend to lower Metis percentages exists in the Rural South, this is not statistically significant.
- Many RHAs show a statistically significantly lower percentage of Metis reporting excellent or very good health compared to all other residents including: Brandon (35.3% vs. 60.9%, warning due to unstable rates); Winnipeg (48.0% vs. 62.1%); Interlake (46.7% vs. 56.6%); North Eastman (46.4% vs. 59.7%); NOR–MAN (44.9% vs. 59.6%); and Burntwood (35.6% vs. 49.7%).
- The extremely low percentage of Metis reporting excellent or very good health in Burntwood, at 35.6% (statistically lower than the Metis provincial average of 48.9%), is especially concerning.

MMF Regions:

- Overall, the Metis provincial percentage of people reporting excellent or very good health is 48.9%. There is a gradient of self–rated health by PMR for the MMF Regions, with the most healthy Southeast MMF Region showing the highest percentage of people reporting excellent or very good health (52.9%). The least healthy Thompson MMF Region showed the lowest (36.9%). However, none of the MMF Regions show a statistically significant difference with the overall provincial Metis average; this is most likely due to small sample sizes of Metis people included in the CCHS surveys.

Figure 15.1.1: Self-Rated Health by RHA

Age and sex-adjusted percent of weighted sample aged 12+ who report excellent or very good health, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)

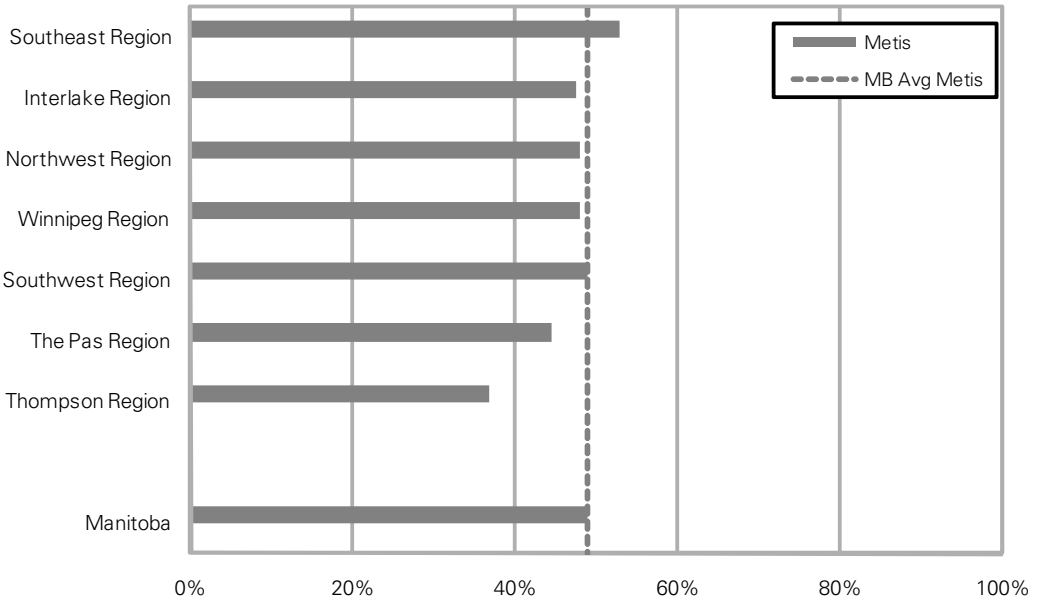


'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.1.2: Self-Rated Health by Metis Region

Age and sex-adjusted percent of weighted sample of Metis aged 12+ who report excellent or very good health, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.2 Self–Perceived Stress

Stress is an emotional and/or physical response by the body to any situation or thought that causes a disparity in a person's usual biological, psychological, or social systems. Some stress is a normal part of life, and not all stress is negative. Stressful events can be positive, such as receiving a promotion, or negative, such as the death of family member. Negative stress may cause fear, apprehension, frustration, or anger; and prolonged exposure to stress can have harmful effects on mental and physical health and wellbeing.

In the CCHS, respondents aged 15 and older were asked the question, "Thinking about the amount of stress in your life, would you say that most days are: (not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful)?" Respondents could also answer "don't know."

The age– and sex–adjusted weighted proportion of respondents with high levels of self–perceived stress was calculated by taking the ratio of the number of respondents who rated their level of stress as quite a bit stressful or extremely stressful to the number of all respondents. Crude percentages are available in the appendix. Respondents who answered don't know and respondents for which the calculation is not applicable (i.e., age less than 15) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

- Provincially, the percentage of people reporting "quite a bit" to "extreme" amounts of stress is similar for Metis and all other Manitobans (23.0% vs. 21.1%). Rather than a gradient with PMR, there appears more of a dichotomy. Most RHAs in the Rural South and Mid areas showed similar levels of stress. In contrast, the RHAs in the North, as well as the aggregate area of the North, showing statistically lower levels of stress. That is, the most healthy and average health areas show higher stress levels than the least healthy areas of the North. This is somewhat counter–intuitive and reinforces the need for cautious interpretation—people living in different circumstances and different cultural settings may interpret this question quite differently.
- Two RHAs have statistically lower percentages of people reporting "quite a bit" to "extreme" amounts of stress: NOR–MAN (Metis 13.1%, others 15.0%) and Burntwood (Metis 14.6%, others 16.8%). In both RHAs, there is no difference between the Metis and others.
- The only RHA showing a statistically significant difference between groups is South Eastman RHA, where Metis have a higher percentage of people reporting "quite a bit" to "extreme" amounts of stress (27.0% vs. 18.5%).

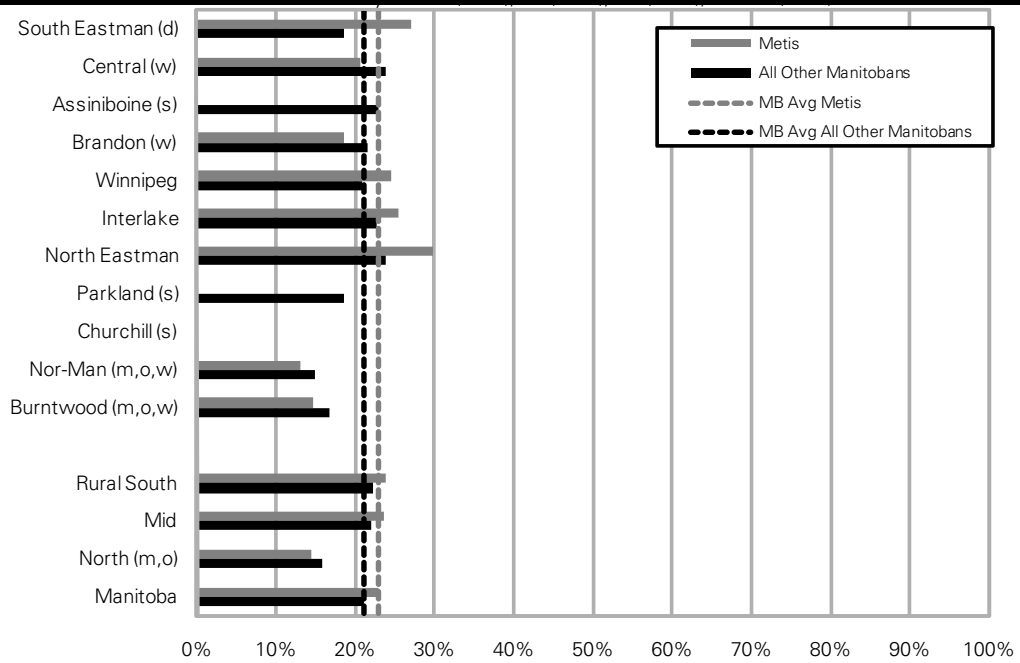
- At the aggregate area level, the Rural South and Mid areas show similar levels of stress both between groups and compared to the corresponding provincial averages. However, the North shows statistically lower percentages of people reporting "quite a bit" to "extreme" amounts of stress compared to their provincial averages, for both the Metis (14.4%) and all other residents (15.8%).

MMF Regions:

- Provincially, the prevalence of Metis reporting "quite a bit" to "extreme" amounts of stress is 23.0%. There appears to be an inverse gradient with PMR, where the healthiest MMF Regions show the highest degree of stress (Southeast MMF Region at 27.9%) and the least healthy, the lowest degree of stress.
- The two MMF Regions with statistically lower percentage of people reporting "quite a bit" to "extreme" amounts of stress are The Pas MMF Region (12.1%) and Thompson MMF Region (14.9%) when compared to the Metis provincial average of 23.0%.

Figure 15.2.1: Self-Perceived Stress by RHA

Age and sex-adjusted percent of weighted sample aged 15+ with quite a bit to extreme amounts of stress, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



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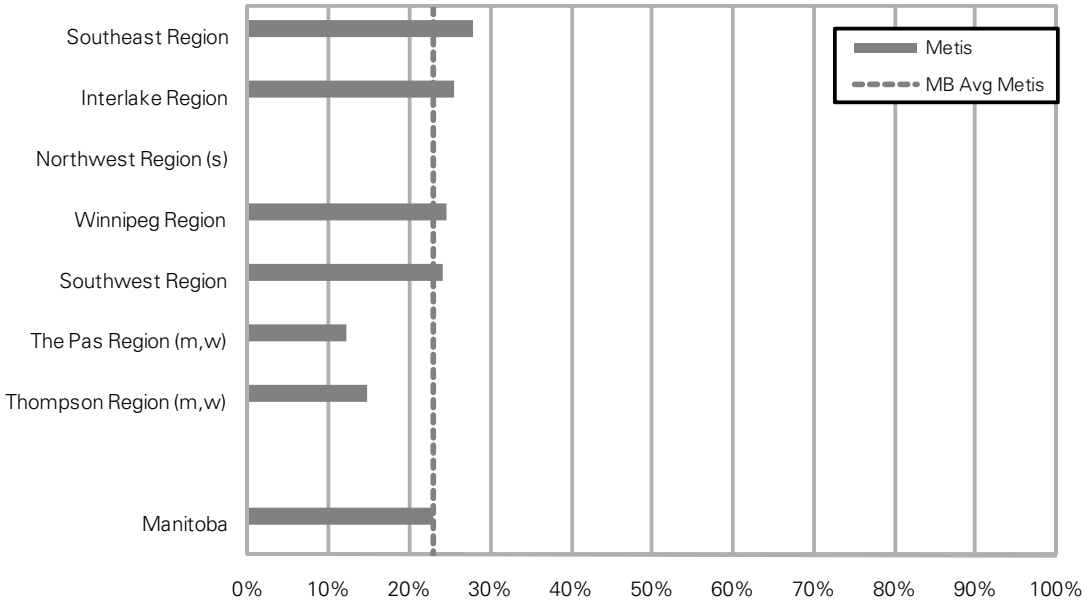
'd' indicates the difference between the two groups' rates was statistically significant for this area
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.2.2: Self-Perceived Stress by Metis Region

Age and sex-adjusted percent of weighted sample of Metis aged 15+ with quite a bit to extreme amounts of stress, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
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's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.3 Self–Perceived Work Stress

Stress in the workplace can happen when a worker experiences increased workload and demands, lack of resources, forced overtime, or if they are worried about the security of their job. Prolonged work–related stress can result in job dissatisfaction, high turnover, illness, absenteeism, and lack of motivation.

In the CCHS, respondents aged 15 to 75 who answered "yes" or "don't know" to the question, "Have you worked at a job or business at any time in the past 12 months?" were then asked the question, "The next question is about your main job or business in the past 12 months. Would you say that most days were: (not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful)?" Other possible responses include don't know or not stated.

The age– and sex–adjusted weighted proportion of respondents with high levels of self–perceived work stress was calculated by taking the ratio of the number of respondents who rated their level of work stress as quite a bit stressful or extremely stressful to the number of all respondents. Crude percentages are available in the appendix. Respondents who answered don't know or not stated and respondents for which the calculation is not applicable (i.e., age not between 15 and 75, no employment in the past year) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

- Provincially, the percentage of people aged 15–75 with "quite a bit" to "extreme" amounts of work stress is similar for Metis and all other Manitobans (27.6% vs. 27.5%). There is not a consistent gradient of self–perceived work stress with PMR. However, there are two observations of interest. First, stress appears to be higher in Winnipeg (32.4% Metis, a trend to being higher than the provincial average for Metis, but not statistically significant; statistically higher for all others at 29.5% compared to their provincial average of 27.5%) and possibly some of the surrounding RHAs such as Interlake and North Eastman (though not statistically significantly higher than the corresponding provincial averages). Secondly, the North and the corresponding northern RHAs show trends to lower levels of work stress, as does the Rural South.
- The only RHA with a statistically lower percentage of Metis people with "quite a bit" to "extreme" amounts of work stress is Burntwood (Metis 15.1%) compared to the provincial average for Metis of 27.6%. Several RHAs show a statistically lower percentage of work stress for other residents when compared to the overall provincial average for all others of 27.5%: South Eastman (21.3%), Central (22.9%), Assiniboine (22.5%), and Parkland (21.6%).

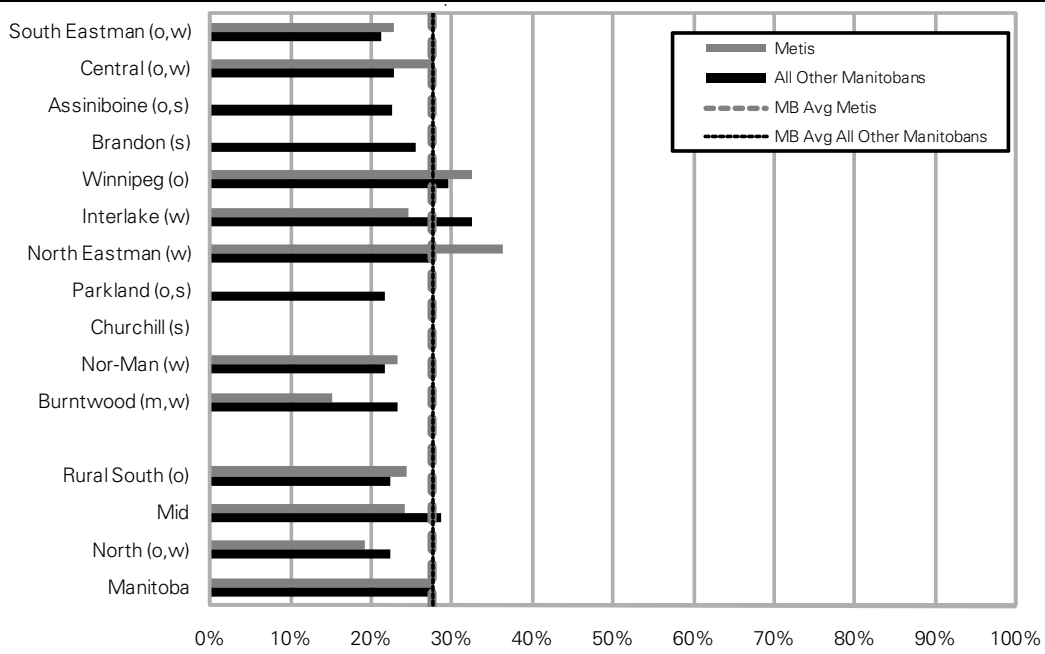
- At the aggregate area level, the Rural South shows lower work stress levels (though only statistically lower for the "all other" group; Metis 24.4%, others 22.2%). The Mid aggregate area has work stress levels similar to the provincial averages (24.2% Metis, 28.5% others). The North shows lower work stress levels (only statistically lower for the "all other" group; Metis 19.1%, others 22.4%).

MMF Regions:

- Provincially, the percentage of Metis people aged 15–75 with "quite a bit" to "extreme" amounts of work stress is 27.6%. There is somewhat of a gradient with PMR, with the most healthy MMF Regions showing the highest work stress and the least healthy the lowest work stress. However, Winnipeg MMF Region shows a tendency to higher than expected work stress levels.
- Only Thompson MMF Region (at 15.7%) shows a statistically lower work stress level compared to the Metis provincial average.

Figure 15.3.1: Self-Perceived Work Stress by RHA

Age and sex-adjusted percent of weighted sample aged 15-75 with quite a bit to extreme amounts of work stress, from combined CCHS cycles 1.1 (2001), 2.1 (2003), and 3.1 (2005)



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'd' indicates the difference between the two groups' rates was statistically significant for this area
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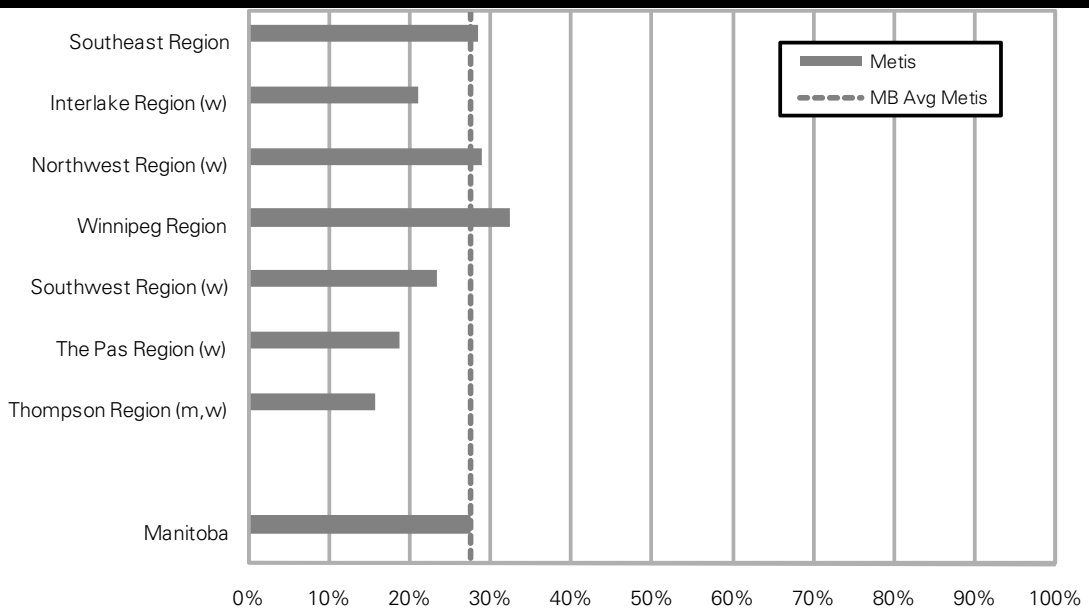
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.3.2: Self-Perceived Work Stress by Metis Region

Age and sex-adjusted percent of weighted sample of Metis aged 15-75 with quite a bit to extreme amounts of work stress, from combined CCHS cycles 1.1 (2001), 2.1 (2003), and 3.1 (2005)



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Source: MCHP/MMF, 2010

15.4 Life Satisfaction

Life satisfaction is a measure of an individual's perceived level of well–being and happiness. Life satisfaction has been shown to be positively correlated with health status.

In the CCHS, all respondents were asked the question, "How satisfied are you with your life in general: (very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, or very dissatisfied)?" Other possible responses include don't know, not stated, or refusal to answer.

The age– and sex–adjusted weighted proportion of respondents aged 12+ who were satisfied or very satisfied with life was calculated by taking the ratio of the number of respondents who said they were satisfied or very satisfied with their life in general to the number of all respondents. Crude percentages are available in the appendix. Respondents who answered don't know, not stated, or refused to answer the question were excluded from analyses. Values were calculated using data from CCHS cycles 2.1, 2.2, and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

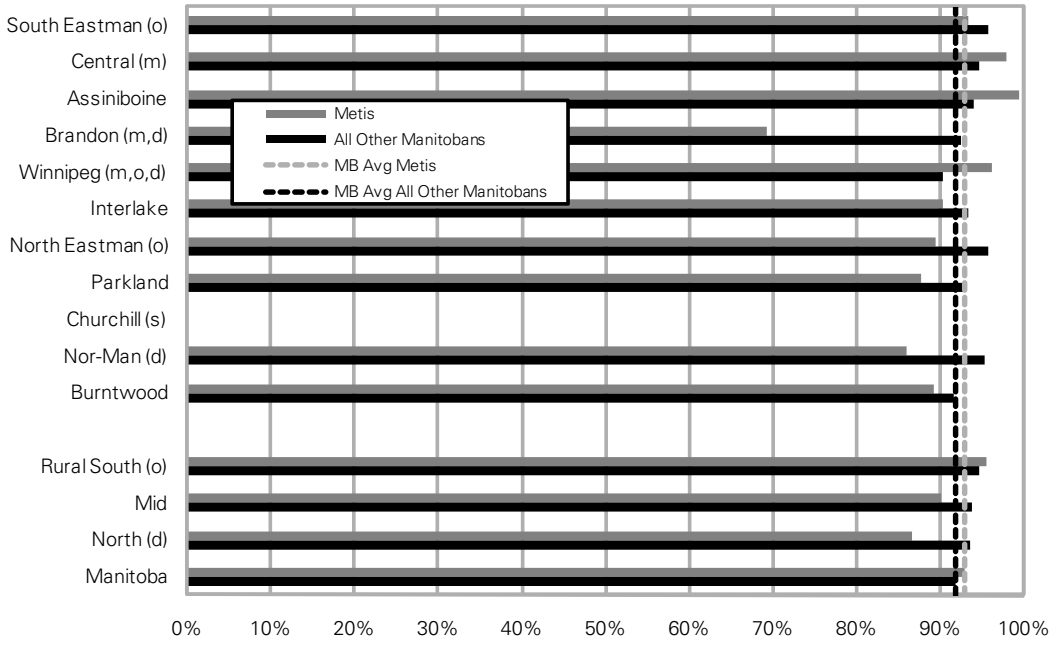
- Provincially, the percentage of respondents aged 12+ who were satisfied or very satisfied with life is similar for Metis and all other Manitobans (92.8% vs. 91.8%). There appears to be little association of PMR with life satisfaction for all other Manitobans. However, for the Metis—the healthier the overall regional population, the higher the percentage of life satisfaction. This is apparent at both the RHA and the aggregate area levels.
- RHAs that show a statistically higher percentage of respondents who were satisfied or very satisfied with life for the Metis, compared to their provincial average of 92.8%, are Central (98.0%) and Winnipeg (96.2%). Only one RHA shows a lower percentage—Brandon RHA at 69.3%.
- Three RHAs show a statistically significant difference in life satisfaction between Metis and all other residents—Brandon shows lower life satisfaction for Metis compared to all other residents (69.3% vs. 92.4%), as does NOR–MAN (86.0% vs. 95.4%); in contrast, Winnipeg shows a higher life satisfaction for Metis compared to all other Winnipeggers (96.2% vs. 90.4%). This finding is also reflected in the North aggregate area, where Metis show a lower percentage of life satisfaction compared to all others (86.7% vs. 93.5%).
- Among aggregate areas, the Rural South appears have the highest percentage of respondents who were satisfied or very satisfied with life, at 95.6% for Metis (not statistically different than their overall provincial average of 92.8%) and 94.7% for all others (statistically higher than their provincial average of 91.8%).

MMF Regions:

- Provincially, the percentage of Metis respondents who were satisfied or very satisfied with life is 92.8%. For MMF Regions, there is very little gradient of life satisfaction with PMR. Winnipeg MMF Region shows a higher–than–expected life satisfaction score at 96.2%.

Figure 15.4.1: Life Satisfaction by RHA

Age and sex-adjusted percent of weighted sample aged 12+ who were satisfied or very satisfied, from combined CCHS cycles 2.1 (2003), 2.2 (2004), and 3.1 (2005)



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'd' indicates the difference between the two groups' rates was statistically significant for this area
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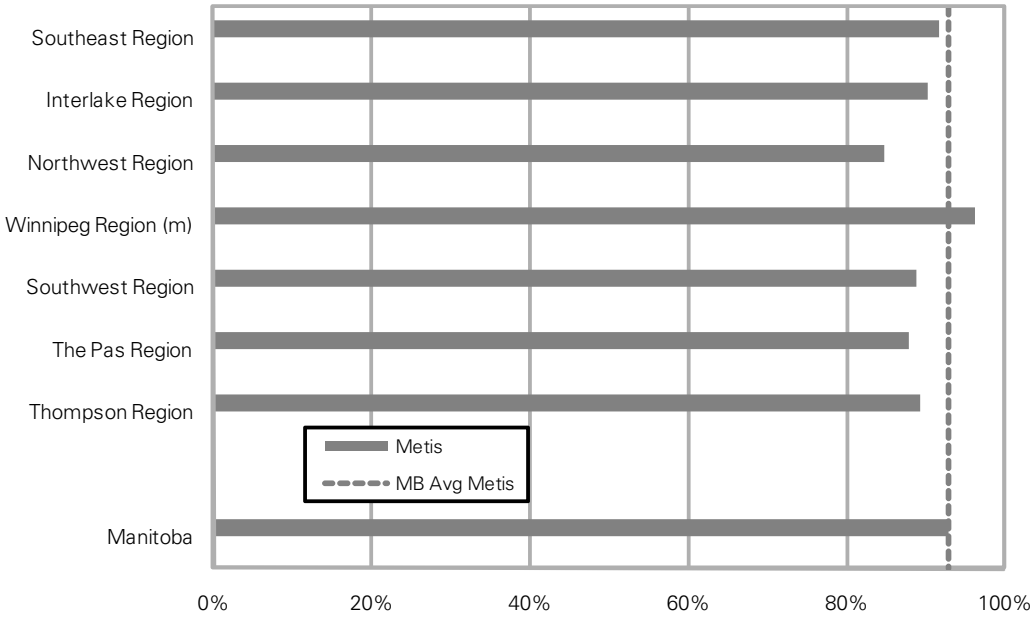
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.4.2: Life Satisfaction by Metis Region

Age and sex-adjusted percent of weighted sample of Metis aged 12+ who were satisfied or very satisfied, from combined CCHS cycles 2.1 (2003), 2.2 (2004), and 3.1 (2005)



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's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.5 Emotional Well–Being

In the CCHS, all respondents were asked the question, "Would you describe yourself being usually: (happy and interested in life, somewhat happy, somewhat unhappy, very unhappy or so unhappy that life is not worthwhile)?" Respondents also had the option of not stating an answer.

The age– and sex–adjusted weighted proportion of respondents with emotional well–being was calculated by taking the ratio of the number of respondents who said they were happy and interested in life to the number of all respondents. Crude percentages are reported in the appendix. Respondents who did not state an answer were excluded from analyses. Values were calculated using data from CCHS cycle 1.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

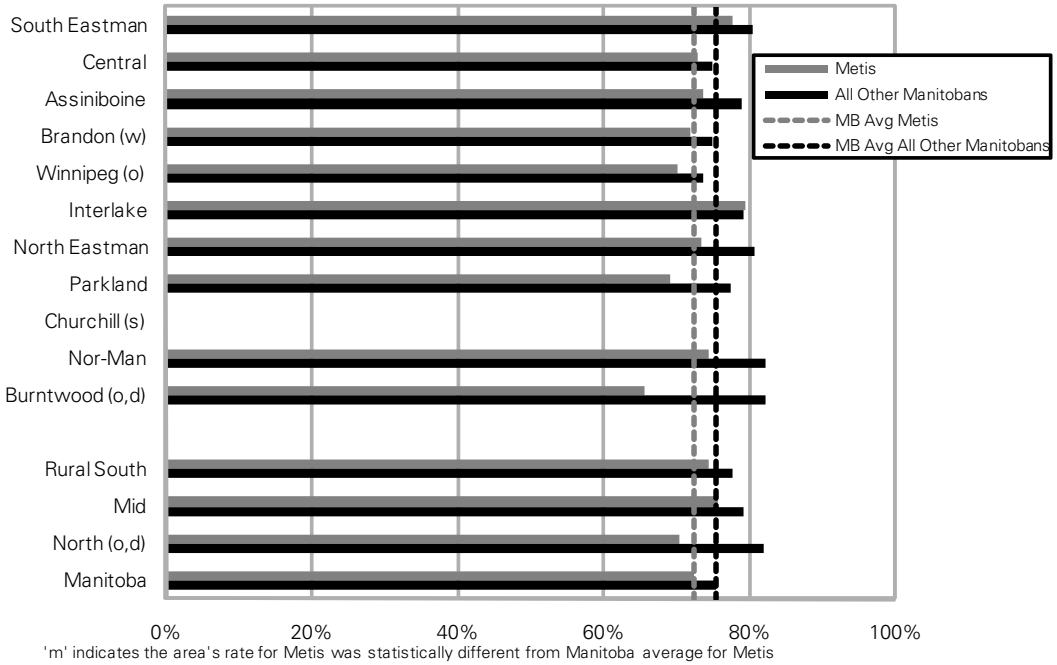
RHAs:

- Provincially, the percentage of people aged 12+ who reported being happy and interested in life is similar for Metis and all other Manitobans (72.3% vs. 75.5%). For the Metis, the gradient goes in the opposite direction, with the most healthy RHAs showing the highest level of emotional well–being and the least healthy has the lowest level of emotional well–being. This is also somewhat apparent at the aggregate area level, where the North shows a lower (although not statistically significant) level of emotional well–being for the Metis compared to the Rural South and Mid areas. For all other Manitobans, there is little evidence of a gradient of emotional well–being with PMR at the RHA level; but there appears to be a slight gradient. Where the poorer the overall health status is poorer, there is slightly more likelihood to have good emotional well–being.
- At the RHA level, there are no statistically significant differences in the Metis' emotional well–being and the Metis overall provincial average. However, the Metis percentage is statistically lower than that of all others living in Burntwood RHA (65.6% vs. 82.0%). Given the exclusion of all people living in First Nations communities, this needs to be interpreted with caution. A similar significant difference between Metis and all others is also apparent in the North aggregate area (70.3% vs. 82.0%).
- For all other Manitobans, emotional well–being is significantly lower in Winnipeg RHA (73.5%) compared to the provincial average of 75.5%; but it is significantly higher in Burntwood RHA (82.0%).

MMF Regions:

- Provincially, the percentage of Metis people reporting being happy and interested in life is 72.3%. By MMF Region, there appears to be a slight gradient between emotional well–being and PMR, with the least healthy MMF Region showing the lowest percentage of being happy and interested in life (Thompson MMF Region at 65.6%) and the most healthy region the highest percentage (Southeast MMF Region at 78.4%). An anomaly to this is Northwest Region, which is much lower than one would expect at 61.6%. However, none of these are statistically significantly different than the provincial Metis average.

Figure 15.5.1: Emotional Well-Being by RHA
Age and sex-adjusted percent of weighted sample aged 12+ who reported being happy and interested in life, from CCHS cycle 1.1 (2001)



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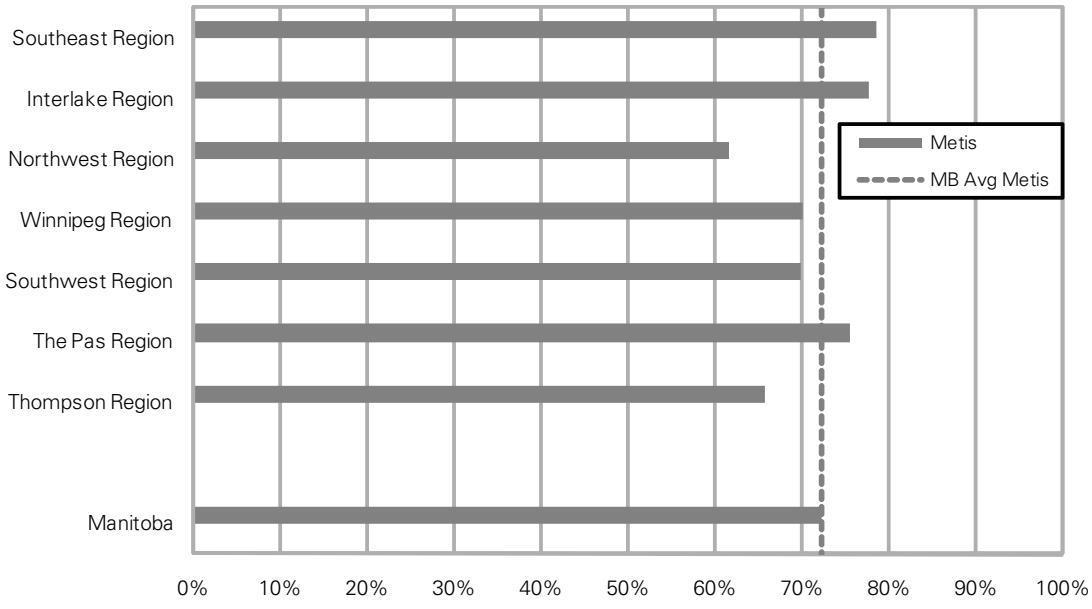
Source: MCHP/MMF, 2010

Figure 15.5.2: Emotional Well-Being by Metis Region
Age and sex-adjusted percent of weighted sample of Metis aged 12+ who reported being happy and interested in life, from CCHS cycle 1.1 (2001)



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Source: MCHP/MMF, 2010

15.6 Body Mass Index (BMI)

BMI is a statistical measure used to classify and compare individuals according to both their weight and height. BMI is calculated as weight in kilograms divided by height in metres squared.

In the CCHS, BMI is a derived variable calculated from either self–reported or measured height and weight. Respondents are classified as: underweight (BMI < 18.5), normal weight (18.5 ≤ BMI ≤ 24.99), overweight (25 ≤ BMI ≤ 29.99), obese (30 or greater), not applicable, or not stated. BMI is calculated for respondents aged 18 and older, excluding pregnant women.

In this report, BMI was calculated from self–reported height and weight in CCHS cycles 1.1, 2.1, and 3.1. In cycle 2.2 measured height and weight were used if available, otherwise self–reported values were used. The age– and sex–adjusted weighted proportion of respondents who were overweight or obese was calculated by taking the ratio of the number of respondents with a BMI of 25 or greater to the number of all respondents. Crude percentages are available in the appendix. Respondents with missing height or weight, respondents for which the calculation is not applicable (i.e., age less than 18, pregnant women), and respondents who refused to answer either question were excluded from analyses.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Tables 15.6.1 and 15.6.2 show the two BMI categories of 'overweight' and 'obese' separately for each geographical area by Metis and all other Manitobans.

Key observations:

RHAs:

- Provincially, there is a higher percentage of Metis that are overweight/obese compared to all other Manitobans (65.1% vs. 55.1%). For all other Manitobans, there is a gradient of BMI with PMR, with the least healthy RHAs and aggregate areas in general having the highest BMIs. However, this gradient is not apparent for Metis.
- Only one RHA shows a higher percentage of Metis overweight/obese than the Metis provincial average—Interlake (80.5% vs. 65.1%). Table 15.6.1 shows that in the Interlake, 44.6% of Metis and 37.1% of all other residents are overweight, and 35.9% of Metis and 24.7% of all others are obese. Although not statistically significant at the RHA level, most RHAs show either a similar percentage between Metis and others or a trend to a higher Metis percentage.
- Three RHAs show a statistically higher percentage of overweight/obese for the Metis compared to all others: Winnipeg (62.9% vs. 52.1%), Interlake (80.5% vs. 61.8%), and North Eastman (68.8% vs. 57.7%). This is also evident in the aggregate area of Mid (71.6% vs. 61.3%).

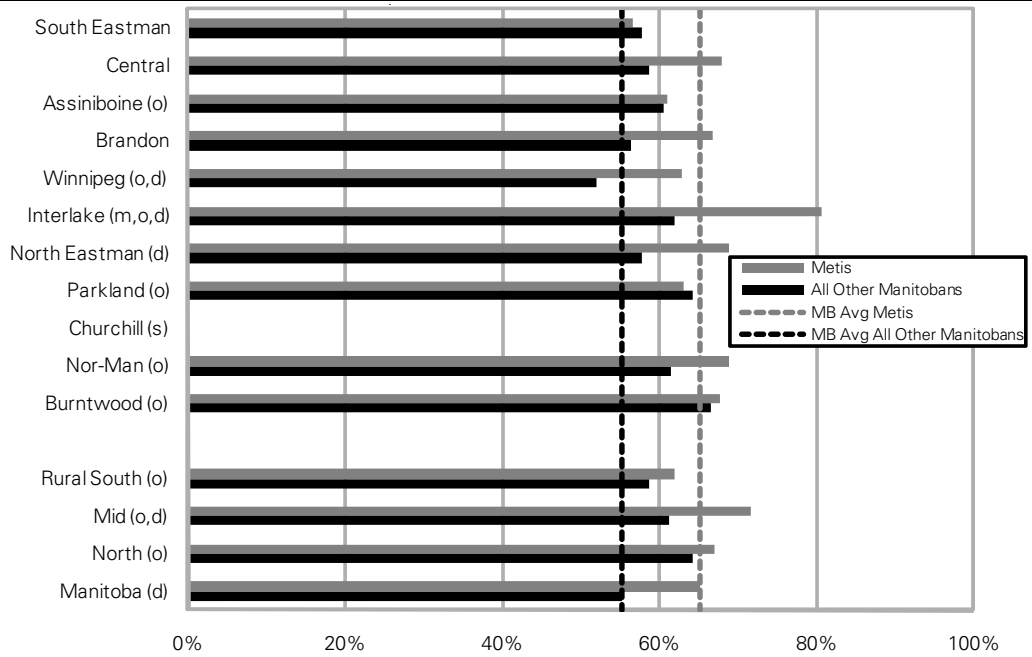
- In Table 15.6.1, the percentage of Metis that are obese in South Eastman RHA (18.4%) is lower than the overall Metis average provincially (28.7%). For all other Manitobans, only Winnipeg RHA shows a lower percentage that are obese (18.0%) compared to their provincial average of 20.2%, but several RHAs show higher percentages of people being in the obese category—Central (25.7%), Interlake (24.7%), NOR–MAN (26.0%), Burntwood (27.7%), and all of the non–Winnipeg aggregate areas—Rural South (23.9%); Mid (23.3%); and North (26.6%).

MMF Regions:

- Provincially, the overall percentage of Metis that are overweight/obese is 65.1%. There is no relationship of BMI with PMR at the MMF Region level.
- Interlake MMF Region has a statistically higher percentage of overweight/obese at 80.1%, compared to the provincial Metis average of 65.1%.

Figure 15.6.1: Body Mass Index (BMI) by RHA

Age and sex-adjusted percent of weighted sample aged 18+ in the overweight or obese BMI category, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)

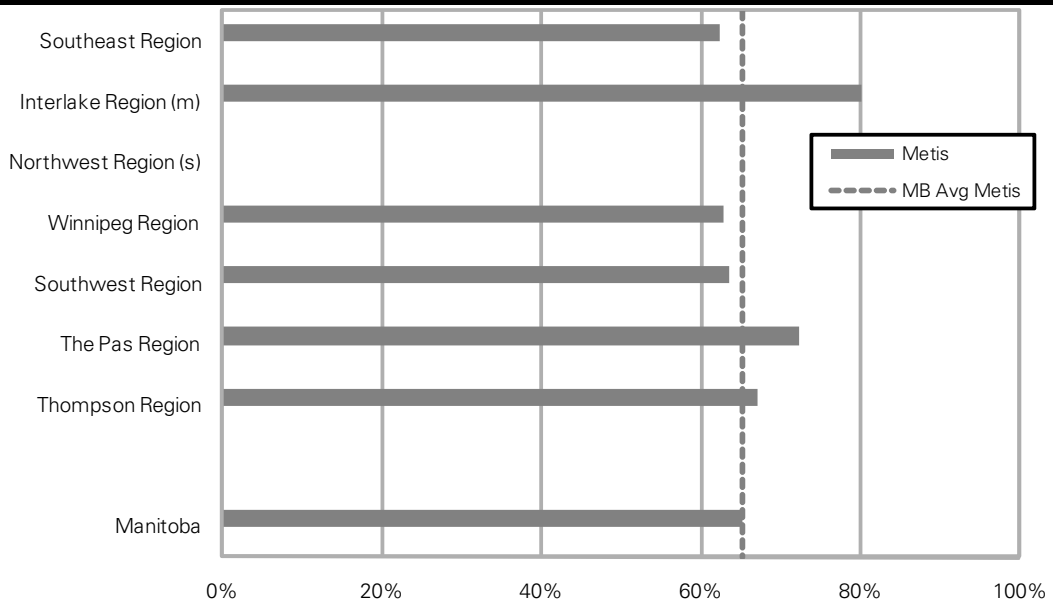


'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.6.2: Body Mass Index (BMI) by Metis Region

Age and sex-adjusted percent of weighted sample of Metis aged 18+ in the overweight or obese BMI category, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Table 15.6.1: Breakdown of CCHS BMI Overweight and Obese Categories

Age- and sex-adjusted percent of weighted sample aged 18+
from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)

RHA	Group	Overweight (%)		Obese (%)	
South Eastman	Metis	38.10		***18.43***	
	All Other Manitobans	36.34		21.32	
Central	Metis	38.48		*29.52*	
	All Other Manitobans	32.87		**25.69**	
Assiniboine	Metis	s		s	
	All Other Manitobans	36.22		24.18	
Brandon	Metis	*25.90*		*40.84*	d
	All Other Manitobans	36.92		19.36	
Winnipeg	Metis	36.81		26.11	d
	All Other Manitobans	34.07		**17.99**	
Interlake	Metis	44.57		35.93	
	All Other Manitobans	37.12		**24.67**	
North Eastman	Metis	40.99		*27.76*	
	All Other Manitobans	38.00		19.69	
Parkland	Metis	*27.40*		35.64	d
	All Other Manitobans	40.72		23.47	
Churchill	Metis	s		s	
	All Other Manitobans	s		s	
Nor-Man	Metis	30.32		38.58	d
	All Other Manitobans	35.50		**26.03**	
Burntwood	Metis	31.26		36.48	
	All Other Manitobans	38.75		**27.73**	
Rural South	Metis	36.68		25.16	
	All Other Manitobans	34.81		**23.89**	
Mid	Metis	38.07		33.55	d
	All Other Manitobans	38.04		**23.27**	
North	Metis	30.78		36.18	d
	All Other Manitobans	37.54		**26.62**	
Manitoba	Metis	36.48		28.65	d
	All Other Manitobans	34.88		20.20	

Bold indicates that the area's rate was statistically different from the Manitoba average for that group

Italics indicates the group's rate is highly variable and should be interpreted with caution

'd' indicates the difference between the two groups' rates was statistically significant for this area

's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Table 15.6.2: Breakdown of CCHS BMI Overweight and Obese Categories by Metis Region

Age- and sex-adjusted percent of weighted sample of Metis aged 18+
from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)

Metis Region	Overweight (%)	Obese (%)
Southeast	40.77	21.60
Interlake	43.05	37.09
Northwest	s	s
Winnipeg	36.81	26.11
Southwest	29.52	34.03
The Pas	32.65	39.63
Thompson	31.25	35.96
Manitoba	36.48	28.65

Bold indicates that the area's rate was statistically different from the Manitoba average for that group

Italics indicates the group's rate is highly variable and should be interpreted with caution

's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.7 Average Daily Consumption of Fruits and Vegetables

Canada's Food Guide recommends that children should eat four to six servings of fruits or vegetables daily, and teenagers and adults should eat seven to eight servings of fruits or vegetables daily as part of a healthy diet. One serving includes one–half cup of fresh, frozen, or canned fruits or vegetables, one piece of fruit, or one–half cup of fruit juice. Canada's Food Guide states that the benefits to eating well include better overall health, looking and feeling better, lower risk of disease, more energy, a healthy body weight, and stronger muscles and bones.

In the CCHS, the total daily consumption of fruits and vegetables is a derived variable that indicates the total number of times per day the respondent eats fruits and vegetables. Respondents are asked a series of questions regarding their dietary practices, for example, "How often do you usually eat potatoes, not including French fries, fried potatoes, or potato chips?" Then the total daily consumption of fruits and vegetables is determined based on the respondent's answers. Note that the CCHS measures the number of times a day fruit and vegetables are consumed (frequency), not the amount consumed. Possible responses include less than five times/servings per day, five to 10 times/servings per day, more than 10 times/servings per day, or not stated. This variable is calculated for all respondents.

The age– and sex–adjusted weighted proportion of respondents consuming fruits and vegetables five or more times per day was calculated by taking the ratio of the number of respondents whose average daily fruit and vegetable consumption was five or greater (based on the total daily consumption of fruits and vegetables derived variable) to the number of all respondents. Crude percentages are available in the appendix. Respondents who did not answer at least one required question used to calculate the derived variable (i.e., don't know, refusal, not stated) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, and 2.2.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

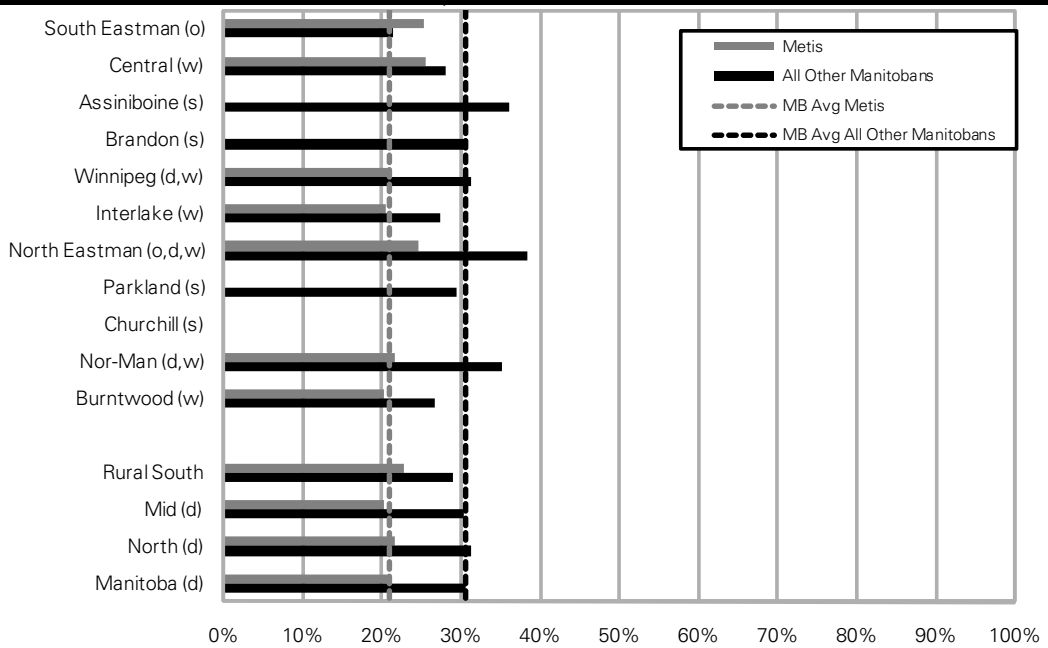
- Provincially, the percentage of people eating five or more servings of fruits/vegetables per day is lower for Metis compared to all other Manitobans (20.9% vs. 30.6%). There is no apparent gradient of eating fruits/vegetables by PMR for either group.
- Three RHAs show a statistically lower percentage of Metis people eating five or more servings of fruits/vegetables per day compared to all others residing in those RHAs: Winnipeg (20.8% vs. 31.2%), North Eastman (24.5% vs. 38.3%), and NOR–MAN (21.7% vs. 35.2%). No RHA shows statistically significant difference between the Metis RHA percentage and the overall Metis provincial average of 20.9%. However, the RHA of South Eastman (21.3%) is lower for all others compared to their provincial average of 30.6%, whereas North Eastman RHA is higher at 38.3%. There are many areas with "w" in the bracket beside the RHA name, meaning that the area rates are highly variable and thus must be interpreted with caution.

- At the aggregate level, Metis have a lower percentage of people eating five or more servings of fruits/vegetables per day compared to all others for the Mid (20.2% vs. 30.4%) and North (20.5% vs. 31.2%) areas. Knowing that the North rate does not include people living in First Nations communities, this comparison must be interpreted with caution. The same trend exists for Rural South (22.8% vs. 28.9%), but it is not statistically significant.

MMF Regions:

- Provincially, the percentage of Metis people eating five or more servings of fruits/vegetables per day is 20.9%. All MMF Regions have similar percentages with very little variation across regions.

Figure 15.7.1: Average Daily Consumption of Fruits and Vegetables by RHA
Age and sex-adjusted percent of weighted sample aged 12+ consuming fruits and vegetables five or more times per day from combined CCHS cycles 1.1 (2001), 2.1 (2003), and 2.2 (2004)



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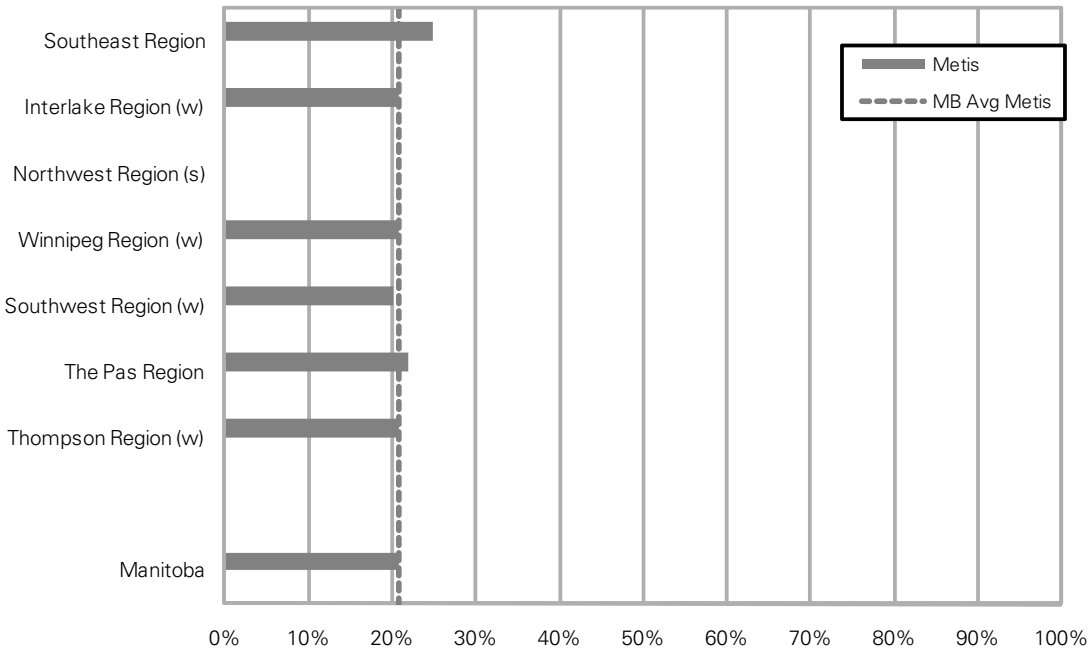
'd' indicates the difference between the two groups' rates was statistically significant for this area
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.7.2: Average Daily Consumption of Fruits and Vegetables by Metis Region
Age and sex-adjusted percent of weighted sample of Metis aged 12+ consuming fruits and vegetables five or more times per day from combined CCHS cycles 1.1 (2001), 2.1 (2003), and 2.2 (2004)



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Source: MCHP/MMF, 2010

15.8 Frequency of Having Five or More Drinks with Alcohol

Binge drinking is commonly defined in the social sciences as having five or more drinks containing alcohol on one occasion. According to Health Canada, engaging in high risk drinking is linked to motor vehicle accidents, Fetal Alcohol Spectrum Disorder, other health issues, family problems, crime, and violence.

CCHS respondents who answered "yes" or "don't know" or refused to answer the question, "During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?" were then asked the question, "How often in the past 12 months have you had five or more drinks on one occasion?" In the CCHS, one drink was defined as: one bottle or can of beer or a glass of draft, one glass of wine or a wine cooler, or one drink or cocktail with 1 and 1/2 ounces of liquor. Possible responses include never, less than once a month, once a month, 2 to 3 times a month, once a week, more than once a week, don't know, not stated, or refusal to answer.

The age– and sex–adjusted weighted proportion of respondents aged 12+ who had five or more drinks containing alcohol on one occasion once a month or more was calculated as the ratio of the number of respondents who drank five or more drinks on one occasion at least once a month in the past 12 months to the number of all respondents. Crude percentages are available in the appendix. Respondents for which this question was not applicable were categorized as "not having five or more drinks", since they had answered to previous questions that they did not consume any alcohol. Respondents who answered don't know, not stated, or refused to answer the question were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

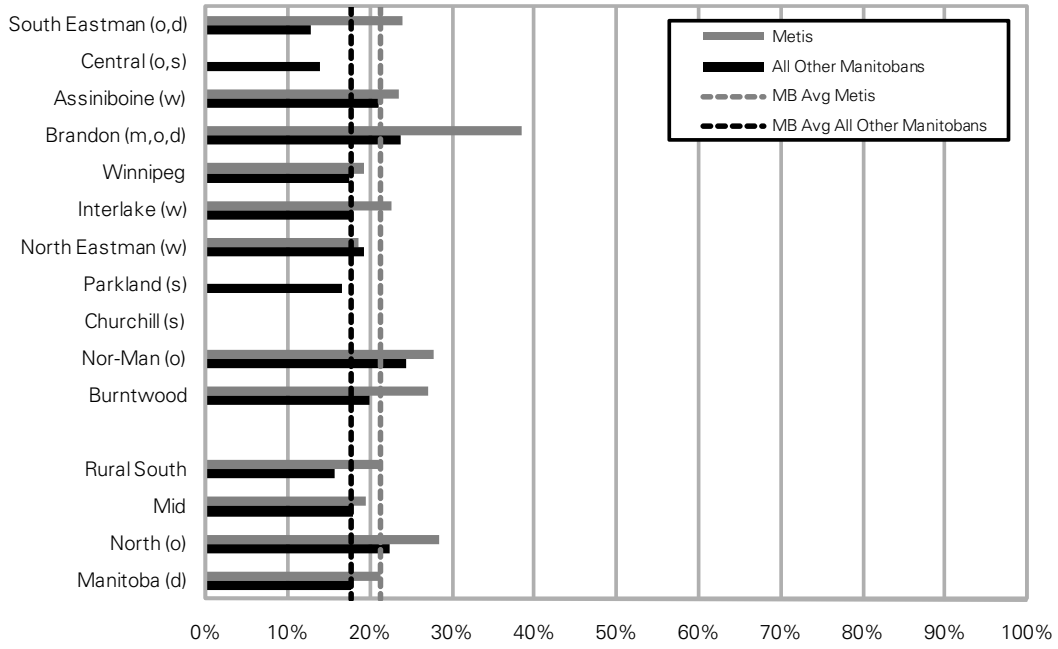
- Provincially, the percentage of people aged 12+ who had five or more drinks containing alcohol on one occasion once a month or more was higher for the Metis than for all other Manitobans (21.2% vs. 17.6%). At the RHA level, there is little evidence of a gradient of alcohol consumption by PMR for either the Metis or for all others. However, at the aggregate area level, there is more evidence (especially for the "all others" group) that the less healthy the area, the higher the percentage of people having five or more drinks on one occasion at least once a month.
- At the aggregate area level, there are no statistical differences between Metis and others as to the percentage of people having five or more drinks on one occasion at least once a month—Rural South (Metis 21.0% vs. others 15.6%), Mid (19.5% vs. 17.9%), and North (28.3% vs. 22.3%). However, the trends suggest the Metis percentage to be higher than that of all others at the provincial level.

- In Winnipeg RHA, the percentage of people having five or more drinks on one occasion at least once a month is similar for Metis and all other Winnipeggers (19.2% vs. 17.4%, NS). However, in Brandon RHA, the Metis rate is much higher than that of all others (38.5% vs. 23.6%); and both are higher than their corresponding provincial averages.
- Only two RHAs show a significantly higher percentage of people having five or more drinks on one occasion at least once a month for the Metis compared to all others—South Eastman (23.8% vs. 17.6%) and Brandon (38.5% vs. 23.6%).

MMF Regions:

- Provincially, the percentage of Metis people having five or more drinks on one occasion at least once a month is 21.2%. There is somewhat of a gradient of alcohol consumption by PMR, with the most healthy Southeast MMF Region being one of the lower regions at 21.7% and the least healthyThompson MMF Region being the highest at 27.7%. However, none of the MMF Regions are statistically significantly different than the provincial Metis average.

Figure 15.8.1: Frequency of Having Five or More Drinks with Alcohol by RHA
Age and sex-adjusted percent of weighted sample aged 12+ who had five or more alcoholic drinks on one occasion per month or more, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



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'd' indicates the difference between the two groups' rates was statistically significant for this area
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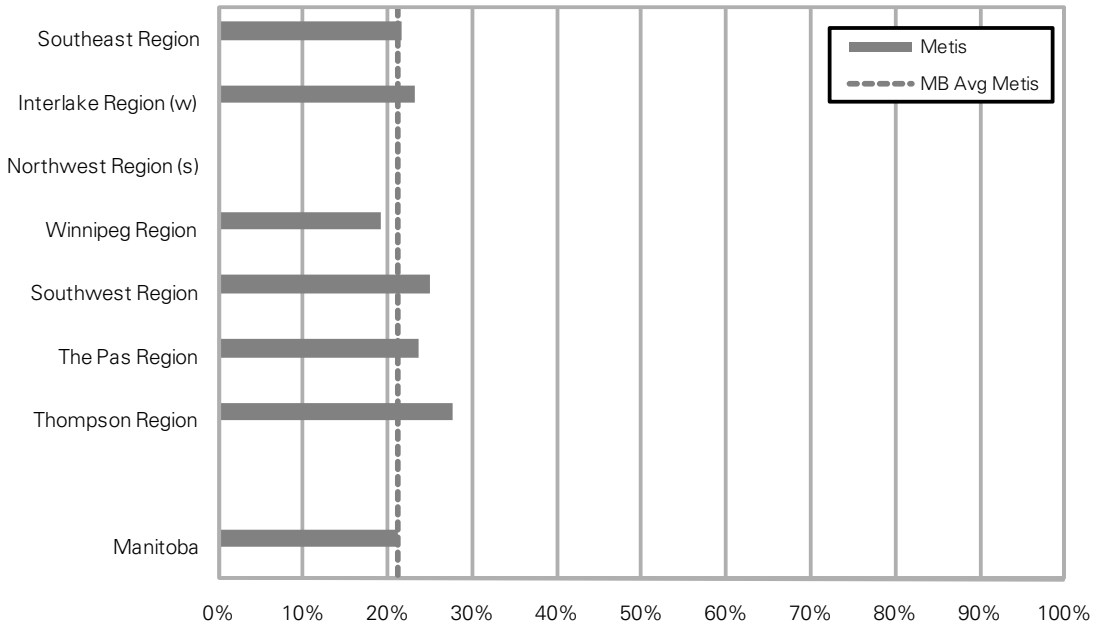
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.8.2: Frequency of Having Five or More Drinks with Alcohol by Metis Region
Age and sex-adjusted percent of weighted sample of Metis aged 12+ who had five or more alcoholic drinks on one occasion per month or more, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



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Source: MCHP/MMF, 2010

15.9 Current Smokers

Smoking is the act of inhaling tobacco smoke from cigarettes, pipes, or cigars. Tobacco smoke contains nicotine, an addictive substance that causes individuals to become addicted to smoking. Smoking damages the lungs and increases the risk of developing cancer (especially lung cancer), chronic obstructive pulmonary disease, asthma, heart disease and heart attacks, and many other diseases. According to the Canadian Cancer Society, tobacco smoke contains more than 4000 chemicals including carbon monoxide, ammonia, cadmium, and arsenic. Many of these chemicals are known to cause cancer.

In the CCHS, type of smoker is a derived variable that indicates the type of smoker the respondent is based responses to questions on his/her smoking habits, such as, "Have you ever smoked cigarettes daily?" Possible responses include daily smoker, occasional daily smoker (former daily smoker), always an occasional smoker, former daily smoker, former occasional smoker, never smoked or not stated. This variable is calculated for all respondents.

