

SOCIAL HOUSING IN MANITOBA

Part I: Manitoba Social Housing Data

Gregory Finlayson, PhD
Mark Smith, MSc
Charles Burchill, MSc
Dave Towns, MSc
William Peeler
Ruth-Ann Soodeen, MSc
Heather Prior, MSc
Shamima Huq, MSc
Wendy Guenette

Part II: Social Housing and Health in Manitoba: A First Look

Mark Smith, MSc
Gregory Finlayson, PhD
Patricia Martens, PhD
Jim Dunn, PhD
Heather Prior, MSc
Carole Taylor, MSc
Ruth-Ann Soodeen, MSc
Charles Burchill, MSc
Wendy Guenette
Aynslie Hinds, MSc



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DEPARTMENT OF COMMUNITY HEALTH SCIENCES
FACULTY OF MEDICINE, UNIVERSITY OF MANITOBA



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Manitoba Centre for Health Policy
Dept. of Community Health Sciences
Faculty of Medicine, University of Manitoba
4th Floor, Room 408
727 McDermot Avenue
Winnipeg, Manitoba, Canada
R3E 3P5

Email: reports@cpe.umanitoba.ca

Phone: (204) 789-3819

Fax: (204) 789-3910

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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 healthcare decision-makers, analysts and providers, so they can offer services which are effective and efficient in maintaining and improving the health of Manitobans. Our researchers rely upon the unique 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.

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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 Manitoba Health.

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TABLE OF CONTENTS

Acronymsxi

Executive Summary xiii

 Methodsxiii

 Key Findingsxiv

 Conclusionsxvi

Part I: Manitoba Social Housing Data 1

 Introduction 1

Chapter 1: Background and Overview 3

 Study Purpose and Research Questions3

 Structure of the Report3

Chapter 2: The Social Housing Data 5

 Introduction5

 Manitoba Social Housing Data5

 Data Validation6

 Two Important Notes7

 How We Present the Data7

 Summary7

Chapter 3: Social Housing Managed by Manitoba Housing 9

 Buildings and Units.....9

 Applications.....18

 Clients23

Summary of Part I 29

Part II: Social Housing and Health..... 31

 Introduction31

Chapter 4: Methods 33

 Data Sources and Study Period33

 Study cohorts.....33

 Descriptive Analyses34

 Statistical Testing35

Chapter 5: Morbidity and Mortality 37

 Overview of Key Findings.....37

 Premature Mortality39

 Hospitalizations for Injuries41

 Causes of Injury Hospitalizations.....44

 Hospitalizations Due to Tuberculosis (TB)46

 Diabetes47

 Total Respiratory Morbidity (TRM)50

 Schizophrenia52

LIST OF FIGURES

Figure 3.1: Map of the Number of Social Housing Units per Building in Manitoba, 2009..... 10

Figure 3.2: Map of the Number of Social Housing Units per Building in Winnipeg, 2009 11

Figure 3.3: Map of the Number of Social Housing Units per 1,000 Residents in Manitoba, 2009 12

Figure 3.4: Map of the Number of Social Housing Units per 1,000 Residents in Winnipeg, 2009 13

Figure 3.5: Number of Individuals per Social Housing Unit in Manitoba as of April 1 of Each Year, 1995–2009 17

Figure 3.6: Number of Social Housing Applications, Approvals, Cancellations, Move–Ins, and Move–Outs in Manitoba by Fiscal Year, 1995/96–2008/09..... 19

Figure 3.7: Number of Clients in Social Housing in Manitoba at Anytime During the Year, 1995/96–2008/09... 25

Figure 3.8: Number of Clients in Social Housing in Manitoba as of April 1 of Each Year, 1995–2009..... 25

Figure 3.9: Average Number of Days in Social Housing in Manitoba per Client per Year, 1995/96–2008/09..... 26

Figure 3.10: Age and Sex Profiles for Individuals Living In and Not Living In Social Housing in Manitoba, 2008 27

Figure 3.11: Urban Age and Sex Profiles for Individuals Living In and Not Living In Social Housing in Manitoba, 2008 27

Figure 3.12: Rural Age and Sex Profiles for Individuals Living In and Not Living In Social Housing in Manitoba, 2008 28

Figure 4.1: Comparison of Individuals Living in Social Housing and All Other Manitobans (December 31, 2008)..... 34

Figure 5.1: Premature Mortality Rates by RHA, 1999–2008 40

Figure 5.2: Premature Mortality Rates by Winnipeg CA, 1999–2008..... 40

Figure 5.3: Injury Hospitalization Rates by RHA, 1999/2000–2008/09 43

Figure 5.4: Injury Hospitalization Rates by Winnipeg CA, 1999/2000–2008/09 43

Figure 5.5: Causes of Injury Hospitalizations for Social Housing Clients in Manitoba, 1999/2000–2008/09 45

Figure 5.6: Causes of Injury Hospitalizations for All Other Manitobans, 1999/2000–2008/09..... 45

Figure 5.7: Top 5 Causes of Injury Hospitalizations for Social Housing Clients and All Other Manitobans, 1999/2000–2008/09 46

Figure 5.8: Rates of Hospitalizations Due to Tuberculosis by Urban and Rural Areas, 1999/2000–2008/09..... 47

Figure 5.9: Diabetes Prevalence by RHA, 2006/07–2008/2009..... 49

Figure 5.10: Diabetes Prevalence by Winnipeg CA, 2006/07–2008/2009 49

Figure 5.11: Total Respiratory Morbidity Prevalence by RHA, 2008/2009 51

Figure 5.12: Total Respiratory Morbidity Prevalence by Winnipeg CA, 2008/2009 51

Figure 5.13: Schizophrenia Prevalence by RHA, 2004/05–2008/09..... 53

Figure 5.14: Schizophrenia Prevalence by Winnipeg CA, 2004/05–2008/09 53

Figure 5.15: Mood and Anxiety Disorder Prevalence by RHA, 2004/05–2008/09 56

Figure 5.16: Mood and Anxiety Disorder Prevalence by Winnipeg CA, 2004/05–2008/09..... 56

Figure 5.17: Suicide Completion Rates by Urban and Rural Areas, 1999–2008 57

Figure 6.1: Three or More Families First Risk Factors at Birth of Child by RHA, 2003/04 and 2007/08 62

Figure 6.2: Three or More Families First Risk Factors at Birth of Child by Winnipeg CA, 2003/04 and 2007/08..... 62

Figure 6.3: Percent of Newborns who were Breastfed at Hospital Discharge by RHA, 2004/05–2008/09..... 64
 Figure 6.4: Percent of Newborns who were Breastfed at Hospital Discharge by Winnipeg CA, 2004/05–2008/09 64
 Figure 6.5: Percent of Two–Year–Olds with a Complete Immunization Schedule by RHA, 2007/08–2008/09 ...66
 Figure 6.6: Percent of Two–Year–Olds With a Complete Immunization Schedule by Winnipeg CA, 2007/08–2008/09 66
 Figure 6.7: Percent of Children Not Ready for School (≥1 EDI Domain) by RHA, School Years 2005–06 and 2007–08 69
 Figure 6.8: Percent of Children Not Ready for School (≥1 EDI Domain) by Winnipeg CA, School Years 2005–06 and 2007–08 69
 Figure 6.9: Percent of Students Completing High School by RHA, School Years 2007–08 and 2008–09.....71
 Figure 6.10: Percent of Students Completing High School by Winnipeg CA, School Years 2007–08 and 2008–09 71
 Figure 6.11: Teen Pregnancy Rates by RHA, 2004/05–2008/09 73
 Figure 6.12: Teen Pregnancy Rates by Winnipeg CA, 2004/05–2008/09 73
 Figure 7.1: Percent of Individuals with Complete Physicals by RHA, 2008/09 78
 Figure 7.2: Percent of Individuals with Complete Physicals by Winnipeg CA, 2008/09..... 78
 Figure 7.3: Percent of Individuals who received the Majority of their Care from A Single Physician by RHA, 2008/09 80
 Figure 7.4: Percent of Individuals who received the Majority of their Care from A Single Physician by Winnipeg CA, 2008/09..... 80
 Figure 7.5: Percent of Individuals with Breast Cancer Screening by RHA, 2007/08–2008/09 82
 Figure 7.6: Percent of Individuals with Breast Cancer Screening by Winnipeg CA, 2007/08–2008/09 82
 Figure 7.7: Percent of Individuals with Cervical Cancer Screening by RHA, 2006/07–2008/09 84
 Figure 7.8: Percent of Individuals with Cervical Cancer Screening by Winnipeg CA, 2006/07–2008/09 84
 Figure 8.1: Odds Ratios for Premature Death, Social Housing Clients in Manitoba, 2008 87
 Figure 8.2: Relative Risk of Hospitalizations for Tuberculosis, Social Housing Clients in Manitoba, 1999/2000–2008/09 88
 Figure 8.3: Odds Ratios for Total Respiratory Morbidity, Social Housing Clients in Manitoba, 2008/09 89
 Figure 8.4: Odds Ratios for Schizophrenia, Social Housing Clients in Manitoba, 2004/05–2008/09 90
 Figure 8.5: Odds Ratios for Complete Physicals, Social Housing Clients in Manitoba, 2008/09 91
 Figure 8.6: Odds Ratios for Breast Cancer Screening, Social Housing Clients in Manitoba, 2007/08–2008/09 ..92
 Figure 8.7: Odds Ratios for Cervical Cancer Screening, Social Housing Clients in Manitoba 2008/09..... 93
 Figure 8.8: Odds Ratios for Breastfeeding Initiation, Social Housing Clients in Manitoba 2004/05–2008/09..... 94
 Figure 8.9: Odds Ratios for Complete Immunization at Age Two, Social Housing Clients in Manitoba, 2007/08–2008/09 95
 Figure 8.10: Odds Ratios for High School Completion, Social Housing Clients in Manitoba, School Years 2007–08 and 2008–09 96
 Figure 8.11: Odds Ratios for Teenage Pregnancy, Social Housing Clients in Manitoba 2008/09..... 97
 Appendix Figure A1.1: Manitoba Housing Application..... 127
 Appendix Figure A1.2: Manitoba RHA Boundaries (pre–April 1, 2012) 135
 Appendix Figure A1.3: Winnipeg Community Area Boundaries 136

LIST OF TABLES

Table E.1: Summary of the Association Between Living In Social Housing and Health and Social Outcomes	xv
Table 3.1: Types of Units Available From Manitoba Housing	14
Table 3.2: Number of Social Housing Buildings by RHA as of April 1 of Each Year, 1999–2009	15
Table 3.3: Number of Social Housing Units by RHA as of April 1 of Each Year, 1999–2009	16
Table 3.4: Mean and Median Number of Days per Year that Social Housing Units in Manitoba were Occupied, 1999/2000–2008/09	17
Table 3.5: Number and Percent of Social Housing Units in Manitoba by Client Type as of April 1 of Each Year, 1995–2009	18
Table 3.6: Number of Social Housing Applications by RHA and Fiscal Year, 1995/96–2008/09	19
Table 3.7: Number of Social Housing Clients with Subsequent Applications in Manitoba by Year of Move-In, 1995/96–2008/09	20
Table 3.8: Number and Percent of New Social Housing Applications in Manitoba by Client Type and Year of Application, 1995/96–2008/09	21
Table 3.9: Number and Percent of All Social Housing Applications in Manitoba by Reason and Year of Application, 1999/2000–2008/09	21
Table 3.10: Number and Percent of Cancelled Social Housing Applications in Manitoba by Reason and Year of Cancellation, 1999/2000–2008/09	22
Table 3.11: Number and Percent of Social Housing Applications in Manitoba Resulting in a Move-In by Household Type and Year of Scheduled Move-In, 1999/2000–2008/09	22
Table 3.12: Number and Percent of Social Housing Applications in Manitoba Resulting in a Move-In by Marital Status and Year of Scheduled Move-In, 1999/2000–2008/09	23
Table 3.13: Number and Percent of Social Housing Applications in Manitoba by Move-Out Reason and Year of Move-Out, 1999/2000–2008/09	24
Table 5.1: Key Findings in Health Status Indicators for Social Housing Clients and All Other Manitobans	38
Table 6.1: Key Findings for Children and Adolescents in Social Housing and All Other Young Manitobans	60
Table 7.1: Key Findings in Healthcare Utilization and Screening for Social Housing Clients and All Other Manitobans	76
Table 8.1: Summary of the Association Between Living In Social Housing and Health and Social Outcomes	99
Appendix Table A1.1: Housing Programs Offered by Manitoba Housing and Community Development, and Manitoba Family Services and Labour in 2011/12	120
Appendix Table A1.2: Current Manitoba Housing Income Limits	126
Appendix Table A2.1: Indicator Definitions and Codes	137
Appendix Table A3.1: Premature Mortality–Final Multiple Logistic Regression Model, Manitoba 2008	141
Appendix Table A3.2: Hospitalization for Tuberculosis–Final Poisson Regression Model, Manitoba 1999/2000–2008/09	142
Appendix Table A3.3: Total Respiratory Morbidity–Final Multiple Logistic Regression Model, Manitoba 2008/09	143
Appendix Table A3.4: Schizophrenia–Final Multiple Logistic Regression Model, Manitoba 2008/09	144
Appendix Table A3.5: Complete Physicals–Final Multiple Logistic Regression Model, Manitoba 2008/09	145
Appendix Table A3.6: Breast Cancer Screening–Final Multiple Logistic Regression Model, Manitoba 2007/08–2008/09	146

Appendix Table A3.7: Cervical Cancer Screening–Final Multiple Logistic Regression Model, Manitoba 2008/09..... 147

Appendix Table A3.8: Breastfeeding Initiation–Final Multiple Logistic Regression Model, Manitoba 2004/05–2008/09..... 148

Appendix Table A3.9: Complete Immunization Schedule at Age Two–Final Multiple Logistic Regression Model, Manitoba 2004/05–2008/09..... 149

Appendix Table A3.10: High School Completion–Final Multiple Logistic Regression Model, Manitoba School Years 2007–08 and 2008–09..... 150

Appendix Table A3.11: Teen Pregnancy–Final Multiple Logistic Regression Model, Manitoba 2008/09 151

ACRONYMS

ACG®	Adjusted Clinical Group®
ADGs®	Aggregated Diagnosis Groups™
CA	Community Area
DPIN	Drug Program Information Network
DTP	Diphtheria, Acellular Pertussis, Tetanus
EDI	Early Development Instrument
FP	Family Practitioner
GP	General Practitioner
HiB	<i>Haemophilus influenzae</i> type B
IA	Income Assistance
IEM	Industry, Energy and Mines
ICD	International Classification of Diseases
MCHP	Manitoba Centre for Health Policy
MIMS	Manitoba Immunization Monitoring System
MMR	Measles, Mumps, and Rubella
OR	Odds Ratio
PCV7	Pneumococcal Conjugate 7
PHIN	Personal Health Identification Number
PMR	Premature Mortality Rate
RHA	Regional Health Authority
SES	Socioeconomic Status
TB	Tuberculosis
TMS	Tenant Management System
TRM	Total Respiratory Morbidity

EXECUTIVE SUMMARY

The Manitoba Centre for Health Policy (MCHP) in conjunction with Manitoba Housing and Community Development (Manitoba Housing), Manitoba Energy, Innovation, and Mines (IEM) who maintain the database, and Manitoba Health worked collaboratively to integrate fourteen years of social housing data (1995/96–2008/09) into the Population Health Research Data Repository (Repository) maintained at MCHP. This allowed for an unprecedented opportunity to describe the population of individuals living in social housing and, through data linkage, to compare them to the rest of the province on a number of health and social indicators.

We started by investigating the overall quality of the data. Due to changes in systems and policies over time, we have concluded that data collected since 2000 are the most consistent. Of the many elements contained in these data, we believe that the information regarding when a person or family moved into a social housing unit and when they moved out were the most reliable and was pertinent to this study. While there is much more information in the database, much of it should be interpreted cautiously in the context of the policy and procedures that were in place during a given point in time.

The first three chapters of this report describe the social housing units provided by Manitoba Housing and the people living in them. The remaining chapters explore the health and social factors of individuals living in social housing compared to a cohort consisting of all other Manitobans. Despite previous limited government data on the health of people living in social housing, where possible, our findings have been compared to published research.

It is important to note that in this report we only discuss people living in social housing directly managed by Manitoba Housing. There are many other social housing locations in the province that could not be included—about 21,800 units are managed by non-profit groups or as co-ops. Person-level data are not collected by Manitoba Housing for these units, as they provide block funding to these entities.

Methods

Part I of this report describes bringing in the Tenant Management System (TMS) data for the period 1995/96–2008/09 and integrating it into the Repository at MCHP. Tests were conducted to determine the amount of data which were missing, inconsistent, or out of range. Graphs and tables of selected TMS fields were developed and are presented in Chapter 3. All data management, programming, and analyses were performed using SAS® statistical analysis software, version 9.2.

Part II of this report used the data from Manitoba Housing combined with other data from the Repository. In particular, we used the following data: Canadian Census (public-use files), Drug Program Information Network (DPIN), Education (Enrollment, Marks, and Assessments), Families First Screen, Hospital Discharge Abstracts, MCHP Research Registry, Manitoba Immunization Monitoring System (MIMS), Medical Claims, Provider Registry, Employment and Income Assistance program (Income Assistance or IA), Social Housing (TMS), and Vital Statistics (mortality). In this section, the study period generally covered fiscal years 2004/05 to 2008/09 but varied as necessary for each indicator.

Two cohorts of Manitoba residents were compared. The Social Housing cohort consisted of Manitoba residents who lived in social housing for at least one day in a given study year. The All Other Manitobans cohort was composed of all other registered Manitoba residents who did not live in a social housing unit in a given study year. On average, the Social Housing cohort represented about 2.5% of the registered Manitoban population.

Outcome rates (or prevalence as appropriate) were calculated for each of 19 indicators and are presented for the nine older Regional Health Authorities (RHAs), Winnipeg Community Areas (CAs), and their aggregate regions (Mid, Rural South, and North). In most cases, the rates were age- and sex-adjusted in order to create a fair comparison between regions with different age/sex distributions (any adjustments are noted in the title of figures and tables). Each indicator was measured for the Social Housing and All Other Manitobans cohorts.

A notable observation in Chapter 6 was that, by neighbourhood–area socioeconomic status (SES), the rate of high school completion in the Social Housing cohort varied from 81.6% in Fort Garry (the neighbourhood with the highest SES score) to 19.8% in Point Douglas (the area with the lowest neighbourhood–area SES score). The effect was both significant and pronounced. Generally, it is hard to find an SES gradient within a low income cohort where everyone is struggling financially. However, this SES effect was not based on a family’s individual income, but rather the income level of the neighbourhoods in which they lived.

In Chapter 7, we observed no difference between our cohorts on the measure of complete physicals; approximately 40% of both groups had a complete physical exam in 2008/09 with slightly higher percentages observed in Winnipeg. For two of the three remaining indicators in Manitoba —cervical cancer screening and majority of care—the differences between the two cohorts were small, but significant (62.9% vs. 68.4% for cervical cancer screening and 62.9% vs. 71.3% for majority of care). For breast cancer screening, there was a statistically significant difference in participation rate between the two groups—38.3% of women in social housing had this test at least once in a two–year period versus 62.5% of women in the All Other Manitobans cohort.

In Chapter 8, we re–examined a number of key indicators in a logistic regression analysis to determine if social housing, demographic and other factors, or income contributed to the outcomes we observed. Factors included age, sex, region of residence, a number of other factors specific to each analysis, receipt of IA and neighbourhood–area SES, as measured in the 2006 census. Because we lacked individual income data, we used receipt of IA as an indicator of low–income families or poverty. In other words, knowing that people in social housing often face a myriad of health, economic and social issues we asked the question “Are there factors besides residing in social housing that can account for the health and social problems we observed?”

Table E.1 summarizes these results.

Table E.1: Summary of the Association Between Living In Social Housing* and Health and Social Outcomes

Indicators	Comparison of Odds: Crude Model (Social Housing vs. All Other Manitobans)	Comparison of Odds: Final Model (Social Housing vs. All Other Manitobans)	Housing Effect Changed by:
Health Status			
Premature Mortality	Worse	No difference	IA, SES
Hospitalizations Due to Tuberculosis	Worse	No difference	IA
Total Respiratory Morbidity	Worse	Worse	IA
Schizophrenia	Higher**	No difference	IA
Screening and Prevention			
Complete Physicals	Worse	No difference	IA, SES
Breast Cancer Screening (Mammography)	Worse	Worse	IA
Cervical Cancer Screening (Pap Test)	Worse	Better	IA, SES
Breastfeeding Initiation	Worse	No difference	IA and Region, Hospital, Gestational Age, Birth Weight, Apgar, Mom’s Age, Parity, C-Section, Epidural, Multiple Births, Mental & Physical Illness ADGs®
Complete Immunizations by Age Two	Worse	Better	IA and Region, Mom’s Age, Number of Children, Breastfeeding Initiation, Majority of Care & Physical Illness ADGs®
Social Outcomes			
High School Completion	Worse	Worse	IA
Teen Pregnancy	Worse	No difference	IA, and Region, Age, Age at First Birthday, Grade 9, Physical & Mental Illness ADGs®

Better Indicates the outcome was better for individuals in social housing
Worse Indicates the outcome was worse for individuals in social housing
* Housing managed by Manitoba Housing and Community Development
** Results cannot be interpreted as either better or worse
IA Indicates income assistance
SES Indicates socioeconomic status

We observed that after controlling for individual– and neighbourhood–level SES, individuals in social housing did significantly better than all other Manitobans on the indicators of cervical cancer screening and complete immunizations by age two. Are there lessons that can be learned from analyzing these two indicators that could be applied to other health and social behaviours?

After controlling for all of the regression factors, TRM was still worse for residents of social housing than it was for all other Manitobans. Are there specific factors that contribute to this result that can be identified and are they amenable to intervention?

Much of the housing in Churchill, which is owned and managed by Manitoba Housing, is rented at market values. Unfortunately we were not able to separate those that live in subsidized units from those who do not. We recommend an indicator be added to the database that can identify whether a tenant of a Manitoba Housing property is receiving social housing benefits or is living in an unsubsidized unit.

This study was limited to a cross-sectional analysis of health and social indicators, which does not control for a great many factors. In the future, other study designs that allow for additional insight could include retrospective cohort designs where groups of matched individuals are followed longitudinally in the administrative data, and pre–/post–intervention designs that could study the same groups of individuals before and after entering into social housing.

Manitoba Housing clients often face a complex set of social and economic challenges and the range of outcomes in this report demonstrate the diversity of negative effects these challenges can produce. With this in mind, we recommend that a more integrated approach to providing and delivering government programs to this population be developed.

Relatedly, during the course of producing this report, we attempted to identify other social, economic and related government programs that could be useful for individuals living in social housing or who are living on low incomes. Such a list does not currently exist and could not easily be assembled by either our team or government representatives on our advisory group. Therefore we recommend that the Government of Manitoba develop, maintain and promote such a list so that individuals in social housing and individuals on low incomes can be more aware of available programs and services that might benefit their health and social wellbeing.

Finally, as indicated by the results in this report, poverty was found to be an important contributing factor associated with many of the negative outcomes for people living in social housing. In addition to serving as a benchmark against which to measure future initiatives, we hope this report will help to inform the discussion about the need for economic and social policies and programs to reduce income inequities and increase the health and wellbeing of individuals living in social housing and on low income. Addressing the health and social problems faced by people with low incomes benefits everyone through improved economic productivity, a broader distribution of the costs of society and lower demands on health and social service programs (Mikkonen and Raphael, 2010; Raphael, 2012; Wilkinson and Pickett, 2009; PHAC, 2004a).

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Heather Prior, MSc

Shamima Huq, MSc

Wendy Guenette

PART I: MANITOBA SOCIAL HOUSING DATA

Introduction

“In 1986, the Ottawa Charter for Health Promotion recognized shelter as a basic prerequisite for health” (PHAC, 2004b). The type and quality of housing a person lives in typically reflects their **socioeconomic status (SES)**,¹ which has consistently been shown to be an important determinant of health (Brownell et al., 2003; Evans and Stoddart, 1990; Fransoo et al., 2009; Martens et al., 2003). Numerous studies have found that having safe and adequate accommodation contributes independently to individuals’ and families’ health; perhaps more importantly, affordable housing means that money that is spent on housing is not being diverted from other necessary goods, such as food, clothing, and healthcare needs. The relationship between health, housing, and associated social and socioeconomic factors is complex and is part of the broader social determinants of health. The particular challenge in looking at the independent relationship between **social housing**² and health and educational outcomes is that multiple factors are involved, all of which contribute to these outcomes. There is evidence that SES is an independent predictor of health and educational outcomes, but there is also a relationship between SES and the need for social housing.

Shaw (2004) developed a conceptual model in which four dimensions of housing can be related to health outcomes—direct and indirect effects, and for each of those two levels—physical and social factors. The direct/physical factors included the material aspects of housing; dampness, cold, mold, heat and, in the extreme case, homelessness. The indirect/physical factors included such things as availability of neighborhood services and facilities, features of the natural and built environment, proximity to services and facilities, and neighborhood-level SES. Direct/social factors include such things as the effect of low SES and debt on mental health, social status, feelings of security, and a feeling that one’s residence is a home. Indirect/social factors included household and area-level culture and behaviours, sense of community or social fragmentation, and networking opportunities and social capital. This conceptualization demonstrates the complexity of developing a clear understanding of the relationship between housing and health.

1 Terms in **bold** typeface are defined in the Glossary at the end of this report.
 2 Also known as Public Housing

Not having access to adequate and affordable housing can lead to homelessness. Studies investigating the health status of people who are homeless (Bryant, Chrisholm, and Crowe, 2002) have found a variety of poor health outcomes, for example musculoskeletal and chronic breathing problems, headaches, and seizures (Bines, 1994).

Children who do not have suitable housing are particularly vulnerable to health problems, not only due to over-crowding, dampness, or lack of heat, but also from lack of nutritious food and recreational opportunities that result from having little disposable funds after paying for housing (Harker, 2006).

According to the Canada Mortgage and Housing Corporation, in 2006, 46,915 households (11.3%) in Manitoba were identified as having “core need”. Households with core housing needs face one or more of the following issues:

- Affordability—they spend more than 30% of their gross income on housing
- Suitability—they live in overcrowded conditions
- Adequacy—their homes lack full bathroom facilities or require significant repairs

Manitoba Housing and Community Development³ offers a variety of programs designed to reduce core housing needs for Manitoba residents. Manitoba Housing provides a wide array of affordable and subsidized rental housing options for individuals, seniors, and families who are living on low to moderate income. The research presented in this report focuses on people living in social housing that is **directly managed** by the department (see Appendix 1 for a list of housing programs available in the province). Manitoba Housing manages 13,300 housing units in which about 31,000 people live annually. These data have been recognized as potentially valuable sources of information to inform population health assessment and program planning and evaluation. This project assessed the quality and research utility of these data and took an initial look at the health and social outcomes associated with living in social housing.

3 Hereafter referred to as “Manitoba Housing”

CHAPTER 1: BACKGROUND AND OVERVIEW

Study Purpose and Research Questions

The purpose of this project was to obtain data from Manitoba Housing and anonymously link these data through Manitoba Health to the data in the **Population Health Research Data Repository (Repository)** housed at the **Manitoba Centre for Health Policy (MCHP)**. These linked data were used to answer important questions about the relationship between housing, health, and other social outcomes. The specific questions that we addressed in this study were:

1. How well can the social housing data be linked to the **MCHP Research Registry** and other **administrative data** in the Repository?
2. What does the new linked information tell us about individuals living in social housing?
3. What do we know about the health service utilization and health and educational outcomes of individuals living in social housing in comparison to other Manitobans?

Structure of the Report

This report is composed of two sections. Part I (Chapters 1 through 3) form the basis for Part II (Chapters 4 through 8). This first chapter introduces the issue of housing as a social determinant of health. The second chapter describes the process that was used to obtain and prepare the data for research use. In the third chapter, we describe **Manitoba Housing buildings, units**, applications, and clients. Chapters 4 to 8 presents information regarding the health and educational status of individuals living in social housing in comparison with other Manitobans.

CHAPTER 2: THE SOCIAL HOUSING DATA

Introduction

In this chapter we describe the data that were obtained from Manitoba Housing, the process we used to validate the data, the strengths and limitations of the data, and how the data are presented in the remainder of the report.

Manitoba Social Housing Data

The data we will be describing in this section is from the **Tenant Management System (TMS)**, which is the information system used to manage the clients that reside in buildings owned by Manitoba Housing. When an individual applies for social housing, a paper application form is completed (see Appendix Figure A1.1 in Appendix 1). On this form they report basic demographic information (age, sex, marital status) for the **primary applicant**, **co-applicant**, and **dependents**, if any. Information that is used to determine eligibility is also reported: affordability (current rent/mortgage, gross income, and assets), adequacy (current type of housing, number of bedrooms, number of occupants, condition of home, and living conditions), and suitability (medical conditions, changes in living situation, and travel time to obtain basic services). Details on past rentals are also collected. This information is entered into an electronic record by Manitoba Housing staff and is used to assess whether the applicant is eligible for housing and, if so, to determine the most appropriate living situation.

Once the application has been assessed, the applicant is contacted regarding the decision. This decision is recorded in the original record that was created. Once accepted, if suitable housing is available, the person and their family may move in right away. In other cases, once an application is accepted, there may be a wait before the right housing is available. Applications may also be cancelled for a variety of reasons. For example, Manitoba Housing may determine that the applicant does not meet the criteria for housing or the applicant may choose not to accept the accommodations that are offered.

Manitoba Housing organizes the data into separate, related data files. The application creates the “client” record. People live within units, units are located within buildings (although in some cases a unit may be a free standing home), and buildings are aggregated into **projects**. Therefore, there are separate files for people, units, buildings, and projects. Additional information on the databases and their structure is available from MCHP.

While the data are collected and owned by Manitoba Housing, they are managed by Manitoba Innovation, Energy and Mines (IEM). This Department is responsible for storing the data and providing all data systems related services. The TMS data from 1990 to 2010 were sent first to Manitoba Health to be de-identified and linked to a scrambled **Personal Health Information Number (PHIN)** before being integrated into the Repository at MCHP following the process detailed in Lix et. al. (2012).

The Repository is a comprehensive set of databases that contains records for all Manitobans’ contacts with physicians, hospitals, home care, and personal care homes, and for pharmaceutical prescriptions dispensed in retail pharmacies. The Repository records have been de-identified—prior to data transfer, Manitoba Health encrypts all personal health information numbers and removes all names and addresses.

All data management, programming, and analyses were performed using SAS[®] statistical analysis software, version 9.2.

Data Validation

The data collected by Manitoba Housing has been used to manage their programs. As is the case with many administrative databases, these data were never intended to be used for research but rather were designed to provide staff with the information they required about their clients, units, buildings, and projects. In order to be reasonably confident in our ability to use these data for research purposes, it was first important to evaluate the quality of the data.

It is often possible to use external data to validate the accuracy of a new database. For example, when new diagnostic imaging data became available to MCHP, they were compared with physician and hospital records to find the level of concordance among the various databases. For the TMS data, however, the only external database that could be used as a comparison was the MCHP Research Registry, which allows an assessment of age, sex, and postal code. Therefore, the approach we took was to look at the other data fields that are likely to be of interest to researchers and see if the contents of the fields “made sense.” The first test was to determine which fields contain a large proportion of missing data or data that are “out of range” (e.g., the only acceptable responses range from 1–5 and the field contains a large number of 9s). For example, the application database includes a field for “language spoken”; and for most records, the value is missing. The second test was to look at the data over time to see if there are consistencies from year-to-year. If any inconsistencies are found this would suggest that the data are unreliable or that there have been policy or system changes that affect the way data are recorded.

After following this process we believe that many of the core fields are valid. In the next chapter we provide graphic and tabular representation of these fields as well as some that are likely influenced by policy changes and, therefore, may not be appropriate to use longitudinally. When we produced the preliminary charts and tables, we discussed our findings with Manitoba Housing staff and jointly agreed that data recorded in the systems were most accurate after 2000. Although in the next chapter we have provided some results back to 1995, our analysis of the health and social indicators in subsequent chapters extends from 2000 onwards.

Scrambled PHINs were linked by Manitoba Health to approximately 95% of housing clients (which is typically considered a good linkage) based on name, age, sex, and address. As a consequence, the data could then be linked to other data within the Repository. Much of the data related to housing units show good consistency over time so we are confident reporting those. The date fields (application date, move-in date, move-out date) appear to be particularly accurate, which means that we can reliably identify individuals living in social housing at any particular time. The application data show substantial variability over time, likely reflecting changes in policy and/or record keeping.

In several files, freeform text entries were used to record information that is appropriate for program management purposes but not for research purposes. Text fields that might contain information of a personal nature about clients or participants in social housing were removed from the data before being transferred to MCHP.

Two Important Notes

In this report we only provide analyses of data from the social housing program that is directly managed by Manitoba Housing. There are many other housing programs that are operated by Manitoba Housing (as described in Appendix 1); in particular, there are approximately 4,500 units operated by non-profit/cooperative sponsor groups or property management agencies. Manitoba Housing also provides subsidy and support to approximately 17,300 households operated by cooperatives, Urban Native, and private non-profit groups. Because Manitoba Housing does not directly manage these 21,800 units, person-specific data are not available to them, nor to MCHP; the records are maintained by the organization that manages the units (Manitoba Housing and Community Development, 2010).

Readers should take note that data for Churchill are anomalous. Much of the housing in Churchill, which is owned and managed by Manitoba Housing, is rented at market rates. Unfortunately, we were not able to separate the two different types of clients: those that live in subsidized units and those who pay market rates and therefore removed the Churchill data from the descriptive analysis.

How We Present the Data

On April 17, 2012, the Government of Manitoba announced an amalgamation of the province's **Regional Health Authorities (RHAs)** reducing the number from 11 to five:

- Northern RHA – the former NOR-MAN and Burntwood RHAs
- Western RHA – the former Brandon, Assiniboine, and Parkland RHAs
- Southern RHA – the former Central and South Eastman RHAs
- Interlake-Eastern RHA – the former Interlake and North Eastman RHAs
- Winnipeg RHA – Winnipeg and the former Churchill RHA

In this report we have provided results for the former RHAs, **aggregate regions (Rural South, North, and Mid)**, and for **Winnipeg Community Area (CAs)**. Maps of these areas are presented in Appendix 1 (Figures A1.2 and A1.3).

Summary

The information in this chapter describes the TMS database owned by Manitoba Housing and administered by IEM. The data collected include demographic information for the primary housing applicant as well as co-applicants and dependents, if any. Information on eligibility, affordability, adequacy and suitability as well as details on past rentals was also collected. The TMS system includes multiple related files including those for persons, units, buildings and housing projects. Data were extracted by IEM and sent to Manitoba Health for de-identification before being integrated into the Repository at MCHP.

Tests were conducted to determine the amount of missing, “out of range”, or inconsistent data. Graphs and tables of the data are provided in the next chapter. We found data from 2000 onward to be the most consistent and reliable. Scrambled PHINs for approximately 95% of housing residents were identified and linked by Manitoba Health, making this data suitable for research using the other health, education, and social services information stored in the MCHP Repository. The date fields (application date, move–in and move–out dates) appear to be particularly accurate and reliable. Readers should take note that data from Churchill, Manitoba buildings contain a high percentage of market renters that cannot be distinguished from subsidized housing clients.

Results in this report are presented using the former (pre–2012) RHA boundaries, as well as for aggregate regions and Winnipeg CAs. Our conclusion is that by adding this data to the Repository, we can make meaningful investigations of the association between social housing and health, education, and other social factors. This will be described in Part II of this report.

CHAPTER 3: SOCIAL HOUSING MANAGED BY MANITOBA HOUSING

In this chapter, we describe three attributes of social housing operated by Manitoba Housing:

1. The buildings and units
2. The applications processed
3. The people living in the units

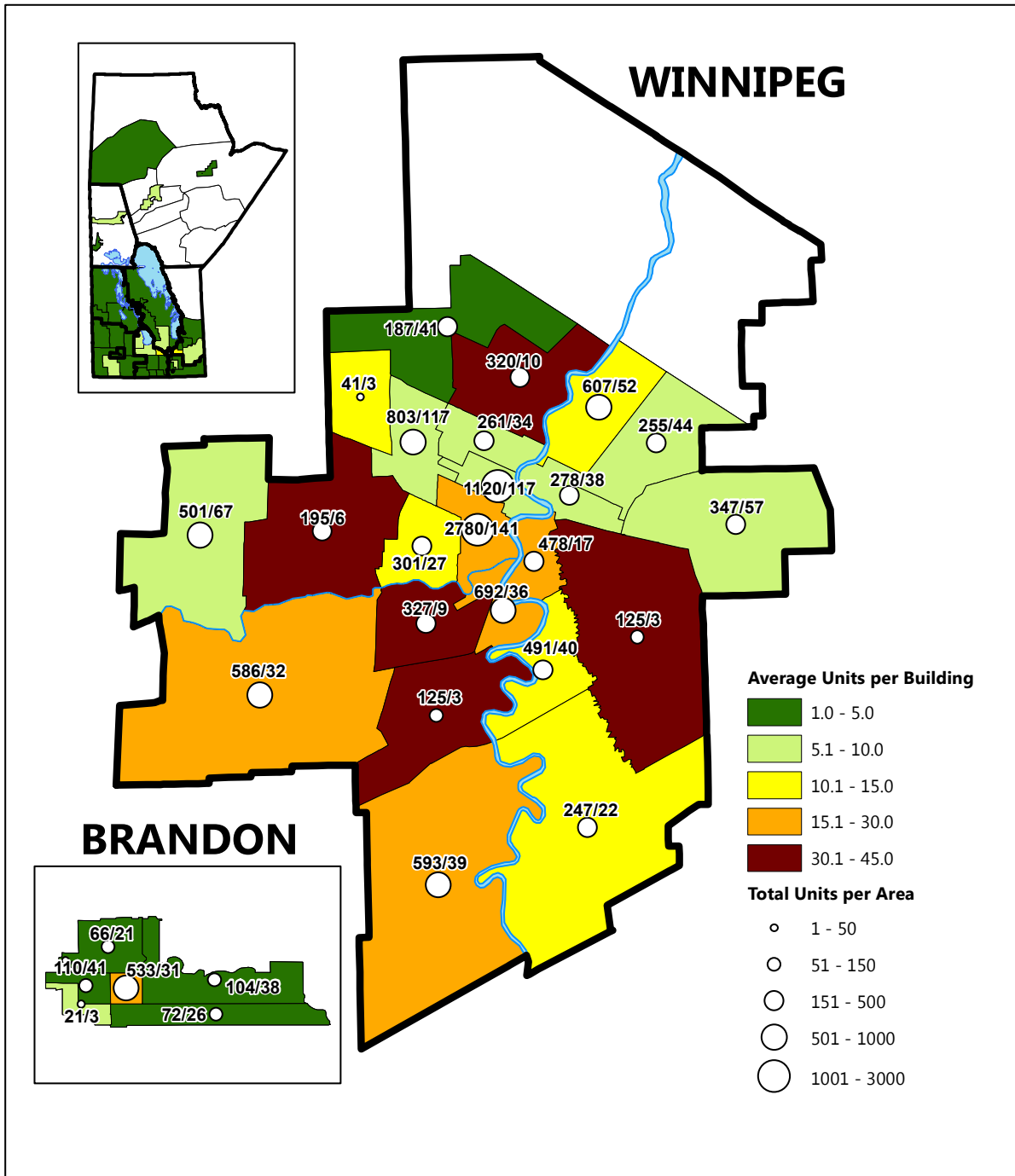
We first describe the stock of buildings and units that have been available over time. We then look broadly at the types of clients who live in the units to provide a picture of how the units are being used. While there was remarkable stability in most descriptors over time, there are some trends worth noting. The second section looks at the applications and describes the people who applied for social housing, the information reported on their application, and the ultimate disposition of the application. The last section of this chapter focuses on the number of clients who lived in social housing, how long they lived in social housing, and their distribution by age and sex.

This information provides Manitoba Housing and others interested in social housing with a snapshot of facilities and the people in them over time. It also lays the groundwork for the later chapters that discuss the health and social situations of people living in social housing.

Buildings and Units

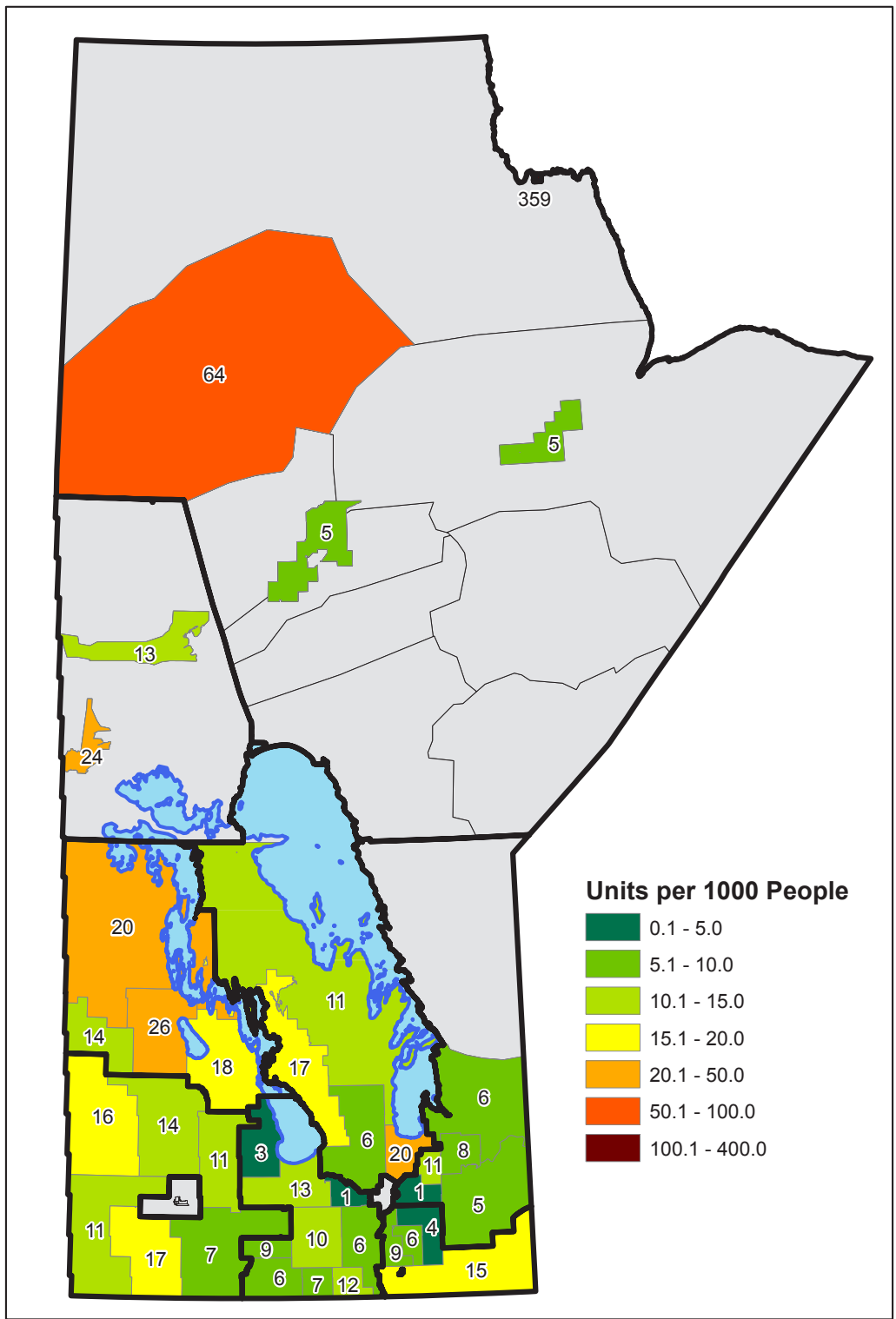
Figures 3.1 to 3.4 provide geographical locations of social housing in Manitoba (see Appendix Figures A1.2 and A1.3 in Appendix 1 for maps showing the boundaries of the RHAs and Winnipeg CAs). In Figures 3.1 and 3.2, the sizes of the dots on the maps represent the number of units in a given area. Larger dots indicate where there are more units. The first number near the dots provides the number of units in the area and the second number shows the number of buildings. The shading shows the average number of units per building in the area. Figures 3.3 and 3.4 show the number of units per 1,000 residents living in the area. Note that in all cases, these figures represent only those people living in social housing that is directly managed by Manitoba Housing.

