HEALTH AND HEALTHCARE UTILIZATION OF FRANCOPHONES IN MANITOBA

La santé et l'utilisation des services de santé des francophones du Manitoba

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About the Manitoba Centre For Health Policy

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

Members of MCHP consult extensively with government officials, healthcare administrators, and clinicians to develop a research agenda that is topical and relevant. This strength, along with its rigorous academic standards, enables MCHP to contribute to the health policy process. MCHP undertakes several major research projects, such as this one, every year under contract to Manitoba Health. In addition, our researchers secure external funding by competing for research grants. We are widely published and internationally recognized. Further, our researchers collaborate with a number of highly respected scientists from Canada, the United States, Europe, and Australia.

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

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Table of Contents

Acknowledgments ..... **ii**

Acronyms ..... **xxii**

Executive Summary ..... **xxiii**

Chapter 1: Introduction **1**

Background 1

Purpose of this Report and Outline of the Chapters 2

How to Read this Report 3

Geographical Boundaries 6

Summary 6

Chapter 2: Description of Francophone Population in Manitoba **9**

Considerations in the Francophone Definition 9

Definition of Francophone in this Report 9

Data Sources Utilized to Identify Francophones 10

Health, Language and Culture 10

French Language Services Policy 11

Sociodemographic Characteristics 14

Historical, Social, and Political Context of Francophones in Manitoba 16

Above All, Common Sense: Report and Recommendations on French Language Services Within the Government of Manitoba 17

Summary 17

Chapter 3: Methods **19**

Francophones Identified Through Databases Housed at MCHP 19

Selection of Francophones Using Administrative Data 20

Francophones Identified Through Family Linking 21

Matching the Francophone Cohort with a Non–Francophone Cohort 22

Addressing Representativeness of the Francophone Cohort and the Matched Cohort 24

Comparing Results from the Francophone Cohort and Matched Cohort to the Representative Survey Sample 25

Reporting Rate Ratios Rather than Rates 26

The Data Sets Used in this Research 27
Selection Criteria from Each Database 28
How Rates Were Generated 28
Statistical Testing 29
Multiple Comparisons 29
Logistic Regression Modeling of Selected Outcome Indicators 30
Summary 30
Appendix for Chapter 3 32
Difference Between Prevalence Rates and Incidence Rates 32
Family Linking Methods 32
Matching Methods 33
Person–Years 33
Chapter 4: Population Health Status and Mortality 35
Overall Key Findings 35
4.1 Premature Mortality Rate (PMR) 36
4.2 Total Mortality 37
4.2.1 Causes of Death 40
4.3 Injury Mortality 41
4.3.1 Causes of Injury Mortality 42
4.4 Life Expectancy at Birth 44
4.5 Suicide or Suicide Attempt 44
4.6 Comparison of Rates between Samples 46
4.7 Findings from the Literature 46
4.8 Supplementary Tables 47
Chapter 5: Prevalence of Physical Illness 51
Overall Key Findings 51
5.1 Hypertension 53
5.2 Ischemic Heart Disease (IHD) 55
5.3 Acute Myocardial Infarction (AMI) 56
5.4 Stroke 56
5.5 Diabetes Mellitus 58

5.6 Dialysis Initiation 60
5.7 Total Respiratory Morbidity (TRM) 61
5.8 Arthritis 62
5.9 Osteoporosis 64
5.10 Comparison of Rates between Samples 65
5.11 Findings from the Literature 65
5.12 Supplementary Tables 67
Chapter 6: Prevalence of Mental Illness (Aged 10 and Older) 75
Overall Key Findings 75
6.1 Cumulative Mental Health Disorders 78
6.2 Depression 79
6.3 Anxiety Disorders 80
6.4 Substance Abuse 81
6.5 Personality Disorders 83
6.6 Schizophrenia 85
6.7 Dementia (55+) 86
6.8 Comparison of Rates between Samples 87
6.9 Findings from the Literature 87
6.10 Supplementary Tables 89
Chapter 7: Preventive Services 97
Overall Key Findings 97
7.1 Complete Immunization Schedule (Two–Year–Olds) 99
7.2 Adult Influenza Immunization 100
7.3 Mammography 101
7.4 Cervical Cancer Screening 102
7.5 Comparison of Rates between Samples 103
7.6 Findings from Literature 104
7.7 Supplementary Tables 105
Chapter 8: Child Health 109
Overall Key Findings 109
8.1 Breastfeeding Initiation 111

8.2 Teen Pregnancy Rates 112
8.3 Newborn Readmission 113
8.4 Infant and Child Mortality 114
8.5 Attention–Deficit Hyperactivity Disorder (ADHD) 114
8.6 Asthma Prevalence 115
8.7 Prenatal and Family Risk Factors (Family First Data) 116
8.7.1 Three or More Family Risk Factors at Birth of Child 117
8.7.2 Prenatal Alcohol Use 118
8.7.3 Prenatal Smoking 119
8.7.4 Maternal Depression/Anxiety 120
8.7.5 Relationship Distress 121
8.7.6 Maternal Education 122
8.8 Findings from the Literature 123
8.9 Supplementary Tables 124
Chapter 9: Use of Physician Services 133
Overall Key Findings 133
9.1 Use of Physicians (At Least One Visit over the Past Year) 136
9.2 Ambulatory Physician Visits (Number of Visits) and Causes of Visits 137
9.3 Ambulatory Consult 140
9.4 Continuity of Care 141
9.5 Use of Physicians with Capacity to Offer Services in French 142
9.6 Comparison of Rates between Samples 144
9.7 Findings from the Literature 144
9.8 Supplementary Tables 146
Chapter 10: Use of Hospital Services 151
Overall Key Findings 151
10.1 Hospital Separation (Discharge) 152
10.2 Causes of Hospitalization 155
10.3 Hospitalization for Injury 156
10.4 Causes of Injury Hospitalization 157
10.5 Location: Where Residents Went for Separations 158

10.6 Catchment: Where Patients Came from for Separations 160
10.7 Comparison of Rates between Samples 161
10.8 Findings from the Literature 162
10.9 Supplementary Tables 163
Chapter 11: High Profile Surgical and Diagnostic Services 165
Overall Key Findings 165
11.1 Cardiac Catheterization 168
11.2 Percutaneous Coronary Intervention 169
11.3 Coronary Artery Bypass Surgery 170
11.4 Hip Replacement Surgery 171
11.5 Knee Replacement Surgery 172
11.6 Cataract Surgery 173
11.7 Caesarean Section 174
11.8 Hysterectomy 175
11.9 Comparison of Rates between Samples 176
11.10 Findings from the Literature 176
11.11 Supplementary Tables 177
Chapter 12: Use of Personal Care Homes (Nursing Homes) 185
Overall Key Findings 185
12.1 Personal Care Home (PCH) Admissions 187
12.2 Personal Care Home (PCH) Residents 188
12.3 Median Wait Time for Admission to a Personal Care Home (PCH) 189
12.4 Location: Where Residents Went for Personal Care Home (PCH) Admissions 190
12.5 Catchment: Where Patients Came From Prior to Admission to Personal Care Home (PCH) 190
12.6 Comparison of Rates between Samples 191
12.7 Findings from the Literature 191
12.8 Supplementary Tables 192
Chapter 13: Use of Prescriptions 195
Overall Key Findings 195
13.1 Any Pharmaceutical Use 197
13.2 Number of Different Drugs Dispensed 198

13.3 Antibiotic Prescriptions 200
13.4 Antidepressant Prescriptions 201
13.5 Comparison of Rates between Samples 202
13.6 Findings from the Literature 202
13.7 Supplementary Tables 203
Chapter 14: Quality of Primary Care 207
Overall Key Findings 207
14.1 Antidepressant Prescription Follow–Up 208
14.2 Asthma Care: Controller Medication Use 209
14.3 Diabetes Care: Prevalence of Annual Eye Exam 210
14.4 Post–AMI Care: Beta Blocker 211
14.5 Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults 212
14.6 Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults 214
14.7 Comparison of Rates between Samples 215
14.8 Findings from the Literature 215
14.9 Supplementary Tables 216
Chapter 15: Health Practices and Personal Characteristics from CCHS Survey Data 221
Overall Key Findings 221
15.1 Self–Rated Health Status 222
15.2 Self–Rated Mental Health 224
15.3 Emotional Well–being 227
15.4 Life Satisfaction 228
15.5 Life Stress 229
15.6 Work Stress 230
15.7 Body Mass Index (BMI) 231
15.8 Fruit and Vegetable Consumption 232
15.9 Frequency of Binge Drinking 233
15.10 Smoking 235
15.11 Second–Hand Smoke Exposure 237
15.12 Physical Activity (Work, Travel, and Leisure) 240

15.13 Activity Limitations 241
15.14 Findings from the Literature 242
15.15 Supplementary Tables 245
Chapter 16: Education Services 253
Overall Key Findings: 253
16.1 Early Development Instrument 256
16.1.1 Not Ready for School 256
16.1.2 Not Ready for School on Physical Well–Being 257
16.1.3 Not Ready for School on Social Competence 258
16.1.4 Not Ready for School on Emotional Maturity 259
16.1.5 Not Ready for School on Language and Cognitive Development 260
16.1.6 Not Ready for School on Communication and General Knowledge 261
16.2 No School Changes—Grade 3 Students 262
16.3 On–Time Pass for Grade 12 Language Arts (LA) Exam 263
16.4 On–Time Pass for Grade 12 Mathematics Exam 264
16.5 High School Completion 266
16.6 Findings from the Literature 267
16.7 Supplementary Tables 268
Chapter 17: Birth Cohort Effect 279
Introduction 279
Methods 279
Results 282
Chapter 18: Discussion 285
Recommendations (Based on Study Findings) 287
Concluding Remarks 289
Reference List 291
Glossary 296
Appendix 1: Definitions and Codes for Indicators 325
Recent MCHP Publications (only available in English) 340

List of Figures

Figure 1.1	Regional Health Authorities (RHAs) of Manitoba	7
Figure 1.2	Districts of South Eastman RHA	8
Figure 1.3	Winnipeg Community Areas with St. Boniface and St. Vital Neighbourhood Clusters	8
Figure 2.1	Map of French Language Services in Manitoba	12
Figure 2.2	Distribution of Francophone Populations by RHA District	13
Figure 2.3	Age and Sex Profile of Manitoba, 2006	15
Figure 3.1	Schematic of Steps Involved in the Creation of the Francophone Matched Cohort	20
Figure 3.2	Comparison of the Francophone Age and Sex Profile in Manitoba between the Francophone Cohort and the Francophones Identified in the 2006 Census of Canada	24
Figure 4.1.1	Premature Mortality—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999–2008	37
Figure 4.2.1	Total Mortality—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999–2008	38
Figure 4.2.2	Causes of Death for the Francophone Cohort, 1999–2007	40
Figure 4.2.3	Causes of Death for the Matched Cohort, 1999–2007	41
Figure 4.3.1	Injury Mortality—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999–2007	42
Figure 4.3.2	Injury Mortality by Cause for Francophone Cohort, 1999–2007	43
Figure 4.3.3	Injury Mortality by Cause for Matched Cohort, 1999–2007	43
Figure 4.5.1	Suicide or Suicide Attempts—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999–2007	45
Figure 5.1.1	Hypertension—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09	53
Figure 5.2.1	Ischemic Heart Disease—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09	55
Figure 5.3.1	Acute Myocardial Infarction (AMI)—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999/00–2007/08	57
Figure 5.4.1	Stroke—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999/00–2007/08	57
Figure 5.5.1	Diabetes Mellitus—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2006/07–2008/09	59
Figure 5.6.1	Dialysis Initiation—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2007/08	61

Figure 5.7.1 Total Respiratory Morbidity—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2008/09 62

Figure 5.8.1 Arthritis—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2007/08–2008/09 63

Figure 5.9.1 Osteoporosis—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2006/07–2008/09 64

Figure 6.1.1 Cumulative Mental Health Disorders—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09 78

Figure 6.2.1 Depression—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09 79

Figure 6.3.1 Anxiety Disorders—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09 80

Figure 6.4.1 Substance Abuse—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09 82

Figure 6.5.1 Personality Disorders—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09 84

Figure 6.6.1 Schizophrenia—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09 85

Figure 6.7.1 Dementia—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09 86

Figure 7.1.1 Complete Immunization Schedule for Two–Year–Olds—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort Sample 99

Figure 7.2.1 Older Adults who Received an Influenza Immunization—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2007/08 101

Figure 7.3.1 Mammography—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2005/06–2006/07 and 2007/08–2008/09 102

Figure 7.4.1 Cervical Cancer Screening—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2006/07–2008/09 103

Figure 8.1.1 Breastfeeding Initiation—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2006/07–2008/09 111

Figure 8.2.1 Teen Pregnancy—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/00–2008/09 112

Figure 8.3.1 Newborn Readmission—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999–2008 113

Figure 8.5.1 Attention Deficit Hyperactivity Disorder (ADHD)—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 115

Figure 8.6.1 Asthma—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2007/08–2008/09 116

Figure 8.7.1 Three or More Families First Risk Factors—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08 117

Figure 8.7.2 Self–Reported Alcohol Use During Pregnancy—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08 118

Figure 8.7.3 Mothers Who Reported Smoking During Pregnancy—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08 119

Figure 8.7.4 Mothers Who Reported Having Depression/Anxiety—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08 120

Figure 8.7.5 Parental Relationship Distress—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08 121

Figure 8.7.6 Mothers Who did not Complete High School—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08 122

Figure 9.1.1 Use of Physicians—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 136

Figure 9.2.1 Ambulatory Visits—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 137

Figure 9.2.2 Physician Visits by Cause for the Francophone Cohort, 2008/09 138

Figure 9.2.3 Physician Visits by Cause for the Matched Cohort, 2008/09 139

Figure 9.2.4 Ambulatory Visit Rates by Ages and Sex, 2008/09 139

Figure 9.3.1 Ambulatory Consultation—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 140

Figure 9.4.1 Continuity of Care—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2007/08–2008/09 142

Figure 9.5.1 Proportion of Francophone Cohort with One or More Visits to a Physician With the Capacity to Offer Services in French, 2008/09 143

Figure 10.1.1 Hospital Separations—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 153

Figure 10.2.1 Hospital Separations by Cause (ICD–9 CM) for Francophone Cohort, 2004/05–2008/09 155

Figure 10.2.2 Hospital Separations by Cause (ICD–9 CM) for Matched Cohort, 2004/05–2008/09 155

Figure 10.3.1 Injury Hospitalization—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 156

Figure 10.4.1 Causes of Injuries Resulting in Hospitalization for Francophone Cohort, 2004/05 – 2008/09 157

Figure 10.4.2 Causes of Injuries Resulting in Hospitalization for Matched Cohort, 2008/09 158

Figure 10.5.1 Where RHA Residents were Hospitalized 159

Figure 10.6.1 Where RHA Hospital Patients Came From 161

Figure 11.1.1 Cardiac Catheterization—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 168

Figure 11.2.1 Percutaneous Coronary Intervention—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09 169

Figure 11.3.1 Coronary Artery Bypass Graft Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09 170

Figure 11.4.1 Total Hip Replacement Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09 171

Figure 11.5.1 Knee Replacement Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09 172

Figure 11.6.1 Cataract Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09 173

Figure 11.7.1 Births by Caesarean Section—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09 174

Figure 11.8.1 Hysterectomy Surgeries—Rate Ratios for Francophones versus Other Manitobans In Matched Cohort, 1999/2000–2008/09 175

Figure 12.1.1 Residents Admitted to Personal Care Homes—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 187

Figure 12.2.1 Residents in Personal Care Home—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 188

Figure 12.3.1 Median Wait Times for Personal Care Home Admission, 2004/05–2008/09 189

Figure 13.1.1 Pharmaceutical Use—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 197

Figure 13.2.1 Number of Different Drugs Dispensed—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 198

Figure 13.3.1 Antibiotic Prescriptions—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 200

Figure 13.4.1 Antidepressant Prescriptions—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 201

Figure 14.1.1 Antidepressant Prescription Follow–up—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 209

Figure 14.2.1 Asthma Care: Controller Medication Use—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 210

Figure 14.3.1 Diabetes Care: Annual Eye Exams—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09 211

Figure 14.4.1 Post Acute Myocardial Infarction (AMI) Care—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 212

Figure 14.5.1 Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 213

Figure 14.6.1 Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09 214

Figure 15.1.1 Self–Rated Health 223

Figure 15.1.2 Self–Rated Health (Stacked Bar) 223

Figure 15.2.1 Self–Rated Mental Health 224

Figure 15.2.2 Self–Rated Mental Health (Stacked Bar) 225

Figure 15.3.1 Emotional Well–Being 227

Figure 15.4.1 Life Satisfaction 228

Figure 15.5.1 Self–Perceived Life Stress 229

Figure 15.6.1 Self–Perceived Work Stress 230

Figure 15.7.1 High Body Mass Index (BMI) 231

Figure 15.7.2 Body Mass Index (BMI) 232

Figure 15.8.1 Average Daily Consumption of Fruits and Vegetables 233

Figure 15.9.1 Binge Drinking 234

Figure 15.9.2 Binge Drinking (Stacked Bar) 235

Figure 15.10.1 Current Tobacco Smoker 236

Figure 15.10.2 Tobacco Smoking 236

Figure 15.11.1 Exposure to Smoke Inside the Home 237

Figure 15.12.1 Physical Activity (Work, Travel, and Leisure) 240

Figure 15.13.1 Limitations of Activity Due to Physical and/or Mental Health Problems 241

Figure 16.1.1 Not Ready for School on One or More EDI Domains—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07 257

Figure 16.1.2 Not Ready for School on Physical Well Being—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07 258

Figure 16.1.3 Not Ready for School on Social Competence—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07 259

Figure 16.1.4 Not Ready for School on Emotional Maturity—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07 260

Figure 16.1.5 Not Ready for School on Language and Cognitive Development—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07 261

Figure 16.1.6 Not Ready for School on Communication and General Knowledge—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07 262

Figure 16.2.1 Grade 3 Students with No School Transfers—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2003/06–2005/08 263

Figure 16.3.1 On–Time Pass for Grade 12 Language Arts Exam—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2005/06–2007/08 264

Figure 16.4.1 On–Time Pass for Grade 12 Mathematics Exam—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2005/06–2007/08 265

Figure 16.5.1 High School Completion—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2005/06–2007/08 266

Figure 17.1 Key Historical Events by Generation 280

List of Tables

Table 2.1	Distribution of Francophones in Manitoba	14
Table 2.2	Description of Francophones in Manitoba	16
Table 3.1	Data Sources for Francophone Cohort	21
Table 3.2	Number of Francophones Identified from each Survey	21
Table 3.3	Distribution of the Francophones in Francophone Cohort	23
Table 3.4	Demographics of the Francophone and Matched Cohorts	23
Table 4.0	Summary of Population Health Status and Mortality Indicators Comparing Francophone and Matched Cohort by Area of Residence	36
Table 4.2.1	Logistic Regression Predicting the Probability of Death 5 Years After Survey – Basic Model	39
Table 4.2.2	Logistic Regression Predicting the Probability of Death 5 Years After Survey – Full Model	39
Table 4.4.1	Life Expectancy at Birth for Males and Females, 1999–2008	44
Table 4.6.1	Comparison of Rates between Cohorts and Survey Samples	46
Table 4.8.1	Premature Mortality, 1999–2008	47
Table 4.8.2	Total Mortality, 1999–2008	48
Table 4.8.3	Injury Mortality, 1999–2007	49
Table 4.8.4	Prevalence of Suicide or Suicide Attempts, 1999–2007	49
Table 5.0	Summary of Physical Illness Indicators Comparing Francophone and Matched Cohort by Area of Residence	52
Table 5.1.1	Logistic Regression Predicting the Probability of Having Hypertension, 1 Year after Survey – Basic Model	54
Table 5.1.2	Logistic Regression Predicting the Probability of Having Hypertension, 1 Year after Survey – Full Model	54
Table 5.5.1	Logistic Regression of the Risk of Diabetes, 3 Years after Survey – Basic Model	59
Table 5.5.2	Logistic Regression of the Risk of Diabetes, 3 Years after Survey – Full Model	60
Table 5.10.1	Comparison of Rates between Cohort Samples and Survey Samples	65
Table 5.12.1	Hypertension, 2008/09	67
Table 5.12.2	Ischemic Heart Disease, 2004/05–2008/09	68
Table 5.12.3	Acute Myocardial Infarction (AMI), 1999/00–2007/08	69
Table 5.12.4	Stroke, 1999/00–2007/08	70
Table 5.12.5	Diabetes Mellitus, 2006/07–2008/09	71

Table 5.12.6	Dialysis Initiation, 2004/05–2008/09	70
Table 5.12.7	Total Respiratory Morbidity, 2008/09	72
Table 5.12.8	Arthritis, 2007/08–2008/09	73
Table 5.12.9	Osteoporosis, 2006/07–2008/09	74
Table 6.0	Summary of Mental Illness Indicators Comparing Francophone and Matched Cohort by Area of Residence	76
Table 6.4.1	Logistic Regression Predicting the Probability of Substance Abuse, 5 Years after Survey – Basic Model	82
Table 6.4.2	Logistic Regression Predicting the Probability of Substance Abuse, 5 Years after Survey – Full Model	83
Table 6.8.1	Comparison of Rates between Matched Cohorts and Survey Samples	87
Table 6.10.1	Cumulative Mental Health Disorders, 2004/05–2008/09	89
Table 6.10.2	Depression, 2004/05–2008/09	90
Table 6.10.3	Anxiety Disorders, 2004/05–2008/09	91
Table 6.10.4	Substance Abuse, 2004/05–2008/09	92
Table 6.10.5	Personality Disorders, 2004/05–2008/09	93
Table 6.10.6	Schizophrenia, 2004/05–2008/09	94
Table 6.10.7	Dementia, 2004/05–2008/09	95
Table 7.0	Summary of Preventive Services Indicators Comparing Francophone and Matched Cohort by Area of Residence	98
Table 7.5.1	Comparison of Rates between Matched Cohorts and Survey Samples	104
Table 7.7.1	Complete Immunization Schedule for Two–Year–Olds	105
Table 7.7.2	Older Adults who Received an Influenza Immunization, 2007/08	106
Table 7.7.3	Mammography, 2005/06–2006/07 and 2007/08–2008/09	107
Table 7.7.4	Cervical Cancer Screening, 2006/07–2008/09	108
Table 8.0	Summary of Child Health Indicators Comparing Francophone and Matched Cohort by Area of Residence	110
Table 8.4.1	Infant and Child Mortality, 1999–2008	114
Table 8.9.1	Breastfeeding Initiation, 2006/07–2008/09	124
Table 8.9.2	Teen Pregnancy, 1999/00–2008/09	125
Table 8.9.3	Newborn Readmission, 1999–2008	125
Table 8.9.4	Attention Deficit Hyperactivity Disorder (ADHD), 2008/09	126

Table 8.9.5	Prevalence of Asthma, 2007/08–2008/09	127
Table 8.9.6	Three or More Families First Risk Factors Rate Ratios, 2003/04–2007/08	128
Table 8.9.7	Self–Reported Alcohol Use During Pregnancy, 2003/04–2007/08	129
Table 8.9.8	Mothers Who Reported Smoking During Pregnancy, 2003/04–2007/08	130
Table 8.9.9	Mothers Who Reported Having Depression/Anxiety, 2003/04–2007/08	131
Table 8.9.10	Maternal Relationship Distress, 2003/04–2007/08	132
Table 8.9.11	Mothers Who did not Completed High School, 2003/04–2007/08	132
Table 9.0	Summary of Use of Physician Services Indicators Comparing Francophone and Matched Cohort by Area of Residence	134
Table 9.6.1	Comparison of Rates between Matched Cohorts and Survey Samples	144
Table 9.8.1	Use of Physicians, 2008/09	146
Table 9.8.2	Ambulatory Visits, 2008/09	147
Table 9.8.3	Ambulatory Consultation, 2008/09	148
Table 9.8.4	Continuity of Care, 2007/08–2008/09	149
Table 9.8.5	Proportion of Francophone Cohort with One or More Visits to a Physician With the Capacity of Offer Services in French, 2008/09	150
Table 10.0	Summary of Use of Hospital Services Indicators Comparing Francophone and Matched Cohort by Area of Residence	152
Table 10.1.1	Negative Binomial Regression for the Number of Hospital Separation Rates, 3 Years After Survey – Basic Model	154
Table 10.1.2	Negative Binomial Regression for the Number of Hospital Separation Rates, 3 Years After Survey – Full Model	154
Table 10.5.1	Where RHA Residents Were Hospitalized, 2008/09	159
Table 10.6.1	Where RHA Hospital Patients Came From, 2008/09	160
Table 10.7.1	Comparison of Rates between Matched Cohorts and Survey Samples	161
Table 10.9.1	Hospital Separations, 2008/09	163
Table 10.9.2	Injury Hospitalization, 2004/05–2008/09	164
Table 11.0	Summary of High Profile Surgical and Diagnostic Services Indicators Comparing Francophone and Matched Cohort by Area of Residence	166
Table 11.9.1	Comparison of Rates between Matched Cohorts and Survey Samples	176
Table 11.11.1	Cardiac Catheterization, 2004/05–2008/09	177
Table 11.11.2:	Percutaneous Coronary Intervention Rate Ratios, 1999/2000–2008/09	178
Table 11.11.3:	Coronary Artery Bypass Graft Surgeries, 1999/2000–2008/09	179

Table 11.11.4 Hip Replacement Surgeries, 1999/2000–2008/09 180

Table 11.11.5 Knee Replacement, 1999/2000–2008/09 181

Table 11.11.6 Cataract Surgeries, 1999/2000–2008/09 182

Table 11.11.7 Births by Caesarean Section, 1999/2000–2008/09 183

Table 11.11.8 Hysterectomy Surgeries, 1999/2000–2008/09 184

Table 12.0 Summary of Use of Personal Care Home Indicators Comparing Francophone and Matched Cohort by Area of Residence 186

Table 12.4.1 Where RHA Residents went for PCH Admission, 2004/05–2008/09 190

Table 12.5.1 Where Residents Came from for PCH Admission, 2004/05–2008/09 191

Table 12.6.1 Comparison of Rates between Matched Cohorts and Survey Samples 191

Table 12.8.1 Residents Admitted to Personal Care Homes, 2004/05–2008/09 192

Table 12.8.2 Residents in Personal Care Homes, 2004/05–2008/09 193

Table 12.8.3 Median Wait Times for Personal Care Home Admission, 2004/05–2008/09 192

Table 13.0 Summary of Use of Prescription Indicators Comparing Francophone and Matched Cohort by Area of Residence 196

Table 13.2.1 Negative Binomial Regression of the Number of Different Drugs, 1 Year after Survey – Basic Model 199

Table 13.2.2 Negative Binomial Regression of the Number of Different Drugs, 1 Year after Survey – Full Model 199

Table 13.5.1 Comparison of Rates between Matched Cohorts and Survey Samples 202

Table 13.7.1 Pharmaceutical Use, 2008/09 203

Table 13.7.2 Number of Different Drugs Dispensed, 2008/09 204

Table 13.7.3 Antibiotic Prescriptions, 2008/09 205

Table 13.7.4 Antidepressant Prescriptions, 2008/09 206

Table 14.0 Summary of Quality of Primary Care Indicators Comparing Francophone and Matched Cohort by Area of Residence 208

Table 14.7.1 Comparison of Rates between Matched Cohorts and Survey Samples 215

Table 14.9.1 Antidepressant Prescription Follow–up, 2004/05–2008/09 216

Table 14.9.2 Asthma Care: Controller Medication Use, 2008/09 217

Table 14.9.3 Diabetes Care: Annual Eye Exams, 2008/09 218

Table 14.9.4 Post Acute Myocardial Infarction (AMI) Care, 2004/05–2008/09 219

Table 14.9.5 Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults, 2004/05–2008/09 220

Table 14.9.6	Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults, 2004/05–2008/09	220
Table 15.0	Summary of Health Practices and Personal Characteristics from CCHS Survey Data Comparing Francophone and Matched Cohort by Area of Residence	222
Table 15.2.1	Logistic Regression Modeling of Excellent or Very Good Self–Rated Mental Health – Basic Model	226
Table 15.2.2	Logistic Regression Modeling of Excellent or Very Good Self–Rated Mental Health – Full Model	226
Table 15.11.1	Logistic Regression Modeling of the Probability of Second–Hand Smoke Exposure Inside the Home	238
Table 15.11.2	Logistic Regression Modeling of the Probability of Second–Hand Smoke Exposure Inside the Home	239
Table 15.15.1	Self–Rated Health	245
Table 15.15.2	Age– and Sex–Standardized Rates of Self–Rated Health, aged 12 and older	245
Table 15.15.3	Self–Rated Mental Health	245
Table 15.15.4	Age– and Sex–Standardized Rates of Self–Rated Mental Health, aged 12 and older	246
Table 15.15.5	Emotional Well–Being	246
Table 15.15.6	Life Satisfaction	246
Table 15.15.7	Self–Perceived Life Stress	247
Table 15.15.8	Self–Perceived Work Stress	247
Table 15.15.9	High Body Mass Index (BMI)	247
Table 15.15.10	Age– and Sex–Standardized Rates of Body Mass Index (BMI), aged 18 and older	248
Table 15.15.11	Average Daily Consumption of Fruits and Vegetables	248
Table 15.15.12	Binge Drinking	248
Table 15.15.13	Age– and Sex–Standardized Rates of Binge Drinking, aged 12 and older	249
Table 15.15.14	Current Smoker	249
Table 15.15.15	Age– and Sex–Standardized Rates of Tobacco Smoking, aged 12 and older	250
Table 15.15.16	Exposure to Smoke Inside the Home	250
Table 15.15.17	Physical Activity (Work, Travel, and Leisure)	250
Table 15.15.18	Limitations of Activity Due to Physical and/or Mental Health Problems	251
Table 16.0	Summary of Education Services Indicators Comparing Francophone and Matched Cohort by Area of Residence	254
Table 16.1	Early Development Instrument (EDI) Domains and Subdomains	256

Table 16.7.1	Not Ready for School on One or More EDI Domains, 2005/06–2006/07	268
Table 16.7.2	Not Ready for School on Physical Well–Being, 2005/06–2006/07	269
Table 16.7.3	Not Ready for School on Social Competence, 2005/06–2006/07	270
Table 16.7.4	Not Ready for School on Emotional Maturity, 2005/06–2006/07	271
Table 16.7.5	Not Ready for School on Language and Cognitive Development, 2005/06–2006/07	272
Table 16.7.6	Not Ready for School on Communication and General Knowledge, 2005/06–2006/07	273
Table 16.7.7	Grade 3 Students with No School Transfers, 2003/06–2005/08	274
Table 16.7.8	On–Time Pass for Grade 12 Language Arts Exam, 2005/06–2007/08	275
Table 16.7.9	On–Time Pass for Grade 12 Math Exam, Academic Years 2005/06–2007/08	276
Table 16.7.10	High School Completion, Academic Years 2005/06–2007/08	277
Table 17.1	Comparison between Francophone and Matched Cohort Crude Rates for Specific Age Cohorts	282
Table 17.2	Comparison between Francophone and Matched Cohort Crude Rates for Specific Age Cohorts	283
Table 17.3	Comparison of Socioeconomic Factor Index (SEFI) Scores between the Francophone and Matched Cohort by Birth Cohort	283
Table 17.4	T–Test to Compare Mean Age between Francophone and Matched Cohorts in each Birth Cohort	283
Table 17.5	Chi–Square Test for Equality of Proportions by Sex	283

Acronyms

AMI	Acute Myocardial Infarction
ADHD	Attention–Deficit Hyperactivity Disorder
BMI	Body Mass Index
CCHS	Canadian Community Health Survey
COPD	Chronic Obstructive Pulmonary Disease
DSFM	Division Scolaire Franco–Manitobaine
DPIN	Drug Programs Information Network
EDI	Early Development Instrument
FP	Family Practictioner
GP	General Practitioner
GLM	Generalized Linear Modelling
HIB	Haemophilus Influenzae type B
HHS	Heart Health Survey
ICES	Institute for Clinical Evaluative Sciences
ICD-9-CM	International Classification of Diseases
IHD	Ischemic Heart Disease
LA	Language Arts
MCHP	Manitoba Centre for Health Policy
MIMS	Manitoba Immunization Monitoring System
Math	Mathematics
MMR	Measles, Mumps, and Rubella
NACI	National Advisory Committee on Immunization
NPHS	National Population Health Survey
OR	Odds Ratios
Pap	Papanicolaou test
PCI	Percutaneous Coronary Interventions
PCH	Personal Care Home
PHIN	Personal Health Information Number
PCV7	Pneumococcal Conjugate 7
Repository	Population Health Research Data Repository
PRM	Premature Mortality
PISA	Programme for International Student Assessment
RHAs	Regional Health Authorities
REGNO	Registration Number
SES	Socioeconomic Status
TRM	Total Respiratory Morbidity
CAs	Winnipeg Community Areas

Executive Summary

Introduction

According to the 2006 Census, there were 50,250 Francophones in Manitoba and 105,416 Manitobans who reported being fluent in both French and English. In 1998, the Government of Manitoba committed to providing government services in both of Manitoba's official languages. French language services are currently offered in the seven Regional Health Authorities (RHAs) where most Francophones live. The importance of producing this RHA Health Indicators Atlas focusing on Francophones in Manitoba was established through discussions within Manitoba Health and between Manitoba Health and the Francophone community. The health–related indicators examined in this Atlas were deemed essential in laying the foundation for guiding policies and planning initiatives both provincially and at the RHA level. Indicators mirror previous work at the Manitoba Centre for Health Policy (MCHP).

Earlier research suggested that Francophones in Canada have poorer health outcomes than non–Francophones (Woloshin, Schwartz, Katz, & Welsh, 1997; Clark, Colantionio, Rhodes, & Escobar, 2008; Desjardins, 2003; Picard & Allaire, 2005). Bouchard and colleagues (2009) found that among Canadians living outside of Québec, Francophones were more likely to report that their health was fair or poor (17.64%) than Anglophones (13.26%) (2009b). Reasons for this may be related to social status, cultural differences in lifestyle and attitudes, or in language or cultural barriers related to healthcare. Francophones living in an environment where French is a minority language have limited access to health services in their maternal language (Schofield & Gauthier, 2007). According to a report entitled Minorities Speak Up (2006), 61% of French–speaking Manitobans state that they consider it important to have health services in French, but only 14% report having the opportunity to communicate with their family doctor in French (Corbeil, Grenier, & Lafrenière, 2006). In contrast to the earlier findings, a recent report of New Brunswick Francophones found no differences when controlling for socio–demographic variables (Bélanger, Bouchard, Gaboury, Sonier, Gagnon–Arpin, Schofield, & Bourque, 2011). The authors note the recent improvements made to the access to health services for Francophones in the province of New Brunswick—including increases in the number of French–speaking physicians, medical training in French within the province, and an appointment of a deputy minister of health for Francophones.

Definition of Francophone in this Report

In this study, we defined Francophones in two ways based on the available information. Using survey data, Francophone Manitobans are defined as individuals who reported French as their mother–tongue, who reported that French was the first official language spoken, or who reported that French was the language most commonly used in their home. Using the administrative data, individuals were identified as Francophone if they had participated in a survey and had responded as indicated above or if they indicated a linguistic preference for health and education services or a linguistic preference for health related correspondence. This will exclude from our analysis most French–speaking Manitobans from the French immersion programs, Manitobans of French ancestry who no longer identify themselves as Francophones or who no longer speak French, and multi–lingual Manitobans who prefer to use English rather than French as their language of communication. First line relatives (parents, children, and siblings) of these individuals were also included in this definition.

Purpose of this Report

The purpose of this report is to gain a greater understanding of the health status and healthcare utilization of Francophones in Manitoba. By understanding the health and healthcare use of Francophones in the province, healthcare planners and policy makers can determine the effectiveness of services and can focus their efforts in specific areas. In addition, having better knowledge of the health status of a population contributes to our understanding of the vitality of a population. This report may also be useful to the one million Francophones living in Canada, but outside of Québec, since little is known regarding the health of this population.

The following questions were asked:

- How do the rates of health indicators, health risk behaviours, and health service utilization of Francophone Manitobans compare to other similar Manitobans?
- Do these rates vary by regions in Manitoba?
- Does controlling for region of residence, socioeconomic status (SES), family type, and health behaviors change the relationship between being Francophone and health and healthcare utilization?
- Do rates of health indicators of Francophones relative to Other Manitobans differ by birth cohort? In other words, has the relative health of Francophones changed over generations?

Methods

Examining the health of Francophones in minority settings is challenging because of the lack of available data identifying the French–speaking population and, where data exists, there are insufficient sample sizes for meaningful reporting (Picard & Allaire, 2005; Schofield & Gauthier, 2007). These were some of the challenges in the present study as well. We were able to identify a cohort of individuals who are very likely to be Francophone because they reported that they were Francophone on a survey or indicated a linguistic preference for health and education services or a linguistic preference for health related correspondence. We then identified the children, siblings, and parents of this group to determine the group of people who are probably Francophone. This approach gave us a cohort of 40,000 individuals who likely are Francophone or at least have been exposed to the French language and culture through family ties.

Our next step was to determine how to compare this group of people to other Manitobans. Rather than simply comparing all Francophones to all other Manitobans, we decided to use a "matching" process. Matching involves identifying other people with similar characteristics so reasonable comparisons can be made. We matched each individual in our Francophone Cohort with three other Manitobans on three dimensions: age, sex, and area of residence. Area of residence is a proxy for a number of characteristics including socioeconomic status. Francophone individuals who were living in personal care homes at the time they were selected for the cohort were also matched with non–Francophone individuals living in personal care homes at that same time point. It was important to have a comparison group that closely resembled the Francophone Cohort, and we believe this process achieved this goal.

Rate ratios are reported throughout the report rather than crude and adjusted rates. A rate ratio is simply the ratio of two rates. We did this because the actual rates may not be accurate because respondents in the newly constructed cohort are younger than the actual population. Rate ratios will be an actual reflection of the relative difference between Francophones and Other Manitobans.

Results

Socio–Demographic Characteristics

Francophones tended to be older than the Manitoba average. According to the 2006 Census, 20.8% of Francophones were over 65 compared to 13.0% of non–Francophones. The Census also indicates that 11.2% of Francophones and 20.3% of non–Francophones were under 15. There were more Francophones who were female (53%) than male (47%). This is because females have a longer life expectancy than males; and as previously noted, there were more older people in the Francophone population. A higher percent of Francophones were not in the workforce (Francophones: 35. 0% and non–Francophones: 32.6%) because more Francophones were over 65. Fewer Francophones reported that they were unemployed than Other Manitobans (2.6% versus 3.8%). Francophones were slightly better educated—47.4% of Francophones reported having completed post–secondary education compared to 43.7% of Other Manitobans. The average income of Francophones was higher than non–Francophones ($32,809 versus $31,216).

Health and Healthcare Indicators

The report shows the rates and rate ratios of 76 health–related indicators for comparing the Francophone Cohort to the Matched Cohort. When possible, these were also calculated for those Manitobans who reported being Francophone on surveys. While this is only a sample of all Francophones, we wanted to be sure that the Matched Cohort approach (described above) was a valid representation. On the "big picture" measures, we found little differences between Francophones and the Matched Cohort. For example, at the provincial level, there was no difference in the premature mortality rate of Francophones and other similar Manitobans. No differences were noted between Francophones and the Matched Cohort in 52 (68%) indicators; better health for 15 (20%) of them and poorer health for nine (12%) indicators. There were some differences at regional levels as well. Generally, the indicator rates for Francophones in the regions differed little from the provincial Francophone rates. Utilizing the survey sample, we re-analyzed some of the indicators controlling for a number of socio–demographic and lifestyle variables. Controlling for these important factors did not alter the overall conclusions.

Following are the main differences observed at the provincial level:

- Francophones are slightly more likely to see a physician at least once a year (Rate Ratio: 1.02), go for breast cancer screening (Rate Ratio: 1.09) and cervical cancer screening (Rate Ratio: 1.09), and receive the adult flu immunizations (Rate Ratio: 1.05) than Other Manitobans.
- Francophones have lower mortality (Rate Ratio: 0.79), hypertension (Rate Ratio: 0.96), and diabetes rates (Odds Ratio: 0.81) than Other Manitobans but higher rate of percutaneous coronary interventions (PCI; Rate Ratio: 1.31) and coronary artery bypass (Rate Ratio: 1.19) than Other Manitobans.
- Francophone seniors have longer median wait times (13.2 weeks compared to 8.0 weeks) to be admitted into a personal care home (PCH). Francophone seniors living in the community are more likely to be given potentially inappropriate prescriptions of benzodiazepines (Rate Ratio: 1.37) than other Manitoban seniors.
- Francophone women at the birth of a child were more likely to have finished high school compared to the Matched Cohort of Other Manitoban women.
- However, Francophone women at the birth of their child reported higher rates of depression and anxiety (Rate Ratio: 1.17) and were also more likely to report alcohol use during pregnancy (Rate Ratio: 1.18).

- Francophone children were less likely to be ready for school (Rate Ratio: 1.19) and more likely to be diagnosed with Attention Deficit Hyper Activity Disorder than Other Manitoban children (Rate Ratio: 1.27).
- Francophone adolescents were more likely to pass their Language Arts (Rate Ratio: 1.16) and Mathematics (Rate Ratio: 1.11) exams and more likely to graduate from high school compared to Other Manitoban adolescents (Rate Ratio: 1.09).
- Francophones were less likely to receive a diagnosis of a mental health problem (Rate Ratio: 0.77–0.98) and had lower suicide rates (Rate Ratio: 0.70) than Other Manitobans, however they were also less likely to rate their mental health as excellent or very good (65.5% versus 74.2%).

Using the publicly available data from the College of Physicians and Surgeons of Manitoba, we identified physicians who had the capacity to offer French–language services (by speaking French themselves or offering translation). We found that 28% of Francophones in Manitoba were seen at least once by a physician who offers services in French. In certain districts, these rates were considerably higher such as Central RHA (41%) and South Eastman (44%)—particularly the Northern district of South Eastman (66%). A sub–analysis was conducted amongst Francophones which demonstrated a small but statistically significant difference in continuity of care among those with a physician offering services in French. Those receiving care by a physician offering services in French had higher rates of continuity of care (71. 8% versus 67. 4%).

Cohort (Generational) Effect

An intriguing and important finding is that although we find a similar overall health status between the two groups, it appears that there may be an birth cohort effect. The socio–political climate in Manitoba has changed dramatically for Francophones in Manitoba. Cohort effects were examined by first dividing the respondents into three age groups: those born before 1958 (when there were no French language rights), those born between 1958 and 1982 (some language rights were introduced), and those born after 1982 (wide range of language rights). The research team chose six indicators to test for cohort effects: mortality rate, suicide and suicide attempts, diabetes, hospitalization, number of different drugs, and self–rated health. These indicators were chosen because they were considered to be sensitive to health status.

As expected, there are deteriorations in health status in all indicators with age. We also found a strong association between when a Francophone was born and their current health status in comparison to other Manitobans in the same birth cohort. For example, older Francophones (born before 1958) have higher rates of hospitalization compared to other older Manitobans (212. 2 versus 193. 9 per 1,000). The middle group of Francophones (born between 1958 and 1982) had similar rates to other Manitobans (110. 4 versus 113. 4 per 1,000). A statistically significant difference in hospitalization rates is found between younger Francophones and other younger Manitobans (44. 5 versus 55. 4 per 1000). A similar pattern showing improvement in the health of Francophones over time is found across the other indicators.

While overall things look good, older Franco–Manitobans (those born before 1958) are less healthy than other Manitobans born during this time period, those born between 1958 and 1987 have similar health, and those born after 1982 are in better health than their matched Manitobans. While this does not allow us to establish a causal relationship between policy and outcomes, it does provide some evidence that should be considered in future research.

Concluding Remarks

In summary, we have found that, for the most part, the health status and health services utilization of Francophones is not very different from the Matched Cohort of Other Manitobans; but there is some variation according to where one lives and when one was born. However some differences were observed; and based on these findings, several recommendations were made.

- Ensure that Francophone children have access to early childhood programs
- Ensure that Francophones have access to mental health promotion resources and mental health services
- Ensure that older Francophones have adequate access to health services and educational resources
- Facilitate knowledge exchange between the Division scolaire franco–manitobaine and other school divisions
- Promote research on the role, and mechanisms underlying the role, that linguistic and other policies have on health and education outcomes of linguistic and cultural groups
- Continue efforts at recruiting and training French–speaking physician and other health professionals

This report is one of the first atlases that gives insight into the comparative health and healthcare utilization of Francophone Manitobans to Other Manitobans. It mirrors previous work conducted at MCHP using health and education indicators. There is a wealth of information for use by planners and decision–makers who are interested in public health and health service programs and policies for Francophones in Manitoba. The research team hopes that this report will build on earlier work about the health of Francophones for planning initiatives at both the regional and provincial level.

Chapter 1: Introduction

Background

Research suggests that **Francophones**[1] in Canada have poorer health outcomes than non–Francophones (Clarke, Colantonio, Rhodes, & Escobar, 2008; Kopec, Williams, To, & Austin, 2001). This also appears to be true for Francophones living outside of Québec. Bouchard and colleagues (2009) found that among Canadians living outside of Québec, Francophones were more likely to report that their health was fair or poor (17.64%) than **Anglophones** (13.26%). Reasons for this may be related to social status, cultural differences in lifestyle and attitudes, or in language or cultural barriers related to healthcare. Francophones living in an environment where French is a minority language have limited access to French language health services (Schofield & Gauthier, 2007). According to a report entitled Minorities Speak Up (2006), 61% of French–speaking Manitobans state that they consider it important to have health services in French, but only 14% report having the opportunity to communicate with their family doctor in French.

Reviewing studies of Francophone health in other regions in Canada is useful for background information. However, using these studies for policy development and planning services in Manitoba has its limitations as the social and political realities are quite different across Canada. One main difference between Francophones living in Québec and those living in other Canadian provinces is that in Québec the utilization of French is commonplace and services such as early childhood programs, health services, education, social services, and recreation and cultural activities are available in French. While some French speaking physicians and health workers communicate to their Francophone patients in French, Francophones living outside of Québec have historically had few services available in French. It is also important to note that Manitoba distinguishes itself from most Canadian provinces because French and English are official languages of the legislative assembly and the courts. While the Manitoba Act of 1870 clearly states the official status of the French language, for almost a century, government services were only offered officially in English. It is not known what affect this official lack of recognition of the French language and lack of French services may have had on Francophones in Manitoba. Over the last decades, significant strides have been made regarding the acknowledgement and acceptance of the French language both provincially and nationally.

We may wonder why Francophones may have a different **health status** than Other Manitobans. Research has shown that language is important in the delivery of healthcare. Part of this is to communicate fully with the healthcare practitioner, but also there is a natural connection that spontaneously occurs when a language is shared. This is because culture (or world views) is communicated through language and this can enhance the therapeutic relationship. Bowen writes about the importance of linguistic and cultural barriers, noting that people are more likely to express their concerns, ask questions, and follow health recommendations if they are well connected to their healthcare providers (2001). These attributes do not likely play a role in Manitobans who learned French as a second language—unless they have adopted the Francophone community and are more comfortable expressing themselves in French than in English.

According to the 2006 **Census**, 50,250 Manitobans reported that their **mother tongue** or the language spoken at home was French and 105,416 Manitobans reported being fluent in both French and English. In 1998, the Government of Manitoba committed to providing government services in both English and

1 Terms in **bold** type face are defined in the Glossary at the end of this report.

French. French language services are currently offered in seven Regional Health Authorities (RHAs)—the areas where most Francophones live. The importance of producing this RHA Health Indicators Atlas focusing on Francophones in Manitoba was established through discussions within **Manitoba Health** and between Manitoba Health and the Francophone community. This atlas was deemed essential in laying the foundation for the planning initiatives both provincially and at the RHA level. The indicators selected were to mirror previous work at the **Manitoba Centre for Health Policy (MCHP)**.

From the onset, the challenges in undertaking such an atlas were recognized. Gaboury et al. examined the feasibility of studying the health of Francophones living outside of Québec (2009). The main issue identified was the lack of population–based databases with language variables required to identify Francophones. Where databases existed, the sample size of Francophone respondents was insufficient for meaningful analyses. These databases were not large enough to provide health information at the regional level and often not large enough to report rare medical conditions or healthcare procedures. While the Census of Canada collects comprehensive data on language at an individual level, the laws and regulations protecting Census data have not permitted utilization of this data at an individual level required for research purposes. In this report, extensive work was required to identify Francophone individuals and maintain their anonymity while using a variety of administrative and survey databases.

The purpose of this report is therefore to gain a greater understanding of the health status and **healthcare utilization** of Francophones in Manitoba. By understanding the health and healthcare needs of Francophones in the province, healthcare planners and policy makers can determine the effectiveness of services and can focus their efforts in specific areas. In addition, having better knowledge of the health status of a population contributes to our understanding of the vitality of a population. This report may also be useful to the one million Francophones living in Canada outside of Québec, since very little is known regarding the health of this population.

Purpose of this Report and Outline of the Chapters

In this report, we propose to examine indicators of the health status, health behaviors, and healthcare use of Francophones in Manitoba. The following questions were asked:

- How do the rates of health indicators, health risk behaviours, and health service utilization of Francophone Manitobans compare to other similar Manitobans?
    - Do these rates vary by regions in Manitoba?
    - Does controlling for **region of residence**, **socioeconomic status (SES)**, marital status, and health behaviors change the relationship between being Francophone and health and healthcare utilization?
- Do rates of health indicators of Francophones relative to Other Manitobans differ by **birth cohort**? In other words, has the relative health of Francophones changed over generations?

This report is presented in eighteen chapters. Chapters 4 to 16 highlight indicators that are based upon **administrative data** housed at MCHP, with the exception of Chapter 15 that uses the survey data from the **Canadian Community Health Survey (CCHS)**. Chapter 1 introduces the report and provides a report outline. Chapter 2 provides background information regarding the linguistic and cultural context of Francophones in Manitoba. We also discuss issues related to defining the Francophone **Cohort**, a description of sociodemographic characteristics of Francophones, and the social and cultural context of Francophones in Manitoba in this chapter. Chapter 3 provides an explanation of the methods

and describes the indicator graphs found in subsequent chapters. Chapter 17 examines the health of Francophones across three generations; and Chapter 18 summarizes findings, proposes some recommendations and includes concluding results.

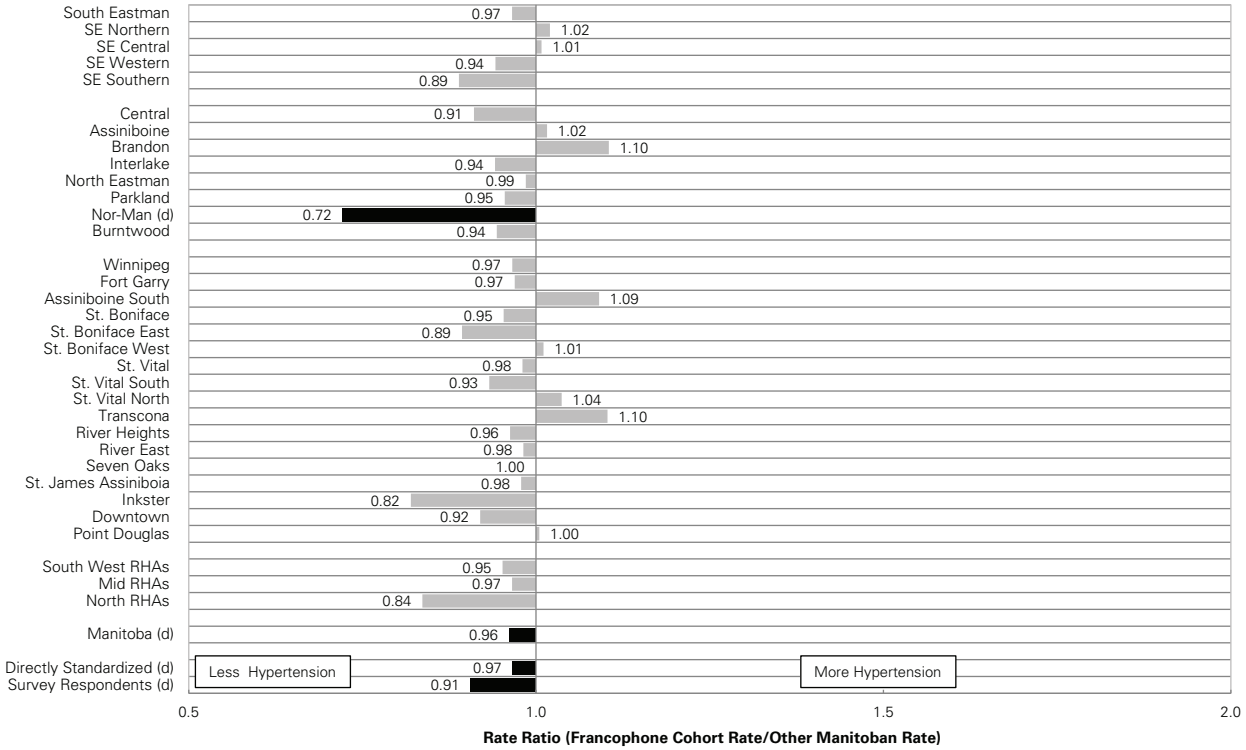
Chapter 15 uses the CCHS, a combination of all cycles of the survey from 2000 to 2008, which has the advantages of providing a sample that is representative of the Francophone population and of obtaining information not available in the **Population Health Research Data Repository (Repository)**, such as smoking status. CCHS data are based upon a survey of a representative sample of Manitobans, but excludes all people living in First Nations communities (i.e., 'on–reserve') and people living in institutions. This allowed us to consider a sample of 1,627 Francophones making it impossible to report indicators at the regional level. Since only 4.4% of Manitobans are Francophones, a small number Francophones were included in each cycle of survey. Linking several cycles of data together made it possible to create a sample large enough for reporting in a reliable manner at a provincial level.

How to Read this Report

In this report, we provide two observations regarding the health and healthcare utilization of Francophone in Manitoba. We present **rates** and **rate ratios**. Rates are the number of people with a condition or who utilize a health service per 100 or 1,000 people over a period of time (generally over a year). A rate ratio is simply the ratio of two rates. In this report, we emphasize rate ratios because they will tell us how the Francophone Cohort compares to a Matched Cohort of Other Manitobans. It is important to note that the rates for the Francophones and Other Manitobans in this report are not believed to be the true rates. This is because the cohort of Francophones that was created included more younger people than if it was a complete listing of all the Francophones in Manitoba. The rates calculated from this cohort will tend to depict a better health status. However, the rate ratios give us a true indication of how the health status of Francophones is relative to the health status of Other Manitobans of the same age, sex, and socioeconomic grade. (See Chapter 3 for a more complete description.)

Where numbers are sufficient, results are provided for South Eastman (and its **districts**), Central, Assiniboine, Brandon, Interlake, North Eastman, Parkland, NOR–MAN, Burntwood, and Winnipeg (and its **community areas**) RHAs.

Figure 5.1.1: Hypertension—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2008/09
Age– & sex–adjusted, residents aged 19 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

For each indicator that was examined in this report, you will find a graph of rate ratios that illustrates how the health of the Francophone Cohort compares to the health of a Matched Cohort of Other Manitobans. The rate ratio is the Francophone Cohort rate divided by the rate of the Matched Cohort of Other Manitobans. In the example Figure 5.1.1, using the cohorts created for this report, 19.7% of Francophones and 20.5% of similar Manitobans have been diagnosed with **hypertension**. The rate ratio is therefore 0.96 (19.7% divided by 20.5%). This means that Francophones are less likely than Other Manitobans of the same age, sex and socioeconomic status to have a diagnosis of hypertension. Note that according to the Manitoba RHA Indicators Atlas 2009 (Fransoo et al., 2009), the rate of hypertension for Manitobans in 2005/2006 was 24%. As expected, it was higher than what was found using the cohorts created for this report because it was based on all Manitobans. The "d" indicates that the rate ratios are statistically significant meaning that there are differences between Francophones and the matched Other Manitobans.

All of the graphs in this report use premature mortality (PMR) as a way in which to order the RHAs and the **Winnipeg Community Areas (CAs)** with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR in order to stabilize the rate.

Table 5.12.1: Hypertension, 2008/09
Age– & sex–adjusted, residents aged 19 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	0.97 (0.90, 1.04)	19.27 (17.98, 20.66)	19.96 (19.09, 20.88)
SE Northern	1.02 (0.92, 1.13)	19.86 (18.08, 21.81)	19.47 (18.21, 20.82)
SE Central	1.01 (0.77, 1.32)	20.45 (15.78, 26.49)	20.28 (18.73, 21.96)
SE Western	0.94 (0.83, 1.06)	18.32 (16.51, 20.33)	19.46 (18.06, 20.98)
SE Southern	0.89 (0.68, 1.16)	20.16 (15.78, 25.76)	22.68 (20.33, 25.30)
Central	0.91 (0.82, 1.01)	18.49 (16.86, 20.28)	20.31 (19.22, 21.46)
Assiniboine	1.02 (0.87, 1.19)	21.37 (18.55, 24.63)	21.04 (19.38, 22.85)
Brandon (f)	1.10 (0.87, 1.41)	**26.40 (21.45, 32.49)**	23.90 (20.99, 27.21)
Interlake	0.94 (0.78, 1.13)	21.18 (17.96, 24.99)	22.52 (20.50, 24.73)
North Eastman (f)	0.99 (0.85, 1.14)	**24.07 (21.11, 27.43)**	24.43 (22.60, 26.41)
Parkland	0.95 (0.80, 1.14)	22.62 (19.32, 26.49)	23.69 (21.63, 25.95)
Nor-Man (d)	**0.72 (0.53, 0.98)**	**19.12 (14.53, 25.15)**	**26.48 (22.96, 30.53)**
Burntwood	0.94 (0.70, 1.28)	23.51 (18.04, 30.63)	24.92 (21.35, 29.08)
Winnipeg	0.97 (0.91, 1.02)	19.18 (18.12, 20.30)	19.86 (19.06, 20.70)
Fort Garry	0.97 (0.83, 1.14)	18.67 (16.16, 21.57)	19.26 (17.75, 20.90)
Assiniboine South	1.09 (0.80, 1.49)	20.37 (15.36, 27.02)	18.68 (16.19, 21.55)
St. Boniface	0.95 (0.89, 1.03)	18.22 (17.02, 19.50)	19.10 (18.22, 20.03)
St. Boniface East	0.89 (0.80, 1.00)	17.95 (16.18, 19.92)	20.10 (18.85, 21.43)
St. Boniface West	1.01 (0.92, 1.11)	18.34 (16.86, 19.96)	18.15 (17.01, 19.37)
St. Vital	0.98 (0.89, 1.08)	19.60 (17.95, 21.40)	19.99 (18.91, 21.12)
St. Vital South	0.93 (0.82, 1.07)	18.69 (16.58, 21.09)	20.04 (18.61, 21.59)
St. Vital North	1.04 (0.90, 1.19)	20.62 (18.26, 23.29)	19.89 (18.40, 21.50)
Transcona	1.10 (0.86, 1.42)	22.13 (17.79, 27.53)	20.07 (17.63, 22.85)
River Heights	0.96 (0.77, 1.20)	17.76 (14.35, 21.98)	18.45 (17.06, 19.96)
River East	0.98 (0.82, 1.17)	20.88 (17.73, 24.59)	21.27 (19.68, 22.97)
Seven Oaks	1.00 (0.74, 1.35)	22.93 (17.68, 29.73)	22.94 (19.70, 26.71)
St. James Assiniboia	0.98 (0.77, 1.24)	20.44 (16.52, 25.30)	20.89 (18.65, 23.40)
Inkster	0.82 (0.53, 1.27)	20.48 (13.81, 30.36)	24.98 (20.41, 30.59)
Downtown	0.92 (0.75, 1.13)	21.17 (17.68, 25.35)	23.02 (20.78, 25.51)
Point Douglas	1.00 (0.74, 1.36)	24.74 (18.99, 32.23)	24.63 (21.21, 28.59)
South West RHAs	0.95 (0.87, 1.04)	19.78 (18.26, 21.43)	20.78 (19.73, 21.89)
Mid RHAs (f)	0.97 (0.87, 1.07)	**22.84 (20.79, 25.08)**	23.65 (22.29, 25.10)
North RHAs	0.84 (0.67, 1.04)	21.56 (17.81, 26.10)	25.78 (23.13, 28.74)
Manitoba (d)	**0.96 (0.92, 1.00)**	**19.66 (18.91, 20.44)**	**20.46 (20.17, 20.74)**
Directly Standardized (d)	**0.97 (0.94, 0.99)**	**23.15 (22.64, 23.65)**	**23.94 (23.64, 24.24)**
Survey Respondents (d)	**0.91 (0.82, 0.99)**	**22.86 (20.75, 24.97)**	**25.24 (24.55, 25.92)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

At the end of each chapter, a table with the rates of each indicator in the chapter is provided. While it is important not to quote the rates as the true rates, these tables help us understand how the rates are comparable across regions. Using the same example of hypertension (Table 5.12.1), we note that some regions have an "f" to the right of the region's name. This indicates that the rate of Francophones in that region is different than the rate of all Francophones in Manitoba. The rate calculated for Francophones in North Eastman was 24.1% compared to 19.7% found for all Francophones in Manitoba.

Geographical Boundaries

The geographical boundaries for this report were based on where French Language Services are provided (see Figure 2.1 in Chapter 2) and where most Francophones live. Currently there are 11 RHAs in Manitoba (Figure 1.1). One of which is the Winnipeg RHA, which encompasses the provincial capital city of Winnipeg, and the other 10 are Rural and Northern RHAs. Unlike other MCHP Atlases, data are not broken down for all the RHAs into Districts. However, South Eastman has a large population of Francophones, so wherever possible the data are presented for its four districts. Similarly, Winnipeg CAs are presented and, where possible, the data for the **Neighbourhood Clusters (NC)** of St. Boniface and St. Vital are presented. For some indicators the numbers are not sufficient to show all of the Winnipeg CAs, so instead data are presented for St. Vital, St. Boniface, and Winnipeg Other (consisting of the remaining Winnipeg CAs). Additionally, data are generally presented for three aggregate regions:

- **South West RHAs**: An aggregate of Brandon, Central and Assiniboine RHAs
- **Mid RHAs** An aggregate of North Eastman, Interlake and Parkland RHAs
- **North RHAs**: An aggregate of Churchill, Burntwood and NOR–MAN RHAs

Very few Francophones live in the Churchill RHA and in order to protect their privacy, results are not presented for this RHA. These individuals are however represented in the North RHAs aggregate area. For indicators where the outcome is rarer, rates are not provided for all of the above areas.

Summary

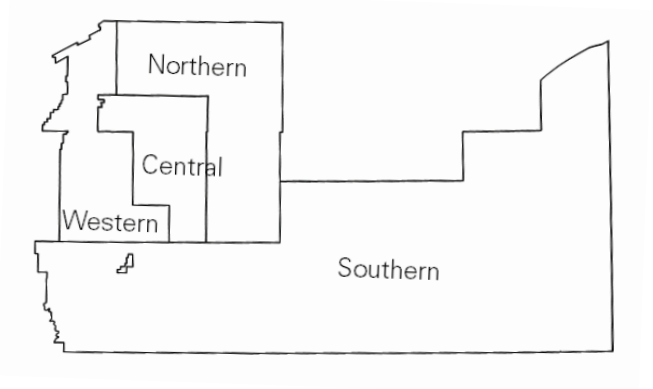
This report is the first atlas that gives insight into the comparative health and healthcare utilization of Francophone Manitobans to Other Manitobans. It mirrors previous work conducted at MCHP using health and education indicators. There is a wealth of information of use to planners and decision–makers who are interested in public health and health service programs and policies for Francophones in Manitoba. The research team hopes that this report will build on earlier work about the health of Francophones for planning initiatives at both the regional and provincial level.

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

Figure 1.1: Regional Health Authorities (RHAs) of Manitoba

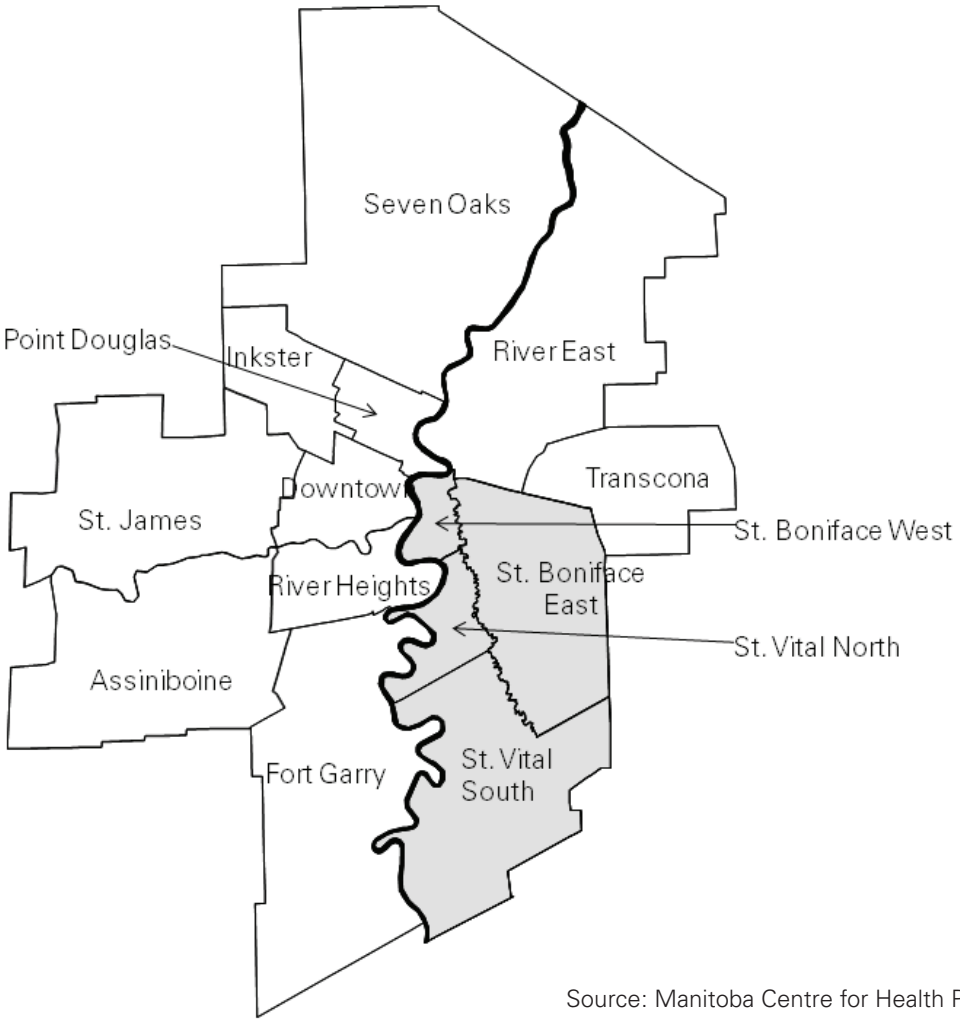
Source: Manitoba Centre for Health Policy, 2012

Figure 1.2: Districts of South Eastman RHA



Source: Manitoba Centre for Health Policy, 2012

Figure 1.3: Winnipeg Community Areas with St. Boniface and St. Vital Neighbourhood Clusters



Source: Manitoba Centre for Health Policy, 2012

Chapter 2: Description of Francophone Population in Manitoba

Considerations in the Francophone Definition

As a first task, we considered the different definitions of Francophone to determine who would be included in the study. These definitions have been extensively discussed within the Francophone community in Manitoba and across Canada. We are essentially defining a cultural group based on language. Francophones typically identify themselves by declaring French as their mother tongue and the language of their ancestors and by a sense of belonging to the Francophone community in Manitoba and at large. French–speaking Manitobans are a heterogeneous group of people. They may be descendants from earlier waves of migration from Eastern Canada or immigration from Europe, they may be **Metis**, or may be from more recent immigration from French–speaking countries such as Africa or the Middle East. Also worth noting is that numerous Manitobans through the **French–immersion school programs** have an excellent command of the French language. They may not necessarily identify with the Francophone community, but they often are sympathetic towards it and are instrumental in providing French services.

Forgues and Landry have examined the language questions asked by **Statistics Canada** to determine how to best define Francophones living in a minority setting (2006). They concluded the number of Francophones identified is dependent on the number and type of questions asked. They encourage researchers to consider their research objectives in determining their definitions. Statistics Canada has derived a variable about the **first official language spoken**, based on a series of questions about language. The authors considered this an important variable because it includes respondents whose first language is not necessarily French—but use French to access services in the Canadian context (Forgues & Landry, 2006). A commonly used definition for the term Francophone is an individual who reported French as their mother tongue, who reported that French was the first official language spoken, or who reported that French was the language most commonly used in their home. This definition therefore includes Manitobans who learned French as children or who utilize it at home. It also includes a growing number of immigrants who may have a language other than either official language as their mother tongue but who communicate more effectively in French than in English.

Definition of Francophone in this Report

In this study, we are interested in learning more about the health and healthcare services utilization of Francophones living in Manitoba. With the assistance of the advisory group and keeping the considerations above in mind, two definitions of Francophone were formulated. For respondents in the survey sample, a Francophone is defined as a respondent who reported French as their mother tongue, who reported that French was the language most commonly used in their home, or whose first official language spoken was French (last item was derived through a series of questions). For residents identified using the **Repository**, a Francophone was a Manitoban who indicated French as a preferred language for services, whose maternal language was French, or who attended a facility where French is the main language used (i.e., school in the **Division scolaire franco–manitobaine (DSFM)**, certain **child care centres**, and personal care homes). These databases are described in the section below. Also included in our definition of Francophone are **first degree relatives** of those identified through the variables listed above. While the definition for the administrative data is more uncertain than a

definition obtained through direct questions in the survey sample, it is reasonable to assume that individuals who requested services in French or attended a facility where French was the main language spoken were likely Francophones. Many Francophones do not request French services or attend these facilities, so it was not possible to identify all Francophones using the indicators in the **administrative databases**.

Data Sources Utilized to Identify Francophones

Some information on language was found throughout the administrative databases at MCHP that could be used to study the health of Francophones. Three main sources of data were used throughout this report: 2006 Census of Canada, survey data from different sources and the Repository data from the MCHP.

- ***2006 Census*** – Census data were used to describe the profile of the population, i.e., the proportion of people who are identified as being Francophone. We had no further access to these data.
- ***Survey data from Canadian Community Health Survey (CCHS) or National Population Health Survey (NPHS)*** – An individual was considered a Francophone if their mother tongue was French, the first official language that they learned was French, or the language they used at home was French.
- ***Survey Data from the Heart Health Survey (HHS)*** – One question was utilized: What language did you first speak in childhood?
- ***Repository Data from MCHP*** – All databases in the Repository were reviewed for language indicators. The language indicators differed by database.
    - *Education* – Individuals who were in the **français (FL1) program** at one point in time in their schooling. This program offers all courses in French and is intended for students who are fluent in French.
    - *Red River College* – Individuals who previously attended a high school where only the français (FL1) program is offered.
    - *Manitoba Immunization Monitoring System (MIMS)* – Individuals who indicated that they wanted their correspondence in French.
    - *Child Care* – Children whose parents indicated that French was their preferred language or who attended a facility that offered **francisation** or who attended a facility that is part of the francophone school division, the Division scolaire franco–manitobaine.
    - *Early Development Instrument* – Children, who according to the Kindergarten teacher, had French as their primary language. (Note that in schools other than schools from the Division scolaire franco–manitobaine, teachers are sometimes unaware that the child's primary language is French.)
    - *Personal Care Home* – Individuals who were at one point in time were residents in Foyer Valade (St. Vital) or Foyer Youville (Ste. Anne).
    - *MDS Homecare* – Individuals who indicated that French was their primary language.

Health, Language and Culture

To better understand how health may be affected by belonging to a linguistic and cultural community, it is important to be aware of the connection that many Francophones have to their language and culture. Deroche examined the health issues and needs of Francophones in Manitoba through focus groups (2009). Her research team found that among the factors that influence health, Francophones identified that "health and well–being is closely linked to having opportunities to use French and connect with their culture in daily life". They wanted greater access to services in their own language and culture, such as health and early childhood development services.

The findings found through the focus groups are consistent with the Minorities Speak Up Survey conducted by Statistics Canada (Corbeil, Grenier, & Lafrenière, 2006). The survey was conducted throughout Canada; and in Manitoba, 925 French–speaking adults participated, as well as 705 of their children. The survey found that 61% of French–speaking Manitobans stated that it is important to have health services in French but only 14% of them communicated with their family doctor in French. Interestingly, 31% of French–speaking Manitobans reported that they found it easy to access health services in French while 42% found it difficult and 24% found it neither easy nor difficult (2% did not answer). The report indicated that French language health services are necessary, partly to be well–understood, but also because it contributes to a positive relationship between the providers and the user of services. In addition, offering health services in French significantly contributes to the vitality[2] of official–language minorities, which in turn may contribute positively to **population health**. Bouchard and colleagues examined the vitality, the determinants of health, and health management of Canada's linguistic minorities (2006). They note that the health gradient between **life expectancy** and social indicators such as social status, income, education, profession, and place of residence has been well–documented. Populations at the bottom of the social hierarchy are more likely to engage in lifestyles detrimental to their health (smoking, alcoholism, poor diet, risky sexual behaviour, etc.). They may have limited access to resources and social and health services. The authors suggest that improving **social capital** (social connections through organizations, services, and community) can influence health through health promotion, improving quality and availability of services, and psychosocial resources.

The everyday stress of a minority group at lower ends of social status can influence health. These effects on the health of Francophones in Manitoba are likely subtle in nature, but may be cumulative over time. Physiological studies suggest that persistent stress brings about changes in the nervous system, thereby predisposing an individual to ill health (McEwen & Seeman, 1999; Sapolsky, 1995). McEwen and Seeman's research shows that repeated surges in blood pressure, brought about by chronic stress, accelerate atherosclerosis and the development of Type II diabetes (1999). The resulting release of hormones from high stress can adversely affect tissues and organs. Stress suppresses the immune system, increases the level of circulating glucose, and dampens fear responses to the stressor.

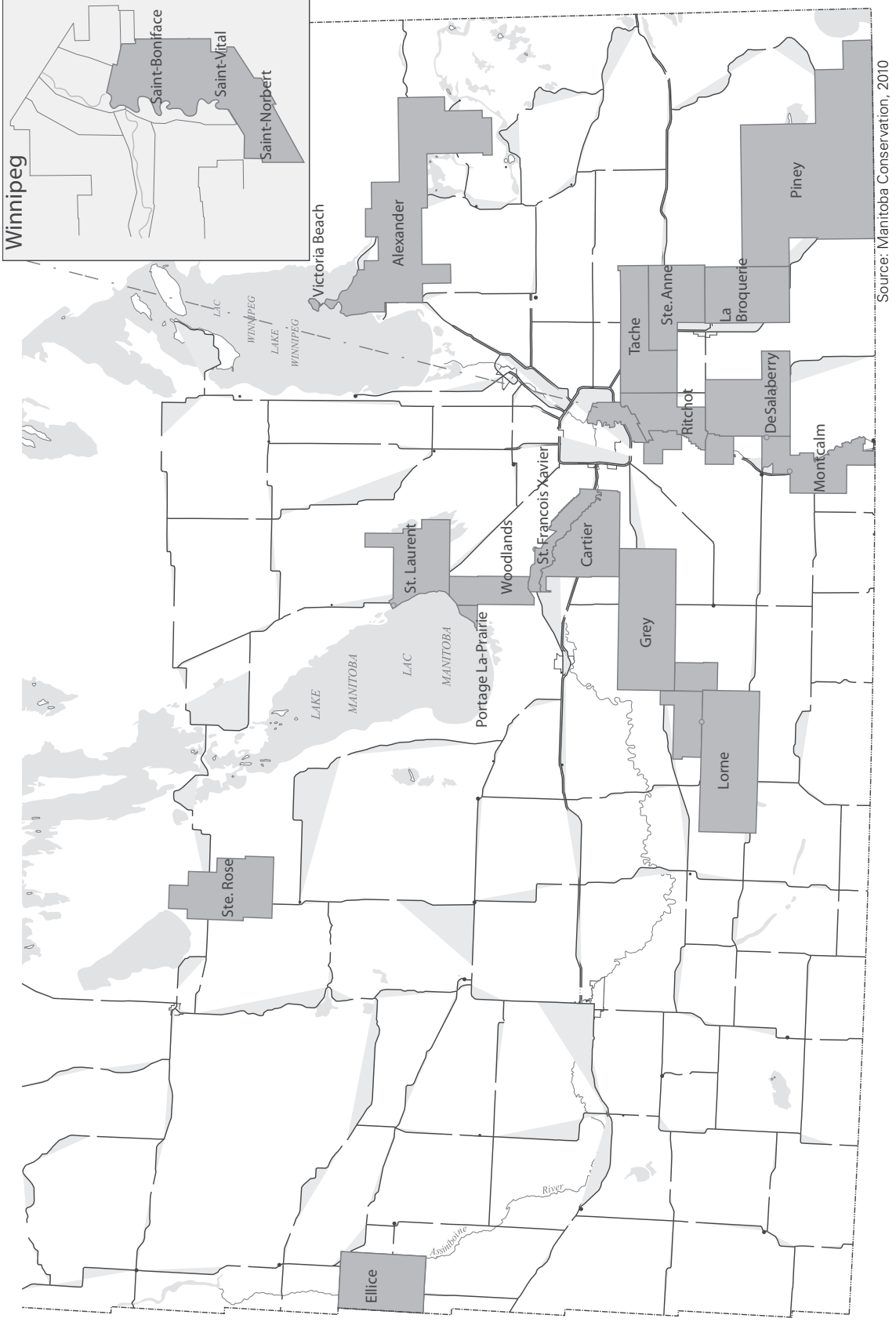
French Language Services Policy

Since 1989, the Government of Manitoba has a French Language Services policy that "recognizes that the French–speaking population of Manitoba is a constituent of one of the fundamental characteristics of Canada." The policy applies to designated health facilities and RHAs. Seventy–five percent of French–speaking Manitobans state that it is very important or important for Provincial and Federal Governments to provide services to them in French. Given the official recognition of the French language in Manitoba, Francophones can potentially live in an environment where their language, culture, and values are acknowledged and respected. This, in turn, is likely to have positive influences on their health status.

The map, Figure 2.1, indicates the areas where French Languages services are to be provided and where most Francophones live (Manitoba Conservation, 2010).

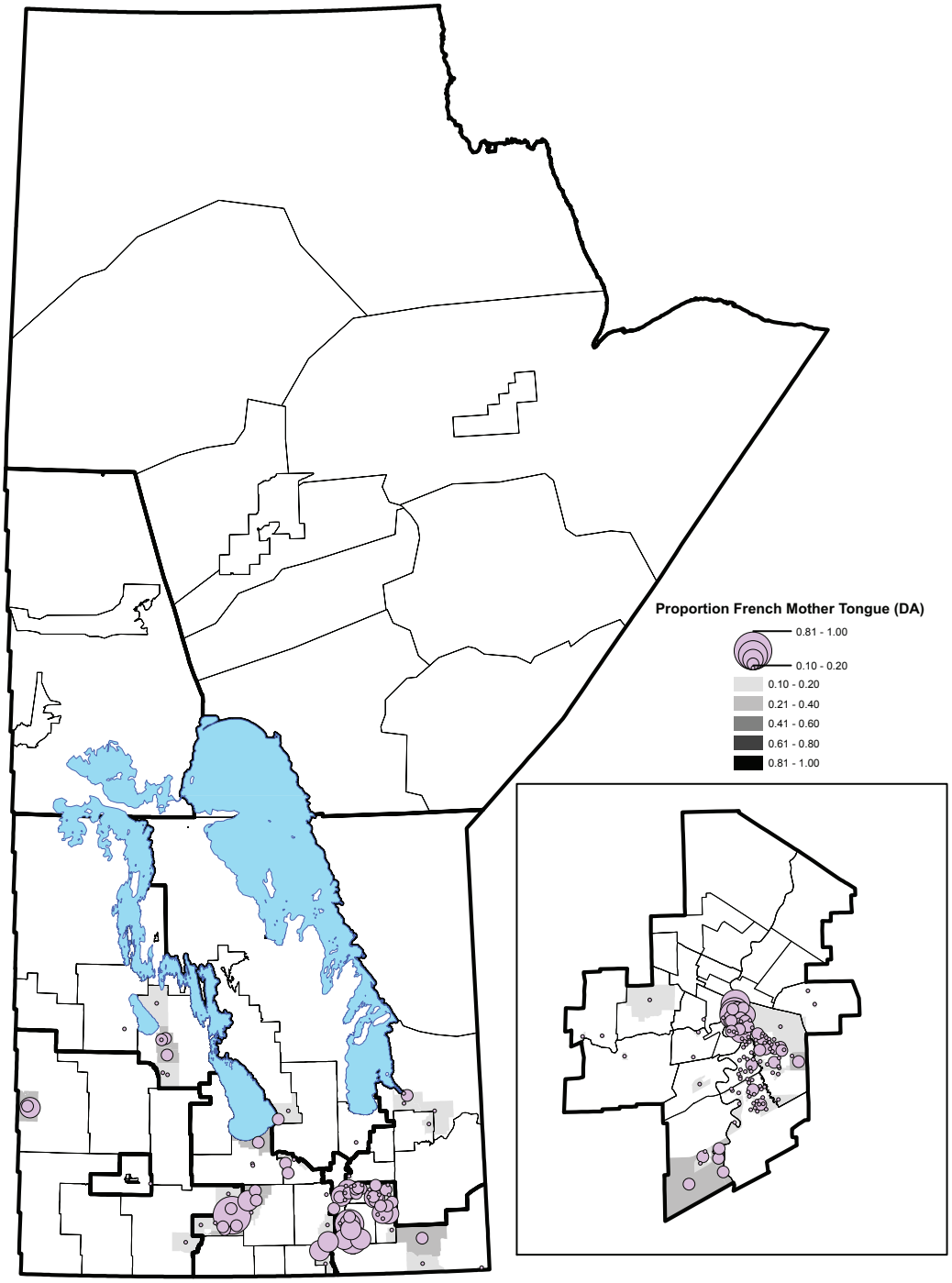
2 In Part VII of the Official Languages Act of 1988, section 41 states, in its English version, that the Federal Government "is committed to enhancing the vitality of the English and French linguistic minority communities in Canada…" while the French version states that the government "s'engage à favoriser l'épanouissement des minorités francophones et anglophones du Canada…" This association between vitality and "épanouissement" (advancement) would seem to suggest that these linguistic communities have a dynamic quality on which their development, or indeed their survival, depends.

Figure 2.1: Map of French Language Services in Manitoba



Using information from the 2006 Census of Canada, the following map indicates where Francophones were living in 2006. The bigger circles correspond to higher numbers of Francophones. In comparing the French Languages Services Map (Figure 2.1) and the Map of where Francophones live (Figure 2.2), we note that most Francophones continue to live in the areas that are designated as **bilingual**.

Figure 2.2: Distribution of Francophone Populations by RHA District



DAs with less than 10% Francophone were excluded.

Source: Census of Canada, 2006

Table 2.1: Distribution of Francophones in Manitoba

Area	Population
South Eastman	8,140
SE Northern	4,000
SE Central	405
SE Western	3,360
SE Southern	380
Central	4,650
Assiniboine	1,605
Brandon	885
Winnipeg	29,945
Fort Garry	2,555
Assiniboine South	710
St. Boniface East	4,860
St. Boniface West	5,595
St. Vital South	3,560
St. Vital North	2,570
Transcona	1,165
River Heights	1,760
River East	1,690
Seven Oaks	815
St. James Assiniboia	1,515
Inkster	505
Downtown	1,735
Point Douglas	760
Interlake	1,655
North Eastman	1,390
Parkland	1,195
Churchill	10
Nor-Man	320
Burntwood	455
Manitoba	50,250

Adapted from Census of Canada, 2006

Prior to its release, census data have been subjected to a confidentiality procedure by Statistics Canada known as random rounding to prevent the possibility of associating statistical data with any identifiable individual. Under this method, statistics are randomly rounded either up or down to a multiple of "5" or "10". This technique may produce slight variations in statistics such as sums or means but does not add significant error to the census data.

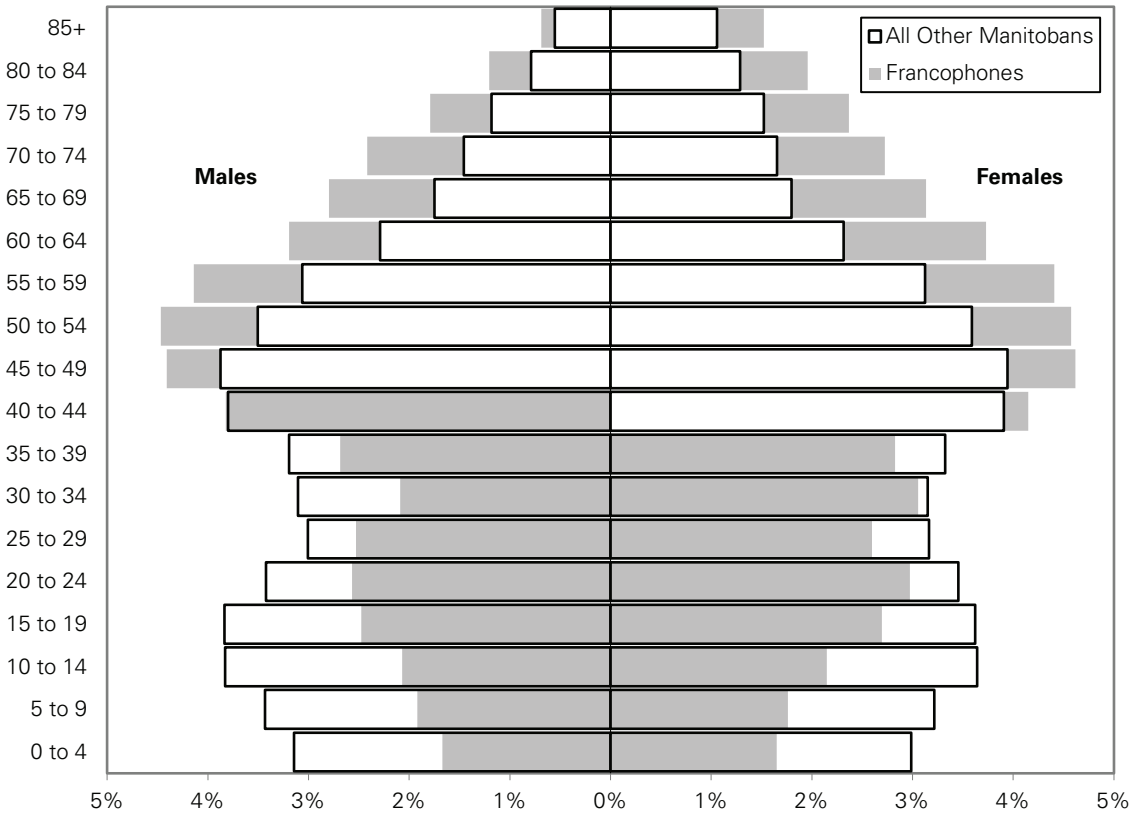
According to the 2006 Census of Canada (Table 2.1), about 40% of Francophones live outside of Winnipeg and the majority of those are in South Eastman and Central RHAs. There are very few Francophones living in the Northern RHAs. In fact, the numbers of Francophones living in the Churchill RHA are simply too small to report. This report will not show the results from Francophones in Churchill in order to protect their privacy. St. Boniface and St. Vital are the Community Areas within Winnipeg with the highest percentage of Francophones. However, it is important to note that a significant proportion of Francophones live in other areas of Winnipeg, notably Fort Garry (which includes the community of St. Norbert).

Sociodemographic Characteristics

Describing the sociodemographic characteristics of a population is an important first step in understanding the health of a population. Older populations have more health problems and, therefore, require more health services. On average, women have more health issues and have a longer life expectancy than men. Populations with higher employment, education, and income are likely to be healthier than populations with lower levels of these factors. Belonging to a minority group such as being **Aboriginal** or immigrant has been associated with poorer outcomes.

The **population pyramid** (Figure 2.3) was constructed using information from the 2006 Census of Canada. Francophones tended to be older than the Manitoba average. In 2006, 20.8% of Francophones were over 65 years old compared to 13.0% of all Other Manitobans. The Census of Canada (2006) also indicates that 11.2% of Francophones were under 15 years old and that 20.3% of all Other Manitobans were under 15 years old. There are more Francophones who are female (53%) than male (47%) because females have a longer life expectancy than males; and as previously noted, there are more older people in the Francophone population. The sex differences are less pronounced among Other Manitobans where 50.8% are female and 49.2% are male.

Figure 2.3: Age and Sex Profile of Manitoba, 2006
Francophone Population: 50,250
All Other Manitobans Population: 1,083,265



Adapted from Census of Canada, 2006

Table 2.2 indicates, that compared to Other Manitobans, a higher percentage of Francophones are not in the workforce (Francophones: 35.0% and Other Manitobans: 32.6%). This can be explained because more Francophones are over 65 years of age. Additionally, fewer Francophones report that they are unemployed than Other Manitobans (2.6% versus 3.8%). Francophones are slightly better educated as 47.4% of Francophones report having completed post–secondary education compared to 43.7% of Other Manitobans. The average income of Francophones is higher than Other Manitobans ($32,809 versus $31,216).

Table 2.2: Description of Francophones in Manitoba

	Percent of Francophones	Percent of All Other Manitobans
Sex		
Male	47.0%	49.2%
Female	53.0%	50.8%
Age		
under 15	11.2%	20.3%
15-64	68.0%	66.7%
65 and older	20.8%	13.0%
Employment		
Employed	62.5%	63.6%
Unemployed	2.6%	3.7%
Not in workforce	35.0%	32.7%
Education		
Did not complete High School	28.5%	29.5%
High School Diploma	24.1%	26.8%
Completed Post-Secondary	47.4%	43.7%
Average Income	$32,808.82	$31,215.99
Immigrants	5.9%	13.7%
Aboriginals	18.1%	15.4%
Of these Metis	94.7%	38.0%

Adapted from Census of Canada, 2006

We note in Table 2.2 that 18.1% of Francophones are Aboriginal; and of those reporting that they are Aboriginal, 94.7% are Metis. There is a lower percentage of immigrants among the Francophone population than Other Manitobans (5.9% versus 13.7%).

Historical, Social, and Political Context of Francophones in Manitoba

The persistent insistence on linguistic rights by Francophones in Manitoba may seem incomprehensible to those who are not aware of Manitoba's history. Jacqueline Blay has written extensively about the history of Francophones in Manitoba (2010). As early as 1738, the French explorer, La Verendrye, had established fur trading posts in the Red River region. During the fur trade period, trappers and voyageurs worked in the region and married First Nations women. By 1818, with the arrival of Lord Selkirk, the Red River settlement was established with the vast majority of its inhabitants being Metis and Francophone. After Lord Selkirk's death, the Hudson's Bay Company created the Council of Assiniboia to administer the Red River Colony. All legislation and by–laws of the Council of Assiniboia were drafted in both English and French (1854). In 1869, the Hudson's Bay Company sold the North–West Territories, including the Red River Colony to the Government of Canada. Canada announced that this vast area was to be admitted into Confederation as a territory. The Francophone Metis, Louis Riel, did not accept this decision and advised the Government of Canada that the Red River Colony wished to enter the Confederation as a province. A provisional government was formed with 12 representatives from the Anglophone parishes and 12 from the Francophone parishes. The Manitoba Act of 1870, which established Manitoba as a Canadian province, was written by that provisional government and stipulated that French and English were official languages. The 1871 Census indicated that Manitoba's population consisted of 4,000 Anglophone Metis, 5,700 Francophone Metis, and 1,600 white inhabitants (Scottish and French–Canadian).

In 1890, French as an official language in Manitoba was abolished. By 1916, the Government also abolished bilingual instruction. There was a 90–year period where the constitutionally guaranteed language rights of the French–speaking population were taken away. In the interim, Francophone and Metis communities endeavored to preserve their language and culture through protests and through political, educational, religious, and cultural organizations.

In the early 1960s, some official recognition of the French language was beginning to take shape and gradually language rights were restored and recognized on a provincial and federal level. In 1962, Manitoba Premier, Dufferin Roblin, announced that French language instruction could be restored to 50% of the school day. In 1969, Canada's Official Languages Act was proclaimed. By 1971, both French and English were recognized as languages for education in Manitoba. Georges Forest contested his English–only parking ticket in 1976 (Collins, 2010). The Canadian Charter of Rights and Freedoms recognized French and English as Canada's two official languages (1982). In 1983, a referendum in Manitoba rejected linguistic rights for Francophones in Manitoba. However a few years later, the Supreme Court of Canada declared that the 1890 law abolishing French in Manitoba was unconstitutional. The Francophone school division (Division scolaire franco–manitobaine) opened its doors to 20 French schools in 1994. The Government of Manitoba implemented its French Language policies. The Chartier Report developed recommendations on how to implement French Language services (1998).

Above All, Common Sense: Report and Recommendations on French Language Services Within the Government of Manitoba

The Report and Recommendations on French Language Services within the Government of Manitoba, also known as the Chartier Report, has been influential because it clearly evaluated the strengths and shortcoming of the provision of French language services in Manitoba and proposed concrete plans to improve them (1998). The report begins by describing the historical, social, and political context of the French language in Manitoba and of the Francophone and Metis communities. Based on this context, 29 recommendations were made to ensure that the Government of Manitoba honors the linguistic rights of French–speaking Manitobans. Among the recommendations are that Community Service Centres be established in designated bilingual areas to provide service in both official languages for health, family services, education, justice, and agriculture; bilingual staff be trained and recruited; and annual reports of French Language Services be utilized to track progress.

Summary

This chapter provided the basis for the definition of Francophone and how survey and administrative data were utilized to define Francophone in this report. It included descriptions of the distribution and sociodemographic characteristics of this population. It provided a brief overview of the social, political, and historical context which surrounds Francophones living in Manitoba. It touched on the role of language and culture in understanding the health of Francophones. Against this backdrop, MCHP was asked to evaluate the health and health services utilization of Francophones in the province to determine if there are differences between this population and other Manitobans.

Chapter 3: Methods

This chapter describes how the Francophone Cohort was created, which databases were utilized, and the types of statistical methods selected. Examining the health of Francophones in minority settings is challenging because of the lack of available data identifying the Francophone population; and where data exists, there are insufficient sample sizes for meaningful reporting (Picard & Allaire, 2005; Schofield & Gauthier, 2007). These were some of the challenges in the present study as well. Rates and rate ratios for this study were calculated from two samples of Francophones: 1) Francophones identified through representative randomly selected survey samples and 2) Francophones identified through the Population Health Research Data Repository (Repository) at MCHP. To identify as many Francophones living in Manitoba as possible, databases housed at MCHP were scanned for data regarding **maternal languages** and linguistic preferences for health and education services or for correspondence in French. Many years of data were available which increased our ability to identify Francophones for purposes of this study (i.e., 1970 to 2009). Anonymized language data from a variety of databases were linked to anonymized **administrative health data** contained in the Repository. The databases included national surveys and administrative data for health, child care, social services, and education.

We have three levels of certainty in our identification of Francophones. The highest level of certainty is when an individual has met the definition of being a Francophone, either through a survey or through one of the administrative databases. The second level would include people who are very likely to be Francophone as they attended a school in the Francophone School Division or lived in a predominantly Francophone personal care home. The third level includes people where there is a reasonably high probability of being a Francophone as a result of being a first–level relative of someone who was identified in the first two categories. In the following sections, we describe the process of identifying people as Francophones.

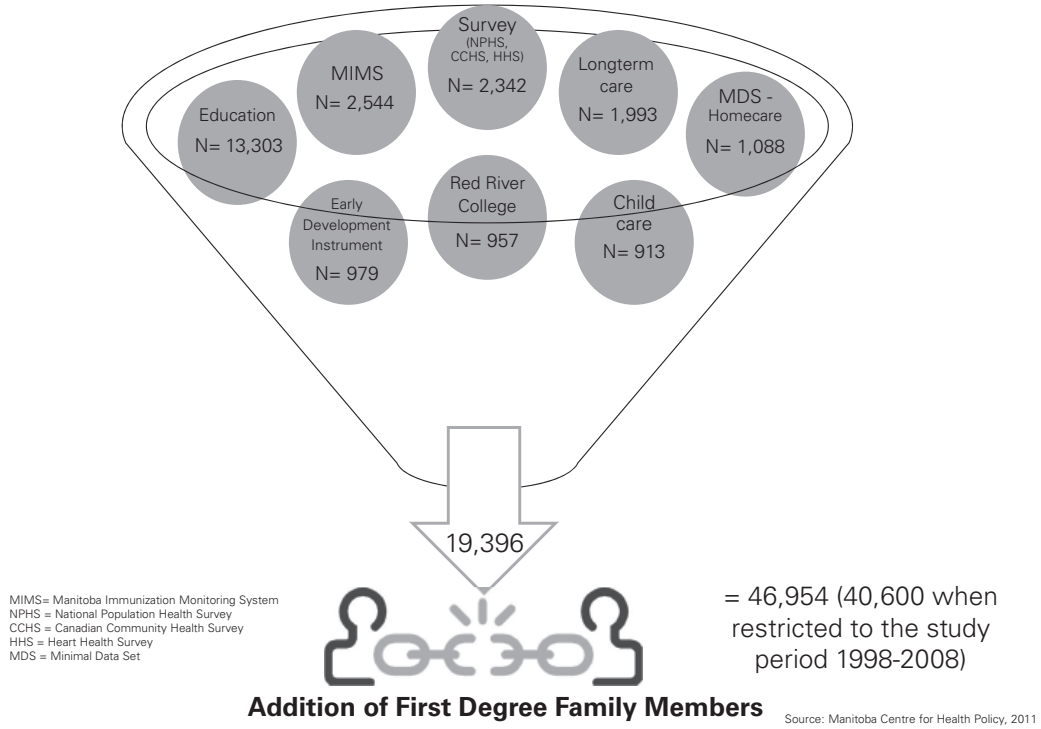
Francophones Identified Through Databases Housed at MCHP

While the survey data allow us to present provincial level information on the health of Francophones, the research team sought to create a larger cohort of Francophones by utilizing the databases in the Repository. MCHP develops and maintains the comprehensive Repository on behalf of the Province of Manitoba. The Repository houses a collection of administrative databases, which were originally collected to administer health, education, and social services in Manitoba. Data are population–based, capturing virtually all contacts by Manitoba residents involving the health and other services administered by these data systems. The Repository contains no personal identifying information, such as names and addresses; and a numeric identifier is encrypted prior to the data being deposited in the Repository. Because the identifier is encrypted in the same way for each file, these datasets are linkable across files and over time. The data in the Repository have been studied extensively and validated for research purposes (Kozyrskyj & Mustard, 1998; Metge, Black, Peterson et al., 1999; Robinson & Tataryn, 1997; Roos & Wajda, 1991; Roos, et al., 1993; Roos & Nicol, 1999; Roos, Gupta, Soodeen et al., 2005; Roos, Brownell, Guevremont, et al, 2006). The steps to create the Francophone Cohort included

- Selection of Francophones using MCHP administrative data and survey data
- Addition of first degree family members through registry linkage

Figure 3.1 illustrates the first two steps taken to create this Francophone Cohort.