The age– and sex–adjusted weighted proportion of respondents who are current smokers was calculated by taking the ratio of the number current smokers (includes daily smoker, occasional daily smoker (former daily smoker), and always an occasional smoker) to the number of all respondents. Crude percentages are available in the appendix. Respondents who did not answer at least one required question used to calculate the derived variable were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

- Provincially, Metis have a higher percentage of current smokers compared to all other Manitobans (33.3% vs. 21.7%). Percent of smokers shows a gradient with PMR. This trend is especially strong at the aggregate level, where the percentage increases as the overall health of the regional population decreases.
- In the Rural South, the percentage of current smokers for Metis and others (23.5% vs. 19.6%) are both lower than their corresponding provincial averages (33.3% vs. 21.7%), but are similar to each other. In the Mid aggregate area, both Metis and all others have percentages similar to the overall corresponding provincial averages, but Metis are statistically higher than all others (33.8% vs. 23.5%). In the North where smoking is at the highest levels of all aggregate areas, the Metis percentage of current smokers is statistically higher than for all others (42.3% vs. 30.2) and the "all other" percentage is higher than the corresponding provincial average.
- Five RHAs show statistically higher percentages of current smokers for Metis compared to all others living in those regions: Assiniboine (39.6% vs. 17.2%), Winnipeg (35.4% vs. 21.3%), Interlake (33.6% vs. 25.1%), Parkland (41.7% vs. 23.5%), and Burntwood (45.8% vs. 32.9%).

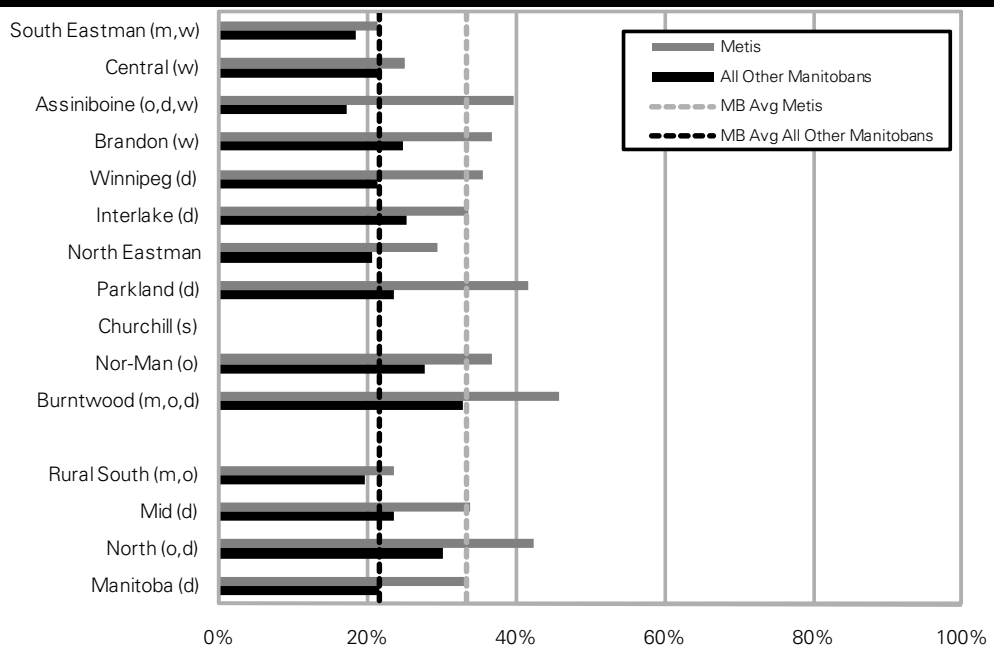
- Smoking rates are higher for both Metis and for all others, compared to their provincial averages, in the RHA of Burntwood (45.8% Metis, 32.9% others).
- Compared to the Metis provincial average, Metis living in South Eastman RHA have a lower percentage of current smokers (21.3%).

MMF Regions:

- Provincially, 33.3% of Metis aged 12+ are current smokers.
- There appears to be a gradient between percentages of current smokers and PMR of the MMF Regions, with the lowest percentage in the healthiest region (Southeast MMF Region at 23.3%), and the highest in the least healthy region (Thompson MMF Region at 46.7%. Both of these regions are statistically different than the Metis provincial average.

Figure 15.9.1: Current Smokers by RHA

Age and sex-adjusted percent of weighted sample aged 12+ who smoke daily or occasionally, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



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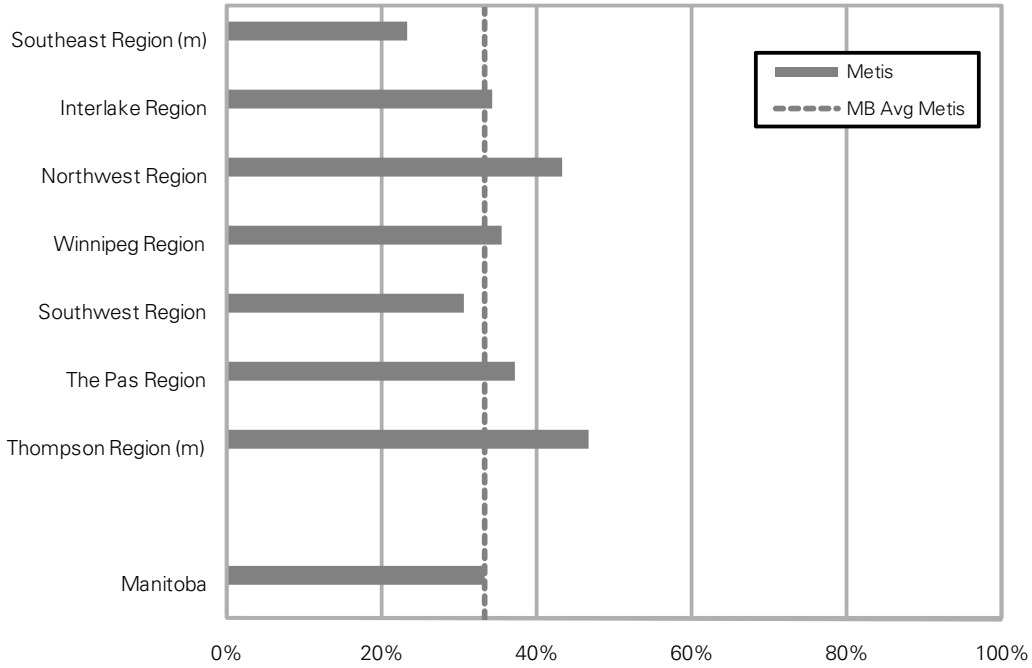
Source: MCHP/MMF, 2010

Figure 15.9.2: Current Smokers by Metis Region

Age and sex-adjusted percent of weighted sample of Metis aged 12+ who smoke daily or occasionally, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



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's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.10 Exposure to Smoke Inside the Home

Second–hand smoke is the smoke from a burning cigarette, pipe or cigar, or the smoke exhaled by a smoker. When you are near someone who is smoking, you may breathe in second–hand smoke. According to the Canadian Cancer Society, second–hand smoke contains more than 4000 chemicals including carbon monoxide, ammonia, cadmium, and arsenic. Many of these chemicals are known to cause cancer.

In the CCHS, respondents who did not live alone or were non–smokers were asked the question, "Including both household members and regular visitors, does anyone smoke inside your home, every day or almost every day?" Possible responses include yes, no, don't know, not stated, or refusal to answer.

The age– and sex–adjusted weighted proportion of respondents who were exposed to smoke inside the home was calculated by taking the ratio of the number of respondents who answered yes to the number of all respondents. Crude percentages are available in the appendix. Respondents who answered don't know or not stated, refused to answer the question, or for which the question was not applicable were excluded from analyses. Values were calculated using data from CCHS cycles 2.1 and 3.1 only, so the sample sizes are very small and rates are highly variable.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

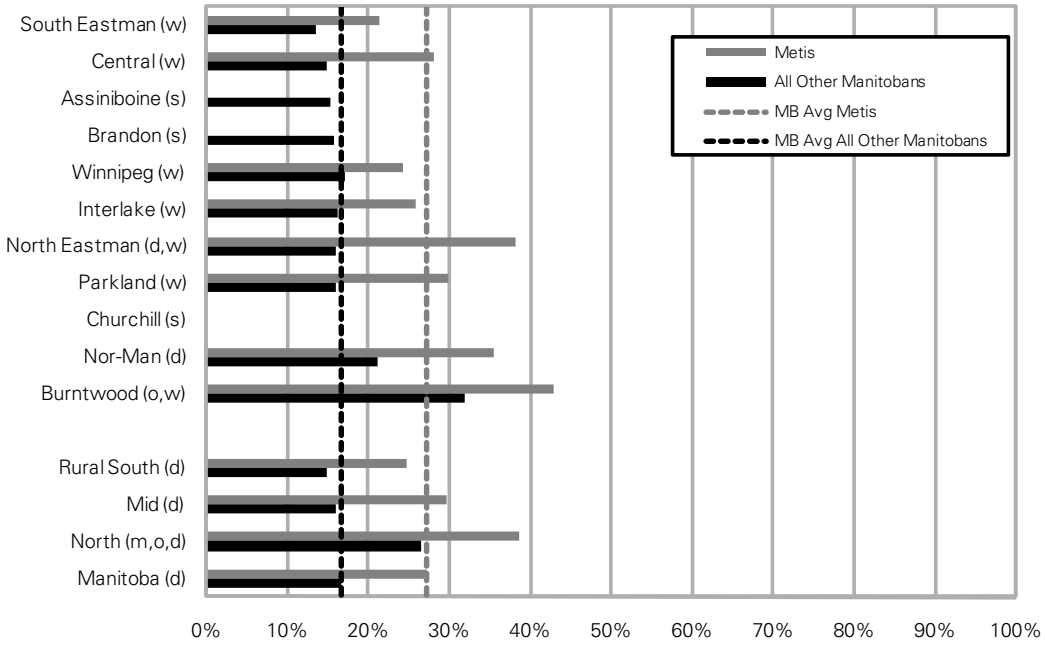
RHAs:

- Provincially, the percentage of people aged 12+ exposed to smoke in the home is higher for Metis compared to all others (27.2% vs. 16.7%). There is a definite gradient with PMR, with the least healthy areas (both at the RHA and aggregate area level) showing the highest percentage of exposure to smoke in the home.
- Two RHAs show statistically higher exposure rates for Metis compared to others living in those areas: North Eastman (38.1% vs. 16.0%) and NOR–MAN (35.4% vs. 21.2%). However, most RHAs show a similar trend, although not statistically significant.
- At the aggregate area level, the Rural South (24.6% Metis, 14.7% others) and Mid (29.6% vs. 16.0%) show statistically higher percentages of exposure to smoke for the Metis compared to all others; but both percentages are similar to their corresponding provincial averages. In the North, both the Metis and all other percentages are higher (38.7% vs. 26.5%) than their corresponding provincial averages, and the Metis rate is statistically higher than that of all others living in the area. It should be noted, however, that people living in First Nations communities are excluded from the CCHS survey and thus the "other" rate may be underestimated.

MMF Regions:

- Provincially, the percentage of Metis people aged 12+ exposed to smoke inside the home is 27.2%. There is evidence of a gradient of exposure to smoke by PMR of the MMF Regions, with the least healthy regions showing the highest percent exposure (Thompson MMF Region at 43.8%); however due to small sample sizes, none of the MMF Regions are statistically different than the Metis provincial average.

Figure 15.10.1: Exposure to Smoke Inside the Home by RHA
Age and sex-adjusted percent of weighted sample aged 12+,
from combined CCHS cycles 2.1 (2003) and 3.1 (2005)



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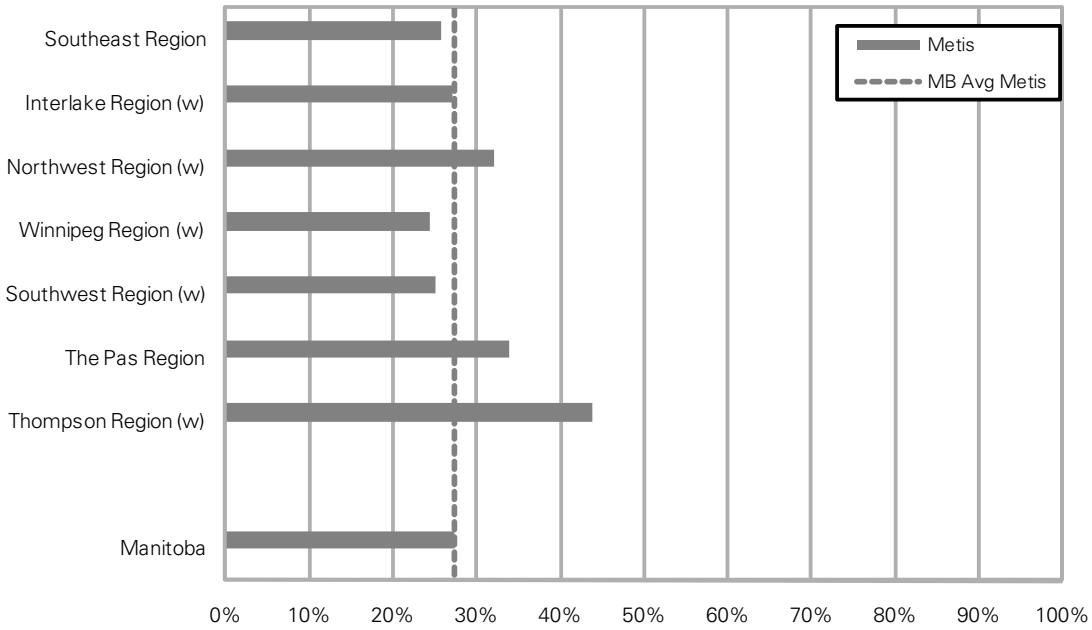
Source: MCHP/MMF, 2010

Figure 15.10.2: Exposure to Smoke Inside the Home by Metis Region
Age and sex-adjusted percent of weighted sample of Metis aged 12+,
from combined CCHS cycles 2.1 (2003) and 3.1 (2005



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.11 Total Physical Activity Levels (Work + Leisure + Travel)

Canada's Physical Activity Guide to Healthy Active Living recommends that Canadians accumulate 30 to 60 minutes of moderate physical activity every day to achieve the health benefits from physical activity. The Public Health Agency of Canada states that the benefits of regular physical activity include protection against disease and premature death, enhanced well–being, optimal childhood growth and development, and continued independent living in later life.

In the CCHS, total physical activity is a derived variable for respondents based on the average daily energy expenditure values (kcal/kg/day) calculated from a series of questions on physical activity, including usual daily activities or occupational–related physical activity, physical activity for travel (such as biking or walking to school or work), and leisure time physical activity (such as walking, running, gardening, or soccer) by the respondent in the past three months. Respondents were asked questions such as, "Thinking back over the past three months, which of the following best describes your usual daily activities or work habits (usually sit, stand or walk quite a lot, usually lift or carry light loads, do heavy work or carry very heavy loads)? In the past three months, how many times did you walk for exercise? About how much time did you spend on each occasion?"

In this report, respondents aged 15–75 were grouped into three categories, High, Medium and Low levels of activity, based on tertiles of average daily energy expenditure created from the pooled sample of all responses in CCHS 1.1, 2.1, and 3.1. The tertiles were divided as follows: high physical activity (27.7 kcal/kg/day or more), medium physical activity (15.4–27.6 kcal/kg/day), and low physical activity (0–15.3 kcal/kg/day). The age– and sex–adjusted weighted proportion of respondents with high levels of physical activity is shown. Crude percentages are available in the appendix. Respondents who did not answer at least one required question used to calculate the derived variable (i.e., don't know, refusal, not stated) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

RHAs:

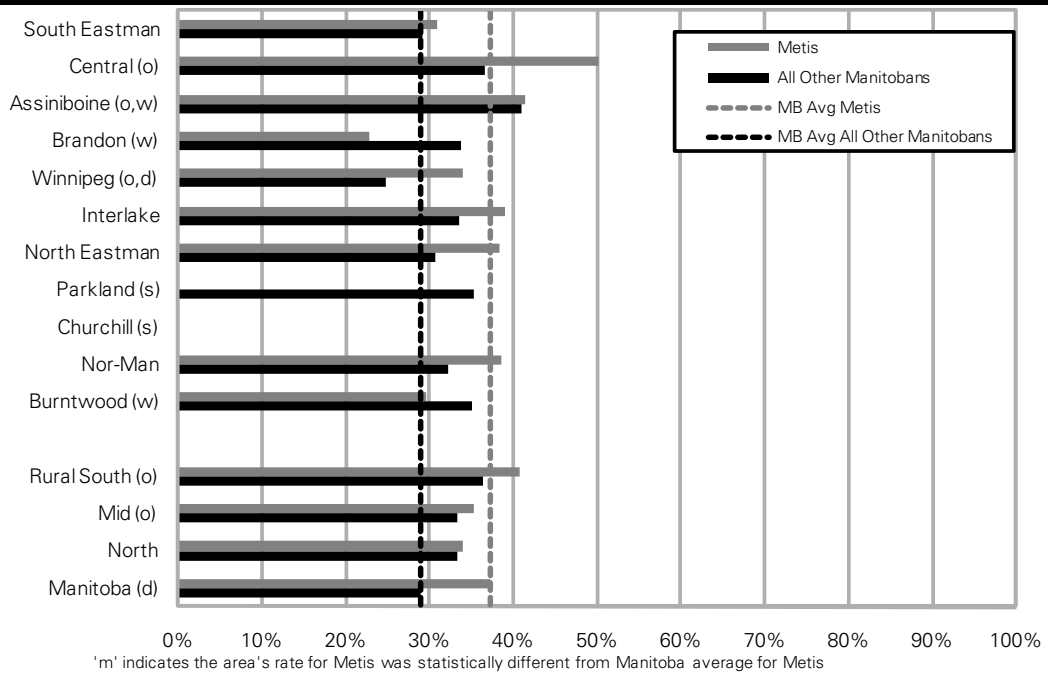
- Provincially, the percentage of people aged 15–75 with high levels of physical activity are higher for the Metis compared to all other Manitobans (37.2% vs. 29.0%). This may be due to the type of daily work activity and not be related to leisure time activity. Although not as obvious at the RHA level, there appears to be a gradient between high levels of physical activity and PMR at the aggregate area. The most healthy Rural South area (40.8% Metis, 36.4% others) showed the highest levels, followed by Mid (35.4% Metis, 33.3% others), and the North aggregate area, which has the lowest levels (34.0% Metis, 33.2% others).
- In Winnipeg, the percentage of Metis with high levels of physical activity is statistically higher than for all other Winnipeggers (34.1% vs. 24.8%).

- Most likely due to small sample sizes, no RHA shows Metis activity levels higher or lower than the overall provincial Metis average of 37.2%. However, for all other Manitobans, the following RHAs show higher levels than the provincial average of 29.0%: Central (36.7%), Rural South (36.4%), and Mid (33.3%). The provincial average is heavily influenced by Winnipeg (24.8%), which has a statistically significantly lower percentage than the provincial average for all others (29.0%). Most areas of the province show a trend to Metis' active level percentages being similar to or higher than all others in the region, but the results are not statistically significantly different except at the overall provincial level.

MMF Regions:

- Provincially, the percentage of Metis aged 15–75 that show active levels of physical activity is 37.2%. There is somewhat of a gradient of active levels with PMR. The least healthy MMF Region has one of the lowest active levels (Thompson MMF at 29.4%) and the most healthy Southeast MMF Region has one of the highest (38.0%). However, none of these are statistically significantly lower or higher.

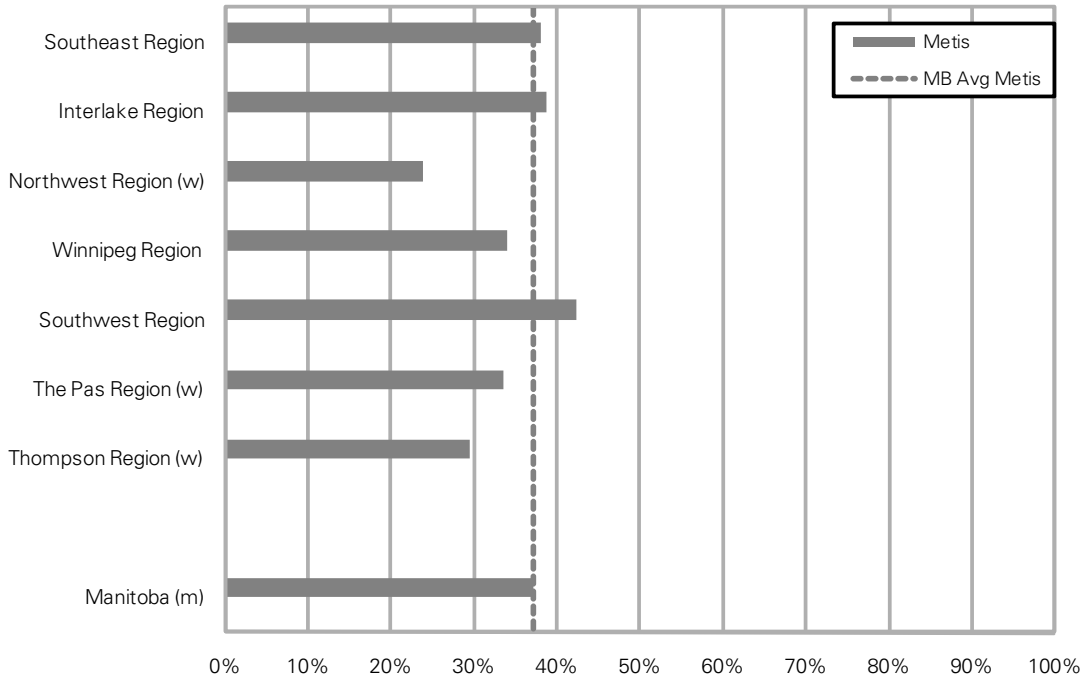
Figure 15.11.1: Total Activity Level (Work + Leisure + Travel) by RHA
Age and sex-adjusted percent of weighted sample aged 15-75 who are physically active, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.11.2: Total Activity Level (Work + Leisure + Travel) by Metis Region
Age and sex-adjusted percent of weighted sample of Metis aged 15-75 who are physically active, from combined CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), and 3.1 (2005)



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.12 Limitation of Activities

According to the Public Health Agency of Canada, approximately one in eight Canadians live with some physical or mental disability. Disabilities can range from mild limitations such as back pain, to moderate limitations such as arthritis, to severe limitations such as paraplegia. Individuals living with disabilities can face challenges with their daily activities, from climbing a flight of stairs to dressing and feeding themselves.

In the CCHS, participation and activity limitation is a derived variable that classifies respondents according their responses to questions on the frequency with which they experience activity limitations imposed on them by a condition(s) or by long–term physical and/or mental health problem(s) that has lasted or is expected to last six months or more. For example, "Does a long–term physical condition or mental condition or health problem, reduce the amount or the kind of activity you can do at home?" Possible responses include sometimes, often, never, or not stated. This variable is calculated for all respondents.

The age– and sex–adjusted weighted proportion of respondents with participation and activity limitations was calculated by taking the ratio of the number of respondents who answered sometimes or often to at least one of the series of questions about their activity limitations to the number of all respondents. Crude percentages are available in the appendix. Respondents who did not answer at least one required question used to calculate the derived variable (i.e., don't know, refusal, not stated) were excluded from analyses. Values were calculated using data from CCHS cycles 2.1 and 3.1, so there is a limited sample size for this analysis.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

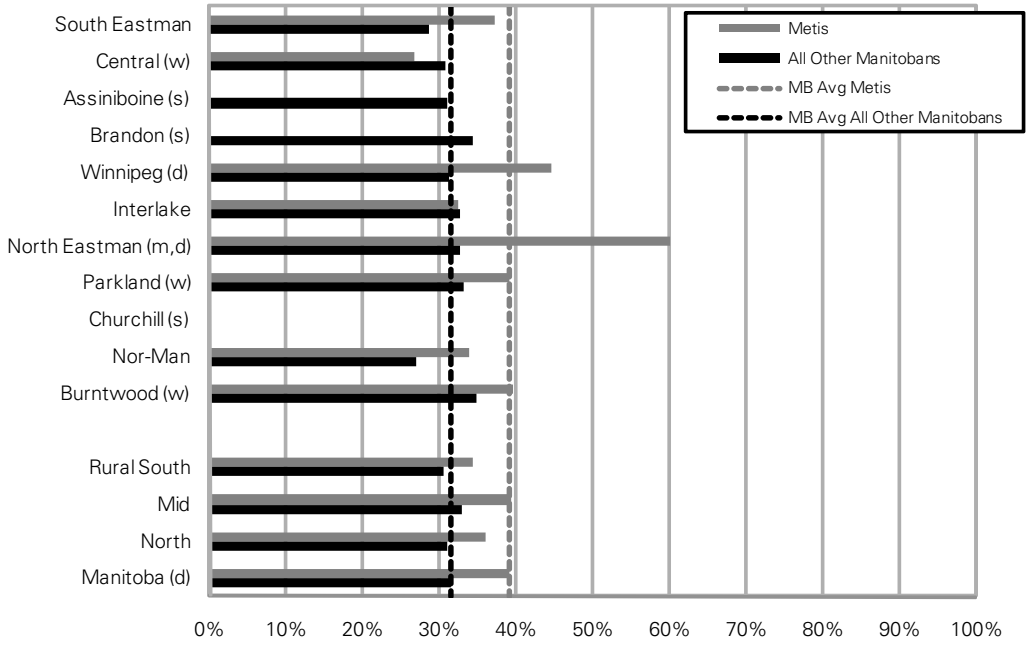
RHAs:

- Provincially, the percentage of people aged 12+ who are restricted in their activities due to physical and/or mental health problems is higher in the Metis compared to all other Manitobans (39.1% vs. 31.3%). There is no obvious gradient of activity limitation by PMR at the RHA or aggregate area level.
- Two RHAs show statistically higher percentages of activity limitations for Metis compared to all others living in the region: Winnipeg (44.5% vs. 31.1%) and North Eastman (60.1% vs. 32.5%).
- Only North Eastman RHA has a statistically higher percent of Metis experiencing activity limitation (60.1%) compared to the provincial Metis average of 39.1%.
- Although the differences between Metis and all others show a trend towards a higher percentage for Metis at all aggregate areas, none of these are statistically different either between Metis and others or from their corresponding provincial averages: Rural South (Metis 34.2% vs. 30.4%), Mid (39.3% vs. 32.8%), and North (36.0% vs. 31.3%).

MMF Regions:

- Provincially, the percentage of Metis people aged 12+ who are restricted in their activities due to physical and/or mental health problems is 39.1%. There is no obvious gradient of PMR with activity limitations for the MMF Regions. As well, all MMF Regions have percentages statistically similar to the overall provincial Metis average. Although the MMF Regions of Southeast and Winnipeg appear slightly elevated, this is not statistically significant.

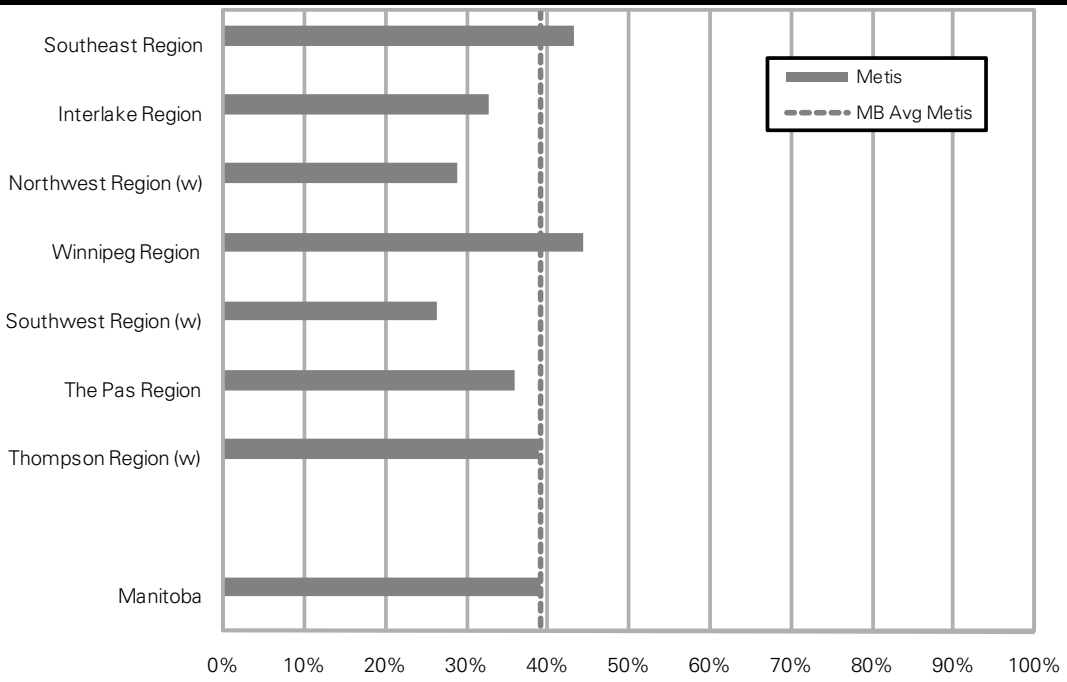
Figure 15.12.1: Limitation of Activities by RHA
Age and sex-adjusted percent of weighted sample aged 12+ who are restricted in their activities due to physical and/or mental health problems, from combined CCHS cycles 2.1 (2003) and 3.1 (2005)



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

Figure 15.12.2: Limitation of Activities by Metis Region
Age and sex-adjusted percent of weighted sample of Metis aged 12+ who are restricted in their activities due to physical and/or mental health problems, from combined CCHS cycles 2.1 (2003) and 3.1 (2005)



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'w' indicates a warning - the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers or highly variable rates

Source: MCHP/MMF, 2010

15.13 Youth Smoking, Drinking, and Sexual Behaviour

Smoking:

In the CCHS, respondents aged 12–19 were asked the question, "In your lifetime, have you smoked a total of 100 or more cigarettes (about 4 packs)?" Possible responses include yes, no, don't know, or refuse to answer. Respondents who answered no were then asked, "Have you ever smoked a whole cigarette?" Possible responses include yes, no, don't know, or refuse to answer; respondents who had answered yes to the previous question were also assumed to have smoked an entire cigarette. Those who answered "yes" were then asked a series of questions about the history of their smoking, such as "At the present time, do you smoke cigarettes daily, occasionally or not at all?" to determine if they were a current smoker, former smoker, or never smoked. For more information on how type of smoker is determined, see CCHS Survey Data: Current Smoker. Respondents who answered don't know, not stated, or refused to answer the questions were excluded from analyses. Crude weighted percentages were calculated using data from CCHS cycles 1.1, 2.1, 2.2 and 3.1.

Alcohol:

In the CCHS, respondents aged 12–19 were asked the question, "During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?" Respondents could answer yes, no, don't know, refuse, or not state an answer. Respondents who answered "yes" were then asked the following questions:

1. "During the past 12 months, how often did you drink alcoholic beverages?" Responses were dichotomized into once a week or more and less than once a week or never.
2. "How often in the past 12 months have you had five or more drinks on one occasion?" Responses were dichotomized into at least once or never.
3. "Thinking back over the past week, did you have a drink of beer, wine, liquor or any other alcoholic beverage?" Responses were dichotomized into at least once or never.

Respondents for which these subsequent questions were not applicable were categorized as non–drinkers as they had answered to the initial alcohol consumption question that they do not drink at all. Respondents who answered don't know, not stated, or refused to answer the questions were excluded from analyses. Crude weighted percentages were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

Sexual behavior:

In the CCHS, respondents aged 15–19 were asked the question, "Have you ever had sexual intercourse?" Possible responses include yes, no, don't know, or refuse to answer. Respondents who answered yes were then asked the following questions:

1. "In the past 12 months, have you had sexual intercourse?" Responses were dichotomized into yes and no.
2. "Did you use a condom the last time you had sexual intercourse?" Responses were dichotomized into yes and no.

3. "What kind of birth control did you and your partner usually use, condom?" Responses were dichotomized into yes and no.
4. "What kind of birth control did you and your partner usually use, birth control pill?" Responses were dichotomized into yes and no.
5. "What kind of birth control did you and your partner use the last time you had sex, condom?" Responses were dichotomized into yes and no.
6. "What kind of birth control did you and your partner use the last time you had sex, birth control pill?" Responses were dichotomized into yes and no.

Respondents who answered no to the initial sexual activity question were not included in the rest of the analyses on sexual behaviour. Respondents who answered don't know, not stated, or refused to answer the questions were excluded from analyses. Crude weighted percentages were calculated using data from CCHS cycles 2.1 and 3.1.

It is important to note that many of these survey indicators may be susceptible to cultural, age, or geographical differences in how people answer the questions, so these need to be interpreted with caution. It is also important to recognize that CCHS excludes people living 'on–reserve' making its generalizeability limited in some of the northern RHAs with high proportions of their populations living in First Nations communities.

Key observations:

- For youth aged 12–19, Metis have higher rates of smoking compared to all other Manitoba youth: smoked an entire cigarette (24.5% vs. 13.2%), smoked 100+ cigarettes (22.9% vs. 13.9%), and current smokers (26.2% vs. 14.0%).
- For youth aged 12–19, Metis have higher rates of use of alcohol in the following categories compared to all other Manitoba youth: had a drink in the past year (61.4% vs. 49.8%) and had a drink in the past week (28.3% vs. 18.9%). Although a similar trend appears for drinking weekly or more in the past year (Metis 14.7%, others 11.7%) and for having five or more drinks on one occasion in the past year (Metis 36.9%, others 29.1%), these are not statistically significant effects.
- For youth aged 12–19, Metis have higher rates of ever having had sexual intercourse, compared to all other Manitoba youth (63.1% vs. 40.2%). However, for youth who answered "yes" to that question, there are no statistical differences between Metis and other youth for the remainder of the questions: having had sexual intercourse in the past year, using a condom at last encounter, or using condoms or oral contraception as birth control regularly or at last time they had intercourse (see Table 15.13.1).
- The percentage of youth using condoms as birth control was similar for Metis and all others (68.8% vs. 74.7%, NS); the percentage using condoms at last sexual intercourse was also similar for Metis and all others (74.2% vs. 70.5%, NS).

Table 15.13.1: Crude Weighted Manitoba Rates of Youth Smoking, Drinking and Sexual Behaviours
from combined CCHS cycles 1.1 (2001), 2.1(2003), 2.2 (2004), and 3.1 (2005)

Indicator	Group	Sample Size	Crude Rate
Adolescent Smoking (ages 12-19)			
Smoked an entire cigarette	Metis	50	***24.5%***
	All Other Manitobans	308	**13.2%**
Smoked 100 or more cigarettes	Metis	119	**22.9%**
	All Other Manitobans	437	**13.9%**
Currently smokes (daily or occassionally)	Metis	121	**26.2%**
	All Other Manitobans	429	**14.0%**
Formerly smoked (no longer smokes)	Metis	52	*10.2%*
	All Other Manitobans	332	8.9%
Adolescent Drinking (ages 12-19)			
Had an alcoholic drink in the past year	Metis	259	**61.4%**
	All Other Manitobans	1517	**49.8%**
Had an alcoholic drink in the past week	Metis	88	**28.3%**
	All Other Manitobans	515	**18.9%**
Had an alcoholic drink weekly or more frequently in the past year	Metis	65	*14.7%*
	All Other Manitobans	385	11.7%
Had five or more drinks on one occasion in the past year	Metis	168	36.9%
	All Other Manitobans	941	29.1%
Adolescent Sexual Activity (ages 15-19)			
Had sexual intercourse	Metis	69	**63.1%**
	All Other Manitobans	356	**40.2%**
Had sexual intercourse in the past year	Metis	63	89.7%
	All Other Manitobans	334	93.0%
Used a condom last time they had sex	Metis	46	78.6%
	All Other Manitobans	235	74.5%
Usually uses a condom as birth control method	Metis	33	*68.8%*
	All Other Manitobans	193	74.7%
Usually uses a contraceptive pill as birth control method	Metis	24	65.3%
	All Other Manitobans	192	70.1%
Used a condom as birth control method last time they had sex	Metis	31	74.2%
	All Other Manitobans	182	70.5%
Used a contraceptive pill as birth control method last time they had sex	Metis	20	*61.4%*
	All Other Manitobans	161	60.5%

Bold indicates that Metis and All Other Manitobans are significantly different, p<0.05
Italics indicates a warning - the group's rate is highly variable and should be interpreted with caution

Source: MCHP/MMF, 2010

15.14 Findings from Literature Review

(compared to the results in this study—in italics)

"It is very important that we never lose sight of what we've been taught by our parents and grandparents, because we are who we are by what we've learned and how we've lived. We can't lose that kind of life because it was the foundation of who we are today. My childhood was my happiest time, and from then on as an adult I had to work to enhance the gifts and values that I live by. — Angie Crerar" (Metis Centre, 2005)

Self–rated health:

Self–rated health has been considered a reliable indicator of health even in cross–cultural comparisons and has been considered just as valid, if not more so, than measures of functional ability, chronic disease, or psychological well–being for measuring overall health status (Janz, Seto, & Turner, 2009; Idler & Benyamini, 1997; Shields & Shooshtari, 2001).

In 1991, according to Normand (1996), 26% of Metis self–reported their health as excellent and 33% as very good, for a total of 59%. For the year 2001, a decade later, Janz and others (2009) reported that 58% of Metis and 62% of all Canadians rated their health as excellent or very good (these rates are age–adjusted). This rate was still 58% in 2006. Males and females were similar in self–rated health. Although the younger people in the survey had higher or similar rates of excellent/very good self–rated health for Metis compared to other Canadians, the trend was reverse for those 35+ years old, where Metis were less likely to rate their health as excellent/good compared to other Canadians of comparable ages. According to a report on First Nations self-rated health (Health Canada, 2009), 13.3% of First Nations in 2002-2003 rated their health as excellent (compared to 22.0% of the general Canadian population), and 26.6% rated their health as very good (compared to 35.6% of the general population).

In our study, excellent or very good self–rated health of Metis aged 12+ was much lower than that of all other Manitobans at 48.9% vs. 60.8%. The Manitoba rates appear to be much lower for the Metis than those reported in surveys for all Canadian Metis (about 49% compared to 58%), but higher than that of First Nations on-reserve (about 40%), whereas all other Manitoban rates appear similar to those reported for all Canadians (about 61% compared to 62%).

Life stress:

A focus group study by Iwasaki, Bartlett, and O'Neil (2004),which included Metis women with diabetes as one of the focus groups, found the following factors contributed to the negative stress felt by Metis women: marginal economic situations, poor housing, crowded living conditions, worry about the health of members of the family and extended family, living with diabetes, worry associated with various medications and outcomes, not being able to pay for costly medication, feeling "stuck" in poverty, and financial stress. Several participants also related the stress of being an Aboriginal person due to the existence of racism, both at a personal and a political level. Stress caused by racism was also related to a search for "Metis identity", former involvement in the child welfare system which did not preserve family heritage, and some parents' unwillingness to reveal their children's Metis identity due to growing up in an era of stigmatization.

In our study, the results were based on the CCHS survey where sample sizes were small. There were no differences found in self–perceived stress between Metis and other Manitobans (23.0% vs. 21.1% reporting quite a bit or extreme amounts of stress). However, it is interesting to note that self–perceived stress appeared to be in the North than it was in either the urban centres or the Rural South and Mid aggregate areas of the province. This needs further study as to the geographical variations in self–perceived stress; and how that could potentially relate to increases or decreases in some of the stressors found in the study of Iwasaki et al. (2004).

Life satisfaction:

Most Metis women do not perceive disease as a component of either health or well–being (Bartlett, 2005; Bartlett, Iwasaki, Gottlieb, Hall, & Mannell, 2007). Rather, elder Metis women describe spiritually–well people as those having strength and resistance to adversity during difficult circumstances, those who are supportive, accepting, and non–judgmental, and those who care for the spiritual needs of children (Bartlett, 2004; Aboriginal Task Group, 2004). Furthermore, emotionally well individuals can identify feelings and understand their sources, accept emotions as part of the self, express feelings and keep others' feelings confidential, manage and control emotions in daily life, and understand that emotional well–being can only truly arise within one's self.

According to Edge and McCallum (2007), "Métis traditional knowledge, traditional health knowledge and healing practices are based upon a foundation of Métis culture and viewed by Métis to be fundamental to Métis health and contribute to individual well–being and community wellness." Protection and promotion of language, learning skills of survival on the land, and learning a sense of responsibility to self, community, and the environment are viewed as valuable teachings to enhance wellness.

In our study, Metis and all other Manitobans had similar life satisfaction scores (92.8% Metis, 91.8% others) and emotional well–being (72.3% Metis were happy and interested in life, compared with 75.5% of all other Manitobans). This varied somewhat by geography, where Metis scores appeared somewhat lower in the North. More study is required to see if Metis concepts of emotional well–being, or factors influencing this, vary by geographical area.

Body mass index:

In various studies of Metis people living with diabetes, factors associated with an increased risk of diabetes included being female, being older, BMI of 30 or greater (obese), and level of education (less than Grade 9) (Bruce, Kliewer, Young, Mayer, & Wadja, 2003; Bruce, 2000). For those with a BMI ≥30 kg/m2 (i.e., obese), the risk of diabetes was three–fold when compared to those having a BMI of less than 30 (Bruce et al., 2003). Obesity was also associated with high blood pressure at all ages, but more strongly associated in the less than 50 year old age group compared with those over 50 (Bruce, 2000).

In our study, there was a significantly higher percentage of Metis that were overweight or obese compared to other Manitobans (65.1% vs. 55.1%). This was particularly high in Interlake RHA (80.5% Metis vs. 61.8% others) and Interlake MMF Region (80.1% for Metis). For Manitoba overall, 28.7% of the Metis and 20.2% of all others were obese.

Fruit and vegetable consumption:

Metis traditional diet was considered healthy in a qualitative study. It included wild fruits and berries. Elders attribute their longevity to this healthy diet (Hanrahan, 2000). In a 2006 survey, 16% of Metis felt that they should improve their eating habits (Janz et al., 2009).

In our study, Metis reported a much lower percentage of people consuming fruits and vegetables at least five times per day (20.9% vs. 30.6%), compared to all other Manitobans. This was consistent across the province in both urban and rural (including remote) settings.

Frequency of heavy drinking:

According to Hanrahan (2000), discussions with elders and experts point to certain pathologies associated with social disintegration in some Metis communities, such as alcoholism and injury. Although many seek to blame the individual, Hanrahan points out that this approach fails to recognize the root of these pathologies often lie in political and economic change, including unemployment, radically altered diets, erosion of land–based economies, and government regulations—all of which have adverse consequences. A Saskatchewan document highlighting the need for psychiatric nursing education states that in 1996/97, 50% of Metis reported having problems with alcohol use and 46% of the people in detoxification and treatment facilities in Regina were of First Nations or Metis descent (Registered Psychiatric Nurses Association of Saskatchewan, 2009).

In our study, although the consumption of five or more alcoholic drinks on one occasion per month or more was higher in Metis compared to all other Manitobans (21.2% vs. 17.6%), it was not as high as reported in the literature. However, there appear to be geographical locations in Manitoba where alcohol consumption may be problematic—Brandon RHA (38.5% Metis, 23.6% others) and, possibly, Thompson MMF Region (27.7% Metis).

Smoking:

Various estimates of Metis smoking rates have been calculated from surveys over time. Around 54% of Metis aged 15+ were current smokers in the 1991 Aboriginal People's survey (Normand, 1996) with 47% daily and 7% on occasion. Rates were similar between women and men and highest amongst Metis aged 25–44 (59%). This was over double the smoking rate of the Canadian population (23%) at that time (Lamouche & Metis Centre, 2002). More recent data points to reductions in smoking.

In 2006, 31% of Metis adults smoked on a daily basis, down from 37% in 2001 (Janz et al., 2009). As well, 61% of Metis adults did not smoke at all in 2006, up from 54% in 2001 (Janz et al., 2009). Bartlett (2004) documented perceptions of Metis women about their conceptions of Health and Well–being, stating, "most of the adult, but not elder, women did not consider themselves physically fit, and admitted to having lifestyle practices that were thought to be harmful, such as smoking."

In our study, 33.3% of Metis aged 12+ smoked daily or occasionally—this was derived from CCHS data combined from 2001 through 2005. This was 53% higher than the smoking rates of all other Manitobans (21.7%). There was also a strong gradient from south to north with smoking rates for Metis much lower in the Rural South (23.5%), average in the Mid (33.8%), and extremely high in the North (42.3%). Winnipeg (35.4%) and Brandon (36.7%) were around the Metis provincial average (35.4%).

Physical activity:

In the Aboriginal People's Survey, around half (45% in 2001 and 48% in 2006) of the Metis respondents reported that increasing exercise was the most important thing they could do to improve their health (Janz et al., 2009). About 13% of Metis in the APS reported no physical activity outside of work, 36% did one to two hours a week, 20% did three to four hours, and 27% reported five or more hours a week. Those whose self–rated health was fair or poor were most likely (28%) to report doing no physical activity outside work (Janz et al., 2009). Interestingly, Metis were more likely to report walking to work, school, or to do errands compared to the Canadian average (78% vs. 71%). In the 2005 CCHS, 47.3% of Manitobans reported active or moderately active leisure–time activity (Statistics Canada, CANSIM Table 105–0433). This may be comparable to the 47% of the Metis population in the Janz (2009) study that had at least three hours a week of leisure physical activity.

In our study, the indicator was analyzed as <u>total</u> physical activity, not just leisure time, so it combines work, leisure, and travel activity. Metis were more likely to engage in total overall physical activity (37.2% vs. 29.0%) compared to other Manitobans. It is uncertain whether this is driven mainly by physically active working conditions or leisure time activity.

Activity limitations:

According to Normand (1996), in 1991 44% of Metis aged 15 and over reported a mobility disability. That is, they were limited in the ability to walk, move from room to room, carry an object a short distance, or stand for long periods. As well, 38% of Metis reported an agility disability (limited in the ability to bend, dress or undress, get in or out of bed, grasp or handle objects, reach, or cut food). More recent data from Statistics Canada (2001) indicate that around 17% of Metis experience frequent activity limitations. However, this percentage almost doubles in the case of Metis not in the labour force, where 31% experienced frequent activity limitations compared to only 12% of those who were employed. This was also found to be strongly associated with income level. Those in the lower income levels experience higher prevalence of activity limitation (Metis Centre, 2007). In the Health Canada (2009) report on First Nations health, the age-standardized prevalence of disability (i.e., limitations in activity) reported among First Nations adults on-reserve (28.5%) was similar to the prevalence among the general Canadian population (25.8%), but our data was based on several waves of the CCHS, and was age-standardized to the Manitoba population, so this may not be comparable.

In our study, the Metis prevalence of 'limitation of activity' was higher than that of all other Manitobans (39.1% vs. 31.3%). There was no obvious gradient with geographical location or PMR. However, one RHA had statistically elevated prevalence of activity limitation—North Eastman at 60.1% of the Metis.

Adolescent smoking rates:

Results from the 1991 Aboriginal Peoples Survey (APS) revealed that 56% of Métis youth in the 15–24 age group were smokers (Stephens, 1994).

In our study, using the combined CCHS cycles from 2001 through 2005, Metis youth smoking rates (i.e., currently smoking daily or occasionally) for those aged 12–19 were almost double that of all other Manitoba youth (26.2% versus 14.0%). This is substantially reduced from those rates reported in the early 1990s and mirrors trends across Canada for decreasing rates of adolescent smoking. The latest data on smoking rates of those aged 12–19 is based upon the CCHS 3.1 cycle, at 12.7% in 2005.

Adolescent drinking rates:

Women who attended a regional Metis Elder gathering identified drug use, abuse, or addiction, as well as, alcohol or alcoholism in the home as two of the key issues and challenges to the health of Metis youth today (Edge & McCallum, 2007). According to the CCHS 1.1 and 2.1 in 2000/2001 and 2003, the percentage of people stating that they have five or more alcoholic drinks on one occasion, 12 or more times a year was similar between Aboriginal and non–Aboriginal Manitobans, at 20.2% and 21.1% respectively (CANSIM Table 105–0112). However, this is not specific to adolescents.

In our study, the prevalence of having an alcoholic drink weekly or more frequently in the past year was similar between Metis and all other Manitoba youth aged 12–19 (14.7% vs. 11.7%). However, there was a much higher prevalence of Metis youth reporting having had an alcoholic drink in the past week, compared to all other Manitoba youth, at 28.3% vs. 18.9%.

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Chapter 16: Education and Social Services

Indicators in this chapter:

- Retention Rates from Kindergarten to Grade 8
- Grade 3 Students with No School Changes in Four Years
- On–time Pass Rates for the Grade 12 Language Arts Standards Test
- On–time Pass Rates for the Grade 12 Math Standards Test
- High School Completion Rates within Six Years of Grade 9
- Children in Families Receiving Provincial Income Assistance
- Young Adults Receiving Provincial Income Assistance
- Prevalence of Children in Care

Overall Key Findings:

- In general, the education and social services outcomes of the Metis are poorer than for all other Manitobans. Metis children are more likely to have transferred schools, or to be retained in a grade. They are less likely to pass the Grade 12 Language Arts or Mathematics Standards Tests and to complete high school within six years of enrolling in Grade 9. Metis children are over twice as likely to be in families receiving provincial income assistance (IA). Metis are also twice as likely to be young adults (ages 18–19) receiving IA. Metis children are 24% more likely to be under the care of Child and Family Services.
- According to Table 16.0, regions that show promise in terms of being statistically "better off" for Metis compared to the overall Metis provincial average for at least three education and social services indicators include: South Eastman RHA, Central RHA, Interlake RHA, the Rural South aggregate area, Southeast MMF Region, Interlake MMF Region, St. Boniface CA, and St. James–Assiniboia CA.
- According to Table 16.0, there are several areas that are statistically "worse off" for Metis at least three education and social services indicators: Burntwood RHA, NOR–MAN RHA, Parkland RHA, the North aggregate area, The Pas MMF Region, Thompson MMF Region, Downtown CA, and Point Douglas CA.

Table 16.0: Overall Key Findings of Education and Social Services

Indicator (age of inclusion for this indicator) These are age– and sex–adjusted unless otherwise indicated.	Provincial difference between Metis and all others (age– and sex–adjusted unless otherwise stated), with RR (relative rate)	Statistically "better off" regions for Metis compared to the Metis provincial average	Statistically "worse off" regions for Metis compared to the Metis provincial average
		i.e., higher rates	**i.e., lower rates**
Grade 3 Students with No School Changes in Four Years (2003–2006) (crude %)	66.4% vs. 78.3%; RR=0.85	South Eastman RHA, Mid aggregate area, Southeast MMF Region, Interlake MMF	River East CA
Grade 12 Language Arts Standards Test On–Time Pass Rate (crude % of 18–year–olds who should have written the test)	46.5% vs. 58.1%; RR=0.80	South Eastman RHA, Interlake RHA, Rural South aggregate area, Southeast MMF Region, Interlake MMF Region	Parkland RHA, Burntwood RHA, North aggregate area, The Pas MMF Region, Thompson MMF Region, Downtown CA, Point Douglas CA
Grade 12 Mathematics Standards Test On–Time Pass Rate (crude % of 18–year–olds who should have written the test)	37.0% vs. 49.3%; RR=0.75	–	Point Douglas CA
High School Completion Rates within Six Years of Grade 9 (crude %)	66.2% vs. 78.4%; RR=0.84	South Eastman RHA, Assiniboine RHA, North Eastman RHA, Rural South aggregate area, Southeast MMF Region, St. James–Assiniboia CA	Brandon RHA, NOR–MAN RHA, North aggregate area, The Pas MMF Region, Downtown CA, Point Douglas CA
		i.e., lower rates	**i.e., higher rates**
Retention Rates (retained at least once) from Kindergarten to Grade 8 (age– and sex–adjusted %)	4.6% vs. 2.8%; RR=1.64	South Eastman RHA, Interlake RHA, Rural South aggregate area, Southeast MMF Region, Interlake MMF Region, St. Boniface CA, St. Vital CA, River East CA	Parkland RHA, Churchill RHA, NOR–MAN RHA, Burntwood RHA, North aggregate area, The Pas MMF Region, Thompson MMF Region, Point Douglas CA
Children in Families Receiving Provincial Income Assistance (age– and sex–adjusted %)	28.5% vs. 13.1%; RR=2.18	South Eastman RHA, Central RHA, Assiniboine RHA, Interlake RHA, North Eastman RHA, Rural South aggregate area, Southeast MMF Region, Interlake MMF Region, Southwest MMF Region, Fort Garry CA, Assiniboine South CA, St. Boniface CA, St. Vital CA, Transcona CA, St. James–Assiniboia CA	Winnipeg RHA, Parkland RHA, NOR–MAN RHA, Burntwood RHA, North aggregate area, Northwest MMF Region, Winnipeg MMF Region, The Pas MMF Region, Thompson MMF Region, Inkster CA, Downtown CA, Point Douglas CA

Young Adults aged 18–19 Receiving Provincial Income Assistance (age– and sex–adjusted %)	21.1% vs. 9.8%; RR=2.15	South Eastman RHA, Central RHA, Rural South aggregate area, Southeast MMF Region, Southwest MMF Region	Parkland RHA, Northwest MMF Region, The Pas MMF Region, Inkster CA, Downtown CA, Point Douglas CA
Prevalence of Children in Care (age– and sex–adjusted %)	4.1% vs. 3.3%; RR=1.24	South Eastman RHA, Central RHA, Interlake RHA, Parkland RHA, Rural South aggregate area, Mid aggregate area, Southeast MMF Region, Interlake MMF Region, St. Boniface CA, St. Vital CA, St. James–Assiniboia CA	Brandon RHA, Winnipeg RHA, Winnipeg MMF Region, Downtown CA, Point Douglas CA

NS means Not Statistically significantly different between Metis and all others

Source: MCHP/MMF, 2010

16.1 Retention Rates from Kindergarten to Grade 8[1]

The retention rate from kindergarten to Grade 8 is the age– and sex–adjusted percentage of students retained at least once during their progress from Kindergarten to Grade 8, i.e., children that are not progressing through the school system as expected. Crude percentages are available in the appendix. This analysis includes children enrolled in Kindergarten to Grade 8 in academic years 2000/01 to 2005/06 with a follow–up period in 2006/07 for enrollments in 2005/06. The denominator for this analysis is the number of students that were in the school program in Grades K–8 at any point and were in the program for at least two years. Band schools were included in this analysis.

Key observations:

RHAs:

- Provincially, the rate of retention at least once between Kindergarten to Grade 8 is statistically higher for Metis children compared to all other Manitoban children (4.6% vs. 2.8%).
- There appears to be a strong gradient of retention from Kindergarten to Grade 8 by PMR of the regions, with healthier regions showing lower retention rates. This is obvious at both the RHA and aggregate area levels.
- Rural South has similar rates of retention from Kindergarten to Grade 8 for Metis and all other children (2.9% vs. 2.9%); Mid shows higher Metis rates compared to all others (5.0% vs. 3.3%). The North shows very high but similar rates for both groups (9.5% vs. 9.1%).
- South Eastman RHA has lower rate of retention from Kindergarten to Grade 8 for both Metis and others, compared to the corresponding provincial averages (Metis 1.1%, others 1.9%).
- Regions showing higher rate of retention from Kindergarten to Grade 8 for Metis compared to all other children in that RHA are: Assiniboine (6.1% vs. 4.1%), Brandon RHA (6.3% vs. 2.5%), Winnipeg (3.7% vs. 1.9%), and Parkland (8.2% vs. 5.0%).
- RHAs showing significantly lower rate of retention from Kindergarten to Grade 8 for Metis children, compared to their provincial average of 4.6%, are South Eastman (1.1%) and Interlake (2.7%). Many RHAs show higher prevalence of retention for Metis compared to their provincial average: Parkland (8.2%), Churchill (12.5%), NOR–MAN (8.3%), and Burntwood (10.3%). This is mirrored by high rates for all other children living in those RHAs as well.
- Churchill RHA seems to have a particularly high rate of retention from Kindergarten to Grade 8 for both Metis and other children—the highest in the province at 12.5% for Metis and 12.7% for all other children.

MMF Regions:

- Provincially, the Metis rate of retention from Kindergarten to Grade 8 is 4.6%. There is a gradient of retention by PMR of the Metis regions with less healthy regions showing higher retention rates.

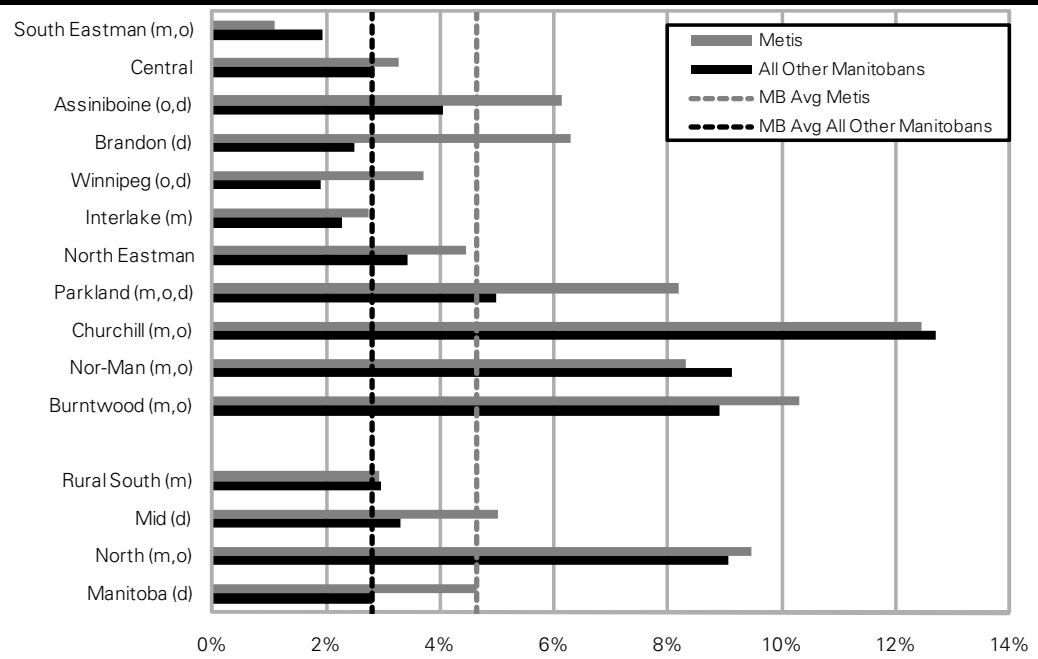
[1] Note: Schools and school divisions in Manitoba no longer use the term "grade retention" to describe students who are enrolled in the same grade for two consecutive years. Instead, the term "continuing" is used to describe students who have not acquired the minimum expectations/outcomes to proceed to the next grade level, and are continuing in the program at that grade level for part or all of the next school year.

- Two MMF Regions show lower rate of retention from Kindergarten to Grade 8 when compared to the Metis provincial average: Southeast MMF Region (2.4%) and Interlake MMF Region (2.7%). Two MMF Regions show higher rate: The Pas MMF Region (9.6%) and Thompson MMF Region (10.5%).

Winnipeg CAs:

- In Winnipeg RHA overall, the rate of retention from Kindergarten to Grade 8 for Metis children is statistically higher than for all other children (3.7% vs. 1.9%).
- There is a gradient of retention by PMR, with less healthy areas showing higher retention. One anomalous CA is River Heights, which shows a much higher rate of retention from Kindergarten to Grade 8 for Metis children than would be expected given the PMR ordering.
- Those Winnipeg CAs showing a significantly higher rate of retention from Kindergarten to Grade 8 for Metis children compared to others living in that CA are: St. Vital (1.9% vs. 0.7%), River Heights (6.1% vs. 1.7%), Seven Oaks (2.2% vs. 1.0%), Downtown (5.9% vs. 3.6%), and Point Douglas (8.2% vs. 5.1%).
- Winnipeg CAs that show a lower rate of retention from Kindergarten to Grade 8 for Metis children compared to their overall provincial average of 4.6% are: St. Boniface (1.0%), St. Vital (1.9%), and River East (2.2%). Only one CA shows a statistically higher retention compared to the provincial average for Metis—Point Douglas (8.2%).