Figure 3.2: Map of the Number of Social Housing Units per Building in Winnipeg, 2009



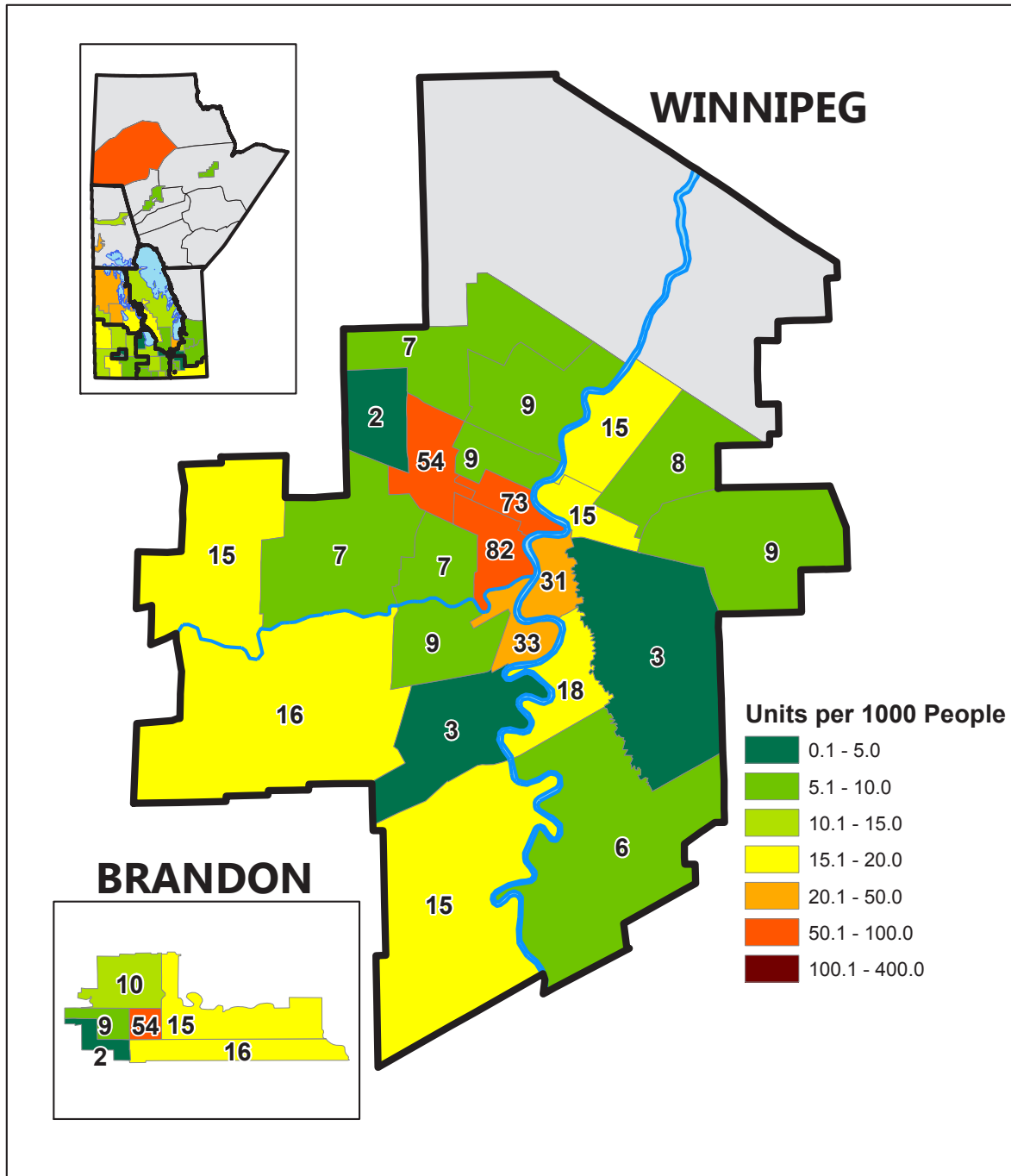
* Housing managed by Manitoba Housing and Community Development
 Note: The first values that appear near the spheres represent the number of units in the area, while the second value represents the number of buildings

Figure 3.3: Map of the Number of Social Housing Units per 1,000 Residents in Manitoba, 2009



* Housing managed by Manitoba Housing and Community Development
 Note: See Figure 3.4 for information regarding Brandon and Winnipeg

Figure 3.4: Map of the Number of Social Housing Units per 1,000 Residents in Winnipeg, 2009



* Housing managed by Manitoba Housing and Community Development

Table 3.1: Types of Units Available From Manitoba Housing

Number	Type	Description
1	Single Family Dwelling	Contains only one dwelling unit that is completely separated on all sides from any other dwelling or structure.
2.1	Semi-Detached	Two dwelling units located side-by-side sharing a common fire-rated wall. Each dwelling has a private exterior entrance(s). The height of the building is generally one or two stories, or combination thereof.
2.2	Duplex	Two dwelling units located one above the other (the floor system is fire-rated). Each dwelling has a private exterior or sometimes interior access off a common vestibule entrance. The height of the building is generally two stories.
3	Triplex	Three dwelling units contained within one building in either of the configurations defined in 2.1 or 2.2.
4	Fourplex	Four dwelling units contained within one building in either of the configurations defined in 2.1 or 2.2.
5	Maisonette	A multiple unit structure with housing units located side-by-side, sharing common fire-rated walls. Dwelling access from a single interior common corridor. There are no common interior stairways between floor levels; stairways only occur within each housing unit. Also units may have access to a private garden or patio area. Generally, it is a two-storey building with or without basements.
6	Stacked Townhouse	More than three housing units located side-by-side sharing common fire-rated walls and located one above the other (the floor system is fire-rated). Dwellings may have exterior entrances (a) at grade level and (b) on above-grade galleries/stair landings/balconies. There are no interior common corridors. There may be both (a) common stairways between floor levels and (b) stairways within each housing unit.
7	Townhouse	More than three housing units located side-by-side sharing common fire-rated walls. Dwellings have exterior entrances at grade level. There are no interior common corridors. Stairways between floor levels are only located within the housing units.
8.1	Motel	A one-storey apartment building with a common corridor providing access to each housing unit. Generally, some interior amenity space (e.g., lounge, recreational space, common kitchen, etc.) is included within the structure.
8.2	Motel Addition	An 8.1 apartment building built as an addition to another 8.1 structure.
9.1	Low-Rise Walk-Up Apartment	An apartment building of two to four (inclusive) stories in height without an elevator. Entrances to dwellings are located in common corridor(s) on each floor level. Floor levels within the structure are connected with common fire-rated stairways.
9.2	Low-Rise Elevatored Apartment	A 9.1 apartment building with elevator added.
10	Mid-Rise Apartment	A 9.2 apartment building, of five to seven (inclusive) stories in height.
11	High-Rise Apartment	A 9.2 apartment building of eight stories in height and greater.
12	Hostel	A large residential building like a boarding house, where no housing unit is self-contained; a structure where there is generally one common kitchen, one common living area, one common dining area, and many individual bedrooms for use by unrelated persons.

According to the Tenant Management System:

- 553 projects⁴ with a total of 2,263 buildings (from single-family homes to high-rise apartment blocks).
- 13,023 **units**. (Table 3.1 describes the unit types).
- By type, there are:
 - 6,867 family units. If all family units were occupied, approximately 28,000 people would be living in the units.
 - 3,977 elderly person units. If all elderly units were occupied, approximately 6,000 people would be living in the units.
 - 452 single non-elderly units. If all of these units were occupied, approximately 450 people would be living in the units.
 - 1,614 elderly person/single non-elderly units. If all of these units were occupied, approximately 1,800 people would be living in the units.
 - 113 **special use units**⁵.

The estimate of people living in units is based on the size of units and the National Occupancy Standards (see Appendix 1). Given the vacancy rate (due to capital projects, chronically vacant communities, etc.), approximately 31,000 people were living in direct-managed units across Manitoba in 2009.

Table 3.2 presents the number of social housing buildings as of April 1 of each year by RHA. Although on a provincial level there has been a decline in the number of buildings over the years—most notably driven by a decrease of 64 buildings in Winnipeg, in most regions there was stability over time. Where there has been a change over time in a region, it was generally a reduction in the number of buildings (as opposed to an increase). This likely reflects policy changes that have resulted in buildings being managed by not-for-profit or cooperative organizations rather than directly managed by Manitoba Housing.

Table 3.2: Number of Social Housing* Buildings by RHA as of April 1 of Each Year, 1999–2009

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
South Eastman	122	119	119	115	115	113	112	112	112	112	112
Central	229	229	228	228	229	229	229	228	228	228	228
Assiniboine	250	249	247	247	247	247	248	246	246	246	246
Brandon	155	156	156	156	153	153	153	153	153	153	153
Winnipeg	784	777	724	724	722	722	721	720	720	720	720
Interlake	281	279	276	273	269	266	266	264	264	263	263
North Eastman	54	52	51	51	51	50	50	50	50	50	50
Parkland	228	226	223	222	217	217	215	215	214	214	214
Churchill	73	72	72	72	74	73	72	72	74	74	74
Nor-Man	79	79	79	79	79	79	79	79	79	79	79
Burntwood	59	59	59	59	59	59	59	59	59	59	59
Manitoba	2,314	2,297	2,234	2,226	2,215	2,208	2,204	2,198	2,199	2,198	2,198

* Housing managed by Manitoba Housing and Community Development

4 A “**project**” refers to one or more housing properties built at the same time and assigned the same identifier used for administrative purposes by Manitoba Housing. A project can include any size or type of buildings and can serve any type of client (families, seniors, single non-elderly). Projects may include but are not limited to: Single family dwellings, duplexes, townhouses, high rise, low rise apartments or any combination of the above (Chesya Polevychok–Manitoba Housing, personal communication, March 22, 2013).

5 “**Special units**” is used to describe locations such as home care offices, shelters, resource centres, daycares, and supportive housing units. It is inconsistently used by Manitoba Housing.

A unit is a place where an individual or group of individuals (i.e., a family) live and are located within the buildings. As described above, this may take a variety of forms. Table 3.3 shows the number of housing units that were available as of April 1 of each year. Most regions have seen a small decrease in the number of units over time except Central where there was an overall increase. For all of Manitoba, the total number of units has remained at a little over 13,000 from 1999 to 2009.

Table 3.3: Number of Social Housing* Units by RHA as of April 1 of Each Year, 1999–2009

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
South Eastman	295	292	292	288	288	286	285	285	285	285	285
Central	779	780	779	778	790	789	790	788	787	791	791
Assiniboine	715	710	702	702	695	695	695	692	692	692	692
Brandon	787	786	787	785	784	782	782	782	782	782	782
Winnipeg	7,737	7,734	7,714	7,711	7,710	7,709	7,710	7,710	7,711	7,711	7,711
Interlake	945	944	943	938	933	930	928	923	924	922	922
North Eastman	202	200	199	199	199	198	198	198	198	198	198
Parkland	750	748	744	743	740	740	738	738	737	737	737
Churchill	338	336	336	336	338	336	337	337	337	337	337
Nor-Man	354	350	350	348	329	329	329	349	349	349	349
Burntwood	221	221	222	222	218	219	219	219	219	219	219
Manitoba	13,123	13,101	13,068	13,050	13,024	13,013	13,011	13,021	13,021	13,023	13,023

* Housing managed by Manitoba Housing and Community Development

Figure 3.5 shows that there has been minimal fluctuation in the number of people per unit over time. There appears to be a decrease in the number of single people in housing units in recent years, with a slight increase in the number of large families (five or more people).

Table 3.4 provides the number of days, on average, that social housing units across the province were occupied per year. Units have been occupied for a good proportion of the year (300+ days). As will be noted later, this is consistent with the findings that the majority of units were occupied by people who stay for a long time and that there were relatively few short-stay residents.

Table 3.5 presents the number of units occupied by four key client types: at least one person aged 55 and older, at least one person with a physical disability, single parent families, and single people aged 18 to 54. Just over one-third of housing units were occupied by one or more people older than 55 years; this remained reasonably consistent over the years. However in recent years, an increasing proportion of units house one or more people with a physical disability. While it is a reasonably small proportion of the total units that were occupied (less than 5%), it suggests that there may be increased need for units that are accessible for people with a physical disability. Over the years the proportion of units occupied by single parent families has ranged from about one-quarter to one-third of all units and stabilized at just under 30% in recent years. The number of units housing single people aged 18–54 fluctuated somewhat over the years and appears to be decreasing in recent years. Recently, about 14% of units were occupied by these clients.

Figure 3.5: Number of Individuals per Social Housing* Unit in Manitoba as of April 1 of Each Year, 1995–2009

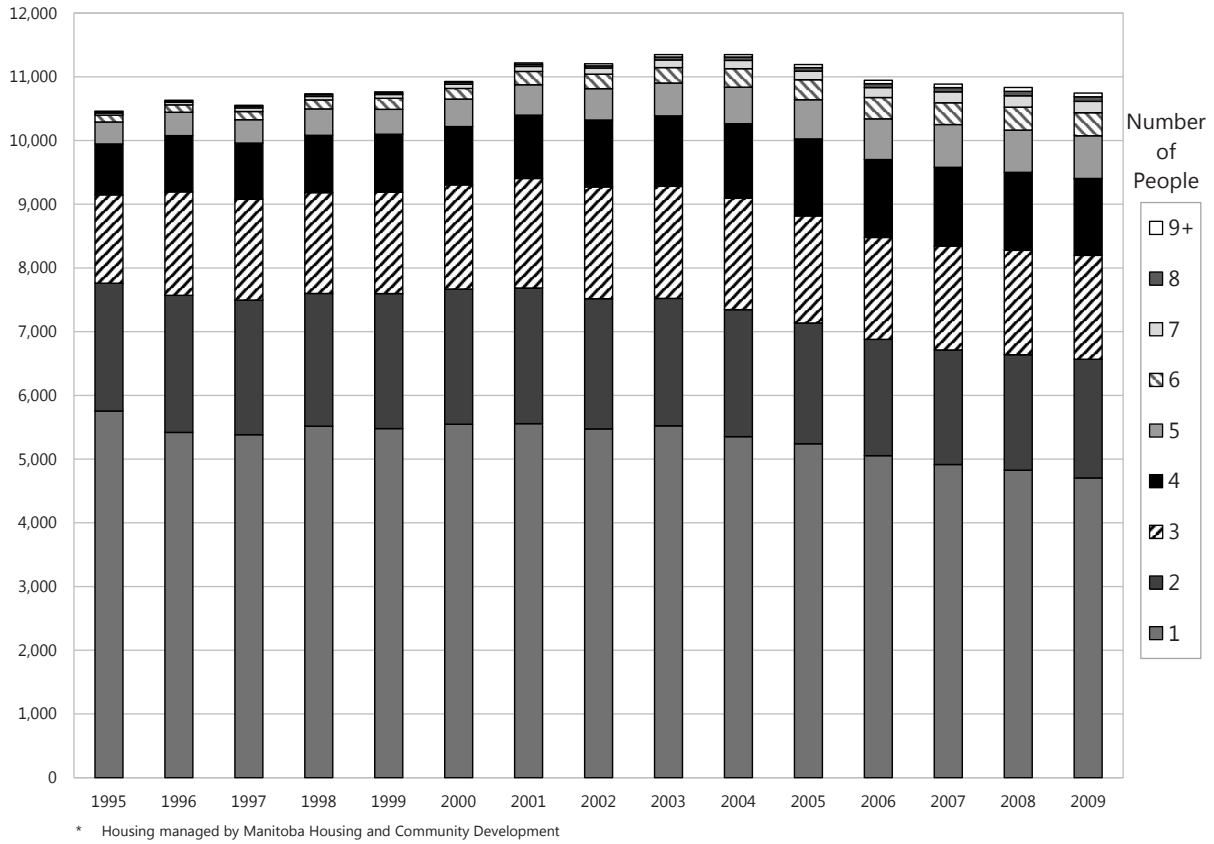


Table 3.4: Mean and Median Number of Days per Year that Social Housing* Units in Manitoba were Occupied, 1999/2000–2008/09

Fiscal Year	Mean	Standard Error	Median	Total Number of Units
1999/2000	309.5	0.97	366	13,144
2000/01	312.3	0.94	365	13,138
2001/02	318.1	0.90	365	13,072
2002/03	321.1	0.86	365	13,070
2003/04	324.0	0.85	366	13,028
2004/05	321.5	0.87	365	13,017
2005/06	312.5	0.94	365	13,029
2006/07	310.4	0.97	365	13,024
2007/08	307.8	1.00	366	13,025
2008/09	306.0	1.01	365	13,023

* Housing managed by Manitoba Housing and Community Development

Table 3.5: Number and Percent of Social Housing* Units in Manitoba by Client Type as of April 1 of Each Year, 1995–2009

Year	At Least One Person Aged 55+		At Least One Person with a Physical Disability		Single Parent Families		Singles Aged 18-54	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1995	4,118	39.4%	88	0.8%	2,617	25.0%	1,904	18.2%
1996	4,068	38.3%	102	1.0%	3,098	29.1%	1,600	15.0%
1997	4,042	38.3%	124	1.2%	3,158	29.9%	1,589	15.1%
1998	4,067	37.9%	146	1.4%	3,259	30.4%	1,728	16.1%
1999	4,009	37.2%	176	1.6%	3,336	31.0%	1,791	16.6%
2000	3,981	36.4%	215	2.0%	3,508	32.1%	1,914	17.5%
2001	3,960	35.3%	258	2.3%	3,739	33.3%	1,979	17.6%
2002	3,939	35.2%	308	2.7%	3,775	33.7%	1,965	17.5%
2003	4,001	35.3%	371	3.3%	3,754	33.1%	1,994	17.6%
2004	4,025	35.5%	382	3.4%	3,706	32.7%	1,853	16.3%
2005	4,011	35.8%	356	3.2%	3,491	31.2%	1,809	16.2%
2006	3,984	36.4%	358	3.3%	3,318	30.3%	1,698	15.5%
2007	3,988	36.6%	399	3.7%	3,258	29.9%	1,605	14.7%
2008	4,034	37.2%	438	4.0%	3,204	29.6%	1,525	14.1%
2009	4,009	37.3%	458	4.3%	3,119	29.0%	1,470	13.7%

* Housing managed by Manitoba Housing and Community Development

Note: Columns are not mutually exclusive; if a unit meets the criteria for more than one category, it will be counted multiple times

Applications

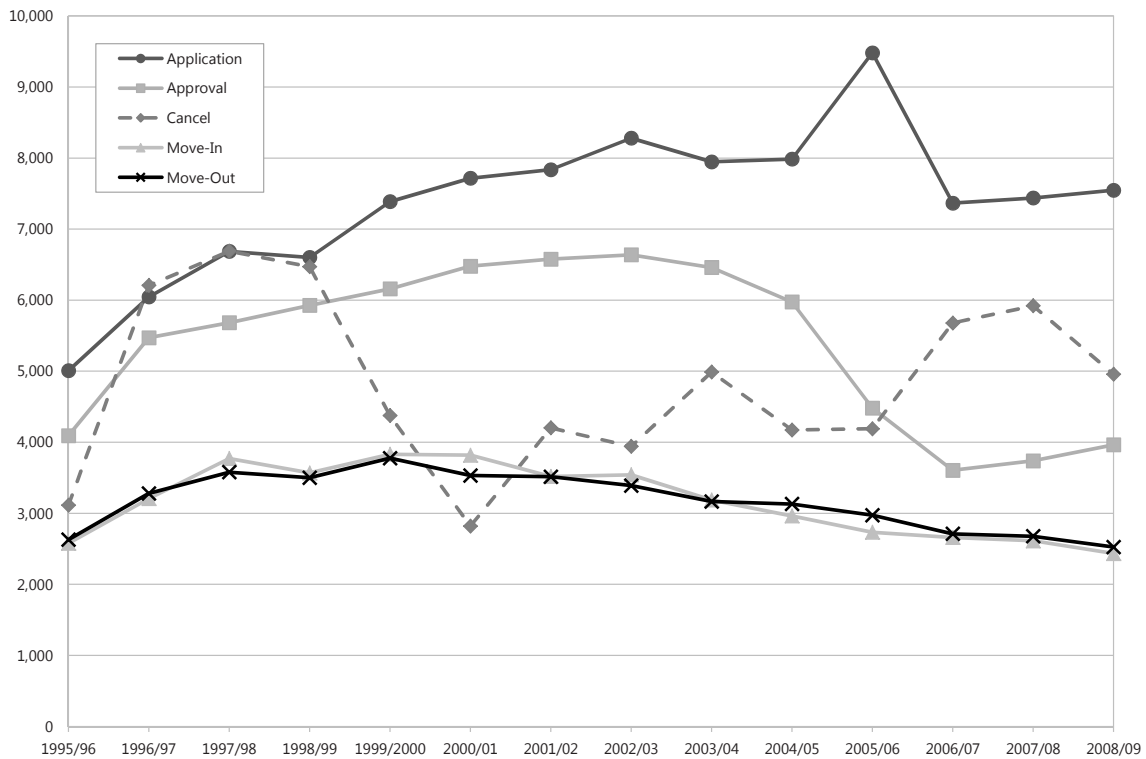
Figure 3.6 shows the numbers of applications made, approved applications, cancelled applications, primary applicants⁶ who moved in to a social housing unit, and primary applicants who moved out of a unit (either to another unit or out of social housing). Tremendous variability is seen in the applications, approvals, and cancellations over the years. This is likely reflective of changes in methods of processing applications over time, suggesting that users of these data should be extremely cautious about drawing conclusions. We see the greatest change in 2005/06—we have been advised by Manitoba Housing that there was a significant change in procedures at that time. An investigator who is interested in analysing these data (rather than describing them as we have done here) should ensure they understand the context under which the data were collected and the procedures that were in place at that time.

On the other hand, we see remarkable stability and consistency in the number of move-ins and move-outs, suggesting that these data are likely reliable. The slight downward trend in recent years likely reflects the small decrease in units, which, as was noted earlier, may result from a shift from Manitoba Housing facilities to those operated by not-for-profit organizations or cooperatives.

Table 3.6 provides a regional breakdown of the number of applications that were submitted each year. Substantial variability is noted over time, which should be considered by investigators who intend to use these data.

⁶ The primary applicant is the one individual in the household who is identified on the application as such.

Figure 3.6: Number of Social Housing* Applications, Approvals, Cancellations, Move-Ins, and Move-Outs in Manitoba by Fiscal Year, 1995/96–2008/09



* Housing managed by Manitoba Housing and Community Development

Table 3.6: Number of Social Housing* Applications by RHA and Fiscal Year, 1995/96–2008/09

	1995/96	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	Overall
South Eastman	93	140	138	132	133	142	140	119	154	118	147	93	140	133	1,822
Central	338	351	366	351	397	501	450	472	515	524	505	354	422	441	5,987
Assiniboine	267	230	209	258	235	237	244	317	295	270	387	281	325	346	3,901
Brandon	336	301	329	303	353	358	358	405	417	355	420	445	412	382	5,174
Winnipeg	2,589	3,519	4,055	3,913	4,479	4,489	4,818	5,001	4,613	4,742	5,951	4,374	4,324	4,391	61,258
Interlake	302	292	373	379	433	410	400	454	417	424	485	386	405	342	5,502
North Eastman	69	84	136	139	133	159	147	181	188	184	229	191	166	166	2,172
Parkland	352	397	370	335	355	383	330	327	340	324	362	356	360	423	5,014
Churchill	64	69	61	59	28	224	102	80	80	83	89	71	60	65	1,135
Nor-Man	239	194	171	198	200	188	188	256	231	226	228	220	213	305	3,059
Burntwood	168	167	184	184	238	280	281	290	292	324	332	279	270	240	3,529
Manitoba	5,008	6,045	6,687	6,602	7,387	7,716	7,837	8,281	7,947	7,985	9,482	7,366	7,438	7,547	103,328
Not Found	191	301	295	351	403	343	379	379	405	411	347	316	341	313	4,775

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Table 3.8: Number and Percent of New Social Housing* Applications in Manitoba by Client Type and Year of Application, 1995/96–2008/09

Fiscal Year	Client Type																	
	Dependent		Primary Applicant		Spouse		Past Household Member		Co-Habitant		Undefined		Sharer		Grandchild		Foster Child	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1995/96	2,950	47.8%	2,578	41.8%	479	7.8%	79	1.3%	5	0.1%	68	1.1%	5	0.0%	5	0.0%	8	0.1%
1996/97	3,573	47.5%	3,207	42.7%	579	7.7%	62	0.8%	5	0.1%	78	1.0%	5	0.0%	5	0.0%	7	0.1%
1997/98	3,956	46.5%	3,771	44.3%	558	6.6%	93	1.1%	10	0.1%	114	1.3%	5	0.0%	0	0.0%	7	0.1%
1998/99	3,826	47.0%	3,569	43.8%	481	5.9%	131	1.6%	22	0.3%	105	1.3%	5	0.0%	0	0.0%	5	0.0%
1999/2000	4,094	46.8%	3,831	43.8%	504	5.8%	188	2.1%	26	0.3%	81	0.9%	11	0.1%	8	0.1%	9	0.1%
2000/01	4,359	48.7%	3,818	42.6%	428	4.8%	203	2.3%	53	0.6%	46	0.5%	19	0.2%	14	0.2%	16	0.2%
2001/02	3,946	47.9%	3,519	42.8%	363	4.4%	272	3.3%	58	0.7%	32	0.4%	26	0.3%	5	0.0%	12	0.1%
2002/03	3,626	45.6%	3,543	44.5%	344	4.3%	312	3.9%	55	0.7%	24	0.3%	26	0.3%	5	0.0%	20	0.3%
2003/04	3,628	47.2%	3,187	41.5%	286	3.7%	418	5.4%	102	1.3%	40	0.5%	10	0.1%	9	0.1%	5	0.0%
2004/05	3,223	45.4%	2,963	41.7%	267	3.8%	492	6.9%	76	1.1%	26	0.4%	18	0.3%	10	0.1%	26	0.4%
2005/06	3,165	45.9%	2,733	39.6%	245	3.6%	595	8.6%	84	1.2%	20	0.3%	21	0.3%	16	0.2%	20	0.3%
2006/07	3,260	47.8%	2,659	39.0%	235	3.4%	522	7.6%	92	1.3%	16	0.2%	14	0.2%	13	0.2%	14	0.2%
2007/08	3,022	46.5%	2,613	40.2%	217	3.3%	458	7.1%	88	1.4%	13	0.2%	22	0.3%	40	0.6%	19	0.3%
2008/09	2,829	47.4%	2,434	40.8%	218	3.7%	330	5.5%	89	1.5%	9	0.2%	6	0.1%	35	0.6%	22	0.4%

* Housing managed by Manitoba Housing and Community Development

s Indicates data suppressed due to counts between 1 and 5

Table 3.9: Number and Percent of All Social Housing* Applications in Manitoba by Reason and Year of Application, 1999/2000–2008/09

Fiscal Year	Application Reason																					
	Overcrowded Conditions or Inadequate Unit Size		Cannot Afford Current Rent/Utilities		Undefined		Safety and Security		Health Reasons		Closer to Education/ Employment/ Family		Family Separation		Unsatisfactory Unit Condition		Notice to Vacate Without Cause		Closer to Medical/ Essential Services		Unable to Maintain Current Home	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1999/2000	923	12.5%	1,465	19.8%	2,943	39.8%	294	4.0%	387	5.2%	644	8.7%	394	5.3%	218	3.0%	19	0.3%	56	0.8%	44	0.6%
2000/01	1,686	21.9%	2,502	32.4%	567	7.3%	638	8.3%	480	6.2%	747	9.7%	521	6.8%	306	4.0%	93	1.2%	136	1.8%	40	0.5%
2001/02	2,052	26.2%	2,844	36.3%	429	5.5%	651	8.3%	469	6.0%	559	7.1%	432	5.5%	206	2.6%	73	0.9%	66	0.8%	56	0.7%
2002/03	2,800	33.8%	1,602	19.3%	672	8.1%	600	7.2%	756	9.1%	607	7.3%	675	8.2%	316	3.8%	107	1.3%	98	1.2%	48	0.6%
2003/04	2,858	36.0%	1,279	16.1%	483	6.1%	583	7.3%	935	11.8%	375	4.7%	779	9.8%	338	4.3%	115	1.4%	141	1.8%	61	0.8%
2004/05	2,954	37.0%	1,310	16.4%	368	4.6%	617	7.7%	1,006	12.6%	453	5.7%	636	8.0%	348	4.4%	139	1.7%	91	1.1%	63	0.8%
2005/06	2,488	26.2%	1,237	13.0%	3,820	40.3%	533	5.6%	527	5.6%	270	2.8%	241	2.5%	143	1.5%	106	1.1%	66	0.7%	51	0.5%
2006/07	1,721	23.4%	1,756	23.8%	2,649	36.0%	575	7.8%	236	3.2%	143	1.9%	100	1.4%	76	1.0%	41	0.6%	22	0.3%	47	0.6%
2007/08	1,597	21.5%	2,895	38.9%	1,612	21.7%	587	7.9%	217	2.9%	199	2.7%	89	1.2%	111	1.5%	54	0.7%	27	0.4%	50	0.7%
2008/09	1,790	23.7%	2,978	39.5%	1,161	15.4%	600	8.0%	309	4.1%	355	4.7%	107	1.4%	102	1.4%	58	0.8%	23	0.3%	64	0.8%
Overall	20,869	26.4%	19,868	25.2%	14,704	18.6%	5,678	7.2%	5,322	6.7%	4,352	5.5%	3,974	5.0%	2,164	2.7%	805	1.0%	726	0.9%	524	0.7%

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s Indicates data suppressed due to counts between 1 and 5

Applications may be cancelled for several reasons. Table 3.10 shows that the vast majority of cancellations resulted from client action, although the variability over the years suggests that policy and/or practice has also likely changed. Readers should be cautious in the interpretation or use of this information. Cancellations may result from (among other reasons) the applicant being deemed ineligible, the client refusing to accept the housing that is offered, or the client failing to respond to a housing offer.

Table 3.11 reports the types of households who have moved in to social housing over the years. Since 1999, about 60% have been families, 23% have been individuals aged 55 and older, and 17% have been singles aged 18 to 55. A trend seems to have developed: there was a gradual yet substantial increase in the 55 and older age group with corresponding decreases in the other two groups.

Table 3.10: Number and Percent of Cancelled Social Housing* Applications in Manitoba by Reason and Year of Cancellation, 1999/2000–2008/09

Fiscal Year	Cancellation Reason					
	Administrative Decision		Client Decision		Other Reason	
	Number	Percent	Number	Percent	Number	Percent
1999/2000	499	11.4%	2,156	49.2%	1,716	39.2%
2000/01	581	20.6%	1,776	63.0%	463	16.4%
2001/02	457	10.9%	3,210	76.5%	535	12.7%
2002/03	512	13.0%	2,885	73.1%	545	13.8%
2003/04	625	12.7%	3,767	75.4%	593	11.9%
2004/05	571	13.7%	3,114	74.7%	486	11.6%
2005/06	1,065	25.4%	2,651	63.4%	467	11.2%
2006/07	1,152	20.2%	2,835	50.0%	1,690	29.7%
2007/08	1,272	21.5%	2,853	48.1%	1,794	30.4%
2008/09	1,547	31.1%	2,599	52.4%	808	16.3%
Overall	8,294	18.4%	27,854	61.5%	9,098	20.2%

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Table 3.11: Number and Percent of Social Housing* Applications in Manitoba Resulting in a Move-In by Household Type and Year of Scheduled Move-In, 1999/2000–2008/09

Fiscal Year	Household Type									
	Family		Elderly		Single Non-Elderly		Special		Undefined	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1999/2000	2,390	62.4%	794	20.7%	646	16.9%	0	0.0%	s	--
2000/01	2,457	64.4%	680	17.8%	673	17.6%	6	0.2%	s	--
2001/02	2,143	60.9%	734	20.9%	639	18.2%	s	--	0	0.0%
2002/03	2,021	57.0%	834	23.5%	687	19.4%	s	--	0	0.0%
2003/04	1,863	58.5%	707	22.2%	617	19.4%	0	0.0%	0	0.0%
2004/05	1,654	55.8%	681	23.0%	624	21.1%	s	--	s	--
2005/06	1,626	59.5%	694	25.4%	404	14.8%	s	--	s	--
2006/07	1,640	61.7%	658	24.7%	358	13.5%	s	--	0	0.0%
2007/08	1,516	58.0%	731	28.0%	361	13.8%	s	--	0	0.0%
2008/09	1,401	57.6%	684	28.1%	346	14.2%	s	--	0	0.0%
Overall	18,711	59.8%	7,197	23.0%	5,355	17.1%	27	0.1%	10	0.0%

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Table 3.12 reports the marital status provided by the applicant. The “single” category applied to both a single parent and a person living alone and made up about 50% of the applications. Separated individuals made up 15% of the applicants (again, this could be someone living alone or a single parent).

Table 3.12: Number and Percent of Social Housing* Applications in Manitoba Resulting in a Move-In by Marital Status and Year of Scheduled Move-In, 1999/2000–2008/09

Fiscal Year	Marital Status															
	Single		Separated		Undefined		Married		Divorced		Widowed		Co-Habitant		Involuntary Separation	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1999/2000	1,872	48.9%	543	14.2%	55	1.4%	371	9.7%	384	10.0%	322	8.4%	271	7.1%	13	0.3%
2000/01	1,963	51.4%	578	15.1%	133	3.5%	322	8.4%	338	8.9%	262	6.9%	202	5.3%	20	0.5%
2001/02	1,818	51.7%	570	16.2%	157	4.5%	325	9.2%	264	7.5%	230	6.5%	136	3.9%	19	0.5%
2002/03	1,714	48.4%	593	16.7%	194	5.5%	322	9.1%	299	8.4%	275	7.8%	140	4.0%	6	0.2%
2003/04	1,521	47.7%	528	16.6%	177	5.6%	267	8.4%	262	8.2%	256	8.0%	168	5.3%	8	0.3%
2004/05	1,420	47.9%	473	16.0%	197	6.6%	263	8.9%	239	8.1%	231	7.8%	130	4.4%	10	0.3%
2005/06	1,184	43.3%	377	13.8%	479	17.5%	218	8.0%	145	5.3%	180	6.6%	147	5.4%	s	--
2006/07	838	31.5%	324	12.2%	1,022	38.4%	168	6.3%	85	3.2%	123	4.6%	94	3.5%	s	--
2007/08	1,079	41.3%	377	14.4%	572	21.9%	190	7.3%	124	4.7%	158	6.0%	105	4.0%	8	0.3%
2008/09	1,100	45.2%	321	13.2%	396	16.3%	186	7.6%	131	5.4%	171	7.0%	121	5.0%	8	0.3%
Overall	14,509	46.4%	4,684	15.0%	3,382	10.8%	2,632	8.4%	2,271	7.3%	2,208	7.1%	1,514	4.8%	100	0.3%

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s Indicates data suppressed due to counts between 1 and 5

Table 3.13 summarizes the reason for moving out of a unit. The largest category is “undefined”, which indicates that the data did not include a reason for leaving. Some of these categories may overlap (e.g., “safety and security” and “transfer to safer and more secure unit”) and were recorded at the discretion of the person entering the data so readers are cautioned in the use of this information.

Clients

Figures 3.7 and 3.8 show the number of people living in social housing at any time during the year and those in housing on April 1 of the given year. We see that in 2008/09, 30,734 people lived in social housing at some time during the year. Looking at the data cross-sectionally, on a given day (in this case, April 1, 2009), there were 25,791 people occupying units (Figure 3.7). This difference reflects that not everyone stays all year, but the majority do.

Figure 3.9 shows the average number of days an individual was in social housing. On average, it approached the full year, reflecting that most people were long-time residents. This has been reasonably consistent over time. Analysis showed that 19% of social housing residents stayed less than one year, while the remaining 81% had stays lasting one year or more.

Table 3.13: Number and Percent of Social Housing* Applications in Manitoba by Move-Out Reason and Year of Move-Out, 1999/2000–2008/09

Fiscal Year	Move-Out Reason																					
	Undefined		Social or Personal Problems		Health Reasons		Notice to Vacate due to Nuisance/ Disturbance/ (Management Decision)		Abandonment of Unit		Deceased		Transfer to Unit of Different Size		Notice to Vacate for Rent Arrears or Damages		Affordability		Transfer for Health Reasons		Educational or Employment Relocation	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1999/2000	983	26.0%	424	11.2%	288	7.6%	204	5.4%	346	9.2%	172	4.6%	197	5.2%	180	4.8%	227	6.0%	117	3.1%	179	4.7%
2000/01	811	23.0%	474	13.4%	304	8.6%	202	5.7%	384	10.9%	185	5.2%	205	5.8%	170	4.8%	160	4.5%	97	2.7%	150	4.2%
2001/02	883	25.1%	459	13.1%	284	8.1%	247	7.0%	341	9.7%	181	5.1%	188	5.3%	176	5.0%	151	4.3%	85	2.4%	123	3.5%
2002/03	824	24.3%	445	13.1%	294	8.7%	286	8.4%	317	9.3%	170	5.0%	192	5.7%	193	5.7%	101	3.0%	115	3.4%	111	3.3%
2003/04	749	23.6%	488	15.4%	293	9.2%	324	10.2%	222	7.0%	152	4.8%	196	6.2%	145	4.6%	115	3.6%	97	3.1%	84	2.7%
2004/05	749	23.9%	477	15.2%	309	9.9%	333	10.6%	202	6.5%	154	4.9%	194	6.2%	148	4.7%	90	2.9%	118	3.8%	74	2.4%
2005/06	747	25.1%	430	14.4%	296	9.9%	300	10.1%	177	5.9%	164	5.5%	157	5.3%	152	5.1%	71	2.4%	112	3.8%	68	2.3%
2006/07	637	23.5%	418	15.4%	276	10.2%	286	10.6%	206	7.6%	168	6.2%	107	3.9%	129	4.8%	72	2.7%	84	3.1%	71	2.6%
2007/08	554	20.7%	359	13.4%	250	9.3%	243	9.1%	192	7.2%	200	7.5%	112	4.2%	106	4.0%	83	3.1%	121	4.5%	71	2.7%
2008/09	220	8.7%	410	16.2%	305	12.1%	230	9.1%	211	8.3%	193	7.6%	115	4.6%	120	4.7%	74	2.9%	90	3.6%	78	3.1%
Overall	7,157	22.8%	4,384	14.0%	2,899	9.2%	2,655	8.5%	2,598	8.3%	1,739	5.5%	1,663	5.3%	1,519	4.8%	1,144	3.6%	1,036	3.3%	1,009	3.2%

Fiscal Year	Move-Out Reason																					
	Safety and Security		Transfer to Safer and More Secure Unit		Landlord Initiates Transfer (Management or Maintenance)		Transfer to Unit Closer to School/Work		Tenant Failed to Occupy		Inadequate Unit Size		Purchased a Home		Inadequate Maintenance of Premises		Mortgage Paid in Full		Sheriff Eviction		Safer Communities Eviction	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1999/2000	91	2.4%	62	1.6%	63	1.7%	72	1.9%	93	2.5%	66	1.7%	0	0.0%	11	0.3%	5	--	0	0.0%	0	0.0%
2000/01	76	2.2%	76	2.2%	55	1.6%	78	2.2%	53	1.5%	47	1.3%	0	0.0%	5	--	5	--	0	0.0%	0	0.0%
2001/02	71	2.0%	81	2.3%	46	1.3%	86	2.4%	63	1.8%	43	1.2%	0	0.0%	5	--	5	--	0	0.0%	0	0.0%
2002/03	53	1.6%	52	1.5%	46	1.4%	76	2.2%	57	1.7%	31	0.9%	0	0.0%	24	0.7%	7	0	0	0.0%	0	0.0%
2003/04	67	2.1%	57	1.8%	45	1.4%	54	1.7%	41	1.3%	31	1.0%	0	0.0%	5	--	5	--	0	0.0%	0	0.0%
2004/05	70	2.2%	60	1.9%	47	1.5%	40	1.3%	24	0.8%	30	1.0%	0	0.0%	9	0.3%	5	--	0	0.0%	0	0.0%
2005/06	69	2.3%	46	1.5%	72	2.4%	46	1.5%	23	0.8%	33	1.1%	5	--	9	0.3%	5	--	0	0.0%	0	0.0%
2006/07	61	2.3%	55	2.0%	32	1.2%	29	1.1%	35	1.3%	30	1.1%	5	--	12	0.4%	5	--	0	0.0%	0	0.0%
2007/08	62	2.3%	56	2.1%	100	3.7%	43	1.6%	42	1.6%	32	1.2%	44	1.6%	8	0.3%	0	0	0	0.0%	0	0.0%
2008/09	85	3.4%	49	1.9%	84	3.3%	32	1.3%	34	1.3%	36	1.4%	93	3.7%	36	1.4%	5	--	26	1.0%	5	--
Overall	705	2.2%	594	1.9%	590	1.9%	556	1.8%	465	1.5%	379	1.2%	140	0.4%	119	0.4%	26	0.1%	26	0.1%	5	--

* Housing managed by Manitoba Housing and Community Development

s Indicates data suppressed due to counts between 1 and 5

Figure 3.7: Number of Clients in Social Housing* in Manitoba at Anytime During the Year, 1995/96-2008/09

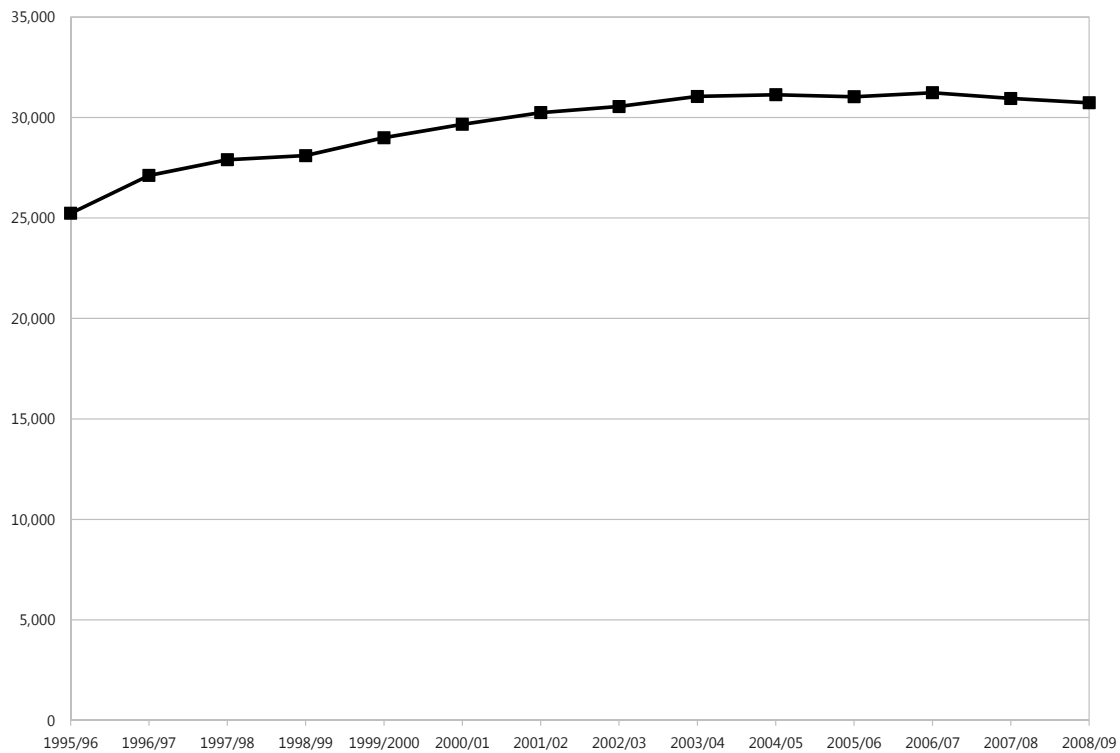


Figure 3.8: Number of Clients in Social Housing* in Manitoba as of April 1 of Each Year, 1995-2009

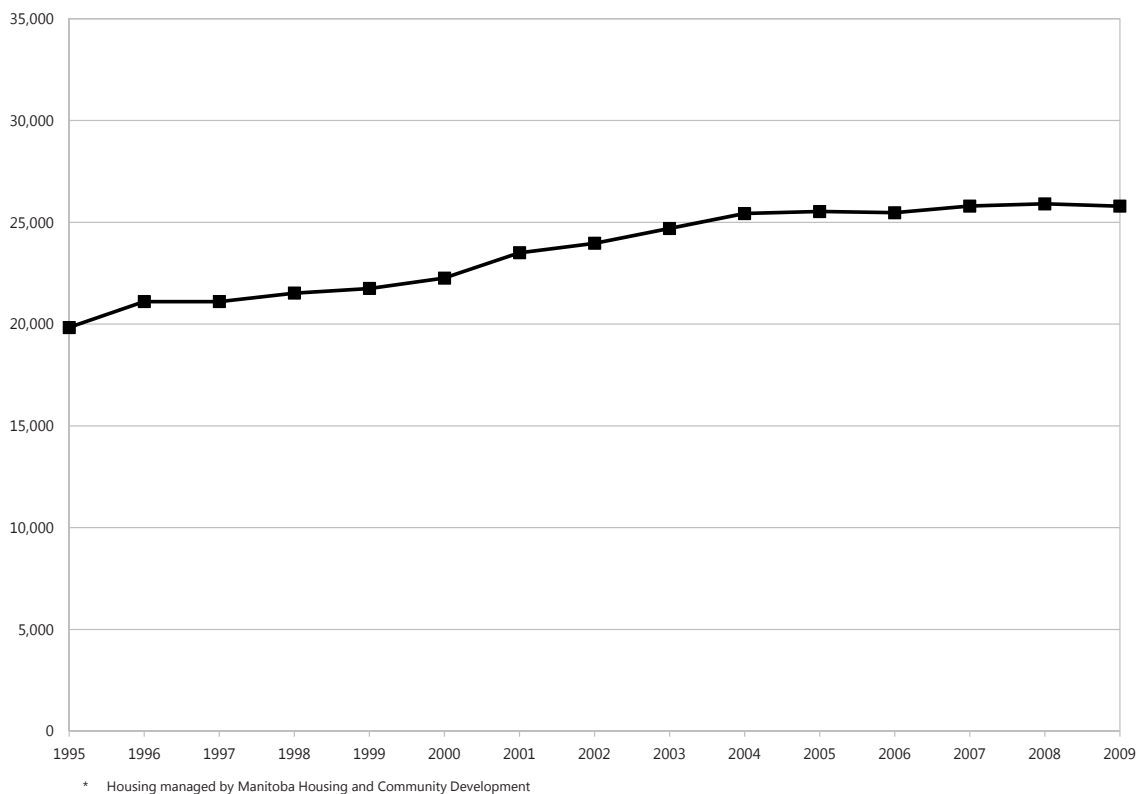
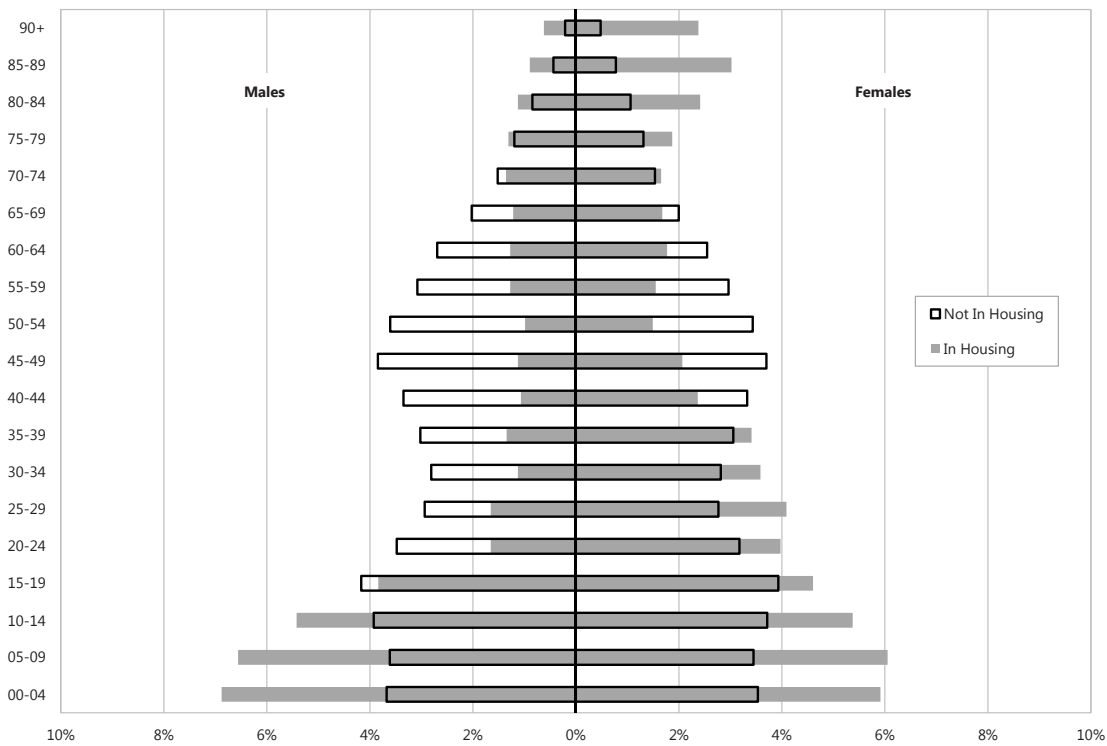


Figure 3.12: Rural Age and Sex Profiles for Individuals Living In and Not Living In Social Housing* in Manitoba, 2008



* Housing managed by Manitoba Housing and Community Development

SUMMARY OF PART I

This section provided details on Manitoba Housing buildings, units, applications, and the associated clients. At any one time, about 31,000 Manitobans lived in social housing during the year. Most people were long-term residents of the 13,000 units within 2,200 buildings in the province. An important observation is that nearly 50% of the people in social housing were under the age of 20. We also found that over the age of 20 there was a higher proportion of women in social housing than men. In many cases, we looked at the data over time and, in some cases, by region. These data come from the administrative records produced as a result of the programs being offered. While not originally intended for research use, they can be a rich source of information. However, as was previously noted, users of these data must be cautious when using some of the information as policies and procedures may have changed over time. In particular, changes in handling applications occurred in 2005/06.