Figure 3.1: Schematic of Steps Involved in the Creation of the Francophone Matched Cohort



Selection of Francophones Using Administrative Data

A cohort of approximately 19,396 Francophone Manitobans was created from different forms of language data in the administrative databases. For example, individuals who attended a school offering a "français" program, those who were in Francophone Personal Care Homes, or who requested their health–related correspondence in French were included in the cohort. Approximately 90 databases were reviewed in search of information related to language. It is important to note that most of the Manitoba databases had no linguistic information. The databases, including survey databases, utilized to compile the Francophone Cohort are summarized in Tables 3.1 and 3.2.

Statistics Canada Surveys include the National Population Health Survey (NPHS, 1996) and the Canadian Community Health Surveys (CCHS, 2000–2008). The **Heart Health Survey** (HHS) was conducted in Manitoba in 1998/99. Education data includes all children attending school in Manitoba between 1995/96 to 2008/09. Children who had attended a school from the Francophone school division, Division scolaire franco–manitobaine (DSFM), were captured in the database. **Red River College data** indicate the high school from which a person graduated, therefore those who were graduates from DSFM were included. The **Manitoba Immunization Monitoring System (MIMS)** reports the preferred language of correspondence. We were able to identify certain child care centres where the preferred language is French and have included the children who attended those centres. The Early Development Instrument, an assessment conducted for Kindergarten children in Manitoba, included a question regarding the primary language of the child. There are two Personal Care Homes that primarily serve Francophones (Foyer Valade and Villa Youville). The Minimal Data Set (MDS) data collected by the Manitoba Home Care Program indicates an individual's preferred language.

Table 3.1: Data Sources for Francophone Cohort
Numbers are not mutually exclusive

Data Source	Number
Statistics Canada Surveys	2,174
Heart Health Survey	168
Education	13,303
Red River College	957
Manitoba Immunization Monitoring System (MIMS)	2,544
Child Care Centres	913
Early Development Instrument (EDI)	979
Longterm Care	1,993
Minimal Dataset Homecare	1,088
Total (combined sources)	**19,396**

Source: Manitoba Centre for Health Policy, 2012

Table 3.2: Number of Francophones Identified from each Survey
Numbers are mutually exclusive, first survey found is recorded

Survey	Number
Heart Health Survey (1989/1990)	168
National Population Health Survey (1996/97)	547
Canadian Community Health Survey 1.1 (2000-2001)	387
Canadian Community Health Survey 1.2 (2002)	94
Canadian Community Health Survey 2.1 (2003)	338
Canadian Community Health Survey 2.2 (2004)	133
Canadian Community Health Survey 3.1 (2005)	364
Canadian Community Health Survey 2007	156
Canadian Community Health Survey 2008	155
Total	**2,342**

Source: Manitoba Centre for Health Policy, 2012

Several years of data are included in the databases, so that Francophones could be identified at many points in time. This method did not enable us to find all Francophones in Manitoba. Many Francophone children do not register in the "français" program. It is estimated that about 50% of Francophone children do not attend French schools for many reasons (proximity of school, social networks, discomfort with French language skills, discomfort with language rights) (Landry, 2003). Many Francophones will not request French language services.

Francophones Identified Through Family Linking

The Francophone Cohort was supplemented by adding **first order family members** of the 19,396 Francophones identified through the language flags. First order family members included parents, children, and siblings. For Francophones born before 1952, we also added the spouses of Francophones. It is acknowledged that not all of the 27,558 family members of Francophones included in the Francophone cohort are French–speaking or would consider themselves Francophones. We estimated that about two–thirds of the 27,558 additional members would be French speaking and those who are

not French speaking can be considered part of the Francophone community through family ties. We decided not to include second order family members (grandparents, uncles, cousins) because of the greater uncertainty about their language group. The Francophone Cohort contained 46,954 individuals after the family linking was completed; however, 40,600 remained for the study period 1998–2008.

Many Francophones teach their children how to speak French, however a significant proportion of them do not. Landry examined the rate of transmission of the French language from parents to children among Francophones living outside of Québec (Landry, 2003). Across Canadian provinces excluding Québec, 74% of children of Francophones will have French as their **maternal language**. The spouse's language greatly influences whether children of Francophones speak French or not. About 37% of Francophones outside of Québec have a spouse who is not Francophone. In Manitoba, lower rates of French–language transmission are found, and these rates vary depending on the family structure. If both parents are Francophone, 68% of children will use French as the main language at home and 88% will know how to speak French. If one parent is a Francophone and the other is a non–Francophone, 13% of the children will use French as the main language at home and 42% will know how to speak French. If the Francophone is a single parent, 32% of the children will use French as the main language at home and 58% will know how to speak French.

The most reliable family linkage is likely through the siblings. If a child is a Francophone, the chances are high that his or her siblings are also Francophones. As described by Landry above, there is more uncertainty with parents and children (Landry, 2003). It is estimated that about a third of Francophones' family members will not be French–speaking. In Manitoba, the rate of Francophones with non–Francophones spouses is believed to be very high among the younger individuals; therefore the family linkage through spouse was limited to those born before 1952.

More details of how the family linking was conducted are found in the Appendix at the end of this chapter. We reasoned that including the 27,558 family members in our sample was justified for the purposes of this study as the goal was to estimate health indicators in the Francophone population. As noted earlier, the majority of the family members would be French speaking and those who didn't would have close ties to the Francophone community. This would mean that approximately 80% of our total sample is likely Francophone.

Our study summarizes health or healthcare utilization indicators in the period from 1998 to 2008. During this time period, the cohort size was 40,600 Francophones. Table 3.3. displays the number of Francophones in the Francophone Cohort used in this study by RHA.

Matching the Francophone Cohort with a Non–Francophone Cohort

A Matched Cohort of Other Manitobans was created to ensure that the differences between Francophones and Other Manitobans are not based on age, sex, and geographic area. Geographic area (Community Areas and Neighborhood Clusters within Winnipeg and RHA districts outside Winnipeg) was utilized as a proxy for socioeconomic status to control for the strong effects of socioeconomic status on health. Geographic area may also help account for other unmeasured differences between areas such as culture and social capital. Three other Manitobans of the same age and sex as each Francophone were randomly selected within the geographic area as a match for each Francophone in the cohort. In 90% of the cases within Winnipeg and 80% of the case outside of Winnipeg, the other Manitobans were found within the same geographic area as the Francophone. As explained in detail in the next section, we would expect better health status of both groups than the general population because

Table 3.3: Distribution of the Francophones in Francophone Cohort

RHA	Francophones in Cohort	
	Number	Percentage
South Eastman	9,112	22.4%
Central	4,379	10.8%
Assiniboine	1,342	3.3%
Brandon	643	1.6%
Winnipeg	21,284	52.4%
Interlake	945	2.3%
North Eastman	1,148	2.8%
Parkland	1,129	2.8%
Churchill	7	0.0%
Nor-Man	247	0.6%
Burntwood	364	0.9%
Manitoba	40,600	100.0%

Source: Manitoba Centre for Health Policy, 2012

Table 3.4: Demographics of the Francophone and Matched Cohorts

Descriptor	Francophones Cohort		Matched Cohort	
	Number	Percentage	Number	Percentage
Male	19,499	48.0%	58,497	48.0%
Female	21,101	52.0%	63,303	52.0%
Age Group				
0-19	11,142	27.4%	33,427	27.4%
20-64	25,199	62.1%	75,601	62.1%
65 and older	4,259	10.5%	12,772	10.5%
Income Quintiles				
Rural 5 (highest)	4,510	11.2%	16,472	13.6%
Rural 4	6,375	15.9%	14,316	11.8%
Rural 3	3,914	9.7%	9,957	8.2%
Rural 2	2,642	6.6%	8,110	6.7%
Rural 1 (lowest)	1,215	3.0%	7,039	5.8%
Urban 5 (highest)	3,847	9.6%	15,375	12.7%
Urban 4	4,613	11.5%	12,551	10.4%
Urban 3	3,499	8.7%	10,868	9.0%
Urban 2	5,242	13.0%	13,379	11.1%
Urban 1 (lowest)	4,341	10.8%	12,835	10.6%

Source: Manitoba Centre for Health Policy, 2012

there are more young individuals in the sample. For example, the **mortality rate** was 5.0 per 1,000 for Francophones and 6.3 per 1,000 for Other Manitobans. As anticipated, these rates were considerably lower than the Manitoba average of 8.0 per 1,000 (Fransoo et al., 2009).

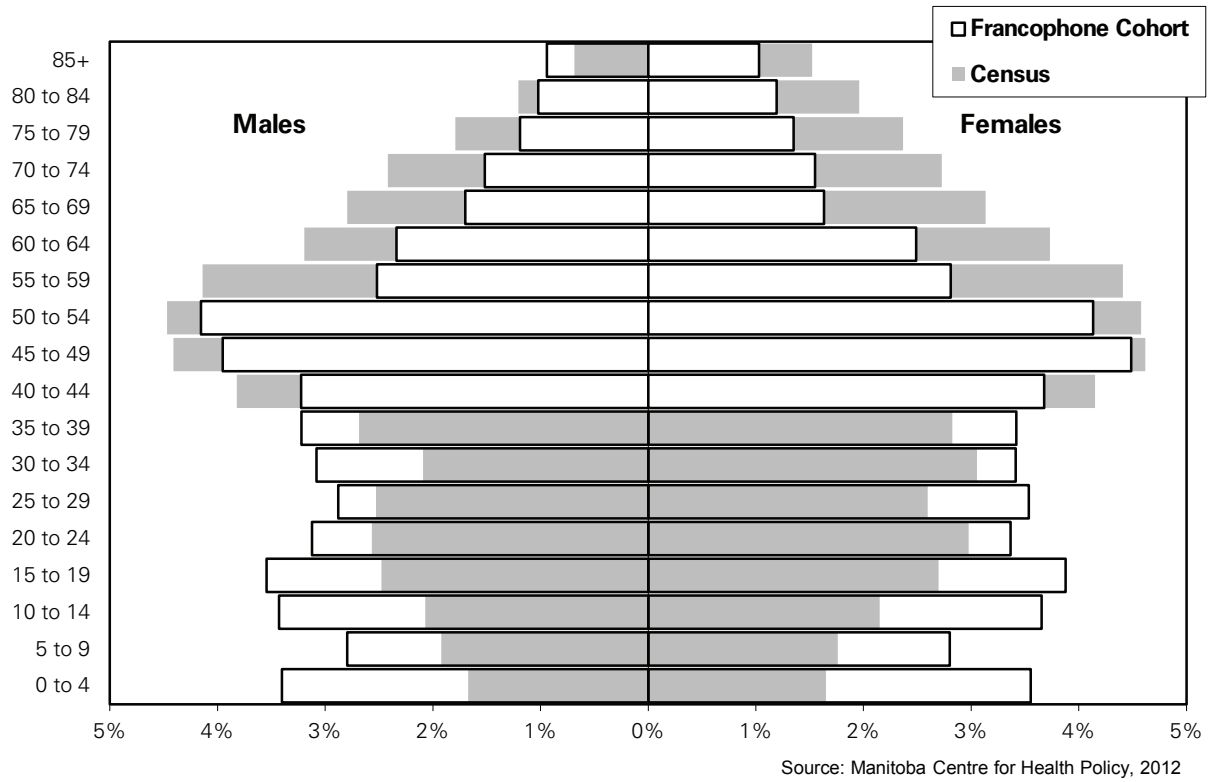
The Matched Cohort permitted the comparison of health indicators for the Francophones and non–Francophones and increased our understanding of the health of Francophones. Greater details regarding the matching procedure and its considerations are described in the Appendix at the end

of this chapter. Table 3.4 shows the sociodemographic characteristics of the Francophones and the Matched Cohort of Other Manitobans. Both groups have similar age, sex, and socioeconomic distributions because of the matching procedure. The sample size of the Cohort of Other Manitobans is three times larger because of the matching procedure.

Addressing Representativeness of the Francophone Cohort and the Matched Cohort

We wondered whether the Francophone Cohort of 40,600 was representative of the 50,250 Francophones in the province. It is important to ensure that the conclusions drawn from this study represent health and healthcare service utilization of the actual Francophone population. In reviewing the population pyramid (Figure 3.2), the Francophone Cohort does not have the same age distribution as the Francophone population. The Francophones in the Cohort tended to be younger than the Francophone population in the 2006 Census data. Since younger people are healthier than older ones, the rates obtained through this cohort would reflect a healthier population than may actually be the case. We also wondered if some other selection biases were present. The Francophones selected in the Francophone Cohort may have different characteristics than the actual population. For example, Francophones not requesting services in French may have different characteristics than those who do.

Figure 3.2: Comparison of the Francophone Age and Sex Profile in Manitoba between the Francophone Cohort and the Francophones Identified in the 2006 Census of Canada
Francophone Study Cohort Population: 40,600
Census Francophone Population: 50,250



Source: Manitoba Centre for Health Policy, 2012

Surveys from Statistics Canada and other sources have been conducted throughout the years that have included variables to identify Francophones. These variables (both directly reported and derived) include the respondent's mother tongue, language utilized at home and the first official language learned. We were not able to report on all indicators pertaining to children due to the younger age groups being excluded from these surveys. Also, no results were reported for indicators with low **prevalence** rates because the sample size was insufficient (e.g., injury rates, **suicide**, and suicide attempt rates).

Permission was granted to link the Repository data to 2,342 Francophones from the Canadian Community Health Survey (CCHS), the **National Population Health Survey (NPHS)**, and the Heart Health Survey. Data from seven CCHS cycles were pooled based on methodology recommended by Statistics Canada (Thomas and Wannell, 2009). Table 3.2 shows the sample size from each survey. The survey sample size was large enough to calculate health indicator rates on the Manitoba level and for some indicators at a broad regional level. Reporting on only a provincial level or broad regional levels limits the usefulness of the information, since most health planning is done at the RHA level outside of Winnipeg and on a Community Area level within Winnipeg. The main advantage of survey data is its representativeness of the Francophone population because of the random sampling methods used. Other advantages include language variables that reliably discern Francophones from other respondents and that the survey data can be linked to health indicators found in the Repository. Disadvantages include the small sample sizes which do not permit reporting at an RHA level. Another disadvantage is that survey data do not include certain groups of Manitobans including people living in First Nations communities, in the military, and in institutions.

To address these actual and potential biases, we introduced two safeguards:

- Match each Francophone in the Cohort with a Non–Francophone of similar age, sex, and geographic characteristics thereby creating the Matched Cohort (described in the previous section).
- Check rates from the Matched and Francophone Cohorts against rates from the representative survey samples (described in the following section).

Comparing Results from the Francophone Cohort and Matched Cohort to the Representative Survey Sample

In the following section, health indicator rate ratios from the Francophone and Matched Cohorts were compared to a Survey Sample (Canadian Community Health Survey, National Population Health Survey, and **Manitoba Heart Health Survey**). This served to assess whether our results would be comparable to a sample representative of Francophones and Other Manitobans. **Statistical testing**, using **bootstrapping**, was conducted to determine if the rates obtained from the survey sample were different than the rates obtained by the Francophone and Matched Cohorts. (See glossary term "Statistical Testing" for detailed explanation.) Almost all adjusted rate ratios from the Francophone and Matched Cohorts were considered to be the same as those calculated from the survey samples. This increases our confidence that the conclusions drawn in this report reflect the health and healthcare utilization of the actual Francophone community in Manitoba.

In each chapter, a table is presented indicating the rate ratios for the Francophone and Matched Cohorts and from the Survey Sample. Here is an example from Chapter 7 showing rates of preventative services (adult **immunization**, **breast cancer screening**, and **cervical cancer screening**).

Table 7.5.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Adult Flu Immunization	2007-2008	64.80%	61.68%	1.05 (d)	68.27%	62.81%	1.09 (d)
Breast Cancer Screening	2005/06-2006/07 & 2007/08-2008/09	65.57%	60.44%	1.08 (d)	73.34%	64.10%	1.14 (d)
Cervical Cancer Screening	2006/07-2008/09	68.86%	63.50%	1.08 (d)	69.40%	64.21%	1.08

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

We note that despite the younger age distribution of the Francophone and Matched Cohorts compared to the Survey Sample, the rates of preventative services are similar across samples. We are interested in how Francophones compared to Other Manitobans, therefore we focus on the Adjusted Rates. Adjusted rates are used to take into account the age and sex distribution of each cohort (which in this case is identical because we matched on age and sex). These adjusted rates are then used to create "Adjusted Rate Ratios" which is simply the adjusted rate of the Francophone Cohort divided by the adjusted rate of the Matched Cohort. We notice that the Rate Ratios are larger than "1" meaning that Francophones are more likely to utilize preventative services than non–Francophones. The lower–case "d" means that the differences in rate ratios are statistically significant (likely not due to chance). We also notice that all of the Adjusted Rate Ratios in the table are consistently larger than "1" and further, that the Francophone and Matched Cohorts and the Survey Sample have similar adjusted rate ratios, although not exactly the same. They can be considered to be the same since no capital "D" is noted meaning that any observed differences are due to chance.

Reporting Rate Ratios Rather than Rates

Rate ratios are reported throughout the report rather than crude and adjusted rates. A rate ratio is simply the ratio of two rates. We did this because the actual rates may not be accurate since people in the cohort, created for this study, are younger than the actual population. Rate ratios will be an actual reflection of the relative difference between Francophones and Other Manitobans. Unlike most other MCHP reports, this report is not a population–based analysis. This is because not all Francophones in Manitoba were identified. However, this report does increase our understanding of the association between being a Francophone and health outcomes because of the matched comparison group with the same age, sex, and geography (or socioeconomic status).

In this report, the rate ratio is the Francophone Cohort Rate divided by the Matched Non–Francophone Cohort (Other Manitoban) Rate. For example, the adjusted mortality rate for Francophones and the Matched Non–Francophones are respectively 5.00 and 6.33 per 1,000. The adjusted rate ratio is 0.79 (5.00 divided by 6.33). A rate ratio lower than "1" would mean that Francophones have a lower mortality rate than Non–Francophones. A rate ratio higher than "1" would mean that Francophones have a higher mortality rate.

The Data Sets Used in this Research

MCHP, a research unit of the Department of Community Health Sciences in the University of Manitoba's Faculty of Medicine houses sets of data collectively referred to as the Population Health Research Data Repository (often referred to as the Repository). The Repository *is a comprehensive collection of administrative, registry, survey, and other databases primarily comprising residents of Manitoba. It was developed to describe and explain patterns of healthcare and profiles of health and illness, which facilitates 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 steward of the information in the Repository for agencies such as Manitoba Health.* Prior to MCHP using these data, identifying information such as name and street address are removed. In addition, the true health number (**personal health information number** or PHIN) is scrambled into a fictitious and encrypted PHIN only used in the Repository housed at MCHP. Therefore, the Repository contains **de–identified data**, which are only "linkable" across files through a fictitious number assigned to the records and are only linked for purposes of the study after all approvals are met: ethical approval from the Faculty of Medicine's Health Research Ethics Board, review by the Health Information Privacy Committee of the Government of Manitoba, and approvals from various government departments who are custodians of certain databases.

Chapters 4 through 16 (with the exception of Chapter 15) report data from the Repository. The Repository includes information of key interest to health and social planners, such as mortality and birth information, physician and hospital use, pharmaceutical use, use of services such as home care and nursing homes (Personal Care Homes), and information derived from education and family services programs. For Chapter 15, indicators are based upon the Canadian Community Health Surveys (CCHS), which are survey data from Statistics Canada for those aged 12 and older. In this report, we use aggregated survey information derived from amalgamating CCHS cycles 1.1 (2001), 2.1 (2003), 2.2 (2004), 3.1 (2005), 2007, and 2008 to overcome the problem of small sample sizes and allow for rates to be given for four areas (Winnipeg RHA, South Eastman RHA, RHAs in the South Western region, and RHAs in the Mid and Northern RHAs.) For this research, we used only those CCHS respondents who agreed to have their data available to provincial health departments for research purposes. Knowing it is a survey, indicators in Chapter 15 are not truly population–based, but the samples are selected in such a way as to approximate the true population values.

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

- Hospital claims (records of hospital **discharges**)
- Medical claims (records of visits to physicians outside of those occurring to a hospital in–patient)
- Physician Registry files (to identify the type of provider)
- Home Care (records of the use of provincial and Winnipeg RHA home care services)
- Personal Care Homes (records of the use of nursing homes)
- **Manitoba Health Insurance Registry** data (records of the time a person is registered as a resident of Manitoba, as well as their age, sex, area of residence, siblings, and marital status)
- **Vital statistics** (records of births and deaths, causes of death)
- Pharmaceutical claims (records of pharmaceutical prescriptions dispensed)
- Manitoba Immunization Monitoring System (MIMS) (records of immunizations)

- Census Files (1990, 1996, 2001 and 2006) (socioeconomic information and counts of Francophones and others at the neighbourhood level)
- Canadian Community Health Surveys (CCHS) cycles 1.1, 2.1, 2.2, 3.1, 2007, and 2008
- National Population Health Surveys (NPHS) cycle 1996–97
- Manitoba Heart Health Survey (1986)
- Healthy Child Manitoba
    - Early Development Instrument Data
    - Families First Data
- Child Care Centres Data
- Education enrolment and achievement data deposited by the Ministry of Education, Citizenship, and Youth
- **Red River College** Data
- Ministry of Family Services and Consumer Affairs including information on income assistance beneficiaries

All data management, programming, and analyses were performed using SAS® version 9.2

Selection Criteria from Each Database

- Survey data (HHS, NPHS, CCHS) – questions were asked about the respondent's mother tongue, first official language learned and the main language used at home.
- Education – School number and division number (DSFM)
- Red River College Data – High school attended; College/University attended
- MIMS – Language of correspondence
- Child Care Centres – Children whose preferred language was French (from the Subsidized Child Day Care Program); children who attended a facility that offered francisation or was a part of the Division scolaire franco–manitobaine (DSFM).
- Early Development Instrument – First Language
- Personal Care Home data – Facility Code (Foyer Valade, Villa Youville), Primary Language
- MDS Homecare – Client's language, primary language

How Rates Were Generated

Rates are frequently age– and sex–adjusted through an epidemiological technique called **direct standardization**. This is used to enable comparisons between different groups that may have a different age and sex distribution. In this report, the count of events for each indicator was modeled using a statistical technique called a **Generalized Linear Modelling (GLM)**, suitable for non–normally distributed data such as counts. Various distributions were used for different indicators—for example, **Poisson distribution** (very rare events), **negative binomial distribution** (relatively rare but highly variable), and binomial distribution (two outcomes, yes and no)—depending upon which fit the data best. In the models that were used to create the bar graphs, **covariates** of age and sex were included in the model to adjust for differences in regional age/sex distributions.

As described earlier, rate ratios are utilized to report the relative health of Francophones in Manitoba. We have also reported the rates to illustrate the differences of Francophones across regions. It is important to be aware of because the rates may not be representative of Francophones in Manitoba. The Francophone Cohort is comprised of more younger people than the actual population, therefore the rates will reflect a healthier population than is actually the case.

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

Rates are **suppressed** (that is, not reported) where the counts upon which the rates are based represent five events or less (unless the rate is truly 0, in which case it can be reported). **Data suppression** is to avoid breeches of confidentiality and is similar to the way in which Statistics Canada reports data. Throughout the report, the letter "s" in brackets beside area name on the left–hand side of the graph indicates a suppressed rate. There were very few Francophones living in Churchill, therefore to protect their confidentiality, results are not reported for Churchill.

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

Statistical Testing

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

The graphs in this report contain information about statistical comparisons. This simply gives an indication as to whether or not the rates of health indicators of Francophones in an area is statistically higher or lower than Other Manitobans or if the rates should be considered similar to each other when no statistical difference is noted. When a large difference is observed that is NOT statistically significant, it is telling us that these rates are considered similar, since it could fluctuate greatly from year to year. This is usually due to the rate being based on small numbers (either a small number of events or a small underlying population), so it could change from year to year and may be higher, similar, or lower than the comparison the next time it is measured.

Multiple Comparisons

The **confidence limits** for this study were set at 95%, meaning that if 100 **confidence intervals** were examined, there would be five that would not have the true value within the confidence interval. A large number of statistical tests were conducted to examine the relationship between being Francophone and health indicators. There were 76 indicators examined in this deliverable. Each indicator was also stratified by RHA, Winnipeg CAs or broader regions. We would expect 5% of these to miss the corresponding true value. The potential misuse of multiple testing would be to only report the associations that were statistically significant and ignore those with no associations.

Rothman and Greenland discuss the use of **Bonferroni adjustments** when making multiple comparisons (1998). For this sample the adjustment would be 0.05/1,500 = 0.000033 = 99.9967%. This would produce very wide and conservative confidence levels and produce estimates that would be more imprecise than necessary. The authors recommend:

"Most audiences will find acceptable a presentation of the results of all single–inference procedures (e.g. confidence intervals for all examined associations). When this is not possible and one must select associations to present based on statistical criteria, one should at least take care to note the number and nature of the associations examined and the probable impact of such selection on the final results (for example, the high probability that at least a few intervals have missed their target)" (Rothman & Greenland, 1998).

Logistic Regression Modeling of Selected Outcome Indicators

For selected indicators, the use of **logistic regression** enabled us to determine the unique contribution of many factors on the outcome indicator when taking into account other factors besides just age and sex differences in the population, such as differences in average household income, education, marital status, and health behaviors (that we know relate to health). The indicators examined included Mortality, Diabetes, Number of Different Drugs, Hospital Discharge Rate, Hypertension, **Substance Abuse**, Good Mental Health, and Second–Hand Smoke. The CCHS survey sample of 2,342 Francophones was utilized for these analyses because information on these important factors were included in the surveys.

For example, in the case of diabetes (Chapter 5, Table 5.5.1 , shown here), we wanted to know if being Francophone was a predictor of diabetes after controlling for many 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). An OR of greater than 1 (with 95% Confidence Limits both above 1 and a p–value less than 0.05, meaning statistically significant) means that there is a higher likelihood. An OR of less than 1 (with 95% Confidence Limits both below 1) means a lower likelihood. An OR around 1 (or 95% Confidence Limits crossing over 1 and a p–value which is greater than 0.05, meaning not statistically significant) means that this characteristic has no statistically significant effect on the outcome once you control for the effects of the other variables. An Odds Ratio of 3 means that there is three times the likelihood of this, and an Odds Ratio of 0.5 means there is half the likelihood of this occurring compared to a reference group. Caution needs to be used, however, since a likelihood cannot necessarily be translated into "three times the risk" unless it is a relatively rare event, where Odds Ratios and Relative Risks are similar numbers.

Summary

In completing this analysis we have:

- Identified a cohort of individuals who are or likely are Francophone
- Matched these individuals by age, sex and geography to individuals who are not likely Francophone
- Compared these two groups for health status and health services utilization using rate ratios
- Tested the differences between the groups to identify where the differences are statistically significantly different
- Tested our findings at the provincial level using both survey data and age– sex–adjusted results

In the following chapters, we will review the results of this analysis.

Table 5.5.1: Logistic Regression of the Risk of Diabetes, 3 Years after Survey
Basic Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	0.916 (0.688, 1.220)
Age	**1.047 (1.043, 1.051)**
Males (vs. Females)	**1.441 (1.228, 1.692)**
Aggregate Regions (ref = Winnipeg)	0.888 (0.753, 1.048)
Rural South	0.888 (0.753, 1.048)
Mid	0.999 (0.818, 1.218)
North	1.177 (0.929, 1.492)
Brandon	1.022 (0.765, 1.365)

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Appendix for Chapter 3

Difference Between Prevalence Rates and Incidence Rates

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

In contrast, an **incidence** rate refers to the number of new cases of a condition or events that occur as a proportion of a population, and it also involves a time period in which these events occurred. For example, Francophones have a rate of hospitalization of 109 per 1,000 persons per year, compared to 110 for all Other Manitobans. In an incidence rate, a person can contribute more than one event, for example, one person could have more than one hospitalization contributing to this rate during the year.

Family Linking Methods

The first–order family members of Francophones in the Francophone Cohort were identified through health **registration numbers** in the Registry. By first order, we mean parents, children, siblings, and spouses. The Registry contains longitudinal demographic histories for every individual who has registered for the Manitoba Health Services Insurance Plan since 1970. From 1970 to 1984, individuals were found using a combination of **family registration number (REGNO)**, date of birth, and sex. From 1984 and onward, an individual Personal Health Identification Number (PHIN) was assigned to each provincial resident. When an individual reaches eighteen years of age, he or she receives his or her own family registration number. Upon reporting her marriage to Manitoba Health, women are given the choice to receive the registration number of her husband or to keep her own. The family linkage is more successful for younger individuals, because of the way REGNO was assigned. For example, it is only possible to identify siblings in the 2008 population file who are 56 years and younger. A person must be under 18 in 1970 or later in order to ever be identified as a dependent, which puts a lower limit on birth year of 1952.

Different methods were utilized to link family members. The Registry begins with families as of 1970 (and will thus include children born in 1952 and later).

Mothers and fathers are identified through different methods. Mothers were found through hospital birth records for Manitoba births after 1970. Fathers were identified through the registry data alone, specifically the male family head of a child's birth REGNO.

Children were identified by finding dependents associated with each male and female family head. Single–parent families have the children assigned to whichever parent can be identified.

Siblings were not identified directly, but rather as being dependents of the same family head at birth. Siblings were defined as those sharing a female family head, for those having one identified, and male family head for those who do not. Female family head were utilized first because 98.8% of children had one, while male family head was only found for 78.3%. Single parents are more often female; and in the event of divorce the mother usually gets custody, either legally or practically.

Spouses were identified through a "spouse pair flag" found the in the Registry. These flags exist for Spouse or Common–Law Spouse who report their marriage to Manitoba Health so some spouses will not be found.

Matching Methods

Two Matched Cohorts of Other Manitobans were made; one for examining health status over a 10–year period and one for a five–year period. The 10–year period is used for rarer events such as mortality and certain medical procedures. The five–year period is used for most of the indicators.

To ensure that the matching procedure itself did not introduce a bias, we considered factors that would affect the Francophones and the Matched Cohort. Because we allowed new births in our Francophone Cohort, we allowed new births in the Other Manitobans. Because we allowed Francophones who may have been newly covered, we allowed this in the Other Manitobans as well. It was important to include new births and newly covered to retain as many in our Francophone sample as was possible.

For the 10–year period, three Other Manitobans were matched by age, sex, and area for every Francophone. The matching is done in a random manner as to not introduce a systematic bias. We identified 40,600 Francophones who were alive and had health coverage as of December 31, 1998, or were born in the 10–year period, or had become newly eligible for health coverage in that period. These individuals are matched on their age, sex, and geographic area (Community Area Neighborhood Clusters within Winnipeg and **Regional Health Authority (RHA**) districts outside Winnipeg) where they lived on December 31, 1998. Francophones who are residents of a **personal care home (PCH)** are matched with non–Francophones who are also residents of a PCH.

To account for the varying lengths of time that the data are available for all individuals in the database, rates are calculated by **person–years**. It is possible to calculate the length of time of coverage for each individual using birth dates, end of coverage dates, or start of coverage dates. For example if someone is born in 2000, their rate will be calculated over eight person–years rather than 10 person–years.

For some individuals, there are gaps in coverage. They may have moved away from Manitoba and then came back. Anyone with a gap shorter than 90 days is considered continuously covered through the gap. For those with gaps longer than 90 days, we use only the latest period of continuous coverage.

Selecting a Matched Cohort for the five–year period is similar to the 10–year cohort except that the start date will be December 31, 2003 rather than 1998.

Person–Years

In this report, rates are presented for "person–years". Person–years is a measurement combining person and times as the denominator in incidence and prevalence rates when, for varying periods, individuals are at risk of developing a disease, using a health service, or dying. Person–years are utilized in the analyses to allow us to include as many individuals as possible in the calculations. We could use individuals who were not part of the cohort for the entire time period.

Chapter 4: Population Health Status and Mortality

Indicators in this chapter:

- 4.1 Premature Mortality Rate (PMR)
- 4.2 Total Mortality
- 4.2.1 Causes of Death
- 4.3 Injury Mortality
- 4.4 Life Expectancy at Birth
- 4.5 Suicide or Suicide Attempt
- 4.6 Comparison of Rates between Samples
- 4.7 Findings from the Literature
- 4.8 Supplementary Tables

Overall Key Findings

- Overall, the health status of the Francophone Cohort in Manitoba is similar to the Matched Cohort of Other Manitobans, but there is regional variation.
- The rate of suicide and suicide attempts is lower for Francophones throughout the province compared to Other Manitobans. The rates also vary somewhat among Francophones depending upon the area in which they live.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 4.0: Summary of Population Health Status and Mortality Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Region (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Premature Mortality		
Manitoba		
South Eastman (f)		↓
SE Western (f)		↓
St. Boniface		
St. Boniface East (d)	↑	
St. Boniface West (d)	↓	
St. Vital (d)	↑	
Point Douglas (f)		↑
Total Mortality		
Manitoba (d)	↓	
South Eastman		
SE Western (f)		↓
SE Southern (d)	↓	
St. Boniface		
St. Boniface West (d)	↓	
St. Vital		
St. Vital South (f,d)	↑	↑
Point Douglas (f)		↑
South West RHAs (d)	↓	
Life Expectancy - Males		
Manitoba		
South West RHAs (d)	↑	
Life Expectancy - Females		
Manitoba		
South West RHAs (d)	↑	
Suicide Attempts or Deaths		
Manitoba (d)	↓	
South Eastman (d)	↓	
St. Boniface (d)	↓	
Mid + North RHAs (d)	↓	

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups

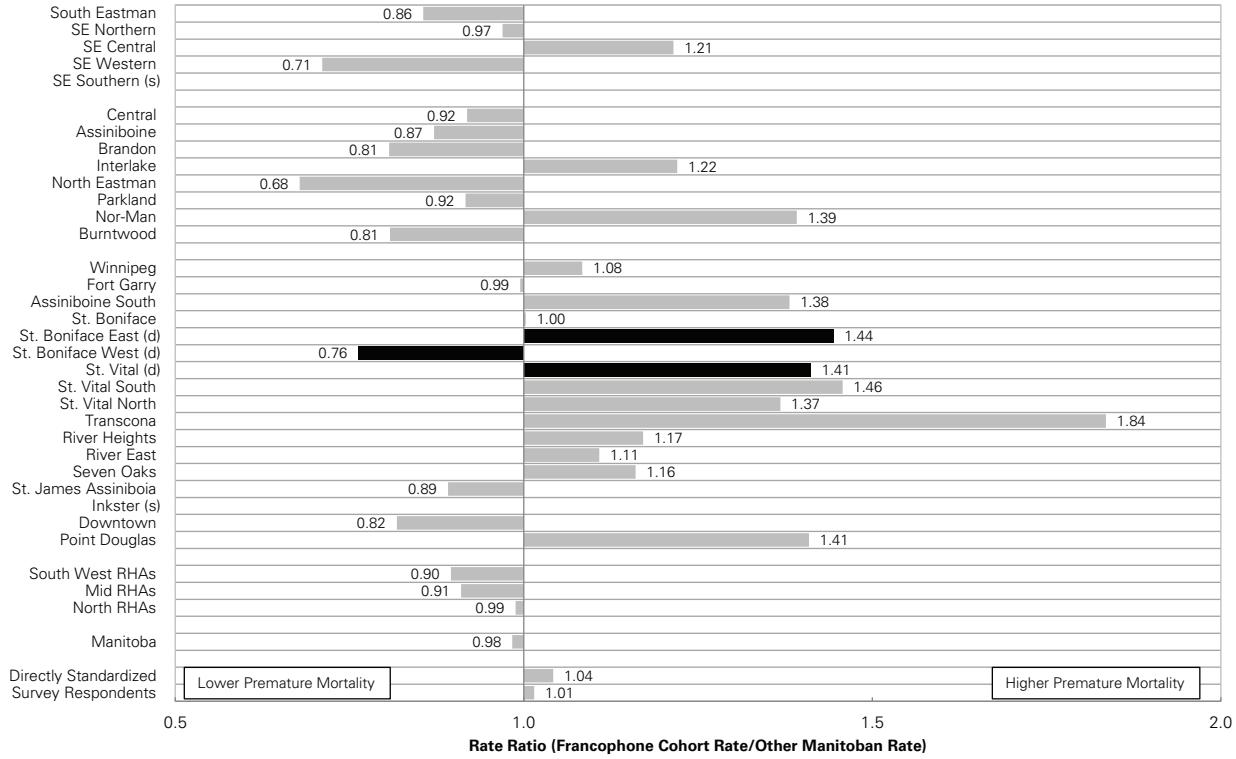
Source: Manitoba Centre for Health Policy, 2012

4.1 Premature Mortality Rate (PMR)

Premature mortality rates (PMR) are often used as an overall indicator of population health status and are correlated with other commonly used measures. It is an important indicator of the general health of a population. High premature mortality rates indicate poor health. PMR is defined as the number of deaths among area residents, aged 0 to 74 years old, per 1,000 residents. Rates were calculated for a 10–year period, 1999–2008, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 4.1.1: Premature Mortality—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999–2008
Age– & sex–adjusted, residents aged 0–74



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

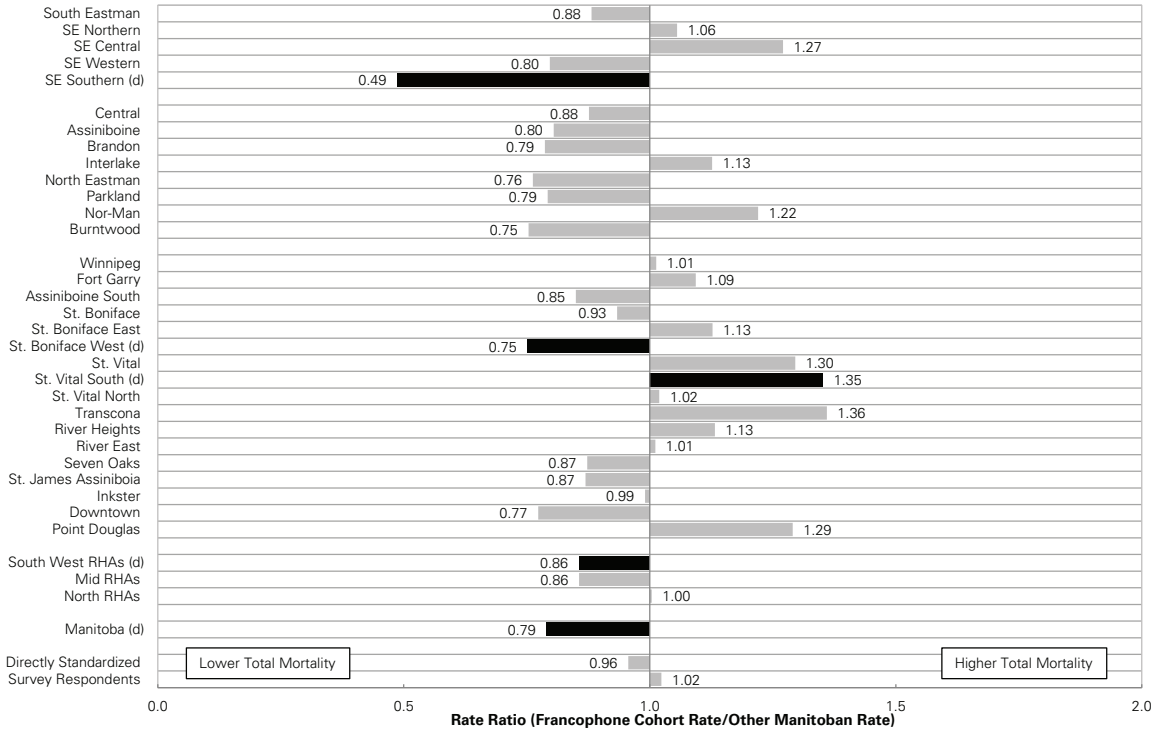
- Provincially, no significant differences were found in PMR between the Francophones and the Matched Cohort of Other Manitobans (Rate Ratio: 0.98) nor were any differences found in the survey respondents (Rate Ratio: 1.01).
- However, some significant differences were noted in some Winnipeg CAs. Francophones in East St. Boniface and St. Vital had a higher PMR than Other Manitobans. Conversely, Francophones in West St. Boniface had a lower PMR than Other Manitobans.
- The PMR for Francophones in most areas was similar to the Francophone provincial rate except for Francophones in South Eastman where the rate was lower and in Point Douglas where the rate was higher (Table 4.8.1).

4.2 Total Mortality

Total mortality is defined by the number of deaths per 1,000 area residents, per person–year. Rates were calculated for a 10–year period, 1999–2008, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 4.2.1: Total Mortality—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999–2008
Age– & sex–adjusted, residents of all ages



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had a lower **total mortality rate** than the Matched Cohort of Other Manitobans (Rate Ratio: 0.79).
- Although there is a trend towards lower total mortality for the Francophone Cohort in most regions, there were only few regions where this was significantly lower: the South West RHAs, which includes Central, Assiniboine and Brandon (Rate Ratio: 0.86); the Southern district of South Eastman (Rate Ratio: 0.49); and West St. Boniface (Rate Ratio: 0.75). When directly standardized, this relationship no longer exists.[3]
- One exception to the trend was in South St. Vital (Rate Ratio: 1.35) where the Francophone Cohort had a higher total mortality rate than the Matched Cohort of Other Manitobans.
- The total mortality for Francophones in most areas was similar to the Francophone provincial rate except for those in the districts of South Eastman, where the rates were lower and in South St. Vital and Point Douglas, where the rate was higher (Table 4.8.2) than the provincial rate.

3 Note that the rate ratio of the Matched Cohort, when directly standardized to permit a comparison with the survey sample, was no longer statistically significant. Direct standardization gives us the rate that we would expect if our sample had the same distribution with regards to age and sex of the Manitoban population. Since our Matched Cohort is younger, more weight is applied to the rates of the older respondents when we directly standardized. In Chapter 17, we observe that older Francophones tended to be less healthy than their Matched Cohort. This might explain why we see a slightly different rate ratio between the two methods used to adjust for age and sex.

Table 4.2.1: Logistic Regression Predicting the Probability of Death 5 Years After Survey
Basic Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	1.04 (0.67, 1.61)
Age	**1.11 (1.10, 1.12)**
Males (vs. Females)	**1.74 (1.42, 2.14)**
Aggregate Regions (ref = Winnipeg)	
Rural South	1.12 (0.86, 1.46)
Mid	1.09 (0.85, 1.41)
North	1.09 (0.78, 1.52)
Brandon	0.88 (0.60, 1.29)

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Table 4.2.2: Logistic Regression Predicting the Probability of Death 5 Years After Survey
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)	p-value
Francophone Cohort (vs. Matched Cohort)	0.98 (0.94, 1.02)	0.3512
Age	**1.09 (1.08, 1.09)**	**<.0001**
Males (vs. Females)	**2.14 (2.06, 2.22)**	**<.0001**
Aggregate Regions (ref = Winnipeg)		
Rural South	**1.07 (1.04, 1.10)**	**0.0002**
Mid	1.03 (0.99, 1.07)	0.1181
North	1.01 (0.94, 1.08)	0.8440
Brandon	**0.84 (0.80, 0.88)**	**<.0001**
Married or Common Law (vs. Single)	**0.71 (0.68, 0.74)**	**<.0001**
Household Income (per $10,000)	**0.99 (0.99, 1.00)**	**0.0007**
High School Graduate (vs. not)	**0.82 (0.78, 0.86)**	**<.0001**
Currently Employed (vs. not)	**0.51 (0.48, 0.55)**	**<.0001**
Sense of Belonging to Local Community (vs. no)	0.91 (0.75, 1.10)	0.2989
Five or more Drinks on One Occasion (vs. no)	**0.60 (0.57, 0.63)**	**<.0001**
Currently Smoker (vs. no)	**2.30 (1.95, 2.70)**	**<.0001**
Body Mass Index	**0.99 (0.99, 1.00)**	**<.0001**
Leisure Time Physical Activity Index (ref = Inactive)		
Active	**0.77 (0.72, 0.82)**	**<.0001**
Moderate	**0.60 (0.57, 0.63)**	**<.0001**
Eats vegetables and fruits 5 or more times per day (vs. 0-4)	1.07 (0.84, 1.36)	0.5386

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Tables 4.2.1–4.2.2 show the results of two logistic regression models for mortality—a basic model where the association between being Francophone and mortality is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The results of the basic model are not consistent with the results in the initial analysis. In the initial analysis with the Matched Cohort data, results showed that the Francophone Cohort had a lower mortality rate compared to Other Manitobans (Rate Ratio: 0.79). In the basic model with the smaller survey sample, results suggest that the Francophone Cohort has a similar mortality rate as the Matched Cohort of Other Manitobans (Odds Ratio: 1.04). In the full model, when additional factors are introduced into the model, no differences in mortality rates are observed (Odds Ratio: 0.98).

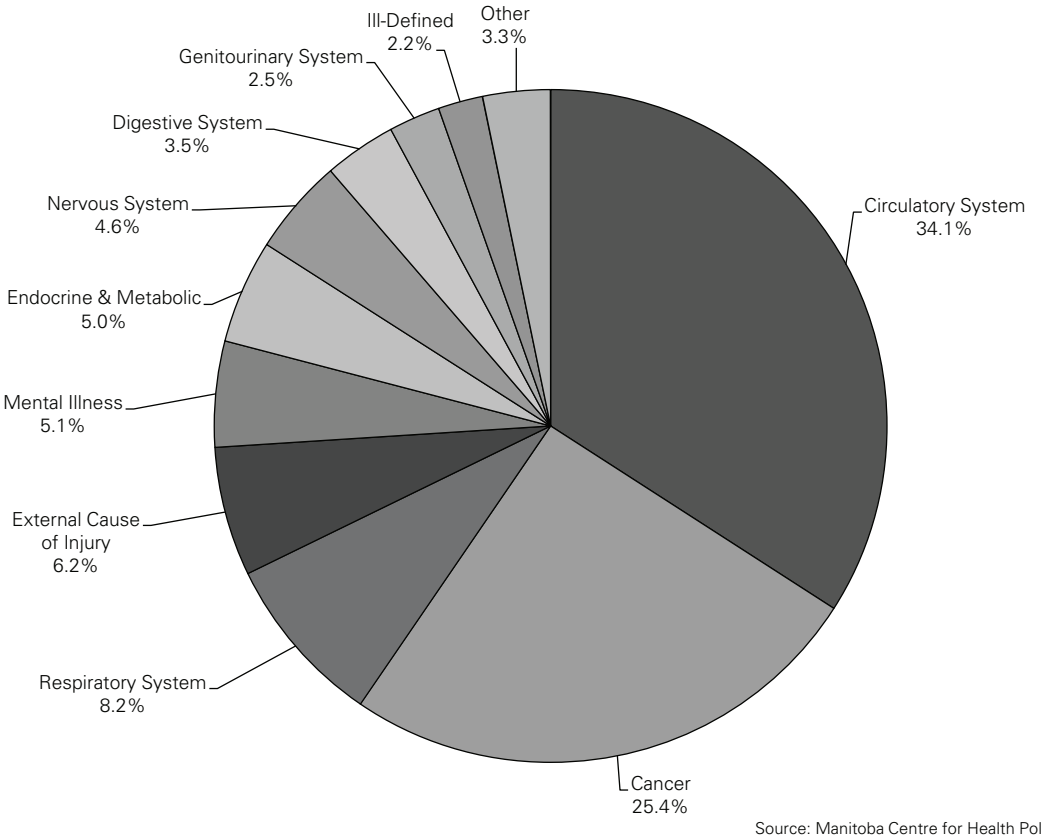
The differences in results between the Matched Cohort and the Survey sample are worthy of further discussion. We notice when the Matched Cohort mortality rate is directly standardized, there is no longer a difference between the Francophones and Other Manitobans cohorts. This may be because the health status of Francophones appears to have changed over generations (see analyses on age–cohort effect in Chapter 17). Since our Matched Cohort is younger, more weight is applied to the rates of the older respondents when we directly standardized. This might explain why we see a different rate ratio between the two methods used to adjust for age and sex. In the Francophone Cohort, there is relatively less mortality among the younger residents than the older residents.

We can deduce from the analyses above and in Chapter 17, that in a sample of younger residents, the Francophone Cohort appears to have a lower mortality rate than the Other Manitoban Cohort. When more weight is given to the older Francophones (through direct standardization), these differences in mortality rates between groups are no longer apparent. Older Francophones appear to be less healthy than other older Manitobans.

4.2.1 Causes of Death

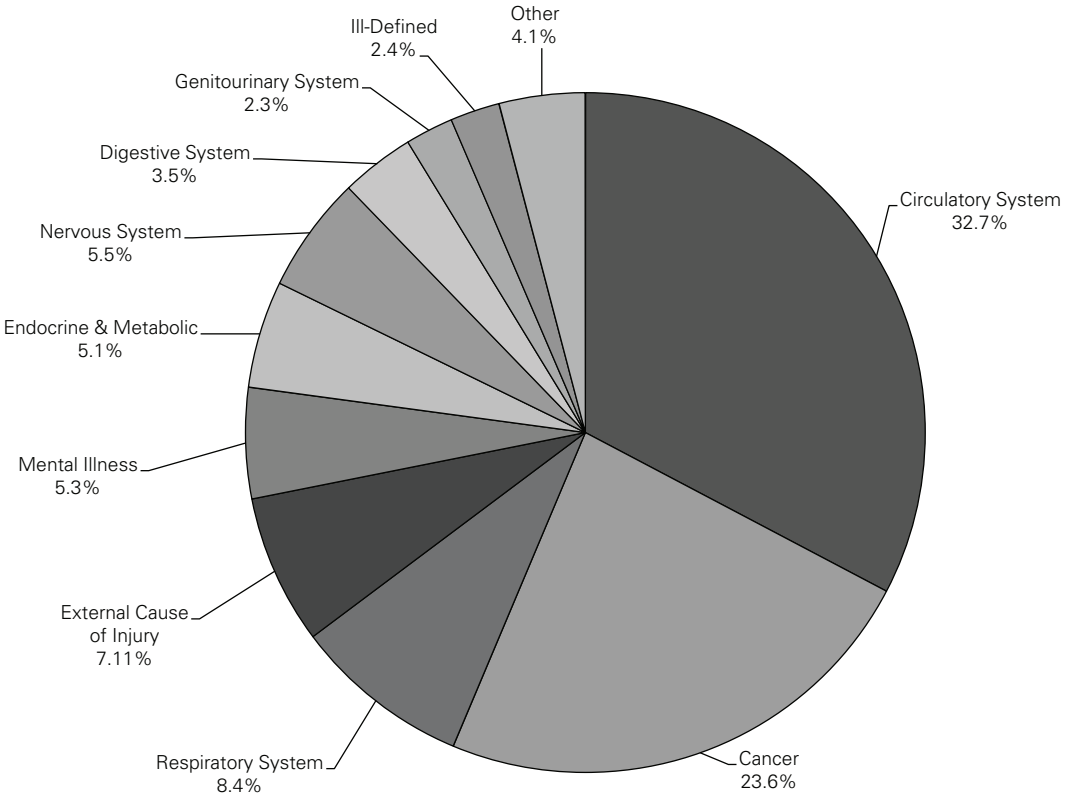
The distribution of causes of death is based on Vital Statistics files, using the 17 chapters of the International Classification of Diseases (**ICD–9–CM**) system. Data were analyzed for one nine–year period 1999–2007.

Figure 4.2.2: Causes of Death for the Francophone Cohort, 1999–2007



Source: Manitoba Centre for Health Policy, 2012

Figure 4.2.3: Causes of Death for the Matched Cohort, 1999–2007



Source: Manitoba Centre for Health Policy, 2012

Key findings

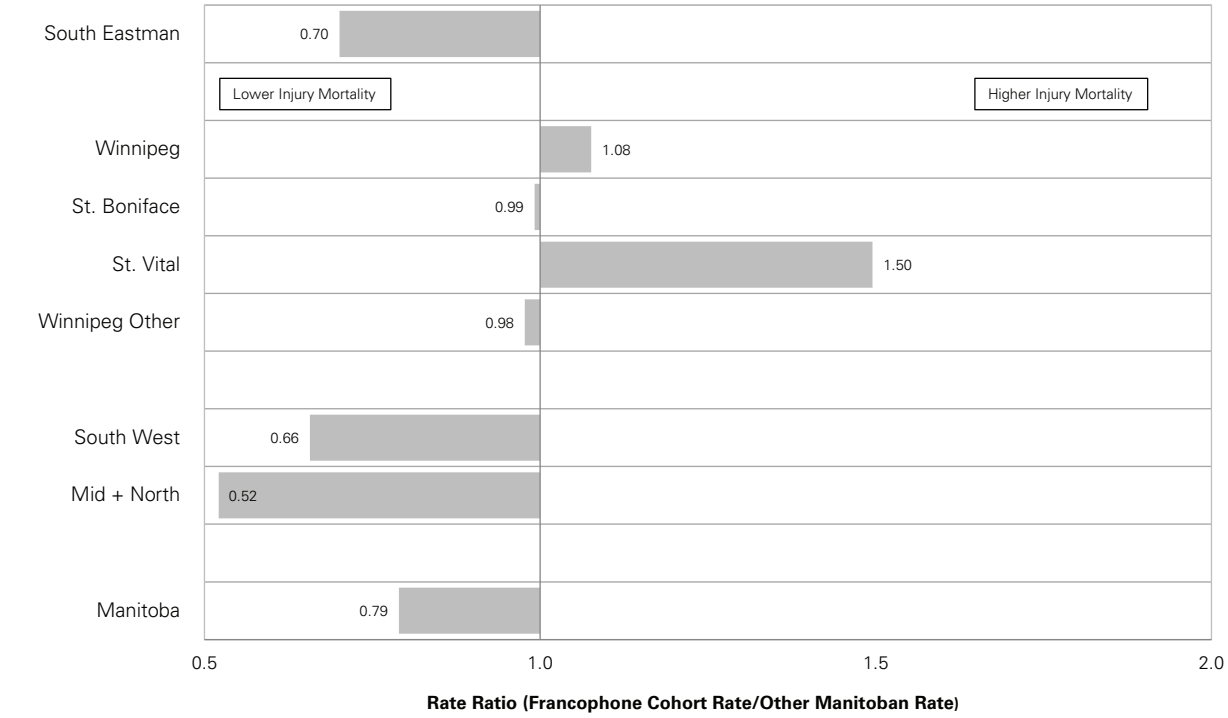
- The pie charts illustrate how the causes of death are distributed.
- The causes of death for the Francophone Cohort and the Matched Cohort of Other Manitobans appear to have a similar distribution.
- In both cohorts, the most common causes of death are related to the circulatory system, cancer, and the respiratory system.

4.3 Injury Mortality

Injury mortality is defined as the number of deaths due to injury per 1,000 person years, based on Vital Statistics.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 4.3.1: Injury Mortality—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999–2007
Age– & sex–adjusted, residents of all ages



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- There were too few mortalities due to injury, therefore, the indicators were not reported by RHA and Winnipeg CA.
- No significant differences in injury mortalities were found between the Francophone Cohort and Matched Cohort of Other Manitobans (Table 4.8.3).

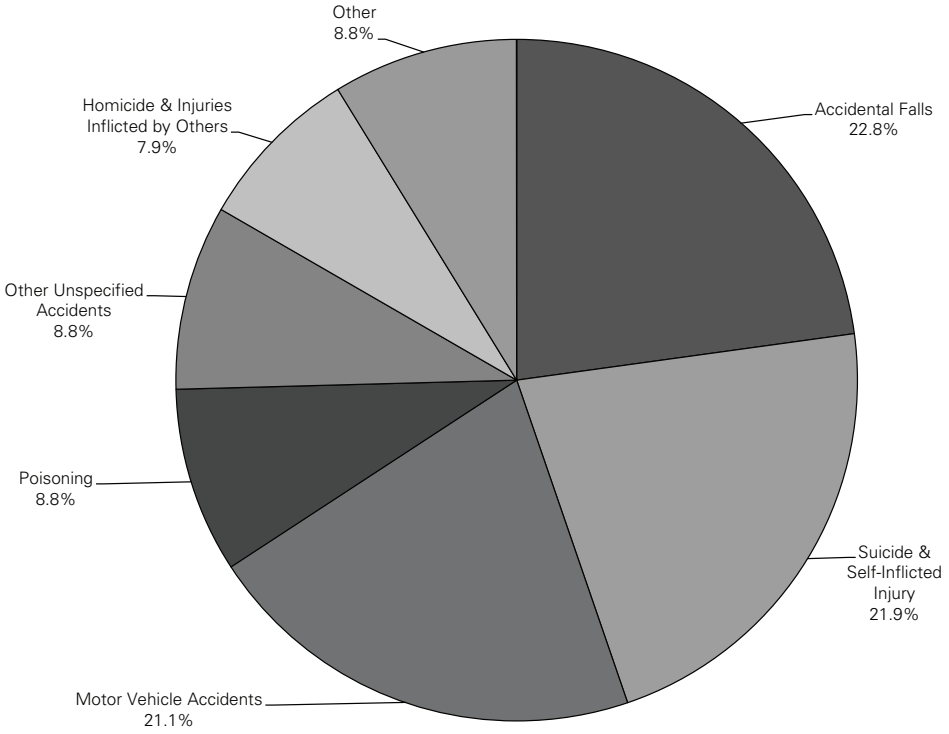
4.3.1 Causes of Injury Mortality

The distribution of causes of injury deaths by major ICD–9–CM sub–groups of injury causes are based on Vital Statistics files. The category named "other" includes Other Vehicle Accidents, Late Effects of Injury, Accidents Caused by Machinery, Explosions, Electricity, Accidents Due to Natural and Environmental Factors, Struck by Objects, and Caught between Objects.

Key findings

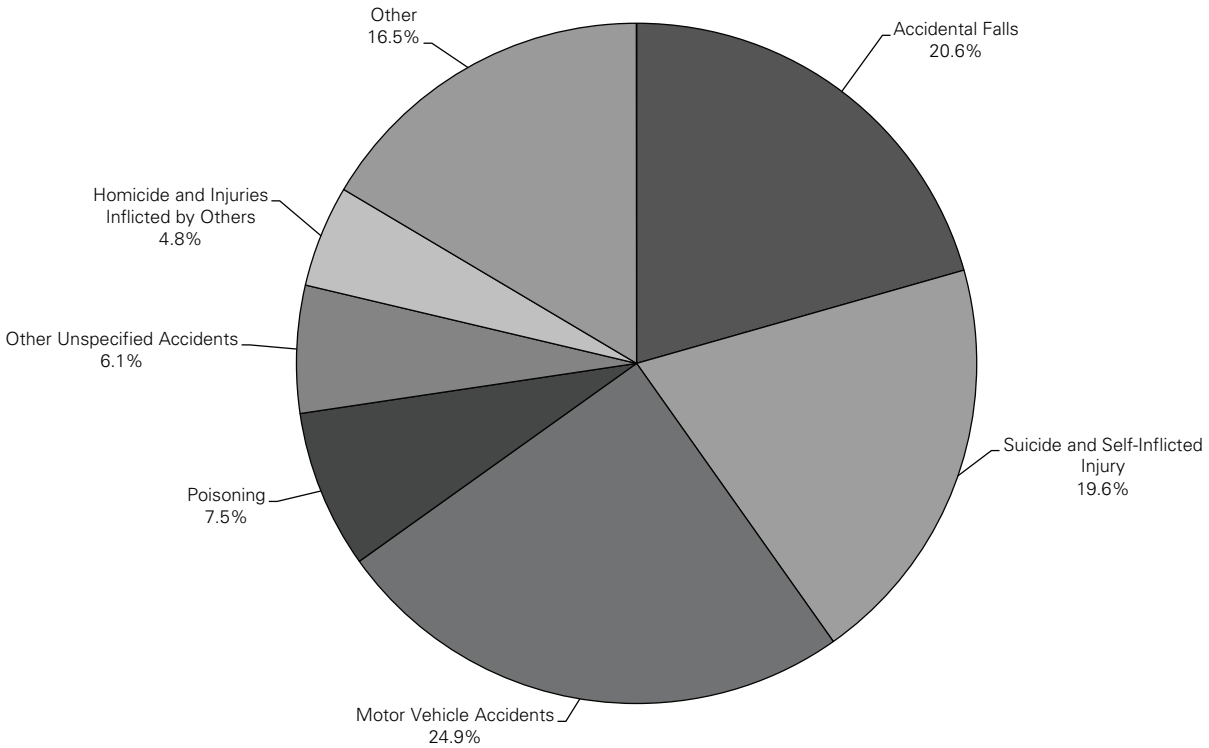
- The causes of injury between the Francophone Cohort and the Matched Cohort of Other Manitobans appear to be similar, although no statistical testing was conducted. The slight differences observed are likely due to the small sample sizes.
- The most common injuries in both cohorts include accidental falls, suicide and self–inflicted injuries, and motor vehicle accidents.

Figure 4.3.2: Injury Mortality by Cause for Francophone Cohort, 1999–2007



Source: Manitoba Centre for Health Policy, 2012

Figure 4.3.3: Injury Mortality by Cause for Matched Cohort, 1999–2007



Source: Manitoba Centre for Health Policy, 2012

4.4 Life Expectancy at Birth

This indicator refers to the expected length of life from birth, based on the mortality of the population for **calendar years** 1999–2008.

Table 4.4.1: Life Expectancy at Birth for Males and Females, 1999–2008

	Males		Females	
Area	**Francophone Cohort Adjusted Rate (95% CI)**	**Matched Cohort Adjusted Rate (95% CI)**	**Francophone Cohort Adjusted Rate (95% CI)**	**Matched Cohort Adjusted Rate (95% CI)**
South Eastman	80.25 (78.37,82.12)	79.48 (78.26,80.70)	84.03 (81.83,86.22)	83.29 (82.04,84.53)
Winnipeg	77.56 (76.10,79.02)	77.93 (77.10,78.75)	83.21 (81.77,84.66)	83.05 (82.23,83.87)
South West RHAs (d)	**80.41 (78.24,82.58)**	**77.75 (76.24,79.27)**	**85.91 (83.09,88.74)**	**82.99 (81.62,84.35)**
Mid + North RHAs	79.25 (76.30,82.21)	76.90 (75.03,78.77)	85.36 (81.70,89.02)	82.66 (80.80,84.52)
Manitoba	78.75 (77.79,79.72)	78.12 (77.54,78.71)	83.73 (82.68,84.78)	83.08 (82.50,83.66)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Key findings

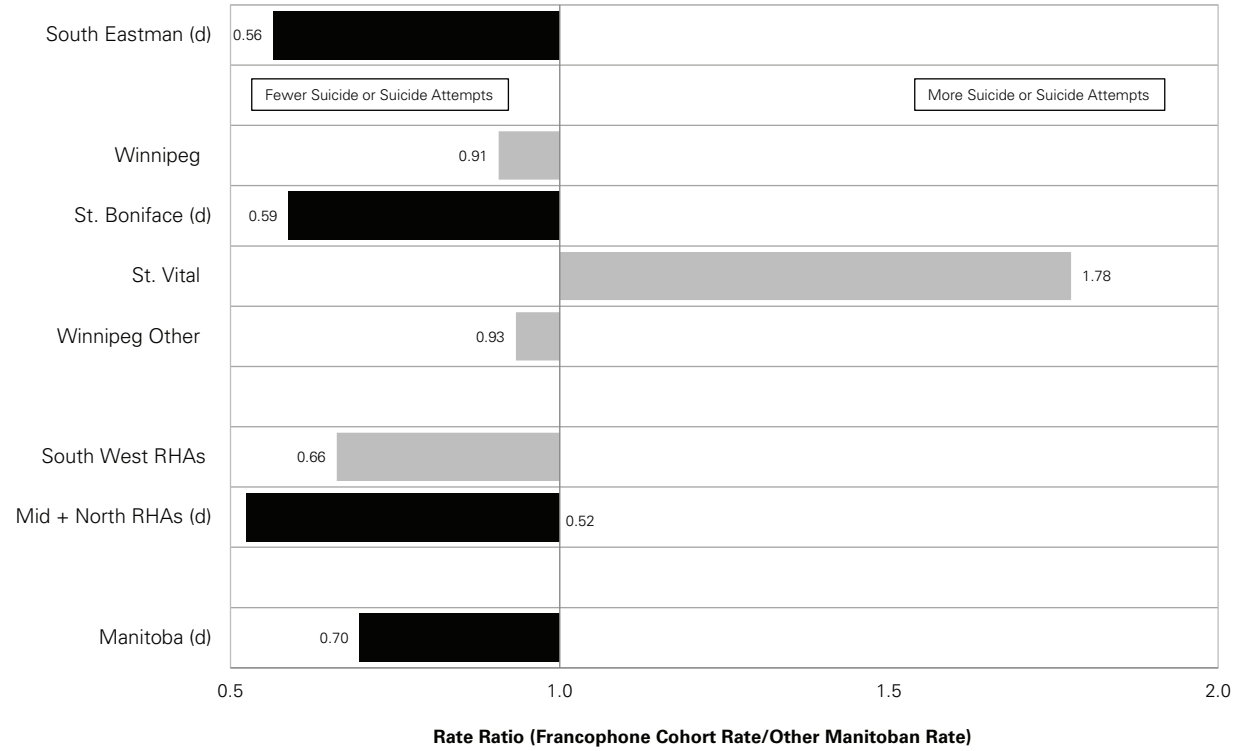
- Provincially, no significant differences were found between the Francophone Cohort and the Matched Cohort of Other Manitobans.
- In the South West RHAs (Assiniboine, Brandon, and Central), life expectancy is significantly higher for the Francophone Cohort (Males: 80.4 years; Females 85.9 years) compared to the Matched Cohort of Other Manitobans (Males: 77.8 years; Females 83.0 years).

4.5 Suicide or Suicide Attempt

This indicator measures the proportion of the population that completed or attempted suicide. Age– and sex–adjusted annual prevalence of suicide or **suicide attempts** for residents aged 10 and older was measured for calendar years 1999–2007. Suicides were defined as any death record in Vital Statistics data with self–inflicted injury or poisoning listed as the primary **cause of death**. Suicide attempts were defined as hospitalization for suicide and self–inflicted injury or accidental poisoning and seen by psychiatry.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 4.5.1: Suicide or Suicide Attempts—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999–2007
Age– & sex–adjusted, residents aged 10 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had a lower suicide and suicide attempt rate than the Matched Cohort of Other Manitobans (Rate Ratio: 0.70)
- Although there is a trend towards lower suicide and suicide attempts in the Francophone Cohort in most regions, only in the following regions was this significantly lower: the Mid and Northern RHAs (Rate Ratio: 0.52), South Eastman (Rate Ratio: 0.56), and St. Boniface (Rate Ratio: 0.59).
- No significant differences in suicide and suicide attempts were found between Francophones in Manitoba (Table 4.8.4).

4.6 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

Table 4.6.1: Comparison of Rates between Cohorts and Survey Samples*

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Mortality	1999-2008	8.60	8.99	0.96	7.60	7.42	1.02
Premature Mortality	1999-2008	3.37	3.24	1.04	2.93	2.89	1.01

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

4.7 Findings from the Literature

(Comparisons to the results in this study are in italics)

Injury Mortality Rates

- Boudreau and Farmer found that among older males (65 and older), Francophones were twice as likely to report accidents than Anglophones (1999).
- *In this study, no significant differences were found in injury mortality between Francophones and Other Manitobans. Accidental falls may occur slightly more for the Francophones than the Other Manitobans (22.8% versus 20.6%), but motor vehicle accidents may be occurring less often for Francophones (21.1% versus 24.9%).*

Suicide or Suicide Attempts

- Clark, Colantonio, Rhodes, and Escobar observed high numbers of suicides occurring in the French–speaking province of Québec (16.5/100,000; Statistics Canada, 2005), which implies a higher rate of suicide for French Canadians compared to the general population. Within Quebec, they noted that Francophone whites and Aboriginals had higher risk for suicidality compared to Anglophone whites. They found that most of the variation in suicidality of Francophone whites compared to Anglophone whites was explained by inequalities in socioeconomic status and sense of community belonging combined (2008b).
- de Man, Leduc, and Labuche–Gauthier noted that 15% of all fatalities among adolescents in Québec were suicide related (1993).
- Boudreau and Farmer found that Francophones were more likely to experience suicide ideation or attempted suicide than Anglophones (13% versus 11%) (1999).
- *In this study, the prevalence rate of suicide attempts or deaths was lower for the Francophone Cohort than for Other Manitobans (Rate Ratio of 0.69). The analysis by birth cohort (in Chapter 17) further shows that younger Francophones have lower suicide attempt or death rates compared to younger Other Manitobans, but the rates are similar for older Francophones and Other Manitobans.*

4.8 Supplementary Tables

Table 4.8.1: Premature Mortality, 1999–2008
Age– & sex–adjusted, residents aged 0–74

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (f)	0.86 (0.70, 1.04)	**1.64 (1.36, 1.98)**	1.92 (1.73, 2.13)
SE Northern	0.97 (0.74, 1.27)	1.91 (1.50, 2.43)	1.97 (1.69, 2.30)
SE Central	1.21 (0.61, 2.41)	2.29 (1.19, 4.43)	1.89 (1.54, 2.32)
SE Western (f)	0.71 (0.50, 1.02)	**1.32 (0.96, 1.81)**	1.86 (1.54, 2.24)
SE Southern (s)	s	s	1.93 (1.40, 2.64)
Central	0.92 (0.71, 1.19)	1.89 (1.49, 2.40)	2.06 (1.81, 2.35)
Assiniboine	0.87 (0.57, 1.32)	2.13 (1.46, 3.11)	2.45 (2.01, 2.99)
Brandon	0.81 (0.37, 1.77)	1.75 (0.87, 3.50)	2.16 (1.49, 3.14)
Interlake	1.22 (0.79, 1.88)	2.87 (1.98, 4.15)	2.35 (1.86, 2.97)
North Eastman	0.68 (0.43, 1.08)	1.55 (1.01, 2.36)	2.28 (1.86, 2.79)
Parkland	0.92 (0.56, 1.49)	2.19 (1.42, 3.38)	2.39 (1.88, 3.04)
Nor-Man	1.39 (0.66, 2.95)	2.93 (1.57, 5.47)	2.10 (1.37, 3.23)
Burntwood	0.81 (0.42, 1.54)	2.92 (1.65, 5.16)	3.61 (2.65, 4.92)
Winnipeg	1.08 (0.96, 1.22)	2.35 (2.08, 2.66)	2.17 (2.01, 2.33)
Fort Garry	0.99 (0.64, 1.55)	1.87 (1.26, 2.77)	1.88 (1.50, 2.36)
Assiniboine South	1.38 (0.61, 3.10)	3.07 (1.53, 6.16)	2.22 (1.46, 3.38)
St. Boniface	1.00 (0.83, 1.21)	2.15 (1.81, 2.56)	2.15 (1.92, 2.39)
St. Boniface East (d)	**1.44 (1.07, 1.96)**	**1.97 (1.52, 2.56)**	**1.37 (1.14, 1.64)**
St. Boniface West (d)	**0.76 (0.60, 0.97)**	**2.29 (1.85, 2.83)**	**3.00 (2.63, 3.42)**
St. Vital (d)	**1.41 (1.07, 1.87)**	**2.13 (1.67, 2.70)**	**1.51 (1.28, 1.78)**
St. Vital South	1.46 (0.98, 2.16)	1.94 (1.40, 2.71)	1.33 (1.06, 1.68)
St. Vital North	1.37 (0.92, 2.02)	2.34 (1.68, 3.26)	1.71 (1.36, 2.15)
Transcona	1.84 (0.97, 3.48)	2.92 (1.75, 4.87)	1.59 (1.07, 2.36)
River Heights	1.17 (0.72, 1.89)	2.96 (1.90, 4.61)	2.52 (2.06, 3.09)
River East	1.11 (0.70, 1.76)	2.60 (1.70, 3.98)	2.35 (1.91, 2.89)
Seven Oaks	1.16 (0.48, 2.78)	2.34 (1.11, 4.92)	2.02 (1.27, 3.21)
St. James Assiniboia	0.89 (0.47, 1.69)	2.15 (1.21, 3.80)	2.41 (1.78, 3.26)
Inkster (s)	s	s	3.47 (2.21, 5.44)
Downtown	0.82 (0.52, 1.29)	3.23 (2.15, 4.85)	3.94 (3.17, 4.91)
Point Douglas (f)	1.41 (0.82, 2.42)	**6.22 (3.94, 9.81)**	4.41 (3.25, 5.99)
South West RHAs	0.90 (0.72, 1.11)	1.94 (1.59, 2.37)	2.16 (1.94, 2.42)
Mid RHAs	0.91 (0.70, 1.18)	2.12 (1.66, 2.70)	2.33 (2.04, 2.67)
North RHAs	0.99 (0.61, 1.61)	2.87 (1.88, 4.38)	2.90 (2.26, 3.73)
Manitoba	0.98 (0.90, 1.07)	2.11 (1.94, 2.29)	2.14 (2.05, 2.24)
Directly Standardized	1.04 (0.96, 1.14)	3.37 (3.12, 3.63)	3.24 (3.10, 3.38)
Survey Respondents	1.01 (0.49, 1.54)	2.93 (1.49, 4.37)	2.89 (2.55, 3.22)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 4.8.2: Total Mortality, 1999–2008

Age– & sex–adjusted, residents of all ages

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.88 (0.69, 1.12)	4.45 (3.52, 5.64)	5.05 (4.07, 6.28)
SE Northern	1.06 (0.88, 1.26)	6.60 (5.68, 7.66)	6.25 (5.48, 7.12)
SE Central	1.27 (0.74, 2.18)	8.32 (4.90, 14.14)	6.55 (5.71, 7.51)
SE Western (f)	0.80 (0.62, 1.02)	**4.37 (3.53, 5.41)**	5.49 (4.73, 6.36)
SE Southern (d)	**0.49 (0.29, 0.82)**	**3.24 (1.96, 5.33)**	**6.65 (5.53, 8.00)**
Central	0.88 (0.67, 1.15)	4.46 (3.43, 5.81)	5.09 (4.06, 6.39)
Assiniboine	0.80 (0.56, 1.15)	5.08 (3.62, 7.13)	6.31 (4.93, 8.07)
Brandon	0.79 (0.44, 1.41)	4.07 (2.42, 6.87)	5.18 (3.68, 7.29)
Interlake	1.13 (0.76, 1.68)	6.54 (4.56, 9.36)	5.80 (4.40, 7.64)
North Eastman	0.76 (0.53, 1.10)	4.46 (3.17, 6.26)	5.84 (4.52, 7.55)
Parkland	0.79 (0.52, 1.20)	4.72 (3.22, 6.91)	5.95 (4.54, 7.80)
Nor-Man	1.22 (0.68, 2.18)	6.38 (3.89, 10.48)	5.23 (3.61, 7.58)
Burntwood	0.75 (0.39, 1.46)	6.96 (3.85, 12.57)	9.23 (6.40, 13.32)
Winnipeg	1.01 (0.91, 1.12)	6.41 (5.76, 7.12)	6.33 (5.82, 6.87)
Fort Garry	1.09 (0.78, 1.54)	5.31 (3.87, 7.28)	4.85 (3.77, 6.25)
Assiniboine South	0.85 (0.46, 1.57)	4.74 (2.66, 8.45)	5.58 (4.14, 7.51)
St. Boniface	0.93 (0.74, 1.19)	4.77 (3.78, 6.02)	5.11 (4.10, 6.36)
St. Boniface East	1.13 (0.90, 1.41)	5.54 (4.55, 6.73)	4.91 (4.29, 5.63)
St. Boniface West (d)	**0.75 (0.65, 0.87)**	**5.84 (5.15, 6.63)**	**7.77 (7.00, 8.62)**
St. Vital	1.30 (0.99, 1.69)	5.70 (4.43, 7.34)	4.40 (3.49, 5.54)
St. Vital South (f,d)	**1.35 (1.09, 1.68)**	**8.21 (6.85, 9.84)**	**6.07 (5.27, 6.99)**
St. Vital North	1.02 (0.82, 1.27)	5.99 (4.93, 7.28)	5.88 (5.14, 6.72)
Transcona	1.36 (0.82, 2.25)	6.35 (4.12, 9.78)	4.67 (3.33, 6.55)
River Heights	1.13 (0.77, 1.66)	6.16 (4.27, 8.88)	5.44 (4.26, 6.94)
River East	1.01 (0.69, 1.49)	5.56 (3.86, 8.02)	5.50 (4.29, 7.05)
Seven Oaks	0.87 (0.44, 1.72)	4.64 (2.55, 8.43)	5.31 (3.63, 7.78)
St. James Assiniboia	0.87 (0.54, 1.40)	5.41 (3.49, 8.37)	6.22 (4.69, 8.25)
Inkster	0.99 (0.41, 2.37)	8.00 (3.67, 17.43)	8.07 (5.17, 12.60)
Downtown	0.77 (0.53, 1.14)	5.95 (4.19, 8.45)	7.70 (5.90, 10.05)
Point Douglas (f)	1.29 (0.80, 2.09)	**13.42 (8.80, 20.48)**	10.40 (7.58, 14.27)
South West RHAs (d)	0.86 (0.73, 1.00)	**5.54 (4.78, 6.42)**	**6.48 (5.90, 7.12)**
Mid RHAs	0.86 (0.70, 1.04)	5.90 (4.92, 7.08)	6.89 (6.14, 7.73)
North RHAs	1.00 (0.67, 1.49)	7.57 (5.34, 10.73)	7.54 (6.10, 9.32)
Manitoba (d)	**0.79 (0.64, 0.98)**	**5.00 (4.05, 6.18)**	**6.33 (6.18, 6.48)**
Directly Standardized	0.96 (0.91, 1.00)	8.60 (8.23, 8.96)	8.99 (8.77, 9.21)
Survey Respondents	1.02 (0.77, 1.28)	7.60 (5.81, 9.38)	7.42 (6.98, 7.86)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 4.8.3: Injury Mortality, 1999–2007
Age– & sex–adjusted, residents of all ages

Area	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.70 (0.42,1.18)	0.31 (0.19,0.52)	0.45 (0.32,0.61)
Winnipeg	1.08 (0.78,1.48)	0.37 (0.26,0.52)	0.36 (0.28,0.46)
St. Boniface	0.99 (0.58,1.69)	0.30 (0.18,0.49)	0.30 (0.21,0.44)
St. Vital	1.50 (0.77,2.91)	0.42 (0.24,0.75)	0.28 (0.18,0.44)
Winnipeg Other	0.98 (0.60,1.59)	0.45 (0.28,0.73)	0.46 (0.34,0.62)
South West RHAs	0.66 (0.37,1.16)	0.33 (0.19,0.58)	0.51 (0.37,0.70)
Mid + North RHAs	0.52 (0.26,1.06)	0.30 (0.15,0.59)	0.58 (0.41,0.82)
Manitoba	0.79 (0.59,1.06)	0.34 (0.25,0.46)	0.43 (0.39,0.48)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratic

Source: Manitoba Centre for Health Policy, 2012

Table 4.8.4: Prevalence of Suicide or Suicide Attempts, 1999–2007
Age– & sex–adjusted, aged 10 and older

Area	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman (d)	**0.56 (0.35,0.92)**	**32.12 (19.83,52.03)**	**56.88 (45.79,70.64)**
Winnipeg	0.91 (0.69,1.19)	51.54 (38.12,69.69)	59.63 (50.77,70.04)
St. Boniface (d)	**0.59 (0.37,0.94)**	**39.59 (25.17,62.27)**	**67.31 (53.33,84.96)**
St. Vital	1.78 (0.95,3.31)	56.93 (33.84,95.78)	32.04 (21.61,47.51)
Winnipeg Other	0.93 (0.63,1.39)	68.51 (46.00,102.03)	73.39 (60.22,89.44)
South West RHAs	0.66 (0.39,1.12)	40.56 (24.44,67.30)	61.30 (48.13,78.09)
Mid + North RHAs (d)	**0.52 (0.33,0.83)**	**81.76 (51.98,128.59)**	**155.93 (128.13,189.78)**
Manitoba (d)	**0.70 (0.57,0.85)**	**49.33 (40.61,59.92)**	**70.85 (64.78,76.92)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratic

Source: Manitoba Centre for Health Policy, 2012

Chapter 5: Prevalence of Physical Illness

Indicators in this chapter:

- 5.1 Hypertension
- 5.2 Ischemic Heart Disease
- 5.3 AMI
- 5.4 Stroke
- 5.5 Diabetes Mellitus
- 5.6 Dialysis Initiation
- 5.7 Respiratory Disease
- 5.8 Arthritis
- 5.9 Osteoporosis
- 5.10 Comparison of Rates between Samples
- 5.11 Findings from the Literature Review
- 5.12 Supplementary Tables

Overall Key Findings

- Overall, the Francophone Cohort in Manitoba have similar physical illness to a Matched Cohort of Other Manitobans, but they have a lower provincial rate of hypertension.
- There is variability among areas for all indicators.
- There is some variation in illness for Francophones depending upon the area in which they live.
- The rates of diabetes appeared to be similar between the groups; however, when sociodemographic and lifestyle factors were accounted for, being Francophone appeared to be associated with lower rates of diabetes.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 5.0: Summary of Physical Illness Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Hypertension Prevalence		
Manitoba (d)	↓	
Brandon (f)		↑
North Eastman (f)		↑
Nor-Man (d)	↓	
Mid RHAs (f)		↑
Directly Standardized (d)	↓	
Survey Respondents (d)	↓	
Arthritis Prevalence		
Manitoba		
South Eastman		
SE Southern (d)	↓	
Inkster (f)		↑
Point Douglas (f)		↑
Directly Standardized (d)	↑	
Total Respiratory Morbidity Prevalence		
Manitoba		
South Eastman		
SE Western (f,d)	↓	↓
Parkland (d)	↓	
Winnipeg (d)	↓	
St. Boniface (d)	↓	
St. Boniface East (d)	↓	
St. Vital (d)	↓	
St. Vital South (d)	↓	
Downtown (d)	↓	
Point Douglas (f)		↑
Diabetes Prevalence		
Manitoba		
Interlake (f)		↑
North Eastman (d)	↓	
Parkland (d)	↓	
St. Boniface		
St. Boniface West (d)	↑	
Mid RHAs (d)	↓	
Ischemic Heart Disease Prevalence		
Manitoba		
Interlake (d)	↑	
Directly Standardized (d)	↑	
Osteoporosis Prevalence		
Manitoba		
North RHAs (d)	↓	
Acute Myocardial Infarction (AMI)		
Manitoba		
South Eastman		
SE Western (d)	↑	
Incidence of Death or Hospitalization for Stroke		
Manitoba		
South Eastman (d)	↑	
SE Northern (f,d)	↑	↑
SE Central (f,d)	↑	↑
South West RHAs (d)	↓	

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)
↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)
If no arrow appears, there is no difference between the two comparison groups

Source: Manitoba Centre for Health Policy, 2012

5.1 Hypertension

Hypertension is often referred to as high blood pressure. It is a major health problem and often has no symptoms. If left untreated, hypertension can lead to **heart attack**, **stroke**, enlarged heart, or kidney damage.

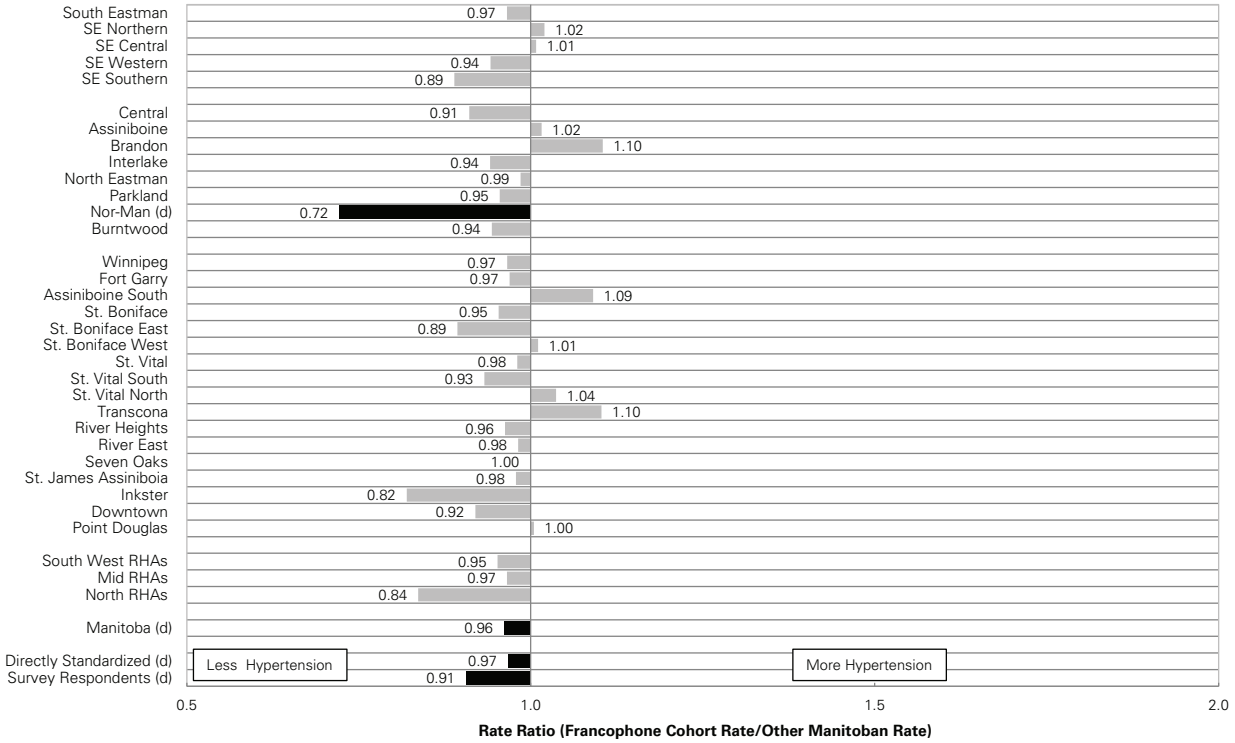
Hypertension is defined as the proportion of residents aged 19 and older diagnosed with hypertension in a one–year period by either:

- at least one physician visit or one hospitalization or
- two or more prescriptions for hypertension drugs (Appendix 1)

Values were calculated for a one–year period, 2008/09, and were age–and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Cohort Rate. The rate ratio indicates how the Francophones are compared to a similar group of Other Manitobans.

Figure 5.1.1: Hypertension—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, residents aged 19 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had a slightly lower hypertension rate than the Matched Cohort of Other Manitobans (Rate Ratio: 0.96).
- Although there is a trend towards lower hypertension for the Francophone Cohort in most regions, NOR–MAN (Rate Ratio: 0.72) was the only region where it was significantly lower.

- The rates of hypertension for Francophones in all areas were similar to Francophone provincial rate except for those in Mid RHAs, Brandon, and North Eastman where the rates were higher than the provincial Francophone rate (Table 5.12.1).

Table 5.1.1: Logistic Regression Predicting the Probability of Having Hypertension, 1 Year after Survey
Basic Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	**0.79 (0.64, 0.97)**
Age	**1.07 (1.07, 1.08)**
Males (vs. Females)	0.93 (0.82, 1.05)
Aggregate Regions (ref = Winnipeg)	
Rural South	0.89 (0.78, 1.02)
Mid	1.08 (0.93, 1.24)
North	0.94 (0.76, 1.16)
Brandon	0.85 (0.68, 1.06)

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Table 5.1.2: Logistic Regression Predicting the Probability of Having Hypertension, 1 Year after Survey
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)	p-value
Francophone Cohort (vs. Matched Cohort)	**0.82 (0.81, 0.83)**	**<.0001**
Age	**1.07 (1.07, 1.07)**	**<.0001**
Males (vs. Females)	**0.92 (0.91, 0.93)**	**<.0001**
Aggregate Regions (ref = Winnipeg)		
Rural South	**0.80 (0.79, 0.81)**	**<.0001**
Mid	**0.94 (0.92, 0.95)**	**<.0001**
North	**0.71 (0.70, 0.72)**	**<.0001**
Brandon	**0.79 (0.78, 0.80)**	**<.0001**
Married or Common Law (vs. Single)	**1.14 (1.13, 1.16)**	**<.0001**
Household Income (per $10,000)	**1.00 (1.00, 1.00)**	**0.0013**
High School Graduate (vs. not)	**0.90 (0.89, 0.91)**	**<.0001**
Currently Employed (vs. not)	**0.86 (0.85, 0.87)**	**<.0001**
Sense of Belonging to Local Community (vs. no)	**1.10 (1.05, 1.16)**	**0.0014**
Five or more Drinks on One Occasion (vs. no)	**0.84 (0.83, 0.85)**	**<.0001**
Currently Smoker (vs. no)	**0.90 (0.84, 0.97)**	**0.0085**
Body Mass Index	**1.08 (1.08, 1.09)**	**<.0001**
Leisure Time Physical Activity Index (ref = Inactive)		
Active	**0.98 (0.96, 1.00)**	**0.0257**
Moderate	**1.05 (1.03, 1.06)**	**<.0001**
Eats vegetables and fruits five or more times per day (vs. 0-4)	0.95 (0.87, 1.04)	0.2113

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Tables 5.1.1–5.1.2 show the results of two logistic regression models—a basic model where the association between being Francophone and hypertension is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The results of the basic model (Odds Ratio: 0.79) are in the same direction as the results in the initial analysis (Rate Ratio: 0.96); Francophones have lower hypertension rates than the Other Manitobans. The differences appear to be more pronounced in the survey sample; however, these differences between samples were not statistically significant and therefore due to chance (see glossary under statistical testing).

In the full model, when additional factors were introduced into the model, being Francophone was still associated with lower rates of hypertension; but this association is slightly attenuated (Odd Ratio: 0.82). This suggests that the differences in hypertension between Francophones and Other Manitobans are partially, but not totally, explained by differences in the two groups' sociodemographic characteristics and life style factors.

5.2 Ischemic Heart Disease (IHD)

Ischemic Heart Disease (IHD) refers to heart problems caused by narrowed heart arteries. This is also known as coronary artery disease or coronary heart disease. It can ultimately lead to heart attack.

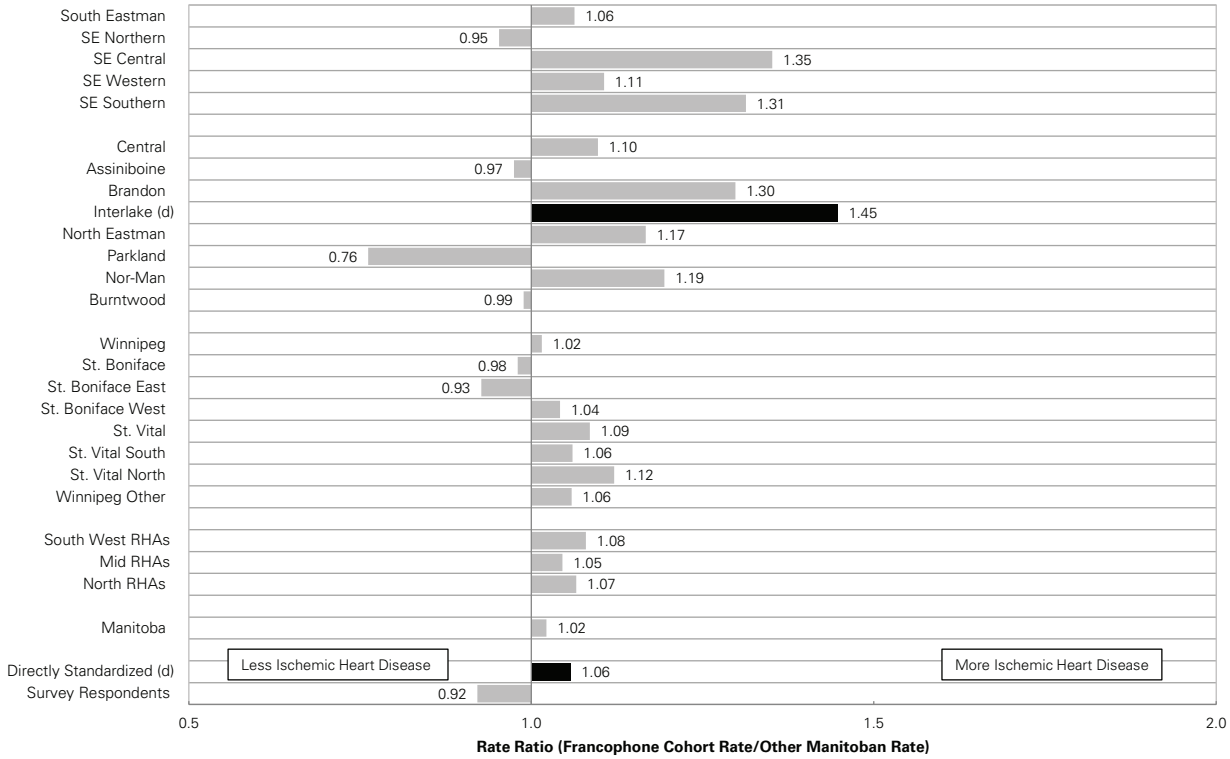
IHD is defined by the proportion of residents aged 19 and older diagnosed with IHD in a five–year period, 2004/05–2008/09, through either:

- at least two physician visits or one hospitalization for IHD or
- at least one physician visit with a code listed (Appendix 1) and two or more prescriptions for IHD medications

Values were calculated for a five–year period, 2004/05–2008/09, and were age–and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 5.2.1: Ischemic Heart Disease—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09
Age– & sex–adjusted, residents aged 19 or older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of IHD between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.02) nor were any differences found in the survey respondents (Rate Ratio: 0.92).[4] However, some significant differences were noted in Interlake where the Francophone Cohort had higher IHD rates than the Matched Cohort of Other Manitobans (Rate Ratio: 1.45).
- The IHD rates for Francophones in all areas were similar to the Francophone provincial rate (Table 5.12.2).

5.3 Acute Myocardial Infarction (AMI)

Also known as a heart attack, an **acute myocardial infarction (AMI)** occurs when the heart muscle (the myocardium) experiences sudden (acute) deprivation of circulating blood. The interruption of blood is usually caused by narrowing of the coronary arteries leading to a blood clot.

AMI was defined as the rate of hospitalization or death due to AMI in residents aged 40 and older through the "most responsible diagnosis" field for hospitalization or the cause of death in Vital Statistics files. Rates were calculated for a nine–year period, 1999/2000–2007/08, and were age–and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Key findings

- Provincially, no significant differences were found in the rate of AMI between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.03) nor were any differences found in the survey respondents (Rate Ratio: 1.08).
- However, some significant differences were noted in Western district of South Eastman where the Francophone Cohort had higher AMI rates than the Matched Cohort of Other Manitobans (Rate Ratio: 1.55).
- The AMI rates for Francophones in most areas were similar to the Francophone provincial rate (Table 5.12.3).

5.4 Stroke

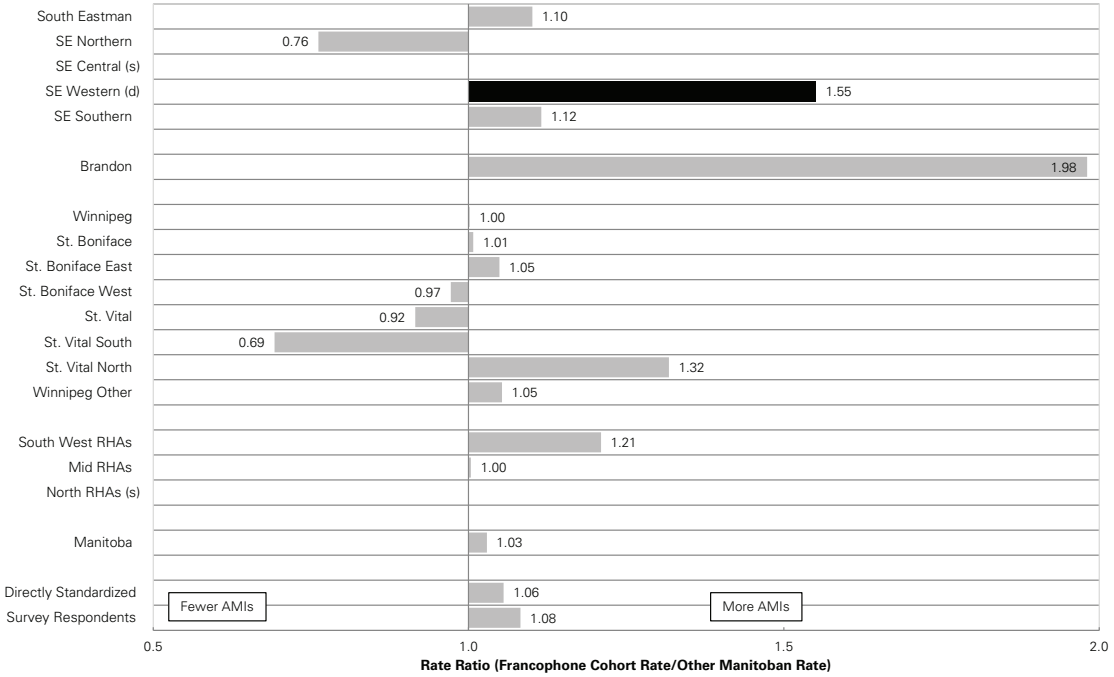
A stroke occurs when there is a sudden death of brain cells due to a lack of oxygen when the blood flow to the brain is impaired by blockage or rupture of an artery to the brain. A stroke was defined as the rate of hospitalization or death due to stroke in residents aged 40 and older defined by the "most responsible diagnosis" field for hospitalization or the cause of death in Vital Statistics files (Appendix 1). Rates were calculated for a nine–year time period, 1999/2000–2007/08, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

4 Note that the rate ratio of the Matched Cohort, when directly standardized to permit a comparison with the survey sample, was statistically significant. Direct standardization gives us the rate that we would expect if our sample had the same distribution with regards to age and sex of the Manitoban population. Since our Matched Cohort is younger, more weight is applied to the rates of the older respondents when we directly standardized. In Chapter 17, we observe that older Francophones tended to be less healthy than their Matched Cohort. This might explain why we see a slightly different rate ratio between the two methods used to adjust for age and sex.