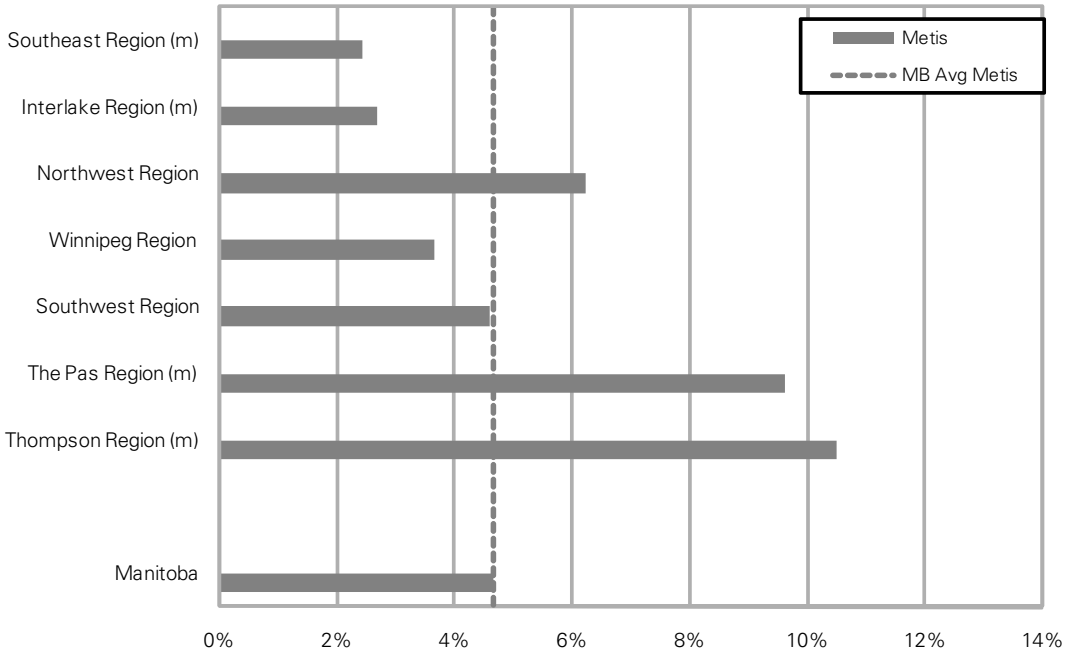
Figure 16.1.1: Retention Rates from Kindergarten to Grade 8 by RHA, 2007
Age- and sex-adjusted percent of students that were retained at least once



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.1.2: Retention Rates from Kindergarten to Grade 8 by Metis Region, 2007
Age- and sex-adjusted percent of Metis students that were retained at least once



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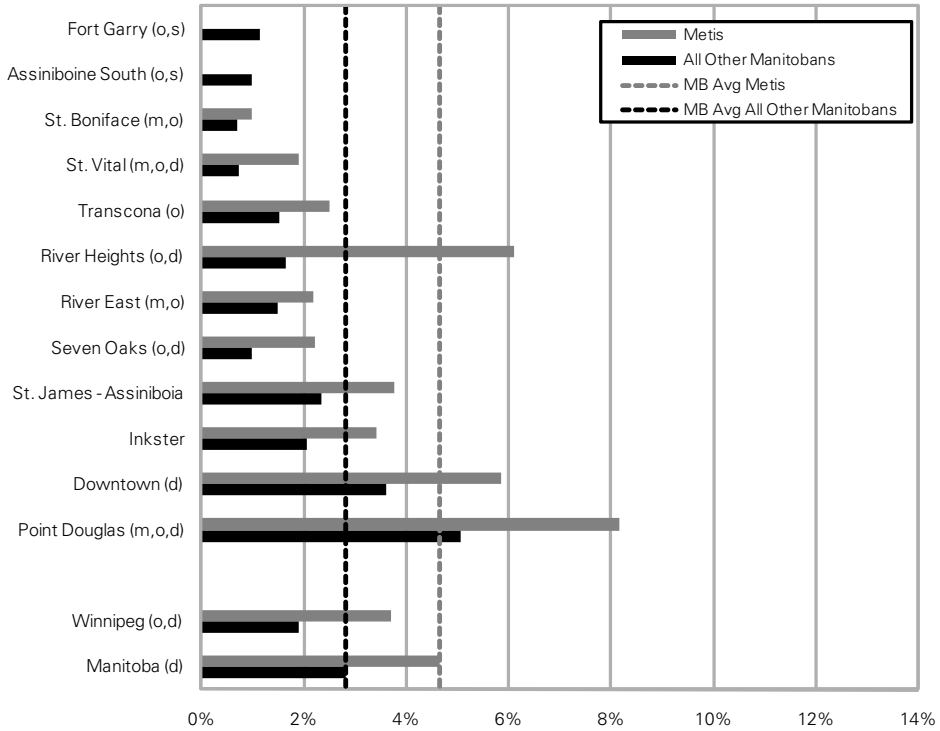
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.1.3: Retention Rates from Kindergarten to Grade 8 by Winnipeg Community Area, 2007
Age- and sex-adjusted percent of students that were retained at least once



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

16.2 Grade 3 Students with No School Changes in Four Years

The number of times a student changed schools that was not part of an expected progression through the grades was counted. Expected progressions were identified when a student reached the highest grade of a school and the next year transferred to a different school (i.e., graduating from Grade 6 in one school and starting Grade 7 in another school).

The percentage of Grade 3 students with no school changes in four years is calculated as the crude percentage of students that did not transfer schools from the start of Kindergarten in 2003/04 to the end of Grade 3 in 2006/07. Band operated schools were included.

Key observations:

RHAs:

- Provincially, the percentage of Grade 3 students with no school changes in four years is significantly lower for the Metis children compared to all other Manitoba children (66.4% vs. 78.3%). In other words, more Metis children experience school changes.
- As to a gradient with PMR, the percentages are relatively similar throughout the RHAs and aggregate areas with the exceptions of the northern RHAs and North aggregate area, where children in the least healthy "north" experience the highest school change rate.
- There is a consistent pattern in most of the RHAs where the Metis children have a lower percentage of students with no school changes, compared to all other children in the area. In several of the RHAs, there is a statistically significantly lower percentage of Metis Grade 3 students with no school changes in four years compared to all others in those areas: Central RHA (54.5% vs. 77.4%), Assiniboine (75.0% vs. 87.2%), Brandon (48.6% vs. 76.0%), Winnipeg (63.4% vs. 76.5%), Interlake (76.7% vs. 85.3%), and Parkland (71.3% vs. 87.4%).
- By aggregate area, the Rural South (68.6% vs. 82.8%) and Mid (74.4% vs. 85.6%) areas had significantly lower percentages of Metis Grade 3 students with no school changes in four years compared to the others. However, even though the rate for Metis in the Mid aggregate area is significantly lower than all other Manitobans, it is still significantly higher than the Metis provincial average. In the North, the percentage of Grade 3 students with no school changes in four years is similar for Metis and all others (63.2% vs. 63.5%) with the "other" category statistically significantly lower than the provincial average.

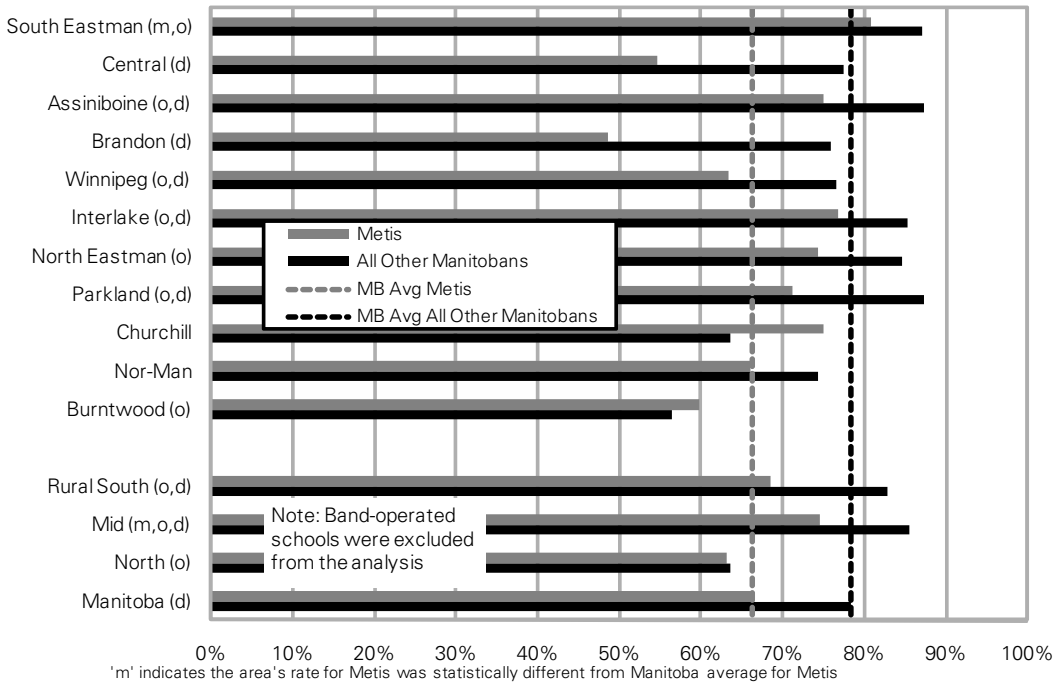
MMF Regions:

- Provincially, the percentage of Grade 3 students with no school changes in four years for Metis children is 66.4%. There appears to be somewhat of a gradient with the percentage dropping from most healthy to least healthy areas.
- In two MMF Regions, the percentage of Grade 3 students with no school changes in four years is significantly higher than the Metis provincial average of 66.3%: Southeast (77.8%) and Interlake (77.4%). The Southwest (57.6%) and Thompson (61.1%) regions have the lowest percentages compared to the Metis provincial average, but they are not significantly different.

Winnipeg CAs:

- Overall in Winnipeg RHA, the percentage of Grade 3 students with no school changes in four years is significantly lower for Metis than for all other Winnipeg children (63.4% vs. 76.5%). There appears to be a gradient, with the least healthy CAs showing the lowest percentage of students with no school changes (i.e., the greatest mobility in the least healthy areas).
- There are several CAs with significantly lower percentages of Metis Grade 3 students with no school changes in four years compared to all other Manitobans: Assiniboine South (54.5% vs. 80.2%), St. Vital (64.3% vs. 80.6%), Transcona (72.2% vs. 86.9%), River East (52.5% vs. 70.4%), and Inkster (57.1% vs. 73.4%).
- In the CA of River East, there are significantly fewer Metis Grade 3 students with no school changes in four years compared to the Metis provincial average (52.5% vs. 66.4%). There are several other CAs with lower percentages of Grade 3 students with no school changes in four years compared to the Metis provincial average, but these are not statistically significant: Inkster (57.1%), Downtown (50.9%), and Point Douglas (57.6%). It should be noted that the percentages for all other Manitobans in the following areas are also lower than their provincial average (78.3%): River East (70.4%), Downtown (63.0%), and Point Douglas (63.3%).

Figure 16.2.1: Grade 3 Students with No School Changes in Four Years by RHA
Crude percent of students that did not transfer schools from 2003 to 2006



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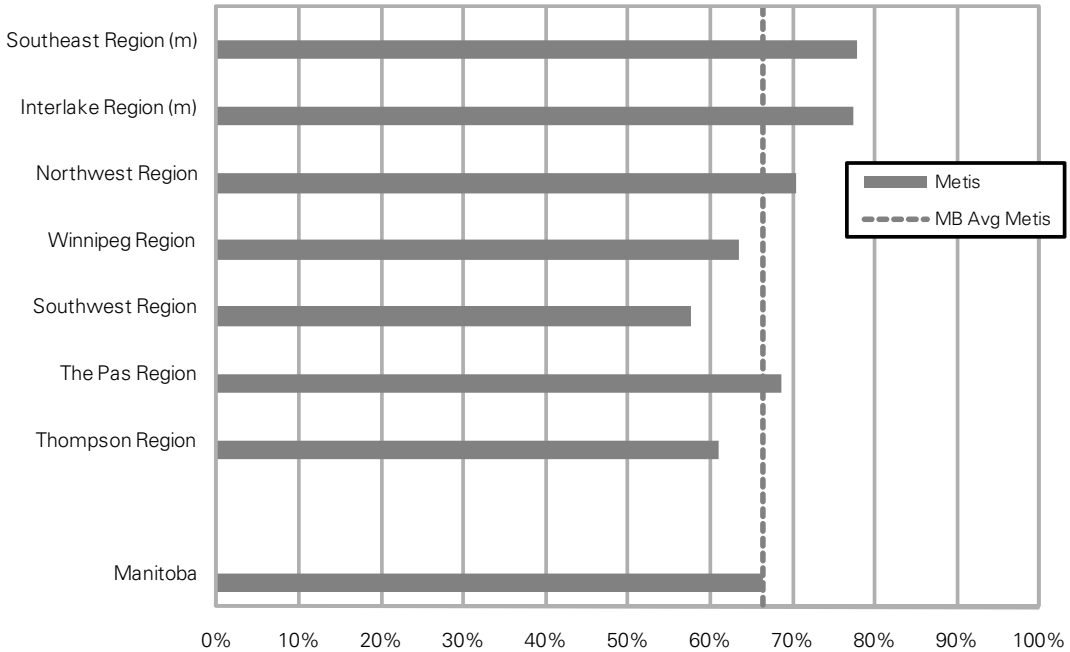
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.2.2: Grade 3 Students with No School Changes in Four Years by Metis Region
Crude percent of Metis students that did not transfer schools from 2003 to 2006



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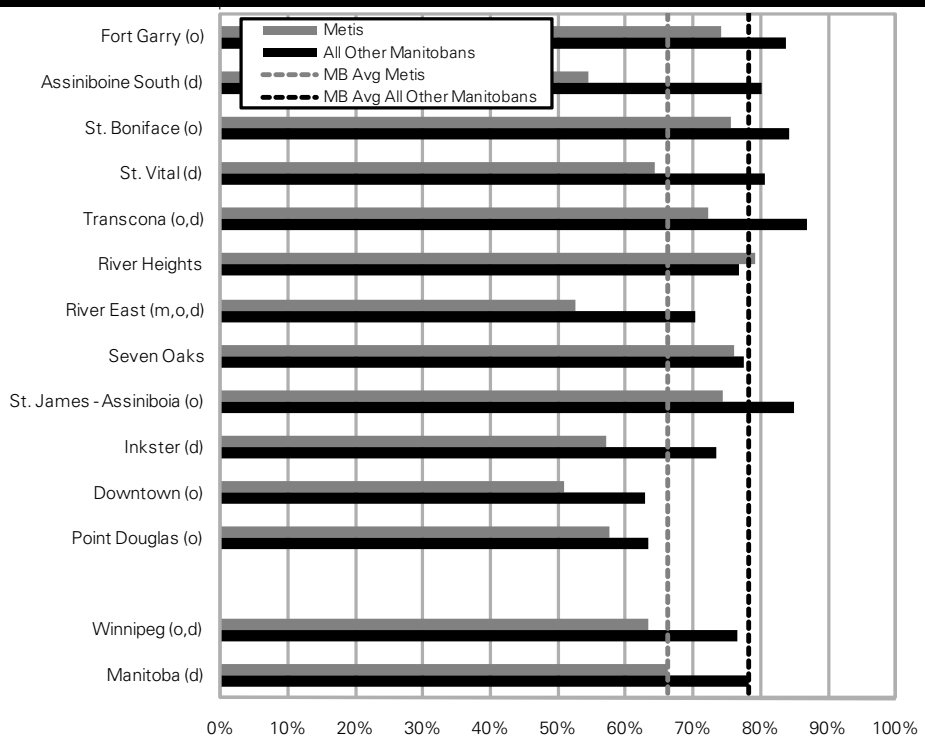
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.2.3: Grade 3 Students with No School Changes in Four Years by Winnipeg Community Area
Crude percent of students that did not transfer schools from 2003 to 2006



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

16.3 On–Time Pass Rates for the Grade 12 Language Arts Standards Test

Students in Grade 12 in Manitoba have been required to write standard provincial examinations, including Language Arts (LA) and Math exams, since 1993. The current standard tests account for 30% of the students' final course mark, are curriculum–based, and mandatory for all students, with adaptations available for many special needs students and exemptions for individual students as required. Rather than looking at the results of these exams only for students currently in Grade 12, this analysis includes all children who were born in Manitoba and remained in Manitoba from both 1988 until they were 18 years of age in 2006 (the year they should have written the standard tests if they had progressed through the school system as expected). In this way, this analysis is able to measure not only the percent of children that passed or failed these standard tests, but also the percent who were absent from school, did not complete the test, were in Grade 11 or lower (i.e., retained at least one year), or who had withdrawn from school altogether.

Exam scores for Grade 12 LA and Math in the 2005/06 school year were identified for children born in Manitoba. Children that were exempt from the test, dropped the course, or otherwise did not write the test were grouped into an 'Other' group. (This group could not be subdivided in this report as it would mean suppressing most of the numbers for the Metis population.)

As enrollment data is often incomplete for schools operated by the First Nations Communities in which they are located (often referred to as band–operated schools), **students in band–operated schools were excluded** from this analysis.

The first graphs show the 'on time' pass rates for the Grade 12 LA Standards Test. Further stacked bar graphs and tables show details as to the other categories (pass/fail/other for the RHA, MMF Region, and Winnipeg CA graphs; plus a detailed table for aggregate areas showing pass, fail, drop/absent/exempt/ incomplete, no test, withdrawn, or retention (i.e., Grade 11 or lower). More detailed categories are available in Table 16.3.1 following the graphs.

Key observations:

RHAs:

- Provincially, there is a statistically significantly lower pass rate on the Grade 12 LA Standards Test for Metis compared to all other Manitoban students (46.5% vs. 58.1%). According to Table 16.3.1, there is a slightly higher fail rate (6.4% vs. 5.7%), an equivalent withdrawn rate (10.9% vs. 10.8%), but a much higher retention rate (i.e., Grade 11 or lower) for Metis compared to all other Manitoban students (23.0% vs. 16.6%).
- There is a strong gradient of pass rates for the Grade 12 LA Standards Test by PMR of the RHA, with the most healthy region of South Eastman having the highest pass rates both for Metis and for all others (66.7% and 68.8%) and Burntwood RHA the lowest (20.9% and 12.6% respectively). This strong gradient also appears at the aggregate area level.
- Three RHAs show Metis Grade 12 LA Standards Test pass rates statistically lower than for other students in the region: Assiniboine (44.1% vs. 62.7%), Winnipeg (46.2% vs. 64.2%), and Parkland (27.6% vs. 49.0%). Burntwood shows the opposite with Metis rates higher than for all others (20.9% vs. 12.6%), but both of those are significantly lower than their corresponding provincial average pass rates.

- RHAs showing Metis Grade 12 LA Standards Test pass rates higher than the overall Metis provincial average of 46.5% include South Eastman (66.7%) and Interlake (59.3%). RHAs showing Metis rates lower than the overall Metis provincial average are Parkland (27.6%) and Burntwood (20.9%).
- At the aggregate area level, the Rural South has Grade 12 LA Standards Test pass rates that are higher than the provincial corresponding averages for both Metis and other students (57.9% Metis, 62.6% others—statistically similar). In the Mid area, rates are similar to each other (48.8% Metis, 53.6% others). In the North, rates are lower for both (28.8% Metis, 17.1% others) with the Metis rate statistically higher than that of all other North students.
- According to Table 16.3.1, around 20% of Metis students are retained (i.e., in Grade 11 or lower) in most aggregate areas, except in the North where 37% are retained.

MMF Regions:

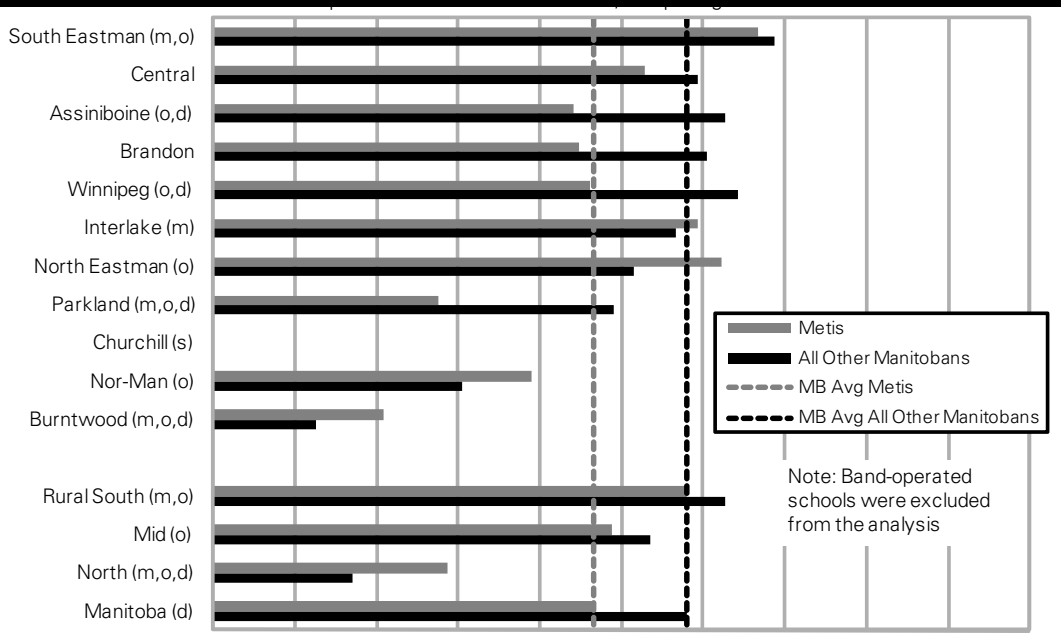
- For the Metis provincially, the Grade 12 LA Standards Test pass rate is 46.5%. According to Table 16.3.1, 6.4% failed, 4.5% fell into the category of drop/absent/exempt/incomplete, 8.7% had no test result, 10.9% withdrew, and 23.0% were in Grade 11 or lower (i.e., retained).
- There is a strong gradient of Grade 12 LA Standards Test performance with PMR in the MMF Regions. Southeast MMF Region has the highest pass rate at 64.7%, and Thompson MMF Region has the lowest at 21.1%.
- Two MMF Regions show Grade 12 LA Standards Test pass rates higher than the provincial Metis average: Southeast (64.7%) and Interlake (59.6%). Two MMF Regions show lower on–time pass rates: The Pas (30.2%) and Thompson (21.1%).

Winnipeg CAs:

- In Winnipeg RHA overall, Metis have a statistically lower pass rate compared to all other students in Winnipeg (46.2% vs. 64.2%) on the Grade 12 LA Standards Test. Although the rates of failing are about the same for Metis and others (6.1% vs. 5.7%), the "other" category for Metis is much higher (47.7% vs. 30.2%) (i.e., total of all remaining categories excluding pass and fail). This is mainly driven by retention (see Table 16.3.1), where in Winnipeg the percentage of Metis students in Grade 11 or lower is much higher than for all other Winnipeg students (22.0% vs. 13.8%).
- There is a strong gradient of Grade 12 LA Standards Test performance with PMR in the Winnipeg CAs, with both Metis and others having the highest pass rates in Fort Garry (72.0% and 78.3% respectively) and Assiniboine South (Metis 77.8%, others 77.8%) and the lowest pass rate in Point Douglas (Metis 9.5%, others 33.6%).
- Of particular concern is the consistent pattern of Metis pass rates for the Grade 12 LA Standards Test being lower than for all other students in most of the CAs. This is especially concerning in Point Douglas, where the true 'on time' pass rate is only 9.5% for Metis students, three times lower than for all others living in Point Douglas (33.6%).
- Winnipeg CAs having statistically lower Grade 12 LA Standards Test pass rates for Metis compared to other students include: St. Vital (58.3% vs. 73.3%), River Heights (47.6% vs. 74.6%), River East (52.3% vs. 67.0%), Inkster (29.4% vs. 51.8%), and Point Douglas (9.5% vs. 33.6%).

- Those CAs showing Metis Grade 12 LA Standards Test pass rates lower than the provincial Metis average of 46.5% include: Downtown (21.4%) and Point Douglas (9.5%).
- In Winnipeg, most of the CAs show Grade 12 LA Standards Test pass rates for "other" students to be higher than or similar to their corresponding provincial average of 58.1%, with the exceptions of Downtown (35.6%) and Point Douglas (33.6%). Although not statistically significant, a similar trend for Metis students shows that, with the exceptions of Downtown and Point Douglas, Metis students in Winnipeg appear to have either higher or similar rates compared to their provincial average of 46.5%.

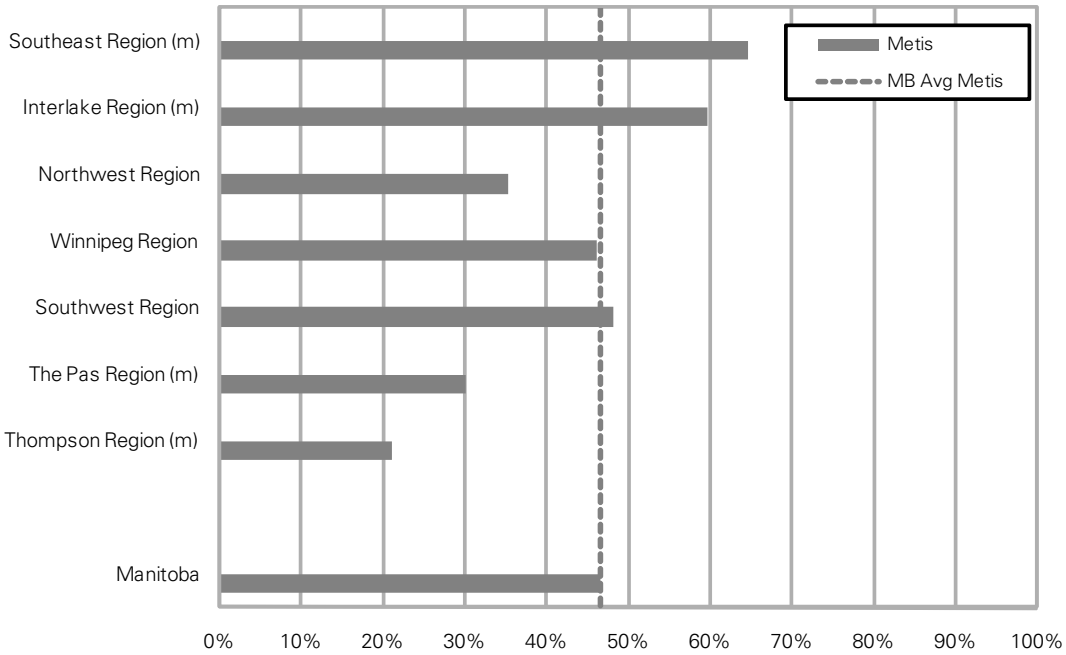
Figure 16.3.1: On-time Pass Rates for the Grade 12 Standards Language Arts Test by RHA, 2006
Crude percent of students born in 1988, completing in 2006



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.3.2: On-time Pass Rates for the Grade 12 Standards Language Arts Test by Metis Region, 2006
Crude percent of Metis students born in 1988, completing in 2006

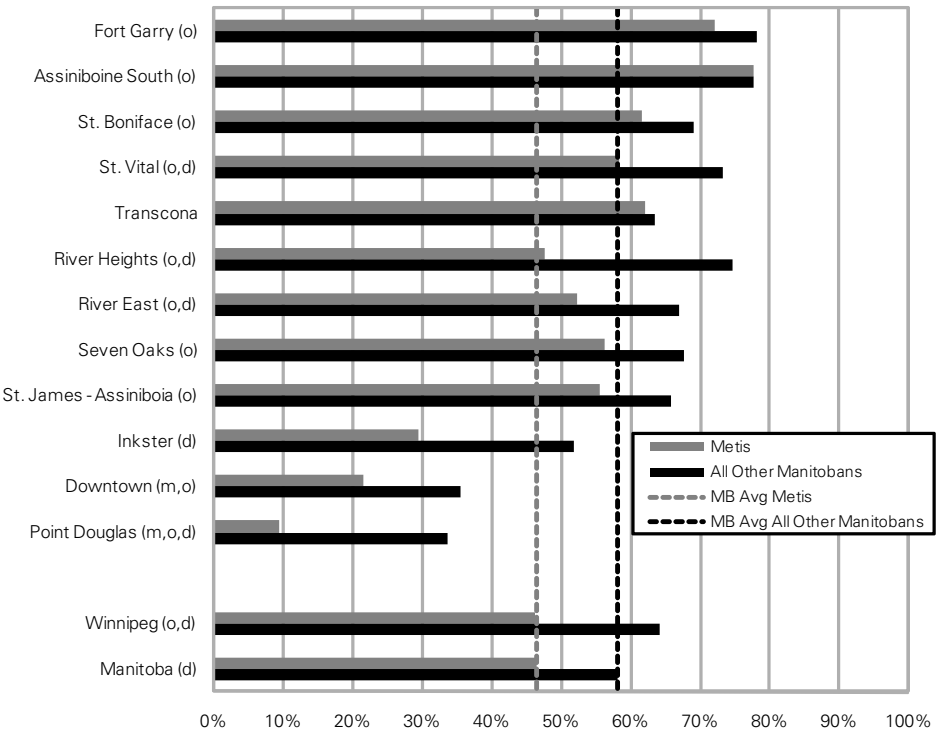


'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.3.3: On-time Pass Rates for the Grade 12 Standards Language Arts Test by Winnipeg Community Area, 2006

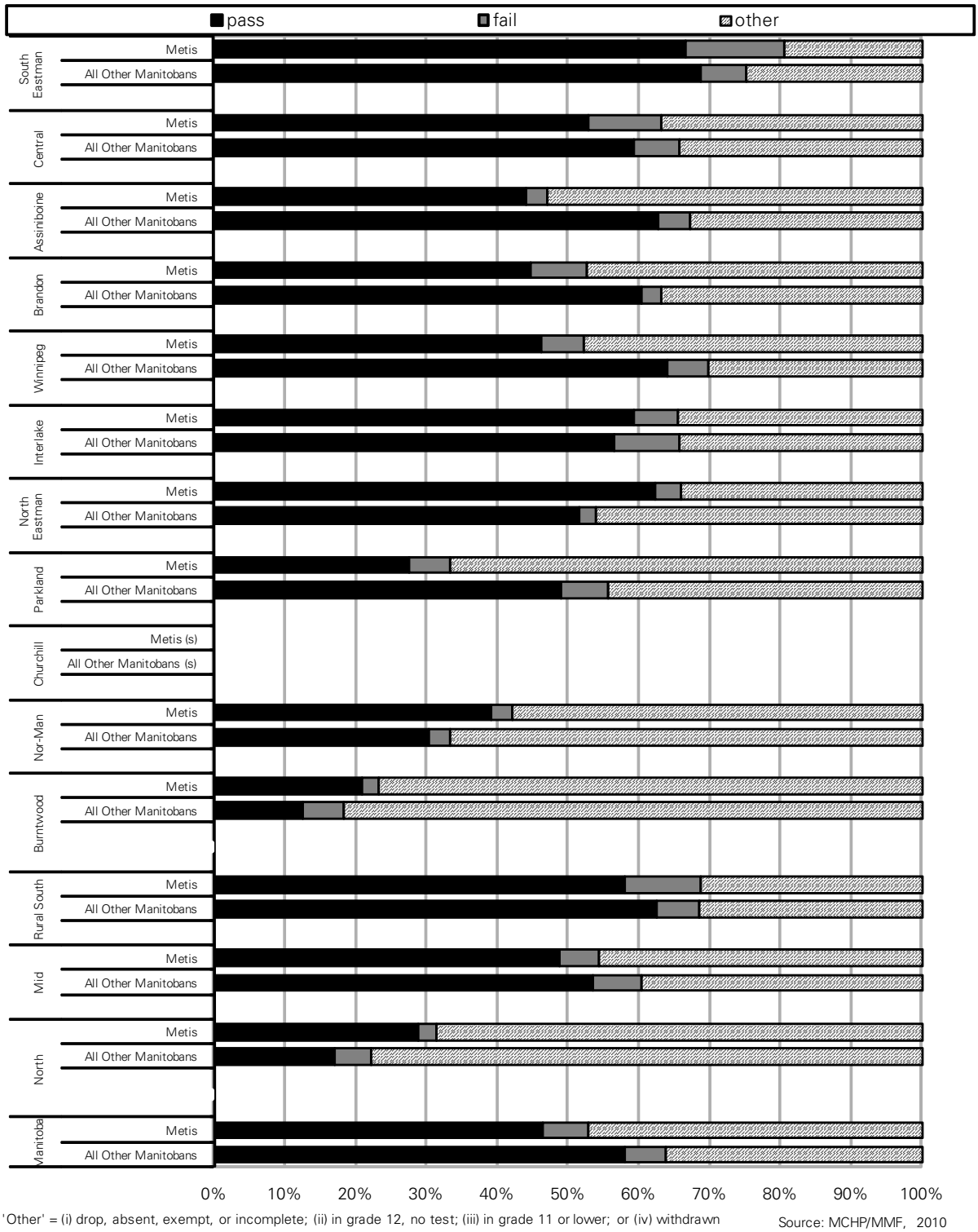
Crude percent of students born in 1988, completing in 2006



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

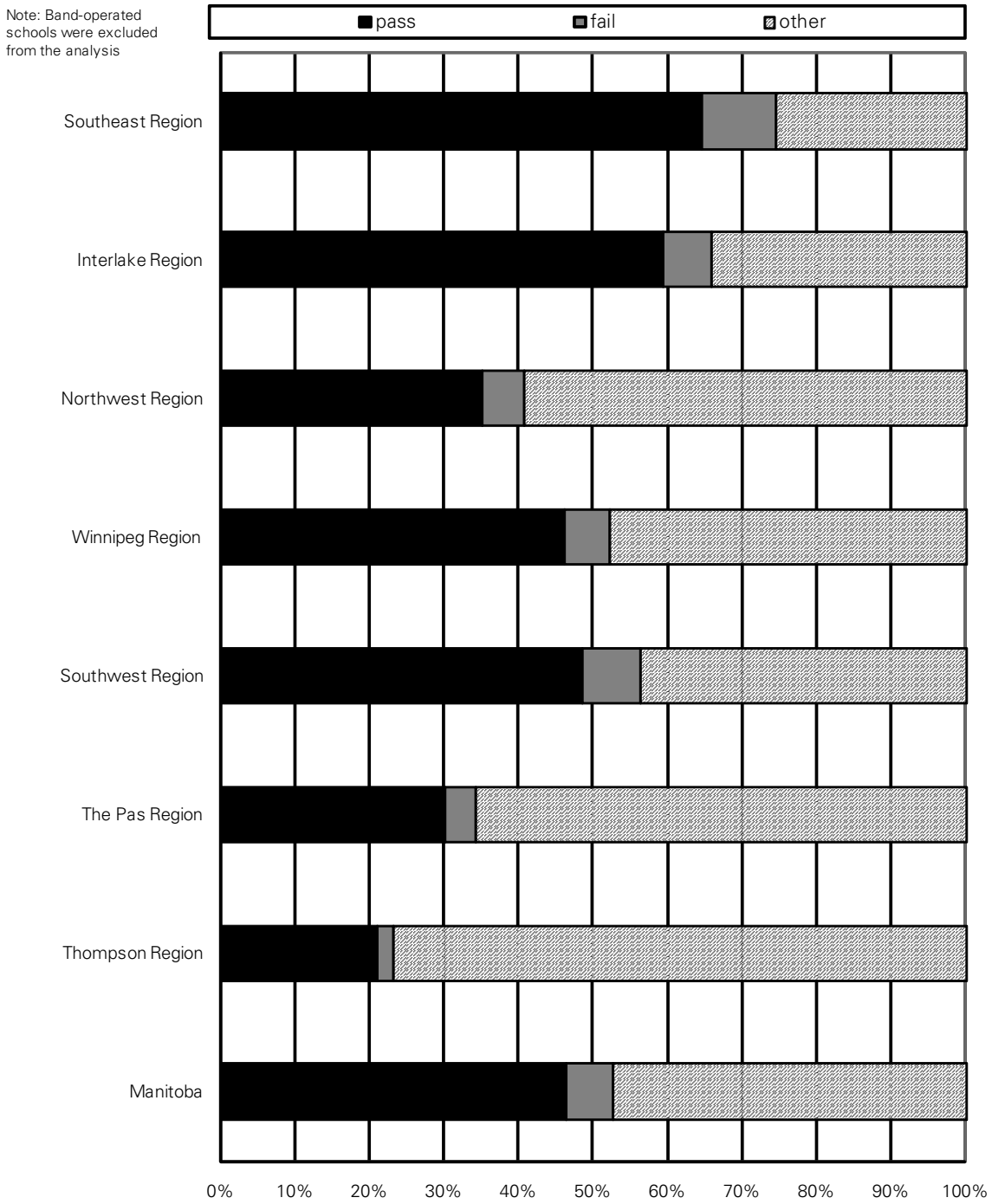
Figure 16.3.4: Grade 12 Language Arts Standards Test Performance by RHA, 2006
Crude percent of 18 year olds who should have written the test



'Other' = (i) drop, absent, exempt, or incomplete; (ii) in grade 12, no test; (iii) in grade 11 or lower; or (iv) withdrawn

Source: MCHP/MMF, 2010

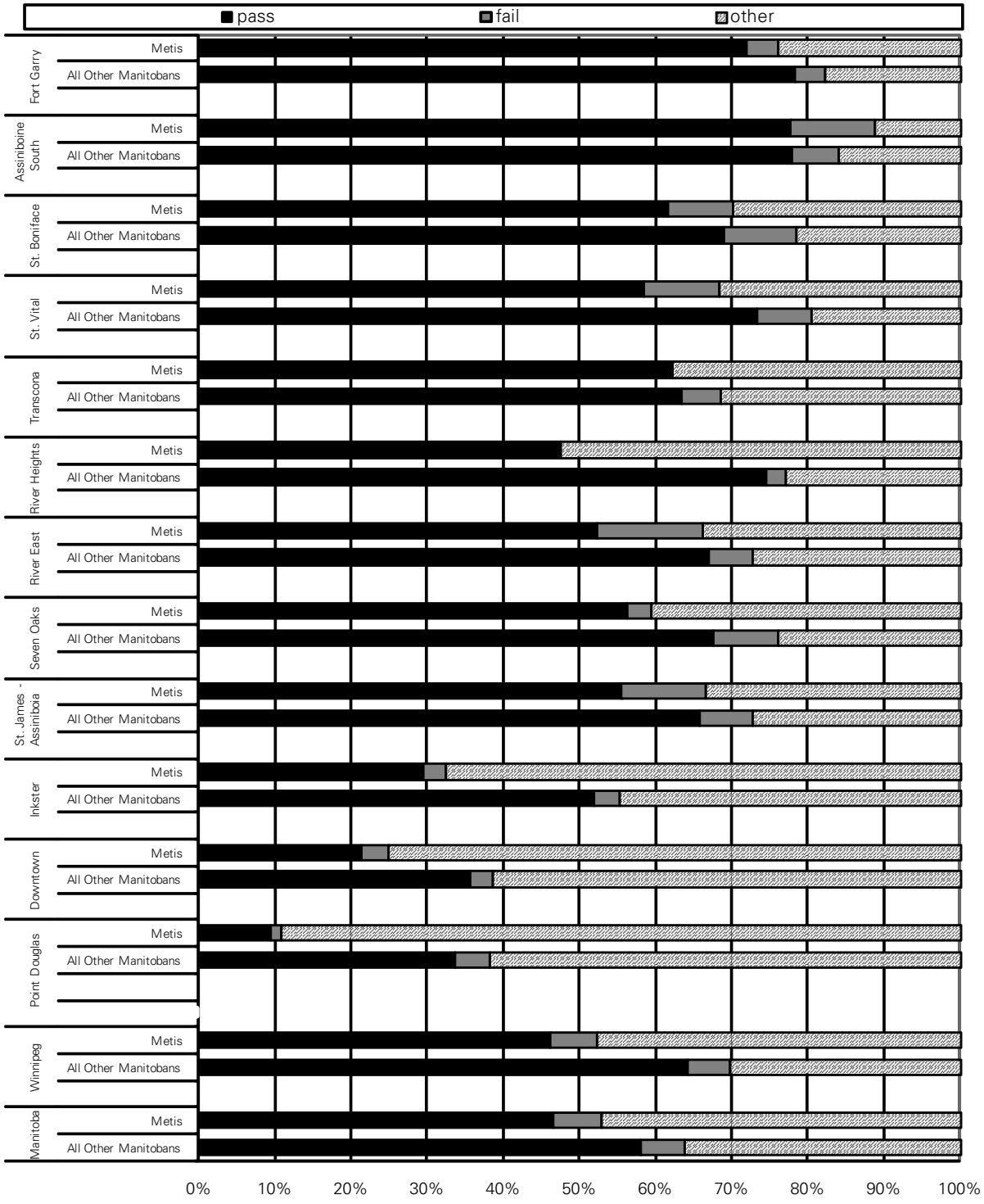
Figure 16.3.5: Grade 12 Language Arts Standards Test Performance by Metis Region, 2006
Crude percent of Metis 18 year olds who should have written the test



'Other' = (i) drop, absent, exempt, or incomplete; (ii) in grade 12, no test; (iii) in grade 11 or lower; or (iv) withdrawn

Source: MCHP/MMF, 2010

Figure 16.3.6: Grade 12 Language Arts Standards Test Performance by Winnipeg Community Area, 2006
Crude percent of 18 year olds who should have written the test



'Other' = (i) drop, absent, exempt, or incomplete; (ii) in grade 12, no test; (iii) in grade 11 or lower; or (iv) withdrawn

Source: MCHP/MMF, 2010

Table 16.3.1: Grade 12 LA Standards Test Performance by RHA, 2006. Crude Percent of 18 year olds who Should Have Written the Test.

Aggregate Area	Group	Pass	Fail	Drop/Absent/ Exempt/ Incomplete	In Grade 12, No Test	Withdrawn	Grade 11 or Lower
Brandon	Metis	44.73%	7.89%	5.26%	7.89%	15.78%	18.42%
	All Other Manitobans	60.47%	2.79%	3.99%	8.18%	8.98%	15.56%
Winnipeg	Metis	46.18%	6.10%	4.35%	10.67%	10.67%	22.00%
	All Other Manitobans	64.15%	5.68%	3.35%	6.37%	6.64%	13.79%
Rural South	Metis	57.94%	10.76%	3.58%	5.12%	5.12%	17.43%
	All Other Manitobans	62.64%	5.86%	2.06%	4.26%	11.59%	13.55%
Mid	Metis	48.84%	5.61%	4.95%	6.27%	12.87%	21.45%
	All Other Manitobans	53.57%	6.92%	2.56%	4.86%	13.01%	19.05%
North	Metis	28.75%	2.61%	5.22%	12.41%	13.72%	37.25%
	All Other Manitobans	17.11%	5.15%	2.57%	6.99%	0.00%	37.71%
Manitoba	Metis	46.51%	6.35%	4.52%	8.71%	10.88%	22.99%
	All Other Manitobans	58.08%	5.74%	2.91%	5.81%	10.82%	16.63%

Note: Band-operated schools were excluded from the analysis

Source: MCHP/MMF, 2010

16.4 On–Time Pass Rates for the Grade 12 Mathematics Standards Test

For a description, please refer to the Section 16.3.

Key observations:

RHAs:

- Provincially, Metis students have significantly lower on–time pass rates for the Grade 12 Mathematics Standards Test than do all other Manitoba students (37.0% vs. 49.3%).
- There appears to be a gradient at the RHA and aggregate area levels, where the most healthy areas have the highest on–time pass rates for the Grade 12 Mathematics Standards Test. This holds true for both Metis and for all other students.
- There is a statistically lower on–time pass rates for the Grade 12 Mathematics Standards Test for Metis compared to all others in those areas in the following RHAs: Assiniboine (32.4% vs. 53.4%), Winnipeg (35.9% vs. 54.2%), and Parkland (26.7% vs. 44.0%). The reverse is true in Burntwood RHA, where Metis rates are higher (25.6% vs. 10.7%).
- At the aggregate area level, Rural South has a statistically lower on–time pass rate for the Grade 12 Mathematics Standards Test for Metis compared to all others (45.1% vs. 54.5%); and this is similar to the finding in the Mid area (37.3% vs. 45.6%). In the North, the trend is reversed with the Metis rate being higher than for all others living in that area (29.4% vs. 14.0%).
- According to Table 16.4.1 showing the finer categories of the Grade 12 Mathematics Standards Test—pass, fail, drop/absent/exempt/incomplete, no test, withdrawn, or retention (Grade 11 or lower)—retention rates appear similar for Metis and others except in Winnipeg, where there are elevated Metis rates (22.0% vs. 13.8%). Retention rates in the North are particularly high for both groups, around 37%. If students actually write the test 'on–time', the fail rates of Metis and others is quite similar, at 9.6% vs. 10.0%.

MMF Regions:

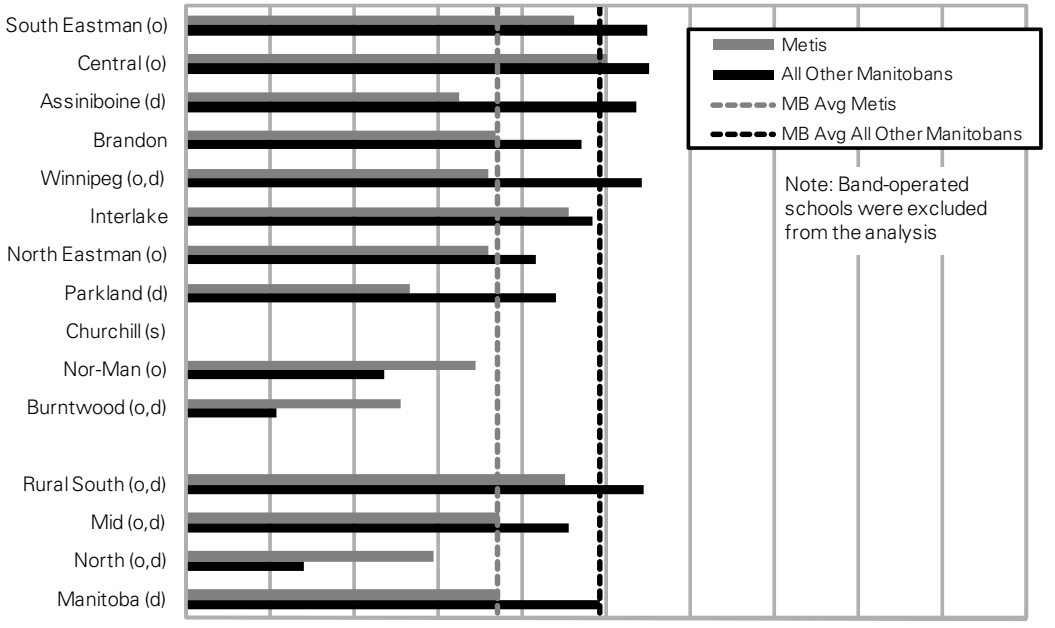
- Provincially, the Metis on–time pass rate for the Grade 12 Mathematics Standards Test is 37.0%. Although there is a trend with PMR, with the Southeast and Interlake MMF Regions showing the highest pass rate at 45.4% and the least healthy Thompson MMF Region at 25.6%, none of these rates are statistically different than the provincial Metis rate.

Winnipeg CAs:

- In Winnipeg RHA overall, the Metis have a statistically lower on–time pass rate for the Grade 12 Mathematics Standards Test compared to all other students (35.9% vs. 54.2%).
- There is somewhat of a gradient of on–time pass rates for the Grade 12 Mathematics Standards Test with PMR among Winnipeg CAs, with the most healthy areas showing the highest pass rates. However, the results are somewhat variable and polarized, with Inkster, Downtown, and Point Douglas showing very low pass rates compared to other CAs.

- Metis on–time pass rates for the Grade 12 Mathematics Standards Test are significantly lower than all other students in the following CAs: Fort Garry (44.0% vs. 67.2%), St. Vital (45.0% vs. 66.0%), River Heights (33.3% vs. 56.1%), River East (30.8% vs. 51.7%), Inkster (26.5% vs. 46.6%), and Point Douglas (9.5% vs. 31.0%). Of special concern is the Point Douglas area, where only 9.5% of Metis students passed this standards test. This area also has a statistically significantly lower pass rate for Metis compared to their provincial average of 37.0%.
- Most CAs of Winnipeg show on–time pass rates for the Grade 12 Mathematics Standards Test for "other" students as higher than their corresponding provincial average of 49.3% with the exceptions of Transcona, River East and Inkster CAs, which are similar to the provincial average, and Downtown and Point Douglas CAs, which are lower than the provincial average.

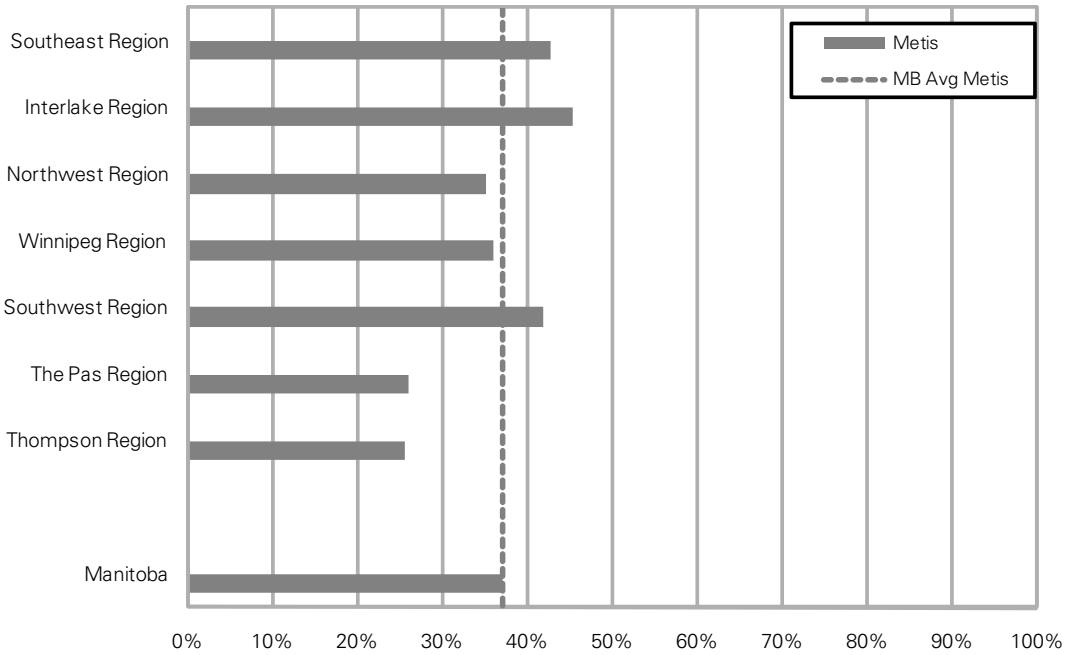
Figure 16.4.1: On-time Pass Rates for the Grade 12 Standards Math Test by RHA, 2006
Crude percent of students born in 1988, completing in 2006



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

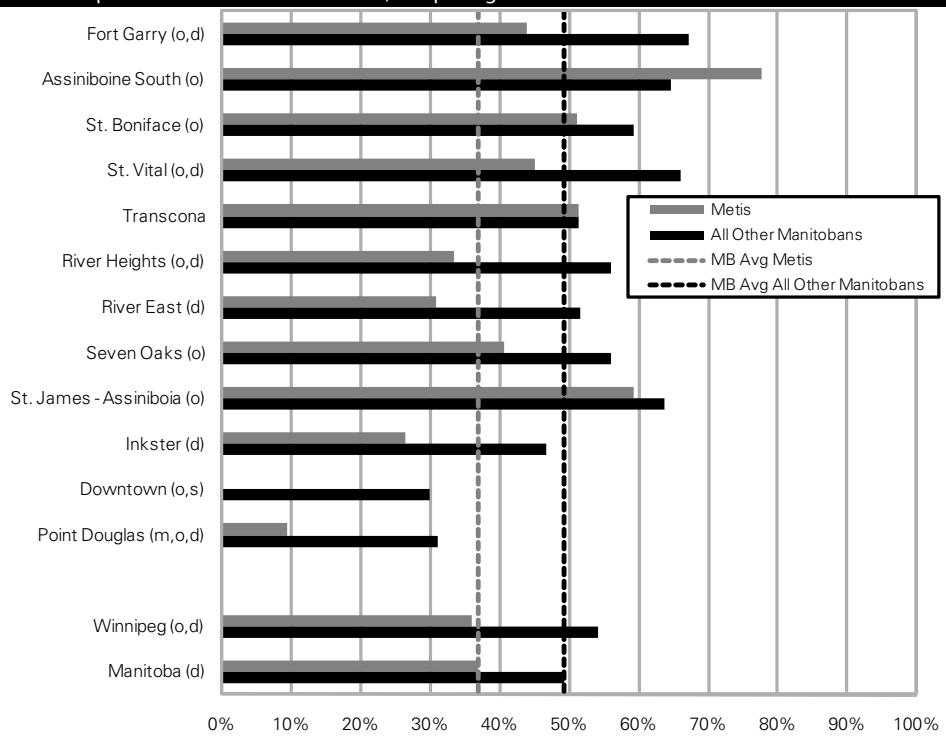
Figure 16.4.2: On-time Pass Rates for the Grade 12 Standards Math Test by Metis Region, 2006
Crude percent of Metis students born in 1988, completing in 2006



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.4.3: On-time Pass Rates for the Grade 12 Standards Math Test by Winnipeg Community Area, 2006
Crude percent of students born in 1988, completing in 2006



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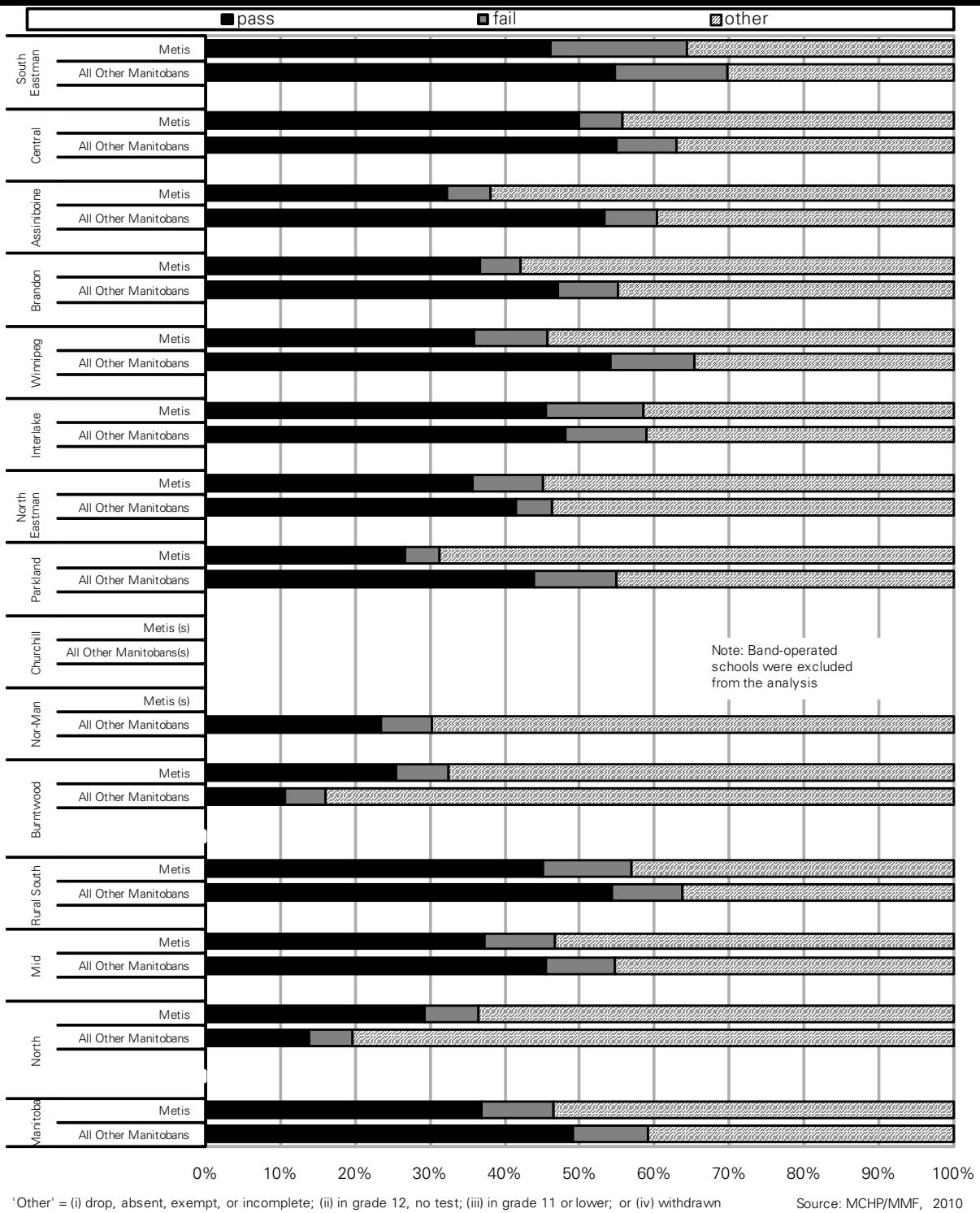
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

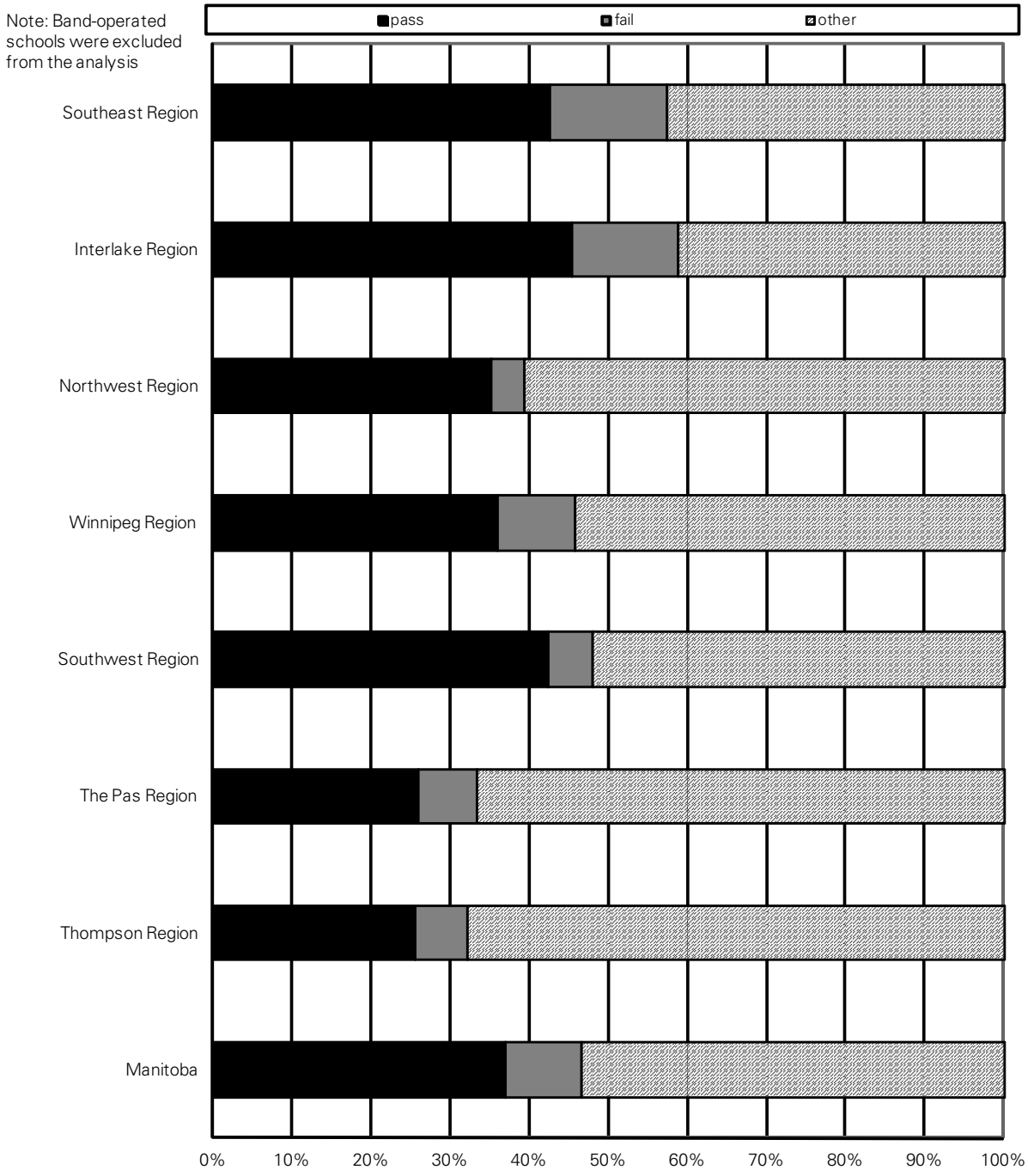
Figure 16.4.4: Grade 12 Math Standards Test Performance by RHA, 2006
Crude percent of 18 year olds who should have written the test



'Other' = (i) drop, absent, exempt, or incomplete; (ii) in grade 12, no test; (iii) in grade 11 or lower; or (iv) withdrawn

Source: MCHP/MMF, 2010

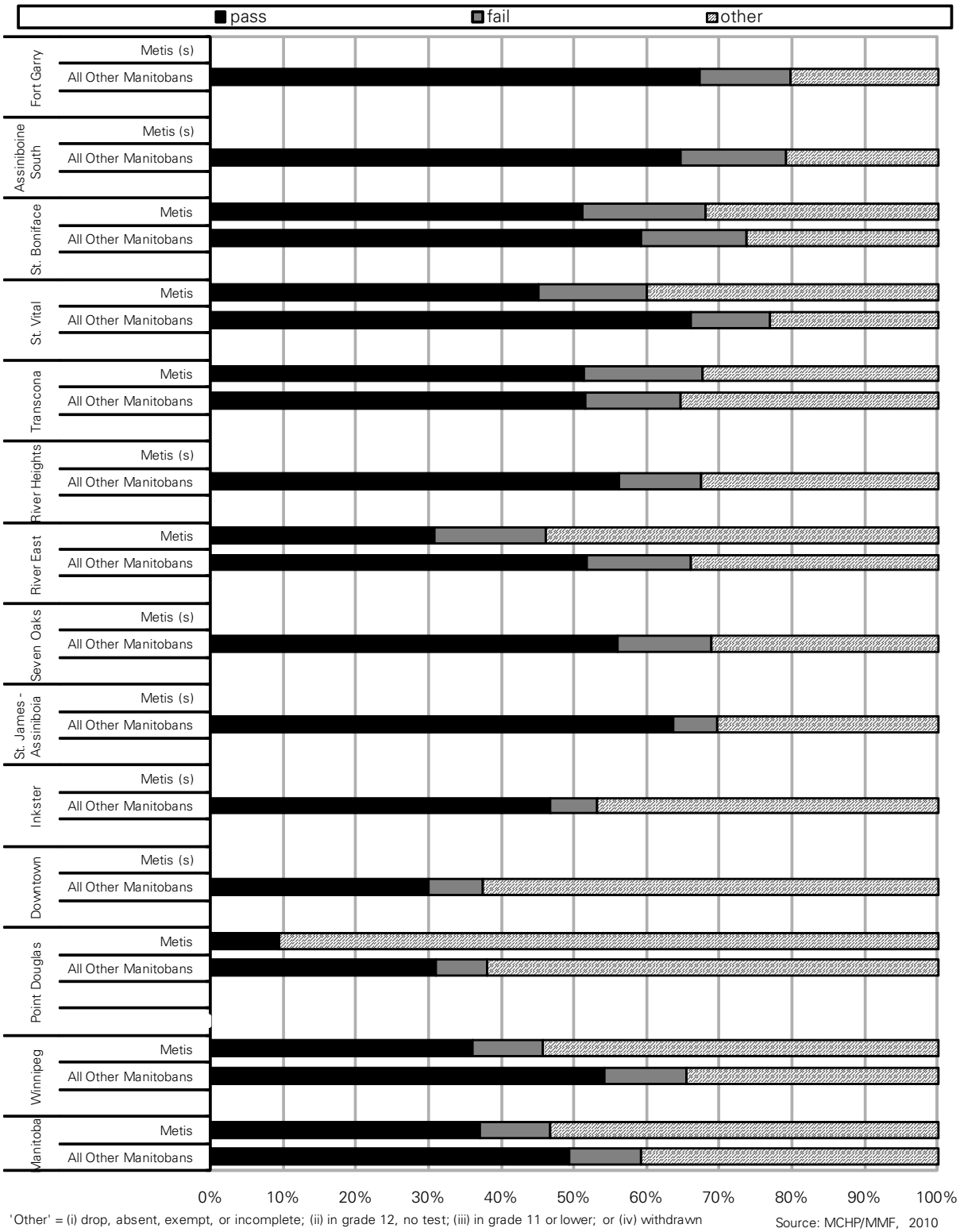
Figure 16.4.5: Grade 12 Math Standards Test Performance by Metis Region, 2006
Crude percent of Metis 18 year olds who should have written the test



'Other' = (i) drop, absent, exempt, or incomplete; (ii) in grade 12, no test; (iii) in grade 11 or lower; or (iv) withdrawn

Source: MCHP/MMF, 2010

Figure 16.4.6: Grade 12 Math Standards Test Performance by Winnipeg Community Area, 2006
Crude percent of 18 year olds who should have written the test



'Other' = (i) drop, absent, exempt, or incomplete; (ii) in grade 12, no test; (iii) in grade 11 or lower; or (iv) withdrawn

Source: MCHP/MMF, 2010

Table 16.4.1: Grade 12 Math Standards Test Performance by RHA, 2006. Crude Percent of 18 year olds who Should Have Written the Test.