It is important to note that in this report we only discuss social housing directly managed by Manitoba Housing. There are many other social housing programs in the province—about 21,800 units are available that are managed by non-profit groups or as co-ops. Person-level data were not collected by Manitoba Housing for these units as they provide block funding to these entities.

Possibly the most reliable and consistent data are those that indicate who is occupying a social housing unit at a given time. Move-in and move-out dates are discrete events that, for management purposes, are very important. Knowing who is living in social housing at a given time allows us to define a population. This allows us to look at the differences between this population and other Manitobans on a variety of health and social factors.

- These data may be used to identify the “who, where, and when” that will allow us to conduct population-based studies linking these data with other data in the Repository. We are most confident in these data from April 1, 2000 onward.
- For the most part, aggregate data showed stability over time, and we have been able to describe key features of the people living in social housing in Manitoba. When comparing the age and sex of people in social housing to other Manitobans, we see a notable difference in these characteristics and also differences between urban and rural populations in these groups.
- Changes in policy and/or procedures have likely made some of the application data unreliable for longitudinal analysis, but they are likely useful on a cross-sectional basis. This is a common feature of administrative data in that they adapt in response to a changing environment.

With the social housing data from Manitoba Housing added to the Repository at MCHP, we are now able to look at a variety of health and social outcomes associated with living in social housing.

PART II: SOCIAL HOUSING AND HEALTH IN MANITOBA: A FIRST LOOK

Mark Smith, MSc
Gregory Finlayson, PhD
Patricia Martens, PhD
Jim Dunn, PhD
Heather Prior, MSc
Carole Taylor, MSc
Ruth-Ann Soodeen, MSc
Charles Burchill, MSc
Wendy Guenette
Aynslie Hinds, MSc

PART II: SOCIAL HOUSING AND HEALTH

Introduction

Numerous studies have looked at the relationship between housing of various types, in different kinds of neighborhoods, and associated health outcomes. For the most part these studies have focused on the physical aspects of buildings and their environments such as the presence of lead, radon, asbestos, allergens (house dust mites and cockroaches), and tobacco smoke (Bryant, 2003; Hwang, Fuller–Thompson, and Hulchanski, 1999; Krieger and Higgins, 2002; Moloughney, 2004). Consistent associations have also been observed between neighbourhood characteristics and child and adolescent wellbeing, including school readiness and achievement, behavioural and emotional problems, and sexuality and childbearing (Hwang et al., 1999; Moloughney, 2004). While such studies are instructive, they do not focus on the overall health status of individuals living in social housing. This section of the report addresses that issue.

In Chapters 5 to 7, we use several indicators to describe the health and healthcare use of individuals residing in social housing and, for comparison purposes, all other residents of Manitoba. Chapter 5 focuses on measures of mortality and physical and mental health status, Chapter 6 presents indicators related specifically to children and adolescents, and Chapter 7 examines adult screening and preventive healthcare behaviours.

In Chapter 8, we report on the results of **logistic regression** analyses to assess the extent of poverty as a contributing factor, independent of living in social housing, to the health and social outcomes we observed. At the same time, we investigate the independent contribution that social housing made to these outcomes, if any.

In undertaking this study we were mindful of the fact that individuals who come into social housing often have a myriad of pre-existing health, social, and economic problems, not all of which can be solved by providing housing. At the same time, our analyses are cross-sectional and can only infer that certain things are associated with each other and not that one thing causes another. That is, we can only say that certain illnesses occurred with higher frequency in social housing, we cannot say that social housing caused those illnesses. Likewise, with the analyses we conducted in Chapter 8 we can only say that poverty was more or less associated with a specific outcome, not that poverty causes those outcomes.

CHAPTER 4: METHODS

Data Sources and Study Period

The following data from the Repository were used for our analyses: **Canadian Census** (public-use files), **Drug Program Information Network (DPIN)**, Education (**Enrollment, Marks, and Assessments**), **Families First Screen**, **Hospital Discharge Abstracts**, **MCHP Research Registry**, **Manitoba Immunization Monitoring System (MIMS)**, **Medical Claims**, **Provider Registry**, **Employment and Income Assistance program (Income Assistance or IA)**, **Social Housing (Tenant Management System or TMS)**, and **Vital Statistics** (mortality).

The general study period covered fiscal years 2004/05 to 2008/09, but varied as necessary for each indicator.

Study Cohorts

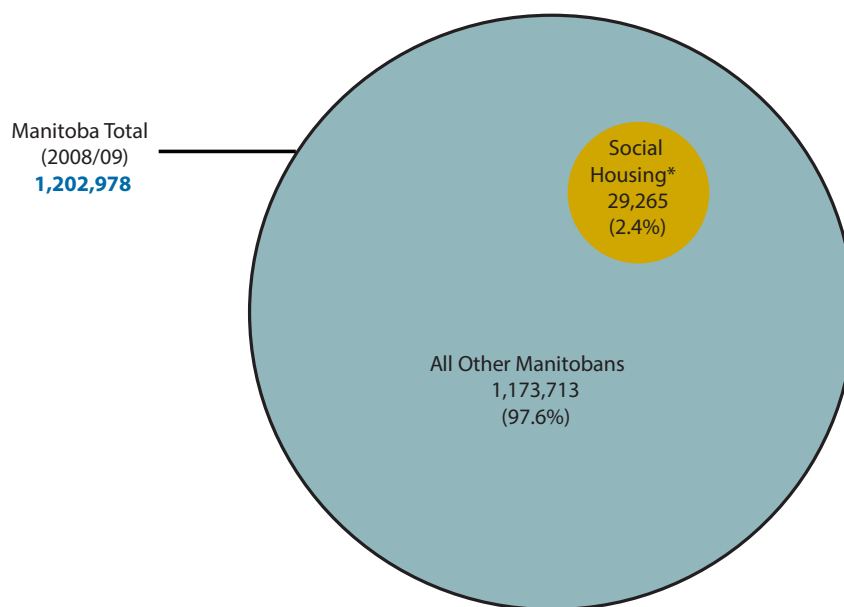
Figure 4.1 shows the number attributed to each cohort on December 31, 2008. The Social Housing cohort included everyone who was living in Manitoba on December 31, 2008 and who lived in social housing (directly managed by Manitoba Housing) sometime between April 1, 2008 and March 31, 2009 (even if they did not live in social housing on December 31, 2008).

Social housing clients were identified annually for each indicator (i.e., they may have been included in the Social Housing cohort for only select years of the study period based on their move-in and move-out dates). For example, suppose that an indicator was measured annually over a five-year period, 2004/05–2008/09, and a family lived in a social housing unit from June 1, 2004 until May 1, 2006. These individuals would be considered part of the Social Housing cohort in 2004/05, 2005/06, and 2006/07, and part of the All Other Manitobans cohort in 2007/08 and 2008/09.

Individuals who lived in a housing unit owned by the Manitoba government but managed by a non-profit or other community agency were not included in the Social Housing cohort, as data on their characteristics and tenancy were not available. They were however included in the All Other Manitobans cohort (see below). Churchill was also excluded from the analysis because the majority of housing in Churchill is owned by Manitoba Housing and we were unable to distinguish between market-value or commercial renters of the units and Manitoba Housing clients.

The All Other Manitobans cohort was composed of all other Manitoba residents who did not live in a social housing unit managed by Manitoba Housing and who were present in the MCHP Research Registry. **Wards of the Public Trustee** were excluded from both cohorts. For each comparison, the appropriate denominator was chosen. For example, when comparing within an RHA, only all other Manitobans within that RHA were chosen.

Figure 4.1: Comparison of Individuals Living in Social Housing* and All Other Manitobans (December 31, 2008)



*Housing managed by Manitoba Housing and Community Development

Descriptive Analyses

Rates (or **prevalence** as appropriate) were calculated for each indicator. In most cases, they were age- and sex-adjusted in order to create a fair comparison between regions with different age/sex distributions. **Adjusted rates** reflect what the rate would be if each population had the same age/sex distribution. For a few indicators, rates were suppressed (i.e., not reported) where the counts upon which they are based represented one to five events. In keeping with Statistics Canada’s approach to reporting data, this was done to avoid potential breaches of confidentiality. **Suppression**⁷ is indicated with the letter “s” beside the region name on the left-hand side of the relevant graphs.

Descriptive results are presented for **Regional Health Authorities (RHAs)**, **Winnipeg CAs**, and their **aggregate regions**. In all of these graphs, the regions are ordered according to their health status as measured by the **premature mortality** rate (PMR; the age- and-sex adjusted rate of death among residents less than 75 years of age). The healthiest regions (those with the lowest PMR) are at the top of the graph, and the least healthy regions (those with the highest PMR) are at the bottom of the graph. As work by Metge et al. (2009) has shown, this order is highly correlated ($r^2 = 0.91$, $p < 0.001$) with SES and this is important for some of the indicators that we present.

⁷ At MCHP data are suppressed when the number of persons or events involved is five or less in order to avoid potential identification of individuals in an area (i.e., not reported). Data are not suppressed when the actual event count is zero.

Premature Mortality

The premature mortality rate (PMR) is often used as an overall indicator of population health, with high rates indicating poorer health status (Martens et al., 2010a; Canadian Institute for Health Information [CIHI], 2012). In this study, it was defined as the age- and sex-adjusted average annual rate of death among residents aged 0 to 74 years per 1,000 residents per calendar year. The rate was averaged over a 10-year period from 1999–2008. The denominator includes all Manitoba residents as of December 31 of each year (see Appendix Table A2.1 in Appendix 2 for details).

Key Observations

RHAs

- A significant difference in the PMRs between individuals living in social housing (7.0 per 1,000) and all other Manitobans (3.3 per 1,000) was observed.
- This difference was observed in all RHAs except Burntwood, and the aggregate region of the North where the rates were similar for individuals living in social housing and all other Manitobans.
- In South Eastman and Brandon, the PMRs for individuals in the All Other Manitobans cohort were significantly lower than the provincial average for this group. In North Eastman, NOR-MAN, Burntwood, and the aggregate region of the North, the PMRs for all other Manitobans were significantly higher than the provincial average for this group.
- Among the Social Housing cohort, no visible association with premature mortality emerged; rates throughout the province were not significantly different from their provincial average.

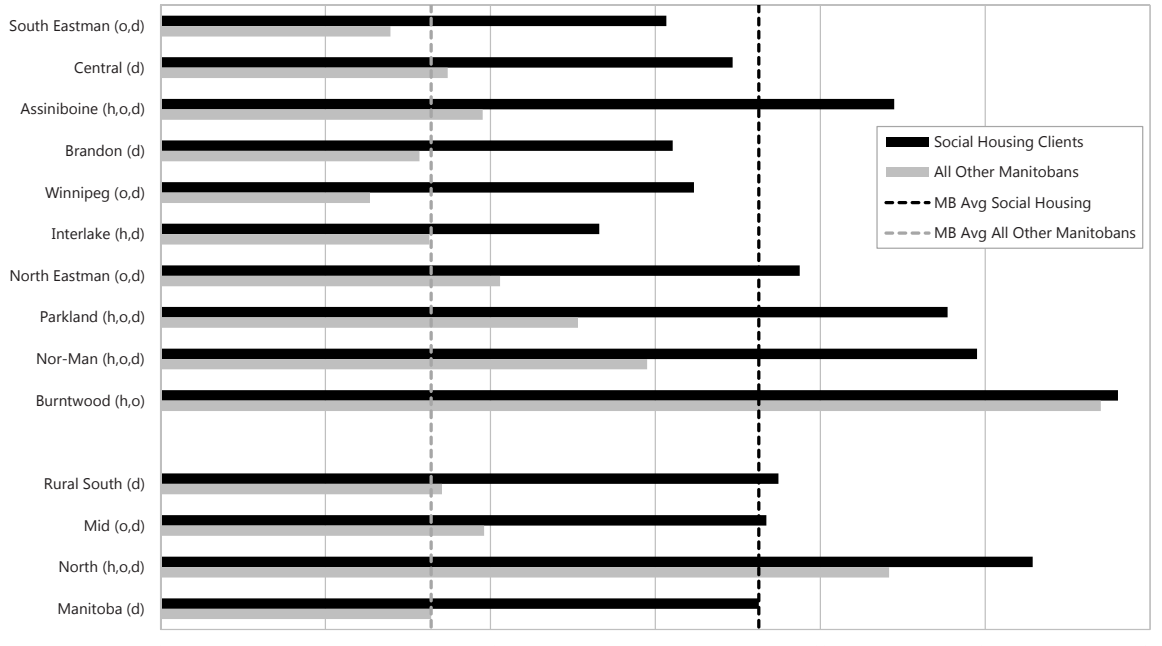
Winnipeg CAs

- Among individuals in social housing, the PMR in Winnipeg, and in the province as a whole, was similar (7.08 and 7.04 per 1,000, respectively).
- All Winnipeg CAs, with the exception of Fort Garry, Transcona, and Inkster, had significantly higher PMRs in the Social Housing cohort than in the All Other Manitobans cohort.
- In Fort Garry, the PMRs for both the Social Housing and All Other Manitobans cohorts were significantly lower than their provincial averages.
- In Downtown and Point Douglas, the PMRs for both social housing and all other Manitobans were significantly higher than the Manitoba average for each group.
- Among the Social Housing cohort, no visible association in PMR emerged. Rates in Assiniboine South and St. Boniface were nearly as high as rates in Downtown and Point Douglas.

Summary and Comparison to Other Findings

The Social Housing cohort in this study had a rate of 7.0 per 1,000, which is higher than the rate observed for the lowest income group in Martens et al. (2010a) (5.31 per 1,000 in urban areas during 2004–2007). The PMRs in this report suggests much poorer health status for those in social housing when compared to the rest of Manitoba. Manitoba Housing's application process is intended to provide housing to vulnerable individuals and families. Individuals with a disability, persons needing to relocate due to medical reasons, or individuals requiring support services to maintain their home due to medical reasons may receive higher priority during the application process. This can influence the proportion of individuals in social housing with poor health status. In a 2001 Australian survey, Wiggers et al. found that the occurrence of self-rated health as fair or poor was approximately 2.5 times greater among residents of public housing when compared to non-residents; ratios that are similar to the one reported for this indicator when residents of social housing were compared to all other Manitobans.

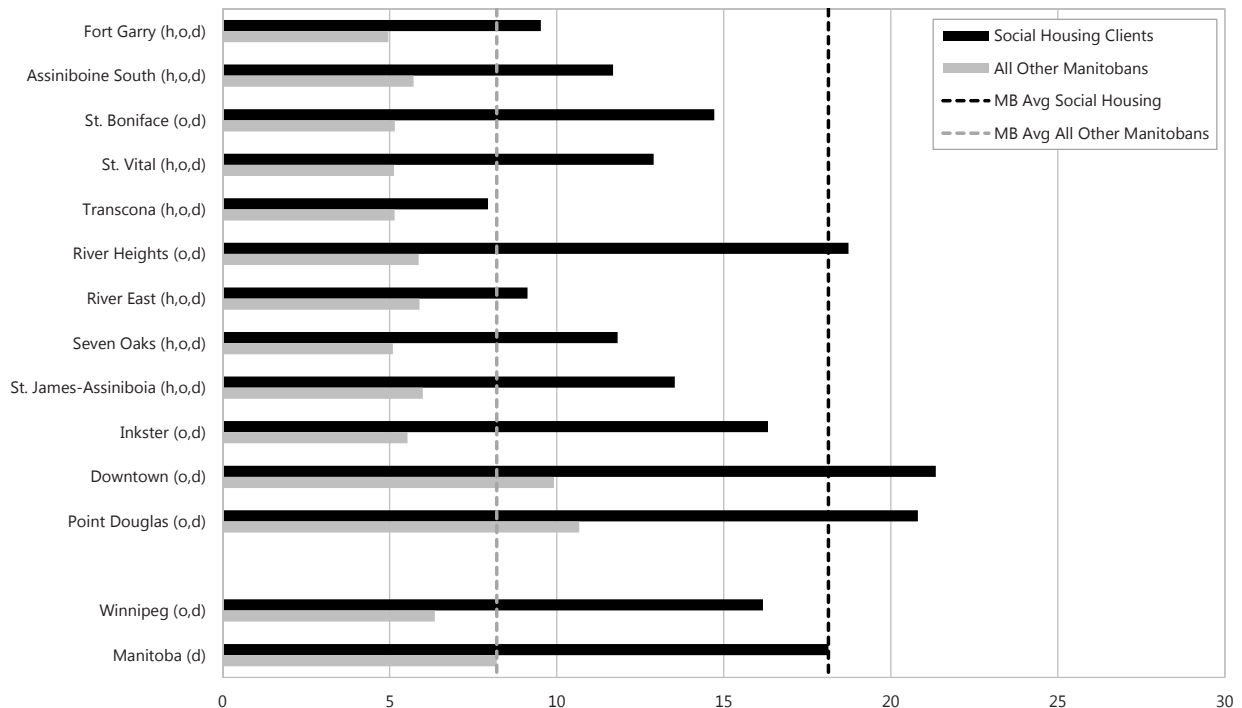
Figure 5.3: Injury Hospitalization Rates by RHA, 1999/2000–2008/09
Age- and sex-adjusted average annual rates per 1,000 residents



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents (p<0.01)
o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans (p<0.01)
d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area (p<0.05)

Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 5.4: Injury Hospitalization Rates by Winnipeg CA, 1999/2000–2008/09
Age- and sex-adjusted average annual rates per 1,000 residents



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents (p<0.01)
o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans (p<0.01)
d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area (p<0.05)

Causes of Injury Hospitalizations

The most frequent causes of hospitalization due to injury were reported for 1999/2000 to 2008/09. Causes of injury were identified from the hospital discharge abstract and grouped according to sub-categories of the 9th Revision of the **International Classification of Diseases** (ICD-9). Injuries coded in ICD-10-CA were converted to ICD-9-CM prior to grouping. As we did for the previous indicator, we excluded injuries related to medical error and drug complications (see Appendix Table A2.1 in Appendix 2 for details). Since these results are not compared across regions, they were not age and sex adjusted.

Key Observations

As indicated in Figures 5.5 and 5.6, the top four causes of injury hospitalizations were the same for both cohorts, however the order of the top four causes was different for each group.

For social housing, the top four causes were:

1. falls
2. suicide and self-inflicted injury
3. homicide and injuries inflicted by others
4. motor vehicle collisions

For all other Manitobans the top four causes of injury were:

1. falls
2. motor vehicle collisions
3. homicide and injuries inflicted by others
4. suicide and self-inflicted injury

The fifth cause of injury hospitalization for the Social Housing cohort was poisoning and for the All Other Manitobans cohort it was injuries caused by machinery, explosions, and electricity.

Figure 5.7 shows the age- and sex-adjusted rates per 1,000 population for each of the top five causes of injury hospitalization for the two cohorts. All injury categories were significantly higher in the Social Housing cohort. Both poisoning and injuries related to harm to oneself or others (suicide, homicide) were three or more times higher in the Social Housing cohort. Other categories of injury were approximately two times higher.

Summary and Comparison to Other Findings

The pattern of injury hospitalizations for all other Manitobans reported in this study are comparable to those reported by Martens et al. (2010b). However, the pattern of injuries reported here for the Social Housing cohort suggests a greater percentage of injuries related to harm to oneself or others (suicide and homicide). For both groups, injuries due to falls was, by a wide margin, the number one cause of injury hospitalization accounting for 48.4% of injuries in the Social Housing cohort and 43.9% of injuries in the All Other Manitobans cohort.

Figure 5.5: Causes of Injury Hospitalizations for Social Housing* Clients in Manitoba, 1999/2000–2008/09

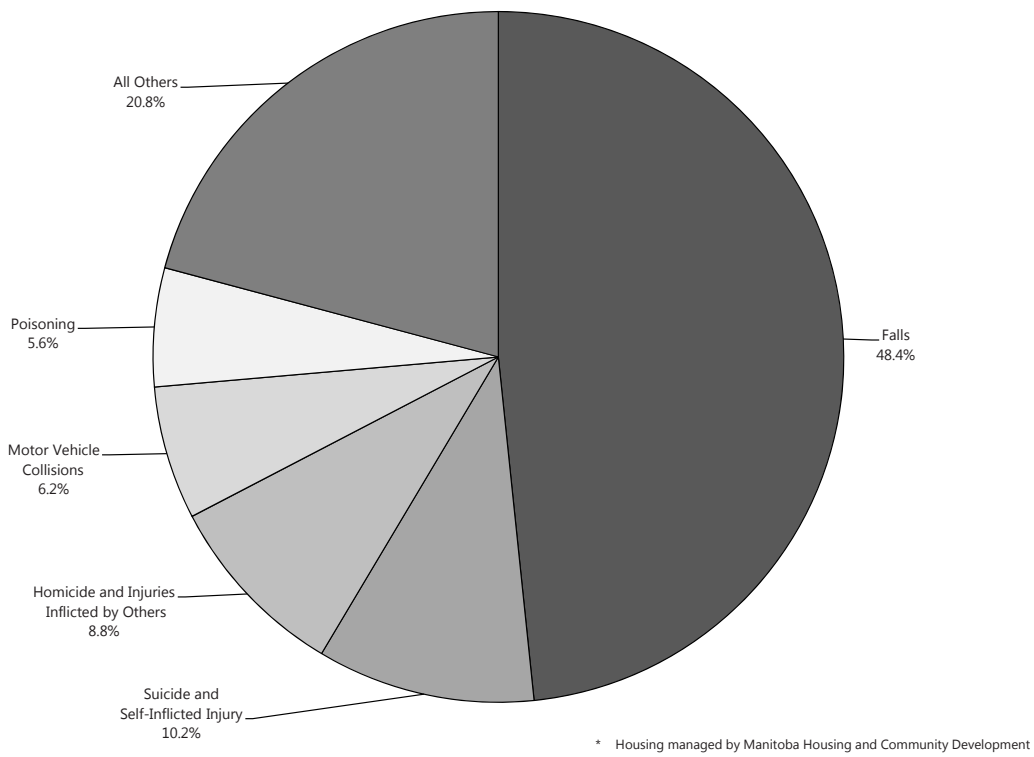
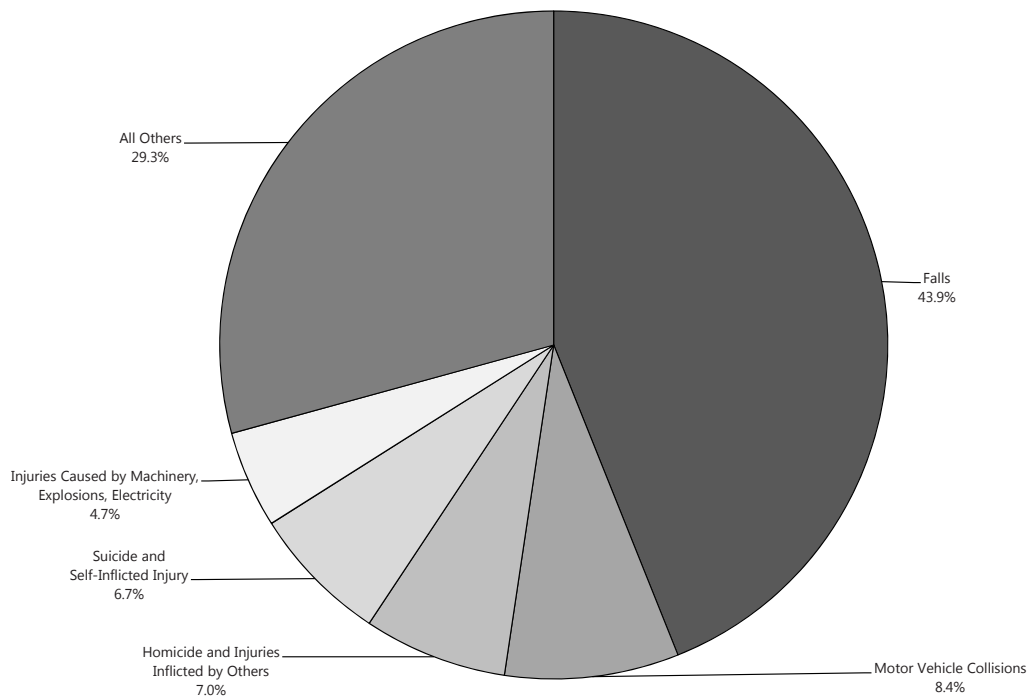


Figure 5.6: Causes of Injury Hospitalizations for All Other Manitobans, 1999/2000–2008/09

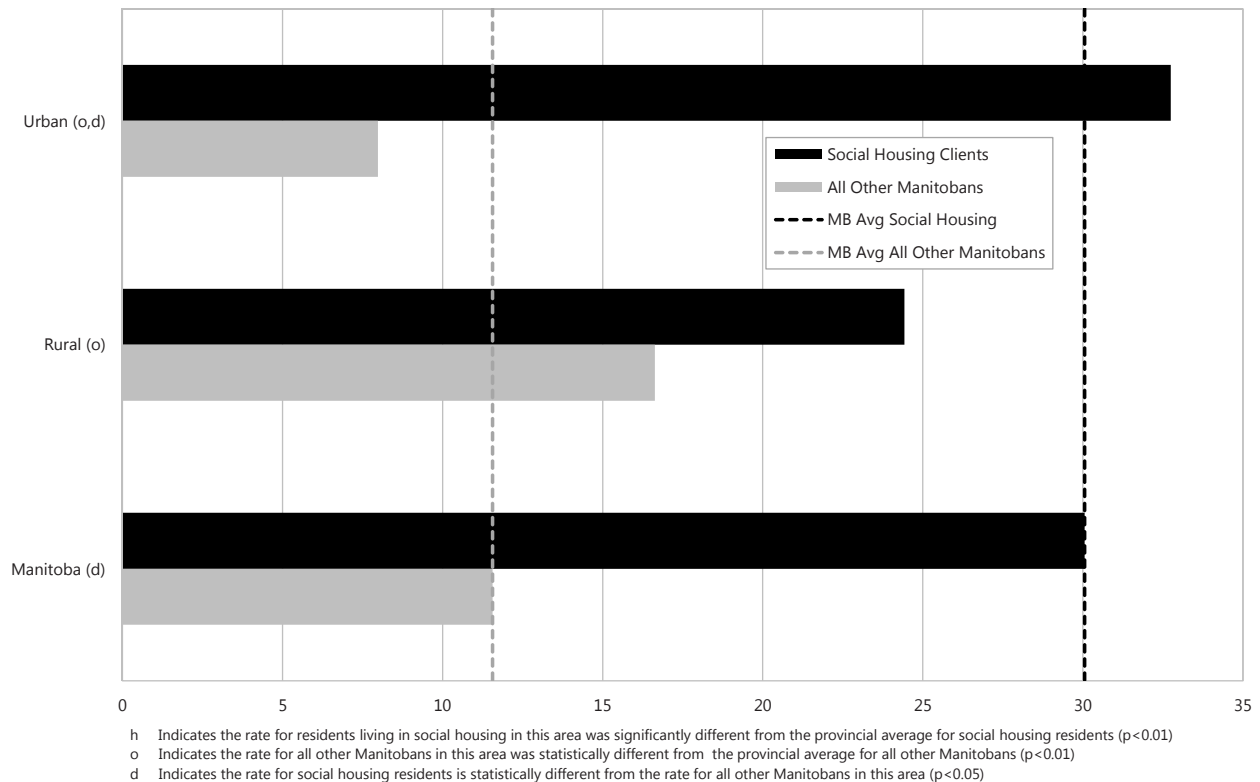


Summary

TB rates were significantly higher in the social housing population compared with all other Manitobans in the province overall and in the urban area of Manitoba. However in the rural area, the observed difference between the Social Housing and All Other Manitobans cohorts was not statistically significant.

In Chapter 8 we re-examined this indicator in a logistic regression analysis that allowed us to control for other related factors that might explain the difference in TB rates between those in social housing and all other Manitobans. In that analysis, we found that poverty, as measured by receipt of IA, was the most important factor in explaining the difference in rates between the two cohorts in this study. Residing in social housing was not a significant factor itself.

Figure 5.8: Rates of Hospitalizations Due to Tuberculosis by Urban and Rural Areas, 1999/2000–2008/09
Age- and sex-adjusted average annual rates per 100,000 residents



Diabetes

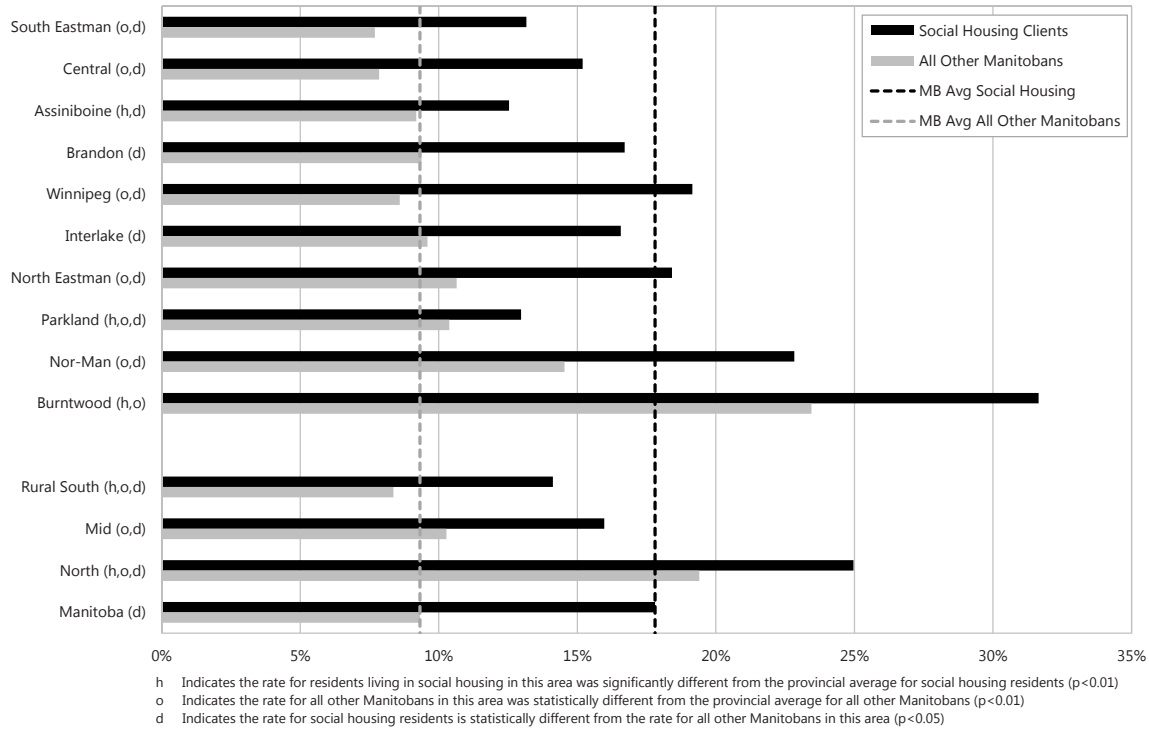
The age- and sex-adjusted prevalence of **diabetes** was measured for residents aged 19 or older from 2006/07 to 2008/09 (see Appendix Table A2.1 in Appendix 2 for details). Residents were considered to have diabetes if they met one of the following conditions:

- one or more hospitalizations with a diagnosis of diabetes
- two or more physician visits with a diagnosis of diabetes
- one or more prescriptions for medications to treat diabetes

The denominator included all Manitoba residents aged 19 and older as of December 31, 2007. Note that this measure of diabetes combines type 1 and type 2, as physician claims data do not allow separate identification. Though not specified in our definition, some cases of gestational diabetes may be included if they were not properly coded. Type 1 diabetes is a chronic condition that often begins in childhood and is the result of the

Figure 5.9: Diabetes Prevalence by RHA, 2006/07–2008/2009

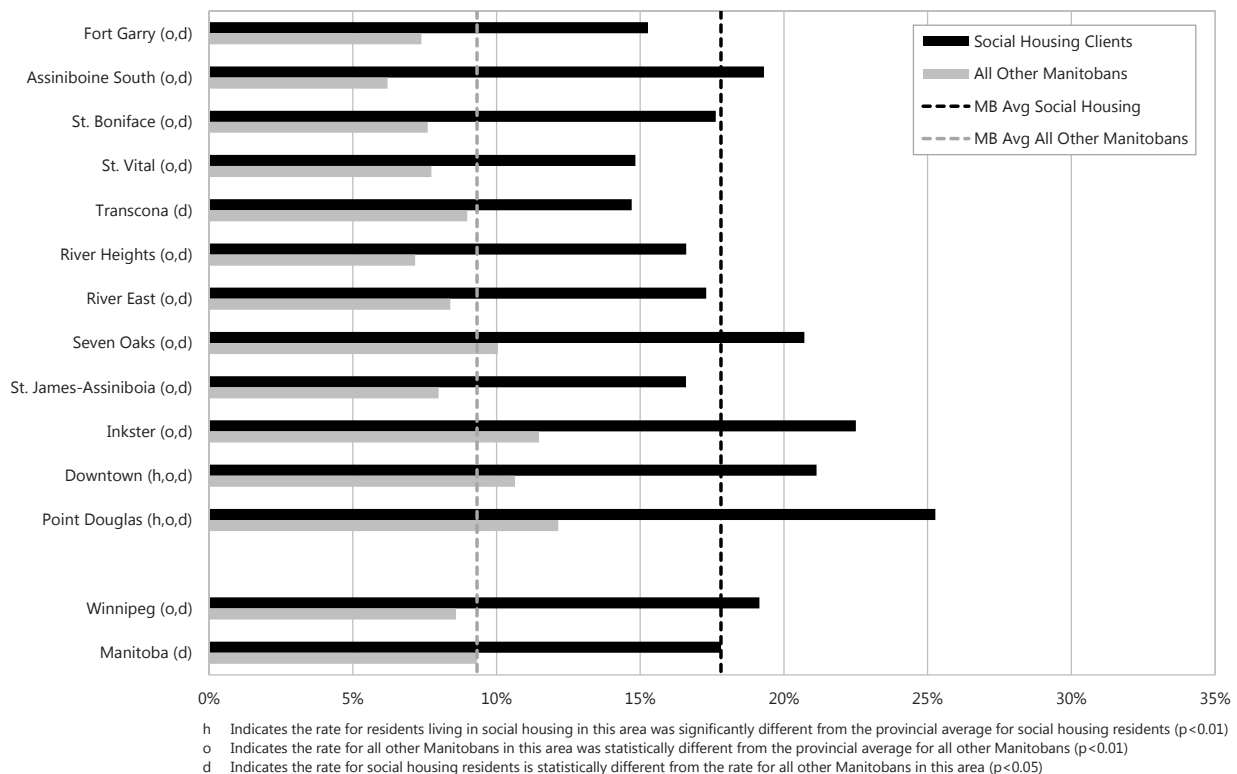
Age- and sex-adjusted percent of residents aged 19 and older



Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 5.10: Diabetes Prevalence by Winnipeg CA, 2006/07–2008/2009

Age- and sex-adjusted percent of residents aged 19 and older



Total Respiratory Morbidity (TRM)

The age- and sex-adjusted prevalence of **Total Respiratory Morbidity (TRM)** was measured over one fiscal year: 2008/09. 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
- one or more physician visits with a diagnosis of asthma, chronic or acute bronchitis, emphysema, or chronic airway obstruction

The denominator included all Manitoba residents as of December 31, 2008 (see Appendix Table A2.1 in Appendix 2 for details).

Key Observations

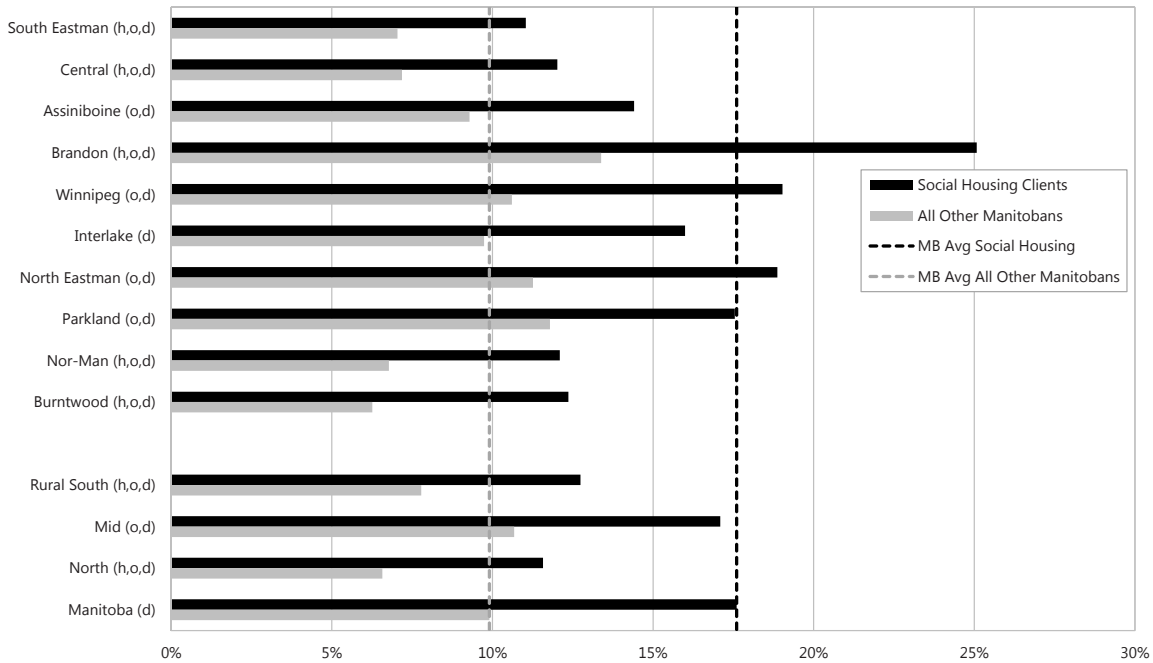
RHAs

- Provincially, the percentage of individuals in social housing with TRM (17.6%) was significantly higher than the percentage of all other Manitobans with TRM (9.9%), and this difference was significant in all RHAs.
- In South Eastman, Central, Assiniboine, NOR-MAN, Burntwood, and the aggregate regions of the Rural South and the North, the prevalence of TRM was significantly lower for the All Other Manitobans cohort than the provincial average for this cohort.
- In Brandon, Winnipeg, North Eastman, Parkland, and the aggregate region of the Mid, the prevalence of TRM for the All Other Manitobans cohort was significantly higher than the provincial average for this group.
- In South Eastman, Central, NOR-MAN, Burntwood, and the aggregate regions of the Rural South and the North, the prevalence of TRM for the All Other Manitobans cohort was significantly lower than the provincial average for social housing.
- In Brandon, the prevalence of TRM for social housing was significantly higher than the provincial average for this cohort.

Winnipeg CAs

- In Winnipeg, the prevalence of TRM in the Social Housing cohort (19.0%) was 8.4% higher than the prevalence in the All Other Manitobans cohort (10.6%) and this difference was significant.
- Compared to the All Other Manitobans cohort, the prevalence of TRM in the Social Housing cohort was significantly higher in all Winnipeg CAs, except Transcona.
- For the All Other Manitobans cohort, the prevalence of TRM in Fort Garry and St. Boniface was significantly lower than the provincial average for all other Manitobans; the prevalence was significantly higher than the provincial average in Transcona, Seven Oaks, St. James-Assiniboia, Inkster, Downtown, and Point Douglas.
- In Point Douglas and Downtown, the Social Housing cohort had significantly higher prevalence than the provincial average for social housing.

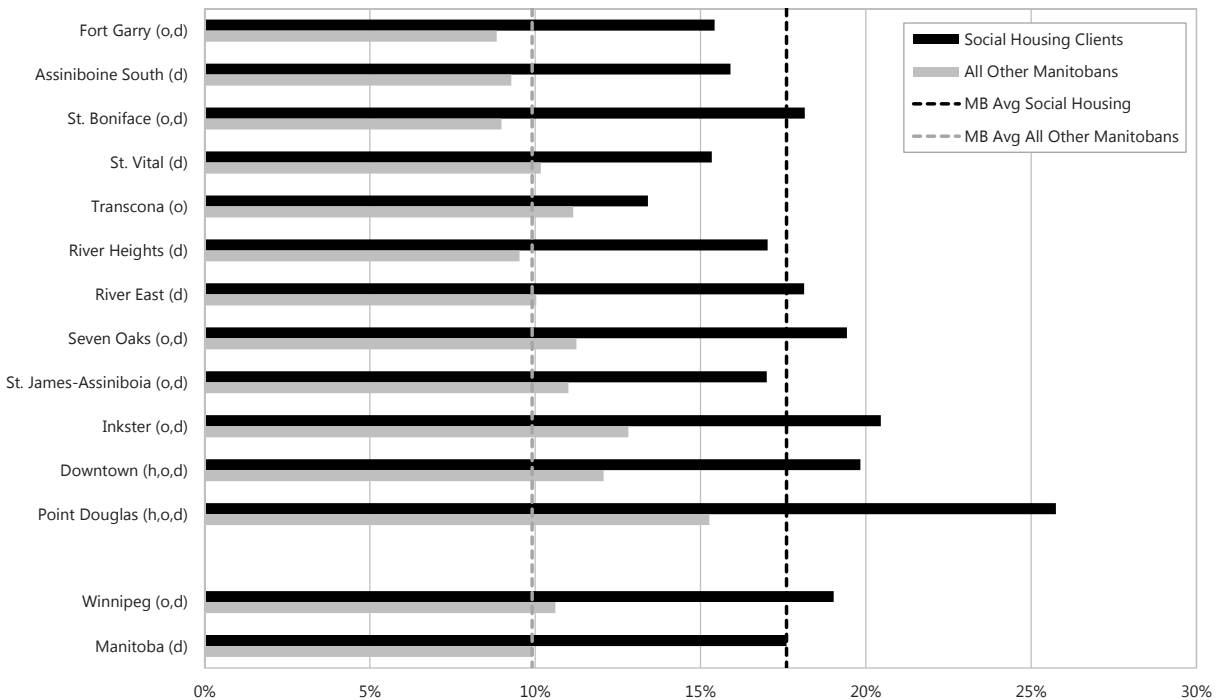
Figure 5.11: Total Respiratory Morbidity Prevalence by RHA, 2008/2009
Age- and sex-adjusted percent of all residents



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents ($p < 0.01$)
o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans ($p < 0.01$)
d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area ($p < 0.05$)

Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 5.12: Total Respiratory Morbidity Prevalence by Winnipeg CA, 2008/2009
Age- and sex-adjusted percent of all residents



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents ($p < 0.01$)
o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans ($p < 0.01$)
d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area ($p < 0.05$)

Figure 5.13: Schizophrenia Prevalence by RHA, 2004/05–2008/09
Age- and sex-adjusted percent of residents aged 10 and older

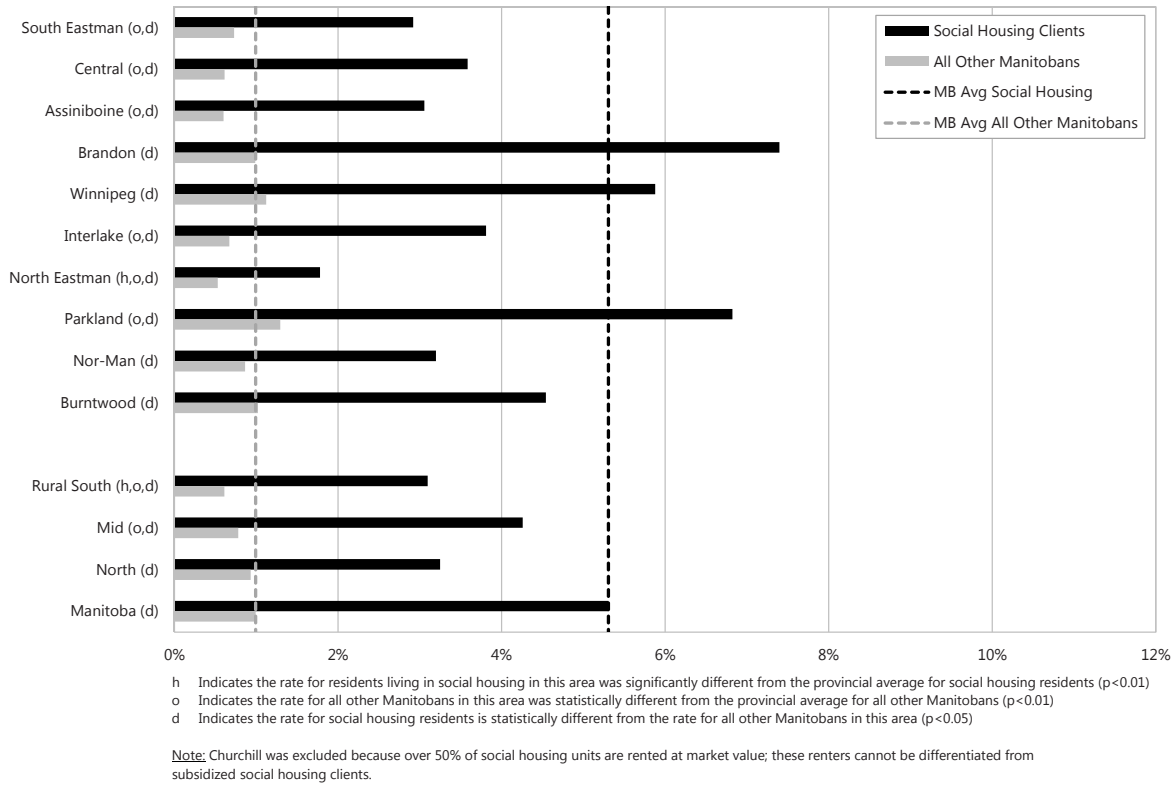
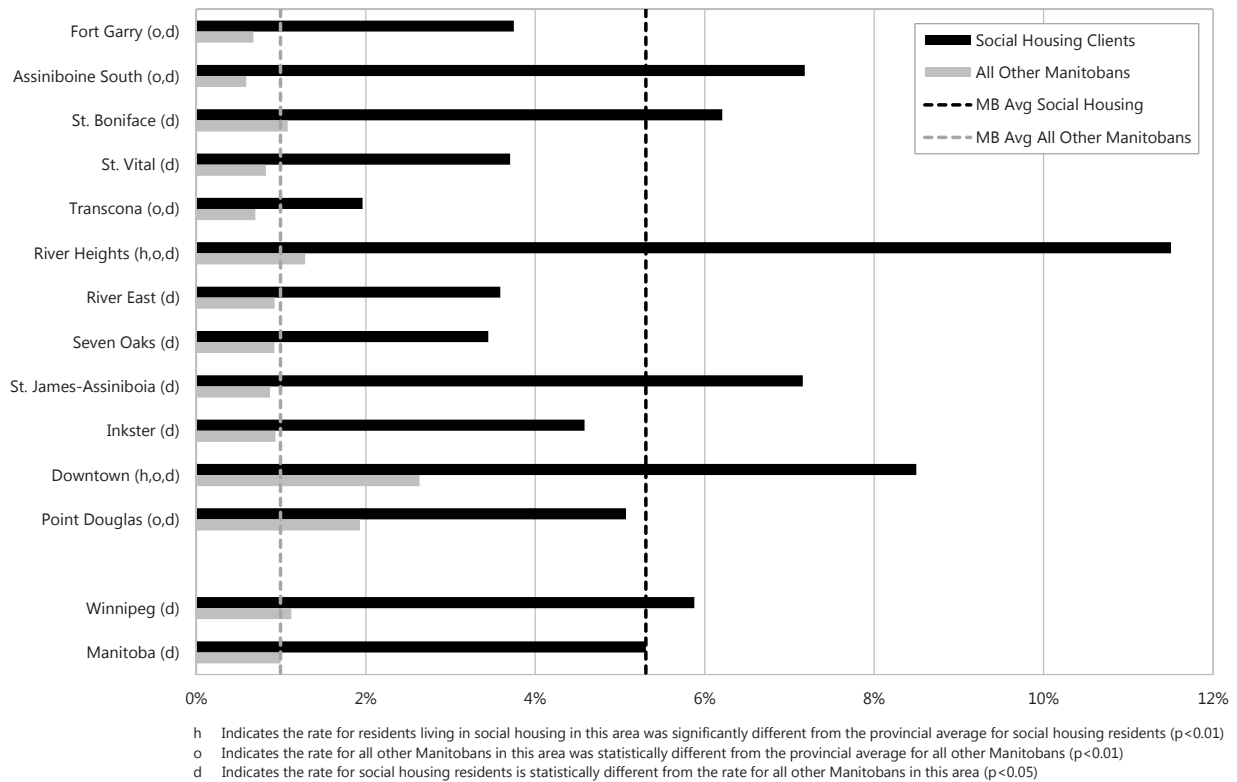


Figure 5.14: Schizophrenia Prevalence by Winnipeg CA, 2004/05–2008/09
Age- and sex-adjusted percent of residents aged 10 and older



Summary and Comparison to Other Findings

Rates of schizophrenia are usually around 1.1% for the general population (Fransoo et al., 2009); and for the All Other Manitobans cohort, this is what we found. For the Social Housing cohort, the rates observed in this study were five to six times higher. Since having schizophrenia often makes it difficult for individuals to retain consistent employment (National Institute of Mental Health (NIMH), 2012), the higher prevalence of individuals with schizophrenia in the Social Housing cohort may represent an increased need for these supports among a vulnerable population. It was also suggested in review that many of the districts that have particularly high rates might be the result of nearby treatment facilities.