Figure 5.3.1: Acute Myocardial Infarction (AMI)—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999/00–2007/08

Age– & sex–adjusted, residents aged 40 and older

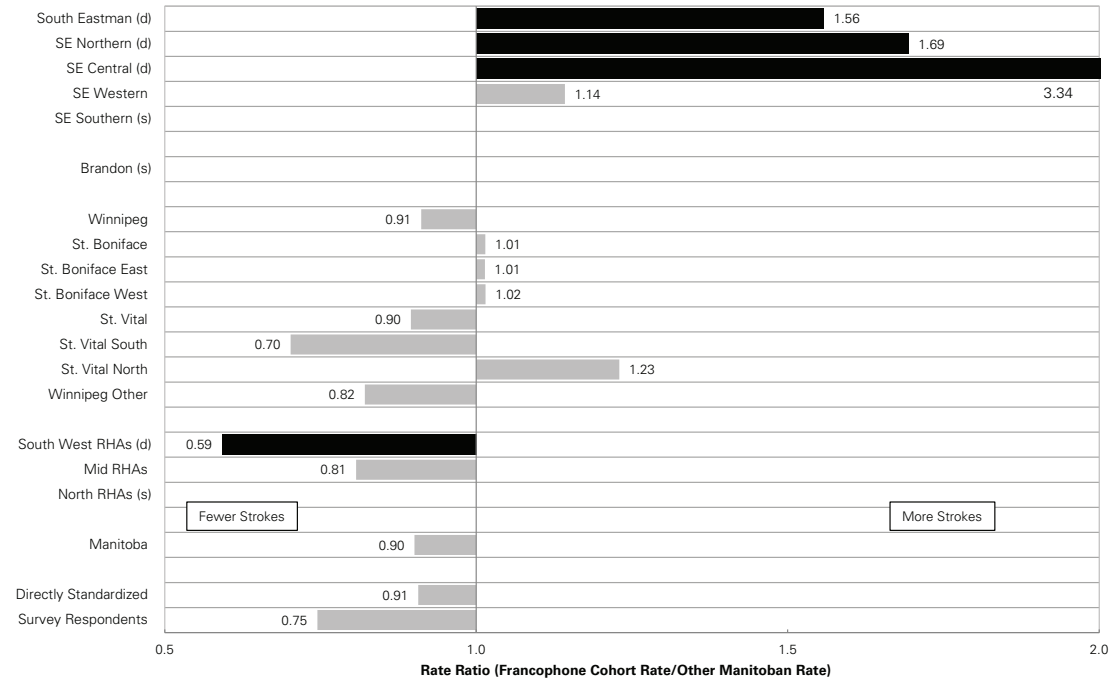


'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Figure 5.4.1: Stroke—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 1999/2000–2007/08

Age– & sex–adjusted, residents aged 40 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of strokes between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.90) nor were any differences found in the survey respondents (Rate Ratio: 0.75)[5].
- Some significant differences were noted in South West RHAs (Brandon, Central, and Assiniboine) where the Francophones had lower rates of stroke than the Matched Cohort of Other Manitobans (Rate Ratio: 0.59) and in South Eastman RHA where Francophones have higher rates (Rate Ratio: 1.56).
- The rates of strokes for Francophones in most areas was similar to the Francophone provincial rate except for those in two districts of South Eastman (Northern and Southern) where the rates were higher than the Francophone provincial rate (Table 5.12.4).

5.5 Diabetes Mellitus

Diabetes mellitus is a chronic condition in which the pancreas no longer produces enough insulin (type 1 diabetes) or when cells stop responding to the insulin that is produced (type 2 diabetes) so that glucose in the blood cannot be absorbed into the cells of the body. Diabetes is defined as the proportion of residents aged 19 and older diagnosed with diabetes in a three–year period by either:

- at least two physician visits or one hospitalization with a diagnosis of diabetes or
- one or more prescriptions for medications to treat diabetes (Appendix 1)

Gestational diabetes was not included in our definition. Values were calculated for a three–year period, 2006/07–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

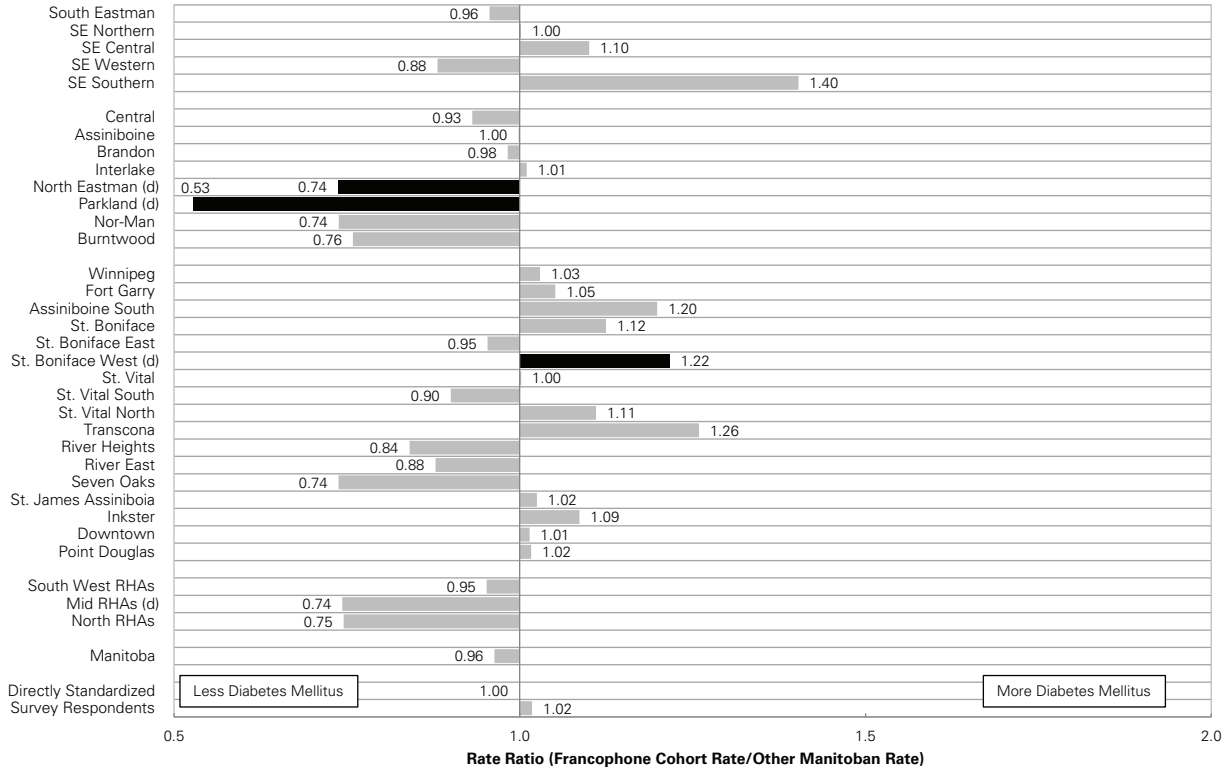
Key findings

- Provincially, no significant differences were found in the rate of diabetes between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.96) nor were any differences found in the survey respondents (Rate Ratio: 1.02). However, the analyses shown in the following table suggest that there is a relationship between being Francophone and diabetes.
- Some significant differences were noted in the Mid RHAs (Rate Ratio: 0.74) specifically North Eastman (Rate Ratio: 0.74) and Parkland (Rate Ratio: 0.53) where the Francophone Cohort had lower rates than the Matched Cohort of Other Manitobans and in West St. Boniface (Rate Ratio: 1.22) where the Francophone Cohort had higher rates of diabetes.
- The rate of diabetes for Francophones in all areas was similar to the Francophone provincial rate except for those in Interlake where the rates were higher than the Francophone provincial rate (Table 5.12.5).
- The rates of diabetes appeared to be similar between the groups, however when sociodemographic and lifestyle factors were accounted for, being Francophone appeared to be associated with lower rates of diabetes.

5 Very few respondents are in this sample because the rates of strokes are very low. This explains the variability (wide gap) in the rates across samples.

Figure 5.5.1: Diabetes Mellitus—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2006/07–2008/09

Age– & sex–adjusted, residents aged 19 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Table 5.5.1: Logistic Regression of the Risk of Diabetes, 3 Years after Survey

Basic Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	0.916 (0.688, 1.220)
Age	**1.047 (1.043, 1.051)**
Males (vs. Females)	**1.441 (1.228, 1.692)**
Aggregate Regions (ref = Winnipeg)	0.888 (0.753, 1.048)
Rural South	0.888 (0.753, 1.048)
Mid	0.999 (0.818, 1.218)
North	1.177 (0.929, 1.492)
Brandon	1.022 (0.765, 1.365)

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Table 5.5.2: Logistic Regression of the Risk of Diabetes, 3 Years after Survey
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)	p-value
Francophone Cohort (vs. Matched Cohort)	**0.805 (0.788, 0.822)**	**<.0001**
Age	**1.041 (1.040, 1.042)**	**<.0001**
Males (vs. Females)	**1.655 (1.631, 1.679)**	**<.0001**
Aggregate Regions (ref = Winnipeg)		
Rural South	**0.757 (0.746, 0.767)**	**<.0001**
Mid	**0.871 (0.859, 0.883)**	**<.0001**
North	**0.928 (0.901, 0.954)**	**<.0001**
Brandon	**1.062 (1.040, 1.085)**	**<.0001**
Married or Common Law (vs. Single)	**1.093 (1.067, 1.121)**	**<.0001**
Household Income (per $10,000)	**0.997 (0.996, 0.998)**	**0.0002**
High School Graduate (vs. not)	**0.965 (0.945, 0.986)**	**0.0031**
Currently Employed (vs. not)	**0.693 (0.679, 0.708)**	**<.0001**
Sense of Belonging to Local Community (vs. no)	1.002 (0.936, 1.073)	0.9363
Five or more Drinks on One Occasion (vs. no)	**0.648 (0.632, 0.665)**	**<.0001**
Currently Smoker (vs. no)	1.111 (0.952, 1.298)	0.1558
Body Mass Index	**1.125 (1.124, 1.126)**	**<.0001**
Leisure Time Physical Activity Index (ref = Inactive)		
Active	**0.826 (0.804, 0.849)**	**<.0001**
Moderate	**0.898 (0.883, 0.913)**	**<.0001**
Eats vegetables and fruits five or more times per day (vs. 0-4)	1.123 (0.975, 1.294)	0.0939

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Tables 5.5.1–5.5.2 show the results of two logistic regression models—a basic model where the association between being Francophone and diabetes is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The results of the basic model are consistent with the results in the initial analysis; Francophones have similar diabetes rates as the Other Manitobans (Odds Ratio: 0.92).

In the full model, when additional factors are introduced into the model, being Francophone is associated with lower rates of diabetes (Odds Ratio: 0.81). As is well known by previous research, sociodemographic and life style factors play an important role in the etiology of diabetes. When these factors are held constant for both the Francophones and Other Manitobans, Francophones appear to have lower rates of diabetes. This suggests that being Francophone, or having other characteristics associated with being Francophone, is associated with lower rates of diabetes.

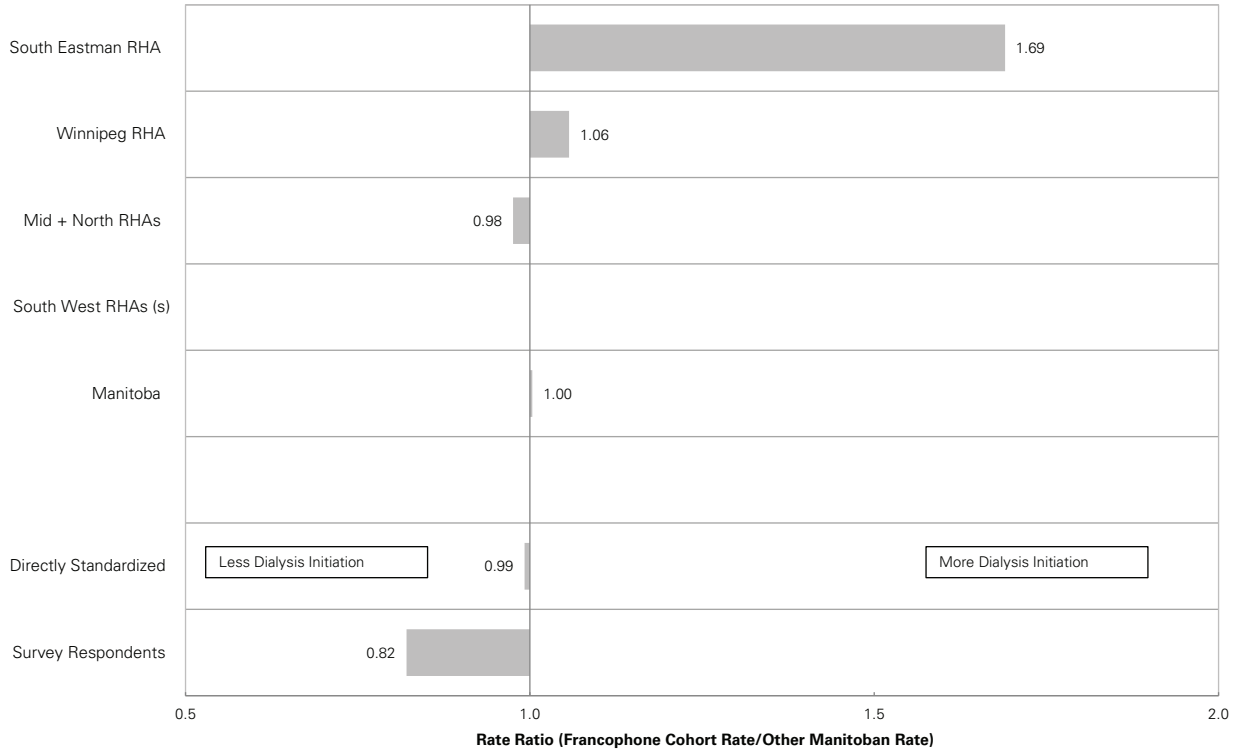
5.6 Dialysis Initiation

Dialysis is a treatment for people in the end stage of chronic renal insufficiency (kidney failure). This treatment cleans the blood and removes waste and excess water from the body. Dialysis initiation was defined by one or more physician visits with one of several physician **tariff codes** (listed in Appendix 1).

In this study, the rate of dialysis initiation for residents aged 19 and older was measured for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 5.6.1: Dialysis Initiation—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2007/08
Age– & sex–adjusted, residents aged 19 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

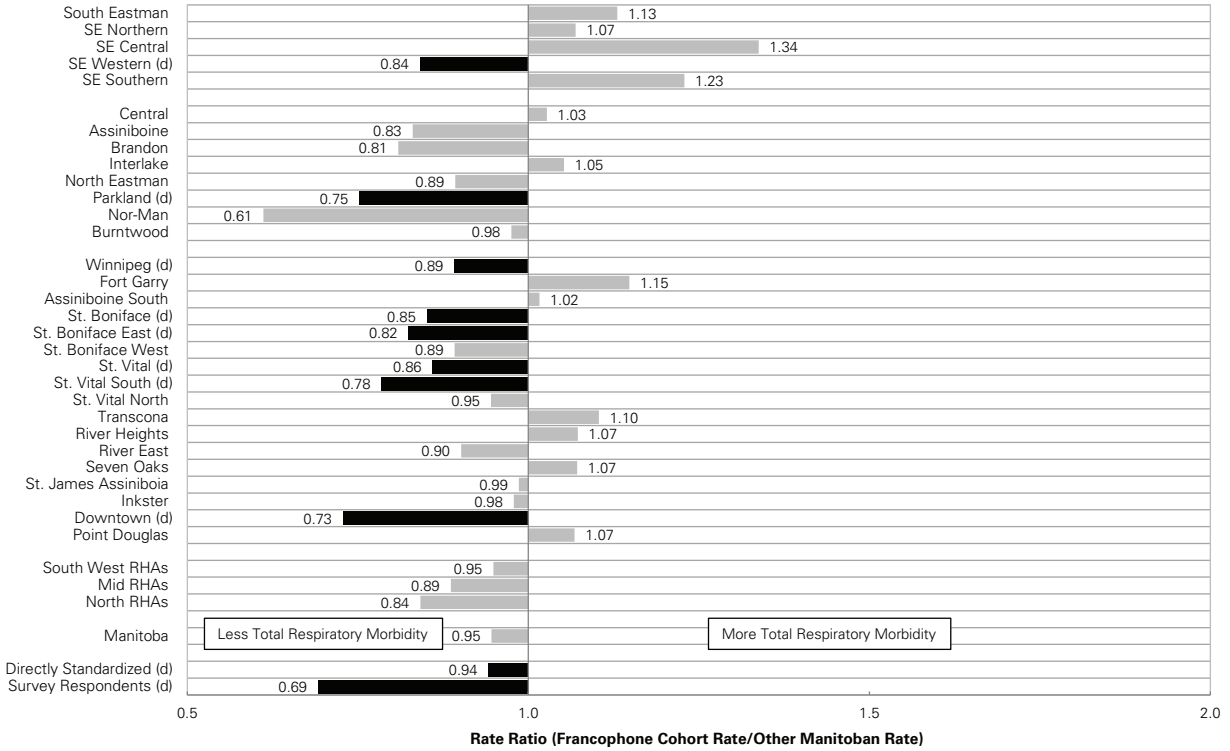
- Provincially and regionally, no significant differences were found in the rate of dialysis initiation between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.00) nor were any differences found in the survey respondents (Rate Ratio: 0.82).
- The rates of dialysis initiation for Francophones in all areas were similar to the Francophone provincial rate.

5.7 Total Respiratory Morbidity (TRM)

Total Respiratory Morbidity (TRM) is a measure of the burden of all types of **respiratory diseases** in the population. It is defined as the proportion of residents (all ages) diagnosed with any of the following respiratory illnesses in at least one physician visit or hospitalization in one year: **asthma**, acute **bronchitis**, chronic bronchitis, bronchitis not specified as acute or chronic, emphysema, or chronic airway obstruction. This combination of diagnoses is used to overcome problems resulting from different diagnoses being used to describe the same underlying illness (e.g., asthma versus chronic bronchitis). Values were calculated for a one–year period, 2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 5.7.1: Total Respiratory Morbidity—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2008/09
Age– & sex–adjusted, residents all ages



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of TRM between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.95) nor were any differences found in the survey respondents (Rate Ratio: 0.69)[6].
- In many regions, the Francophone cohort had significantly lower rates of TRM including the Western district of South Eastman (Rate Ratio: 0.84), Parkland (0.75), Winnipeg (0.89), St. Boniface (0.85), St. Vital (0.86), and Downtown (0.73).
- The rates of TRM for Francophones in all areas were similar to the Francophone provincial rate except for those in the Western district of South Eastman where the rate was lower than the Francophone provincial rate and in Point Douglas where the rate was higher (Table 5.12.7).

5.8 Arthritis

Arthritis is a group of conditions that affect the health of the bone joints in the body. Arthritis is defined as the proportion of residents aged 19 and older diagnosed with arthritis (rheumatoid or osteo–arthritis) in a two–year period by either:

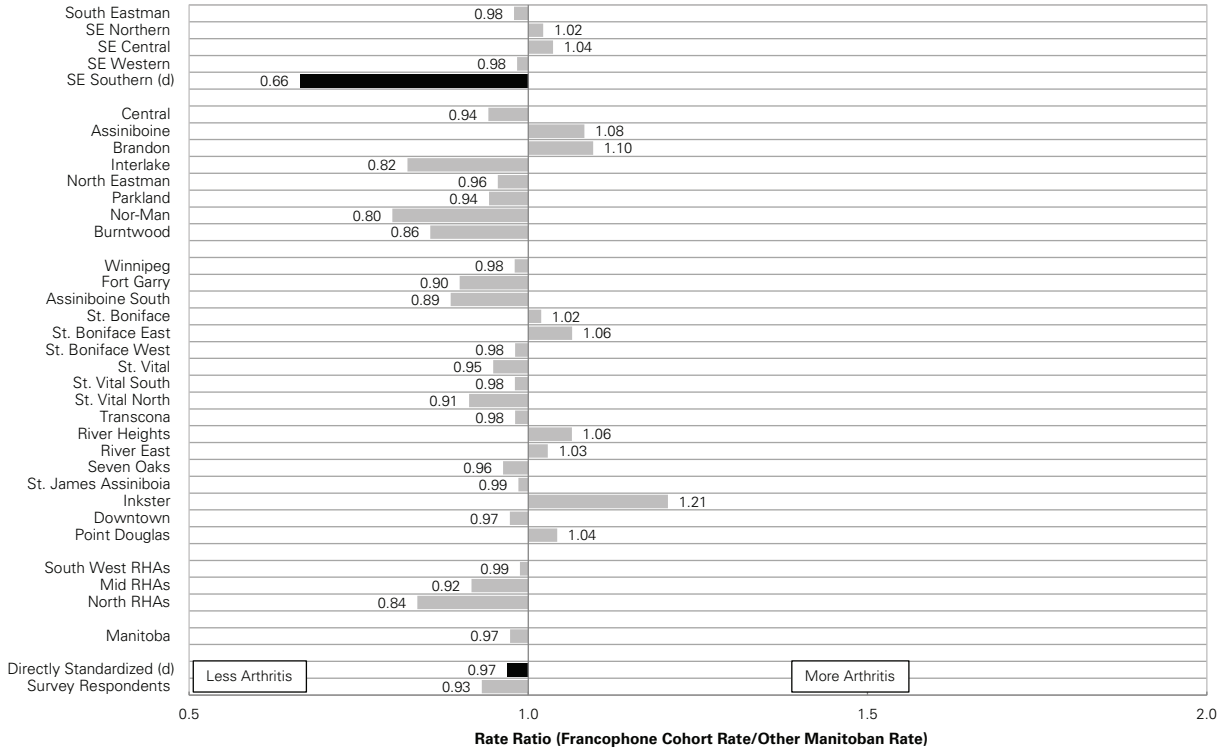
- at least two physician visits or one hospitalization with a diagnosis (Appendix 1) or
- one physician visit for arthritis and two or more prescriptions for arthritis medications (Appendix 1)

Values were calculated for a two–year period, 2007/08–2008/09, and were age– and sex–adjusted.

6 Few respondents are in the survey sample which explains the variability (the wide gap) in the rates across samples.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 5.8.1: Arthritis—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2007/08–2008/09
Age– & sex–adjusted, residents aged 19 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of arthritis between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.97)[7] nor were any differences found in the survey respondents (Rate Ratio: 0.93).
- A significant difference was noted in Southern district of South Eastman where the Francophone Cohort had a lower rate of arthritis than the Matched Cohort of Other Manitobans (Rate Ratio: 0.66).
- The arthritis rates for Francophones in all areas were similar to the Francophone provincial rate except for those in Inkster and Point Douglas where the rate was higher than the Francophone provincial rate (Table 5.12.8).

7 Note that the rate ratio of the matched cohort sample, when directly standardized to permit a comparison with the survey sample, was statistically significant. This may be due to differences in the two methods used to adjust for age and sex.

5.9 Osteoporosis

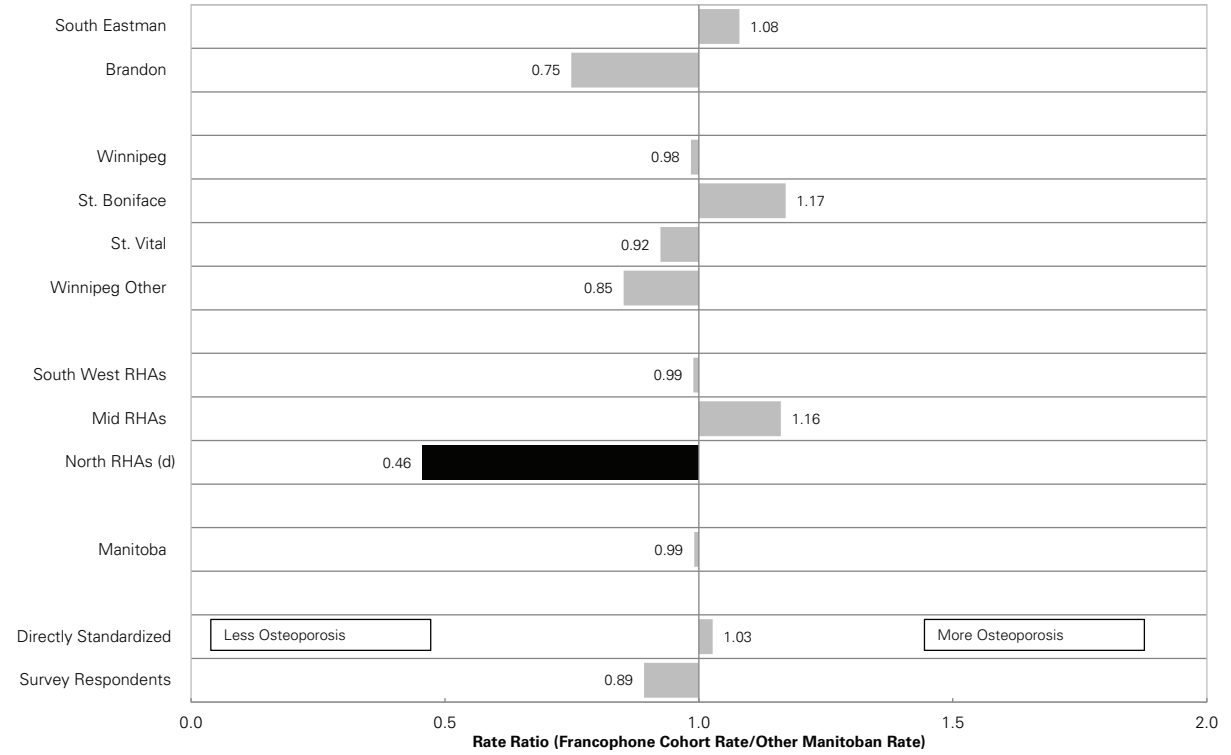
Osteoporosis is a disease that leads to a reduction in bone density, making bones more likely to break. It is defined as the proportion of residents aged 50 and older diagnosed with osteoporosis in a three–year period through either:

- at least one physician visit or hospitalization for any of the following diagnoses: osteoporosis, hip fracture, spine fracture, humerus fracture, wrist fracture (radius, ulna and carpal bones) or
- one or more prescriptions for medications to treat osteoporosis (Appendix 1)

Values were calculated for a three–year period, 2006/07–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Other Manitoban Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 5.9.1: Osteoporosis—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2006/07–2008/09
Age– & sex–adjusted, residents aged 50 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of osteoporosis between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.99) nor were any differences found in the survey respondents (Rate Ratio: 0.89).
- However, some significant differences were noted in North RHAs where the Francophone Cohort had a lower rate of osteoporosis than the Matched Cohort of Other Manitobans (Rate Ratio: 0.46).
- The osteoporosis rates for Francophones in all areas were similar to the Francophone provincial rate (Table 5.12.9).

5.10 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences. Note that there are less apparent differences between the rate ratios from common indicators like hypertension or arthritis than rarer indicators like dialysis initiation or strokes.

Table 5.10.1: Comparison of Rates between Cohort Samples and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Hypertension	2008/09	23.15%	23.94%	0.97 (d)	22.86%	25.24%	0.91 (d)
Arthritis	2007/08-2008/09	18.32%	18.91%	0.97 (d)	17.64%	18.94%	0.93
Respiratory Disease	2008/09	8.93%	9.48%	0.94 (d)	8.78%	12.69%	0.69 (d)
Diabetes	2006/07-2008/09	8.54%	8.55%	1.00	8.31%	8.17%	1.02
Ischemic Heart Disease	2004/05-2008/09	8.89%	8.41%	1.06 (d)	7.20%	7.81%	0.92
Osteoporosis	2006/07-2008/09	11.48%	11.18%	1.03	10.13%	11.36%	0.89
Dialysis Initiation	2004/05-2008/09	0.29%	0.29%	0.99	0.23%	0.28%	0.82
Acute Myocardial Infarction (rate per 1,000 person-years)	1999/00-2007/08	4.21	3.98	1.06	4.25	3.93	1.08
Stroke (rate per 1,000 person-years)	1999/00-2007/08	3.01	3.32	0.91	2.12	2.85	0.75

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

5.11 Findings from the Literature

(Comparisons to the results in this study are in italics)

Hypertension

- Joffres and MacLean found that, in Québec, men had a much lower hypertension prevalence than in the other provinces. The overall prevalence of hypertension was lower in Québec (19%) than in the other provinces (23%) (1999).
- Using the Ontario Health Survey (1996/1997), the Institute for Clinical Evaluative Sciences (ICES) reported that Francophones had slightly higher rates of hypertension (Francophones: 11.2%, all of Ontario: 10.1%, Anglophones: 9.5%) (2010).
- *In this study, the Francophone Cohort had slightly lower rates of hypertension compared to Matched Cohort of Other Manitobans (Rate Ratio: 0.96). These results were re–analyzed in a smaller sample utilizing representative survey data controlling for sociodemographic and lifestyle factors. The relationship between being Francophone and lower hypertension remained statistically significant, but the addition of these factors attenuated the effect.*

Diabetes

- Colle, Siemiatychki, West, Crepeau, Poirier, and Wilkins studied 588 cases from pediatric records in 12 Montreal hospitals and found that the incidence of juvenile onset insulin dependent diabetes was lower among French Canadian children compared to other children. No differences in insulin dependent diabetes with respect to age, sex, and family history were observed between the French Canadians and other cases (1981).
- ICES, using the Ontario Health Survey (1996/1997), reported no differences between the rates of diabetes among Francophones (3.4%), Anglophones (3.1%), and the overall Ontario rate (3.2%) (2010).
- *In this study, there were no differences in the diabetes rate at the provincial level between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.96) nor were there any among survey respondents (Rate Ratio: 1.02). These results were re–analyzed in a smaller sample utilizing representative survey data controlling for sociodemographic and lifestyle factors. The relationship between being Francophone and diabetes was accentuated and became statistically significantly lower for Francophones relative to Other Manitobans with the addition of these factors.*
- *When rates were examined by birth cohort (Chapter 17), diabetes rates were lower for the middle aged and younger Francophones relative to Other Manitobans. Similar rates were found among the older Francophones and Other Manitobans.*

Cardiovascular Disease

- Using the Ontario Health Survey (1996/1997), ICES found that while it appeared that Francophones had higher rates of heart disease; these did not quite reach statistical significance (Francophones: 5.4%, all of Ontario: 4.2%, Anglophones: 4.1%) (2010).
- In Québec, Joffres and MacLean found a higher myocardial infarction rate than in the other provinces. They note that this is consistent with the higher smoking rates and with higher dyslipidemia prevalence. The prevalence of dyslipidemia was 48% in Québec and 43% in the other provinces (1999).
- *In this study, no significant differences were found at the provincial level in the rate of IHD (Rate Ratio: 1.02) and AMI (Rate Ratio: 1.03) between the Francophone Cohort and the Matched Cohort of Other Manitobans. It is noteworthy that in Manitoba, the smoking rates are similar for Francophones and Other Manitobans.*

Stroke Rates

- In the Ontario Health Survey 1996/1997, the rate of strokes for Francophones did not differ from the rate for Anglophones (Francophones: 1.1%, this number should be interpreted with caution; all of Ontario: 1.0%; Anglophones: 1.0%) (ICES, 2010).
- Joffres and MacLean reported that cerebrovascular diseases were lower in Québec relative to other provinces (1999).
- *In this study, no significant differences were found in the rate of strokes between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.90).*

5.12 Supplementary Tables

Table 5.12.1: Hypertension, 2008/09
Age– & sex–adjusted, residents aged 19 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	0.97 (0.90, 1.04)	19.27 (17.98, 20.66)	19.96 (19.09, 20.88)
SE Northern	1.02 (0.92, 1.13)	19.86 (18.08, 21.81)	19.47 (18.21, 20.82)
SE Central	1.01 (0.77, 1.32)	20.45 (15.78, 26.49)	20.28 (18.73, 21.96)
SE Western	0.94 (0.83, 1.06)	18.32 (16.51, 20.33)	19.46 (18.06, 20.98)
SE Southern	0.89 (0.68, 1.16)	20.16 (15.78, 25.76)	22.68 (20.33, 25.30)
Central	0.91 (0.82, 1.01)	18.49 (16.86, 20.28)	20.31 (19.22, 21.46)
Assiniboine	1.02 (0.87, 1.19)	21.37 (18.55, 24.63)	21.04 (19.38, 22.85)
Brandon (f)	1.10 (0.87, 1.41)	**26.40 (21.45, 32.49)**	23.90 (20.99, 27.21)
Interlake	0.94 (0.78, 1.13)	21.18 (17.96, 24.99)	22.52 (20.50, 24.73)
North Eastman (f)	0.99 (0.85, 1.14)	**24.07 (21.11, 27.43)**	24.43 (22.60, 26.41)
Parkland	0.95 (0.80, 1.14)	22.62 (19.32, 26.49)	23.69 (21.63, 25.95)
Nor-Man (d)	**0.72 (0.53, 0.98)**	**19.12 (14.53, 25.15)**	**26.48 (22.96, 30.53)**
Burntwood	0.94 (0.70, 1.28)	23.51 (18.04, 30.63)	24.92 (21.35, 29.08)
Winnipeg	0.97 (0.91, 1.02)	19.18 (18.12, 20.30)	19.86 (19.06, 20.70)
Fort Garry	0.97 (0.83, 1.14)	18.67 (16.16, 21.57)	19.26 (17.75, 20.90)
Assiniboine South	1.09 (0.80, 1.49)	20.37 (15.36, 27.02)	18.68 (16.19, 21.55)
St. Boniface	0.95 (0.89, 1.03)	18.22 (17.02, 19.50)	19.10 (18.22, 20.03)
St. Boniface East	0.89 (0.80, 1.00)	17.95 (16.18, 19.92)	20.10 (18.85, 21.43)
St. Boniface West	1.01 (0.92, 1.11)	18.34 (16.86, 19.96)	18.15 (17.01, 19.37)
St. Vital	0.98 (0.89, 1.08)	19.60 (17.95, 21.40)	19.99 (18.91, 21.12)
St. Vital South	0.93 (0.82, 1.07)	18.69 (16.58, 21.09)	20.04 (18.61, 21.59)
St. Vital North	1.04 (0.90, 1.19)	20.62 (18.26, 23.29)	19.89 (18.40, 21.50)
Transcona	1.10 (0.86, 1.42)	22.13 (17.79, 27.53)	20.07 (17.63, 22.85)
River Heights	0.96 (0.77, 1.20)	17.76 (14.35, 21.98)	18.45 (17.06, 19.96)
River East	0.98 (0.82, 1.17)	20.88 (17.73, 24.59)	21.27 (19.68, 22.97)
Seven Oaks	1.00 (0.74, 1.35)	22.93 (17.68, 29.73)	22.94 (19.70, 26.71)
St. James Assiniboia	0.98 (0.77, 1.24)	20.44 (16.52, 25.30)	20.89 (18.65, 23.40)
Inkster	0.82 (0.53, 1.27)	20.48 (13.81, 30.36)	24.98 (20.41, 30.59)
Downtown	0.92 (0.75, 1.13)	21.17 (17.68, 25.35)	23.02 (20.78, 25.51)
Point Douglas	1.00 (0.74, 1.36)	24.74 (18.99, 32.23)	24.63 (21.21, 28.59)
South West RHAs	0.95 (0.87, 1.04)	19.78 (18.26, 21.43)	20.78 (19.73, 21.89)
Mid RHAs (f)	0.97 (0.87, 1.07)	**22.84 (20.79, 25.08)**	23.65 (22.29, 25.10)
North RHAs	0.84 (0.67, 1.04)	21.56 (17.81, 26.10)	25.78 (23.13, 28.74)
Manitoba (d)	**0.96 (0.92, 1.00)**	**19.66 (18.91, 20.44)**	**20.46 (20.17, 20.74)**
Directly Standardized (d)	**0.97 (0.94, 0.99)**	**23.15 (22.64, 23.65)**	**23.94 (23.64, 24.24)**
Survey Respondents (d)	**0.91 (0.82, 0.99)**	**22.86 (20.75, 24.97)**	**25.24 (24.55, 25.92)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.2: Ischemic Heart Disease, 2004/05–2008/09
Age– & sex–adjusted, residents aged 19 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	1.06 (0.90, 1.25)	6.26 (5.36, 7.31)	5.89 (5.20, 6.67)
SE Northern	0.95 (0.76, 1.19)	5.79 (4.74, 7.06)	6.07 (5.17, 7.13)
SE Central	1.35 (0.77, 2.37)	7.87 (4.58, 13.51)	5.82 (4.80, 7.05)
SE Western	1.11 (0.87, 1.41)	6.55 (5.32, 8.07)	5.92 (4.99, 7.03)
SE Southern	1.31 (0.84, 2.05)	7.44 (5.01, 11.03)	5.66 (4.46, 7.20)
Central	1.10 (0.89, 1.35)	6.28 (5.21, 7.58)	5.73 (4.99, 6.58)
Assiniboine	0.97 (0.70, 1.36)	5.17 (3.83, 6.99)	5.31 (4.43, 6.35)
Brandon	1.30 (0.80, 2.11)	7.96 (5.30, 11.96)	6.13 (4.61, 8.15)
Interlake (d)	**1.45 (1.04, 2.01)**	**8.85 (6.69, 11.72)**	**6.12 (4.99, 7.50)**
North Eastman	1.17 (0.88, 1.54)	8.18 (6.41, 10.44)	7.01 (5.89, 8.33)
Parkland	0.76 (0.56, 1.04)	8.21 (6.18, 10.91)	10.78 (9.07, 12.82)
Nor-Man	1.19 (0.69, 2.06)	7.18 (4.51, 11.43)	6.02 (4.44, 8.15)
Burntwood	0.99 (0.57, 1.70)	8.44 (5.29, 13.45)	8.53 (6.33, 11.50)
Winnipeg	1.02 (0.89, 1.16)	7.10 (6.18, 8.16)	6.99 (6.20, 7.89)
St. Boniface	0.98 (0.84, 1.14)	6.73 (5.82, 7.77)	6.76 (5.98, 7.64)
St. Boniface East	0.93 (0.73, 1.17)	6.19 (5.01, 7.66)	6.68 (5.72, 7.81)
St. Boniface West	1.04 (0.87, 1.25)	7.16 (6.08, 8.43)	6.87 (5.94, 7.95)
St. Vital	1.09 (0.89, 1.32)	6.88 (5.72, 8.27)	6.33 (5.51, 7.27)
St. Vital South	1.06 (0.79, 1.41)	6.12 (4.75, 7.89)	5.77 (4.81, 6.93)
St. Vital North	1.12 (0.87, 1.44)	8.05 (6.45, 10.05)	7.19 (6.09, 8.48)
Winnipeg Other	1.06 (0.90, 1.25)	7.86 (6.69, 9.24)	7.43 (6.56, 8.40)
South West RHAs	1.08 (0.90, 1.30)	6.13 (5.14, 7.30)	5.68 (4.95, 6.51)
Mid RHAs	1.05 (0.85, 1.28)	8.31 (6.87, 10.05)	7.95 (6.85, 9.22)
North RHAs	1.07 (0.72, 1.58)	7.61 (5.39, 10.74)	7.14 (5.66, 9.01)
Manitoba	1.02 (0.91, 1.14)	6.90 (6.17, 7.71)	6.75 (6.57, 6.93)
Directly Standardized (d)	**1.06 (1.00, 1.11)**	**8.89 (8.54, 9.23)**	**8.41 (8.21, 8.60)**
Survey Respondents	0.92 (0.76, 1.08)	7.20 (6.01, 8.38)	7.81 (7.37, 8.25)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.3: Acute Myocardial Infarction (AMI), 1999/00–2007/08
Age– & sex–adjusted, residents aged 40 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.10 (0.81, 1.50)	4.09 (3.22, 5.19)	3.84 (3.29, 4.49)
SE Northern	0.76 (0.52, 1.11)	3.47 (2.49, 4.85)	4.56 (3.66, 5.68)
SE Central (s)	s	s	3.73 (2.72, 5.11)
SE Western (d)	**1.55 (1.01, 2.37)**	**4.93 (3.52, 6.91)**	**3.18 (2.38, 4.24)**
SE Southern	1.12 (0.45, 2.74)	3.91 (1.74, 8.79)	3.51 (2.33, 5.28)
Brandon	1.98 (0.00, 4.86)	6.70 (3.32, 13.52)	3.38 (1.91, 5.99)
Winnipeg	1.00 (0.85, 1.17)	4.20 (3.55, 4.98)	4.20 (3.75, 4.69)
St. Boniface	1.01 (0.76, 1.33)	3.63 (2.88, 4.58)	3.44 (2.89, 4.10)
St. Boniface East	1.05 (0.64, 1.72)	2.91 (1.89, 4.48)	2.77 (2.11, 3.65)
St. Boniface West	0.97 (0.74, 1.27)	4.19 (3.32, 5.28)	4.31 (3.56, 5.20)
St. Vital	0.92 (0.63, 1.33)	3.80 (2.70, 5.34)	4.15 (3.40, 5.06)
St. Vital South	0.69 (0.39, 1.23)	2.86 (1.70, 4.81)	4.13 (3.12, 5.47)
St. Vital North	1.32 (0.86, 2.01)	5.50 (3.84, 7.88)	4.17 (3.24, 5.37)
Winnipeg Other	1.05 (0.82, 1.35)	4.80 (3.76, 6.13)	4.56 (4.00, 5.19)
South West RHAs	1.21 (0.91, 1.61)	4.39 (3.37, 5.71)	3.63 (3.07, 4.28)
Mid RHAs	1.00 (0.71, 1.42)	4.74 (3.46, 6.51)	4.73 (3.91, 5.71)
North RHAs (s)	s	s	5.10 (3.46, 7.51)
Manitoba	1.03 (0.91, 1.17)	4.21 (3.72, 4.77)	4.09 (3.87, 4.32)
Directly Standardized	1.06 (0.96, 1.18)	4.21 (3.82, 4.59)	3.98 (3.77, 4.20)
Survey Respondents	1.08 (0.53, 1.63)	4.25 (2.21, 6.29)	3.93 (3.28, 4.58)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.4: Stroke, 1999/00–2007/08

Age– & sex–adjusted, residents aged 40 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman (d)	**1.56 (1.15, 2.11)**	**3.83 (2.92, 5.03)**	**3.16 (2.62, 3.80)**
SE Northern (f,d)	**1.69 (1.14, 2.52)**	**4.96 (3.67, 6.69)**	**2.93 (2.17, 3.94)**
SE Central (f,d)	**3.34 (1.50, 7.44)**	**15.40 (7.25, 32.72)**	**4.61 (3.40, 6.25)**
SE Western	1.14 (0.63, 2.07)	2.51 (1.53, 4.11)	2.20 (1.52, 3.17)
SE Southern (s)	s	s	4.71 (3.27, 6.80)
Brandon (s)	s	s	2.94 (1.57, 5.52)
Winnipeg	0.91 (0.75, 1.10)	3.00 (2.45, 3.67)	3.29 (2.87, 3.76)
St. Boniface	1.01 (0.73, 1.41)	2.73 (2.09, 3.57)	2.61 (2.12, 3.22)
St. Boniface East	1.01 (0.56, 1.85)	2.35 (1.39, 3.96)	2.31 (1.66, 3.23)
St. Boniface West	1.02 (0.75, 1.38)	3.01 (2.33, 3.88)	2.96 (2.37, 3.71)
St. Vital	0.90 (0.60, 1.34)	3.20 (2.21, 4.62)	3.57 (2.87, 4.45)
St. Vital South	0.70 (0.38, 1.28)	2.87 (1.67, 4.93)	4.09 (3.02, 5.54)
St. Vital North	1.23 (0.75, 2.01)	3.69 (2.41, 5.63)	3.00 (2.25, 4.00)
Winnipeg Other	0.82 (0.60, 1.12)	2.94 (2.16, 4.00)	3.58 (3.10, 4.14)
South West RHAs (d)	**0.59 (0.40, 0.87)**	**2.16 (1.49, 3.15)**	**3.66 (3.07, 4.36)**
Mid RHAs	0.81 (0.54, 1.20)	3.79 (2.60, 5.51)	4.69 (3.82, 5.76)
North RHAs (s)	s	s	4.36 (2.78, 6.86)
Manitoba	0.90 (0.77, 1.05)	3.13 (2.69, 3.65)	3.48 (3.27, 3.68)
Directly Standardized	0.91 (0.79, 1.00)	3.01 (2.69, 3.33)	3.32 (3.12, 3.52)
Survey Respondents	0.75 (0.19, 1.30)	2.12 (0.70, 3.54)	2.85 (2.17, 3.53)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.6: Dialysis Initiation, 2004/05–2008/09

Age– & sex–adjusted, residents aged 19 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman RHA	1.69 (0.86, 3.34)	0.25 (0.14, 0.45)	0.15 (0.09, 0.23)
Winnipeg RHA	1.06 (0.70, 1.59)	0.26 (0.17, 0.41)	0.25 (0.19, 0.33)
Mid + North RHAs	0.98 (0.43, 2.20)	0.27 (0.13, 0.57)	0.28 (0.18, 0.43)
South West RHAs (s)	s	s	0.26 (0.18, 0.39)
Manitoba	1.00 (0.73, 1.38)	0.24 (0.17, 0.32)	0.23 (0.20, 0.27)
Directly Standardized	0.99 (0.74, 1.32)	0.29 (0.22, 0.35)	0.29 (0.25, 0.33)
Survey Respondents	0.82 (0.00, 1.78)	0.23 (0.00, 0.46)	0.28 (0.19, 0.36)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.5: Diabetes Mellitus, 2006/07–2008/09
Age– & sex–adjusted, residents aged 19 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Prevalence (95% CI) (percentage)	Matched Cohort Adjusted Prevalence (95% CI) (percentage)
South Eastman	0.96 (0.82, 1.12)	6.47 (5.57, 7.52)	6.76 (6.01, 7.61)
SE Northern	1.00 (0.82, 1.23)	6.53 (5.44, 7.83)	6.52 (5.66, 7.51)
SE Central	1.10 (0.70, 1.73)	7.19 (4.66, 11.10)	6.54 (5.57, 7.67)
SE Western	0.88 (0.70, 1.11)	5.74 (4.68, 7.03)	6.51 (5.58, 7.59)
SE Southern	1.40 (0.95, 2.08)	10.94 (7.67, 15.61)	7.80 (6.36, 9.57)
Central	0.93 (0.76, 1.14)	6.12 (5.08, 7.36)	6.57 (5.76, 7.49)
Assiniboine	1.00 (0.76, 1.32)	8.00 (6.22, 10.28)	8.01 (6.81, 9.42)
Brandon	0.98 (0.64, 1.52)	8.30 (5.67, 12.14)	8.44 (6.67, 10.69)
Interlake (f)	1.01 (0.76, 1.35)	**10.04 (7.74, 13.01)**	9.94 (8.37, 11.79)
North Eastman (d)	**0.74 (0.56, 0.97)**	**7.76 (6.04, 9.96)**	**10.52 (9.03, 12.26)**
Parkland (d)	**0.53 (0.37, 0.75)**	**5.63 (4.06, 7.81)**	**10.66 (9.04, 12.57)**
Nor-Man	0.74 (0.46, 1.17)	8.91 (5.88, 13.52)	12.07 (9.57, 15.22)
Burntwood	0.76 (0.47, 1.22)	9.39 (6.13, 14.38)	12.37 (9.73, 15.75)
Winnipeg	1.03 (0.91, 1.16)	7.23 (6.37, 8.21)	7.02 (6.31, 7.82)
Fort Garry	1.05 (0.79, 1.39)	6.98 (5.42, 8.99)	6.64 (5.62, 7.83)
Assiniboine South	1.20 (0.66, 2.18)	5.69 (3.33, 9.72)	4.74 (3.56, 6.32)
St. Boniface	1.12 (0.97, 1.31)	7.18 (6.22, 8.28)	6.38 (5.65, 7.20)
St. Boniface East	0.95 (0.77, 1.18)	6.03 (4.95, 7.35)	6.33 (5.50, 7.28)
St. Boniface West (d)	**1.22 (1.02, 1.45)**	**7.81 (6.69, 9.13)**	**6.42 (5.60, 7.36)**
St. Vital	1.00 (0.83, 1.22)	6.50 (5.43, 7.77)	6.49 (5.68, 7.40)
St. Vital South	0.90 (0.70, 1.17)	5.70 (4.52, 7.20)	6.33 (5.42, 7.40)
St. Vital North	1.11 (0.87, 1.42)	7.30 (5.86, 9.11)	6.58 (5.62, 7.70)
Transcona	1.26 (0.85, 1.87)	9.44 (6.72, 13.26)	7.50 (5.96, 9.44)
River Heights	0.84 (0.56, 1.25)	5.67 (3.87, 8.30)	6.74 (5.75, 7.90)
River East	0.88 (0.64, 1.20)	7.02 (5.23, 9.44)	8.00 (6.85, 9.34)
Seven Oaks	0.74 (0.43, 1.25)	7.03 (4.36, 11.32)	9.52 (7.38, 12.29)
St. James Assiniboia	1.02 (0.69, 1.52)	7.93 (5.57, 11.31)	7.74 (6.30, 9.52)
Inkster	1.09 (0.59, 1.98)	11.60 (6.88, 19.55)	10.68 (7.75, 14.71)
Downtown	1.01 (0.73, 1.41)	9.03 (6.76, 12.05)	8.90 (7.39, 10.72)
Point Douglas	1.02 (0.64, 1.62)	10.21 (6.79, 15.36)	10.05 (7.84, 12.88)
South West RHAs	0.95 (0.81, 1.13)	6.76 (5.76, 7.93)	7.10 (6.30, 7.99)
Mid RHAs (d)	**0.74 (0.61, 0.90)**	**7.83 (6.52, 9.41)**	**10.53 (9.27, 11.96)**
North RHAs	0.75 (0.53, 1.05)	9.10 (6.68, 12.41)	12.21 (10.16, 14.68)
Manitoba	0.96 (0.86, 1.07)	7.12 (6.39, 7.94)	7.39 (7.21, 7.58)
Directly Standardized	1.00 (0.95, 1.05)	8.54 (8.20, 8.87)	8.55 (8.35, 8.74)
Survey Respondents	1.02 (0.81, 1.23)	8.31 (6.67, 9.95)	8.17 (7.71, 8.63)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.7: Total Respiratory Morbidity, 2008/09

Age– & sex–adjusted, residents all ages

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	1.13 (0.99, 1.29)	8.15 (7.20, 9.23)	7.21 (6.50, 8.00)
SE Northern	1.07 (0.94, 1.22)	9.13 (8.17, 10.19)	8.53 (7.86, 9.27)
SE Central	1.34 (0.97, 1.84)	7.38 (5.43, 10.02)	5.51 (5.00, 6.08)
SE Western (f,d)	**0.84 (0.71, 0.99)**	**6.40 (5.56, 7.35)**	**7.60 (6.87, 8.42)**
SE Southern	1.23 (0.83, 1.82)	8.58 (5.98, 12.31)	6.98 (5.94, 8.20)
Central	1.03 (0.88, 1.20)	8.01 (6.92, 9.28)	7.80 (6.97, 8.73)
Assiniboine	0.83 (0.64, 1.07)	6.93 (5.49, 8.75)	8.35 (7.23, 9.63)
Brandon	0.81 (0.60, 1.09)	10.71 (8.18, 14.01)	13.23 (11.23, 15.58)
Interlake	1.05 (0.81, 1.37)	9.78 (7.75, 12.34)	9.30 (7.96, 10.86)
North Eastman	0.89 (0.71, 1.12)	10.68 (8.70, 13.12)	11.97 (10.47, 13.69)
Parkland (d)	**0.75 (0.58, 0.98)**	**7.59 (5.95, 9.68)**	**10.09 (8.72, 11.67)**
Nor-Man	0.61 (0.32, 1.18)	4.70 (2.58, 8.56)	7.68 (5.72, 10.31)
Burntwood	0.98 (0.62, 1.53)	8.51 (5.76, 12.57)	8.73 (6.87, 11.08)
Winnipeg (d)	**0.89 (0.84, 0.95)**	**8.99 (8.41, 9.60)**	**10.08 (9.65, 10.54)**
Fort Garry	1.15 (0.93, 1.42)	9.86 (8.15, 11.92)	8.59 (7.50, 9.83)
Assiniboine South	1.02 (0.69, 1.50)	11.05 (7.78, 15.68)	10.87 (8.93, 13.24)
St. Boniface (d)	**0.85 (0.75, 0.97)**	**7.86 (6.95, 8.89)**	**9.24 (8.33, 10.24)**
St. Boniface East (d)	**0.82 (0.72, 0.94)**	**7.73 (6.83, 8.76)**	**9.38 (8.73, 10.08)**
St. Boniface West	0.89 (0.78, 1.02)	8.07 (7.22, 9.02)	9.05 (8.31, 9.85)
St. Vital (d)	**0.86 (0.74, 1.00)**	**8.65 (7.50, 9.97)**	**10.06 (9.03, 11.20)**
St. Vital South (d)	**0.78 (0.67, 0.92)**	**7.72 (6.64, 8.97)**	**9.83 (9.05, 10.68)**
St. Vital North	0.95 (0.79, 1.13)	9.76 (8.34, 11.41)	10.32 (9.40, 11.33)
Transcona	1.10 (0.82, 1.49)	11.32 (8.71, 14.71)	10.26 (8.61, 12.21)
River Heights	1.07 (0.82, 1.40)	10.36 (8.05, 13.33)	9.66 (8.51, 10.97)
River East	0.90 (0.72, 1.13)	10.14 (8.22, 12.52)	11.25 (9.98, 12.69)
Seven Oaks	1.07 (0.71, 1.61)	10.69 (7.53, 15.18)	9.98 (7.97, 12.48)
St. James Assiniboia	0.99 (0.73, 1.33)	10.72 (8.21, 13.99)	10.87 (9.25, 12.78)
Inkster	0.98 (0.63, 1.53)	13.36 (9.03, 19.75)	13.65 (10.77, 17.28)
Downtown (d)	**0.73 (0.57, 0.93)**	**8.90 (7.14, 11.09)**	**12.21 (10.65, 14.01)**
Point Douglas (f)	1.07 (0.80, 1.43)	**16.58 (12.81, 21.45)**	15.52 (13.09, 18.41)
South West RHAs	0.95 (0.85, 1.06)	7.99 (7.22, 8.84)	8.42 (7.92, 8.96)
Mid RHAs	0.89 (0.77, 1.02)	9.32 (8.22, 10.57)	10.52 (9.78, 11.32)
North RHAs	0.84 (0.59, 1.21)	6.97 (5.08, 9.58)	8.28 (6.96, 9.87)
Manitoba	0.95 (0.86, 1.04)	8.69 (7.89, 9.57)	9.19 (9.02, 9.36)
Directly Standardized (d)	**0.94 (0.91, 0.98)**	**8.93 (8.64, 9.22)**	**9.48 (9.31, 9.66)**
Survey Respondents (d)	**0.69 (0.47, 0.92)**	**8.78 (6.43, 11.12)**	**12.69 (10.28, 15.09)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.8: Arthritis, 2007/08–2008/09
Age– & sex–adjusted, residents aged 19 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	0.98 (0.91, 1.06)	16.58 (15.39, 17.86)	16.94 (16.13, 17.79)
SE Northern	1.02 (0.92, 1.14)	17.59 (15.97, 19.37)	17.21 (16.06, 18.44)
SE Central	1.04 (0.80, 1.34)	17.91 (13.91, 23.05)	17.28 (16.00, 18.66)
SE Western	0.98 (0.86, 1.12)	15.79 (14.16, 17.60)	16.05 (14.80, 17.42)
SE Southern (d)	**0.66 (0.46, 0.96)**	**11.62 (8.20, 16.47)**	**17.53 (15.50, 19.83)**
Central	0.94 (0.84, 1.05)	15.70 (14.20, 17.34)	16.68 (15.69, 17.73)
Assiniboine	1.08 (0.90, 1.30)	17.99 (15.36, 21.07)	16.61 (15.11, 18.27)
Brandon	1.10 (0.83, 1.44)	19.88 (15.72, 25.13)	18.15 (15.67, 21.01)
Interlake	0.82 (0.67, 1.01)	16.77 (13.92, 20.21)	20.41 (18.45, 22.57)
North Eastman	0.96 (0.81, 1.13)	20.25 (17.43, 23.51)	21.20 (19.42, 23.14)
Parkland	0.94 (0.78, 1.14)	19.00 (16.04, 22.50)	20.16 (18.29, 22.23)
Nor-Man	0.80 (0.56, 1.14)	16.12 (11.75, 22.13)	20.17 (16.99, 23.94)
Burntwood	0.86 (0.61, 1.20)	18.38 (13.64, 24.77)	21.48 (18.21, 25.35)
Winnipeg	0.98 (0.93, 1.03)	17.50 (16.53, 18.54)	17.87 (17.16, 18.60)
Fort Garry	0.90 (0.75, 1.07)	15.37 (13.11, 18.01)	17.10 (15.65, 18.68)
Assiniboine South	0.89 (0.64, 1.23)	18.27 (13.51, 24.70)	20.63 (17.90, 23.79)
St. Boniface	1.02 (0.94, 1.10)	16.92 (15.74, 18.20)	16.61 (15.77, 17.50)
St. Boniface East	1.06 (0.95, 1.19)	17.63 (15.93, 19.50)	16.56 (15.51, 17.68)
St. Boniface West	0.98 (0.88, 1.09)	16.42 (15.00, 17.96)	16.74 (15.64, 17.92)
St. Vital	0.95 (0.86, 1.05)	16.95 (15.42, 18.63)	17.87 (16.85, 18.96)
St. Vital South	0.98 (0.85, 1.13)	16.69 (14.76, 18.87)	17.02 (15.78, 18.37)
St. Vital North	0.91 (0.79, 1.06)	17.28 (15.12, 19.76)	18.94 (17.49, 20.50)
Transcona	0.98 (0.75, 1.29)	16.49 (12.99, 20.91)	16.81 (14.67, 19.27)
River Heights	1.06 (0.86, 1.31)	20.08 (16.50, 24.44)	18.87 (17.43, 20.44)
River East	1.03 (0.86, 1.24)	18.22 (15.37, 21.60)	17.71 (16.31, 19.24)
Seven Oaks	0.96 (0.69, 1.34)	18.36 (13.75, 24.50)	19.07 (16.15, 22.53)
St. James Assiniboia	0.99 (0.77, 1.26)	18.91 (15.18, 23.57)	19.19 (17.03, 21.63)
Inkster (f)	1.21 (0.82, 1.77)	**27.41 (19.81, 37.93)**	22.73 (18.52, 27.90)
Downtown	0.97 (0.79, 1.19)	19.26 (16.08, 23.07)	19.80 (17.80, 22.03)
Point Douglas (f)	1.04 (0.79, 1.37)	**26.75 (21.05, 33.99)**	25.66 (22.26, 29.57)
South West RHAs	0.99 (0.90, 1.08)	16.55 (15.20, 18.01)	16.75 (15.88, 17.68)
Mid RHAs	0.92 (0.82, 1.02)	18.84 (17.01, 20.86)	20.56 (19.33, 21.87)
North RHAs	0.84 (0.66, 1.07)	17.49 (14.08, 21.73)	20.91 (18.53, 23.61)
Manitoba	0.97 (0.93, 1.02)	17.25 (16.53, 18.00)	17.73 (17.46, 18.00)
Directly Standardized (d)	**0.97 (0.94, 1.00)**	**18.32 (17.86, 18.78)**	**18.91 (18.63, 19.18)**
Survey Respondents	0.93 (0.79, 1.07)	17.64 (15.01, 20.27)	18.94 (18.28, 19.60)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 5.12.9: Osteoporosis, 2006/07–2008/09
Age– & sex–adjusted, residents aged 50 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	1.08 (0.88, 1.32)	9.24 (7.68, 11.12)	8.56 (7.48, 9.79)
Brandon	0.75 (0.37, 1.51)	8.97 (4.78, 16.83)	11.97 (8.62, 16.64)
Winnipeg	0.98 (0.86, 1.12)	10.64 (9.27, 12.21)	10.81 (9.72, 12.02)
St. Boniface	1.17 (0.99, 1.38)	11.59 (9.93, 13.53)	9.90 (8.70, 11.27)
St. Vital	0.92 (0.73, 1.17)	9.80 (7.92, 12.13)	10.60 (9.17, 12.25)
Winnipeg Other	0.85 (0.70, 1.04)	9.82 (8.07, 11.95)	11.52 (10.27, 12.93)
South West RHAs	0.99 (0.80, 1.23)	9.52 (7.79, 11.65)	9.63 (8.42, 11.01)
Mid RHAs	1.16 (0.88, 1.53)	9.97 (7.78, 12.78)	8.59 (7.26, 10.15)
North RHAs (d)	**0.46 (0.21, 0.97)**	**4.78 (2.37, 9.65)**	**10.48 (7.78, 14.13)**
Manitoba	0.99 (0.88, 1.11)	9.98 (8.89, 11.21)	10.08 (9.72, 10.43)
Directly Standardized	1.03 (0.96, 1.10)	11.48 (10.84, 12.12)	11.18 (10.81, 11.55)
Survey Respondents	0.89 (0.65, 1.13)	10.13 (7.55, 12.71)	11.36 (10.61, 12.11)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 6: Prevalence of Mental Illness (Aged 10 and Older)

Indicators in this chapter:

- 6.1 Cumulative Mental Health Disorders
- 6.2 Depression
- 6.3 Anxiety
- 6.4 Substance Abuse
- 6.5 Personality Disorders
- 6.6 Schizophrenia
- 6.7 Dementia (55+)
- 6.8 Comparison to Survey Data
- 6.9 Findings from the Literature
- 6.10 Supplementary Tables

Overall Key Findings

- Overall, the Francophone Cohort had lower rates of diagnosed substance abuse, schizophrenia, and personality disorders than a Matched Cohort of Other Manitobans. In other indicators of mental health disorders, the Francophone Cohort is similar to their Matched Cohort.
- There is substantial variability among the different areas of the province between the Francophone Cohort and the Matched Cohort and between Francophones living in an area and the provincial average.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 6.0: Summary of Mental Illness Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Prevalence of Cumulative Mental Health Disorders		
Manitoba		
South Eastman		
SE Western (f)		↓
Parkland (f,d)	↓	↓
Nor-Man (d)	↑	
Downtown (f)		↑
Point Douglas (f)		↑
Prevalence of Depression		
Manitoba		
South Eastman		
SE Western (f)		↓
Parkland (f)		↓
Nor-Man (d)	↑	
River Heights (f)		↑
St. James Assiniboia (f)		↑
Downtown (f,d)	↑	↑
Point Douglas (f)		↑
Directly Standardized (d)	↑	
Prevalence of Anxiety Disorders		
Manitoba		
South Eastman		
SE Western (f)		↓
Central (d)	↑	
Parkland (f,d)	↓	↓
Point Douglas (f)		↑
Mid RHAs (f,d)	↓	↓
Prevalence of Substance Abuse		
Manitoba (d)	↓	
South Eastman (d)	↓	
Central (f,d)	↓	↓
North Eastman (f)		↑
Parkland (d)	↓	
Nor-Man (f)		↑
St. Boniface		
St. Boniface West (d)	↓	
St. Vital		
St. Vital South (f)		↓
Seven Oaks (f,d)	↑	↑
Downtown (f)		↑
Point Douglas (f)		↑
South West RHAs (f,d)	↓	↓
North RHAs (f)		↑
Directly Standardized (d)	↓	

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Prevalence of Personality Disorders		
Manitoba (d)	↓	
South Eastman (f)		↓
SE Northern (f)		↓
Winnipeg (d)	↓	
St. Boniface		
St. Boniface West (d)	↓	
Winnipeg Other (f)		↑
Directly Standardized (d)	↓	
Prevalence of Schizophrenia		
Manitoba (d)	↓	
St. Boniface (d)	↓	
St. Boniface West (d)	↓	
South West RHAs (f,d)	↓	↓
Directly Standardized (d)	↓	
Survey Respondents (d, D)	↑	
Prevalence of Dementia		
Manitoba		
South Eastman (d)	↑	
SE Northern (d)	↑	
Assiniboine (f,d)	↓	↓
Assiniboine South (d)	↓	
St. Boniface (d)	↑	
St. Boniface West (d)	↑	
St. James Assiniboia (d)	↓	
South West RHAs (f)		↓

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups.

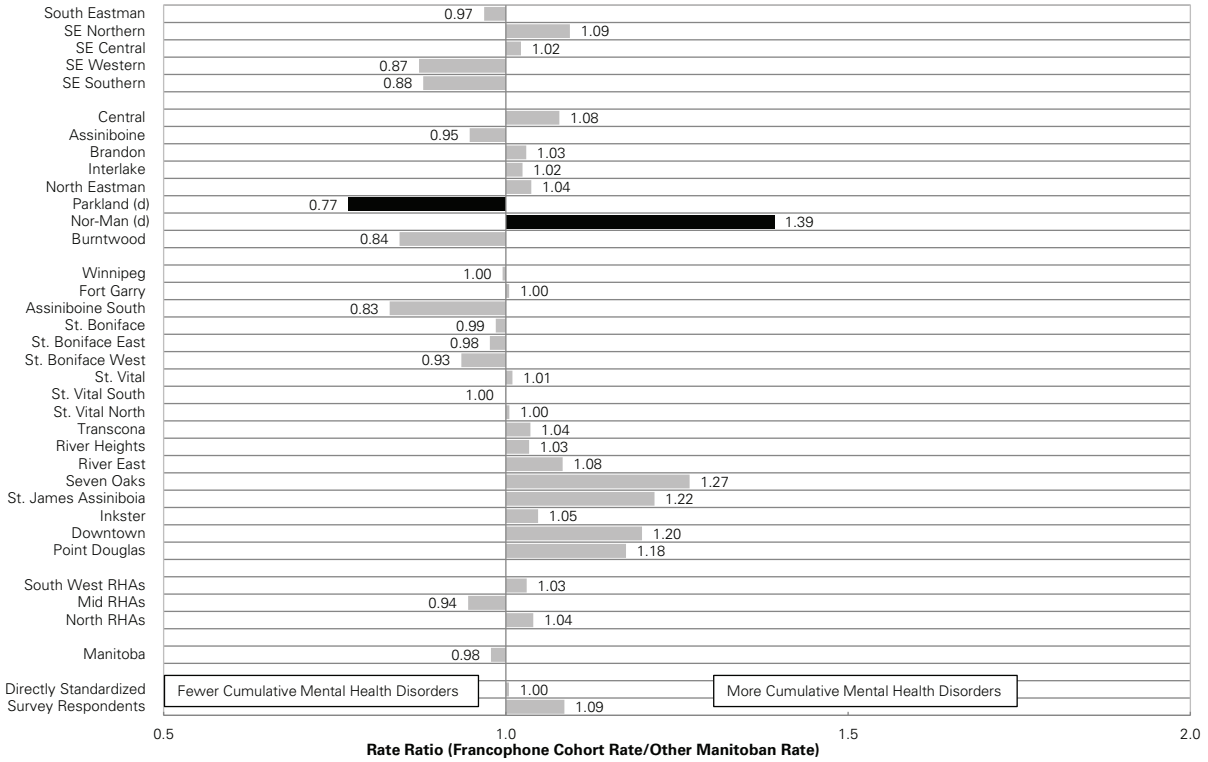
Source: Manitoba Centre for Health Policy, 2012

6.1 Cumulative Mental Health Disorders

Cumulative mental health disorders include residents who received treatment for one or more of the following five mental illnesses: **depression**, **anxiety disorders**, substance abuse, personality disorder, and **schizophrenia**. The details of the specific diagnoses are found in the following sections. The definition of cumulative **mental health disorder** is the proportion of residents meeting the definition for any of the five mental illnesses above. The age– and sex–adjusted prevalence of cumulative **mental illness** disorders was measured for residents aged 10 and older in 2004/05–2008/09. The denominator includes all Manitoba residents aged 10 and older in the five–year time period who were continuously registered with Manitoba Health for at least one year in the five–year time period.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 6.1.1: Cumulative Mental Health Disorders—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of cumulative mental health disorders between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.98) nor were any differences found in the survey respondents (Rate Ratio: 1.09).
- However, some significant differences were noted in Parkland (Rate Ratio: 0.77) where the Francophone Cohort had lower rates than the Matched Cohort of Other Manitobans and in NOR–MAN (Rate Ratio: 1.39) where the Francophone Cohort had higher rates of cumulative mental health disorders.

- The rates of cumulative mental health disorders for Francophones in all areas was similar to the Francophone provincial rate except for those in the Western district of South Eastman and in Parkland where the rates were lower than the Francophone provincial average and in Downtown and Point Douglas where rates were higher (Table 6.10.1).

6.2 Depression

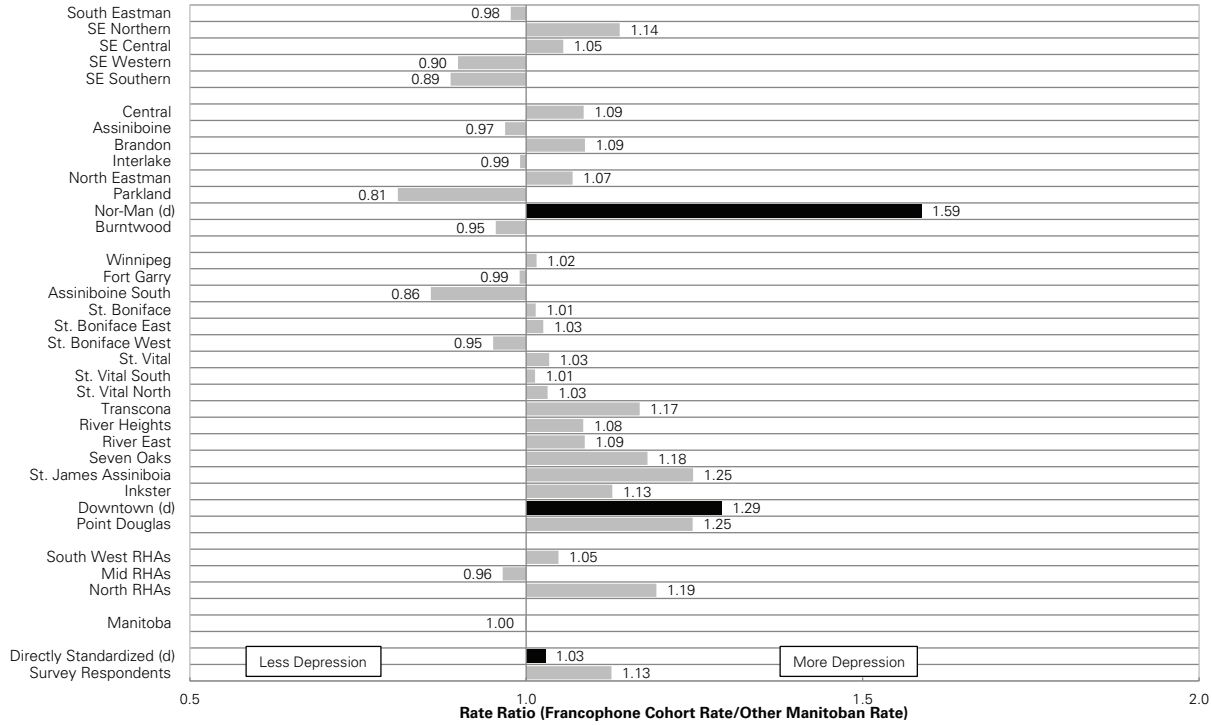
Depression is a mood disorder, characterized by feelings of sadness and a lack of interest in activities, that persists to the point that it interferes with daily life for an extended period of time. It is defined as the proportion of residents aged 10 and older diagnosed with depression over a five–year period by any of the following conditions:

- one or more hospitalizations with a diagnosis for depressive disorder, affective psychoses, neurotic depression, or adjustment reaction (Appendix 1)
- one or more physician visits with a diagnosis for depressive disorder, affective psychoses, or adjustment reaction (Appendix 1)
- one or more hospitalizations with a diagnosis for anxiety disorders and one or more prescriptions for an **antidepressant** or mood stabilizer (Appendix 1)
- one or more physician visits with a diagnosis for anxiety disorders and one or more prescriptions for an antidepressant or mood stabilizer (Appendix 1)

Values were calculated for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 6.2.1: Depression—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

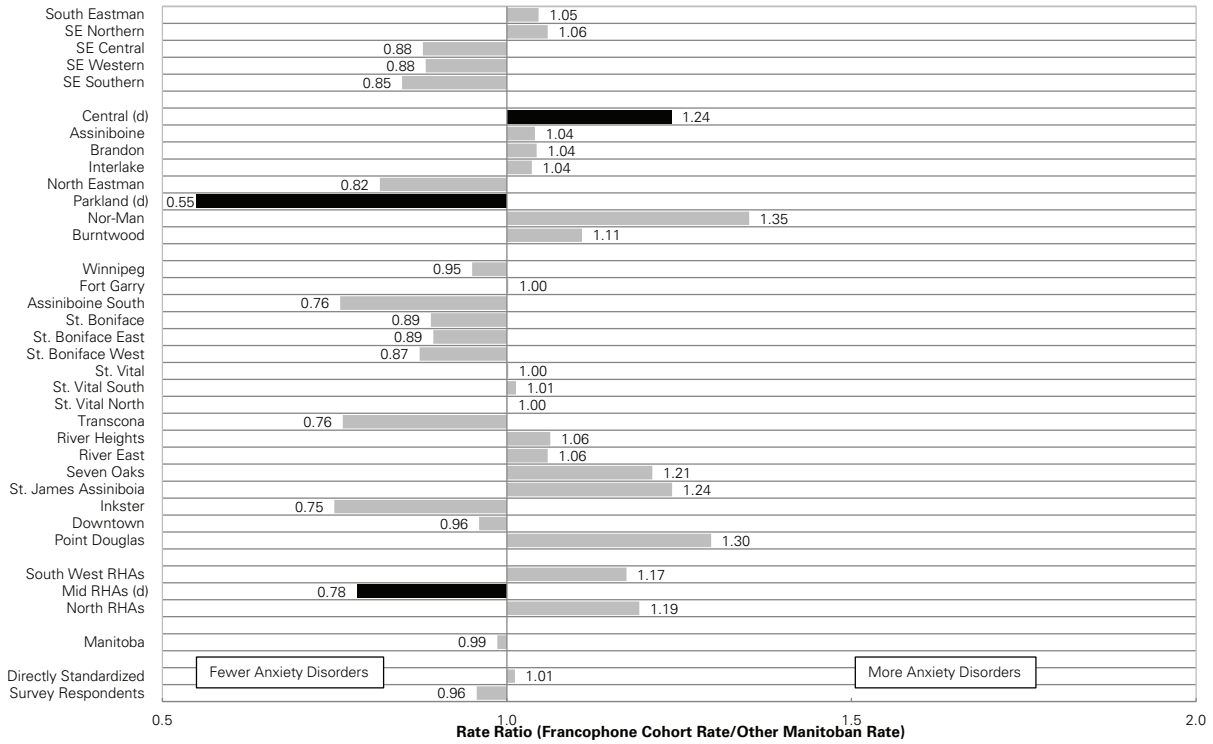
- Provincially, no significant differences were found in the rate of depression between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.00) nor were any differences found in the survey respondents (Rate Ratio: 1.13).
- However, some significant differences were noted in NOR–MAN (Rate Ratio: 1.59) and Downtown (Rate Ratio: 1.29) where the Francophone Cohort had higher rates of depression than the Matched Cohort of Manitobans.
- The rates of depression for Francophones in all areas was similar to the Francophone provincial rate except for those in the Western district of South Eastman and in Parkland where the rates were lower than the Francophone provincial rate and in some Winnipeg CAs (River Heights, St. James Assiniboia, Downtown, and Point Douglas) where rates were higher (Table 6.10.2).

6.3 Anxiety Disorders

Anxiety disorders include excessive feelings of apprehension or fear that persist to the point that they interfere with daily life for an extended period of time. It is defined as the proportion of residents aged 10 and older diagnosed with an anxiety disorder over a five–year period by any of the following conditions:

- one or more hospitalizations with a diagnosis for anxiety states, phobic disorders or obsessive–compulsive disorders (Appendix 1)
- three or more physician visits with a diagnosis for anxiety disorders (Appendix 1).

Figure 6.3.1: Anxiety Disorders—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Values were calculated for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates Francophones are doing compared to a similar group of Other Manitobans.

Key findings

- Provincially, no significant differences were found in the rate of anxiety disorders between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.99) nor were any differences found in the survey respondents (Rate Ratio: 0.96).
- However, some significant differences were noted in the Mid–RHAs (Rate Ratio: 0.78) and Parkland (Rate Ratio: 0.55) where the Francophone Cohort had lower rates of anxiety disorders than the Matched Cohort of Manitobans and in Central (Rate Ratio: 1.24) where the rate was higher for the Francophone Cohort.
- The rates of anxiety disorders for Francophones in all areas was similar to the Francophone provincial rate except for those in the Mid RHAs, the Western district of South Eastman, and in Parkland where the rates were lower than the Francophone provincial rate and in Point Douglas where the rate was higher (Table 6.10.3).

6.4 Substance Abuse

Substance abuse is the excess use of and reliance on a drug, alcohol, or other chemical that leads to severe negative effects on the individual's health and well–being or the welfare of others. It is defined as the percentage of residents aged 10 and older receiving a diagnosis in one or more physician visits or hospitalizations over a five–year period for alcoholic or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs (Appendix 1).

Values were calculated for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

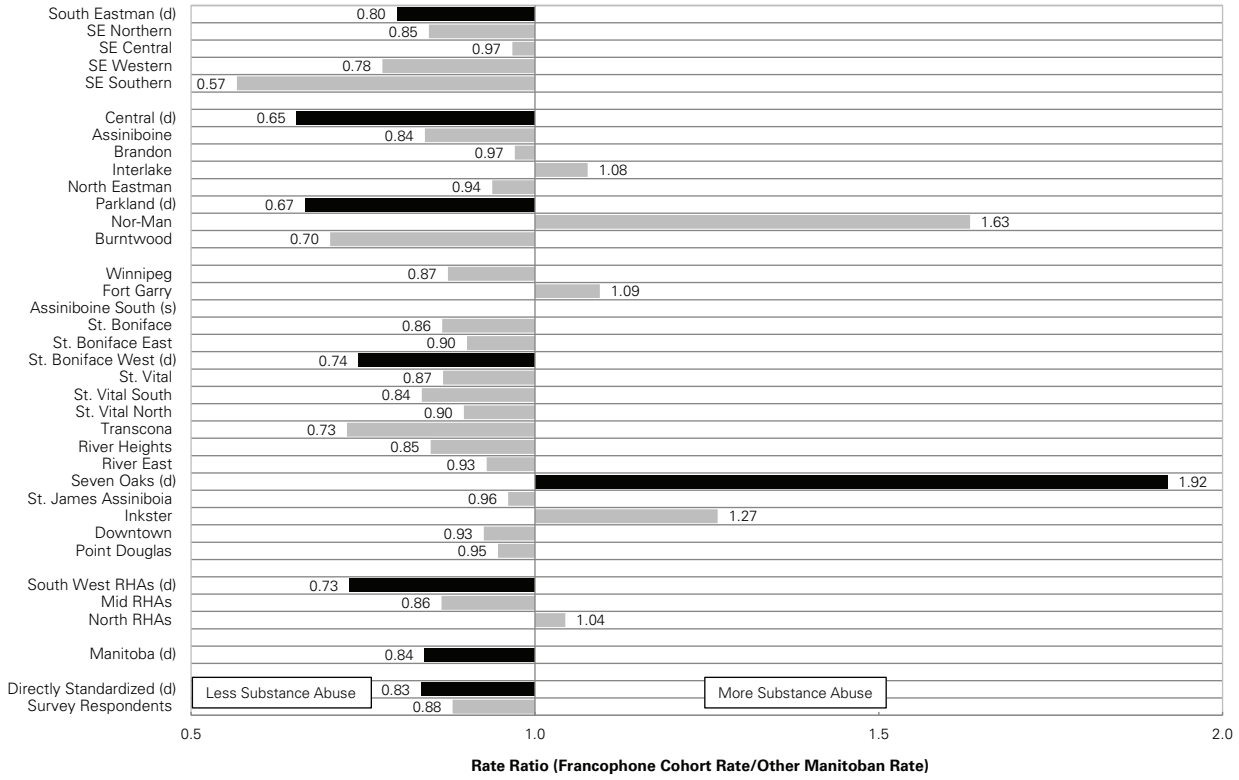
Key findings

- Provincially, the Francophone Cohort had a lower substance abuse rate than the Matched Cohort of Other Manitobans (Rate Ratio: 0.84). Although it did not quite reach statistical significance, this is consistent to what was found in the survey sample (Rate Ratio: 0.88).[8]
- Although there is a trend towards lower rates of substances abuse for the Francophone Cohort in all regions, South West RHAs (Rate Ratio: 0.73), South Eastman (Rate Ratio: 0.80), Central (Rate Ratio: 0.65), Parkland (0.67), and West St. Boniface (0.74) were the regions where this was significantly lower. One exception is Seven Oaks (Rate Ratio: 1.92) where the Francophone Cohort rate was higher than the Matched Cohort of Other Manitobans rate.
- The rates of substance abuse for Francophones in most areas were similar to the Francophone provincial rate except for those in the South West RHAs, Central, and St. Vital South where the rates were lower than the Francophone provincial rate and the Northern RHAs, North Eastman, NOR–MAN, Seven Oaks, and Point Douglas where rates were higher (Table 6.10.4).

8 Since the survey sample has a smaller sample size, statistical significance could not be demonstrated.

Figure 6.4.1: Substance Abuse—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09

Age– & sex–adjusted, residents aged 10 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Table 6.4.1: Logistic Regression Predicting the Probability of Substance Abuse, 5 Years after Survey

Basic Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	0.94 (0.60, 1.47)
Age	**0.99 (0.99, 1.00)**
Males (vs. Females)	**1.51 (1.19, 1.93)**
Aggregate Regions (ref = Winnipeg)	0.78 (0.60, 1.03)
Rural South	0.78 (0.60, 1.03)
Mid	1.01 (0.71, 1.45)
North	**2.04 (1.57, 2.64)**
Brandon	1.14 (0.72, 1.81)

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Table 6.4.2: Logistic Regression Predicting the Probability of Substance Abuse, 5 Years after Survey
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)	p-value
Francophone Cohort (vs. Matched Cohort)	**0.84 (0.76, 0.93)**	**0.0031**
Age	**1.00 (0.99, 1.00)**	**<.0001**
Males (vs. Females)	**1.71 (1.63, 1.79)**	**<.0001**
Aggregate Regions (ref = Winnipeg)		
Rural South	**0.83 (0.78, 0.88)**	**<.0001**
Mid	1.02 (0.95, 1.10)	0.5469
North	**1.73 (1.62, 1.84)**	**<.0001**
Brandon	**1.14 (1.08, 1.21)**	**0.0001**
Married or Common Law (vs. Single)	**0.89 (0.84, 0.94)**	**0.0005**
Household Income (per $10,000)	**1.00 (1.00, 1.00)**	**0.0258**
High School Graduate (vs. not)	**0.93 (0.89, 0.97)**	**0.0047**
Currently Employed (vs. not)	**0.81 (0.77, 0.86)**	**<.0001**
Sense of Belonging to Local Community (vs. no)	**0.78 (0.65, 0.94)**	**0.0173**
Currently Smoker (vs. no)	**5.72 (4.92, 6.64)**	**<.0001**
Body Mass Index	**1.01 (1.00, 1.01)**	**0.0005**
Leisure Time Physical Activity Index (ref = Inactive)		
Active	**0.72 (0.65, 0.79)**	**<.0001**
Moderate	**0.52 (0.50, 0.55)**	**<.0001**
Eats vegetables and fruits 5 or more times per day (vs. 0-4)	0.83 (0.58, 1.19)	0.2615

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Tables 6.4.1–6.4.2 show the results of two logistic regression models—a basic model where the association between being Francophone and diagnosis of substance abuse is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The results of the basic model are not quite consistent with the results in the initial analysis. While there is a tendency towards lower substance abuse rates for Francophones compared to the Other Manitobans (Odds Ratio: 0.94), this finding is not statistically significant. The different methods used for the initial analyses and the present one are believed to account for the differences in results.

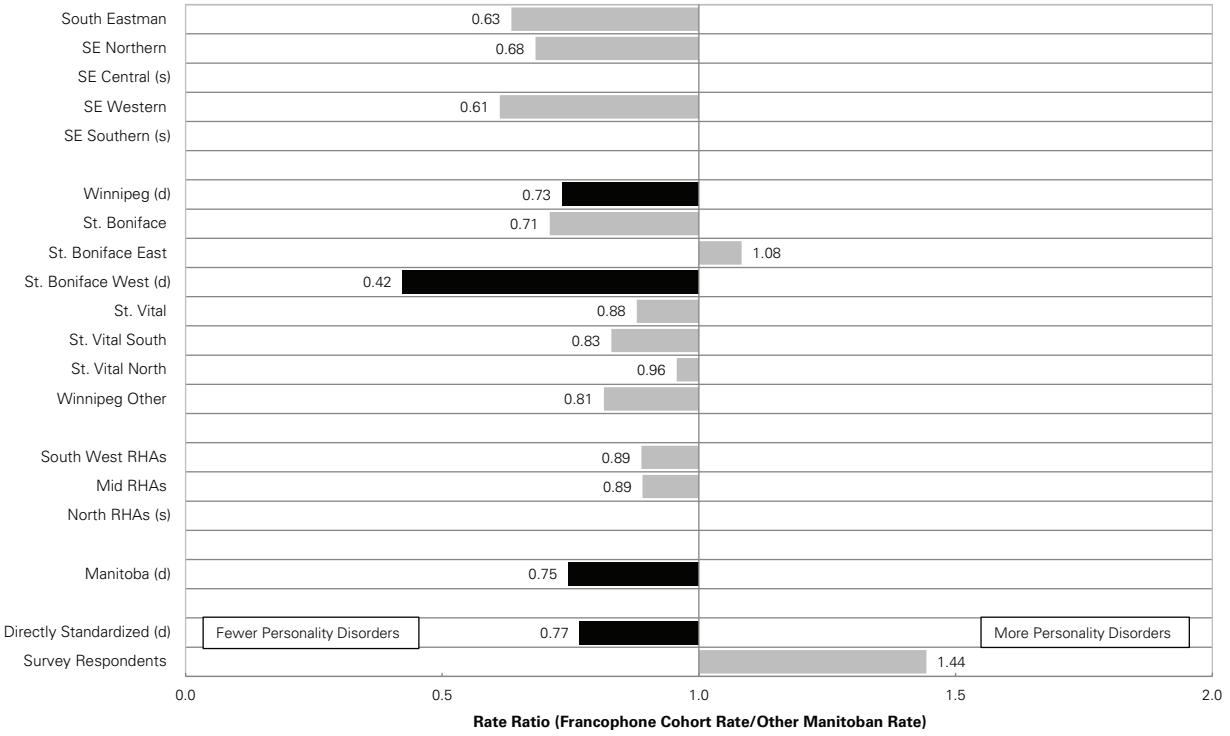
In the full model, when additional factors are introduced into the model to control for their effects, being Francophone is associated with lower rates of substances abuse (Odds Ratio: 0.84). Sociodemographic and lifestyle factors have been shown to be associated with substance abuse in previous research. The addition of these factors has accentuated the relationship between being Francophone and a lower rate of substance abuse diagnosis. This suggests that being Francophone, or having other characteristics associated with being Francophone, is associated with a lower rate of having a diagnosis of substance abuse.

6.5 Personality Disorders

Personality disorders are a class of mental illnesses characterized by chronic behavioral and relationship patterns that often cause serious personal and social difficulties, as well as a general impairment of functioning. It is defined as the percentage of residents aged 10 and older diagnosed with at least one of the personality disorders in **hospital abstracts** or physician claims (Appendix 1). Values were calculated for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 6.5.1: Personality Disorders—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had lower rates of personality disorders than the Matched Cohort of Other Manitobans (Rate Ratio: 0.75).[9]
- Although there is a trend towards lower rates of personality disorders for the Francophone Cohort in all regions, Winnipeg (Rate Ratio: 0.73) and, specifically, West St. Boniface (Rate Ratio: 0.42) were the only regions where the rate for Francophones was significantly lower than the rate for the Matched Cohort of Other Manitobans.
- Rates of personality disorders for Francophones in all areas were similar to the Francophone provincial rate except for those in South Eastman and, specifically, the Northern district of South Eastman where the rates were lower than the Francophone provincial rate (Table 6.10.5).

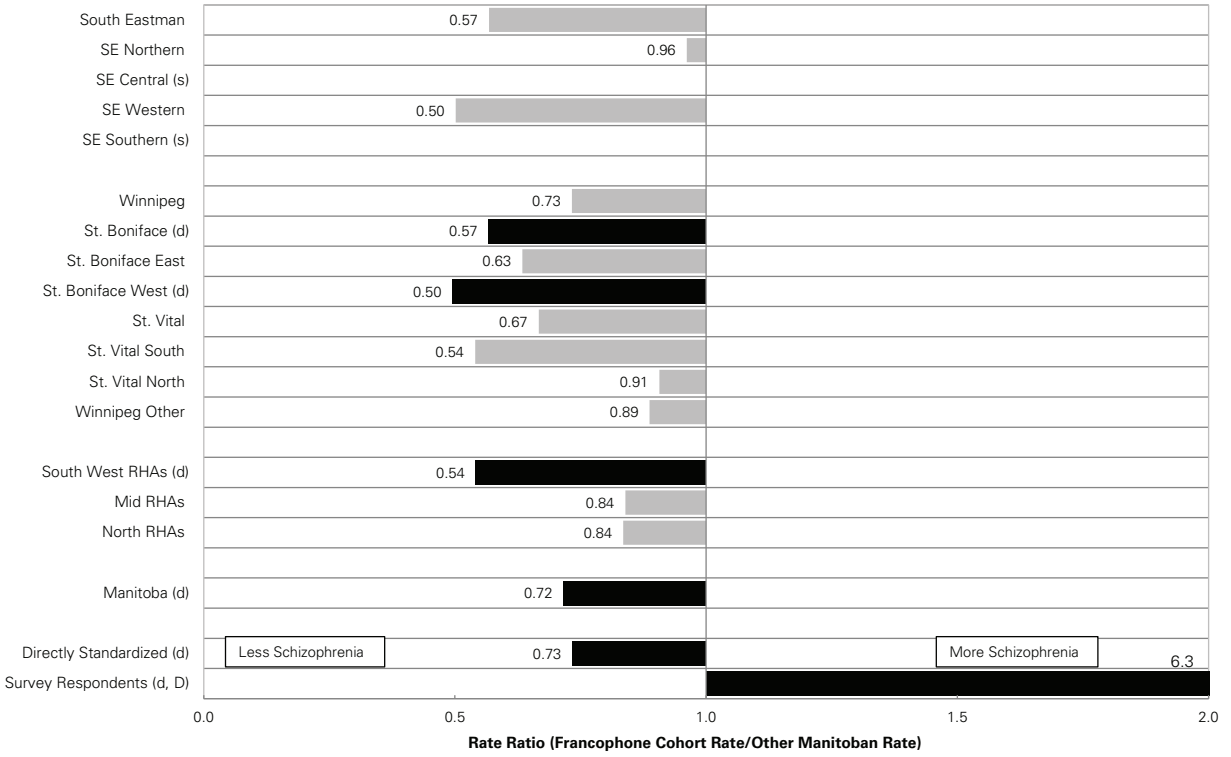
9 Since the survey sample has a considerably smaller sample size, the confidence intervals are very wide and statistical significance could not be demonstrated.

6.6 Schizophrenia

Schizophrenia is a long–term mental illness that affects how a person thinks, feels, and acts. Symptoms of the illness include auditory hallucinations, delusions, difficulty in expressing emotions, and/or disorganized speech and thought. It is defined as the percentage of residents aged 10 and older diagnosed with schizophrenia in hospital abstracts or physician claims (Appendix 1). Values were calculated for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 6.6.1: Schizophrenia—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had lower rates of schizophrenia than the Matched Cohort of Other Manitobans (Rate Ratio: 0.72). The survey sample showed a very different result suggesting that this indicator should be interpreted with caution. It shows that Francophones have a considerably higher rate of schizophrenia (Rate Ratio: 6.26). Supplemental Table 6.10.6 indicates that the rates found in the Matched Cohort sample and the survey sample yield very different rates.[10]

10 More variability is associated with the results from the survey sample particularly with an illness that is relatively rare. Survey samples tend to not reach individuals who are in institutions or less healthy. An illness like schizophrenia affects thought processes and is associated with high levels of disability (unlike depression or anxiety that affect emotional states). We note that the rates of schizophrenia found in this survey sample are much lower for both Francophones and Other Manitobans than the rates found in Supplemental Table 6.10.6.

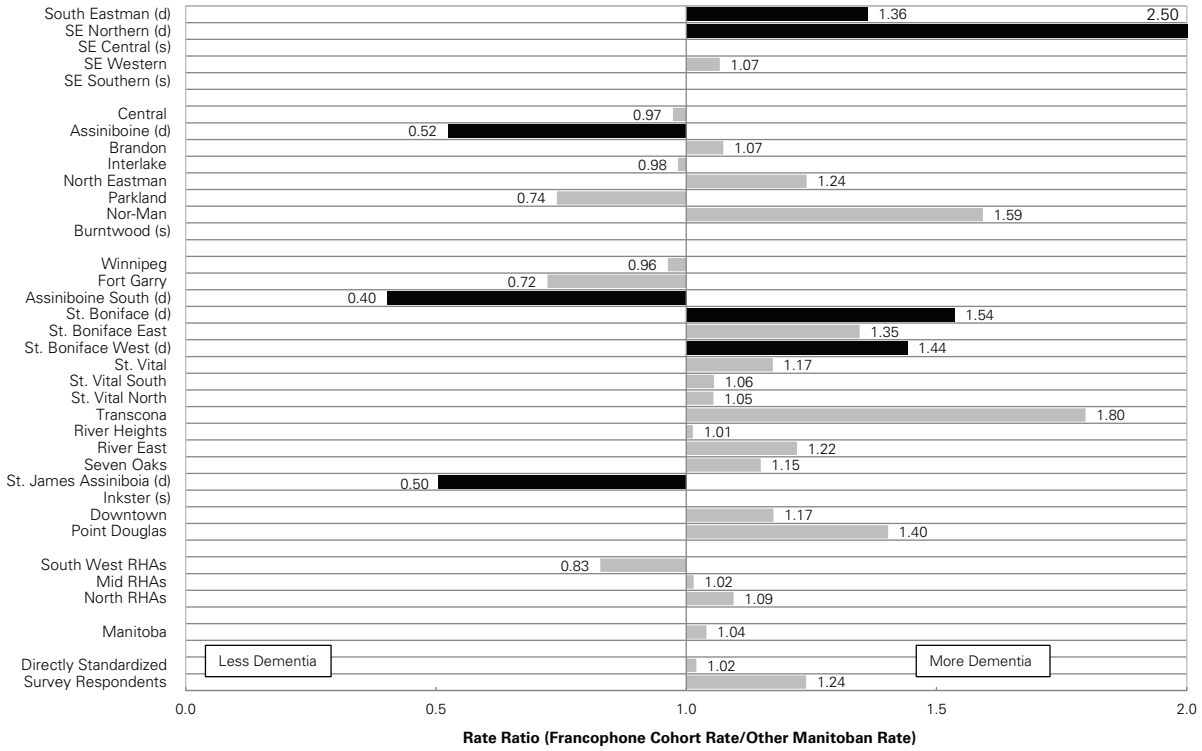
- Although there is a trend toward lower rates of schizophrenia for the Francophone Cohort in all regions, South West RHAs (Rate Ratio: 0.54), St. Boniface (Rate Ratio: 0.57), and West St. Boniface (Rate Ratio: 0.50) were the areas where the rate for the Francophone Cohort was significantly lower than the rate for the Matched Cohort of Other Manitobans.
- Rates of schizophrenia for Francophones in all areas were similar to the Francophone provincial rate except for those in the South West RHAs where the rates were lower than the Francophone provincial rate (Table 6.10.6).