Aggregate Area	Group	Pass	Fail	Drop/Absent/ Exempt/ Incomplete	In Grade 12, No Test	Withdrawn	Grade 11 or Lower
Brandon	Metis	36.84%	5.26%	10.52%	15.78%	15.78%	15.78%
	All Other Manitobans	47.10%	8.18%	6.98%	12.57%	8.98%	16.16%
Winnipeg	Metis	35.94%	9.80%	7.62%	13.94%	10.67%	22.00%
	All Other Manitobans	54.18%	11.33%	5.17%	8.84%	6.64%	13.80%
Rural South	Metis	45.12%	11.79%	7.17%	12.82%	5.12%	17.94%
	All Other Manitobans	54.46%	9.42%	4.05%	6.86%	11.59%	13.58%
Mid	Metis	37.29%	9.57%	4.95%	13.53%	12.87%	21.78%
	All Other Manitobans	45.58%	9.21%	4.30%	8.65%	13.01%	19.21%
North	Metis	29.41%	7.18%	5.22%	7.18%	13.72%	37.25%
	All Other Manitobans	13.98%	5.79%	5.15%	7.08%	0.00%	37.53%
Manitoba	Metis	37.02%	9.58%	6.62%	12.80%	10.88%	23.08%
	All Other Manitobans	49.25%	9.99%	4.87%	8.37%	10.82%	16.68%

Note: Band-operated schools were excluded from the analysis

Source: MCHP/MMF, 2010

16.5 High School Completion Rates within Six Years of Grade 9

A high school graduate is defined as a student who accumulated 28 or more course credits during high school or who had a Manitoba Department of Education student record that indicated graduation.

All children that were in Grade 9 during the 2000/01 school year were identified and followed until the end of the 2005/06 school year.

As course mark data is often incomplete for schools in First Nations Communities (often referred to as band–operated schools), students in band–operated schools were excluded from this analysis.

Key observations:

RHAs:

- Provincially, Metis high school completion rates are lower than for all other Manitoba students (66.2% vs. 78.4%).
- There is a gradient of high school completion rates with the PMR, with healthier regions showing higher completion rates. However, there is a wide variation within this as some RHAs perform 'better' than expected (like North Eastman RHA) and some worse (like Brandon RHA). At the aggregate area level, there is a strong gradient with the Rural South showing the highest completion rates for both Metis and others (84.5% and 83.4%), Mid the next highest (66.8% and 77.5%), and North the lowest for both (52.0% and 52.2%).
- Those RHAs showing a statistically lower high school completion rate for Metis compared to other students in the region include: Brandon (41.4% vs. 75.8%), Winnipeg (63.2% vs. 79.6%), Interlake (69.6% vs. 78.7%), Parkland (54.6% vs. 76.8%), and NOR–MAN (46.6% vs. 66.7%). This is also true in the aggregate area of Mid (66.8% vs. 77.5%).
- Three RHAs show a Metis high school completion rate which is higher than the overall Metis provincial average of 66.2%: South Eastman (89.1%), Assiniboine (93.9%), and North Eastman (86.7%). This is also true for the Rural South aggregate area (84.5%).
- Two RHAs show a Metis high school completion rate that is lower than the overall Metis provincial average of 66.2%: Brandon (41.4%); and NOR–MAN (46.6%). This is also true for the North aggregate area (52.0%).

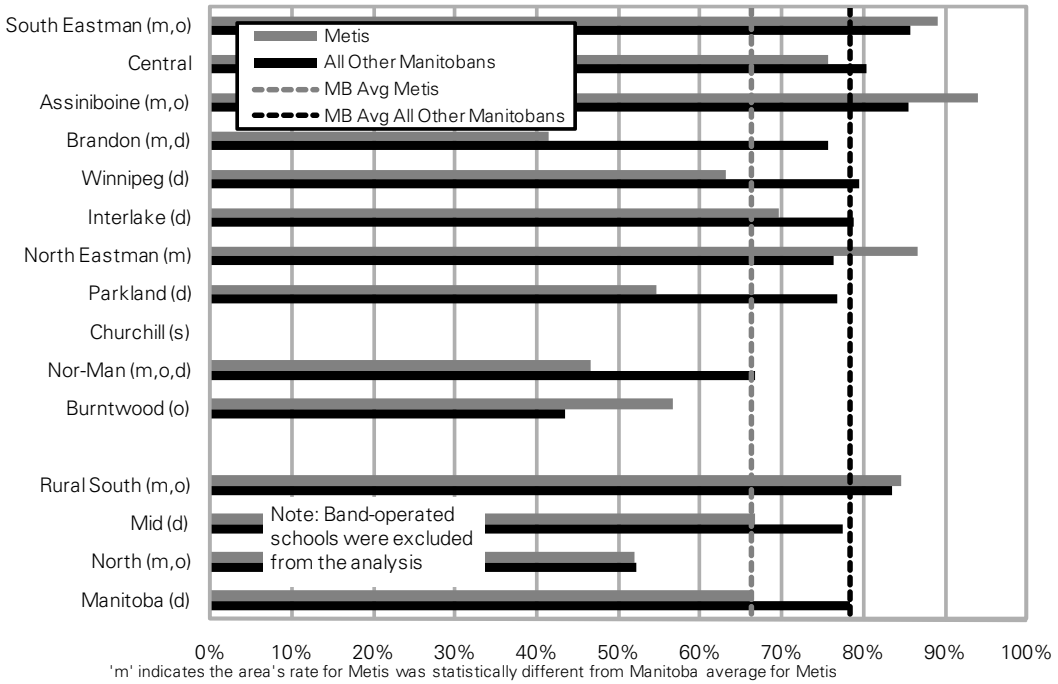
MMF Regions:

- Provincially, the Metis high school completion rate is 66.2%. There is somewhat of a gradient of high school completion rate by PMR, with the most healthy regions showing higher rates than the least healthy.
- Southeast MMF Region (85.3%) has a statistically higher high school completion rate compared to the Metis provincial average of 66.2%. In contrast, The Pas MMF Region is statistically lower (49.5%).

Winnipeg CAs:

- For Winnipeg RHA, Metis have a statistically lower high school completion rate compared with other Winnipeg students (63.2% vs. 79.6%). There is a gradient of completion rate with the PMR of the CAs. The most healthy CAs show higher completion rates, and the least healthy show very low completion rates. However, this is highly variable. Some CAs show higher rates than one would expect (such as St. James–Assiniboia), and some are lower than expected (such as River Heights) for Metis students.
- CAs that have statistically lower high school completion rates for Metis compared to other students in the area are: Assiniboine South (68.8% vs. 87.6%), River Heights (46.7% vs. 82.2%), River East (55.9% vs. 82.7%), Seven Oaks (55.9% vs. 80.3%), Downtown (33.3% vs. 58.6%), and Point Douglas (34.0% vs. 52.4%). The particularly low rates of high school completion are a concern in the latter two CAs, where only one out of three Metis complete high school within six years of enrolling in Grade 9.
- CAs having high school completion rates within six years of Grade 9 that are lower than the Metis provincial average of 66.2% include: Downtown (33.3%) and Point Douglas (34.0%). In contrast, St. James–Assiniboia's Metis rate (86.8%) is higher than the provincial average.
- In most CAs, the high school completion rates for "other" students is similar to or higher than the provincial average of 78.4%, with the exceptions of Downtown (58.6%) and Point Douglas (52.4%).

Figure 16.5.1: High School Completion Rates by RHA, 2006
Crude percent of students completing high school within six years of enrolling in Grade 9 starting in 2000/01



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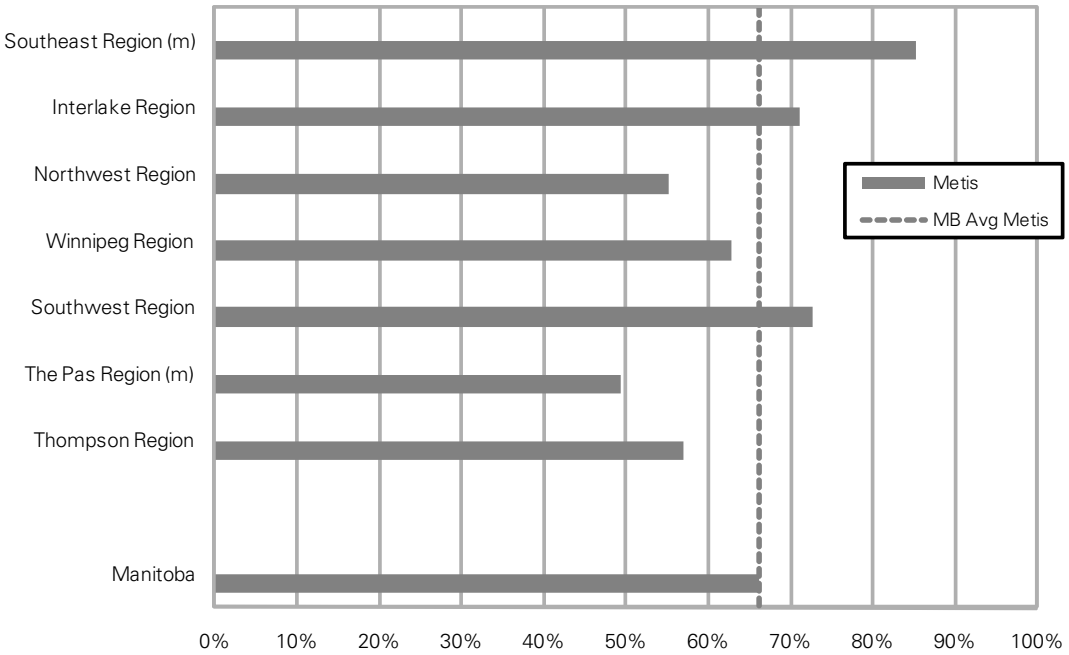
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.5.2: High School Completion Rates by Metis Region, 2006
Crude percent of Metis students completing high school within six years of enrolling in Grade 9 starting in 2000/01



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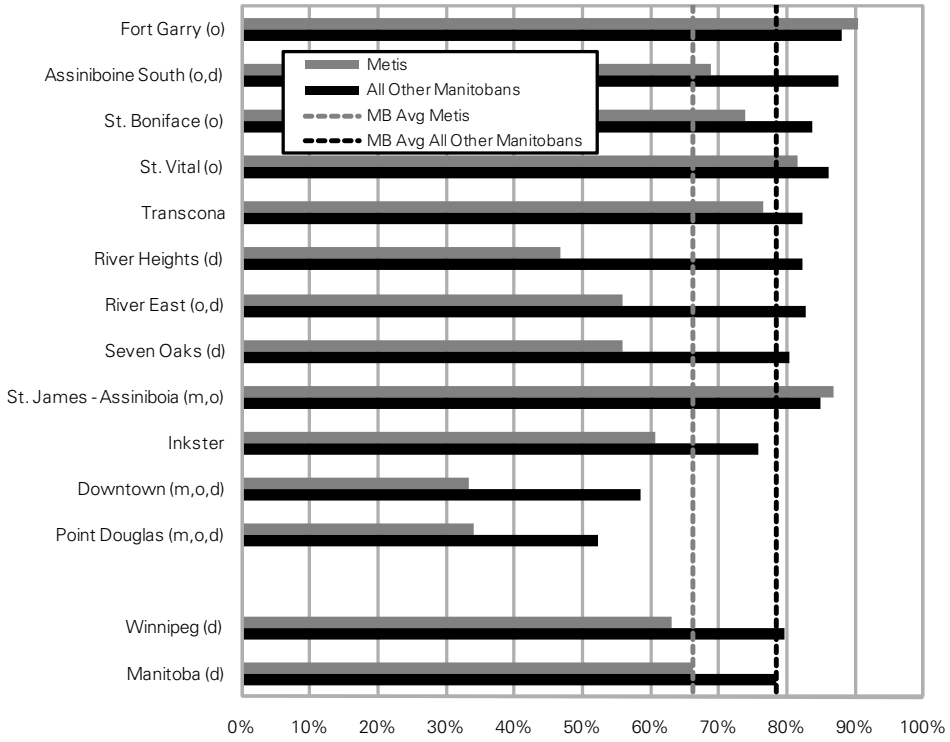
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.5.3: High School Completion Rates by Winnipeg Community Area, 2006
Crude percent of students completing high school within six years of enrolling in Grade 9 starting in 2000/01



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'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

16.6 Children in Families Receiving Provincial Income Assistance

All children aged 0–17 living within a family unit that was receiving provincial income assistance (IA) were identified. Once children turn 18 years of age they are no longer considered dependents and may thereafter apply for their own income assistance.

The age– and sex–adjusted percentage of children aged 0–17 in families who were receiving IA was measured in three fiscal years: 2004/05–2006/07. Crude rates are available in the appendix. A family was considered to be receiving IA if they received assistance for two or more consecutive months within the three year period. Data is from the Social Assistance Management Information Network (SAMIN) data. This does not include receipt of IA from federal programs, such as for First Nations families living on reserve. The denominator includes all Manitoba children aged 0–17 as of December 31, 2005.

Key observations:

RHAs:

- Provincially, the percentage of Metis children in families receiving provincial income assistance is significantly higher than for all other Manitoba children: 28.5% vs. 13.1%. Especially evident at the aggregate area level, as PMR increases (i.e., a region becomes less healthy), there is a greater percentage of children in families receiving provincial income assistance both for Metis and for all others. This is more fluctuating at the RHA level.
- In every RHA, the percentage of Metis children in families receiving provincial income assistance is statistically higher than that of all other children in the area (except Churchill).
- In the Rural South aggregate area, both Metis and all other children are less likely to be living in families receiving provincial income assistance compared to their provincial averages (Metis 12.5%, others 6.6%); but the Metis percentage is statistically higher at around double the rate. In the Mid area, the Metis percentage approximates the provincial Metis average, but the "other" rate is statistically lower than their corresponding provincial average. Metis children living in Mid have a much higher percentage of children in families receiving provincial income assistance compared to all others living in the Mid aggregate area (29.1% vs. 9.2%), at around three times the rate. In the North, the Metis rate is higher than the corresponding provincial Metis average and statistically higher than all other children living in the North area (35.5% vs. 13.2%), at around two and one–half times the rate. However, it is necessary to point out that any federal on–reserve IA program is not included in these analyses, due to missing data.
- RHAs where the Metis percentage of children in families receiving provincial income assistance is statistically lower than the Metis provincial average of 28.5% include: South Eastman (4.3%), Central (19.6%), Assiniboine (13.9%), Interlake (15.8%), and North Eastman (17.8%). RHAs where this percentage is higher than the Metis provincial average are: Winnipeg (32.0%), Parkland (51.0%), NOR–MAN (35.8%), and Burntwood (36.1%). Of particular interest are the two extreme values in this comparison—South Eastman RHA with an extremely low rate of 4.3%, and Parkland with over half of the Metis children living in families receiving provincial IA (51.0%).

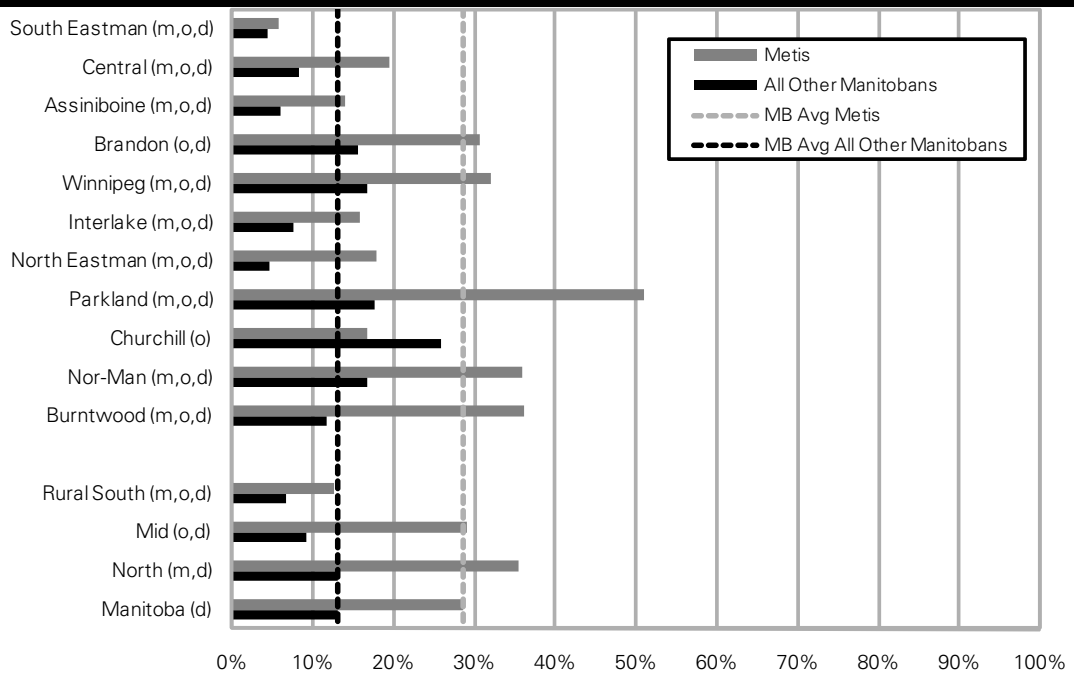
MMF Regions:

- Provincially, the percentage of Metis children in families receiving provincial income assistance is 28.5%. There appears to be somewhat of a gradient of children living in families receiving IA with PMR, with the most healthy regions having the lowest rates of IA.
- MMF Regions having statistically lower percentages of children in families receiving provincial income assistance compared to the Metis provincial average include: Southeast (10.3%), Interlake (16.2%), and Southwest (21.4%). Those MMF Regions having statistically higher percentages include: Northwest (36.2%), Winnipeg (32.l0%), The Pas (49.3%), and Thompson (35.1%).

Winnipeg CAs:

- For the Winnipeg RHA, the percentage of children in families receiving provincial income assistance is statistically higher for Metis compared to all other Winnipeg children (32.0% vs. 16.8%). There appears to be a strong gradient of percentage of children living in families receiving IA and the PMR of the CA, with the most healthy CAs having the lowest percentages.
- Every CA in Winnipeg shows a higher percentage of children in families receiving provincial income assistance for Metis compared to all others in that CA.
- Six CAs show statistically lower percentages of Metis children in families receiving provincial income assistance compared to the Metis provincial average of 28.5%: Fort Garry (9.0%), Assiniboine South (16.6%), St. Boniface (9.8%), St. Vital (18.5%), Transcona (13.4%), and St. James–Assiniboia (18.8%).
- Three CAs show statistically higher percentages of Metis children in families receiving provincial income assistance compared to the Metis provincial average, including: Inkster (49.0%), Downtown (60.8%), and Point Douglas (58.7%). In all of these CAs, the Metis rate is significantly higher than for all others living in the CAs. In these three areas, more than half of all children are living in a family receiving IA.

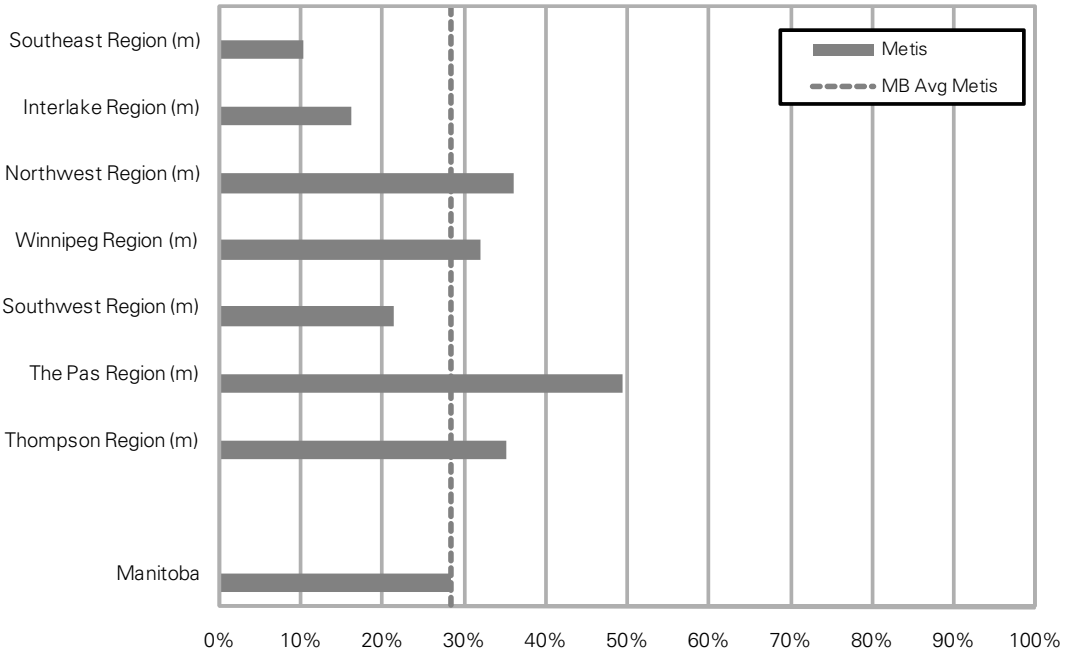
Figure 16.6.1: Children in Families Receiving Provincial Income Assistance by RHA, 2004/05-2006/07
Age- and sex-adjusted percent of children aged 0 to 17



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.6.2: Children in Families Receiving Provincial Income Assistance by Metis Region, 2004/05-2006/07
Age- and sex-adjusted percent of Metis children aged 0 to 17

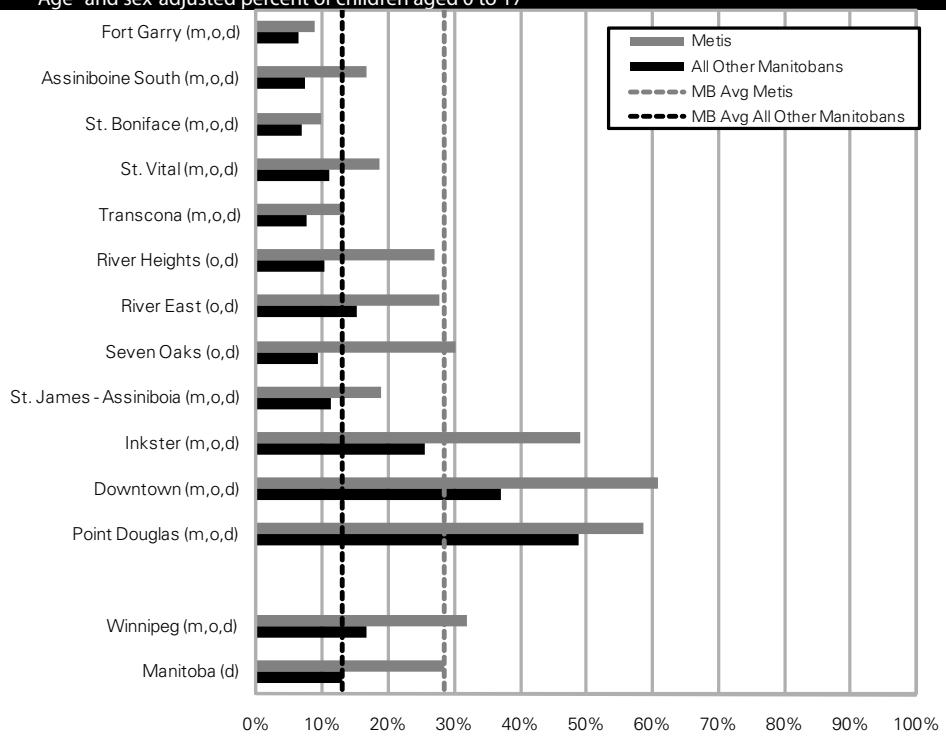


'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.6.3: Children in Families Receiving Provincial Income Assistance by Winnipeg Community Area, 2004/05-2006/07

Age- and sex-adjusted percent of children aged 0 to 17



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

16.7 Young Adults Receiving Provincial Income Assistance

The age– and sex–adjusted percentage of young adults aged 18–19 who were receiving IA was measured over three fiscal years: 2004/05–2006/07. An individual was considered to be receiving IA if they received assistance for two or more consecutive months within the three year period. Data is from the Social Assistance Management Information Network (SAMIN) data. This does not include receipt of IA from federal programs, such as for First Nations families living on reserve. The denominator includes all Manitoba young adults (aged 18–19) as of December 31, 2005.

Key observations:

RHAs:

- Provincially the percentage of young adults receiving provincial income assistance is significantly higher (over double) for the Metis compared to all others: 21.1% vs. 9.8%. There is somewhat of a gradient at the RHA level, and a strong gradient at the aggregate area level, where the less healthy the region, the greater the percentage of young adults receiving provincial income assistance.
- In every RHA of the province (Churchill's data is suppressed due to small sample size), there is a higher Metis percentage of young adults receiving provincial income assistance compared to all others, except South Eastman. This pattern is also evident in the aggregate areas of the Rural South (8.6% vs. 4.9%), Mid (23.0% vs. 6.8%), and North (26.8% vs. 10.3%). Note: on–reserve federal IA is not included in these analyses.
- The RHAs that have a lower percentage of Metis young adults receiving provincial income assistance compared to the overall Metis provincial average of 21.1% are South Eastman (3.8%) and Central (9.7%). Parkland RHA (44.7%) is the only RHA having a higher percentage of Metis young adults receiving provincial income assistance compared to the provincial Metis average.
- At the aggregate area level, Rural South (8.6% Metis, 4.9% others) has percentages of young adults receiving provincial income assistance that are lower than their corresponding provincial averages for both the Metis and for all others (Metis 21.1%, others 9.8%). Both the Mid (23.0% Metis) and the North (26.8% Metis) percentages are similar to the Metis provincial average.

MMF Regions:

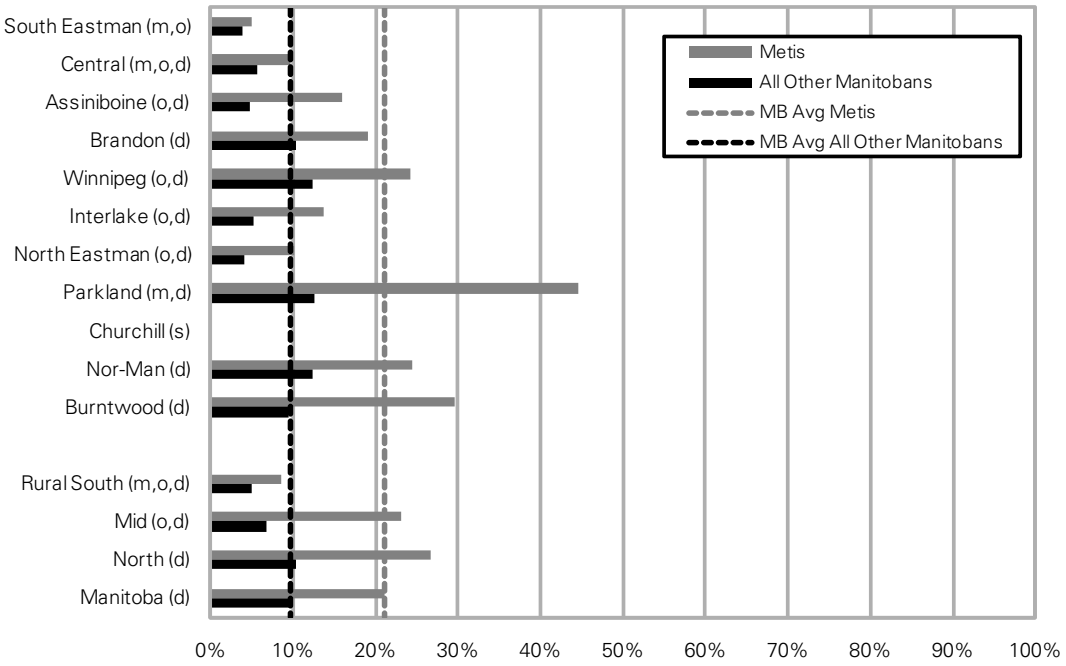
- Provincially, the Metis percentage of young adults receiving provincial income assistance is 21.1%. There is very little gradient with PMR.
- Southeast MMF Region (7.0%) and Southwest MMF Region (13.5%) have a significantly lower percentage of young adults receiving provincial income assistance compared to the overall Metis provincial average, whereas Northwest MMF Region (33.2%) and The Pas MMF Region (38.8%) are significantly higher.

Winnipeg CAs:

- Overall in Winnipeg RHA, the percentage of Metis young adults receiving provincial income assistance is higher than that of all others: 24.3% vs. 12.4%.
- For "all other" young adults in Winnipeg, there is an obvious gradient of the percentage receiving IA with the PMR of the CA, with the most healthy CAs having the lowest percentage (with the exception of River Heights, at 41.8% of young adults receiving IA).

- Winnipeg CAs that show a statistically higher percentage of young adults receiving provincial income assistance for Metis compared to all others are: Fort Garry (17.8% vs. 4.9%), River Heights (41.8% vs. 8.0%), River East (19.6% vs. 10.4%), Inkster (43.8% vs. 13.9%), Downtown (62.0% vs. 31.9%), and Point Douglas (50.3% vs. 39.1%).
- Metis young adults living in the following Winnipeg CAs have higher percentages receiving provincial income assistance than the provincial Metis average of 21.1%: Inkster (43.8%), Downtown (62.0%), and Point Douglas (50.3%). In other words, about half of Metis young adults in these areas are receiving provincial IA. In all of these CAs, the Metis percentage is also statistically higher than for other young adults living in those areas.

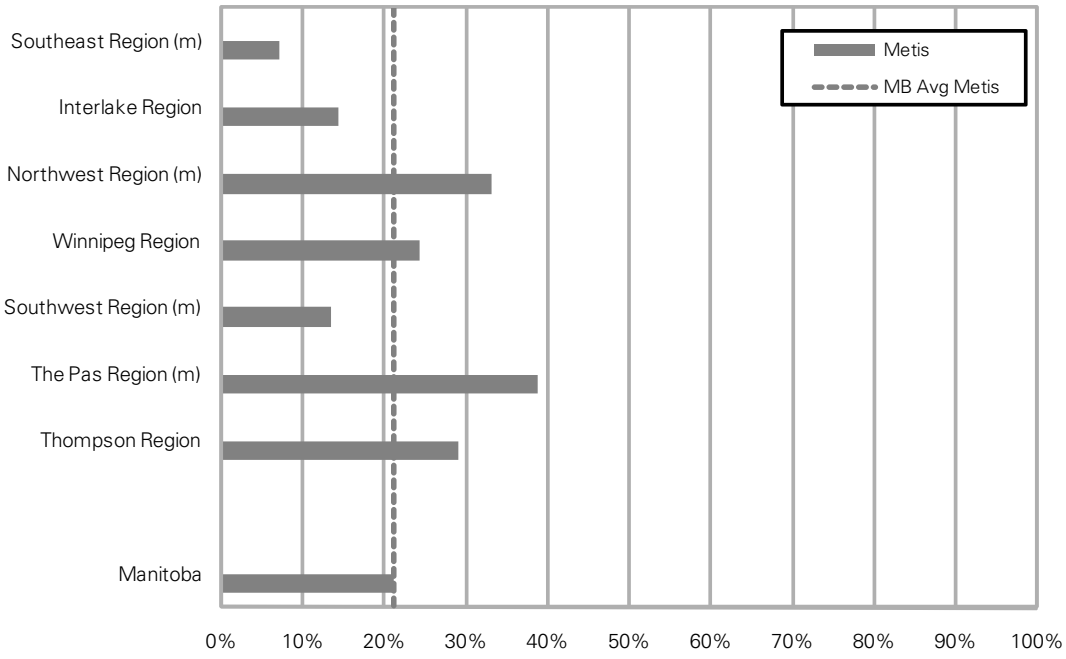
Figure 16.7.1: Young Adults Receiving Provincial Income Assistance by RHA, 2004/05-2006/07
Age- and sex-adjusted percent of young adults aged 18 to 19



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.7.2: Young Adults Receiving Provincial Income Assistance by Metis Region, 2004/05-2006/07
Age- and sex-adjusted percent of young Metis adults aged 18 to 19



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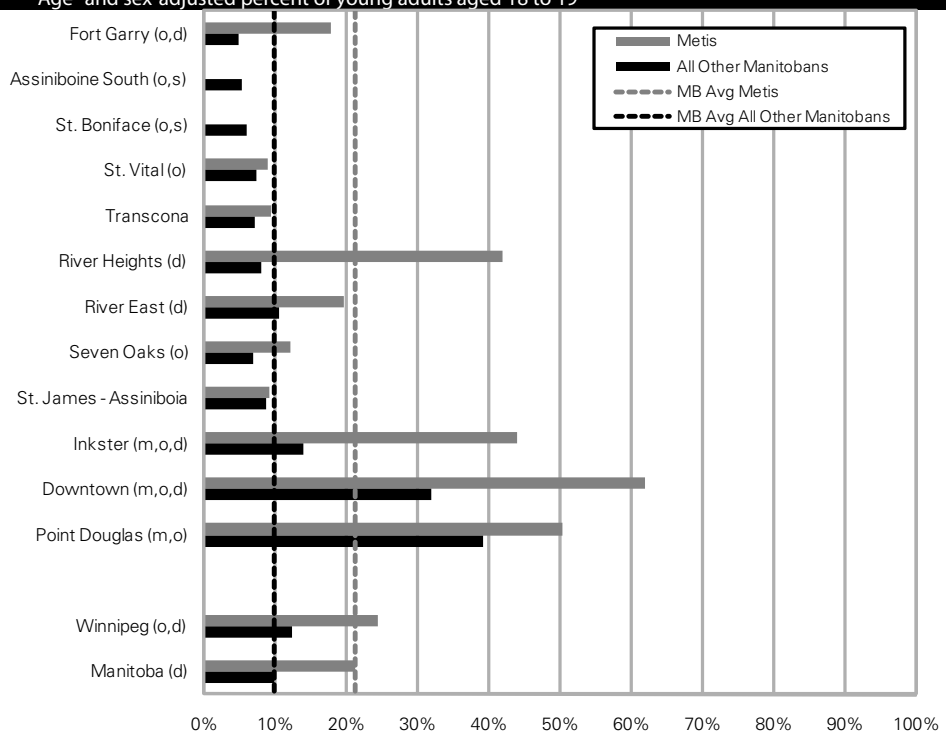
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.7.3: Young Adults Receiving Provincial Income Assistance by Winnipeg Community Area, 2004/05-2006/07

Age- and sex-adjusted percent of young adults aged 18 to 19



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

16.8 Prevalence of Children in Care

Children in care are children who are removed from their families of origin and placed in the care of another adult(s) due to concerns about the proper provision of care in the family of origin. There are situations where a family is unable or unfit to properly look after their child(ren) and in these cases the child(ren) may be placed into foster care. Children can come into care for a variety of reasons including abuse and neglect, illness, death, conflict in their family, disability, or emotional problems. (Brownell et al., 2008)

The age– and sex–adjusted proportion of children aged 0 to 17 with an open case in Child and Family Services at any time during a fiscal year was measured over three fiscal years: 2004/05–2006/07. Children whose postal code corresponded with the Winnipeg CFS Office building were reassigned to their previous residence where possible. The denominator includes all Manitoba children aged 0 to 17 as of December 31 of each year (2004–2006), but may not capture First Nations Child and Family Services data.

Key observations:

RHAs:

- Provincially, there is a higher prevalence of children in care for the Metis compared to all other Manitobans (4.1% vs. 3.3%). There is a gradient of percentage of children in care by PMR of the RHA, with the healthier regions showing lower percentages. This is more obvious at the aggregate area level, with the Rural South (Metis 1.7%, others 1.8%) having the lowest prevalence, followed by Mid (Metis 2.8%, others 4.3%), with the highest prevalence in the North (Metis 4.4%, others 6.0%).
- There is a significantly higher prevalence of children in care for Metis compared to other children in Winnipeg RHA (5.5% vs. 3.2%) and in Parkland RHA (2.8% vs. 1.9%). However, the opposite situation also occurs with Metis prevalence being lower in the following RHAs: Interlake (2.0% vs. 3.3%), North Eastman (4.9% vs. 8.0%), and Burntwood (5.1% vs. 6.6%). Both the aggregate areas of Mid (2.8% vs. 4.3%) and North (4.4% vs. 6.0%) show this same trend, with the Metis prevalence of children in care being lower than for all other children in the area. However, caution must be exerted, since this does not include on–reserve Child and Family Services data.
- IN the following RHAs, Metis prevalence of children in care is lower than the Metis provincial average of 4.1%: South Eastman (1.0%), Central (2.3%), Interlake (2.0%), and Parkland (2.8%). RHAs with a higher Metis prevalence compared to the Metis provincial average include: Brandon (6.0%) and Winnipeg (5.5%). Churchill RHA appears high (9.2% for Metis, 8.2% for others), but this is only statistically significant for the "others" prevalence.

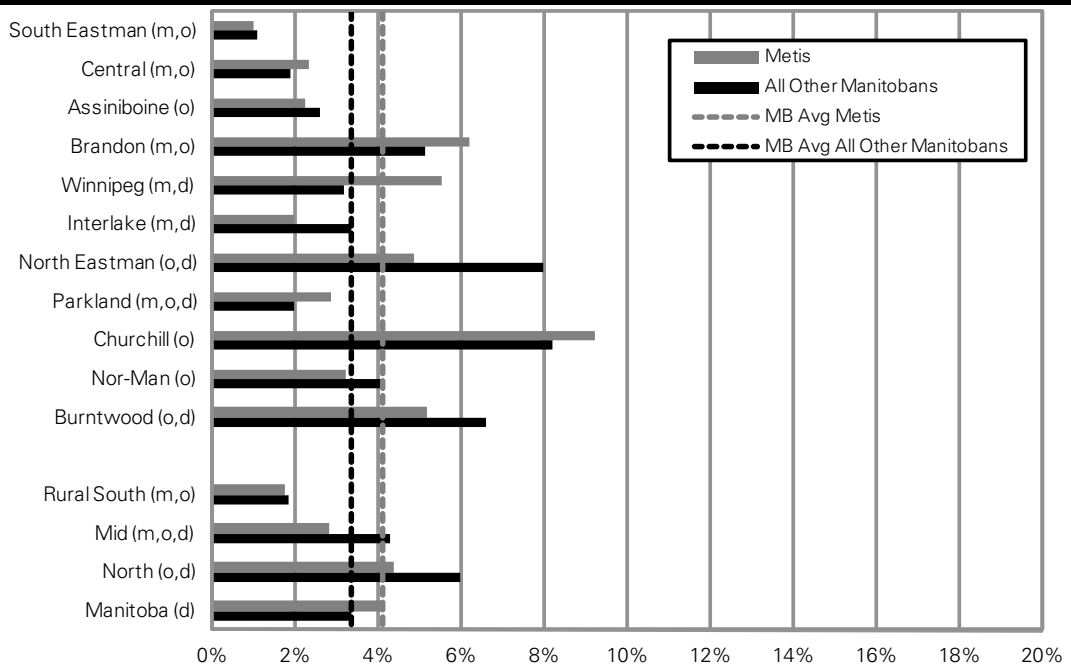
MMF Regions:

- Provincially, Metis prevalence of children in care is 4.1%. There is not an obvious gradient of prevalence of children in care by the PMR of the MMF Region—rather, the prevalence is particularly high in the urban centre of Winnipeg.
- MMF Regions showing a prevalence of children in care that is significantly lower than the overall Metis provincial average are: Southeast (2.4%) and Interlake (2.0%). Only one MMF Region shows a higher prevalence than the Metis provincial average—Winnipeg MMF Region at 5.5%.

Winnipeg CAs:

- In Winnipeg RHA, the prevalence of children in care is higher for Metis compared to other Winnipeg children (5.5% vs. 3.2%). There appears somewhat of a gradient, with those children living in the least healthy areas (i.e., high PMR) having the highest likelihood of being in care.
- The prevalence of children in care is higher for Metis compared to all other children living in most CAs: Fort Garry (3.3% vs. 0.8%), Assiniboine South (4.4% vs. 1.0%), River Heights (3.0% vs. 1.4%), River East (2.8% vs. 1.6%), Seven Oaks (2.4% vs. 1.1%), Inkster (5.5% vs. 3.6%), Downtown (15.3% vs. 11.4%), and Point Douglas (14.7% vs. 10.5%).
- Compared to the Manitoba Metis average of 4.1%, the following CAs have a statistically lower prevalence of children in care: St. Boniface (1.4%), St. Vital (1.6%), and St. James–Assiniboia (1.1%). The CAs of Downtown (15.3% Metis, 11.4% others) and Point Douglas (14.7% Metis, 10.5% others) have statistically higher prevalence of children in care for both Metis and others compared to their corresponding provincial averages.

Figure 16.8.1: Prevalence of Children in Care by RHA, 2004/05-2006/07
Age- and sex-adjusted percent of children aged 0-17 in foster care



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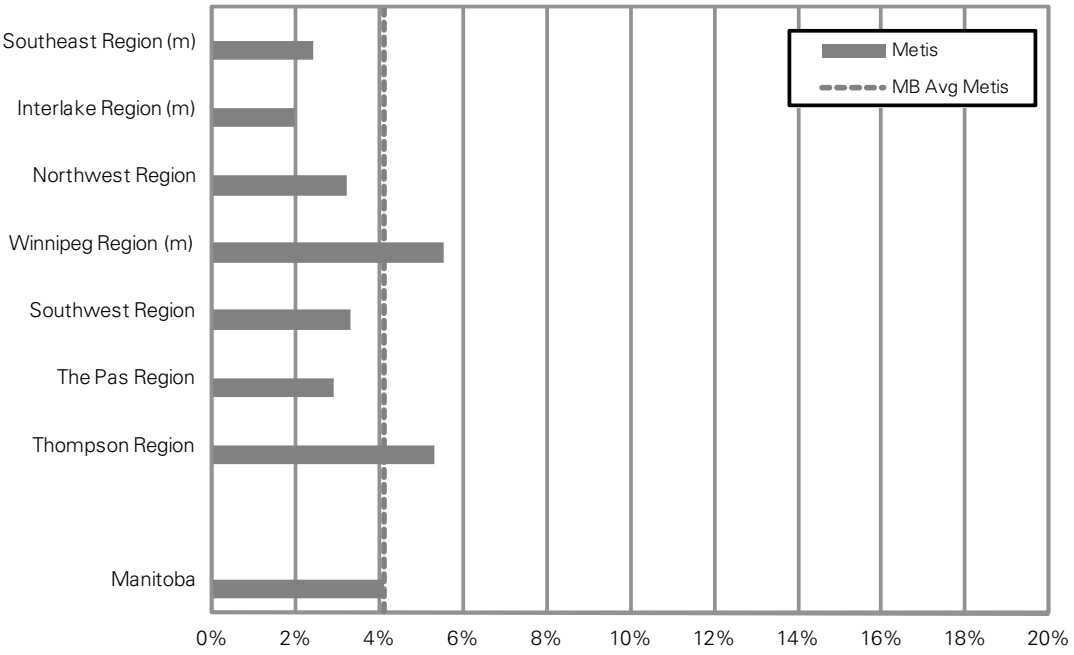
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.8.2: Prevalence of Children in Care by Metis Region, 2004/05-2006/07
Age- and sex-adjusted percent of Metis children aged 0-17 in foster care



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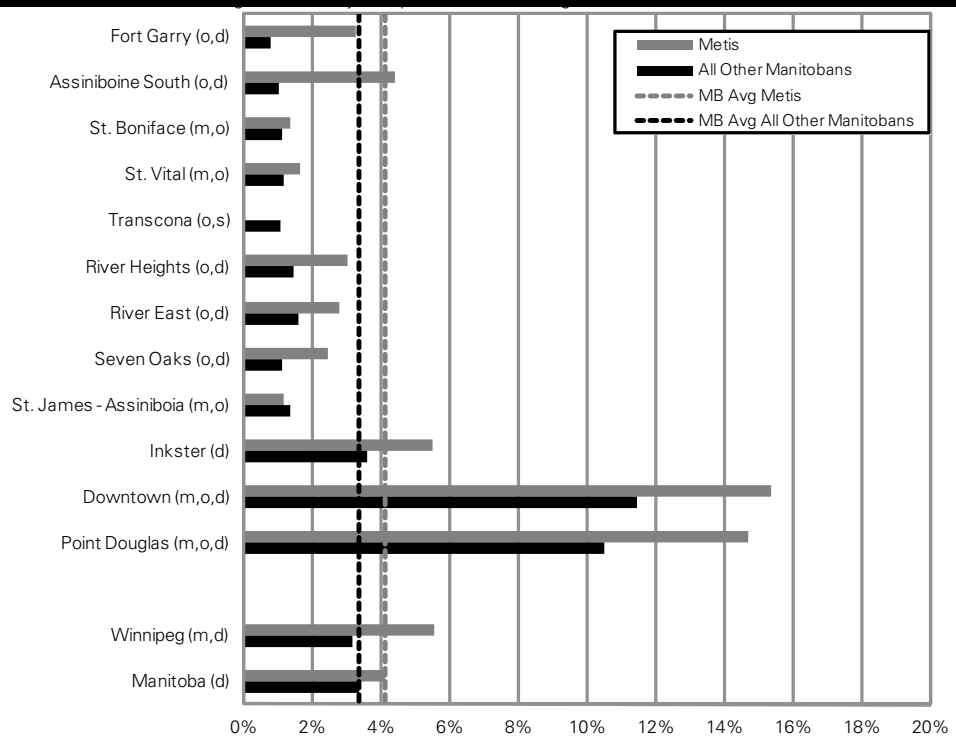
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

Figure 16.8.3: Prevalence of Children in Care by Winnipeg Community Area, 2004/05-2006/07
Age- and sex-adjusted percent of children aged 0-17 in foster care



'm' indicates the area's rate for Metis was statistically different from Manitoba average for Metis
'o' indicates the area's rate for all other Manitobans was statistically different from Manitoba average for all other Manitobans
'd' indicates the difference between the two groups' rates was statistically significant for this area
's' indicates data suppressed due to small numbers

Source: MCHP/MMF, 2010

16.9 Findings from Literature Review

(compared to the results in this study—in italics)

High school completion rates:

High school completion rates for the Metis have been documented as being lower than that of the general population over many years. For those aged 20–24 in 1981, 58% of Metis compared to 30% of all other Canadians had not completed high school. This gap persisted in 2001, when 32% of Metis and 15% of all other Canadians had not completed high school (National Council of Welfare, 2007). Statistics Canada (1991) reported that for the Metis, the percentage of those having no schooling beyond Grade 9 varied by age group: 9% of ages 15–24 years, 12% of those 25–44 years, and 40% of those 45–64 years old. Normand (1996) found only 10% of Metis aged 15–64 were high school graduates. Furthermore, 1996 Manitoba statistics show that 44.7% of Manitoba Metis (and 47.8% of Winnipeg Metis) aged 15–29 had completed high school, compared to 62.7% of non–Aboriginal youth (Government of Manitoba, 2000).

According to Hallett (2006), between 1996 and 2001, 49.9% of Manitoba Metis aged 15-19 (53.6% of Winnipeg Metis) completed high school, compared to 63.7% of non–Aboriginal youth. Metis youth made gains during the five–year period from 1996 to 2001. The percentage of Metis aged 20 to 24 with less than high school declined from 47% to 42% (O'Donnell & Tait, 2003).

In 2006, Metis aged 25 to 54 were less likely (13% vs. 24%) than those in the total population of Canada to have a high school diploma (Janz, Seto, & Turner, 2009), with Metis men at greater risk of non–completion than Metis women (27% vs. 21%).

In our study, high school completion rates for 2006 were lower for the Metis compared to all other Manitobans (66.2% vs. 78.4%), based on a cohort who were followed from Grade 9 for the next six years. This translates into a 'non–graduation' rate of 33.8% for Metis and 21.6% for all others. So although the Metis graduation rates still show a gap, these results are more promising than those cited in the literature. This is most likely due to graduation rates increasing over time.

Low income, family income assistance:

In 1990, one in three Metis aged 15 and over lived with incomes which fell below Statistics Canada's Low Income Cut–off (LICO). This was more than twice the figure for the non–Aboriginal population (15%) (Normand, 1996). According to a Government of Manitoba report in 2000, 41% of Metis (in Winnipeg, 51% of Metis) and 18% of non–Aboriginal households in Manitoba have incomes less than Statistics Canada's (LICO) (Government of Manitoba, 2000). This report also stated that among lone parent families, 89% of Status Indians and 82% of Metis fall below the LICO. In 2000, 28% of Metis over the age of 15 were in a low income bracket compared to 16% for all other Canadians (CIHI, 2004; Health Council of Canada, 2005)

According to Normand (1996), "the incidence of low income is also very high among Metis children. Forty–one percent of Metis children under age 15 lived in a low income situation, more than twice the rate of low income among non–Aboriginal children" in 1990. According to the Government of Manitoba, 1996 Census respondents reported that 49.1% of Manitoba Metis children aged 0–17 were living in

families having incomes less than the LICO. Winnipeg rates were even higher at 61.7% (Government of Manitoba, 2000).

In 1990 young Metis adults under age 25 were more likely than their older counterparts to live in a low income situation, with 40% of Metis aged 15 to 24 living in a low income situation. However, at all ages, the incidence of low income among the Metis was about twice that of the non–Aboriginal population (Normand, 1996).

In our report, the percentage of Metis children aged 0–17 living in families receiving provincial income assistance was slightly more than double that of all other children, at 28.5% versus 13.1%. This gap was also evident for young adults aged 18–19 receiving income assistance, with Metis percentages again over double that for all others (21.1% vs. 9.8%).

Children in care:

According to the Government of Manitoba, of the 5,389 Manitoba children in Child and Family Services (CFS) care on March 31, 1997, 326 (6.1%) were Metis (Government of Manitoba, 2000). Hallett (2000) states that Manitoba Metis children appear to be only slightly over–represented among children in care, except in the Parkland region, where they were 53% of the children in care in 1997 (63 of 118 children). The largest number of Metis children in care were in Winnipeg (192 of 326), but this was only 7.2% of children in care of Winnipeg CFS (Hallett, 2000). This is also reflected in BC, where Dr. Cathy Richardson observes that "on Vancouver Island, 45–50% of the children in care are Aboriginal and one–third of those have quite consistently been Métis" (National Council of Welfare, 2007).

In our study, the prevalence of Metis children in care is slightly higher than that of other Manitoba children (4.1% vs. 3.3%), with very high rates noted in Brandon RHA (6.0% and 5.1%) and Winnipeg (5.5% and 3.2%). Within Winnipeg, particularly high rates of children in care (and statistically higher for Metis compared to all others) are observed in Downtown (15.3% Metis, 11.4% others) and Point Douglas (14.7% Metis, 10.5% others) for the years 2004/05 to 2006/07.

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Appendix 1: Glossary

Access to Physicians

The percentage of residents who see a physician at least once over the course of a year gives an indication of the accessibility of ambulatory care in a region.

In this study, the crude and adjusted percentage of residents who had at least one ambulatory visit to a physician in a one–year period was measured in fiscal year 2006/07. Both GP/FPs and specialist physicians are included. The denominator includes all Manitoba residents as of December 31, 2006.

Acute Myocardial Infarction (AMI)

Also known as a heart attack, an acute myocardial infarction (AMI) occurs when the heart muscle (the myocardium) experiences sudden (acute) deprivation of circulating blood. The interruption of blood is usually caused by narrowing of the coronary arteries leading to a blood clot. The clogging is usually initiated by cholesterol accumulating on the inner wall of the blood vessels that distribute blood to the heart muscle.

In this study, the crude and adjusted incidence of AMI for residents aged 40 and older was measured in the five fiscal years 2002/03–2006/07. AMI was defined as:

- an inpatient hospitalization with the most responsible diagnosis of AMI and a length of stay of three or more days (unless the patient died in hospital)
- a death with AMI listed as the primary cause of death on the Vital Statistics death record.

Diagnosis codes used to identify an AMI include ICD–9–CM code 410 and ICD–10–CA code I21. Hospitalizations for less than three days were excluded as likely 'rule out' AMI cases; transfers between hospitals were tracked to ensure all 'true' AMI cases staying at least three days in hospital(s) were counted. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Adjusted Rates

These are rate values that are statistically adjusted to control for different age and sex distributions of different geographical areas to ensure that the rates for all areas (and for Metis and all other Manitobans) can be fairly compared. The adjusted values are those which the area would have had if their age and sex distribution was the same as for a standard population, which is usually the Non–Metis Manitoba population. Statistical models were used to calculate these rates and to compare a given area's rate (i.e., RHA or Winnipeg Community Area) and the provincial rate for Metis or all other Manitobans, as well as, to compare rates between Metis and Non–Metis in a given area. Appendix 2 provides crude (that is, unadjusted) rates and the observed number of events for all indicators.

Adolescent Drinking (CCHS Survey Data)

In the CCHS, respondents aged 12–19 were asked the question, "During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?" Respondents could answer yes, no, don't know, refuse, or not state an answer. Respondents who answered yes, don't know, or refused to answer were then asked the following questions: i) "During the past 12 months, how often did you drink alcoholic beverages?" (responses were dichotomized into once a week or more and less than once a week or never); ii) "How often in the past 12 months have you had five or more drinks on one occasion?" (responses were dichotomized into at least once or never); iii) "Thinking back over the past week, did you have a drink of beer, wine, liquor or any other alcoholic beverage?" (responses were dichotomized into at least once or never). Respondents for which these subsequent questions were not applicable were categorized as non–drinkers as they had answered to the initial alcohol consumption question that they do not drink at all. Respondents who answered don't know, not stated, or refused to answer the questions were excluded from analyses. Crude weighted percentages were calculated using data from CCHS cycles 1.1, 2.1, 2.2 and 3.1.

Adolescent Smoking (CCHS Survey Data)

In the CCHS, respondents aged 12–19 were asked the question, "In your lifetime, have you smoked a total of 100 or more cigarettes (about 4 packs)?" Possible responses include yes, no, don't know, or refuse to answer. Respondents who answered no were then asked, "Have you ever smoked a whole cigarette?" Possible responses include yes, no, don't know, or refuse to answer; respondents who had answered yes to the previous question were also assumed to have smoked an entire cigarette. Respondents were then asked a series of questions about the history of their smoking, such as "At the present time, do you smoke cigarettes daily, occasionally or not at all?" to determine if they were a current smoker, former smoker, or never smoked. For more information on how type of smoker is determined, see CCHS Survey Data: Type of Smoker**.** Respondents who answered don't know, not stated, or refused to answer the questions were excluded from analyses. Crude weighted percentages were calculated using data from CCHS cycles 1.1, 2.1, 2.2 and 3.1.

Adolescent Sexual Behavior (CCHS Survey Data)

In the CCHS, respondents aged 15–19 were asked the question, "Have you ever had sexual intercourse?" (Possible responses include yes, no, don't know, or refuse to answer.) Respondents who answered yes were then asked the following questions: i) "In the past 12 months, have you had sexual intercourse?" (responses were dichotomized into yes and no); ii) "Did you use a condom the last time you had sexual intercourse?" (responses were dichotomized into yes and no); iii) "What kind of birth control did you and your partner usually use, condom?" (responses were dichotomized into yes and no); iv) "What kind of birth control did you and your partner usually use, birth control pill?" (responses were dichotomized into yes and no); v) "What kind of birth control did you and your partner use the last time you had sex, condom?" (responses were dichotomized into yes and no); vi) "What kind of birth control did you and your partner use the last time you had sex, birth control pill?" (responses were dichotomized into yes and no). Respondents who answered no to the initial sexual activity question were not included in the rest of the analyses on sexual behaviour. Respondents who answered don't know, not stated, or refused to answer the questions were excluded from analyses. Crude weighted percentages were calculated using data from CCHS cycles 2.1 and 3.1.