In Chapter 8 we re-examined this indicator in a logistic regression analysis that allowed us to control for other related factors that might explain the difference in rates of schizophrenia between those in social housing and all other Manitobans. In that analysis we found that poverty, as measured by receipt of IA, was the most important factor in explaining the difference between the two groups on this indicator. Residing in social housing was not a significant factor itself.

Mood and Anxiety Disorders

The age- and sex-adjusted prevalence of mood and anxiety disorders was measured for residents aged 10 and older from 2004/05 to 2008/09. Residents were considered to have a mood or anxiety disorder if they met one of the following conditions:

- one or more hospitalizations with a diagnosis for depressive disorder, affective psychoses, neurotic depression, adjustment reaction, an anxiety state, phobic disorders or obsessive-compulsive disorders;
- one or more hospitalizations with a diagnosis for anxiety disorders AND one or more prescriptions for an antidepressant or mood stabilizer;
- one or more physician visits with a diagnosis for depressive disorder or affective psychoses;
- one or more physician visits with a diagnosis for anxiety disorders AND one or more prescriptions for an antidepressant or mood stabilizer;
- three or more physician visits with a diagnosis for anxiety disorders or adjustment reaction

The denominator included all Manitoba residents aged 10 and older as of December 31, 2006 (see Appendix Table A2.1 in Appendix 2 for details). This indicator is a new one for MCHP and was developed to overcome ambiguities in assigning individuals to independent depression and anxiety diagnostic categories. Independent diagnostic assignment requires access to four-digit ICD coding in physician billing data, and MCHP’s data only provides coding to three digits. In addition, the psychiatric community often groups these two conditions together for diagnostic and treatment purposes.

Key Observations

RHAs

- The provincial prevalence of mood and anxiety disorders in the Social Housing cohort (37.2%) was significantly higher than in the All Other Manitobans cohort (22.6%).
- This pattern was observed in all RHAs.
- For the Social Housing cohort, the prevalence of mood and anxiety disorders was significantly lower than the provincial average for this group in Interlake, NOR–MAN, and the aggregate region of the North; the prevalence in Brandon, however, was significantly higher than the provincial average for social housing.
- For all other Manitobans, the prevalence of mood and anxiety disorders was significantly lower than the provincial average for this cohort in South Eastman, Central, Assiniboine, Interlake, North Eastman, NOR–MAN, and Burntwood, as well as all three aggregate regions. The prevalence was significantly higher than the provincial average for all other Manitobans in Brandon.

Winnipeg CAs

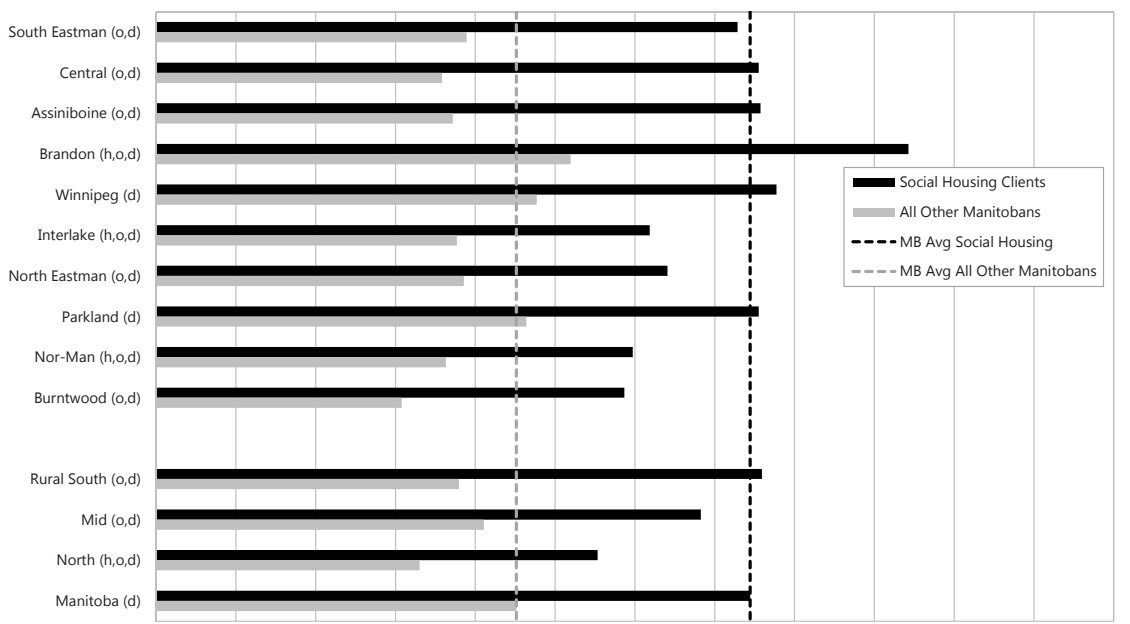
- In Winnipeg, the prevalence of mood and anxiety disorders in social housing was about 62% higher than in the All Other Manitobans cohort, and this difference was significant.
- All Winnipeg CAs had a significantly higher prevalence of mood and anxiety disorders in the Social Housing cohort than in the All Other Manitobans cohort.
- In the Social Housing cohort, the prevalence of mood and anxiety disorders was significantly higher in Point Douglas and significantly lower in Inkster when compared to the provincial average for social housing.
- In the All Other Manitobans cohort, the prevalence of mood and anxiety disorders was significantly lower than the provincial average for all other Manitobans in Fort Garry and Inkster and significantly higher than the provincial average in Transcona, River Heights, and St. James–Assiniboia.

Summary and Comparison to Other Findings

As noted earlier, the combined mood and anxiety category is a new one for MCHP making comparisons to previous MCHP reports difficult. Martens et al. (2010a) found that the overall rate of a five-year “cumulative mental illness” indicator was 23.6%, or approximately equivalent to the 22.6% for the combined mood and anxiety disorder indicator reported in our study for the All Other Manitobans cohort. In Martens et al. (2010a), the difference between the lowest and highest income groups in urban areas was quite small (20.4% vs. 18.6%), but still significantly different. In rural areas, the difference between the lowest and highest income groups was greater (29.1% vs. 20.3%) and again significant. In our study, the rate of a combined mood and anxiety disorders indicator in the Social Housing cohort (37.2%) is higher than that reported for low income groups by Martens et al. (2010a) for a “cumulative mental illness” indicator (20.4% in urban areas and 29.1% in rural areas) and the difference between social housing and all other Manitobans is also larger than the difference between low and high income groups reported by Martens et al. (2010a).

In a 2011 study of African–American public housing residents using data from the National Survey of American Life, Simning, van Wijngaarden and Conwell (2011) found that the lifetime prevalence of any anxiety disorder in public housing residents (31.8%) was 1.5 times higher than in non–public housing residents (20.7%) and the lifetime prevalence of any mood disorder (15.4%) was 1.3 times higher than in non–public housing residents (12.1%). The prevalence of the combined mood and anxiety disorders indicator reported in this study is, as one would expect for a combined category, somewhat higher but the relative and significant difference between residents of social housing and all other Manitobans (1.6 times) is similar to the results reported in the American study using survey data (Simning et al., 2011). Findings in the present study were consistent across RHAs and Winnipeg CAs.

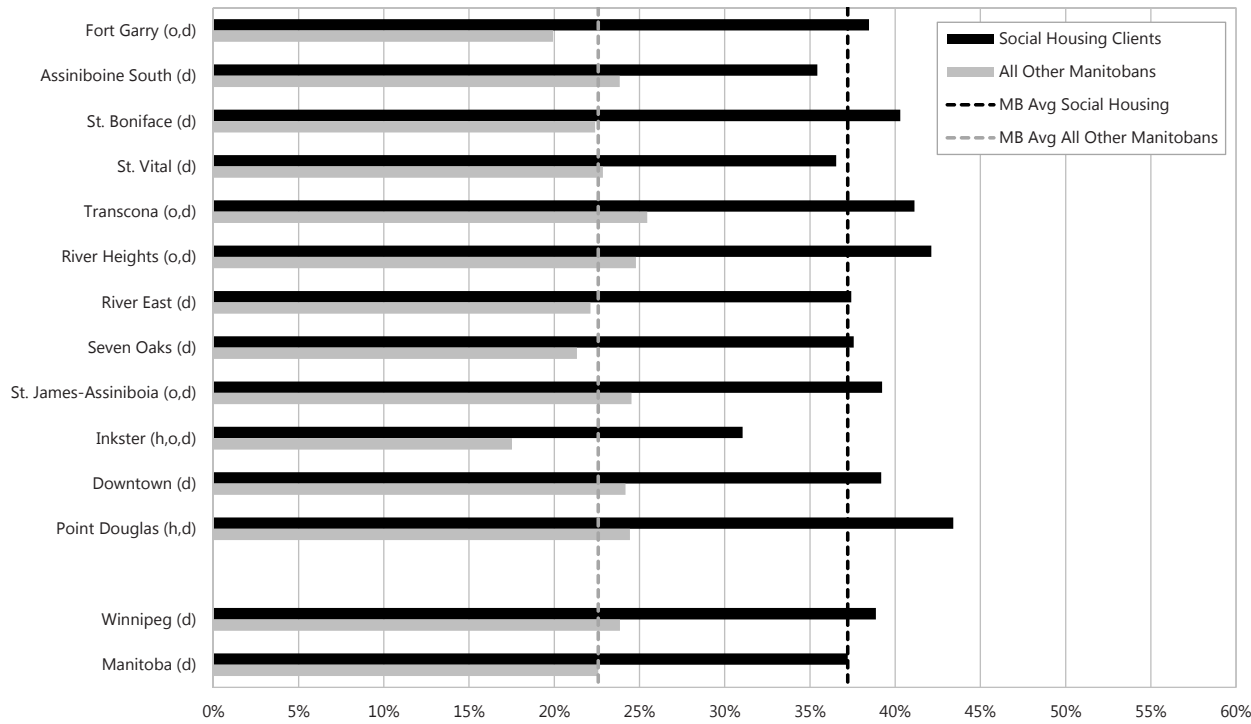
Figure 5.15: Mood and Anxiety Disorder Prevalence by RHA, 2004/05–2008/09
Age- and sex-adjusted percent of residents aged 10 and older



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents (p<0.01)
o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans (p<0.01)
d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area (p<0.05)

Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 5.16: Mood and Anxiety Disorder Prevalence by Winnipeg CA, 2004/05–2008/09
Age- and sex-adjusted percent of residents aged 10 and older



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents (p<0.01)
o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans (p<0.01)
d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area (p<0.05)

Suicide

For the purposes of this report, suicide was defined from the Vital Statistics data as any death with a code for suicide, self-inflicted injury, or accidental poisoning. The age- and sex-adjusted annual average rates per 100,000 were calculated for calendar years 1999 to 2008 (see Appendix Table A2.1 in Appendix 2 for details).

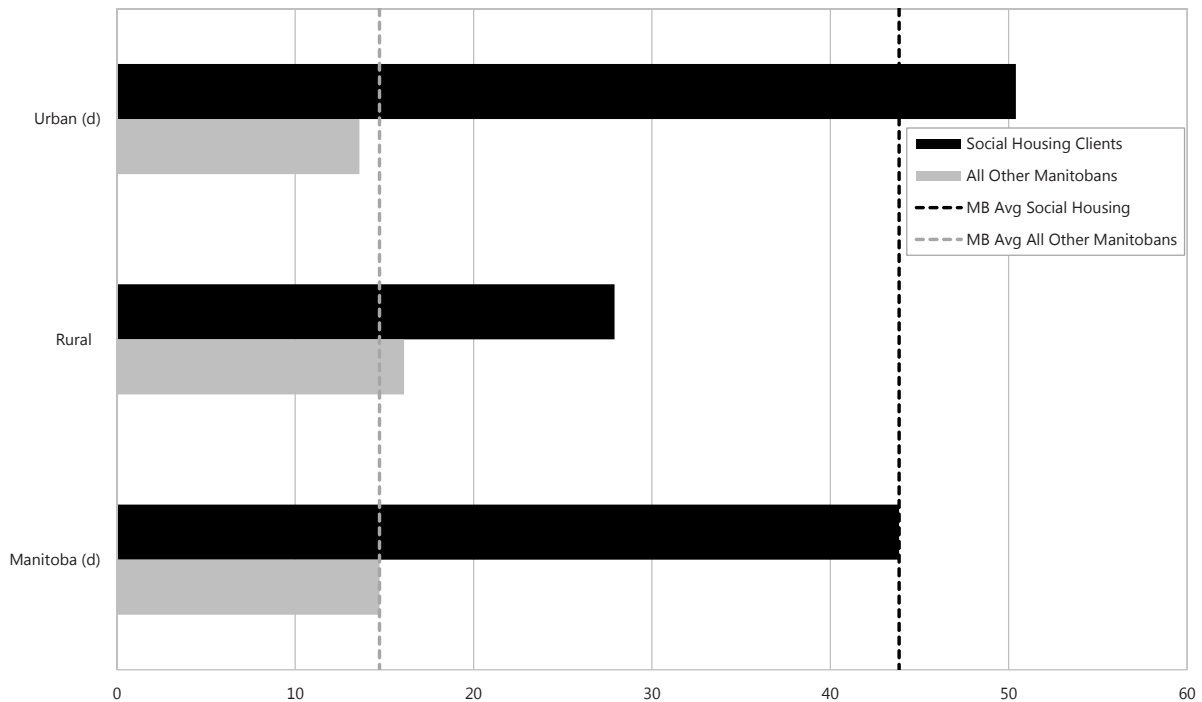
The number of individual events was too small to report at the RHA level. Instead averages for the province as a whole and separately for urban (Winnipeg and Brandon) and rural areas are provided. As can be seen in Figure 5.17, rates of suicide among the Social Housing cohort (43.9 per 100,000) were more than three times higher than among all other Manitobans (14.7 per 100,000). This difference was significant. In rural areas, this difference was almost two-fold (but not significant); and in urban areas, the difference was almost four-fold (50.4 per 100,000 for those in social housing vs. 13.6 per 100,000 for all other Manitobans) and significantly higher in the Social Housing cohort.

Summary and Comparison to Other Findings

In Martens et al. (2004), suicide rates for both males and females show a significant gradient with average household income. For males, suicide rates for those from the lowest income quintile are about twice as high as for those living in the highest income areas. For females, suicide rates for those from the lowest income areas were about four times higher than for females living in the highest income areas. The highest urban rate was for females in the lowest income group (24 per 100,000 population), while the highest rural rate was for females in the lowest income group (36 per 100,000 population). The overall finding of 43.9 deaths per 100,000 population in our study for residents of social housing is higher than these previously reported values. However, the difference between the highest and lowest income groups in the Martens et al. study, averaged for both males and females (three-fold), is comparable with the difference observed in this study between individuals living in social housing and all other Manitobans.

Figure 5.17: Suicide Completion Rates by Urban and Rural Areas, 1999–2008

Age- and sex-adjusted average annual rates per 100,000 residents



- h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents ($p < 0.01$)
- o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans ($p < 0.01$)
- d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area ($p < 0.05$)

CHAPTER 6: CHILDREN AND ADOLESCENTS

Overview of Key Findings

In this chapter, we examine several indicators that either had a direct influence on children (childhood immunization and breastfeeding initiation) or that reflect subsequent adolescent behaviour (high school completion and teen pregnancy). It is useful to look at these indicators as they occur across the life cycle, and that is how they are presented in this Chapter.

The first indicator is the family's preparedness for family life. In this regard, we found that families of newborns in social housing had rates that were two to three times higher on a measure of three or more risk factors on the Families First Screen. This screen assesses factors such as premature birth, complications during pregnancy or labour, history of mental illness, social isolation, relationship distress, and substance use. Having three or more of these risk factors has been shown to correlate with significantly higher rates of subsequent poor child health and social outcomes (Brownell et al., 2007; Brownell et al., 2011).

Next are indicators of breastfeeding initiation and child immunization, both are behaviours that parents must organize and participate in for there to be success in accomplishing these activities. For both, we found only a modest difference (10 to 20 percentage points) between the Social Housing cohort and all other Manitobans. Thus the difference between the two cohorts was not as large as we have seen for other indicators. This suggests that, when the right supports, opportunities, or incentives are in place, the behaviour of individuals in social housing is similar to all other Manitobans.

Next are two indicators in the academic sphere: readiness for school (as measured by the EDI) and high school completion. In both, we see a difference of about 70% between social housing and all other Manitobans. This should be worrying because performance at school is critically important if the children of these families are going to acquire the means to lift themselves out of poverty. We also saw the biggest socioeconomic effect in this report in the high school completion rates of children in Winnipeg CAs. As we noted earlier, the regional areas on our graphs are ordered by premature mortality from lowest to highest; but as work by Metge et al. (2009) has shown, this order is highly correlated ($r^2 = 0.91$, $p < 0.001$) with SES. By Winnipeg CA, the rate of high school completion in the Social Housing cohort went from 81.6% in Fort Garry (the area with the highest SES score) to 19.5% in Point Douglas (the area with the lowest SES score). The provincial average for all other Manitobans was 80.7%; so in essence, we observed the rate of high school completion in social housing vary from the average for all other Manitobans (a huge success) to barely a quarter of that rate.

Table 6.1: Key Findings for Children and Adolescents in Social Housing* and All Other Young Manitobans

Indicator	Time Period**	Differences: Between Social Housing Clients and All Other Manitobans		Areas Where Social Housing Clients Are Statistically "Better Off" Compared to the Provincial Average for Social Housing	Areas Where Social Housing Clients Are Statistically "Worse Off" Compared to the Provincial Average for Social Housing
		In Manitoba	In Winnipeg		
Three or More Families First Screen Risk Factors	2003/04 & 2007/08	52.8% vs. 19.4% [†] (p < 0.01)	49.9% vs. 18.6% (p < 0.01)		
Breastfeeding Initiation (For Newborns Born in Hospitals)	2004/05–2008/09	66.1% vs. 81.3% (p < 0.01)	65.8% vs. 84.9% (p < 0.01)	CA: Fort Garry	RHA: Burntwood CA: Inkster
Childhood Immunization (For Two-Year-Olds)	2007/08–2008/09	58.1% vs. 64.4% (p < 0.01)	57.7% vs. 67.5% (p < 0.01)		RHA: Interlake
Children Not Ready for School from Early Development Index (EDI)	2005-06 & 2006-07 [§]	44.6% vs. 26.4% (p < 0.01)	45.8% vs. 26.1% (p < 0.01)		CA: River Heights
High School Completion	2007-08 & 2008-09 [§]	47.9% vs. 80.7% (p < 0.01)	45.3% vs. 82.1% (p < 0.01)	RHA: Assiniboine CA: Fort Garry	CAs: Downtown, Point Douglas
Teen Pregnancy (Females Aged 15–19 Years)	2004/05–2008/09	147.8 vs. 43.1 per 1,000 [§] (p < 0.01)	155.3 vs. 36.3 per 1,000 (p < 0.01)	CA: Assiniboine South	CAs: Inkster, Downtown

* Housing managed by Manitoba Housing and Community Development

** Fiscal years unless otherwise indicated

† Crude rates unless otherwise indicated

‡ Maternal age-adjusted

§ School years

Note: all differences between social housing and all other Manitobans were significant (p < 0.01)

Finally, we have the social indicator of teen pregnancy where we found the rates in social housing were three to four times higher than the rate for all other Manitobans. This indicator is important because we know that children of mothers who were teen moms themselves are at much greater risk of experiencing poor health and poor social outcomes later in life (Brooks–Gunn and Furstenberg, 1986; Moore, Morrison and Greene, 1997).

Three or More Families First Risk Factors at Birth of a Child

The Families First screen is a brief measure of biological, social, and demographic risk. Public Health Nurses in Manitoba attempt to assess all families with newborns within a week of discharge from the hospital. Three or more risk factors indicate that a family may require additional supports such as intensive home visiting, financial support, parenting programs, mental health services, or child care. The average maternal age–adjusted percentage of families with newborns who had three or more risk factors on the Families First screening form was measured for newborns born in five fiscal years: 2003/04–2007/08. Risk factors measured on the Families First screening form include but are not limited to: prenatal alcohol use, prenatal smoking, complications during pregnancy or labour, premature birth, social isolation, maternal depression/anxiety, relationship distress, history of mental illness, and maternal education level achieved (see Appendix Table A2.1 in Appendix 2 for details).

Key Observations

RHAs

- The provincial average for families with newborns with three or more risk factors present at the Families First screen in social housing (52.8%) was significantly higher than the average for all other Manitobans (19.4%) and this finding was true for all RHAs as well.
- The percentage of families with newborns with three or more risk factors in the All Other Manitobans cohort was significantly lower than the provincial average for this cohort in South Eastman and significantly higher than the provincial average for this cohort in Interlake, NOR–MAN, Burntwood, and the aggregate area of the North.
- An association with underlying health status (as measured by PMR) was observed in the All Other Manitobans cohort, but not in the Social Housing cohort.

Winnipeg CAs

- The provincial percentage of families with newborns with three or more risk factors was significantly higher in the Social Housing cohort (49.9%) when compared to the All Other Manitobans cohort (18.6%) in Winnipeg.
- The percentage of families with newborns with three or more risk factors in the All Other Manitobans cohort was significantly lower than the provincial average for this group in Fort Garry, Assiniboine South, St. Vital, Transcona, River Heights, Seven Oaks, and St. James–Assiniboia; but it was significantly higher than the provincial average for all other Manitobans in Downtown and Point Douglas.
- An association with underlying health status (as measured by PMR) was observed in the All Other Manitobans cohort, but not in the Social Housing cohort.

Summary and Comparison to Other Findings

Rates reported for all other Manitobans in this report are comparable to rates reported by Chartier et al. (2012) for both the Francophone population in Manitoba and a matched cohort of non–Francophone residents. Rates reported in this study for the Social Housing cohort were, on average, about two to three times higher than for the All Other Manitobans cohort.

Figure 6.1: Three or More Families First Risk Factors at Birth of Child by RHA, 2003/04 and 2007/08
 Maternal age-adjusted average annual percent

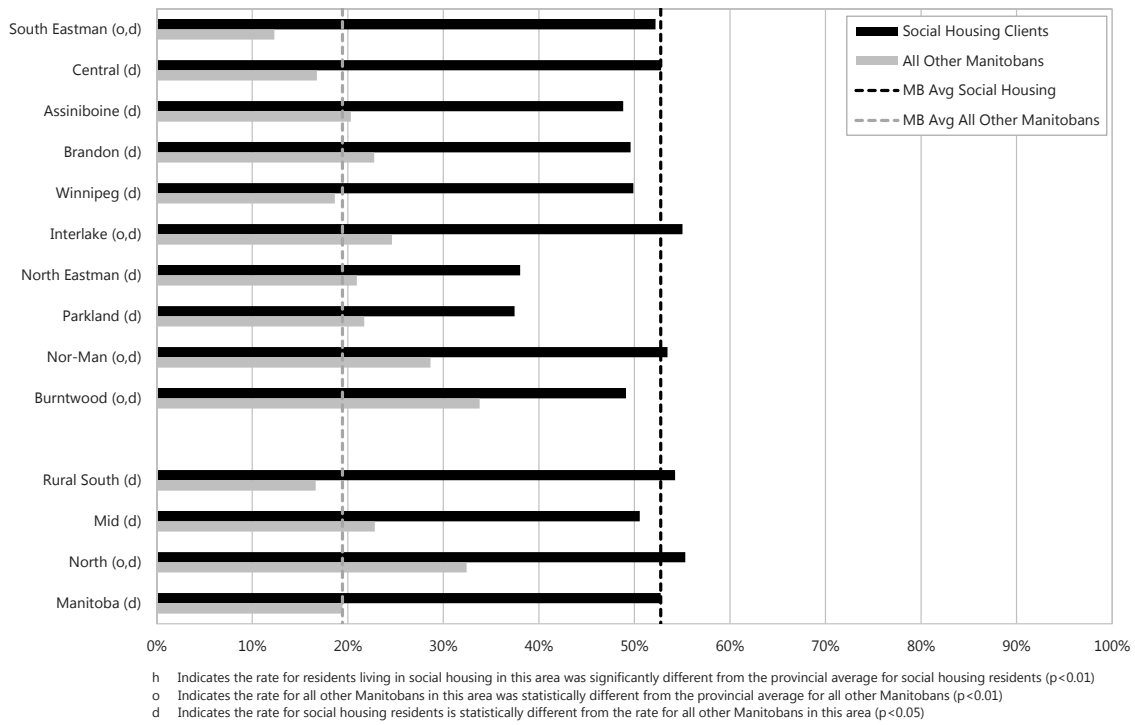
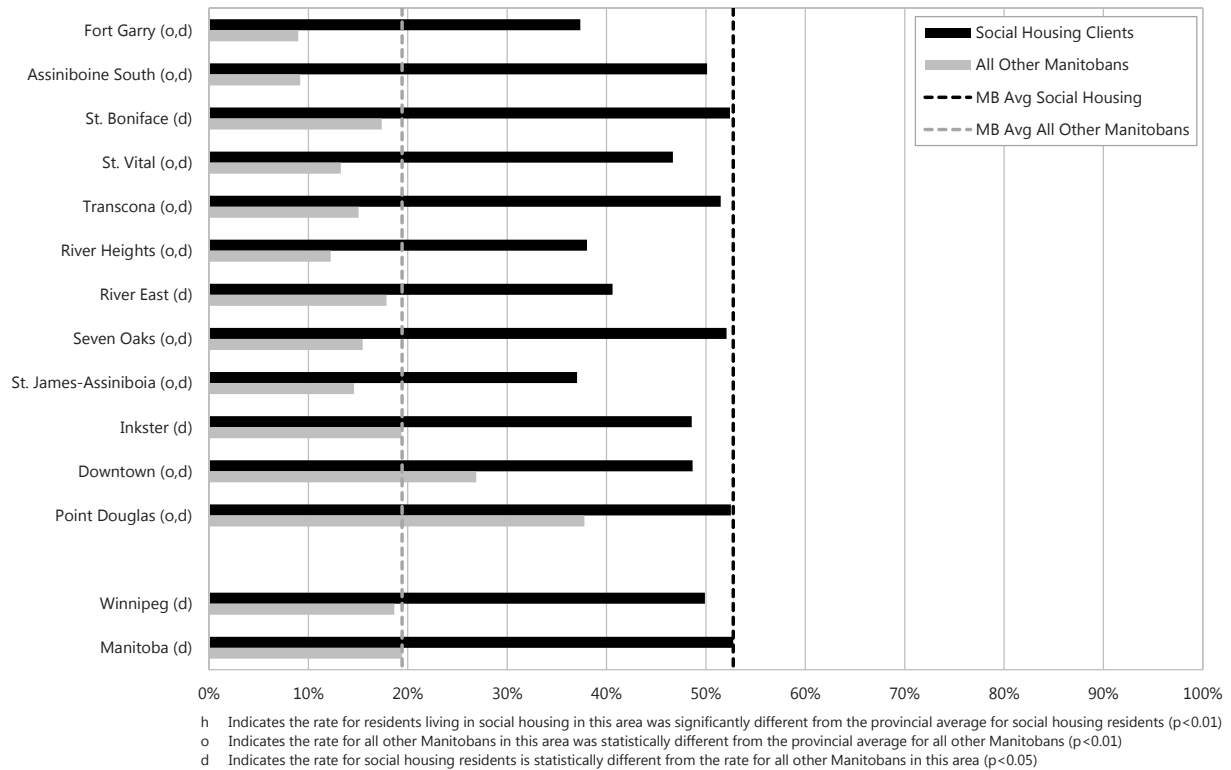


Figure 6.2: Three or More Families First Risk Factors at Birth of Child by Winnipeg CA, 2003/04 and 2007/08
 Maternal age-adjusted average annual percent



Breastfeeding Initiation

The crude average annual percentage of newborns who were exclusively, or partially, breastfed when discharged from the hospital was measured over five fiscal years: 2004/05–2008/09. The denominator included all live born babies from Manitoba hospitals that had breastfeeding information in the hospital discharge abstract. Note that out-of-province birth records, birth records with missing or unknown breastfeeding information, or with breastfeeding coded as NPO (nothing by mouth) were excluded from both the numerator and denominator (see Appendix Table A2.1 in Appendix 2 for details).

Key Observations

RHAs

- Provincial breastfeeding initiation rates were significantly lower in the Social Housing cohort (66.1%) than they were in the All Other Manitobans cohort (81.3%).
- This difference was observed in all RHAs except North Eastman, Parkland, NOR–MAN, and Burntwood and the aggregate area of the North.
- For the All Other Manitobans cohort, the breastfeeding initiation rate was higher in South Eastman, Central, Assiniboine, Brandon, and Winnipeg than the provincial average for all other Manitobans. The rate was lower than the provincial average in North Eastman, Parkland, NOR–MAN, and Burntwood.
- For the Social Housing cohort in Burntwood, the rate of breastfeeding initiation was lower than the provincial average for social housing.
- An inverse association between PMR and breastfeeding initiation was observed—RHAs with the lowest PMR had the highest rates of breastfeeding initiation and RHAs with the highest PMR had the lowest rates of breastfeeding initiation.

Winnipeg CAs

- In Winnipeg, the rate of breastfeeding initiation for the Social Housing cohort (65.8%) was significantly lower than the breastfeeding initiation rate for all other Manitobans in Winnipeg (84.9%).
- This difference was observed in all Winnipeg CAs except Point Douglas.
- For all other Manitobans, the rate of breastfeeding initiation was higher than the provincial average for this cohort in Fort Garry, Assiniboine South, St. Boniface, St. Vital, Transcona, River Heights, River East, Seven Oaks, and St. James–Assiniboia. It was lower than the provincial average for this cohort in Downtown and Point Douglas.
- For the Social Housing cohort, the rate of breastfeeding initiation was higher than the provincial average for social housing residents in Fort Garry and lower than the provincial average in Inkster.
- In the All Other Manitobans cohort, an inverse relationship between PMR and breastfeeding initiation was observed—areas with the lowest PMR had the highest rates of breastfeeding initiation and areas with the highest PMR had the lowest rate of breastfeeding initiation. This inverse association was not observed in the Social Housing cohort.

Summary and Comparison to Other Findings

In 2010, Martens et al. reported a rate of 62.5% for the lowest rural income quintile in Manitoba and 74.7% for the lowest urban income quintile (2010b). Brownell et al (2008) found similar results for low income quintile urban and rural areas. The rate of 66.1% reported in this study for the Social Housing cohort is similar to the rate reported by Martens et al. for the lowest rural income quintile. These low rates of breastfeeding initiation have future implications for the development of diabetes, obesity and respiratory tract infections in the Social Housing cohort (Owen, Martin, Whincup, Davey Smith and Cook, 2006; Ip, Chung, Raman, Chew, Magula, DeVine, Trikalinos and Lau, 2007).

Figure 6.3: Percent of Newborns who were Breastfed at Hospital Discharge by RHA, 2004/05–2008/09
Crude average annual percent of newborns born in hospital

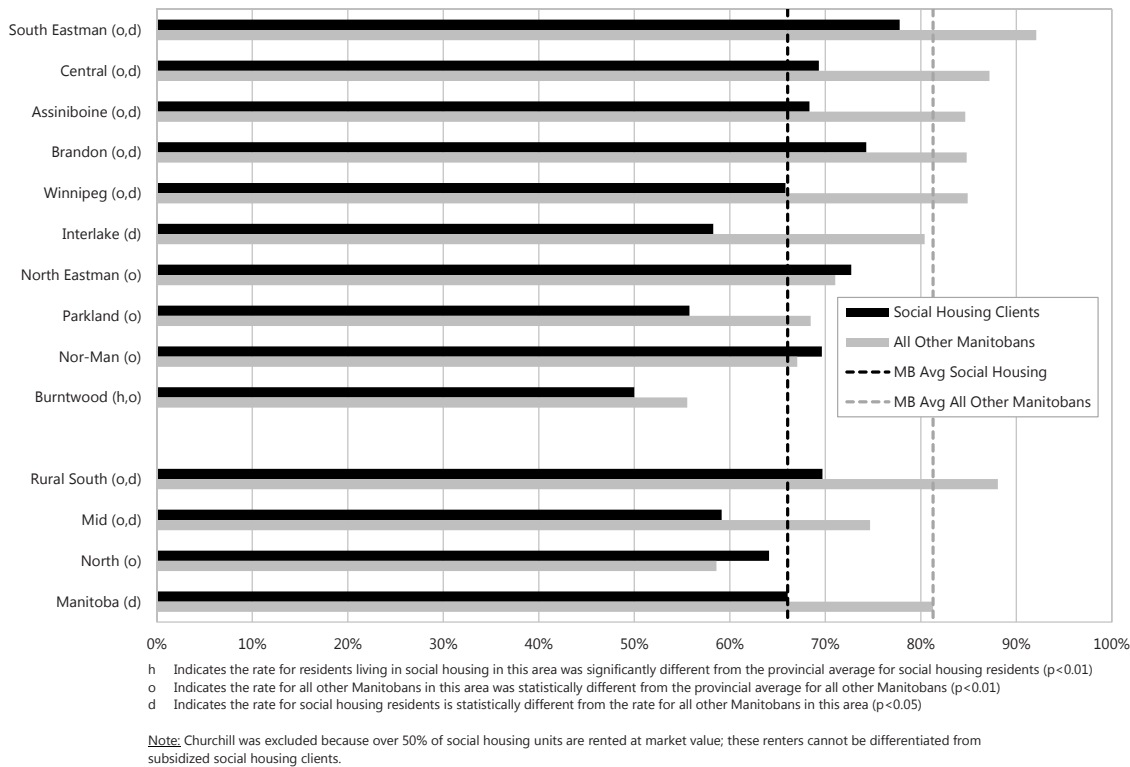
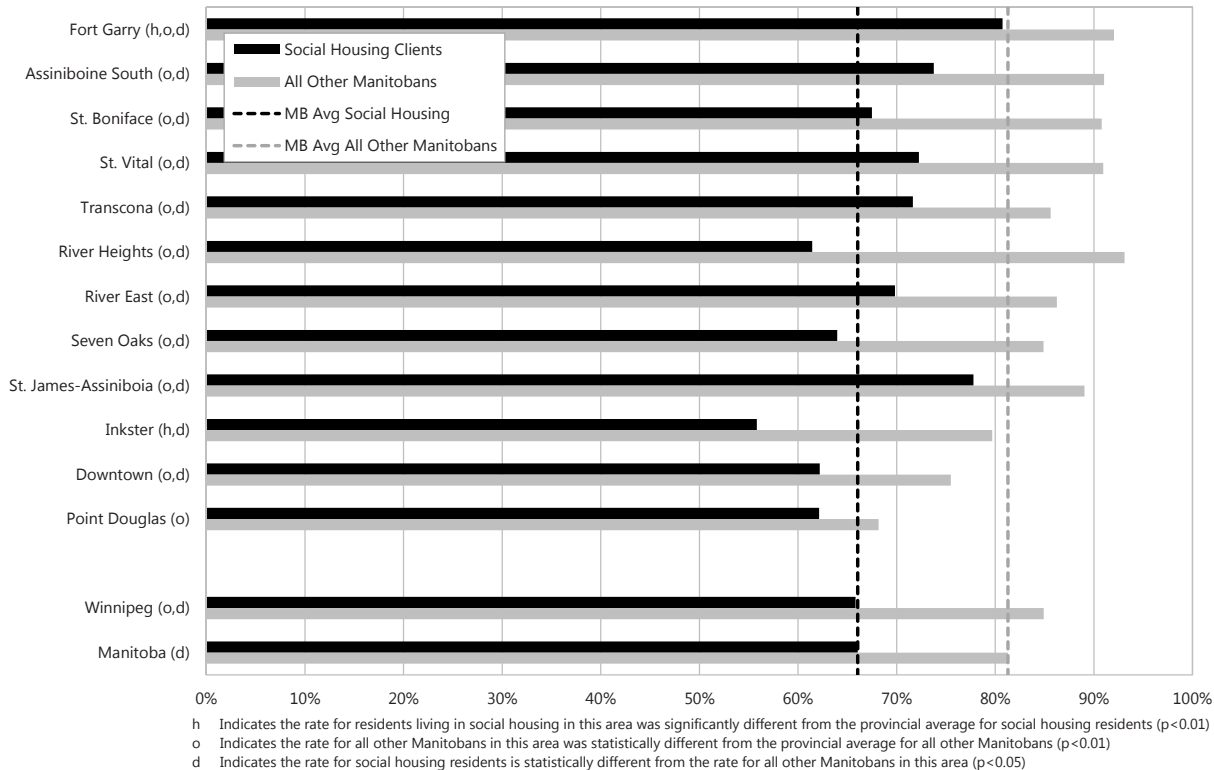


Figure 6.4: Percent of Newborns who were Breastfed at Hospital Discharge by Winnipeg CA, 2004/05–2008/09
Crude average annual percent of newborns born in hospital



In Chapter 8 we analysed this indicator in a logistic regression analysis that allowed us to control for other factors that might explain the difference in breastfeeding initiation between those in social housing and all other Manitobans. In that analysis, we found that poverty, as measured by receipt of IA, as well as a number of other demographic and birth related variables (mom's age at first birth, region of residence, physical and mental **Aggregated Diagnosis Groups™ (ADGs®)**, hospital, gestational age, birth weight, Apgar score, parity, C-section birth, epidural, multiple births) explained all of the difference in this indicator between the two cohorts. Residing in social housing was not a significant factor in the analysis.

Two-Year-Old Immunization Completion

The crude average annual percentage of two-year-old children who had all of the recommended immunizations for their age was measured over two fiscal years, 2007/08–2008/09. In Manitoba the recommended immunization schedule at age two is:

- Four Diphtheria, Acellular Pertussis, Tetanus (DTP) immunizations
- Three Polio immunizations
- Four *Haemophilus influenzae* type B (HiB) immunizations
- One Measles, Mumps, and Rubella (MMR) immunization
- One Varicella immunization
- Four Pneumococcal Conjugate 7 (PCV7) immunizations

The denominator included all Manitoba children born in 2005/06 and 2006/07 who were continuously registered with Manitoba Health up to their second birthday (see Appendix Table A2.1 in Appendix 2 for details).

Key Observations

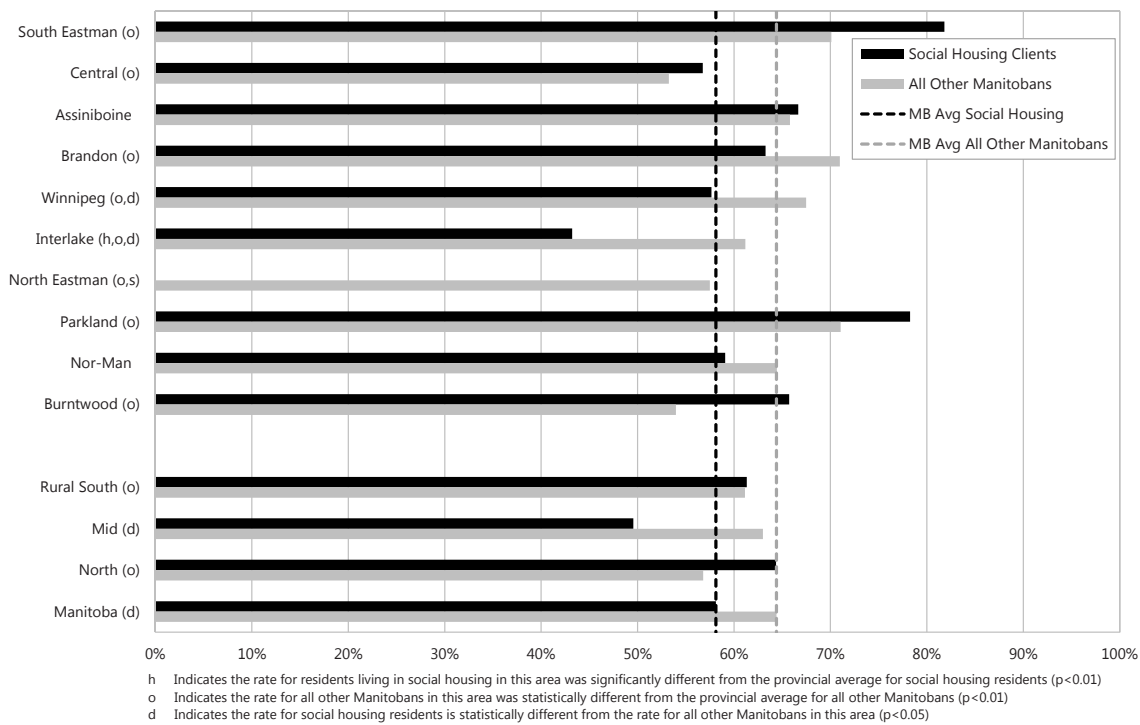
RHAs

- The provincial percentage of two-year-olds with a complete immunization schedule was lower in the Social Housing cohort (58.1%) than in the All Other Manitobans cohort (64.4%).
- This difference was observed in Winnipeg and Interlake RHAs and the Mid aggregate region. In other parts of the province, significant differences between the Social Housing and All Other Manitobans cohorts were not observed.
- Among the All Other Manitobans cohort, the percentage of two-year-olds with a complete immunization schedule was higher than the provincial average for all other Manitobans in South Eastman, Brandon, Winnipeg, and Parkland. It was lower than the provincial average for all other Manitobans in Central, Interlake, North Eastman, Burntwood, and the aggregate regions of the Rural South and North.
- For the Social Housing cohort, the percentage of two-year-olds with a complete immunization schedule was lower than the provincial average for social housing in Interlake only. No other significant differences between social housing and the provincial average for social housing were observed.