6.7 Dementia (55+)

Dementia is a loss of brain function. It is not a single disease. Instead, dementia refers to a group of illnesses that involve memory, behavior, learning, and communication problems. The loss of brain function is progressive, which means it get worse over time. Dementia is defined as the proportion of residents aged 55 and older with at least one physician visit or hospitalization for any of the diagnoses for dementia (Appendix 1). Values were calculated for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 6.7.1: Dementia—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2004/05–2008/09
Age– & sex–adjusted, residents aged 55 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of dementia between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.04) nor were any differences found in the survey respondents (Rate Ratio: 1.24).
- However, some significant differences were noted in Assiniboine RHA (Rate Ratio: 0.52) and Assiniboine CA (Rate Ratio: 0.40) where the Francophone Cohort had lower rates than the Matched Cohort of Other Manitobans; and in South Eastman (Rate Ratio: 1.36), the Northern district of South Eastman, (Rate Ratio: 2.53), St. Boniface (Rate Ratio: 1.54); and St. Boniface West (Rate Ratio: 1.44), the Francophone Cohort had higher rates of dementia.
- Rates of dementia for Francophones in all areas were similar to the Francophone provincial rate except for those in the South West RHAs and in Assiniboine RHA where the rates were lower than the Francophone provincial rate (Table 6.10.7).

6.8 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Large "Ds" were observed in most of the indicators, indicating that there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample. Any differences noted are likely due to chance and not actual differences. However, one large "D" was noted for Schizophrenia (see the footnote in Section 6.6 Schizophrenia).

Table 6.8.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Cumulative Mental Health Disorders	2004/05-2008/09	24.83%	24.72%	1.00	25.39%	23.40%	1.09
Depression	2004/05-2008/09	20.29%	19.73%	1.03 (d)	21.00%	18.64%	1.13
Anxiety	2004/05-2008/09	8.21%	8.12%	1.01	7.22%	7.55%	0.96
Substance Abuse	2004/05-2008/09	3.62%	4.33%	0.83 (d)	3.43%	3.90%	0.88
Personality Disorders	2004/05-2008/09	0.71%	0.92%	0.77 (d)	0.94%	0.65%	1.44
Schizophrenia (D)	2004/05-2008/09	0.88%	1.19%	0.73 (d)	0.41%	0.07%	6.26 (d)
Dementia (55+)	2004/05-2008/09	14.55%	14.26%	1.02	9.44%	7.61%	1.24

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio
* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

6.9 Findings from the Literature

(Comparisons to the results in this study are in italics)

- Tempier and Vasiliadis (2010a, 2010b) studied the prevalence rates of mental illness among Francophones living in Québec (n=7,571), Francophones in Canada but outside of Québec (n=500), Francophones in Belgium (n=389), and Francophones in France (n=1,436).
    - The prevalence rates of mental illness (major depressive episodes, anxiety disorders, or alcohol abuse and/or dependence) were similar across the Francophone populations studied in Canada, France, and Belgium.

    - Within Canada, Francophones had lower rates of having a mental illness than Anglophones (7.2% versus 10.0%). No differences were found between Anglophones and Francophones in Québec. When logistic regression analyses were conducted to determine the effect of language on the prevalence of mental illness, it was determined that being Anglophone was associated with an increased risk of anxiety disorders and alcohol abuse or dependence, but not major depressive episode.
    - These authors found that accessing mental health services among Francophones with a psychiatric diagnosis ranged from 42.8% in France to 62.0% for Canadian Francophones (outside Québec).
    - They also reported that Canadian Francophones were more likely to seek services of mental health providers than the Europeans in all age groups—in Canada, 48.4% in the younger age group to 27.1% in the oldest and in France and Belgium, 13.2% to 5.7%.
- Clark, Colantonio, Rhodes, and Escobar (2008) divided their sample of 61,673 into Anglophone whites (44%), Francophone whites (31%), 10.8% foreign–born whites (11%), visible minorities (13%), and Aboriginals (1.3%).
    - They found that Francophone whites and visible minorities were less likely to suffer from depression and alcohol dependence/abuse compared to Anglophone whites (2008b).
- Using the Ontario Health Survey (1996/1997), the Institute for Clinical Evaluative Sciences found that Francophones (in Ontario) were more likely to have had a major depressive episode in the last 12 months compared to non–Francophones. There was a small but significantly greater proportion of Francophones (5%) who experienced depression than non–Francophones (4%) (2010).
- Streiner, Cairney, and Veldhuizen reported that the lifetime prevalence of mood disorders is higher for Francophones than Anglophones of both sexes. With respect anxiety disorders, Francophone men report lower rates at all ages than do their Anglophone counterparts; but no differences were found by language group for the women (2006).
- *In this study, rates of mental illness were calculated for residents who were diagnosed by a physician and therefore were among those who are more likely to seek help. This may explain some of the differences between previous research and those found in this study. No differences were found between Francophones and Other Manitobans for rates of diagnosis for depression, anxiety disorders, and dementia. However, Francophones had lower rates of substance abuse, schizophrenia, and personality disorders. When the indicator, substance abuse, was reanalyzed in a smaller sample utilizing representative survey data and controlling for sociodemographic and lifestyle factor, the relationship between being Francophone and lower substance abuse remained statistically significant.*

6.10 Supplementary Tables

Table 6.10.1: Cumulative Mental Health Disorders, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	0.97 (0.85, 1.10)	21.18 (18.63, 24.08)	21.88 (19.44, 24.62)
SE Northern	1.09 (0.94, 1.27)	24.16 (20.95, 27.87)	22.10 (19.35, 25.23)
SE Central	1.02 (0.81, 1.30)	24.39 (19.39, 30.69)	23.87 (20.82, 27.36)
SE Western (f)	0.87 (0.74, 1.03)	**17.81 (15.28, 20.76)**	20.40 (17.78, 23.40)
SE Southern	0.88 (0.63, 1.23)	16.20 (11.84, 22.17)	18.43 (15.65, 21.70)
Central	1.08 (0.93, 1.25)	21.30 (18.54, 24.48)	19.76 (17.48, 22.34)
Assiniboine	0.95 (0.78, 1.15)	18.90 (15.75, 22.67)	19.95 (17.38, 22.90)
Brandon	1.03 (0.81, 1.31)	27.77 (22.35, 34.51)	26.98 (22.97, 31.68)
Interlake	1.02 (0.83, 1.27)	21.18 (17.45, 25.71)	20.68 (17.84, 23.97)
North Eastman	1.04 (0.86, 1.25)	25.36 (21.35, 30.13)	24.45 (21.33, 28.03)
Parkland (f,d)	**0.77 (0.62, 0.95)**	**18.40 (15.13, 22.36)**	**23.88 (20.75, 27.49)**
Nor-Man (d)	**1.39 (1.01, 1.91)**	**27.00 (20.67, 35.28)**	**19.40 (15.75, 23.89)**
Burntwood	0.84 (0.62, 1.16)	20.93 (15.83, 27.69)	24.78 (20.63, 29.78)
Winnipeg	1.00 (0.87, 1.13)	25.85 (22.65, 29.50)	25.97 (22.89, 29.46)
Fort Garry	1.00 (0.84, 1.20)	24.60 (20.87, 28.99)	24.48 (21.47, 27.91)
Assiniboine South	0.83 (0.62, 1.12)	23.42 (17.82, 30.78)	28.21 (23.99, 33.18)
St. Boniface	0.99 (0.87, 1.12)	24.00 (21.18, 27.20)	24.36 (21.66, 27.40)
St. Boniface East	0.98 (0.83, 1.14)	22.51 (19.40, 26.12)	23.05 (20.21, 26.29)
St. Boniface West	0.93 (0.81, 1.08)	24.77 (21.60, 28.42)	26.50 (23.30, 30.14)
St. Vital	1.01 (0.88, 1.16)	24.22 (21.14, 27.75)	23.99 (21.25, 27.08)
St. Vital South	1.00 (0.84, 1.18)	23.15 (19.80, 27.08)	23.18 (20.23, 26.57)
St. Vital North	1.00 (0.85, 1.19)	25.16 (21.43, 29.53)	25.04 (21.87, 28.66)
Transcona	1.04 (0.82, 1.31)	27.14 (22.02, 33.46)	26.20 (22.41, 30.62)
River Heights	1.03 (0.85, 1.26)	30.44 (25.12, 36.88)	29.44 (25.93, 33.41)
River East	1.08 (0.90, 1.30)	27.80 (23.34, 33.12)	25.67 (22.56, 29.21)
Seven Oaks	1.27 (0.96, 1.68)	30.70 (24.10, 39.10)	24.20 (20.15, 29.07)
St. James Assiniboia	1.22 (0.98, 1.52)	30.71 (25.18, 37.44)	25.23 (21.71, 29.32)
Inkster	1.05 (0.71, 1.54)	23.16 (16.56, 32.39)	22.12 (17.69, 27.66)
Downtown (f)	1.20 (0.99, 1.45)	**34.08 (28.76, 40.39)**	28.43 (24.72, 32.69)
Point Douglas (f)	1.18 (0.91, 1.51)	**36.36 (29.15, 45.34)**	30.93 (26.15, 36.58)
South West RHAs	1.03 (0.89, 1.19)	21.14 (18.40, 24.28)	20.52 (18.10, 23.26)
Mid RHAs	0.94 (0.80, 1.11)	21.75 (18.60, 25.42)	23.02 (20.08, 26.38)
North RHAs	1.04 (0.81, 1.33)	23.58 (18.91, 29.39)	22.67 (19.09, 26.92)
Manitoba	0.98 (0.87, 1.10)	23.80 (21.23, 26.68)	24.33 (24.06, 24.60)
Directly Standardized	1.00 (0.98, 1.03)	24.83 (24.36, 25.31)	24.72 (24.45, 25.00)
Survey Respondents	1.09 (0.95, 1.22)	25.39 (22.20, 28.59)	23.40 (22.61, 24.18)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 6.10.2: Depression, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	0.98 (0.85, 1.12)	16.81 (14.70, 19.22)	17.20 (15.23, 19.43)
SE Northern	1.14 (0.97, 1.34)	18.70 (16.11, 21.72)	16.42 (14.32, 18.84)
SE Central	1.05 (0.82, 1.36)	21.36 (16.76, 27.22)	20.25 (17.61, 23.29)
SE Western (f)	0.90 (0.75, 1.07)	**14.32 (12.19, 16.83)**	15.94 (13.82, 18.39)
SE Southern	0.89 (0.61, 1.28)	12.87 (9.09, 18.24)	14.50 (12.18, 17.27)
Central	1.09 (0.93, 1.27)	17.57 (15.19, 20.33)	16.19 (14.25, 18.39)
Assiniboine	0.97 (0.78, 1.20)	15.61 (12.84, 18.98)	16.12 (13.94, 18.64)
Brandon	1.09 (0.83, 1.42)	23.06 (18.26, 29.14)	21.21 (17.85, 25.21)
Interlake	0.99 (0.79, 1.25)	17.36 (14.08, 21.39)	17.52 (15.00, 20.46)
North Eastman	1.07 (0.87, 1.31)	21.18 (17.64, 25.44)	19.82 (17.16, 22.88)
Parkland (f)	0.81 (0.64, 1.02)	**14.62 (11.82, 18.08)**	18.07 (15.55, 21.00)
Nor-Man (d)	**1.59 (1.10, 2.30)**	**19.72 (14.55, 26.73)**	**12.42 (9.75, 15.82)**
Burntwood	0.95 (0.67, 1.36)	16.39 (11.99, 22.39)	17.16 (13.95, 21.11)
Winnipeg	1.02 (0.89, 1.16)	21.19 (18.51, 24.27)	20.87 (18.35, 23.74)
Fort Garry	0.99 (0.82, 1.20)	19.48 (16.34, 23.24)	19.68 (17.15, 22.58)
Assiniboine South	0.86 (0.63, 1.18)	20.73 (15.53, 27.68)	24.16 (20.36, 28.66)
St. Boniface	1.01 (0.89, 1.16)	19.90 (17.47, 22.66)	19.62 (17.38, 22.16)
St. Boniface East	1.03 (0.87, 1.21)	18.78 (16.10, 21.91)	18.32 (16.00, 20.96)
St. Boniface West	0.95 (0.82, 1.11)	20.53 (17.81, 23.66)	21.59 (18.91, 24.64)
St. Vital	1.03 (0.89, 1.20)	19.79 (17.16, 22.82)	19.14 (16.88, 21.70)
St. Vital South	1.01 (0.85, 1.21)	19.06 (16.18, 22.45)	18.81 (16.34, 21.64)
St. Vital North	1.03 (0.86, 1.24)	20.34 (17.18, 24.08)	19.71 (17.13, 22.68)
Transcona	1.17 (0.91, 1.51)	22.67 (18.10, 28.39)	19.40 (16.37, 22.99)
River Heights (f)	1.08 (0.88, 1.34)	**25.94 (21.16, 31.79)**	23.91 (20.95, 27.29)
River East	1.09 (0.89, 1.32)	23.15 (19.22, 27.88)	21.30 (18.62, 24.36)
Seven Oaks	1.18 (0.86, 1.61)	23.04 (17.56, 30.22)	19.52 (16.03, 23.77)
St. James Assiniboia (f)	1.25 (0.99, 1.58)	**26.27 (21.27, 32.44)**	21.05 (17.97, 24.66)
Inkster	1.13 (0.74, 1.72)	19.27 (13.38, 27.76)	17.08 (13.34, 21.87)
Downtown (f,d)	**1.29 (1.05, 1.58)**	**27.28 (22.73, 32.74)**	**21.14 (18.20, 24.55)**
Point Douglas (f)	1.25 (0.95, 1.65)	**29.31 (23.05, 37.28)**	23.50 (19.58, 28.20)
South West RHAs	1.05 (0.90, 1.21)	17.43 (15.10, 20.11)	16.63 (14.63, 18.90)
Mid RHAs	0.96 (0.81, 1.15)	17.88 (15.18, 21.06)	18.53 (16.09, 21.34)
North RHAs	1.19 (0.90, 1.58)	17.85 (13.99, 22.77)	14.96 (12.37, 18.08)
Manitoba	1.00 (0.89, 1.12)	19.42 (17.27, 21.85)	19.46 (19.21, 19.71)
Directly Standardized (d)	**1.03 (1.00, 1.05)**	**20.29 (19.85, 20.73)**	**19.73 (19.48, 19.98)**
Survey Respondents	1.13 (0.97, 1.29)	21.00 (18.09, 23.92)	18.64 (17.96, 19.32)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 6.10.3: Anxiety Disorders, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	1.05 (0.89, 1.24)	7.34 (6.24, 8.63)	7.02 (6.10, 8.07)
SE Northern	1.06 (0.87, 1.29)	9.12 (7.62, 10.90)	8.60 (7.35, 10.07)
SE Central	0.88 (0.57, 1.35)	5.45 (3.60, 8.25)	6.20 (5.23, 7.36)
SE Western (f)	0.88 (0.70, 1.11)	**5.88 (4.78, 7.23)**	6.67 (5.60, 7.94)
SE Southern	0.85 (0.46, 1.57)	4.22 (2.35, 7.57)	4.98 (3.90, 6.36)
Central (d)	**1.24 (1.02, 1.51)**	**7.83 (6.52, 9.41)**	**6.32 (5.43, 7.37)**
Assiniboine	1.04 (0.76, 1.43)	5.68 (4.26, 7.56)	5.46 (4.48, 6.64)
Brandon	1.04 (0.71, 1.53)	9.72 (6.96, 13.58)	9.32 (7.42, 11.70)
Interlake	1.04 (0.74, 1.45)	6.74 (4.99, 9.09)	6.50 (5.28, 8.00)
North Eastman	0.82 (0.59, 1.12)	5.91 (4.43, 7.89)	7.24 (6.00, 8.74)
Parkland (f,d)	**0.55 (0.38, 0.79)**	**4.56 (3.26, 6.39)**	**8.30 (6.88, 10.01)**
Nor-Man	1.35 (0.82, 2.22)	9.94 (6.57, 15.05)	7.36 (5.43, 9.97)
Burntwood	1.11 (0.66, 1.86)	7.37 (4.73, 11.47)	6.64 (4.94, 8.93)
Winnipeg	0.95 (0.81, 1.11)	8.38 (7.17, 9.79)	8.82 (7.65, 10.17)
Fort Garry	1.00 (0.77, 1.30)	8.35 (6.58, 10.59)	8.33 (7.01, 9.89)
Assiniboine South	0.76 (0.45, 1.29)	6.21 (3.82, 10.10)	8.20 (6.39, 10.52)
St. Boniface	0.89 (0.75, 1.05)	7.77 (6.62, 9.10)	8.73 (7.59, 10.04)
St. Boniface East	0.89 (0.73, 1.10)	7.91 (6.52, 9.58)	8.85 (7.58, 10.33)
St. Boniface West	0.87 (0.72, 1.06)	7.63 (6.39, 9.11)	8.74 (7.48, 10.21)
St. Vital	1.00 (0.83, 1.21)	8.23 (6.88, 9.84)	8.21 (7.08, 9.52)
St. Vital South	1.01 (0.81, 1.27)	8.23 (6.68, 10.13)	8.12 (6.87, 9.59)
St. Vital North	1.00 (0.78, 1.28)	8.25 (6.60, 10.32)	8.25 (6.96, 9.77)
Transcona	0.76 (0.53, 1.09)	8.59 (6.21, 11.89)	11.28 (9.21, 13.83)
River Heights	1.06 (0.78, 1.44)	9.87 (7.38, 13.21)	9.28 (7.88, 10.95)
River East	1.06 (0.80, 1.41)	8.29 (6.35, 10.83)	7.83 (6.62, 9.27)
Seven Oaks	1.21 (0.77, 1.91)	9.94 (6.74, 14.66)	8.21 (6.26, 10.77)
St. James Assiniboia	1.24 (0.87, 1.76)	9.71 (7.14, 13.19)	7.83 (6.31, 9.71)
Inkster	0.75 (0.37, 1.53)	5.54 (2.92, 10.51)	7.39 (5.24, 10.44)
Downtown	0.96 (0.72, 1.28)	10.29 (7.96, 13.30)	10.72 (8.93, 12.87)
Point Douglas (f)	1.30 (0.88, 1.90)	**13.44 (9.69, 18.66)**	10.37 (8.15, 13.19)
South West RHAs	1.17 (0.98, 1.41)	7.53 (6.33, 8.97)	6.42 (5.54, 7.44)
Mid RHAs (f,d)	**0.78 (0.62, 0.99)**	**5.75 (4.62, 7.17)**	**7.36 (6.23, 8.68)**
North RHAs	1.19 (0.82, 1.74)	8.45 (6.10, 11.70)	7.09 (5.56, 9.02)
Manitoba	0.99 (0.86, 1.13)	7.85 (6.87, 8.97)	7.96 (7.78, 8.13)
Directly Standardized	1.01 (0.97, 1.06)	8.21 (7.91, 8.52)	8.12 (7.95, 8.29)
Survey Respondents	0.96 (0.72, 1.19)	7.22 (5.53, 8.91)	7.55 (7.06, 8.04)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 6.10.4: Substance Abuse, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman (d)	**0.80 (0.65, 0.99)**	**3.03 (2.47, 3.73)**	**3.80 (3.22, 4.47)**
SE Northern	0.85 (0.65, 1.10)	3.38 (2.66, 4.30)	4.00 (3.31, 4.82)
SE Central	0.97 (0.58, 1.60)	3.62 (2.21, 5.92)	3.74 (3.07, 4.56)
SE Western	0.78 (0.57, 1.06)	2.62 (2.00, 3.45)	3.37 (2.73, 4.17)
SE Southern	0.57 (0.26, 1.24)	2.48 (1.16, 5.30)	4.39 (3.38, 5.70)
Central (f,d)	**0.65 (0.49, 0.87)**	**2.35 (1.80, 3.07)**	**3.60 (3.01, 4.30)**
Assiniboine	0.84 (0.56, 1.25)	3.31 (2.30, 4.76)	3.94 (3.13, 4.95)
Brandon	0.97 (0.56, 1.69)	4.19 (2.57, 6.84)	4.32 (3.17, 5.87)
Interlake	1.08 (0.70, 1.66)	3.94 (2.69, 5.79)	3.66 (2.82, 4.74)
North Eastman (f)	0.94 (0.67, 1.32)	**5.59 (4.10, 7.62)**	5.96 (4.82, 7.35)
Parkland (d)	**0.67 (0.45, 0.99)**	**3.88 (2.69, 5.59)**	**5.82 (4.69, 7.23)**
Nor-Man (f)	1.63 (0.94, 2.84)	**9.29 (5.91, 14.60)**	5.69 (3.98, 8.13)
Burntwood	0.70 (0.39, 1.26)	4.92 (2.89, 8.39)	7.01 (5.24, 9.39)
Winnipeg	0.87 (0.74, 1.04)	4.03 (3.37, 4.80)	4.61 (3.97, 5.35)
Fort Garry	1.09 (0.72, 1.67)	2.81 (1.93, 4.08)	2.57 (1.99, 3.30)
Assiniboine South (s)	s	s	3.54 (2.42, 5.16)
St. Boniface	0.86 (0.70, 1.07)	3.73 (3.05, 4.57)	4.31 (3.65, 5.09)
St. Boniface East	0.90 (0.68, 1.19)	2.91 (2.24, 3.77)	3.23 (2.67, 3.90)
St. Boniface West (d)	**0.74 (0.59, 0.94)**	**4.32 (3.46, 5.40)**	**5.81 (4.86, 6.95)**
St. Vital	0.87 (0.67, 1.13)	3.15 (2.46, 4.03)	3.63 (3.03, 4.35)
St. Vital South (f)	0.84 (0.59, 1.19)	**2.37 (1.72, 3.28)**	2.84 (2.30, 3.51)
St. Vital North	0.90 (0.65, 1.24)	4.18 (3.11, 5.63)	4.66 (3.80, 5.72)
Transcona	0.73 (0.40, 1.31)	2.68 (1.57, 4.57)	3.68 (2.74, 4.95)
River Heights	0.85 (0.56, 1.29)	4.83 (3.25, 7.17)	5.69 (4.65, 6.96)
River East	0.93 (0.65, 1.32)	4.77 (3.42, 6.65)	5.13 (4.21, 6.25)
Seven Oaks (f,d)	**1.92 (1.07, 3.46)**	**6.83 (4.27, 10.93)**	**3.56 (2.42, 5.24)**
St. James Assiniboia	0.96 (0.57, 1.61)	3.95 (2.50, 6.26)	4.11 (3.10, 5.45)
Inkster	1.27 (0.63, 2.54)	6.69 (3.70, 12.09)	5.29 (3.53, 7.92)
Downtown (f)	0.93 (0.67, 1.29)	**7.19 (5.32, 9.72)**	7.76 (6.31, 9.56)
Point Douglas (f)	0.95 (0.62, 1.44)	**10.19 (7.00, 14.84)**	10.77 (8.44, 13.76)
South West RHAs (f,d)	**0.73 (0.57, 0.93)**	**2.69 (2.13, 3.39)**	**3.68 (3.11, 4.36)**
Mid RHAs	0.86 (0.67, 1.11)	4.54 (3.57, 5.76)	5.25 (4.40, 6.26)
North RHAs (f)	1.04 (0.69, 1.57)	**6.81 (4.74, 9.79)**	6.53 (5.09, 8.36)
Manitoba (d)	**0.84 (0.72, 0.98)**	**3.66 (3.13, 4.28)**	**4.36 (4.23, 4.49)**
Directly Standardized (d)	**0.83 (0.78, 0.89)**	**3.62 (3.41, 3.82)**	**4.33 (4.20, 4.46)**
Survey Respondents	0.88 (0.49, 1.27)	3.43 (1.95, 4.92)	3.90 (3.52, 4.28)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 6.10.5: Personality Disorders, 2004/05–2008/09
Age– & sex–adjusted, residents aged 10 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman (f)	0.63 (0.33, 1.21)	**0.33 (0.21, 0.52)**	0.48 (0.37, 0.63)
SE Northern (f)	0.68 (0.32, 1.44)	**0.28 (0.14, 0.54)**	0.40 (0.27, 0.61)
SE Central (s)	s	s	0.53 (0.36, 0.79)
SE Western	0.61 (0.31, 1.23)	0.40 (0.22, 0.74)	0.65 (0.44, 0.98)
SE Southern (s)	s	s	0.31 (0.13, 0.70)
Winnipeg (d)	**0.73 (0.56, 0.96)**	**0.87 (0.66, 1.17)**	**1.19 (0.96, 1.48)**
St. Boniface	0.71 (0.50, 1.00)	0.71 (0.50, 1.00)	0.99 (0.78, 1.26)
St. Boniface East	1.08 (0.66, 1.78)	0.80 (0.51, 1.26)	0.74 (0.54, 1.01)
St. Boniface West (d)	**0.42 (0.27, 0.67)**	**0.65 (0.42, 1.00)**	**1.53 (1.16, 2.01)**
St. Vital	0.88 (0.56, 1.39)	0.73 (0.47, 1.13)	0.83 (0.63, 1.10)
St. Vital South	0.83 (0.44, 1.57)	0.64 (0.36, 1.14)	0.77 (0.54, 1.11)
St. Vital North	0.96 (0.51, 1.81)	0.89 (0.50, 1.58)	0.93 (0.65, 1.34)
Winnipeg Other (f)	0.81 (0.59, 1.13)	**1.18 (0.84, 1.66)**	1.45 (1.16, 1.82)
South West RHAs	0.89 (0.57, 1.39)	0.61 (0.40, 0.93)	0.68 (0.51, 0.91)
Mid RHAs	0.89 (0.47, 1.67)	0.52 (0.29, 0.93)	0.59 (0.41, 0.84)
North RHAs (s)	s	s	0.69 (0.36, 1.33)
Manitoba (d)	**0.75 (0.58, 0.95)**	**0.68 (0.53, 0.87)**	**0.92 (0.86, 0.98)**
Directly Standardized (d)	**0.77 (0.66, 0.89)**	**0.71 (0.62, 0.80)**	**0.92 (0.86, 0.98)**
Survey Respondents	1.44 (0.24, 2.65)	0.94 (0.22, 1.66)	0.65 (0.50, 0.80)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 6.10.6: Schizophrenia, 2004/05–2008/09

Age– & sex–adjusted, residents aged 10 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman	0.57 (0.30, 1.08)	0.47 (0.30, 0.75)	0.73 (0.54, 1.00)
SE Northern	0.96 (0.54, 1.72)	0.71 (0.42, 1.20)	0.74 (0.48, 1.13)
SE Central (s)	s	s	0.74 (0.46, 1.18)
SE Western	0.50 (0.22, 1.13)	0.33 (0.16, 0.69)	0.65 (0.40, 1.05)
SE Southern (s)	s	s	0.94 (0.53, 1.67)
Winnipeg	0.73 (0.52, 1.04)	1.04 (0.72, 1.50)	1.42 (1.04, 1.94)
St. Boniface (d)	**0.57 (0.38, 0.84)**	**0.83 (0.56, 1.24)**	**1.34 (0.98, 1.84)**
St. Boniface East	0.63 (0.34, 1.17)	0.62 (0.35, 1.11)	0.98 (0.66, 1.46)
St. Boniface West (d)	**0.50 (0.31, 0.78)**	**1.04 (0.67, 1.63)**	**2.11 (1.48, 3.01)**
St. Vital	0.67 (0.39, 1.14)	0.75 (0.44, 1.28)	1.12 (0.79, 1.59)
St. Vital South	0.54 (0.24, 1.21)	0.48 (0.23, 1.02)	0.89 (0.57, 1.40)
St. Vital North	0.91 (0.50, 1.64)	1.44 (0.83, 2.49)	1.58 (1.06, 2.37)
Winnipeg Other	0.89 (0.59, 1.34)	1.31 (0.86, 2.00)	1.48 (1.07, 2.06)
South West RHAs (f,d)	**0.54 (0.30, 0.97)**	**0.37 (0.21, 0.65)**	**0.69 (0.47, 1.00)**
Mid RHAs	0.84 (0.47, 1.50)	0.75 (0.43, 1.29)	0.89 (0.60, 1.32)
North RHAs	0.84 (0.31, 2.24)	0.93 (0.39, 2.25)	1.12 (0.64, 1.96)
Manitoba (d)	**0.72 (0.51, 1.00)**	**0.79 (0.57, 1.10)**	**1.10 (1.03, 1.17)**
Directly Standardized (d)	**0.73 (0.64, 0.84)**	**0.88 (0.77, 0.98)**	**1.19 (1.12, 1.26)**
Survey Respondents (d, D)	**6.26 (0.00, 12.74)**	**0.41 (0.13, 0.69)**	**0.07 (0.03, 0.10)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 6.10.7: Dementia, 2004/05–2008/09
Age– & sex–adjusted, residents aged 55 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman (d)	**1.36 (1.06, 1.75)**	**15.42 (12.32, 19.32)**	**11.32 (9.37, 13.67)**
SE Northern (d)	**2.53 (1.82, 3.51)**	**18.87 (15.36, 23.17)**	**7.47 (5.69, 9.80)**
SE Central (s)	s	s	15.72 (12.78, 19.34)
SE Western	1.07 (0.73, 1.56)	11.45 (8.38, 15.65)	10.73 (8.54, 13.49)
SE Southern (s)	s	s	13.14 (9.65, 17.90)
Central	0.97 (0.70, 1.35)	11.64 (8.64, 15.69)	11.96 (9.74, 14.69)
Assiniboine (f,d)	**0.52 (0.30, 0.91)**	**7.92 (4.71, 13.32)**	**15.11 (12.00, 19.03)**
Brandon	1.07 (0.42, 2.76)	9.99 (4.42, 22.57)	9.30 (5.65, 15.30)
Interlake	0.98 (0.57, 1.70)	15.42 (9.44, 25.20)	15.68 (11.81, 20.83)
North Eastman	1.24 (0.77, 2.00)	14.05 (9.25, 21.33)	11.32 (8.59, 14.92)
Parkland	0.74 (0.37, 1.47)	9.06 (4.89, 16.80)	12.22 (8.73, 17.11)
Nor-Man	1.59 (0.62, 4.12)	11.80 (5.51, 25.28)	7.41 (4.11, 13.37)
Burntwood (s)	s	s	s
Winnipeg	0.96 (0.89, 1.05)	17.45 (15.87, 19.18)	18.12 (17.18, 19.11)
Fort Garry	0.72 (0.51, 1.03)	17.56 (12.52, 24.64)	24.29 (19.99, 29.51)
Assiniboine South (d)	**0.40 (0.19, 0.84)**	**12.79 (6.25, 26.15)**	**31.74 (25.55, 39.43)**
St. Boniface (d)	**1.54 (1.24, 1.91)**	**18.44 (15.17, 22.42)**	**12.01 (9.99, 14.43)**
St. Boniface East	1.35 (0.94, 1.92)	16.03 (11.89, 21.62)	11.91 (9.62, 14.74)
St. Boniface West (d)	**1.44 (1.21, 1.72)**	**17.15 (14.97, 19.64)**	**11.90 (10.32, 13.71)**
St. Vital	1.17 (0.91, 1.51)	20.96 (16.64, 26.40)	17.87 (14.81, 21.56)
St. Vital South	1.06 (0.80, 1.40)	21.23 (16.81, 26.80)	20.11 (16.81, 24.05)
St. Vital North	1.05 (0.80, 1.38)	17.87 (14.10, 22.65)	16.95 (14.51, 19.80)
Transcona	1.80 (0.85, 3.79)	22.36 (12.11, 41.30)	12.44 (7.90, 19.58)
River Heights	1.01 (0.65, 1.58)	25.19 (16.33, 38.85)	24.86 (20.58, 30.03)
River East	1.22 (0.78, 1.92)	21.23 (13.84, 32.57)	17.39 (13.97, 21.63)
Seven Oaks	1.15 (0.55, 2.42)	20.31 (10.68, 38.60)	17.67 (11.74, 26.60)
St. James Assiniboia (d)	**0.50 (0.27, 0.93)**	**14.67 (8.12, 26.49)**	**29.08 (23.23, 36.40)**
Inkster (s)	s	s	24.97 (13.88, 44.91)
Downtown	1.17 (0.74, 1.85)	21.14 (14.15, 31.58)	18.00 (13.74, 23.57)
Point Douglas	1.40 (0.66, 2.97)	25.08 (13.42, 46.88)	17.87 (11.45, 27.88)
South West RHAs (f)	0.83 (0.65, 1.06)	**10.63 (8.46, 13.36)**	12.83 (11.36, 14.49)
Mid RHAs	1.02 (0.75, 1.37)	12.62 (9.63, 16.55)	12.43 (10.72, 14.42)
North RHAs	1.09 (0.45, 2.64)	8.70 (4.14, 18.29)	7.95 (4.93, 12.80)
Manitoba	1.04 (0.89, 1.22)	16.61 (14.20, 19.43)	15.97 (15.44, 16.49)
Directly Standardized	1.02 (0.96, 1.09)	14.55 (13.68, 15.42)	14.26 (13.76, 14.76)
Survey Respondents	1.24 (0.82, 1.66)	9.44 (6.37, 12.51)	7.61 (6.94, 8.28)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 7: Preventive Services

Indicators in this chapter:

- 7.1 Complete Immunization Schedule (Two–Year–Olds)
- 7.2 Adult Influenza Immunization
- 7.3 Mammograms
- 7.4 Cervical Cancer Screening
- 7.5 Comparison of Rates between Samples
- 7.6 Findings from the Literature
- 7.7 Supplementary Tables

Overall Key Findings

- Overall, the Francophone Cohort had higher rates of preventive care for influenza vaccination, mammography, and cervical cancer screening and similar rates for childhood immunization, when compared to a Matched Cohort of Other Manitobans.
- When looking at different areas of the province, the rate of preventive care is higher for those in the Francophone Cohort. The childhood immunization rate is lower for the Francophone Cohort in many Winnipeg CAs but higher in several rural RHAs.
- Among Francophones, there is some variation depending upon the area in which they live.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 7.0: Summary of Preventive Services Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Proportion of Two-Year-Olds with a Complete Immunization Schedule		
Manitoba		
South Eastman (f,d)	↑	↑
Central (f,d)	↑	↑
Burntwood (d)	↑	
Winnipeg (f,d)	↓	↓
St. Boniface (f,d)	↓	↓
St. Boniface East (d)	↓	
St. Vital (f,d)	↓	↓
St. Vital South (d)	↓	
Point Douglas (d)	↑	
South West RHAs (d)	↑	
Proportion of Older Adults who Received an Influenza Vaccination		
Manitoba (d)	↑	
South Eastman (d)	↑	
St. Boniface (d)	↑	
Directly Standardized (d)	↑	
Survey Respondents (d)	↑	
Mammogram Prevalence		
Manitoba (d)	↑	
South Eastman (d)	↑	
SE Western (d)	↑	
Central (d)	↑	
North Eastman (d)	↑	
Winnipeg (d)	↑	
St. Boniface (d)	↑	
St. Boniface East (f,d)	↑	↑
St. Boniface West (d)	↑	
Downtown (f)		↓
South West RHAs (d)	↑	
Mid RHAs (d)	↑	
Directly Standardized (d)	↑	
Survey Respondents (d)	↑	
Cervical Cancer Screening		
Manitoba (d)	↑	
Central (d)	↑	
Assiniboine (f)		↓
Brandon (d)	↑	
Nor-Man (f)		↓
Winnipeg (d)	↑	
St. Boniface		
St. Boniface West (d)	↑	
Downtown (d)	↑	
South West RHAs (d)	↑	
North RHAs (f)		↓
Directly Standardized (d)	↑	

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)
↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)
If no arrow appears, there is no difference between the two comparison groups

Source: Manitoba Centre for Health Policy, 2012

7.1 Complete Immunization Schedule (Two–Year–Olds)

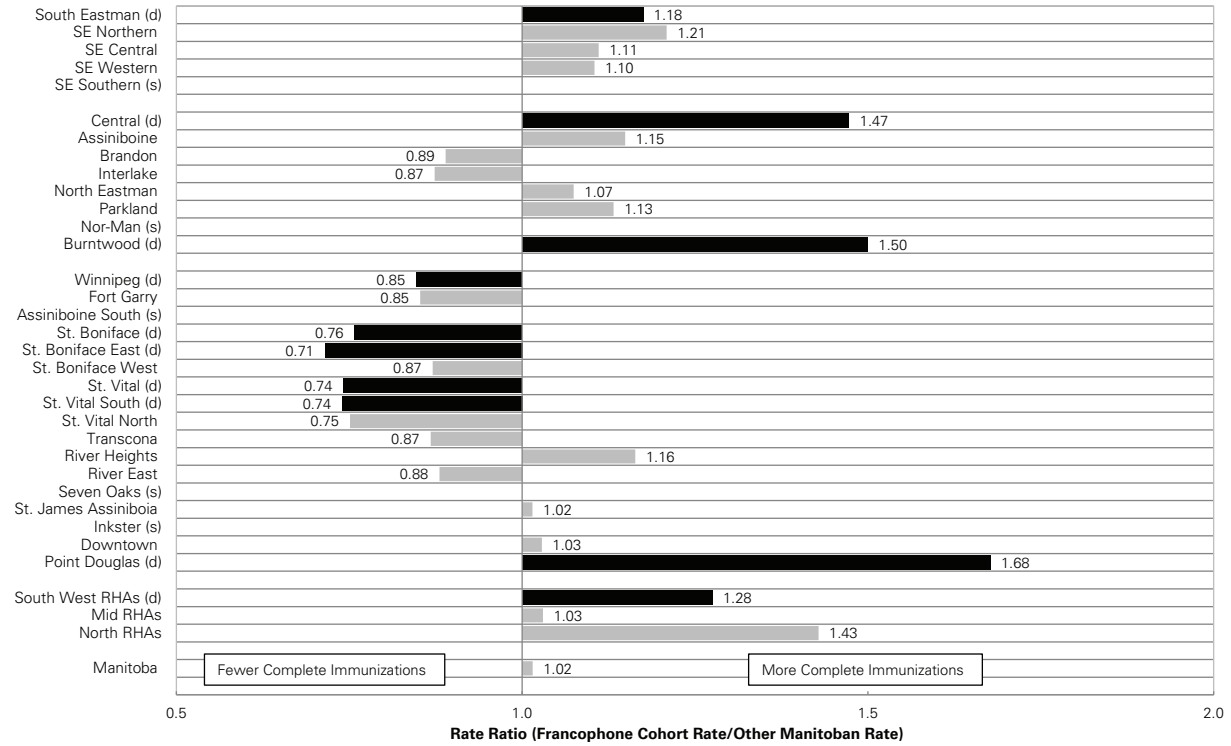
The recommended **immunization schedule** for children changes over time; the guidelines used for this report were those recommended as of 2006/07 (Communicable Disease Control (Manitoba), 2011). For two–year–olds, it is recommended that they receive:

- Four **Diphtheria**, **Acellular Pertussis**, **Tetanus** 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

A **complete immunization schedule** is defined as the percentage of two–year–old children (born 2005–2006), who were continuously registered with Manitoba Health up to their second birthday and had all of the recommended immunizations for their age. The calculations are based on data from calendar years 2007–2008 and are sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 7.1.1: Complete Immunization Schedule for Two–Year–Olds—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort Sample
Sex–adjusted for two–year olds born in 2005–2006



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- While provincially no significant differences were found in the child immunization rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.02), rates appeared higher for children in the Francophone Cohort in some rural settings and lower in most urban settings.
- Specifically, some significant differences were noted in South West RHAs (Rate Ratio: 1.28), South Eastman (Rate Ratio: 1.18), Central (Rate Ratio: 1.47), Burntwood (Rate Ratio: 1.50), and Point Douglas (Rate Ratio: 1.68) where Francophones children had higher immunization rates than the Matched Cohort of Other Manitobans and in Winnipeg (Rate Ratio: 0.85), St. Boniface (Rate Ratio: 0.76), St. Boniface East (Rate Ratio: 0.71), and St. Vital (Rate Ratio: 0.74) where Francophones children had lower immunization rates.
- The child immunization rates for Francophones in all areas was similar to the Francophone provincial rate except for those in South Eastman and Central where the rates were higher than the Francophone provincial rate and in Winnipeg and St. Boniface where rates were lower (Table 7.7.1).

7.2 Adult Influenza Immunization

Influenza vaccinations are an effective way to prevent influenza and the complications arising from it in high–risk populations, such as seniors. The National Advisory Committee on Immunization (NACI) recommends influenza vaccination for people aged 65 and older (2003).

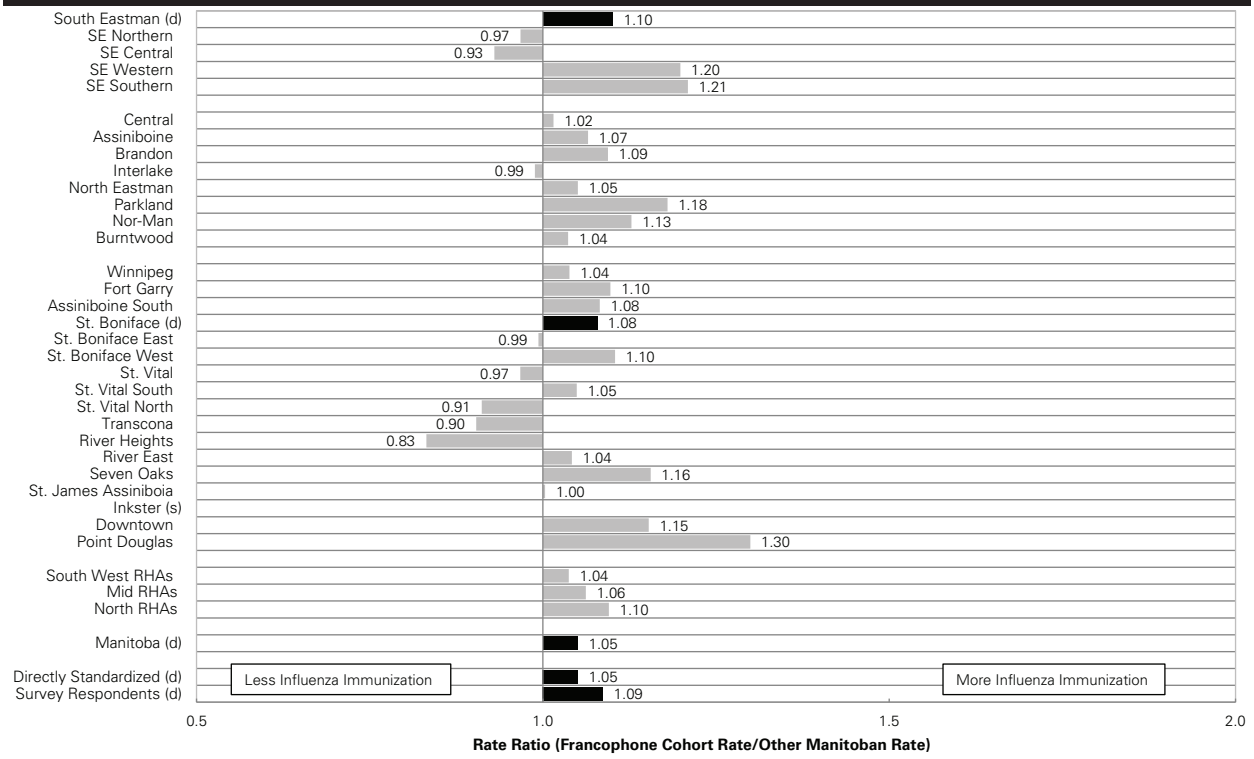
Adult Influenza immunization is defined as the proportion of residents aged 65 or older who received a **vaccine** for influenza in a given year. Influenza vaccinations were defined by physician tariff codes in Manitoba Immunization Monitoring System data (Appendix 1). Values were calculated for 2007/08 and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones doing compared to a similar group of Other Manitobans.

Key findings

- Provincially, the Francophone Cohort had a slightly higher adult influenza immunization rate than the Matched Cohort of Other Manitobans (Rate Ratio: 1.05) as well as in the survey sample (Rate Ratio: 1.09).
- Although there is a trend towards higher influenza immunization rates in most regions for the Francophone Cohort, South Eastman (Rate Ratio: 1.10) and St. Boniface (Rate Ratio: 1.08) were the regions where this was significantly higher.
- The adult influenza immunization rates for Francophones in all areas were similar to the Francophone provincial rate (Table 7.7.2).

Figure 7.2.1: Older Adults who Received an Influenza Immunization—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2007/08
Age– & sex–adjusted, residents aged 65 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

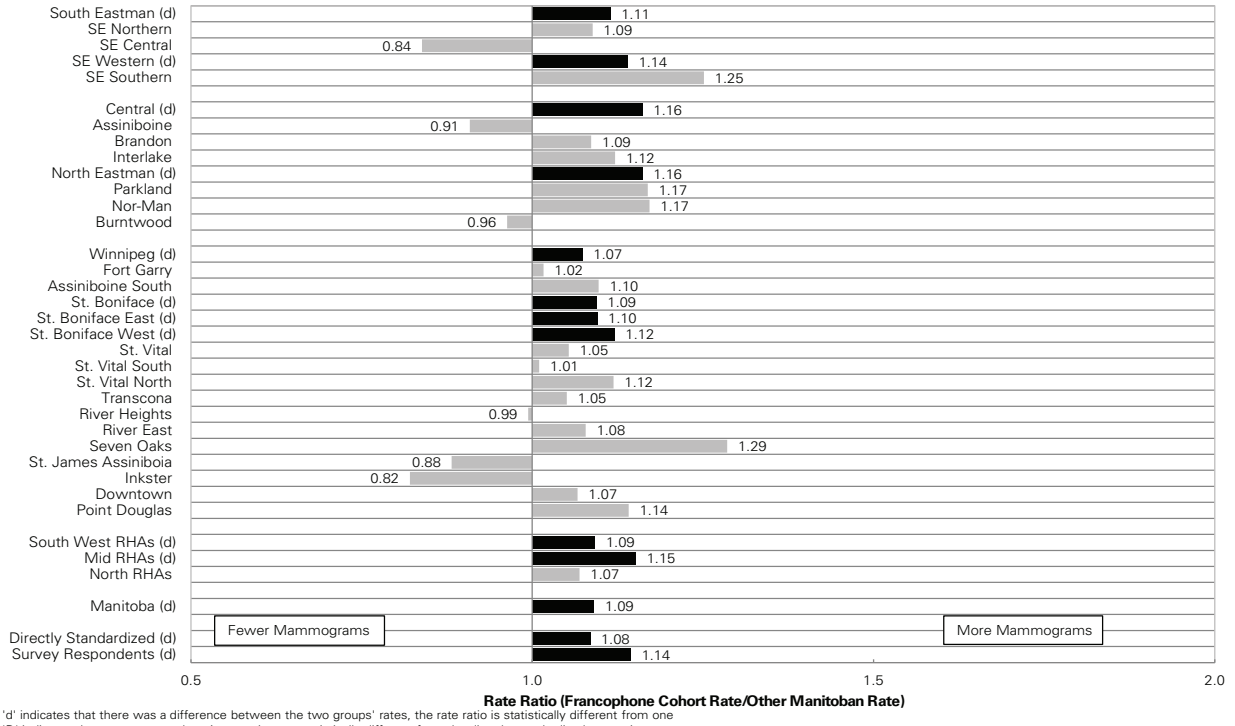
7.3 Mammography

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

Mammography is defined as the proportion of women aged 50 to 69 that had at least one mammogram in a two–year period. This includes screening and diagnostic mammograms. Rates were calculated for two 2–year periods, 2005/06–2006/07 and 2007/08–2008/09, and were age adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 7.3.1: Mammography—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2005/06–2006/07 and 2007/08–2008/09
Age– adjusted, women aged 50–69



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

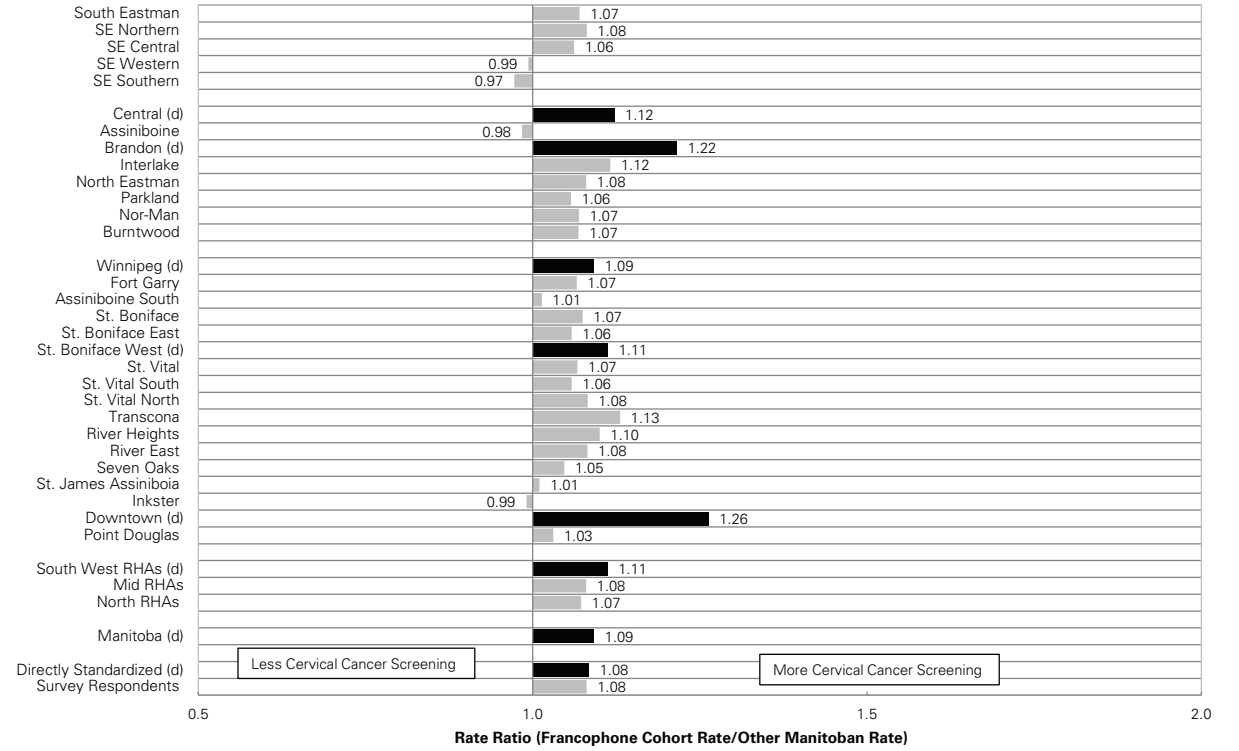
- Provincially, the Francophone Cohort had a higher rate of mammography than the Matched Cohort of Other Manitobans (Rate Ratio: 1.09) as well as in the survey sample (Rate Ratio: 1.14).
- There is a trend towards higher mammography rates for Francophones in most regions. South West RHAs (Rate Ratio: 1.09); Mid RHAs (Rate Ratio: 1.15); South Eastman (Rate Ratio: 1.11), including the Western district of South Eastman (Rate Ratio: 1.14); Central (Rate Ratio: 1.16); North Eastman (Rate Ratio: 1.16), Winnipeg (Rate Ratio: 1.07); and St. Boniface (Rate Ratio: 1.09) were the areas where the rate was significantly higher.
- The mammography rates for Francophones in almost all areas were similar to the Francophone provincial rate except in the Downtown Community Area where the rate was significantly lower (Table 7.7.3).

7.4 Cervical Cancer Screening

A Papanicolaou ('Pap') test, used primarily for cervical cancer screening, is based on the examination of cells collected from the cervix to reveal pre–malignant (before cancer) and malignant (cancer) changes, as well as, changes due to non–cancerous conditions such as inflammation from infections. Cervical cancer screening is defined as the proportion of women aged 18 to 69 who received at least one Pap test in a three–year period. Rates were calculated for a two–year period, 2006/07–2008/09, and were **age–adjusted**.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 7.4.1: Cervical Cancer Screening—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort and Survey Samples, 2006/07–2008/09
Age–adjusted, women aged 18–69



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had a higher rate of cervical cancer screening than the Matched Cohort of Other Manitobans (Rate Ratio: 1.09). Although it did not reach statistical significance, this is consistent to what was found in the survey sample (Rate Ratio: 1.08).[11]
- There is a trend towards higher screening rates for the Francophone Cohort in most regions. South West RHAs (Rate Ratio: 1.11), Central (Rate Ratio: 1.12), Brandon (Rate Ratio: 1.22), Winnipeg (Rate Ratio: 1.09), West St. Boniface (Rate Ratio: 1.11), and Downtown (Rate Ratio: 1.26) were the areas where the rate was significantly higher.
- The cervical cancer screening rates for Francophones in almost all areas were similar to the Francophone provincial rate except in the North RHAs, Assiniboine, and NOR–MAN where the rates were significantly lower (Table 7.7.4).

7.5 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

11 Since the survey sample has a smaller sample size, statistical significance could not be demonstrated.

Table 7.5.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Adult Flu Immunization	2007-2008	64.80%	61.68%	1.05 (d)	68.27%	62.81%	1.09 (d)
Breast Cancer Screening	2005/06-2006/07 & 2007/08-2008/09	65.57%	60.44%	1.08 (d)	73.34%	64.10%	1.14 (d)
Cervical Cancer Screening	2006/07-2008/09	68.86%	63.50%	1.08 (d)	69.40%	64.21%	1.08

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2011

7.6 Findings from Literature

(Comparisons to the results in this study are in italics)

Adult Flu Immunization

- Using the Ontario Health Survey (1996/1997), the Institute for Clinical Evaluative Sciences (ICES) found that the rate of adult flu immunization of older Francophones was not significantly different from the rate in the total population over the age of 65 (55% versus 60%) (2010).

Breast Cancer Screening

- Woloshin, Schwartz, Katz, and Welch examined the effects of language on the use of preventative services by studying three groups of women in their sample: English speaking (90%), French speaking (4%), and speaking a language other than French or English (6%). After adjusting for socioeconomic factors, contact with the healthcare system, and cultural measures, it was found that French speaking women were less likely to receive breast exams or mammography; and other language speakers were less likely to receive Pap testing (1997).
- ICES found no significant differences between Francophone and Anglophone women in the rates of professional breast exams (Francophones: 65% versus Anglophones: 69%), mammography within the last two years (Francophones: 66%; Anglophones: 68%), or breast self–examination (Francophones: 43%; Anglophones : 40%) (2010).
- Picard and Allaire found that Francophone women (aged 50 to 69) have more mammograms than the non–Francophone Ontario population (93% versus 87%) (2005).

Cervical Cancer Screening

- In Ontario, there was no significant difference between Francophone and Anglophone women in the rates of PAP tests within the last three years (Francophones: 74%; Anglophones: 76%) (ICES, 2010).
- *In this study, the Francophone Cohort was more likely to use preventative services than Other Manitobans. The Francophone Cohort had a slightly higher adult influenza immunization rate (Rate Ratio: 1.05), mammography rate (Rate Ratio: 1.09), and cervical cancer screening rate (Rate Ratio: 1.09) than the Matched Cohort of Other Manitobans. In urban areas, the Francophone Cohort had lower rates of childhood immunization;s whereas in rural areas, these rates were higher in the Francophone Cohort.*

7.7 Supplementary Tables

Table 7.7.1: Complete Immunization Schedule for Two–Year–Olds
Sex–adjusted, two–year olds born in 2005–2006A

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman (f,d)	**1.18 (1.08, 1.28)**	**82.05 (75.35, 89.33)**	**69.83 (66.21, 73.64)**
SE Northern	1.21 (0.99, 1.48)	84.08 (70.65, 100.06)	69.54 (61.39, 78.76)
SE Central	1.11 (0.78, 1.59)	71.25 (50.70, 100.14)	64.15 (56.28, 73.12)
SE Western	1.10 (0.89, 1.37)	83.02 (69.41, 99.31)	75.16 (65.83, 85.81)
SE Southern (s)	s	s	77.80 (59.86, 101.11)
Central (f,d)	**1.47 (1.27, 1.71)**	**83.28 (73.37, 94.53)**	**56.54 (51.81, 61.71)**
Assiniboine	1.15 (0.90, 1.46)	70.51 (57.25, 86.83)	61.36 (53.92, 69.84)
Brandon	0.89 (0.67, 1.18)	68.40 (53.26, 87.83)	76.90 (66.68, 88.70)
Interlake	0.87 (0.63, 1.20)	55.60 (41.84, 73.89)	63.65 (54.66, 74.12)
North Eastman	1.07 (0.78, 1.49)	55.42 (41.71, 73.65)	51.57 (43.75, 60.78)
Parkland	1.13 (0.85, 1.52)	81.18 (63.21, 104.25)	71.70 (61.29, 83.86)
Nor-Man (s)	s	s	s
Burntwood (d)	**1.50 (1.04, 2.16)**	**90.00 (66.72, 121.42)**	**60.00 (48.58, 74.10)**
Winnipeg (f,d)	**0.85 (0.78, 0.92)**	**56.21 (51.79, 61.00)**	**66.37 (63.43, 69.45)**
Fort Garry	0.85 (0.64, 1.14)	54.62 (42.11, 70.84)	64.07 (55.45, 74.03)
Assiniboine South (s)	s	s	s
St. Boniface (f,d)	**0.76 (0.67, 0.85)**	**52.41 (46.95, 58.50)**	**69.15 (64.97, 73.59)**
St. Boniface East (d)	**0.71 (0.57, 0.90)**	**53.93 (43.66, 66.61)**	**75.43 (67.80, 83.92)**
St. Boniface West	0.87 (0.67, 1.14)	50.73 (40.42, 63.68)	58.26 (49.90, 68.02)
St. Vital (f,d)	**0.74 (0.64, 0.87)**	**51.28 (44.43, 59.17)**	**69.11 (64.23, 74.37)**
St. Vital South (d)	**0.74 (0.56, 0.97)**	**56.07 (43.56, 72.17)**	**75.78 (66.70, 86.09)**
St. Vital North	0.75 (0.51, 1.11)	43.79 (30.80, 62.26)	58.29 (48.61, 69.90)
Transcona	0.87 (0.64, 1.18)	57.92 (44.15, 75.97)	66.73 (57.65, 77.24)
River Heights	1.16 (0.84, 1.61)	74.82 (55.46, 100.94)	64.29 (56.34, 73.36)
River East	0.88 (0.68, 1.14)	60.89 (47.84, 77.51)	69.16 (62.27, 76.80)
Seven Oaks (s)	s	s	66.63 (53.27, 83.33)
St. James Assiniboia	1.02 (0.72, 1.43)	81.77 (60.61, 110.30)	80.55 (67.31, 96.40)
Inkster (s)	s	s	s
Downtown	1.03 (0.76, 1.39)	57.12 (44.04, 74.09)	55.54 (47.69, 64.67)
Point Douglas (d)	**1.68 (1.12, 2.50)**	**72.68 (52.92, 99.81)**	**43.33 (33.82, 55.53)**
South West RHAs (d)	**1.28 (1.08, 1.51)**	**77.68 (66.77, 90.37)**	**60.92 (55.23, 67.19)**
Mid RHAs	1.03 (0.85, 1.25)	63.41 (53.17, 75.61)	61.56 (55.57, 68.19)
North RHAs	1.43 (0.98, 2.08)	90.85 (66.47, 124.17)	63.59 (51.29, 78.85)
Manitoba	1.02 (0.97, 1.06)	66.94 (63.85, 70.19)	65.93 (63.90, 67.97)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 7.7.2: Older Adults who Received an Influenza Immunization, 2007/08

Age– & sex–adjusted, residents aged 65 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman (d)	**1.10 (1.02, 1.19)**	**64.03 (59.74, 68.63)**	**58.15 (55.63, 60.78)**
SE Northern	0.97 (0.81, 1.16)	60.48 (51.98, 70.38)	62.49 (56.31, 69.35)
SE Central	0.93 (0.46, 1.90)	48.57 (24.25, 97.26)	52.23 (44.06, 61.92)
SE Western	1.20 (0.99, 1.45)	71.01 (60.46, 83.41)	59.25 (52.79, 66.50)
SE Southern	1.21 (0.81, 1.82)	64.77 (45.43, 92.34)	53.56 (43.63, 65.74)
Central	1.02 (0.92, 1.12)	64.75 (59.09, 70.94)	63.77 (60.46, 67.27)
Assiniboine	1.07 (0.91, 1.24)	66.39 (57.86, 76.18)	62.33 (57.83, 67.19)
Brandon	1.09 (0.82, 1.45)	68.92 (53.93, 88.06)	63.00 (54.42, 72.93)
Interlake	0.99 (0.81, 1.20)	64.39 (54.26, 76.42)	65.14 (59.17, 71.71)
North Eastman	1.05 (0.90, 1.23)	65.79 (57.34, 75.49)	62.62 (57.83, 67.81)
Parkland	1.18 (0.96, 1.45)	66.21 (55.33, 79.23)	56.11 (50.28, 62.62)
Nor-Man	1.13 (0.85, 1.50)	67.41 (52.99, 85.74)	59.76 (51.18, 69.77)
Burntwood	1.04 (0.70, 1.53)	66.77 (47.85, 93.17)	64.42 (52.33, 79.30)
Winnipeg	1.04 (0.99, 1.09)	67.33 (63.94, 70.89)	64.84 (62.88, 66.85)
Fort Garry	1.10 (0.95, 1.26)	75.32 (66.40, 85.43)	68.62 (64.11, 73.46)
Assiniboine South	1.08 (0.81, 1.45)	76.54 (57.90, 101.19)	70.73 (63.81, 78.40)
St. Boniface (d)	**1.08 (1.01, 1.15)**	**67.37 (63.58, 71.39)**	**62.48 (59.82, 65.27)**
St. Boniface East	0.99 (0.80, 1.23)	64.20 (53.21, 77.47)	64.62 (57.64, 72.44)
St. Boniface West	1.10 (0.98, 1.24)	67.84 (61.40, 74.95)	61.44 (56.61, 66.68)
St. Vital	0.97 (0.88, 1.07)	64.66 (59.20, 70.63)	66.85 (63.31, 70.59)
St. Vital South	1.05 (0.83, 1.33)	69.55 (56.79, 85.17)	66.29 (57.91, 75.90)
St. Vital North	0.91 (0.74, 1.12)	61.13 (50.89, 73.43)	67.05 (60.22, 74.64)
Transcona	0.90 (0.62, 1.31)	58.06 (41.61, 81.01)	64.25 (54.53, 75.69)
River Heights	0.83 (0.65, 1.07)	52.86 (41.37, 67.55)	63.56 (59.90, 67.44)
River East	1.04 (0.85, 1.27)	67.32 (55.71, 81.35)	64.61 (59.92, 69.65)
Seven Oaks	1.16 (0.83, 1.61)	76.21 (57.65, 100.75)	65.95 (55.28, 78.68)
St. James Assiniboia	1.00 (0.80, 1.26)	74.05 (59.92, 91.51)	73.81 (66.95, 81.37)
Inkster (s)	s	s	64.72 (48.27, 86.77)
Downtown	1.15 (0.92, 1.45)	64.10 (52.70, 77.98)	55.60 (49.31, 62.70)
Point Douglas	1.30 (0.92, 1.83)	76.27 (56.84, 102.35)	58.70 (49.02, 70.27)
South West RHAs	1.04 (0.91, 1.18)	65.48 (58.15, 73.74)	63.13 (58.96, 67.60)
Mid RHAs	1.06 (0.94, 1.19)	65.50 (58.90, 72.85)	61.68 (57.98, 65.62)
North RHAs	1.10 (0.85, 1.42)	67.20 (53.93, 83.73)	61.35 (53.33, 70.57)
Manitoba (d)	**1.05 (1.02, 1.08)**	**66.25 (64.17, 68.40)**	**63.06 (62.07, 64.05)**
Directly Standardized (d)	**1.05 (1.02, 1.08)**	**64.80 (63.12, 66.48)**	**61.68 (60.68, 62.67)**
Survey Respondents (d)	**1.09 (1.00, 1.17)**	**68.27 (63.24, 73.29)**	**62.81 (61.11, 64.51)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 7.7.3: Mammography, 2005/06–2006/07 and 2007/08–2008/09
Age–adjusted, women aged 50–69

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI) (percentage)	Matched Cohort Adjusted Rate (95% CI) (percentage)
South Eastman (d)	**1.11 (1.05, 1.19)**	**66.92 (63.08, 70.99)**	**60.04 (57.90, 62.26)**
SE Northern	1.09 (0.99, 1.20)	66.90 (61.34, 72.98)	61.47 (58.15, 64.97)
SE Central	0.84 (0.61, 1.14)	50.54 (37.39, 68.33)	60.27 (55.46, 65.50)
SE Western (d)	**1.14 (1.03, 1.27)**	**69.16 (63.32, 75.53)**	**60.67 (56.91, 64.68)**
SE Southern	1.25 (0.92, 1.70)	61.97 (47.07, 81.57)	49.51 (43.26, 56.66)
Central (d)	**1.16 (1.06, 1.28)**	**60.26 (55.35, 65.61)**	**51.88 (49.19, 54.71)**
Assiniboine	0.91 (0.76, 1.08)	57.79 (49.54, 67.41)	63.60 (58.47, 69.18)
Brandon	1.09 (0.84, 1.40)	63.43 (51.00, 78.89)	58.38 (51.06, 66.74)
Interlake	1.12 (0.94, 1.34)	69.72 (59.92, 81.12)	62.17 (56.62, 68.26)
North Eastman (d)	**1.16 (1.00, 1.35)**	**72.88 (64.12, 82.83)**	**62.73 (57.91, 67.97)**
Parkland	1.17 (0.98, 1.40)	65.22 (55.91, 76.08)	55.77 (50.70, 61.36)
Nor-Man	1.17 (0.89, 1.55)	67.94 (53.47, 86.32)	57.97 (49.92, 67.32)
Burntwood	0.96 (0.70, 1.32)	53.49 (40.74, 70.24)	55.54 (47.38, 65.10)
Winnipeg (d)	**1.07 (1.01, 1.14)**	**64.84 (60.95, 68.97)**	**60.38 (57.70, 63.18)**
Fort Garry	1.02 (0.87, 1.18)	68.81 (60.24, 78.59)	67.69 (62.67, 73.11)
Assiniboine South	1.10 (0.79, 1.53)	71.17 (53.57, 94.55)	64.85 (54.71, 76.86)
St. Boniface (d)	**1.09 (1.03, 1.17)**	**66.91 (63.10, 70.95)**	**61.15 (58.90, 63.48)**
St. Boniface East (f,d)	**1.10 (1.00, 1.20)**	**73.59 (67.87, 79.79)**	**67.19 (63.94, 70.60)**
St. Boniface West (d)	**1.12 (1.01, 1.24)**	**60.48 (55.43, 65.98)**	**53.96 (50.85, 57.25)**
St. Vital	1.05 (0.97, 1.14)	67.98 (63.09, 73.25)	64.53 (61.72, 67.47)
St. Vital South	1.01 (0.90, 1.13)	68.96 (62.23, 76.43)	68.27 (64.32, 72.46)
St. Vital North	1.12 (0.98, 1.28)	66.78 (59.45, 75.01)	59.67 (55.52, 64.13)
Transcona	1.05 (0.82, 1.34)	62.98 (51.00, 77.78)	59.94 (53.06, 67.72)
River Heights	0.99 (0.80, 1.24)	57.39 (46.91, 70.21)	57.73 (52.65, 63.30)
River East	1.08 (0.89, 1.31)	58.38 (48.97, 69.60)	54.14 (49.49, 59.24)
Seven Oaks	1.29 (0.94, 1.76)	71.78 (55.23, 93.29)	55.84 (47.07, 66.24)
St. James Assiniboia	0.88 (0.68, 1.15)	53.57 (42.37, 67.75)	60.74 (53.60, 68.82)
Inkster	0.82 (0.50, 1.35)	47.41 (30.48, 73.74)	57.76 (45.71, 72.97)
Downtown (f)	1.07 (0.84, 1.35)	**48.61 (39.67, 59.55)**	45.57 (40.33, 51.50)
Point Douglas	1.14 (0.77, 1.68)	47.32 (33.99, 65.89)	41.46 (33.71, 50.98)
South West RHAs (d)	**1.09 (1.00, 1.19)**	**60.04 (55.59, 64.84)**	**54.97 (52.46, 57.60)**
Mid RHAs (d)	**1.15 (1.02, 1.30)**	**69.54 (62.53, 77.33)**	**60.38 (56.26, 64.79)**
North RHAs	1.07 (0.83, 1.37)	59.76 (48.15, 74.16)	55.87 (48.91, 63.83)
Manitoba (d)	**1.09 (1.06, 1.12)**	**64.96 (63.05, 66.93)**	**59.56 (58.86, 60.25)**
Directly Standardized (d)	**1.08 (1.06, 1.11)**	**65.57 (64.41, 66.73)**	**60.44 (59.74, 61.13)**
Survey Respondents (d)	**1.14 (1.03, 1.26)**	**73.34 (66.58, 80.11)**	**64.10 (62.10, 66.10)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 7.7.4: Cervical Cancer Screening, 2006/07–2008/09
Age–adjusted, women aged 18–69

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Prevalence (95% CI) (percentage)	Matched Cohort Adjusted Prevalence (95% CI) (percentage)
South Eastman	1.07 (0.99, 1.15)	67.96 (63.28, 73.00)	63.51 (59.89, 67.33)
SE Northern	1.08 (0.98, 1.19)	70.11 (64.07, 76.72)	64.85 (60.10, 69.98)
SE Central	1.06 (0.88, 1.28)	65.72 (54.80, 78.81)	61.87 (57.25, 66.85)
SE Western	0.99 (0.89, 1.11)	67.26 (61.19, 73.93)	67.70 (62.35, 73.51)
SE Southern	0.97 (0.72, 1.31)	55.86 (42.03, 74.24)	57.43 (51.19, 64.44)
Central (d)	**1.12 (1.02, 1.23)**	**70.12 (64.40, 76.36)**	**62.48 (58.49, 66.74)**
Assiniboine (f)	0.98 (0.83, 1.16)	**56.08 (48.44, 64.93)**	56.98 (51.89, 62.58)
Brandon (d)	**1.22 (1.00, 1.48)**	**79.99 (67.77, 94.40)**	**65.79 (58.48, 74.01)**
Interlake	1.12 (0.94, 1.32)	64.97 (56.13, 75.21)	58.21 (52.70, 64.30)
North Eastman	1.08 (0.92, 1.26)	65.95 (57.42, 75.75)	61.06 (55.63, 67.03)
Parkland	1.06 (0.90, 1.24)	63.15 (54.89, 72.65)	59.72 (54.44, 65.52)
Nor-Man (f)	1.07 (0.75, 1.52)	**46.04 (33.95, 62.44)**	43.06 (35.60, 52.10)
Burntwood	1.07 (0.79, 1.45)	53.73 (41.37, 69.78)	50.28 (42.71, 59.19)
Winnipeg (d)	**1.09 (1.01, 1.18)**	**74.02 (68.47, 80.02)**	**67.78 (63.14, 72.76)**
Fort Garry	1.07 (0.94, 1.21)	76.36 (68.07, 85.65)	71.62 (66.08, 77.62)
Assiniboine South	1.01 (0.78, 1.32)	72.57 (57.69, 91.29)	71.59 (62.42, 82.09)
St. Boniface	1.07 (1.00, 1.16)	75.34 (70.20, 80.87)	70.10 (66.02, 74.44)
St. Boniface East	1.06 (0.96, 1.16)	77.02 (70.49, 84.16)	72.78 (67.78, 78.14)
St. Boniface West (d)	**1.11 (1.01, 1.23)**	**73.57 (67.34, 80.38)**	**66.12 (61.14, 71.51)**
St. Vital	1.07 (0.98, 1.16)	75.54 (69.69, 81.89)	70.79 (66.46, 75.41)
St. Vital South	1.06 (0.95, 1.18)	76.07 (68.94, 83.93)	71.87 (66.64, 77.52)
St. Vital North	1.08 (0.96, 1.23)	74.96 (66.99, 83.88)	69.27 (63.73, 75.29)
Transcona	1.13 (0.94, 1.36)	76.39 (65.09, 89.65)	67.55 (60.68, 75.19)
River Heights	1.10 (0.94, 1.29)	73.16 (62.83, 85.20)	66.49 (61.34, 72.07)
River East	1.08 (0.94, 1.25)	67.26 (58.81, 76.92)	62.16 (57.51, 67.19)
Seven Oaks	1.05 (0.81, 1.35)	68.61 (55.10, 85.43)	65.51 (57.07, 75.20)
St. James Assiniboia	1.01 (0.83, 1.22)	68.82 (58.11, 81.50)	68.11 (61.27, 75.72)
Inkster	0.99 (0.72, 1.36)	63.88 (48.38, 84.37)	64.48 (54.48, 76.32)
Downtown (d)	**1.26 (1.08, 1.48)**	**71.82 (62.65, 82.33)**	**56.85 (51.56, 62.69)**
Point Douglas	1.03 (0.81, 1.32)	59.88 (48.29, 74.24)	58.07 (50.78, 66.41)
South West RHAs (d)	**1.11 (1.02, 1.21)**	**68.68 (63.16, 74.70)**	**61.76 (57.64, 66.17)**
Mid RHAs	1.08 (0.96, 1.21)	65.09 (58.57, 72.32)	60.27 (55.42, 65.54)
North RHAs (f)	1.07 (0.85, 1.36)	**50.56 (41.12, 62.16)**	47.14 (41.08, 54.09)
Manitoba (d)	**1.09 (1.03, 1.15)**	**70.62 (66.79, 74.67)**	**64.67 (64.19, 65.16)**
Directly Standardized (d)	**1.08 (1.07, 1.10)**	**68.86 (68.06, 69.66)**	**63.50 (63.02, 63.99)**
Survey Respondents	1.08 (1.00, 1.16)	69.40 (64.28, 74.52)	64.21 (62.79, 65.63)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 8: Child Health

Indicators in this chapter:

- 8.1 Breastfeeding Initiation
- 8.2 Teen Pregnancy
- 8.3 Newborn Readmission
- 8.4 Infant and Child Mortality
- 8.5 Attention–Deficit Hyperactivity Disorder (ADHD)
- 8.6 Asthma Prevalence
- 8.7 Prenatal and Family Risk Factors (Family First Data)
- 8.7.1 Three or More Family Risk Factors at Birth of Child
- 8.7.2 Prenatal Alcohol Use
- 8.7.3 Prenatal Smoking
- 8.7.4 Maternal Depression/Anxiety
- 8.7.5 Relationship Distress
- 8.7.6 Maternal Education
- 8.8 Findings from Literature Review
- 8.9 Supplementary Tables

Overall Key Findings

- When comparing the Francophone Cohort to the Matched Cohort of Other Manitobans, we see higher diagnosis rates of ADHD, self–reported use of alcohol during pregnancy, and self–reported depression or anxiety; but we found a lower rate of Francophone mothers who did not completed high school when compared to the Matched Cohort.
- There is some variability in the differences between the Francophone Cohort and the Matched Cohort of Other Manitobans depending upon where they live, but for the most part the differences are consistent.
- Among Francophones, there are some noteworthy differences that are associated with where a person lives.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Table 8.0: Summary of Child Health Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Breastfeeding Initiation, 2006/07-2008/09		
Manitoba		
Parkland (d)	↑	
Teen Pregnancy, 1999/00-2008/09		
Manitoba		
Winnipeg Other (f)		↑
Prevalence of Attention Deficit Hyperactivity Disorder (ADHD), 2008/09		
Manitoba (d)	↑	
South Eastman (d)	↑	
SE Central (d)	↑	
Winnipeg (f,d)	↑	↑
Winnipeg Other (f,d)	↑	↑
South West RHAs (f)		↓
Prevalence of Asthma, 2007/08-2008/09		
Manitoba		
South Eastman		
SE Central (d)	↑	
River East (d)	↓	
St. James Assiniboia (d)	↓	
Three or more Families First Risk Factors, 2003/04-2007/08		
Manitoba		
South Eastman		
SE Western (d)	↑	
Central (d)	↑	
St. Vital (f)		↓
St. Vital South (f)		↓
Downtown (f)		↑
Point Douglas (f)		↑
South West RHAs (d)	↑	
Self-Reported Alcohol Use During Pregnancy, 2003/04-2007/08		
Manitoba (d)	↑	
South Eastman (d)	↑	
SE Central (d)	↑	
Mothers who Reported Smoking During Pregnancy, 2003/04-2007/08		
Manitoba		
South Eastman		
SE Central (d)	↑	
SE Western (d)	↑	
Winnipeg (d)	↓	
St. Boniface (f,d)	↓	↓
St. Boniface West (d)	↓	
Inkster (f)		↑
Downtown (f)		↑
Point Douglas (f)		↑
South West RHAs (d)	↑	
North RHAs (f)		↑
Mothers Who Reported having Depression/Anxiety, 2003/04-2007/08		
Manitoba (d)	↑	
South Eastman (d)	↑	
SE Central (d)	↑	
SE Western (d)	↑	
SE Southern (d)	↑	
Maternal Relationship Distress, 2003/04-2007/08		
Manitoba		
South West RHAs (d)	↑	
Mothers who did not Completed High School, 2003/04-2007/08		
Manitoba (d)	↓	
South Eastman	↓	
SE Northern (d)	↓	
SE Western (d)	↓	
St. Vital (d)	↓	
South West RHAs (d)	↓	

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups

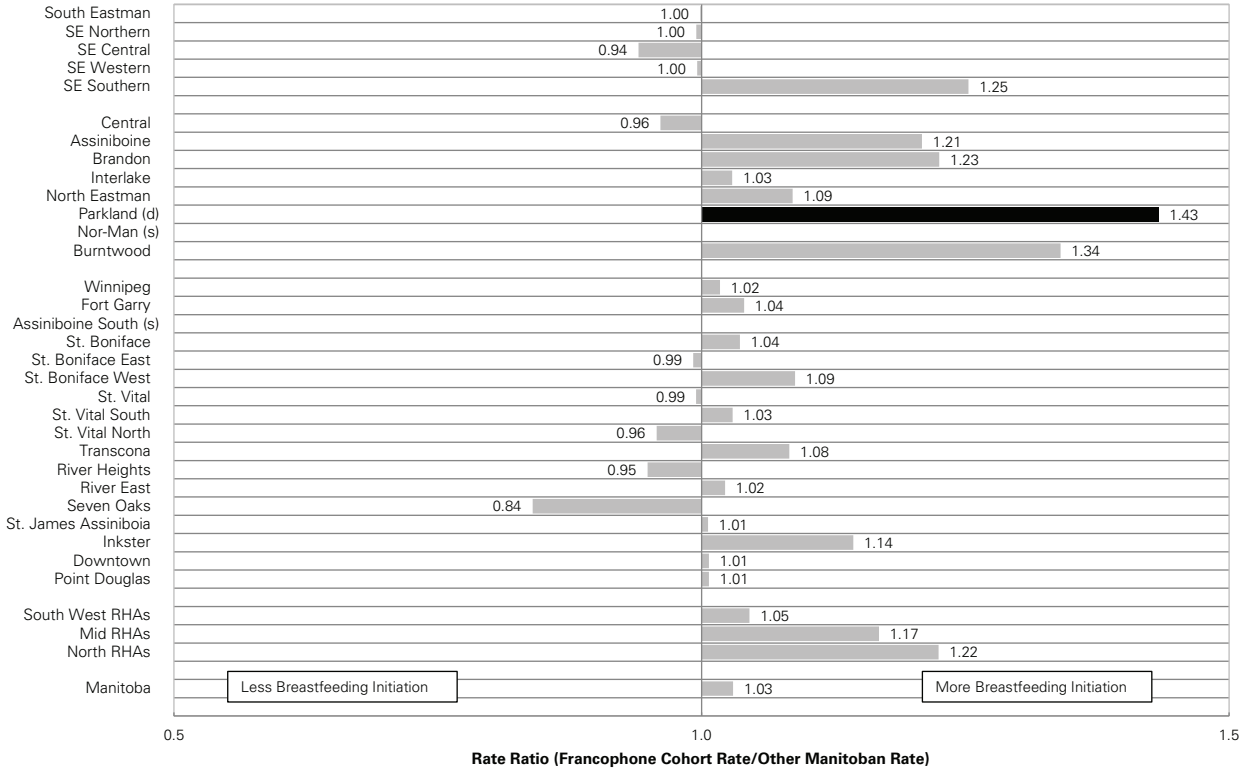
Source: Manitoba Centre for Health Policy, 2012

8.1 Breastfeeding Initiation

The crude percentage of newborns (live births) in a Manitoba hospital who were exclusively or partially breastfed upon discharge from the hospital was measured over three years, 2006/07–2008/09. The denominator includes all live born babies in a Manitoba hospital that have breastfeeding information in the **hospital discharge abstract**.

The **breastfeeding initiation** rate ratio was calculated by dividing the percentage of newborns in the Francophone Cohort by the percentage of newborns in the Matched Cohort. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.1.1: Breastfeeding Initiation—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2006/07–2008/09
Newborns breastfeeding at hospital discharge



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

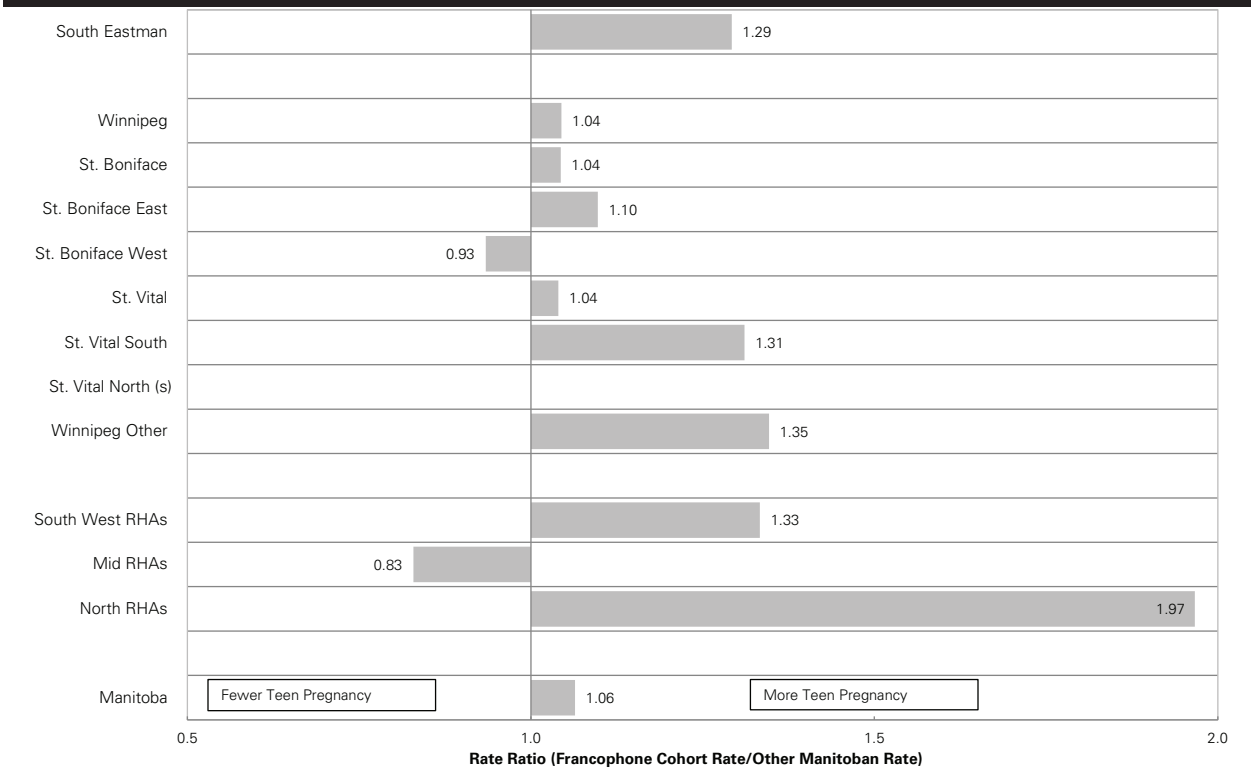
- Provincially, no significant differences were found in breast feeding rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.03).
- A significant difference was noted only in Parkland where the Francophone Cohort had higher breastfeeding rates than the Matched Cohort of Other Manitobans (Rate Ratio: 1.43).
- The breastfeeding rates for Francophones in all areas were similar to the Francophone provincial rate (Table 8.9.1).

8.2 Teen Pregnancy Rates

The age–adjusted teen pregnancy rate per 1,000 females was calculated by taking the ratio of all live and still births, abortions, and ectopic pregnancies for females, aged 15 to 19, to the total female population of the same age. The rate was calculated by using data from hospital records over 10 years, 1999/00–2008/09.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Match Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.2.1: Teen Pregnancy—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/00–2008/09
Age–adjusted, females aged 15–19



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

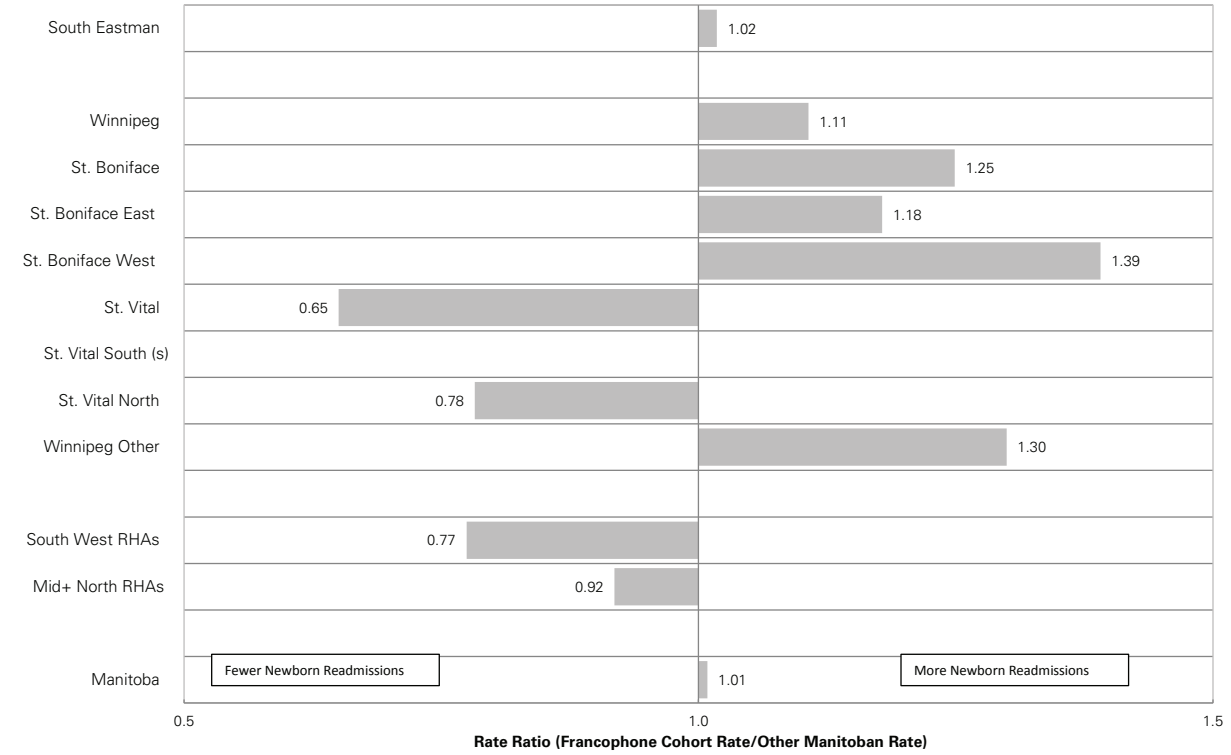
- Provincially and in all regions, no significant differences were found in teen pregnancy rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.06).
- The teen pregnancy rates for Francophones in most areas were similar to the Francophone provincial rate, except in Winnipeg CAs outside of St. Boniface and St. Vital where the rate was significantly higher (Table 8.9.2).

8.3 Newborn Readmission

The **newborn readmission** rate is calculated by taking the number of infants who have a hospital stay anywhere from one to 28 days after discharge from their birth hospitalization and dividing it by the total number of infants who have been discharged alive following their birth hospitalization. In some cases, newborns may be readmitted to hospital not because they are ill themselves but because their mother is hospitalized and an effort is being made to keep the mother and **newborn** together. These **"boarder" babies** are excluded from the analyses.

The newborn readmission rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.3.1: Newborn Readmission—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999–2008
Sex–adjusted, newborns readmitted to the hospital within 28 days of birth



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially and in all regions, no significant differences were found in newborn readmission rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.01).
- The newborn readmission rates for Francophones in all areas were similar to the Francophone provincial rate (Table 8.9.3).

8.4 Infant and Child Mortality

Infant mortality is an indicator of deaths of infants within one year of birth and is seen as a possible indicator of overall health status, access to healthcare in an area, and/or the effectiveness of pre–and post–natal care. The crude annual rate of infant deaths within the first year of life was measured over ten calendar years, 1999–2008, per 1,000 newborns aged 0 to 364 days. The denominator includes all live births (in hospital) in the study period. Live births are identified during 1999–2008 calendar years and deaths are identified up to each child's first birthday.

The crude **child mortality** rate is the number of deaths of children aged one to 19 years in a given year per 1,000 children in this age group. This was calculated over a ten year period, 1999–2008.

The infant and child mortality rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Table 8.4.1: Infant and Child Mortality, 1999–2008

	Crude Rate Ratio (Francophone Cohort Crude Rate /Matched Cohort Crude Rate) (95% CI)	Francophone Cohort Crude Rate per 1,000 (95% CI)	Matched Cohort Crude Rate per 1,000 (95% CI)
Infant Mortality	0.77 (0.49, 1.21)	5.00 (3.00, 7.00)	6.45 (5.14, 7.76)
Child Mortality	0.67 (0.41, 1.08)	0.18 (0.10, 0.26)	0.27 (0.21, 0.33)

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in infant mortality rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.77) nor in child mortality rates (Rate Ratio: 0.67).[12] The apparent differences between the Francophone Cohort and the Matched Cohort are not statistically significant.

8.5 Attention–Deficit Hyperactivity Disorder (ADHD)

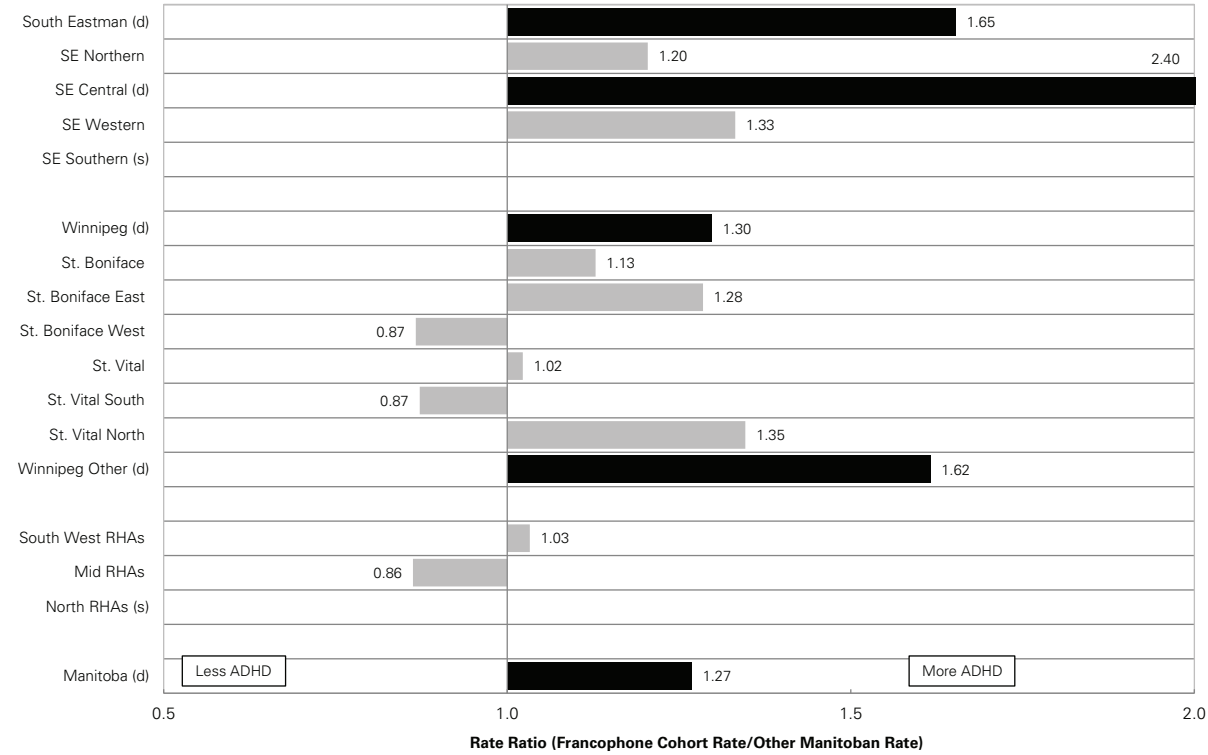
Attention–Deficit Hyperactivity Disorder (ADHD) is a neurobehavioral developmental disorder that typically presents during childhood and is characterized by a persistent pattern of impulsiveness and inattention. The age– and sex–adjusted prevalence of ADHD was measured for children aged five to 19 in 2008/09.

ADHD was defined as one or more hospitalizations with a diagnosis of hyperkinetic syndrome or one or more physician visits with a diagnosis of hyperkinetic syndrome or two or more prescriptions for ADHD drugs without a diagnosis of conduct disorder, disturbance of emotions, and cataplexy/narcolepsy.

The ADHD rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

12 Very few infants and children were in this sample because the mortality is very low.

Figure 8.5.1: Attention Deficit Hyperactivity Disorder (ADHD)—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, residents aged 5–19



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

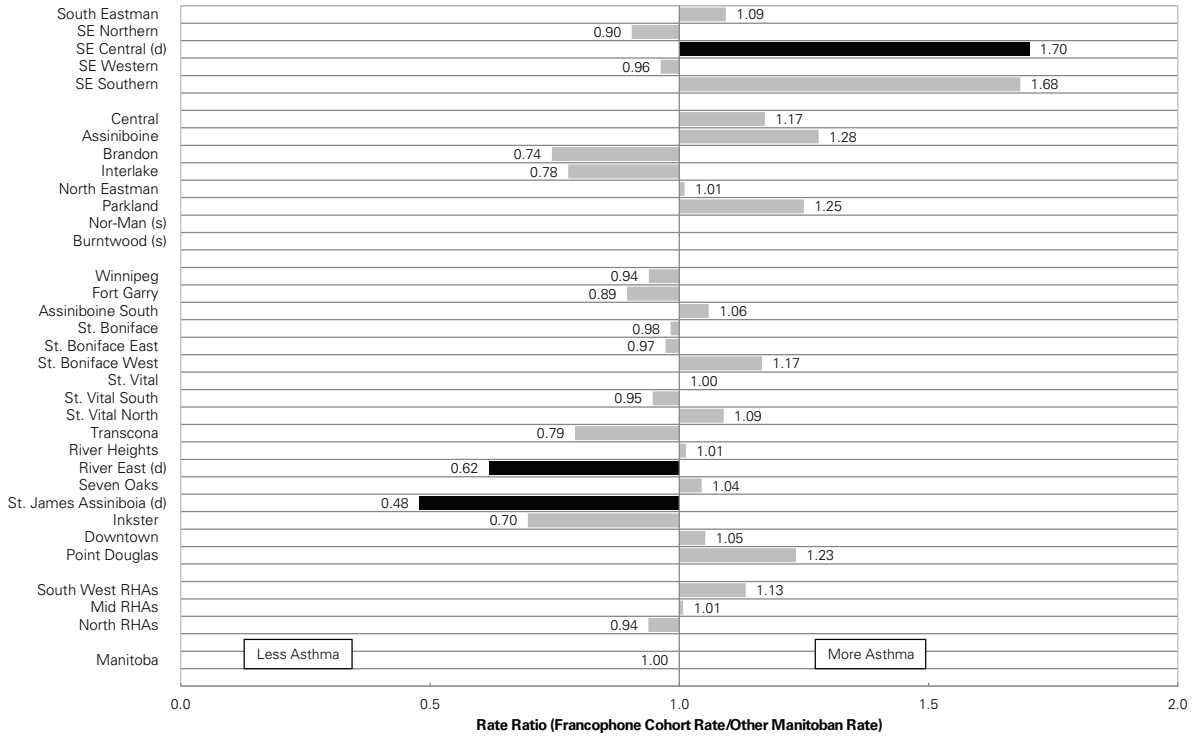
- Provincially, the Francophone Cohort had a higher ADHD rate than the Matched Cohort of Other Manitobans (Rate Ratio: 1.27).
- Significant differences were also noted in South Eastman (Rate Ratio: 1.65), the Central district of South Eastman (Rate Ratio 2.40), Winnipeg (Rate Ratio: 1.30), and Winnipeg CAs outside of St. Boniface and St. Vital (Rate Ratio 1.62) where Francophones had higher rates than the Matched Cohort of Other Manitobans.
- The rates of ADHD for Francophones in most areas was similar to the provincial rate for Francophones except for those in South West RHAs (Assiniboine, Brandon, and Central) where the rates were lower than the Francophone provincial rate and in Winnipeg. In Winnipeg, specifically the CAs outside of St. Boniface and St. Vital, the rates were higher (Table 8.9.4).

8.6 Asthma Prevalence

Asthma is an inflammatory disorder of the airways, characterized by periodic attacks of wheezing, shortness of breath, chest tightness, and coughing. Age and sex–adjusted prevalence rate was calculated for children aged five to 19 years for a two–year time period, 2007/08–2008/09.

The asthma rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.6.1: Asthma—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2006/07–2008/09
Age– & sex–adjusted, children aged 5–19



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in asthma rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.00).
- However, some significant differences were noted in Central district of South Eastman where the Francophone Cohort had higher asthma rates than the Matched Cohort of Other Manitobans (Rate Ratio: 1.70) and River East (Rate Ratio: 0.62) and St. James Assiniboia (Rate Ratio: 048) where the Francophone Cohort had lower rates.
- Asthma rates for Francophones in all areas were similar to the provincial rate for Francophones (Table 8.9.5).