Age Calculations

For most indicators in this report, age is calculated as of December 31 of each study year for both the numerator and the denominator. Exceptions include when there are more years of study in the numerator than in the denominator, such as diabetes treatment prevalence, in which case age is calculated as of December 31 of the denominator year. Other exceptions include cohort analyses, where age is calculated as of the time of an event.

Aggregated Diagnostic Groups (ADG)

Formerly known as Ambulatory Diagnostic Groups, ADGs continue to be part of the Johns Hopkins Adjusted Clinical Group (ACG) case–mix system. The ACG system is risk adjustment tool developed to measure the illness burden (morbidity) of individual patients by grouping individuals based on their age, sex, and all known medical diagnoses assigned by their healthcare providers over a defined time period (typically one year). Every ICD–9–CM and ICD–10–CA diagnosis code assigned to a patient is grouped into one of 32 different ADGs based on five clinical and expected utilization criteria: 1) duration of the condition (acute, recurrent, or chronic); 2) severity of the condition (e.g., minor and stable versus major and unstable); 3) diagnostic certainty (symptoms focusing on diagnostic evaluation versus documented disease focusing on treatment services); 4) etiology of the condition (infectious, injury, or other); and 5) specialty care involvement (medical, surgical, obstetric, haematology, etc.).

For this report, the ADGs used to define mental and major physical comorbidities in the logistic regressions are as follows:

- Mental ADGs:
  - ADG 23 = Psychosocial: Time Limited, Minor
  - ADG 24 = Psychosocial: Recurrent or Persistent, Stable
  - ADG 25 = Psychosocial: Recurrent or Persistent, Unstable
- Physical ADGs:
  - ADG 3 = Time Limited: Major
  - ADG 4 = Time Limited: Major–Primary Infections
  - ADG 9 = Likely to Recur: Progressive
  - ADG 11 = Chronic Medical: Unstable
  - ADG 16 = Chronic Specialty: Unstable–Orthopedic
  - ADG 22 = Injuries/Adverse Effects: Major
  - ADG 32 = Malignancy

If individuals had at least one of the above ADGs, they were classified as having a mental or major physical ADG in the logistic regression. For the most part, the ADGs were identified and assigned in the year prior to the event in the regression.

Ambulatory Consultations

Consultations are a subset of ambulatory visits: they occur when one physician refers a patient to another physician (usually a specialist or surgeon) because of the complexity, obscurity, or seriousness of the condition or when the patient requests a second opinion. A consultation can be with either a general practitioner/family practitioner (GP/FP) or a specialist, after which the patient usually returns to their GP/FP for ongoing management.

The rate of consultations is a measure of 'initial' access to specialist care. People in urban areas often have much higher overall rates of specialist care, since they may continue to see the specialist rather than being referred back to their GP/FP. That is why the consultation rate, rather than the overall specialist visit rate, is used as an indicator for access to specialist care. (The specialist visit rate shows all use of specialists—whether by referral or not.)

In this study, the crude and adjusted ambulatory consultation rate per resident was measured for fiscal year 2006/07. Consultations to GP/FPs and specialists are counted. The definition of a consultation is an ambulatory physician visit with one of the following physician tariff codes:

- 8440 orthopaedic spinal consultation
- 8449 extended ophthalmology consultation for the assessment and/or treatment of uveitis
- 8550 consultation
- 8552 developmental assessment and report per 15 minute period or portion thereof
- 8553 psychiatry consultation—adult
- 8554 psychiatry consultation—child
- 8556 ophthalmology consultation, including refraction and other necessary tests (doctor or optometrist)
- 8557 otorhinolaryngology (ENT) consultation

The denominator includes all Manitoba residents as of December 31, 2006.

Ambulatory Physician Visits

Ambulatory visits includes almost all contacts with physicians (GP/FPs and specialists): office visits, walk–in clinics, home visits, personal care home (nursing home) visits, visits to outpatient departments, and some emergency room visits (where data are recorded). Excluded are services provided to patients while admitted to hospital and visits for prenatal care. Note: 'pregnancy and birth' are included in the Ambulatory Visits by Cause pie charts.

In this study, the crude and adjusted ambulatory visit rate per resident was measured for fiscal year 2006/07. The denominator includes all Manitoba residents as of December 31, 2006. There is a possibility that there is missing data for this indicator because of an inability to pick up nursing station visits, especially in First Nations communities. Although they are expected to 'shadow bill', nurse practitioners and salaried physicians may be undercounted due to incomplete billings.

Anatomical Therapeutic Chemical (ATC) Classification

A widely used drug classification system, derived from the World Health Organization's Collaborating Centre for Drug Statistics Methodology. The drugs are divided into different groups at five levels according to the organ or system on which they act and/or therapeutic and chemical characteristics: 1) anatomical group; 2) therapeutic main group; 3) therapeutic/pharmacological subgroup; 4) chemical/therapeutic/pharmacological subgroup; and 5) subgroup for chemical substance.

Antibiotic Use

Antibiotics are a type of medication typically prescribed to treat bacterial infections.

In this study, the crude and adjusted percentage of residents with one or more prescription for antibiotics was measured in fiscal year 2006/07. Antibiotic medications were identified by ATC codes J01 and G04A. The denominator includes all Manitoba residents as of December 31, 2006.

Antidepressant Prescription Follow–Up

Regular monitoring of persons prescribed antidepressants after the initial diagnosis of depression is essential to track that patients' response to the medication and modify treatment if necessary. Often antidepressant medications do not begin to have a clinical effect for some time after initiating therapy. As well, persons diagnosed with a major depression may be at risk of suicide, which makes follow–up a critical part of treatment for depression.

In this study, the crude percentage of residents with a new prescription for antidepressants (ATC codes N06AA, N06AB, N06AF, N06AG, N06AX) and a diagnosis of depression (ICD–9–CM codes 296 or 311) within two weeks of each other (it is assumed that the prescription date comes after the physician visit) who then had three subsequent ambulatory visits within four months of the prescription being filled was measured over three fiscal years: 2004/05–2006/07. To be included in the analysis, patients had to be alive for the entire follow–up period. To be included as a newly depressed patient, residents could not have a prescription for antidepressants or a physician visit with a diagnosis of depression in the two years prior to the index event.

Antidepressant Prescriptions

Antidepressants are medicines used to help people who have depression, other mood and anxiety disorders, and numerous other conditions such as nerve pain (Kennedy, Lam, Cohen, Ravindran, & CANMAT Depression Working Group, 2001; Saarto & Wiffen, 2007).

In this study, the crude and adjusted percentage of residents with at least two prescriptions for antidepressants in a year was measured in fiscal year 2006/07. Antidepressants are defined by ATC code N06A. The denominator includes all Manitoba residents as of December 31, 2006.

Antipsychotic Prescriptions

Antipsychotics are a type of medication typically prescribed to treat psychosis, and other psychiatric disorders, but also have been used as anti–nauseants Antipsychotic drugs include older agents (e.g., haloperidol) and newer agents termed atypical antipsychotics (e.g., olanzapine) (Sprague, Loewen, & Raymond, 2004; Dagtekin et al., 2009).

In this study, the crude and adjusted percentage of residents who have had at least one prescription of antipsychotic drugs was calculated over five fiscal years: 2002/03–2006/07. Antipsychotic drugs were identified by ATC codes N05AA, N05AB, N05AC, N05AG, N05AD, N05AF, N05AK, N05AH01, N05AH02, N05AH03, N05AN01, N05AX02, and N05AX08. The denominator includes all Manitoba residents as of December 31, 2004.

Anxiety

Anxiety disorders can include excessive feelings of apprehension or fear. (MCHP Glossary)

In this study, the crude and adjusted prevalence of anxiety disorders was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Residents were considered to have an anxiety disorder if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for anxiety states, phobic disorders or obsessive–compulsive disorders: ICD–9–CM codes 300.0, 300.2, 300.3; ICD–10–CA codes F40, F41.0, F41.1, F41.3, F41.8, F41.9, F42
- three or more physician visits with a diagnosis for anxiety disorders: ICD–9–CM code 300

The denominator includes all Manitoba residents aged 10 and older as of December 31, 2004.

Arthritis

Arthritis is a group of conditions that affect the health of the bone joints in the body.

In this study, the crude and adjusted prevalence of arthritis was measured for residents aged 19 and older over a two–year period: 2005/06–2006/07. Residents were considered to have arthritis if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of arthritis: ICD–9–CM codes 274, 446, 710–721, 725–729, 739; ICD–10–CA codes M00–M03, M05–M07, M10–M25, M30–M36, M65–M79
- two or more physician visits with a diagnosis of arthritis (ICD–9–CM codes as above)
- one physician visit with a diagnosis of arthritis (ICD–9–CM codes as above) and two or more prescriptions for medications to treat arthritis (listed below)

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006.

List of drugs used to treat arthritis:

	ATC Code	Generic Drug Name
Disease–modifying Anti–rheumatic Drugs	A07EC01	Sulfasalazine
	J01AA08	Minocycline
	L01AA01	Cyclophosphamide
	L01BA01	Methotrexate
	L04AA01	Cyclosporine
	L04AA13	Leflunomide
	L04AX01	Azathioprine
	L04AX03	Methotrexate
	M01CB01	Sodium Aurothiomalate
	M01CB03	Auranofin
	M01CB04	Aurothioglucose
	M01CC01	Penicillamine
	P01BA02	Hydroxychloroquine
Biologic Response Modifiers	L04AA11	Etanercept
	L04AA12	Infliximab
	L04AA14	Anakinra
	L04AA17	Adalimumab
Narcotic Analgesics	N02AA05	Oxycodone
	N02AD01	Pentazocine
	N02AA51	Morphine, combinations
	N02AA59	Codeine, combinations excluding psycholeptics
	N02BA51	Codeine in combination
	N02BE01	Acetaminophen
	N02BE51	Acetaminophen in combination with codeine
	R05DA03	Hydrocodone
	R05DA04	Codeine
	R05DA05	Opium alkaloids with morphine
Glucocorticosteroids (some restrictions on route of administration apply)	H02AB04	Methylprednisolone
	H02AB06	Prednisolone
	H02AB07	Prednisone
	H02AB08	Triamcinolone
	H02AB10	Cortisone
Non–steroidal Anti–inflammatory Drugs (NSAIDS)	M01AH03	Valdecoxib
	M01AA01	Phenylbutazone
	M01AB01	Indometacin
	M01AB02	Sulindac
	M01AB03	Tolmetin
	M01AB05	Diclofenac
	M01AB08	Etodolac

	M01AB15	Ketorolac
	M01AB55	Diclofenac in combination
	M01AC01	Piroxicam
	M01AC02	Tenoxicam
	M01AC06	Meloxicam
	M01AE01	Ibuprofen
	M01AE02	Naproxen
	M01AE03	Ketoprofen
	M01AE04	Fenoprofen
	M01AE09	Flurbiprofen
	M01AE11	Tiaprofenic acid
	M01AE12	Oxaprozin
	M01AG01	Mefenamic acid
	M01AH01	Celecoxib
	M01AH02	Rofecoxib
	M01AX01	Nabumetone
	M02AA	Anti–inflammatory agents for topical use
	M02AB01	Capsicum
	M02AC	Preparation with salicylic acid derivations
	M02AX03	Dimethyl sulfoxide
Other	M04AA	Preparation inhibiting uric acid production
	N02BA01	Acetylsalicylic acid
	N02BA03	Choline salicylate
	N02BA11	Diflunisal

Asthma Care: Prevalence of Controller Medication Use

Guidelines for the treatment of asthma recommend that all patients who require the use of their acute treatment medication (e.g., Beta 2–agonists) more than once a day should also be treated with long acting anti–inflammatory medication for long–term control (Becker et al., 2003).

In this study, the percentage of asthmatics that filled a prescription for medications recommended for long–term control of asthma was measured for fiscal year: 2006/07. Asthmatics were defined as individuals with a repeat prescription (i.e., two or more) for Beta 2–agonists (ATC codes R03AA, R03AB, or R03AC). Long–term asthma medications include inhaled corticosteroids (ATC code R03BA), Leukotriene modifiers (ATC code R03DC) or other drugs for obstructive airway diseases (ATC code R03AK). This analysis excluded COPD patients as defined through one or more prescriptions of Ipratropium Bromide (ATC codes R01AX03, R03AK04, R03BB01).

Attention Deficit Hyperactivity Disorder (ADHD) Prevalence

Attention–Deficit Hyperactivity Disorder (ADHD) is a neurobehavioral developmental disorder that typically presents during childhood and is characterized by a persistent pattern of impulsiveness and inattention, with or without a component of hyperactivity. ADHD occurs twice as commonly in boys as in girls.

In this study, the crude and adjusted prevalence of ADHD was measured for children aged 5–19 in fiscal year 2006/07. ADHD was defined as:

- one or more hospitalizations with a diagnosis of hyperkinetic syndrome: ICD–9–CM code 314; ICD–10–CA code F90
- one or more physician visits with a diagnosis of hyperkinetic syndrome: ICD–9–CM code 314
- two or more prescriptions for ADHD drugs without a diagnosis of:
  - conduct disorder: ICD–9–CM code 312; ICD–10–CA codes F63, F91, F92
  - disturbance of emotions: ICD–9–CM code 313; ICD–10–CA codes F93, F94
  - cataplexy/narcalepsy: ICD–9–CM code 347; ICD–10–CA code G47.4
- one prescriptions for ADHD drugs with a diagnosis of hyperkinetic syndrome: ICD–9–CM code 314, ICD–10–CA code F90 in the previous three fiscal years

Children whose postal code corresponded with the Winnipeg CFS Office building were reassigned to their previous residence where possible. The denominator includes all Manitoba residents aged 5–19 as of December 31, 2006.

Average Daily Consumption of Fruits and Vegetables (CCHS Survey Data)

Canada's Food Guide recommends that children should eat four to six servings of fruits or vegetables daily, and teenagers and adults should eat seven to eight servings of fruits or vegetables daily as part of a healthy diet. One serving includes one–half cup of fresh, frozen or canned fruits or vegetables, one piece of fruit or one–half cup of fruit juice. Canada's Food Guide states that the benefits to eating well include better overall health, looking and feeling better, lower risk of disease, more energy, a healthy body weight, and stronger muscles and bones.

In the CCHS, the total daily consumption of fruits and vegetables is a derived variable that indicates the total number of times per day the respondent eats fruits and vegetables. Respondents are asked a series of questions regarding their dietary practices, for example, "How often do you usually eat potatoes, not including French fries, fried potatoes, or potato chips?" Then the total daily consumption of fruits and vegetables is determined based on the respondent's answers. Note that the CCHS measures the number of times a day fruit and vegetables are consumed (frequency), not the amount consumed. Possible responses include less than five times/servings per day, five to 10 times/servings per day, more than 10 times/servings per day, or not stated. This variable is calculated for all respondents.

In this report, the crude and adjusted weighted proportion of respondents consuming fruits and vegetables five or more times per day was calculated by taking the ratio of the number of respondents whose average daily fruit and vegetable consumption was five or greater (based on the total daily consumption of fruits and vegetables derived variable) to the number of all respondents. Respondents who did not answer at least one required question used to calculate the derived variable (i.e., don't know, refusal, not stated) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, and 2.2.

Average Household Income

The average household income is the mean income of households at the neighbourhood level from the Canadian Census. In the census, a household refers to all persons who live within the same dwelling, regardless of their relationship to each other. Household income is the sum of incomes of all persons in the household. Individual level household income values are not available, so residents are assigned the average household income of the neighbourhood in which they reside.

In this report, average household income from the 2001 Canadian Census was used. Values were assigned at the dissemination area (DA) where available. Statistics Canada suppresses average household income values for DAs with populations less than 250 persons. In these cases, the average household income value at the Census Subdivision (CSD) level was imputed. A further imputation was required for some First Nations communities: northern and southern First Nations communities (north or south of the 60th parallel, respectively) with suppressed average household income at both the DA and CSD level were assigned the weighted mean value of average household income of the northern or southern First Nations communities with non-missing average household income.

Benzodiazepines

Benzodiazepines belong to the group of medicines called central nervous system (CNS) depressants. They are used to slow down the nervous system and are typically classified as having short, intermediate or a long–acting half–life, to reflect how long these medications remain active in the body. Benzodiazepines can be used to treat: anxiety disorders, panic disorders, insomnia, seizures, muscle spasticity, alcohol withdrawal, and as a perioperative adjunct to anesthesia (Repchinsky, 2007). Tolerance and physical and psychological dependence may occur with prolonged use (Repchinsky, 2007). Abrupt cessation of benzodiazepines is not recommended and tapering–down the dose can reduce withdrawal symptoms which can occur with long term use (Lader, Tylee, & Donoghue, 2009).

Benzodiazepine DDDs of Users

In this study, the crude and adjusted average annual rate of benzodiazepine DDDs among residents aged 16 and older with at least one prescription for benzodiazepines was measured in fiscal year 2006/07. Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05, and N05CD07 and generic drug names diazepam, chlordiazepoxide, oxazepam, clorazepate potassium, lorazepam, bromazepam, alprazolam, flurazepam, nitrazepam, triazolam, and temazepam. DDDs were calculated only for solid forms of the drug, such as capsules, tablets, suppositories and patches; DDDs were not calculated for benzodiazepines in liquid or injectionable forms. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006 with at least one prescription for benzodiazepines in the fiscal year.

Benzodiazepine Prescriptions

In this study, the crude and adjusted percentage of residents aged 16 and older with at least one prescription for benzodiazepines was measured in fiscal year 2006/07. *Chronic prevalence was defined as at least three prescriptions in the fiscal year.* Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05,

and N05CD07 and generic drug names diazepam, chlordiazepoxide, oxazepam, clorazepate potassium, lorazepam, bromazepam, alprazolam, flurazepam, nitrazepam, triazolam, and temazepam. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006.

Benzodiazepine Prescriptions to Community–Dwelling Older Adults

In this study, the crude percentage of seniors aged 75 and older who had at least two prescriptions for benzodiazepines or at least one prescription for benzodiazepines with a greater than 30 day supply was measured annually for three fiscal years: 2004/05–2006/07. Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05, N05CD07, and N05CF01. Rates are provided for community–dwelling seniors only; seniors residing in Personal Care Homes (PCH) are excluded. If a resident lived in a PCH for one or more days during the study period, they were categorized as a senior residing in a PCH and were excluded from analyses. The denominator includes all Manitoba residents aged 75 and older as of April 1, 2004. Note that if an individual died during the fiscal year, then prescriptions are looked at one year before death.

Body Mass Index (BMI) (CCHS Survey Data)

BMI is a statistical measure used to classify and compare individuals according to their weight scaled by their height. BMI is calculated as weight in kilograms divided by height in metres squared.

In the CCHS, BMI is a derived variable calculated from either self–reported or measured height and weight. Respondents are classified as: underweight (BMI < 18.5), normal weight ($18.5 \leq$ BMI ≤ 24.99), overweight ($25 \leq$ BMI ≤ 29.99), obese—class I ($30 \leq$ BMI ≤ 34.99), obese—class II ($35 \leq$ BMI ≤ 39.99), obese—class III (BMI ≥ 40), not applicable, or not stated. BMI is calculated for respondents aged 18 and older, excluding pregnant women.

In this report, BMI was calculated from self–reported height and weight in CCHS cycles 1.1, 2.1, and 3.1. In cycle 2.2 measured height and weight were used if available, otherwise self–reported values were used. The crude and adjusted weighted proportion of respondents who were overweight or obese was calculated by taking the ratio of the number of respondents with a BMI of 25 or greater to the number of all respondents. Respondents with missing height or weight, respondents for which the calculation is not applicable (i.e., age less than 18, pregnant women), and respondents who refused the answer the question were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

Breastfeeding Initiation Rate

In this study, the crude percentage of live born babies born in a Manitoba hospital who were exclusively or partially breast fed upon discharge from the hospital was measured over three fiscal years: 2004/05–2006/07. The denominator includes all live born babies born in a Manitoba hospital with a Manitoba postal code or municipality code that have complete breastfeeding information in the hospital discharge abstract. Note that out of province birth records, birth records with missing breastfeeding fields or breastfed coded as NPO (nothing by mouth) were excluded from both the numerator and denominator.

Caesarean Section (C–Section) Rate

A Caesarian section is a procedure in which a baby, rather than being born vaginally, is surgically extracted (removed) from the uterus.

The maternal age–adjusted annual percent of Caesarian section births (i.e., number per 100 live births) was measured over five fiscal years: 2002/03–2006/07. Crude percentages are available in the appendix. Caesarean sections were defined by hospital separations with the ICD–9–CM procedure codes 74.0, 74.1, 74.2, 74.4, and 74.9 and CCI code 5.MD.60. The denominator includes all maternal birth records with a diagnosis code for a live birth on hospital abstract, ICD–9–CM code V27 and ICD–10–CA code Z37.

Canadian Community Health Survey (CCHS)

The Canadian Community Health Survey (CCHS) is a biennial survey conducted by Statistics Canada to provide regular and timely cross–sectional estimates of health determinants, health status, and health system utilization for 136 health regions in Canada, including the territories. Survey respondents were sampled from 11 regions in Manitoba. Respondents were 12 years of age and older; the sampling methodology was designed to ensure over–representation of youth under 19 years of age and seniors 65 years of age and older. The survey excludes populations living in Indian Reserves, on Canadian Forces Bases, in some remote areas, and those not living in households. Hence, the generalizeability of the rates in RHAs that include a high percentage of First Nations living 'on reserve' (such as Burntwood RHA) is limited by that exclusion.

The CCHS question that was used for Metis identity was sdca_4q: To which ethnic or cultural group(s) did your ancestors belong? (For example: French, Scottish, Chinese).

Cardiac Catheterization

The most accurate method for evaluating and defining ischemic heart disease (IHD), also known as coronary artery disease (CAD), cardiac catheterization is used to identify the exact location and severity of CAD. During cardiac catheterization, a small catheter (a thin hollow tube with a diameter of 2–3 mm) is inserted through the skin into an artery in the groin or the arm. Guided with the assistance of a fluoroscope (a special x–ray viewing instrument), the catheter is then advanced to the opening of the coronary arteries, the vessels supplying blood to the heart. When the catheter is used to inject radiographic contrast (a solution containing iodine, which is easily visualized with x–ray images) into each coronary artery, the cardiac catheterization is termed coronary angiography. Coronary angiography is usually performed in conjunction with cardiac catheterization. The images that are produced are called the angiogram. Angiographic images accurately reveal the extent and severity of all coronary arterial blockages.

In this study, the crude and adjusted rate of cardiac catheterizations per 1,000 Manitobans aged 40 and older over was measured in three fiscal years: 2004/05–2006/07. Cardiac catheterization was defined by hospital separations with ICD–9–CM procedure codes 37.21 to 37.23, and 88.52 to 88.57 and CCI codes 2.HZ.28 and 3.IP.10. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2004–2006).

Note that at the time of analysis, only Manitoba's tertiary hospitals (Health Sciences Centre and St Boniface General Hospital) were equipped to perform cardiac catheterizations, so only hospital separations from those two hospitals were included in the analysis in order to avoid counting duplicate procedures. Rural patients can be transferred from another hospital to receive the procedure, which may result in two claims for one procedure: an outpatient claim from the teaching hospital and another claim from the admitting hospital.

Cataract Surgery

Cataracts occur when the lens of the eye becomes cloudy and normal vision is impaired. There are many causes of cataracts including (but not limited to) cortisone medication, trauma, diabetes, and aging. The symptoms of cataracts include double or blurred vision and unusual sensitivity to light and glare. The clouded lens is removed in its entirety by surgery and replaced with an intraocular lens made of plastic, an operation that takes about an hour and usually does not need overnight stay in hospital.

In this study, the crude and adjusted rate of cataract surgeries per 1,000 Manitobans aged 50 and older was measured in three fiscal years: 2004/05–2006/07. Cataract surgery was defined by a physician claim with tariff codes 5611, 5612 and tariff prefix 2 (surgery) or a hospital separation with ICD–9–CM procedure codes 13.11, 13.19, 13.2, 13.3, 13.41, 13.42, 13.43, 13.51 and 13.59 and CCI code 1.CL.89. Additional cataract surgeries for Manitoba residents were added from out of province medical claims, including Alberta (tariff code 27.72) and Saskatchewan (tariff codes 135S, 136S, 226S and 325S). The denominator includes all Manitoba residents aged 50 and older as of December 31 of each year (2004–2006).

Causes of Death

In this study, the most frequent causes of death for Manitobans were reported for five calendar years: 2002–2006. Causes of death from the Vital Statistics death records are grouped by ICD–9–CM chapter. After January 1, 2000, causes of death were recorded using ICD–10 codes, so when necessary those causes of death were converted to ICD–9–CM codes before grouping them into diagnosis chapters.

Cervical Cancer Screening

Also called a Pap (Papanicolau) test, cervical cancer screening is based on the examination of cells collected from the cervix to reveal pre–malignant (before cancer) and malignant (cancer) changes as well as changes due to non–cancerous conditions such as inflammation from infections.

In this study, cervical cancer screening was measured as the crude and adjusted proportion of women aged 18–69 who received at least one Pap test in three fiscal years: 2004/05–2006/07. Cervical cancer screening was defined by:

- A physician visit with a tariff code for a Pap test:
    - 8470—regional gynaecological exam, including cytological smear of the cervix, provided by a GP/FP
    - 8495—complete physical and gynaecological exam, including cytological smear of the cervix, provided by an OB/GYN specialist

- 8496—regional gynaecological exam, including cytological smear of the cervix, provided by an OB/GYN specialist
- 8498—complete physical and gynaecological exam, including cytological smear of the cervix, provided by a GP/FP
- 9795—cytological smear of the cervix for cancer screening

- A pathology or laboratory claim with a tariff code for a Pap test:
  - 9470—Cytological Examination—Vaginal Smear

The denominator includes all Manitoba female residents aged 18–69 as of December 31, 2005.

Note that if a laboratory claim and a physician claim for a Pap test for the same individual are within 54 days of each other, they are counted as one Pap test to reduce double counting over three year periods. Nearly all of lab claims are within 54 days of the physician claim.

Women who have had a complete hysterectomy surgery were excluded from both the numerator and denominator. Hysterectomy surgeries were defined by hospital separations with ICD–9–CM procedure codes 68.4–68.9 and CCI codes 1.RM.89, 1.RM.91, 5.CA.89.CK, 5.CA.89.DA, 5.CA.89.GB, 5.CA.89.WJ, and 5.CA.89.WK. These codes include only total hysterectomies, not partial, as women who have a partial hysterectomy may still have a cervix and would require cervical cancer screening.

Rates for northern and remote areas served by nursing stations may be underestimated due to missing data. Prior to 2005, only physicians were able to code into the administrative billing system for Pap tests. As of 2005, nurses officially called "Nurse Practitioners" by Manitoba Health are now able to make claims into the physician data system. However, "Advanced Practice Nurses" or other designations are not included in the Nurse Practitioner designation, despite the fact that some do Pap tests. Nurses working at federally–operated Nursing Stations also do not record their work in the billing claims system. However, most nurses who are not nurse practitioners would be doing Pap tests under the supervision of a physician, who would most likely be billing for these. At the time of this study, the Repository at MCHP did not have access to laboratory data, so Pap tests are only observable through the billing system.

Child Mortality Rate

In this study, the crude and adjusted rate of deaths per 1,000 residents aged 1 to 19 was calculated for the calendar years 1997–2006. The denominator includes all Manitoba children aged 1–19 as of December 31 of each year (1997–2006).

Children in Care

Children in care are children who are removed from their families of origin and placed in the care of another adult(s) due to concerns about the proper provision of care in the family of origin. There are situations where a family is unable or unfit to properly look after their child(ren) and in these cases the child(ren) may be placed into foster care. Children can come into care for a variety of reasons including abuse and neglect, illness, death, conflict in their family, disability, or emotional problems. (Brownell et al., 2008)

In this study, the crude and adjusted proportion of children aged 0 to 17 under the care of Child and Family Services at any time during a fiscal year was measured over three fiscal years: 2004/05–2006/07. Children whose postal code corresponded with the Winnipeg CFS Office building were reassigned to their previous residence where possible. The denominator includes all Manitoba children aged 0 to 17 as of December 31 of each year (2004–2006), but may not capture First Nations Child and Family Services data.

Continuity of Care

Continuity of care is the extent to which individuals see a given healthcare provider over a specified period of time. Individuals with a regular provider may have improved health outcomes as a result of one provider managing their healthcare needs over an extended period of time.

In this study, 'good' continuity of care is the crude and adjusted percentage of residents receiving at least 50% of their ambulatory visits from the same physician for fiscal years 2005/06–2006/07. For children aged 0–14, the physician could be either a GP/FP or a paediatrician; for residents age 15–59, only GP/FPs could be the physician; and for seniors aged 60 and older, the physician could be either a GP/FP or an internal medicine specialist. Residents with less than three ambulatory visits over the two–year period are excluded from analyses. The denominator includes all Manitoba residents with three or more physician visits in fiscal years 2005/06–2006/07.

Coronary Artery Bypass Graft (CABG) Surgery

CABG surgery is performed on patients with significant narrowing or blockage of multiple heart arteries (coronary artery disease) permitting increased blood flow to deliver oxygen and nutrients to the heart.

In this study, the crude and adjusted rate of CABG surgeries per 1,000 Manitobans aged 40 and older was measured in five fiscal years: 2002/03–2006/07. CABG surgeries were defined by hospital separations with ICD–9–CM procedure codes 36.10 to 36.14 and 36.19 and CCI code 1.IJ.76. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Note that at the time of analysis, only Manitoba's tertiary hospitals (Health Sciences Centre and St Boniface General Hospital) were equipped to perform cardiac catheterizations, so only hospital separations from those two hospitals were included in the analysis in order to eliminate counting duplicate procedures. Rural patients can be transferred from another hospital to receive the procedure, which may result in two claims for one procedure: an outpatient claim from the teaching hospital and another claim from the admitting hospital.

Crude Rate

The number of persons with a given condition divided by the number of persons living in that area; often multiplied by 1,000 to give a rate per 1,000. In contrast to adjusted rates, crude rates are helpful in figuring out how many people are walking through the door for treatment. This could potentially be affected by the age and sex distribution of an area; hence most rates are adjusted for fair comparisons between areas.

Cumulative Mental Illness

Cumulative mental illness disorders include residents who received treatment for any of the five following mental illnesses: depression, anxiety disorders, substance abuse, personality disorder, and schizophrenia. See the specific diagnoses for details regarding definitions used.

In this study, the crude and adjusted prevalence of cumulative mental illness disorders was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Residents were considered to have a cumulative mental illness disorder if they met the definition for any of the five mental illnesses. The denominator includes all Manitoba residents aged 10 and older as of December 31, 2004.

Cumulative Mental Illness Mortality

This is the crude and adjusted mortality rate for residents aged 19 and older with cumulative mental illness disorders. A cohort diagnosed or treated for one or more of depression, anxiety disorders, substance abuse, personality disorder, or schizophrenia was identified using five fiscal years of data: 1997/98–2001/02. Then their mortality rate was calculated in the subsequent five year period: 2002/03–2006/07. The cumulative mental illness cohort includes Manitoba residents aged 19 and older as of April 1, 2002 who had at least five years of coverage prior to April 1, 2002 and were registered with Manitoba Health until March 31, 2007 or death.

Current Smokers (CCHS Survey Data)

Smoking is the act of inhaling tobacco smoke from cigarettes, pipes, or cigars. Tobacco smoke contains nicotine, an addictive substance that causes individuals to become addicted to smoking. Smoking damages the lungs and increases the risk of developing cancer (especially lung cancer), chronic obstructive pulmonary disease, asthma, heart disease and heart attacks, and many other diseases.

In the CCHS, type of smoker is a derived variable that indicates the type of smoker the respondent is based responses to questions on his/her smoking habits, such as, "Have you ever smoked cigarettes daily?" Possible responses include daily smoker, occasional daily smoker (former daily smoker), always an occasional smoker, former daily smoker, former occasional smoker, never smoked, or not stated. This variable is calculated for all respondents.

In this report, the crude and adjusted weighted proportion of respondents who are current smokers was calculated by taking the ratio of the number current smokers (includes daily smoker, occasional daily smoker (former daily smoker), and always an occasional smoker) to the number of all respondents. Respondents who did not answer at least one required question used to calculate the derived variable (i.e., don't know, refusal, not stated) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1

Data Suppression

Data was suppressed when the number of persons or events involved was five or less, though data is not suppressed when the actual count is zero. For CCHS indicators, data was suppressed when the sample size of positive responses from the un–weighted sample was less than10 respondents, or if the Coefficient of Variation calculated from the standard error of the rate was 33.3 or greater.

Defined Daily Dose (DDD)

One of four measures of intensity of use, defined daily dose (DDD) is the assumed average maintenance dose per day for a drug product when used for its major indication in everyday practice. It standardizes the measurement of drug utilization within and between drug entities and can be used to describe drug utilization across a population, and measure various aspects of intensity. A clinical measure can also be calculated. This is a technical unit of measurement and does not necessarily reflect the actual amount or dose used; it is also limited to solid drug forms only. DDDs are assigned per Anatomical Therapeutic Chemical (ATC) Classification 4th level by the WHO Collaborating Centre for Drug Statistics Methodology in Norway.

Dementia

Dementia is a loss of brain function. It is not a single disease, but a group of illnesses that involve memory, behavior, learning, and communication problems. The problems are progressive, which means they slowly get worse overtime.

In this study, the crude and adjusted prevalence of dementia was measured for residents aged 55 and older over five fiscal years: 2002/03–2006/07. Residents were considered to have dementia if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for dementia, including organic psychotic conditions, cerebral degenerations, and senility: ICD–9–CM codes 290, 291.1, 292.2, 292.82, 294, 331, 797; ICD–10–CA codes F00, F01, F02, F03, F04, F05.1, F06.5, F06.6, F06.8, F06.9, F09, F10.7, F11.7, F12.7, F13.7, F14.7, F1.57, F16.7, F18.7, F19.7, G30, G31.0, G31.1, G31.9, G32.8, G91, G93.7, G94, R54
- one or more physician visits with a diagnosis for dementia, ICD–9–CM codes 290, 294, 331, 797

The denominator includes all Manitoba residents aged 55 and older as of December 31, 2004.

Depression

Depression is a mood disorder characterized by feelings of sadness, anger, frustration, and a lack of interest in activities that persist to the point that they interfere with daily life for an extended period of time.

In this study, the crude and adjusted prevalence of depression was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Residents were considered to have depression if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for depressive disorder, affective psychoses, neurotic depression or adjustment reaction: ICD–9–CM codes 296.2–296.8, 300.4, 309 or 311; ICD–10–CA codes F31, F32, F33, F341, F38.0, F38.1, F41.2, F43.1, F43.2, F43.8, F53.0, F93.0
- one or more physician visits with a diagnosis for depressive disorder, affective psychoses or adjustment reaction: ICD–9–CM codes 296, 309 or 311

- one or more hospitalizations with a diagnosis for anxiety disorders: ICD–9–CM code 300; ICD–10–CA codes F32.0, F34.1, F40, F41, F42, F44, F45.0, F451, F452, F48, F68.0, or F99, AND one or more prescriptions for an antidepressant or mood stabilizer: ATC codes N03AB02, N03AB52, N03AF01, N05AN01, N06A
- one or more physician visits with a diagnosis for anxiety disorders: ICD–9–CM code 300, AND one or more prescriptions for an antidepressant or mood stabilizer: ATC codes N03AB02, N03AB52, N03AF01, N05AN01, N06A

The denominator includes all Manitoba residents aged 10 and older as of December 31, 2004.

Diabetes

Diabetes mellitus is a chronic condition in which the pancreas no longer produces enough insulin (type 1 diabetes) or when cells stop responding to the insulin that is produced (type 2 diabetes), so that glucose in the blood cannot be absorbed into the cells of the body. The most common endocrine disorder, diabetes mellitus affects many organs and body functions, especially those involved in metabolism, and can cause serious health complications including renal failure, heart disease, stroke, lower limb amputation,and blindness. Symptoms include frequent urination, fatigue, excessive thirst, and hunger. Also called insulin–dependent diabetes, type 1 diabetes begins most commonly in childhood or adolescence and is controlled by regular insulin injections. The more common form of diabetes, type 2, can usually be controlled with diet and oral medication. Another form of diabetes called gestational diabetes can develop during pregnancy and generally resolves after the baby is delivered.

In this report, the crude and adjusted prevalence of diabetes was measured for residents aged 19 or older over three fiscal years: 2004/05–2006/07. Residents were considered to have diabetes if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of diabetes: ICD–9–CM code 250, ICD–10–CA codes E10–E14
- two or more physician visits with a diagnosis of diabetes (ICD–9–CM codes as above)
- one or more prescriptions for medications to treat diabetes (listed below)

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006. Note that this measure of diabetes combines type 1 and type 2 diabetes, as physician claims data do not allow separate identification (gestational diabetes has a separate diagnosis code and is not specifically included here, but some cases may be included in this definition if gestational diabetes was not properly coded by physicians).

List of drugs used to treat diabetes:

	ATC Code	Generic Drug Name
Insulins and Analogues	A10A	Insulin
Blood Glucose Lowering Drugs, excluding Insulin	A10BA02	Metformin
	A10BB01	Glibenclamide
	A10BB02	Chlorpropamide
	A10BB03	Tolbutamide
	A10BB09	Gliclazide
	A10BB12	Glimepiride
	A10BB31	Acetohexamide
	A10BD03	Metformin and rosiglitazone
	A10BF01	Acarbose
	A10BG02	Rosiglitazone
	A10BG02	Pioglitazone
	A10BX02	Repaglinde
	A10BX03	Nateglinide

Diabetes Care: Prevalence of Annual Eye Exams

Individuals with diabetes are at a greater risk of damage to the retina than the general population. In the later stages of diabetes, individuals may develop diabetic retinopathy, which causes the swelling of blood vessels in the retina and leaking of fluid or the abnormal growth of new blood vessels on the surface of the retina. Diabetic retinopathy can develop without symptoms. When left untreated, it may cause loss of vision, so regular eye examinations for people with diabetes help to diagnose retinopathy early and initiate treatment to slow its progression.

In this study, the crude percentage of persons with diabetes aged 19 and older who had at least one eye examination by an ophthalmologist or optometrist was measured in fiscal year 2006/07. Eye examinations were identified through physician tariff codes in the medical claims data, and as such, only those ophthalmologists or optometrists who billed Manitoba Health would be captured here. People with diabetes who paid the physician for the eye examination directly, or through third–party insurance, would not be counted here. However, all people with diabetes are eligible for a free eye examination as required or at the discretion of the physician (Health Services Insurance Act (C.C.S.M. c.H35) Optometric Services Insurance Regulation. Regulation 50/93).

Diabetes Mortality

This is the crude and adjusted mortality rate for residents aged 19 and older with diabetes. A cohort diagnosed or treated for diabetes was identified using three fiscal years of data, 1999/00–2001/02, and then their mortality rate was calculated in the subsequent five–year period: 2002/03–2006/07. The diabetes cohort includes Manitoba residents aged 19 and older as of April 1, 2002 who had at least three years of coverage prior to April 1, 2002 and were registered with Manitoba Health until March 31, 2007 or death.

Dialysis Initiation

Dialysis is a treatment for people in the end stage of chronic renal insufficiency (kidney failure). This treatment cleans the blood and removes wastes and excess water from the body.

In this study, the crude and adjusted rate of dialysis initiation for residents aged 19 and older was measured over five fiscal years: 2002/03–2006/07. Dialysis initiation was defined by one or more physician visits with one of the following Manitoba tariff codes:

- 9610—chronic ambulatory peritoneal dialysis, in hospital, per day
- 9798—acute renal failure initial hemodialysis
- 9799—acute renal failure subsequent hemodialysis
- 9801—chronic renal failure initial hemodialysis
- 9802—chronic renal failure subsequent hemodialysis
- 9805—acute renal failure initial peritoneal dialysis, complete medical management, up to two weeks
- 9806—chronic renal failure initial peritoneal dialysis, first 24 hours
- 9807—acute renal failure subsequent (peritoneal) dialysis, after two weeks
- 9819—chronic renal failure intermittent subsequent (peritoneal) dialysis
- 9820—home (peritoneal) dialysis and self–care dialysis weekly retainer for administration, routine visits, and supervision. This fee is not applicable if the patient is admitted to hospital as an in–patient
- 9821—chronic renal failure home dialysis and self–care dialysis and self–care dialysis weekly retainer

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2004. Note that this indicator only captures individuals who begin dialysis in the study period. Individuals who began their dialysis treatment prior to April 1, 2002 would not be included here.

Drug Programs Information Network (DPIN)

DPIN is an electronic, on–line, point–of–sale prescription drug database. It links all community pharmacies (but not pharmacies in hospitals or nursing care homes/personal care homes) and captures information about all Manitoba residents, including most prescriptions dispensed to status Indians. DPIN contains information such as unique patient identification, age, birth date, sex, medication history, over–the–counter medication history, patient postal code, new drug prescribed, date dispensed, and unique pharmacy identification number. DPIN is maintained by the Government of Manitoba's Ministry of Health.

Drug Identification Number (DIN)

An eight digit number, assigned by the Therapeutic Products Directorate of Health Canada, to each drug approved for use in Canada in accordance with the Food and Drug Regulation. The same drug (e.g. Amoxicillin, 250 mg capsules) can have several different DINs associated with it (due to different manufacturers).

Emotional Well–Being (CCHS Survey Data)

Emotion is one attribute in the Health Utilities Index (HUI), a generic health status index developed at developed at McMaster University's Centre for Health Economics and Policy Analysis, which measures health status and health–related quality of life and produces utility scores to describe, monitor, and compare the health of general populations. In the HUI, survey respondents are asked a series of questions concerning eight main attributes of health: vision, hearing, speech, mobility (ability to get around), dexterity (use of hands and fingers), cognition (memory and thinking), emotion (feelings), and pain. Respondents are assigned a score of 1–5 or 6 (higher is worse) on each attribute and then their overall HUI is calculated, a score which ranks them as having perfect health (1.000) to being worse than dead (–0.360). (http://www.healthutilities.com/)

In the CCHS, all respondents were asked the question, "Would you describe yourself being usually: (happy and interested in life, somewhat happy, somewhat unhappy, very unhappy or so unhappy that life is not worthwhile)?" Respondents also had the option of not stating an answer.

In this report, the crude and adjusted weighted proportion of respondents with emotional well–being was calculated by taking the ratio of the number of respondents who said they were happy and interested in life to the number of all respondents. Respondents who did not state an answer were excluded from analyses. Values were calculated using data from CCHS cycle 1.1.

Exposure to Smoke Inside the Home (CCHS Survey Data)

Second–hand smoke is the smoke from a burning cigarette, pipe or cigar, or the smoke exhaled by a smoker. When you are nearby someone who is smoking, for example, inside the same enclosed space (home or car), you may breathe in second–hand smoke. According to the Canadian Cancer Society, second–hand smoke contains more than 4000 chemicals including carbon monoxide, ammonia, cadmium, and arsenic. Many of these chemicals are known to cause cancer.

In the CCHS, respondents who did not live alone or were non–smokers were asked the question, "Including both household members and regular visitors, does anyone smoke inside your home, every day or almost every day?" Possible responses include yes, no, don't know, not stated, or refusal to answer. Respondents who smoke either daily or occasionally are still included in this measure, for if they reside with other smokers they can still be exposed to second–hand smoke.

In this report, the crude and adjusted weighted proportion of respondents who were exposed to smoke inside the home was calculated by taking the ratio of the number of respondents who answered yes to the number of all respondents. Respondents who answered don't know, not stated, or refused to answer the question or respondents for which the question was not applicable were excluded from analyses. Values were calculated using data from CCHS cycles 2.1 and 3.1.

Family Receiving Provincial Income Assistance (IA)

All children living within a family unit that was receiving income assistance (IA) were identified. Once children turn 18 years of age they are no longer considered dependents and may thereafter apply for their own income assistance.

In this study, the crude and adjusted percentage of children aged 0-17 in families who were receiving IA was measured in three fiscal years: 2004/05–2006/07. A family was considered to be receiving IA if they received assistance for two or more consecutive months within the three year period. Data is from the Social Assistance Management Information Network (SAMIN). This does not include receipt of IA from federal programs, such as for First Nations families living on reserve. The denominator includes all Manitoba children aged 0–17 as of December 31, 2005. This will include the rare event of children who are 17 and under who live on their own (independent minors), but most of those are living in families.

Fiscal Year

The fiscal year starts on April 1 and ends the following March 31. For example, the 2003/04 fiscal year would be April 1, 2003 to March 31, 2004, inclusive.

Frequency of Having Five or More Drinks with Alcohol (CCHS Survey Data)

Binge drinking is commonly defined in the social sciences as having five or more drinks containing alcohol on one occasion. According to Health Canada, engaging in high risk drinking is linked to motor vehicle accidents, Fetal Alcohol Spectrum Disorder, other health issues, family problems, crime, and violence.

CCHS respondents who answered "yes" or "don't know" or refused to answer the question, "During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?" were then asked the question, "How often in the past 12 months have you had five or more drinks on one occasion?" In the CCHS, one drink was defined as: one bottle or can of beer or a glass of draft, one glass of wine or a wine cooler, or one drink or cocktail with 1 and 1/2 ounces of liquor. Possible responses include never, less than once a month, once a month, 2 to 3 times a month, once a week, more than once a week, don't know, not stated, or refusal to answer.

In this report, the crude and adjusted weighted proportion of respondents who had five or more drinks containing alcohol on one occasion in one a month or more was calculated as the ratio of the number of respondents who drank five or more drinks on one occasion at least once a month in the past 12 months to the number of all respondents. Respondents for which this question was not applicable were categorized as not having five or more drinks as they had answered to previous questions that they did not consume any alcohol. Respondents who answered don't know, not stated, or refused to answer the question were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

General Practitioner/Family Practitioner (GP/FP)

A physician who operates a general or family practice and is not certified in another specialty in Manitoba.

Grade 3 Students with No School Changes

The number of times a student changed schools that was not part of an expected progression through the grades was counted. Expected progressions were identified when a student reached the highest grade of a school and the next year transferred to a different school (i.e., graduating from grade 6 in one school and starting grade 7 in another school).

The number of school changes for children starting in Grade 3 during 2003/04 and followed until 2006/07 was counted. In most schools in Manitoba there are no expected school changes between Grade 3 and Grade 6. Band operated schools were excluded.

Grade 12 Standards Test Performance

Students in Grade 12 in Manitoba have been required to write standard provincial examinations, including Language Arts (LA) and Math exams, since 1993. The current standard tests account for 30% of the students' final course mark, are curriculum–based, and mandatory for all students, with adaptations available for many special needs students and exemptions for individual students as required. Rather than looking at the results of these exams only for students currently in Grade 12, this analysis includes all children who were born in Manitoba and remained in Manitoba from both 1988 until they were 18 years of age in 2006 (the year they should have written the standard tests if they had progressed through the school system as expected). In this way, this analysis is able to measure not only the percent of children that passed or failed these standard tests, but also the percent who were absent from school, did not complete the test, were in Grade 11 or lower (i.e., retained at least one year), or who had withdrawn from school altogether.

Exam scores for Grade 12 LA and Math in the 2005/06 school year were identified for those individuals born in Manitoba. Children that already had the credit, were exempt from the test, dropped the course, or otherwise did not write the test were grouped into an 'Other' group. (This group could not be subdivided in this report as it would mean suppressing most of the numbers for the Metis population.)

As enrollment data is often incomplete for schools operated by the First Nations Communities in which they are located (often referred to as band–operated schools), students in band–operated schools were excluded from this analysis.

Heart Attack (see Acute Myocardial Infarction, or AMI)

High School Completion Rates Within Six Years of Grade 9

A high school graduate is defined as a student who accumulated 28 or more high school course credits during high school or who had a Manitoba Department of Education student record that indicates graduation.

For this report, all children that were in Grade 9 during the 2000/01 school year were identified and followed until the end of the 2005/06 school year.

As course mark data is often incomplete for schools in First Nations Communities (often referred to as band–operated schools), students in band–operated schools were excluded from this analysis.

Hip Replacement

During hip replacement surgery, the ball and socket of the hip joint are completely removed and replaced with artificial materials. A metal ball with a stem (a prosthesis) is inserted into the femur (thigh bone) and an artificial plastic cup socket is placed in the acetabulum (a "cup–shaped" part of the pelvis). The prosthesis may be fixed in the central core of the femur with cement. Alternatively, a "cementless" prosthesis is used which has microscopic pores that allow bony ingrowth from the normal femur into the prosthesis stem. The cementless hip lasts longer and is especially an option for younger patients.

In this study, the crude and adjusted rate of hip replacement surgery per 1,000 residents aged 40 and older was measured in five fiscal years: 2002/03–2006/07. Hip replacement surgeries were defined by hospital separations with ICD–9–CM procedure codes 81.50, 81.51 and 81.53 and CCI code 1.VA.53. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Home Care

Health services provided free–of–charge to residents within their own homes. Unlike other areas of utilization, home care is primarily provided within an RHA for its residents and is unlikely to generate large expenditures on out–of–region residents. The Manitoba Home Care Program, established in 1974, is the oldest comprehensive, province–wide, universal home care program in Canada. Home Care is provided to Manitobans of all ages assessed as having inadequate informal resources to return home from hospital or to remain at home in the community. Reassessments at pre–determined intervals are the basis for decisions by case managers to discharge individuals from the program or to change the type or amount of service delivered. The types of services provided through the Manitoba home care program may include: personal care assistance, home support, healthcare, family relief, respite care, and supplies and equipment.

Home Care, Prevalence of Open Cases

In this study, home care prevalence was measured as the crude and adjusted percentage of residents registered with the Home Care program for at least one day in the fiscal year, for two fiscal years: 2005/06 and 2006/07. Only the first open case per home care client per year was counted. The denominator includes all Manitoba residents as of December 31, 2005 and 2006.

Use of home care is identified outside of Winnipeg using clients receiving home care services in the Manitoba Support Services Payroll (MSSP) system. Within Winnipeg home care was identified using the Winnipeg Regional Health Authority MDS–Home Care database. In cases where individuals were found in both the MSSP and MDS data, the MDS data was used.

Hospital Discharge Abstract Database

Hospital abstracts are completed at the point of discharge for all separations from acute care facilities in Manitoba. Prior to April 1, 2004, they included up to 16 diagnosis codes and 12 procedure codes based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM). On April

1, 2004, hospitals in Manitoba updated coding practices and currently hospital abstracts include up to 25 diagnosis codes based on the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada (ICD–10–CA) and 20 intervention (procedure) codes based on the Canadian Classification of Health Interventions (CCI).

Hospital Separation Rate

A separation from a hospital occurs anytime a patient (or resident) leaves because of death, discharge, or transfer. The number of separations is the most commonly used measure of the utilization of hospital services. Separations, rather than admissions, are used because hospital abstracts for patient care are based on information gathered at the time of discharge. The words 'separation', 'discharge', and 'stay' are equivalent.

In this study, the crude and adjusted rate of hospitalizations per 1,000 residents was measured in fiscal year 2006/07. Both inpatient hospital stays and surgical outpatient records are included; newborn (birth) hospitalizations were excluded (i.e., mother's is counted, baby's is not). Multiple admissions of the same person were counted as separate events. However transfers between hospitals for the same episode of care are only counted as one event. All Manitoba hospitals were included; PCHs and Long–term Care facilities were excluded (Riverview, Deer Lodge, Rehabilitation Centre for Children, and Adolescent Treatment Centre). For consistency overtime, outpatient hospital separations with a principal procedure code for a biopsy were also excluded. Surgical outpatients only attending the hospital for a biopsy did not require a hospital abstract as of April 1, 2001. The denominator includes all Manitoba residents as of December 31, 2006.

Hypertension

Primary hypertension is often referred to as high blood pressure. The "tension" in hypertension describes the vascular tone of the smooth muscles in the artery and arteriole walls. It accounts for over 90% of all cases of hypertension in the U.S. and develops without apparent causes. Hypertension is a major health problem, especially because it often has no symptoms. If left untreated, hypertension can lead to heart attack, stroke, enlarged heart, or kidney damage.

In this study, the crude and adjusted prevalence of hypertension was measured for residents aged 19 and older in one fiscal year: 2006/07. Residents were considered to have hypertension if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of hypertension: ICD–9–CM codes 401–405; ICD–10–CA codes I10–I13, I15
- one or more physician visits with a diagnosis of hypertension (ICD–9–CM codes as above)
- two or more prescriptions for medications to treat hypertension (listed below)
- The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006.

List of drugs used to treat hypertension:

	ATC Code	Generic Drug Name
Antihypertensives	C02AB01	Methyldopa (levorotatory)
	C02AB02	Methyldopa (racemic)
	C02AC01	Clonidine
	C02CA04	Doxazosin
	C02CA05	Terazosin
	C02DB02	Hydralazine
	C02DC01	Minoxidil
	C02KX01	Bosentan
	C02LA01	Reserpine and diuretics
	C02LB01	Methyldopa (levorotatory) and diuretics
	G04CA03	Terazosin
Diuretics	C03AA03	Hydrochlorothiazide
	C03BA04	Chlortalidone
	C03BA11	Indapamide
	C03CA01	Furosemide
	C03CA02	Bumetanide
	C03CC01	Etacrynic acid
	C03DA01	Spironolactone
	C03DB01	Amiloride
	C03DB02	Triamterene
	C03EA01	Hydrochlorothiazide and potassium–sparing agents
Beta Blocking Agents	C07AA02	Oxprenolol
	C07AA03	Pindolol
	C07AA05	Propranolol
	C07AA06	Timolol
	C07AA12	Nadolol
	C07AB02	Metoprolol
	C07AB03	Atenolol
	C07AB04	Acebutolol
	C07AB07	Bisoprolol
	C07AG01	Labetalol
	C07BA05	Propranolol and thiazides
	C07BA06	Timolol and thiazides
	C07CA03	Pindolol and other diuretics
	C07CB03	Atenolol and other diuretics

Calcium Channel Blockers	C08CA01	Amlodipine
	C08CA02	Felodipine
	C08CA04	Nicardipine
	C08CA05	Nifedipine
	C08CA06	Nimodipine
	C08DA01	Verapamil
	C08DB01	Diltiazem
Agents Acting on the Renin–Angiotensin System	C09AA01	Captopril
	C09AA02	Enalapril
	C09AA03	Lisinopril
	C09AA04	Perindopril
	C09AA05	Ramipril
	C09AA06	Quinapril
	C09AA07	Benazepril
	C09AA08	Cilazapril
	C09AA09	Fosinopril
	C09AA10	Trandolapril
	C09BA02	Enalapril and diuretics
	C09BA03	Lisinopril and diuretics
	C09BA04	Perindopril and diuretics
	C09BA06	Quinapril and diuretics
	C09BA08	Cilazapril and diuretics
	C09CA01	Losartan
	C09CA02	Eprosartan
	C09CA03	Valsartan
	C09CA04	Irbesartan
	C09CA06	Candesartan
	C09CA07	Telmisartan
	C09DA01	Losartan and diuretics
	C09DA02	Eprosartan and diuretics
	C09DA03	Valsartan and diuretics
	C09DA04	Irbesartan and diuretics
	C09DA06	Candesartan and diuretics
	C09DA07	Telmisartan and diuretics

Hysterectomy

Hysterectomy is a surgical operation to remove the uterus and, sometimes, the cervix. Removal of the body of the uterus without removing the cervix is referred to as a subtotal hysterectomy. Removal of the entire uterus and the cervix is referred to as a total hysterectomy.

In this study, the crude and adjusted rate of hysterectomy per 1,000 women aged 25 and older was measured over five fiscal years: 2002/03–2006/07. Hysterectomy surgeries were defined by hospital separations with ICD–9–CM procedure codes 68.4, 68.5, and 68.9 and CCI codes 1.RM.89, 5.CA.89.CK, .CA.89.DA, 5.CA.89.GB, 5.CA.89.WJ, and 5.CA.89.WK. The denominator includes all Manitoba female residents aged 25 and older as of December 31 of each year (2002–2006).

Immunizations for Influenza (Adult)

Immunizations are an intervention to initiate or increase resistance against infectious disease. Influenza vaccinations are the most effective preventive measure to prevent influenza and the complications arising from it in high–risk populations, such as seniors. The Canadian National Advisory Committee on Immunization (1999) recommends influenza vaccination for people at high risk. This includes people aged 65 and above, adults and children with certain chronic medical conditions, nursing home residents, healthcare workers who are in contact with people in the high–risk groups, and household contacts of people at risk who either cannot be vaccinated or may respond inadequately to vaccination. Influenza vaccination is available free of charge in Manitoba for the target groups identified by the National Advisory Committee on Immunization.

In this study, the crude and adjusted percentage of residents age 65 and older who received an influenza vaccine (flu shot) was measured over in fiscal year 2006/07. Flu shots were defined by physician tariff codes 8791, 8792, 8793, and 8799 in MIMS data. The denominator includes all Manitoba residents age 65 and older as of December 31, 2006.

Immunizations for Two–Year–Olds

The recommended immunization schedule for children changes over time; the guidelines used for this report were those recommended as of fiscal year 2002/03. For two–year olds, it is recommended that they receive:

- Four Diphtheria, acellular Pertussis, Tetanus, and Polio (DaPTP) immunizations
- Four Haemophilus Influenzae B (HIB) immunizations
- One Measles, Mumps and Rubella (MMR) immunization

In this study, the crude percentage of two–year old children (born 2003/04–2004/05) who had a complete immunization schedule was measured in fiscal years 2005/06–2006/07. The denominator includes all Manitoba children born in fiscal years 2003/04–2005/06 who were continuously registered with Manitoba Health up to their second birthday.

Note that new vaccines became free on October 1, 2004 for children born on or after January 1, 2004. These include: four PCV7 (pneumococcal) vaccines, one varicella (chicken pox) vaccine, and one influenza vaccine. These vaccines will not be included in the "complete" count of immunizations in this study so as to not penalize children whose parents may not have been willing to pay for them prior to that date. Rates using an older immunization schedule (as above) will be calculated for all children.

Income Assistance (IA)

Income Assistance (IA) is a provincial program of last resort for people who need help to meet basic personal and family needs. Wherever possible, the program is aimed at helping people find a job or get back to work. Eligibility for income assistance is determined by a test of need. The total financial resources of the household are compared to the total cost of basic necessities as defined in the Employment and Income Assistance Act and Regulation. Applicants must be in financial need for the monthly cost of: basic needs such as food, clothing, personal needs, and household supplies; some medical costs; housing (rent) and utilities; and some special costs if you are an adult with a disability. First Nations families living on reserve are not eligible for the provincial IA program but may receive assistance from federally funded programs which are not captured in the IA data available at MCHP.

Infant Mortality Rate

This is an indicator of death among infants within one year of birth. Infant mortality is seen as an indicator of health status, access to healthcare in an area, and the effectiveness of prenatal care.

In this study, the crude annual rate of infant deaths within the first year of life was measured over 10 calendar years: 1997–2006 per 1,000 newborns aged 0–364 days. The denominator includes all live births (in hospital) in the study period. Live births are identified during 1996–2005 calendar years and deaths are identified up to each child's first birthday.