Winnipeg CAs

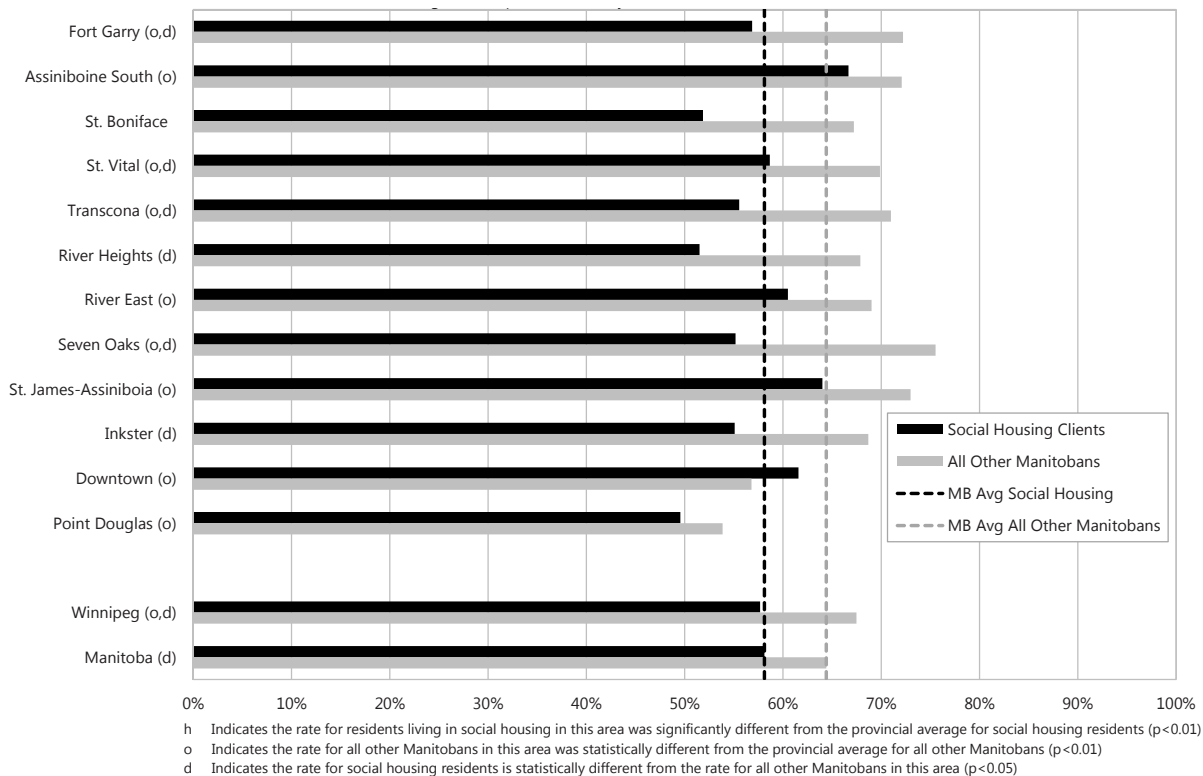
- In Winnipeg, the percentage of two-year-olds with a complete immunization schedule was lower in the Social Housing cohort (57.7%) than in the All Other Manitobans cohort (67.5%).
- This difference was observed in Fort Garry, St. Vital, Transcona, River Heights, Seven Oaks, and Inkster.
- For the All Other Manitobans cohort, the proportion of two-year-olds with a complete immunization schedule was higher than the provincial average for all other Manitobans in Fort Garry, Assiniboine South, St. Vital, Transcona, River East, Seven Oaks, St. James–Assiniboia, and the aggregate area of Winnipeg. It was lower than the provincial average for social housing in Downtown and Point Douglas.

Figure 6.5: Percent of Two-Year-Olds with a Complete Immunization Schedule by RHA, 2007/08–2008/09
Crude average annual percent of two-year-olds born in 2005/06–2006/07



Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 6.6: Percent of Two-Year-Olds With a Complete Immunization Schedule by Winnipeg CA, 2007/08–2008/09
Crude average annual percent of two-year-olds born in 2005/06–2006/07



Summary and Comparison to Other Findings

In the Manitoba Immunization Study (Hilderman et al., 2011), rates of immunization for children aged two in 2007/08 are provided by income quintile for specific vaccines. In the lowest income quintile the study found immunization rates varied from a low of 59% for Pneumococcal Conjugate to a high of 82.2% for measles and polio. Tetanus and pertussis immunization rates were approximately 63% and Varicella was at 73.7%. In this present study, the provincial rate of 58.1% for children in social housing is at the low end of the range observed in the Manitoba Immunization Study.

Brownell et al. (2008; 2012) also looked at “complete-for-age” immunization rates for two-year-olds by SES. The immunization rate for children in urban areas in Manitoba was 80.9% for those living in the highest income quintile neighbourhoods and 61.5% for those in the lowest income quintile neighbourhoods. In rural areas, 75.5% of the children from the highest income quintile areas had complete immunizations at two years of age compared to 54.1% in the lowest income quintile areas. Immunization rates for children in social housing are comparable to the immunization rates for individuals living in the lowest income quintile.

In Chapter 8 we analysed this indicator in a logistic regression analysis that allowed us to control for other related factors that might explain the difference in complete-for-age immunization between those in social housing and all other Manitobans. In that analysis, we found that a number of demographic, birth, and health related variables (age, sex, region of residence, mom’s age at first birth, number of children in the family, if the child had been breastfed or born pre-term, several birth related variables, majority of care since birth, as well as physical ADGs®), when entered into the analysis explained all of the difference in this indicator between the two cohorts. In the third step of the analysis, when we entered our indicator of poverty (receipt of IA) the rate of complete immunization by age two was significantly higher in the Social Housing cohort than it was in the All Other Manitobans cohort. This indicates that, all things being equal, individuals receiving IA in social housing have a higher rate of complete immunization by age two than similar individuals in the All Other Manitoban cohort. This result suggests a specific beneficial effect of living in social housing.

Children Not Ready for School (in One or More Early Development Instrument (EDI) Domains)

The crude annual average percentage of children in Kindergarten (aged five or six years old) who were classified as being “not ready” in at least one EDI domain was measured over two school years: 2005–06 and 2006–07. The EDI is a population-based, community-level measure of children’s development in Kindergarten, which is designed to assess children’s readiness to learn at school entry. The EDI indicates how children are doing in five domains of child development: physical health and wellbeing, social knowledge and competence, emotional health/maturity, language and cognitive development, and general knowledge and communication skills. Children are classified as being not ready in a given EDI domain if they score below the 10th percentile cut-off score for that domain. Children who score in the bottom 10th percentile of at least one EDI domain are referred to as being not ready for school (see Appendix Table A2.1 in Appendix 2 for details).

Key Observations

RHAs

- The provincial percentage of Kindergarten students not ready for school was higher in the Social Housing cohort (44.6%) than in the All Other Manitobans cohort (26.4%).
- This difference was observed in Central, Brandon, Winnipeg, Interlake, North Eastman, Parkland, and the aggregate regions of the Rural South and Mid.
- In the All Other Manitobans cohort, the percentage of Kindergarten students not ready for school was higher than the provincial average for all other Manitobans in Brandon, Burntwood, and the aggregate region of the North. It was lower than the provincial average for all other Manitobans in Assiniboine, Interlake, and the aggregate region of the Mid.
- For all areas, there were no differences between the Social Housing cohort and its provincial average.

Winnipeg CAs

- In Winnipeg, the percentage of Kindergarten students not ready for school was higher in the Social Housing cohort (45.8%) than in the All Other Manitobans cohort (26.1%).
- This difference was observed in every Winnipeg CA except Point Douglas where no significant difference was observed between the two groups.
- The Social Housing cohort in River Heights was the only area with a difference compared to the cohort's provincial average.
- In the All Other Manitobans cohort, the percentage of Kindergarten students not ready for school was lower than the provincial average for all other Manitobans in Fort Garry, Transcona, and St. James–Assiniboia. It was higher than the provincial average for all other Manitobans in Downtown and Point Douglas.
- An association with overall health status (as measured by PMR) was observed in the All Other Manitobans cohort but not in the Social Housing cohort.

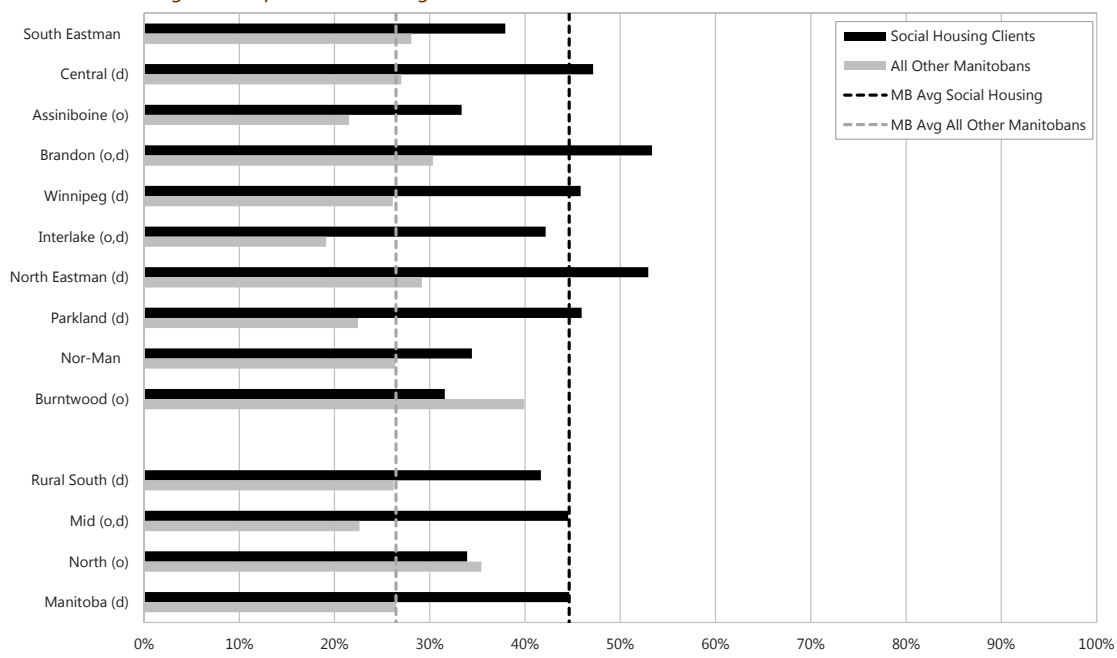
Summary and Comparison to Other Findings

Santos, Brownell, Ekuma, Mayer and Soodeen (2012) looked at this indicator by income quintile and found percentages of “not ready” of 38.7% in the lowest income quintile for urban areas and 36.8% for rural areas. The present study's finding of 44.6% of children not ready for school in the Social Housing cohort was even higher. Among Winnipeg CAs, River Heights stands out as an area with a particular high percentage of children in social housing that were not ready for school (72.7%).

High School Completion

The crude annual average percentage of students in Grade 9 that graduated high school within six years was measured over two school years: 2007–08 and 2008–09. All students that were in Grade 9 during the 2002–03 and 2003–04 school years were identified and followed until the end of the 2007–08 and 2008–09 school years. A high school graduate was defined as a student who accumulated 28 or more course credits in 2007–08, 29 or more course credits in 2008–09 during high school, or who had a Manitoba Education student record that indicated graduation. Students enrolled in schools in First Nations Communities were excluded from this analysis as course mark data are often incomplete for these schools (see Appendix Table A2.1 in Appendix 2 for details).

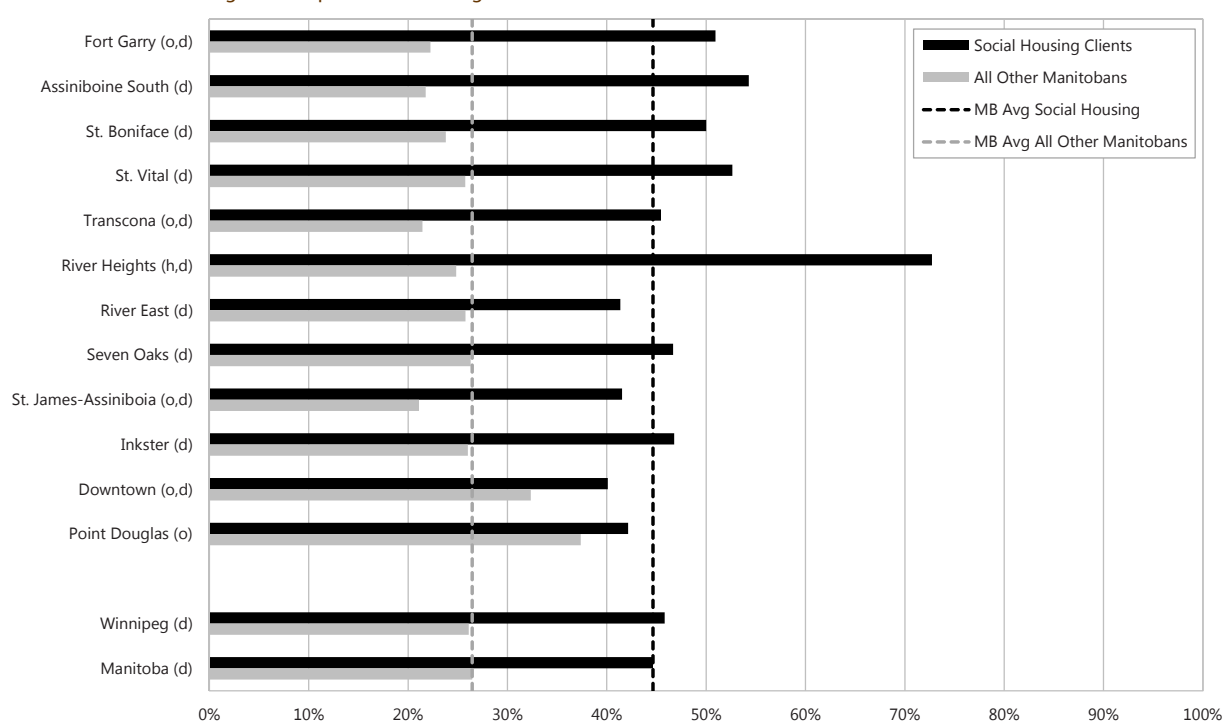
Figure 6.7: Percent of Children Not Ready for School (≥ 1 EDI Domain) by RHA, School Years 2005–06 and 2007–08



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents ($p < 0.01$)
 o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans ($p < 0.01$)
 d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area ($p < 0.05$)

Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 6.8: Percent of Children Not Ready for School (≥ 1 EDI Domain) by Winnipeg CA, School Years 2005–06 and 2007–08



h Indicates the rate for residents living in social housing in this area was significantly different from the provincial average for social housing residents ($p < 0.01$)
 o Indicates the rate for all other Manitobans in this area was statistically different from the provincial average for all other Manitobans ($p < 0.01$)
 d Indicates the rate for social housing residents is statistically different from the rate for all other Manitobans in this area ($p < 0.05$)

Key Observations

RHAs

- Provincially, the percentage of high school completion was significantly lower in the Social Housing cohort (47.9%) than in the All Other Manitobans cohort (80.7%).
- This difference was observed in the RHAs of South Eastman, Central, Brandon, Winnipeg, Interlake, and NOR-MAN and all three aggregate regions (Rural South, Mid, and North).
- Among all other Manitobans, the percentage of high school completion was higher than the provincial average for this cohort in South Eastman, Central, Assiniboine, Winnipeg, Interlake, and the aggregate region of the Rural South. It was lower than the provincial average for this cohort in North Eastman, Parkland, NOR-MAN, Burntwood, and the aggregate regions of the Mid and North.
- Among the Social Housing cohort, the percentage of high school completion was higher than the provincial average for social housing in Assiniboine.
- An inverse association with overall health status (as measured by PMR) was observed in the All Other Manitobans cohort.

Winnipeg CAs

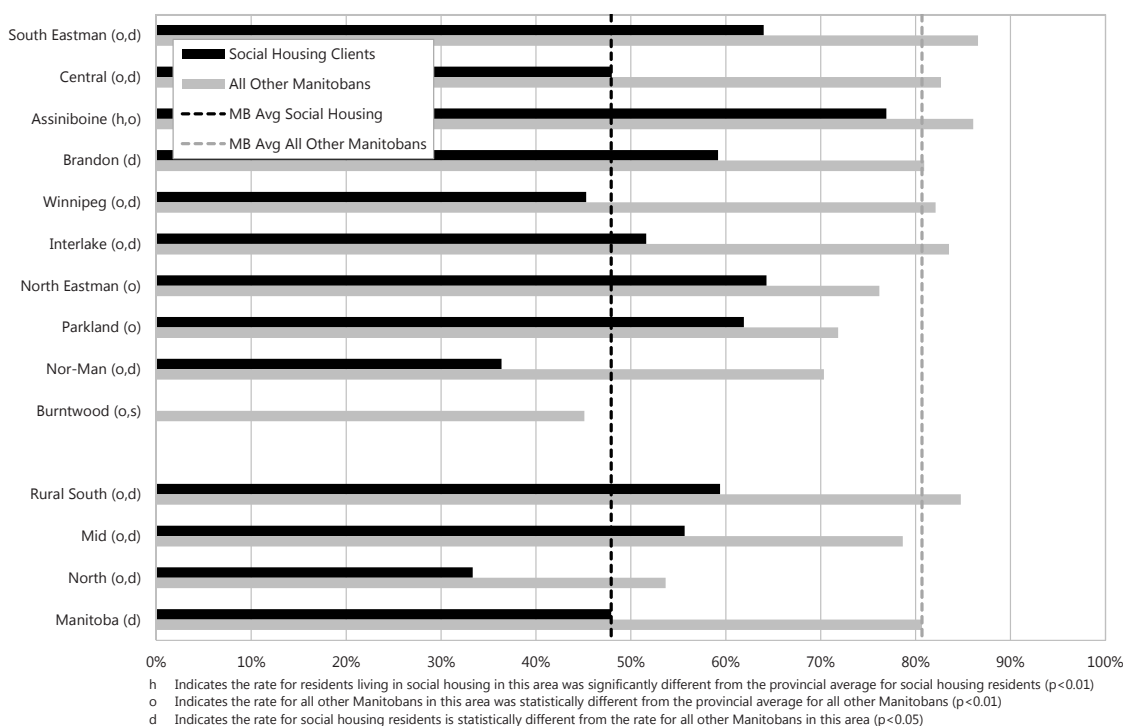
- The percentage of high school completion in Winnipeg was lower in the Social Housing cohort (45.3%) than in the All Other Manitobans cohort (82.1%).
- This difference was observed in every Winnipeg CA.
- In the All Other Manitobans cohort, the percentage of high school completion in Winnipeg was higher than the provincial average for this cohort in Fort Garry, Assiniboine South, St. Boniface, St. Vital, River Heights, River East, Seven Oaks, and St. James-Assiniboia. It was lower than the provincial average for this cohort in Downtown and Point Douglas.
- In the Social Housing cohort, the percentage of high school completion in Winnipeg was higher than the provincial average for this cohort in Fort Garry. It was lower than the provincial average in Downtown and Point Douglas.
- A significant and inverse association with overall health status (as measured by PMR) was observed in the Social Housing cohort.

Summary and Comparison to Other Findings

In Manitoba, high school completion has been increasing steadily over the years with rates of 74.3% reported in 2002–03 and 77.7% in 2005–06 (Brownell et al., 2008). In this present study, a high school completion rate of 80.7% was reported for all other Manitobans, while a completion percentage of 82.1% was reported for the entire province in 2009–10 (Brownell et al., 2012). In this most recent report by Brownell et al. (2012), rates for low income urban (68.4%) and rural areas (55.4%) were also provided for 2009–10. In this present study, the rate of 47.9% in the Social Housing cohort was considerably lower and should be cause for concern, given the close relationship between education and subsequent income and employment outcomes (Brownell et al., 2012). However, in Winnipeg CAs a strong association with SES (correlated with PMR) was also observed, with rates in social housing in the highest SES area (Fort Garry) equivalent to the provincial average for all other Manitobans.

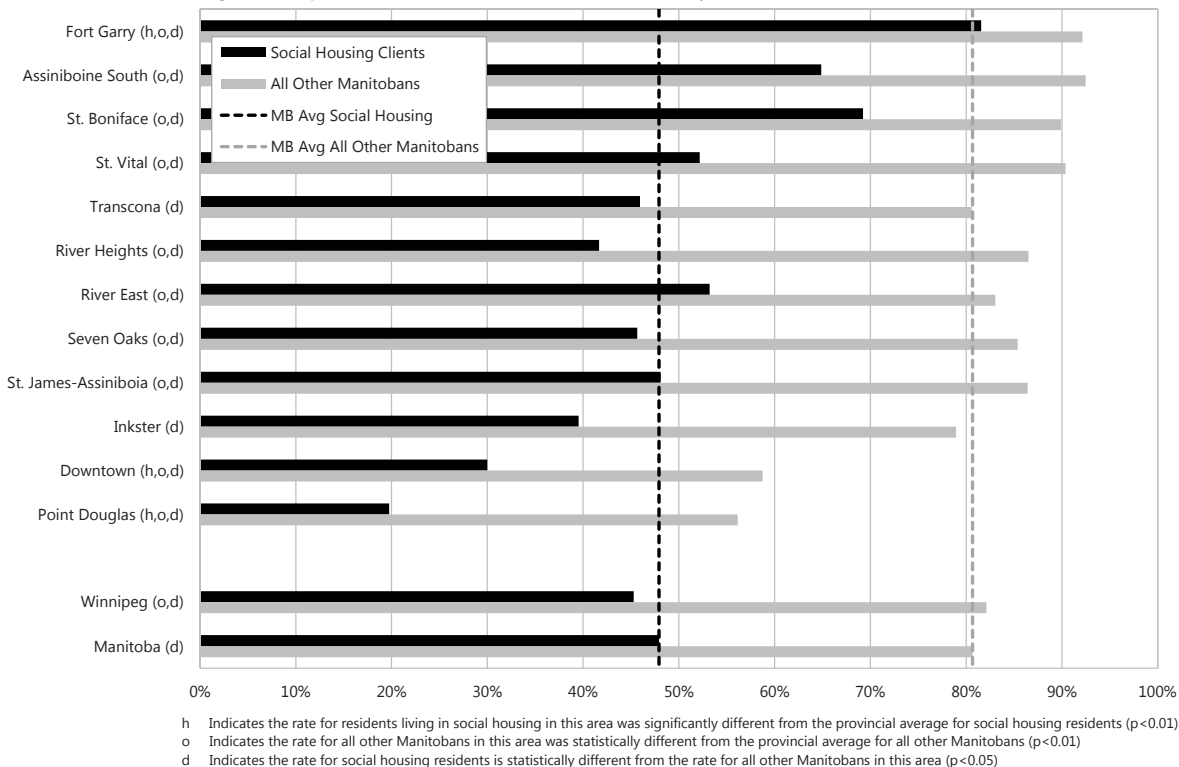
In Chapter 8 we analysed this indicator in a logistic regression analysis that allowed us to control for other related factors that might explain the difference in high school completion rates between those in social housing and all other Manitobans. In that analysis, we found that poverty, as measured by receipt of IA, was the most significant factor in explaining the difference between the two cohorts but it did not explain all of the difference. Residing in social housing was still a significant contributor to the difference in outcome on this indicator between those in social housing and all other Manitobans. In the recommendations of this report, we suggest further investigation of this indicator is warranted.

Figure 6.9: Percent of Students Completing High School by RHA, School Years 2007-08 and 2008-09
Crude average annual percent of Grade 9 students followed for six years



Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 6.10: Percent of Students Completing High School by Winnipeg CA, School Years 2007-08 and 2008-09
Crude average annual percent of Grade 9 students followed for six years



Teen Pregnancy

The age-adjusted average annual rate of teen pregnancy was measured for females aged 15 to 19 over five fiscal years: 2004/05–2008/09. Teen pregnancy was defined as a hospitalization with a diagnosis of live birth, missed abortion, ectopic pregnancy, abortion, or intrauterine death or with an intervention code for surgical termination of pregnancy, surgical removal of extrauterine (ectopic) pregnancy, pharmacological termination of pregnancy, or interventions during labour and delivery. The denominator included all Manitoba female residents aged 15 to 19 as of December 31 of each year (2004–2008). Note that abortions performed in private clinics are not included in the count of teen pregnancies. (See Appendix Table A2.1 in Appendix 2 for details.)

Key Observations

RHAs

- Provincially, the teen pregnancy rate was higher in the Social Housing cohort (147.8 per 1,000 females aged 15 to 19) than in the All Other Manitobans cohort (43.1 per 1,000 females aged 15 to 19).
- This difference was observed in all RHAs except Burntwood and in the aggregate region of the North.
- Among the All Other Manitobans cohort, the teen pregnancy rate was lower than the provincial average for this cohort in South Eastman, Central, Assiniboine, Winnipeg, and the aggregate region of the Rural South. It was higher than the provincial average for this cohort in North Eastman, Parkland, NOR-MAN, Burntwood, and the aggregate region of the North.
- An association with overall health status (as measured by PMR) was observed in the All Other Manitobans cohort.

Winnipeg CAs

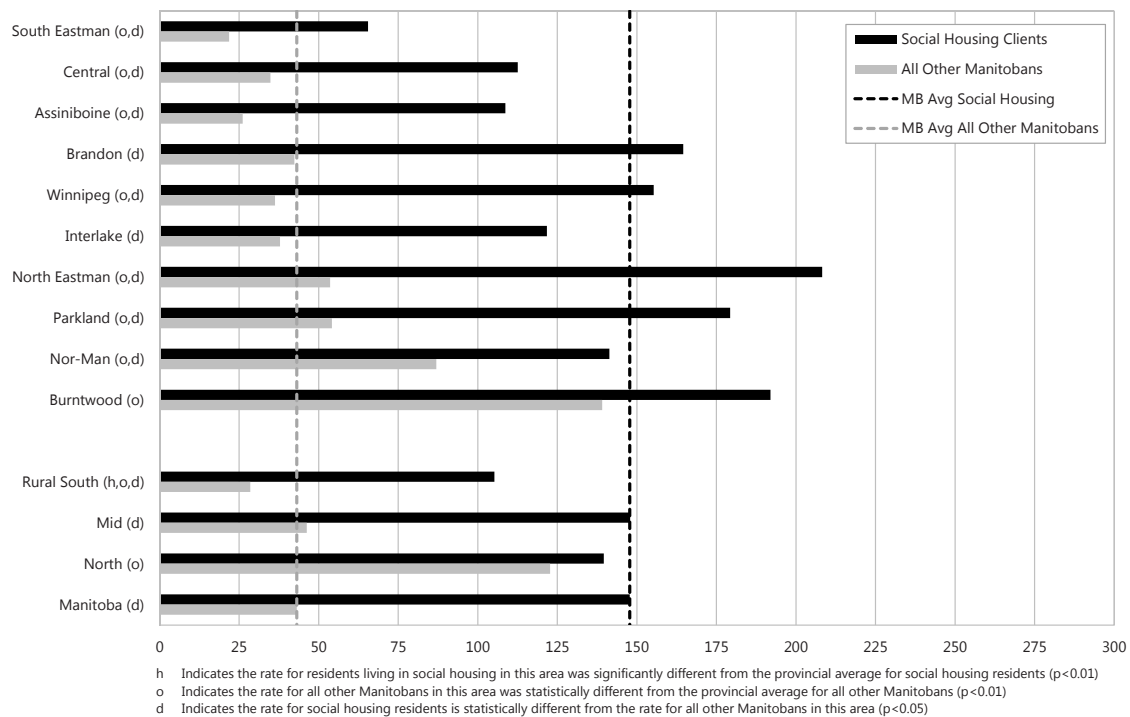
- In Winnipeg, the teen pregnancy rate was higher in the Social Housing cohort (155.3 per 1,000 females aged 15 to 19) than in the All Other Manitobans cohort (36.3 per 1,000 females aged 15 to 19).
- This difference was observed in every Winnipeg CA and is particularly notable in Inkster and Downtown.
- Among the All Other Manitobans cohort, the teen pregnancy rate was lower than the provincial average for this cohort in Fort Garry, Assiniboine South, St. Boniface, St. Vital, Transcona, River Heights, River East, Seven Oaks, and St. James–Assiniboia. It was higher than the provincial average for this cohort in Downtown and Point Douglas.
- Among the Social Housing cohort, the teen pregnancy rate was lower than the provincial average for this cohort in Assiniboine South and higher than the provincial average in Inkster and Downtown.
- An association with overall health status (as measured by PMR) was observed in the All Other Manitobans cohort.

Summary and Comparison to Other Findings

Martens et al. (2010a) found teenage pregnancy rates of 107.66 per 1,000 females in the lowest rural income quintile and 105.56 in the lowest urban income quintile in 2005/06–2007/08. The overall rates reported here for individuals living in social housing (147.8 per 1,000 females) were higher still. As mentioned earlier in this present study, there is a strong correlation between income level and PMR. The observation of a string correlation between teen pregnancy and PMR on this indicator reflects established observations between income and teen pregnancy reported elsewhere (Brownell et al., 2008; Martens et al., 2010b).

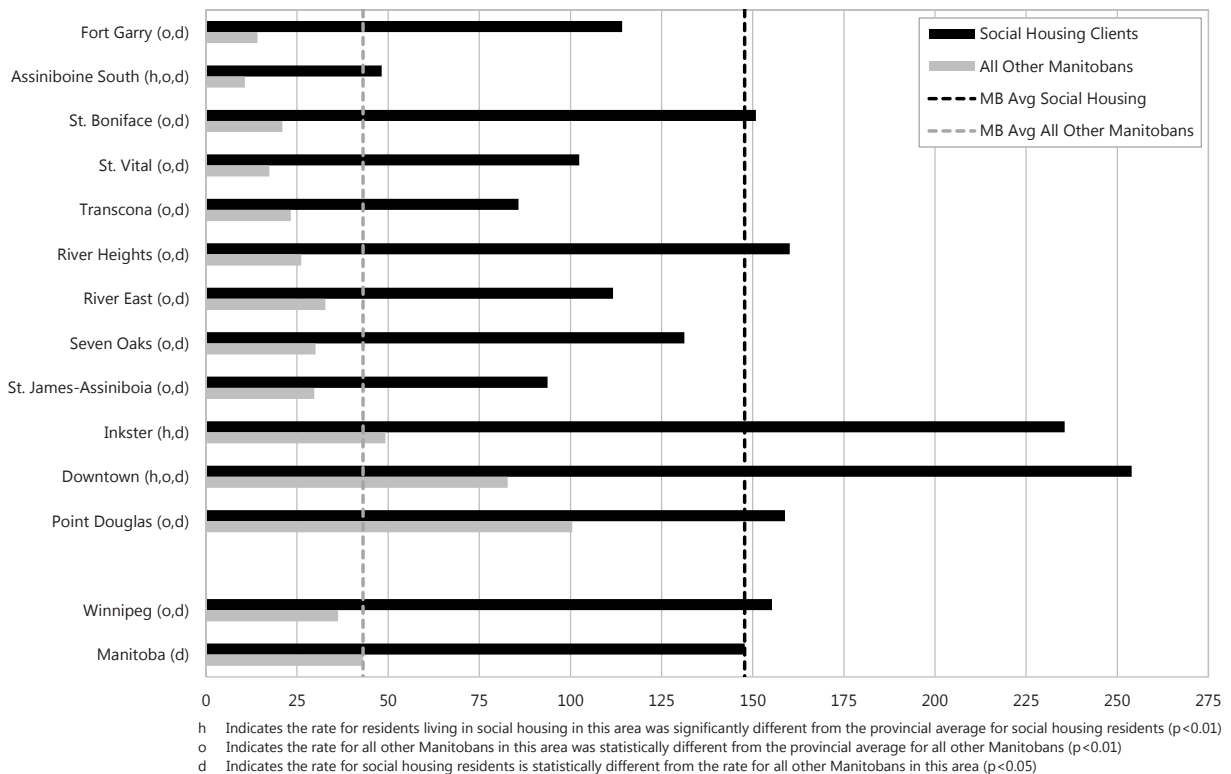
In Chapter 8 we analysed this indicator in a logistic regression analysis that allowed us to control for other related factors that might explain the difference in teen pregnancy rates between those in social housing and all other Manitobans. In that analysis, we found that poverty, as measured by receipt of IA, as well as a number of other variables entered into the analysis (age, region of residence, mom's age at first birth, Grade 9 completion, and physical and mental ADGs[®]) explained all of the difference in this indicator between the two cohorts. Residing in social housing was not a significant factor in the analysis.

Figure 6.11: Teen Pregnancy Rates by RHA, 2004/05–2008/09
Age-adjusted average annual rate per 1,000 females aged 15–19



Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 6.12: Teen Pregnancy Rates by Winnipeg CA, 2004/05–2008/09
Age-adjusted average annual rate per 1,000 females aged 15–19



CHAPTER 7: HEALTHCARE UTILIZATION AND SCREENING

Overview of Key Findings

In this chapter, we examine four indicators related to healthcare utilization and screening. For complete physicals in Manitoba, there was no difference between the Social Housing and All Other Manitobans cohorts; approximately 40% of both groups had a physical examination in 2008/09, with slightly higher percentages observed in Winnipeg (44.7% for social housing and 47.4% for all other Manitobans). For two of the three remaining indicators in Manitoba, **majority of care** and cervical cancer screening, the difference between the two groups was significant, but was only 8.4% and 5.5% respectively, relatively small differences given the other indicators in this report. For the fourth indicator, breast cancer screening, there was a 24.2% difference in participation rate between the two groups; only 38.2% of women in social housing had this test at least once in a two-year period versus 62.5% of women in the All Other Manitobans cohort. This was true for Winnipeg and the province overall.

Complete Physicals

The age- and sex-adjusted percentage of residents who had at least one complete physical in a one-year period was measured for fiscal year 2008/09. Complete physicals were identified by physician tariff codes in the medical claims data. The denominator included all Manitoba residents as of December 31, 2008. (See Appendix Table A2.1 in Appendix 2 for details.)

Key Observations

RHAs

- Provincially, the age- and sex-adjusted percentage of individuals having at least one complete physical in a one-year period was not significantly different between the Social Housing cohort (40.8%) and the All Other Manitobans cohort (41.7%).
- In Parkland, the percentage of individuals having at least one complete physical in a one-year period was higher in the Social Housing cohort than in the All Other Manitobans cohort. In NOR-MAN, it was lower in the Social Housing cohort.
- In the All Other Manitobans cohort, the percentage of individuals having at least one complete physical in a one-year period was lower than the provincial average for all other Manitobans in South Eastman, Central, Assiniboine, Parkland, NOR-MAN, Burntwood, and the aggregate regions of the Rural South and North. It was higher than the provincial average for all other Manitobans in Winnipeg.
- In the Social Housing cohort, the percentage of individuals having at least one complete physical in a one-year period was lower than the provincial average for social housing in Central, NOR-MAN, Burntwood, and the aggregate regions of the Rural South and North.

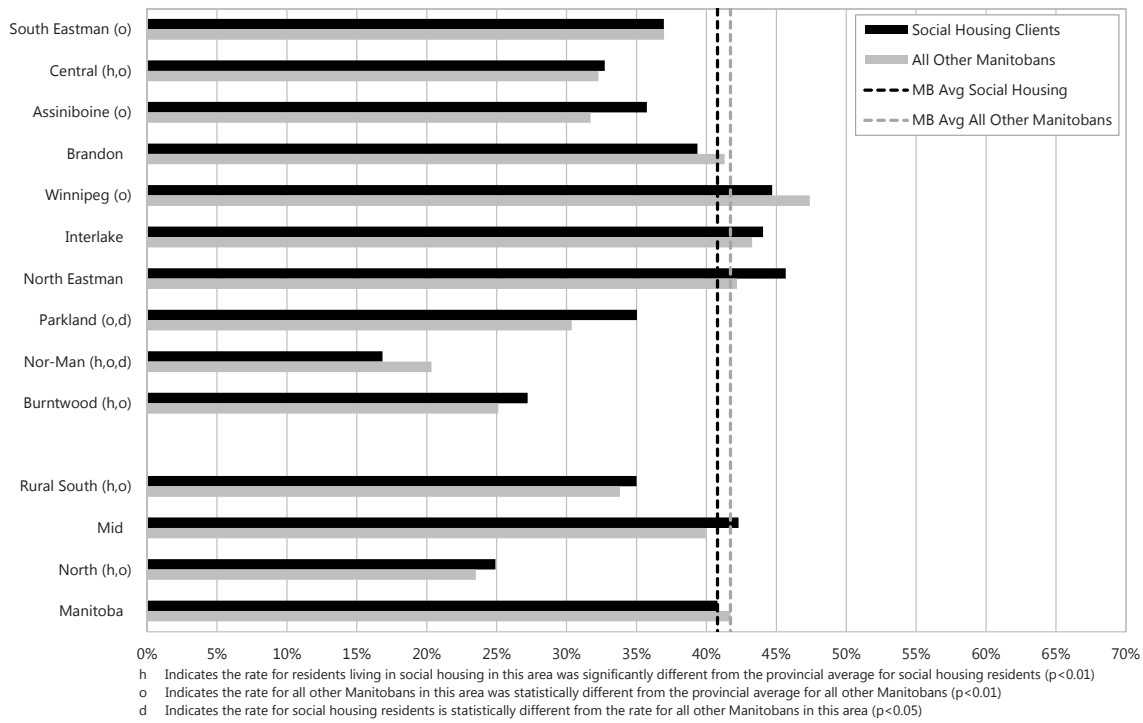
Winnipeg CAs

- In Winnipeg the age- and sex-adjusted percentage of individuals having at least one complete physical in a one-year period was not significantly different between the Social Housing cohort (44.7%) and the All Other Manitobans cohort (47.4%).
- In Assiniboine South, the percentage of individuals having at least one complete physical in a one-year period was lower in the Social Housing cohort than in the All Other Manitobans cohort.
- In the All Other Manitobans cohort, the rate of individuals having at least one complete physical in a one-year period was higher than the provincial average for this group in Fort Garry, Assiniboine South, St. Boniface, St. Vital, Transcona, River Heights, Seven Oaks, and St. James-Assiniboia.

Summary and Comparison to Other Findings

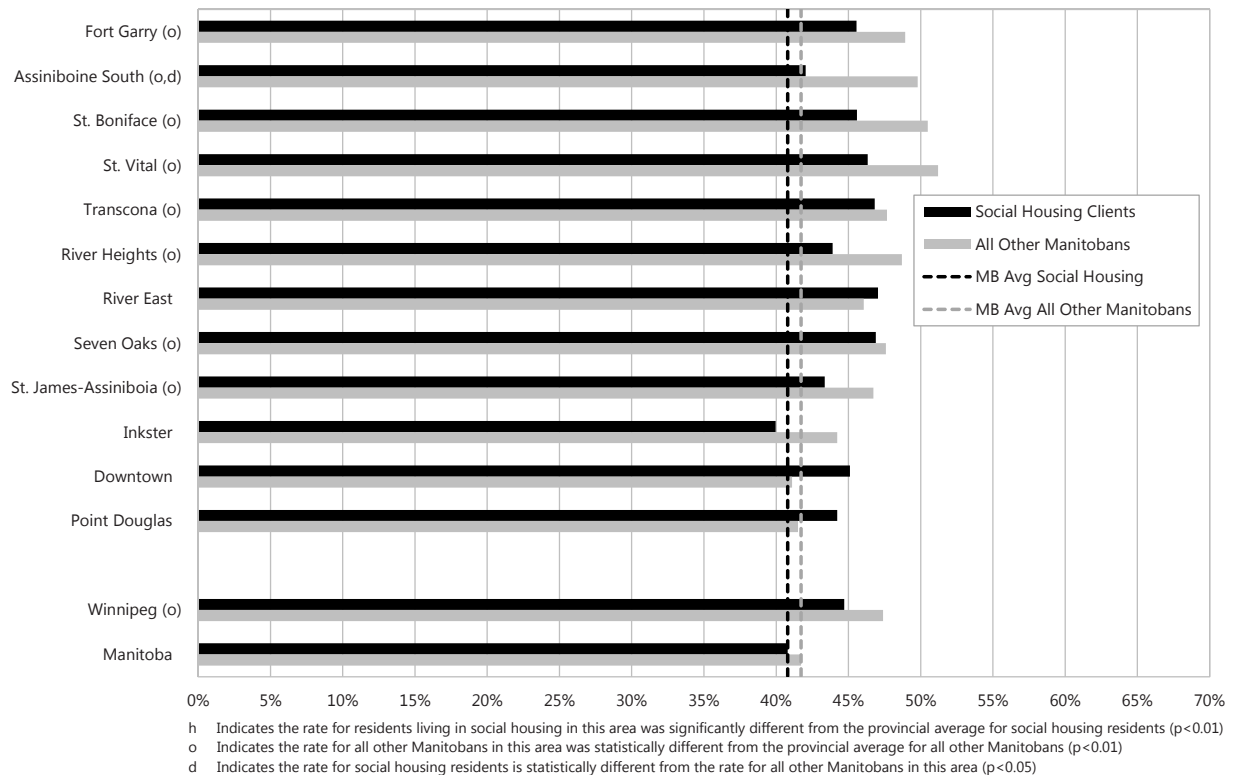
The provincial values reported here for social housing (40.8%) and all other Manitobans (41.7%) are similar to earlier values reported by Martens et al. (2008) and are not significantly different from one another. The only significant differences between social housing and all other Manitobans observed for this indicator were in Parkland (social housing was higher), NOR-MAN (social housing was lower), and in Assiniboine South where the All Other Manitobans cohort was higher.

Figure 7.1: Percent of Individuals with Complete Physicals by RHA, 2008/09
Age- and sex-adjusted percent of residents with one or more complete physicals



Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 7.2: Percent of Individuals with Complete Physicals by Winnipeg CA, 2008/09
Age- and sex-adjusted percent of residents with one or more complete physicals



Majority of Care

The age- and sex-adjusted percentage of residents receiving greater than 50% of their **ambulatory visits** from the same physician in a two-year period was measured for fiscal years 2007/08–2008/09. For children aged 0 to 14, the physician could be either a **general practitioner/family practitioner (GP/FP)** or a paediatrician; for residents aged 15 to 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 fewer than three ambulatory visits over the two-year period were excluded from analyses. The denominator included all Manitoba residents with three or more physician visits in fiscal years 2007/08–2008/09 (see Appendix Table A2.1 in Appendix 2 for details). Note that in previous MCHP deliverables this indicator was called Continuity of Care.

Key Observations

RHAs

- The age- and sex-adjusted percentage of individuals receiving the majority of their care from the same physician was lower in the Social Housing cohort (62.9%) than in the All Other Manitobans cohort (71.3%).
- This difference was also observed in South Eastman, Central, Brandon, Winnipeg, North Eastman, NOR-MAN, and the aggregate region of Rural South.
- Among the All Other Manitobans cohort, the percentage of individuals receiving the majority of their care from the same physician was lower than the provincial average for all other Manitobans in South Eastman, Central, Assiniboine, Brandon, Burntwood, and the aggregate regions of the Rural South and North.
- Among the Social Housing cohort, the percentage of individuals receiving the majority of their care from the same physician was lower than the provincial average for social housing in Central, Brandon, Burntwood, and the aggregate region of Rural South. It was higher than the provincial average for social housing in Interlake.

Winnipeg CAs

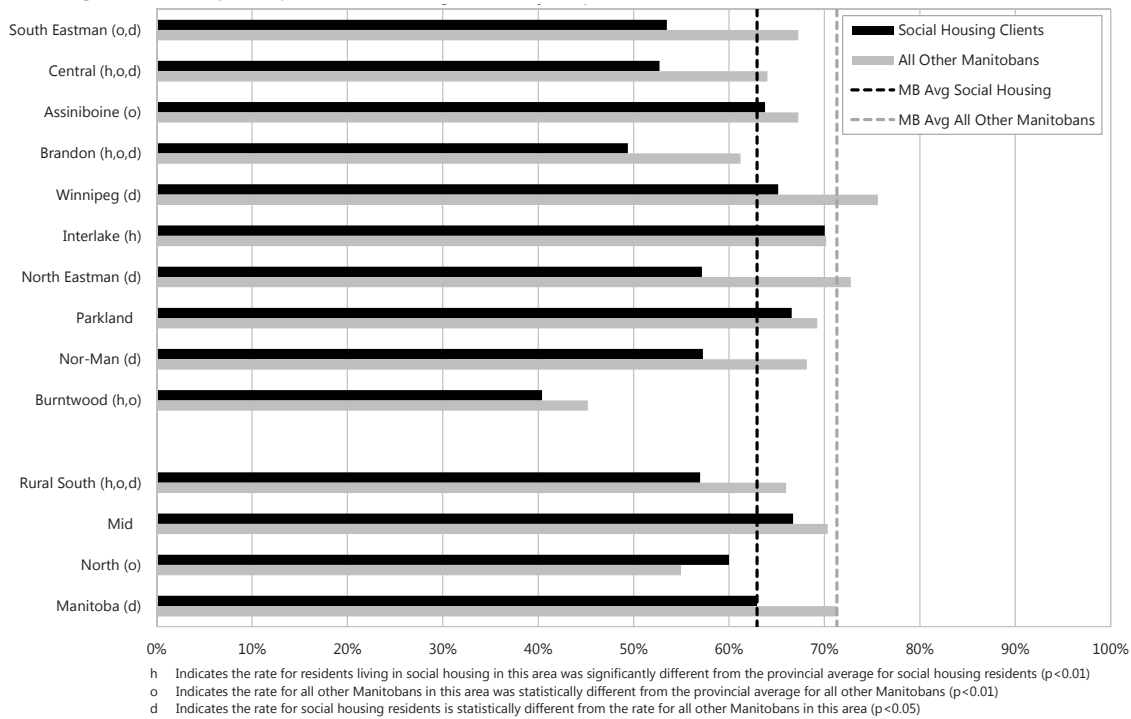
- The percentage of individuals receiving the majority of their care from the same physician in Winnipeg was lower in the Social Housing cohort (65.2%) than in the All Other Manitobans cohort (75.6%).
- This difference also was observed in all Winnipeg CAs except Assiniboine South and St. Boniface.
- Among the All Other Manitobans cohort, the percentage of individuals receiving the majority of their care from the same physician was higher than the provincial average for this group in St. Vital, Transcona, River East, Seven Oaks, St. James–Assiniboia, and Inkster.
- Among the Social Housing cohort, the percentage of individuals receiving the majority of their care from the same physician was lower than the provincial average in Point Douglas.

Summary and Comparison to Other Findings

Fransoo et al. (2009) found that 67.7% of people had continuity of care in 2004/05–2005/06 in Manitoba. The percentages reported here for 2007/08–2008/09 are slightly higher in the All Other Manitobans cohort (71.3%) and lower in the Social Housing cohort (62.9%). Fransoo et al. also found a positive association between continuity of care and income. In their study the percentages in the lowest rural area income quintile were 54.2% and in the lowest urban area income quintile 65.9%. The observed rate of 62.9% in this study for residents of social housing was only slightly lower than the observed rate for the lowest urban quintile in the Fransoo et al. report.