8.7 Prenatal and Family Risk Factors (Family First Data)

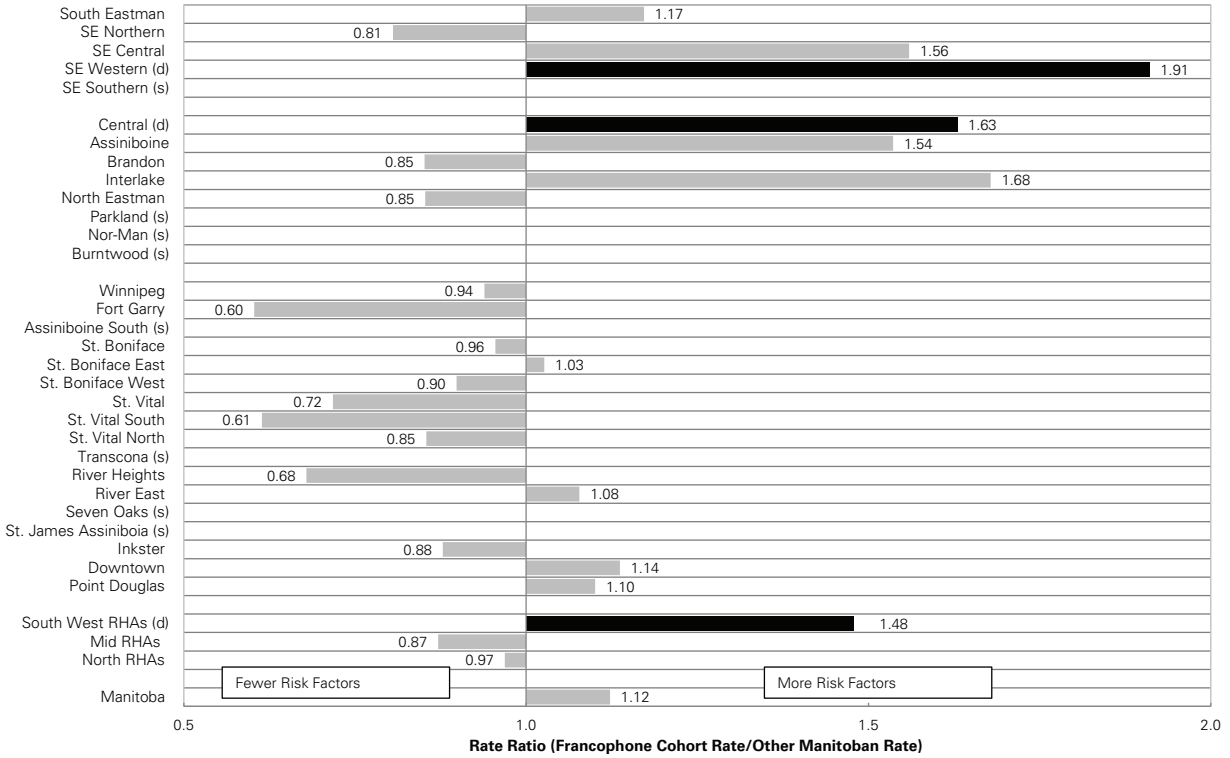
Risk Factors Associated with Poor Child Outcomes: The prevalence of risk factors for families with newborns is collected through the Families First Screen. **Public Health Nurses** in Manitoba attempt to screen all families with newborns within a week of discharge from the hospital for biological and social risk factors that are associated with poor child outcomes. 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.

8.7.1 Three or More Family Risk Factors at Birth of Child

The prevalence rates of families with newborns that have three or more risk factors were calculated for newborns born between 2003/04 to 2007/08. The rates were adjusted for the mother's age.

The "three or more risk factors" rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.7.1: Three or More Families First Risk Factors—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08
Maternal age–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

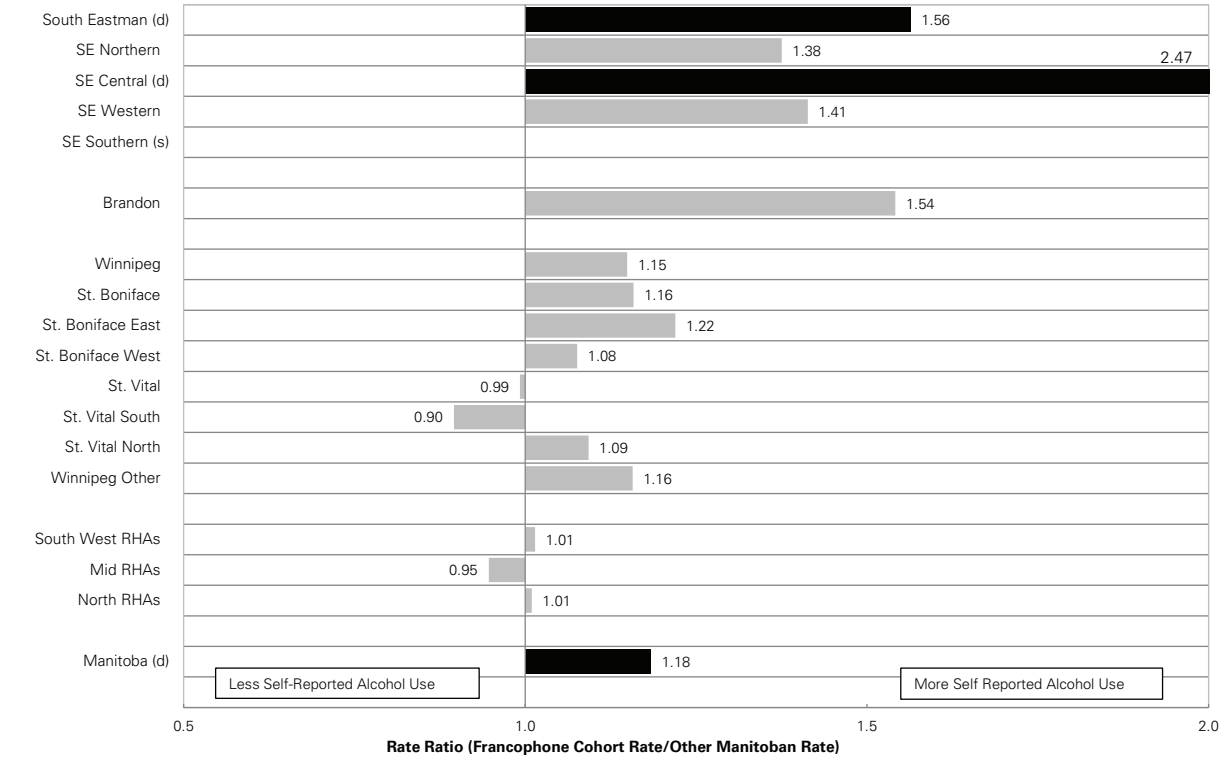
- Provincially, no significant differences were found in rates of "three or more risk factors" between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.12).
- However, some significant differences were noted in Western district of South Eastman (Rate Ratio: 1.91), the South West RHAs (Rate Ratio: 1.48), and Central RHA (Rate Ratio: 1.63) where the Francophone Cohort had higher rates of "three or more risk factors" than the Matched Cohort of Other Manitobans.
- Rates of "three or more risk factors" for Francophones in most areas were similar to the Francophone provincial rate except in St. Vital and South St. Vital where rates were lower than the Francophone provincial rate and in Downtown and Point Douglas where the rates were higher (Table 8.9.6).

8.7.2 Prenatal Alcohol Use

The prevalence rates of women with newborns who reported consuming beverage alcohol during pregnancy was calculated between 2003/04 to 2007/08. The rates were adjusted for mother's age.

The alcohol use during pregnancy rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.7.2: Self–Reported Alcohol Use During Pregnancy—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08
Maternal age–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

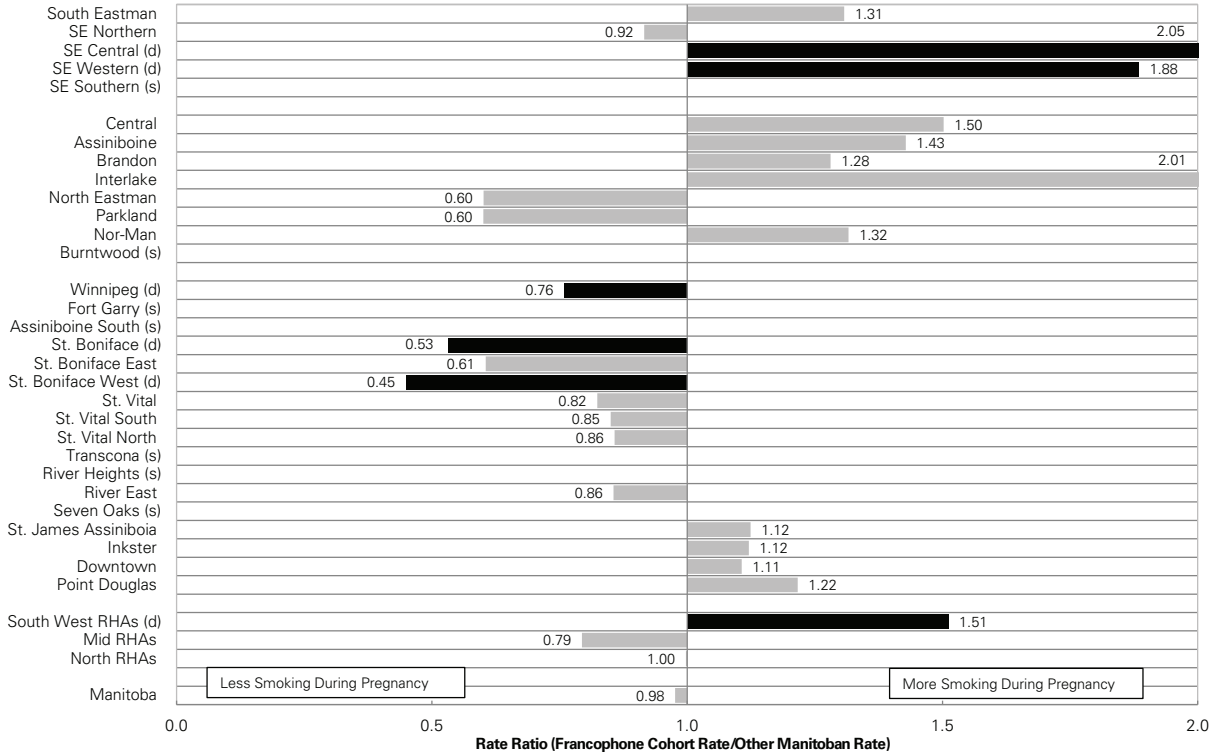
- Provincially, the Francophone Cohort had a higher rate of alcohol use during pregnancy than the Matched Cohort of Other Manitobans (Rate Ratio: 1.18).
- Significant differences were also noted in South Eastman (Rate Ratio: 1.56) and the Central district of South Eastman (Rate Ratio 2.47) where the Francophone Cohort had higher rates than the Matched Cohort of Other Manitobans.
- The rate of alcohol use during pregnancy for Francophones in all areas was similar to the provincial rate for Francophones (Table 8.9.7).

8.7.3 Prenatal Smoking

The prevalence rates of women with newborns who reported smoking during pregnancy was calculated between 2003/04 to 2007/08. The rates were adjusted for the mother's age.

The prenatal smoking rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.7.3: Mothers Who Reported Smoking During Pregnancy—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08
Maternal age–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

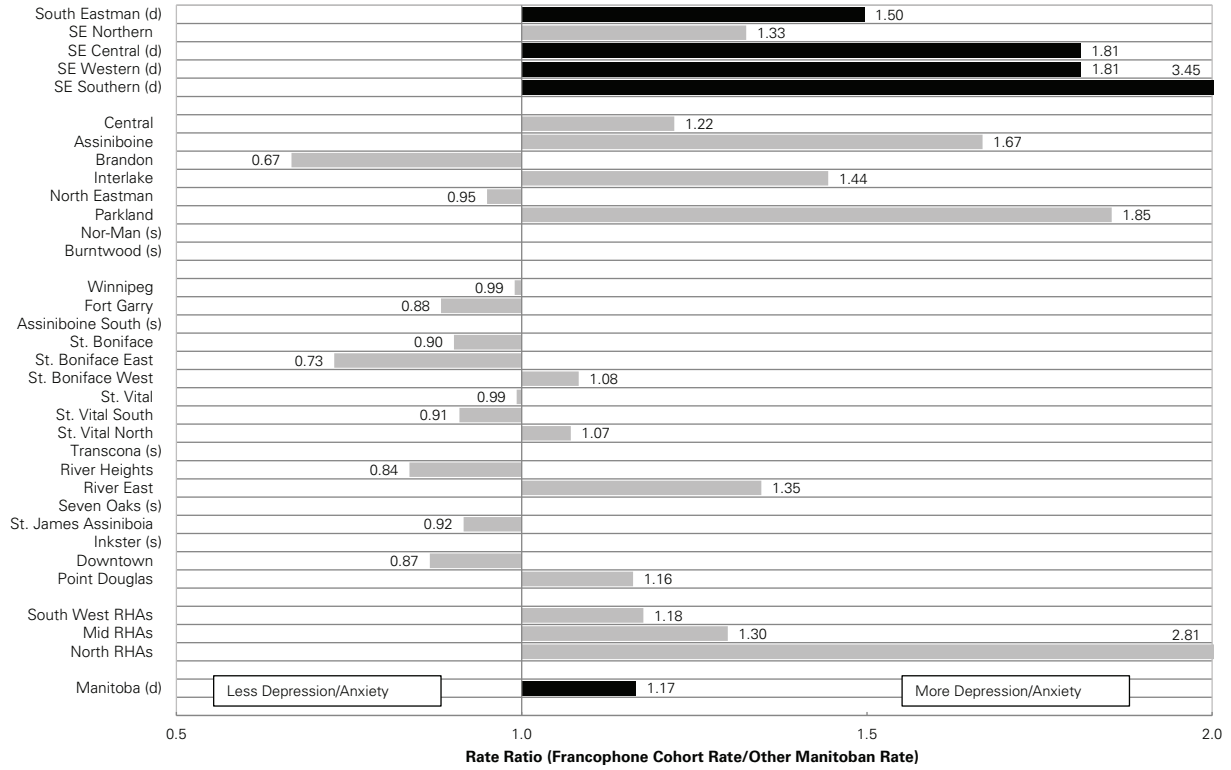
- Provincially, no significant differences were found in rates of smoking during pregnancy between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.98).
- However, there appears to be a different pattern between rural and urban rates. Some significant differences were noted in rural RHAs where the Francophone Cohort had higher rates of smoking during pregnancy than the Matched Cohort of Other Manitobans—South West RHAs (Rate Ratio: 1.51) and Western (Rate Ratio: 1.88) and Central (Rate Ratio: 2.05) districts of South Eastman. Conversely, in Winnipeg CAs, the Francophone Cohort had lower rates—Winnipeg (Rate Ratio: 0.76), St. Boniface (Rate Ratio: 0.53), and West St. Boniface (Rate Ratio: 0.45).
- Rates of smoking during pregnancy for Francophones in most areas were similar to the Francophone provincial rate except in the Northern RHAs, Inkster, Downtown, and Point Douglas where the rates are higher than the provincial rate and in St. Boniface where the rate is lower (Table 8.9.8).

8.7.4 Maternal Depression/Anxiety

The prevalence rates of women with newborns who showed signs of depression or anxiety was calculated between 2003/04 to 2007/08. The rates were adjusted for the mother's age.

The maternal depression or anxiety rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.7.4: Mothers Who Reported Having Depression/Anxiety—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08
Maternal age–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

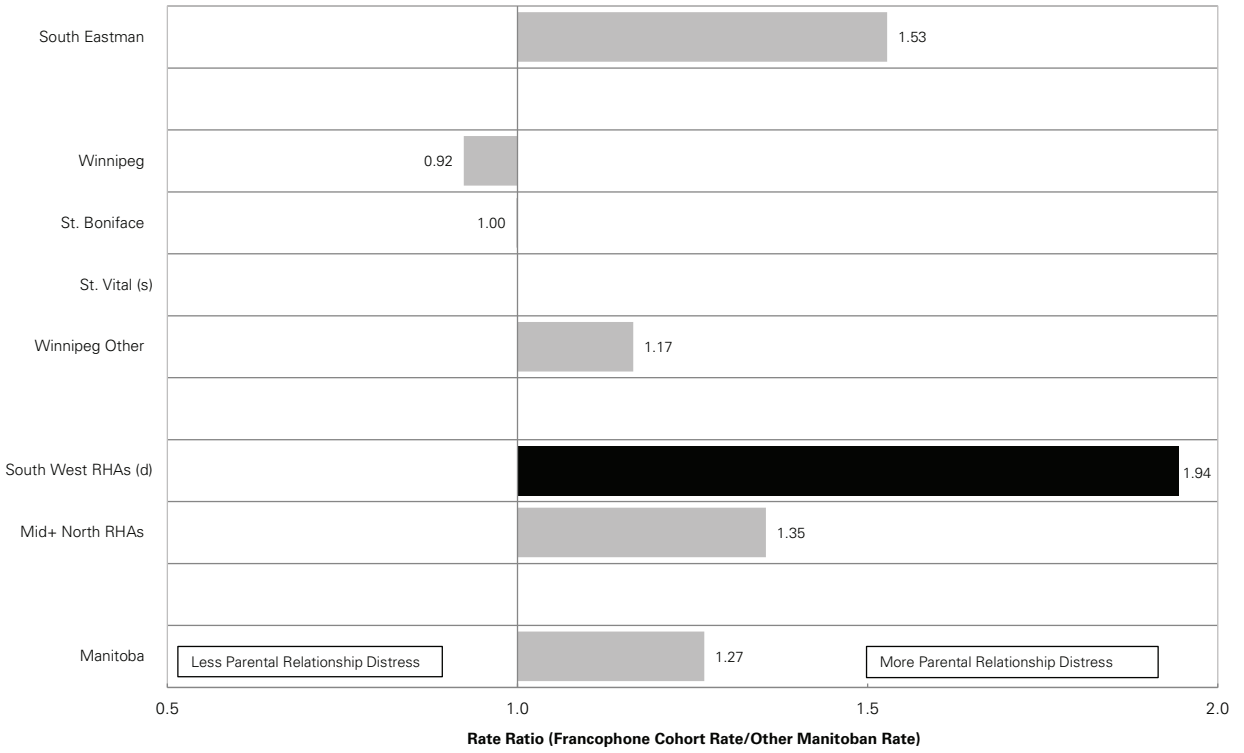
- Provincially, the Francophone Cohort had higher rates of maternal depression and anxiety than the Matched Cohort of Other Manitobans (Rate Ratio: 1.17).
- Francophones in some rural RHAs appear to have relatively higher rates than Francophones in Winnipeg. Significant differences were noted in South Eastman (Rate Ratio: 1.50) and most of its districts where the Francophone Cohort had higher rates than the Matched Cohort of Other Manitobans.
- The rates of maternal depression and anxiety for Francophones in all areas were similar to the provincial rate for Francophones (Table 8.9.9).

8.7.5 Relationship Distress

The prevalence rates of women with newborns who reported experiencing **relationship distress** with their spouse or partner was calculated between 2003/04 to 2007/08. The rates were adjusted for the mother's age.

The relationship distress rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.7.5: Parental Relationship Distress—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08
Maternal age–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

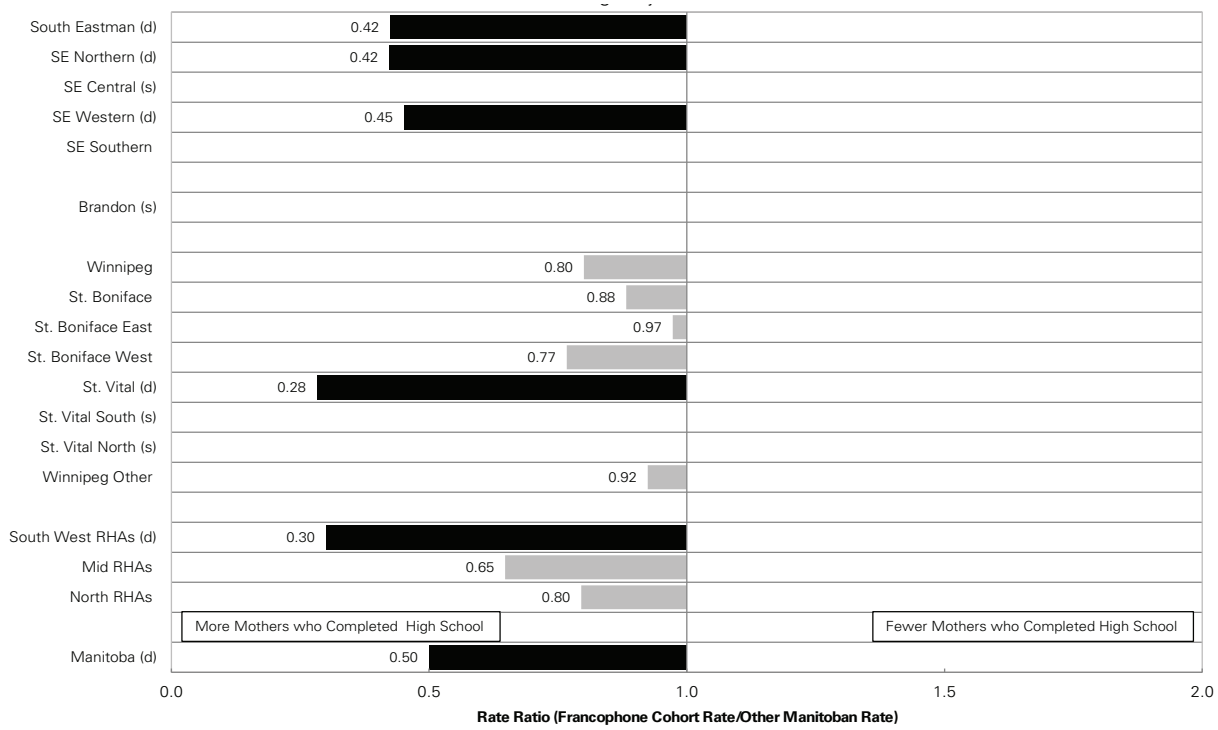
- While it appears that the provincial rate of parental relationship distress is higher in the Francophone Cohort than the Matched Cohort of Other Manitobans, no significant differences were found (Rate Ratio: 1.27).
- However, a significant difference was noted in the South West RHAs where the Francophone Cohort had higher rates of parental relationship distress than the Matched Cohort of Other Manitobans (Rate Ratio: 1.94).
- Rates of parental relationship distress of Francophones in all areas were similar to the provincial rate (Table 8.9.10).

8.7.6 Maternal Education

The prevalence rates of women with newborns who have not completed high school were calculated between 2003/04 to 2007/08. The rates were adjusted for the mother's age.

The maternal education rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 8.7.6: Mothers Who did not Complete High School—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2003/04–2007/08
Maternal age–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, women in the Francophone Cohort were less likely to not have completed high school than women in the Matched Cohort of Other Manitobans (Rate Ratio: 0.50).
- Although there is a trend for Francophone women towards lower rates of not completing high school in all regions, South West RHAs (Rate Ratio: 0.30), Northern (Rate Ratio: 0.42) and Western (Rate Ratio: 0.45) districts of South Eastman, and St. Vital (0.28) were the regions where the Francophone Cohort had significantly lower rates than the Matched Cohort of Other Manitobans.
- The high school completion rates for Francophone women in all areas were similar to the provincial rate for Francophone women (Table 8.9.11).

8.8 Findings from the Literature

(Comparisons to the results in this study are in italics)

- Bourgoin, Lahaie, Rhéaume, Berger, Dovigi, Picard, and Sahai found that Anglophone women tended to breastfeed for a longer duration than Francophone women (1997).
- Using the Ontario Health Survey (1996/1997), the Institute for Clinical Evaluative Sciences (ICES) found similar rates of intercourse before the age of 18 years for Francophones (51%), for the overall Ontario population (46%), and for Anglophones (50%) (2010).
- Reported condom use was not significantly higher for the overall Ontario population (61%) than for Francophones 50%. (ICES, 2010)
- Pelletier, de Moissac, and Delaquis surveyed Grade 9 to 12 students in the Francophone School Division in Manitoba. Over three–quarters of respondents (76%) reported that they never had intercourse. Rates of sexual intercourse were higher in older students—30% of Grade 11 students and 45% of Grade 12 students reported having intercourse. The survey results indicated that 2% of students either became pregnant or were responsible for a pregnancy (2007).
- *In this study, no significant differences were found in breastfeeding rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.03). Similarly, no differences were found in teen pregnancy rates (Rate Ratio: 1.06) between the groups.*

8.9 Supplementary Tables

Table 8.9.1: Breastfeeding Initiation, 2006/07–2008/09
Newborns breastfeeding at hospital discharge

Region	Crude Rate Ratio (Francophone Cohort Crude Rate/ Matched Cohort Crude Rate) (95% CI)	Francophone Cohort Crude Rate (95% CI)	Matched Cohort Crude Rate (95% CI)
South Eastman	1.00 (0.92, 1.08)	93.04 (85.91, 100.75)	93.15 (88.91, 97.60)
SE Northern	1.00 (0.89, 1.11)	92.05 (83.54, 101.44)	92.51 (86.89, 98.50)
SE Central	0.94 (0.77, 1.15)	88.17 (72.67, 106.98)	93.78 (87.45, 100.56)
SE Western	1.00 (0.88, 1.12)	95.18 (85.81, 105.57)	95.57 (89.11, 102.51)
SE Southern	1.25 (0.82, 1.91)	99.43 (67.82, 145.78)	79.36 (66.01, 95.41)
Central	0.96 (0.85, 1.09)	86.28 (76.85, 96.86)	89.78 (83.95, 96.00)
Assiniboine	1.21 (0.98, 1.49)	92.46 (77.22, 110.71)	76.48 (67.87, 86.20)
Brandon	1.23 (0.94, 1.59)	95.38 (76.26, 119.29)	77.84 (67.54, 89.70)
Interlake	1.03 (0.78, 1.35)	84.86 (66.78, 107.84)	82.46 (71.88, 94.60)
North Eastman	1.09 (0.82, 1.43)	76.96 (60.91, 97.23)	70.84 (60.89, 82.42)
Parkland (d)	**1.43 (1.10, 1.87)**	**85.76 (68.57, 107.25)**	**59.83 (51.51, 69.50)**
Nor-Man (s)	s	s	81.65 (56.13, 118.79)
Burntwood	1.34 (0.89, 2.02)	90.23 (64.44, 126.35)	67.33 (53.09, 85.39)
Winnipeg	1.02 (0.95, 1.09)	87.83 (81.93, 94.16)	86.33 (82.91, 89.89)
Fort Garry	1.04 (0.81, 1.33)	85.13 (68.67, 105.53)	81.83 (72.21, 92.73)
Assiniboine South (s)	s	s	93.60 (70.48, 124.31)
St. Boniface	1.04 (0.94, 1.15)	91.25 (83.16, 100.12)	88.04 (83.16, 93.20)
St. Boniface East	0.99 (0.88, 1.12)	87.66 (78.49, 97.91)	88.36 (83.00, 94.06)
St. Boniface West	1.09 (0.96, 1.24)	95.25 (85.17, 106.53)	87.51 (81.05, 94.48)
St. Vital	0.99 (0.86, 1.15)	89.41 (78.57, 101.74)	89.87 (83.62, 96.59)
St. Vital South	1.03 (0.87, 1.22)	94.32 (81.09, 109.72)	91.61 (84.22, 99.65)
St. Vital North	0.96 (0.79, 1.15)	84.06 (71.22, 99.21)	87.81 (80.06, 96.29)
Transcona	1.08 (0.80, 1.46)	94.47 (72.89, 122.43)	87.21 (74.97, 101.45)
River Heights	0.95 (0.72, 1.25)	89.37 (69.45, 115.00)	94.19 (83.51, 106.24)
River East	1.02 (0.83, 1.26)	85.38 (70.75, 103.02)	83.51 (75.84, 91.96)
Seven Oaks	0.84 (0.53, 1.32)	77.11 (51.60, 115.24)	91.80 (74.21, 113.57)
St. James Assiniboia	1.01 (0.75, 1.35)	84.91 (65.99, 109.26)	84.39 (72.32, 98.46)
Inkster	1.14 (0.69, 1.91)	75.27 (48.79, 116.14)	65.81 (50.03, 86.57)
Downtown	1.01 (0.78, 1.30)	77.11 (61.65, 96.44)	76.58 (67.10, 87.41)
Point Douglas	1.01 (0.67, 1.51)	75.17 (52.72, 107.16)	74.64 (60.80, 91.62)
South West RHAs	1.05 (0.96, 1.14)	88.98 (81.94, 96.61)	85.11 (80.99, 89.43)
Mid RHAs	1.17 (0.99, 1.38)	82.42 (71.15, 95.48)	70.56 (64.35, 77.37)
North RHAs	1.22 (0.84, 1.79)	86.87 (63.27, 119.26)	70.94 (57.18, 88.00)
Manitoba	1.03 (0.99, 1.07)	88.90 (85.21, 92.75)	86.32 (85.05, 87.59)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.2: Teen Pregnancy, 1999/00–2008/09
Age–adjusted, females aged 15–19

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.29 (0.81, 2.05)	31.31 (21.71, 45.15)	31.76 (25.80, 39.10)
Winnipeg	1.04 (0.80, 1.36)	50.05 (37.84, 66.20)	47.92 (40.39, 56.85)
St. Boniface	1.04 (0.70, 1.56)	41.95 (29.72, 59.22)	41.00 (32.08, 52.39)
St. Boniface East	1.10 (0.66, 1.81)	44.66 (28.42, 70.18)	40.69 (30.91, 53.56)
St. Boniface West	0.93 (0.48, 1.82)	39.35 (24.31, 63.69)	42.12 (25.74, 68.94)
St. Vital	1.04 (0.52, 2.09)	23.01 (12.44, 42.55)	22.30 (15.34, 32.44)
St. Vital South	1.31 (0.55, 3.15)	21.68 (10.33, 45.51)	16.53 (10.10, 27.06)
St. Vital North (s)	s	s	45.09 (28.83, 70.51)
Winnipeg Other (f)	1.35 (0.97, 1.86)	**87.59 (63.71, 120.44)**	65.04 (54.70, 77.35)
South West RHAs	1.33 (0.87, 2.05)	38.47 (26.17, 56.55)	28.85 (22.42, 37.13)
Mid RHAs	0.83 (0.48, 1.43)	64.70 (38.82, 107.83)	78.04 (59.41, 102.52)
North RHAs	1.97 (0.63, 6.16)	87.35 (35.84, 212.88)	44.42 (21.19, 93.12)
Manitoba	1.06 (0.87, 1.30)	45.24 (37.18, 55.06)	42.51 (39.10, 45.91)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.3: Newborn Readmission, 1999–2008
Sex–adjusted, newborns readmitted to the hospital within 28 days of the birth

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.02 (0.59, 1.76)	16.87 (10.15, 28.04)	16.58 (12.33, 22.28)
Winnipeg	1.11 (0.84, 1.46)	24.35 (18.10, 32.76)	22.00 (18.43, 26.26)
St. Boniface	1.25 (0.70, 2.24)	19.98 (12.15, 32.86)	16.44 (11.50, 23.51)
St. Boniface East	1.18 (0.57, 2.45)	20.95 (10.96, 40.04)	17.78 (11.87, 26.61)
St. Boniface West	1.39 (0.53, 3.67)	18.97 (9.32, 38.61)	13.64 (6.81, 27.30)
St. Vital	0.65 (0.28, 1.50)	14.06 (6.42, 30.79)	21.62 (15.07, 31.03)
St. Vital South (s)	s	s	16.59 (9.81, 28.06)
St. Vital North	0.78 (0.30, 2.01)	23.74 (10.04, 56.10)	30.33 (19.49, 47.20)
Winnipeg Other	1.30 (0.89, 1.90)	31.76 (21.81, 46.24)	24.44 (19.54, 30.56)
South West RHAs	0.77 (0.44, 1.38)	20.47 (11.84, 35.40)	26.43 (19.92, 35.08)
Mid+ North RHAs	0.92 (0.50, 1.68)	35.22 (20.05, 61.86)	38.35 (28.03, 52.46)
Manitoba	1.01 (0.82, 1.24)	23.03 (18.71, 28.35)	22.84 (20.46, 25.21)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.4: Attention Deficit Hyperactivity Disorder (ADHD), 2008/09

Age– & sex–adjusted, residents aged 5–19

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**1.65 (1.17, 2.34)**	**3.33 (2.60, 4.27)**	**2.22 (1.86, 2.65)**
SE Northern	1.20 (0.80, 1.82)	3.42 (2.46, 4.76)	2.84 (2.15, 3.75)
SE Central (d)	**2.40 (1.10, 5.25)**	**4.95 (2.34, 10.45)**	**2.06 (1.59, 2.68)**
SE Western	1.33 (0.78, 2.27)	3.00 (2.03, 4.44)	2.25 (1.54, 3.31)
SE Southern (s)	s	s	1.47 (0.76, 2.83)
Winnipeg (f,d)	**1.30 (1.11, 1.52)**	**4.79 (4.06, 5.66)**	**3.69 (3.31, 4.12)**
St. Boniface	1.13 (0.85, 1.49)	4.13 (3.26, 5.23)	3.57 (2.98, 4.28)
St. Boniface East	1.28 (0.90, 1.84)	4.26 (3.09, 5.86)	3.31 (2.69, 4.09)
St. Boniface West	0.87 (0.57, 1.33)	4.01 (2.92, 5.50)	4.63 (3.38, 6.33)
St. Vital	1.02 (0.70, 1.50)	3.78 (2.67, 5.34)	3.68 (3.01, 4.50)
St. Vital South	0.87 (0.52, 1.47)	2.92 (1.82, 4.69)	3.35 (2.58, 4.33)
St. Vital North	1.35 (0.80, 2.26)	5.84 (3.76, 9.07)	4.34 (3.22, 5.84)
Winnipeg Other (f,d)	**1.62 (1.29, 2.02)**	**6.02 (4.84, 7.48)**	**3.73 (3.26, 4.26)**
South West RHAs (f)	1.03 (0.71, 1.51)	**2.35 (1.67, 3.31)**	2.27 (1.85, 2.79)
Mid RHAs	0.86 (0.48, 1.56)	2.09 (1.23, 3.57)	2.43 (1.82, 3.23)
North RHAs (s)	s	s	3.06 (1.45, 6.44)
Manitoba (d)	**1.27 (1.12, 1.44)**	**3.84 (3.39, 4.34)**	**3.03 (2.82, 3.23)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.5: Prevalence of Asthma, 2006/07–2008/09
Age– & sex–adjusted, children aged 5–19

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.09 (0.96, 1.25)	13.75 (12.15, 15.57)	12.57 (11.66, 13.56)
SE Northern	0.90 (0.72, 1.14)	12.48 (10.23, 15.22)	13.80 (11.77, 16.18)
SE Central (d)	**1.70 (1.16, 2.49)**	**20.04 (13.85, 29.00)**	**11.78 (10.19, 13.61)**
SE Western	0.96 (0.75, 1.24)	14.22 (11.56, 17.48)	14.77 (12.33, 17.69)
SE Southern	1.68 (0.91, 3.10)	15.48 (8.88, 26.97)	9.19 (6.94, 12.17)
Central	1.17 (0.96, 1.43)	13.09 (10.95, 15.64)	11.17 (9.99, 12.48)
Assiniboine	1.28 (0.88, 1.85)	12.87 (9.39, 17.63)	10.06 (8.18, 12.37)
Brandon	0.74 (0.44, 1.25)	10.74 (6.75, 17.11)	14.43 (11.33, 18.38)
Interlake	0.78 (0.49, 1.24)	11.14 (7.31, 16.97)	14.33 (11.53, 17.81)
North Eastman	1.01 (0.67, 1.52)	14.12 (9.89, 20.16)	13.97 (11.37, 17.16)
Parkland	1.25 (0.83, 1.87)	13.49 (9.55, 19.05)	10.79 (8.65, 13.47)
Nor-Man (s)	s	s	s
Burntwood (s)	s	s	7.32 (4.41, 12.16)
Winnipeg	0.94 (0.85, 1.03)	14.66 (13.25, 16.21)	15.61 (14.60, 16.69)
Fort Garry	0.89 (0.67, 1.20)	15.11 (11.62, 19.66)	16.88 (14.61, 19.52)
Assiniboine South	1.06 (0.56, 2.02)	15.52 (8.79, 27.41)	14.66 (10.78, 19.94)
St. Boniface	0.98 (0.86, 1.13)	14.90 (13.16, 16.88)	15.17 (13.91, 16.55)
St. Boniface East	0.97 (0.79, 1.19)	15.57 (12.85, 18.87)	16.02 (14.01, 18.32)
St. Boniface West	1.17 (0.89, 1.52)	14.39 (11.86, 17.45)	12.34 (9.95, 15.30)
St. Vital	1.00 (0.83, 1.20)	15.40 (13.04, 18.19)	15.39 (13.98, 16.96)
St. Vital South	0.95 (0.73, 1.22)	14.57 (11.54, 18.38)	15.39 (13.22, 17.93)
St. Vital North	1.09 (0.80, 1.47)	16.77 (12.82, 21.95)	15.40 (12.86, 18.45)
Transcona	0.79 (0.46, 1.35)	12.95 (8.02, 20.89)	16.38 (12.79, 20.96)
River Heights	1.01 (0.66, 1.54)	15.56 (10.39, 23.31)	15.37 (13.40, 17.62)
River East (d)	**0.62 (0.42, 0.91)**	**10.48 (7.21, 15.23)**	**16.96 (15.24, 18.87)**
Seven Oaks	1.04 (0.51, 2.16)	17.89 (9.60, 33.33)	17.12 (11.72, 25.01)
St. James Assiniboia (d)	**0.48 (0.25, 0.93)**	**7.60 (4.08, 14.16)**	**15.89 (12.62, 20.00)**
Inkster	0.70 (0.34, 1.44)	14.38 (7.47, 27.71)	20.67 (14.95, 28.57)
Downtown	1.05 (0.77, 1.43)	14.12 (10.76, 18.54)	13.42 (11.42, 15.78)
Point Douglas	1.23 (0.78, 1.94)	19.93 (13.52, 29.38)	16.15 (12.66, 20.60)
South West RHAs	1.13 (0.94, 1.37)	12.83 (10.73, 15.35)	11.32 (9.92, 12.93)
Mid RHAs	1.01 (0.79, 1.29)	13.05 (10.45, 16.30)	12.95 (11.33, 14.80)
North RHAs	0.94 (0.37, 2.35)	6.91 (3.09, 15.42)	7.36 (4.68, 11.58)
Manitoba	1.00 (0.94, 1.06)	13.95 (13.10, 14.85)	13.96 (13.55, 14.37)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.6: Three or More Families First Risk Factors Rate Ratios, 2003/04–2007/08
Maternal age–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.17 (0.83, 1.65)	15.26 (11.01, 21.16)	13.02 (10.08, 16.82)
SE Northern	0.81 (0.53, 1.23)	12.40 (8.58, 17.92)	15.39 (12.02, 19.72)
SE Central	1.56 (0.86, 2.84)	17.22 (9.68, 30.65)	11.05 (8.96, 13.61)
SE Western (d)	**1.91 (1.14, 3.19)**	**16.09 (11.41, 22.70)**	**8.42 (5.65, 12.56)**
SE Southern (s)	s	s	20.23 (14.11, 29.00)
Central (d)	**1.63 (1.10, 2.41)**	**24.95 (17.52, 35.52)**	**15.31 (11.42, 20.51)**
Assiniboine	1.54 (0.74, 3.19)	23.64 (13.23, 42.25)	15.39 (9.29, 25.52)
Brandon	0.85 (0.42, 1.73)	18.30 (9.84, 34.04)	21.49 (14.11, 32.75)
Interlake	1.68 (0.86, 3.27)	37.00 (22.24, 61.55)	22.04 (13.52, 35.94)
North Eastman	0.85 (0.44, 1.65)	19.25 (10.81, 34.26)	22.57 (15.07, 33.79)
Parkland (s)	s	s	22.57 (15.40, 33.08)
Nor-Man (s)	s	s	23.95 (11.04, 51.94)
Burntwood (s)	s	s	29.88 (17.89, 49.89)
Winnipeg	0.94 (0.75, 1.17)	18.76 (14.88, 23.64)	19.97 (16.65, 23.96)
Fort Garry	0.60 (0.26, 1.38)	9.30 (4.47, 19.36)	15.43 (9.78, 24.35)
Assiniboine South (s)	s	s	s
St. Boniface	0.96 (0.66, 1.38)	16.60 (11.77, 23.42)	17.38 (13.24, 22.82)
St. Boniface East	1.03 (0.66, 1.60)	15.74 (10.64, 23.30)	15.33 (12.03, 19.54)
St. Boniface West	0.90 (0.59, 1.37)	18.37 (12.85, 26.26)	20.45 (15.77, 26.51)
St. Vital (f)	0.72 (0.43, 1.21)	**10.41 (6.47, 16.74)**	14.51 (10.55, 19.95)
St. Vital South (f)	0.61 (0.26, 1.44)	**6.32 (2.99, 13.36)**	10.29 (6.73, 15.73)
St. Vital North	0.85 (0.48, 1.51)	15.29 (9.26, 25.25)	17.90 (13.36, 23.99)
Transcona (s)	s	s	17.13 (9.30, 31.56)
River Heights	0.68 (0.28, 1.62)	14.50 (6.30, 33.39)	21.35 (15.18, 30.01)
River East	1.08 (0.61, 1.89)	23.87 (14.04, 40.60)	22.15 (16.39, 29.93)
Seven Oaks (s)	s	38.35 (19.09, 77.04)	s
St. James Assiniboia (s)	s	s	21.23 (11.78, 38.26)
Inkster	0.88 (0.36, 2.17)	29.45 (13.43, 64.61)	33.53 (20.14, 55.84)
Downtown (f)	1.14 (0.73, 1.76)	**40.86 (27.51, 60.69)**	35.94 (26.53, 48.67)
Point Douglas (f)	1.10 (0.63, 1.93)	**49.09 (30.20, 79.80)**	44.59 (30.78, 64.60)
South West RHAs (d)	**1.48 (1.13, 1.94)**	**23.46 (18.45, 29.83)**	**15.86 (13.30, 18.92)**
Mid RHAs	0.87 (0.58, 1.32)	19.35 (13.35, 28.04)	22.20 (17.05, 28.91)
North RHAs	0.97 (0.44, 2.11)	26.96 (13.65, 53.24)	27.82 (18.16, 42.62)
Manitoba	1.12 (0.89, 1.42)	19.44 (15.35, 24.62)	17.32 (16.37, 18.27)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.7: Self–Reported Alcohol Use During Pregnancy, 2003/04–2007/08
Maternal age–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**1.56 (1.08, 2.26)**	**11.64 (8.82, 15.37)**	**7.58 (6.28, 9.13)**
SE Northern	1.38 (0.86, 2.19)	12.82 (8.84, 18.58)	9.32 (6.82, 12.75)
SE Central (d)	**2.47 (1.25, 4.86)**	**15.33 (8.15, 28.87)**	**6.22 (4.71, 8.21)**
SE Western	1.41 (0.78, 2.56)	10.63 (6.88, 16.41)	7.52 (4.91, 11.51)
SE Southern (s)	s	s	11.59 (7.33, 18.32)
Brandon	1.54 (0.59, 4.02)	9.66 (4.67, 19.99)	6.26 (3.31, 11.86)
Winnipeg	1.15 (0.96, 1.38)	13.58 (11.25, 16.39)	11.82 (10.41, 13.41)
St. Boniface	1.16 (0.86, 1.56)	17.51 (13.46, 22.77)	14.95 (12.35, 18.11)
St. Boniface East	1.22 (0.81, 1.84)	17.09 (11.97, 24.41)	14.02 (11.00, 17.86)
St. Boniface West	1.08 (0.70, 1.65)	17.95 (12.63, 25.50)	16.68 (12.60, 22.09)
St. Vital	0.99 (0.61, 1.61)	9.42 (6.20, 14.33)	9.54 (7.20, 12.64)
St. Vital South	0.90 (0.44, 1.83)	8.52 (4.66, 15.59)	9.51 (6.32, 14.33)
St. Vital North	1.09 (0.57, 2.11)	10.45 (5.99, 18.26)	9.57 (6.59, 13.90)
Winnipeg Other	1.16 (0.86, 1.55)	12.56 (9.55, 16.53)	10.86 (9.13, 12.91)
South West RHAs	1.01 (0.75, 1.37)	15.62 (11.83, 20.63)	15.40 (12.93, 18.35)
Mid RHAs	0.95 (0.55, 1.63)	9.20 (5.80, 14.59)	9.72 (7.10, 13.30)
North RHAs	1.01 (0.41, 2.51)	18.68 (8.52, 40.93)	18.50 (11.44, 29.94)
Manitoba (d)	**1.18 (1.04, 1.35)**	**13.23 (11.61, 15.09)**	**11.18 (10.39, 11.96)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.8: Mothers Who Reported Smoking During Pregnancy, 2003/04–2007/08

Maternal age–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.31 (0.98, 1.74)	14.56 (11.10, 19.08)	11.13 (9.17, 13.51)
SE Northern	0.92 (0.58, 1.44)	11.77 (7.95, 17.41)	12.85 (9.64, 17.12)
SE Central (d)	**2.05 (1.17, 3.58)**	**20.74 (12.17, 35.34)**	**10.14 (7.96, 12.90)**
SE Western (d)	**1.88 (1.12, 3.18)**	**16.14 (11.22, 23.23)**	**8.56 (5.67, 12.93)**
SE Southern (s)	s	s	16.27 (10.91, 24.28)
Central	1.50 (0.96, 2.35)	12.94 (8.82, 18.99)	8.62 (6.47, 11.47)
Assiniboine	1.43 (0.73, 2.79)	23.70 (13.90, 40.39)	16.59 (10.67, 25.81)
Brandon	1.28 (0.67, 2.43)	22.47 (13.36, 37.76)	17.54 (11.58, 26.56)
Interlake	2.01 (0.89, 4.53)	24.62 (13.96, 43.42)	12.23 (6.67, 22.41)
North Eastman	0.60 (0.29, 1.23)	13.31 (7.01, 25.28)	22.13 (15.33, 31.95)
Parkland	0.60 (0.31, 1.15)	15.52 (8.60, 28.00)	25.84 (18.79, 35.52)
Nor-Man	1.32 (0.44, 3.94)	33.60 (14.84, 76.07)	25.53 (12.02, 54.21)
Burntwood (s)	s	s	37.72 (24.51, 58.03)
Winnipeg (d)	**0.76 (0.60, 0.96)**	**13.31 (10.45, 16.97)**	**17.53 (14.71, 20.89)**
Fort Garry (s)	s	s	8.10 (4.63, 14.20)
Assiniboine South (s)	s	s	s
St. Boniface (f,d)	**0.53 (0.35, 0.81)**	**7.81 (5.25, 11.64)**	**14.71 (11.72, 18.45)**
St. Boniface East	0.61 (0.33, 1.09)	7.56 (4.38, 13.06)	12.49 (9.41, 16.58)
St. Boniface West (d)	**0.45 (0.25, 0.80)**	**8.14 (4.80, 13.83)**	**18.12 (13.50, 24.32)**
St. Vital	0.82 (0.51, 1.32)	10.94 (7.20, 16.62)	13.27 (10.06, 17.50)
St. Vital South	0.85 (0.40, 1.82)	8.32 (4.39, 15.77)	9.78 (6.26, 15.30)
St. Vital North	0.86 (0.48, 1.54)	13.74 (8.20, 23.01)	16.01 (11.64, 22.04)
Transcona (s)	s	s	24.77 (15.45, 39.70)
River Heights (s)	s	s	20.15 (14.81, 27.40)
River East	0.86 (0.47, 1.55)	18.01 (10.22, 31.77)	21.05 (16.43, 26.95)
Seven Oaks (s)	s	s	s
St. James Assiniboia	1.12 (0.42, 2.98)	17.49 (8.19, 37.34)	15.55 (8.24, 29.37)
Inkster (f)	1.12 (0.54, 2.33)	**43.17 (23.32, 79.91)**	38.52 (24.93, 59.50)
Downtown (f)	1.11 (0.69, 1.78)	**28.48 (18.76, 43.23)**	25.73 (19.44, 34.05)
Point Douglas (f)	1.22 (0.65, 2.27)	**35.85 (21.36, 60.16)**	29.47 (20.00, 43.42)
South West RHAs (d)	**1.51 (1.08, 2.11)**	**16.60 (12.37, 22.26)**	**10.98 (8.73, 13.80)**
Mid RHAs	0.79 (0.52, 1.20)	17.04 (11.67, 24.87)	21.46 (16.57, 27.78)
North RHAs (f)	1.00 (0.49, 2.02)	**33.82 (18.23, 62.72)**	33.89 (22.95, 50.05)
Manitoba	0.98 (0.82, 1.16)	14.68 (12.35, 17.45)	15.04 (14.14, 15.93)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.9: Mothers Who Reported Having Depression/Anxiety, 2003/04–2007/08
Maternal age–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**1.50 (1.14, 1.96)**	**14.50 (11.30, 18.60)**	**9.69 (8.20, 11.45)**
SE Northern	1.33 (0.83, 2.11)	12.53 (8.66, 18.15)	9.46 (7.01, 12.77)
SE Central (d)	**1.81 (1.02, 3.22)**	**19.77 (11.44, 34.19)**	**10.93 (8.93, 13.37)**
SE Western (d)	**1.81 (1.04, 3.15)**	**13.75 (9.43, 20.04)**	**7.60 (5.01, 11.52)**
SE Southern (d)	**3.45 (1.32, 9.05)**	**27.63 (12.38, 61.67)**	**8.00 (4.65, 13.76)**
Central	1.22 (0.85, 1.75)	17.45 (12.66, 24.05)	14.29 (11.66, 17.52)
Assiniboine	1.67 (0.82, 3.38)	20.37 (11.93, 34.76)	12.21 (7.55, 19.75)
Brandon	0.67 (0.30, 1.49)	11.20 (5.56, 22.59)	16.81 (11.10, 25.44)
Interlake	1.44 (0.57, 3.66)	15.85 (7.86, 31.95)	10.98 (5.88, 20.48)
North Eastman	0.95 (0.47, 1.90)	16.80 (9.45, 29.88)	17.69 (11.78, 26.56)
Parkland	1.85 (0.80, 4.29)	14.77 (7.87, 27.70)	7.96 (4.50, 14.09)
Nor-Man (s)	s	s	s
Burntwood (s)	s	s	s
Winnipeg	0.99 (0.83, 1.19)	14.12 (11.71, 17.02)	14.27 (12.67, 16.07)
Fort Garry	0.88 (0.46, 1.71)	13.06 (7.50, 22.73)	14.79 (10.14, 21.56)
Assiniboine South (s)	s	s	s
St. Boniface	0.90 (0.65, 1.25)	12.96 (9.68, 17.35)	14.37 (11.89, 17.37)
St. Boniface East	0.73 (0.45, 1.17)	10.41 (6.75, 16.05)	14.28 (11.46, 17.79)
St. Boniface West	1.08 (0.69, 1.69)	15.75 (11.00, 22.55)	14.54 (10.94, 19.33)
St. Vital	0.99 (0.67, 1.46)	14.11 (10.05, 19.82)	14.22 (11.35, 17.81)
St. Vital South	0.91 (0.49, 1.70)	10.57 (6.23, 17.93)	11.62 (8.23, 16.40)
St. Vital North	1.07 (0.66, 1.74)	17.94 (11.86, 27.14)	16.75 (12.79, 21.93)
Transcona (s)	s	s	17.36 (10.41, 28.94)
River Heights	0.84 (0.38, 1.85)	15.57 (7.37, 32.90)	18.59 (13.84, 24.95)
River East	1.35 (0.75, 2.42)	19.44 (11.39, 33.17)	14.43 (10.97, 18.97)
Seven Oaks (s)	s	28.79 (12.84, 64.53)	s
St. James Assiniboia	0.92 (0.34, 2.48)	13.11 (5.85, 29.39)	14.31 (7.89, 25.96)
Inkster (s)	s	s	10.47 (4.69, 23.38)
Downtown	0.87 (0.46, 1.65)	12.77 (7.34, 22.23)	14.73 (10.40, 20.88)
Point Douglas	1.16 (0.44, 3.06)	15.60 (6.96, 34.97)	13.43 (7.76, 23.23)
South West RHAs	1.18 (0.89, 1.56)	16.89 (13.10, 21.79)	14.36 (12.26, 16.83)
Mid RHAs	1.30 (0.82, 2.06)	15.82 (10.89, 22.99)	12.19 (9.05, 16.41)
North RHAs	2.82 (0.91, 8.74)	19.52 (8.71, 43.75)	6.92 (3.10, 15.45)
Manitoba (d)	**1.17 (1.03, 1.32)**	**14.87 (13.09, 16.89)**	**12.76 (11.92, 13.59)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.10: Maternal Relationship Distress, 2003/04–2007/08

Maternal age–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.53 (0.77, 3.02)	3.79 (2.36, 6.07)	2.27 (1.63, 3.17)
Winnipeg	0.92 (0.65, 1.31)	3.92 (2.74, 5.61)	4.24 (3.39, 5.32)
St. Boniface	1.00 (0.52, 1.93)	3.46 (1.94, 6.18)	3.49 (2.34, 5.18)
St. Vital (s)	s	s	3.06 (1.62, 5.76)
Winnipeg Other	1.17 (0.74, 1.83)	5.30 (3.44, 8.16)	4.55 (3.46, 5.98)
South West RHAs (d)	**1.94 (1.10, 3.42)**	**5.55 (3.46, 8.89)**	**2.85 (1.92, 4.23)**
Mid+ North RHAs	1.35 (0.70, 2.63)	5.79 (3.31, 10.13)	4.27 (2.78, 6.58)
Manitoba	1.27 (1.00, 1.61)	4.35 (3.43, 5.53)	3.44 (2.98, 3.89)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 8.9.11: Mothers Who did not Completed High School, 2003/04–2007/08

Maternal age–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**0.42 (0.25, 0.72)**	**7.21 (4.38, 11.86)**	**18.20 (12.69, 26.09)**
SE Northern (d)	**0.42 (0.21, 0.85)**	**7.02 (3.62, 13.60)**	**16.60 (10.13, 27.20)**
SE Central (s)	s	s	17.75 (11.30, 27.86)
SE Western (d)	**0.45 (0.22, 0.93)**	**7.40 (3.82, 14.34)**	**16.40 (9.78, 27.48)**
SE Southern	0.00	0.00	31.86 (18.66, 54.39)
Brandon (s)	s	s	14.94 (8.58, 26.01)
Winnipeg	0.80 (0.53, 1.21)	8.44 (5.52, 12.90)	10.55 (7.33, 15.17)
St. Boniface	0.88 (0.51, 1.53)	7.35 (4.29, 12.57)	7.96 (5.11, 12.39)
St. Boniface East	0.97 (0.44, 2.14)	6.33 (3.08, 13.02)	6.51 (3.78, 11.22)
St. Boniface West	0.77 (0.38, 1.57)	8.56 (4.47, 16.41)	11.16 (6.58, 18.94)
St. Vital (d)	**0.28 (0.09, 0.90)**	**1.96 (0.62, 6.23)**	**7.27 (4.39, 12.05)**
St. Vital South (s)	s	s	5.03 (2.38, 10.66)
St. Vital North (s)	s	s	10.11 (5.78, 17.69)
Winnipeg Other	0.92 (0.56, 1.53)	12.31 (7.42, 20.40)	13.32 (8.63, 20.55)
South West RHAs (d)	**0.30 (0.17, 0.52)**	**9.72 (5.56, 16.99)**	**32.42 (21.09, 49.85)**
Mid RHAs	0.65 (0.36, 1.17)	11.20 (6.41, 19.59)	17.30 (11.25, 26.60)
North RHAs	0.80 (0.29, 2.15)	15.95 (6.50, 39.14)	20.06 (11.32, 35.55)
Manitoba (d)	**0.50 (0.34, 0.73)**	**8.40 (5.76, 12.25)**	**16.81 (15.88, 17.75)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Chapter 9: Use of Physician Services

Indicators in this chapter:

- 9.1 Use of Physicians (At Least One Visit over the Past Year)
- 9.2 Ambulatory Physician Visit (Number of Visits) and Causes of Visits
- 9.3 Ambulatory Consultation
- 9.4 Continuity of Care
- 9.5 Use of Physicians with Capacity to Offer Services in French
- 9.6 Comparison of Rates between Samples
- 9.7 Findings from Literature Review
- 9.8 Supplementary Tables

Overall Key Findings

- The Francophone Cohort was more likely to see a physician at least once in a year.
- However, no differences were found in the rate of physician visits between the Francophone Cohort and the Matched Cohort of Other Manitobans.
- While there were some small differences in the reason for physician visits, the rank ordering was identical for the Francophone Cohort and Matched Cohort of Other Manitobans.
- The crude number of visits to a physician by age and sex followed a very similar pattern for both the Francophone Cohort and Matched Cohort of Other Manitobans.
- When looking only at the Francophone Cohort and comparing the area measure to the provincial average, there is substantial variability, both higher and lower, for most indicators. Continuity of care is lower in three regions, and rate of physician visits is lower in two.
- There was substantial variability among areas of the province in the rate of visits of Francophones to physicians who spoke French or who provided translation services.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 9.0: Summary of Use of Physician Services Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Use of Physicians, 2008/09		
Manitoba (d)	↑	
South Eastman (d)	↑	
SE Western (f)		↓
Central (d)	↑	
Assiniboine (f)		↓
Directly Standardized (d)	↑	
Ambulatory Visits, 2008/09		
Manitoba		
South Eastman		
SE Northern (d)	↑	
SE Central (f)		↓
SE Western (f,d)	↓	↓
SE Southern (f,d)	↓	↓
Assiniboine (f,d)	↓	↓
Brandon (f)		↑
North Eastman (d)	↓	
Parkland (d)	↓	
Nor-Man (f)		↓
Winnipeg		
Assiniboine South (d)	↓	
St. Vital		
St. Vital North (f)		↑
St. James Assiniboia (f)		↑
Inkster (f,d)	↑	↑
Downtown (f)		↑
Point Douglas (f)		↑
Mid RHAs (d)	↓	
North RHAs (f)		↑
Directly Standardized (d)	↓	
Ambulatory Consultation, 2008/09		
Manitoba		
South Eastman		
SE Northern (f)		↓
Central (f)		↓
Assiniboine (f)		↓
Interlake (d)	↑	
Nor-Man (f)		↓
Winnipeg (f)		↑
St. Boniface		
St. Boniface East (f)		↑
Downtown (d)	↑	
South West RHAs (f)		↓
Continuity of Care, 2007/08-2008/09		
Manitoba		
Assiniboine (f)		↓
Brandon (f)		↓
Burntwood (f)		↓

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
French Services, 2008/09		
Manitoba		
South Eastman (f)		↑
SE Northern (f)		↑
SE Western (f)		↓
Central (f)		↑
Assiniboine (f)		↓
Brandon (f)		↓
Interlake (f)		↓
North Eastman (f)		↓
Parkland (f)		↓
Nor-Man (f)		↓
Burntwood (f)		↓
Winnipeg (f)		↓
Fort Garry (f)		↓
St. Boniface		
St. Boniface East (f)		↓
St. Boniface West (f)		↑
St. Vital (f)		↓
St. Vital South (f)		↓
St. Vital North (f)		↓
Transcona (f)		↓
River Heights (f)		↓
River East (f)		↓
Seven Oaks (f)		↓
St. James Assiniboia (f)		↓
Inkster (f)		↓
Downtown (f)		↓
Point Douglas (f)		↓
South West RHAs (f)		↑
Mid RHAs (f)		↓
North RHAs (f)		↓

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)
↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)
If no arrow appears, there is no difference between the two comparison groups.

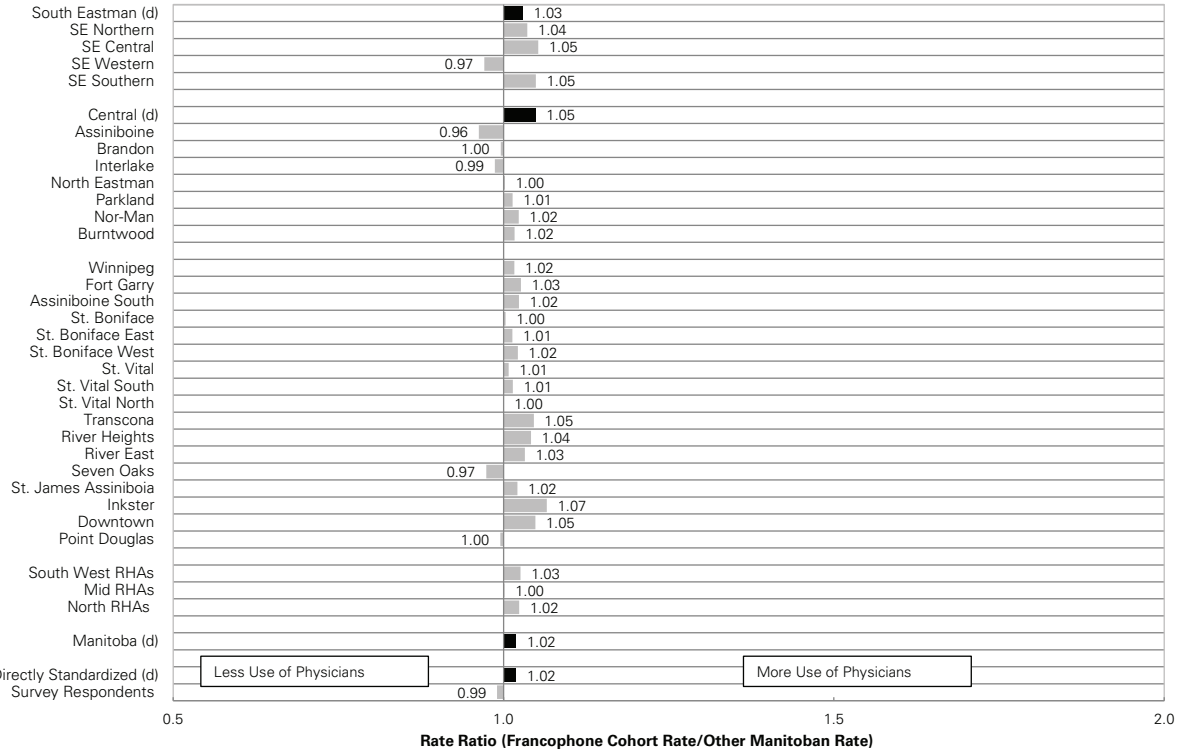
Source: Manitoba Centre for Health Policy, 2012

9.1 Use of Physicians (At Least One Visit over the Past Year)

The use of physicians is the proportion of area residents who received at least one ambulatory visit in a **fiscal year**. **Ambulatory visits** include virtually all contacts with physicians, except during inpatient hospitalizations. Values were calculated for 2008/09 and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 9.1.1: Use of Physicians—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, residents with at least one ambulatory visit, all ages



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

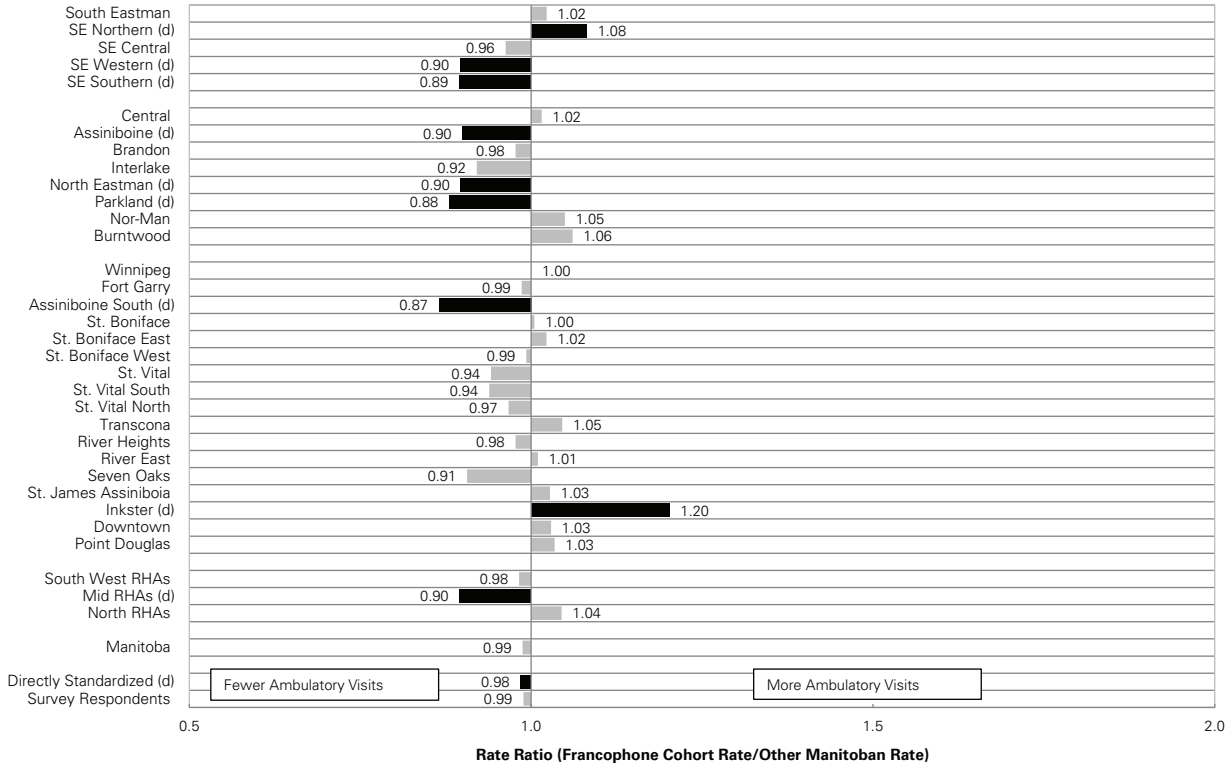
- Overall, physician use in Manitoba is slightly higher among the Francophone Cohort compared to Matched Cohort (Rate Ratio: 1.02).
- Physician use is slightly higher for the Francophone Cohort in South Eastman (Rate Ratio: 1.03) and Central RHAs (1.05) compared to the Matched Cohort. All other areas show similar physician visit rate ratios among Francophones and Other Manitobans.
- The rates of hospitalization for physician use of Francophones in most areas was similar to the provincial rate for Francophones except for those in the Assiniboine RHA where the rates were lower than the Francophone provincial rate (Table 9.8.1).

9.2 Ambulatory Physician Visits (Number of Visits) and Causes of Visits

Ambulatory physician visits includes almost all contacts with physicians (GP/FPs and **specialists**): office visits, walk–in clinics, home visits, personal care home (nursing home) visits, visits to outpatient departments, and some emergency room visits (where data are recorded). Excluded are services provided to patients while admitted to hospital and visits for **prenatal care**. Note: 'pregnancy and birth' are included in the Ambulatory Visits by Cause pie charts. The rate of ambulatory visits is the average number of visits to physicians per resident per year. The age– and sex–adjusted ambulatory visit rate per resident was measured for 2008/09.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 9.2.1: Ambulatory Visits—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, all ages



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

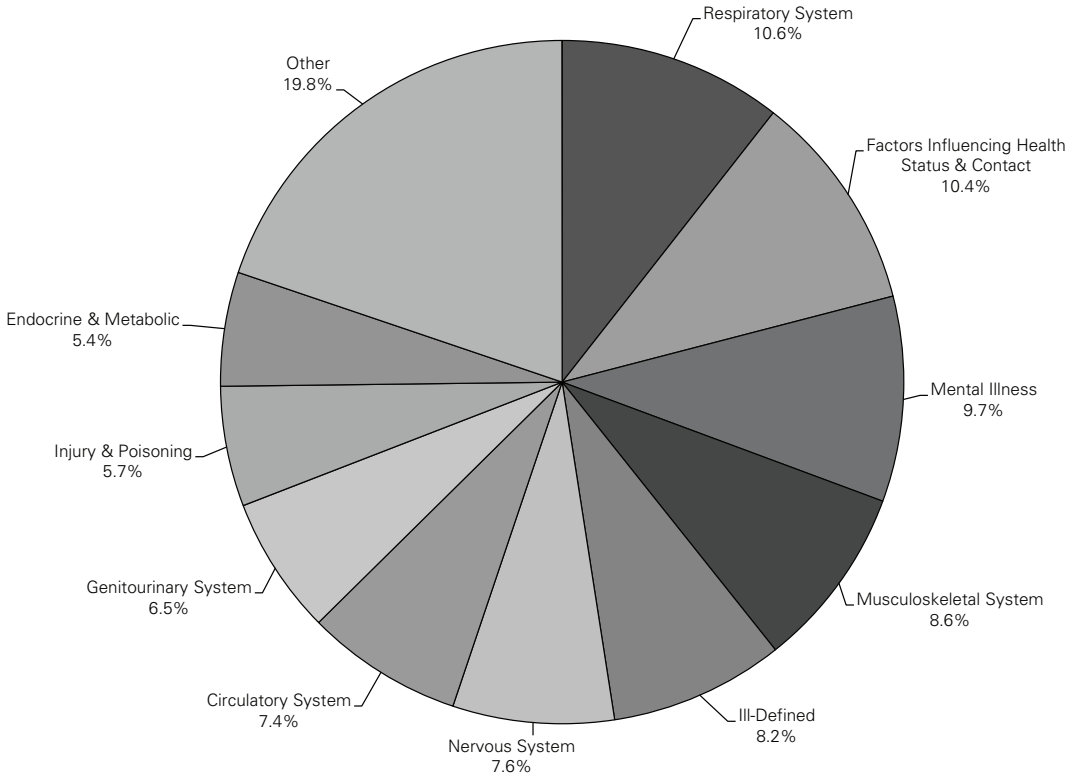
- While at a provincial level no differences were found in the rate of ambulatory visits between the Francophone Cohort and the Matched Cohort of Other Manitobans, some differences were noted at a regional level.[13]

13 Note that the rate ratio of the matched cohort sample, when directly standardized to permit a comparison with the survey sample, was statistically significant. This may be due to differences in the two methods used to adjust for age and sex.

- The Francophone Cohort had lower rates of ambulatory visits compared to the Matched Cohort in the Western district (Rate Ratio: 0.90) and Southern district (Rate Ratio: 0.89) of South Eastman, Assiniboine (Rate Ratio: 0.90), North Eastman, (Rate Ratio: 0.90), Parkland, (Rate Ratio: 0.88) and Assiniboine South, (Rate Ratio: 0.87). Conversely in the Northern district of South Eastman, Francophones have a higher rate of ambulatory visits (Rate Ratio 1.08).
- The rates of ambulatory visits for Francophones in most areas was similar to the Francophone provincial rate except for those in three districts of South Eastman (Central, Western, and Southern), NOR–MAN, and the North RHAs where the rates were lower than the Francophone provincial rate and in Brandon, St. Vital North, Inkster, Downtown and Point Douglas, where the rate were higher (Table 9.8.2).

The pie charts and line graph showing the reason for ambulatory visits are based on the **crude rates**, not adjusted for age and sex, and were calculated for 2008/09. These also include visits for pregnancy as one of the reasons for a visit.

Figure 9.2.2: Physician Visits by Cause for the Francophone Cohort, 2008/09

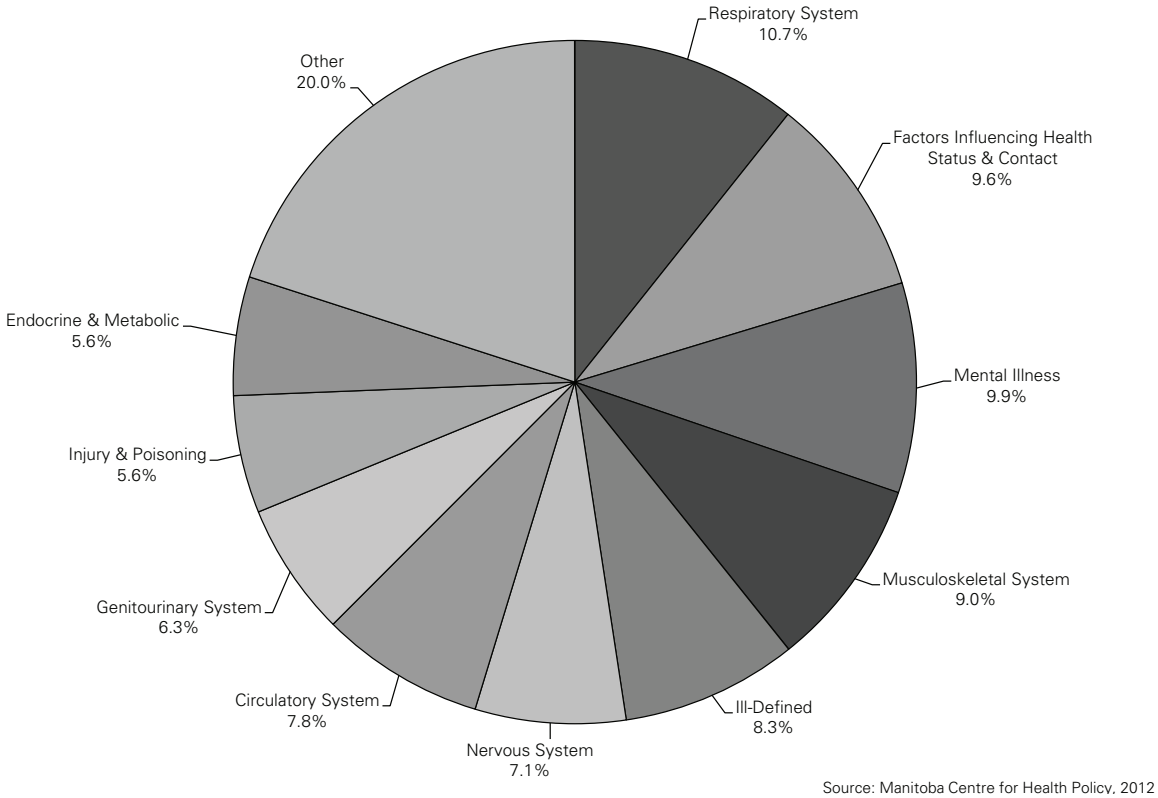


Source: Manitoba Centre for Health Policy, 2012

Key findings

- The causes of injury between the Francophone Cohort and the Matched Cohort of Other Manitobans appear to be similar, although no statistical testing was conducted.
- The most common reason for ambulatory visits in both cohorts includes respiratory problems; health status (screening, check–ups); and mental health problems.
- The rates of Ambulatory visits by age and sex for both the Francophone Cohort and Matched Cohort of Other Manitobans are very similar; however no formal statistical analysis has been undertaken to compare these groups.

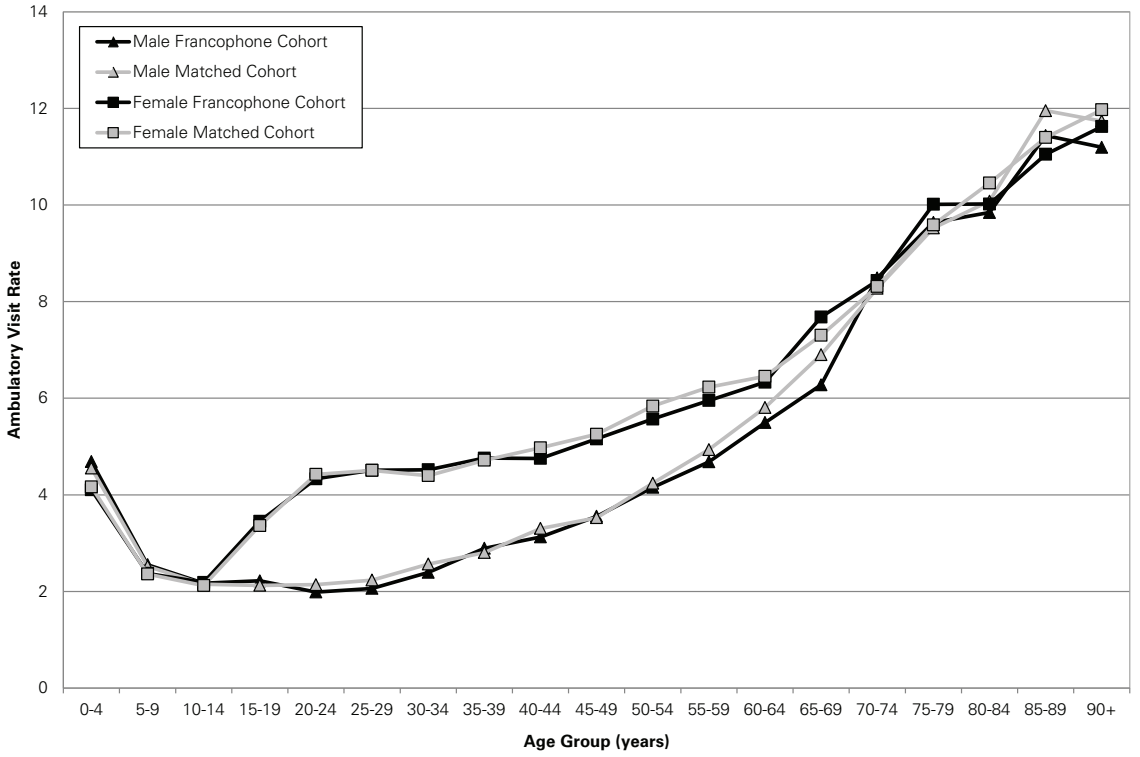
Figure 9.2.3: Physician Visits by Cause for the Matched Cohort, 2008/09



Source: Manitoba Centre for Health Policy, 2012

Figure 9.2.4: Ambulatory Visit Rates by Ages and Sex, 2008/09

Crude number of visits to all physicians



Source: Manitoba Centre for Health Policy, 2012

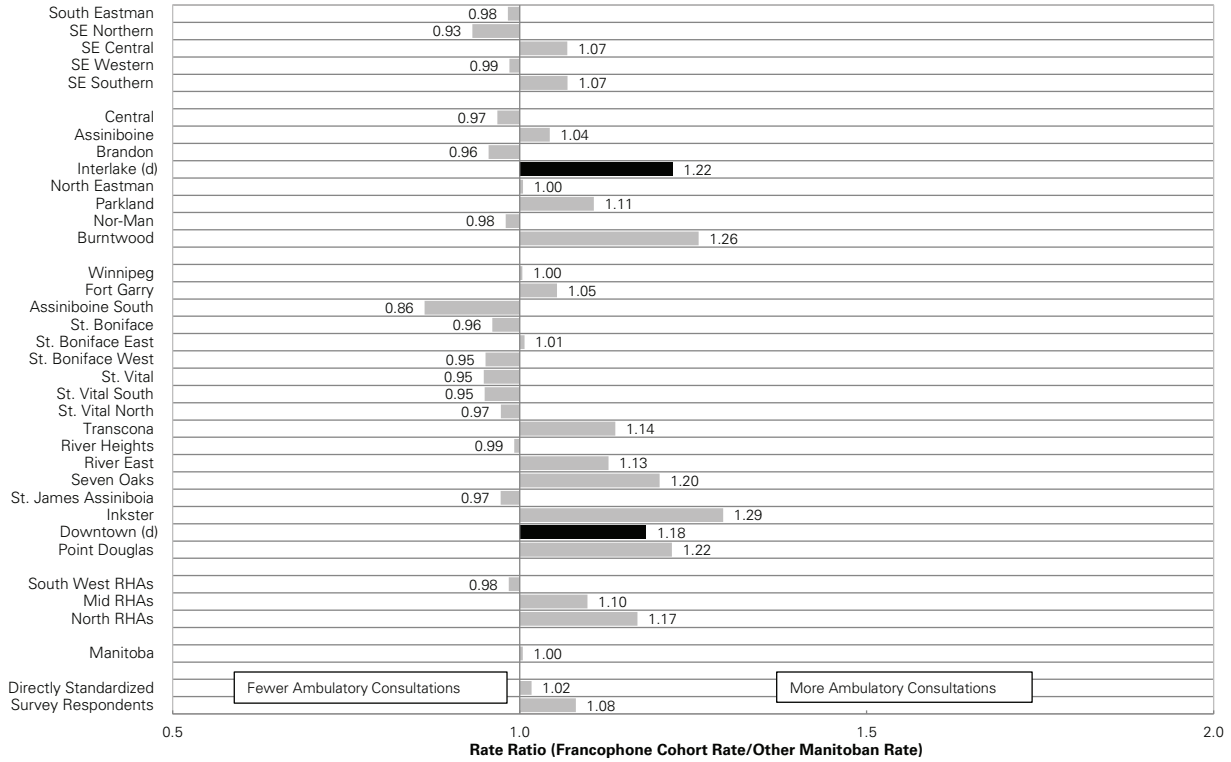
9.3 Ambulatory Consult

Consultations are a subset of ambulatory visits—they occur when one physician refers a patient to another physician (usually a specialist or surgeon) because of the complexity, obscurity, or seriousness of the condition or when the patient requests a second opinion. A consultation can be with either a **general practitioner (GP)/family physician (FP)** or a specialist, after which the patient usually returns to their GP/FP for ongoing management.

The rate of consultations is a measure of 'initial' access to specialist care. People in urban areas often have much higher overall rates of specialist care, since they may continue to see the specialist rather than being referred back to their GP/FP. That is why the consultation rate, rather than the overall specialist visit rate, is used as an indicator of access to specialist care. The age– and sex–adjusted **ambulatory consultation** rate per resident was measured for 2008/09.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 9.3.1: Ambulatory Consultation—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, all ages



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no statistically significant differences were found in the ambulatory consult rate between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.00) nor were any differences found in the survey respondents (Rate Ratio: 1.08).
- At a regional level, Francophone Cohort consultation rate ratios were significantly higher than the Matched Cohort Rates in the Interlake (Rate Ratio: 1.22) and Downtown (Rate Ratio: 1.18).
- The ambulatory consult rates of Francophones in many areas were similar to the provincial Francophone rate except for those in South Eastman (Northern District), Central, Assiniboine, NOR–MAN, and the South West RHAs where the rates were lower than the Francophone provincial rate. Conversely, in the urban areas of Winnipeg, St. Boniface East, and Downtown, the rates were higher (Table 9.8.3).

9.4 Continuity of Care

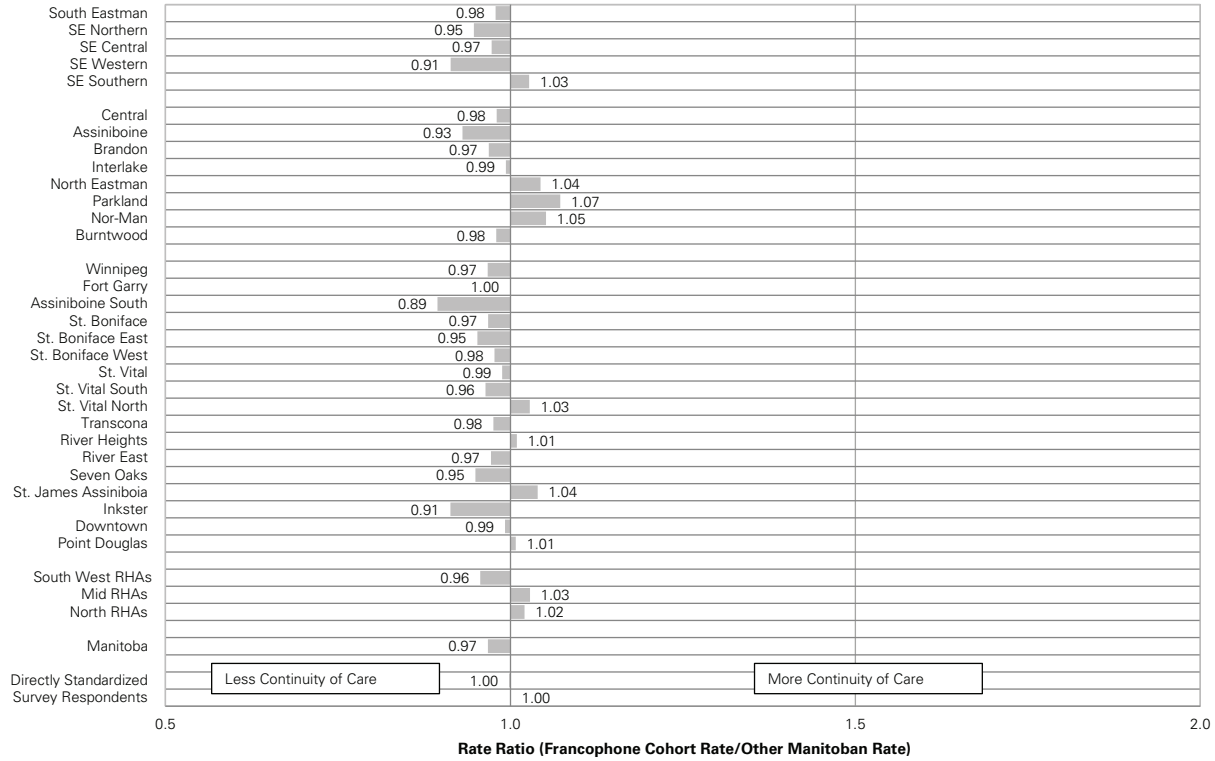
Continuity of care is the extent to which an individual sees a particular physician over a specified period of time. Individuals seeing the same **primary care physician** over time may have improved health outcomes as a result of having one person managing their healthcare. While other healthcare practitioners may provide primary healthcare, the data in the Repository include only contacts with physicians.

In this report, the prevalence of continuity of care is the age– and sex–adjusted percentage of residents receiving at least 50% of their ambulatory visits from the same physician for 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 GP/FPs could be the physician; and for seniors aged 60 and older, the physician could be either a GP/FP or an internal medicine specialist. Residents with less than three ambulatory visits over the two–year period are excluded from analyses.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 9.4.1: Continuity of Care—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2007/08–2008/09

Age– & sex–adjusted, percent of residents with at least 50% of visits to the same physician



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial and regional level, no significant differences were found in the continuity of care rate between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.97) nor were any differences found in the survey respondents (Rate Ratio: 1.00).
- The continuity of care rates of Francophones in many areas was similar to the provincial Francophone rate except for those in Assiniboine, Brandon, and Burntwood RHAs where the rates were lower than the Francophone provincial rate (Table 9.8.4).
- A sub–analysis was performed amongst Francophones which demonstrated a small but statistically significant difference in continuity of care among those with a physician offering services in French. Those receiving care by a physician with the capabilities of offering services in French had higher rates of continuity of care (71.8% versus 67.4%).

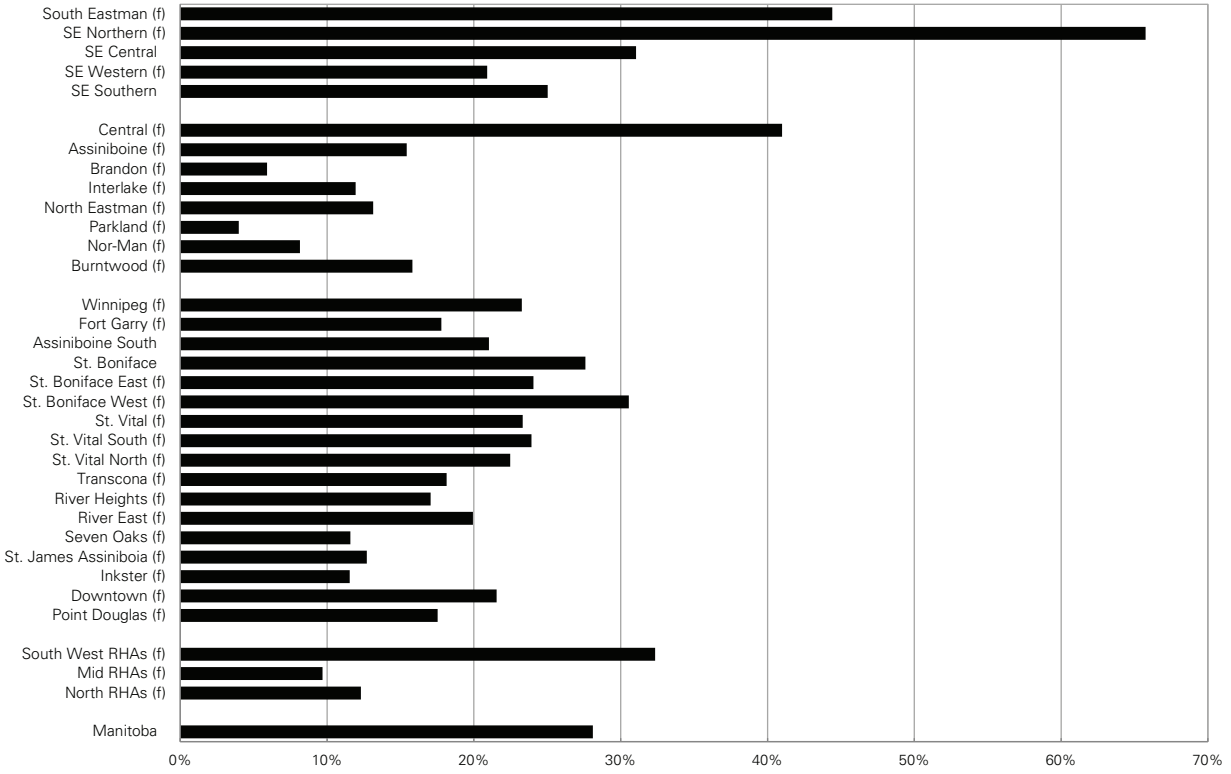
9.5 Use of Physicians with Capacity to Offer Services in French

Using the publicly available data from the **College of Physicians and Surgeons of Manitoba**, physicians who self–reported the capacity to offer services in French were identified (spoke any level of French or offered translation services). We acknowledge that this is a broad definition of capacity to offer services in French and will include physicians who may not be comfortable speaking in French.

We looked at the age–and–sex adjusted proportion of the Francophone Cohort who had one or more visit to a physician with the capacity to offer services in French in 2008/09. This was limited to those who had one or more physician visit in 2008/09.

The rate ratios were calculated by dividing the Francophone Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 9.5.1: Proportion of Francophone Cohort with One or More Visits to a Physician With the Capacity to Offer Services in French, 2008/09
Age–&sex–adjusted rates per person–year for all ages.; limited to those who had one or more physician visit



'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Key findings

- There is variability across areas in the proportion of Francophones seeing a physician who has the capacity to offer services in French. At a provincial level, 28% of Francophones saw a physician who had the capacity to offers services in French. However, in some areas, such as South Eastman 44.4% (95% CI 42.6–46.3) and Central 41.0% (38.7–43.4), a much larger proportion of the cohort saw a physician who had the capacity to offers services in French.

9.6 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large D is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

Table 9.6.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Use of Physicians	2008/09	82.39%	80.83%	1.02 (d)	84.54%	84.66%	1.00
Ambulatory Physician Visit Rates, rate per person	2008/09	4.21	4.26	0.98 (d)	5.13	5.19	0.99
Ambulatory Consultation Rates	2008/09	26.41%	26.29%	1.02	37.47%	34.90%	1.07
Continuity of Care	2007/08-2008/09	67.88%	70.18%	1.00	74.14%	74.48%	1.00
Proportion of Cohort with one or more visits to Physician offering services in French	2008/09	28.69%	n/a	n/a	28.17%	n/a	n/a

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio
* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

9.7 Findings from the Literature

(Comparisons to the results in this study are in italics)

- A report by the Institute for Clinical Evaluative Sciences on the health status of the residents of Ontario demonstrated no difference between Francophones and the general population in the rate of physician visits. This report also found a lower rate of dentist visits among Francophones when compared to Anglophones (66% versus 72% respectively). Francophones in Ontario were found to have higher usage of emergency services than Anglophones at 27.4% versus 23.3% (2010).
- *In this study, Francophones are accessing physician services at a higher rate than the general population, however the difference appears to be small (Rate ratio 1.02). No figures were available for dental or emergency services and, therefore, comparison is not possible.*

Access to French Language Health Services

- A report prepared by Fédération des communautés francophones et acadiennes (FCFA) du Canada on improving access to French language services found that 50% of minority Francophones in Canada never or seldom had access to French language health services. When access to French and English services were compared, it was found that French services were three (community services) to seven (hospitals, medical clinics, homecare) times more difficult to access. On a positive note, Manitoba was tied for second place with Ontario and behind New Brunswick in the development phase of French language service provision (2001).
- Corbeil, Grenier, and Lafrenière found that 14% of Manitoba Francophones communicated with their family doctor in French (2006).
- Lussier found significant difficulties in accessing French language services among Manitobans; 85% reported having to use English with their family doctors (Conseil communauté en santé du Manitoba, 2008).