Injury Categories (External Causes, ICD–9–CM)

Motor Vehicle Accidents

- E810: Motor vehicle traffic accident involving collision with train
- E811: Motor vehicle traffic accident involving re–entrant collision with another vehicle
- E812: Other motor vehicle traffic accident involving collision with motor vehicle
- E813: Motor vehicle traffic accident involving collision with other vehicle
- E814: Motor vehicle traffic accident involving collision with pedestrian
- E815: Other motor vehicle traffic accident involving collision on the highway
- E816: Motor vehicle traffic accident due to loss of control, without collision on the highway
- E817: Noncollision motor vehicle traffic accident while boarding or alighting
- E818: Other noncollision motor vehicle traffic accident
- E819: Motor vehicle traffic accident of unspecified nature
- E822: Other motor vehicle nontraffic accident involving collision with moving object
- E823: Other motor vehicle nontraffic accident involving collision with stationary object
- E824: Other motor vehicle nontraffic accident while boarding and alighting
- E825: Other motor vehicle nontraffic accident of other and unspecified nature

Other Vehicle Accidents

- E800: Railway accident involving collision with rolling stock
- E801: Railway accident involving collision with other object
- E802: Railway accident involving derailment without antecedent collision
- E803: Railway accident involving explosion, fire, or burning
- E804: Fall in, on, or from railway train
- E805: Hit by rolling stock
- E806: Other specified railway accident
- E807: Railway accident of unspecified nature
- E820: Nontraffic accident involving motor–driven snow vehicle
- E821: Nontraffic accident involving other off–road motor vehicle
- E826: Pedal cycle accident
- E827: Animal–drawn vehicle accident
- E828: Accident involving animal being ridden
- E829: Other road vehicle accident
- E831: Accident to watercraft causing other injury
- E833: Fall on stairs or ladders in water transport
- E834: Other fall from one level to another in water transport
- E835: Other and unspecified fall in water transport
- E836: Machinery accident in water transport
- E837: Explosion, fire, or burning in watercraft
- E838: Other and unspecified water transport accident
- E840: Accident to powered aircraft at takeoff or landing
- E841: Accident to powered aircraft, other and unspecified
- E842: Accident to unpowered aircraft
- E843: Fall in, on, or from aircraft
- E844: Other unspecified air transport accidents
- E845: Accident involving spacecraft
- E846: Accidents involving powered vehicles used solely within the buildings and premises of industrial or commercial establishment
- E847: Accidents involving cable cars not running on rails
- E848: Accidents involving other vehicles, not elsewhere classified

Poisoning

- E850: Accidental poisoning by analgesics, antipyretics, and antirheumatics
- E851: Accidental poisoning by barbiturates
- E852: Accidental poisoning by other sedatives and hypnotics
- E853: Accidental poisoning by tranquilizers
- E854: Accidental poisoning by other psychotropic agents
- E855: Accidental poisoning by other drugs acting on central and autonomic nervous system
- E856: Accidental poisoning by antibiotics
- E857: Accidental poisoning by other anti–infectives
- E858: Accidental poisoning by other drugs
- E860: Accidental poisoning by alcohol, not elsewhere classified
- E861: Accidental poisoning by cleansing and polishing agents, disinfectants, paints, and varnishes
- E862: Accidental poisoning by petroleum products, other solvents and their vapors, not elsewhere classified
- E863: Accidental poisoning by agricultural and horticultural chemical and pharmaceutical preparations other than plant food and fertilizers
- E864: Accidental poisoning by corrosives and caustics, not elsewhere classified
- E865: Accidental poisoning from poisonous foodstuffs and poisonous plants
- E866: Accidental poisoning by other and unspecified solid and liquid substances
- E867: Accidental poisoning by gas distributed by pipeline
- E868: Accidental poisoning by other utility gas and other carbon monoxide
- E869: Accidental poisoning by other gases and vapors
- E980: Poisoning by solid or liquid substance, undetermined whether accidentally or purposely inflicted
- E981: Poisoning by gases in domestic use, undetermined whether accidentally or purposely inflicted
- E982: Poisoning by other gases, undetermined whether accidentally or purposely inflicted

Accidental Falls

- E880: Fall on or from stairs or steps
- E881: Fall on or from ladders or scaffolding
- E882: Fall from or out of building or other structure
- E883: Fall into hole or other opening in surface
- E884: Other fall from one level to another
- E885: Fall on same level from slipping, tripping, or stumbling
- E886.9: Fall on same level from collision, pushing, or showing, by or with other person—Other and unspecified
- E888: Other and unspecified fall

Accidents Caused by Fire and Flames

- E890: Conflagration in private dwelling
- E891: Conflagration in other and unspecified building or structure
- E892: Conflagration not in building or structure
- E893: Accident caused by ignition of clothing
- E894: Ignition of highly flammable material
- E895: Accident caused by controlled fire in private dwelling
- E896: Accident caused by controlled fire in other and unspecified building or structure
- E897: Accident caused by controlled fire not in building or structure
- E898: Accident caused by other specified fire and flames
- E899: Accident caused by unspecified fire

Accidents Due to Natural and Environmental Factors

- E900: Excessive heat
- E901: Excessive cold
- E902: High and low air pressure and changes in air pressure
- E903: Travel and motion
- E904: Hunger, thirst, exposure and neglect
- E905: Venomous animals and plants as the cause of poisoning and toxic reactions
- E906: Other injury caused by animals
- E907: Lightning
- E908: Cataclysmic storms, and floods resulting from storms

- E909: Cataclysmic earth surface movements and eruptions
- E928.0: Prolonged stay in weightless environment
- E928.1: Exposure to noise
- E928.2: Vibration
- E928.6: Environmental exposure to harmful algae and toxins

Drowning and Submersion

- E830: Accident to watercraft causing submersion
- E832: Other accidental submersion or drowning in water transport accident
- E910: Accidental drowning and submersion

Choking, Suffocation and Constriction

- E911: Inhalation and ingestion of food causing obstruction of respiratory tract or suffocation
- E912: Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation
- E913: Accidental mechanical suffocation
- E928.4: External constriction caused by hair
- E928.5: External constriction caused by other object

Sports Injuries

- E886.0: Fall on same level from collision, pushing, or shoving, by or with other person—in sports
- E917.0: Striking against or struck accidentally by objects or persons—in sports
- E917.5: Object in sports with subsequent fall

Late Effects of Injury

- E929: Late effects of accidental injury
- E989: Late effects of injury, undetermined whether accidentally or purposely inflicted

Suicide and Self–inflicted Injury (Violence to Self)

- E950: Suicide and self–inflicted poisoning by solid or liquid substances
- E951: Suicide and self–inflicted poisoning by gases in domestic use
- E952: Suicide and self–inflicted poisoning by other gases and vapors
- E953: Suicide and self–inflicted injury by hanging, strangulation, and suffocation
- E954: Suicide and self–inflicted injury by submersion [drowning]
- E955: Suicide and self–inflicted injury by firearms and explosions
- E956: Suicide and self–inflicted injury by cutting and piercing instrument
- E957: Suicide and self–inflicted injuries by jumping from high places
- E958: Suicide and self–inflicted injury by other and unspecified means
- E959: Late effects of self–inflicted injury

Homicide and Injuries Inflicted by Others

- E960: Fight, brawl, rape
- E961: Assault by corrosive or caustic substance, except poisoning
- E962: Assault by poisoning
- E963: Assault by hanging and strangulation
- E964: Assault by submersion [drowning]
- E965: Assault by firearms and explosives
- E966: Assault by cutting and piercing instrument
- E967: Child and adult battering and other maltreatment
- E968: Assault by other and unspecified means
- E969: Late effects of injury purposely inflicted by other person
- E970: Injury due to legal intervention by firearms
- E971: Injury due to legal intervention by explosions
- E972: Injury due to legal intervention by gas
- E973: Injury due to legal intervention by blunt object
- E974: Injury due to legal intervention by cutting and piercing instrument
- E975: Injury due to legal intervention by other specified means
- E976: Injury due to legal intervention by unspecified means
- E977: Late effects of injuries due to legal intervention
- E978: Legal execution
- E928.3: Human bite

Accidents Caused by Foreign Bodies

- E914: Foreign body accidentally entering eye and adnexa
- E915: Foreign body accidentally entering other orifice

Struck by Objects, Caught Between Objects

- E916: Struck accidentally by falling object
- E917 (except E917.0, E917.5): Striking against or struck accidentally by objects or persons
- E918: Caught accidentally between objects

Accidents Caused by Machinery, Explosions, Electricity

- E919: Accidents caused by machinery
- E920: Accidents caused by cutting and piercing instruments or objects
- E921: Accident caused by explosion of pressure vessel
- E922: Accident caused by firearm missile
- E923: Accident caused by explosive material
- E924: Accident caused by hot substance or object, caustic or corrosive material, and steam
- E925: Accident caused by electric current
- E926: Exposure to radiation

Overexertion, Strenuous Movements

- E927: Overexertion and strenuous movements

Injuries Due to War Operations

- E990: Injury due to war operations by fires and conflagrations
- E991: Injury due to war operations by bullets and fragments
- E992: Injury due to war operations by explosion of marine weapons
- E993: Injury due to war operations by other explosion
- E994: Injury due to war operations by destruction of aircraft
- E995: Injury due to war operations by other and unspecified forms of conventional warfare
- E996: Injury due to war operations by nuclear weapons
- E997: Injury due to war operations by other forms of unconventional warfare
- E998: Injury due to war operations but occurring after cessation of hostilities
- E999: Late effect of injury due to war operations

Injuries Undetermined as Accidental or Purposely Inflicted

- E983: Hanging, strangulation, or suffocation, undetermined whether accidentally or purposely inflicted
- E984: Submersion [drowning], undetermined whether accidentally or purposely inflicted
- E985: Injury by firearms and explosives, undetermined whether accidentally or purposely inflicted
- E986: Injury by cutting and piercing instruments, undetermined whether accidentally or purposely inflicted
- E987: Falling from high place, undetermined whether accidentally or purposely inflicted
- E988: Injury by other and unspecified means, undetermined whether accidentally or purposely inflicted

Other Unspecified Accidents

- E887: Fracture, cause unspecified
- E928: Other and unspecified environmental and accidental causes
- E928.8: Other environmental and accidental causes
- E928.9: Unspecified accident

Injury Hospitalization Rate

In this study, the crude and adjusted rate of hospitalizations for injury per 1,000 residents was measured over five fiscal years: 2002/03–2006/07. Injury Hospitalizations were defined as any inpatient hospitalization with an external cause of injury diagnosis code (also known as an E–code): ICD–9–CM codes E800–E999*, ICD–10–CA codes V01–Y89* in the "Most Responsible" field.

- *Excluded from the count of hospitalizations due to injury are those related to medical error and drug complications as follows:
- misadventures during surgical or medical care: ICD–9–CM codes E870–E876; ICD–10–CA codes Y60–Y69, Y88.1
- reactions or complications due to medical care: ICD–9–CM codes E878–E879; ICD–10–CA codes Y70–Y84, Y88.2, Y88.3
- adverse effects due to drugs: ICD–9–CM codes E930–E949; ICD–10–CA codes Y40–Y59, Y88.0

Transfers between hospitals were tracked and only hospital episodes were counted, not individual separations, to reduce double–counting. All Manitoba hospitals were included; PCHs and Long–term Care facilities were excluded (Riverview, Deer Lodge, Rehabilitation Centre for Children and Adolescent Treatment Centre). Newborn birth injuries or deaths, stillbirths, and brain deaths are excluded. The denominator includes all Manitoba residents as of December 31 of each year (2002–2006).

Injury Hospitalization Causes

The most frequent causes of hospitalization due to injury for Manitobans were reported for five fiscal years: 2002/03–2006/07. Causes of injury were identified from the hospital abstract and grouped into injury categories (see 'injury categories'). Causes of injury were coded in ICD–9–CM codes prior to April 1, 2004 and then coded in ICD–10–CA codes after that date. For 2002/03–2003/04, injuries coded in ICD–10–CA were converted to ICD–9–CM codes before grouping them into injury categories. Excluded from the count of hospitalizations due to injury are those related to medical error and drug complications in "Injury Hospitalization Rate".

Injury Mortality

This is the death due to injury, as defined by the presence of one of the ICD–9 E–Codes on the Vital Statistics death record. (MCHP glossary)

In this study, the crude and adjusted rate of mortality due to injury per 1,000 residents was measured over 10 calendar years: 1997–2006. The denominator includes all Manitoba residents as of December 31 of each year (1997–2006). Excluded from the count of deaths due to injury are those related to medical error and drug complications as follows:

- misadventures during surgical or medical care: ICD–9–CM codes E870–E876; ICD–10–CA codes Y60–Y69, Y88.1
- reactions or complications due to medical care: ICD–9–CM codes E878–E879; ICD–10–CA codes Y70–Y84, Y88.2, Y88.3
- adverse effects due to drugs: ICD–9–CM codes E930–E949; ICD–10–CA codes Y40–Y59, Y88.0

Injury Mortality Causes

In this study, the most frequent causes of death due to injury for Manitobans were reported for five calendar years: 2002–2006. Causes of death due to injury were identified from the Vital Statistics death records and grouped into injury categories [see "Injury Categories (External Causes, ICD–9–CM)" for a complete list]. Causes of death were coded in ICD–9–CM codes prior to January 1, 2000 and then coded in ICD–10 codes after that date. When necessary, injury deaths coded in ICD–10 were converted to ICD–9–CM codes before grouping them into injury categories. Excluded from the count of deaths due to injury are those related to medical error and drug complications as above.

International Classification of Disease (ICD) Chapters

The 9th (with Clinical Modifications) and 10th versions of the ICD coding system were developed by the World Health Organization (WHO) and are used to classify diseases, health conditions, and procedures. The Canadian version of ICD–10, ICD–10–CA, was developed by the Canadian Institute for Health Information (CIHI) and is based on the WHO ICD–10.

The ICD–9–CM chapters are: (1) Infectious and parasitic Diseases, (2) Neoplasms (i.e., Cancer), (3) Endocrine, Nutritional and Metabolic Diseases, (4) Diseases of the Blood and Blood–forming Organs, (5) Mental Disorders, (6) Diseases of the Nervous System and Sense Organs, (7) Diseases of the Circulatory System, (8) Diseases of the Respiratory System, (9) Diseases of the Digestive System, (10) Diseases of the

Genitourinary System, (11) Complications of Pregnancy, Childbirth and the Puerperium, (12) Diseases of the Skin and Subcutaneous Tissue, (13) Diseases of the Musculoskeletal System and Connective Tissue, (14) Congenital Anomalies, (15) Certain Conditions Originating in the Perinatal Period, (16) Symptoms, Signs and Ill–Defined Conditions, and (17) Injury and Poisoning. To allow fair comparisons overtime, diagnoses and causes of death coded in ICD–10–CA were converted to ICD–9–CM codes and then grouped according to the chapters above.

Ischemic Heart Disease (IHD)

Ischemia is a condition in which the blood flow (and thus oxygen) is restricted to a part of the body. Cardiac ischemia is the name for lack of blood flow and oxygen to the heart muscle. Thus, the term 'ischemic heart disease' refers to heart problems caused by narrowed heart arteries. When arteries are narrowed, less blood and oxygen reaches the heart muscle. This is also called coronary artery disease and coronary heart disease. It can ultimately lead to heart attack.

In this study, the crude and adjusted prevalence of IHD was measured for residents aged 19 and older over five fiscal years: 2002/03–2006/07. Residents were considered to have IHD if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of IHD: ICD–9–CM codes 410–414; ICD–10–CA codes I20–I22, I24, I25
- two or more physician visits with a diagnosis of IHD (ICD–9–CM codes as above)
- one physician visit with a diagnosis of IHD (ICD–9–CM codes as above) and two or more prescriptions for medications to treat IHD (listed below)

The denominator includes all Manitoba residents aged 19 and older as of December 31, 2006.

List of drugs used to treat IHD:

	ATC Code	Generic Drug Name
Cardiac Therapy Drugs	C01DA02	Glyceryl trinitrate
	C01DA05	Pentaerithrityl tetranitrate
	C01DA08	Isosorbide dinitrate
	C01DA14	Isosorbide mononitrate
	C01EB09	Ubidecarenone
Beta Blocking Agents	C07AA02	Oxprenolol
	C07AA03	Pindolol
	C07AA05	Propranolol
	C07AA06	Timolol
	C07AA12	Nadolol
	C07AB02	Metoprolol
	C07AB03	Atenolol
	C07AB04	Acebutolol
	C07AB07	Bisoprolol
	C07AG01	Labetalol
	C07BA05	Propranolol and thiazides
	C07BA06	Timolol and thiazides
	C07BA12	Nadolol and thiazides
	C07CA03	Pindolol and other diuretics
	C07CB03	Atenolol and other diuretics
Calcium Channel Blockers	C08CA01	Amlodipine
	C08CA02	Felodipine
	C08CA04	Nicardipine
	C08CA05	Nifedipine
	C08CA06	Nimodipine
	C08DA01	Verapamil
	C08DB01	Diltiazem
Agents Acting on the Renin–Angiotensin System	C09AA01	Captopril
	C09AA02	Enalapril
	C09AA03	Lisinopril
	C09AA04	Perindopril
	C09AA05	Ramipril
	C09AA06	Quinapril
	C09AA07	Benazepril
	C09AA08	Cilazapril
	C09AA09	Fosinopril
	C09AA10	Trandolapril
	C09BA02	Enalapril and diuretics
	C09BA03	Lisinopril and diuretics
	C09BA04	Perindopril and diuretics
	C09BA06	Quinapril and diuretics
	C09BA08	Cilazapril and diuretics
	C09CA01	Losartan
	C09CA02	Eprosartan
	C09CA03	Valsartan
	C09CA04	Irbesartan
	C09CA06	Candesartan
	C09CA07	Telmisartan
	C09DA01	Losartan and diuretics
	C09DA02	Eprosartan and diuretics
	C09DA03	Valsartan and diuretics
	C09DA04	Irbesartan and diuretics
	C09DA06	Candesartan and diuretics
	C09DA07	Telmisartan and diuretics

Knee Replacement Surgery

In knee replacement surgery, parts of the knee joint are replaced with prosthetic components. The surgery is done by separating the muscles and ligaments around the knee to expose the inside of the joint. The ends of the thigh bone (femur) and the shin bone (tibia) are removed as is often the underside of the kneecap (patella). The artificial parts are then cemented into place. The new knee typically has a metal shell on the end of the femur, a metal and plastic trough on the tibia, and sometimes a plastic button in the kneecap. Knee replacements often occur in the young due to injury and in older adults due to fractures, falls, and conditions associated with osteoarthritis.

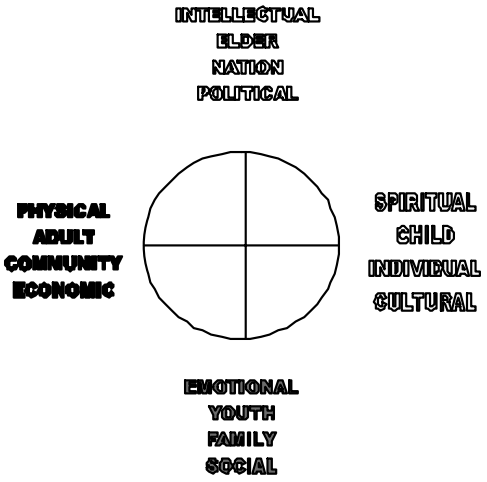
In this study, the crude and adjusted rate of knee replacement surgery per 1,000 residents aged 40 and older was measured in five fiscal years: 2002/03–2006/07. Knee replacement surgeries were defined by hospital separations with ICD–9–CM procedure codes 81.54 and 81.55 and CCI code 1.VG.53. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Life Expectancy at Birth

This is the expected length of life from birth, based on the mortality of the population for calendar years 2002–2006.

Life Promotion Framework: First Nations & General Populations Views

First Nations Medicine Wheel View



General Population Matrix View

SPIRITUAL	EMOTIONAL	PHYSICAL	INTELLECTUAL
CHILD	YOUTH	ADULT	ELDER
INDIVIDUAL	FAMILY	COMMUNITY	NATION
CULTURAL	SOCIAL	ECONOMIC	POLITICAL

Developed 1994 by Judith G. Bartlett M.D., CCFP

Life Satisfaction (CCHS Survey Data)

Subjective life satisfaction is a measure of an individual's perceived level of well–being and happiness. Life satisfaction has been shown to be positively correlated with health status.

In the CCHS, all respondents were asked the question, "How satisfied are you with your life in general: (very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, or very dissatisfied)?" Other possible responses include don't know, not stated, or refusal to answer.

In this report, the crude and adjusted weighted proportion of respondents who were satisfied with life in was calculated by taking the ratio of the number of respondents who said they were very satisfied or satisfied with their life in general to the number of all respondents. Respondents who answered don't know, not stated, or refused to answer the question were excluded from analyses. Values were calculated using data from CCHS cycles 2.1, 2.2, and 3.1.

Limitation of Activities (CCHS Survey Data)

According to the Public Health Agency of Canada, approximately one in eight Canadians live some physical or mental disability. Disabilities can range from milder limitations such as back pain, to moderate limitations such as arthritis, to severe limitations such as paraplegia. Individuals living with disabilities can face challenges with their daily activities, from climbing a flight of stairs to dressing and feeding themselves.

In the CCHS, participation and activity limitation is a derived variable that classifies respondents according their responses to questions on the frequency with which they experience activity limitations imposed on them by a condition(s) or long–term physical and/or mental health problem(s) that has lasted or is expected to last six months or more. For example, "Does a long–term physical condition or mental condition or health problem, reduce the amount or the kind of activity you can do at home?" Possible responses include sometimes, often, never, or not stated. This variable is calculated for all respondents.

In this report, the crude and adjusted weighted proportion of respondents with participation and activity limitations was calculated by taking the ratio of the number of respondents who answered sometimes or often to at least one of the series of questions about their activity limitations to the number of all respondents. Respondents who did not answer at least one required question used to calculate the derived variable (i.e., don't know, refusal, not stated) were excluded from analyses. Values were calculated using data from CCHS cycles 2.1 and 3.1.

Location of Hospitalization Separations

This is where RHA residents went for hospitalizations by the following categories: (i) percentage of hospitalizations in patient's RHA, (ii) percentage of hospitalizations in another RHA, (iii) percentage of hospitalizations in a Winnipeg hospital, and (iv) percentage of hospitalizations outside of Manitoba. The location of hospitalizations was calculated for fiscal year 2006/07. Only hospitalizations attributed to Manitoba residents were counted.

Lower Limb Amputations Rate for People with Diabetes

This is the removal of the lower limb (below or including the knee) by amputation among those with a diagnosis of diabetes.

In this study, the crude and adjusted rate of lower limb amputations due to complications of diabetes was measured per 1,000 people with diabetes aged 19 and older in five fiscal years: 2002/03–2006/07. Amputation was defined by a hospitalization with a surgery for a lower limb amputation, identified by ICD–9–CM procedure codes 84.10–84.17 and CCI codes 1.VC.93, 1.VG.93, 1.VQ.93, 1.WA.93, 1.WE.93, 1.WJ.93, 1.WL.93, and 1.WM.93. This definition does not include all amputations, but only those for which there was an existing condition of diabetes coded with the amputation; therefore the hospital abstract for the amputation must also indicate a diagnosis of diabetes (defined by ICD–9–CM diagnosis code 250 and ICD–10–CA codes E10–E14). Amputations due to accidental injury (defined by ICD–9–CM diagnosis codes 895, 896, 897 and ICD–10–CA codes: S78, S88, S98, T05.3, T05.4, T05.5, T13.6) were excluded.

Metis Regions

There are seven Metis regions in Manitoba: Southeast, Interlake, Northwest, Winnipeg, Southwest, The Pas and Thompson. See Figure 1.2 in Chapter 1.

Mammography

Mammography is a procedure to determine if a woman has breast cancer; it is commonly used for breast cancer screening. Manitoba introduced a province–wide breast screening program in 1995 which is operated by the Manitoba Breast Screening Program. It is recommended that all women between 50 and 69 years of age be screened every two years for breast cancer.

In this study, the crude and adjusted percentage of women aged 50–69 who had at least one mammogram for breast cancer screening or diagnosis was measured in two fiscal years: 2005/06–2006/07. Mammography was defined by at least one physician visit in a two–year period with the following diagnostic or screening tariffs:

- 7098 (Radiology, Intraluminal Dilatation, Mammography, Bilateral)
- 7099 (Radiology, Intraluminal Dilatation, Mammography, Unilateral)
- 7104 (Screening Mammography Bilateral)
- 7110 (Radiology, Intraluminal Dilatation, Xeromammography, and Unilateral)
- 7111 (Radiology, Intraluminal Dilatation, Xeromammography, Bilateral)

The denominator includes all Manitoba female residents age 50–69 as of December 31, 2005 or 2006.

Manitoba Health

Manitoba Health is a term describing the provincial government department in Manitoba responsible for healthcare services.

Manitoba Immunization Monitoring System (MIMS)

The Manitoba Immunization Monitoring System (MIMS) is a population–based monitoring system that provides monitoring and reminders to help achieve high levels of immunization. Immunization status is monitored by comparing the system record and the recommended schedule. (MCHP Glossary)

Mid

Mid is an aggregate geography, which includes all of the RHAs in central Manitoba; that is Interlake, North Eastman, and Parkland.

Modelling and Adjustment of Rates

To estimate and compare most adjusted rates of events in this report, the count of events for each indicator was modelled using a generalized linear model (GLM). GLMs are used to model non–normal data, such as count data. Essentially, when data follows a non–linear distribution, a link function transforms the data so that the non–linear response can be analyzed using linear regression techniques. Non–linear distributions chosen to model data in this report were the Poisson distribution, negative binomial distribution or binomial distribution, depending on which distribution provided the best fit to the data.

Covariates included in the model varied depending on the indicator under study, but all models contained covariates describing geography (reference=Manitoba) and Metis ethnicity (reference=Non–Metis), as well as the geography by Metis ethnicity interaction. If appropriate, models also included covariates to control for age (linear and quadratic terms) and/or sex (reference=female). See the covariates table available in the 'Data Extras' for this report on the MCHP website at http://www.umanitoba.ca\faculties\medicine\units\mchp.

To generate the adjusted rates, relative risks were estimated for each region for both Metis and all other Manitobans. To estimate relative risks of rates rather than events, the log of the population count in each stratum was included in the model as an offset. Relative risks were calculated from the parameter estimates of the model for each region, as well as for Metis and all other Manitobans within each region. Contrasts were used to compare the relative risks between Metis and all other Manitobans within a region or to compare the relative risks between Metis (Non–Metis) residents within a region and the provincial average for Metis (Non–Metis). The values obtained from the contrasts were actually a linear combination of the natural logarithm of the parameter estimates, so an exponential transformation was necessary to obtain estimates of relative risk of events in their original scale. Finally, the adjusted rates were calculated by multiplying the Manitoba crude reference rate by the appropriate relative risk estimate.

CCHS rates were age– and sex–adjusted using a direct standardization method as opposed to age– and sex–adjustment within a modelling framework. All CCHS rates were standardized to population–weighted pooled CCHS cycles 1.1, 2.1, 2.2, and 3.1. Rates were first calculated from the CCHS sample and then weighted to the entire Manitoba population (excluding First Nations people living on reserve) using the full sample weights provided by Statistics Canada. Confidence intervals were calculated for rates from the standard error estimated using the 500 bootstrap weights. Comparisons between rates were performed by first calculating the difference between two rates using the full sample weights, then bootstrapping that difference using the 500 bootstrap weights to obtain an estimate of the error of the difference. Then, the 99% confidence interval of the difference was calculated using the bootstrapped standard error. If the confidence interval of the difference did not contain zero, then there was a significant difference between the rates for the indicator under study.

Mother's Age at First Birth

Mother's age at first birth refers to the age of the mother when she gave birth to her first child.

Neonates

Neonates are newborns that are less than a month old. In this study, we defined neonates as infants 28 days old or younger. Post–neonates were defined as infants aged 29 days to less than one year (364 days).

Newborn Hospital Readmission Rate

In this study, the crude annual rate of infant readmission to the hospital within four weeks of hospital discharge of birth hospitalization was measured over five calendar years: 2002–2006. One baby could potentially have more than one readmission, hence this is a rate not a prevalence. The denominator includes all live births (in hospital) in the study period.

North

North is an aggregate geography, which includes all of the RHAs in northern Manitoba; that is NOR–MAN, Burntwood, and Churchill.

Opioids

Opioids are a group of medications that are used in the symptomatic treatment of acute and chronic pain, and also as cough medications (Repchinsky, 2008; Krenzischek, Dunwoody, Polomano, & Rathmell, 2008; Dy et al., 2008). There is a risk of dependence and addiction with prescription opioids (Repchinsky, 2008; Byrne, Lander, & Ferris, 2009).

Opioid DDDs

In this study, the crude and adjusted average annual rate of opioid DDDs among residents aged 16 and older with at least one prescription for opioids was measured in fiscal year 2006/07. Opioids were identified by ATC codes N02A, N07BC02, R05DA01, R05DA03–R05DA06, R05DA12, R05DA20, R05FA01, and R05FA02. DDDs were calculated only for solid forms of the drug, such as capsules, tablets, suppositories, and patches; DDDs were not calculated for opioids in liquid or injectionable forms. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006 with at least one prescription for opioids in the fiscal year.

Opioid Prescriptions

In this study, the crude and adjusted percentage of residents aged 16 and older with at least one prescription for opioids was measured in fiscal year 2006/07. Chronic prevalence was defined as at least three prescriptions in the fiscal year. Opioids were identified by ATC codes N02A, N07BC02, R05DA01, R05DA03–R05DA06, R05DA12, R05DA20, R05FA01, and R05FA02. The denominator includes all Manitoba residents aged 16 and older as of December 31, 2006.

Osteoporosis

Osteoporosis is a disease that leads to a reduction in bone density and causes the bones to become weak and more likely to break.

In this study, the crude and adjusted prevalence of residents aged 50 and older with osteoporosis (including fractures) was measured over three fiscal years: 2004/05–2006/07. Residents were considered to have osteoporosis if they met one of the following conditions:

- one or more hospitalizations with one of the following diagnoses:
  - osteoporosis: ICD–9–CM code 733.0; ICD–10–CA code M81
  - hip fracture: ICD–9–CM code 820–821; ICD–10–CA code S72
  - spine fracture: ICD–9–CM code 805; ICD–10–CA codes S12.0–S12.2, S12.7, S12.9, S22.0, S22.1, S32.0–S32.2, T08
  - humerus fracture: ICD–9–CM code 812; ICD–10–CA codes S42.2–S42.4
  - wrist fracture (radius, ulna and carpal bones): ICD–9–CM code 813–814; ICD–10–CA codes S52, S62.0, S62.1

(Note that fractures in hospital associated with a diagnosis code for a major trauma, like crushing injuries or motor vehicle accidents, are excluded: ICD–9–CM codes 925–929, E800–E848; ICD–10–CA codes S07, S17, S18, S28.0, S38, S47, S57, S67, S77, S87, S97, T04, T14.7, V01–V99)

- one or more physician visits with one of the following diagnoses:
  - osteoporosis: ICD–9–CM code 733
  - hip fracture: ICD–9–CM codes 820–821
  - spine fracture: ICD–9–CM code 805
  - humerus fracture : ICD–9–CM code 812
  - wrist fracture: ICD–9–CM codes 813–814
- one or more prescriptions for medications to treat osteoporosis (listed below)

The denominator includes all Manitoba residents aged 50 and older as of December 31, 2006.

List of drugs used to treat osteoporosis:

	ATC Code	Generic Drug Name
Selective Estrogen Receptor Modulators	G03XC01	Raloxifene
Parathyroid Hormones and Analogues	H05AA02	Teriparatide
Calcitonin Preparations	H05BA01	Calcitonin (salmon synthetic)
Bisphosphonates	M05BA01	Etidronic acid
	M05BA02	Clodronic acid
	M05BA03	Pamidronic acid
	M05BA04	Alendronic acid
	M05BA07	Risedronic acid
	M05BB01	Etidronic acid and calcium, sequential

Perinatal Period

The perinatal period commences at 22 completed weeks (154 days) of gestation (the time when birth weight is normally 500 g), and ends seven completed days after birth.

Personal Care Homes

These are residential facilities for predominantly older persons with chronic illness or disability, also known as nursing homes. They may be proprietary (for profit) or non–proprietary. Non–proprietary PCHs may further be classified as secular or ethno–cultural (associated with a particular religious faith or language other than English) as well as either freestanding or juxtaposed with an acute care facility. In order to be admitted to a PCH an application form must be completed and reviewed by a panel which determines whether the person requires admission. Many persons who apply to enter a PCH have been home care clients for a considerable period of time, but their care needs have become too great to manage in the community. They generally continue to receive home care until admitted to a PCH.

Personal Care Home, Admissions

Admission rates to PCHs represent how many people from each area entered PCH's (anywhere in Manitoba) each year, according to where they lived prior to being admitted to a PCH.

In this study, the crude and adjusted percentage of residents aged 75 and older who were admitted to a PCH for the first time was measured over three fiscal years: 2004/05–2006/07. The denominator includes all Manitoba residents aged 75 and older as of December 31 of each year (2004–2006). Region assignment in the numerator was based on where the resident lived before admission to the PCH.

Personal Care Home, Median Wait Time for Admission

The median wait time for PCH admission is the amount of time it took (weeks) for 50% of all residents to be admitted, after being assessed as requiring PCH placement. For example, in the three year period 2004/05–2006/07, the median for Manitoba Metis was eight weeks, so half of all Metis PCH admittants waited approximately eight weeks or less from assessment to placement, while half waited longer. This only includes provincial PCH beds, not federal beds due to lack of information on federal bed sue in the provincial database. (Martens et al., 2003)

Personal Care Home, Residents

In this study, the crude and adjusted percentage of residents aged 75 and older who were in a PCH for at least one day in the fiscal year was measured over three fiscal years: 2004/05–2006/07. The denominator includes all Manitoba residents age 75 and older as of December 31 of each year (2004–2006). Region assignment in the numerator was based on where the resident lived before admission to the PCH.

Personality Disorders

Personality disorders are a class of mental illnesses characterized by chronic behavioral and relationship patterns that often cause serious personal and social difficulties, as well as a general impairment of functioning.

In this study, the crude and adjusted prevalence of personality disorders was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Residents were considered to have a personality disorder if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for a personality disorder: ICD–9–CM code 301; ICD–10–CA codes F34.0, F60, F61, F62, F68.1, F68.8, F69
- one or more physician visits with a diagnosis for a personality disorder: ICD–9–CM code 301

The denominator includes all Manitoba residents aged 10 and older as of December 31, 2004.

Population Pyramids (Population Profile)

This is a graph showing the age and sex distribution of the population living in Manitoba in December 2006, based upon the Population Registry in the Repository housed at MCHP.

The percentage of the population within each five–year age bracket (such as 0–4, 5–9, 10–14, and so on, up to 85+ years old) is shown for both males (on the left side of the graph) and females (on the right side). All of these "bars" add up to 100%, meaning the entire population fits into one of these groupings.

Most developing countries of the world will have a population pyramid triangular in shape, indicating a very young population, with few people in the oldest age brackets. This population would have a high birth rate, high death rate and low life expectancy. Most developed industrial countries have a population pyramid that looks more rectangular with the young and middle–aged people representing similar and smaller percentages of the population, and many more elderly people in the "top part" of the pyramid. This reflects a population with a stable fertility and mortality pattern, usually with low fertility, low mortality, and long life expectancy. In instances of an aging and relatively healthy population, the 'pyramid' could actually constrict at its base, showing low birth rates and a high proportion of older adults.

In this report, these population pyramids compare the Metis with all other Manitobans living in the geographical area (Manitoba overall, RHAs); and showing Metis only for the MMF Regions. Population totals are given in the sub–text of the title.

Population Registry

This refers to the Research Registry, which contains de–identified data on the insured population organized by family registration numbers. The research registry contains information on dates of coverage, marital status, and place of residence (by postal code and municipal code only; no addresses are contained in the file). Annual snapshots of this data have been received since 1970; marital status has been reconstructed from the family information. A massive programming effort maintained over many years has joined these snapshot files together such that individual histories can be constructed over the entire period of the data base. This results in the creation of the longitudinal population registry; many checks have been done on this registry. Software has been developed to facilitate longitudinal follow–up or mobility, migration, and mortality.

Post–AMI Care: Beta Blockers

Beta–blockers, properly known as beta–adrenergic blocking drugs, have been shown to lower the risk of subsequent heart attacks after patients have suffered an AMI (acute myocardial infarction).

In this study, the crude percentage of AMI patients who filled at least one prescription for a beta–blocker within four months of hospital discharge was measured over five fiscal years: 2002/03–2006/07. AMI patients were identified by a hospitalization with a diagnosis of AMI (ICD–9–CM code 410 or ICD–10–CA code I21). Beta–blocker medications were defined by ATC codes C07AA and C07AB. To be included in the analysis, patients had to be alive for the entire four month follow–up period. Patients with a previous hospitalization for an AMI in the three years prior to the index AMI hospitalization were excluded from

analyses. Patients with the following diagnoses in hospital in the three years prior to the index event were also excluded from analyses as these diseases are contraindicated to the use of beta–blockers:

- asthma: ICD–9–CM code 493, ICD–10–CA code J45
- chronic obstructive pulmonary disease: ICD–9–CM codes 491 and 492, ICD–10–CA codes J41–J44
- peripheral vascular disease: ICD–9–CM codes 443 and 459; ICD–10–CA codes I73, I79.2, I87

Age was calculated as of December 31 of each year, based on the record of their first AMI in the study period. Only patients aged 20 and older are included. Region assignment was based on the record of their first AMI in the study period.

Potential Years of Life Lost (PYLL)

PYLL is an indicator of early death (before age 75), which gives greater weight to deaths occurring at a younger age than to those at later ages. PYLL emphasizes the loss to society of the potential contribution that younger individuals can make. By emphasizing the loss of life at an early age, PYLL focuses attention on the need to deal with the major causes of early deaths, such as injury, in order to improve health status.

In this study for each death, PYLL = 75 – age at death. These values are aggregated and measured for calendar years 2002–2006. The denominator includes all Manitoba residents age 1–74 as of December 31 of each year (2002–2006).

Potentially Inappropriate Prescribing of Benzodiazepines to Community–Dwelling Older Adults

See Benzodiazepine Prescriptions to Community–Dwelling Older Adults

Premature Mortality Rate

This is the rate of deaths of residents aged 0–74 years, per 1,000 residents aged 0 to 74 years. The values are standardized to account for age/sex differences in populations. The rate is usually expressed as a number per thousand, in order to provide an indicator that is comparable among different areas or regions. Premature mortality rates are often used as an overall indicator of population health and are correlated with other commonly used measures. It is an important indicator of general health of a population. High premature mortality rates indicate poor health.

In this study, the crude and adjusted rate of deaths among residents aged 0 to 74 years per 1,000 residents was calculated over 10 calendar years (1996–2005) and for the five–year group of calendar years 2002–2006. The 10–year rates are used to determine the ordering of areas in all graphs in the report. The denominator includes all Manitoba residents age 0–74 as of December 31 of each year (1996–2005). The five–year rate is used for the indicator PMR in Chapter 4.

Prevalence

The term prevalence refers to 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 visits, hospitalizations, or prescription drugs.

Prevalence, Period

Period prevalence is the measure of a disease or condition in a population during a given period of time. It is a combination of point prevalence and incidence. (Martens et al., 2003)

Region of Residence

Virtually all analyses in this report allocate health service use to the area where the patient who received the service lived, regardless of where the service was provided. For example, if a resident of Interlake RHA travels to Winnipeg for a physician visit, that visit contributes to the visit rate for Interlake residents. With claims–based analyses, more than one record per person is possible. The residence information on the first–occurring record for a given year was generally used.

Regional Health Authority (RHA)

In 1997, the province of Manitoba established the Regional Health Authorities (RHA) as governance structures to be responsible for the delivery and administration of health services for regional health services. As of July 1, 2002, there are 11 RHAs in Manitoba: Winnipeg, Brandon, South Eastman, Assiniboine, Central, Parkland, North Eastman, Interlake, Burntwood, NOR–MAN, and Churchill.

Retention Rates, Kindergarten to Grade 8

Retention refers to students who were enrolled in the same grade for two consecutive years, and who did not have an aberrant pattern of promotion any other year (for example, retention one year and promotion of two grades the next year, or a progression backwards).

Children enrolled in grades Kindergarten to Grade 8 in academic years 2000/01 to 2005/06 with a follow–up period in 2006/07 for enrollments in 2005/06. The denominator for this analysis is the number of students that were in the school program in grades K–8 at any point and were in the program for at least two years. Band schools were included in this anlaysis.

Note: Schools and school divisions in Manitoba no longer use the term "grade retention" to describe students who are enrolled in the same grade for two consecutive years. Instead, the term "continuing" is used to describe students who have not acquired the minimum expectations/outcomes to proceed to the next grade level, and are continuing in the program at that grade level for part or all of the next school year.

Rural South

Rural South is an aggregate geography area which includes all of the RHAs in southern Manitoba and excludes the two urban centres of Winnipeg and Brandon. The RHAs included South Eastman, Central, and Assiniboine.

Schizophrenia

Schizophrenia is a long–term mental illness that affects how a person thinks, feels and acts. Symptoms of the illness include auditory hallucinations, delusions, difficulty in expressing emotions, or disorganized speech and thought.

In this study, the crude and adjusted prevalence of schizophrenia was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Residents were considered to have schizophrenia if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for schizophrenia: ICD–9–CM code 295; ICD–10–CA codes F20, F21, F23.2, F25
- one or more physician visits with a diagnosis for schizophrenia: ICD–9–CM code 295

The denominator includes all Manitoba residents aged 10 and older as of December 31, 2004.

Self–Perceived Stress (CCHS Survey Data)

Stress is an emotional and/or physical response by the body to any situation or thought that causes a disparity in a person's usual biological, psychological or social systems. Stressful events can be positive, such as receiving a promotion, or negative, such as the death of family member. Some stress is normal part of life, and not all stress is negative. Reasons for stress can include responsibilities at home and work, family or health issues, among many others. Negative stress may cause fear, apprehension, frustration, or anger; and prolonged exposure to stress can have harmful effects on mental and physical health and wellbeing.

In the CCHS, respondents aged 15 and older were asked the question, "Thinking about the amount of stress in your life, would you say that most days are: (not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful)?" Respondents could also answer "don't know."

In this report, the crude and adjusted weighted proportion of respondents with high levels of self–perceived stress was calculated by taking the ratio of the number of respondents who rated their level of stress as quite a bit stressful or extremely stressful to the number of all respondents. Respondents who answered don't know and respondents for which the calculation is not applicable (i.e., age less than 15) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

Self–Perceived Work Stress (CCHS Survey Data)

Stress in the workplace can happen when a worker experiences increased workload and demands, lack of resources, forced overtime, or if they are worried about the security of their job. Prolonged work–related stress can result in job dissatisfaction, high turnover, illness, absenteeism, and lack of motivation.

In the CCHS, respondents aged 15 to 75 who answered "yes" or "don't know" or refused to answer the question, "Have you worked at a job or business at any time in the past 12 months?" were then asked the question, "The next question is about your main job or business in the past 12 months. Would you say that most days were: (not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful)?" Other possible responses include don't know or not stated.

In this report, the crude and adjusted weighted proportion of respondents with high levels of self–perceived work stress was calculated by taking the ratio of the number of respondents who rated their level of work stress as quite a bit stressful or extremely stressful to the number of all respondents. Respondents who answered don't know or not stated and respondents for which the calculation is not applicable (i.e., age not between 15 and 75, no employment in the past year) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, and 3.1.

Self–Rated Health (CCHS Survey Data)

Self–rated health has been found to be an excellent predictor of the overall health status of the population and is highly correlated with other population health status measures such as premature mortality rate. It can reflect aspects of health not captured in other measures, such as: incipient disease, disease severity, aspects of positive health status, physiological and psychological reserves, and social and mental function.

In the CCHS, all respondents were asked the question, "In general, would you say your health is: (excellent, very good, good, fair, or poor)?" They were also given the clarification, "By health, we mean not only the absence of disease or injury but also physical, mental and social wellbeing." Respondents could also answer "don't know."

In this report, the crude and adjusted weighted proportion of respondents with excellent or very good overall self–rated health was calculated by taking the ratio of the number of respondents who rated their health as excellent or very good to the number of all respondents. Respondents who answered don't know were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, 2.2, and 3.1.

South

South is an aggregate geography, which includes all of the RHAs in southern Manitoba; that is South Eastman, Central, and Assiniboine.

Statistical Testing

Statistical testing was performed via contrasts in generalized linear models (for adjusted rates) as well as Chi–square tests (for crude rates) to determine whether regional rates were statistically significantly

different from the Manitoba rate for Metis or all other Manitobans, and whether there was a statistically significant difference between Metis and all other residents within a given area. Comparisons between Metis and all other residents within a region were tested via contrasts with significance level 0.05. Due to the multiple comparisons to Manitoba performed for each indicator, a more stringent level of significance was selected than the usual 5% type 1 error rate to control the familywise error rate. For RHA and Winnipeg CA comparisons to Manitoba for Metis or all other Manitobans, contrasts with significance level 0.01 were used. Statistical significance was used to indicate how much confidence to put in the difference between two rates. If a difference was statistically significant, then we are 99% confident that this difference is not just due to chance.

Stroke Incidence

A stroke occurs when there is a sudden death of brain cells due to a lack of oxygen when the blood flow to the brain is impaired by blockage or rupture of an artery to the brain. Symptoms of a stroke depend on the area of the brain affected. The most common symptom is weakness or paralysis of one side of the body with partial or complete loss of voluntary movement or sensation in a leg or arm. Other common symptoms include speech problems, weak face muscles, numbness and tingling. A stroke involving the base of the brain can affect balance, vision, swallowing, breathing, and consciousness.

In this study, the crude and adjusted incidence of stroke for residents aged 40 and older was measured over five fiscal years: 2002/03–2006/07. Stroke was defined as:

- an inpatient hospitalization with the most responsible diagnosis of stroke and a length of stay of one or more days (unless the patient died in hospital)
- a death with stroke listed as the cause of death on the Vital Statistics death record.

Diagnosis codes used to identify strokes include ICD–9–CM codes 431, 434, 436 and ICD–10–CA codes I61, I63, I64. Transfers between hospitals were tracked and only hospital episodes were counted, not individual separations, to avoid double–counting. The denominator includes all Manitoba residents aged 40 and older as of December 31 of each year (2002–2006).

Substance Abuse

Substance abuse is the excessive use of and reliance on a drug, alcohol, or other chemical that leads to severe negative effects on the individual's health and well–being or to the welfare of others.

In this study, the crude and adjusted prevalence of substance abuse was measured for residents aged 10 and older in fiscal years 2002/03–2006/07. Residents were considered to have substance abuse if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for alcoholic or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs: ICD–9–CM codes 291, 292, 303, 304 or 305; ICD–10–CA codes F10–F19, F55
- one or more physician visits with a diagnosis for alcoholic or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs (ICD–9–CM codes as above)

The denominator includes all Manitoba residents aged 10 and older as of December 31, 2004.

Sudden Infant Death Syndrome (SIDS)

This is the sudden and unexpected death of an apparently healthy baby under one year of age. Such deaths usually occur while the child is sleeping and remain unexplained even after a full investigation (Health Canada, 2005).

Suicide

Suicide is the act of intentionally killing oneself.

Suicide Attempt

Suicide attempt, also known as "self–inflicted injury" or para–suicide, does not result in death.

Suicide Prevalence (Attempts or Death)

This indicator measures the proportion of the population that committed or attempted suicide. The crude and adjusted annual prevalence of suicide or suicide attempts for residents aged 10 and older was measured for calendar years 1997–2006. The most recent event in the calendar year period (suicide or suicide attempt) is counted, with region of residence assigned and age calculated at the time of the event. Suicides were defined as any death record in Vital Statistics data with self–inflicted injury or poisoning listed as the primary cause of death, for specific ICD–9–CM and ICD–10 codes, see Suicide Rate. Suicide attempts were defined as follows:

- A hospitalization with a diagnosis for suicide and self–inflicted injury: ICD–9–CM codes E950–E959, ICD–10–CA codes X60–X84
- A hospitalization with a diagnosis code for accidental poisoning: ICD–9–CM codes 965, 967, 969, 977.9, 986, E850–E854, E858, E862, E868; ICD–10–CA codes T39, T40,T42.3, T42.4, T42.7,T43, T50.9, T58, X40–X42, X44, X46, X47, Y10–Y12, Y16, Y17, only if there is a physician visit with a diagnosis code for accidental poisoning and a psychiatric tariff code either during the hospital stay or within 30 days post–discharge.

Psychiatric tariff codes are as follows:

- From the psychiatric schedule:
    - 8444 Psychotherapy—group of two to four patients
    - 8446 Psychotherapy—group of five or more patients
    - 8472 Child and Youth Management Conference
    - 8475 Psychiatry—Patient Care Family Conference
    - 8476 Psychiatric Social Interview
    - 8503 Complete history and psychiatric examination—adult
    - 8504 Complete history and psychiatric examination—child
    - 8553 Psychiatry Consultation—adult
    - 8554 Psychiatry Consultation—child

- 8581 Psychotherapy—individual
- 8584 Psychiatric care—individual
- 8588 Electroshock therapy
- 8596 Consultation—Unassigned patient—child

- From the general schedule:
  - 8580 Psychotherapy—individual
  - 8587 Electroshock therapy
  - 8589 Psychotherapy—group

The denominator includes all Manitoba residents aged 10 and older as of December 31 of each year (1997–2006).

Suicide Rate

In this study, the crude and adjusted suicide rate for residents aged 10 and older was measured for calendar years 1997–2006. Suicides were defined as any death record in Vital Statistics data with the following causes of death:

- accidental poisoning: ICD–9–CM codes E850–E854, E858, E862, E868; ICD–10–CA codes X40–X42, X46, X47
- poisoning with undetermined intent: ICD–10–CA codes Y10–Y12, Y16, Y17
- self–inflicted poisoning: ICD–9–CM codes E950–E952, ICD–10–CA codes X60–X69
- self–inflicted injury by hanging, strangulation and suffocation: ICD–9–CM code E953, ICD–10–CA code X70
- self–inflicted injury by drowning: ICD–9–CM code E954, ICD–10–CA code X71
- self–inflicted injury by firearms and explosives: ICD–9–CM code E955, ICD–10–CA codes X72–X75
- self–inflicted injury by smoke, fire, flames, steam, hot vapours and hot objects: ICD–9–CM codes E958.1, E958.2; ICD–10–CA codes X76, X77
- self–inflicted injury by cutting and piecing instruments: ICD–9–CM code E956; ICD–10–CA codes X78, X79
- self–inflicted injury by jumping from high places: ICD–9–CM code E957, ICD–10–CA code X80
- self–inflicted injury by jumping or lying before a moving object: ICD–9–CM code E958.0, ICD–10–CA code X81
- self–inflicted injury by crashing of motor vehicle: ICD–9–CM code E958.5, ICD–10–CA code X82
- self–inflicted injury by other and unspecified means: ICD–9–CM codes E958.3, E958.4, E958.6–E958.9; ICD–10–CA codes X83, X84
- late effects of self–inflicted injury: ICD–9–CM code E959

The denominator includes all Manitoba residents aged 10 and older as of December 31 of each year (1997–2006).

Teen Pregnancy Rate

Teenage pregnancy includes live births, stillbirths, abortions, and ectopic pregnancies of women under the age of twenty.

In this study, crude and adjusted rates of teenage pregnancy are calculated for females aged 15–19 in five fiscal years: 2002/03–2006/07. Teenage pregnancy is defined as a hospitalization with one of the following diagnoses:

- live birth: ICD–9–CM code V27, ICD–10–CA code Z37
- missed abortion: ICD–9–CM code 632, ICD–10–CA code O02.1
- ectopic pregnancy: ICD–9–CM code 633, ICD–10–CA code O00
- abortion: ICD–9–CM codes 634–637 ICD–10–CA codes O03–O07
- intrauterine death: ICD–9–CM code 656.4, ICD–10–CA code O36.4

Or, a hospitalization with one of the following procedures:

- surgical termination of pregnancy: ICD–9–CM codes 69.01, 69.51, 74.91; CCI codes 5.CA.89, 5.CA.90
- surgical removal of extrauterine (ectopic) pregnancy: ICD–9–CM codes 66.62, 74.3; CCI code 5.CA.93
- pharmacological termination of pregnancy: ICD–9–CM code 75.0; CCI code 5.CA.88
- interventions during labour and delivery, CCI codes 5.MD.5, 5.MD.60

The denominator includes all Manitoba female residents aged 15–19 as of December 31 of each year (2002–2006). Note that abortions performed in private clinics are not included in the count of teenage pregnancies. The rate of pregnancies in teenage girls aged 10–14 was not analyzed due to very the small number of events. There is a possibility that there is missing data for this indicator because of an inability to pick up nurse practitioner, nursing station, and salaried physician work.

Total Mortality Rate

This is the rate of death from all causes and is an indication of the overall health of the population, similar to what is measured by life expectancy.

In this study, the crude and adjusted rate of deaths per 1,000 residents was calculated for the calendar years 2002–2006. The denominator includes all Manitoba residents as of December 31 of each year (2002–2006).

Total Physical Activity Levels (CCHS Survey Data)

Canada's Physical Activity Guide to Healthy Active Living recommends that Canadians accumulate 30 to 60 minutes of moderate physical activity every day to achieve the health benefits from physical activity. The Public Health Agency of Canada states that the benefits of regular physical activity include protection against disease and premature death, enhanced well–being, optimal childhood growth and development, and continued independent living in later life.

In the CCHS, total physical activity is a derived variable for respondents based on the average daily energy expenditure values (kcal/kg/day) calculated from a series of questions on physical activity, including usual daily activities or occupational–related physical activity, physical activity for travel (such as biking or walking to school or work), and leisure time physical activity (such as walking, running, gardening, soccer) by the respondent in the past three months. Respondents were asked questions such as, "Thinking back over the past three months, which of the following best describes your usual daily activities or work habits (usually sit, stand or walk quite a lot, usually lift or carry light loads, do heavy work or carry very heavy loads)? In the past 3 months, how many times did you walk for exercise? About how much time did you spend on each occasion?"

In this report, respondents aged 15–75 were grouped into three categories, Active, Moderate, or Inactive, based on tertiles of average daily energy expenditure created from the pooled sample of all non–missing scores in CCHS 1.1, 2.1, and 3.1. The tertiles were divided as follows: active physical activity (27.7 kcal/kg/day or more), moderate physical activity (15.4–27.6 kcal/kg/day), and inactive physical activity (0–15.3 kcal/kg/day). The crude and adjusted weighted proportion of respondents with active levels of physical activity is shown. Respondents who did not answer at least one required question used to calculate the derived variable (i.e., don't know, refusal, not stated) were excluded from analyses. Values were calculated using data from CCHS cycles 1.1, 2.1, and 3.1.

Total Respiratory Morbidity (TRM)

Total Respiratory Morbidity is a measure of the burden of all types of respiratory illnesses in the population and includes the following diseases: asthma, chronic or acute bronchitis, emphysema, and chronic airway obstruction. This combination of diagnoses is used to overcome problems resulting from different physicians (or specialists) using different diagnosis codes for the same underlying illness (e.g. asthma versus chronic bronchitis).

In this study, the crude and adjusted prevalence of TRM was measured for all residents over one fiscal year: 2006/07. Residents were considered to have TRM if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of asthma, chronic or acute bronchitis, emphysema, or chronic airway obstruction: ICD–9–CM codes 466, 490, 491, 492, 493, or 496; ICD–10–CA codes J20, J21, J40–J45
- one or more physician visits with a diagnosis of asthma, chronic or acute bronchitis, emphysema, or chronic airway obstruction (ICD–9–CM codes as above)

The denominator includes all Manitoba residents as of December 31, 2006.

Urban

Urban is an aggregate geography which includes the two urban centres in Manitoba, Winnipeg and Brandon.

Vital Statistics

Vital Statistics is a Manitoba government department responsible for keeping records and registries of all births, deaths, marriages and stillbirths that occur in Manitoba.

Winnipeg Average Health

Winnipeg Average Health is an aggregate geography area of Winnipeg Neighbourhood Clusters that have a premature mortality rate statistically similar to the premature mortality rate of Winnipeg overall over calendar years 1996–2005. The Winnipeg Neighbourhood Clusters included are: River Heights East, Seven Oaks North, Seven Oaks East, Seven Oaks West, St. Vital North, and Transcona.

Winnipeg Most Healthy

Winnipeg Most Healthy is an aggregate geography area of Winnipeg Neighbourhood Clusters that have a premature mortality rate statistically lower than the premature mortality rate of Winnipeg overall over calendar years 1996–2005. The Winnipeg Neighbourhood Clusters included are: Assiniboine South, Fort Garry North, Fort Garry South, Inkster West, River East North, River East East, River East West, River Heights West, St. Boniface East, St. James–Assiniboia West, and St. Vital South.

Winnipeg Least Healthy

Winnipeg Least Healthy is an aggregate geography area of Winnipeg Neighbourhood Clusters that have a premature mortality rate statistically higher than the premature mortality rate of Winnipeg overall over calendar years 1996–2005. The Winnipeg Neighbourhood Clusters included are: Downtown East, Downtown West, Inkster East, Point Douglas North, Point Douglas South, River East South, St. Boniface West, and St. James–Assiniboia East.

Young Adult Receiving Provincial Income Assistance (IA)

Once individuals turn 18 years of age they are no longer considered dependents and may thereafter apply for their own income assistance, regardless of whether they reside in a family with dependents receiving IA.

In this study, the crude and adjusted percentage of young adults aged 18–19 who were receiving IA was measured over three fiscal years: 2004/05–2006/07. An individual was considered to be receiving IA if they received assistance for two or more consecutive months within the three year period. Data is from the Social Assistance Management Information Network (SAMIN). This does not include receipt of IA from federal programs, such as for First Nations families living on reserve. The denominator includes all Manitoba young adults (aged 18–19) as of December 31, 2005.