Figure 7.3: Percent of Individuals Who Received the Majority of Their Care from A Single Physician by RHA, 2008/09

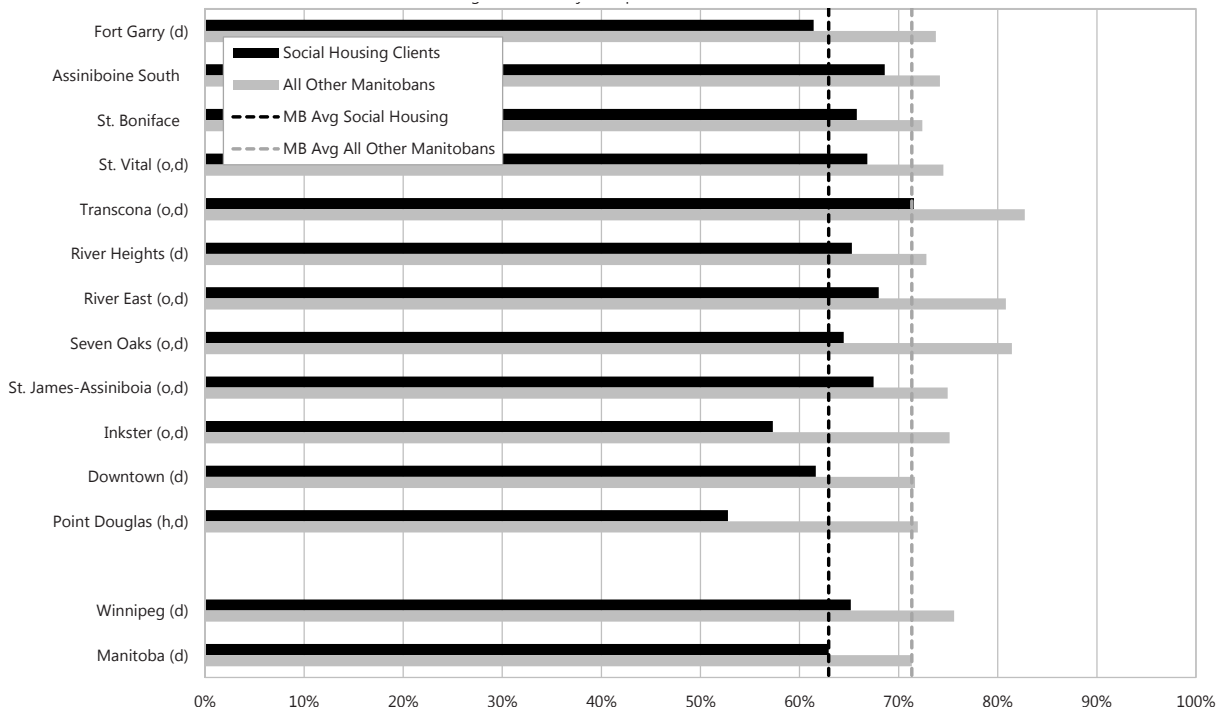
Age- and sex-adjusted percent of residents



Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 7.4: Percent of Individuals Who Received the Majority of Their Care from A Single Physician by Winnipeg CA, 2008/09

Age- and sex-adjusted percent of residents



Breast Cancer Screening (Mammography)

The age-adjusted percentage of women aged 50 to 69 who had at least one mammogram in a two-year period was measured for fiscal years 2007/08–2008/09. Breast cancer screening was defined by at least one physician visit with a diagnostic or screening tariff code for a mammogram. The denominator included all Manitoba female residents aged 50 to 69 as of December 31, 2008. (See Appendix Table A2.1 in Appendix 2 for details.) We are aware of the controversy surrounding recommended age and frequency for mammograms. However, this indicator assessed health screening behaviours in 2007/08 and 2008/09 when the controversy was not yet widespread. We are interpreting these findings in that light.

Key Observations

RHAs

- Provincially, the percentage of women having at least one mammogram in a two-year period was lower in the Social Housing cohort (38.3%) than in the All Other Manitobans cohort (62.5%).
- This difference was observed in South Eastman, Central, Brandon, Winnipeg, Interlake, Parkland, NOR-MAN, and the aggregate areas of Rural South and Mid.
- Among the All Other Manitobans cohort, the percentage of women having a least one mammogram in a two-year period was lower than the provincial average for all other Manitobans in Central, Burntwood, and the aggregate area of the North and was higher than the average for all other Manitobans in Brandon.

Winnipeg CAs

- The percentage of women having at least one mammogram in a two-year period in Winnipeg was lower in the Social Housing cohort (37.1%) than in the All Other Manitobans cohort (62.7%).
- This difference was also observed in St. Boniface, St. Vital, River Heights, River East, Seven Oaks, St. James-Assiniboia, Inkster, Downtown, and Point Douglas.
- Among the All Other Manitobans cohort, the percentage of women with a breast cancer screening in Winnipeg was higher than the provincial average for this group in Fort Garry, Assiniboine South, St. Vital, and St. James-Assiniboia. It was lower than the provincial average for all other Manitobans in Seven Oaks, Inkster, Downtown, and Point Douglas.
- An inverse association with health status (as measured by PMR) was observed in both the Social Housing and All Other Manitobans cohorts—more women in communities with low PMR were screened while fewer women in communities with high PMR were screened.

Summary and Comparison to Other Findings

For individuals in social housing, breast cancer screening is significantly lower than for all other Manitobans in most regions of the province. In 2009, Fransoo et al. reported a strong positive correlation in Manitoba between income and **mammography** screening. In his study, the lowest rural income quintile had a rate of screening of 53.3%, and in the lowest rural income quintile it was 48.1%. The result reported for the Social Housing cohort in this study was lower still at 38.3%.

Cervical Cancer Screening (Papanicolaou (Pap) Test)

The age-adjusted percentage of women aged 18 to 69 who received at least one **Papanicolaou (Pap)** test in a three-year period was measured for fiscal years 2006/07–2008/09. A Pap test was defined by a physician visit with a tariff code for a Pap test or a pathology or laboratory claim with a tariff code for a Pap test. The denominator included all Manitoba female residents aged 18 to 69 as of December 31, 2006. (See Appendix Table A2.1 in Appendix 2 for details).

Key Observations

RHAs

- Provincially, the age-adjusted percentage of women having at least one Pap test in a three-year period was lower in the Social Housing cohort (62.9%) than in the All Other Manitobans cohort (68.4%).
- This difference was observed in Winnipeg and the aggregate region of the Mid.
- In Burntwood and the aggregate region of the North, rates of women having Pap tests were higher in the Social Housing cohort than in the All Other Manitobans cohort.
- For the All Other Manitobans cohort, the percentage of women who had a Pap test was lower than the provincial average for this group in Central, Assiniboine, Parkland, NOR-MAN, Burntwood and the aggregate regions of Rural South and North. It was higher than the provincial average for all other Manitobans in Brandon and Winnipeg.
- For the Social Housing cohort, the percentage of women tested was lower than the provincial average for social housing in NOR-MAN and in the aggregate region of the North and higher than the provincial average in Brandon.

Winnipeg CAs

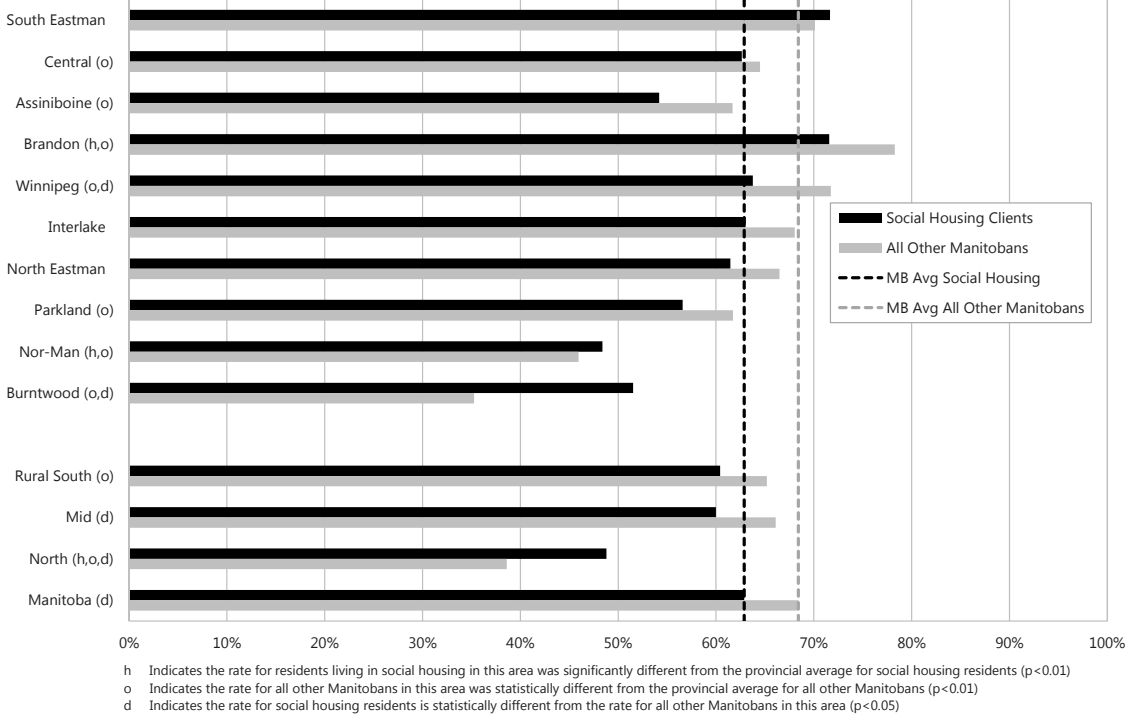
- In Winnipeg, the percentage of women having at least one Pap test in a three-year period was lower in the Social Housing cohort (63.8%) than in the All Other Manitobans cohort (71.8%).
- This difference was also observed in Assiniboine South and St. Vital.
- For the All Other Manitobans cohort, the percentage of women receiving a Pap test was higher than the provincial average for all other Manitobans in Fort Garry, Assiniboine South, St. Boniface, St. Vital, Transcona, River Heights, River East, and St. James-Assiniboia and was lower than the provincial average for all other Manitobans in Inkster, Downtown, and Point Douglas.

Summary and Comparison to Other Findings

Results for this indicator are very similar between social housing and all other Manitobans in many RHAs and Winnipeg CAs. In 2009, Fransoo et al. reported that 69.2% of women in Manitoba had a Pap test in the 2003/04–2005/06 fiscal years. The percentage reported in this present study for the All Other Manitobans cohort (68.4%) was very similar and the percentage in the Social Housing cohort was only slightly lower at 62.9%. Fransoo et al. also noted a strong positive correlation with income on this measure. The percentage reported for the lowest urban income quintile (64.0%) in the Fransoo et al. report is very comparable to the percentage for social housing observed in this report.

Figure 7.7: Percent of Individuals with Cervical Cancer Screening by RHA, 2006/07–2008/09

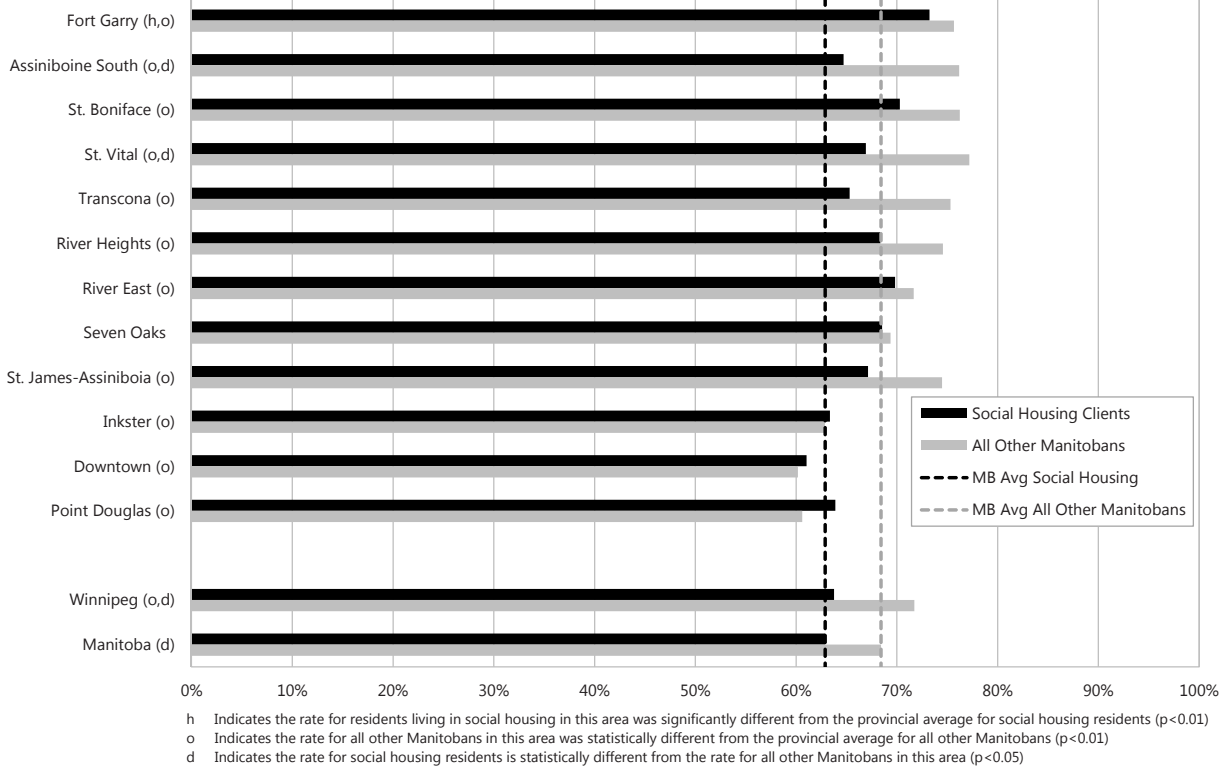
Age-adjusted percent of women aged 18–69



Note: Churchill was excluded because over 50% of social housing units are rented at market value; these renters cannot be differentiated from subsidized social housing clients.

Figure 7.8: Percent of Individuals with Cervical Cancer Screening by Winnipeg CA, 2006/07–2008/09

Age-adjusted percent of women aged 18–69



CHAPTER 8: THE IMPACT OF INCOME AND OTHER FACTORS ON HOUSING EFFECTS

In this section, we re-examined several of the descriptive measures presented previously using a logistic regression analysis in order to better understand the contribution of demographics, income, and other factors to the differences observed between our two cohorts. Since actual income was not available, two proxy measures were used: the first was a dichotomous income variable (low vs. high) created from receipt of IA (a proxy for low income, or poverty) and the second was a neighborhood-level average household income variable derived from the 2006 Census. Fifty-one percent of the residents in our Social Housing cohort were receiving IA and this represented approximately 25% of all individuals receiving IA. As a measure of the economic prosperity of the area in which social housing is situated, neighbourhood-level average household income is useful because social housing in Manitoba is spread throughout all areas of Winnipeg and the province and is not concentrated in only a few neighborhoods (see maps in Figures 3.1 to 3.4).

For each indicator, factors were entered separately into a multiple logistic regression model (block entry of covariates) resulting in four separate models. In the first step, we entered only the Social Housing cohort versus the All Other Manitobans cohort. This is our baseline unadjusted model and it portrays the crude effect of social housing on the indicator variable. In the second step, we added age, sex, area of residence, and a number of other factors that varied according to the indicator being evaluated. In the third step, we entered receipt of IA as a measure of poverty; and in the fourth step, we added neighbourhood-level income from the 2006 Census.

For example, in the case of premature mortality, we wanted to know if living in social housing was a predictor of premature death after controlling for many other factors known to influence health. 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)** (the odds of the outcome for the Social Housing cohort divided by the odds of the same outcome for all other Manitobans). An OR of greater than one (with 95% confidence limits both above one) indicates that there is a greater likelihood of the outcome for the Social Housing cohort. An OR of less than one (with 95% confidence limits both below one) indicates a lower likelihood of the outcome for the Social Housing cohort. An OR around one (with 95% confidence limits crossing over one) indicates that there is no statistically significant association between living in social housing and this outcome. Thus, an OR of three means that there is three times the likelihood of this outcome for the Social Housing cohort and an OR of 0.5 means there is half the likelihood of this outcome occurring in the Social Housing cohort.

Not all of the indicators that were previously presented were included in this chapter. The following is a list of indicators which were analyzed and the order in which they are reported. The full models (with all covariates included) for each indicator are presented in Appendix 3.

Health Status

Premature Mortality

Hospitalization Due to Tuberculosis (TB)

Total Respiratory Morbidity (TRM)

Schizophrenia

Screening and Prevention

Complete Physicals

Breast Cancer Screening (Mammography)

Cervical Cancer Screening (Papanicolaou (Pap) Test)

Breastfeeding Initiation

Two-Year-Old Immunization Completion

Social Outcomes

High School Completion

Teen Pregnancy

Hospitalization Due to Tuberculosis (TB)

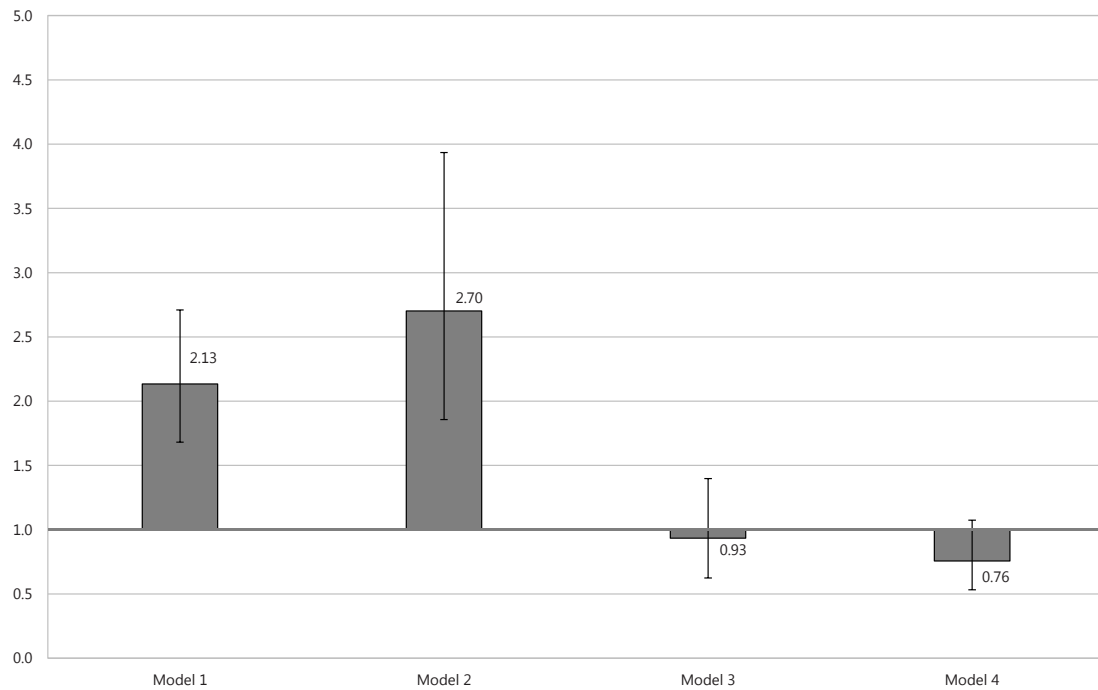
Given the low frequency of events for this indicator and the relative lack of power of the logistic regression models that were generated, **Poisson regression** models were used instead to estimate the relative rate of TB. In the first step of this analysis, we compared the two cohorts without adjustment. The results indicated that the relative risk of being hospitalized for TB was significantly higher for the Social Housing cohort than for the All Other Manitobans cohort (RR=2.13, $p<0.0001$). In the second step, we adjusted for age, sex, and region of residence. The relative risk of being hospitalized for TB remained significantly higher for social housing (RR=2.70, $p<0.0001$).

In the third step, we entered our proxy measure for level of individual income (receipt of IA). This removed any difference between the two groups (RR=0.93, $p=0.74$). In the final step, we entered area-level income; the relative risk of being hospitalized for TB between social housing and all other Manitobans dropped further but was still not significantly different (RR=0.76, $p=0.12$). See Appendix Table A3.2 for full model with all covariates included.

These results indicate that after taking SES into account, the association between living in social housing and TB was no longer significantly different from all other Manitobans.

Figure 8.2: Relative Risk of Hospitalizations for Tuberculosis, Social Housing* Clients in Manitoba, 1999/2000–2008/09

Poisson regression analyses using blocked entry of covariates



Model 1: Unadjusted

Model 2: Model 1 + urban vs. rural, sex, and age deciles

Model 3: Model 2 + income assistance

Model 4: Model 3 + income deciles

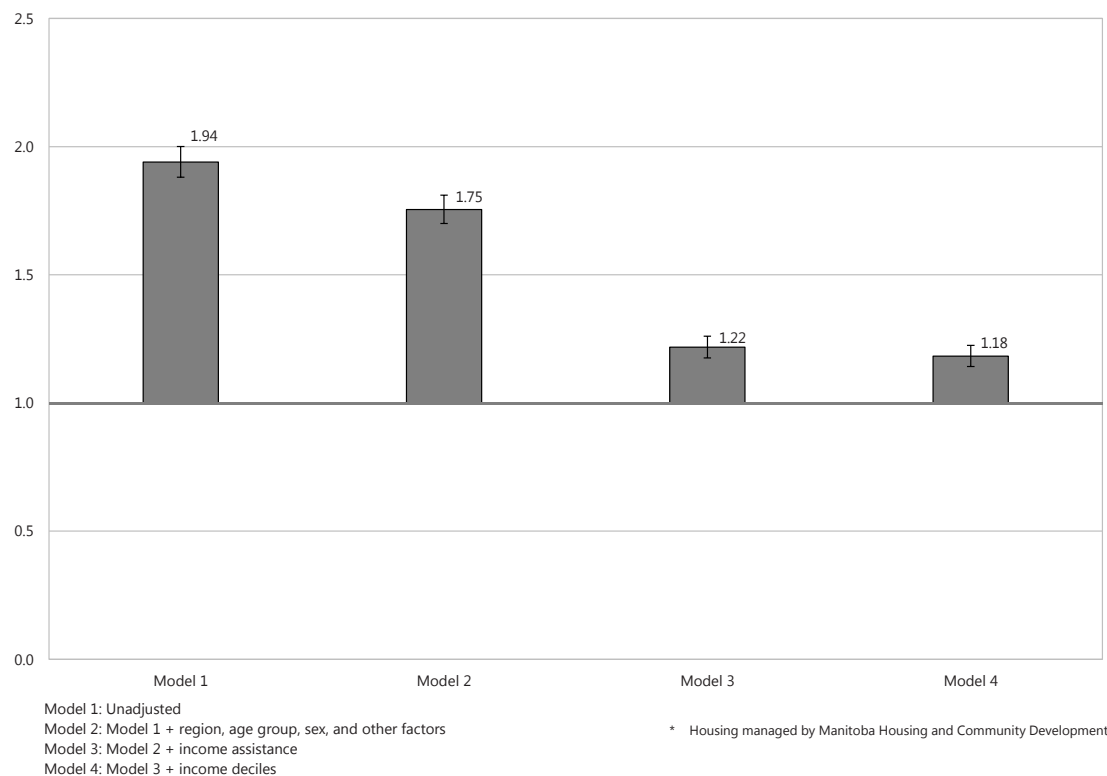
* Housing managed by Manitoba Housing and Community Development

Total Respiratory Morbidity (TRM)

In the first step of this analysis, we compared the two cohorts without adjustment. The odds of having TRM were significantly higher for the Social Housing cohort than for all other Manitobans (OR=1.94, $p<0.0001$). In the second step, we adjusted for age, sex, region of residence, as well as physical and mental ADGs®. The odds remained significantly higher for the Social Housing cohort (OR=1.75, $p<0.0001$). In the third step, we entered our proxy measure for level of individual income (receipt of IA). The OR decreased but social housing was still significantly higher than for all other Manitobans (OR=1.22, $p<0.0001$). Finally in the fourth step, we entered area-level income; the odds of having TRM was still higher for social housing (OR=1.18, $p<0.0001$). See Appendix Table A3.3 for full model with all covariates included.

Even though entering individual-level and area-level income variables into the model reduced the difference in odds between the two groups, some of the difference between the Social Housing and All Other Manitobans cohorts could not be explained by the variables entered. This suggests that something other than these variables accounts for the difference in TRM between the two groups. From the literature on this subject some possibilities such as difference in rates of smoking or indoor air quality were factors which could not be controlled for with the data we had available.

Figure 8.3: Odds Ratios for Total Respiratory Morbidity, Social Housing* Clients in Manitoba, 2008/09
Logistic regression analyses using blocked entry of covariates



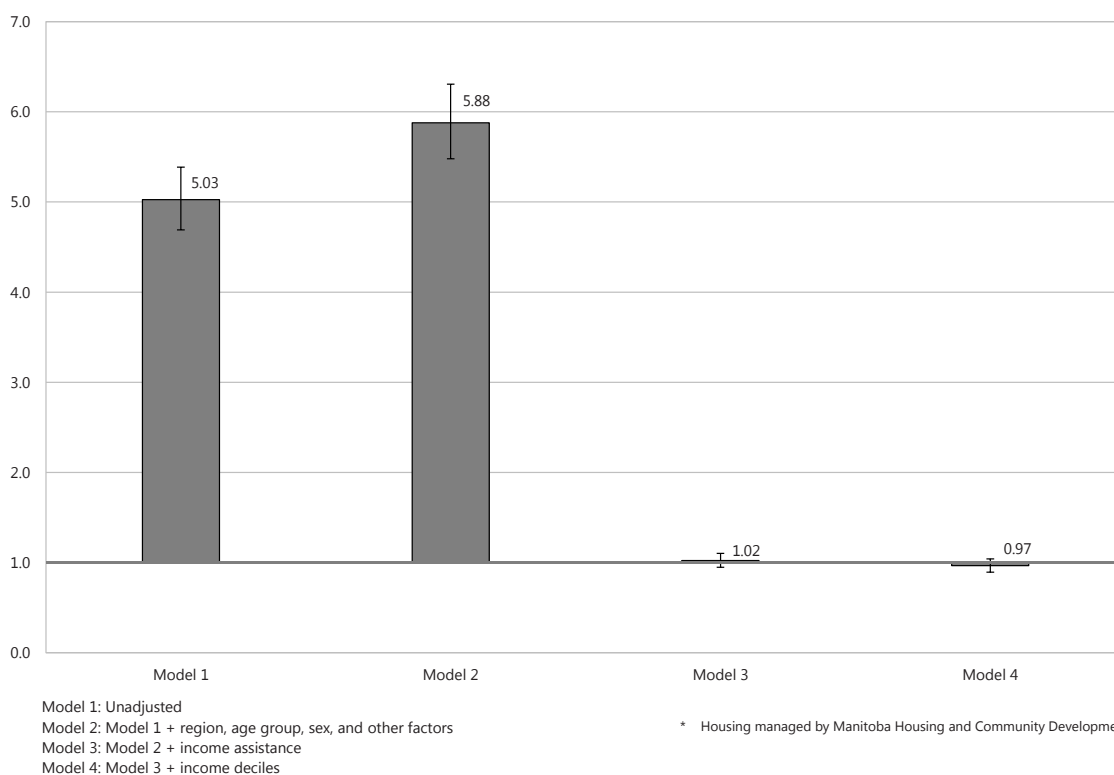
Schizophrenia

In the first step of this analysis, we compared the two cohorts without adjustment. The results indicate that the odds of having schizophrenia were higher for the Social Housing cohort than in the All Other Manitobans cohort ($OR=5.03, p<0.0001$). In the second step, we adjusted for age, sex, and region of residence. The odds of having schizophrenia were significantly higher for those in social housing than for all other Manitobans ($OR=5.88, p<0.0001$).

In the third step, after entering our proxy measure for level of individual income (receipt of IA), the difference between social housing and all other Manitobans was no longer significantly different ($OR=1.02, p=0.57$). Finally in the fourth step, we entered area-level income; the odds ratio remained about the same ($OR=0.97, p=0.37$). See Appendix Table A3.4 for full model with all covariates included.

Most of the difference in the odds of having schizophrenia between the Social Housing and the All Other Manitobans cohorts could be accounted for by differences in income level. The area in which the social housing was situated did not make a difference. The final model strongly indicates that the difference on this outcome between social housing and all other Manitobans was associated with poverty (low income) and not with factors specific to social housing.

Figure 8.4: Odds Ratios for Schizophrenia, Social Housing* Clients in Manitoba, 2004/05–2008/09
Logistic regression analyses using blocked entry of covariates



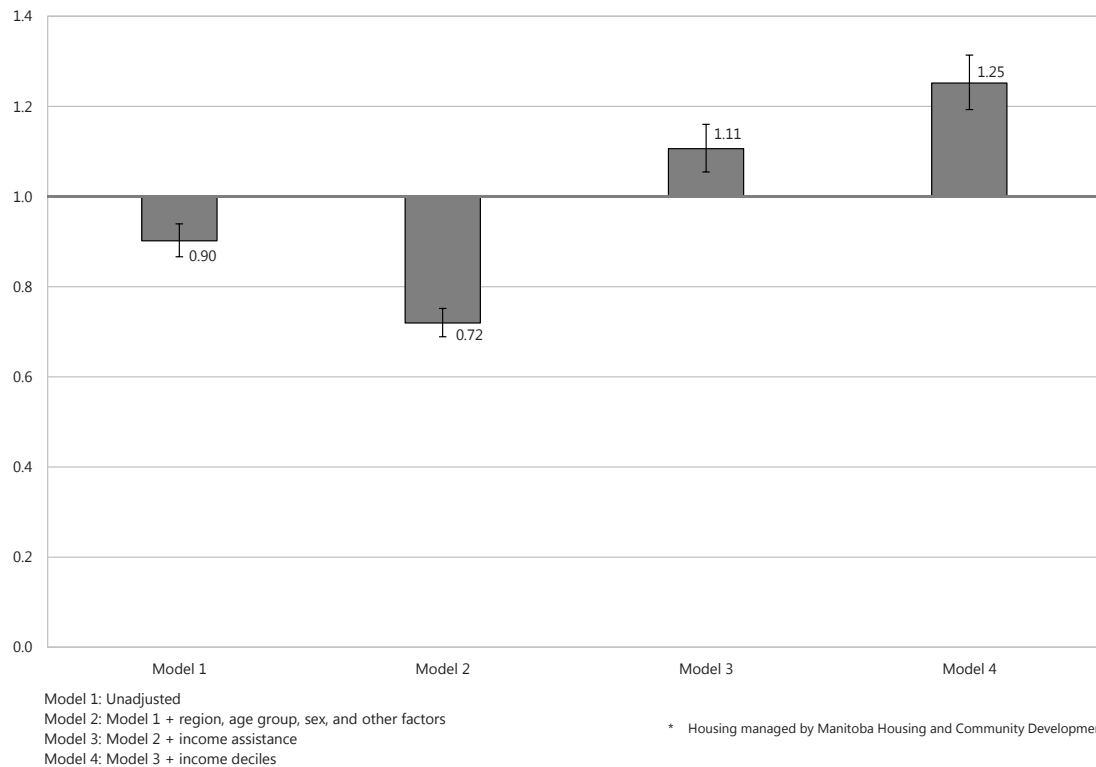
Cervical Cancer Screening (Papanicolaou (Pap) Test)

In the first step of this analysis, we compared the two cohorts without adjustment. The results indicated that the odds of women aged 18 to 69 having at least one Pap test in a three-year period were significantly lower in the Social Housing cohort than in the All Other Manitobans cohort (OR=0.90, p<0.0001). In the second step, we adjusted for age, region of residence, physical and mental ADGs®, pregnancy, and majority of care. The odds of having a Pap test reduced even further for the Social Housing cohort as compared to all other Manitobans (OR=0.72, p<0.0001).

In the third step, we entered our proxy measure for level of individual income (receipt of IA). The odds of women in social housing having a Pap test flipped and became higher than the odds for women in the All Other Manitobans cohort (OR=1.11, p<0.0001). Finally in the fourth step, we entered area-level income. This increased the odds of having a Pap test even further for the Social Housing cohort when compared to the All Other Manitobans cohort (OR=1.25, p<0.0001). See Appendix Table A3.7 for full model with all covariates included.

These results indicate that the difference in the odds of women aged 18 to 69 having at least one Pap test in a three-year period between the Social Housing and the All Other Manitobans cohort was largely due to differences in individual-level income and area-level SES. After adjusting for these factors, the odds of having a Pap test for women in social housing was actually greater than for all other Manitobans. This indicated that social housing remained a significant factor in determining this outcome, although with a positive effect on the outcome.

Figure 8.7: Odds Ratios for Cervical Cancer Screening, Social Housing* Clients in Manitoba 2008/09
Logistic regression analyses using blocked entry of covariates



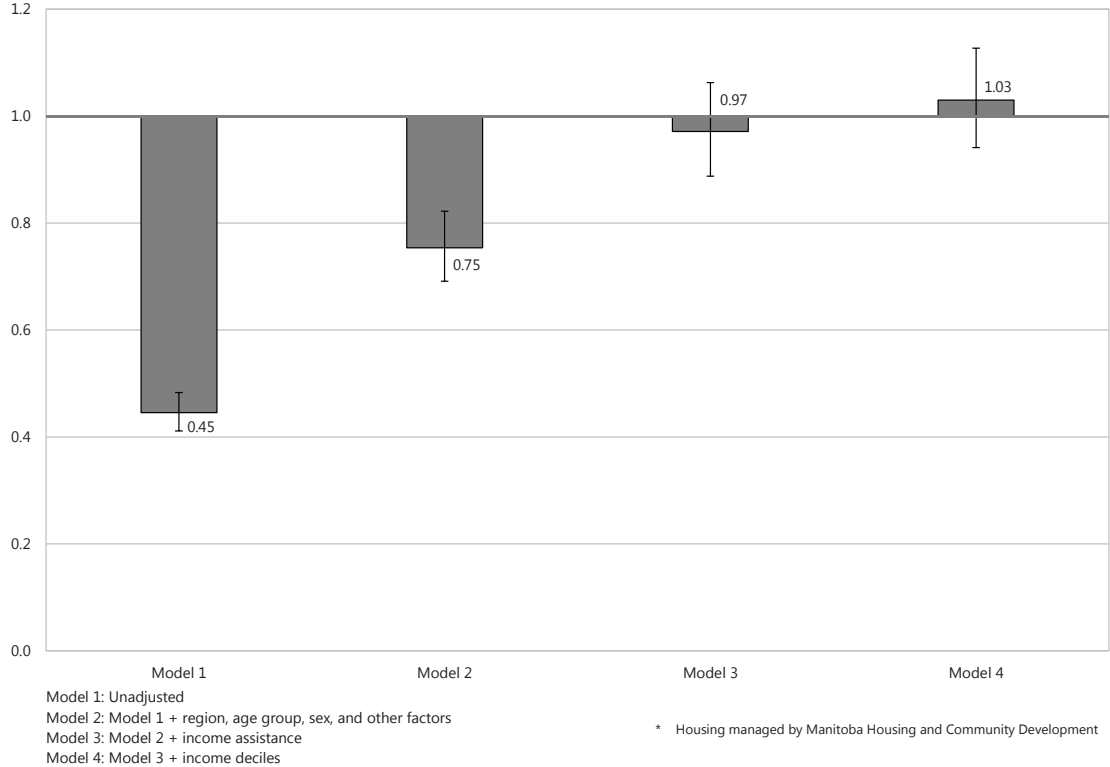
Breastfeeding Initiation

In the first step of this analysis, we compared the two cohorts without adjustment. The results indicated that the odds of being exclusively or partially breastfed upon discharge from the hospital were significantly lower for the Social Housing cohort than for the All Other Manitobans cohort (OR=0.45, $p < 0.0001$). In the second step, we adjusted for mom's age at first birth, region of residence, physical and mental ADGs[®], hospital, gestational age, birth weight, Apgar score, parity, C-section birth, epidural, and multiple births. The odds of being breastfed increased but remained significantly lower for the Social Housing cohort than for the All Other Manitobans cohort (OR=0.75, $p < 0.0001$).

In the third step, we entered our proxy measure for level of individual income (receipt of IA). The odds of being breastfed for the Social Housing cohort were no longer significantly different from the odds for the All Other Manitobans cohort (OR=0.97, $p = 0.53$). In the final step, we entered area-level SES. The odds of being breastfed remained similar between the two groups (OR=1.03, $p = 0.52$). See Appendix Table A3.8 for full model with all covariates included.

These results indicate that, after controlling for individual differences in income and the socioeconomic level of the area in which an individual lives, the difference in odds of being exclusively or partially breastfed upon discharge from hospital between social housing and all other Manitobans was no longer significant.

Figure 8.8: Odds Ratios for Breastfeeding Initiation, Social Housing* Clients in Manitoba 2004/05–2008/09
 Logistic regression analyses using blocked entry of covariates



Two-Year-Old Immunization Completion

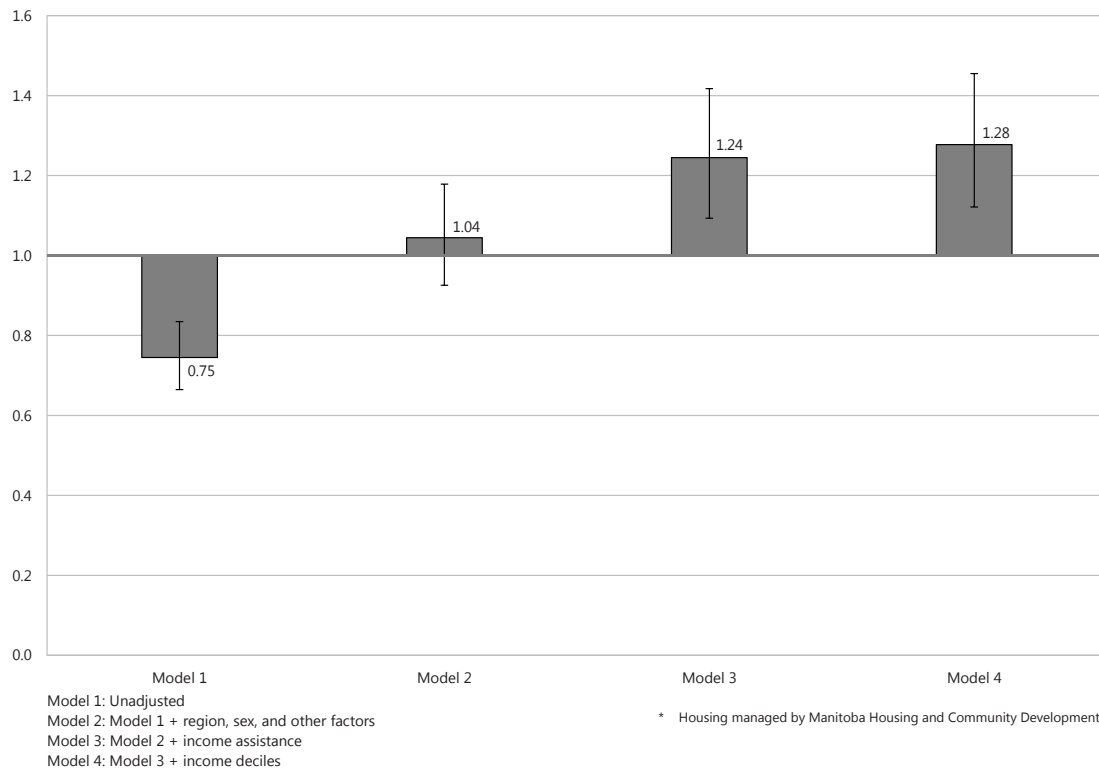
In the first step of this analysis, we compared the two cohorts without adjustment. The odds of receiving all recommended immunizations by age two was significantly lower for the Social Housing cohort than for the All Other Manitobans cohort (OR=0.75, $p < 0.0001$). In the second step, we adjusted for region of residence, mom's age at first birth, number of children in the family, if the child had been breastfed or born pre-term, majority of care since birth, as well as physical ADGs®. The odds of being completely immunized by age two for the Social Housing cohort was no longer significantly different than the odds for the All Other Manitobans cohort (OR=1.04, $p=0.48$).

In the third step, we entered our proxy measure for level of individual income (receipt of IA). The odds of receiving all immunizations by age two for the Social Housing cohort was significantly higher than for the All Other Manitobans cohort (OR=1.24, $p < 0.001$). Finally in the fourth step, we entered neighbourhood level SES. The odds of receiving complete immunization by age two remained significantly higher for those in social housing when compared to all other Manitobans (OR=1.28, $p < 0.001$). See Appendix Table A3.9 for full model with all covariates included.

These results indicate the difference in odds of receiving complete immunization by age two between the Social Housing and All Other Manitobans cohorts could be explained by age, sex, region of residence, and a number of additional variables (Step 2). However, entering the individual-level income variable into the equation increased the odds of children in social housing receiving complete immunizations by age two. At the end of Step 3, children in social housing had significantly greater odds of having complete immunizations by age two than all other Manitobans. Adding the area-level SES variable in Step 4 did not significantly change the result. These results suggest there is a specific social housing benefit that is affecting the results on this indicator.

Figure 8.9: Odds Ratios for Complete Immunization at Age Two, Social Housing* Clients in Manitoba, 2007/08–2008/09

Logistic regression analyses using blocked entry of covariates



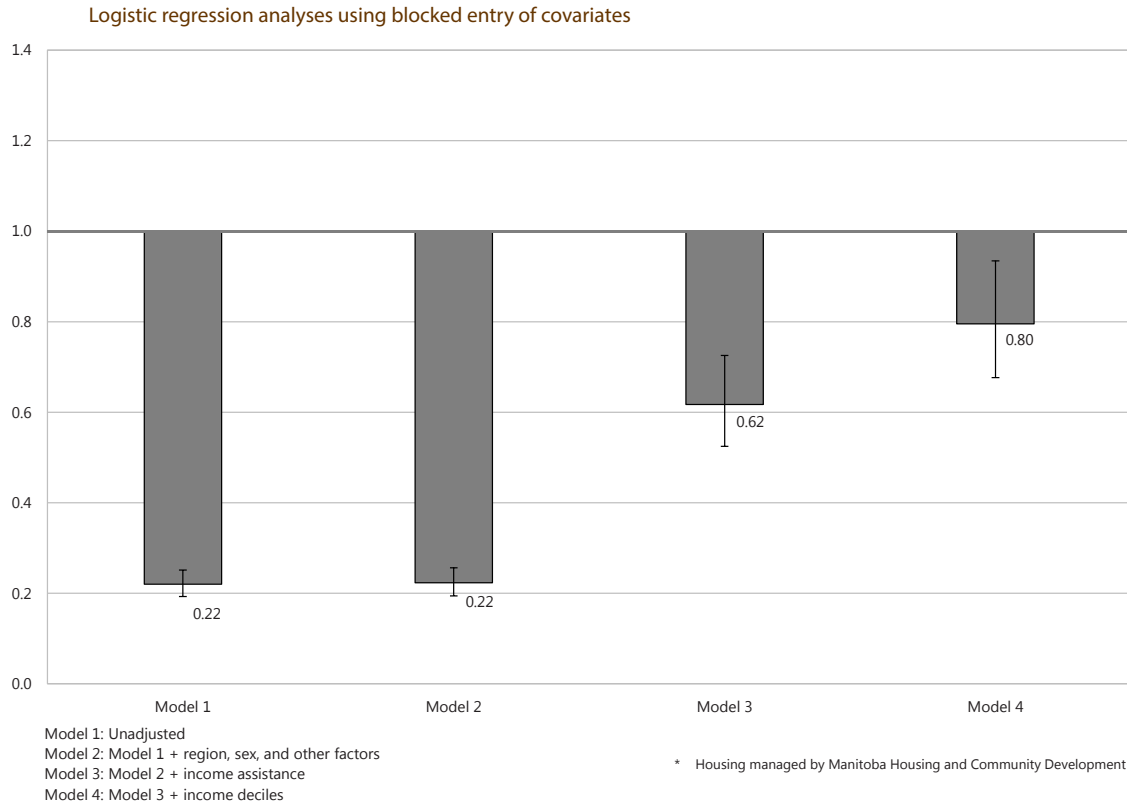
High School Completion

In the first step of this analysis, we compared the two cohorts without adjustment. The odds of graduating from high school within six years were significantly lower for children in the Social Housing cohort than for the All Other Manitobans cohort ($OR=0.22, p<0.0001$). In the second step, we adjusted for age, sex, region of residence, indication of special needs in education, and physical and mental ADGs®. The odds of completing high school within six years remained significantly lower for the Social Housing cohort ($OR=0.22, p<0.0001$).

In the third step, we entered our proxy measure for level of individual income (receipt of IA). In this step, the odds of completing high school within six years for the Social Housing cohort increased significantly, but remained lower than the odds for all other Manitobans ($OR=0.62, p<0.0001$). Finally in the fourth step, we entered area-level SES. The odds for those in social housing were still lower than the odds for the All Other Manitobans cohort ($OR=0.80, p<0.01$). See Appendix Table A3.10 for full model with all covariates included.

These results indicate the difference in the odds of Grade 9 students graduating high school within six years between the Social Housing and All Other Manitobans cohorts could not be fully explained by the variables entered into the analysis. While entering individual-level income and area-level SES into the equation reduced the difference in odds between the two groups, a significant portion of the difference could not be explained. This suggested that something other than the variables entered into the analysis accounted for the difference in this outcome measure between the two groups.