- A Statistics Canada report on Healthcare Professionals and Official–Language Minorities in Canada found that 2.6% of physicians in Manitoba were French–speaking versus the 3.8% of the total Manitoba population who were French–speaking. This difference did not achieve statistical significance. Fifteen percent of physicians in Manitoba reported the ability to conduct a conversation in French (2009).
- de Moissac, Delaquis, and Rioux conducted a survey of students at Collège universitaire de Saint–Boniface (St. Boniface College) found that 70% of students from a rural background and 48% of those from an urban background had previously received healthcare services in French. 36.5% of students indicated a preference to receive care in French—this tendency was less pronounced among the 32% of respondents with an Anglophone background (2006).
- *In this study, 28% of Manitoba Francophones accessed a physician with the capacity to offer services in French. This study also suggests a positive impact on continuity of care among Francophone patients who had the capacity to offer services in French.*

9.8 Supplementary Tables

Table 9.8.1: Use of Physicians, 2008/09
Age– & sex–adjusted, all ages

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percent/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman (d)	**1.03 (1.00, 1.06)**	**79.64 (77.58, 81.76)**	**77.37 (76.17, 78.59)**
SE Northern	1.04 (0.99, 1.08)	82.76 (79.90, 85.72)	79.88 (77.91, 81.90)
SE Central	1.05 (0.96, 1.16)	79.61 (72.66, 87.23)	75.64 (73.76, 77.57)
SE Western (f)	0.97 (0.93, 1.02)	**76.30 (73.34, 79.37)**	78.57 (76.23, 80.99)
SE Southern	1.05 (0.92, 1.20)	73.61 (64.97, 83.38)	70.17 (66.75, 73.77)
Central (d)	**1.05 (1.01, 1.09)**	**81.58 (78.72, 84.54)**	**77.79 (76.15, 79.47)**
Assiniboine (f)	0.96 (0.89, 1.04)	**75.11 (70.37, 80.18)**	78.01 (75.20, 80.94)
Brandon	1.00 (0.90, 1.10)	84.79 (77.53, 92.72)	85.14 (80.73, 89.78)
Interlake	0.99 (0.91, 1.07)	78.42 (72.77, 84.52)	79.46 (76.10, 82.97)
North Eastman	1.00 (0.93, 1.08)	82.82 (77.51, 88.51)	82.65 (79.53, 85.89)
Parkland	1.01 (0.94, 1.10)	80.68 (75.35, 86.40)	79.59 (76.49, 82.82)
Nor-Man	1.02 (0.86, 1.22)	75.58 (65.11, 87.72)	73.89 (67.52, 80.85)
Burntwood	1.02 (0.88, 1.17)	76.51 (67.52, 86.69)	75.25 (69.89, 81.02)
Winnipeg	1.02 (1.00, 1.03)	83.70 (82.12, 85.31)	82.34 (81.42, 83.27)
Fort Garry	1.03 (0.96, 1.09)	83.89 (79.25, 88.81)	81.73 (79.05, 84.51)
Assiniboine South	1.02 (0.89, 1.17)	84.23 (74.54, 95.19)	82.31 (77.11, 87.86)
St. Boniface	1.00 (0.97, 1.03)	83.20 (81.04, 85.41)	82.93 (81.50, 84.38)
St. Boniface East	1.01 (0.97, 1.06)	85.40 (82.35, 88.57)	84.26 (82.48, 86.09)
St. Boniface West	1.02 (0.98, 1.07)	82.05 (79.27, 84.94)	80.32 (78.17, 82.53)
St. Vital	1.01 (0.97, 1.05)	84.78 (81.89, 87.79)	84.14 (82.44, 85.88)
St. Vital South	1.01 (0.97, 1.07)	86.01 (82.30, 89.89)	84.82 (82.65, 87.04)
St. Vital North	1.00 (0.94, 1.06)	83.11 (78.82, 87.64)	83.11 (80.55, 85.76)
Transcona	1.05 (0.95, 1.16)	85.73 (78.56, 93.55)	81.97 (77.87, 86.29)
River Heights	1.04 (0.96, 1.14)	83.86 (77.31, 90.96)	80.52 (78.01, 83.11)
River East	1.03 (0.96, 1.11)	83.74 (78.46, 89.37)	81.12 (78.85, 83.46)
Seven Oaks	0.97 (0.85, 1.12)	82.04 (72.63, 92.67)	84.24 (78.52, 90.37)
St. James Assiniboia	1.02 (0.92, 1.13)	83.90 (76.77, 91.68)	82.17 (78.25, 86.29)
Inkster	1.07 (0.90, 1.26)	88.42 (76.46, 102.25)	82.97 (76.08, 90.50)
Downtown	1.05 (0.97, 1.13)	82.75 (77.57, 88.27)	78.95 (75.92, 82.09)
Point Douglas	1.00 (0.88, 1.13)	79.63 (71.53, 88.64)	80.01 (75.22, 85.12)
South West RHAs	1.03 (0.99, 1.06)	80.47 (78.05, 82.96)	78.45 (77.05, 79.88)
Mid RHAs	1.00 (0.96, 1.05)	80.78 (77.52, 84.18)	80.65 (78.75, 82.61)
North RHAs	1.02 (0.92, 1.14)	76.43 (69.48, 84.07)	74.66 (70.53, 79.04)
Manitoba (d)	**1.02 (1.01, 1.03)**	**81.92 (80.86, 82.99)**	**80.36 (80.12, 80.59)**
Directly Standardized (d)	**1.02 (1.01, 1.03)**	**82.39 (81.98, 82.81)**	**80.83 (80.58, 81.08)**
Survey Respondents	0.99 (0.95, 1.03)	81.39 (77.90, 84.89)	82.19 (81.36, 83.02)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 9.8.2: Ambulatory Visits, 2008/09
Age– & sex–adjusted, all ages

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.02 (0.94, 1.11)	3.82 (3.52, 4.14)	3.73 (3.45, 4.05)
SE Northern (d)	**1.08 (1.01, 1.16)**	**4.18 (3.91, 4.47)**	**3.87 (3.62, 4.13)**
SE Central (f)	0.96 (0.88, 1.05)	**3.48 (3.20, 3.80)**	3.62 (3.38, 3.87)
SE Western (f,d)	**0.90 (0.84, 0.96)**	**3.45 (3.22, 3.69)**	**3.85 (3.60, 4.11)**
SE Southern (f,d)	**0.89 (0.81, 0.99)**	**3.02 (2.75, 3.31)**	**3.37 (3.14, 3.62)**
Central	1.02 (0.93, 1.10)	3.97 (3.66, 4.31)	3.91 (3.61, 4.24)
Assiniboine (f,d)	**0.90 (0.82, 0.99)**	**3.64 (3.33, 3.97)**	**4.04 (3.72, 4.39)**
Brandon (f)	0.98 (0.88, 1.08)	**5.10 (4.63, 5.61)**	5.21 (4.78, 5.69)
Interlake	0.92 (0.84, 1.01)	4.07 (3.72, 4.46)	4.42 (4.07, 4.81)
North Eastman (d)	**0.90 (0.82, 0.98)**	**4.54 (4.16, 4.95)**	**5.06 (4.66, 5.49)**
Parkland (d)	**0.88 (0.80, 0.97)**	**3.75 (3.43, 4.11)**	**4.26 (3.92, 4.64)**
Nor-Man (f)	1.05 (0.92, 1.20)	**3.49 (3.10, 3.93)**	3.32 (3.00, 3.67)
Burntwood	1.06 (0.94, 1.20)	4.00 (3.59, 4.45)	3.77 (3.43, 4.14)
Winnipeg	1.00 (0.94, 1.06)	4.56 (4.28, 4.85)	4.56 (4.29, 4.85)
Fort Garry	0.99 (0.90, 1.08)	4.51 (4.14, 4.92)	4.57 (4.21, 4.96)
Assiniboine South (d)	**0.87 (0.77, 0.97)**	**4.19 (3.77, 4.66)**	**4.84 (4.43, 5.29)**
St. Boniface	1.00 (0.93, 1.09)	4.47 (4.13, 4.85)	4.45 (4.11, 4.82)
St. Boniface East	1.02 (0.95, 1.10)	4.58 (4.28, 4.91)	4.48 (4.20, 4.79)
St. Boniface West	0.99 (0.93, 1.06)	4.39 (4.11, 4.69)	4.42 (4.14, 4.71)
St. Vital	0.94 (0.87, 1.02)	4.51 (4.16, 4.90)	4.79 (4.42, 5.20)
St. Vital South	0.94 (0.87, 1.01)	4.44 (4.14, 4.76)	4.73 (4.43, 5.06)
St. Vital North (f)	0.97 (0.90, 1.04)	**4.63 (4.32, 4.96)**	4.79 (4.48, 5.11)
Transcona	1.05 (0.94, 1.16)	4.57 (4.15, 5.04)	4.37 (4.00, 4.78)
River Heights	0.98 (0.89, 1.08)	4.73 (4.30, 5.19)	4.83 (4.46, 5.24)
River East	1.01 (0.92, 1.11)	4.55 (4.16, 4.97)	4.50 (4.15, 4.89)
Seven Oaks	0.91 (0.81, 1.02)	4.53 (4.07, 5.04)	5.00 (4.55, 5.49)
St. James Assiniboia (f)	1.03 (0.93, 1.14)	**4.80 (4.36, 5.28)**	4.67 (4.29, 5.08)
Inkster (f,d)	**1.20 (1.05, 1.38)**	**5.71 (5.07, 6.43)**	**4.75 (4.28, 5.26)**
Downtown (f)	1.03 (0.94, 1.13)	**5.13 (4.69, 5.61)**	4.98 (4.58, 5.42)
Point Douglas (f)	1.03 (0.93, 1.16)	**5.27 (4.76, 5.83)**	5.09 (4.65, 5.58)
South West RHAs	0.98 (0.92, 1.05)	3.97 (3.72, 4.25)	4.04 (3.79, 4.31)
Mid RHAs (d)	**0.90 (0.84, 0.96)**	**4.12 (3.85, 4.40)**	**4.60 (4.31, 4.90)**
North RHAs (f)	1.04 (0.96, 1.14)	**3.64 (3.36, 3.95)**	3.48 (3.24, 3.74)
Manitoba	0.99 (0.91, 1.07)	4.21 (3.89, 4.55)	4.26 (4.25, 4.27)
Directly Standardized (d)	**0.98 (0.97, 1.00)**	**4.65 (4.63, 4.68)**	**4.72 (4.71, 4.74)**
Survey Respondents	0.99 (0.92, 1.06)	4.59 (4.29, 4.90)	4.64 (4.55, 4.74)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

*Survey Sample is limited to individuals aged 10+ and excludes people living on First Nations and those living in institutions

Source: Manitoba Centre for Health Policy, 2012

Table 9.8.3: Ambulatory Consultation, 2008/09
Age– & sex–adjusted, all ages

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percentage/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman	0.98 (0.90, 1.07)	24.57 (22.67, 26.63)	24.99 (23.31, 26.79)
SE Northern (f)	0.93 (0.84, 1.03)	**22.54 (20.56, 24.72)**	24.19 (22.40, 26.13)
SE Central	1.07 (0.89, 1.29)	25.99 (21.70, 31.12)	24.32 (22.45, 26.35)
SE Western	0.99 (0.89, 1.09)	26.83 (24.45, 29.43)	27.23 (25.13, 29.51)
SE Southern	1.07 (0.84, 1.36)	24.22 (19.42, 30.22)	22.66 (20.32, 25.27)
Central (f)	0.97 (0.87, 1.07)	**21.52 (19.56, 23.68)**	22.24 (20.61, 23.98)
Assiniboine (f)	1.04 (0.88, 1.24)	**16.88 (14.51, 19.66)**	16.18 (14.60, 17.94)
Brandon	0.96 (0.78, 1.17)	25.44 (21.22, 30.51)	26.64 (23.64, 30.01)
Interlake (d)	**1.22 (1.04, 1.43)**	**29.87 (26.02, 34.28)**	**24.47 (22.10, 27.09)**
North Eastman	1.00 (0.86, 1.17)	24.58 (21.48, 28.13)	24.46 (22.25, 26.89)
Parkland	1.11 (0.95, 1.30)	26.09 (22.72, 29.97)	23.57 (21.34, 26.03)
Nor-Man (f)	0.98 (0.70, 1.37)	**17.72 (13.30, 23.62)**	18.09 (15.09, 21.69)
Burntwood	1.26 (0.97, 1.63)	26.76 (21.44, 33.39)	21.27 (18.21, 24.85)
Winnipeg (f)	1.00 (0.94, 1.07)	**28.90 (27.00, 30.92)**	28.78 (27.09, 30.58)
Fort Garry	1.05 (0.93, 1.20)	29.33 (26.09, 32.98)	27.83 (25.54, 30.32)
Assiniboine South	0.86 (0.67, 1.11)	25.08 (19.92, 31.57)	29.06 (25.60, 32.98)
St. Boniface	0.96 (0.89, 1.04)	27.76 (25.66, 30.03)	28.90 (26.96, 30.99)
St. Boniface East (f)	1.01 (0.91, 1.11)	**29.91 (27.34, 32.72)**	29.70 (27.62, 31.94)
St. Boniface West	0.95 (0.86, 1.05)	26.23 (24.08, 28.58)	27.59 (25.57, 29.76)
St. Vital	0.95 (0.86, 1.04)	28.65 (26.21, 31.32)	30.22 (28.09, 32.51)
St. Vital South	0.95 (0.85, 1.06)	28.70 (25.95, 31.74)	30.23 (27.96, 32.67)
St. Vital North	0.97 (0.86, 1.10)	28.97 (25.99, 32.29)	29.78 (27.47, 32.28)
Transcona	1.14 (0.94, 1.37)	30.99 (26.33, 36.46)	27.23 (24.29, 30.53)
River Heights	0.99 (0.84, 1.17)	28.02 (23.95, 32.78)	28.24 (25.96, 30.72)
River East	1.13 (0.98, 1.30)	30.05 (26.40, 34.20)	26.64 (24.50, 28.96)
Seven Oaks	1.20 (0.95, 1.52)	32.77 (26.79, 40.08)	27.27 (23.67, 31.41)
St. James Assiniboia	0.97 (0.81, 1.17)	30.28 (25.70, 35.66)	31.13 (28.05, 34.55)
Inkster	1.29 (0.96, 1.75)	33.16 (25.73, 42.74)	25.64 (21.49, 30.60)
Downtown (d)	**1.18 (1.02, 1.37)**	**31.23 (27.42, 35.58)**	**26.42 (23.97, 29.12)**
Point Douglas	1.22 (0.98, 1.52)	31.40 (25.94, 38.01)	25.75 (22.53, 29.43)
South West RHAs (f)	0.98 (0.90, 1.08)	**21.08 (19.34, 22.98)**	21.42 (19.98, 22.97)
Mid RHAs	1.10 (0.99, 1.21)	26.57 (24.19, 29.19)	24.21 (22.49, 26.06)
North RHAs	1.17 (0.95, 1.44)	23.28 (19.50, 27.79)	19.90 (17.58, 22.53)
Manitoba	1.00 (0.94, 1.07)	26.41 (24.72, 28.22)	26.29 (25.99, 26.60)
Directly Standardized	1.02 (0.98, 1.05)	30.79 (30.17, 31.42)	30.28 (29.92, 30.64)
Survey Respondents	1.08 (0.91, 1.25)	32.79 (27.66, 37.92)	30.33 (29.14, 31.52)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 9.8.4: Continuity of Care, 2007/08–2008/09
Age– & sex–adjusted, all ages

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percentage/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman	0.98 (0.90, 1.06)	65.01 (60.06, 70.36)	66.43 (61.77, 71.43)
SE Northern	0.95 (0.86, 1.05)	67.00 (60.90, 73.71)	70.74 (64.73, 77.31)
SE Central	0.97 (0.82, 1.15)	56.49 (48.19, 66.23)	58.08 (52.89, 63.77)
SE Western	0.91 (0.82, 1.02)	63.15 (57.11, 69.81)	69.13 (63.12, 75.72)
SE Southern	1.03 (0.83, 1.27)	59.76 (49.05, 72.81)	58.18 (52.14, 64.91)
Central	0.98 (0.90, 1.07)	62.95 (57.75, 68.62)	64.23 (59.56, 69.28)
Assiniboine (f)	0.93 (0.82, 1.05)	**56.59 (50.42, 63.53)**	60.81 (55.82, 66.24)
Brandon (f)	0.97 (0.82, 1.14)	**55.63 (48.14, 64.27)**	57.43 (51.76, 63.73)
Interlake	0.99 (0.87, 1.14)	65.24 (57.78, 73.67)	65.68 (59.96, 71.94)
North Eastman	1.04 (0.92, 1.18)	64.33 (57.57, 71.88)	61.63 (56.52, 67.21)
Parkland	1.07 (0.94, 1.23)	58.80 (52.14, 66.31)	54.84 (50.04, 60.09)
Nor-Man	1.05 (0.84, 1.32)	67.35 (55.31, 82.02)	64.04 (55.78, 73.52)
Burntwood (f)	0.98 (0.77, 1.25)	**44.91 (36.32, 55.52)**	45.84 (39.91, 52.66)
Winnipeg	0.97 (0.87, 1.07)	70.80 (63.65, 78.74)	73.20 (66.09, 81.07)
Fort Garry	1.00 (0.89, 1.12)	69.89 (63.04, 77.49)	69.91 (64.42, 75.87)
Assiniboine South	0.89 (0.74, 1.09)	64.58 (54.06, 77.13)	72.21 (64.94, 80.28)
St. Boniface	0.97 (0.89, 1.05)	67.51 (62.44, 72.98)	69.75 (64.86, 75.01)
St. Boniface East	0.95 (0.86, 1.06)	65.50 (59.36, 72.27)	68.79 (63.01, 75.12)
St. Boniface West	0.98 (0.89, 1.08)	68.95 (62.83, 75.68)	70.58 (64.64, 77.07)
St. Vital	0.99 (0.91, 1.08)	69.31 (63.71, 75.41)	70.14 (65.09, 75.58)
St. Vital South	0.96 (0.86, 1.08)	67.32 (60.70, 74.67)	69.84 (63.78, 76.46)
St. Vital North	1.03 (0.92, 1.15)	71.96 (64.70, 80.05)	69.99 (63.90, 76.66)
Transcona	0.98 (0.84, 1.13)	76.36 (67.04, 86.98)	78.30 (71.07, 86.26)
River Heights	1.01 (0.88, 1.16)	69.34 (60.88, 78.97)	68.70 (63.34, 74.51)
River East	0.97 (0.86, 1.10)	70.15 (62.65, 78.56)	72.18 (66.62, 78.21)
Seven Oaks	0.95 (0.78, 1.15)	72.12 (60.82, 85.53)	75.97 (67.79, 85.12)
St. James Assiniboia	1.04 (0.90, 1.21)	72.76 (63.61, 83.23)	69.99 (63.70, 76.90)
Inkster	0.91 (0.72, 1.15)	65.48 (53.38, 80.33)	71.72 (62.67, 82.08)
Downtown	0.99 (0.87, 1.13)	66.13 (58.93, 74.22)	66.66 (60.96, 72.90)
Point Douglas	1.01 (0.84, 1.21)	67.61 (57.65, 79.29)	67.08 (60.02, 74.97)
South West RHAs	0.96 (0.87, 1.05)	61.21 (55.79, 67.16)	64.02 (58.82, 69.67)
Mid RHAs	1.03 (0.91, 1.16)	63.23 (56.11, 71.26)	61.48 (55.14, 68.56)
North RHAs	1.02 (0.84, 1.24)	55.28 (46.45, 65.78)	54.16 (47.26, 62.08)
Manitoba	0.97 (0.90, 1.04)	67.88 (63.26, 72.84)	70.18 (69.85, 70.51)
Directly Standardized	1.00 (0.99, 1.01)	69.65 (69.04, 70.25)	69.76 (69.41, 70.12)
Survey Respondents	1.00 (0.93, 1.07)	71.70 (66.75, 76.65)	71.64 (70.47, 72.80)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 9.8.5: Proportion of Francophone Cohort with One or More Visits to a Physician With the Capacity to Offer Services in French, 2008/09

Age– & sex–adjusted rates per person–year for all ages; limited to those who had one or more physician visit

Region	Francophone Cohort Adjusted Rate (95% CI)
South Eastman (f)	**44.41 (42.59, 46.31)**
SE Northern (f)	**65.75 (62.75, 68.89)**
SE Central	31.05 (26.24, 36.74)
SE Western (f)	**20.90 (19.17, 22.79)**
SE Southern	25.02 (19.60, 31.94)
Central (f)	**40.99 (38.70, 43.41)**
Assiniboine (f)	**15.42 (13.08, 18.19)**
Brandon (f)	**5.91 (4.08, 8.56)**
Interlake (f)	**11.95 (9.64, 14.81)**
North Eastman (f)	**13.14 (10.97, 15.73)**
Parkland (f)	**3.98 (2.83, 5.60)**
Nor-Man (f)	**8.15 (4.91, 13.52)**
Burntwood (f)	**15.81 (11.49, 21.74)**
Winnipeg (f)	**23.26 (22.38, 24.17)**
Fort Garry (f)	**17.78 (15.54, 20.35)**
Assiniboine South	21.02 (16.09, 27.47)
St. Boniface	27.59 (26.25, 29.00)
St. Boniface East (f)	**24.05 (22.32, 25.92)**
St. Boniface West (f)	**30.56 (28.73, 32.50)**
St. Vital (f)	**23.32 (21.71, 25.05)**
St. Vital South (f)	**23.93 (21.85, 26.20)**
St. Vital North (f)	**22.47 (20.11, 25.10)**
Transcona (f)	**18.13 (14.72, 22.35)**
River Heights (f)	**17.05 (13.97, 20.80)**
River East (f)	**19.93 (17.19, 23.10)**
Seven Oaks (f)	**11.59 (8.10, 16.58)**
St. James Assiniboia (f)	**12.70 (9.90, 16.31)**
Inkster (f)	**11.54 (7.44, 17.89)**
Downtown (f)	**21.55 (18.70, 24.83)**
Point Douglas (f)	**17.53 (13.51, 22.74)**
South West RHAs (f)	**32.35 (30.63, 34.16)**
Mid RHAs (f)	**9.69 (8.52, 11.03)**
North RHAs (f)	**12.30 (9.39, 16.11)**
Manitoba	28.10 (27.59, 28.61)
Directly Standardized	28.69 (28.14, 29.24)
Survey Data	28.17 (22.69, 33.64)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 10: Use of Hospital Services

Indicators in this chapter:

- 10.1 Hospital Separation (Discharge)
- 10.2 Causes of Hospitalization
- 10.3 Hospitalization for Injury
- 10.4 Causes of Injury Hospitalization
- 10.5 Location: Where Residents Went for Separations
- 10.6 Catchment: Where Patients Came from for Separations
- 10.7 Comparison of Rates between Samples
- 10.8 Findings from the Literature
- 10.9 Supplementary Tables

Overall Key Findings

- Overall, there are no differences between all hospitalization rates or **injury hospitalization** rates for the Francophone Cohort when compared to a Matched Cohort of Other Manitobans. Although not statistically tested, it appears that there are similar patterns of causes for hospitalization, **causes of injury hospitalization**, where people are hospitalized, and whether or not people need to go to a different region to be hospitalized for both Cohorts.
- In two regions, the rates of Francophones compared to the Matched Cohort for hospitalizations and injury hospitalizations are different from the provincial average. One region has a higher rate and one has a lower rate.
- There are several regions where the hospitalization/injury hospitalization rates differ among the Francophone Cohort. While not statistically tested, there are some differences between the RHA where a person is hospitalized and the RHA where they reside. This may reflect a preference for a hospital based on access to preferred language.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 10.0: Summary of Use of Hospital Services Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Hospital Separation by RHA, 2008/09		
Manitoba		
Parkland (d)	↓	
Burntwood (f)		↑
St. Boniface		
St. Boniface East (f)		↓
St. Vital (f)		↓
St. Vital South (f)		↓
North RHAs (f)		↑
Injury Hospitalization, 2008/09		
Manitoba		
Parkland (f)		↑
St. Boniface (d)	↑	
St. Boniface East (f)		↓
St. Vital		
St. Vital South (f)		↓

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups.

Source: Manitoba Centre for Health Policy, 2012

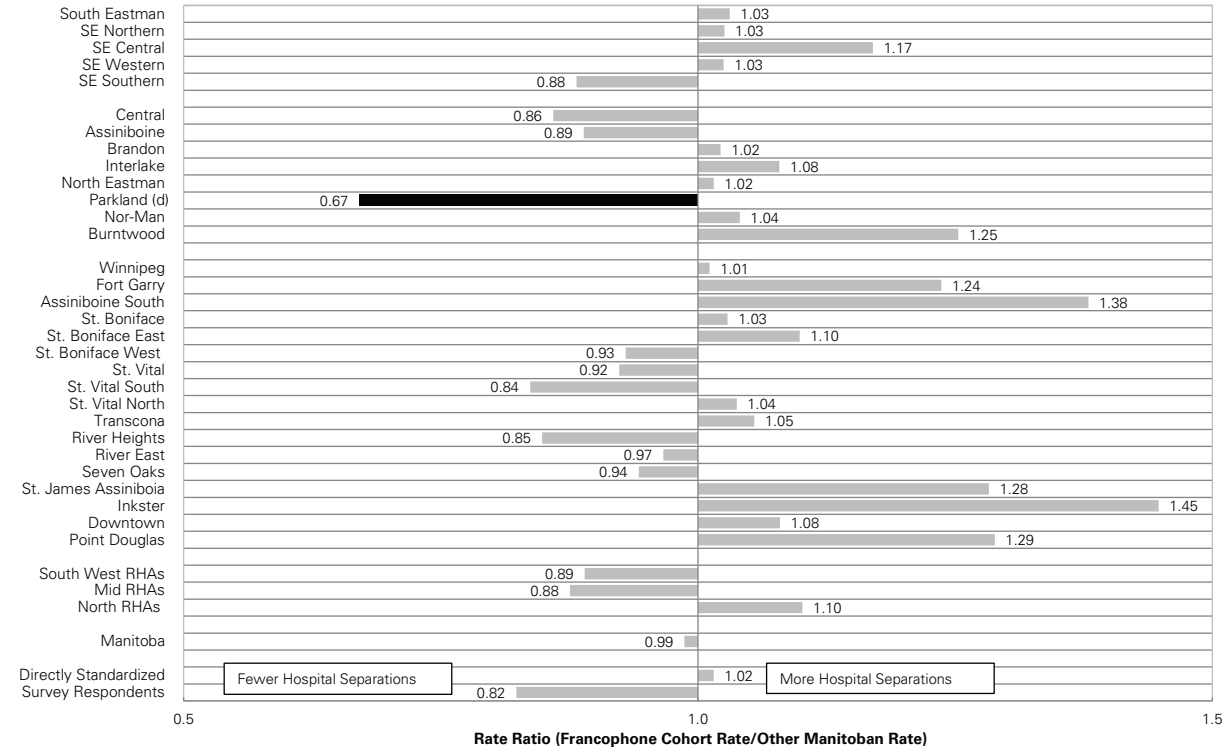
10.1 Hospital Separation (Discharge)

A separation from a hospital occurs anytime a person leaves because of discharge, transfer, or death. The number of **hospital separations** is the most commonly used measure of the utilization of hospital services. **Separations**, rather than admissions, are used because hospital abstracts for patient care are based on information gathered at the time of discharge.

The hospital separation rate was calculated by dividing the total number of inpatient and **day procedure** hospital separations of area residents by the total number of area residents. In any given period, a resident could be hospitalized more than once, so this indicator shows the total number of separations from **acute care facilities** by all residents of the area. Rates are shown for 2008/09 and were age– and sex–adjusted to the Manitoba population. The rate is based on the area of residence, not on the area where the person is hospitalized.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 10.1.1: Hospital Separations—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the hospital separation rate between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.99).
- Regionally, there were no significant differences between the Francophone Cohort and the Matched Cohort of Other Manitobans except in Parkland where the hospital separation rate was lower for the Francophone Cohort (Rate Ratio: 0.67).
- The hospital separation rates for Francophones in most areas were similar to Francophone provincial rate except for those in the Northern RHAs and Burntwood where the rate was higher than the Francophone provincial rate and in St. Vital and East St. Boniface where the rate was lower (Table 10.9.1).

Tables 10.1.1–10.1.2 show the results of two logistic regression models for hospital separations—a basic model where the association between being Francophone and hospitalization is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The results of the basic model are consistent with the results in the initial analysis; Francophones have similar hospitalization rates as the Other Manitobans (Relative Risk: 1.03).

As is well known, sociodemographic and lifestyle factors are associated with rates of hospital separations. The results indicate that the relationship between being Francophone and hospitalization is essentially unchanged in the full model, which is when these additional factors are introduced (Relative Risk: 1.02). This confirms that Francophones, as a group, have similar hospital separation rates as Other Manitobans even after sociodemographic and lifestyle factors are accounted for.

Table 10.1.1: Negative Binomial Regression for the Number of Hospital Separation Rates, 3 Years After Survey
Basic Model

Covariates	Relative Risk (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	1.03 (0.95, 1.12)
Age (5 year groups)	**1.03 (1.03, 1.03)**
Males (vs. Females)	**0.76 (0.73, 0.79)**
Aggregate Regions (ref = Winnipeg)	
Rural South	**1.34 (1.27, 1.42)**
Mid	**1.30 (1.23, 1.37)**
North	**1.50 (1.38, 1.62)**
Brandon	**1.29 (1.19, 1.39)**

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Table 10.1.2: Negative Binomial Regression for the Number of Hospital Separation Rates, 3 Years After Survey
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)	p-value
Francophone Cohort (vs. Matched Cohort)	1.02 (0.94, 1.11)	0.626
Age (5 year groups)	**1.02 (1.02, 1.02)**	**<.0001**
Males (vs. Females)	**0.87 (0.83, 0.91)**	**<.0001**
Aggregate Regions (ref = Winnipeg)		
Rural South	**1.27 (1.20, 1.34)**	**<.0001**
Mid	**1.22 (1.15, 1.30)**	**<.0001**
North	**1.41 (1.29, 1.54)**	**<.0001**
Brandon	**1.28 (1.18, 1.40)**	**<.0001**
Married or Common Law (vs. Single)	**1.07 (1.02, 1.12)**	**0.0044**
Household Income (per $10,000)	**1.00 (1.00, 1.00)**	**<.0001**
High School Graduate (vs. not)	**0.93 (0.89, 0.98)**	**0.0055**
Currently Employed (vs. not)	**0.62 (0.59, 0.66)**	**<.0001**
Sense of Belonging to Local Community (vs. no)	0.98 (0.93, 1.04)	0.5296
Five or more Drinks on One Occasion (vs. no)	**0.86 (0.81, 0.93)**	**<.0001**
Currently Smoker (vs. no)	**1.19 (1.13, 1.26)**	**<.0001**
Body Mass Index (ref = Normal/Underweight)		
Overweight	0.97 (0.92, 1.02)	0.2214
Obese	**1.07 (1.01, 1.13)**	**0.0237**
Leisure Time Physical Activity Index (ref = Inactive)		
Active	**0.84 (0.79, 0.90)**	**<.0001**
Moderate	**0.84 (0.79, 0.88)**	**<.0001**
Eats vegetables and fruits five or more times per day (vs. 0-4	1.01 (0.95, 1.08)	0.6346

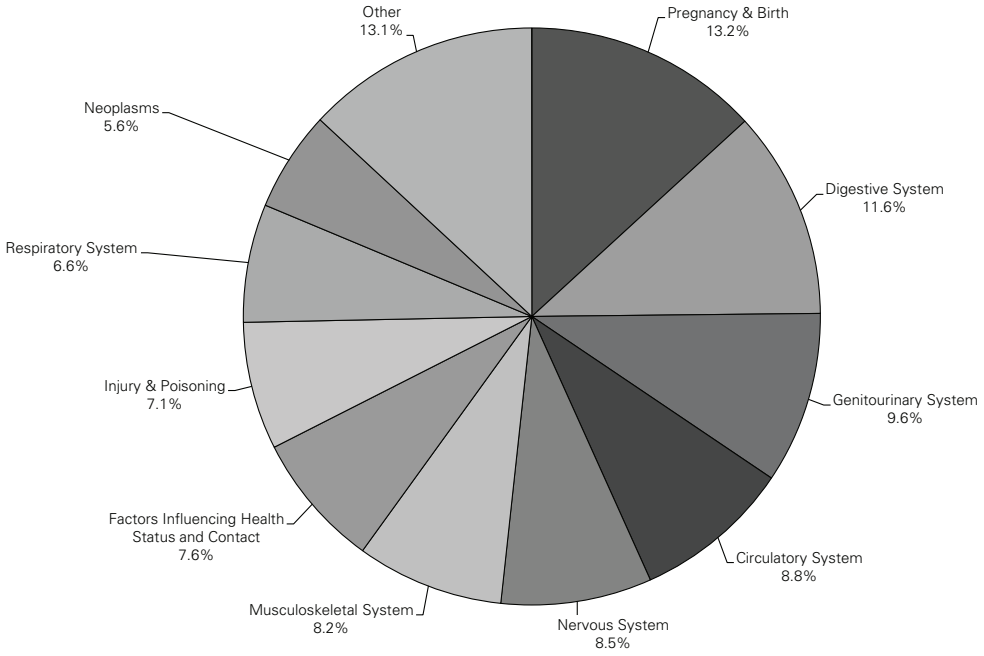
Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

10.2 Causes of Hospitalization

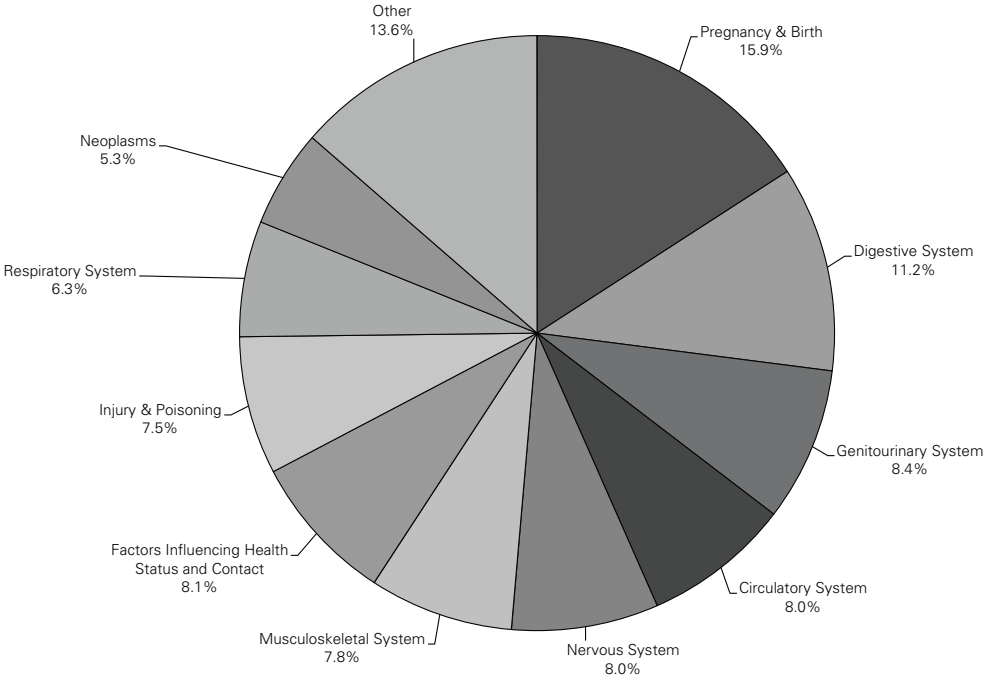
These graphs are based on all hospital separations (both inpatient and day procedures) and show the percentage attributed to each group of causes during hospitalizations, based on the "most responsible" diagnoses.

Figure 10.2.1: Hospital Separations by Cause (ICD–9 CM) for Francophone Cohort, 2004/05–2008/09



Source: Manitoba Centre for Health Policy, 2012

Figure 10.2.2: Hospital Separations by Cause (ICD–9 CM) for Matched Cohort, 2004/05–2008/09



Source: Manitoba Centre for Health Policy, 2012

Key findings

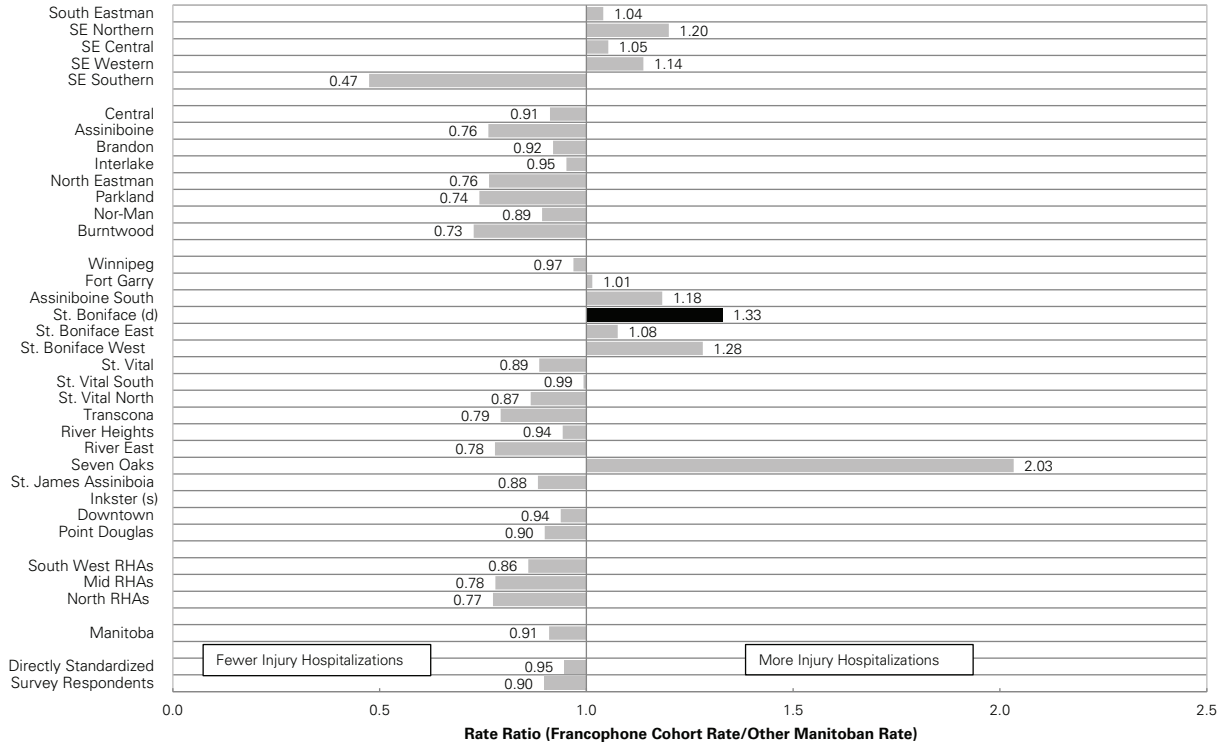
- Generally, the **causes of hospitalization** for the Francophone Cohort and the Matched Cohort of Other Manitobans appear to have a similar distribution.
- In both cohorts, the most common reason for hospitalization is pregnancy and births. The Francophone Cohort appears to have a slightly lower percentage of pregnancy and births than the Matched Cohort of Other Manitobans (13% versus 16%). No testing was conducted to determine if this difference was statistically significant.

10.3 Hospitalization for Injury

Hospitalization for injury includes injuries by all causes (including self–inflicted). The rate was calculated by dividing the number of hospital separations of area residents for which any injury code was included as one of the diagnoses (not necessarily the Most Responsible) by the number of area residents. In any given period, a resident could be hospitalized for injury more than once, so this measure indicates the total number of injury–related separations from acute care facilities by all residents of the area. Rates were calculated for 2004/05–2008/09. and were age– and sex–adjusted to the Manitoba population.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 10.3.1: Injury Hospitalization—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05-2008/09
Age– & sex–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

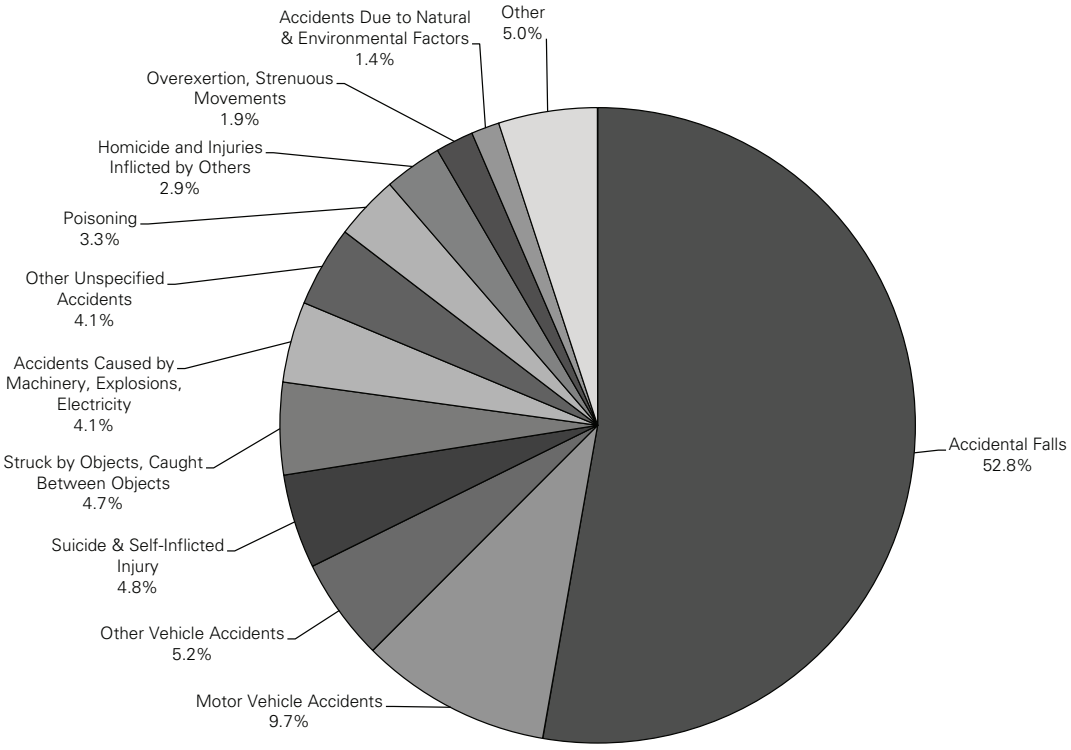
Key findings

- Provincially, no significant differences were found in the rate of hospitalization for injury between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.91) nor were any differences found in the survey respondents (Rate Ratio: 0.90).
- St. Boniface was the only area where a significant difference was found between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.33). There was a higher hospitalization for injury rate for Francophones in St. Boniface.
- The rates of hospitalization for injury of Francophones in most areas was similar to the rate for provincial Francophones rate except for those Francophones living in Parkland where the rates were higher than the Francophone provincial rate and in East St. Boniface and South St. Vital where the rates were lower (Table 10.9.2).

10.4 Causes of Injury Hospitalization

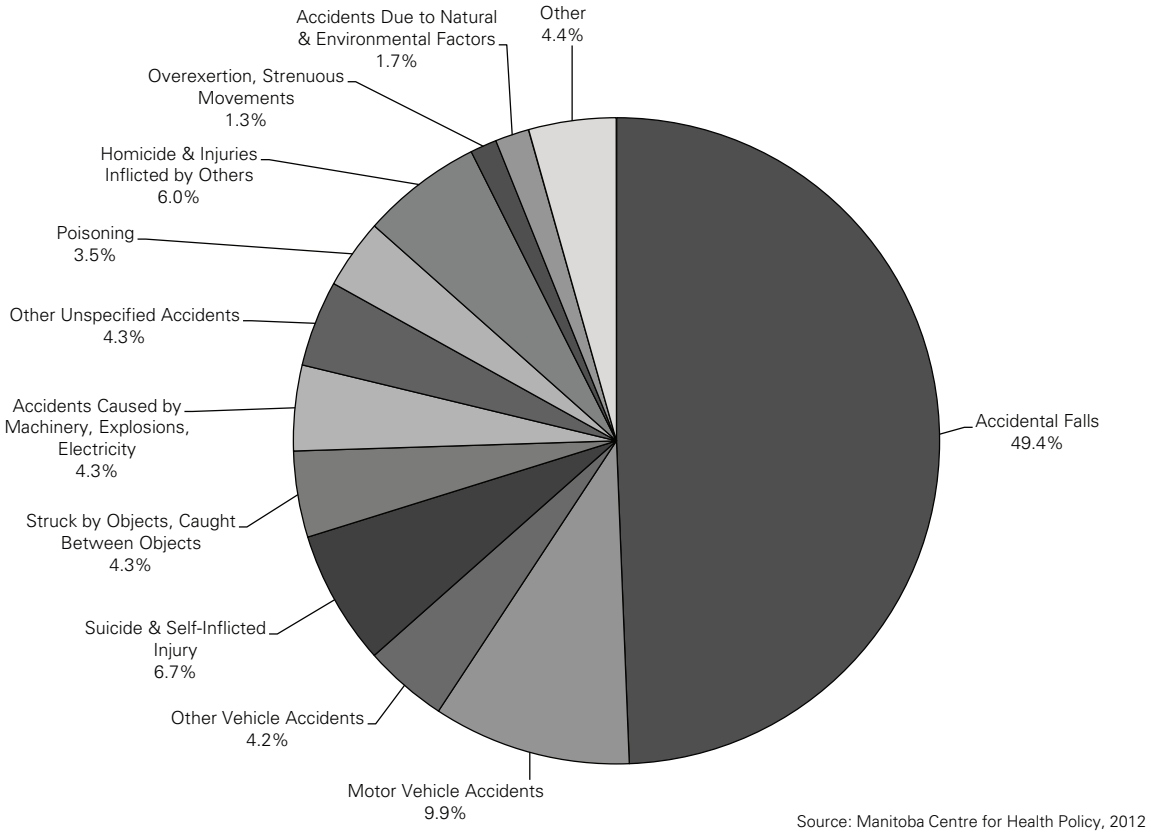
The most frequent causes of hospitalization due to injury for Manitobans were reported for five years: 2008/09. Causes of injury were identified from the hospital abstract and grouped into injury categories. Excluded from the count of hospitalizations due to injury are hospitalizations related to **medical error** and complications.

Figure 10.4.1: Causes of Injuries Resulting in Hospitalization for Francophone Cohort, 2008/09



Source: Manitoba Centre for Health Policy, 2012

Figure 10.4.2: Causes of Injuries Resulting in Hospitalization for Matched Cohort, 2008/09



Source: Manitoba Centre for Health Policy, 2012

Key findings

- Generally, the injuries for the Francophone Cohort and the Matched Cohort of Other Manitobans appear to have a similar distribution.
- In both cohorts, the most common injury requiring hospitalization is accidental falls. The Francophone Cohort appears to have a slightly higher percentage of accidental falls than the Matched Cohort of Other Manitobans (53% versus 49%) and lower percentage of suicide and self–inflicted injuries (2.9% versus 6.0%) or homicide and injuries inflicted by others (4.8% versus 6.7%). The sample size for the Francophone cohort is small which may account for the differences. No testing was conducted to determine if these differences were statistically significant.

10.5 Location: Where Residents Went for Separations

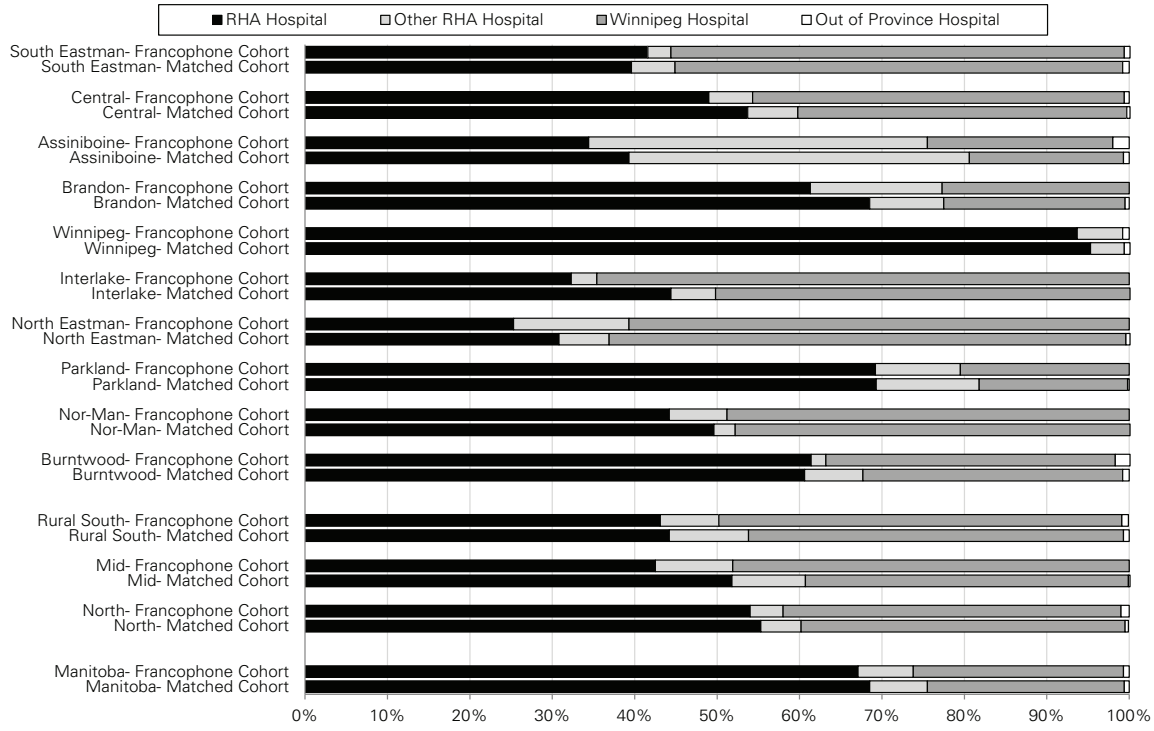
Residents, particularly in rural areas, are sometimes hospitalized in a hospital in a RHA other than the RHA in which they reside. The location of hospitalization of the area residents is shown in Table 10.5.1 and graphically in Figure 10.5.1. This is based on counts (percentage of total separations). The rates are not age–or sex–adjusted.

Table 10.5.1: Where RHA Residents Were Hospitalized, 2008/09

RHA	Total Separations Used By RHA Residents	RHA Hospital	Other RHA Hospital	Winnipeg Hospital	Out of Province Hospital
South Eastman- Francophone Cohort	977	41.6%	2.8%	55.0%	0.7%
South Eastman- Matched Cohort	2,700	39.6%	5.3%	54.3%	0.8%
Central- Francophone Cohort	490	49.0%	5.3%	45.1%	0.6%
Central- Matched Cohort	1,610	53.7%	6.1%	39.9%	0.4%
Assiniboine- Francophone Cohort	151	34.4%	41.1%	22.5%	2.0%
Assiniboine- Matched Cohort	555	39.3%	41.3%	18.7%	0.7%
Brandon- Francophone Cohort	75	61.3%	16.0%	22.7%	.
Brandon- Matched Cohort	200	68.5%	9.0%	22.0%	0.5%
Winnipeg- Francophone Cohort	1,925	93.7%	5.5%	--	0.8%
Winnipeg- Matched Cohort	5,446	95.3%	4.1%	--	0.7%
Interlake- Francophone Cohort	130	32.3%	3.1%	64.6%	--
Interlake- Matched Cohort	354	44.4%	5.4%	50.3%	--
North Eastman- Francophone Cohort	150	25.3%	14.0%	60.7%	--
North Eastman- Matched Cohort	429	30.8%	6.1%	62.7%	0.5%
Parkland- Francophone Cohort	146	69.2%	10.3%	20.5%	--
Parkland- Matched Cohort	662	69.3%	12.5%	18.0%	0.2%
Nor-Man- Francophone Cohort	43	44.2%	7.0%	48.8%	--
Nor-Man- Matched Cohort	117	49.6%	2.6%	47.9%	--
Burntwood- Francophone Cohort	57	61.4%	1.8%	35.1%	1.8%
Burntwood- Matched Cohort	127	60.6%	7.1%	31.5%	0.8%
Rural South- Francophone Cohort	1,618	43.1%	7.1%	48.9%	0.8%
Rural South- Matched Cohort	4,865	44.2%	9.6%	45.5%	0.7%
Mid- Francophone Cohort	426	42.5%	9.4%	48.1%	--
Mid- Matched Cohort	1,445	51.8%	8.9%	39.2%	0.2%
North- Francophone Cohort	100	54.0%	4.0%	41.0%	1.0%
North- Matched Cohort	244	55.3%	4.9%	39.3%	0.4%
Manitoba- Francophone Cohort	4,144	67.1%	6.7%	25.5%	0.7%
Manitoba- Matched Cohort	12,200	68.5%	7.0%	23.9%	0.6%

Source: Manitoba Centre for Health Policy, 2012

Figure 10.5.1: Where RHA Residents were Hospitalized



Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially and regionally, the locations where area residents are hospitalized do not appear to differ between the Francophone Cohort and the Matched Cohort of Other Manitobans. However in the Interlake region, we observe that a higher percentage of Francophone residents are hospitalized in Winnipeg than residents from the Matched Cohort of Other Manitobans. No statistical testing was done to determine if any observed differences are statistically significant.

10.6 Catchment: Where Patients Came from for Separations

Hospitals regularly admit residents from other RHAs. This indicator provides information regarding the RHA where hospital patients came from.

This indicator is defined as the proportion of hospital patients who were RHA residents, residents of other RHAs, Winnipeg residents, or out–of–province residents.

Table 10.6.1: Where RHA Hospital Patients Came From, 2008/09

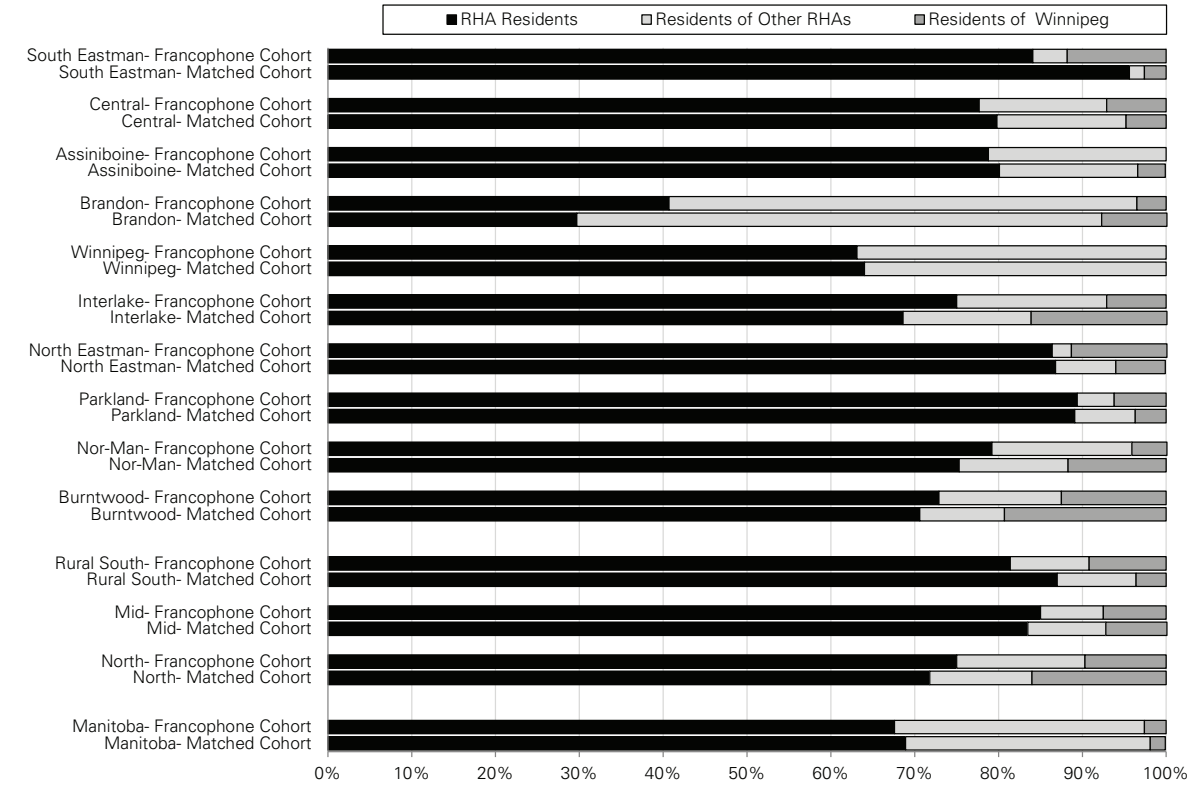
RHA	Total Separations Provided by RHA Hospitals	RHA Residents	Residents of Other RHAs	Residents of Winnipeg
South Eastman- Francophone Cohort	483	84.1%	4.1%	11.8%
South Eastman- Matched Cohort	1,118	95.6%	1.8%	2.6%
Central- Francophone Cohort	309	77.7%	15.2%	7.1%
Central- Matched Cohort	1,083	79.8%	15.4%	4.8%
Assiniboine- Francophone Cohort	66	78.8%	21.2%	–
Assiniboine- Matched Cohort	272	80.1%	16.5%	3.3%
Brandon- Francophone Cohort	113	40.7%	55.8%	3.5%
Brandon- Matched Cohort	462	29.7%	62.6%	7.8%
Winnipeg- Francophone Cohort	2,858	63.1%	36.9%	–
Winnipeg- Matched Cohort	8,108	64.0%	36.0%	–
Interlake- Francophone Cohort	56	75.0%	17.9%	7.1%
Interlake- Matched Cohort	229	68.6%	15.3%	16.2%
North Eastman- Francophone Cohort	44	86.4%	2.3%	11.4%
North Eastman- Matched Cohort	152	86.8%	7.2%	5.9%
Parkland- Francophone Cohort	113	89.4%	4.4%	6.2%
Parkland- Matched Cohort	515	89.1%	7.2%	3.7%
Nor-Man- Francophone Cohort	24	79.2%	16.7%	4.2%
Nor-Man- Matched Cohort	77	75.3%	13.0%	11.7%
Burntwood- Francophone Cohort	48	72.9%	14.6%	12.5%
Burntwood- Matched Cohort	109	70.6%	10.1%	19.3%
Rural South- Francophone Cohort	858	81.4%	9.4%	9.2%
Rural South- Matched Cohort	2,473	87.0%	9.4%	3.6%
Mid- Francophone Cohort	213	85.0%	7.5%	7.5%
Mid- Matched Cohort	896	83.5%	9.3%	7.3%
North- Francophone Cohort	72	75.0%	15.3%	9.7%
North- Matched Cohort	188	71.8%	12.2%	16.0%
Manitoba- Francophone Cohort	4,114	67.6%	29.8%	2.6%
Manitoba- Matched Cohort	12,127	68.9%	29.2%	1.8%

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Winnipeg hospitals admit high percentages of patients from outside the city limits and these percentages appear to be comparable between the Francophone Cohort and the Matched Cohort of Other Manitobans. Provincially and regionally, the proportion of hospital patients who were RHA residents, residents of other RHAs, Winnipeg residents, or out–of–province residents are similar between the Francophone Cohort and the Matched Cohort of Other Manitoban. However among Francophone patients in Brandon hospitals, a higher percentage appear to live in Brandon compared to patients from Matched Cohort of Other Manitobans. No statistical testing was done to determine if any observed differences are statistically significant.

Figure 10.6.1: Where RHA Hospital Patients Came From



Source: Manitoba Centre for Health Policy, 2012

10.7 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

Table 10.7.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized	Matched Cohort Directly Standardized	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Hospital Separation Rates (per 1,000 person-years)	2008/09	137.20	135.13	1.02	107.96	131.09	0.82
Injury Hospitalization Rates (per 1,000 person-years)	2004/05-2008/09	7.90	8.34	0.95	6.41	7.14	0.90

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

10.8 Findings from the Literature

- Using the Ontario Health Survey (1996/1997), the Institute for Clinical Evaluative Sciences (ICES) found that Francophones were more likely to use emergency services than the Anglophone and Allophone population. For example, among residents aged 20 to 44, Francophones (30.5%) had higher utilization rates than Anglophones (27.5%) or Allophones (21.5%). Similar differences were found in other age groups (2010).
- *In this study, number of hospital separations (or discharges), but not emergency service, were examined. Provincially, no differences were found between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.99). However, the analysis by birth cohort (in Chapter 17) showed that younger Francophones have lower hospitalization rates compared to younger Other Manitobans and these rates are higher for older Francophones than other older Manitobans.*

10.9 Supplementary Tables

Table 10.9.1: Hospital Separations, 2008/09
Age– & sex–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.03 (0.89, 1.20)	118.58 (102.34, 137.39)	115.01 (100.59, 131.50)
SE Northern	1.03 (0.87, 1.21)	118.54 (101.74, 138.10)	115.56 (100.85, 132.42)
SE Central	1.17 (0.88, 1.56)	129.78 (98.42, 171.13)	110.90 (96.29, 127.72)
SE Western	1.03 (0.86, 1.23)	111.60 (95.04, 131.04)	108.87 (94.29, 125.72)
SE Southern	0.88 (0.62, 1.26)	107.77 (77.12, 150.62)	122.20 (103.01, 144.98)
Central	0.86 (0.73, 1.02)	118.17 (100.51, 138.93)	137.53 (119.78, 157.91)
Assiniboine	0.89 (0.71, 1.12)	118.15 (95.50, 146.18)	132.92 (113.67, 155.44)
Brandon	1.02 (0.75, 1.39)	133.55 (101.82, 175.17)	130.68 (107.11, 159.43)
Interlake	1.08 (0.84, 1.39)	136.06 (108.57, 170.51)	126.09 (106.21, 149.69)
North Eastman	1.02 (0.80, 1.29)	118.95 (96.01, 147.36)	117.14 (99.34, 138.14)
Parkland (d)	**0.67 (0.53, 0.85)**	**141.00 (113.44, 175.27)**	**210.16 (179.91, 245.49)**
Nor-Man	1.04 (0.70, 1.55)	141.30 (100.07, 199.53)	135.78 (106.57, 173.00)
Burntwood (f)	**1.25 (0.87, 1.80)**	**177.45 (130.77, 240.80)**	141.62 (112.39, 178.44)
Winnipeg	1.01 (0.90, 1.14)	96.59 (85.51, 109.10)	95.50 (85.47, 106.71)
Fort Garry	1.24 (0.97, 1.57)	95.08 (76.78, 117.75)	76.89 (64.98, 90.99)
Assiniboine South	1.38 (0.89, 2.15)	91.22 (61.97, 134.28)	66.12 (51.33, 85.18)
St. Boniface	1.03 (0.88, 1.20)	90.63 (78.00, 105.30)	88.09 (76.75, 101.10)
St. Boniface East (f)	**1.10 (0.91, 1.32)**	**86.12 (72.68, 102.05)**	78.37 (68.11, 90.18)
St. Boniface West	0.93 (0.79, 1.10)	91.88 (78.86, 107.07)	98.83 (86.00, 113.58)
St. Vital (f)	0.92 (0.77, 1.11)	**84.00 (70.84, 99.59)**	90.97 (78.82, 104.99)
St. Vital South (f)	**0.84 (0.67, 1.04)**	**70.87 (58.22, 86.27)**	84.69 (72.94, 98.33)
St. Vital North	1.04 (0.84, 1.28)	100.89 (83.50, 121.90)	97.23 (83.84, 112.75)
Transcona	1.05 (0.75, 1.48)	103.78 (76.94, 139.98)	98.40 (79.98, 121.05)
River Heights	0.85 (0.63, 1.14)	92.04 (69.42, 122.03)	108.47 (92.80, 126.79)
River East	0.97 (0.76, 1.24)	104.00 (82.49, 131.12)	107.61 (92.26, 125.51)
Seven Oaks	0.94 (0.60, 1.48)	86.40 (58.19, 128.28)	91.66 (71.09, 118.20)
St. James Assiniboia	1.28 (0.93, 1.77)	111.98 (84.63, 148.17)	87.28 (71.37, 106.75)
Inkster	1.45 (0.90, 2.32)	163.51 (110.63, 241.67)	112.93 (84.23, 151.39)
Downtown	1.08 (0.84, 1.38)	133.37 (106.99, 166.27)	123.53 (104.26, 146.36)
Point Douglas	1.29 (0.90, 1.85)	145.30 (106.78, 197.73)	112.77 (89.85, 141.53)
South West RHAs	0.89 (0.77, 1.03)	121.48 (105.30, 140.14)	136.52 (120.66, 154.45)
Mid RHAs	0.88 (0.75, 1.03)	132.97 (114.28, 154.70)	151.87 (134.39, 171.63)
North RHAs (f)	**1.10 (0.84, 1.45)**	**156.09 (123.27, 197.65)**	141.70 (118.74, 169.09)
Manitoba	0.99 (0.87, 1.12)	109.94 (96.54, 125.21)	111.40 (109.43, 113.38)
Directly Standardized	1.02 (0.97, 1.07)	137.20 (132.94, 141.45)	135.13 (132.68, 137.58)
Survey Respondents	0.82 (0.65, 1.00)	107.96 (85.38, 130.54)	131.09 (124.07, 138.11)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 10.9.2: Injury Hospitalization, 2004/05–2008/09
Age– & sex–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.04 (0.80, 1.35)	5.98 (4.65, 7.71)	5.75 (4.59, 7.20)
SE Northern	1.20 (0.88, 1.64)	6.06 (4.61, 7.97)	5.06 (3.93, 6.50)
SE Central	1.05 (0.60, 1.86)	7.18 (4.13, 12.49)	6.82 (5.36, 8.69)
SE Western	1.14 (0.81, 1.59)	5.99 (4.47, 8.03)	5.26 (4.05, 6.84)
SE Southern	0.47 (0.20, 1.12)	3.28 (1.43, 7.54)	6.92 (5.09, 9.39)
Central	0.91 (0.69, 1.21)	7.38 (5.61, 9.71)	8.10 (6.44, 10.18)
Assiniboine	0.76 (0.52, 1.11)	8.12 (5.68, 11.60)	10.64 (8.28, 13.67)
Brandon	0.92 (0.47, 1.78)	5.49 (3.05, 9.87)	5.97 (4.10, 8.68)
Interlake	0.95 (0.60, 1.51)	7.48 (4.93, 11.37)	7.86 (5.88, 10.53)
North Eastman	0.76 (0.49, 1.19)	6.08 (4.04, 9.16)	7.95 (6.03, 10.49)
Parkland (f)	**0.74 (0.52, 1.06)**	**13.13 (9.36, 18.41)**	17.71 (13.82, 22.68)
Nor-Man	0.89 (0.42, 1.91)	6.99 (3.59, 13.61)	7.83 (5.12, 11.96)
Burntwood	0.73 (0.40, 1.32)	11.94 (6.93, 20.56)	16.41 (11.76, 22.90)
Winnipeg	0.97 (0.78, 1.20)	5.84 (4.70, 7.24)	6.02 (4.94, 7.34)
Fort Garry	1.01 (0.67, 1.53)	5.76 (3.95, 8.39)	5.68 (4.35, 7.41)
Assiniboine South	1.18 (0.62, 2.26)	7.92 (4.39, 14.31)	6.69 (4.75, 9.42)
St. Boniface (d)	**1.33 (1.02, 1.73)**	**5.85 (4.57, 7.50)**	**4.40 (3.48, 5.57)**
St. Boniface East (f)	**1.08 (0.74, 1.56)**	**3.78 (2.71, 5.28)**	3.51 (2.71, 4.55)
St. Boniface West	1.28 (0.97, 1.70)	7.10 (5.53, 9.12)	5.54 (4.35, 7.07)
St. Vital	0.89 (0.65, 1.22)	4.50 (3.34, 6.07)	5.08 (4.00, 6.47)
St. Vital South (f)	**0.99 (0.66, 1.49)**	**3.80 (2.64, 5.46)**	3.82 (2.90, 5.03)
St. Vital North	0.87 (0.60, 1.25)	5.59 (3.97, 7.87)	6.46 (5.03, 8.29)
Transcona	0.79 (0.38, 1.65)	4.01 (2.07, 7.77)	5.06 (3.45, 7.40)
River Heights	0.94 (0.58, 1.52)	7.37 (4.65, 11.69)	7.81 (6.09, 10.03)
River East	0.78 (0.50, 1.21)	6.21 (4.06, 9.48)	7.97 (6.20, 10.24)
Seven Oaks	2.03 (0.97, 4.28)	8.57 (4.75, 15.47)	4.22 (2.55, 6.97)
St. James Assiniboia	0.88 (0.48, 1.61)	5.53 (3.18, 9.63)	6.26 (4.57, 8.58)
Inkster (s)	s	s	7.64 (4.66, 12.53)
Downtown	0.94 (0.62, 1.42)	8.96 (6.13, 13.08)	9.55 (7.27, 12.55)
Point Douglas	0.90 (0.51, 1.58)	11.19 (6.74, 18.55)	12.44 (8.94, 17.32)
South West RHAs	0.86 (0.67, 1.11)	7.30 (5.70, 9.35)	8.50 (6.89, 10.48)
Mid RHAs	0.78 (0.59, 1.03)	8.78 (6.70, 11.50)	11.25 (9.08, 13.94)
North RHAs	0.77 (0.48, 1.26)	9.45 (6.09, 14.66)	12.20 (9.15, 16.25)
Manitoba	0.91 (0.73, 1.13)	6.23 (5.02, 7.72)	6.85 (6.63, 7.06)
Directly Standardized	0.95 (0.88, 1.01)	7.90 (7.44, 8.36)	8.34 (8.07, 8.61)
Survey Respondents	0.90 (0.58, 1.21)	6.41 (4.25, 8.57)	7.14 (6.48, 7.80)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 11: High Profile Surgical and Diagnostic Services

Indicators in this chapter:

- 11.1 Cardiac Catheterization
- 11.2 Percutaneous Coronary Intervention
- 11.3 Coronary Artery Bypass Surgery
- 11.4 Hip Replacement Surgery
- 11.5 Knee Replacement Surgery
- 11.6 Cataract Surgery
- 11.7 Caesarean Section
- 11.8 Hysterectomy
- 11.9 Comparison of Rates between Samples
- 11.10 Findings from the Literature
- 11.11 Supplementary Tables

Overall Key Findings

- Overall, there are only two procedures that the Francophone Cohort are more likely to receive than a Matched Cohort of Other Manitobans—Percutaneous Coronary Interventions (PCI) and Coronary Artery Bypass Surgery. For all other procedures, the rate for the two groups in similar.
- While at a provincial level the rates are similar, there are a large number of geographic areas where the rates for all procedures is higher for the Francophone Cohort than the Matched Cohort of Other Manitobans. There are also areas where the proportion of caesarean section deliveries is lower among the Francophone Cohort.
- For the most part, there are few differences among Francophones depending upon where they live, but there are some exceptions.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 11.0: Summary of High Profile Surgical and Diagnostic Services Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Cardiac Catheterization, 2004/05-2008/09		
Manitoba		
Central (d)	↑	
Brandon (d)	↑	
North Eastman (d)	↑	
St. Vital (d)	↑	
St. Vital South (d)	↑	
South West RHAs (d)	↑	
Mid RHAs (d)	↑	
Directly Standardized (d)	↑	
Percutaneous Coronary Intervention, 1999/2000-2008/09		
Manitoba (d)	↑	
South Eastman		
SE Southern (d)	↑	
Winnipeg (d)	↑	
St. Vital (d)	↑	
St. Vital North (d)	↑	
Winnipeg Other (d)	↑	
South West RHAs (d)	↑	
Directly Standardized (d)	↑	
Coronary Artery Bypass Surgeries, 1999/2000-2008/09		
Manitoba (d)	↑	
South West RHAs (d)	↑	
Directly Standardized (d)	↑	
Hip Replacement Surgeries, 1999/2000-2008/09		
Manitoba		
St. Boniface		
St. Boniface East (f)		↑
Survey Respondents (d)	↓	
Knee Replacement Surgeries, 1999/2000-2008/09		
Manitoba		
St. Boniface		
St. Boniface East (d)	↓	
St. Vital (d)	↓	
Cataract Surgeries, 1999/2000-2008/09		
Manitoba		
South Eastman		
SE Central (d)	↑	
Central (d)	↑	
Transcona (d)	↑	
St. James Assiniboia (d)	↑	
South West RHAs (d)	↑	
North RHAs (d)	↑	
Directly Standardized (d)	↑	

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Proportion of Births by Caesarean Section (C-Section), 1999/2000-2008/09		
Manitoba		
South Eastman		
SE Western (f,d)	↓	↓
Central (d)	↓	
Assiniboine (d)	↓	
Burntwood (d)	↑	
Transcona (f)		↑
South West RHAs (d)	↓	
North RHAs (f,d)	↑	↑

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups.

Source: Manitoba Centre for Health Policy, 2012

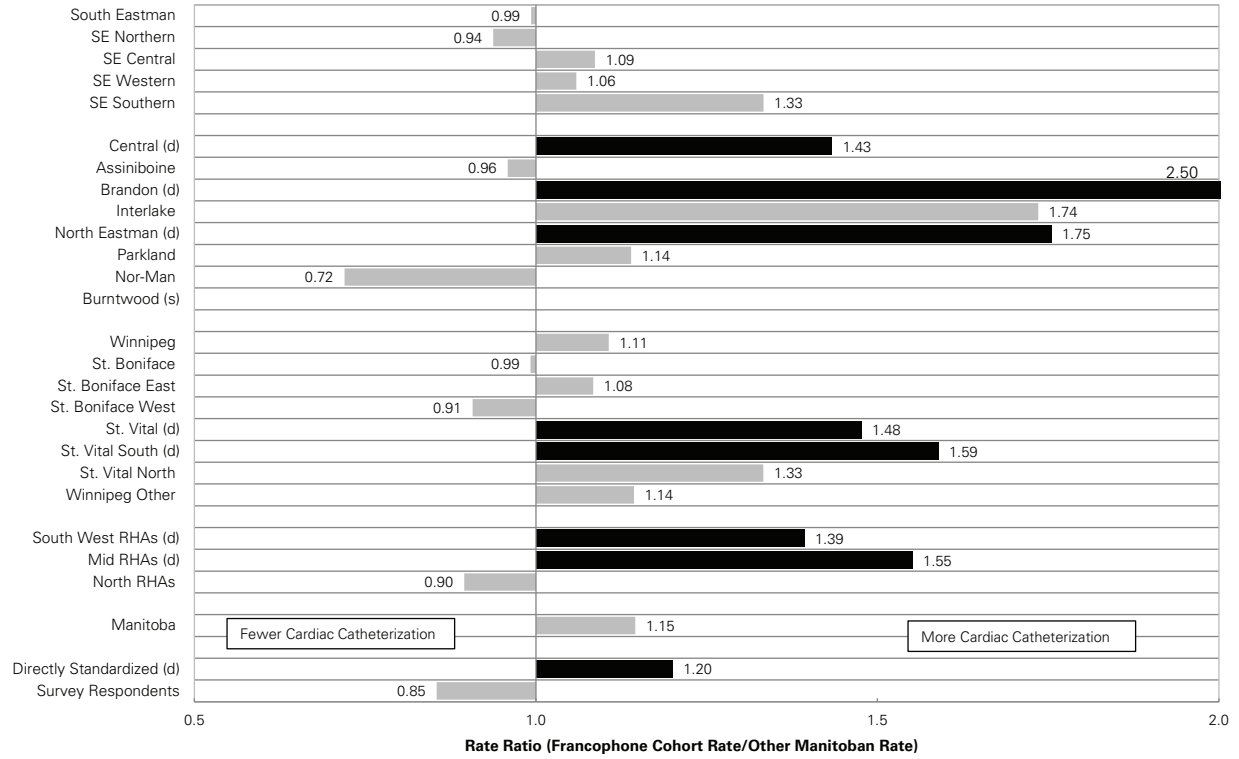
11.1 Cardiac Catheterization

Cardiac catheterization is the most accurate method for evaluating and defining ischemic heart disease (IHD). The images that are produced are called the **angiogram**, which shows the extent and severity of blockages in coronary arteries.

Cardiac catheterization is defined as the number of cardiac catheterizations performed on area residents aged 40 and older per 1,000 residents age 40 and older. Rates were calculated for a five–year period, 2004/05–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.1.1: Cardiac Catheterization—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09
Age– & sex adjusted, residents aged 40 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no statistically significant differences were found in the rate of cardiac catheterization between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.15)[14] nor were any differences found in the survey respondents (Rate Ratio: 0.85).

14 Note that the rate ratio of the Francophone and Matched Cohort of Other Manitobans, when directly standardized to permit a comparison with the survey sample, was statistically significant. Direct standardization gives us the rate that we would expect if our sample had the same distribution with regards to age and sex of the Manitoban population. Since our matched cohort is younger, more weight is applied to the rates of the older respondents when we directly standardized. In Chapter 17, we observe that older Francophones tended to be less healthy than their Matched Cohort. This might explain why we see a slightly different rate ratio between the two methods used to adjust for age and sex.

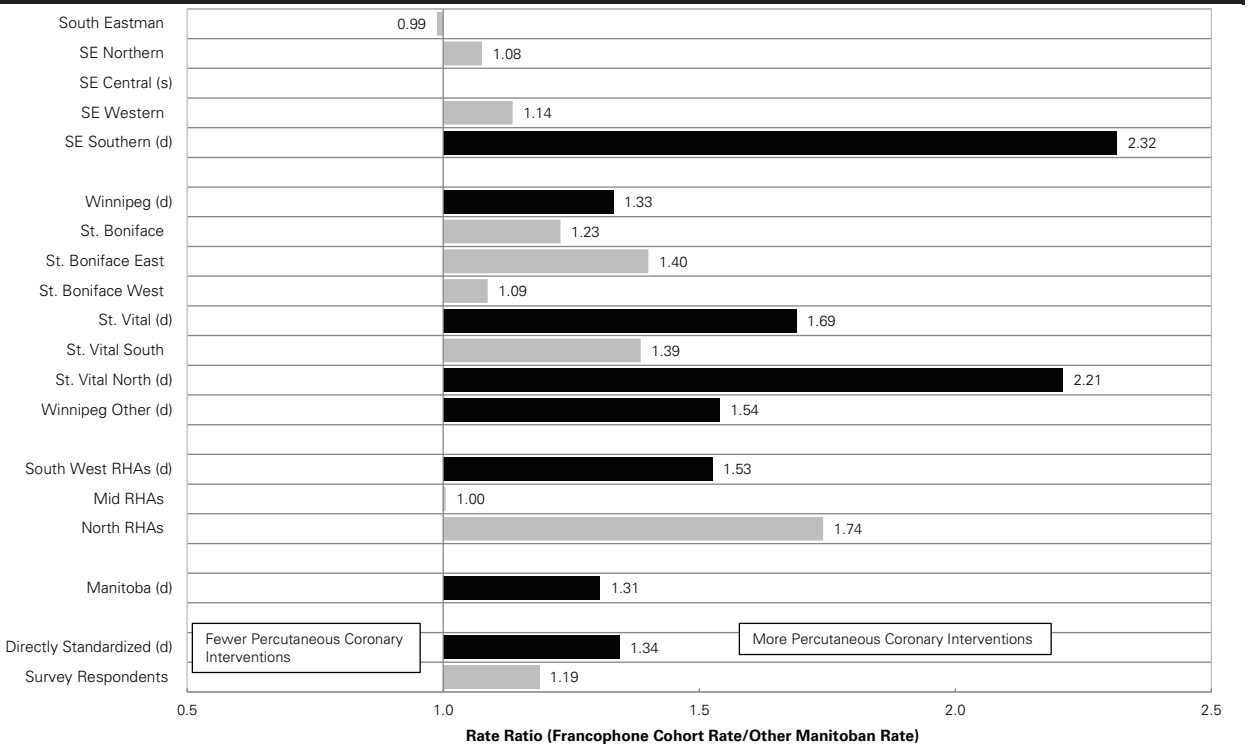
- However, some significant differences were noted in the South West RHAs (Rate Ratio: 1.39), the Mid RHAs (Rate Ratio: 1.55), Central (Rate Ratio: 1.43), Brandon (Rate Ratio: 2.50), North Eastman (Rate Ratio: 1.75), and St. Vital (Rate Ratio: 1.48) where the Francophone Cohort had higher cardiac catheterization rates than the Matched Cohort of Other Manitobans.
- The cardiac catheterization rates of Francophones in all areas were similar to the Francophone provincial rate (Table 11.11.1).

11.2 Percutaneous Coronary Intervention

Percutaneous coronary interventions (PCI) are commonly known as **angioplasty** or balloon angioplasty. These procedures are utilized for treating the narrowed coronary arteries of the heart often found in people with coronary heart disease. Percutaneous coronary intervention rate is defined as the number of angioplasty procedures performed on area residents aged 40 and older per 1,000 residents aged 40 and older. Rates were calculated for a 10–year period, 1999/2000–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.2.1: Percutaneous Coronary Intervention—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09
Age– & sex–adjusted, residents aged 40 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had higher rates of PCI than the Matched Cohort of Other Manitobans (Rate Ratio: 1.31).[15]
- Although there is a trend towards higher rates of PCI in most regions, Winnipeg (Rate Ratio: 1.33), St. Vital (Rate Ratio: 1.69), Winnipeg CAs outside of St. Boniface or St. Vital (Rate Ratio: 1.54), South West RHAs (Rate Ratio: 1.53), and the southern district of South Eastman (Rate Ratio: 2.32) were the areas where the rate for the Francophone Cohort was significantly higher than the rate for the Matched Cohort of Other Manitobans.
- PCI rates of Francophones in all areas were similar to the Francophone provincial rate (Table 11.11.2).

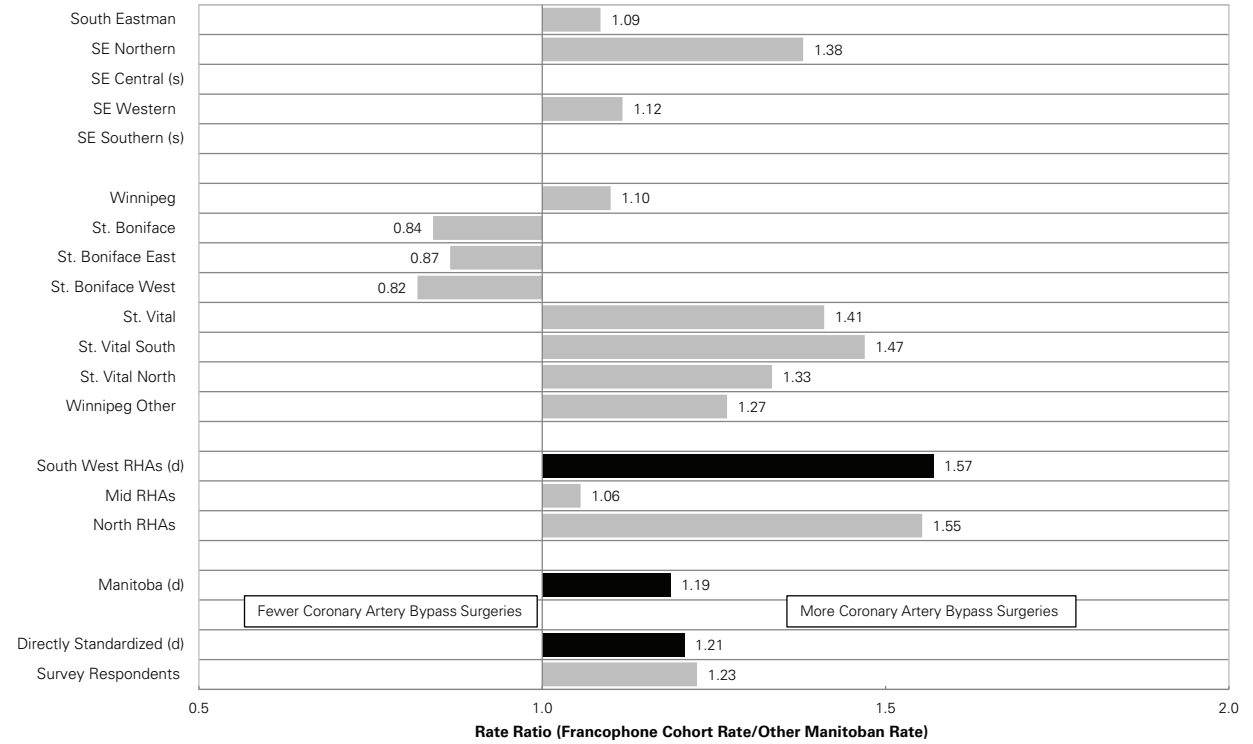
11.3 Coronary Artery Bypass Surgery

Bypass surgery is performed on patients with significant narrowing or blockage of coronary arteries to replace the narrowed and blocked segments, which permits an increase in blood flow to deliver oxygen and nutrients to the heart muscles.

Coronary artery bypass graft (CABG) surgery rate is defined as the number of bypass surgeries performed on area residents aged 40 and older per 1,000 area residents aged 40 and older. Rates were calculated for a 10–year period, 1999/2000–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.3.1: Coronary Artery Bypass Graft Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09
Age– & sex adjusted, residents aged 40 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

15 Since the survey sample has a considerably smaller sample size, the confidence intervals are very wide and statistical significance could not be demonstrated.

Key findings

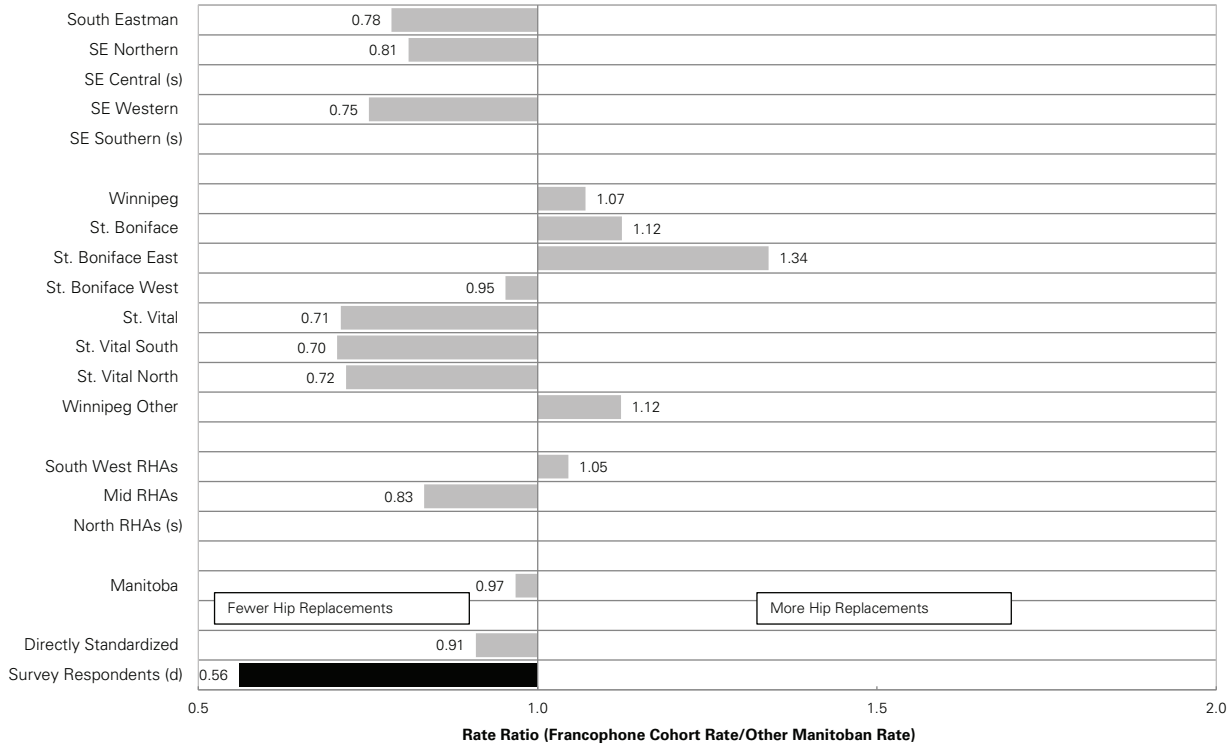
- Provincially, the Francophone Cohort had higher rates of coronary artery bypass surgery than the Matched Cohort of Other Manitobans (Rate Ratio: 1.19).[16]
- Although there is a trend towards higher rates of coronary artery bypass surgery in many regions, the South West RHAs (Rate Ratio: 1.57) was the only region where the rate for the Francophone Cohort was significantly higher than the rate for the Matched Cohort of Other Manitobans.
- Coronary artery bypass surgery rates of Francophones in all areas were similar to the Francophone provincial rate (Table 11.11.3).

11.4 Hip Replacement Surgery

During **hip replacement surgery**, the ball and socket of the hip joint are completely removed and replaced with artificial materials. Hip replacement surgery rate is defined as the number of total hip replacements performed on area residents aged 40 and older per 1,000 area residents aged 40 and older. Rates were calculated for a 10–year period, 1999/2000–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.4.1: Total Hip Replacement Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09
Age– & sex adjusted, residents aged 40 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

16 Since the survey sample has a considerably smaller sample size, the confidence intervals are very wide and statistical significance could not be demonstrated.

Key Findings

- Provincially and across regions, there appears to be a trend toward lower rates of hip replacements. However, no significant differences were found in these rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.96). A difference was found in the survey respondents (Rate Ratio: 0.56).[17]
- The rates of hip replacement of Francophones in all areas were similar to the Francophone provincial rate except for those in the East St. Boniface where the rate was higher (Table 11.11.4).

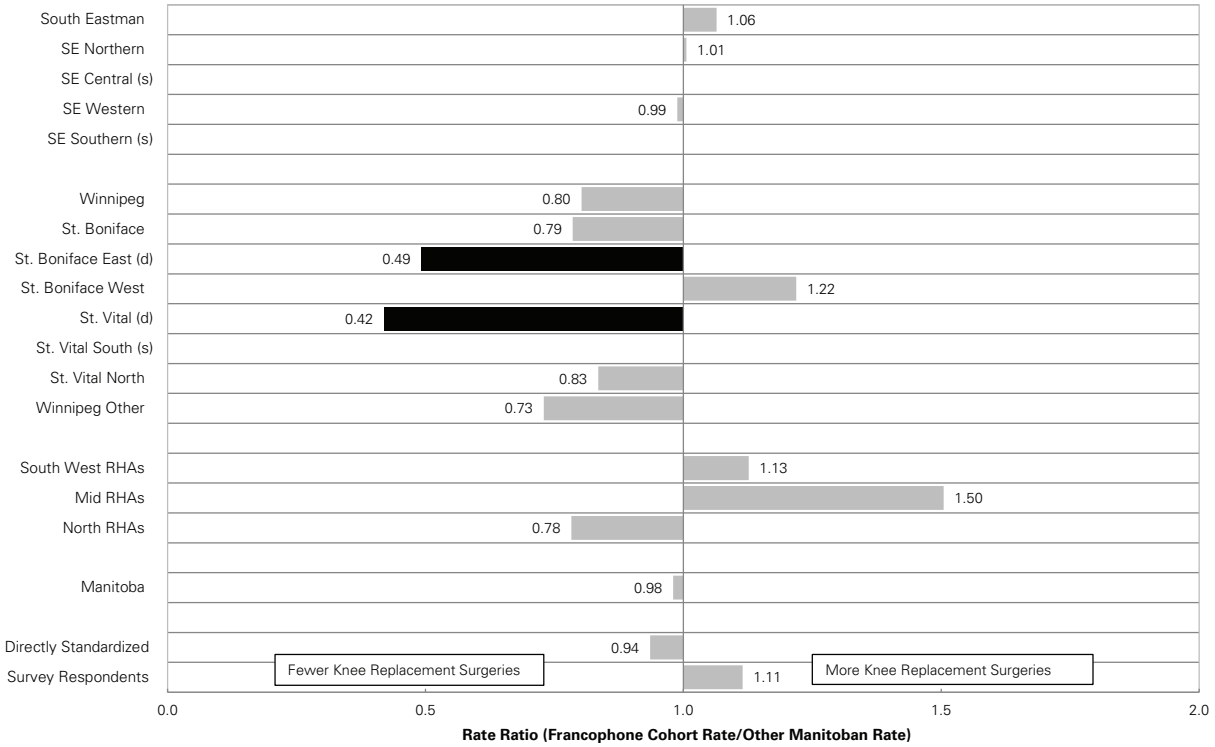
11.5 Knee Replacement Surgery

In **knee replacement surgery**, parts of the knee joint are replaced with artificial materials. The new knee typically has a metal shell on the end of the femur, a metal and plastic trough on the tibia, and sometimes a plastic button in the kneecap.

Knee replacement surgery rate is defined as the number of total knee replacements performed on area residents aged 40 and older per 1,000 area residents aged 40 and older. Rates were calculated for a 10–year period, 1999/2000–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.5.1: Knee Replacement Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09
Age– & sex adjusted, residents aged 40 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

17 When looking at the rate ratios of the survey sample and the directly standardized sample, the differences noted are due to chance and are not actual differences

Key findings

- Provincially, no significant differences were found in knee replacement rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.98) nor were any differences found in the survey respondents (Rate Ratio: 1.11).
- A significant difference was noted East St. Boniface (0.49) and St. Vital (0.42) where the Francophone Cohort had a lower knee replacement rate than the Matched Cohort of Other Manitobans.
- The rates of knee replacement of Francophones in all areas were similar to the Francophone provincial rate (Table 11.11.5).

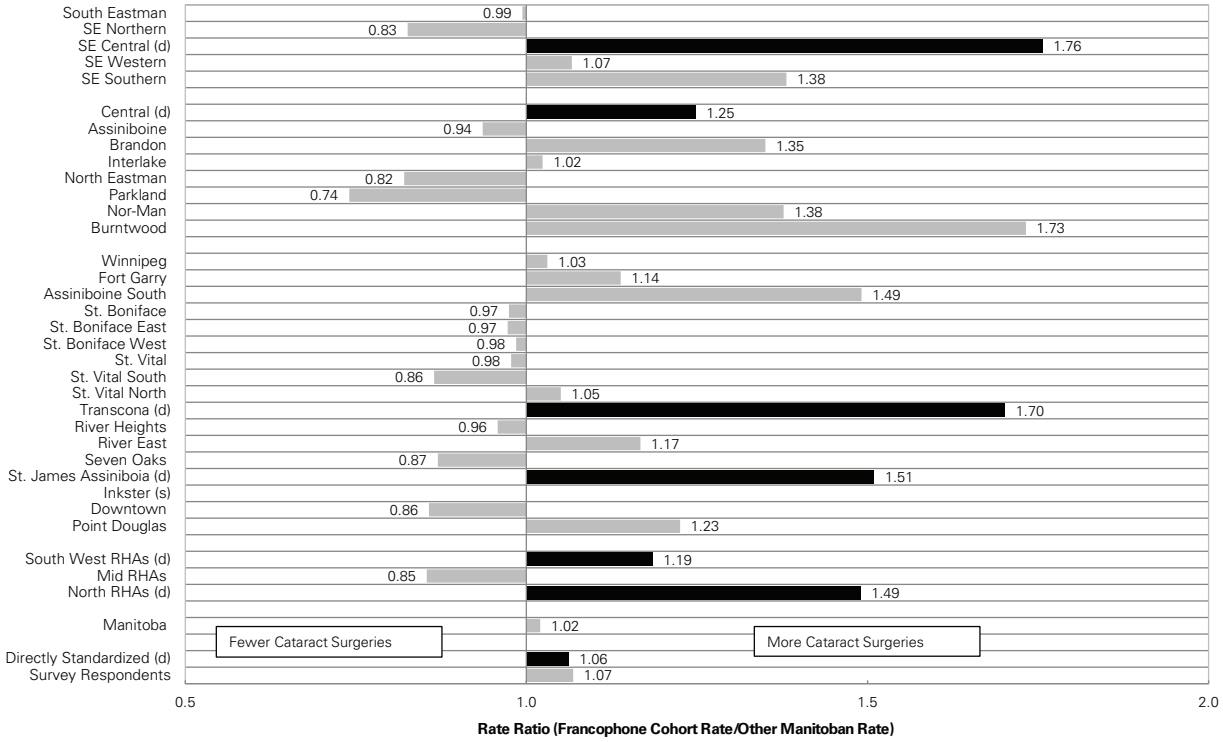
11.6 Cataract Surgery

Cataracts occur when the lens of the eye becomes cloudy and normal vision is impaired. During **cataract surgery**, the clouded lens is removed in its entirety by surgery and replaced with an intraocular lens made of plastic.

Cataract surgery rate is defined as the number of cataract replacement surgeries performed on area residents aged 50 and older per 1,000 residents aged 50 and older. Rates were calculated for a 10–year period, 1999/2000–2008/09, and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.6.1: Cataract Surgeries—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09
Age– & sex adjusted, residents aged 50 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no statistically significant differences were found in the rate of cataract surgery between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.02) nor were any differences found in the survey respondents (Rate Ratio: 1.07).[18]
- A significant difference was noted in the South West RHAs (Rate Ratio: 1.19), the North RHAs (Rate Ratio: 1.49), the central district of South Eastman (Rate Ratio: 1.76), Central (Rate Ratio: 1.25), Transcona (Rate Ratio: 1.70), and St. James Assiniboia (Rate Ratio: 1.51) where the Francophone Cohort had a higher cataract surgery rate than the Matched Cohort of Other Manitobans.
- Rates of cataract surgery of Francophones in all areas were similar to the Francophone provincial rate (Table 11.11.6).

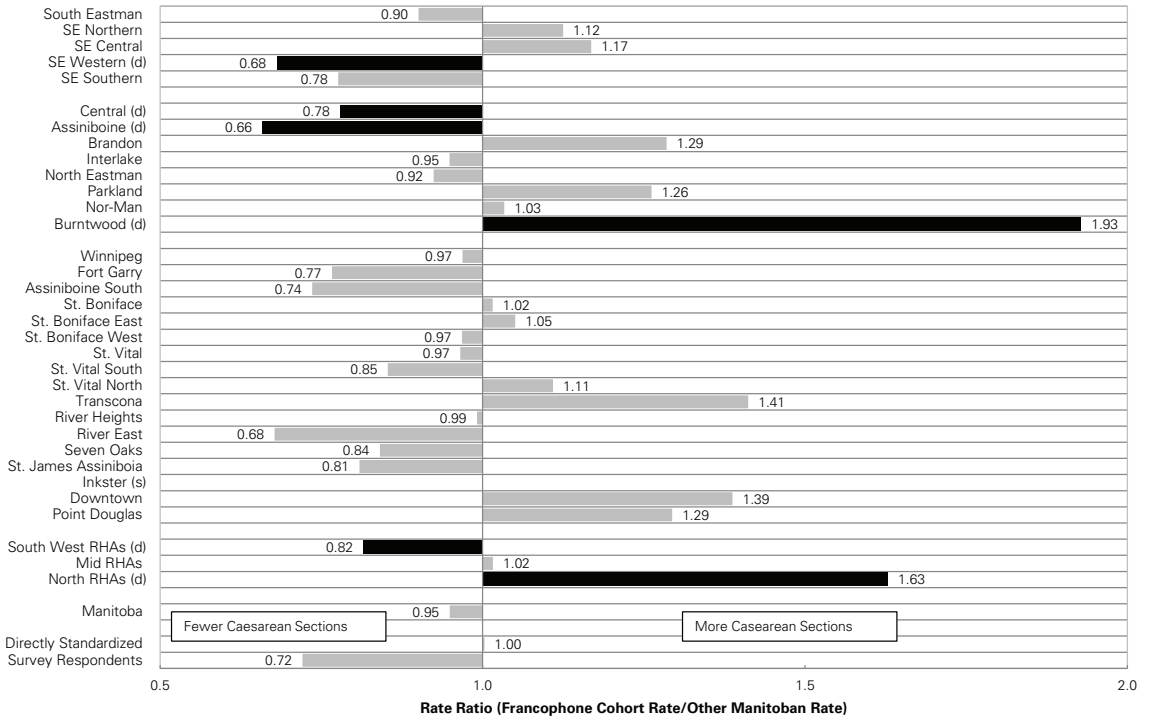
11.7 Caesarean Section

A **caesarian section** is a procedure in which a baby, rather than being born vaginally, is surgically removed from the uterus. The caesarean section rate is defined as the number of caesarean section births per 100 live births.

Rates were calculated for a 10–year period, 1999/2000–2008/09, and adjusted for maternal age.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.7.1: Births by Caesarean Section—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 1999/2000–2008/09
Maternal age–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

18 Note that the rate ratio of the Francophone Cohort and Matched Cohort of Other Manitobans, when directly standardized to permit a comparison with the survey sample, was statistically significant. Direct standardization gives us the rate that we would expect if our sample had the same distribution with regards to age and sex of the Manitoban population. Since our matched cohort is younger, more weight is applied to the rates of the older respondents when we directly standardized. In Chapter 17, we observe that older Francophones tended to be less healthy than their Matched Cohort. This might explain why we see a slightly different rate ratio between the two methods used to adjust for age and sex.

Key findings

- Provincially, no significant differences were found in the rate of caesarean section between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.95) nor were any differences found in the survey respondents (Rate Ratio: 0.72).
- However, some significant differences were noted in North RHAs (Rate Ratio: 1.63) and Burntwood (Rate Ratio: 1.93) where the Francophone Cohort had higher caesarean section rates than the Matched Cohort of Other Manitobans and in the South West RHAs (Rate Ratio: 0.82), the western district of South Eastman (Rate Ratio: 0.68), Central (Rate Ratio: 0.78), and Assiniboine (Rate Ratio: 0.66) where the Francophone Cohort had lower rates.
- The caesarean section rates of Francophones in most areas were similar to the Francophone provincial rate except in the Northern RHAs and Transcona where the rates were higher (Table 11.11.7).