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Appendix 2: Crude Rate Tables

Appendix Table 2.1: Population

RHA	Population, 2006	
	Metis	All Other Manitobans
South Eastman	5,688	56,390
Central	4,558	97,358
Assiniboine	2,127	65,909
Brandon	2,336	47,185
Winnipeg	31,647	633,778
Interlake	8,817	67,990
North Eastman	3,470	36,809
Parkland	5,976	35,986
Churchill	220	719
Nor-Man	4,073	20,126
Burntwood	4,104	42,422
Rural South	12,373	219,657
Mid	18,263	140,785
North	8,397	63,267
Manitoba	73,016	1,104,672

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Source: MCHP/MMF, 2010

Winnipeg Community Area	Population, 2006	
	Metis	All Other Manitobans
Fort Garry	1,785	64,498
Assiniboine South	848	35,902
St. Boniface	3,677	48,107
St. Vital	3,373	58,650
Transcona	2,126	31,206
River Heights	1,679	53,971
River East	4,419	90,056
Seven Oaks	2,325	58,968
St. James - Assiniboia	2,389	55,980
Inkster	2,022	30,119
Downtown	3,059	68,249
Point Douglas	3,945	38,072
Winnipeg	31,647	633,778

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Source: MCHP/MMF, 2010

Metis Region	Population, 2006
	Metis
Southeast	9,837
Interlake	8,151
Northwest	4,267
Winnipeg	31,647
Southwest	8,806
The Pas	5,974
Thompson	4,334
Manitoba	73,016

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Source: MCHP/MMF, 2010

Appendix Table 2.2: Premature Mortality

RHA	PMR, 2002-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	15.4	2.85	116.2	2.30
Central	17.4	4.00	237.0	2.67
Assiniboine	8.2	4.03	221.4	3.71
Brandon	5.0	2.24	131.8	3.09
Winnipeg	103.0	3.39	1,911.8	3.28
Interlake	31.6	3.74	224.0	3.57
North Eastman	10.0	3.01	131.8	3.83
Parkland	17.6	3.13	145.2	4.46
Churchill	1.2	5.36	2.6	3.48
Nor-Man	15.6	3.82	71.0	3.60
Burntwood	13.6	3.43	141.4	3.44
Rural South	41.0	3.48	574.6	2.89
Mid	59.2	3.40	501.0	3.86
North	30.4	3.67	215.0	3.49
Manitoba	238.6	3.41	3,334.2	3.28

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Source: MCHP/MMF, 2010

Winnipeg Community Area	PMR, 2002-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Fort Garry	3.4	1.97	145.0	2.45
Assiniboine South	1.8	2.21	85.4	2.56
St. Boniface	10.6	3.09	125.0	2.89
St. Vital	12.4	3.87	143.0	2.66
Transcona	4.4	2.11	84.0	2.83
River Heights	4.0	2.53	159.4	3.26
River East	13.2	3.12	257.8	3.12
Seven Oaks	6.6	2.95	179.2	3.41
St. James - Assiniboia	6.2	2.77	191.2	3.74
Inkster	7.8	3.77	78.6	2.80
Downtown	16.8	5.53	288.0	4.44
Point Douglas	15.8	4.23	175.2	4.99
Winnipeg	103.0	3.39	1,911.8	3.28

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Source: MCHP/MMF, 2010

Metis Region	PMR, 2002-2006	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	28.0	2.99
Interlake	29.2	3.73
Northwest	12.2	3.10
Winnipeg	103.0	3.39
Southwest	29.6	3.52
The Pas	21.8	3.66
Thompson	14.8	3.52
Manitoba	238.6	3.41

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Source: MCHP/MMF, 2010

Appendix Table 2.3: Total Mortality

RHA	Total Mortality, 2002-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	25.8	4.60	312.2	5.86
Central	28.8	6.37	738.2	7.73
Assiniboine	14.8	6.99	776.0	11.59
Brandon	9.2	4.05	397.2	8.59
Winnipeg	161.0	5.15	5,254.6	8.36
Interlake	51.0	5.81	571.8	8.49
North Eastman	14.8	4.34	287.6	7.89
Parkland	32.0	5.47	470.0	12.80
Churchill	1.2	5.30	3.4	4.46
Nor-Man	21.0	5.05	145.8	7.10
Burntwood	17.2	4.29	188.6	4.53
Rural South	69.4	5.67	1,826.4	8.47
Mid	97.8	5.42	1,329.4	9.46
North	39.4	4.70	337.8	5.37
Manitoba	376.8	5.22	9,145.4	8.36

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Source: MCHP/MMF, 2010

Winnipeg Community Area	Total Mortality, 2002-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Fort Garry	6.4	3.60	367.6	5.84
Assiniboine South	4.0	4.78	308.4	8.52
St. Boniface	24.0	6.65	316.8	6.85
St. Vital	19.2	5.74	410.0	7.08
Transcona	6.4	3.03	189.6	6.09
River Heights	7.6	4.66	535.2	9.86
River East	19.4	4.49	727.8	8.12
Seven Oaks	9.4	4.11	528.6	9.27
St. James - Assiniboia	12.0	5.20	619.4	10.96
Inkster	11.0	5.20	174.0	5.91
Downtown	22.2	7.17	658.4	9.49
Point Douglas	19.4	5.11	418.8	11.04
Winnipeg	161.0	5.15	5,254.6	8.36

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Source: MCHP/MMF, 2010

Metis Region	Total Mortality, 2002-2006	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	44.0	4.54
Interlake	47.8	5.87
Northwest	23.4	5.71
Winnipeg	161.0	5.15
Southwest	51.4	5.91
The Pas	30.8	5.05
Thompson	18.4	4.34
Manitoba	376.8	5.22

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Source: MCHP/MMF, 2010

Appendix Table 2.4: Injury Mortality

RHA	Injury Mortality, 1997-2006	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	0.36	0.37
Central	0.45	0.48
Assiniboine	0.48	0.67
Brandon		0.44
Winnipeg	0.43	0.45
Interlake	0.40	0.53
North Eastman	0.48	0.77
Parkland	0.44	0.70
Churchill		
Nor-Man	0.48	0.75
Burntwood	0.89	0.96
Rural South	0.42	0.52
Mid	0.43	0.64
North	0.69	0.88
Manitoba	0.45	0.51
	N=318	N=5,559

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Source: MCHP/MMF, 2010

Winnipeg Community Area	Injury Mortality, 1997-2006	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Fort Garry		0.26
Assiniboine South		0.35
St. Boniface	0.17	0.36
St. Vital	0.48	0.32
Transcona		0.33
River Heights	0.45	0.52
River East	0.29	0.38
Seven Oaks	0.32	0.42
St. James - Assiniboia	0.31	0.43
Inkster	0.52	0.34
Downtown	0.79	0.81
Point Douglas	0.86	0.84
Winnipeg	0.43	0.45

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Injury Mortality, 1997-2006
	Crude Rate per 1,000
	Metis Regions
Southeast	0.43
Interlake	0.37
Northwest	0.49
Winnipeg	0.43
Southwest	0.38
The Pas	0.45
Thompson	0.89
Manitoba	0.45

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Source: MCHP/MMF, 2010

Appendix Table 2.5: Potential Years of Life Lost

RHA	PYLL, 2002-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	247.6	46.67	1,997.6	40.08
Central	318.0	74.06	3,796.8	43.46
Assiniboine	122.0	60.97	3,396.8	57.50
Brandon	73.8	33.78	1,811.0	43.01
Winnipeg	1,776.6	59.52	29,641.4	51.45
Interlake	522.8	62.61	3,407.2	54.86
North Eastman	154.0	47.10	2,411.0	70.86
Parkland	312.4	56.59	2,135.6	66.38
Churchill	25.0	113.84	41.8	56.86
Nor-Man	246.8	61.51	1,335.0	68.83
Burntwood	315.4	81.18	3,554.4	88.59
Rural South	687.6	59.27	9.5	46.83
Mid	989.2	57.71	12.0	61.99
North	587.2	72.34	18.7	81.84
Manitoba	4,114.4	59.72	10.6	53.37

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	PYLL, 2002-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Fort Garry	41.4	24.38	2,131.6	36.37
Assiniboine South	31.2	38.89	1,158.4	35.00
St. Boniface	156.4	46.18	1,605.6	37.60
St. Vital	188.2	59.66	2,267.6	42.62
Transcona	77.2	37.74	1,290.6	43.98
River Heights	84.2	54.14	2,417.2	49.90
River East	219.2	52.85	3,757.6	45.95
Seven Oaks	108.2	49.21	2,445.8	47.00
St. James - Assiniboia	91.6	41.64	2,374.4	46.87
Inkster	133.0	65.48	1,218.6	43.92
Downtown	301.4	101.13	5,584.8	87.35
Point Douglas	344.6	94.44	3,389.2	98.04
Winnipeg	1,776.6	59.52	29,641.4	51.45

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	PYLL, 2002-2006	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	445.0	48.35
Interlake	480.4	62.10
Northwest	226.0	58.59
Winnipeg	1,776.6	59.52
Southwest	497.8	60.15
The Pas	348.2	59.47
Thompson	340.4	82.75
Manitoba	4,114.4	59.72

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Source: MCHP/MMF, 2010

Appendix Table 2.6: Suicide

RHA	Suicide, 1997-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Winnipeg	5.1	0.21	77.4	0.14
Rural South & Brandon	1.3	0.11	27.2	0.12
Mid	1.9	0.13	23.5	0.19
North	1.1	0.17	13.0	0.26
Manitoba	9.4	0.16	141.1	0.15

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Suicide, 1997-2006	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	1.4	0.17
Interlake		
Northwest		
Winnipeg	5.1	0.21
Southwest	0.9	0.13
The Pas		
Thompson	0.6	0.18
Manitoba	9.4	0.16

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Source: MCHP/MMF, 2010

Appendix Table 2.7: Suicide or Attempted Suicide

RHA	Suicide or Attempted, 1997-2006	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	0.05	0.05
Central	0.10	0.07
Assiniboine	0.18	0.07
Brandon	0.16	0.10
Winnipeg	0.11	0.06
Interlake	0.07	0.06
North Eastman	0.12	0.13
Parkland	0.23	0.11
Churchill		0.20
Nor-Man	0.22	0.21
Burntwood	0.31	0.42
Rural South	0.09	0.07
Mid	0.13	0.09
North	0.26	0.35
Manitoba	0.13	0.08
	N=743	N=7,822

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Suicide or Attempted, 1997-2006	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry		0.04
Assiniboine South		0.04
St. Boniface	0.06	0.05
St. Vital	0.12	0.04
Transcona	0.05	0.05
River Heights	0.14	0.06
River East	0.08	0.05
Seven Oaks	0.06	0.04
St. James - Assiniboia	0.05	0.05
Inkster	0.13	0.06
Downtown	0.21	0.12
Point Douglas	0.21	0.11
Winnipeg	0.11	0.06

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Suicide or Attempt, 1997-2006
	Crude Percent (%)
	Metis Regions
Southeast	0.08
Interlake	0.06
Northwest	0.15
Winnipeg	0.11
Southwest	0.13
The Pas	0.27
Thompson	0.31
Manitoba	0.13

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Source: MCHP/MMF, 2010

Appendix Table 2.8: All Cause Five–Year Mortality Rates for Individuals with Diabetes

RHA	Diabetes Mortality, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	15.66	18.12
Central	22.33	21.36
Assiniboine	16.98	21.44
Brandon	12.63	19.72
Winnipeg	15.35	18.44
Interlake	13.69	17.93
North Eastman	14.09	16.44
Parkland	11.57	22.10
Churchill		18.60
Nor-Man	18.27	16.54
Burntwood	14.69	11.46
Rural South	18.63	20.78
Mid	12.99	18.80
North	16.48	13.12
Manitoba	15.21	18.57
	N=529	N=8,736

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Diabetes Mortality, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	16.92	17.05
Assiniboine South		18.72
St. Boniface	21.76	17.08
St. Vital	16.77	17.34
Transcona	10.14	16.62
River Heights	12.68	20.24
River East	15.68	18.86
Seven Oaks	12.96	18.84
St. James - Assiniboia	12.36	18.68
Inkster	12.75	15.17
Downtown	15.12	19.51
Point Douglas	15.09	20.13
Winnipeg	15.35	18.44

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Diabetes Mortality, 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	14.54
Interlake	13.88
Northwest	12.12
Winnipeg	15.35
Southwest	18.88
The Pas	15.06
Thompson	14.78
Manitoba	15.21

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.9: All Cause Five–Year Mortality Rates for Individuals with Cumulative Mental Illness

RHA	Mental Illness Mortality, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	4.51	6.50
Central	5.45	9.03
Assiniboine	7.99	11.63
Brandon	3.51	8.50
Winnipeg	4.63	7.66
Interlake	4.41	8.00
North Eastman	3.11	6.98
Parkland	4.63	10.80
Churchill		
Nor-Man	4.45	6.06
Burntwood	4.76	4.87
Rural South	5.49	9.28
Mid	4.21	8.46
North	4.72	5.23
Manitoba	4.65	7.92
	N= 636	N=14,427

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Mental Illness Mortality, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	4.52	6.34
Assiniboine South	3.70	8.05
St. Boniface	6.49	6.48
St. Vital	4.23	6.84
Transcona	3.24	5.00
River Heights	3.44	8.87
River East	4.30	7.19
Seven Oaks	3.56	8.21
St. James - Assiniboia	4.22	8.53
Inkster	3.43	5.41
Downtown	6.27	9.11
Point Douglas	5.08	9.35
Winnipeg	4.63	7.66

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	M. I. Mortality, 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	3.93
Interlake	4.46
Northwest	4.64
Winnipeg	4.63
Southwest	5.65
The Pas	4.39
Thompson	4.95
Manitoba	4.65

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.10: Hypertension Prevalence

RHA	Hypertension Prevalence, 2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	941	23.80	8,289	21.24
Central	737	24.16	16,164	23.61
Assiniboine	385	27.58	15,377	30.62
Brandon	264	17.50	8,949	24.86
Winnipeg	4,676	21.47	117,047	23.86
Interlake	1,754	27.91	14,220	27.73
North Eastman	678	28.04	7,655	28.24
Parkland	1,131	29.13	8,906	32.52
Churchill	38	26.76	121	22.96
Nor-Man	582	22.33	3,115	22.81
Burntwood	559	23.32	5,680	23.11
Rural South	2,063	24.56	39,830	25.25
Mid	3,563	28.31	30,781	29.10
North	1,179	22.92	8,916	23.00
Manitoba	11,745	23.77	205,523	24.80

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Hypertension Prevalence, 2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	266	20.78	10,918	22.08
Assiniboine South	103	17.73	6,893	24.69
St. Boniface	624	23.21	8,347	22.50
St. Vital	614	24.69	10,789	23.63
Transcona	287	20.23	5,285	22.41
River Heights	245	19.46	10,317	23.23
River East	643	21.32	17,401	24.92
Seven Oaks	367	23.20	12,049	26.38
St. James - Assiniboia	345	20.51	12,496	27.78
Inkster	296	22.96	4,966	22.83
Downtown	395	18.58	10,898	20.80
Point Douglas	491	20.74	6,688	24.15
Winnipeg	4,676	21.47	117,047	23.86

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Hypertension Prev, 2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	1,779	25.80
Interlake	1,598	27.69
Northwest	792	28.45
Winnipeg	4,676	21.47
Southwest	1,348	23.15
The Pas	953	24.94
Thompson	599	23.55
Manitoba	11,745	23.77

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.11: Arthritis Prevalence

RHA	Arthritis Prevalence, 2005/06-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	778	19.68	7,029	18.01
Central	673	22.06	12,543	18.32
Assiniboine	275	19.70	10,169	20.25
Brandon	346	22.93	7,404	20.57
Winnipeg	4,904	22.52	97,244	19.83
Interlake	1,340	21.32	10,154	19.80
North Eastman	643	26.59	5,992	22.10
Parkland	1,076	27.72	7,109	25.96
Churchill	24	16.90	68	12.90
Nor-Man	610	23.41	3,049	22.33
Burntwood	520	21.69	4,160	16.93
Rural South	1,726	20.55	29,741	18.86
Mid	3,059	24.31	23,255	21.99
North	1,154	22.43	7,277	18.77
Manitoba	11,189	22.64	164,921	19.90

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Arthritis Prevalence, 2005/06-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	251	19.61	8,809	17.81
Assiniboine South	134	23.06	5,924	21.22
St. Boniface	591	21.98	6,820	18.38
St. Vital	566	22.76	8,968	19.64
Transcona	288	20.30	4,400	18.65
River Heights	287	22.80	8,864	19.96
River East	582	19.30	13,330	19.09
Seven Oaks	327	20.67	9,282	20.32
St. James - Assiniboia	361	21.46	9,610	21.37
Inkster	319	24.75	3,821	17.57
Downtown	562	26.43	10,780	20.58
Point Douglas	636	26.87	6,636	23.96
Winnipeg	4,904	22.52	97,244	19.83

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Arthritis Prev, 2005/06-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	1,533	22.23
Interlake	1,231	21.33
Northwest	761	27.33
Winnipeg	4,904	22.52
Southwest	1,259	21.62
The Pas	956	25.02
Thompson	545	21.42
Manitoba	11,189	22.64

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.12: Total Respiratory Morbidity (TRM)

RHA	Total Respiratory Morbidity, 2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	577	10.14	4,249	7.54
Central	572	12.55	7,647	7.85
Assiniboine	197	9.26	6,235	9.46
Brandon	380	16.27	6,271	13.29
Winnipeg	4,671	14.76	72,851	11.49
Interlake	1,066	12.09	6,893	10.14
North Eastman	417	12.02	3,907	10.61
Parkland	1,128	18.88	4,590	12.75
Churchill	10	4.55	39	5.42
Nor-Man	377	9.26	1,578	7.84
Burntwood	340	8.28	2,443	5.76
Rural South	1,346	10.88	18,131	8.25
Mid	2,611	14.30	15,390	10.93
North	727	8.66	4,060	6.42
Manitoba	9,735	13.33	116,703	10.56

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Total Respiratory Morbidity, 2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	198	11.09	6,049	9.38
Assiniboine South	106	12.50	3,853	10.73
St. Boniface	419	11.40	4,718	9.81
St. Vital	457	13.55	5,988	10.21
Transcona	299	14.06	3,783	12.12
River Heights	217	12.92	5,515	10.22
River East	662	14.98	9,828	10.91
Seven Oaks	339	14.58	6,944	11.78
St. James - Assiniboia	367	15.36	7,017	12.53
Inkster	380	18.79	4,159	13.81
Downtown	545	17.82	8,986	13.17
Point Douglas	682	17.29	6,011	15.79
Winnipeg	4,671	14.76	72,851	11.49

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	TRM, 2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	1,071	10.89
Interlake	993	12.18
Northwest	670	15.70
Winnipeg	4,671	14.76
Southwest	1,126	12.79
The Pas	854	14.30
Thompson	350	8.08
Manitoba	9,735	13.33

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.13: Diabetes Prevalence

RHA	Diabetes Prevalence, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	7.81	6.68
Central	10.95	7.44
Assiniboine	11.75	10.11
Brandon	9.15	8.80
Winnipeg	9.99	8.30
Interlake	11.22	9.76
North Eastman	10.71	10.58
Parkland	14.48	11.21
Churchill	16.90	11.57
Nor-Man	11.97	12.50
Burntwood	13.14	15.20
Rural South	9.61	8.10
Mid	12.13	10.35
North	12.65	14.20
Manitoba	10.72	8.82
	N=5,297	N=73,088

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Diabetes Prevalence, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	8.28	6.87
Assiniboine South	6.88	6.56
St. Boniface	9.52	7.32
St. Vital	9.49	7.40
Transcona	8.46	8.15
River Heights	9.21	7.11
River East	9.32	8.19
Seven Oaks	10.11	9.90
St. James - Assiniboia	9.22	8.68
Inkster	12.18	9.59
Downtown	11.90	9.57
Point Douglas	12.51	11.02
Winnipeg	9.99	8.30

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Diabetes Prevalence, 2004/05-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	9.32
Interlake	10.95
Northwest	12.46
Winnipeg	9.99
Southwest	10.56
The Pas	14.26
Thompson	13.36
Manitoba	10.72

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.14: Diabetes–Related Lower Limb Amputation Rate

RHA	Lower Limb Amputation, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	19.66	10.37
Central	34.85	22.34
Assiniboine		14.49
Brandon		9.86
Winnipeg	20.08	12.89
Interlake	30.77	20.75
North Eastman	24.56	21.84
Parkland	26.06	28.73
Churchill		
Nor-Man	20.35	19.23
Burntwood	20.35	34.05
Rural South	23.33	16.80
Mid	27.99	23.32
North	23.78	29.12
Manitoba	23.09	16.19
	N=135	N=1,340

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Lower Limb Amputation, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Wpg Most Healthy	10.27	8.50
Wpg Avg Health	31.84	13.48
Wpg Least Healthy	21.34	18.64
Winnipeg	20.08	12.89

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Lower Limb Amp, 2002/03-2006/07
	Crude Rate per 1,000
	Metis Regions
Southeast	23.71
Interlake	29.75
Northwest	21.68
Winnipeg	20.08
Southwest	23.39
The Pas	24.71
Thompson	26.88
Manitoba	23.09

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.15: Ischemic Heart Disease Prevalence

RHA	IHD Prevalence, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	319	8.38	2,881	7.93
Central	295	9.93	5,222	7.87
Assiniboine	108	8.06	4,906	9.72
Brandon	97	6.82	2,914	8.41
Winnipeg	1,729	8.18	41,781	8.70
Interlake	544	8.84	4,271	8.52
North Eastman	219	9.46	2,124	8.04
Parkland	514	13.70	4,087	14.67
Churchill	12	8.45	34	6.30
Nor-Man	193	7.34	933	6.71
Burntwood	138	5.93	1,403	5.89
Rural South	722	8.89	13,009	8.50
Mid	1,277	10.45	10,482	10.04
North	343	6.73	2,370	6.20
Manitoba	4,168	8.69	70,556	8.70

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	IHD Prevalence, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	87	6.93	3,519	7.43
Assiniboine South	51	8.92	2,538	9.16
St. Boniface	236	8.91	3,062	8.67
St. Vital	228	9.50	3,746	8.50
Transcona	91	6.60	1,795	7.75
River Heights	86	7.13	4,131	9.28
River East	214	7.47	6,192	9.01
Seven Oaks	118	7.75	4,256	9.76
St. James - Assiniboia	146	9.49	4,915	10.90
Inkster	119	8.80	1,318	6.36
Downtown	162	7.83	3,733	7.10
Point Douglas	191	8.25	2,576	9.33
Winnipeg	1,729	8.18	41,781	8.70

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	IHD Prev, 2002/03-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	594	8.97
Interlake	489	8.63
Northwest	341	12.82
Winnipeg	1,729	8.18
Southwest	482	8.61
The Pas	383	9.96
Thompson	150	6.07
Manitoba	4,168	8.69

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.16: Osteoporosis Prevalence

RHA	Osteoporosis Prevalence, 2004/05-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	150	9.09	1,482	10.20
Central	128	10.36	3,052	10.68
Assiniboine	70	11.44	3,537	13.59
Brandon	57	13.97	2,326	15.68
Winnipeg	868	10.97	26,256	12.73
Interlake	262	9.31	2,730	11.22
North Eastman	92	8.69	1,233	9.79
Parkland	144	9.02	1,669	11.68
Churchill	7	13.46	6	3.57
Nor-Man	85	9.10	563	10.87
Burntwood	65	10.02	572	9.31
Rural South	348	9.95	8,071	11.67
Mid	498	9.10	5,632	11.00
North	157	9.60	1,141	9.93
Manitoba	1,928	10.19	43,426	12.31

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Osteoporosis Prevalence, 2004/05-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	60	12.40	2,529	12.45
Assiniboine South	28	12.67	1,844	13.48
St. Boniface	136	11.77	1,869	12.21
St. Vital	121	11.59	2,465	12.40
Transcona	33	7.08	850	9.40
River Heights	46	11.06	3,051	16.12
River East	120	11.54	3,749	12.16
Seven Oaks	49	8.21	2,420	12.07
St. James - Assiniboia	69	11.54	3,193	14.94
Inkster	51	10.71	673	8.51
Downtown	76	11.89	2,387	12.94
Point Douglas	79	10.19	1,226	11.71
Winnipeg	868	10.97	26,256	12.73

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Osteoporosis Prevalence, 2004/05-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	269	9.07
Interlake	238	9.30
Northwest	102	8.68
Winnipeg	868	10.97
Southwest	248	11.24
The Pas	131	9.36
Thompson	72	10.24
Manitoba	1,928	10.19

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.17: Dialysis Initiation Rate

RHA	Dialysis Initiation, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman		0.18
Central	0.54	0.27
Assiniboine		0.29
Brandon		0.32
Winnipeg	0.44	0.34
Interlake	0.34	0.34
North Eastman	0.30	0.39
Parkland	0.40	0.31
Churchill		
Nor-Man	0.38	0.40
Burntwood	0.64	0.82
Rural South	0.31	0.26
Mid	0.35	0.34
North	0.51	0.66
Manitoba	0.39	0.34
	N=188	N=2,750

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Dialysis Initiation, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry		0.28
Assiniboine South		0.24
St. Boniface	0.30	0.29
St. Vital	0.50	0.29
Transcona		0.26
River Heights		0.30
River East	0.35	0.28
Seven Oaks	0.39	0.40
St. James - Assiniboia		0.27
Inkster	0.52	0.47
Downtown	0.53	0.54
Point Douglas	0.78	0.50
Winnipeg	0.44	0.34

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Dial. Init., 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	0.20
Interlake	0.34
Northwest	0.34
Winnipeg	0.44
Southwest	0.41
The Pas	0.42
Thompson	0.65
Manitoba	0.39

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.18: AMI

RHA	AMI, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	3.54	3.33
Central	4.84	4.33
Assiniboine	4.07	5.10
Brandon	4.81	5.01
Winnipeg	4.12	4.15
Interlake	4.28	4.49
North Eastman	2.05	3.67
Parkland	6.52	6.51
Churchill		
Nor-Man	3.84	4.14
Burntwood	2.45	3.60
Rural South	4.10	4.39
Mid	4.51	4.83
North	3.20	3.79
Manitoba	4.15	4.31
	N=562	N=10,991

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Aggregate Area	AMI, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Wpg Most Healthy	2.94	3.57
Wpg Avg Health	4.40	4.61
Wpg Least Healthy	5.23	4.93
Winnipeg	4.12	4.15

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	AMI, 2002/03-2006/07
	Crude Rate per 1,000
	All Other Manitobans
Southeast	3.20
Interlake	4.12
Northwest	6.28
Winnipeg	4.12
Southwest	4.62
The Pas	4.88
Thompson	2.44
Manitoba	4.15

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.19: Stroke

RHA	Stroke, 2002/03-2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	5.2	2.24	51.6	2.39
Central	4.2	2.36	122.6	2.98
Assiniboine	3.2	3.83	125.6	3.57
Brandon	1.8	2.88	46.6	2.19
Winnipeg	24.0	2.13	789.8	2.63
Interlake	8.2	2.11	106.4	3.13
North Eastman	2.6	1.78	55.4	3.12
Parkland	6.8	3.04	99.6	5.17
Churchill	0.0	0.00	0.0	0.00
Nor-Man	3.0	2.06	17.6	2.17
Burntwood	2.8	2.45	38.0	3.48
Rural South	12.6	2.56	299.8	3.06
Mid	17.6	2.32	261.4	3.68
North	5.8	2.16	55.6	2.87
Manitoba	61.8	2.28	1,453.2	2.85

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Aggregate Area	Stroke, 2002/03-2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Wpg Most Healthy	9.4	2.09	378.0	2.41
Wpg Avg Health	4.0	1.54	164.4	2.53
Wpg Least Healthy	10.6	2.54	247.4	3.16
Winnipeg	24.0	2.13	789.8	2.63

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Stoke, 2002/03-2006/07	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	8.4	2.04
Interlake	7.6	2.15
Northwest	4.4	2.76
Winnipeg	24.0	2.13
Southwest	9.0	2.85
The Pas	5.6	2.58
Thompson	2.8	2.28
Manitoba	61.8	2.28

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.20: Prevalence of Cumulative Mental Illness Disorders

RHA	Cumulative Mental , 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	1,135	24.20	10,163	22.86
Central	982	26.48	16,816	20.92
Assiniboine	470	27.53	13,026	21.92
Brandon	648	36.08	12,319	30.49
Winnipeg	8,713	33.97	153,467	27.68
Interlake	1,872	24.96	13,452	22.70
North Eastman	803	27.93	7,354	23.26
Parkland	1,326	28.04	7,686	23.66
Churchill	47	26.86	149	23.92
Nor-Man	958	28.66	4,191	24.49
Burntwood	837	27.11	7,719	24.38
Rural South	2,587	25.60	40,003	21.71
Mid	4,001	26.49	28,490	23.09
North	1,842	27.89	12,059	24.41
Manitoba	17,791	30.02	246,337	25.88

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Cumulative Mental , 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	428	29.00	12,695	22.98
Assiniboine South	244	34.76	8,628	26.40
St. Boniface	948	30.28	10,829	26.74
St. Vital	911	32.04	13,466	26.33
Transcona	544	31.52	7,923	29.11
River Heights	507	36.50	14,911	30.31
River East	1,157	32.95	21,234	26.71
Seven Oaks	587	31.64	13,752	27.36
St. James - Assiniboia	621	33.35	14,571	28.58
Inkster	531	31.40	5,575	22.47
Downtown	1,075	42.37	19,174	31.79
Point Douglas	1,160	39.64	10,704	32.90
Winnipeg	8,713	33.97	153,467	27.68

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Cum. Mental , 2002/03-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	2,098	25.73
Interlake	1,715	24.76
Northwest	923	27.73
Winnipeg	8,713	33.97
Southwest	2,069	29.39
The Pas	1,387	28.38
Thompson	886	27.07
Manitoba	17,791	30.02

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.21: Prevalence of Depression

RHA	Depression, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	900	19.19	8,235	18.52
Central	823	22.20	14,196	17.66
Assiniboine	374	21.91	10,625	17.88
Brandon	518	28.84	9,867	24.42
Winnipeg	6,964	27.15	121,191	21.86
Interlake	1,523	20.30	11,026	18.60
North Eastman	676	23.51	5,964	18.87
Parkland	1,041	22.01	5,991	18.44
Churchill	28	16.00	96	15.41
Nor-Man	651	19.47	2,771	16.20
Burntwood	520	16.84	4,496	14.20
Rural South	2,097	20.75	33,054	17.94
Mid	3,240	21.45	22,979	18.63
North	1,199	18.15	7,363	14.91
Manitoba	14,018	23.65	194,454	20.43

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Depression, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	349	23.64	10,328	18.70
Assiniboine South	206	29.34	7,199	22.03
St. Boniface	771	24.62	8,675	21.42
St. Vital	750	26.38	10,832	21.18
Transcona	423	24.51	5,928	21.78
River Heights	406	29.23	12,273	24.95
River East	936	26.66	17,181	21.61
Seven Oaks	486	26.20	10,854	21.59
St. James - Assiniboia	497	26.69	12,023	23.58
Inkster	437	25.84	4,043	16.30
Downtown	810	31.93	13,866	22.99
Point Douglas	893	30.52	7,985	24.54
Winnipeg	6,964	27.15	121,191	21.86

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Depression, 2002/03-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	1,699	20.83
Interlake	1,403	20.25
Northwest	726	21.81
Winnipeg	6,964	27.15
Southwest	1,690	24.01
The Pas	988	20.21
Thompson	548	16.74
Manitoba	14,018	23.65

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.22: Prevalence of Anxiety Disorders

RHA	Anxiety, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	370	7.89	2,931	6.59
Central	269	7.25	4,479	5.57
Assiniboine	128	7.50	3,448	5.80
Brandon	260	14.48	4,213	10.43
Winnipeg	2,934	11.44	50,339	9.08
Interlake	496	6.61	3,477	5.87
North Eastman	205	7.13	1,823	5.77
Parkland	554	11.71	2,571	7.91
Churchill	12	6.86	21	3.37
Nor-Man	405	12.11	1,424	8.32
Burntwood	214	6.93	1,476	4.66
Rural South	767	7.59	10,858	5.89
Mid	1,255	8.31	7,871	6.38
North	631	9.55	2,921	5.91
Manitoba	5,847	9.87	76,202	8.01

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Anxiety, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	133	9.01	4,115	7.45
Assiniboine South	72	10.26	2,714	8.30
St. Boniface	333	10.64	3,805	9.40
St. Vital	323	11.36	4,568	8.93
Transcona	244	14.14	3,310	12.16
River Heights	181	13.03	4,762	9.68
River East	384	10.94	6,578	8.27
Seven Oaks	195	10.51	4,509	8.97
St. James - Assiniboia	208	11.17	4,361	8.55
Inkster	154	9.11	1,888	7.61
Downtown	363	14.31	6,441	10.68
Point Douglas	344	11.76	3,288	10.11
Winnipeg	2,934	11.44	50,339	9.08

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Anxiety, 2002/03-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	612	7.50
Interlake	460	6.64
Northwest	337	10.12
Winnipeg	2,934	11.44
Southwest	651	9.25
The Pas	627	12.83
Thompson	226	6.90
Manitoba	5,847	9.87

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.23: Prevalence of Substance Abuse

RHA	Substance Abuse, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	203	4.33	1,746	3.93
Central	199	5.37	2,596	3.23
Assiniboine	121	7.09	2,462	4.14
Brandon	170	9.47	2,448	6.06
Winnipeg	2,142	8.35	26,766	4.83
Interlake	382	5.09	2,307	3.89
North Eastman	161	5.60	1,476	4.67
Parkland	320	6.77	1,450	4.46
Churchill	26	14.86	72	11.56
Nor-Man	302	9.03	1,384	8.09
Burntwood	393	12.73	4,094	12.93
Rural South	523	5.18	6,803	3.69
Mid	863	5.71	5,232	4.24
North	721	10.92	5,550	11.24
Manitoba	4,419	7.46	46,798	4.92

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Substance Abuse, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	78	5.28	1,394	2.52
Assiniboine South	43	6.13	1,069	3.27
St. Boniface	196	6.26	1,541	3.81
St. Vital	154	5.42	1,858	3.63
Transcona	94	5.45	1,156	4.25
River Heights	121	8.71	2,133	4.34
River East	275	7.83	3,443	4.33
Seven Oaks	127	6.85	2,100	4.18
St. James - Assiniboia	134	7.20	2,104	4.13
Inkster	143	8.46	1,193	4.81
Downtown	381	15.02	5,458	9.05
Point Douglas	396	13.53	3,314	10.19
Winnipeg	2,142	8.35	26,766	4.83

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Sub. Abuse, 2002/03-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	400	4.90
Interlake	347	5.01
Northwest	221	6.64
Winnipeg	2,142	8.35
Southwest	478	6.79
The Pas	410	8.39
Thompson	421	12.86
Manitoba	4,419	7.46

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.24: Prevalence of Schizophrenia

RHA	Schizophrenia, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	0.38	0.75
Central	0.70	0.65
Assiniboine	0.82	0.66
Brandon	1.34	1.25
Winnipeg	1.30	1.36
Interlake	0.72	0.78
North Eastman	0.56	0.53
Parkland	1.40	1.39
Churchill		1.12
Nor-Man	0.96	0.95
Burntwood	0.84	0.94
Rural South	0.57	0.68
Mid	0.90	0.88
North	0.91	0.95
Manitoba	1.03	1.14
	N=607	N=10,803

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Schizophrenia, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	0.75	0.82
Assiniboine South		0.70
St. Boniface	1.18	1.29
St. Vital	0.91	0.92
Transcona	0.41	0.76
River Heights	1.58	1.58
River East	1.14	1.07
Seven Oaks	0.92	1.06
St. James - Assiniboia	0.97	1.11
Inkster	0.83	1.10
Downtown	3.31	3.22
Point Douglas	1.81	2.26
Winnipeg	1.30	1.36

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Schizophrenia, 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	0.50
Interlake	0.69
Northwest	1.35
Winnipeg	1.30
Southwest	0.88
The Pas	1.10
Thompson	0.86
Manitoba	1.03

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.25: Prevalence of Personality Disorders

RHA	Personality Disorders, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	0.38	0.50
Central	0.70	0.55
Assiniboine	0.88	0.59
Brandon	1.50	0.88
Winnipeg	1.53	1.12
Interlake	0.56	0.49
North Eastman	0.49	0.45
Parkland	1.42	0.95
Churchill		
Nor-Man	0.60	0.68
Burntwood	0.65	0.61
Rural South	0.58	0.55
Mid	0.81	0.60
North	0.65	0.64
Manitoba	1.09	0.91
	N=625	N=8,509

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Personality Disorders, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	1.42	0.82
Assiniboine South	1.14	0.77
St. Boniface	1.25	0.94
St. Vital	1.09	0.94
Transcona	0.87	0.69
River Heights	2.09	1.92
River East	1.45	0.87
Seven Oaks	0.92	0.83
St. James - Assiniboia	1.18	0.91
Inkster	1.48	0.71
Downtown	3.11	2.13
Point Douglas	1.91	1.47
Winnipeg	1.53	1.12

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Personality Disorders, 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	0.42
Interlake	0.58
Northwest	1.38
Winnipeg	1.53
Southwest	0.95
The Pas	0.86
Thompson	0.70
Manitoba	1.09

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.26: Prevalence of Dementia

RHA	Dementia, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	6.57	8.36
Central	6.27	10.61
Assiniboine	6.31	9.29
Brandon	9.13	8.69
Winnipeg	6.81	11.76
Interlake	5.84	8.23
North Eastman	4.72	6.61
Parkland	8.19	11.39
Churchill		
Nor-Man	4.82	7.25
Burntwood	3.17	4.67
Rural South	6.41	9.64
Mid	6.35	8.80
North	4.30	5.88
Manitoba	6.44	10.59
	N=842	N=27,891

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Dementia, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	7.96	9.26
Assiniboine South	7.69	12.85
St. Boniface	7.26	9.79
St. Vital	7.54	10.74
Transcona	4.73	8.45
River Heights	9.77	13.92
River East	4.86	10.89
Seven Oaks	5.37	12.47
St. James - Assiniboia	9.14	12.57
Inkster	5.06	8.12
Downtown	7.60	14.32
Point Douglas	5.70	15.07
Winnipeg	6.81	11.76

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Dementia, 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	5.69
Interlake	6.01
Northwest	9.38
Winnipeg	6.81
Southwest	6.75
The Pas	4.89
Thompson	3.59
Manitoba	6.44

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.27: Complete Immunizations at Two Years of Age

RHA	2-Year Immunizations, 2003/04-2004/05			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	67.5	79.88	500.5	73.23
Central	43.5	70.73	811.5	63.75
Assiniboine	20.5	83.67	479.0	75.67
Brandon	27.0	66.67	417.0	76.23
Winnipeg	353.0	69.42	4,680.5	75.00
Interlake	79.0	70.85	420.5	66.91
North Eastman	38.5	76.24	261.0	66.92
Parkland	75.5	76.65	287.0	77.67
Churchill	4.5	100.00	9.0	90.00
Nor-Man	54.0	74.48	225.0	68.60
Burntwood	55.0	69.18	517.0	52.25
Rural South	131.5	77.13	1,791.0	69.16
Mid	193.0	74.09	968.5	69.78
North	113.5	72.52	751.0	56.57
Manitoba	818.0	71.98	8,608.0	71.18

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	2-Year Immunizations, 2003/04-2004/05			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	20.0	68.97	475.0	79.30
Assiniboine South	10.5	80.77	216.0	78.69
St. Boniface	29.0	75.32	348.5	78.85
St. Vital	36.0	77.42	453.0	81.11
Transcona	29.0	80.56	234.0	78.92
River Heights	21.0	71.19	399.0	78.39
River East	58.0	78.91	635.0	76.83
Seven Oaks	25.5	75.00	399.5	78.26
St. James - Assiniboia	22.0	69.84	356.0	75.83
Inkster	18.5	55.22	235.0	70.36
Downtown	39.0	64.46	599.5	68.28
Point Douglas	44.5	53.61	330.0	60.77
Winnipeg	353.0	69.42	4,680.5	75.00

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	2-Year Imm., 2003/04-2004/05	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	110.0	78.29
Interlake	75.0	70.75
Northwest	51.5	77.44
Winnipeg	353.0	69.42
Southwest	89.0	72.36
The Pas	80.0	74.07
Thompson	59.5	70.83
Manitoba	818.0	71.98

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.28: Adult Influenza Immunization

RHA	Adult Influenza, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	350	60.34	3,261	54.87
Central	292	61.09	7,574	58.45
Assiniboine	152	58.91	7,991	61.58
Brandon	77	61.60	4,403	64.96
Winnipeg	1,711	63.07	57,427	64.73
Interlake	627	60.76	6,355	61.15
North Eastman	206	58.69	2,944	57.32
Parkland	344	54.52	4,286	59.13
Churchill	13	65.00	19	40.43
Nor-Man	170	59.03	1,102	62.37
Burntwood	69	38.33	583	36.23
Rural South	794	60.33	18,826	59.06
Mid	1,177	58.44	13,585	59.64
North	252	51.64	1,704	49.78
Manitoba	4,011	60.26	95,945	62.48

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Adult Influenza, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	104	67.10	5,404	65.56
Assiniboine South	56	71.79	3,811	67.99
St. Boniface	275	59.52	4,104	63.22
St. Vital	268	63.51	5,617	68.01
Transcona	82	69.49	2,304	65.85
River Heights	86	60.14	5,777	65.97
River East	217	64.01	8,998	65.58
Seven Oaks	134	73.63	5,366	63.37
St. James - Assiniboia	162	66.94	7,651	70.38
Inkster	92	60.93	1,462	54.92
Downtown	103	52.55	4,275	56.56
Point Douglas	132	58.67	2,658	58.01
Winnipeg	1,711	63.07	57,427	64.73

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Adult Influenza, 2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	601	58.81
Interlake	584	61.80
Northwest	268	55.60
Winnipeg	1,711	63.07
Southwest	510	60.79
The Pas	255	56.17
Thompson	82	40.80
Manitoba	4,011	60.26

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.29: Mammography

RHA	Mammography, 2005/06-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	219.5	69.79	1,652.0	65.40
Central	147.5	61.08	2,807.5	59.82
Assiniboine	61.0	52.36	2,647.5	66.35
Brandon	53.0	58.24	1,670.0	66.63
Winnipeg	947.5	56.99	21,702.5	60.37
Interlake	358.5	66.02	2,760.5	66.02
North Eastman	134.0	66.50	1,473.0	65.73
Parkland	157.5	53.30	1,413.0	65.55
Churchill	4.5	40.91	21.0	66.67
Nor-Man	107.5	55.70	570.5	61.08
Burntwood	71.5	51.44	614.0	50.35
Rural South	428.0	63.64	7,107.0	63.40
Mid	650.0	62.50	5,646.5	65.83
North	183.5	53.50	1,205.5	55.17
Manitoba	2,262.0	59.39	37,331.5	61.78

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Mammography, 2005/06-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	64.5	65.82	2,399.5	65.17
Assiniboine South	29.5	62.11	1,689.5	68.24
St. Boniface	140.0	61.54	1,778.0	65.82
St. Vital	139.0	65.72	2,308.0	64.96
Transcona	54.5	55.33	1,018.0	61.12
River Heights	50.5	54.01	2,003.5	62.16
River East	131.5	58.84	3,166.5	60.49
Seven Oaks	75.0	57.92	2,143.5	59.64
St. James - Assiniboia	69.5	57.68	2,280.5	64.11
Inkster	55.0	53.14	797.5	52.92
Downtown	62.5	45.13	1,393.5	45.08
Point Douglas	76.0	44.57	724.5	43.46
Winnipeg	947.5	56.99	21,702.5	60.37

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Mammo., 2005/06-2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	387.0	68.56
Interlake	325.0	65.66
Northwest	123.0	55.53
Winnipeg	947.5	56.99
Southwest	257.5	58.92
The Pas	146.0	52.42
Thompson	76.0	50.67
Manitoba	2,262.0	59.39

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.30: Cervical Cancer Screening

RHA	Cervical Cancer Screening, 2004/05-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	404.3	75.39	3,528.3	66.78
Central	288.3	68.22	5,665.7	62.14
Assiniboine	114.7	59.31	3,835.7	63.04
Brandon	170.3	74.60	3,691.7	74.95
Winnipeg	2,408.0	75.13	48,091.7	71.32
Interlake	602.7	71.13	4,378.3	66.39
North Eastman	206.0	64.58	2,240.7	63.92
Parkland	311.7	58.22	2,034.0	63.25
Churchill	4.0	17.65	23.7	31.56
Nor-Man	185.7	49.91	957.3	51.28
Burntwood	190.7	50.71	1,312.7	35.44
Rural South	807.3	70.06	13,029.7	63.60
Mid	1,120.3	65.84	8,653.0	64.98
North	380.3	49.35	2,293.7	40.62
Manitoba	4,886.3	69.23	75,759.7	67.76

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Cervical Cancer Screening, 2004/05-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	151.0	83.43	5,302.0	74.44
Assiniboine South	68.0	75.56	2,920.0	75.59
St. Boniface	306.3	80.83	3,825.0	73.90
St. Vital	280.0	77.78	4,849.3	76.08
Transcona	173.0	79.72	2,511.7	76.42
River Heights	148.7	77.97	4,679.7	75.49
River East	330.3	72.28	6,717.3	71.63
Seven Oaks	178.0	78.18	4,244.7	67.39
St. James - Assiniboia	182.3	75.14	4,349.3	74.64
Inkster	132.3	71.53	1,955.7	62.32
Downtown	215.0	69.35	4,476.0	62.47
Point Douglas	243.0	66.58	2,261.0	62.82
Winnipeg	2,408.0	75.13	48,091.7	71.32

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	C. C. Screen, 2004/05-2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	656.0	71.54
Interlake	558.3	70.91
Northwest	237.3	61.86
Winnipeg	2,408.0	75.13
Southwest	564.0	68.01
The Pas	268.0	49.94
Thompson	194.7	48.79
Manitoba	4,886.3	69.23

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.31: Breastfeeding Initiation

RHA	Breastfeeding Initiation, 2004/05-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	75.0	90.00	667.3	92.00
Central	45.0	79.41	1,164.3	86.74
Assiniboine	22.7	73.91	527.3	85.10
Brandon	35.3	77.94	493.3	84.47
Winnipeg	391.7	79.12	5,510.0	84.73
Interlake	85.0	80.19	545.7	80.56
North Eastman	39.0	72.67	286.3	71.70
Parkland	53.7	56.10	246.3	73.61
Churchill	4.0	92.31	8.7	78.79
Nor-Man	44.3	68.56	226.7	68.20
Burntwood	59.7	65.81	577.7	56.50
Rural South	142.7	83.59	2,359.0	87.78
Mid	177.7	69.58	1,078.3	76.41
North	108.0	67.64	813.0	59.53
Manitoba	855.3	75.96	10,253.7	81.69

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Breastfeeding Initiation, 2004/05-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	17.3	88.14	564.7	91.82
Assiniboine South	9.3	87.50	228.0	90.84
St. Boniface	38.3	89.84	449.3	91.58
St. Vital	38.3	86.47	511.0	90.71
Transcona	28.7	86.00	274.7	85.65
River Heights	26.3	86.81	471.7	92.06
River East	60.3	84.98	736.3	85.89
Seven Oaks	28.3	79.44	488.0	85.12
St. James - Assiniboia	29.0	86.14	433.0	88.67
Inkster	25.3	71.03	280.0	77.71
Downtown	37.3	68.29	692.3	75.14
Point Douglas	53.0	63.60	381.0	69.36
Winnipeg	391.7	79.12	5,510.0	84.73

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Breastfeeding, 2004/05-2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	117.7	83.06
Interlake	81.3	80.26
Northwest	41.0	62.76
Winnipeg	391.7	79.12
Southwest	101.3	77.75
The Pas	58.7	60.27
Thompson	63.7	67.02
Manitoba	855.3	75.96

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.32: Teen Pregnancy

RHA	Teen Pregnancy, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	29.66	23.91
Central	37.59	34.56
Assiniboine	32.47	26.21
Brandon	102.25	49.01
Winnipeg	82.99	43.53
Interlake	43.82	40.40
North Eastman	61.50	49.23
Parkland	96.01	45.78
Churchill	0.00	132.53
Nor-Man	81.28	92.09
Burntwood	107.87	129.95
Rural South	33.09	29.42
Mid	64.29	44.20
North	93.10	118.58
Manitoba	70.48	46.40
	N=1,042	N=8,850

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Teen Pregnancy, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Fort Garry	35.71	19.15
Assiniboine South		14.58
St. Boniface	39.18	26.46
St. Vital	53.41	25.62
Transcona	35.71	28.96
River Heights	95.24	32.42
River East	82.91	36.46
Seven Oaks	60.83	37.92
St. James - Assiniboia	40.90	35.97
Inkster	125.58	64.50
Downtown	173.67	95.29
Point Douglas	154.93	112.36
Winnipeg	82.99	43.53

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Teen Pregnancy, 2002/03-2006/07
	Crude Rate per 1,000
	Metis Regions
Southeast	42.11
Interlake	42.77
Northwest	85.51
Winnipeg	82.99
Southwest	50.60
The Pas	95.63
Thompson	102.67
Manitoba	70.48

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.33: Newborn Hospital Readmission

RHA	Newborn Readmission, 2002-2006	
	Crude Rate per 1000	Crude Rate per 1000
	Metis	All Other Manitobans
South Eastman	26.44	20.92
Central	30.93	27.11
Assiniboine	43.48	32.78
Brandon		27.23
Winnipeg	36.12	32.30
Interlake	22.47	26.62
North Eastman	28.46	28.75
Parkland	60.84	54.56
Churchill		
Nor-Man	37.14	47.09
Burntwood	36.41	43.71
Rural South	31.11	26.85
Mid	39.05	34.55
North	38.22	44.34
Manitoba	35.76	32.46
	N=205	N=2,028

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Newborn Readmission, 2002-2006	
	Crude Rate per 1000	Crude Rate per 1000
	Metis	All Other Manitobans
Fort Garry		30.19
Assiniboine South		18.46
St. Boniface		25.52
St. Vital	30.30	25.40
Transcona	51.72	27.01
River Heights	51.47	30.16
River East	29.57	29.30
Seven Oaks	47.87	30.34
St. James - Assiniboia		33.93
Inkster	43.48	42.18
Downtown	50.18	40.78
Point Douglas	45.35	43.99
Winnipeg	36.12	32.30

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Newborn Readmit, 2002-2006
	Crude Rate per 1000
	Metis Regions
Southeast	27.46
Interlake	21.83
Northwest	53.48
Winnipeg	36.12
Southwest	30.30
The Pas	50.00
Thompson	38.99
Manitoba	35.76

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.34: Infant Mortality

RHA	Infant Mortality, 1997-2006			
	Number Observed per Year	Crude Rate per 1000	Number Observed per Year	Crude Rate per 1000
	Metis		All Other Manitobans	
Rural South & Brandon	1.2	5.39	19.5	6.19
Mid	1.5	5.38	9.8	6.58
North	1.1	6.23	12.3	9.20
Winnipeg	3.2	5.91	44.7	6.61
Manitoba	7.0	5.74	86.3	6.77

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Infant Mortality, 1997-2006	
	Number Observed per Year	Crude Rate per 1000
	Metis Regions	
Southeast	0.8	5.95
Interlake	0.9	7.84
Northwest		
Winnipeg	3.2	5.91
Southwest	0.8	5.65
The Pas		
Thompson	0.8	8.53
Manitoba	7.0	5.74

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.35: Child Mortality

RHA	Child Mortality, 1997-2006			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Rural South & Brandon	1.4	0.29	27.0	0.37
Mid	2.4	0.41	17.3	0.47
North	1.8	0.55	20.9	0.87
Winnipeg	2.4	0.24	36.4	0.25
Manitoba	8.0	0.33	101.6	0.36

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Child Mortality, 1997-2006	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	1.2	0.39
Interlake	1.0	0.39
Northwest	0.6	0.44
Winnipeg	2.4	0.24
Southwest	0.8	0.26
The Pas	0.8	0.35
Thompson	1.2	0.69
Manitoba	8.0	0.33

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.36: ADHD Prevalence

RHA	ADHD Prevalence, 2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	3.94	1.74
Central	2.83	1.72
Assiniboine	5.00	3.06
Brandon	5.24	4.19
Winnipeg	4.69	3.49
Interlake	3.36	3.02
North Eastman	1.76	2.41
Parkland	2.47	2.27
Churchill	0.00	
Nor-Man	1.85	2.00
Burntwood	2.23	2.04
Rural South	3.70	2.08
Mid	2.75	2.67
North	2.01	2.03
Manitoba	3.70	2.97
	N=699	N=6,707

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	ADHD Prevalence, 2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	4.56	3.06
Assiniboine South	5.02	4.71
St. Boniface	5.20	3.58
St. Vital	6.80	3.51
Transcona	3.47	3.97
River Heights	4.83	4.14
River East	4.73	3.56
Seven Oaks	3.34	2.28
St. James - Assiniboia	4.38	4.48
Inkster	5.15	2.38
Downtown	4.23	3.13
Point Douglas	4.47	3.83
Winnipeg	4.69	3.49

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	ADHD Prevalence, 2006/07
	Crude Percent (%)
	Metis Regions
Southeast	3.09
Interlake	3.39
Northwest	2.65
Winnipeg	4.69
Southwest	4.03
The Pas	1.90
Thompson	2.13
Manitoba	3.70

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.37: Ambulatory Visit Rate

RHA	Ambulatory Visit Rate, 2006/07			
	Number Observed per Year	Crude Rate per Resident	Number Observed per Year	Crude Rate per Resident
	Metis		All Other Manitobans	
South Eastman	24,818	4.36	221,865	3.93
Central	20,559	4.51	385,448	3.96
Assiniboine	9,814	4.61	301,228	4.57
Brandon	13,417	5.74	260,624	5.52
Winnipeg	171,429	5.42	3,215,458	5.07
Interlake	40,468	4.59	306,035	4.50
North Eastman	18,303	5.27	175,380	4.76
Parkland	33,658	5.63	184,017	5.11
Churchill	467	2.12	1,594	2.22
Nor-Man	18,170	4.46	83,397	4.14
Burntwood	14,308	3.49	117,451	2.77
Rural South	55,191	4.46	908,541	4.14
Mid	92,429	5.06	665,432	4.73
North	32,945	3.92	202,442	3.20
Manitoba	365,411	5.00	5,252,497	4.75

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Ambulatory Visit Rate, 2006/07			
	Number Observed per Year	Crude Rate per Resident	Number Observed per Year	Crude Rate per Resident
	Metis		All Other Manitobans	
Fort Garry	8,970	5.03	303,781	4.71
Assiniboine South	4,237	5.00	188,871	5.26
St. Boniface	20,007	5.44	239,731	4.98
St. Vital	19,865	5.89	305,917	5.22
Transcona	10,204	4.80	144,987	4.65
River Heights	9,219	5.49	295,132	5.47
River East	22,566	5.11	429,011	4.76
Seven Oaks	11,874	5.11	294,964	5.00
St. James - Assiniboia	12,623	5.28	300,867	5.37
Inkster	11,331	5.60	138,712	4.61
Downtown	18,244	5.96	366,218	5.37
Point Douglas	22,289	5.65	207,267	5.44
Winnipeg	171,429	5.42	3,215,458	5.07

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Ambulatory Visit Rate, 2006/07	
	Number Observed per Year	Crude Rate per Resident
	Metis Regions	
Southeast	46,483	4.73
Interlake	37,169	4.56
Northwest	22,816	5.35
Winnipeg	171,429	5.42
Southwest	43,019	4.89
The Pas	29,715	4.97
Thompson	14,780	3.41
Manitoba	365,411	5.00

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.38: Ambulatory Consultation Rate

RHA	Ambulatory Consultation Rate, 2006/07			
	Number Observed per Year	Crude Rate per Resident	Number Observed per Year	Crude Rate per Resident
	Metis		All Other Manitobans	
South Eastman	1,407	0.25	12,718	0.23
Central	1,118	0.25	20,886	0.21
Assiniboine	442	0.21	13,091	0.20
Brandon	596	0.26	12,796	0.27
Winnipeg	9,673	0.31	198,235	0.31
Interlake	2,402	0.27	18,762	0.28
North Eastman	914	0.26	9,690	0.26
Parkland	1,359	0.23	9,195	0.26
Churchill	36	0.16	100	0.14
Nor-Man	783	0.19	3,783	0.19
Burntwood	863	0.21	8,866	0.21
Rural South	2,967	0.24	46,695	0.21
Mid	4,675	0.26	37,647	0.27
North	1,682	0.20	12,749	0.20
Manitoba	19,593	0.27	308,122	0.28

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Ambulatory Consultation Rate, 2006/07			
	Number Observed per Year	Crude Rate per Resident	Number Observed per Year	Crude Rate per Resident
	Metis		All Other Manitobans	
Fort Garry	582	0.33	20,582	0.32
Assiniboine South	304	0.36	13,081	0.36
St. Boniface	1,184	0.32	15,131	0.31
St. Vital	1,190	0.35	19,457	0.33
Transcona	606	0.29	9,311	0.30
River Heights	522	0.31	18,813	0.35
River East	1,345	0.30	27,184	0.30
Seven Oaks	684	0.29	17,993	0.31
St. James - Assiniboia	780	0.33	20,121	0.36
Inkster	612	0.30	7,790	0.26
Downtown	857	0.28	18,606	0.27
Point Douglas	1,007	0.26	10,166	0.27
Winnipeg	9,673	0.31	198,235	0.31

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Amb.Consults., 2006/07	
	Number Observed per Year	Crude Rate per Resident
	Metis Regions	
Southeast	2,544	0.26
Interlake	2,182	0.27
Northwest	1,001	0.23
Winnipeg	9,673	0.31
Southwest	2,124	0.24
The Pas	1,170	0.20
Thompson	899	0.21
Manitoba	19,593	0.27

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.39: Continuity of Care (COC)

RHA	Continuity of Care, 2005/06-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	1,301.5	61.42	11,763.0	61.28
Central	947.0	54.57	19,870.5	59.15
Assiniboine	460.5	58.18	16,020.5	65.30
Brandon	439.0	45.00	10,780.5	57.08
Winnipeg	8,216.0	66.43	172,949.0	73.64
Interlake	2,197.5	68.04	16,296.0	68.20
North Eastman	942.5	70.18	9,834.5	75.41
Parkland	1,389.0	59.51	8,816.5	63.28
Churchill	43.0	85.15	138.0	80.94
Nor-Man	907.0	64.30	4,596.0	67.55
Burntwood	558.0	44.78	4,777.0	45.19
Rural South	2,709.0	58.31	47,654.0	61.63
Mid	4,529.0	65.58	34,947.0	68.70
North	1,508.0	55.71	9,511.0	54.21
Manitoba	17,401.0	63.04	275,841.5	69.05

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Continuity of Care, 2005/06-2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	466.5	68.05	17,023.5	72.64
Assiniboine South	215.0	67.93	9,885.5	74.01
St. Boniface	978.5	65.52	12,492.0	69.22
St. Vital	974.0	70.45	16,186.5	72.34
Transcona	644.5	76.50	9,394.5	81.07
River Heights	420.5	65.91	14,340.5	70.86
River East	1,205.5	70.91	25,981.0	79.62
Seven Oaks	623.5	70.33	17,212.5	79.86
St. James - Assiniboia	618.5	69.26	15,910.5	75.13
Inkster	508.5	62.82	7,603.0	71.42
Downtown	678.5	58.14	17,276.0	67.56
Point Douglas	882.5	56.79	9,643.5	67.78
Winnipeg	8,216.0	66.43	172,949.0	73.64

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	COC, 2005/06-2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	2,438.5	65.61
Interlake	2,008.0	67.37
Northwest	935.5	56.19
Winnipeg	8,216.0	66.43
Southwest	1,803.5	52.53
The Pas	1,397.0	65.23
Thompson	602.5	46.40
Manitoba	17,401.0	63.04

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.40: Total Hospital Separations

RHA	Total Hospital Separations, 2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	816	143.46	7,798	138.29
Central	806	176.83	16,109	165.46
Assiniboine	415	195.11	13,891	210.76
Brandon	375	160.53	7,970	168.91
Winnipeg	4,385	138.56	82,744	130.56
Interlake	1,487	168.65	11,496	169.08
North Eastman	523	150.72	6,372	173.11
Parkland	1,483	248.16	8,956	248.87
Churchill	46	209.09	114	158.55
Nor-Man	746	183.16	3,790	188.31
Burntwood	869	211.74	10,776	254.02
Rural South	2,037	164.63	37,798.00	172.08
Mid	3,493	191.26	26,824.00	190.53
North	1,661	197.81	14,680.00	232.03
Manitoba	11,951	163.68	170,016	153.91

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Total Hospital Separations, 2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Fort Garry	211	118.21	7,377	114.38
Assiniboine South	100	117.92	4,567	127.21
St. Boniface	506	137.61	5,831	121.21
St. Vital	501	148.53	7,568	129.04
Transcona	223	104.89	3,867	123.92
River Heights	216	128.65	7,283	134.94
River East	589	133.29	12,260	136.14
Seven Oaks	323	138.92	7,638	129.53
St. James - Assiniboia	305	127.67	8,235	147.11
Inkster	291	143.92	3,213	106.68
Downtown	517	169.01	9,303	136.31
Point Douglas	603	152.85	5,602	147.14
Winnipeg	4,385	138.56	82,744	130.56

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Tot. Hosp. Seps., 2006/07	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	1,439	146.28
Interlake	1,390	170.53
Northwest	1,020	239.04
Winnipeg	4,385	138.56
Southwest	1,551	176.13
The Pas	1,250	209.24
Thompson	916	211.35
Manitoba	11,951	163.68

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.41: Injury Hospital Separations

RHA	Injury Hosp. Seps., 2002/03-2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	29.4	5.24	336.2	6.31
Central	41.8	9.25	853.0	8.94
Assiniboine	22.6	10.67	762.0	11.38
Brandon	18.0	7.92	359.8	7.78
Winnipeg	226.6	7.25	4,120.4	6.56
Interlake	70.8	8.06	558.6	8.29
North Eastman	28.4	8.32	355.6	9.76
Parkland	83.0	14.19	504.4	13.74
Churchill	4.0	17.67	11.6	15.22
Nor-Man	43.6	10.48	244.0	11.89
Burntwood	61.2	15.28	987.8	23.75
Rural South	93.8	7.66	1,951.2	9.05
Mid	182.2	10.10	1,418.6	10.10
North	108.8	12.97	1,243.4	19.77
Manitoba	629.4	8.72	9,093.4	8.31