Figure 8.10: Odds Ratios for High School Completion, Social Housing* Clients in Manitoba, School Years 2007-08 and 2008-09



Teen Pregnancy

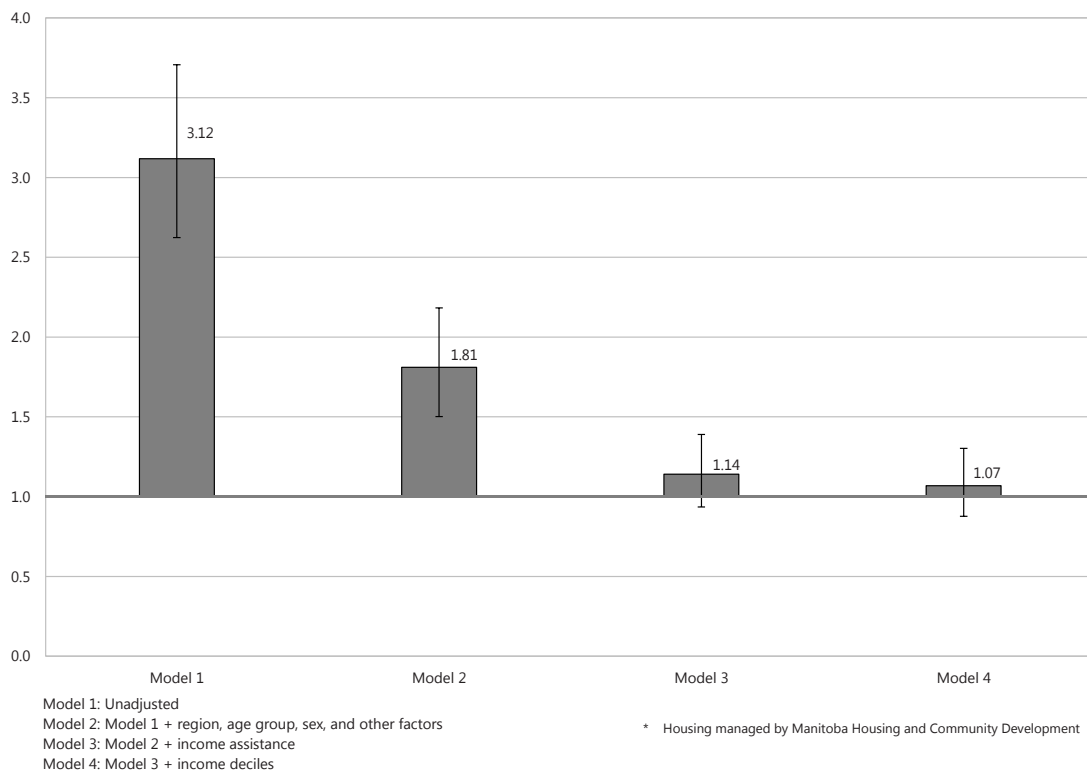
In the first step of this analysis, we compared the two cohorts without adjustment. The odds of females aged 15 to 19 becoming pregnant were higher for those in social housing than for those in the All Other Manitobans cohort (OR=3.12, $p<0.0001$). In the second step, we adjusted for age, region of residence, mom's age at first birth, Grade 9 completion, and physical and mental ADGs®. The odds of becoming pregnant remained significantly higher for the Social Housing cohort than for the All Other Manitobans cohort (OR=1.81, $p<0.0001$).

In the third step, we entered our proxy measure for level of individual income (receipt of IA). This reduced the odds of becoming pregnant in the Social Housing cohort such that the difference was no longer significant between the two groups (OR=1.14, $p=0.19$). Finally in the fourth step, we entered the area-level income measure. In this step, the difference between the two groups remained about equivalent (OR=1.07, $p=0.51$). See Appendix Table A3.11 for full model with all covariates included.

These results indicate that most of the difference in odds of becoming pregnant in the teenage years between the Social Housing and All Other Manitobans cohorts was accounted for by differences in individual income level and were not specifically related to living in social housing.

Figure 8.11: Odds Ratios for Teenage Pregnancy, Social Housing* Clients in Manitoba 2008/09

Logistic regression analyses using blocked entry of covariates



Summary of Key Findings

In this chapter we looked at a number of logistic regression analysis to see what factors accounted for the differences between our Social Housing and All Other Manitoban cohorts. In the initial, unadjusted model (Model 1), we saw significant differences between individuals in social housing and all other Manitobans on all outcome measures examined. The direction of these outcomes is indicated in Table 8.1. For all of the health status indicators, the crude unadjusted results indicated significantly higher rates in the Social Housing cohort. For all of the screening and prevention outcomes, the crude unadjusted results indicated significantly lower rates in the Social Housing cohort. For the social outcomes, the crude unadjusted rate for high school completion was significantly lower, and for teen pregnancy, it was significantly higher in social housing. In short, for all of the outcomes individuals in social housing fared worse.

After conducting the regression analyses and adjusting for all of the entered factors (Model 4), six of the 11 indicators did not show a significant difference between those in social housing and all other Manitobans. The factors that made the biggest difference in accounting for this change are listed in the last column of Table 8.1. For the health status indicators, the factors that were consistently important were receipt of IA (our proxy measure for low income or poverty) and living in a low-income area. After including these factors, in many models living in social housing was no longer a significant predictor of the outcome. TRM was an exception because after controlling for all of the factors we entered, we still saw a significantly higher rate of TRM in the Social Housing cohort when compared to all other Manitobans.

In the Screening and Prevention section, after controlling for all of the entered factors, two indicators showed no difference between individuals in social housing and all other Manitobans—complete physicals and breastfeeding initiation. The factors that had the biggest influence on these outcomes were individual-level income and neighbourhood-area SES for complete physicals; and for breastfeeding initiation, it was individual-level income and other demographic and birth related factors. For mammography, the entered variables did not completely eliminate the difference between social housing and all other Manitobans. There were still significantly lower rates of mammography in the Social Housing cohort. We speculate that, because mammography is not performed in the doctor’s office and requires making a separate appointment, access to a clinic and possible transportation related issues might be additional impediments that could explain why women in social housing have lower rates. This may possibly point to the need to examine breast cancer screening options for individuals in social housing.

For cervical cancer screening and complete immunization by age two, after controlling for all of the factors entered, rates in social housing actually exceeded those for all other Manitobans. In both cases this would lead one to speculate that there might be specific programs targeting women or children in social housing. For the indicator of high school completion, the entered factors reduced the difference between social housing and all other Manitobans but did not completely explain all of the difference; rates of high school completion were still significantly lower in social housing after controlling for all of the entered factors. This suggests that something other than the entered factors, and possibly social housing itself, accounts for the difference between the two groups on this outcome. Finally, receipt of IA, demographic, health, and education factors eliminated the difference in teen pregnancy rates between the Social Housing and All Other Manitobans cohorts.

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Canadian Institute for Health Information (CIHI). Injury Hospitalizations and Socio–Economic Status. June 2010. https://secure.cihi.ca/free_products/Injury_aib_vE4CCF_v3_en.pdf. Accessed August, 2012.

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GLOSSARY

Adjusted Rates

Rates that mathematically remove the effects of different population structures that influence overall rates.

Adjusted rates are estimates of what an area's rate might have been, if that area's age and sex distribution was the same as for the province overall. This adjustment is done to ensure that rates for different areas can be fairly compared—knowing that the demographic profile of the two areas is not affecting the comparison. Adjusted rates allow comparisons of rates across areas by removing the effects of demographic differences. In this study, some prevalence indicators were also adjusted.

Administrative Data

Data generated through the routine administration of programs. Administrative databases are designed to collect and store this type of data. While not originally intended for research, administrative data can be a rich source of information.

Aggregate Regions

Aggregate geographical areas that encompass one or more **Regional Health Authority (RHA)**. These regions include Winnipeg, Brandon, **Rural South, Mid,** and **North**.

Aggregated Diagnostic Groups™ (ADGs®)

Formerly known as Ambulatory Diagnostic Groups, ADGs® continue to be part of the **Johns Hopkins Adjusted Clinical Group® (ACG®) case-mix system**. The ACG® method groups every **International Classification of Disease (ICD)** diagnosis code assigned to a patient 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)
5. specialty care involvement (medical, surgical, obstetric, haematology, etc.)

Ambulatory Visits

Almost all contacts with physicians: office visits, walk-in clinics, home visits, personal care home (nursing home) visits, visits to outpatient departments, some emergency room visits (where data are recorded), and in northern/remote nursing stations. Services provided to patients while admitted to hospital and most visits for prenatal care are excluded.

Applicant – see Manitoba Housing Applicant

Canadian Census

Official count of the population of Canada, often including demographic information such as age, sex, marital status, employment, and income. Statistics Canada conducts a Census every five years. It takes account of all Canadian citizens (by birth and by naturalization), landed immigrants, and non-permanent residents together with family member living with them.

Statistics Canada. Overview of the Census. 2006. <http://www12.statcan.ca/english/census06/reference/dictionary/ovtoc.cfm>. Accessed November 5, 2009.

Co-Applicant – see Manitoba Housing Co-Applicant

Dependent – see Manitoba Housing Dependent

Diabetes

A chronic condition in which the pancreas no longer produces enough insulin (Type I Diabetes) or when cells stop responding to the insulin that is produced (Type II Diabetes), so that glucose in the blood cannot be absorbed into the cells of the body. Also called insulin-dependent diabetes, Type I diabetes begins most commonly in childhood or adolescence and is controlled by regular insulin injections. The more common form of diabetes, Type II, 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. Types I and II were included in our indicator. Gestational diabetes was not specifically included, but some cases may have been included if it was not properly coded. See Table A2.1 for the technical definition of this indicator.

Diagnostic and Statistical Manual of Mental Disorders

This manual, published by the American Psychiatric Association, provides a standard classification of all mental health disorders to aid in their diagnosis and treatment. It consists of three major components: the diagnostic classification, the diagnostic criteria sets, and the descriptions.

American Psychological Association. Diagnostic and Statistical Manual (DSM). <http://www.psych.org/practice/dsm>. Accessed November 5, 2009.

Directly Managed Housing

Subsidized housing properties that are owned and managed by **Manitoba Housing and Community Development**.

Dissemination Area (DA)

A small, relatively stable geographic unit composed of one or more blocks. It is the smallest standard area for which all **Canadian Census** data are disseminated. DAs cover all the territory of Canada, and in 2001, replaced the enumeration area as a basic unit for dissemination.

Statistics Canada. 2006 Census Reference Material. 2009. <http://www12.statcan.gc.ca/census-recensement/2006/index-eng.cfm>. Accessed August 1, 2012.

Drug Program Information Network (DPIN) Database

An electronic, on-line, point-of-sale prescription drug database that connects Manitoba Health and pharmacies in Manitoba. The DPIN system generates complete drug profiles for each client including all transactions at the point of distribution. Information about pharmaceutical dispensations, prescriptions identified as potential drug utilization problems, non-adjudicated prescriptions, ancillary programs, and non-drug products is captured in real time for all Manitoba residents (including Registered First Nations), regardless of insurance coverage or final payer. Note that the prescription's indication (the physician's prescribing intent) is not collected and must be inferred from other data. Services not captured in the drug database include hospital pharmacies, nursing stations, ward stock, and outpatient visits at CancerCare Manitoba.

Early Development Instrument (EDI)

"A short, teacher-completed instrument which measures children's readiness to learn at school in five domains: physical health and wellbeing; social knowledge and competence; emotional health/maturity; language and cognitive development; and general knowledge and communication skills." The EDI is administered at the Kindergarten level and is designed to measure population-level development in the early childhood period. Children can be classified as being "not ready" in a given EDI domain if they score below the 10th percentile cut-off score for that domain.

Offord Centre for Child Studies. School Readiness to Learn (SRL) Project Web Page. <http://www.offordcentre.com/readiness>. Accessed October 16, 2012.

Employment and Income Assistance

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 for adults with disabilities.

Enrollment, Marks, and Assessments Data

An administrative education database that contains information on enrollment, courses, marks, standard tests, and assessments for Manitoba students from Kindergarten to Grade 12. Students from public and private schools, as well as those that are home schooled, are included. First Nations schools are excluded. Data may be at either the individual student level or the school division and district level.

Families First Screen

A measure of biological, social, and demographic risk factors used by public health nurses in Manitoba to assess all families with newborns within a week of hospital discharge. Families are asked about supports and challenges, including parents' alcohol and drug use; parent's history regarding anxiety disorders, depression, child abuse, criminal involvement, and education; and physical and medical characteristics of the child. Three or more risk factors indicate that a family may require additional supports such as intensive home visiting, financial support, parenting programs, mental health services, or child care.

General Practitioner/Family Practitioner (GP/FP)

A physician who operates a general or family practice and is not certified in another specialty in Manitoba. Also known as a Family Physician (FP).

Hospital Discharge Abstracts

A form/computerized record filled out upon a patient's discharge (separation) from an acute care hospital. The abstract contains information from the patient's medical record based on their stay in hospital, such as gender, residence (postal code), diagnoses and procedure codes, admission and discharge dates, length of stay, and service type (inpatient, day surgery, outpatient). Abstract records are stored in the Hospital Abstracts Database.

Income Assistance (IA)

Monetary support allocated by the provincial government to individuals and/or their dependents who meet a standard financial need test that qualifies them for benefits. It is administered via the **Employment and Income Assistance** program.

Income Quintile

A method used to measure the average household income of residents by aggregating household income to the **dissemination area (DA)** derived from the **Canadian Census** data, ranking them from poorest to wealthiest, and then grouping them into five income quintiles (1 being poorest and 5 being wealthiest). Each quintile contains approximately 20% of the population. Income quintiles are available for urban (Winnipeg and Brandon) and rural (other Manitoba areas) populations. Individuals that cannot be assigned an income quintile include people residing in facilities such as personal care homes, psychiatric facilities, prisons, or **Wards of the Public Trustee** and Child and Family Services. Residents of areas reporting no income in the census and households in areas with populations less than 250 persons are also grouped in this category.

International Classification of Diseases (ICD)

A classification system of diseases, health conditions and procedures developed by the World Health Organization, which represents the international standard for the labeling and numeric coding of diseases and health related problems. Within this system, all diseases/conditions are assigned numbers in hierarchical order. There are several versions of the ICD coding system, including ICD-8, ICD-9, ICD-9-CM (Clinical Modifications), ICD-O (Oncology), ICD-10 and ICD-10-CA (Canadian Enhancements).

Johns Hopkins Adjusted Clinical Group[®] (ACG[®]) Case-Mix System

A risk adjustment tool developed to measure the illness burden (morbidity) of individual patients and populations. This system quantifies morbidity by grouping individuals based on their age, gender, and all known medical diagnoses assigned by their healthcare providers over a defined time period (typically one year). This information can be used to develop **Aggregated Diagnosis Groups (ADGs[®])** for patients.

Logistic Regression

The regression technique used when the outcome is a binary, or dichotomous, variable. Logistic regression models the probability of an event as a function of other factors. These models are only able to state that there is a relationship ("association") between the explanatory and the outcome variables. This is not necessarily a causal relationship, since it is based on observational data for the most recent time period. The explanatory variable may be associated with an increase or decrease (not that it caused the increase or decrease).

Majority of Care (Ambulatory)

A measure of whether individuals receive most of their **ambulatory care** from a single provider (versus two or more other providers). In this study, only ambulatory visits to a physician were counted. Note that in previous MCHP deliverables this indicator was called Continuity of Care.

Mammography

A procedure to determine if a woman has breast cancer or a breast tumor; it is commonly used for breast cancer screening. Mammograms can show most breast cancer two to three years before it can be detected through self-exams. See Table A2.1 for the codes used to identify this procedure.

Manitoba Centre for Health Policy (MCHP)

A unit within the Department of Community Health Sciences, Faculty of Medicine, University of Manitoba. MCHP is active in health services research, evaluation, and policy analysis, which concentrate on using the Manitoba **Population Health Research Data Repository (Repository)** to describe and explain patterns of care and profiles of health and illness.

Manitoba Health Insurance Registry

A longitudinal population-based registry of all individuals who have been registered with Manitoba Health at some point since 1970. It includes date fields for registration, birth, entry into province, migration in/out of province, and death. It provides the needed follow-up information to track residents for longitudinal and intergenerational analyses. "Snapshot files" of the Manitoba Health Insurance Registry data, received semi-annually at MCHP from Manitoba Health, are used to create and maintain information in the **MCHP Research Registry**.

Manitoba Housing and Community Development (Manitoba Housing)

A department within the Manitoba Government whose mandate encompasses a range of housing and community development programs and activities. This includes safeguarding an adequate supply of safe and affordable housing in communities across Manitoba, particularly for those of low and moderate income or those with specialized needs. This department is also tasked with sustaining and improving the condition of existing social housing, as well as stimulating and influencing the activities of the housing market to the benefit of Manitobans as a whole.

Manitoba Housing and Community Development. A Complementary and Integrated Approach. <http://www.gov.mb.ca/housing/about.html>. Accessed October 23, 2012.

Manitoba Housing Buildings

Residences owned by Manitoba Housing that contain multiple units for residential use. Buildings are aggregated together to form **projects**.

Manitoba Housing Co-Applicant

An individual who is jointly applying with the **primary applicant** for Manitoba Housing and is so identified on the application for Manitoba Housing (see Appendix 1 for the application form).

Manitoba Housing Dependents

All household members who will permanently reside in the household as identified in the application for Manitoba Housing (see Appendix 1 for the application form).

Manitoba Housing Primary Applicant

The individual who is applying for Manitoba Housing, as identified on the application form (see Appendix 1 for the application form).

Manitoba Housing Project

One or more housing properties built at the same time and assigned the same identifier used for administrative purposes by Manitoba Housing. A project can include any size or type of buildings and can serve any type of client (families, seniors, single non-elderly). Projects may include but are not limited to: Single family dwellings, duplexes, townhouses, high rise, low rise apartments or any combination of the above (Chesya Poleyvychok-Manitoba Housing, personal communication, March 22, 2013)

Manitoba Housing Special Use Unit

A term used to describe locations such as home care offices, shelters, resource centres, daycares, and supportive housing units; it is inconsistently used.

Manitoba Housing Unit

A self-contained place where an individual or family live. It may be free standing or located within a building with multiple units.

Manitoba Immunization Monitoring System (MIMS)

A population-based system that provides monitoring and reminders to help ensure that recommended immunizations are received. Immunization status is monitored by comparing the system record and the recommended schedule. This system also gives information on immunization histories, including type of vaccine administered, vaccine sequence schedule, service date, provider information, and some demographic information from the **Manitoba Health Insurance Registry**. Initially, only immunizations provided to children born after 1980 were recorded. In 2000, adult immunizations began to be added to the registry. Note that immunizations supplied by private companies may not be included.

MCHP Research Registry

A longitudinal population based registry that is derived from data in the **Manitoba Health Insurance Registry** and other data files in the MCHP Data Repository. "Snapshot files" of the Manitoba Health Insurance Registry data, received semi-annually at MCHP from Manitoba Health, are integrated with historical registry data at MCHP to maintain the MCHP Research Registry.

Medical Claims

Provider (physician/midwife) claims for services (e.g., physician visits in offices, hospitals and outpatient departments, fee-for-service components for tests such as lab and x-ray procedures) submitted to the provincial government for payment, or as "shadow billing" that provides a record of the visit.

Mid RHAS

An aggregate geographical area (**aggregate region**), which includes all of the **Regional Health Authorities (RHAs)** in central Manitoba: Interlake, North Eastman, and Parkland.

Mood and Anxiety Disorders

According to the **Diagnostic and Statistical Manual of Mental Disorders**, mood disorder refers to a group of diagnoses where a disturbance in the person's mood is hypothesized to be the main underlying feature. Anxiety disorder is a group of diagnoses that includes one or more anxiety disorders as the main diagnosis. In this study, these two disorders were combined as one indicator. See Table A2.1 for the codes used to define this indicator.

North

An aggregate geographical area (**aggregate region**), which includes all of the **Regional Health Authorities (RHAs)** in northern Manitoba: Burntwood, NOR–MAN, and Churchill.

Odds Ratio

The ratio of the odds of an event occurring in one group to the odds of it occurring in another group. These groups might be men and women, an experimental group and a control group, or any other dichotomous classification. In this study, the two groups were those living in social housing and all other Manitobans.

Papanicolaou (Pap) Test

A test, used primarily for cervical cancer screening, that 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. See Table A2.1 for the codes used to identify this procedure.

Personal Health Identification Number (PHIN)

A unique nine–digit numeric identifier assigned by Manitoba Health to every person registered for health insurance in Manitoba and to non–residents who are treated at facilities which submit claims electronically. Introduced as a linkage key in 1984, it was issued to the public in 1994 as the basic access identifier for the Pharmacare/**Drug Programs Information Network (DPIN)**.

At MCHP, the PHIN is either a scrambled (encrypted) version of the Manitoba Health PHIN or an alphanumeric identifier assigned via the Research Registry to individuals who do not have scrambled numeric PHINs.

Poisson Regression

Statistical analyses for data that follow a Poisson distribution, which is the pattern usually followed by a set of results in which the measurements are counts and has the assumption that the mean of an outcome is equal to its **variance**. Poisson regression is often the best choice for modelling counts of rare events, such as death.

Hassard T. *Understanding Biostatistics*. 3rd ed. St. Louis, MI: Mosby–Year Book, Inc.; 1991.

Population Health Research Data Repository (Repository)

A comprehensive collection of administrative, registry, survey, and other databases primarily comprised of residents of Manitoba. The Repository is housed at MCHP. It was developed to describe and explain patterns of healthcare and profiles of health and illness, facilitating inter–sectoral research in areas such as healthcare, education, and social services. The administrative health database, for example, holds records for virtually all contacts with the provincial healthcare system, the Manitoba Health Services Insurance Plan (including physicians, hospitals, personal care homes, home care, and pharmaceutical prescriptions) of all registered individuals. MCHP acts as a trustee or steward of the information in the Repository for agencies such as Manitoba Health.

Premature Mortality

Death occurring before the age of 75 years. It is an important indicator of the general health of a population as high premature mortality rates indicates poor health. It is also referred to as ‘death among those aged 0–74’.

Socioeconomic Status (SES)

Characteristics of economic, social, and physical environments in which individuals live and work, as well as their demographic and genetic characteristics.

Special Use Units –see Manitoba Housing Special Use Unit

Suppression

At the **Manitoba Centre for Health Policy (MCHP)**, in order to avoid potential identification of individuals in an area, data are suppressed when the number of persons or events involved is five or less. Data are not suppressed when the actual event count is zero. This process of suppressing data is conducted to protect the anonymity of study participants.

Tenant Management System (TMS)

The data collection and management system used by **Manitoba Housing and Community Development** to administer the **Social Housing** Program in Manitoba. The TMS database contains information on all households living in units directly managed by Manitoba Housing. Records are initially created when a person applies for a unit; available data includes household type, length of stay, application reason, and rural/Winnipeg.

Total Respiratory Morbidity (TRM)

A measure of the burden of all types of respiratory illnesses in the population and includes any of the following respiratory illnesses: asthma, chronic or acute bronchitis, emphysema, chronic airway obstruction, or chronic obstructive pulmonary disease. See Table A2.1 for the codes used to identify this condition.

Tuberculosis (TB)

A disease that is acquired through an infection from a bacterium called *Mycobacterium tuberculosis*. TB is highly contagious: it is spread through the air by individuals with infected lungs or throats when they cough, sneeze, or talk. An individual with a spreading TB disease will become sick; and if left untreated, the individual may die. See Table A2.1 for the codes used to identify this condition.

Special Use Units – see Manitoba Housing Special Use Unit

Unit – see Manitoba Housing Unit

Variance

“A measure of the extent of the variation present in a set of data. It is obtained by taking the average of the sum of squares and hence is measured in squared units.” (pg. G–6)

Hassard T. *Understanding Biostatistics*. St. Louis, MI: Mosby–Year Book, Inc. 1991.

Vital Statistics

A Manitoba government department responsible for keeping records and registries of all births, deaths, marriages, and stillbirths that take place in Manitoba. In this study we only used the mortality data.

APPENDIX 1: SOCIAL HOUSING PROGRAMS

Housing Programs Offered by the Government of Manitoba

In this appendix, we summarize the housing programs that are offered to residents by the Departments of Housing and Community Development and Family Services and Labour. It is important to note that criteria, benefits, and entire programs can change. Readers are advised to check the current status of programs at <http://gov.mb.ca>.

While all programs available are described here, the focus of the report is on the social housing program, which is the largest in terms of number of clients, capital, and operating costs. There are also many other social housing programs operating in the province for which person-level data are not centrally collected and are therefore unavailable for research purposes. For example, Manitoba Housing supports approximately 4,500 units that are operated by not-for-profit organizations, cooperatives, or property management agencies. In addition, the department provides subsidy and support to approximately 17,300 households (Manitoba Housing and Community Development, 2010) operated by cooperatives, Urban Native, and private not-for-profit groups.

Appendix Table A1.1: Housing Programs Offered by Manitoba Housing and Community Development, and Manitoba Family Services and Labour in 2011/12

Program Name	Eligibility of People with Low Income Who are Renting Their Housing	Total Number of People (2011-12)	Maximum Monthly Payment	Mean Payment (2011-12)	Client Contribution	Payment to	Notes
Social Housing 1.18.19	Available to low income individuals who: <ul style="list-style-type: none"> • are Canadian citizen, landed immigrant, or refugee; • are 18 years of age or older • are able to cope independently in a self-contained unit • have a total gross family income which does not exceed the Housing Income Limit Guidelines (see Table A1.2) and • have a good rental history including past and present landlord reference checks. 	30,000	not applicable	not applicable	Rent is based on an affordable percentage of the household's total gross income and Housing Income Limits (HIM). Some income restrictions may apply. Studio Apartment: 25% of total gross income. 1 or more bedrooms: 27% of total gross income. Employment and Income Assistance Recipients have a fixed rent.	Tenant pays rent to Manitoba Housing and Community Development.	Approximately 13,500 units across the province are owned and managed by Manitoba Housing and are rented to Manitobans in need. Three categories of housing accommodations: people 55 years and older; single or couples with no children, and families.
Rent Supplement 1.5.12(& 1.3)	Available to low- and moderate-income families, elderly and special needs households who: <ul style="list-style-type: none"> • have a total household income less than the Housing Income Limit (HIL) • are 18 years of age or older, and • are permanent legal residents of Canada. <p><u>Note:</u> An individual or family is <u>ineligible</u> if they receive any other shelter allowance or rental subsidy program assistance.</p>	Not available	not available	\$335 ¹	Client pays the difference between rent and the supplement.	Landlord	People are typically referred to this program by Manitoba Housing and Community Development. Approximately 1,448 units ¹ are funded. The program is funded by Manitoba Housing and Renewal Corporation but delivered through provincial services. ¹³ The provincial government enters into agreements with the owners or operators of private rental stock to cover the difference between the approved market rental rate charged by the landlord and the rent-geared-to-income (RGI) rate paid by the tenant. Manitoba Housing pays the housing project the monthly rent supplement. Subsidy costs are shared by the federal and provincial governments: 50% each for units committed pre-1986 and 75% federal post-1985.

Appendix Table A1.1: Continued

Program Name	Eligibility of People with Low Income Who are Renting Their Housing	Total Number of People (2011-12)	Maximum Monthly Payment	Mean Payment (2011-12)	Client Contribution	Payment to	Notes
RentAid (formerly Shelter Benefit) - Seniors ^{8,3}	<p>Available to individuals who:</p> <ul style="list-style-type: none"> • are at least 55 years of age or who lives with a spouse (or common-law partner) aged 55 or older, • pay rent in Manitoba • spend more than 25% of their income on rent • are a Canadian citizen, landed immigrant or refugee claimant. <ul style="list-style-type: none"> • a single renter must earn less than \$21,168 per year • a couple must earn less than \$23,760 per year <p><u>Note:</u> People are <u>ineligible</u> if they:</p> <ul style="list-style-type: none"> • rent from Manitoba Housing OR • receive another type of housing benefit (for the client or the residential building), OR • receive Employment and Income Assistance, OR • live in a nursing home, hospital or residential care facility, OR • live on a First Nations reserve. 	Not available	\$210 ³	\$103 ³	Client pays the difference between rent and the supplement.	Client	Previously administered by the Manitoba Housing and Renewal Corporation and was transferred to the Disability Programs and Employment and Income Assistance Division in 2009/10. Benefits are delivered through Provincial Services. ³ Applicants paying room and board may be eligible for this benefit.

Appendix Table A1.1: Continued

Program Name	Eligibility of People with Low Income Who are Renting Their Housing	Total Number of People (2011-12)	Maximum Monthly Payment	Mean Payment (2011-12)	Client Contribution	Payment to	Notes
RentAid (formerly Shelter Benefit) – Employment and Income Assistance Recipients ^{9,3}	Available to both individuals with a disability and other adults without dependent children who are receiving EIA, and who: <ul style="list-style-type: none"> • pay rent in Manitoba • are a Canadian citizen, landed immigrant or refugee claimant. <p><u>Note:</u> People are <u>ineligible</u> if they:</p> <ul style="list-style-type: none"> • rent from Manitoba Housing • receive another type of housing benefit (for the client or the residential building), or • live in a hospital, personal care home, developmental centre, residential care facility, shelter or treatment facility, or 	19,620 ³	\$50 for rent or \$30 for room and board ³	\$46 ³	Client pays the difference between rent and the supplement.	Client	Previously administered by the Manitoba Housing and Renewal Corporation and was transferred to the Disability Programs and Employment and Income Assistance Division in 2009/10. Benefits are delivered through Provincial Services. ³
Portable Housing Benefit ^{1 (&13)}	Available to individuals who are: <ul style="list-style-type: none"> • receiving Employment and Income Assistance (EIA) due to a mental health disability • in an unstable housing situation at the time of application • living in private rental accommodation • willing to engage with mental health community partners who are delivering the benefit 	522 ³	\$200 ³	\$180 ³	Client pays the difference between rent and the supplement. (this is inferred)	Client	Subsidy is attached to the individual, not to the location, i.e., funding is portable when the person moves. Designed to provide a stable home situation for individuals with substantial mental health issues. Program started July, 2008. It provides a rent supplement as well as housing supports. Benefit delivered by mental health community partners funded to provide supports. Payments are administered by Manitoba Family Services

Appendix Table A1.1: Continued

Program Name	Eligibility of People with Low Income Who are Renting Their Housing	Total Number of People (2011-12)	Maximum Monthly Payment	Mean Payment (2011-12)	Client Contribution	Payment to	Notes
School Tax Assistance for Tenants 55 Plus ^{1, 14}	<p>Available to low-income tenants who:</p> <ul style="list-style-type: none"> are 55 years of age or older, and net household income less than \$23,800, and have claimed rent on the MB479 (Education Property Tax Credit) on the previous year's income tax return pay rent in Manitoba <p><u>Note:</u> A person is ineligible if they:</p> <ul style="list-style-type: none"> live in non-profit housing for the elderly or in a project licensed under The Elderly and Infirm Persons' Housing Act. 	1,728	not applicable	not applicable	not applicable	Client	<p>People are typically referred to this program by Manitoba Family Services and Labour.</p> <p>The program is funded by Manitoba Housing but delivered through Manitoba Family Services and Labour, Provincial Services, on behalf of the Department of Finance.</p> <p>Rebate is designed to offset the school tax portion of rental costs. It is payable once a year (max. \$175, mean \$98). Applications submitted in a specific calendar year relate to rents paid during the previous calendar year. Eligible individuals who did not receive their</p>
Complementary Assistance ^{1, 15}	<p>Available to housing cooperatives with income-tested occupants who:</p> <ul style="list-style-type: none"> are an accepted member and resident of a participating housing co-op, and have a total household income less than the Housing Income Limit (HIL) are not receiving any other shelter allowance or rental subsidy program assistance pay rent in Manitoba are a Canadian citizen, landed immigrant or refugee claimant. 	not available	not available	not available	not available	Cooperative	<p>This program is closed to new applications from cooperatives but will continue to provide assistance to cooperatives under previous commitments. Approximately 31 households (5 cooperatives) are funded by this program.¹</p> <ul style="list-style-type: none"> cooperative submit monthly statements to claim assistance on behalf of eligible clients, and

¹ Manitoba Housing and Community Development. Annual report 2011-2012. 2012. http://www.gov.mb.ca/housing/pubs/2011-12_hcd_annual_report.pdf. Accessed on March 26, 2013

² Manitoba Family Services and Labour. Annual report 2011-2012. 2012. http://www.gov.mb.ca/fs/about/annual_reports/2011-12/fs_ar_2011_12.pdf. Accessed on March 26, 2013

³ Manitoba Family Services and Consumer Affairs. Annual report 2010-2011. 2011. http://www.gov.mb.ca/fs/about/annual_reports/fsca_ar_2010_11.pdf. Accessed on March 26, 2013

⁴ Manitoba Housing and Community Development. Annual report 2010-2011. 2011. http://www.gov.mb.ca/housing/pubs/2010-2011_hcd_annual_report.pdf. Accessed on March 26, 2013

⁵ Manitoba Housing and Community Development. Rent Supplement Program. 2013. http://www.gov.mb.ca/housing/rent_supplement.html. Accessed on March 26, 2013

⁶ Manitoba Family Services and Labour. RentAid for Persons with Disabilities. 2013. <http://www.gov.mb.ca/fs/assistance/shelterbenefit-disabled.html>. Accessed on March 26, 2013

⁷ Manitoba Family Services and Labour. RentAid for Families. 2013. http://www.gov.mb.ca/fs/assistance/pubs/shlr_ben_families.en.pdf. Accessed on March 26, 2013

⁸ Manitoba Family Services and Labour. RentAid for Seniors. 2013. http://www.gov.mb.ca/fs/assistance/pubs/shlr_ben_seniors.en.pdf. Accessed on March 26, 2013

⁹ Manitoba Family Services and Labour. RentAid for Persons Receiving Employment and Income Assistance. 2013. http://www.gov.mb.ca/fs/assistance/pubs/shlr_fact_brochure.pdf. Accessed on March 26, 2013

¹⁰ Manitoba Family Services and Labour. RentAid. 2013. <http://www.gov.mb.ca/fs/assistance/shelterbenefit.html>. Accessed on March 26, 2013

¹¹ Province of Manitoba. Resource Manual: Housing Module. 2007. http://www.gov.mb.ca/shas/publications/accessmanual_financial.pdf. Accessed on March 26, 2013

¹² Manitoba Housing and Community Development. Annual report 2009-2010. 2010. http://www.gov.mb.ca/housing/pubs/2009-10_hcd_annual_report.pdf. Accessed on March 26, 2013

¹³ Manitoba Family Services and Housing. Annual report 2008-2009. 2009. http://www.gov.mb.ca/fs/about/annual_reports/2008-09/FSH_Annual_Report_08_09_en.pdf. Accessed on March 26, 2013

¹⁴ Manitoba Family Services and Labour. School Tax Assistance for Tenants 55 Plus (STAT 55+). 2013. <http://www.gov.mb.ca/fs/assistance/stat55.html>. Accessed on March 26, 2013

¹⁵ Manitoba Housing and Community Development. Complementary Assistance Program. 2013. <http://www.gov.mb.ca/housing/cap.html>. Accessed on March 26, 2013

¹⁸ Manitoba Housing and Community Development. Manitoba Housing – Social Housing. 2013. <http://www.gov.mb.ca/housing/mha.html>. Accessed on March 26, 2013

¹⁹ Manitoba Housing and Community Development. How to apply for Manitoba Housing. 2013. http://www.gov.mb.ca/housing/pubs/how_to_apply.pdf. Accessed on March 26, 2013

Appendix Figure A1.1: Manitoba Housing Application

AN APPLICATION FOR HOUSING

- If you need assistance completing the application, please call 945-4663 or toll-free at 1-800-661-4663 or visit one of our Manitoba Housing leasing offices or email us at housing@gov.mb.ca.
- If you require a translator but do not have one, Manitoba Housing will assist in accessing this service for you.
 - Please allow yourself some time to meet with an intake specialist to review your application form.

INFORMATION MANITOBA HOUSING NEEDS FROM YOU WHEN YOU APPLY

Proof of Identity

You and your co-applicant must provide photo identification with your signature when you submit your application. If you do not have photo identification with a signature you can submit two of the following:

- Birth Certificate
- Social Insurance Card
- Commemoration or Certificate of Canadian Citizenship
- Manitoba Health Card

Proof of Permanent Resident or Refugee Status

If you are an immigrant, refugee or refugee claimant, to apply, you need one of the following documents issued by Citizenship and Immigration Canada:

- Permanent Resident Card
- IMM1000 (for those who became a permanent resident prior to June 28, 2002)
- IMM5292 (Confirmation of Permanent Residence)
- IMM1442 (Refugee claimants only)

If you are sponsored, have a student or visitor visa, you cannot apply.

Income Documents

You and your household members must provide proof of current income. Manitoba Housing needs to know all sources of your total gross household income.

Certified Copy of Income Tax

You and your household members must provide a certified copy of your most recent income tax return or you can complete the consent to release your certified income tax located on the last page of this application.

If you own your own business, you will be required to provide a certified copy of the most recent income tax form or a statement of income and expenses prepared by an accountant or independent bookkeeping service.

Please call 1-800-959-8281 to request a copy of your certified income tax, or visit CRA internet website www.cra.gc.ca

Custody Documents

If you hold legal custody of your children you will be eligible for family housing. Please provide copies of custody documents including any of the following:

- Court documents from the Court of Queen's Bench (Family Division)

- Certified print out of Child Tax Benefit (CTB) listing all eligible dependants
- Child Family Services (CFS) – Letter confirming children under care and with date of expected return
- Employment Income Assistance Budget Letter (EIA) listing all household members
- Foster Children (listing dependant(s) in care)
- GST Tax Credit (listing all eligible dependants)
- Letter from Legal Aid
- Notarized letter from other parent stating custody arrangement
- Referral documents (from agencies advocating on behalf of their client)
- Universal Child Tax Benefit (listing all eligible dependants)

Medical Documents

If you have a medical condition that directly affects your current housing situation, you must provide the following information so Manitoba Housing can assist you in finding the right housing for you.

- Manitoba Housing medical consent form must be completed by a health care provider
- If any member(s) of your household is pregnant, please attach a doctor's note confirming the due date

Other Information Manitoba Housing needs to know about your current situation

- If you have been given a notice to vacate without cause please include a copy.
- If you have been given a notice/order from the Health Department to vacate current residence for reasons such as fire, flood, building being demolished, unsafe, please provide a copy.
- If you have any referrals from outside agencies that indicate that you need housing assistance please provide a copy.
- If you own a house and/or property, you will need to provide copies of its assessed property value.
- If your house and/or property has been sold or in foreclosure in the last 12 months, you will need to provide documented proof from the sale of the house and/or property.
- If you have a letter of Power of Attorney please provide a copy.

Note: Any and all support documents are welcome on behalf of all applicants applying for housing.

Appendix Figure A1.1: Continued

Application Intake Office Use Only
 Date received: _____ Points assessment: _____ Current application number: _____
 Application received by: _____ Bedroom size: _____

Manitoba Housing Application

PLEASE ENSURE ALL SECTIONS HAVE BEEN COMPLETED FULLY IN INK. APPLICATIONS WITH MISSING INFORMATION CANNOT BE ASSESSED AND WILL BE RETURNED TO YOU FOR COMPLETION.

The information provided on this application form will be used to determine your eligibility for Manitoba Housing. All applicants will be notified in writing of the status of their eligibility after the assessment is completed by Manitoba Housing.

SECTION 1
IF YOU ARE THE APPLICANT PLEASE COMPLETE THIS SECTION:

Last Name _____ First Name _____ Middle Name _____
 Other Names (ex: maiden name, also known as) _____
 Social Insurance Number _____ Date of Birth: _____
 (Day/Month/Year)
 Current Address _____
 City/Town _____ Province _____ Postal Code _____
 Mailing Address (if different from current address) _____
 City/Town _____ Province _____ Postal Code _____
 Home Telephone Number () _____ Work Number () _____
 If you don't have your own phone number, please list an alternate phone number with the name and relationship of the contact person.
 () _____
 Gender: Male Female
 Marital Status: Single Married/Common Law Separated Divorced Widow(er)
 Proof of Status in Canada:
 Canadian Citizen Permanent Resident Sponsored Immigrant Refugee Claimant

IF YOU ARE A CO-APPLICANT, PLEASE COMPLETE THE FOLLOWING SECTION:

Last Name _____ First Name _____ Middle Name _____
 Relationship to Applicant _____
 Other Names (ex: maiden name, also known as) _____
 Social Insurance Number _____ Date of Birth: _____
 (Day/Month/Year)
 Current Address _____
 City/Town _____ Province _____ Postal Code _____
 Mailing Address (if different from current address) _____
 City/Town _____ Province _____ Postal Code _____
 Home Telephone Number () _____ Work Number () _____
 If you don't have your own phone number, please list an alternate phone number with the name and relationship of the contact person.
 () _____
 Gender: Male Female
 Marital Status: Single Married/Common Law Separated Divorced Widow(er)
 Proof of Status in Canada:
 Canadian Citizen Permanent Resident Sponsored Immigrant Refugee Claimant



Appendix Figure A1.1: Continued

DEPENDENT INFORMATION (Please list all household members that will permanently reside in your household):

Last Name	First Name	Middle Name	Date of Birth Day/Month/Year	Gender: (M / F)	Relationship to Applicant
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____
_____	_____	_____	_____	<input type="checkbox"/> M <input type="checkbox"/> F	_____

Is any member of your household pregnant? Yes No (if yes, please attach a doctor's note confirming due date)

Please list the town(s) or Winnipeg area(s) in which you would be willing to live (for a list of towns or areas please contact your local Manitoba Housing leasing office):

**SECTION 2
AFFORDABILITY**

- What is your monthly rent or mortgage payment? \$ _____
 Utilities ARE included in my rent Utilities ARE NOT included in my rent
 Employment and Income Assistance (EIA)/Social Assistance pays all utilities directly.
- If your utilities ARE NOT included with your rent, what is your utility cost:
 Electric (monthly): \$ _____ Heat/Gas (monthly) \$ _____ Water (quarterly) \$ _____
- Do you owe utility arrears: Yes No If yes explain: _____
 Electric: \$ _____ Heat/Gas \$ _____ Water \$ _____
- What is your total gross monthly income? (Please ensure all income in the household is included)

Source of Income:	Applicant	Co-Applicant	Other Household Member	Source of Income :	Applicant	Co-Applicant	Other Household Member
Total Gross Income	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Alimony/Maintenance	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Employment	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Education Income/Student Grants	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> EIA/Social Assistance	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Self-employment	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Employment Insurance	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Workers Compensation	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Canada Pension Plan (CPP)	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Rental Income	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Old Age Security (OAS)	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Farm Income	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> 55 Plus Benefits	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Business Income	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Dept. of Veteran Affairs	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Interest from banks, investments (GIC, RIF, RRSP)	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Superannuation, Private Pension, Disability	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Other please explain _____	\$ _____	\$ _____	\$ _____

Appendix Figure A1.1: Continued

ASSET DETAILS

5. What assets do you own?

	Applicant Net Value	Co-Applicant Net Value	Other Household Member Net Value		Applicant Net Value	Co-Applicant Net Value	Other Household Member Net Value
<input type="checkbox"/> House	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Cash/Bank	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Cottage	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Land Holdings	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Farm with or without buildings	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Investments (RRSP, Stocks, Bonds, etc)	\$ _____	\$ _____	\$ _____
<input type="checkbox"/> Business	\$ _____	\$ _____	\$ _____	<input type="checkbox"/> Other please explain _____	\$ _____	\$ _____	\$ _____

6. If employed, attending school or receiving Employment and Income Assistance (EIA) benefits, please provide the following information:

If employed:

Applicant	Co-Applicant	Other Household Member
Name of Employer: _____	Name of Employer: _____	Name of Employer: _____
Phone Number: _____	Phone Number: _____	Phone Number: _____

If attending school:

Applicant	Co-Applicant	Other Household Member
Name of Facility: _____	Name of Facility: _____	Name of Facility: _____
Phone Number: _____	Phone Number: _____	Phone Number: _____
Course Start Date: _____	Course Start Date: _____	Course Start Date: _____
Course End Date: _____	Course End Date: _____	Course End Date: _____

If receiving Employment and Income Assistance (EIA):

Applicant	Co-Applicant	Other Household Member
Case Worker Name: _____	Case Worker Name: _____	Case Worker Name: _____
Phone Number: _____	Phone Number: _____	Phone Number: _____
Case Number: _____	Case Number: _____	Case Number: _____

SECTION 3

ADEQUACY

- Are you currently living/staying in: House /apartment Shelter Hotel Boarding house Hospital
 Group home Hostel Other please explain _____
- Are you/your family sharing accommodations with another family? Yes No
How many bedrooms does your current residence have? 0 1 2 3 4 5
What is the total number of adults _____, children _____ living in your current residence (including those listed on your application)?
- Is your current residence in need of repair? Yes No
If yes, please explain: _____
- Are the heating conditions in your current residence hazardous or unsafe? Yes No
If yes, please explain: _____
- Are you/your family members unable to access rooms in your current residence due to physical limitations? Yes No
If yes, please explain: _____
- Do you/your family members share kitchen facilities with non-family members? Yes No
Is there anything that is currently not in working order? Yes No
If yes, please explain: _____
- Do you/your family members share bathroom facilities with non-family members? Yes No
Is there anything that is currently not in working order? Yes No
If yes, please explain: _____

Appendix Figure A1.1: Continued

- 8. Excluding the bathroom does your current home have windows that are broken or cannot be opened as intended?
 Yes No If yes, please explain: _____
- 9. Is there outdoor play space available for your children within one block of your current residence?
 Yes No If yes, please explain: _____
- 10. Is your current residence in unhealthy/unsanitary condition (pests infestation, mold, asbestos)?
 Yes No If yes, please explain: _____

SECTION 4 SUITABILITY

Note: Medical confirmation will be required.

Please check the following which apply to you:

- 1. I/we have a medical condition which directly affects our need for housing?
 Yes No
- 2. I/we require a mobility/wheelchair access unit because my/our current residence is not mobility/wheelchair accessible
 Yes No
- 3. I/we require relocation to access support service that promote independent living Yes No
- 4. I/we require relocation due to medical reasons (need to be closer to support services) Yes No
- 5. I/we are unable to maintain current home due to medical limitations Yes No
- 6. I/we currently receive/access other support services. Yes No

If yes, please provide your support service provider contact information:

Applicant

Organization: _____

Contact Name: _____ Phone Number: _____

Co-Applicant/Other Household Member

Organization: _____

Contact Name: _____ Phone Number: _____

- 7. Have you received a notice to move out by your current landlord? Yes No
If yes, please explain: _____
- 8. Are you currently homeless? Yes No If yes, where are you staying? _____
- 9. Are you required to leave your family/friend's home? Yes No
If yes, please explain: _____
- 10. Do you require accommodation due to recent fire/flood or other factors beyond your control? Yes No
If yes, please explain: _____
- 11. In the past 12 months, has your family size changed due to:
 - Gaining foster children Date: _____
 - Regaining custody of children Date: _____
 - Children in care (Child and Family Services) Date: _____
 - Medical separation (personal care home, hospice, etc.) Date: _____
 - Marriage separation Date: _____
 - Other please explain _____ Date: _____
- 12. From your current residence, how long does it take you to travel to the services you need to access (ex: work, school, child day care, etc.)?
Please explain: _____
- 13. Do you own a vehicle(s)? Yes No
Do you require a parking stall? Yes No
Licence Plate Number(s) _____
Registered to: _____

Appendix Figure A1.1: Continued

SECTION 5			
APPLICANT LANDLORD INFORMATION			
Please provide your rental history starting with your current landlord information.			
1. Current Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MM/YY) _____	Move Out Date (MM/YY) _____	
2. Past Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MM/YY) _____	Move Out Date (MM/YY) _____	
3. Past Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MM/YY) _____	Move Out Date (MM/YY) _____	
CO-APPLICANT LANDLORD INFORMATION			
Please provide your rental history starting with your current landlord information.			
4. Current Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MY/YY) _____	Move Out Date (MM/YY) _____	
5. Past Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MM/YY) _____	Move Out Date (MM/YY) _____	
6. Past Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MM/YY) _____	Move Out Date (MM/YY) _____	
OTHER HOUSEHOLD MEMBER LANDLORD INFORMATION			
Please provide your rental history starting with your current landlord information.			
7. Current Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MY/YY) _____	Move Out Date (MM/YY) _____	
8. Past Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MM/YY) _____	Move Out Date (MM/YY) _____	
9. Past Address _____			
Name of Landlord _____	Phone Number () _____	Fax Number () _____	
Reason for Vacating _____	Move In Date (MM/YY) _____	Move Out Date (MM/YY) _____	

Appendix Figure A1.1: Continued

CONSENT TO RELEASE CERTIFIED INCOME TAX DOCUMENTS

I /we hereby consent to the release, by the Canada Revenue Agency to The Manitoba Housing and Renewal Corporation (Manitoba Housing) of information from my/our income tax returns, and other taxpayer information. The information will be relevant to, and used solely to verify eligibility for government-subsidized rental housing (public housing) under *The Housing and Renewal Corporation Act of Manitoba*, and will not be disclosed to any other person without my approval.