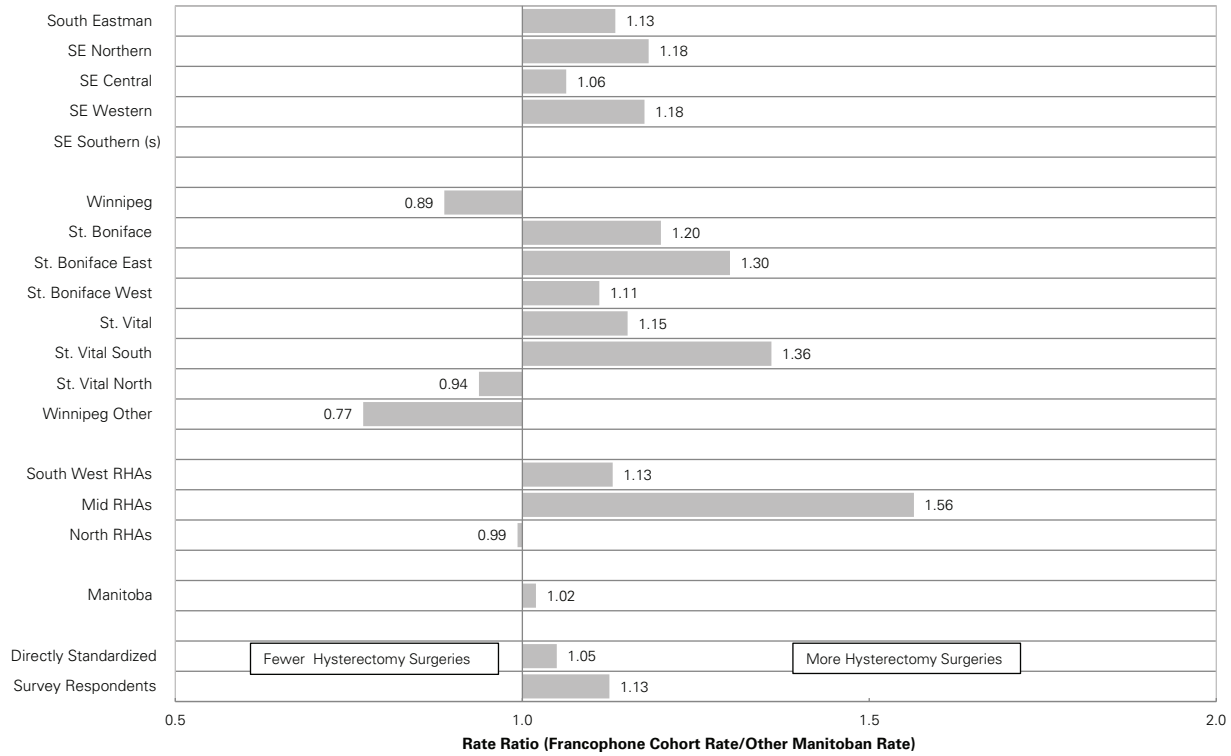
11.8 Hysterectomy

A hysterectomy is a surgical operation to remove the uterus and, sometimes, the cervix and the ovaries. The hysterectomy rate is defined as the number of hysterectomy surgeries performed on women aged 25 and older for 1,000 women aged 25 years and older.

Rates were calculated for a 10–year period, 1999/2000–2008/09, and were age–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 11.8.1: Hysterectomy Surgeries—Rate Ratios for Francophones versus Other Manitobans In Matched Cohort, 1999/2000–2008/09
Age–adjusted, women aged 25 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially and across regions, no significant differences were found in the hysterectomy surgery rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.02) nor were any differences found in the survey respondents (Rate Ratio: 1.13).
- The hysterectomy rates of Francophones in all areas were similar to the Francophone provincial rate (Table 11.11.18).

11.9 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

Table 11.9.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Cardiac Catheterization Rates	2004/05-2008/09	8.25	6.87	1.20 (d)	6.09	7.13	0.85
Percutaneous Coronary Intervention Rates	1999/2000-2008/09	2.74	2.04	1.34 (d)	2.82	2.38	1.19
Coronary Artery Bypass Surgery Rates	1999/2000-2008/09	1.79	1.48	1.21 (d)	1.95	1.59	1.23
Hip Replacement Surgery Rates	1999/2000-2008/09	2.23	2.39	0.93	1.73	2.97	0.58 (d)
Knee Replacement Surgery Rates	1999/2000-2008/09	2.61	2.78	0.94	3.55	3.18	1.11
Cataract Surgery Rates	1999/2000-2008/09	26.57	25.02	1.06 (d)	30.60	28.64	1.07
Caesarean Section Rates	1999/2000-2008/09	20.05%	20.00%	1.00	18.01%	25.00%	0.72
Hysterectomy Rates	1999/2000-2008/09	4.50	4.28	1.05	4.94	4.39	1.13

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2011

11.10 Findings from the Literature

(Comparisons to the results in this study are in italics)

Hip and Knee Replacement Surgery Rates

- Boudreau and Farmer reported that Francophones, both males and females, have more muscular–skeletal problems than Anglophones (1999).
- *In this study, at both the provincial and regional level, no significant differences between the Francophone and Matched Cohort of Other Manitobans were found in rates of hip replacement (Rate Ratio: 0.96) and knee replacements (Rate Ratio: 0.98).*

11.11 Supplementary Tables

Table 11.11.1: Cardiac Catheterization, 2004/05–2008/09
Age– & sex–adjusted, residents aged 40 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.99 (0.77, 1.27)	6.64 (5.24, 8.41)	6.68 (5.63, 7.93)
SE Northern	0.94 (0.66, 1.33)	5.98 (4.38, 8.17)	6.38 (5.13, 7.93)
SE Central	1.09 (0.47, 2.53)	7.33 (3.25, 16.56)	6.75 (5.16, 8.82)
SE Western	1.06 (0.74, 1.53)	7.05 (5.15, 9.65)	6.66 (5.24, 8.45)
SE Southern	1.33 (0.63, 2.82)	8.51 (4.36, 16.63)	6.39 (4.43, 9.21)
Central (d)	**1.43 (1.02, 2.02)**	**6.51 (4.82, 8.78)**	**4.54 (3.63, 5.68)**
Assiniboine	0.96 (0.52, 1.76)	4.72 (2.74, 8.14)	4.93 (3.60, 6.74)
Brandon (d)	**2.50 (1.11, 5.64)**	**10.39 (5.64, 19.14)**	**4.16 (2.37, 7.28)**
Interlake	1.74 (0.99, 3.05)	8.89 (5.59, 14.14)	5.12 (3.58, 7.32)
North Eastman (d)	**1.75 (1.09, 2.82)**	**8.86 (5.97, 13.14)**	**5.05 (3.71, 6.87)**
Parkland	1.14 (0.62, 2.09)	6.65 (3.92, 11.29)	5.84 (4.16, 8.19)
Nor-Man	0.72 (0.29, 1.78)	7.05 (3.12, 15.92)	9.80 (6.43, 14.93)
Burntwood (s)	s	s	4.83 (2.63, 8.88)
Winnipeg	1.11 (0.93, 1.32)	6.57 (5.48, 7.88)	5.94 (5.18, 6.81)
St. Boniface	0.99 (0.78, 1.27)	5.89 (4.68, 7.42)	5.99 (5.07, 7.08)
St. Boniface East	1.08 (0.76, 1.55)	6.34 (4.59, 8.76)	5.85 (4.69, 7.29)
St. Boniface West	0.91 (0.65, 1.26)	5.58 (4.18, 7.45)	6.15 (4.98, 7.61)
St. Vital (d)	**1.48 (1.08, 2.03)**	**7.34 (5.55, 9.69)**	**4.97 (4.02, 6.13)**
St. Vital South (d)	**1.59 (1.02, 2.48)**	**6.88 (4.74, 9.98)**	**4.33 (3.25, 5.76)**
St. Vital North	1.33 (0.87, 2.05)	8.02 (5.54, 11.61)	6.02 (4.61, 7.86)
Winnipeg Other	1.14 (0.88, 1.48)	7.11 (5.54, 9.12)	6.22 (5.28, 7.32)
South West RHAs (d)	**1.39 (1.05, 1.86)**	**6.41 (4.94, 8.31)**	**4.60 (3.79, 5.58)**
Mid RHAs (d)	**1.55 (1.12, 2.14)**	**8.24 (6.21, 10.93)**	**5.31 (4.29, 6.57)**
North RHAs	0.90 (0.45, 1.78)	6.58 (3.58, 12.08)	7.35 (5.16, 10.47)
Manitoba	1.15 (0.98, 1.33)	6.71 (5.76, 7.81)	5.85 (5.54, 6.16)
Directly Standardized (d)	**1.20 (1.04, 1.40)**	**8.25 (7.55, 8.94)**	**6.87 (6.51, 7.23)**
Survey Respondents	0.85 (0.51, 1.20)	6.09 (3.81, 8.38)	7.13 (6.00, 8.25)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 11.11.2: Percutaneous Coronary Intervention Rate Ratios, 1999/2000–2008/09
Age– & sex–adjusted, residents aged 40 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.99 (0.61, 1.59)	2.06 (1.52, 2.80)	1.83 (1.48, 2.27)
SE Northern	1.08 (0.68, 1.69)	2.03 (1.37, 3.02)	1.89 (1.40, 2.55)
SE Central (s)	s	s	1.66 (1.11, 2.49)
SE Western	1.14 (0.69, 1.87)	2.15 (1.41, 3.30)	1.90 (1.36, 2.64)
SE Southern (d)	**2.32 (1.02, 5.26)**	**4.48 (2.26, 8.89)**	**1.94 (1.18, 3.18)**
Winnipeg (d)	**1.33 (1.05, 1.69)**	**2.45 (1.93, 3.11)**	**1.84 (1.51, 2.24)**
St. Boniface	1.23 (0.90, 1.69)	2.05 (1.53, 2.75)	1.69 (1.34, 2.14)
St. Boniface East	1.40 (0.87, 2.25)	2.30 (1.53, 3.47)	1.64 (1.21, 2.24)
St. Boniface West	1.09 (0.71, 1.66)	1.89 (1.32, 2.72)	1.74 (1.29, 2.35)
St. Vital (d)	**1.69 (1.11, 2.57)**	**2.60 (1.81, 3.73)**	**1.54 (1.15, 2.06)**
St. Vital South	1.39 (0.79, 2.42)	2.61 (1.62, 4.20)	1.88 (1.32, 2.69)
St. Vital North (d)	**2.21 (1.17, 4.19)**	**2.58 (1.56, 4.26)**	**1.17 (0.75, 1.82)**
Winnipeg Other (d)	**1.54 (1.13, 2.10)**	**3.18 (2.37, 4.28)**	**2.07 (1.66, 2.58)**
South West RHAs (d)	**1.53 (1.05, 2.21)**	**2.24 (1.60, 3.12)**	**1.47 (1.13, 1.90)**
Mid RHAs	1.00 (0.64, 1.58)	2.05 (1.35, 3.11)	2.04 (1.55, 2.69)
North RHAs	1.74 (0.62, 4.87)	1.91 (0.83, 4.35)	1.09 (0.57, 2.09)
Manitoba (d)	**1.31 (1.07, 1.60)**	**2.30 (1.88, 2.82)**	**1.76 (1.64, 1.89)**
Directly Standardized (d)	**1.34 (1.13, 1.58)**	**2.74 (2.45, 3.03)**	**2.04 (1.89, 2.19)**
Survey Respondents	1.19 (0.45, 1.92)	2.82 (1.10, 4.54)	2.38 (1.99, 2.76)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 11.11.3: Coronary Artery Bypass Graft Surgeries, 1999/2000–2008/09
Age– & sex adjusted, residents aged 40 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.09 (0.66, 1.78)	1.44 (1.04, 1.99)	1.22 (0.99, 1.50)
SE Northern	1.38 (0.84, 2.27)	1.53 (1.01, 2.32)	1.11 (0.81, 1.52)
SE Central (s)	s	s	1.54 (1.04, 2.29)
SE Western	1.12 (0.63, 1.97)	1.44 (0.89, 2.32)	1.29 (0.91, 1.81)
SE Southern (s)	s	s	0.83 (0.41, 1.67)
Winnipeg	1.10 (0.87, 1.39)	1.38 (1.08, 1.75)	1.25 (1.08, 1.45)
St. Boniface	0.84 (0.59, 1.20)	1.28 (0.92, 1.78)	1.55 (1.27, 1.90)
St. Boniface East	0.87 (0.51, 1.47)	1.43 (0.88, 2.31)	1.65 (1.26, 2.16)
St. Boniface West	0.82 (0.51, 1.31)	1.19 (0.79, 1.80)	1.45 (1.11, 1.91)
St. Vital	1.41 (0.85, 2.34)	1.65 (1.07, 2.55)	1.17 (0.86, 1.59)
St. Vital South	1.47 (0.68, 3.16)	1.31 (0.70, 2.48)	0.89 (0.56, 1.41)
St. Vital North	1.33 (0.74, 2.42)	2.26 (1.36, 3.75)	1.69 (1.19, 2.39)
Winnipeg Other	1.27 (0.84, 1.92)	1.27 (0.86, 1.86)	1.00 (0.80, 1.25)
South West RHAs (d)	**1.57 (1.05, 2.36)**	**1.46 (1.02, 2.09)**	**0.93 (0.72, 1.20)**
Mid RHAs	1.06 (0.66, 1.70)	1.56 (1.01, 2.40)	1.48 (1.14, 1.91)
North RHAs	1.55 (0.57, 4.20)	1.84 (0.82, 4.13)	1.18 (0.65, 2.15)
Manitoba (d)	**1.19 (1.01, 1.39)**	**1.43 (1.22, 1.68)**	**1.21 (1.10, 1.31)**
Directly Standardized (d)	**1.21 (1.09, 1.42)**	**1.79 (1.55, 2.03)**	**1.48 (1.36, 1.61)**
Survey Respondents	1.23 (0.55, 1.90)	1.95 (0.97, 2.94)	1.59 (1.27, 1.92)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 11.11.4: Hip Replacement Surgeries, 1999/2000–2008/09

Age– & sex–adjusted, residents aged 40 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.78 (0.50, 1.24)	1.04 (0.68, 1.58)	1.51 (1.19, 1.90)
SE Northern	0.81 (0.45, 1.47)	1.07 (0.63, 1.82)	1.32 (0.93, 1.88)
SE Central (s)	s	s	1.90 (1.26, 2.85)
SE Western	0.75 (0.37, 1.52)	1.00 (0.53, 1.86)	1.33 (0.90, 1.96)
SE Southern (s)	s	s	1.94 (1.17, 3.21)
Winnipeg	1.07 (0.85, 1.35)	1.71 (1.34, 2.20)	1.60 (1.34, 1.91)
St. Boniface	1.12 (0.83, 1.53)	2.06 (1.53, 2.76)	1.92 (1.53, 2.41)
St. Boniface East (f)	1.34 (0.84, 2.13)	**2.77 (1.84, 4.18)**	2.07 (1.52, 2.81)
St. Boniface West	0.95 (0.64, 1.42)	1.69 (1.18, 2.40)	1.77 (1.33, 2.35)
St. Vital	0.71 (0.41, 1.23)	1.16 (0.70, 1.94)	1.64 (1.23, 2.18)
St. Vital South	0.70 (0.33, 1.49)	1.26 (0.64, 2.50)	1.79 (1.23, 2.61)
St. Vital North	0.72 (0.32, 1.59)	1.04 (0.50, 2.13)	1.44 (0.98, 2.14)
Winnipeg Other	1.12 (0.76, 1.65)	1.63 (1.12, 2.38)	1.45 (1.15, 1.83)
South West RHAs	1.05 (0.70, 1.56)	1.76 (1.21, 2.57)	1.69 (1.32, 2.16)
Mid RHAs	0.83 (0.48, 1.44)	1.29 (0.78, 2.15)	1.55 (1.17, 2.07)
North RHAs (s)	s	s	1.26 (0.67, 2.38)
Manitoba	0.97 (0.80, 1.17)	1.52 (1.25, 1.84)	1.57 (1.45, 1.69)
Directly Standardized	0.91 (0.75, 1.09)	1.74 (1.51, 1.97)	1.92 (1.77, 2.06)
Survey Respondents (d)	**0.56 (0.19, 0.93)**	**1.41 (0.54, 2.29)**	**2.52 (2.07, 2.97)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 11.11.5: Knee Replacement, 1999/2000–2008/09
Age– & sex–adjusted, residents aged 40 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.06 (0.75, 1.52)	2.26 (1.65, 3.10)	2.22 (1.77, 2.78)
SE Northern	1.01 (0.63, 1.60)	2.18 (1.44, 3.30)	2.17 (1.59, 2.95)
SE Central (s)	s	s	2.11 (1.38, 3.21)
SE Western	0.99 (0.60, 1.63)	2.29 (1.46, 3.57)	2.31 (1.67, 3.21)
SE Southern (s)	s	s	2.51 (1.57, 3.99)
Winnipeg	0.80 (0.62, 1.04)	1.80 (1.38, 2.35)	2.24 (1.84, 2.73)
St. Boniface	0.79 (0.54, 1.14)	1.81 (1.29, 2.54)	2.14 (1.69, 2.72)
St. Boniface East (d)	**0.49 (0.26, 0.94)**	**1.08 (0.59, 1.98)**	**2.19 (1.60, 2.99)**
St. Boniface West	1.22 (0.83, 1.79)	2.56 (1.83, 3.59)	2.10 (1.56, 2.82)
St. Vital (d)	**0.42 (0.22, 0.81)**	**0.99 (0.52, 1.87)**	**2.35 (1.79, 3.10)**
St. Vital South (s)	s	s	2.33 (1.62, 3.34)
St. Vital North	0.83 (0.45, 1.54)	2.00 (1.15, 3.48)	2.39 (1.68, 3.39)
Winnipeg Other	0.73 (0.49, 1.08)	1.69 (1.14, 2.49)	2.31 (1.83, 2.93)
South West RHAs	1.13 (0.78, 1.64)	2.40 (1.68, 3.41)	2.13 (1.65, 2.75)
Mid RHAs	1.50 (0.99, 2.28)	2.99 (2.06, 4.33)	1.98 (1.49, 2.63)
North RHAs	0.78 (0.31, 1.97)	2.01 (0.88, 4.60)	2.57 (1.62, 4.06)
Manitoba	0.98 (0.79, 1.21)	2.14 (1.73, 2.64)	2.18 (2.04, 2.32)
Directly Standardized	0.94 (0.79, 1.10)	2.61 (2.31, 2.90)	2.78 (2.61, 2.96)
Survey Respondents	1.11 (0.38, 1.85)	3.55 (1.23, 5.87)	3.18 (2.72, 3.65)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 11.11.6: Cataract Surgeries, 1999/2000–2008/09
Age– & sex–adjusted, residents aged 50 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.99 (0.84, 1.17)	23.44 (20.00, 27.46)	23.58 (20.70, 26.85)
SE Northern	0.83 (0.67, 1.02)	20.16 (16.68, 24.36)	24.41 (21.07, 28.28)
SE Central (d)	**1.76 (1.00, 3.08)**	**35.89 (20.98, 61.41)**	**20.43 (16.78, 24.88)**
SE Western	1.07 (0.85, 1.33)	26.49 (21.79, 32.21)	24.84 (21.30, 28.96)
SE Southern	1.38 (0.94, 2.02)	32.05 (22.87, 44.90)	23.21 (18.77, 28.69)
Central (d)	**1.25 (1.03, 1.52)**	**27.61 (23.08, 33.03)**	**22.12 (19.18, 25.52)**
Assiniboine	0.94 (0.69, 1.26)	21.05 (15.97, 27.74)	22.49 (19.04, 26.56)
Brandon	1.35 (0.86, 2.12)	32.65 (22.24, 47.92)	24.18 (18.52, 31.57)
Interlake	1.02 (0.72, 1.46)	22.90 (16.70, 31.39)	22.36 (18.29, 27.34)
North Eastman	0.82 (0.61, 1.11)	19.79 (15.00, 26.10)	24.11 (20.27, 28.67)
Parkland	0.74 (0.50, 1.09)	18.85 (13.33, 26.64)	25.46 (20.77, 31.21)
Nor-Man	1.38 (0.89, 2.12)	38.06 (26.41, 54.87)	27.64 (21.33, 35.82)
Burntwood	1.73 (0.86, 3.50)	27.15 (15.52, 47.49)	15.68 (10.04, 24.47)
Winnipeg	1.03 (0.93, 1.14)	25.97 (23.42, 28.80)	25.20 (23.18, 27.40)
Fort Garry	1.14 (0.89, 1.46)	28.32 (22.55, 35.56)	24.88 (21.19, 29.22)
Assiniboine South	1.49 (0.84, 2.64)	24.85 (14.75, 41.88)	16.67 (12.88, 21.56)
St. Boniface	0.97 (0.84, 1.14)	25.63 (22.15, 29.65)	26.30 (23.13, 29.91)
St. Boniface East	0.97 (0.77, 1.22)	23.99 (19.51, 29.49)	24.66 (21.25, 28.62)
St. Boniface West	0.98 (0.84, 1.16)	26.88 (23.22, 31.12)	27.30 (23.97, 31.09)
St. Vital	0.98 (0.80, 1.20)	24.01 (19.93, 28.93)	24.56 (21.29, 28.33)
St. Vital South	0.86 (0.64, 1.16)	19.65 (15.12, 25.54)	22.72 (19.07, 27.08)
St. Vital North	1.05 (0.83, 1.33)	27.48 (22.31, 33.85)	26.16 (22.47, 30.46)
Transcona (d)	**1.70 (1.08, 2.68)**	**37.28 (25.67, 54.15)**	**21.91 (16.44, 29.20)**
River Heights	0.96 (0.68, 1.34)	26.83 (19.40, 37.12)	28.01 (24.13, 32.52)
River East	1.17 (0.84, 1.63)	27.36 (20.06, 37.31)	23.44 (19.80, 27.75)
Seven Oaks	0.87 (0.47, 1.61)	21.87 (12.75, 37.53)	25.14 (18.37, 34.39)
St. James Assiniboia (d)	**1.51 (1.05, 2.18)**	**35.68 (25.84, 49.27)**	**23.63 (19.09, 29.24)**
Inkster (s)	s	s	32.48 (21.91, 48.14)
Downtown	0.86 (0.60, 1.22)	23.59 (17.17, 32.43)	27.53 (22.51, 33.67)
Point Douglas	1.23 (0.72, 2.08)	33.35 (21.31, 52.20)	27.22 (20.11, 36.83)
South West RHAs (d)	**1.19 (1.00, 1.40)**	**26.40 (22.55, 30.91)**	**22.28 (19.69, 25.21)**
Mid RHAs	0.85 (0.70, 1.04)	20.46 (17.01, 24.60)	23.96 (21.32, 26.92)
North RHAs (d)	**1.49 (1.04, 2.13)**	**35.05 (26.05, 47.15)**	**23.52 (18.95, 29.20)**
Manitoba	1.02 (0.91, 1.15)	24.63 (21.86, 27.76)	24.14 (23.52, 24.76)
Directly Standardized (d)	**1.06 (0.98, 1.13)**	**26.57 (25.43, 27.70)**	**25.02 (24.37, 25.66)**
Survey Respondents	1.07 (0.87, 1.26)	30.60 (25.33, 35.86)	28.64 (27.22, 30.06)

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d' indicates that there was a difference between the two groups' rates
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'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 11.11.7: Births by Caesarean Section, 1999/2000–2008/09

Maternal age–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.90 (0.76, 1.07)	16.80 (14.31, 19.72)	18.65 (16.99, 20.48)
SE Northern	1.12 (0.86, 1.47)	19.13 (15.45, 23.70)	17.01 (14.24, 20.32)
SE Central	1.17 (0.80, 1.71)	23.37 (16.15, 33.81)	20.00 (17.63, 22.69)
SE Western (f,d)	**0.68 (0.48, 0.96)**	**12.40 (9.33, 16.47)**	**18.21 (14.88, 22.29)**
SE Southern	0.78 (0.33, 1.83)	13.43 (6.02, 29.97)	17.31 (12.71, 23.56)
Central (d)	**0.78 (0.61, 0.99)**	**15.58 (12.50, 19.43)**	**20.01 (17.80, 22.48)**
Assiniboine (d)	**0.66 (0.44, 0.98)**	**14.58 (10.20, 20.85)**	**22.15 (18.33, 26.77)**
Brandon	1.29 (0.79, 2.10)	25.00 (17.49, 35.75)	19.45 (13.80, 27.42)
Interlake	0.95 (0.55, 1.62)	14.29 (9.08, 22.50)	15.06 (11.18, 20.30)
North Eastman	0.92 (0.59, 1.46)	14.32 (9.63, 21.30)	15.50 (12.22, 19.66)
Parkland	1.26 (0.88, 1.82)	27.35 (19.78, 37.82)	21.67 (18.08, 25.98)
Nor-Man	1.03 (0.48, 2.23)	32.92 (18.17, 59.64)	31.86 (19.48, 52.08)
Burntwood (d)	**1.93 (1.13, 3.30)**	**30.39 (20.27, 45.56)**	**15.76 (10.99, 22.59)**
Winnipeg	0.97 (0.87, 1.07)	19.09 (17.18, 21.20)	19.70 (18.36, 21.14)
Fort Garry	0.77 (0.54, 1.09)	16.14 (11.97, 21.76)	21.06 (17.17, 25.83)
Assiniboine South	0.74 (0.30, 1.81)	14.19 (6.36, 31.66)	19.28 (12.67, 29.35)
St. Boniface	1.02 (0.85, 1.21)	19.46 (16.69, 22.68)	19.16 (17.03, 21.56)
St. Boniface East	1.05 (0.81, 1.36)	19.29 (15.49, 24.02)	18.37 (15.75, 21.42)
St. Boniface West	0.97 (0.75, 1.24)	19.59 (16.07, 23.88)	20.24 (17.06, 24.02)
St. Vital	0.97 (0.76, 1.23)	18.90 (15.36, 23.27)	19.58 (16.99, 22.57)
St. Vital South	0.85 (0.61, 1.20)	17.76 (13.18, 23.95)	20.83 (17.36, 24.98)
St. Vital North	1.11 (0.79, 1.56)	20.00 (15.17, 26.36)	18.03 (14.52, 22.38)
Transcona (f)	1.41 (0.88, 2.26)	**36.09 (24.79, 52.54)**	25.56 (19.03, 34.33)
River Heights	0.99 (0.68, 1.44)	21.18 (14.97, 29.97)	21.37 (18.14, 25.18)
River East	0.68 (0.43, 1.07)	13.88 (9.01, 21.38)	20.49 (17.29, 24.28)
Seven Oaks	0.84 (0.44, 1.60)	18.09 (10.68, 30.66)	21.52 (14.73, 31.45)
St. James Assiniboia	0.81 (0.48, 1.37)	17.14 (11.01, 26.68)	21.18 (15.72, 28.55)
Inkster (s)	s	s	15.68 (8.43, 29.19)
Downtown	1.39 (0.97, 1.99)	19.62 (14.99, 25.69)	14.14 (10.97, 18.23)
Point Douglas	1.29 (0.71, 2.36)	23.56 (14.78, 37.56)	18.21 (12.37, 26.80)
South West RHAs (d)	**0.82 (0.68, 0.98)**	**16.66 (14.02, 19.81)**	**20.44 (18.51, 22.57)**
Mid RHAs	1.02 (0.79, 1.31)	18.37 (14.66, 23.02)	18.08 (15.82, 20.67)
North RHAs (f,d)	**1.63 (1.05, 2.53)**	**30.91 (22.07, 43.31)**	**18.98 (14.18, 25.41)**
Manitoba	0.95 (0.88, 1.02)	18.42 (17.10, 19.84)	19.41 (18.72, 20.10)
Directly Standardized	1.00 (0.94, 1.07)	20.05 (18.97, 21.12)	20.00 (19.30, 20.70)
Survey Respondents	0.72 (0.26, 1.18)	18.01 (6.75, 29.28)	25.00 (20.76, 29.23)

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d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 11.11.8: Hysterectomy Surgeries, 1999/2000–2008/09

Age–adjusted, females aged 25 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.13 (0.81, 1.59)	5.87 (3.95, 8.74)	5.67 (4.03, 7.98)
SE Northern	1.18 (0.70, 2.00)	6.20 (3.79, 10.13)	5.24 (3.35, 8.20)
SE Central	1.06 (0.49, 2.31)	7.93 (3.76, 16.74)	7.46 (4.73, 11.77)
SE Western	1.18 (0.66, 2.10)	5.26 (3.14, 8.81)	4.47 (2.76, 7.24)
SE Southern (s)	s	s	5.73 (3.34, 9.85)
Winnipeg	0.89 (0.55, 1.43)	3.61 (2.24, 5.83)	4.07 (2.62, 6.33)
St. Boniface	1.20 (0.81, 1.78)	4.27 (2.82, 6.46)	3.55 (2.42, 5.21)
St. Boniface East	1.30 (0.73, 2.31)	4.36 (2.58, 7.38)	3.36 (2.10, 5.36)
St. Boniface West	1.11 (0.65, 1.90)	4.21 (2.59, 6.86)	3.79 (2.39, 6.02)
St. Vital	1.15 (0.73, 1.81)	4.37 (2.75, 6.94)	3.79 (2.55, 5.64)
St. Vital South	1.36 (0.73, 2.54)	4.70 (2.67, 8.29)	3.46 (2.12, 5.64)
St. Vital North	0.94 (0.49, 1.79)	3.99 (2.19, 7.27)	4.26 (2.64, 6.86)
Winnipeg Other	0.77 (0.47, 1.26)	3.46 (2.14, 5.60)	4.49 (2.98, 6.75)
South West RHAs	1.13 (0.69, 1.86)	5.15 (3.18, 8.33)	4.55 (2.98, 6.95)
Mid RHAs	1.56 (0.87, 2.81)	6.14 (3.53, 10.68)	3.93 (2.40, 6.43)
North RHAs	0.99 (0.45, 2.21)	5.89 (2.87, 12.08)	5.93 (3.33, 10.57)
Manitoba	1.02 (0.65, 1.60)	4.55 (2.90, 7.12)	4.46 (4.23, 4.68)
Directly Standardized	1.05 (0.94, 1.19)	4.50 (4.13, 4.87)	4.28 (4.07, 4.50)
Survey Respondents	1.13 (0.51, 1.74)	4.94 (2.41, 7.47)	4.39 (3.74, 5.03)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 12: Use of Personal Care Homes (Nursing Homes)

Indicators in this chapter:

- 12.1 Personal Care Home (PCH) Admissions
- 12.2 Personal Care Home (PCH) Residents
- 12.3 Median Wait Time for Admission to Personal Care Home (PCH)
- 12.4 Location: Where Residents Went for Personal Care Home (PCH) Admissions
- 12.5 Catchment: Where Patients Came from Prior to Admission to Personal Care Home (PCH)
- 12.6 Comparison of Rates between Samples
- 12.7 Findings from the Literature
- 12.8 Supplementary Tables

Overall Key Findings

- Overall, there are no differences between the rate people are admitted to a personal care home (PCH) and the rate of residence in a PCH when comparing the Francophone Cohort to a Matched Cohort of Other Manitobans. However, the Francophones Cohort experiences a higher median wait time for entry into a PCH than the comparison group.
- There is substantial variation between areas in all indicators for the Francophone Cohort and the Matched Cohort of Other Manitobans. There are higher rates of Francophone PCH residents in areas where bilingual PCHs exists and lower rates where there are no bilingual PCHs.
- Most residents are able to stay in their home RHA; this is similar between the Francophone Cohort and the Matched Cohort of Other Manitobans. There is an exception for Mid and North RHAs where Francophones are more likely to leave the region to enter a PCH. A higher proportion of Francophones in a PCH in South Eastman lived in South Eastman prior to admission than the Matched Cohort.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 12.0: Summary of Use of Personal Care Home Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Residents Admitted to Personal Care Homes, 2004/05-2008/09		
Manitoba		
South Eastman (d)	↑	
St. Boniface (d)	↑	
St. Boniface West (d)	↑	
St. Vital		
St. Vital South (f,d)	↓	↓
St. Vital North (f)		↑
Residents in Personal Care Homes, 2004/05-2008/09		
Manitoba		
South Eastman (d)	↑	
Central (f)		↓
Assiniboine (f,d)	↓	↓
Interlake (d)	↓	
North Eastman (f,d)	↓	↓
Parkland (f,d)	↓	↓
Nor-Man (f,d)	↓	↓
Winnipeg (f,d)	↑	↑
Fort Garry (d)	↓	
Assiniboine South (d)	↓	
St. Boniface (d)	↑	
St. Boniface East (d)	↑	
St. Boniface West (d)	↑	
St. Vital (f,d)	↑	↑
St. Vital South (f,d)	↑	↑
St. Vital North (d)	↑	
Transcona (d)	↑	
St. James Assiniboia (d)	↓	
South West RHAs (f,d)	↓	↓
Mid RHAs (f,d)	↓	↓
North RHAs (f,d)	↓	↓
Median Wait Times for Personal Care Home Admission, 2004/05-2008/09		
Manitoba (d)	↑	
South Eastman RHA (f)		↑
St. Boniface (d)	↑	
Winnipeg Other (f)		↓

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates

↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups.

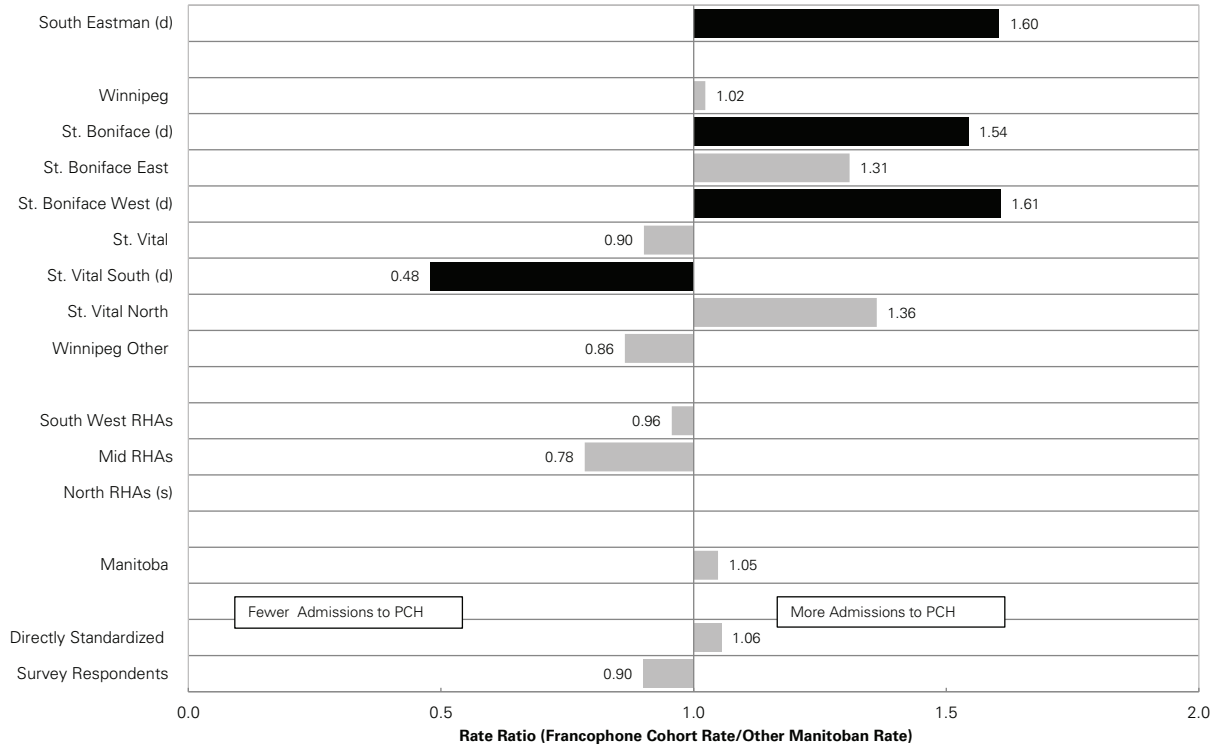
Source: Manitoba Centre for Health Policy, 2012

12.1 Personal Care Home (PCH) Admissions

Personal care home (PCH) admissions include residents, aged 75 and older, who were admitted to a personal care home. The rate of PCH admissions is defined as the number of area residents, aged 75 and older, admitted to a PCH divided by the total number of area residents, aged 75 and older. Area of residence was assigned based on the location of the PCH where the resident was admitted. Rates were calculated for 2004/05–2008/09 and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 12.1.1: Residents Admitted to Personal Care Homes—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09
Age– & sex–adjusted, residents aged 75 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

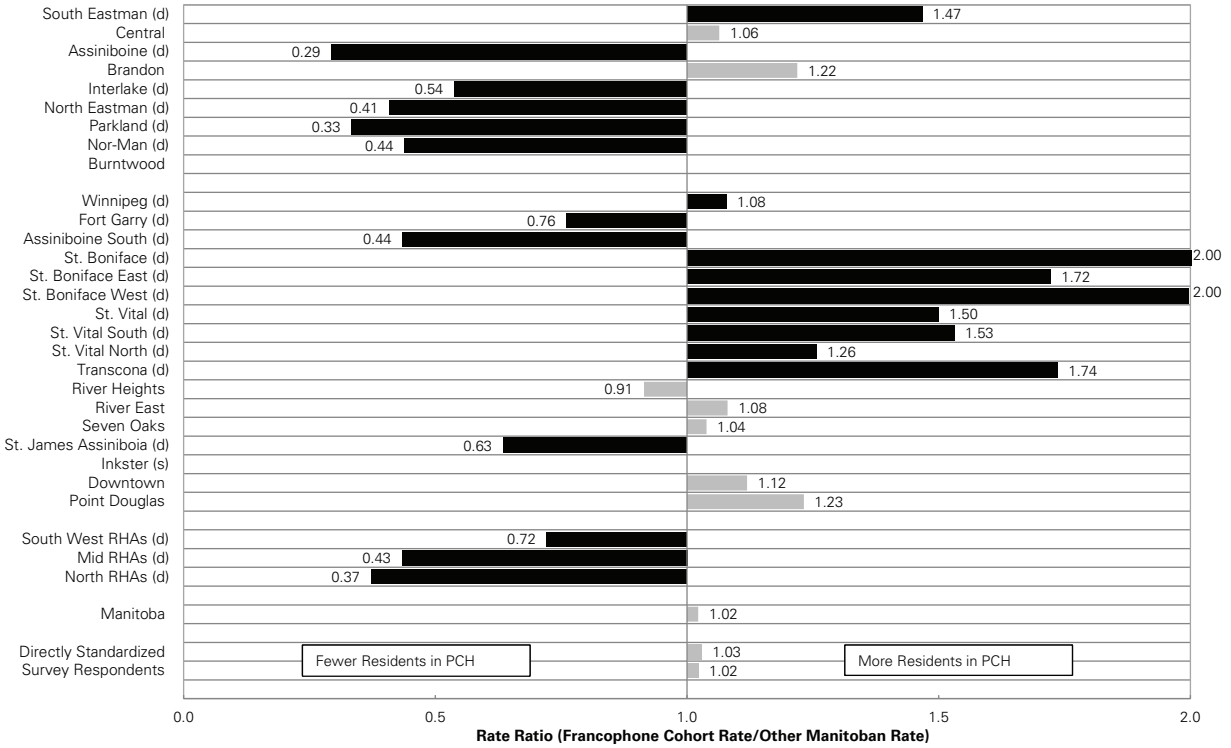
- Provincially, no significant differences were found in the PCH admission rates between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.05) nor were any differences found in the survey respondents (Rate Ratio: 0.90).
- However, some significant differences were noted in South Eastman (Rate Ratio: 1.60); St. Boniface (Rate Ratio: 1.54); and, specifically, West St. Boniface (Rate Ratio: 1.61) where Francophones had higher rates than the Matched Cohort of Other Manitobans and in South St. Vital (Rate Ratio: 0.48) where the Francophone Cohort had lower rates of PCH admissions.
- The rates of PCH admissions of Francophones in most areas was similar to the Francophone provincial rate except for those in North St. Vital where the rates were higher than the Francophone provincial rate and those in South St. Vital where the rates were lower (Table 12.8.1).

12.2 Personal Care Home (PCH) Residents

Personal care home (PCH) residents are area residents, aged 75 and older, currently living in a PCH. The percentage of PCH residents is calculated by dividing the number of PCH residents aged 75 and older by the total number of area residents aged 75 and older. Area of residence was assigned based on the location of the PCH where the resident was living. Rates were calculated for 2004/05–2008/09 and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 12.2.1: Residents in Personal Care Home—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09
Age– & sex–adjusted, residents aged 75 and older



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

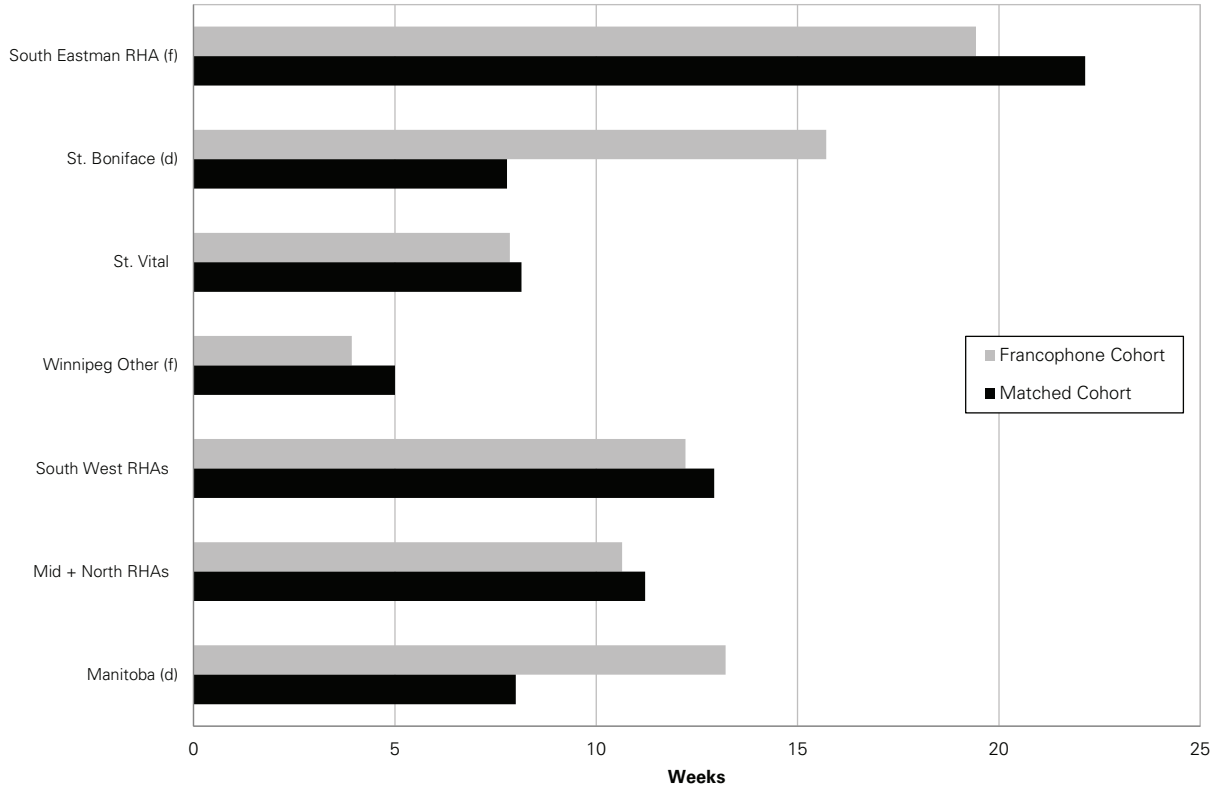
Key findings

- Provincially, no significant differences were found in the percentage of residents living in a PCH between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.02) nor were any differences found in the survey respondents (Rate Ratio: 1.02).
- However, it appears that in regions where bilingual PCHs exist, there are higher percentages of Francophones living in PCHs; and conversely, lower percentages where bilingual PCHs do not likely exist. For example, Francophones in South Eastman (Rate Ratio: 1.47), St. Boniface (Rate Ratio: 2.00), and St. Vital (Rate Ratio: 1.50) had higher rates than the Matched Cohort of Other Manitobans. On the other hand, Francophones in the South West RHAs (Rate Ratio: 0.72), Mid RHAs (Rate Ratio: 0.43), and North RHAs (Rate Ratio: 0.37) had lower rates.
- In most areas, the percentage of Francophones living in a PCH differed considerably from the Francophone provincial rate (Table 12.8.2).

12.3 Median Wait Time for Admission to a Personal Care Home (PCH)

Median wait time for admission to PCH is the number of weeks it took for half of all residents to be admitted to a PCH after being assessed as requiring PCH placement. The median wait time was calculated by listing the wait times (number of weeks) for residents aged 75 and older who were admitted to a PCH for each area and identifying the middle wait time. This was calculated by area of residence before being admitted to a PCH. Median wait times were calculated from 2004/2005 to 2008/09 and were not age or sex adjusted.

Figure 12.3.1: Median Wait Times for Personal Care Home Admission, 2004/05–2008/09
Median number of weeks from assessment to admission by area of residence prior to admission, residents aged 75 and older



'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers

Source Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had a significantly higher median wait time than the Matched Cohort of Other Manitobans, 13.21 and 8.00 weeks respectively.
- In most areas of Manitoba the median wait time is similar between the two cohorts, except in St. Boniface where the wait time is significantly higher for the Francophone Cohort than for the Matched Cohort of Other Manitobans, 15.71 and 7.79 weeks respectively.
- The median wait times of Francophones in most areas were similar to the Francophone provincial rate except for those in the South Eastman (19.43 weeks) where it was higher and in other areas in Winnipeg (3.93 weeks) where it was lower (Table 12.8.3).

12.4 Location: Where Residents Went for Personal Care Home (PCH) Admissions

When a person is admitted to a PCH, it may be necessary to move away from the region where they had lived. The indicator, Location, is defined by a) the percentage of residents aged 75 and older who moved to a PCH within their home RHA, b) the percentage of residents who moved to a PCH in another RHA, and c) the percentage of residents who moved to a PCH in Winnipeg. An individual may enter a PCH in a RHA other than their home RHA for many reasons, for example, personal preference, need to be close to family, or availability. Rates were calculated for 2004/05–2008/09. They were not age– and sex– adjusted and no statistical testing was done.

Table 12.4.1: Where RHA Residents went for PCH Admission, 2004/05–2008/09

Region	Cohort	PCH in Home RHA	PCH in Other RHA	PCH in Winnipeg RHA
South Eastman RHA	Francophone Cohort	89.5%	s	10.5%
	Matched Cohort	90.9%	6.1%	3.0%
South West RHAs	Francophone Cohort	85.7%	4.8%	9.5%
	Matched Cohort	88.8%	3.4%	7.8%
Mid + North RHAs	Francophone Cohort	68.8%	6.3%	25.0%
	Matched Cohort	82.7%	3.6%	13.6%
Winnipeg RHA	Francophone Cohort	97.6%	2.4%	n/a
	Matched Cohort	97.5%	2.5%	n/a
Manitoba	Francophone Cohort	94.5%	2.3%	3.2%
	Matched Cohort	95.0%	2.9%	2.1%

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the pattern of where residents are admitted to PCH is similar between the two cohorts.
- One exception appears to be in Northern and Mid RHAs where 68.8% of the Francophone Cohort were admitted to a PCH within their home RHA; whereas 82.7% of the Matched Cohort of Other Manitobans remained in their home RHA.
- Francophones who were not admitted to a PCH in their home RHAs were more likely to be admitted to a Winnipeg PCH.

12.5 Catchment: Where Patients Came From Prior to Admission to Personal Care Home (PCH)

People currently living in a PCH may have lived in another RHA prior to being admitted to the PCH. The indicator, "Catchment", is defined by a) the percentage of residents who, prior to their admission, lived in the same RHA (home RHA); b) the percentage of residents who lived in another RHA; and c) the percentage of residents who lived in the Winnipeg RHA. Rates were calculated for 2004/05–2008/09. They were not age– and sex–adjusted and no statistical testing was done.

Key findings

- Provincially, the pattern of where residents were living, prior to being admitted to a PCH, is similar between the two cohorts. The vast majority of residents are living in a PCH located in their home RHA.
- In Northern and Mid RHAs, 100% of the Francophone Cohort currently living in a PCH was from their home region; whereas 93.8% of the Matched Cohort of Other Manitobans was from their home RHA.

Table 12.5.1: Where Residents Came from for PCH Admission, 2004/05–2008/09

Region	Cohort	Residents of Home RHA	Residents of Other RHA	Residents of Winnipeg RHA
South Eastman RHA	Francophone Cohort	90.4%	2.1%	7.4%
	Matched Cohort	92.8%	2.1%	5.2%
South West RHAs	Francophone Cohort	90.0%	2.5%	7.5%
	Matched Cohort	84.7%	5.6%	9.7%
Mid + North RHAs	Francophone Cohort	100.0%	s	s
	Matched Cohort	93.8%	3.1%	3.1%
Winnipeg RHA	Francophone Cohort	95.7%	4.3%	n/a
	Matched Cohort	97.1%	2.9%	n/a
Manitoba	Francophone Cohort	94.5%	3.7%	1.8%
	Matched Cohort	95.0%	3.2%	1.8%

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

12.6 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

Table 12.6.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
PCH Admissions	2004/05-2008/09	5.47%	5.18%	1.06	2.15%	2.39%	0.90
PCH Residents	2004/05-2008/09	23.72%	23.05%	1.03	7.40%	7.24%	1.02

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

12.7 Findings from the Literature

- A research group reported a relatively good availability of French Language services for older Francophones in Eastern Ontario but that the availability of service does vary from one region to another. They observed that Francophones (aged 65 and older) make up 20.2% of this age group in Ottawa and that 17.9% of personal care home beds are from bilingual facilities. The authors distinguish between bilingual facilities (where the majority of staff are French speaking and where Francophones and Anglophones are together) and francophone facilities (where there are only Francophones). The wait times for Francophones in Ottawa to access a Francophone personal care home was five years (PGF/GTA Recherche pour Réseau des services de santé en français de l'Est de l'Ontario, 2002).

12.8 Supplementary Tables

Table 12.8.1: Residents Admitted to Personal Care Homes, 2004/05–2008/09
Age– & sex–adjusted, residents aged 75 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**1.60 (1.19, 2.16)**	**5.61 (4.36, 7.21)**	**3.50 (2.82, 4.32)**
Winnipeg	1.02 (0.90, 1.17)	**6.40 (5.55, 7.38)**	**6.25 (5.68, 6.89)**
St. Boniface (d)	**1.54 (1.24, 1.92)**	6.67 (5.57, 7.99)	4.30 (3.59, 5.16)
St. Boniface East	1.31 (0.78, 2.18)	5.99 (3.90, 9.20)	4.58 (3.35, 6.26)
St. Boniface West (d)	**1.61 (1.26, 2.05)**	6.78 (5.62, 8.18)	4.22 (3.43, 5.18)
St. Vital	0.90 (0.65, 1.26)	4.57 (3.32, 6.29)	5.49 (4.53, 6.65)
St. Vital South (f,d)	**0.48 (0.24, 0.94)**	**1.92 (1.05, 3.52)**	**4.01 (2.87, 5.59)**
St. Vital North (f)	1.36 (0.98, 1.89)	**9.03 (6.80, 11.99)**	6.63 (5.34, 8.22)
Winnipeg Other	0.86 (0.68, 1.10)	6.29 (4.93, 8.04)	7.28 (6.40, 8.29)
South West RHAs	0.96 (0.71, 1.30)	5.40 (4.07, 7.18)	5.65 (4.75, 6.71)
Mid RHAs	0.78 (0.50, 1.23)	4.00 (2.65, 6.05)	5.10 (4.15, 6.27)
North RHAs (s)	s	s	2.20 (0.99, 4.93)
Manitoba	1.05 (0.94, 1.17)	5.95 (5.32, 6.66)	5.68 (5.41, 5.95)
Directly Standardized	1.06 (0.96, 1.16)	5.47 (5.01, 5.93)	5.18 (4.92, 5.44)
Survey Respondents	0.90 (0.49, 1.31)	2.15 (1.24, 3.07)	2.39 (2.09, 2.69)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 12.8.3: Median Wait Times for Personal Care Home Admission, 2004/05–2008/09
Median number of weeks from assessment to admission by area of residence prior to admission, residents aged 75 and older

Region	Francophone Cohort Adjusted Rate (95 % CI)	Matched Cohort Adjusted Rate (95 % CI)
South Eastman RHA (f)	**19.43 (14.43, 27.14)**	22.14 (17.29, 26.57)
St. Boniface (d)	**15.71 (13.00, 21.00)**	**7.79 (4.86, 11.71)**
St. Vital	7.86 (4.07, 16.29)	8.14 (4.86, 14.00)
Winnipeg Other (f)	**3.93 (2.29, 8.64)**	5.00 (3.71, 5.86)
South West RHAs	12.21 (7.43, 18.71)	12.93 (10.89, 16.43)
Mid + North RHAs	10.64 (8.00, 15.14)	11.21 (8.32, 17.29)
Manitoba (d)	**13.21 (11.86, 15.14)**	**8.00 (6.75, 9.00)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
'd' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 12.8.2: Residents in Personal Care Homes, 2004/05–2008/09
Age– & sex–adjusted, residents aged 75 and older

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**1.47 (1.29, 1.67)**	**26.85 (24.14, 29.88)**	**18.30 (16.82, 19.92)**
Central (f)	1.06 (0.88, 1.28)	**21.21 (18.02, 24.97)**	19.93 (18.03, 22.03)
Assiniboine (f,d)	**0.29 (0.20, 0.42)**	**10.49 (7.32, 15.04)**	**35.78 (32.69, 39.15)**
Brandon	1.22 (0.75, 1.97)	29.18 (19.35, 43.99)	23.94 (18.52, 30.93)
Interlake (d)	**0.54 (0.36, 0.81)**	**16.59 (11.35, 24.23)**	**30.82 (26.68, 35.61)**
North Eastman (f,d)	**0.41 (0.27, 0.61)**	**11.72 (8.02, 17.13)**	**28.67 (25.17, 32.66)**
Parkland (f,d)	**0.33 (0.17, 0.66)**	**5.19 (2.70, 9.98)**	**15.55 (12.57, 19.23)**
Nor-Man (f,d)	**0.44 (0.20, 0.98)**	**8.15 (3.88, 17.11)**	**18.56 (13.60, 25.32)**
Burntwood	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	23.75 (11.87, 47.52)
Winnipeg (f,d)	**1.08 (1.03, 1.13)**	**29.13 (27.54, 30.82)**	**27.02 (26.23, 27.83)**
Fort Garry (d)	**0.76 (0.62, 0.93)**	**28.25 (23.34, 34.19)**	**37.13 (34.42, 40.06)**
Assiniboine South (d)	**0.44 (0.29, 0.65)**	**23.91 (15.99, 35.74)**	**54.95 (50.92, 59.30)**
St. Boniface (d)	**2.00 (1.81, 2.22)**	**27.97 (26.01, 30.08)**	**13.96 (12.80, 15.23)**
St. Boniface East (d)	**1.72 (1.30, 2.28)**	**22.17 (17.75, 27.67)**	**12.87 (10.76, 15.39)**
St. Boniface West (d)	**2.00 (1.78, 2.24)**	**28.70 (26.57, 31.01)**	**14.38 (13.01, 15.89)**
St. Vital (f,d)	**1.50 (1.33, 1.69)**	**35.68 (32.34, 39.37)**	**23.79 (21.96, 25.78)**
St. Vital South (f,d)	**1.53 (1.30, 1.80)**	**47.83 (42.37, 53.99)**	**31.24 (27.82, 35.07)**
St. Vital North (d)	**1.26 (1.05, 1.51)**	**24.76 (21.19, 28.92)**	**19.69 (17.65, 21.97)**
Transcona (d)	**1.74 (1.05, 2.88)**	**32.10 (21.29, 48.39)**	**18.48 (13.69, 24.94)**
River Heights	0.91 (0.66, 1.27)	26.85 (19.41, 37.14)	29.36 (27.69, 31.13)
River East	1.08 (0.78, 1.51)	19.28 (14.05, 26.46)	17.84 (16.00, 19.90)
Seven Oaks	1.04 (0.63, 1.70)	28.43 (18.50, 43.68)	27.38 (21.32, 35.15)
St. James Assiniboia (d)	**0.63 (0.44, 0.91)**	**26.72 (18.85, 37.87)**	**42.11 (38.09, 46.54)**
Inkster (s)	s	s	43.60 (31.13, 61.08)
Downtown	1.12 (0.86, 1.46)	30.59 (24.24, 38.60)	27.33 (23.75, 31.44)
Point Douglas	1.23 (0.73, 2.08)	31.02 (19.75, 48.72)	25.18 (19.16, 33.07)
South West RHAs (f,d)	**0.72 (0.62, 0.84)**	**19.03 (16.50, 21.96)**	**26.38 (24.61, 28.27)**
Mid RHAs (f,d)	**0.43 (0.33, 0.56)**	**11.16 (8.70, 14.32)**	**25.73 (23.56, 28.09)**
North RHAs (f,d)	**0.37 (0.17, 0.82)**	**7.24 (3.45, 15.19)**	**19.45 (14.65, 25.81)**
Manitoba	1.02 (0.98, 1.07)	26.52 (25.34, 27.74)	25.94 (25.42, 26.45)
Directly Standardized	1.03 (0.99, 1.07)	23.72 (22.87, 24.58)	23.05 (22.56, 23.54)
Survey Respondents	1.02 (0.61, 1.44)	7.40 (4.60, 10.20)	7.24 (6.39, 8.08)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
s' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 13: Use of Prescriptions

Indicators in this chapter

- 13.1 Any Pharmaceutical Use
- 13.2 Number of Different Drugs Dispensed
- 13.3 Antibiotic Prescriptions
- 13.4 Antidepressant Prescriptions
- 13.5 Comparison of Rates between Samples
- 13.6 Findings from the Literature
- 13.7 Supplementary Tables

Overall Key Findings

- Overall, there are no differences in prescription drug indicators by the Francophone Cohort compared to the Matched Cohort of Other Manitobans.
- There are differences in prescription drug indicators between the two cohorts depending upon the area in which they live with some rates being higher and some lower. Antidepressants are one of the pharmaceuticals included in this study where, although not different at the provincial level, are higher in several areas of the provinces.
- There is some variability among Francophones depending upon the area in which they live for the number of different drugs dispensed with some areas higher and some lower.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 13.0: Summary of Use of Prescription Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Pharmaceutical Use, 2008/09		
Manitoba		
South Eastman (d)	↑	
Parkland (d)	↓	
Number of Different Types of Drugs Dispensed, 2008/09		
Manitoba		
South Eastman		
SE Western (f)		↓
SE Southern (d)	↓	
Assiniboine (d)	↓	
Brandon (f)		↑
Interlake (d)	↓	
North Eastman (d)	↓	
Parkland (d)	↓	
Burntwood (f)		↑
St. Boniface		
St. Boniface East (f)		↓
St. Vital		
St. Vital South (f,d)	↓	↓
St. Vital North (d)	↑	
Transcona (d)	↑	
River Heights (d)	↓	
Inkster (f)		↑
Downtown (f)		↑
Point Douglas (f)		↑
Mid RHAs (d)	↓	
North RHAs (f)		↑
Directly Standardized (d)	↓	
Antibiotic Prescriptions, 2008/09		
Manitoba		
South Eastman (d)	↑	
Assiniboine (d)	↓	
North Eastman (f)		↑
Parkland (d)	↓	
St. Vital (d)	↓	
Transcona (f)		↑
Seven Oaks (f)		↑
Point Douglas (f)		↑
Antidepressant Prescriptions, 2008/09		
Manitoba		
St. Vital		
St. Vital North (d)	↑	
Downtown (d)	↑	
South West RHAs (d)	↑	
Directly Standardized (d)	↑	
Survey Respondents (d)	↑	

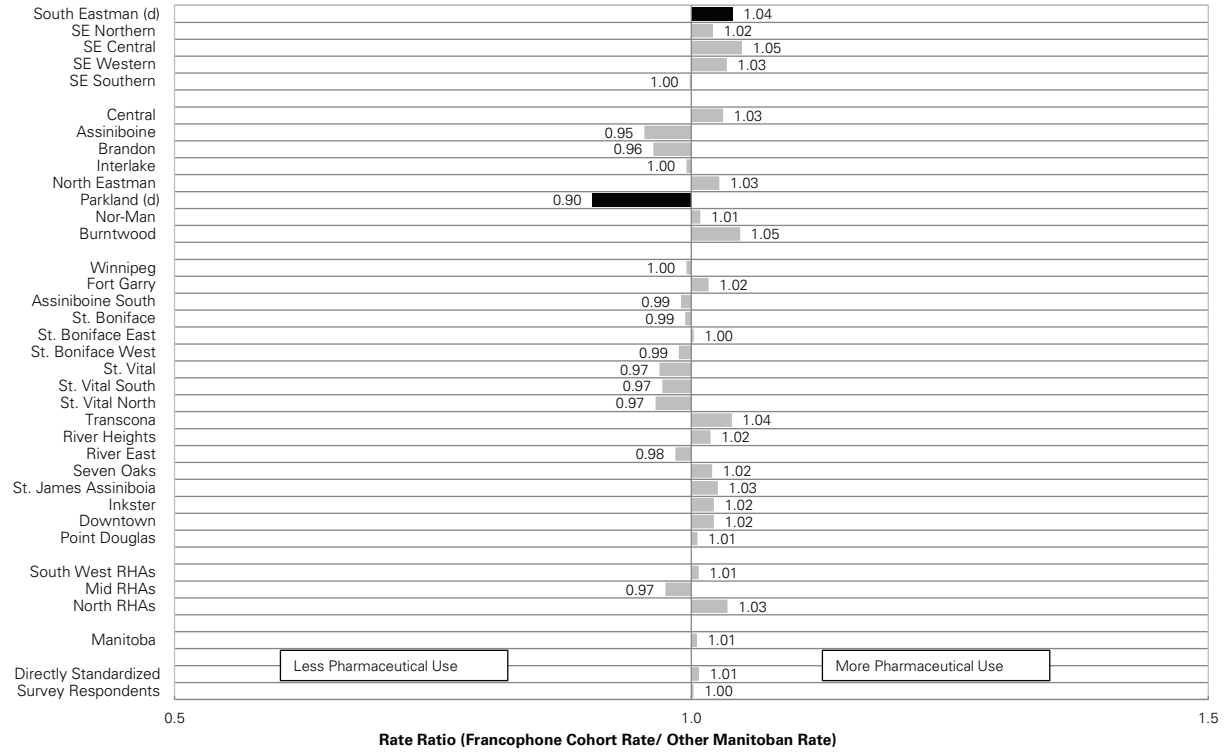
'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)
↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)
If no arrow appears, there is no difference between the two comparison groups. Source: Manitoba Centre for Health Policy, 2012

13.1 Any Pharmaceutical Use

Pharmaceutical use is a measure of any prescription use by residents and includes prescription medications captured in Manitoba's **Drug Programs Information Network (DPIN)**. Pharmaceutical use is defined as the proportion of residents who had at least one prescription dispensed in a given year. Rates were calculated for 2008/09 and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 13.1.1: Pharmaceutical Use—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, residents with at least one prescription dispensed for any drug



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

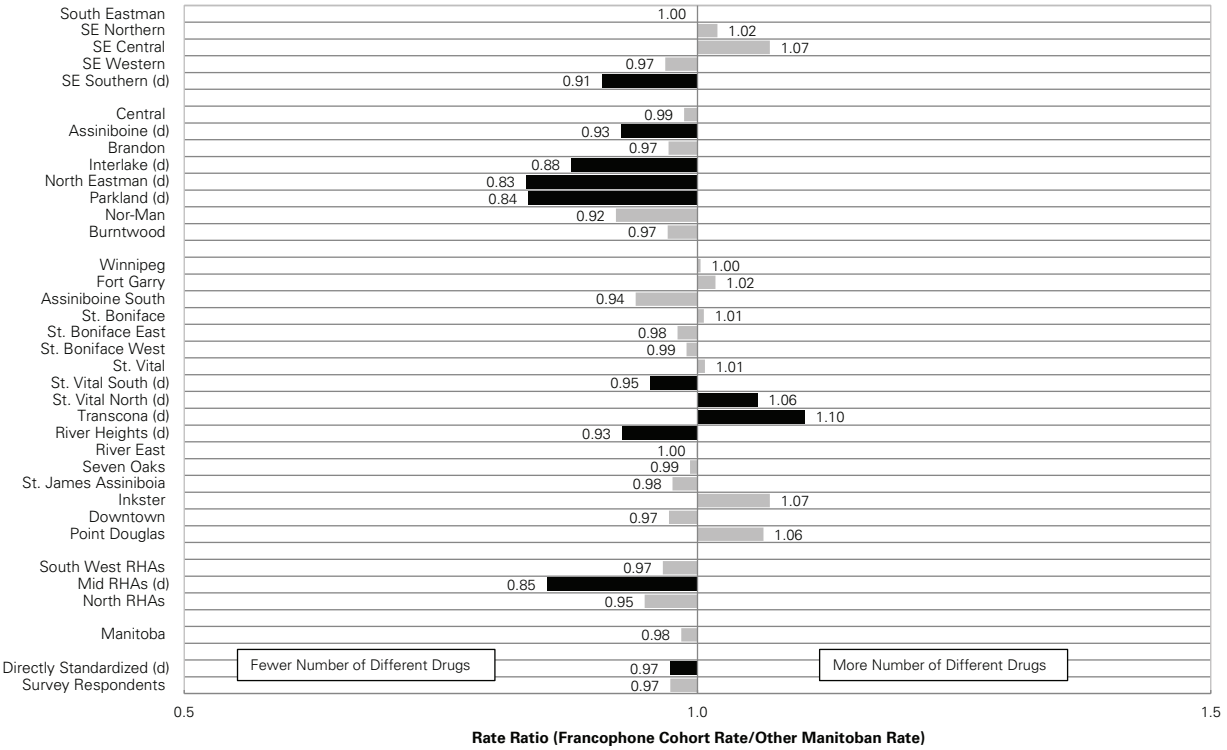
- Provincially, no significant differences were found in the rate of pharmaceutical use between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.01) nor were any differences found in the survey respondents (Rate Ratio: 1.00).
- However, some significant differences were noted in South Eastman (Rate Ratio: 1.04) where the Francophone Cohort had higher rates of pharmaceutical use than the Matched Cohort of Other Manitobans and in Parkland (Rate Ratio: 0.90) where the Francophone Cohort had lower rates.
- The rates of pharmaceutical use of Francophones in all areas were similar to the Francophone provincial rate (Table 13.7.1).

13.2 Number of Different Drugs Dispensed

This indicator is the average number of different types of drugs dispensed for residents who had at least one prescription in the year. It is calculated by dividing the number of different types of drugs dispensed to each resident who had at least one prescription by the number of residents with at least one prescription. The number of different drugs dispensed was calculated for 2008/09 and were age– and sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 13.2.1: Number of Different Drugs Dispensed—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, residents with at least one prescription dispensed for any drug



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the number of different drugs dispensed between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.98) nor were any differences found in the survey respondents (Rate Ratio: 0.97).[19]
- The Mid RHAs (Rate Ratio: 0.85), South Eastman Southern District (Rate Ratio: 0.91), Assiniboine (Rate Ratio: 0.93), Interlake (Rate Ratio: 0.88), North Eastman (Rate Ratio: 0.83), Parkland (Rate Ratio: 0.84), St. Vital South (Rate Ratio: 0.95), and River Heights (Rate Ratio: 0.93) were the regions where the number of different drugs dispensed was significantly lower for the Francophone Cohort compared to the Matched Cohort of Other Manitobans. In some regions, the number was higher for the Francophone Cohort, namely, St. Vital North (Rate Ratio: 1.06) and Transcona (Rate Ratio: 1.10).

19 Note that testing of the directly standardized rate indicates that, although the rates are similar, there are statistically significant differences. The directly standardized method is less robust than the modeling method used for most of the analyses.

- The number of different drugs dispensed for Francophones in many areas was similar to the Francophone provincial rate with the exception of the Northern RHAs, Brandon, Burntwood, Inkster, Downtown, and Point Douglas where the numbers were higher and in South Eastman–Western, St. Boniface East, and St. Vital South where they were lower (Table 13.7.2).

Table 13.2.1: Negative Binomial Regression of the Number of Different Drugs, 1 Year after Survey
Basic Model

Covariates	Relative Risk (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	1.02 (0.98, 1.05)
Age	**1.02 (1.02, 1.02)**
Males (vs. Females)	**0.86 (0.84, 0.87)**
Aggregate Regions (ref = Winnipeg)	
Rural South	**0.97 (0.95, 0.99)**
Mid	**1.08 (1.05, 1.11)**
North	**1.28 (1.24, 1.33)**
Brandon	**1.07 (1.03, 1.11)**

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Table 13.2.2: Negative Binomial Regression of the Number of Different Drugs, 1 Year after Survey
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)	p-value
Francophone Cohort (vs. Matched Cohort)	1.02 (0.98, 1.06)	0.2901
Age	**1.01 (1.01, 1.01)**	**<.0001**
Males (vs. Females)	**0.90 (0.88, 0.91)**	**<.0001**
Aggregate Regions (ref = Winnipeg)		
Rural South	**0.96 (0.94, 0.98)**	**0.0003**
Mid	**1.06 (1.04, 1.09)**	**<.0001**
North	**1.26 (1.22, 1.31)**	**<.0001**
Brandon	**1.06 (1.02, 1.10)**	**0.0011**
Married or Common Law (vs. Single)	**0.94 (0.92, 0.96)**	**<.0001**
Household Income (per $10,000)	**1.00 (1.00, 1.00)**	**<.0001**
High School Graduate (vs. not)	**0.95 (0.93, 0.97)**	**<.0001**
Currently Employed (vs. not)	**0.79 (0.77, 0.81)**	**<.0001**
Sense of Belonging to Local Community (vs. no)	**0.97 (0.95, 0.99)**	**0.0014**
Five or more Drinks on One Occasion (vs. no)	**0.92 (0.90, 0.95)**	**<.0001**
Currently Smoker (vs. no)	**1.10 (1.07, 1.12)**	**<.0001**
Body Mass Index	**1.02 (1.02, 1.02)**	**<.0001**
Leisure Time Physical Activity Index (ref = Inactive)		
Active	**0.90 (0.88, 0.93)**	**<.0001**
Moderate	**0.89 (0.87, 0.91)**	**<.0001**
Eats vegetables and fruits five or more times per day (vs. 0-4)	1.02 (0.99, 1.04)	0.2032

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Tables 13.2.1–13.2.2 show the results of two logistic regression models for the number of different drugs—a basic model where the association between being Francophone and number of different drugs filled by residents is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The results of the basic model are consistent with the results in the initial analysis; Francophones have similar patterns of prescription drugs being filled to the other Manitobans (Relative Risk: 1.02).

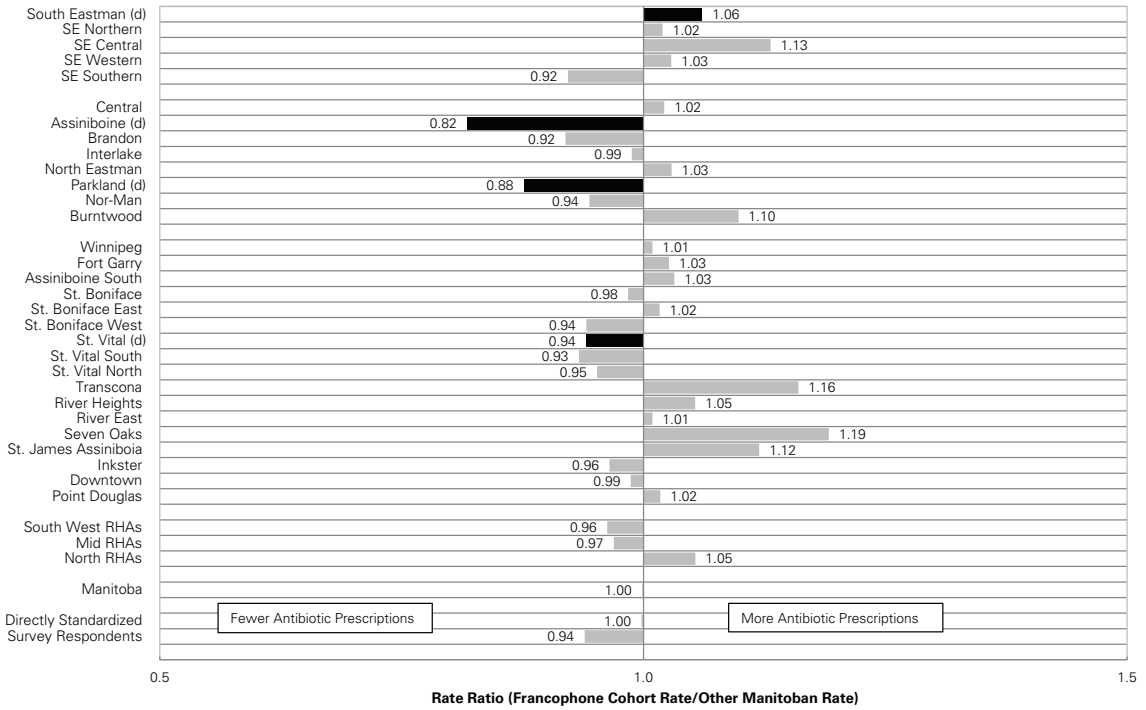
Since sociodemographic or lifestyle factors are important predictors of the prescription patterns, these were added to the model to see if this might explain the lack of differences being Francophone and the number of different drugs taken. The results suggest that the relationship is essentially unchanged in the full model when additional factors are introduced (Relative Risk: 1.02). This confirms that Francophones, as a group, take a similar number of different drugs as other Manitobans even after sociodemographic and lifestyle factors are accounted for.

13.3 Antibiotic Prescriptions

Antibiotics are a type of medication typically prescribed to treat bacterial infections. The percentage of residents with antibiotic prescriptions is calculated by dividing the number of residents with one or more antibiotic prescriptions in one year by the number of residents. The age– and sex–adjusted percentage of residents with one or more prescriptions for antibiotics was measured in 2008/09.

The rate ratios were calculated by dividing the Francophone Cohort percentage by the Matched Cohort of Other Manitoban percentage. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 13.3.1: Antibiotic Prescriptions—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, residents with at least one prescription for an antibiotic



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

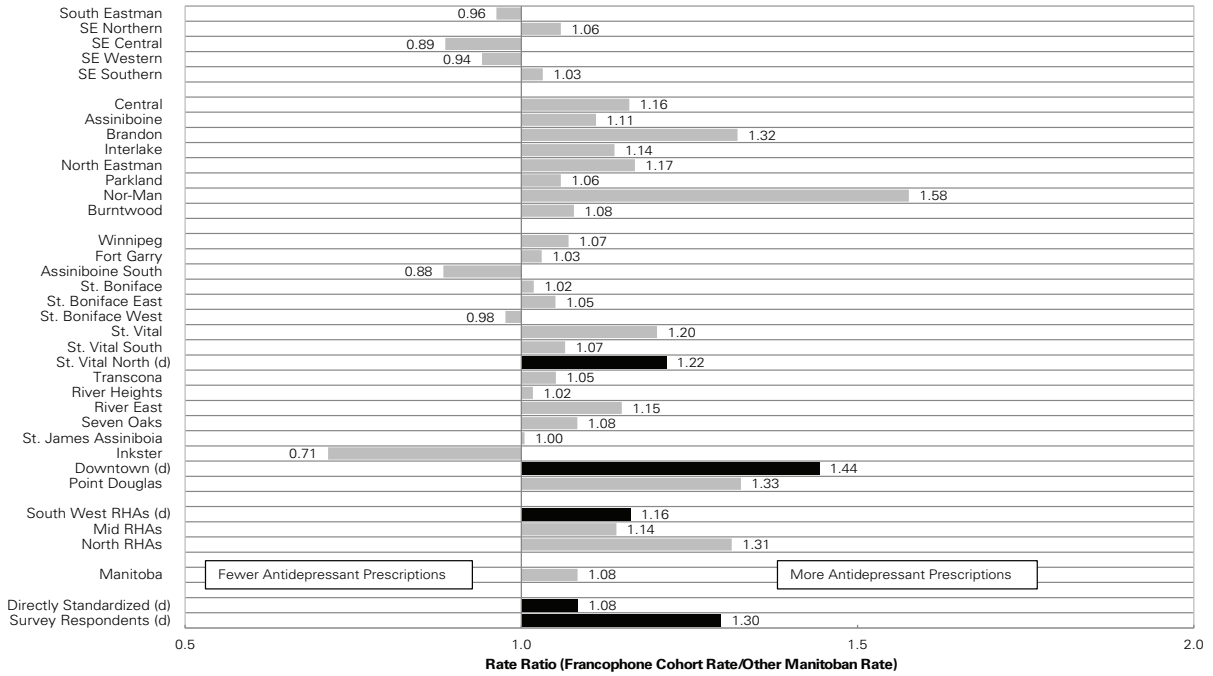
- Provincially, no significant differences were found in the rate of antibiotic prescriptions between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate ratio: 1.00) nor were any differences found in the survey respondents (Rate Ratio: 0.94).
- However, some significant differences were noted in South Eastman (Rate Ratio: 1.06) where Francophones had higher rates of antibiotic prescriptions than the Matched Cohort of Other Manitobans and in Assiniboine (Rate Ratio: 0.82), Parkland (Rate Ratio: 0.88), and St. Vital (Rate Ratio: 0.94) where Francophones had lower rates.
- The rates of antibiotic prescriptions of Francophones in most areas were similar to the Francophone provincial rate with the exception of North Eastman, Transcona, Seven Oaks, and Point Douglas where the rates were higher (Table 13.7.3).

13.4 Antidepressant Prescriptions

Antidepressants are a type of medication used to help people who have depression, anxiety disorders, and other health problems. The percentage of residents with antidepressant prescriptions is calculated by dividing the number of residents with two or more antidepressant prescriptions in one year by the number of residents.

The rate ratios were calculated by dividing the Francophone Cohort percentage by the Matched Cohort of Other Manitoban percentage. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 13.4.1: Antidepressant Prescriptions—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
Age– & sex–adjusted, residents with two or more prescriptions dispensed for an antidepressant



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents' rate ratio was statistically different from the directly standardized rate ratio
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, no significant differences were found in the rate of antidepressant prescriptions between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.08). Although a difference was found in the survey sample (Rate Ratio: 1.30), this was not statistically significantly different from that for the Matched Cohort.[20]
- However, some significant differences were noted in the South West RHAs (Rate Ratio: 1.16), St. Vital–North (Rate Ratio: 1.22), and Downtown (Rate Ratio: 1.44) where the Francophone Cohort had higher rates of antidepressant prescriptions than the Matched Cohort of Other Manitobans.
- The rates of antidepressant prescriptions of Francophones in all areas were similar to the Francophone provincial rate (Table 13.7.4).

13.5 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

Table 13.5.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Adjusted Rate	Other Manitobans Adjusted Rate	Adjusted Rate Ratio
Pharmaceutical Use	2008/09	70.57%	70.06%	1.01	72.01%	71.86%	1.00
Number of Different Drugs Prescribed	2008/09	4.01	4.12	0.97 (d)	3.90	4.00	0.97
Antibiotic Drug Use	2008/09	32.98%	33.05%	1.00	32.54%	34.64%	0.94
Antidepressant Drug Use	2008/09	9.89%	9.12%	1.08 (d)	11.52%	8.88%	1.30 (d)

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

13.6 Findings from the Literature

(Comparisons to the results in this study are in italics)

- Kopec, Williams, To, and Austin found that French Canadians reported less medication use than English Canadians (2000).
- Using the Ontario Health Survey (1996/1997), the Institute for Clinical Evaluative Sciences (ICES) found that the Francophone population does not differ from the total population in its use of medications. In Ontario, 81% of Francophones had taken medications in the last month compared to 79% for the province as a whole (2010).

20 Note that testing of the directly standardized rate indicates that, although the rate ratios are similar, there are statistically significant differences. The directly standardized method is less robust than the modeling method used for most of the analyses.

- *In this study at the provincial level, no differences were found in prescription drug use between the Francophone Cohort and the Matched Cohort of Other Manitobans. However, in several regions in Manitoba, Francophones were less likely to use prescription drugs. When the indicator, number of different drugs taken, was reanalyzed in a smaller sample utilizing representative survey data and controlling for sociodemographic and lifestyle factor, no relationship was found between being Francophone and prescription drug use.*

13.7 Supplementary Tables

Table 13.7.1: Pharmaceutical Use, 2008/09
Age– & sex–adjusted, residents with at least one prescription dispensed for any drug

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**1.04 (1.01, 1.07)**	**65.75 (63.87, 67.68)**	**63.21 (62.13, 64.32)**
SE Northern	1.02 (0.97, 1.07)	66.00 (63.45, 68.66)	64.66 (62.89, 66.47)
SE Central	1.05 (0.94, 1.17)	65.51 (59.15, 72.55)	62.45 (60.72, 64.22)
SE Western	1.03 (0.98, 1.09)	66.57 (63.79, 69.46)	64.36 (62.24, 66.55)
SE Southern	1.00 (0.86, 1.16)	60.38 (52.64, 69.25)	60.47 (57.29, 63.83)
Central	1.03 (0.99, 1.08)	66.45 (63.88, 69.13)	64.47 (62.98, 66.00)
Assiniboine	0.95 (0.88, 1.03)	65.48 (61.06, 70.22)	68.60 (65.97, 71.34)
Brandon	0.96 (0.86, 1.08)	72.28 (65.55, 79.70)	75.04 (70.87, 79.45)
Interlake	1.00 (0.91, 1.09)	67.28 (62.08, 72.90)	67.60 (64.52, 70.82)
North Eastman	1.03 (0.95, 1.11)	71.33 (66.46, 76.56)	69.45 (66.63, 72.40)
Parkland (d)	**0.90 (0.83, 0.99)**	**64.10 (59.38, 69.20)**	**70.88 (67.96, 73.92)**
Nor-Man	1.01 (0.85, 1.20)	68.02 (58.45, 79.17)	67.44 (61.57, 73.87)
Burntwood	1.05 (0.90, 1.22)	71.05 (62.45, 80.83)	67.85 (62.79, 73.32)
Winnipeg	1.00 (0.98, 1.02)	67.41 (65.99, 68.85)	67.73 (66.90, 68.58)
Fort Garry	1.02 (0.95, 1.09)	66.39 (62.27, 70.78)	65.29 (62.90, 67.78)
Assiniboine South	0.99 (0.85, 1.15)	67.38 (58.79, 77.24)	68.07 (63.36, 73.13)
St. Boniface	0.99 (0.96, 1.03)	66.98 (65.06, 68.97)	67.39 (66.11, 68.69)
St. Boniface East	1.00 (0.96, 1.05)	68.42 (65.70, 71.26)	68.28 (66.67, 69.92)
St. Boniface West	0.99 (0.94, 1.03)	65.52 (63.06, 68.07)	66.32 (64.41, 68.30)
St. Vital	0.97 (0.93, 1.01)	66.44 (63.89, 69.09)	68.55 (67.01, 70.12)
St. Vital South	0.97 (0.92, 1.03)	66.84 (63.58, 70.26)	68.78 (66.83, 70.78)
St. Vital North	0.97 (0.90, 1.03)	65.83 (62.05, 69.85)	68.21 (65.90, 70.59)
Transcona	1.04 (0.93, 1.16)	70.10 (63.66, 77.19)	67.47 (63.77, 71.38)
River Heights	1.02 (0.93, 1.12)	67.28 (61.45, 73.66)	66.05 (63.77, 68.41)
River East	0.98 (0.91, 1.06)	67.83 (63.08, 72.93)	68.91 (66.78, 71.09)
Seven Oaks	1.02 (0.88, 1.19)	70.19 (61.61, 79.97)	68.81 (63.72, 74.32)
St. James Assiniboia	1.03 (0.92, 1.14)	69.61 (63.16, 76.72)	67.88 (64.33, 71.63)
Inkster	1.02 (0.85, 1.23)	73.19 (62.30, 85.98)	71.63 (65.20, 78.69)
Downtown	1.02 (0.94, 1.11)	68.81 (64.01, 73.97)	67.34 (64.50, 70.31)
Point Douglas	1.01 (0.88, 1.15)	71.89 (64.10, 80.61)	71.47 (66.88, 76.38)
South West RHAs	1.01 (0.97, 1.04)	66.92 (64.71, 69.20)	66.45 (65.16, 67.77)
Mid RHAs	0.97 (0.93, 1.02)	67.60 (64.64, 70.69)	69.34 (67.58, 71.14)
North RHAs	1.03 (0.92, 1.16)	69.98 (63.45, 77.18)	67.61 (63.75, 71.72)
Manitoba	1.01 (0.99, 1.02)	66.98 (66.03, 67.95)	66.62 (66.34, 66.90)
Directly Standardized	1.01 (1.00, 1.02)	70.57 (70.07, 71.06)	70.06 (69.77, 70.35)
Survey Respondents	1.00 (0.95, 1.06)	72.01 (68.22, 75.79)	71.86 (70.96, 72.76)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 13.7.2: Number of Different Drugs Dispensed, 2008/09

Age– & sex–adjusted, residents with at least one prescription dispensed for any drug

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	1.00 (0.95, 1.05)	3.74 (3.57, 3.92)	3.74 (3.58, 3.91)
SE Northern	1.02 (0.98, 1.06)	3.72 (3.58, 3.87)	3.65 (3.53, 3.79)
SE Central	1.07 (1.00, 1.15)	3.94 (3.68, 4.21)	3.68 (3.55, 3.82)
SE Western (f)	0.97 (0.93, 1.01)	**3.59 (3.44, 3.73)**	3.70 (3.57, 3.84)
SE Southern (d)	**0.91 (0.83, 0.99)**	**3.76 (3.48, 4.07)**	**4.15 (3.97, 4.33)**
Central	0.99 (0.94, 1.04)	3.73 (3.55, 3.92)	3.78 (3.61, 3.96)
Assiniboine (d)	**0.93 (0.87, 0.99)**	**3.80 (3.58, 4.03)**	**4.10 (3.91, 4.31)**
Brandon (f)	0.97 (0.90, 1.05)	**4.37 (4.08, 4.69)**	4.50 (4.26, 4.76)
Interlake (d)	**0.88 (0.82, 0.94)**	**4.07 (3.82, 4.34)**	**4.64 (4.41, 4.89)**
North Eastman (d)	**0.83 (0.78, 0.89)**	**4.09 (3.86, 4.33)**	**4.91 (4.67, 5.15)**
Parkland (d)	**0.84 (0.78, 0.89)**	**3.97 (3.73, 4.23)**	**4.75 (4.52, 5.00)**
Nor-Man	0.92 (0.83, 1.02)	4.33 (3.96, 4.73)	4.70 (4.40, 5.03)
Burntwood (f)	0.97 (0.89, 1.06)	**5.10 (4.71, 5.53)**	5.26 (4.94, 5.59)
Winnipeg	1.00 (0.97, 1.03)	3.96 (3.85, 4.07)	3.95 (3.84, 4.05)
Fort Garry	1.02 (0.96, 1.08)	3.74 (3.54, 3.97)	3.68 (3.51, 3.86)
Assiniboine South	0.94 (0.85, 1.04)	3.66 (3.35, 4.00)	3.90 (3.67, 4.14)
St. Boniface	1.01 (0.96, 1.06)	3.79 (3.62, 3.97)	3.77 (3.60, 3.94)
St. Boniface East (f)	0.98 (0.94, 1.02)	**3.62 (3.48, 3.77)**	3.69 (3.57, 3.82)
St. Boniface West	0.99 (0.95, 1.03)	3.88 (3.74, 4.03)	3.92 (3.79, 4.06)
St. Vital	1.01 (0.96, 1.06)	3.86 (3.67, 4.05)	3.83 (3.66, 4.01)
St. Vital South (f,d)	**0.95 (0.91, 1.00)**	**3.59 (3.44, 3.75)**	**3.77 (3.63, 3.91)**
St. Vital North (d)	**1.06 (1.01, 1.11)**	**4.12 (3.94, 4.30)**	**3.89 (3.75, 4.04)**
Transcona (d)	**1.10 (1.02, 1.20)**	**4.22 (3.93, 4.54)**	**3.82 (3.61, 4.05)**
River Heights (d)	**0.93 (0.86, 0.99)**	**3.92 (3.66, 4.19)**	**4.23 (4.03, 4.43)**
River East	1.00 (0.94, 1.06)	4.15 (3.91, 4.40)	4.15 (3.96, 4.35)
Seven Oaks	0.99 (0.90, 1.09)	4.07 (3.74, 4.44)	4.10 (3.85, 4.38)
St. James Assiniboia	0.98 (0.90, 1.05)	4.02 (3.75, 4.32)	4.12 (3.91, 4.35)
Inkster (f)	1.07 (0.95, 1.20)	**4.79 (4.33, 5.29)**	4.47 (4.16, 4.81)
Downtown (f)	0.97 (0.91, 1.04)	**4.82 (4.54, 5.12)**	4.96 (4.72, 5.21)
Point Douglas (f)	1.06 (0.98, 1.16)	**5.91 (5.49, 6.36)**	5.55 (5.23, 5.89)
South West RHAs	0.97 (0.93, 1.00)	3.81 (3.67, 3.96)	3.94 (3.82, 4.08)
Mid RHAs (d)	**0.85 (0.82, 0.89)**	**4.03 (3.89, 4.18)**	**4.73 (4.59, 4.87)**
North RHAs (f)	0.95 (0.89, 1.01)	**4.72 (4.47, 4.98)**	4.97 (4.78, 5.17)
Manitoba	0.98 (0.94, 1.03)	3.90 (3.73, 4.07)	3.96 (3.95, 3.98)
Directly Standardized (d)	**0.97 (0.96, 0.98)**	**4.01 (3.98, 4.03)**	**4.12 (4.10, 4.13)**
Survey Respondents	0.97 (0.91, 1.03)	3.90 (3.66, 4.14)	4.00 (3.94, 4.07)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 13.7.3: Antibiotic Prescriptions, 2008/09

Age– & sex–adjusted, residents with at least one prescription for an antibiotic

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman (d)	**1.06 (1.02, 1.11)**	**32.05 (30.75, 33.40)**	**30.21 (29.46, 30.97)**
SE Northern	1.02 (0.95, 1.09)	31.57 (29.83, 33.42)	30.96 (29.73, 32.23)
SE Central	1.13 (0.98, 1.31)	32.22 (27.91, 37.20)	28.48 (27.35, 29.66)
SE Western	1.03 (0.96, 1.11)	33.04 (31.11, 35.09)	32.12 (30.62, 33.69)
SE Southern	0.92 (0.74, 1.15)	27.18 (22.11, 33.40)	29.48 (27.29, 31.85)
Central	1.02 (0.96, 1.09)	31.69 (29.93, 33.56)	31.03 (30.00, 32.09)
Assiniboine (d)	**0.82 (0.73, 0.92)**	**29.57 (26.64, 32.82)**	**36.17 (34.26, 38.18)**
Brandon	0.92 (0.79, 1.07)	39.36 (34.54, 44.86)	42.81 (39.73, 46.13)
Interlake	0.99 (0.87, 1.12)	36.66 (32.85, 40.91)	37.10 (34.83, 39.53)
North Eastman (f)	1.03 (0.92, 1.15)	**39.58 (35.93, 43.59)**	38.46 (36.34, 40.70)
Parkland (d)	**0.88 (0.78, 0.98)**	**37.06 (33.49, 41.01)**	**42.29 (40.03, 44.67)**
Nor-Man	0.94 (0.72, 1.24)	30.89 (24.42, 39.06)	32.72 (28.55, 37.49)
Burntwood	1.10 (0.89, 1.35)	38.00 (31.79, 45.41)	34.60 (31.01, 38.60)
Winnipeg	1.01 (0.95, 1.07)	34.27 (32.15, 36.53)	33.96 (32.08, 35.94)
Fort Garry	1.03 (0.93, 1.14)	33.61 (30.73, 36.77)	32.75 (31.07, 34.52)
Assiniboine South	1.03 (0.84, 1.27)	36.27 (30.09, 43.72)	35.14 (31.81, 38.82)
St. Boniface	0.98 (0.94, 1.03)	32.17 (30.85, 33.55)	32.69 (31.80, 33.60)
St. Boniface East	1.02 (0.95, 1.09)	32.45 (30.59, 34.41)	31.91 (30.82, 33.04)
St. Boniface West	0.94 (0.88, 1.01)	31.95 (30.24, 33.75)	33.95 (32.56, 35.41)
St. Vital (d)	**0.94 (0.89, 1.00)**	**32.92 (31.14, 34.80)**	**34.99 (33.90, 36.12)**
St. Vital South	0.93 (0.86, 1.01)	32.93 (30.67, 35.36)	35.29 (33.90, 36.73)
St. Vital North	0.95 (0.87, 1.05)	32.90 (30.25, 35.79)	34.56 (32.92, 36.28)
Transcona (f)	1.16 (1.00, 1.35)	**40.02 (35.19, 45.51)**	34.49 (31.86, 37.35)
River Heights	1.05 (0.92, 1.20)	34.68 (30.57, 39.36)	32.92 (31.35, 34.58)
River East	1.01 (0.91, 1.12)	35.66 (32.27, 39.41)	35.34 (33.86, 36.88)
Seven Oaks (f)	1.19 (0.97, 1.46)	**42.43 (35.79, 50.30)**	35.60 (31.94, 39.69)
St. James Assiniboia	1.12 (0.96, 1.30)	36.98 (32.36, 42.27)	33.03 (30.59, 35.67)
Inkster	0.96 (0.75, 1.24)	38.23 (30.64, 47.69)	39.62 (34.93, 44.93)
Downtown	0.99 (0.88, 1.10)	35.71 (32.38, 39.38)	36.19 (34.17, 38.32)
Point Douglas (f)	1.02 (0.86, 1.21)	**41.35 (35.64, 47.96)**	40.64 (37.27, 44.31)
South West RHAs	0.96 (0.91, 1.01)	32.00 (30.49, 33.59)	33.25 (32.34, 34.18)
Mid RHAs	0.97 (0.89, 1.06)	37.78 (34.74, 41.08)	38.97 (36.50, 41.62)
North RHAs	1.05 (0.88, 1.26)	35.51 (30.47, 41.38)	33.70 (30.39, 37.37)
Manitoba	1.00 (0.98, 1.02)	33.48 (32.81, 34.17)	33.53 (33.25, 33.81)
Directly Standardized	1.00 (0.98, 1.01)	32.98 (32.47, 33.49)	33.05 (32.75, 33.35)
Survey Respondents	0.94 (0.82, 1.06)	32.54 (28.56, 36.51)	34.64 (33.58, 35.70)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 13.7.4: Antidepressant Prescriptions, 2008/09

Age– & sex–adjusted, residents with two or more prescriptions dispensed for an antidepressant

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
South Eastman	0.96 (0.81, 1.14)	7.34 (6.23, 8.65)	7.62 (6.61, 8.78)
SE Northern	1.06 (0.91, 1.23)	7.62 (6.70, 8.67)	7.20 (6.53, 7.93)
SE Central	0.89 (0.64, 1.23)	7.72 (5.60, 10.65)	8.71 (7.89, 9.61)
SE Western	0.94 (0.79, 1.12)	6.62 (5.72, 7.67)	7.03 (6.29, 7.86)
SE Southern	1.03 (0.66, 1.61)	6.34 (4.19, 9.60)	6.14 (5.13, 7.36)
Central	1.16 (0.96, 1.40)	8.59 (7.18, 10.28)	7.40 (6.37, 8.61)
Assiniboine	1.11 (0.86, 1.44)	9.38 (7.42, 11.86)	8.44 (7.07, 10.08)
Brandon	1.32 (0.93, 1.88)	10.78 (7.97, 14.58)	8.16 (6.47, 10.27)
Interlake	1.14 (0.83, 1.56)	7.61 (5.78, 10.01)	6.68 (5.44, 8.21)
North Eastman	1.17 (0.89, 1.53)	8.78 (6.89, 11.17)	7.51 (6.24, 9.03)
Parkland	1.06 (0.77, 1.45)	6.72 (5.08, 8.90)	6.35 (5.19, 7.77)
Nor-Man	1.58 (0.93, 2.66)	7.41 (4.84, 11.34)	4.70 (3.36, 6.56)
Burntwood	1.08 (0.65, 1.78)	7.16 (4.65, 11.01)	6.64 (4.96, 8.87)
Winnipeg	1.07 (0.98, 1.16)	8.09 (7.43, 8.82)	7.56 (7.06, 8.09)
Fort Garry	1.03 (0.79, 1.34)	7.82 (6.17, 9.91)	7.59 (6.37, 9.04)
Assiniboine South	0.88 (0.56, 1.40)	7.85 (5.18, 11.90)	8.88 (7.00, 11.26)
St. Boniface	1.02 (0.86, 1.21)	7.66 (6.52, 9.00)	7.52 (6.51, 8.69)
St. Boniface East	1.05 (0.90, 1.23)	7.03 (6.12, 8.08)	6.69 (6.10, 7.35)
St. Boniface West	0.98 (0.85, 1.12)	8.05 (7.16, 9.05)	8.25 (7.52, 9.05)
St. Vital	1.20 (0.99, 1.46)	8.51 (7.10, 10.20)	7.08 (6.07, 8.25)
St. Vital South	1.07 (0.89, 1.28)	7.35 (6.26, 8.63)	6.90 (6.21, 7.68)
St. Vital North (d)	**1.22 (1.00, 1.47)**	**8.70 (7.37, 10.27)**	**7.16 (6.38, 8.03)**
Transcona	1.05 (0.72, 1.53)	7.96 (5.73, 11.07)	7.57 (6.03, 9.51)
River Heights	1.02 (0.75, 1.38)	9.19 (6.89, 12.24)	9.03 (7.65, 10.66)
River East	1.15 (0.87, 1.51)	8.75 (6.79, 11.29)	7.62 (6.43, 9.02)
Seven Oaks	1.08 (0.66, 1.77)	7.08 (4.63, 10.82)	6.53 (4.92, 8.67)
St. James Assiniboia	1.00 (0.71, 1.41)	8.94 (6.58, 12.14)	8.90 (7.25, 10.92)
Inkster	0.71 (0.32, 1.57)	4.06 (1.99, 8.29)	5.70 (3.92, 8.27)
Downtown (d)	**1.44 (1.08, 1.93)**	**10.16 (7.91, 13.05)**	**7.04 (5.75, 8.61)**
Point Douglas	1.33 (0.87, 2.02)	10.17 (7.12, 14.54)	7.67 (5.92, 9.92)
South West RHAs (d)	**1.16 (1.04, 1.30)**	**8.96 (8.06, 9.96)**	**7.71 (7.14, 8.32)**
Mid RHAs	1.14 (0.97, 1.34)	7.75 (6.72, 8.94)	6.79 (6.14, 7.51)
North RHAs	1.31 (0.93, 1.85)	7.37 (5.52, 9.83)	5.61 (4.59, 6.86)
Manitoba	1.08 (0.95, 1.24)	8.12 (7.09, 9.30)	7.50 (7.34, 7.65)
Directly Standardized (d)	**1.08 (1.04, 1.13)**	**9.89 (9.57, 10.21)**	**9.12 (8.94, 9.30)**
Survey Respondents (d)	**1.30 (1.02, 1.57)**	**11.52 (9.15, 13.89)**	**8.88 (8.39, 9.37)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 14: Quality of Primary Care

Indicators in this chapter:

- 14.1 Antidepressant Prescription Follow–Up
- 14.2 Asthma Care: Controller Medication Use
- 14.3 Diabetes Care: Prevalence of Annual Eye Exam
- 14.4 Post–AMI Care: Beta Blockers
- 14.5 Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults
- 14.6 Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults
- 14.7 Comparison of Rates between Samples
- 14.8 Findings from Literature Review
- 14.9 Supplementary Tables

Note: for quality of care indicators, we use crude rates (not age– and sex–adjusted rates) since patients should receive the same quality of care regardless of age.