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Injury Hosp. Seps., 2002/03-2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Fort Garry	8.4	4.73	312.8	4.97
Assiniboine South	4.4	5.26	232.8	6.43
St. Boniface	18.0	4.99	233.0	5.04
St. Vital	21.4	6.40	307.8	5.32
Transcona	8.0	3.78	140.0	4.50
River Heights	10.6	6.51	398.6	7.35
River East	26.0	6.02	531.8	5.94
Seven Oaks	11.4	4.98	306.6	5.38
St. James - Assiniboia	13.8	5.98	401.8	7.11
Inkster	17.4	8.22	150.4	5.11
Downtown	39.4	12.72	709.6	10.23
Point Douglas	47.8	12.58	395.2	10.42
Winnipeg	226.6	7.25	4,120.4	6.56

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Inj. Hosp., 2002/03-2006/07	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	63.2	6.53
Interlake	65.6	8.06
Northwest	51.8	12.63
Winnipeg	226.6	7.25
Southwest	79.4	9.13
The Pas	76.4	12.54
Thompson	66.4	15.65
Manitoba	629.4	8.72

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.42: Cardiac Catheterization

RHA	Cardiac Catheterization, 2004/05-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	9.58	7.75
Central	9.94	5.54
Assiniboine	5.89	5.55
Brandon	6.70	5.49
Winnipeg	8.87	6.69
Interlake	9.33	6.41
North Eastman	8.50	8.13
Parkland	13.46	8.30
Churchill	0.00	
Nor-Man	10.37	6.25
Burntwood	9.24	6.99
Rural South	9.09	6.04
Mid	10.39	7.35
North	9.58	6.65
Manitoba	9.36	6.61
	N=771	N=10,225

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Cardiac Catheterization, 2004/05-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Fort Garry	12.42	6.07
Assiniboine South	7.06	5.95
St. Boniface	9.88	7.18
St. Vital	10.36	7.39
Transcona	6.89	7.36
River Heights	8.02	6.44
River East	6.90	6.75
Seven Oaks	9.08	6.75
St. James - Assiniboia	4.29	7.16
Inkster	10.84	6.73
Downtown	9.09	5.91
Point Douglas	10.27	6.87
Winnipeg	8.87	6.69

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Cardiac Catheter, 2004/05-2006/07
	Crude Rate per 1,000
	Metis Regions
Southeast	9.52
Interlake	8.92
Northwest	11.62
Winnipeg	8.87
Southwest	8.46
The Pas	12.34
Thompson	8.61
Manitoba	9.36

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.43: Coronary Artery Bypass Graft (CABG) Surgery

RHA	CABG, 2002/03-2006/07 Crude Rate per 1,000 Metis	CABG, 2002/03-2006/07 Crude Rate per 1,000 All Other Manitobans
South Eastman	2.94	1.48
Central	2.92	1.56
Assiniboine		1.31
Brandon		1.49
Winnipeg	2.22	1.52
Interlake	2.22	1.58
North Eastman	1.92	1.61
Parkland	2.59	1.89
Churchill	0.00	
Nor-Man	2.47	1.80
Burntwood	1.75	1.54
Rural South	2.60	1.45
Mid	2.27	1.67
North	2.09	1.63
Manitoba	2.26	1.53
	N=306	N=3,905

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	CABG, 2002/03-2006/07 Crude Rate per 1,000 Metis	CABG, 2002/03-2006/07 Crude Rate per 1,000 All Other Manitobans
Fort Garry		1.40
Assiniboine South		1.28
St. Boniface	2.87	1.72
St. Vital	3.09	1.69
Transcona	2.77	1.79
River Heights		1.46
River East	1.59	1.53
Seven Oaks	1.71	1.66
St. James - Assiniboia	2.13	1.70
Inkster	3.12	1.38
Downtown	2.22	1.14
Point Douglas	1.91	1.52
Winnipeg	2.22	1.52

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	CABG, 2002/03-2006/07 Crude Rate per 1,000 Metis Regions
Southeast	2.38
Interlake	2.37
Northwest	1.51
Winnipeg	2.22
Southwest	2.09
The Pas	3.22
Thompson	1.63
Manitoba	2.26

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.44: Hip Replacement

RHA	Hip Replacement, 2002/03-2006/07 Crude Rate per 1,000 Metis	Hip Replacement, 2002/03-2006/07 Crude Rate per 1,000 All Other Manitobans
South Eastman	1.90	1.98
Central	2.59	2.36
Assiniboine	2.16	2.97
Brandon	1.92	2.68
Winnipeg	1.90	2.34
Interlake	2.42	2.40
North Eastman	2.46	2.21
Parkland	2.05	2.84
Churchill	0.00	
Nor-Man	1.23	1.85
Burntwood	2.10	1.57
Rural South	2.19	2.50
Mid	2.32	2.47
North	1.56	1.71
Manitoba	2.04	2.38
	N=276	N=6,058

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Hip Replacement, 2002/03-2006/07 Crude Rate per 1,000 Metis	Hip Replacement, 2002/03-2006/07 Crude Rate per 1,000 All Other Manitobans
Wpg Most Healthy	2.05	2.41
Wpg Average Health	1.78	2.34
Wpg Least Healthy	1.82	2.19
Winnipeg	1.90	2.34

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Hip Replacement, 2002/03-2006/07 Crude Rate per 1,000 Metis Regions
Southeast	1.99
Interlake	2.60
Northwest	2.39
Winnipeg	1.90
Southwest	2.21
The Pas	1.47
Thompson	1.95
Manitoba	2.04

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.45: Knee Replacement

RHA	Knee Replacement Surgery, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	2.24	2.86
Central	4.16	2.66
Assiniboine	2.87	3.17
Brandon		2.95
Winnipeg	3.25	2.85
Interlake	3.45	3.34
North Eastman	3.42	3.04
Parkland	3.22	3.19
Churchill		4.78
Nor-Man	2.33	2.61
Burntwood	3.50	2.43
Rural South	3.04	2.88
Mid	3.38	3.23
North	2.83	2.54
Manitoba	3.16	2.90
	N=428	N=7,402

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Knee Replacement Surgery, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Fort Garry	3.62	2.87
Assiniboine South	3.62	3.23
St. Boniface	4.83	2.55
St. Vital	3.37	2.98
Transcona	2.21	2.97
River Heights		2.74
River East	2.52	3.22
Seven Oaks	2.20	2.91
St. James - Assiniboia	5.20	3.88
Inkster	1.70	1.54
Downtown	4.44	1.88
Point Douglas	2.26	2.43
Winnipeg	3.25	2.85

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Knee Replace Surg, 2002/03-2006/07
	Crude Rate per 1,000
	Metis Regions
Southeast	2.57
Interlake	3.67
Northwest	3.39
Winnipeg	3.25
Southwest	3.29
The Pas	2.49
Thompson	3.42
Manitoba	3.16

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.46: Cataract Surgery Rate

RHA	Cataract Surgery, 2004/05-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	21.12	23.32
Central	27.29	26.04
Assiniboine	19.93	30.46
Brandon	24.85	28.27
Winnipeg	25.81	28.64
Interlake	22.97	26.94
North Eastman	15.42	22.68
Parkland	20.04	33.39
Churchill		37.74
Nor-Man	21.17	20.03
Burntwood	19.84	14.61
Rural South	23.10	27.16
Mid	20.66	27.74
North	20.19	17.38
Manitoba	23.32	27.84
	N=1,264	N=28,661

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Cataract Surgery, 2004/05-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Fort Garry	15.28	27.37
Assiniboine South	20.71	24.03
St. Boniface	28.69	29.69
St. Vital	38.59	29.99
Transcona	23.79	23.39
River Heights	22.34	31.05
River East	20.71	29.06
Seven Oaks	36.07	28.12
St. James - Assiniboia	27.22	32.44
Inkster	17.27	26.66
Downtown	21.66	27.13
Point Douglas	21.88	29.10
Winnipeg	25.81	28.64

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Cataract Surgery, 2004/05-2006/07
	Crude Rate per 1,000
	Metis Regions
Southeast	18.81
Interlake	23.74
Northwest	18.66
Winnipeg	25.81
Southwest	23.92
The Pas	23.23
Thompson	18.81
Manitoba	23.32

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.47: C-Sections

RHA	C-Sections, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	15.00	19.23
Central	22.03	20.80
Assiniboine	21.88	25.12
Brandon	23.08	24.17
Winnipeg	16.22	20.18
Interlake	16.17	18.87
North Eastman	15.79	16.30
Parkland	25.05	22.65
Churchill		24.59
Nor-Man	23.31	22.70
Burntwood	17.10	15.70
Rural South	18.71	21.43
Mid	19.98	19.16
North	19.56	17.54
Manitoba	18.23	20.22
	N=881	N=12,896

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	C-Sections, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	19.15	22.82
Assiniboine South	18.60	23.81
St. Boniface	20.00	21.91
St. Vital	23.73	20.81
Transcona	12.40	21.41
River Heights	17.65	21.49
River East	16.56	20.12
Seven Oaks	13.19	21.56
St. James - Assiniboia	17.97	20.63
Inkster	14.94	17.30
Downtown	14.29	17.92
Point Douglas	13.51	15.51
Winnipeg	16.22	20.18

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	C-Sections, 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	15.47
Interlake	15.99
Northwest	24.62
Winnipeg	16.22
Southwest	22.84
The Pas	23.61
Thompson	16.54
Manitoba	18.23

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.48: Hysterectomy Rates

RHA	Hysterectomy, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
South Eastman	8.33	5.69
Central	5.05	4.37
Assiniboine	5.75	4.81
Brandon	6.05	4.56
Winnipeg	3.92	3.45
Interlake	4.09	4.31
North Eastman	5.64	4.68
Parkland	5.16	4.24
Churchill		
Nor-Man	6.68	4.26
Burntwood	4.70	4.51
Rural South	6.66	4.82
Mid	4.71	4.38
North	5.76	4.38
Manitoba	4.83	3.91
	N=524	N=7,325

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Hysterectomy, 2002/03-2006/07	
	Crude Rate per 1,000	Crude Rate per 1,000
	Metis	All Other Manitobans
Fort Garry	2.23	2.91
Assiniboine South		3.11
St. Boniface	3.82	3.53
St. Vital	4.52	3.55
Transcona	4.50	4.81
River Heights	4.20	2.57
River East	2.88	4.00
Seven Oaks	3.67	3.54
St. James - Assiniboia	5.23	3.77
Inkster	4.95	4.21
Downtown	3.22	2.47
Point Douglas	4.32	3.90
Winnipeg	3.92	3.45

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Hysterectomy, 2002/03-2006/07
	Crude Rate per 1,000
	Metis Regions
Southeast	7.03
Interlake	4.12
Northwest	6.10
Winnipeg	3.92
Southwest	5.12
The Pas	6.08
Thompson	4.78
Manitoba	4.83

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.49: Open Home Care Cases

RHA	Home Care, 2005/06-2006/07			
	Number Observed per Year	Crude percent (%)	Number Observed per Year	Crude percent (%)
	Metis		All Other Manitobans	
South Eastman	128.0	2.26	1,318.0	2.37
Central	112.5	2.46	2,517.5	2.60
Assiniboine	42.5	1.98	2,265.5	3.43
Brandon	46.5	2.00	1,314.0	2.79
Winnipeg	865.5	2.74	23,607.0	3.73
Interlake	214.0	2.43	2,089.5	3.07
North Eastman	52.0	1.50	953.5	2.60
Parkland	170.0	2.86	1,695.0	4.69
Churchill	5.0	2.27	11.0	1.51
Nor-Man	85.0	2.08	448.0	2.22
Burntwood	61.5	1.51	421.5	1.00
Rural South	283.0	2.29	6,101.0	2.79
Mid	436.0	2.40	4,738.0	3.36
North	151.5	1.81	880.5	1.39
Manitoba	1,782.5	2.45	36,640.5	3.32

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Home Care, 2005/06-2006/07			
	Number Observed per Year	Crude percent (%)	Number Observed per Year	Crude percent (%)
	Metis		All Other Manitobans	
Fort Garry	45.5	2.54	1,763.0	2.74
Assiniboine South	17.0	2.05	1,212.0	3.37
St. Boniface	123.5	3.34	1,701.5	3.57
St. Vital	98.5	2.93	2,065.0	3.54
Transcona	36.0	1.69	894.5	2.87
River Heights	48.5	2.92	2,613.0	4.84
River East	100.5	2.29	3,482.5	3.87
Seven Oaks	51.0	2.19	2,146.5	3.68
St. James - Assiniboia	65.5	2.75	2,483.5	4.43
Inkster	52.5	2.55	658.5	2.21
Downtown	116.0	3.86	2,976.5	4.33
Point Douglas	111.0	2.80	1,610.5	4.22
Winnipeg	865.5	2.74	23,607.0	3.73

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Home Care, 2005/06-2006/07	
	Number Observed per Year	Crude percent (%)
	Metis Regions	
Southeast	199.0	2.03
Interlake	197.0	2.42
Northwest	114.0	2.69
Winnipeg	865.5	2.74
Southwest	192.5	2.18
The Pas	148.0	2.48
Thompson	66.5	1.55
Manitoba	1,782.5	2.45

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.50: Admissions to Personal Care Homes

RHA	PCH Admits, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	2.29	2.87
Central	1.75	2.99
Assiniboine	2.67	3.51
Brandon	5.79	3.50
Winnipeg	2.63	2.83
Interlake	1.85	2.80
North Eastman	2.29	2.25
Parkland	2.57	3.32
Churchill	0.00	
Nor-Man	2.63	3.57
Burntwood		2.22
Rural South	2.16	3.19
Mid	2.17	2.90
North	2.19	3.08
Manitoba	2.42	2.95
	N=162	N=6,929

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	PCH Admits, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Wpg Most Healthy	2.79	2.69
Wpg Avg Health	1.98	2.43
Wpg Least Healthy	2.87	3.36
Winnipeg	2.63	2.83

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	PCH Admits, 2004/05-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	2.13
Interlake	2.00
Northwest	3.31
Winnipeg	2.63
Southwest	2.62
The Pas	1.50
Thompson	
Manitoba	2.42

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.51: Residents in Personal Care Homes

RHA	Resident in PCH, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	9.01	11.91
Central	7.57	12.93
Assiniboine	10.69	14.11
Brandon	21.49	15.31
Winnipeg	10.66	11.81
Interlake	8.59	12.02
North Eastman	6.86	10.11
Parkland	9.86	12.70
Churchill		20.83
Nor-Man	13.60	14.16
Burntwood		7.16
Rural South	8.80	13.27
Mid	8.76	11.92
North	10.66	11.65
Manitoba	9.88	12.29
	N=661	N=28,891

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Resident in PCH, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	14.20	7.97
Assiniboine South	14.49	18.21
St. Boniface	10.28	8.66
St. Vital	10.02	11.24
Transcona		9.32
River Heights	14.09	11.23
River East	8.74	10.54
Seven Oaks	10.61	13.20
St. James - Assiniboia	19.83	12.90
Inkster	12.12	10.68
Downtown	5.88	12.93
Point Douglas	5.05	15.12
Winnipeg	10.66	11.81

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Resident in PCH, 2004/05-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	7.73
Interlake	9.24
Northwest	11.60
Winnipeg	10.66
Southwest	10.59
The Pas	9.23
Thompson	5.67
Manitoba	9.88

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.52: Antibiotic Prescriptions

RHA	Antibiotic Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	2,038	35.83	18,169	32.22
Central	1,841	40.39	31,331	32.18
Assiniboine	870	40.90	24,512	37.19
Brandon	1,178	50.43	20,390	43.21
Winnipeg	13,242	41.84	220,755	34.83
Interlake	3,697	41.93	24,579	36.15
North Eastman	1,467	42.28	12,862	34.94
Parkland	3,076	51.47	15,408	42.82
Churchill	82	37.27	225	31.29
Nor-Man	1,571	38.57	7,092	35.24
Burntwood	1,583	38.57	12,307	29.01
Rural South	4,749	38.38	74,012	33.69
Mid	8,240	45.12	52,849	37.54
North	3,236	38.54	19,624	31.02
Manitoba	30,645	41.97	387,630	35.09

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Antibiotic Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	685	38.38	21,132	32.76
Assiniboine South	316	37.26	12,327	34.34
St. Boniface	1,355	36.85	15,913	33.08
St. Vital	1,388	41.15	20,253	34.53
Transcona	892	41.96	11,135	35.68
River Heights	607	36.15	17,752	32.89
River East	1,855	41.98	30,702	34.09
Seven Oaks	961	41.33	20,579	34.90
St. James - Assiniboia	967	40.48	19,260	34.41
Inkster	968	47.87	11,003	36.53
Downtown	1,364	44.59	25,270	37.03
Point Douglas	1,884	47.76	15,429	40.53
Winnipeg	13,242	41.84	220,755	34.83

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Antibiotics, 2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	3,791	38.54
Interlake	3,417	41.92
Northwest	2,046	47.95
Winnipeg	13,242	41.84
Southwest	3,811	43.28
The Pas	2,673	44.74
Thompson	1,665	38.42
Manitoba	30,645	41.97

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.53: Antidepressant Prescriptions

RHA	Antidepressant Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	414	7.28	4,127	7.32
Central	377	8.27	7,509	7.71
Assiniboine	201	9.45	5,989	9.09
Brandon	214	9.16	4,801	10.17
Winnipeg	2,927	9.25	51,725	8.16
Interlake	753	8.54	5,426	7.98
North Eastman	311	8.96	2,811	7.64
Parkland	422	7.06	2,852	7.93
Churchill	12	5.45	43	5.98
Nor-Man	219	5.38	1,089	5.41
Burntwood	218	5.31	1,911	4.50
Rural South	992	8.02	17,614	8.02
Mid	1,485	8.13	11,083	7.87
North	449	5.35	3,042	4.81
Manitoba	6,067	8.31	88,264	7.99

blank cells = suppressed
Source: MCHP/MMF, 2010

Winnipeg Community Area	Antidepressant Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	171	9.58	4,476	6.94
Assiniboine South	81	9.55	3,243	9.03
St. Boniface	350	9.52	3,939	8.19
St. Vital	321	9.52	4,893	8.34
Transcona	164	7.71	2,398	7.69
River Heights	181	10.78	5,422	10.05
River East	388	8.78	7,597	8.44
Seven Oaks	202	8.69	4,247	7.20
St. James - Assiniboia	218	9.13	5,284	9.44
Inkster	173	8.56	1,538	5.11
Downtown	334	10.92	5,574	8.17
Point Douglas	343	8.69	3,095	8.13
Winnipeg	2,927	9.25	51,725	8.16

blank cells = suppressed
Source: MCHP/MMF, 2010

Metis Region	Antidepressants, 2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	779	7.92
Interlake	700	8.59
Northwest	308	7.22
Winnipeg	2,926	9.25
Southwest	777	8.82
The Pas	347	5.81
Thompson	230	5.31
Manitoba	6,067	8.31

blank cells = suppressed
Source: MCHP/MMF, 2010

Appendix Table 2.54: Antipsychotic Prescriptions

RHA	Antipsychotic Prescriptions, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	153	2.75	1,690	3.22
Central	130	2.85	2,872	3.04
Assiniboine	60	2.87	2,498	3.73
Brandon	108	4.73	2,133	4.64
Winnipeg	1,157	3.72	24,404	3.90
Interlake	299	3.40	2,453	3.64
North Eastman	109	3.21	1,225	3.37
Parkland	215	3.70	1,706	4.63
Churchill	10	4.41	22	2.97
Nor-Man	109	2.61	465	2.26
Burntwood	106	2.69	1,038	2.53
Rural South	343	2.81	7,060	3.30
Mid	623	3.46	5,384	3.83
North	225	2.70	1,525	2.45
Manitoba	2,456	3.41	40,506	3.72

blank cells = suppressed
Source: MCHP/MMF, 2010

Winnipeg Community Area	Antipsychotic Prescriptions, 2002/03-2006/07			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	44	2.49	1,717	2.74
Assiniboine South	22	2.70	1,266	3.48
St. Boniface	144	3.96	1,666	3.63
St. Vital	117	3.52	1,925	3.35
Transcona	61	2.87	920	2.97
River Heights	66	4.02	2,423	4.47
River East	140	3.30	3,351	3.74
Seven Oaks	76	3.33	2,155	3.82
St. James - Assiniboia	59	2.61	2,265	4.00
Inkster	72	3.38	841	2.91
Downtown	206	6.67	3,844	5.57
Point Douglas	150	3.96	2,031	5.34
Winnipeg	1,157	3.72	24,404	3.90

blank cells = suppressed
Source: MCHP/MMF, 2010

Metis Region	Antipsychotic Prescriptions, 2002/03-2006/07	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	281	2.91
Interlake	280	3.44
Northwest	142	3.46
Winnipeg	1,157	3.72
Southwest	292	3.35
The Pas	188	3.09
Thompson	116	2.78
Manitoba	2,456	3.41

blank cells = suppressed
Source: MCHP/MMF, 2010

Appendix Table 2.55: Opioid Prescriptions

RHA	Opioid Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	623	14.66	5,494	13.13
Central	589	17.98	9,716	13.27
Assiniboine	220	14.52	7,136	13.41
Brandon	343	21.13	5,565	14.66
Winnipeg	5,233	22.45	81,078	15.72
Interlake	1,234	18.32	8,469	15.58
North Eastman	533	20.55	4,623	16.05
Parkland	1,049	24.96	4,687	16.19
Churchill	26	16.88	95	17.21
Nor-Man	547	19.19	2,524	17.17
Burntwood	540	20.20	4,413	16.19
Rural South	1,432	15.84	22,346	13.28
Mid	2,816	20.81	17,779	15.86
North	1,113	19.61	7,032	16.54
Manitoba	10,937	20.57	133,800	15.26

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Opioid Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	193	14.13	6,331	12.12
Assiniboine South	110	17.54	3,978	13.42
St. Boniface	511	17.91	5,685	14.60
St. Vital	518	19.46	7,429	15.45
Transcona	294	19.34	3,766	15.09
River Heights	274	20.98	6,406	13.93
River East	719	22.14	11,637	15.82
Seven Oaks	331	19.56	7,492	15.58
St. James - Assiniboia	351	19.67	7,217	15.37
Inkster	394	28.14	3,666	15.84
Downtown	679	30.11	10,367	18.86
Point Douglas	859	33.09	7,104	24.20
Winnipeg	5,233	22.45	81,078	15.72

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Opioid Prescriptions, 2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	1,264	17.09
Interlake	1,130	18.25
Northwest	616	20.60
Winnipeg	5,233	22.45
Southwest	1,126	17.94
The Pas	1,002	23.97
Thompson	566	19.98
Manitoba	10,937	20.57

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.56: Repeated Opioid Prescriptions (3+)

RHA	Repeated Opioid Prescriptions, 2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	3.83	3.04
Central	6.72	3.38
Assiniboine	4.62	3.96
Brandon	6.72	4.00
Winnipeg	8.19	4.49
Interlake	6.43	4.45
North Eastman	6.78	5.00
Parkland	14.28	6.72
Churchill		3.62
Nor-Man	6.67	5.22
Burntwood	6.06	4.07
Rural South	5.01	3.48
Mid	8.94	5.18
North	6.27	4.46
Manitoba	7.59	4.36
	N=4,035	N=38,236

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Repeated Opioid Prescriptions, 2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	4.32	2.42
Assiniboine South	3.83	3.27
St. Boniface	5.78	3.50
St. Vital	5.48	3.60
Transcona	4.93	3.53
River Heights	6.89	3.64
River East	6.96	4.52
Seven Oaks	7.09	4.38
St. James - Assiniboia	6.56	4.14
Inkster	11.36	4.29
Downtown	14.63	7.13
Point Douglas	15.29	10.17
Winnipeg	8.19	4.49

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Repeated Opioids, 2006/07
	Crude Percent (%)
	Metis
Southeast	5.19
Interlake	6.28
Northwest	10.23
Winnipeg	8.19
Southwest	6.12
The Pas	11.91
Thompson	5.86
Manitoba	7.59

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.57: Opioid Defined Daily Doses (DDD)

RHA	Opiod DDDs, 2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	54,160	90.27	416,066	78.73
Central	51,833	90.30	673,171	72.21
Assiniboine	18,347	84.94	573,955	83.46
Brandon	25,158	75.10	402,036	74.55
Winnipeg	449,274	90.02	5,754,806	74.84
Interlake	99,532	87.46	622,690	78.35
North Eastman	37,477	74.36	356,127	80.70
Parkland	159,265	154.48	508,795	112.81
Churchill	1,386	53.31	2,567	27.31
Nor-Man	29,277	54.32	147,127	59.28
Burntwood	28,772	54.18	190,430	43.70
Rural South	124,340	89.45	1,663,192	77.42
Mid	296,274	110.84	1,487,612	88.18
North	59,435	54.23	340,124	49.05
Manitoba	954,481	91.03	9,647,770	75.63

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Opiod DDDs, 2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Fort Garry	14,532	78.13	350,976	58.87
Assiniboine South	7,812	77.35	258,273	68.93
St. Boniface	40,863	84.95	357,023	67.07
St. Vital	27,713	57.62	418,541	59.73
Transcona	21,489	76.47	236,169	66.15
River Heights	24,574	95.62	426,943	71.11
River East	59,568	86.96	868,848	78.44
Seven Oaks	38,210	121.69	512,585	72.55
St. James - Assiniboia	29,013	88.72	589,348	86.91
Inkster	33,504	87.94	234,292	66.60
Downtown	77,576	117.90	864,029	86.37
Point Douglas	74,420	88.70	637,779	93.32
Winnipeg	449,274	90.02	5,754,806	74.84

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Opiod DDDs, 2006/07	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	98,689	81.97
Interlake	92,557	88.83
Northwest	81,078	134.68
Winnipeg	449,274	90.02
Southwest	93,697	85.18
The Pas	109,028	110.24
Thompson	30,158	54.14
Manitoba	954,481	91.03

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.58: Benzodiazepine Prescriptions

RHA	Benzodiazepine Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	304	7.15	2,275	5.44
Central	300	9.16	4,900	6.69
Assiniboine	151	9.97	4,498	8.45
Brandon	153	9.43	3,188	8.40
Winnipeg	2,353	10.10	38,883	7.54
Interlake	663	9.84	4,073	7.49
North Eastman	220	8.48	2,017	7.00
Parkland	731	17.40	3,332	11.51
Churchill	11	7.14	19	3.44
Nor-Man	220	7.72	908	6.18
Burntwood	208	7.78	1,310	4.81
Rural South	755	8.35	11,673	6.94
Mid	1,614	11.93	9,422	8.40
North	439	7.73	2,237	5.26
Manitoba	5,314	9.99	65,403	7.46

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Benzodiazepine Prescriptions, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	92	6.73	3,009	5.76
Assiniboine South	33	5.26	2,290	7.72
St. Boniface	266	9.32	2,733	7.02
St. Vital	232	8.72	3,253	6.77
Transcona	149	9.80	1,739	6.97
River Heights	128	9.80	3,537	7.69
River East	332	10.22	5,589	7.60
Seven Oaks	171	10.11	3,957	8.23
St. James - Assiniboia	159	8.91	3,627	7.73
Inkster	168	12.00	1,451	6.27
Downtown	280	12.42	4,729	8.60
Point Douglas	343	13.21	2,969	10.11
Winnipeg	2,353	10.10	38,883	7.54

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Benzodiazepines, 2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	578	7.81
Interlake	611	9.87
Northwest	418	13.98
Winnipeg	2,353	10.10
Southwest	589	9.38
The Pas	546	13.06
Thompson	219	7.73
Manitoba	5,314	9.99

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.59: Repeated Benzodiazepine Prescriptions (3+)

RHA	Repeated Benzodiazepines, 2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	3.55	2.56
Central	4.55	3.58
Assiniboine	5.54	4.57
Brandon	5.05	4.44
Winnipeg	5.58	3.79
Interlake	5.03	3.67
North Eastman	3.39	3.37
Parkland	12.52	7.47
Churchill		1.09
Nor-Man	4.21	3.14
Burntwood	2.88	1.48
Rural South	4.25	3.64
Mid	7.04	4.57
North	3.49	2.05
Manitoba	5.49	3.81
	N=2,918	N=33,382

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Repeated Benzodiazepines, 2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	3.66	2.46
Assiniboine South	3.19	3.64
St. Boniface	5.82	3.59
St. Vital	4.21	3.17
Transcona	4.08	3.22
River Heights	5.44	3.93
River East	4.93	3.75
Seven Oaks	5.26	4.28
St. James - Assiniboia	4.15	3.91
Inkster	7.50	2.94
Downtown	7.94	4.80
Point Douglas	8.20	5.80
Winnipeg	5.58	3.79

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Repeated Benzodiazepines, 2006/07
	Crude Percent (%)
	Metis Regions
Southeast	3.51
Interlake	5.13
Northwest	9.09
Winnipeg	5.58
Southwest	4.91
The Pas	9.11
Thompson	2.75
Manitoba	5.49

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.60: Benzodiazepine Defined Daily Doses (DDD)

RHA	Benzodiazepine DDDs, 2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
South Eastman	43,934	144.52	283,275	125.01
Central	46,828	157.14	720,120	147.96
Assiniboine	24,742	164.95	559,255	124.86
Brandon	24,740	161.70	415,129	130.38
Winnipeg	458,169	195.21	5,947,676	153.63
Interlake	84,247	126.88	513,970	126.69
North Eastman	30,241	138.72	274,528	136.85
Parkland	277,333	379.91	691,355	208.62
Churchill	648	58.91	3,444	181.26
Nor-Man	42,522	195.95	146,651	160.80
Burntwood	14,398	68.56	75,112	57.38
Rural South	115,504	153.60	1,562,650	134.57
Mid	391,821	243.07	1,479,853	157.82
North	57,568	131.43	225,207	100.54
Manitoba	1,047,802	197.62	9,630,515	147.87

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Benzodiazepine DDDs, 2006/07			
	Number Observed per Year	Crude Rate per 1,000	Number Observed per Year	Crude Rate per 1,000
	Metis		All Other Manitobans	
Fort Garry	18,710	203.37	323,998	108.00
Assiniboine South	5,669	177.16	298,864	131.20
St. Boniface	50,992	191.70	393,564	144.64
St. Vital	31,812	138.31	418,712	129.31
Transcona	15,497	103.31	223,766	129.57
River Heights	24,506	191.45	495,242	141.05
River East	58,726	179.59	828,608	149.08
Seven Oaks	27,220	157.34	646,937	164.11
St. James - Assiniboia	29,409	182.66	544,011	150.70
Inkster	35,706	216.40	217,525	151.90
Downtown	69,159	242.66	948,580	200.93
Point Douglas	90,763	268.53	607,869	204.26
Winnipeg	458,169	195.21	5,947,676	153.63

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Benzo. DDDs, 2006/07	
	Number Observed per Year	Crude Rate per 1,000
	Metis Regions	
Southeast	82,092	142.52
Interlake	76,354	124.76
Northwest	118,321	284.43
Winnipeg	458,169	195.21
Southwest	94,460	160.92
The Pas	203,360	374.51
Thompson	15,046	68.08
Manitoba	1,047,802	197.62

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.61: Antidepressant Prescription Follow–Up

RHA	Antidepressant Follow-Up, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	65.00	58.25
Central	41.27	54.04
Assiniboine	55.88	54.10
Brandon	75.76	67.73
Winnipeg	62.57	60.68
Interlake	53.40	53.73
North Eastman	70.83	62.44
Parkland	55.00	55.61
Churchill		
Nor-Man	59.38	55.80
Burntwood		33.74
Rural South	54.80	55.13
Mid	58.12	56.66
North	42.59	43.06
Manitoba	59.11	58.76
	N=490	N=6,724

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Antidepressant Follow-Up, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	61.11	60.75
Assiniboine South	75.00	64.57
St. Boniface	57.14	58.41
St. Vital	52.27	58.50
Transcona	63.33	55.21
River Heights	58.82	60.03
River East	72.73	58.85
Seven Oaks	59.09	62.98
St. James - Assiniboia	62.50	62.36
Inkster	68.42	63.64
Downtown	66.67	61.99
Point Douglas	59.52	62.69
Winnipeg	62.57	60.68

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Antidepressant Follow-Up, 2004/05-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	64.75
Interlake	55.43
Northwest	59.38
Winnipeg	62.57
Southwest	53.49
The Pas	56.10
Thompson	
Manitoba	59.11

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.62: Asthma Care: Controller Medication Use

RHA	Asthma Care: Controller Rx Use, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	71	66.36	563	61.60
Central	78	53.79	1,098	63.47
Assiniboine	46	74.19	881	65.89
Brandon	39	54.93	646	58.62
Winnipeg	788	65.78	9,992	64.59
Interlake	174	65.17	1,049	60.81
North Eastman	36	52.94	471	65.87
Parkland	136	66.67	534	64.57
Churchill			19	82.61
Nor-Man	62	62.00	286	67.14
Burntwood	81	65.85	579	67.56
Rural South	195	62.10	2,542	63.85
Mid	346	64.19	2,054	62.87
North	148	64.07	884	67.69
Manitoba	1,516	64.43	16,118	64.15

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Asthma Care: Controller Rx Use, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	40	81.63	846	68.78
Assiniboine South	21	65.63	463	68.59
St. Boniface	77	60.63	632	59.74
St. Vital	66	62.86	816	62.91
Transcona	38	67.86	416	61.00
River Heights	32	56.14	807	63.19
River East	103	73.05	1,302	65.33
Seven Oaks	57	66.28	881	65.80
St. James - Assiniboia	43	62.32	849	65.26
Inkster	74	71.84	536	63.66
Downtown	106	61.63	1,378	63.50
Point Douglas	131	65.17	1,066	66.42
Winnipeg	788	65.78	9,992	64.59

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Asthma Care: Rx Use, 2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	117	60.31
Interlake	165	66.27
Northwest	90	66.18
Winnipeg	788	65.78
Southwest	157	58.36
The Pas	113	64.20
Thompson	86	65.65
Manitoba	1,516	64.43

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.63: Diabetes Care: Annual Eye Exams

RHA	Diabetes Care: Annual Eye Exams, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	101	32.69	941	36.11
Central	107	32.04	1,856	36.46
Assiniboine	61	37.20	2,137	42.08
Brandon	43	31.16	1,306	41.24
Winnipeg	718	33.00	13,459	33.07
Interlake	225	31.91	1,666	33.28
North Eastman	86	33.20	924	32.22
Parkland	168	29.89	1,053	34.29
Churchill	7	29.17	9	14.75
Nor-Man	120	38.46	661	38.72
Burntwood	87	27.62	874	23.39
Rural South	269	33.33	4,934	38.62
Mid	479	31.39	3,643	33.28
North	214	32.87	1,544	28.05
Manitoba	1,723	32.52	24,886	34.05

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Diabetes Care: Annual Eye Exams, 2006/07			
	Number Observed per Year	Crude Percent (%)	Number Observed per Year	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	40	37.74	1,201	35.33
Assiniboine South	9	22.50	614	33.52
St. Boniface	94	36.72	939	34.56
St. Vital	89	37.71	1,280	37.91
Transcona	50	41.67	679	35.31
River Heights	33	28.45	1,142	36.16
River East	96	34.16	2,070	36.19
Seven Oaks	54	33.75	1,416	31.33
St. James - Assiniboia	43	27.74	1,403	35.92
Inkster	55	35.03	598	28.65
Downtown	74	29.25	1,299	25.92
Point Douglas	81	27.36	818	26.80
Winnipeg	718	33.00	13,459	33.07

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Diab. Care: Eye Exams, 2006/07	
	Number Observed per Year	Crude Percent (%)
	Metis Regions	
Southeast	213	33.13
Interlake	200	31.65
Northwest	106	30.55
Winnipeg	718	33.00
Southwest	204	33.17
The Pas	188	34.50
Thompson	94	27.65
Manitoba	1,723	32.52

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.64: Post–AMI Care: Beta–Blocker Prescribing

RHA	Beta-Blocker Prescription, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	78.05	79.39
Central	69.77	80.59
Assiniboine	92.86	78.78
Brandon	71.43	83.08
Winnipeg	79.83	82.28
Interlake	78.31	81.31
North Eastman	77.27	82.07
Parkland	83.05	76.80
Churchill		
Nor-Man	83.33	80.95
Burntwood	57.89	73.48
Rural South	76.53	79.67
Mid	79.88	79.99
North	73.47	76.33
Manitoba	78.49	81.24
	N=438	N=7,494

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Beta-Blocker Prescription, 2002/03-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	83.33	80.77
Assiniboine South		87.06
St. Boniface	88.24	85.43
St. Vital	93.94	84.83
Transcona	100.00	86.19
River Heights	80.00	83.25
River East	82.14	78.38
Seven Oaks	84.21	80.82
St. James - Assiniboia	63.64	83.75
Inkster	71.43	82.78
Downtown	65.00	82.04
Point Douglas	70.37	79.72
Winnipeg	79.83	82.28

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Beta-Blocker Prescription, 2002/03-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	78.08
Interlake	78.08
Northwest	83.72
Winnipeg	79.83
Southwest	76.47
The Pas	79.59
Thompson	57.89
Manitoba	78.49

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.65: Potentially Inappropriate Benzodiazepine Prescriptions for Community–Dwelling Seniors

RHA	Inappropriate Benzo. Rx, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	26.82	22.67
Central	19.77	21.36
Assiniboine	31.03	22.21
Brandon	25.00	23.28
Winnipeg	26.49	19.02
Interlake	18.29	16.99
North Eastman	14.41	16.06
Parkland	33.20	24.96
Churchill		0.00
Nor-Man	26.67	14.56
Burntwood	15.09	9.38
Rural South	25.05	21.94
Mid	22.79	19.79
North	21.37	12.34
Manitoba	24.71	19.81
	N=558	N=15,238

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Inappropriate Benzo. Rx, 2004/05-2006/07	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
Fort Garry	24.07	17.44
Assiniboine South		21.42
St. Boniface	30.23	22.54
St. Vital	27.39	20.37
Transcona	21.05	18.22
River Heights	18.18	19.79
River East	24.07	19.43
Seven Oaks	32.73	20.23
St. James - Assiniboia	30.56	19.12
Inkster	20.45	12.55
Downtown	21.43	16.17
Point Douglas	30.56	16.59
Winnipeg	26.49	19.02

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Inappropriate Benzo. Rx, 2004/05-2006/07
	Crude Percent (%)
	Metis Regions
Southeast	22.04
Interlake	18.55
Northwest	29.78
Winnipeg	26.49
Southwest	23.71
The Pas	33.79
Thompson	14.04
Manitoba	24.71

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.66: Self–Rated Health

RHA	Self-Rated Health	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	60.84	57.00
Central	46.77	60.61
Assiniboine	54.77	59.09
Brandon	46.44	61.37
Winnipeg	49.62	62.19
Interlake	47.91	55.65
North Eastman	51.09	59.34
Parkland	61.82	51.92
Churchill		
Nor-Man	51.93	59.54
Burntwood	38.60	52.48
Rural South	55.63	59.27
Mid	52.24	55.64
North	45.66	55.95
Manitoba	50.92	60.59
	N=824	N=9,891

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Self-Rated Health
	Crude Percent (%)
	Metis
Southeast	57.34
Interlake	48.16
Northwest	65.06
Winnipeg	49.62
Southwest	47.96
The Pas	52.31
Thompson	39.07
Manitoba	50.92

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.67: Self–Perceived Stress

RHA	Self-Perceived Stress	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	25.63	18.77
Central	20.61	23.70
Assiniboine		22.22
Brandon	25.94	20.20
Winnipeg	25.96	21.03
Interlake	30.30	22.60
North Eastman	33.98	24.00
Parkland		17.51
Churchill		
Nor-Man	14.33	15.12
Burntwood	15.95	18.03
Rural South	23.74	22.05
Mid	25.95	21.70
North	15.21	16.52
Manitoba	24.62	21.14
	N=309	N=3,168

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Self-Perceived Stress
	Crude Percent (%)
	Metis
Southeast	27.30
Interlake	31.17
Northwest	
Winnipeg	25.96
Southwest	22.84
The Pas	12.47
Thompson	16.15
Manitoba	24.62

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.68: Self–Perceived Work Stress

RHA	Self-Perceived Work Stress	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	19.57	21.89
Central	26.37	22.24
Assiniboine		23.20
Brandon		25.39
Winnipeg	37.17	29.91
Interlake	23.26	31.46
North Eastman	32.11	27.05
Parkland		22.36
Churchill		
Nor-Man	23.99	21.24
Burntwood	17.27	24.00
Rural South	20.79	22.47
Mid	23.74	28.14
North	21.37	22.59
Manitoba	28.58	27.84
	N=253	N=2,713

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Self-Perceived Work Stress
	Crude Percent (%)
	Metis
Southeast	24.55
Interlake	22.68
Northwest	21.87
Winnipeg	37.17
Southwest	18.52
The Pas	19.69
Thompson	18.03
Manitoba	28.58

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.69: Life Satisfaction

RHA	Life Satisfaction	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	94.41	95.76
Central	97.52	94.61
Assiniboine	99.40	93.62
Brandon	72.21	92.54
Winnipeg	96.38	90.39
Interlake	90.62	93.17
North Eastman	85.17	95.93
Parkland	92.67	91.90
Churchill		
Nor-Man	86.54	95.61
Burntwood	85.42	92.05
Rural South	95.99	94.61
Mid	90.29	93.52
North	86.08	93.73
Manitoba	92.91	91.80
	N=864	N=10,156

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Life Satisfaction
	Crude Percent (%)
	Metis
Southeast	91.75
Interlake	90.71
Northwest	91.34
Winnipeg	96.38
Southwest	89.30
The Pas	89.25
Thompson	85.58
Manitoba	92.91

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.70: Emotional Well–Being

RHA	Emotional Well-Being	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	80.53	80.47
Central	73.54	75.66
Assiniboine	70.51	78.56
Brandon	67.32	74.94
Winnipeg	69.10	73.56
Interlake	78.74	79.29
North Eastman	77.51	80.49
Parkland	71.68	77.31
Churchill		
Nor-Man	73.52	82.58
Burntwood	67.62	81.05
Rural South	76.81	77.76
Mid	76.79	79.10
North	70.39	81.77
Manitoba	72.50	75.45
	N=465	N=4,698

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Emotional Well-Being
	Crude Percent (%)
	Metis
Southeast	80.91
Interlake	76.83
Northwest	61.67
Winnipeg	69.10
Southwest	71.48
The Pas	77.14
Thompson	67.62
Manitoba	72.50

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.71: Body Mass Index (BMI)

RHA	Body Mass Index (BMI)	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	59.48	58.26
Central	71.83	59.87
Assiniboine	54.96	62.26
Brandon	58.47	55.56
Winnipeg	62.42	51.88
Interlake	80.33	63.47
North Eastman	66.64	59.60
Parkland	51.23	65.72
Churchill		
Nor-Man	66.58	62.32
Burntwood	59.58	68.68
Rural South	62.60	60.22
Mid	69.97	63.09
North	63.26	65.40
Manitoba	64.24	55.41
	N=988	N=9,640

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Body Mass Index (BMI)
	Crude Percent (%)
	Metis
Southeast	62.76
Interlake	79.74
Northwest	
Winnipeg	62.42
Southwest	64.09
The Pas	69.99
Thompson	59.58
Manitoba	64.24

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.72: Average Daily Consumption of Fruits and Vegetables

RHA	Fruits and Vegetables	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	21.96	20.70
Central	23.10	27.93
Assiniboine		36.80
Brandon		30.31
Winnipeg	19.53	31.27
Interlake	20.69	27.19
North Eastman	21.66	38.15
Parkland		29.98
Churchill		
Nor-Man	24.34	34.74
Burntwood	18.28	25.66
Rural South	20.81	28.81
Mid	19.03	30.51
North	21.34	30.07
Manitoba	19.79	30.60
	N=307	N=3,935

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Fruits and Vegetables
	Crude Percent (%)
	Metis
Southeast	21.37
Interlake	21.24
Northwest	
Winnipeg	19.53
Southwest	19.45
The Pas	21.16
Thompson	18.59
Manitoba	19.79

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.73: Frequency of Having Five or More Drinks with Alcohol

RHA	Frequency of 5 or More Drinks with Alcohol	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	28.59	13.32
Central		14.30
Assiniboine	33.81	18.47
Brandon	43.60	23.38
Winnipeg	21.17	17.47
Interlake	23.47	16.91
North Eastman	21.50	18.91
Parkland		13.91
Churchill		
Nor-Man	29.59	24.43
Burntwood	28.54	25.25
Rural South	23.59	15.32
Mid	20.41	16.67
North	29.12	24.97
Manitoba	22.94	17.46
	N=750	N=5,983

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Freq. of 5 or More Drinks with Alcohol
	Crude Percent (%)
	Metis
Southeast	25.71
Interlake	24.23
Northwest	
Winnipeg	21.17
Southwest	25.50
The Pas	26.07
Thompson	28.63
Manitoba	22.94

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.74: Current Smokers

RHA	Current Smokers	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	22.84	18.70
Central	24.01	21.50
Assiniboine	38.54	16.33
Brandon	35.76	23.64
Winnipeg	36.05	21.50
Interlake	38.45	24.34
North Eastman	30.22	20.55
Parkland	34.41	21.22
Churchill		
Nor-Man	38.85	28.33
Burntwood	49.79	35.51
Rural South	25.19	19.25
Mid	35.87	22.66
North	44.37	32.02
Manitoba	34.70	21.61
	N=589	N=3,905

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Current Smokers
	Crude Percent (%)
	Metis
Southeast	24.64
Interlake	39.47
Northwest	34.01
Winnipeg	36.05
Southwest	30.10
The Pas	38.70
Thompson	50.17
Manitoba	34.70

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.75: Exposure to Smoke Inside the Home

RHA	Second Hand Smoke	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	22.04	13.78
Central	28.20	14.94
Assiniboine		14.72
Brandon		15.83
Winnipeg	26.44	17.25
Interlake	28.11	15.77
North Eastman	40.42	15.59
Parkland	35.38	14.75
Churchill		
Nor-Man	36.65	21.40
Burntwood	47.16	33.42
Rural South	25.23	14.58
Mid	32.22	15.48
North	41.57	27.40
Manitoba	28.63	16.71
	N=277	N=1,622

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Second Hand Smoke
	Crude Percent (%)
	Metis
Southeast	26.55
Interlake	29.60
Northwest	35.54
Winnipeg	26.44
Southwest	27.45
The Pas	35.39
Thompson	48.28
Manitoba	28.63

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.76: Total Activity Level (Work + Leisure + Travel)

RHA	Physical Activity Index	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	33.37	33.02
Central	53.44	38.70
Assiniboine	48.60	42.26
Brandon	32.42	36.39
Winnipeg	37.70	25.69
Interlake	42.86	34.22
North Eastman	37.83	32.72
Parkland		35.91
Churchill		
Nor-Man	36.35	36.09
Burntwood	29.18	37.29
Rural South	41.88	38.42
Mid	37.60	34.21
North	32.98	36.87
Manitoba	37.89	29.99
	N=391	N=3,873

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Physical Activity Index
	Crude Percent (%)
	Metis
Southeast	36.81
Interlake	41.03
Northwest	24.32
Winnipeg	37.70
Southwest	45.84
The Pas	31.60
Thompson	28.64
Manitoba	37.89

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.77: Limtations of Activities

RHA	Limitation of Activities	
	Crude Percent (%)	Crude Percent (%)
	Metis	All Other Manitobans
South Eastman	35.47	27.19
Central	30.84	30.59
Assiniboine		33.45
Brandon		35.11
Winnipeg	41.14	30.83
Interlake	31.07	34.34
North Eastman	53.80	34.16
Parkland	32.23	36.44
Churchill		
Nor-Man	29.17	27.06
Burntwood	32.88	33.11
Rural South	33.71	30.66
Mid	36.49	34.80
North	30.48	30.40
Manitoba	36.99	31.49
	N=373	N=4,078

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Limitation of Activities
	Crude Percent (%)
	Metis
Southeast	41.09
Interlake	30.79
Northwest	28.71
Winnipeg	41.14
Southwest	28.46
The Pas	31.26
Thompson	32.22
Manitoba	36.99

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.78: Retention Rates from Kindergarten to Grade 8

RHA	School Retention	
	Crude Percent (%)	
	Metis	Others
South Eastman	1.14	2.07
Central	3.49	3.01
Assiniboine	6.60	4.13
Brandon	6.76	2.64
Winnipeg	3.81	1.95
Interlake	2.91	2.41
North Eastman	4.69	3.62
Parkland	8.60	5.32
Churchill	13.04	13.55
Nor-Man	9.10	9.62
Burntwood	11.07	9.67
Rural South	3.10	3.05
Mid	5.23	3.47
North	10.20	9.72
Manitoba	4.96	2.81
	N=791	N=4,968

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	School Retention	
	Crude Percent (%)	
	Metis	Others
Fort Garry		1.21
Assiniboine South		1.01
St. Boniface	1.06	0.74
St. Vital	2.00	0.76
Transcona	2.71	1.63
River Heights	6.47	1.78
River East	2.37	1.57
Seven Oaks	2.40	1.06
St. James - Assiniboia	3.97	2.51
Inkster	3.61	2.21
Downtown	6.16	3.75
Point Douglas	8.51	5.18
Winnipeg	3.81	1.95

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	School Retention
	Crude Percent (%)
	Metis
Southeast	2.54
Interlake	2.85
Northwest	6.56
Winnipeg	3.81
Southwest	4.90
The Pas	10.26
Thompson	11.16
Manitoba	4.96

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.79: Grade 3 Students with No School Changes in Four Years

RHA	No School Changes			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
South Eastman	67	80.72	651	87.03
Central	48	54.55	899	77.37
Assiniboine	27	75.00	621	87.22
Brandon	17	48.57	348	75.98
Winnipeg	331	63.41	5394	76.49
Interlake	102	76.69	629	85.35
North Eastman	32	74.42	339	84.54
Parkland	67	71.28	303	87.32
Churchill	6	75.00	7	63.64
Nor-Man	41	66.13	176	74.26
Burntwood	49	59.76	204	56.51
Rural South	142	68.60	2171	82.80
Mid	201	74.44	1271	85.59
North	96	63.16	387	63.55
Manitoba	787	66.36	1186	78.28

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	No School Changes			
	Number Observed	Crude Percent (%)	Number Observed	Crude Percent (%)
	Metis		All Other Manitobans	
Fort Garry	20	74.07	571	83.85
Assiniboine South	6	54.55	328	80.20
St. Boniface	28	75.68	454	84.23
St. Vital	27	64.29	550	80.65
Transcona	26	72.22	366	86.94
River Heights	19	79.17	366	76.89
River East	42	52.50	696	70.37
Seven Oaks	32	76.19	488	77.46
St. James - Assiniboia	29	74.36	494	85.03
Inkster	24	57.14	309	73.40
Downtown	29	50.88	449	62.97
Point Douglas	49	57.65	323	63.33
Winnipeg	331	63.41	5394	76.49

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	No School Changes	
	Number Observed	Crude Percent (%)
	Metis Regions	
Southeast	105	77.78
Interlake	96	77.42
Northwest	43	70.49
Winnipeg	331	63.41
Southwest	91	57.59
The Pas	66	68.75
Thompson	55	61.11
Manitoba	787	66.36

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.80: On–Time Pass Rates for the Grade 12 Standards Language Arts Exam

RHA	On-time Pass for LA Exam	
	Crude Percent (%)	
	Metis	Others
South Eastman	66.67	68.79
Central	52.94	59.40
Assiniboine	44.12	62.71
Brandon	44.74	60.48
Winnipeg	46.19	64.15
Interlake	59.31	56.62
North Eastman	62.26	51.50
Parkland	27.62	49.00
Churchill		
Nor-Man	39.06	30.42
Burntwood	20.93	12.62
Rural South	57.95	62.65
Mid	48.84	53.58
North	28.76	17.11
Manitoba	46.52	58.08
	N=534	N=7,284

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	On-time Pass for LA Exam	
	Crude Percent (%)	
	Metis	Others
Fort Garry	72.00	78.27
Assiniboine South	77.78	77.80
St. Boniface	61.70	68.96
St. Vital	58.33	73.26
Transcona	62.16	63.43
River Heights	47.62	74.59
River East	52.31	67.05
Seven Oaks	56.25	67.64
St. James - Assiniboia	55.56	65.70
Inkster	29.41	51.83
Downtown	21.43	35.58
Point Douglas	9.46	33.59
Winnipeg	46.19	64.15

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	On-time Pass for LA Exam
	Crude Percent (%)
	Metis
Southeast	64.67
Interlake	59.57
Northwest	35.21
Winnipeg	46.19
Southwest	48.23
The Pas	30.21
Thompson	21.11
Manitoba	46.52

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.81: On–Time Pass Rates for the Grade 12 Standards Math Exam

RHA	On-time Pass for Math Exam	
	Crude Percent (%)	
	Metis	Others
South Eastman	46.24	54.73
Central	50.00	54.99
Assiniboine	32.35	53.44
Brandon	36.84	47.11
Winnipeg	35.95	54.19
Interlake	45.52	48.26
North Eastman	35.85	41.63
Parkland	26.67	44.03
Churchill		
Nor-Man	34.38	23.57
Burntwood	25.58	10.66
Rural South	45.13	54.46
Mid	37.29	45.59
North	29.41	13.98
Manitoba	37.02	49.25
	N=425	N=6,177

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	On-time Pass for Math Exam	
	Crude Percent (%)	
	Metis	Others
Fort Garry	44.00	67.16
Assiniboine South	77.78	64.62
St. Boniface	51.06	59.20
St. Vital	45.00	66.00
Transcona	51.35	51.43
River Heights	33.33	56.08
River East	30.77	51.66
Seven Oaks	40.63	55.99
St. James - Assiniboia	59.26	63.62
Inkster	26.47	46.60
Downtown		29.93
Point Douglas	9.46	31.04
Winnipeg	35.95	54.19

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	On-time Pass for Math Exam
	Crude Percent (%)
	Metis
Southeast	42.67
Interlake	45.39
Northwest	35.21
Winnipeg	35.95
Southwest	41.84
The Pas	26.04
Thompson	25.56
Manitoba	37.02

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.82: High School Completion Rates

RHA	High School Completion Rates	
	Crude Percent (%)	
	Metis	Others
South Eastman	89.13	85.75
Central	75.61	80.47
Assiniboine	93.94	85.57
Brandon	41.38	75.78
Winnipeg	63.22	79.55
Interlake	69.59	78.74
North Eastman	86.67	76.27
Parkland	54.63	76.79
Churchill		
Nor-Man	46.55	66.67
Burntwood	56.67	43.41
Rural South	84.54	83.39
Mid	66.78	77.52
North	52.03	52.17
Manitoba	66.24	78.43
	N=728	N=10,608

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	High School Completion Rates	
	Crude Percent (%)	
	Metis	Others
Fort Garry	90.48	88.16
Assiniboine South	68.75	87.60
St. Boniface	73.81	83.77
St. Vital	81.63	86.16
Transcona	76.60	82.35
River Heights	46.67	82.22
River East	55.93	82.71
Seven Oaks	55.88	80.34
St. James - Assiniboia	86.84	84.91
Inkster	60.71	75.77
Downtown	33.33	58.59
Point Douglas	34.00	52.40
Winnipeg	63.22	79.55

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	High School Compl. Rates
	Crude Percent (%)
	Metis
Southeast	85.33
Interlake	71.11
Northwest	55.26
Winnipeg	62.87
Southwest	72.73
The Pas	49.45
Thompson	56.92
Manitoba	66.24

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.83: Children in Families Receiving Provincial Income Assistance

RHA	Income Assist. Children	
	Crude Percent (%)	
	Metis	Others
South Eastman	5.73	4.27
Central	19.34	8.21
Assiniboine	13.87	5.93
Brandon	31.03	15.58
Winnipeg	32.12	16.73
Interlake	15.58	7.31
North Eastman	17.73	4.62
Parkland	51.04	17.36
Churchill	17.11	26.53
Nor-Man	35.75	16.89
Burntwood	35.90	11.97
Rural South	12.49	6.54
Mid	29.01	9.03
North	35.37	13.40
Manitoba	28.48	13.14
	N=6,427	N=34,282

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Income Assist. Children	
	Crude Percent (%)	
	Metis	Others
Fort Garry	8.98	6.20
Assiniboine South	16.37	7.05
St. Boniface	9.70	6.83
St. Vital	18.43	10.87
Transcona	13.43	7.45
River Heights	27.57	10.31
River East	27.79	15.19
Seven Oaks	30.39	9.25
St. James - Assiniboia	18.94	11.09
Inkster	49.33	25.17
Downtown	61.81	37.44
Point Douglas	59.07	48.88
Winnipeg	32.12	16.73

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Inc. Assist. Children
	Crude Percent (%)
	Metis
Southeast	10.30
Interlake	15.96
Northwest	36.44
Winnipeg	32.12
Southwest	21.29
The Pas	49.11
Thompson	34.95
Manitoba	28.48

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.84: Young Adults Receiving Provincial Income Assistance

RHA	Income Assist. 18-19 years	
	Crude Percent (%)	
	Metis	Others
South Eastman	5.05	3.83
Central	9.88	5.66
Assiniboine	15.94	4.71
Brandon	18.99	10.36
Winnipeg	24.46	12.42
Interlake	13.42	5.19
North Eastman	10.08	4.13
Parkland	43.84	12.31
Churchill		
Nor-Man	23.85	12.50
Burntwood	30.16	9.44
Rural South	8.66	4.90
Mid	22.52	6.68
North	26.79	10.37
Manitoba	21.06	9.78
	N=494	N=3,049

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Income Assist. 18-19 years	
	Crude Percent (%)	
	Metis	Others
Fort Garry	17.86	4.89
Assiniboine South		5.12
St. Boniface		5.90
St. Vital	9.00	7.24
Transcona	9.41	7.00
River Heights	38.46	8.13
River East	19.53	10.51
Seven Oaks	12.33	6.90
St. James - Assiniboia	9.30	8.69
Inkster	43.86	13.93
Downtown	61.90	31.59
Point Douglas	50.79	39.43
Winnipeg	24.46	12.42

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Inc. Assist. 18-19 years
	Crude Percent (%)
	Metis
Southeast	7.00
Interlake	13.94
Northwest	32.43
Winnipeg	24.46
Southwest	13.61
The Pas	38.10
Thompson	29.63
Manitoba	21.06

blank cells = suppressed

Source: MCHP/MMF, 2010

Appendix Table 2.85: Prevalence of Children in Care

RHA	Children in Care	
	Crude Percent (%)	
	Metis	Others
South Eastman	0.99	1.09
Central	2.33	1.89
Assiniboine	2.22	2.59
Brandon	6.18	5.14
Winnipeg	5.52	3.16
Interlake	1.96	3.35
North Eastman	4.86	8.00
Parkland	2.84	1.95
Churchill	9.21	8.16
Nor-Man	3.24	4.13
Burntwood	5.16	6.61
Rural South	1.74	1.85
Mid	2.82	4.29
North	4.38	5.96
Manitoba	4.11	3.34
	N=927	N=8,729

blank cells = suppressed

Source: MCHP/MMF, 2010

Winnipeg Community Area	Children in Care	
	Crude Percent (%)	
	Metis	Others
Fort Garry	3.27	0.76
Assiniboine South	4.42	1.04
St. Boniface	1.36	1.10
St. Vital	1.64	1.15
Transcona		1.06
River Heights	3.00	1.44
River East	2.78	1.57
Seven Oaks	2.44	1.09
St. James - Assiniboia	1.15	1.35
Inkster	5.47	3.59
Downtown	15.33	11.44
Point Douglas	14.68	10.50
Winnipeg	5.52	3.16

blank cells = suppressed

Source: MCHP/MMF, 2010

Metis Region	Children in Care
	Crude Percent (%)
	Metis
Southeast	2.40
Interlake	1.98
Northwest	3.23
Winnipeg	5.52
Southwest	3.34
The Pas	2.90
Thompson	5.32
Manitoba	4.11

blank cells = suppressed

Source: MCHP/MMF, 2010

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Health and Health Care Use Among Older Adults: Using Population-Based Information Systems to Inform Policy in Manitoba, Canadian Journal on Aging, Volume 24, Supplement 1, 2005.

High-Cost Users of Pharmaceuticals: Who Are They? by Anita Kozyrskyj, Lisa Lix, Matthew Dahl and Ruth-Ann Soodeen.

Primary Prevention: An Examination of Data Capabilities in Manitoba, by Lisa Lix, Greg Finlayson, Marina Yogendran, Ruth Bond, Jennifer Bodnarchuk, and Ruth-Ann Soodeen.

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