The authorization is valid for the most recently available of the two taxation years before the year of signature on this consent. It is also valid for the year of signature, and each consecutive taxation year after the year of signature, for which I/we request housing.

I/we understand that, if I/we wish to withdraw this consent, I/we may do so at any time by writing to Manitoba Housing.

CONSENT TO RELEASE CERTIFIED INCOME TAX DOCUMENTS – SIGNATURES

Applicant Name (please print) _____ Applicant Signature _____

Social Insurance Number _____ Date _____

Co-Applicant Name (please print) _____ Co-Applicant Signature _____

Social Insurance Number _____ Date _____

Other Household Member _____ Other Household Member _____

Name (please print) _____ Signature _____

Social Insurance Number _____ Date _____

Other Household Member Name (please print) _____ Other Household Member Signature _____

Social Insurance Number _____ Date _____

For those signing with an “X” a witness name and signature is required.

Witness Name (please print) _____ Witness Signature _____

Date _____

IMPORTANT:

Application checklist – Before sending in your application, be sure you have:

- Completed all sections of this application.
- Indicated your preferred location(s).
- Signed and dated your application form in all 3 places above.
- Attached all your current supporting documents.

If your application is being submitted on behalf of a household that is registered with the Public Trustee, a certified stamp must be placed before submitting it to Manitoba Housing.

Name of Public Trustee _____

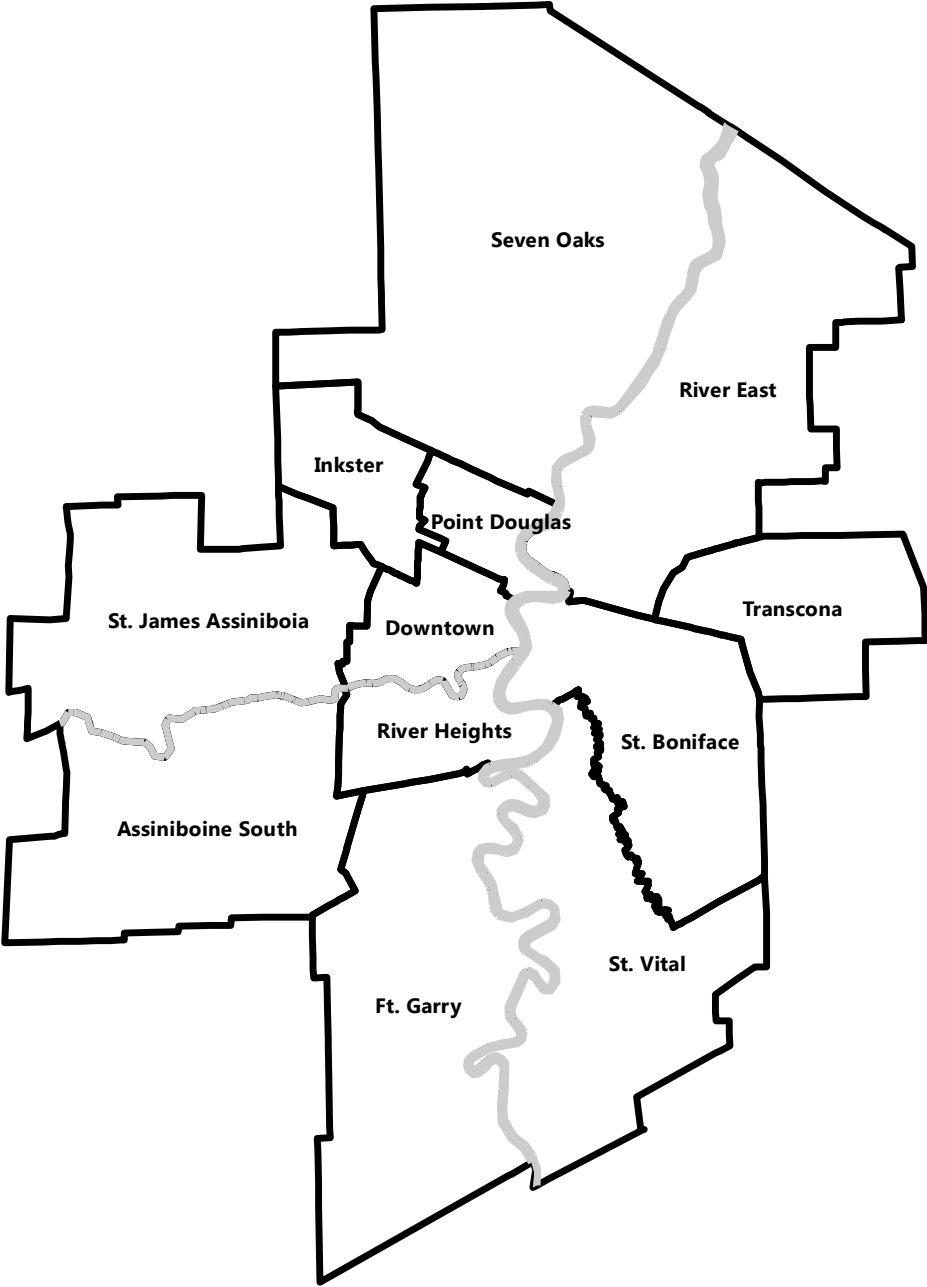
Phone Number _____



Appendix Figure A1.2: Manitoba RHA Boundaries (pre-April 1, 2012)



Appendix Figure A1.3: Winnipeg Community Area Boundaries



APPENDIX 2: INDICATOR DEFINITIONS

Appendix Table A2.1: Indicator Definitions and Codes

Indicator	Definition	Codes
Chapter 4: Morbidity and Mortality Premature Mortality	The age- and sex-adjusted average annual rate of death among residents aged 0 to 74 years per 1,000 residents was measured over 10 calendar years: 1999–2008. The denominator includes all Manitoba residents as of December 31 of each year (1999–2008).	(no codes)
Injury Hospitalizations	The age- and sex-adjusted average annual rate of inpatient hospitalizations for injury per 1,000 residents was measured over 10 years: 1999/2000–2008/09 ¹ . Injury hospitalizations were defined as any inpatient hospitalization with an external cause of injury diagnosis code (also known as an E-code). We excluded injuries related to medical error and drug complications: misadventures during surgical or medical care, reactions or complications due to medical care, and adverse effects due to drugs. Newborn birth injuries or deaths, stillbirths, and brain deaths were also excluded. 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). The denominator includes all Manitoba residents as of December 31 of each year (1999–2008).	ICD-9-CM: E800–E999* ICD-10-CA: V01–Y89* * Excluding: ICD-9-CM: E870–E876, E878–E879, E930–E949; ICD-10-CA: Y40–Y59, Y60–Y69, Y70–Y84, Y88.0–Y88.3
Causes of Injury Hospitalizations	The most frequent causes of hospitalization due to injury for Manitobans were reported for 10 years: 1999/2000–2008/09. Causes of injury were identified from the hospital abstract and grouped into 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. We converted injuries coded in ICD-10-CA into ICD-9-CM prior to grouping them into injury categories. We excluded injuries related to medical error and drug complications as noted in Injury Hospitalizations; newborn birth injuries or deaths, stillbirths, and brain deaths were also excluded. The percentages were not adjusted for age or sex.	As above
Hospitalizations for Tuberculosis (TB)	The age- and sex-adjusted average annual rate of hospitalizations due TB per 100,000 residents was measured over 10 years: 1999/2000–2008/09. TB hospitalizations were defined as any inpatient hospitalization with a diagnosis for TB. Transfers between hospitals were tracked and only hospital episodes were counted, not individual separations, to reduce double-counting TB cases. All Manitoba hospitals were included; PCHs and long-term care facilities were excluded (Riverview, Deer Lodge, Rehabilitation Centre for Children and Adolescent Treatment Centre). The denominator includes all Manitoba residents as of December 31 of each year (1999–2008).	ICD-9-CM: 011–018 ICD-10-CA: A15–A19

Appendix Table A2.1: Continued

Indicator	Definition	Codes
Diabetes	<p>The age- and sex-adjusted prevalence of diabetes was measured for residents aged 19 or older over three years: 2006/07–2008/09. Residents were considered to have diabetes if they met <u>one</u> of the following conditions:</p> <ul style="list-style-type: none"> • one or more hospitalizations with a diagnosis of diabetes • two or more physician visits with a diagnosis of diabetes • one or more prescriptions for medications to treat diabetes <p>The denominator includes all Manitoba residents aged 19 and older as of December 31, 2007.</p> <p>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 counted if it was not properly coded.</p>	<p>ICD-9-CM: 250 ICD-10-CA: E10-E14 ATC: A10</p>
Total Respiratory Morbidity (TRM)	<p>The age- and sex-adjusted prevalence of TRM was measured for all residents over one fiscal year: 2008/09. Residents were considered to have TRM if they met <u>one</u> of the following conditions:</p> <ul style="list-style-type: none"> • one or more hospitalizations with a diagnosis of asthma, chronic or acute bronchitis, emphysema, or chronic airway obstruction • one or more physician visits with a diagnosis of asthma, chronic or acute bronchitis, emphysema, or chronic airway obstruction <p>The denominator includes all Manitoba residents as of December 31, 2008.</p>	<p>ICD-9-CM: 466, 490–493, 496 ICD-10-CA: J20, J21, J40–J45</p>
Schizophrenia	<p>The age- and sex-adjusted prevalence of schizophrenia was measured for residents aged 10 and older as of December 31, 2008. Residents were considered to have schizophrenia if they met <u>one</u> of the following conditions:</p> <ul style="list-style-type: none"> • one or more hospitalizations with a diagnosis of schizophrenia • one or more physician visits with a diagnosis for schizophrenia <p>The denominator includes all Manitoba residents aged 10 and older as of December 31, 2006.</p>	<p>ICD-9-CM: 295 ICD-10-CA: F20, F21, F23.2, F25</p>
Mood & Anxiety Disorder	<p>The age- and sex-adjusted prevalence of mood and anxiety disorders was measured for residents aged 10 and older over five years: 2004/05–2008/09. Residents were considered to have a mood or anxiety disorder if they met <u>one</u> of the following conditions:</p> <ul style="list-style-type: none"> • one or more hospitalizations with a diagnosis for depressive disorder, affective psychoses, neurotic depression, adjustment reaction, an anxiety state, phobic disorders or obsessive-compulsive disorders; OR • one or more hospitalizations with a diagnosis for anxiety disorders AND one or more prescriptions for an antidepressant or mood stabilizer; OR • one or more physician visits with a diagnosis for depressive disorder or affective psychoses; OR • one or more physician visits with a diagnosis for anxiety disorders AND one or more prescriptions for an antidepressant or mood stabilizer; OR • three or more physician visits with a diagnosis for anxiety disorders or adjustment reaction <p>The denominator includes all Manitoba residents aged 10 and older as of December 31, 2006.</p>	<p>ICD-9-CM: 296 (med only), 296.1–296.8, 300**†, 300.0, 300.2–300.4, 300.7, 309†, 311 ICD-10-CA: F31, F32, F33, F34.1, F38.0, F38.1, F40, F41.0–F41.3, F41.8, F41.9, F42, F43.1, F43.2, F43.8, F45.2, F53.0, F93.0, (F32, F34.1, F40, F41, F42, F44, F45.0, F45.1, F48, F68.0, F99)* ATC: N05AN01, N05BA, N06A</p> <p>*ICD-9-CM code 300 (or ICD-10-CA equivalent) single diagnosis must be in conjunction with prescription †ICD-9-CM codes 300 (without a prescription) and 309 require three physician visits</p>

Appendix Table A2.1: Continued

Indicator	Definition	Codes
Suicide	<p>The age- and sex-adjusted average annual rate of death due to suicide per 1,000 residents aged 10 and older was measured over 10 calendar years: 1999-2008.</p> <p>Suicides were defined as any death record in Vital Statistics data with any of the following causes: accidental poisoning; poisoning with undetermined intent; self-inflicted poisoning; self-inflicted injury by hanging, strangulation, and suffocation; self-inflicted injury by drowning; self-inflicted injury by firearms and explosives; self-inflicted injury by smoke, fire, flames, steam, hot vapours, and hot objects; self-inflicted injury by cutting and piecing instrument; self-inflicted injury by jumping from high places; self-inflicted injury by jumping or lying before a moving object; self-inflicted injury by crashing of motor vehicle; self-inflicted injury by other and unspecified means; or late effects of self-inflicted injury.</p> <p>The denominator includes all Manitoba residents aged 10 and older as of December 31 of each year.</p>	<p>ICD-9-CM: E850-E854, E858, E862, E868, E950-E959 ICD-10-CA: X40-X42, X46-X47, X60-X84, Y10-Y12, Y16-Y17</p>
<p>Chapter 5: Children and Adolescents</p>		
Mothers with 3+ Risk Factors on Families First Screening	<p>The age-adjusted annual average percentage of mothers with newborns who that had three or more risk factors on the Families First screening form was measured for women who gave birth during a five year period: 2003/04-2007/08. Risk factors measured on the Families First screening form include (but are not limited to): prenatal alcohol use, prenatal smoking, maternal depression/anxiety, relationship distress, and maternal education level achieved.</p>	(no codes)
Breastfeeding Initiation	<p>The crude average annual percentage of newborns who were exclusively or partially breastfed upon discharge from the hospital was measured over five years: 2004/05-2008/09.</p> <p>The denominator includes all live born babies in a Manitoba hospital that have breastfeeding information in the hospital discharge abstract. Out-of-province birth records, birth records with missing or unknown breastfeeding information, or breastfeeding coded as NPO (nothing by mouth) were excluded from both the numerator and denominator.</p>	<p>ICD-9-CM: V27 ICD-10-CA: Z37</p>
Childhood Immunization Completion	<p>The crude annual average percentage of two-year-old children who had all of the recommended immunizations for their age was measured over two years: 2007/08-2008/09. In Manitoba the recommended immunization schedule at age two is:</p> <ul style="list-style-type: none"> • Four Diphtheria, Acellular Pertussis, Tetanus (DTP) Immunizations • Three Polio Immunizations • Four <i>Haemophilus influenzae</i> type B (HiB) Immunizations • One Measles, Mumps, and Rubella (MMR) Immunization • One Varicella Immunization • Four Pneumococcal Conjugate 7 (PCV7) Immunizations. <p>The denominator includes all Manitoba children born 2005/06-2006/07 who were continuously registered with Manitoba Health up to their second birthday.</p>	<p>Physician Tariffs: DTP (x4): 8601, 8602, 8603, 8609, 8641, 8642, 8643, 8649, 8651, 8781, 8782, 8783, 8789, 8798, 8802, 8804, 8805, 8806, 8807, 8921, 8922, 8923, 8924, 8929 Polio (x3): 8611, 8612, 8613, 8619, 8798, 8802, 8804, 8805, 8806, 8807, 8924, 8931, 8932, 8933, 8939 HiB (x4): 8781, 8782, 8783, 8789, 8802, 8804, 8806, 8807, 8901, 8902, 8903, 8909 MMR (x1): 8621, 8670; Varicella (x1): 8672, 8674 PCV7 (x4): 8681, 8682, 8683, 8684</p>
Children Not Ready on One or more Early Development Instrument (EDI) Domains	<p>The crude annual average percentage of children in Kindergarten (aged five or six years old) who were classified as being "Not Ready" in a given EDI domain was measured over two school years: 2005-06 and 2007-08. The EDI is a population-based, community level measure of Kindergarten children's readiness to learn at school according to five domains of child development: physical health and well-being, social knowledge and competence, emotional health/maturity, language and cognitive development, and general knowledge and communication skills. Children are classified as being "not ready" in a given EDI domain if they score below the 10th percentile cut-off score for that domain. Children who score in the bottom 10th percentile of at least one EDI domain are referred to as being "Not Ready" for school.</p>	(no codes)

Appendix Table A2.1: Continued

Indicator	Definition	Codes (no codes)
High School Completion	The crude annual average percentage of children in Grade 9 that graduated high school within in six years was measured over two school years: 2007/08 and 2008/09. All children who were in Grade 9 during the 2002-03 and 2003-04 school years were identified and followed until the end of the 2007-08 and 2008-09 school years. 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. Students enrolled in First Nations Communities (often referred to as band-operated schools) were excluded from this analysis as course mark data is often incomplete for these schools.	
Teenage Pregnancy	The age-adjusted average annual rate of teenage pregnancy was measured for females aged 15–19 over five years: 2004/05–2008/09. Teenage pregnancy is defined as a hospitalization with a of diagnosis of live birth, missed abortion, ectopic pregnancy, abortion or intrauterine death or with an intervention code for surgical termination of pregnancy, surgical removal of extrauterine (ectopic) pregnancy, pharmacological termination of pregnancy, or interventions during labour and delivery. The denominator includes all Manitoba female residents aged 15–19 as of December 31 of each year (2004–2008). Abortions performed in private clinics were not included in the count of teenage pregnancies.	Diagnoses: ICD-9-CM: 632-637, 656.4, V27 ICD-10-CA: O00, O02.1, O03-O07, O36.4, Z37 Interventions: ICD-9-CM 66.62, 69.01, 69.51, 74.x, 75.0; CCI: 5.CA.88, 5.CA.89, 5.CA.90, 5.CA.93, 5.MD.5x, 5.MD.60
Chapter 6: Adult Screening and Prevention		
Complete Physicals	The age- and sex-adjusted percentage of residents who had at least one complete physical in a one year period was measured for fiscal year 2008/09. Complete physicals were identified by physician tariff codes in the medical claims data. The denominator includes all Manitoba residents as of December 31, 2008.	Physician Tariffs: 84.50, 8460, 8495, 8498, 8499, 8500, 8540, 8594
Continuity of Primary Care	The age- and sex-adjusted percentage of residents receiving greater than 50% of their ambulatory visits from the same physician in a two year-period was measured for 2007/08–2008/09. For children aged 0 to 14, the physician could be either a GP/FP or a paediatrician; for residents aged 15 to 59, only a GP/FP, and for seniors aged 60 and older, the physician could be either a GP/FP or an internal medicine specialist. Residents with fewer than three ambulatory visits over the two-year period were excluded. The denominator includes all Manitoba residents with three or more physician visits in 2007/08–2008/09.	(no codes)
Breast Cancer Screening (Mammography)	The age-adjusted percentage of women aged 50 to 69 that had at least one mammogram in a two-year period was measured for 2007/08–2008/09. Mammography was defined by at least one physician visit with a diagnostic or screening tariff code for a mammogram. The denominator includes all Manitoba female residents aged 50-69 as of December 31, 2008.	Physician Tariffs: 7098, 7099, 7104, 7110, 7111
Cervical Cancer Screening (Papicolaou (Pap) Test)	The age-adjusted percentage of women aged 18 to 69 who received at least one Papanicolaou (Pap) test in a three-year period was measured for 2006/07–2008/09. A Pap test was defined by physician visit with a tariff code for a Pap test or a pathology or laboratory claim with a tariff code for a Pap test. The denominator includes all Manitoba female residents aged 18-69 as of December 31, 2006.	Physician Tariffs: 84.70, 8495, 8496, 8498, 9795 Lab Tariff: 9470

¹Fiscal years used unless otherwise noted

APPENDIX 3: REGRESSION MODELS

Appendix Table A3.1: Premature Mortality–Final Multiple Logistic Regression Model, Manitoba 2008

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	0.0002 (0.0001, 0.0002)	0.00	3,604.00
Aggregate Regions (ref = Manitoba)			
Brandon	0.76 (0.66, 0.87)	0.0001	14.71
Winnipeg	0.84 (0.79, 0.89)	0.00	32.85
Mid	1.05 (0.97, 1.14)	0.25	1.34
North	1.67 (1.50, 1.86)	0.00	84.8
Rural South	0.90 (0.83, 0.98)	0.01	6.49
Social Housing	1.08 (0.90, 1.30)	0.39	0.73
Income Assistance (IA)	2.97 (2.64, 3.34)	0.00	330.43
Income Decile (ref = D10, highest SES)			
D1, lowest SES	2.16 (1.85, 2.52)	0.00	96.04
D2	1.66 (1.42, 1.95)	0.00	39.82
D3	1.69 (1.44, 1.98)	0.00	42.14
D4	1.43 (1.21, 1.69)	0.00002	18.02
D5	1.41 (1.20, 1.66)	0.00004	17.12
D6	1.48 (1.26, 1.74)	0.00	22.41
D7	1.18 (1.00, 1.39)	0.06	3.68
D8	1.01 (0.84, 1.20)	0.95	0.00
D9	1.02 (0.86, 1.22)	0.81	0.06
Not Found	5.34 (3.96, 7.21)	0.00	119.79
Age Group (ref = 10-29)			
0-9	0.57 (0.32, 1.00)	0.05	3.85
30-49	3.10 (2.33, 4.13)	0.00	59.98
50-64	9.51 (7.27, 12.46)	0.00	268.46
65-74	23.82 (18.17, 31.24)	0.00	526.17
Male (vs. Female)	2.35 (1.72, 3.20)	0.00	29.29
Age Group x Sex Interaction (ref = Female, Age 10-29)			
Males Age 0-9	0.76 (0.38, 1.52)	0.44	0.60
Males Age 30-49	0.77 (0.54, 1.09)	0.15	2.12
Males Age 50-64	0.71 (0.51, 0.99)	0.04	4.11
Males Age 65-74	0.72 (0.52, 1.00)	0.05	3.75
Major Physical Illness ADGs [®]	4.31 (4.01, 4.64)	0.00	1,525.21
Mental Illness ADGs [®]	1.52 (1.41, 1.65)	0.00	112.00
Contrasts			
Male vs Female: Age 0-9	1.78 (0.96, 3.33)	0.07	n/a
Male vs Female: Age 10-29	2.35 (1.72, 3.20)	0.00	n/a
Male vs Female: Age 30-49	1.81 (1.52, 2.14)	0.00	n/a
Male vs Female: Age 50-64	1.67 (1.50, 1.87)	0.00	n/a
Male vs Female: Age 65-74	1.70 (1.53, 1.89)	0.00	n/a
Linear Trend on Income Decile	1.07 (0.95, 1.20)	0.29	n/a

SES[®] Indicates socioeconomic status

ADG[®] Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.2: Hospitalization for Tuberculosis—Final Poisson Regression Model, Manitoba 1999/2000–2008/09

Covariates	Adjusted Relative Risk (95% Confidence Limits)	p-value	Chi-square
Intercept	0.00002 (0.00001, 0.00003)	0.00	2,410.89
Rural (vs. Urban, Winnipeg and Brandon)	0.76 (0.53, 1.07)	0.12	2.43
Social Housing	1.79 (1.36, 2.37)	0.00004	16.89
Male (vs. Female)	1.83 (1.40, 2.40)	0.00001	19.22
Age (10 Year Groups)	1.02 (1.02, 1.03)	0.00	55.08
Income Assistance (IA)	5.59 (4.18, 7.47)	0.00	135.67
D1, Lowest Income Decile (vs. D2-D10 combined)	2.64 (2.01, 3.46)	0.00	49.21

Appendix Table A3.3: Total Respiratory Morbidity–Final Multiple Logistic Regression Model, Manitoba 2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	0.062 (0.060, 0.064)	0.00	38,808.68
Aggregate Regions (ref = Manitoba)			
Brandon	1.47 (1.43, 1.50)	0.00	1,153.05
Winnipeg	1.13 (1.11, 1.14)	0.00	438.77
Mid	1.15 (1.13, 1.17)	0.00	309.66
North	0.63 (0.62, 0.65)	0.00	1,179.76
Rural South	0.83 (0.82, 0.84)	0.00	596.62
Social Housing	1.18 (1.14, 1.22)	0.00	90.08
Income Assistance (IA)	1.78 (1.74, 1.82)	0.00	2,361.52
Income Decile (ref = D10, highest SES*)			
D1, lowest SES	1.30 (1.26, 1.33)	0.00	336.82
D2	1.22 (1.18, 1.25)	0.00	188.59
D3	1.24 (1.21, 1.28)	0.00	233.48
D4	1.17 (1.14, 1.21)	0.00	123.88
D5	1.15 (1.12, 1.18)	0.00	93.67
D6	1.09 (1.06, 1.12)	0.000000006	33.94
D7	1.13 (1.10, 1.16)	0.00	73.55
D8	1.08 (1.05, 1.11)	0.0000006	24.99
D9	1.05 (1.02, 1.08)	0.0007	11.48
Not Found	1.37 (1.28, 1.48)	0.00	69.9
Age Group (ref = 10-29)			
0-9	1.38 (1.34, 1.42)	0.00	436.31
30-49	1.21 (1.18, 1.24)	0.00	238.79
50-69	1.45 (1.41, 1.48)	0.00	868.02
70+	1.51 (1.46, 1.55)	0.00	749.24
Male (vs. Female)	0.93 (0.91, 0.96)	0.0000001	27.66
Age Group x Sex Interaction (ref = Female, Age 10-29)			
Males Age 0-9	1.41 (1.35, 1.47)	0.00	268.8
Males Age 30-49	0.81 (0.78, 0.84)	0.00	140.3
Males Age 50-69	0.82 (0.79, 0.85)	0.00	116.78
Males Age 70+	1.22 (1.17, 1.27)	0.00	84.44
Major Physical Illness ADGs ^{®***}	1.50 (1.48, 1.53)	0.00	2,650.05
Mental Illness ADGs [®]	1.51 (1.49, 1.54)	0.00	2,749.03
Contrasts			
Male vs Female: Age 0-9	1.31 (1.27, 1.36)	0.00	n/a
Male vs Female: Age 10-29	0.93 (0.91, 0.96)	0.0000001	n/a
Male vs Female: Age 30-49	0.75 (0.73, 0.77)	0.00	n/a
Male vs Female: Age 50-69	0.77 (0.75, 0.79)	0.00	n/a
Male vs Female: Age 70+	1.13 (1.10, 1.17)	0.00	n/a
Linear Trend on Income Decile	0.95 (0.92, 0.97)	0.0001	n/a

SES Indicates socioeconomic status

ADG[®] Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.4: Schizophrenia–Final Multiple Logistic Regression Model, Manitoba 2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	0.0021 (0.0019, 0.0023)	0.00	11,424.26
Aggregate Regions (ref = Manitoba)			
Brandon	1.08 (1.00, 1.17)	0.06	3.59
Winnipeg	1.19 (1.15, 1.24)	0.00	82.2
Mid	0.99 (0.93, 1.05)	0.68	0.17
North	1.00 (0.92, 1.08)	0.92	0.01
Rural South	0.79 (0.75, 0.84)	0.00	66.57
Social Housing	0.97 (0.89, 1.04)	0.37	0.81
Income Assistance (IA)	16.56 (15.75, 17.40)	0.00	12,156.22
Income Decile (ref = D10, highest SES)			
D1, lowest SES	2.18 (1.96, 2.43)	0.00	197.26
D2	1.99 (1.78, 2.22)	0.00	147.03
D3	1.66 (1.48, 1.87)	0.00	74.94
D4	1.49 (1.32, 1.68)	0.00	43.49
D5	1.70 (1.52, 1.91)	0.00	80.27
D6	1.49 (1.32, 1.68)	0.00	42.61
D7	1.34 (1.19, 1.52)	0.00	22.43
D8	1.24 (1.09, 1.41)	0.0008	11.21
D9	1.13 (0.99, 1.29)	0.06	3.51
Not Found	6.10 (5.21, 7.13)	0.00	512.19
Age Group (ref = 25-44)			
10-24	0.27 (0.23, 0.30)	0.00	408.73
45-64	2.04 (1.89, 2.19)	0.00	351.46
65+	3.37 (3.09, 3.67)	0.00	782.33
Male (vs. Female)	2.31 (2.15, 2.48)	0.00	533.23
Age Group x Sex Interaction (ref = Female, Age 25-44)			
Males Age 10-24	1.32 (1.13, 1.54)	0.0004	12.36
Males Age 45-64	0.44 (0.40, 0.48)	0.00	273.43
Males Age 65+	0.27 (0.24, 0.31)	0.00	408.25
Contrasts			
Male vs Female: Age 10-24	3.04 (2.65, 3.49)	0.00	n/a
Male vs Female: Age 45-64	1.01 (0.94, 1.08)	0.82	n/a
Male vs Female: Age 65+	0.63 (0.57, 0.70)	0.00	n/a
Linear Trend on Income Decile	1.15 (1.08, 1.22)	0.00001	n/a

SES Indicates socioeconomic status

Appendix Table A3.5: Complete Physicals–Final Multiple Logistic Regression Model, Manitoba 2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	0.57 (0.56, 0.58)	0.00	5,517.17
Aggregate Regions (ref = Manitoba)			
Brandon	1.25 (1.23, 1.27)	0.00	725.28
Winnipeg	1.59 (1.58, 1.60)	0.00	15,246.94
Mid	1.12 (1.11, 1.13)	0.00	451.53
North	0.52 (0.51, 0.52)	0.00	6,405.21
Rural South	0.87 (0.86, 0.88)	0.00	792.28
Social Housing	0.98 (0.95, 1.00)	0.10	2.65
Income Assistance (IA)	0.92 (0.91, 0.94)	0.00	74.59
Income Decile (ref = D10, highest SES)			
D1, lowest SES	0.54 (0.53, 0.55)	0.00	4,509.57
D2	0.57 (0.56, 0.58)	0.00	3,803.71
D3	0.64 (0.63, 0.65)	0.00	2,447.97
D4	0.65 (0.64, 0.66)	0.00	2,290.77
D5	0.69 (0.68, 0.70)	0.00	1,725.27
D6	0.73 (0.72, 0.75)	0.00	1,221.78
D7	0.80 (0.79, 0.81)	0.00	628.00
D8	0.82 (0.81, 0.84)	0.00	472.03
D9	0.90 (0.88, 0.91)	0.00	157.24
Not Found	0.32 (0.30, 0.34)	0.00	1,322.68
Age Group (ref = 21-64)			
Age 65+	0.97 (0.96, 0.99)	0.002	9.73
Age <20	0.84 (0.83, 0.86)	0.00	632.94
Male (vs. Female)	0.48 (0.47, 0.48)	0.00	19,877.68
Age Group x Sex Interaction (ref = Female, Age 21-64)			
Males Age 65+	2.24 (2.19, 2.29)	0.00	4,410.10
Males Age <20	1.93 (1.89, 1.96)	0.00	4,860.01
Majority of Care	2.55 (2.53, 2.57)	0.00	42,795.90
Major Physical Illness ADGs [®]	2.53 (2.51, 2.56)	0.00	30,490.60
Mental Illness ADGs [®]	1.33 (1.31, 1.34)	0.00	2,310.63
Contrasts			
Male vs Female: Age <20	1.06 (1.04, 1.09)	0.00	n/a
Male vs Female: Age 65+	0.92 (0.90, 0.93)	0.00	n/a
Linear Trend on Income Decile	1.02 (1.00, 1.05)	0.06	n/a

SES Indicates socioeconomic status

ADG[®] Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.6: Breast Cancer Screening–Final Multiple Logistic Regression Model, Manitoba 2007/08–2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	1.08 (1.04, 1.13)	0.0004	12.57
Aggregate Regions (ref = Manitoba)			
Brandon	1.21 (1.15, 1.27)	0.00	56.05
Winnipeg	0.98 (0.96, 1.00)	0.04	4.13
Mid	1.14 (1.10, 1.17)	0.00	68.45
North	0.78 (0.74, 0.82)	0.00	106.84
Social Housing	0.77 (0.70, 0.86)	0.000001	23.71
Income Assistance (IA)	0.35 (0.33, 0.37)	0.00	974.73
Income Decile (ref = D10, highest SES)			
D1, lowest SES	0.44 (0.41, 0.46)	0.00	861.44
D2	0.56 (0.53, 0.59)	0.00	483.31
D3	0.60 (0.57, 0.64)	0.00	371.88
D4	0.67 (0.64, 0.70)	0.00	242.74
D5	0.73 (0.69, 0.76)	0.00	154.19
D6	0.78 (0.74, 0.82)	0.00	91.54
D7	0.85 (0.81, 0.90)	0.00	38.96
D8	0.88 (0.84, 0.92)	0.00	25.43
D9	0.90 (0.85, 0.94)	0.00003	17.48
Not Found	0.46 (0.37, 0.57)	0.00	49.48
Age Group (ref = 50-54)			
55-59	1.30 (1.26, 1.34)	0.00	302.77
60-64	1.40 (1.36, 1.44)	0.00	438.16
65-69	1.42 (1.37, 1.47)	0.00	393.63
Majority of Care	2.06 (2.01, 2.11)	0.00	3,306.81
Mental Illness ADGs [®]	1.03 (1.00, 1.06)	0.08	3.09
Major Physical Illness ADGs [®]	1.12 (1.09, 1.15)	0.00	76.89
Contrast			
Linear Trend on Income Decile	1.29 (1.19, 1.40)	0.000000001	n/a

SES Indicates socioeconomic status

ADG[®] Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.7: Cervical Cancer Screening—Final Multiple Logistic Regression Model, Manitoba 2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	1.52 (1.47, 1.56)	0.00	725.13
Aggregate Regions (ref = Manitoba)			
Brandon	1.94 (1.88, 2.00)	0.00	1669.2
Winnipeg	1.29 (1.28, 1.31)	0.00	1,340.12
Mid	1.07 (1.05, 1.09)	0.00	46.93
North	0.36 (0.35, 0.37)	0.00	5,291.00
Rural South	1.03 (1.01, 1.05)	0.002	9.34
Social Housing	1.25 (1.19, 1.31)	0.00	83.54
Income Assistance (IA)	0.61 (0.59, 0.62)	0.00	993.12
Income Decile (ref = D10, highest SES)			
D1, lowest SES	0.35 (0.34, 0.36)	0.00	3,497.67
D2	0.48 (0.46, 0.50)	0.00	1,795.05
D3	0.49 (0.47, 0.51)	0.00	1,701.02
D4	0.60 (0.58, 0.62)	0.00	851.38
D5	0.58 (0.56, 0.60)	0.00	955.72
D6	0.64 (0.62, 0.66)	0.00	655.38
D7	0.73 (0.70, 0.75)	0.00	323.64
D8	0.77 (0.74, 0.79)	0.00	226.39
D9	0.84 (0.81, 0.87)	0.00	94.86
Not Found	0.41 (0.35, 0.47)	0.00	163.11
Age Group (ref = 40-49)			
18-29	0.89 (0.87, 0.91)	0.00	111.02
30-39	1.00 (0.98, 1.02)	0.96	0.00
50-59	0.84 (0.82, 0.86)	0.00	222.21
60-69	0.52 (0.51, 0.54)	0.00	2,277.83
Majority of Care	2.65 (2.61, 2.69)	0.00	15,044.99
Mental Illness ADGs®	1.19 (1.17, 1.21)	0.00	313.60
Major Physical Illness ADGs®	1.45 (1.42, 1.48)	0.00	1,320.75
Pregnant	4.68 (4.53, 4.83)	0.00	8,976.38
Contrasts			
Linear Trend on Income Decile	1.39 (1.32, 1.46)	0.00	n/a

SES Indicates socioeconomic status

ADG® Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.8: Breastfeeding Initiation—Final Multiple Logistic Regression Model, Manitoba 2004/05–2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	0.05 (0.01, 0.14)	0.00	28.66
Aggregate Regions (ref = Manitoba)			
Brandon	1.32 (1.17, 1.48)	0.00	21.09
Winnipeg	1.37 (1.30, 1.45)	0.00	127.37
Mid	0.80 (0.75, 0.86)	0.00	42.17
North	0.53 (0.49, 0.57)	0.00	244.94
Rural South	1.32 (1.23, 1.40)	0.00	71.27
Social Housing	1.03 (0.94, 1.13)	0.52	0.41
Income Assistance (IA)	0.62 (0.58, 0.65)	0.00	319.93
Income Decile (ref = D10, highest SES)			
D1, lowest SES	0.39 (0.35, 0.43)	0.00	297.16
D2	0.43 (0.38, 0.47)	0.00	228.00
D3	0.54 (0.48, 0.60)	0.00	117.27
D4	0.66 (0.58, 0.74)	0.00	45.68
D5	0.55 (0.49, 0.62)	0.00	98.78
D6	0.69 (0.61, 0.78)	0.00	35.56
D7	0.75 (0.66, 0.85)	0.00001	19.20
D8	0.86 (0.76, 0.97)	0.02	5.58
D9	0.95 (0.83, 1.08)	0.45	0.56
Not Found	0.28 (0.21, 0.38)	0.00	68.59
Hospital (ref = Health Sciences Centre)			
Brandon Hospital	1.31 (1.15, 1.49)	0.00003	17.25
St Boniface General Hospital	1.41 (1.34, 1.49)	0.00	160.13
Victoria General Hospital	1.32 (1.04, 1.66)	0.02	5.40
Bethesda Hospital	3.01 (2.39, 3.78)	0.00	88.58
Boundary Trails Health Centre	3.25 (2.75, 3.86)	0.00	184.88
Dauphin Regional Health Centre	1.15 (1.00, 1.31)	0.04	4.11
Flin Flon General Hospital	1.67 (1.22, 2.29)	0.001	10.24
Portage District General Hospital	0.81 (0.70, 0.95)	0.007	7.20
The Pas Health Complex	1.51 (1.30, 1.75)	0.00	30.73
Selkirk General Hospital	1.44 (1.20, 1.73)	0.00007	15.74
Swan River Valley Hospital	1.29 (1.02, 1.63)	0.03	4.48
Thompson General Hospital	0.85 (0.76, 0.96)	0.007	7.39
Intermediate Rural	2.07 (1.58, 2.70)	0.00	27.95
Small Rural	1.41 (1.07, 1.85)	0.01	5.93
Gestational Age (Weeks)	1.09 (1.05, 1.12)	0.00	29.31
Birth Weight (Kilograms)	1.61 (1.08, 2.38)	0.02	5.56
Gestational Age x Birth Weight Interaction	0.99 (0.98, 1.00)	0.11	2.58
Apgar Score of 6 or Less (vs. 7 or Higher)	0.59 (0.50, 0.71)	0.00	33.47
Mother's Age at First Birth	1.07 (1.07, 1.08)	0.00	763.62
Parity (ref = No Previous Births)			
1 Previous Birth	0.65 (0.62, 0.69)	0.00	241.70
2 or More Previous Births	0.59 (0.56, 0.63)	0.00	357.26
Caesarean Section Birth	0.84 (0.79, 0.89)	0.00	32.99
Epidural During Birth	0.91 (0.87, 0.96)	0.0002	13.76
Multiple Births	0.72 (0.63, 0.81)	0.00	27.92
Mental Illness ADGs®	0.92 (0.88, 0.97)	0.003	8.84
Major Physical Illness ADGs®	0.87 (0.82, 0.92)	0.00	23.91
Contrasts			
Linear Trend on Income Decile	1.26 (1.13, 1.41)	0.00004	n/a

SES Indicates socioeconomic status

ADG® Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.9: Complete Immunization Schedule at Age Two–Final Multiple Logistic Regression Model, Manitoba 2004/05–2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	1.26 (1.03, 1.55)	0.03	4.95
Aggregate Regions (ref = Manitoba)			
Brandon	1.28 (1.15, 1.43)	0.00001	20.46
Winnipeg	0.92 (0.87, 0.97)	0.001	10.80
Mid	0.93 (0.87, 1.00)	0.05	3.96
North	1.07 (0.99, 1.15)	0.07	3.25
Rural South	0.85 (0.80, 0.90)	0.00	31.58
Social Housing	1.28 (1.12, 1.46)	0.0002	13.60
Income Assistance (IA)	0.74 (0.68, 0.81)	0.00	47.83
Income Decile (ref = D10, highest SES)			
D1, lowest SES	0.77 (0.68, 0.87)	0.00004	16.71
D2	0.92 (0.81, 1.04)	0.17	1.85
D3	0.80 (0.71, 0.91)	0.0008	11.32
D4	0.86 (0.76, 0.98)	0.03	4.93
D5	0.94 (0.82, 1.07)	0.34	0.91
D6	0.96 (0.85, 1.10)	0.58	0.31
D7	0.98 (0.86, 1.12)	0.77	0.09
D8	1.09 (0.95, 1.24)	0.21	1.60
D9	1.01 (0.89, 1.16)	0.86	0.03
Not Found	0.89 (0.56, 1.42)	0.63	0.23
Male (vs. Female)	0.94 (0.89, 0.99)	0.02	5.36
Mother's Age at First Birth	1.04 (1.03, 1.04)	0.00	153.79
Number of Children in Family	0.80 (0.79, 0.82)	0.00	424.84
Breastfeeding Initiation	0.99 (0.93, 1.07)	0.84	0.04
Preterm Birth	0.89 (0.81, 0.99)	0.03	4.60
Majority of Care	1.45 (1.37, 1.54)	0.00	149.60
Major Physical Illness ADGs®	1.27 (1.12, 1.44)	0.0002	13.99
Contrasts			
Linear Trend on Income Decile	1.17 (0.99, 1.39)	0.07	n/a

SES Indicates socioeconomic status

ADG® Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.10: High School Completion–Final Multiple Logistic Regression Model, Manitoba School Years 2007–08 and 2008–09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	15.59 (13.61, 17.85)	0.00	1,576.17
Male (vs. Female)	0.65 (0.61, 0.70)	0.00	166.48
Aggregate Regions (ref = Manitoba)			
Brandon	1.34 (1.18, 1.52)	0.00	21.14
Winnipeg	1.50 (1.42, 1.59)	0.00	197.22
Mid	1.09 (1.01, 1.18)	0.03	4.6
North	0.29 (0.26, 0.32)	0.00	605.45
Rural South	1.59 (1.48, 1.71)	0.00	165.56
Social Housing	0.80 (0.68, 0.93)	0.005	7.76
Income Assistance (IA)	0.19 (0.17, 0.21)	0.00	895.46
Income Decile (ref = D10, highest SES)			
D1, lowest SES	0.12 (0.10, 0.14)	0.00	690.39
D2	0.19 (0.16, 0.22)	0.00	435.28
D3	0.22 (0.19, 0.26)	0.00	352.01
D4	0.28 (0.24, 0.33)	0.00	241.43
D5	0.33 (0.28, 0.39)	0.00	174.81
D6	0.39 (0.33, 0.46)	0.00	125.69
D7	0.54 (0.46, 0.64)	0.00	49.64
D8	0.53 (0.45, 0.62)	0.00	59.33
D9	0.72 (0.61, 0.86)	0.0003	13.28
Not Found	0.08 (0.06, 0.11)	0.00	295.69
Special Needs	0.26 (0.23, 0.30)	0.00	321.46
Major Physical Illness ADGs®	1.07 (0.94, 1.22)	0.32	0.99
Mental Illness ADGs®	0.47 (0.43, 0.52)	0.00	240.79
Contrasts			
Linear Trend on Income Decile	1.67 (1.50, 1.87)	0.00	n/a

SES Indicates socioeconomic status

ADG® Indicates aggregated diagnostic group™ (see Glossary for definition)

Appendix Table A3.11: Teen Pregnancy–Final Multiple Logistic Regression Model, Manitoba 2008/09

Covariates	Adjusted Odds Ratio (95% Confidence Limits)	p-value	Chi-square
Intercept	0.00002 (0.00001, 0.00005)	0.00	664.15
Aggregate Regions (ref = Manitoba)			
Brandon	0.73 (0.58, 0.92)	0.008	7.14
Winnipeg	0.88 (0.80, 0.96)	0.007	7.32
Mid	1.01 (0.89, 1.15)	0.84	0.04
North	1.87 (1.65, 2.11)	0.00	96.15
Rural South	0.83 (0.73, 0.94)	0.003	9.04
Social Housing	1.07 (0.88, 1.30)	0.51	0.44
Income Assistance (IA)	2.84 (2.49, 3.25)	0.00	235.11
Income Decile (ref = D10, highest SES)			
D1, lowest SES	3.11 (2.36, 4.10)	0.00	65.37
D2	2.42 (1.83, 3.19)	0.00	38.50
D3	2.34 (1.76, 3.10)	0.00	34.88
D4	2.07 (1.53, 2.80)	0.00	22.10
D5	1.79 (1.33, 2.42)	0.0001	14.46
D6	2.12 (1.56, 2.88)	0.00	23.13
D7	1.21 (0.86, 1.71)	0.27	1.22
D8	1.21 (0.87, 1.67)	0.25	1.30
D9	0.77 (0.53, 1.13)	0.18	1.80
Not Found	1.80 (0.60, 5.39)	0.30	1.09
Age	1.63 (1.57, 1.70)	0.00	562.04
Mother's Age at First Birth	0.91 (0.89, 0.92)	0.00	220.44
Grade 9 Completion (ref = Completed)			
Not Completed	2.35 (2.05, 2.71)	0.00	145.73
Undefined/Missing	1.99 (1.74, 2.29)	0.00	94.87
Major Physical Illness ADGs [®]	0.81 (0.65, 1.01)	0.06	3.63
Mental Illness ADGs [®]	1.49 (1.30, 1.70)	0.00	33.99
Contrasts			
Linear Trend on Income Decile	0.49 (0.33, 0.74)	0.0006	n/a

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ADG[®] Indicates aggregated diagnostic group™ (see Glossary for definition)

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