Overall Key Findings

- Overall, the quality of primary care is similar for the Francophone Cohort and the Matched Cohort of Other Manitobans with one exception.
- The rate of potentially inappropriate prescribing for benzodiazepines is higher for older community–dwelling Francophones when compared to the Matched Cohort of Other Manitobans, although this is not the case for Francophones living in PCHs. The pattern of higher benzodiazepine use among Francophones is consistent across all areas of the province. Among Francophones, there is no area variation for potentially inappropriate prescribing of benzodiazepines; but for PCH residents it is higher in South Eastman and lower in St Boniface.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

Table 14.0: Summary of Quality of Primary Care Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults, 2004/05-2008/09		
Manitoba (d)	↑	
South Eastman (d)	↑	
SE Northern (d)	↑	
Winnipeg (d)	↑	
St. Boniface (d)	↑	
St. Boniface West (d)	↑	
St. Vital (d)	↑	
St. Vital North (d)	↑	
Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home Dwelling Older Adults, 2004/05-2008/09		
Manitoba		
South Eastman (f)		↕
St. Boniface (f)		

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups.

Source: Manitoba Centre for Health Policy, 2012

14.1 Antidepressant Prescription Follow–Up

It is essential to monitor a patient's response to an antidepressant after the initial diagnosis of depression and to modify treatment if necessary. The rate of antidepressant prescription follow–up is defined as the proportion of residents, with a new antidepressant prescription and a recent diagnosis of depression, who had three subsequent physician visits within four months of the prescription being filled. The calculations were based on data from 2004/05–2008/09 and were not adjusted for age and sex.

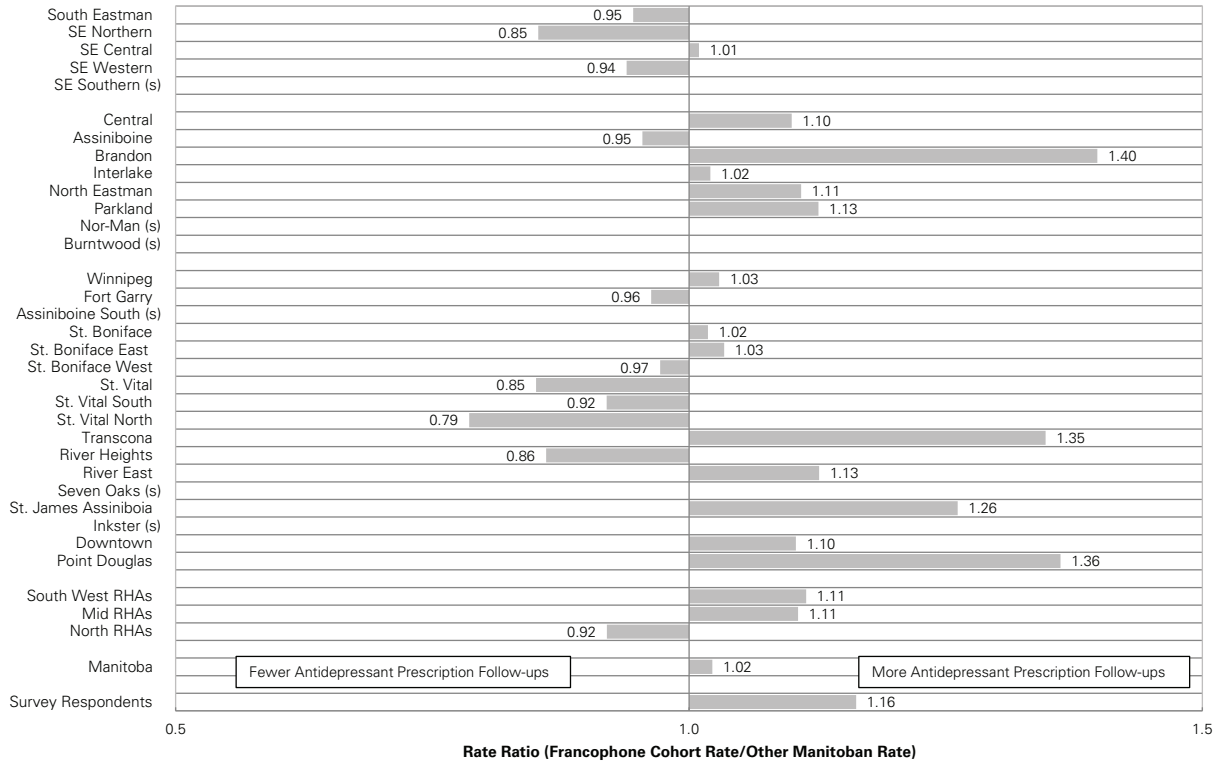
The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Key findings

- Provincially and across regions, no significant differences were found in the rate of antidepressant prescription follow–up between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.02).
- The rates of antidepressant prescription follow–up of Francophones in all areas were similar to the Francophone provincial rate (Table 14.9.1).

Figure 14.1.1: Antidepressant Prescription Follow–up—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09

Newly depressed patients, aged 10 and older, who had at least three physician visits in four months



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

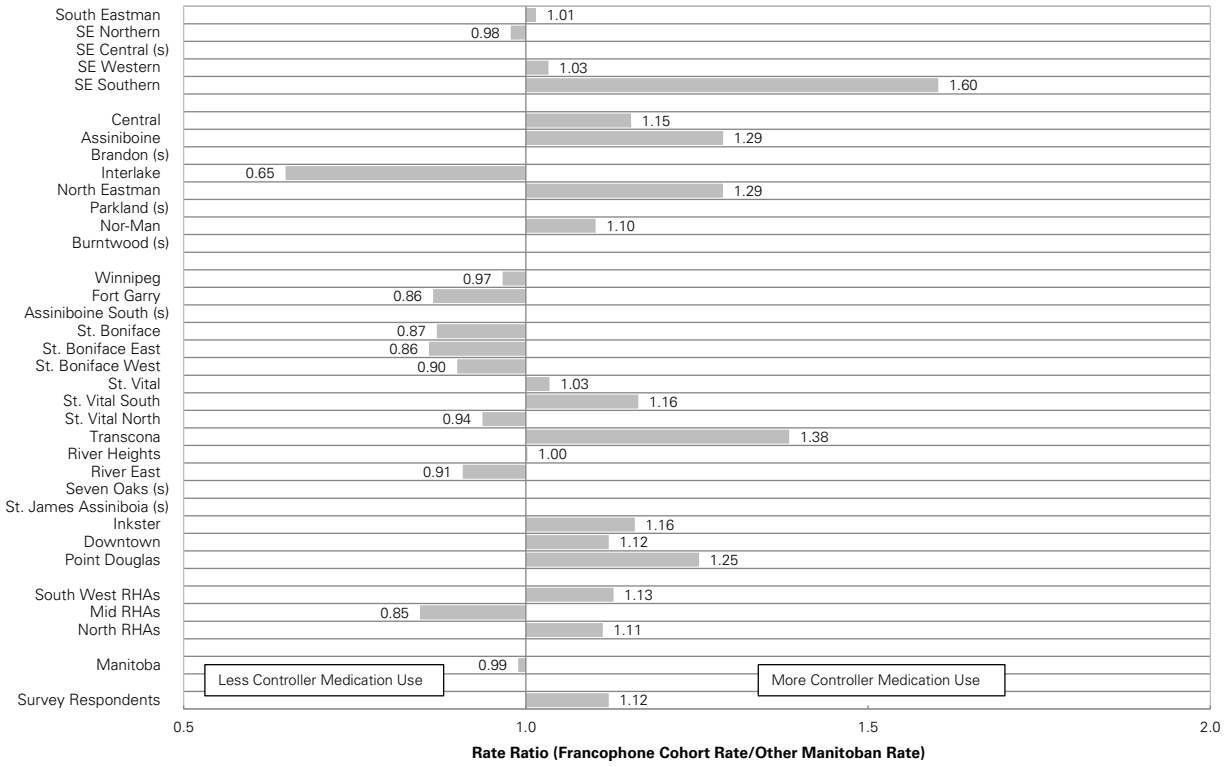
Source: Manitoba Centre for Health Policy, 2012

14.2 Asthma Care: Controller Medication Use

Asthma treatment guidelines recommend that all patients requiring the use of acute treatment medication (e.g., Beta 2–agonists) more than once a day should also be treated with long–acting anti–inflammatory medication for long–term control. This Asthma Care: Controller Medication Use indicator was determined by calculating the percentage of residents with asthma who filled a prescription for a medication recommended for long–term control of asthma. Residents with asthma were defined as individuals with two or more prescriptions for Beta 2–agonists, long–term asthma medications (including inhaled corticosteroids), Leukotriene modifiers, or other drugs for obstructive airway diseases. This analysis excluded chronic obstructive pulmonary disease (COPD) patients as defined through one or more prescriptions of Ipratropium Bromide. The calculations were based on data from 2008/09 and were not adjusted for age and sex.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 14.2.1: Asthma Care: Controller Medication Use—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
People with asthma on appropriate medications (one or more prescriptions for inhaled steroids)



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

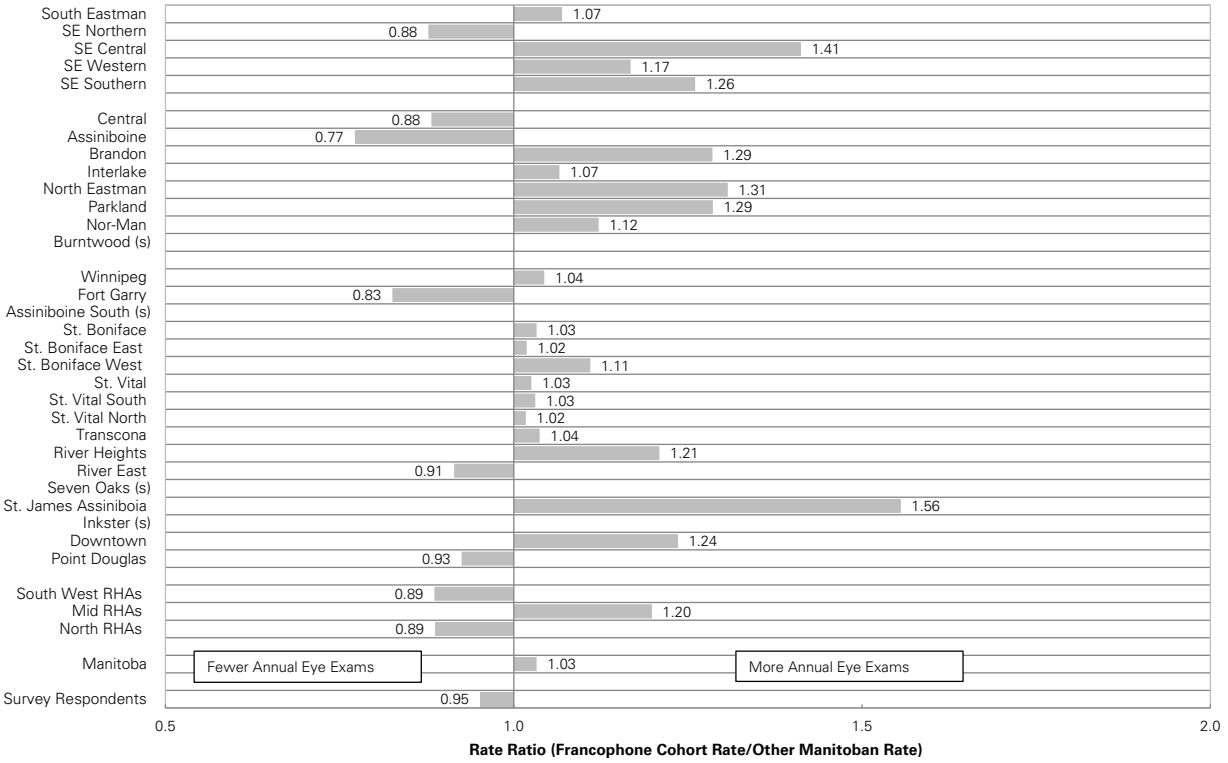
- Provincially, and across regions, no significant differences were found in the rate of receiving recommended asthma care between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.99).
- The rates of receiving recommended asthma care of Francophones in all areas were similar to the Francophone provincial rate (Table 14.9.2).

14.3 Diabetes Care: Prevalence of Annual Eye Exam

Individuals with diabetes are at a greater risk of damage to the retina than the general population. Regular eye examinations for people with diabetes help to diagnose retinopathy early and initiate treatment to slow its progression. **Diabetes Care: Prevalence of Annual Eye Exam** rates were calculated as the percentage of persons with diabetes aged 19 and older who had at least one eye examination by an ophthalmologist or optometrist. The calculations were based on data from 2008/09 and were not adjusted for age and sex.

The rate ratios were calculated by dividing the Francophone Cohort percentage by the Matched Cohort of Other Manitoban percentage. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 14.3.1: Diabetes Care: Annual Eye Exams—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2008/09
People with diabetes who had an annual eye examination



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

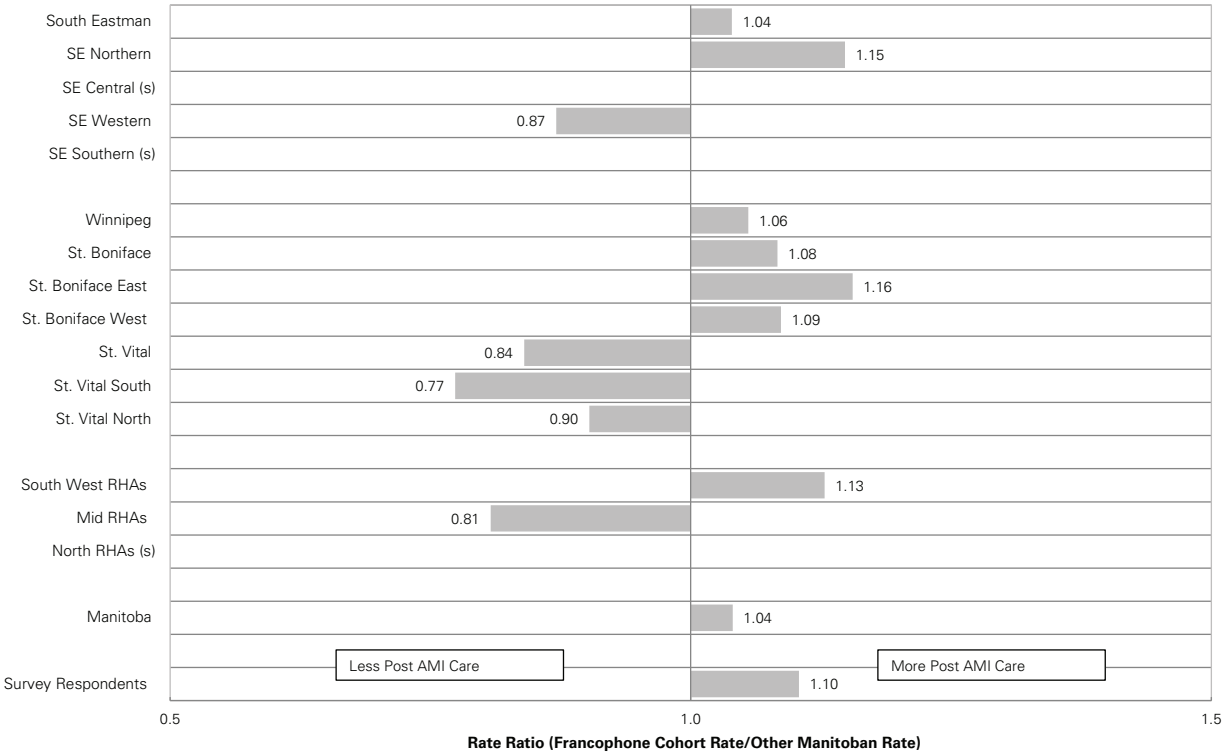
- Provincially and across regions, no significant differences were found in the rate of residents with diabetes receiving an eye exam between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.03).
- The rates of Francophone residents with diabetes receiving an eye exam in all areas were similar to the Francophone provincial rate (Table 14.9.3).

14.4 Post–AMI Care: Beta Blocker

Beta–blockers have been shown to lower the risk of subsequent AMIs (acute myocardial infarction) or heart attacks among people who have suffered an AMI. Post–AMI care was calculated as the percentage of residents with an AMI, aged 20 and older, who filled at least one prescription for a beta–blocker within four months of hospital discharge. The calculations were based on data from 2004/05 to 2008/09 and were not adjusted for age and sex.

The rate ratios were calculated by dividing the Francophone Cohort percentage by the Matched Cohort of Other Manitoban percentage. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 14.4.1: Post Acute Myocardial Infarction (AMI) Care—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09
AMI patients, aged 20 and older, who received a prescription for a beta blocker within four months of AMI



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

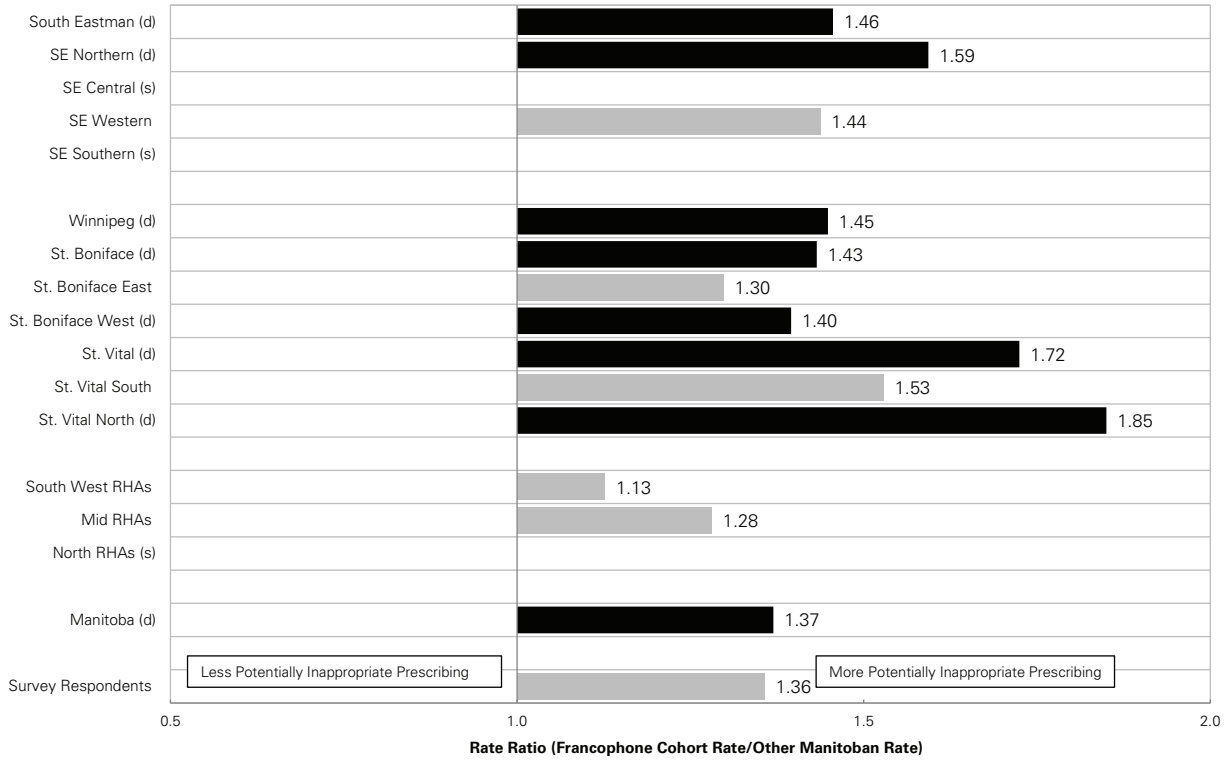
- Provincially and across regions, no significant differences were found in the rate of residents with AMI receiving recommended beta–blockers between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.03).
- The rates of recommended post–AMI care of Francophones in all areas were similar to the rate found at the provincial level (Table 14.9.4).

14.5 Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults

Benzodiazepines can be used to treat: anxiety disorders, panic disorders, insomnia, seizures, muscle spasticity, alcohol withdrawal, and as a perioperative adjunct to anesthesia. Tolerance and physical and psychological dependence may occur with prolonged use; their long–term use is not recommended for older adults. Potentially inappropriate benzodiazepine use was defined as the percentage of people, aged 75 and older, who had at least two **benzodiazepine prescriptions** or at least one prescription for benzodiazepines with a greater than 30–day supply. Rates are provided for community–dwelling seniors only; seniors residing in PCHs were excluded. The calculations were based on data from 2004/05 to 2008/09 and were not adjusted for age and sex.

Figure 14.5.1: Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09

Community residents, aged 75 and older, with two or more prescriptions or greater than a 30–day supply annually



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

The rate ratios were calculated by dividing the Francophone Cohort percentage by the Matched Cohort of Other Manitoban percentage. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Key findings

- Provincially, the Francophone Cohort of people over the age of 75, who live in the community, had a higher rate of potentially inappropriate benzodiazepine use than the Matched Cohort of Other Manitobans (Rate Ratio: 1.37).
- There is a definite trend towards higher rates of potentially inappropriate use of benzodiazepine rates for Francophones in most regions. South Eastman (Rate Ratio: 1.46), including the Northern district of South Eastman (Rate Ratio: 1.59); Winnipeg (Rate Ratio: 1.45); St. Boniface (Rate Ratio: 1.43), including West St. Boniface (Rate Ratio: 1.40); and St. Vital (Rate Ratio: 1.72) were the areas where the Francophone Cohort Rate was significantly higher than the Matched Cohort of Other Manitobans.
- The rates of potentially inappropriate benzodiazepine use of Francophones in almost all areas were similar to the Francophone provincial rate (Table 14.9.5).

14.6 Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults

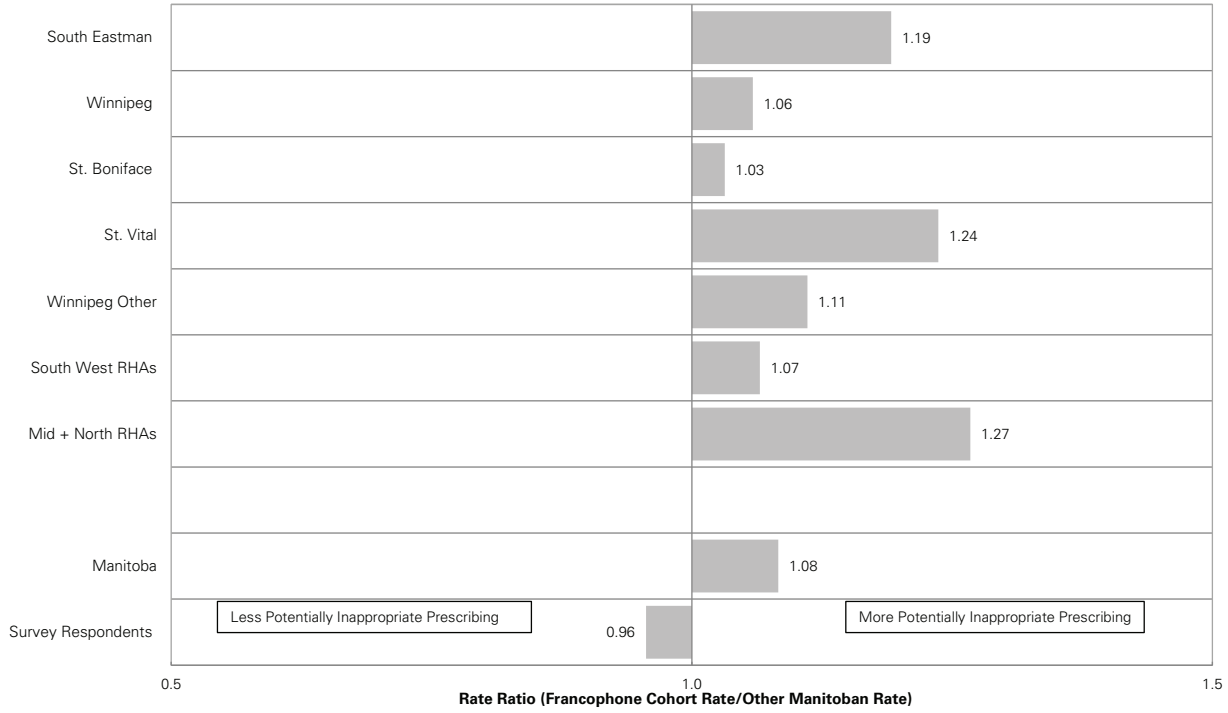
Benzodiazepines can be used to treat: anxiety disorders, panic disorders, insomnia, seizures, muscle spasticity, alcohol withdrawal, and as a perioperative adjunct to anesthesia. Tolerance and physical and psychological dependence may occur with prolonged use and their long–term use is not recommended for older adults.

Potentially inappropriate benzodiazepine use was defined as the percentage of people, aged 75 and older, who had at least two prescriptions for benzodiazepines or at least one prescription for benzodiazepines with a greater than 30–day supply. Rates are provided for PCH dwelling seniors only, seniors residing in the community were excluded. The calculations were based on data from 2004/05 to 2008/09 and were not adjusted for age and sex.

The rate ratios were calculated by dividing the Francophone Cohort percentage by the Matched Cohort of Other Manitoban percentage. The rate ratio indicates how Francophones are doing compared to a similar group of Other Manitobans.

Figure 14.6.1: Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2004/05–2008/09

PCH residents, aged 75 and older, with two or more prescriptions or greater than a 30–day supply annually



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially and across regions, no significant differences were found in the rate of potentially inappropriate benzodiazepine use between the Francophone Cohort of PCH residents and the Matched Cohort of Other Manitobans (Rate Ratio: 1.08) nor in the sample of survey respondents (Rate Ratio: 0.96).
- The rates of potentially inappropriate benzodiazepine use of Francophones in most areas were similar to the Francophone provincial rate with the exception of South Eastman where the rates were higher and in St. Boniface where the rates were lower (Table 14.9.6).

14.7 Comparison of Rates between Samples

The following table was prepared to assess how similar the rates estimated by the Francophone and Matched Cohorts are to those rates estimated from a representation sample of survey respondents (2,342 Francophones and 40,000 non–Francophone Manitobans). Since no large "D" is observed, there are no significant differences between the rate ratios found in the Francophone and Matched Cohorts and the survey sample of Francophones and non–Francophone Manitobans. Any differences noted are likely due to chance and not actual differences.

Table 14.7.1: Comparison of Rates between Matched Cohorts and Survey Samples

Indicators	Year(s)	Matched Cohorts			Survey Sample*		
		Francophone Cohort Directly Standardized Rate	Matched Cohort Directly Standardized Rate	Directly Standardized Rate Ratio	Francophone Crude Rate	Other Manitobans Crude Rate	Crude Rate Ratio
Antidepressant follow-up	2004/05-2008/09	58.94%	57.38%	1.03	69.00%	59.34%	1.16
Asthma care: Controller Meds	2008/09	59.20%	59.22%	1.00	68.75%	61.33%	1.12
Diabetes care: Eye exams	2008/09	29.36%	29.19%	1.01	35.59%	37.40%	0.95
Post-MI care: Beta Blockers	2004/05-2008/09	84.08%	81.66%	1.03	85.67%	77.60%	1.10
Benzodiazepine use: Adults (75 and older) living in Community	2004/05-2008/09	28.85%	21.28%	1.36 (d)	25.01%	18.43%	1.36
Benzodiazepine use: Adults (75 and older) living in PCH	2004/05-2008/09	32.93%	31.25%	1.05	28.92%	30.25%	0.96

'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio
* Survey sample includes people identified through the National Population and Health Surveys (NPHS), the Canadian Community Health Surveys (CCHS) and the Manitoba Heart Health Survey (HHS)

Source: Manitoba Centre for Health Policy, 2012

14.8 Findings from the Literature

(Comparisons to the results in this study are in italics)

Benzodiazepine Use: Seniors (75+) Living in Community

- Utilizing the Ontario Health Survey, Boudreau and Farmer found that the older Francophones were more likely to take medications on demand than other residents in Ontario (1999).
- *In this study, the Francophone Cohort, aged 75 and older, living in the community were considerably more likely to utilize benzodiazepines for longer than 30 days, compared to the Matched Cohort of Other Manitobans, aged 75 and older (Rate Ratio: 1.37). This potentially inappropriate use of benzodiazepines was not found among those aged 75 and older living in PCHs.*

14.9 Supplementary Tables

Table 14.9.1: Antidepressant Prescription Follow–up, 2004/05–2008/09
Newly depressed patients, aged 10 and older, who had at least three physician visits in four months

Region	Crude Rate Ratio (Francophone Cohort Crude Percentage/ Matched Cohort Crude Percentage (95% CI)	Francophone Cohort Crude Percentage (95% CI)	Matched Cohort Crude Percentage (95% CI)
South Eastman	0.95 (0.81, 1.10)	55.49 (47.88, 63.09)	58.68 (54.49, 62.87)
SE Northern	0.85 (0.68, 1.06)	54.65 (44.13, 65.17)	64.06 (57.28, 70.85)
SE Central	1.01 (0.62, 1.65)	53.33 (28.09, 78.58)	52.82 (45.81, 59.83)
SE Western	0.94 (0.72, 1.23)	56.90 (44.15, 69.64)	60.58 (51.18, 69.97)
SE Southern (s)	s	s	56.41 (40.85, 71.97)
Central	1.10 (0.86, 1.40)	51.65 (41.38, 61.92)	46.96 (40.51, 53.41)
Assiniboine	0.95 (0.63, 1.45)	51.85 (33.00, 70.70)	54.32 (43.47, 65.17)
Brandon	1.40 (0.96, 2.05)	75.00 (56.02, 93.98)	53.66 (38.39, 68.92)
Interlake	1.02 (0.62, 1.68)	56.25 (31.94, 80.56)	55.10 (41.18, 69.03)
North Eastman	1.11 (0.81, 1.52)	64.71 (48.64, 80.77)	58.33 (46.95, 69.72)
Parkland	1.13 (0.71, 1.78)	58.82 (35.43, 82.22)	52.24 (40.28, 64.20)
Nor-Man (s)	s	s	s
Burntwood (s)	s	s	42.86 (16.93, 68.78)
Winnipeg	1.03 (0.93, 1.14)	61.27 (56.14, 66.40)	59.52 (56.48, 62.56)
Fort Garry	0.96 (0.65, 1.42)	58.33 (38.61, 78.06)	60.56 (49.20, 71.93)
Assiniboine South (s)	s	s	42.31 (23.32, 61.30)
St. Boniface	1.02 (0.86, 1.20)	61.79 (53.20, 70.38)	60.67 (55.14, 66.19)
St. Boniface East	1.03 (0.79, 1.35)	59.18 (45.42, 72.95)	57.23 (49.85, 64.60)
St. Boniface West	0.97 (0.78, 1.20)	63.51 (52.55, 74.48)	65.35 (57.08, 73.63)
St. Vital	0.85 (0.67, 1.08)	55.07 (43.34, 66.81)	64.71 (58.15, 71.26)
St. Vital South	0.92 (0.68, 1.25)	55.56 (41.04, 70.07)	60.40 (50.86, 69.93)
St. Vital North	0.79 (0.53, 1.16)	54.17 (34.23, 74.10)	68.93 (59.99, 77.87)
Transcona	1.35 (0.83, 2.19)	61.90 (41.13, 82.68)	45.95 (29.89, 62.00)
River Heights	0.86 (0.55, 1.36)	56.25 (31.94, 80.56)	65.35 (56.07, 74.63)
River East	1.13 (0.78, 1.63)	57.69 (38.70, 76.68)	51.20 (42.44, 59.96)
Seven Oaks (s)	s	s	50.00 (25.50, 74.50)
St. James Assiniboia	1.26 (0.86, 1.85)	76.47 (56.31, 96.63)	60.61 (43.93, 77.28)
Inkster (s)	s	s	72.73 (46.41, 99.05)
Downtown	1.10 (0.77, 1.58)	66.67 (47.81, 85.53)	60.38 (47.21, 73.55)
Point Douglas	1.36 (0.85, 2.18)	73.33 (50.95, 95.71)	53.85 (34.68, 73.01)
South West RHAs	1.11 (0.93, 1.34)	55.07 (46.77, 63.37)	49.43 (44.21, 54.65)
Mid RHAs	1.11 (0.88, 1.39)	61.19 (49.53, 72.86)	55.32 (48.21, 62.43)
North RHAs	0.92 (0.42, 2.00)	40.00 (15.21, 64.79)	43.48 (23.22, 63.74)
Manitoba	1.02 (0.95, 1.10)	58.36 (54.78, 61.93)	57.06 (54.94, 59.18)
Survey Respondents	1.16 (0.78, 1.55)	69.00 (47.56, 90.44)	59.34 (53.31, 65.37)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 14.9.2: Asthma Care: Controller Medication Use, 2008/09
People with asthma on appropriate medications (one or more prescriptions for inhaled steroids)

Region	Crude Rate Ratio (Francophone Cohort Crude Percentage/ Matched Cohort Crude Percentage (95% CI)	Francophone Cohort Crude Percentage (95% CI)	Matched Cohort Crude Percentage (95% CI)
South Eastman	1.01 (0.86, 1.20)	59.26 (50.97, 67.55)	58.40 (53.41, 63.39)
SE Northern	0.98 (0.76, 1.25)	56.34 (44.80, 67.87)	57.62 (49.73, 65.50)
SE Central (s)	s	s	63.27 (53.72, 72.81)
SE Western	1.03 (0.77, 1.39)	58.49 (45.22, 71.76)	56.63 (45.96, 67.29)
SE Southern	1.60 (1.06, 2.42)	85.71 (59.79, 111.64)	53.49 (38.58, 68.40)
Central	1.15 (0.93, 1.43)	65.67 (54.30, 77.04)	56.92 (49.97, 63.87)
Assiniboine	1.29 (0.96, 1.72)	82.35 (64.23, 100.47)	63.93 (51.88, 75.98)
Brandon (s)	s	s	68.00 (49.71, 86.29)
Interlake	0.65 (0.35, 1.19)	41.18 (17.78, 64.57)	63.46 (50.37, 76.55)
North Eastman	1.29 (0.96, 1.73)	77.27 (59.76, 94.78)	60.00 (48.91, 71.09)
Parkland (s)	s	s	64.91 (52.52, 77.30)
Nor-Man	1.10 (0.69, 1.75)	77.78 (50.62, 104.94)	70.59 (48.93, 92.25)
Burntwood (s)	s	s	67.74 (51.29, 84.20)
Winnipeg	0.97 (0.88, 1.06)	57.53 (52.94, 62.12)	59.56 (56.90, 62.22)
Fort Garry	0.86 (0.63, 1.18)	54.17 (40.07, 68.26)	62.67 (51.72, 73.61)
Assiniboine South (s)	s	s	46.15 (26.99, 65.32)
St. Boniface	0.87 (0.74, 1.03)	51.45 (44.00, 58.89)	59.14 (54.28, 63.99)
St. Boniface East	0.86 (0.67, 1.10)	52.94 (41.08, 64.80)	61.68 (55.17, 68.20)
St. Boniface West	0.90 (0.72, 1.13)	50.48 (40.91, 60.04)	56.11 (48.86, 63.36)
St. Vital	1.03 (0.83, 1.28)	55.43 (45.28, 65.59)	53.58 (47.58, 59.59)
St. Vital South	1.16 (0.87, 1.56)	61.54 (46.27, 76.81)	52.86 (44.59, 61.13)
St. Vital North	0.94 (0.69, 1.28)	50.94 (37.48, 64.40)	54.40 (45.67, 63.13)
Transcona	1.38 (0.82, 2.32)	69.23 (44.14, 94.32)	50.00 (31.48, 68.52)
River Heights	1.00 (0.67, 1.51)	64.29 (39.19, 89.39)	64.14 (56.33, 71.94)
River East	0.91 (0.64, 1.28)	57.14 (38.81, 75.47)	62.96 (55.53, 70.40)
Seven Oaks (s)	s	s	52.63 (30.18, 75.08)
St. James Assiniboia (s)	s	s	74.51 (62.55, 86.47)
Inkster	1.16 (0.68, 1.97)	75.00 (44.99, 105.01)	64.71 (41.99, 87.42)
Downtown	1.12 (0.81, 1.55)	65.52 (48.22, 82.82)	58.44 (47.43, 69.45)
Point Douglas	1.25 (0.94, 1.66)	81.82 (65.70, 97.94)	65.31 (51.98, 78.63)
South West RHAs	1.13 (0.95, 1.34)	67.03 (57.37, 76.69)	59.43 (53.69, 65.17)
Mid RHAs	0.85 (0.64, 1.12)	52.83 (39.39, 66.27)	62.50 (55.50, 69.50)
North RHAs	1.11 (0.80, 1.54)	76.47 (56.31, 96.63)	68.75 (55.64, 81.86)
Manitoba	0.99 (0.92, 1.06)	59.11 (55.57, 62.65)	59.79 (57.74, 61.84)
Survey Respondents	1.12 (0.78, 1.46)	68.75 (49.26, 88.23)	61.33 (55.09, 67.57)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 14.9.3: Diabetes Care: Annual Eye Exams, 2008/09

People with diabetes who had an annual eye examination

Region	Crude Rate Ratio (Francophone Cohort Crude Percentage/ Matched Cohort Crude Percentage (95% CI)	Francophone Cohort Crude Percentage (95% CI)	Matched Cohort Crude Percentage (95% CI)
South Eastman	1.07 (0.91, 1.25)	36.93 (32.02, 41.84)	34.53 (31.70, 37.36)
SE Northern	0.88 (0.69, 1.12)	32.42 (25.62, 39.22)	36.95 (32.25, 41.64)
SE Central	1.41 (0.86, 2.31)	45.45 (24.65, 66.26)	32.18 (26.52, 37.85)
SE Western	1.17 (0.91, 1.50)	42.11 (33.71, 50.50)	36.05 (30.57, 41.54)
SE Southern	1.26 (0.74, 2.15)	35.29 (19.23, 51.36)	28.00 (20.13, 35.87)
Central	0.88 (0.69, 1.13)	30.86 (24.01, 37.70)	35.00 (31.05, 38.95)
Assiniboine	0.77 (0.54, 1.10)	32.89 (22.33, 43.46)	42.62 (36.42, 48.83)
Brandon	1.29 (0.78, 2.11)	44.83 (26.73, 62.93)	34.88 (24.81, 44.96)
Interlake	1.07 (0.68, 1.67)	26.76 (16.46, 37.06)	25.12 (19.27, 30.97)
North Eastman	1.31 (0.90, 1.90)	32.47 (22.01, 42.93)	24.84 (20.03, 29.65)
Parkland	1.29 (0.82, 2.02)	36.59 (21.84, 51.33)	28.45 (22.73, 34.17)
Nor-Man	1.12 (0.71, 1.78)	50.00 (30.00, 70.00)	44.57 (34.41, 54.72)
Burntwood (s)	s	s	36.47 (26.24, 46.70)
Winnipeg	1.04 (0.94, 1.16)	32.54 (29.64, 35.43)	31.17 (29.47, 32.87)
Fort Garry	0.83 (0.55, 1.24)	28.38 (18.11, 38.65)	34.38 (28.16, 40.59)
Assiniboine South (s)	s	s	22.22 (11.13, 33.31)
St. Boniface	1.03 (0.88, 1.21)	33.85 (29.50, 38.19)	32.77 (29.68, 35.86)
St. Boniface East	1.02 (0.80, 1.30)	37.16 (29.38, 44.95)	36.49 (32.01, 40.96)
St. Boniface West	1.11 (0.89, 1.38)	32.25 (27.02, 37.48)	29.05 (24.83, 33.28)
St. Vital	1.03 (0.81, 1.29)	33.50 (26.91, 40.09)	32.68 (28.81, 36.56)
St. Vital South	1.03 (0.74, 1.44)	33.33 (23.75, 42.91)	32.33 (27.04, 37.63)
St. Vital North	1.02 (0.74, 1.40)	33.65 (24.57, 42.74)	33.08 (27.39, 38.77)
Transcona	1.04 (0.61, 1.76)	34.21 (19.13, 49.29)	32.98 (23.47, 42.48)
River Heights	1.21 (0.71, 2.07)	34.48 (17.18, 51.78)	28.52 (23.13, 33.90)
River East	0.91 (0.55, 1.52)	25.00 (13.23, 36.77)	27.34 (22.20, 32.47)
Seven Oaks (s)	s	s	36.11 (25.02, 47.21)
St. James Assiniboia	1.56 (0.99, 2.44)	47.06 (30.28, 63.84)	30.25 (22.00, 38.51)
Inkster (s)	s	s	27.91 (14.50, 41.31)
Downtown	1.24 (0.77, 1.99)	31.48 (19.09, 43.87)	25.48 (18.66, 32.29)
Point Douglas	0.93 (0.45, 1.89)	28.00 (10.40, 45.60)	30.26 (19.93, 40.59)
South West RHAs	0.89 (0.73, 1.07)	32.86 (27.36, 38.36)	37.08 (33.91, 40.25)
Mid RHAs	1.20 (0.94, 1.53)	31.22 (24.61, 37.82)	26.05 (22.93, 29.17)
North RHAs	0.89 (0.58, 1.35)	36.17 (22.43, 49.91)	40.78 (33.58, 47.98)
Manitoba	1.03 (0.96, 1.11)	33.40 (31.28, 35.53)	32.34 (31.13, 33.55)
Survey Respondents	0.95 (0.67, 1.23)	35.59 (25.53, 45.65)	37.40 (34.61, 40.19)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 14.9.4: Post Acute Myocardial Infarction (AMI) Care, 2004/05–2008/09
AMI patients, aged 20 and older, who received a prescription for a beta blocker within four months of AMI

Region	Crude Rate Ratio (Francophone Cohort Crude Percent/ Matched Cohort Crude Percent (95% CI)	Francophone Cohort Crude Percentage (95% CI)	Matched Cohort Crude Percentage (95% CI)
South Eastman	1.04 (0.91, 1.19)	86.27 (76.83, 95.72)	82.99 (76.92, 89.07)
SE Northern	1.15 (1.01, 1.31)	96.30 (89.17, 103.42)	83.87 (74.72, 93.03)
SE Central (s)	s	s	75.00 (60.00, 90.00)
SE Western	0.87 (0.65, 1.16)	76.47 (56.31, 96.63)	87.80 (77.79, 97.82)
SE Southern (s)	s	s	83.33 (62.25, 104.42)
Winnipeg	1.06 (0.97, 1.15)	85.19 (79.19, 91.18)	80.72 (76.80, 84.64)
St. Boniface	1.08 (0.96, 1.22)	89.83 (82.12, 97.54)	82.93 (76.28, 89.58)
St. Boniface East	1.16 (1.04, 1.29)	100.00 (100.00, 100.00)	86.54 (77.26, 95.82)
St. Boniface West	1.09 (0.93, 1.27)	87.23 (77.69, 96.77)	80.28 (71.03, 89.54)
St. Vital	0.84 (0.66, 1.08)	72.41 (56.15, 88.68)	86.21 (77.33, 95.08)
St. Vital South	0.77 (0.55, 1.10)	71.43 (47.76, 95.09)	92.31 (82.06, 102.55)
St. Vital North	0.90 (0.64, 1.28)	73.33 (50.95, 95.71)	81.25 (67.73, 94.77)
South West RHAs	1.13 (0.95, 1.34)	87.10 (75.30, 98.90)	77.17 (68.60, 85.75)
Mid RHAs	0.81 (0.60, 1.09)	72.22 (51.53, 92.91)	89.39 (81.97, 96.82)
North RHAs (s)	s	s	80.00 (59.76, 100.24)
Manitoba	1.04 (0.98, 1.11)	84.81 (80.24, 89.38)	81.52 (78.67, 84.38)
Survey Respondents	1.10 (0.85, 1.36)	85.67 (69.41, 101.93)	77.60 (67.86, 87.34)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 14.9.5: Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults, 2004/05–2008/09

Community residents, aged 75 and older, with two or more prescriptions or greater than a 30–day supply annually

Region	Crude Rate Ratio (Francophone Cohort Crude Percentage/ Matched Cohort Crude Percentage) (95% CI)	Francophone Cohort Crude Percentage (95% CI)	Matched Cohort Crude Percentage (95% CI)
South Eastman (d)	**1.46 (1.16, 1.83)**	**29.52 (24.09, 34.95)**	**20.28 (17.47, 23.08)**
SE Northern (d)	**1.59 (1.12, 2.26)**	**30.77 (22.84, 38.70)**	**19.31 (14.77, 23.85)**
SE Central (s)	s	s	22.82 (16.08, 29.56)
SE Western	1.44 (1.00, 2.08)	31.13 (22.32, 39.95)	21.65 (16.59, 26.72)
SE Southern (s)	s	s	15.63 (8.36, 22.89)
Winnipeg (d)	**1.45 (1.28, 1.64)**	**30.93 (27.90, 33.97)**	**21.36 (19.83, 22.88)**
St. Boniface (d)	**1.43 (1.20, 1.71)**	**32.64 (28.47, 36.82)**	**22.79 (19.99, 25.59)**
St. Boniface East	1.30 (0.76, 2.21)	21.33 (12.06, 30.60)	16.43 (11.46, 21.41)
St. Boniface West (d)	**1.40 (1.16, 1.68)**	**34.72 (30.10, 39.33)**	**24.88 (21.55, 28.22)**
St. Vital (d)	**1.72 (1.29, 2.30)**	**33.33 (25.94, 40.73)**	**19.33 (15.78, 22.88)**
St. Vital South	1.53 (0.93, 2.51)	29.51 (18.06, 40.95)	19.30 (13.38, 25.21)
St. Vital North (d)	**1.85 (1.30, 2.64)**	**35.79 (26.15, 45.43)**	**19.34 (14.91, 23.78)**
South West RHAs	1.13 (0.87, 1.46)	26.46 (20.67, 32.25)	23.48 (20.35, 26.60)
Mid RHAs	1.28 (0.90, 1.81)	24.82 (17.69, 31.95)	19.38 (15.59, 23.17)
North RHAs (s)	s	s	15.38 (7.38, 23.39)
Manitoba (d)	**1.37 (1.25, 1.51)**	**29.07 (26.81, 31.32)**	**21.22 (20.06, 22.38)**
Survey Respondents	1.36 (0.93, 1.79)	25.01 (17.60 ,32.43)	18.43 (16.68, 20.18)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 14.9.6: Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults, 2004/05–2008/09

PCH residents, aged 75 and older, with two or more prescriptions or greater than a 30–day supply annually

Region	Crude Rate Ratio (Francophone Cohort Crude Percentage/ Matched Cohort Crude Percentage (95% CI)	Francophone Cohort Crude Percentage (95% CI)	Matched Cohort Crude Percentage (95% CI)
South Eastman (f)	1.19 (0.92, 1.53)	**44.83 (36.73, 52.92)**	37.62 (30.94, 44.30)
Winnipeg	1.06 (0.92, 1.22)	28.64 (25.20, 32.07)	27.05 (24.90, 29.20)
St. Boniface (f)	1.03 (0.77, 1.39)	**25.42 (20.91, 29.93)**	24.64 (18.77, 30.51)
St. Vital	1.24 (0.92, 1.66)	33.92 (26.82, 41.01)	27.43 (21.75, 33.11)
Winnipeg Other	1.11 (0.85, 1.45)	30.43 (22.76, 38.11)	27.39 (24.86, 29.93)
South West RHAs	1.07 (0.79, 1.43)	46.15 (34.03, 58.27)	43.32 (37.49, 49.16)
Mid + North RHAs	1.27 (0.76, 2.10)	40.74 (22.21, 59.27)	32.14 (25.08, 39.21)
Manitoba	1.08 (0.97, 1.21)	32.85 (29.79, 35.92)	30.34 (28.45, 32.22)
Survey Respondents	0.96 (0.40, 1.51)	28.92 (13.53, 44.31)	30.25 (24.93, 35.57)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Chapter 15: Health Practices and Personal Characteristics from CCHS Survey Data

Indicators in this Chapter

- 15.1 Self–Rated Health Status
- 15.2 Self–Rated Mental Health
- 15.3 Emotional Well–Being
- 15.4 Life Satisfaction
- 15.5 Life Stress
- 15.6 Work Stress
- 15.7 Body Mass Index (BMI)
- 15.8 Fruit and Vegetable Consumption
- 15.9 Frequency of Binge Drinking
- 15.10 Smoking
- 15.11 Second–Hand Smoke Exposure
- 15.12 Total Physical Activity (Work, Travel, and Leisure)
- 15.13 Activity Limitations
- 15.14 Findings from the Literature
- 15.15 Supplementary Tables

Overall Key Findings

- Overall, Francophones reported a lower rate of self–rated mental health and a lower rate of exposure to second–hand smoke when compared to Other Manitobans. When sociodemographic and lifestyle variables were accounted for, the finding on self–rated mental health remained statistically significant but the finding on second–hand smoke did not.
- Francophones in South Eastman had a body mass index that was lower than the Other Manitobans and the Francophones in this region were more likely to report binge drinking in comparison with the Other Manitobans. In the South West RHAs, Francophones were more likely to report activity limitations than non–Francophones.
- Among Francophones, there is variability according to where they live—rates higher than the provincial average in some areas and lower in others.
- There was no difference between Francophones and Other Manitobans, or among Francophones, depending upon where they live for self–rated health, emotional well–being, life satisfaction, life stress, work stress, fruit and vegetable consumption, smoking, or physical activity.

The health indicators in the following chapter are from the Canadian Community Health Surveys (CCHS). These surveys included 2,154 Francophones and 36,326 Other Manitobans and were conducted to be representative of Manitobans. The analyses were conducted at the Manitoba level and for only four regions in Manitoba due to the relatively small sample of Francophones. Unlike the other chapters in this report, the graphs will show the actual rates.

All of the graphs in this report use Premature Mortality Rate (PMR) as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate.

Table 15.0: Summary of Health Practices and Personal Characteristics from CCHS Survey Data Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Self-Rated Mental Health		
Manitoba (d)	↓	
Winnipeg (d)	↓	
Body Mass Index (BMI)		
Manitoba		
South Eastman (f,d)	↓	↓
Mid + North RHAs (f)		↑
Binge Drinking		
Manitoba		
South Eastman (f,d)	↑	↑
Winnipeg RHA (f)		↓
Exposure to Smoke Inside the Home		
Manitoba (d)	↓	
Winnipeg (d,w)	↓	
Limitations of Activity Due to Physical and/or Mental Health Problems		
Manitoba		
South West RHAs (f,d)	↑	↑

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower than the average for all Francophones (column 3)

If no arrow appears, there is no difference between the two comparison groups.

Source: Manitoba Centre for Health Policy, 2012

15.1 Self–Rated Health Status

Self–rated health has been found to be an excellent predictor of the overall health status of the population and is correlated with other population health status measures such as premature mortality rate.

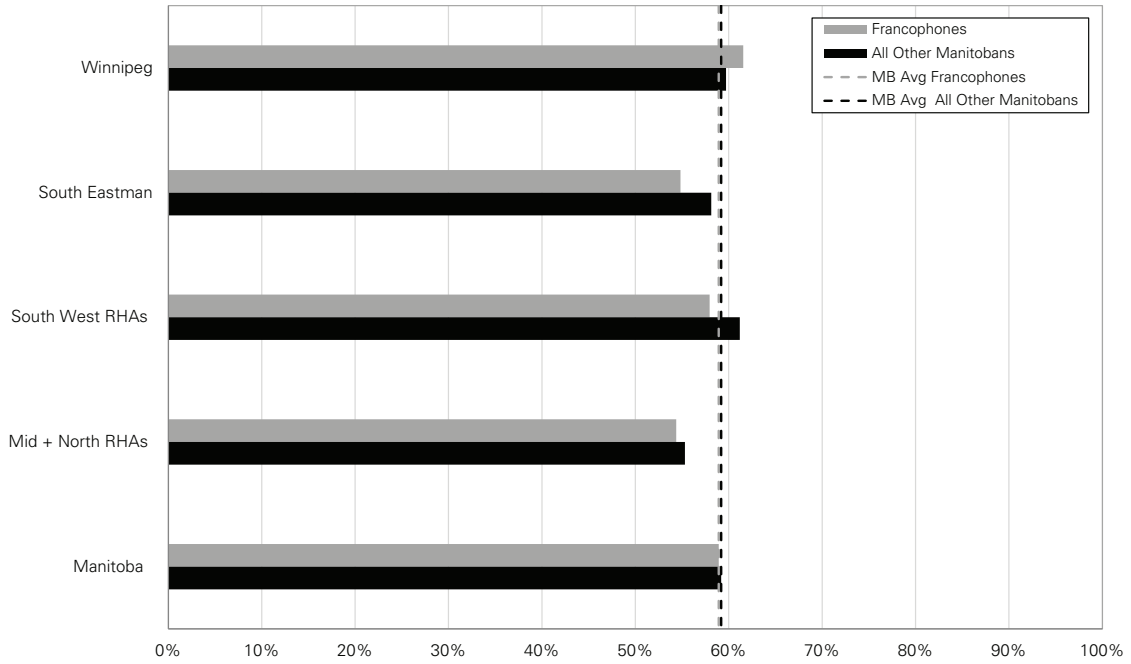
Survey participants, aged 12 and older, were asked, "In general, would you say your health is: excellent, very good, good, fair, or poor?" and given the clarification, "By health, we mean not only the absence of disease or injury but also physical, mental and social well–being." Self–rated health is reported here as the proportion of participants who rated their health as "excellent" or "very good". Results from seven cycles (or years) of the CCHS were included and were adjusted for age and sex.

Key findings

- At the provincial level, 58.9% of Francophones and 59.1% of Other Manitobans answered that they were in excellent or very good health. This was not a statistically significant difference.
- At regional levels, no significant differences were found in rates of self–reported health between Francophones and Other Manitobans.
- The self–rated health rates of Francophones in all areas were similar to the Francophone provincial rate (Tables 15.15.1 and 15.15.2).

Figure 15.1.1: Self–Rated Health

Age– & sex–standardized percent of weighted sample, aged 12 and older, who reported excellent or very good health from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

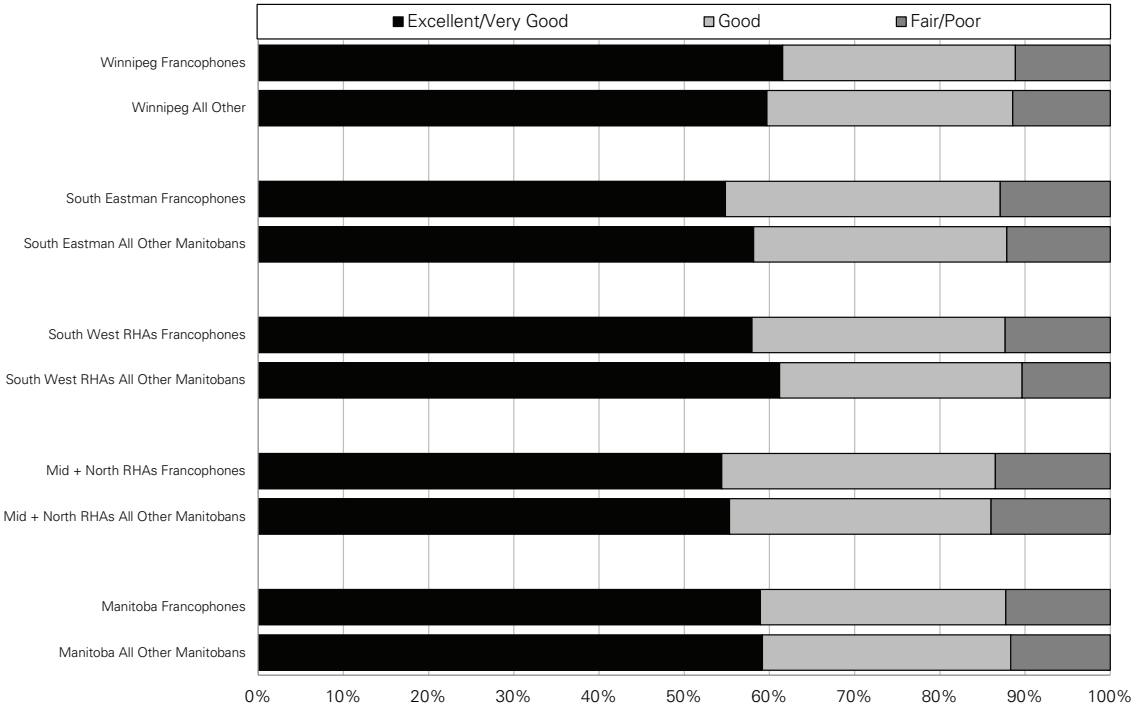


'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Figure 15.1.2: Self–Rated Health (Stacked Bar)

Age– and sex–standardized percent of weighted sample, aged 12 and older, from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008



Source: Manitoba Centre for Health Policy, 2012

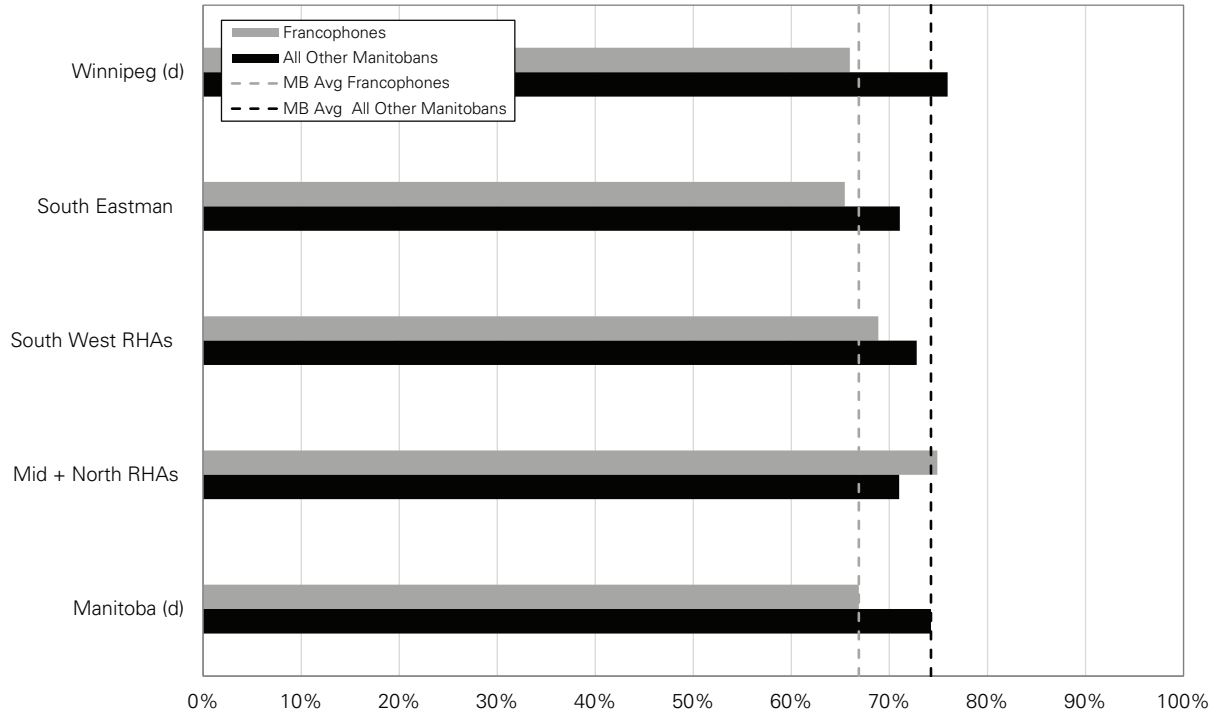
15.2 Self–Rated Mental Health

Mental health can be defined in many different ways. The **Public Health Agency of Canada** defines mental health as "the capacity of each and all of us to feel, think and act in ways that enhance our ability to enjoy life and deal with the challenges we face. It is a positive sense of emotional, and spiritual well–being that respects the importance of culture, equity, social justice, inter–connections and personal dignity."

In the CCHS, all respondents were asked the question, "In general, would you say your mental health is: (excellent, very good, good, fair, or poor)?" Values were calculated using data from CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008.

Figure 15.2.1: Self–Rated Mental Health

Age– & sex–standardized percent of weighted sample, aged 12 and older, who reported excellent or very good mental health from combined CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008



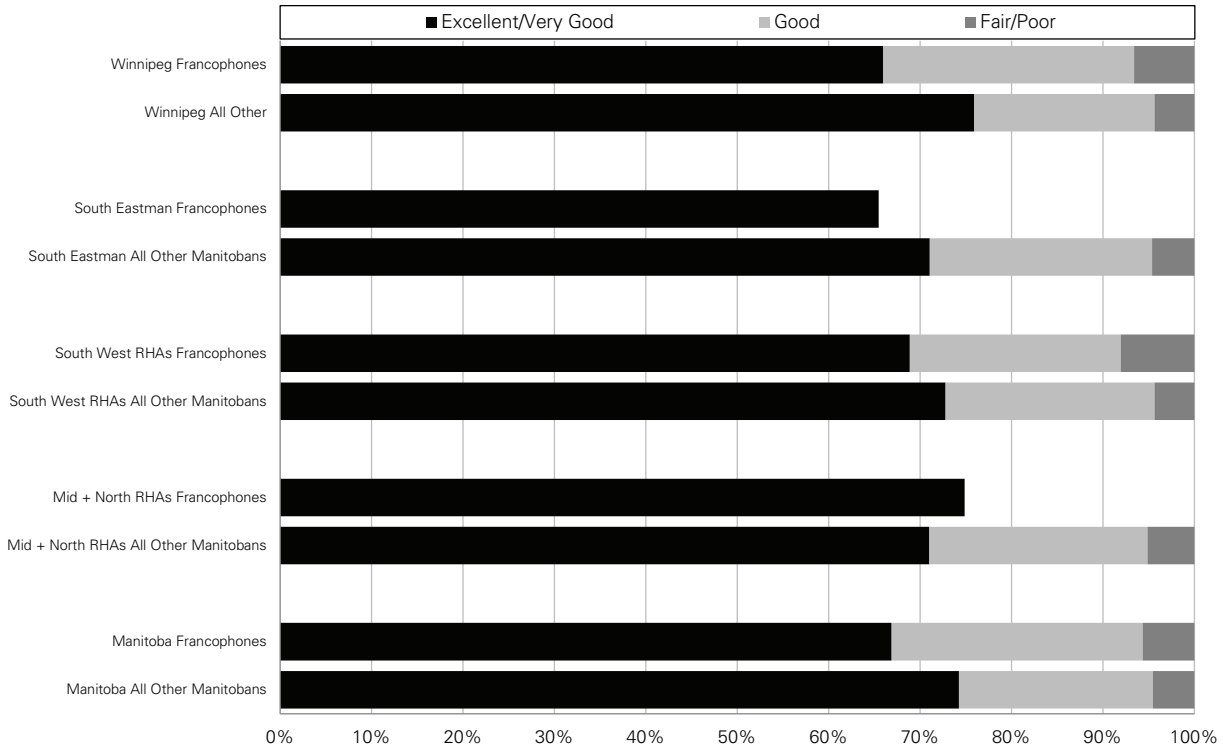
'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial level, 65.5% of Francophones and 74.2% of Other Manitobans answered that their mental health was "excellent" or "very good." This difference was statistically significant.
- At regional levels, a significant difference was found in Winnipeg between Francophones (66.0%) and Other Manitobans (75.9%), however no differences were found in the other regions.
- The self–rated mental health rates of Francophones in all areas were similar to the provincial Francophone rate (Tables 15.15.3 and 15.15.4).

Figure 15.2.2: Self–Rated Mental Health (Stacked Bar)
Age– and sex–adjusted percent of weighted sample, aged 12 and older, from combined CCHS cycles (2.1, 2.2, 3.1, 2007, and 2008)



Source: Manitoba Centre for Health Policy, 2012

Figure 15.2.2 displays all the responses to the questions and suggests that Francophones were slightly more likely to answer that their mental health was "fair" or "poor" than the Other Manitobans.

Tables 15.2.1 and 15.2.2 depict the results of two logistic regression models—a basic model where the association between being Francophone and self–rated mental health is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The results of the basic model are consistent with the results in the initial analysis; Francophones are less likely to report that they are in excellent or very good mental health (Odds Ratio: 0.71).

Previous research suggests that sociodemographic and lifestyle factors influence mental health. In the full model, when these additional factors are introduced into the model, the effect of being Francophone on mental health is accentuated (Odds Ratio: 0.63). This suggests that being Francophone, or having other characteristics associated with being Francophone, is associated with poorer self–rated mental health. This result is not accounted for by the sociodemographic and lifestyle factors that were included in the model.

Table 15.2.1: Logistic Regression Modeling of Excellent or Very Good Self–Rated Mental Health
Basic Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	0.71 (0.56, 0.91)
Age	**0.99 (0.99, 0.99)**
Males (vs. Females)	**1.04 (0.93, 1.15)**
Aggregate Regions (ref = Winnipeg)	
Rural South	0.91 (0.80, 1.04)
Mid	**0.79 (0.69, 0.91)**
North	0.89 (0.74, 1.07)
Brandon	**0.78 (0.63, 0.97)**

Bold indicates statistically significant at p<0.05 Source: Manitoba Centre for Health Policy, 2012

Table 15.2.2: Logistic Regression Modeling of Excellent or Very Good Self–Rated Mental Health
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Interval)
Francophone Cohort (vs. Matched Cohort)	0.63 (0.47, 0.84)
Age	**1.00 (0.99, 1.00)**
Males (vs. Females)	0.98 (0.85, 1.14)
Aggregate Regions (ref = Winnipeg)	
Rural South	0.96 (0.81, 1.13)
Mid	**0.80 (0.68, 0.93)**
North	1.05 (0.82, 1.34)
Brandon	0.82 (0.64, 1.04)
Married or Common Law (vs. Single)	**1.22 (1.04, 1.43)**
Household Income (per $10,000)	**1.01 (1.00, 1.01)**
High School Graduate (vs. not)	**1.50 (1.26, 1.79)**
Currently Employed (vs. not)	**1.18 (1.00, 1.40)**
Sense of Belonging to Local Community (vs. no)	**1.94 (1.68, 2.24)**
Five or more Drinks on One Occasion (vs. no)	0.94 (0.77, 1.15)
Currently Smoker (vs. no)	**0.76 (0.66, 0.88)**
Body Mass Index	**0.99 (0.98, 1.00)**
Leisure Time Physical Activity Index (ref = Inactive)	
Active	**1.65 (1.38, 1.98)**
Moderate	**1.42 (1.22, 1.65)**

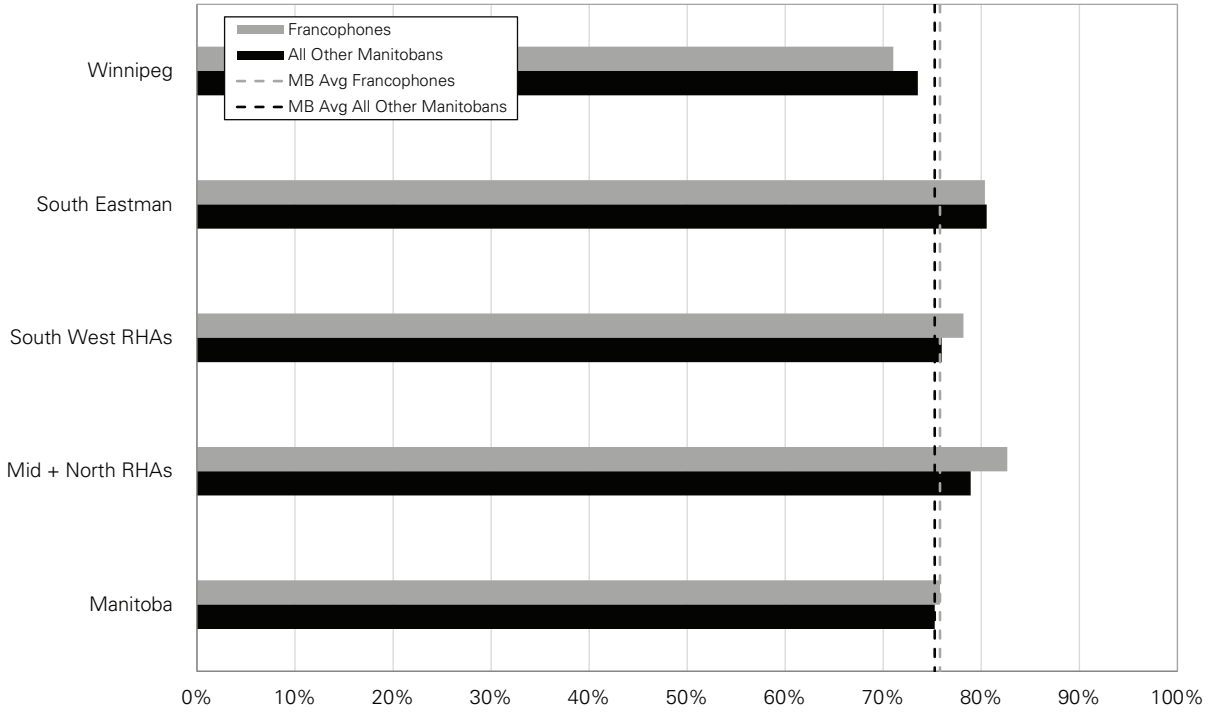
Bold indicates statistically significant at p<0.05 Source: Manitoba Centre for Health Policy, 2012

15.3 Emotional Well–Being

Emotional well–being is one of the attributes in the **Health Utilities Index**—a generic health status index, developed at McMaster University's Centre for Health Economics and Policy Analysis, which measures health status and health–related quality of life. Survey respondents, aged 12 and older, were asked the question, "Would you describe yourself being usually: (happy and interested in life, somewhat happy, somewhat unhappy, very unhappy or so unhappy that life is not worthwhile)?"

To measure this, the crude and standardized weighted proportion of respondents with emotional well–being was calculated by taking the ratio of the number of respondents who said they were happy and interested in life to the number of all respondents. Respondents who did not state an answer were excluded from analyses. Values were calculated using data from CCHS cycle 1.1.

Figure 15.3.1: Emotional Well–Being
Age– & sex–standardized percent of weighted sample, aged 12 and older, who reported being happy and interested in life from CCHS cycle 1.1



'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial level, 75.8% of Francophones and 75.2% of Other Manitobans answered that they were happy and satisfied with life. The difference in percentage was very small and was not a statistically significant finding.
- At regional levels, no significant differences were found in rates of emotional well–being between Francophones and Other Manitobans.
- The rates of perceived emotional well–being of Francophones in all areas were similar to the provincial Francophone rate (Table 15.15.5).

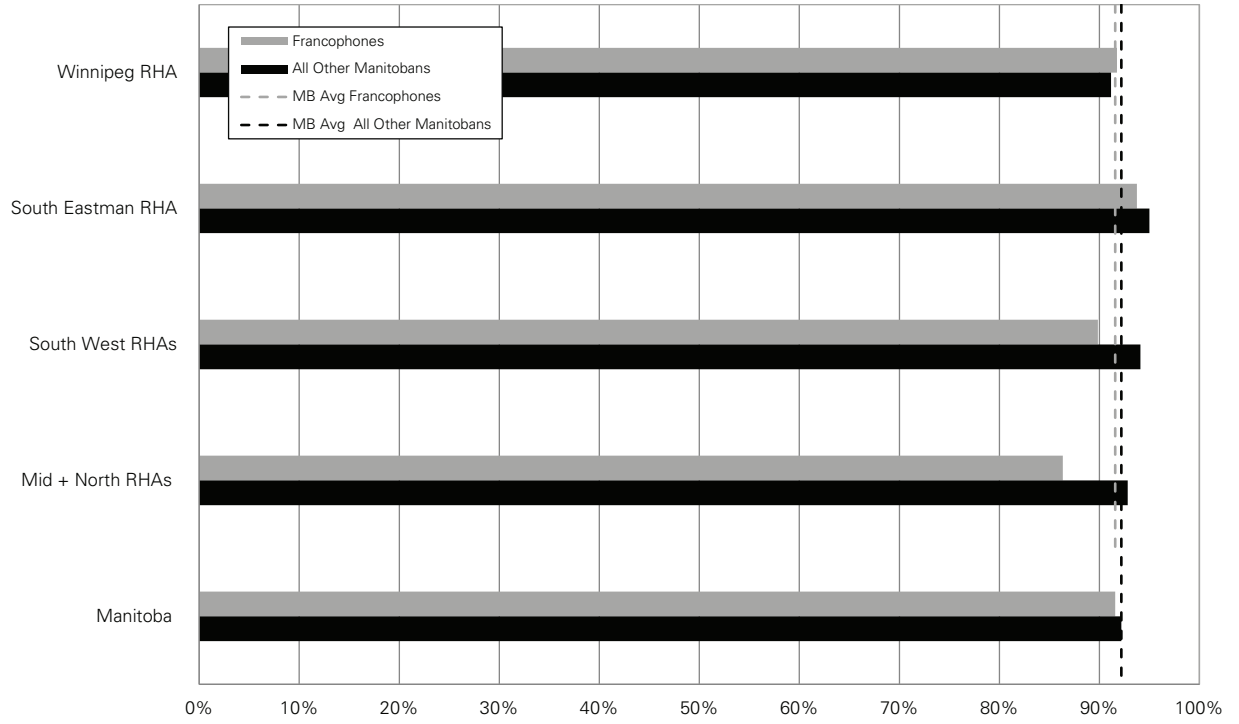
15.4 Life Satisfaction

Life satisfaction is a measure of an individual's perceived level of well–being and happiness and has been shown to be positively correlated with health status.

Survey respondents, aged 12 and older, were asked the question "How satisfied are you with your life in general: Very satisfied, Satisfied, Neither satisfied nor dissatisfied, Dissatisfied, or Very dissatisfied?" Results from five cycles (or years) of CCHS were included and were age–and sex–adjusted.

Figure 15.4.1: Life Satisfaction

Age– & sex–standardized percent of weighted sampled, aged 12 and older, who were satisfied or very satisfied from combined CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008



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'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

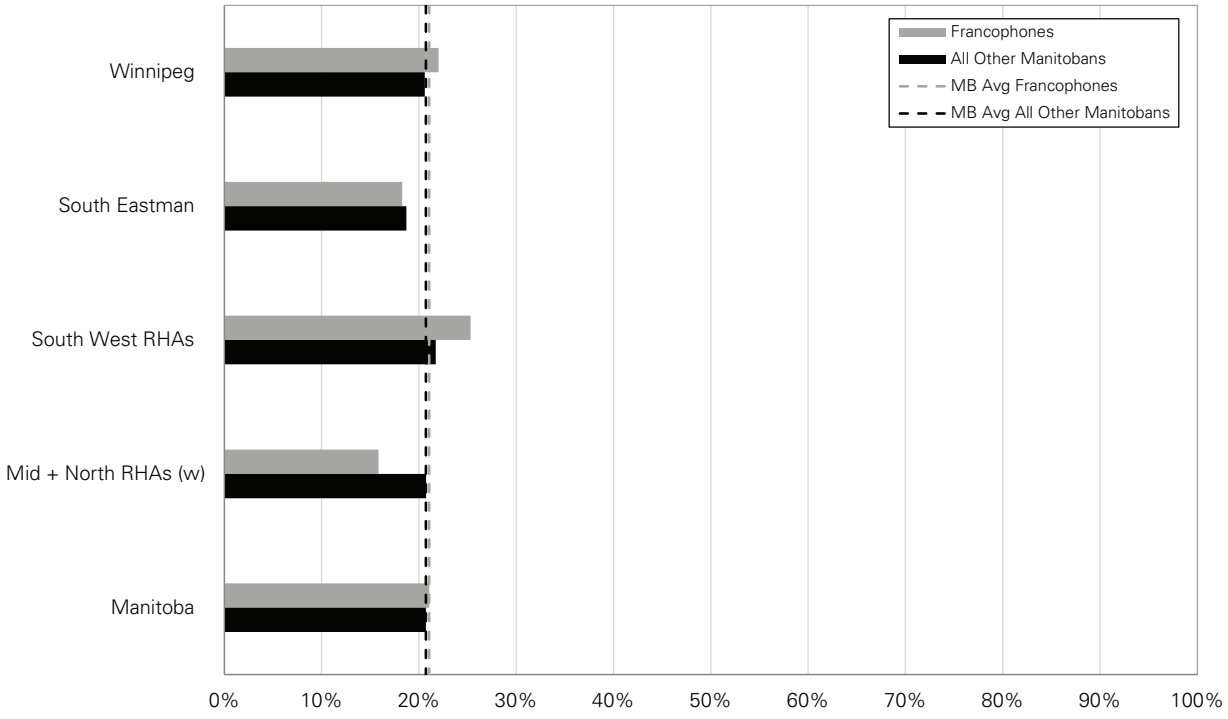
- No significant differences were found in rates of life satisfaction between Francophones and Other Manitobans. At the provincial level, 92% of respondents from both groups answered that they were satisfied with their lives.
- The rates of life satisfaction of Francophones in all areas were similar to the Francophone provincial rate (Table 15.15.6).

15.5 Life Stress

Stress is an emotional and/or physical response by the body to any situation or thought that causes a disparity in a person's usual biological, psychological, or social systems. Stressful events can be positive, such as receiving a promotion, or negative, such as the death of family member. Prolonged exposure to stress can have harmful effects on mental and physical health and well–being.

Survey participants, aged 15 and older, were asked the question, "Thinking about the amount of stress in your life, would you say that most days are: not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful?" Life stress was defined as the proportion of participants who answered that most days their life was "quite a bit stressful" or "extremely stressful". Results from cycles seven cycles (or years) of CCHS were included and were age–and sex–adjusted.

Figure 15.5.1: Self–Perceived Life Stress
Age– & sex–standardized percent of weighted sample, aged 15 and older, with quite a bit to extreme amounts of life stress from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008



'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial level, 21.1% of Francophone and 20.7% of Other Manitobans answered that their lives were stressful. This was not a statistically significant finding.
- At regional levels, no significant differences were found in rates of perceived life stress between Francophones and Other Manitobans.
- The rates of perceived life stress of Francophones in all areas were similar to the Francophone provincial rate (Table 15.15.7).

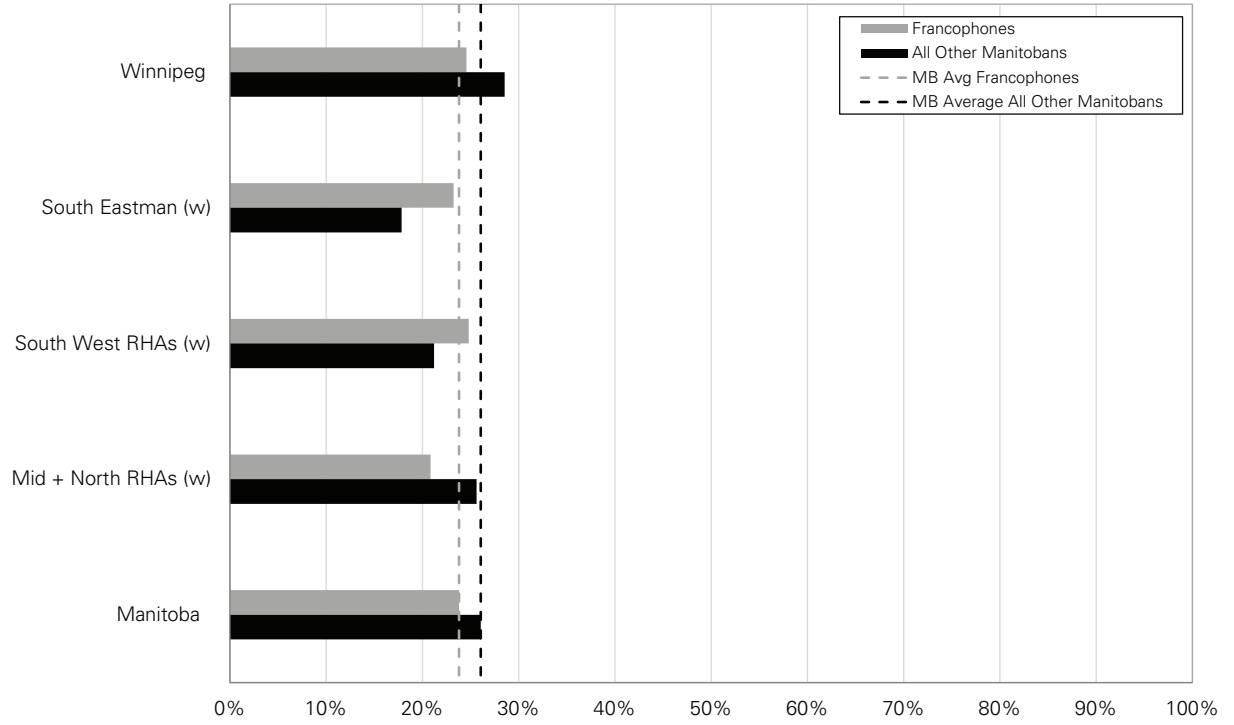
15.6 Work Stress

Stress in the workplace can happen when a worker experiences increased workload and demands, lack of resources, forced overtime, or if they are worried about the security of their job. Prolonged work–related stress can result in job dissatisfaction, high turnover, illness, absenteeism, and lack of motivation.

Survey participants, aged 15 to 75, were asked the question "Have you worked at a job or business at any time in the past 12 months?" Those who responded "Yes" were then asked, "The next question is about your main job or business in the past 12 months. Would you say that most days were: (not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful)?" Work stress was defined as the proportion of participants who answered that most days at work were "quite a bit stressful" or "extremely stressful". Results from CCHS cycles 1.1, 2.1, 3.1, 4.1 and 2008 were included and were age–and sex–adjusted..

Figure 15.6.1: Self–Perceived Work Stress

Age– & sex–standardized percent of weighted sample, aged 15–75, with quite a bit to extreme amounts of work stress, from combined CCHS cycles 1.1, 1.2, 2.1, 3.1, 2007, and 2008



'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

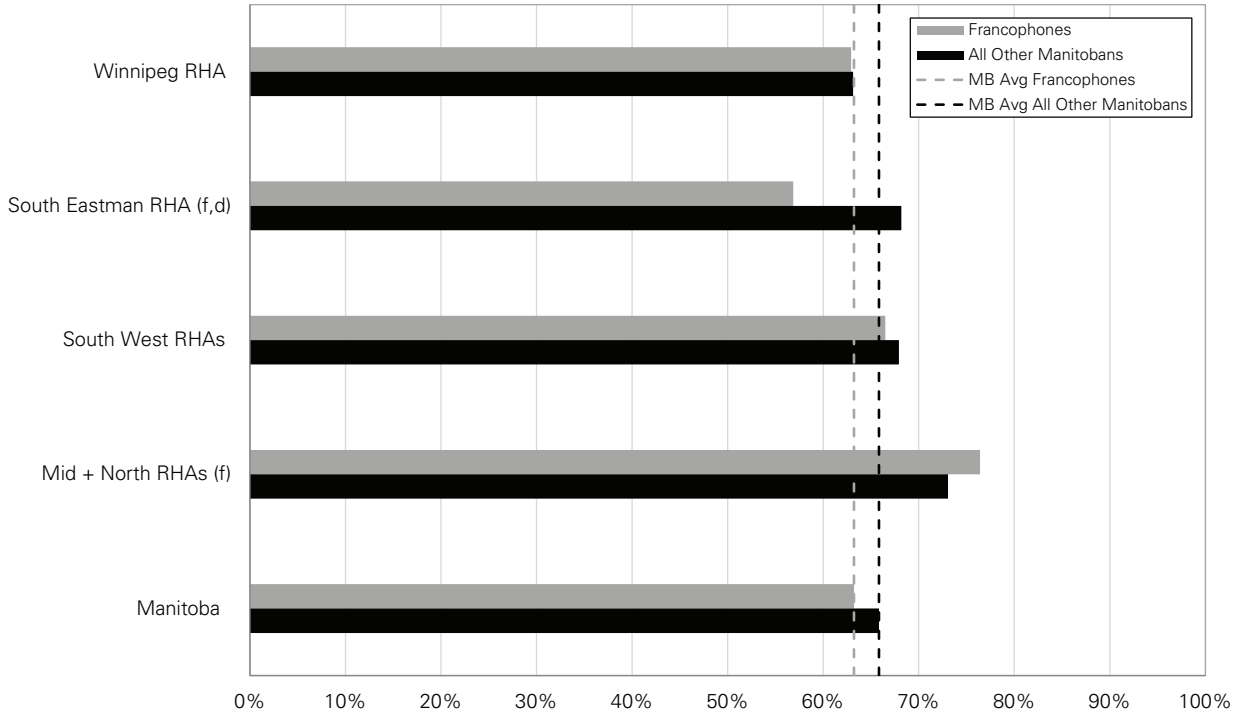
Key findings

- At the provincial level, 23.8% of the Francophone respondents and 26.1% of Other Manitobans answered that their work was stressful. This was not a statistically significant finding.
- At regional levels, no significant differences were found in rates of perceived work stress between Francophone and Other Manitobans.
- The rates of perceived work stress of Francophones in all areas were similar to the Francophone provincial rate (Table 15.15.8).

15.7 Body Mass Index (BMI)

Body Mass Index (BMI) is a measure used to classify and compare individuals according to their height and weight. BMI is calculated as weight (in kilograms) divided by height (in metres) squared. Three categories were created: Underweight and Normal (BMI less than 25), Overweight (25–29), and Obese (30+). High BMI was defined as the proportion of respondents, aged 18 and older, with a BMI of 25 or more. Results from seven cycles (or years) of CCHS were included and were age–and sex–adjusted.

Figure 15.7.1: High Body Mass Index (BMI)
Age– & sex standardized percent of weighted sample, aged 18 and older, in the overweight or obese BMI category from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008



'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

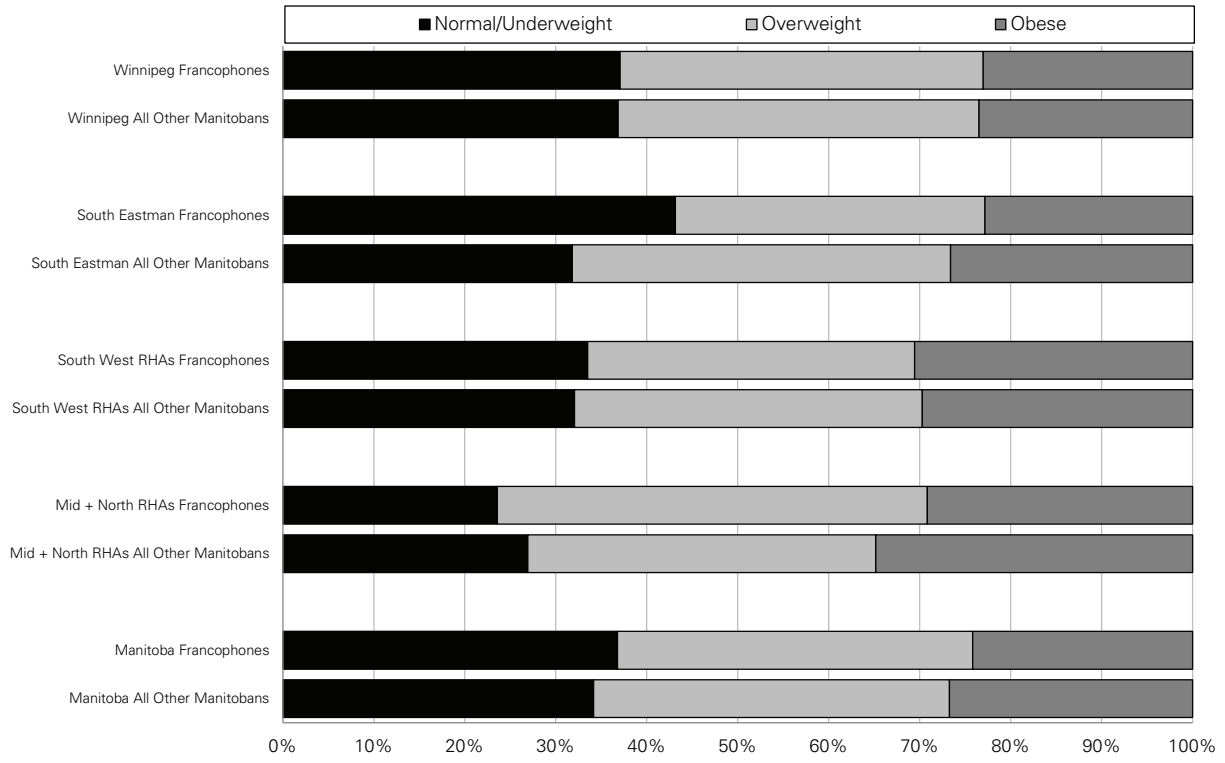
Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial level, 63.2% of Francophone and 65.8% of Other Manitobans were overweight or obese according to their BMI scores. This difference was not statistically significant.
- At regional levels, a significant difference was found in South Eastman between Francophone (56.9%) and Other Manitobans (68.2%), however no differences were found in the other regions.
- BMI rates of Francophones were higher than the provincial rate in Mid– and Northern RHAs and lower in South Eastman (Tables 15.15.9 and 15.15.10).

Figure 15.7.2 displays the Normal/Underweight, Overweight, and Obese categories and suggests that the difference between the groups in South Eastman respondents is mainly due to differences between the Normal/Underweight and Overweight categories.

Figure 15.7.2: Body Mass Index (BMI)
Age– & sex–standardized percent of weighted sample, aged 18 and older, from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007 and 2008



Source: Manitoba Centre for Health Policy, 2012

15.8 Fruit and Vegetable Consumption

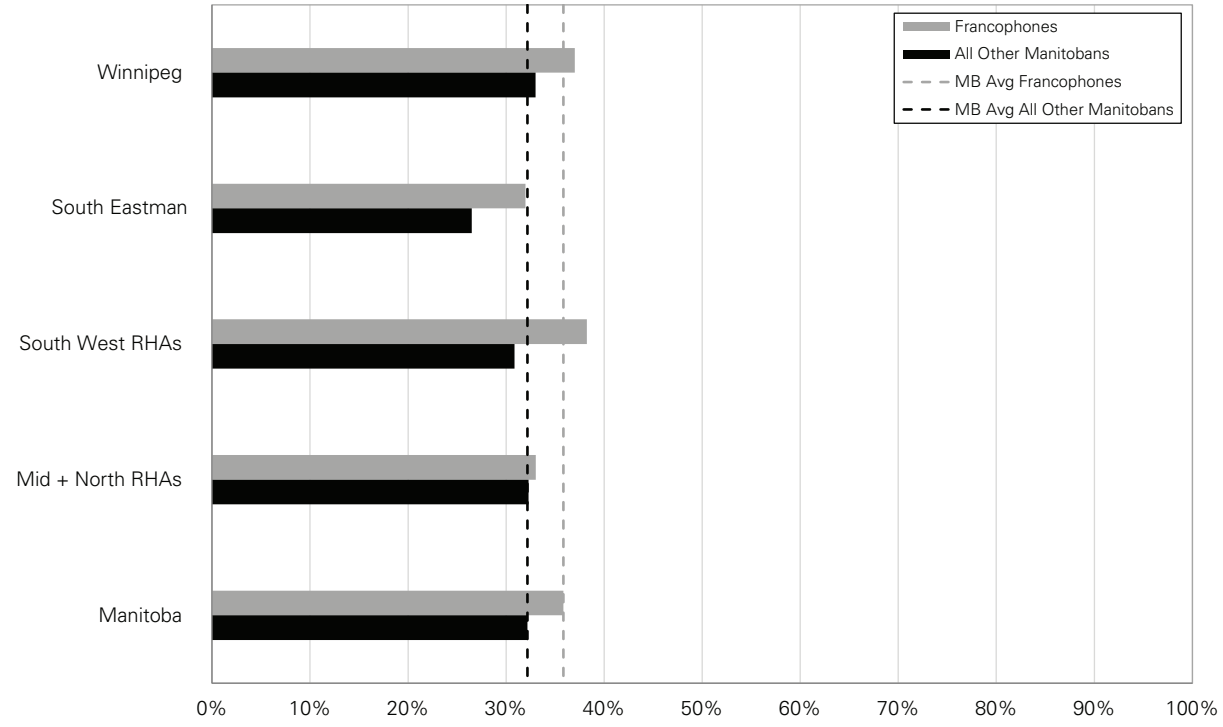
Canada's Food Guide states that the benefits to eating well, include better overall health, looking and feeling better, lower risk of disease, more energy, a healthy body weight, and stronger muscles and bones. The indicator for consumption of fruits and vegetables is a derived from a number of questions and indicates the total number of times per day the respondent eats fruits and vegetables (i.e., not the number of servings eaten).

Survey respondents were grouped into two categories: those eating fruits and vegetables "Less than five times/servings per day" or "Five or more times per day" based on their responses. Results from CCHS cycles 1.1, 2.1, 2.2, 2007 and 2008 were included and were age–and sex–adjusted.

Key findings

- At the provincial level, 35.8% of Francophone and 32.2% of Other Manitobans reported consuming fruits and vegetables five or more times per day. The observed difference was not statistically significant.
- At regional levels, no significant differences were found in rates of fruit and vegetable consumption between Francophones and Other Manitobans.
- The rates of fruit and vegetable consumption of Francophones in all areas were similar to the Francophone provincial rate (Table 15.15.11).

Figure 15.8.1: Average Daily Consumption of Fruits and Vegetables
Age– & sex standardized percent of weighted sample, aged 12 and older, consuming fruits and vegetables five or more times per day from combined CCHS cycles 1.1, 2.1, 2.2, 2007, and 2008



'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

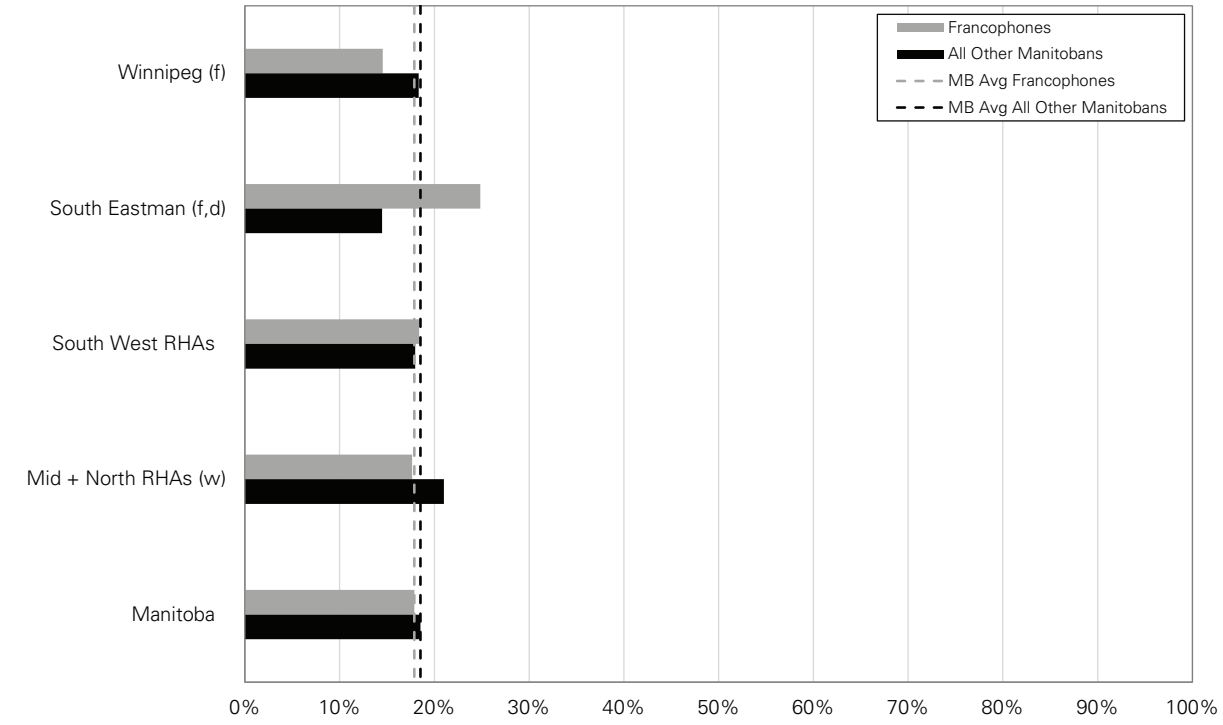
Source: Manitoba Centre for Health Policy, 2012

15.9 Frequency of Binge Drinking

Binge drinking is commonly defined as having five or more alcoholic drinks on one occasion. According to Health Canada, binge drinking is linked to motor vehicle accidents, **Fetal Alcohol Spectrum Disorder (FASD)** and other health issues, family problems, as well as crime and violence.

Participants were asked, "During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?", and those who answered "Yes" were then asked, "How often in the past 12 months have you had five or more drinks on one occasion?" Survey respondents were grouped into two categories: those who reported consuming five or more alcoholic drinks on one occasion once a month or more in the past year versus those who did not (i.e., never drank, never had more than five alcoholic drinks on one occasion, or did so less than once a month in the past year). Results from seven cycles (or years) of CCHS were included and were age–and sex–adjusted.

Figure 15.9.1: Binge Drinking
Age– & sex standardized percent of weighted sample, aged 12 and older, from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008



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'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

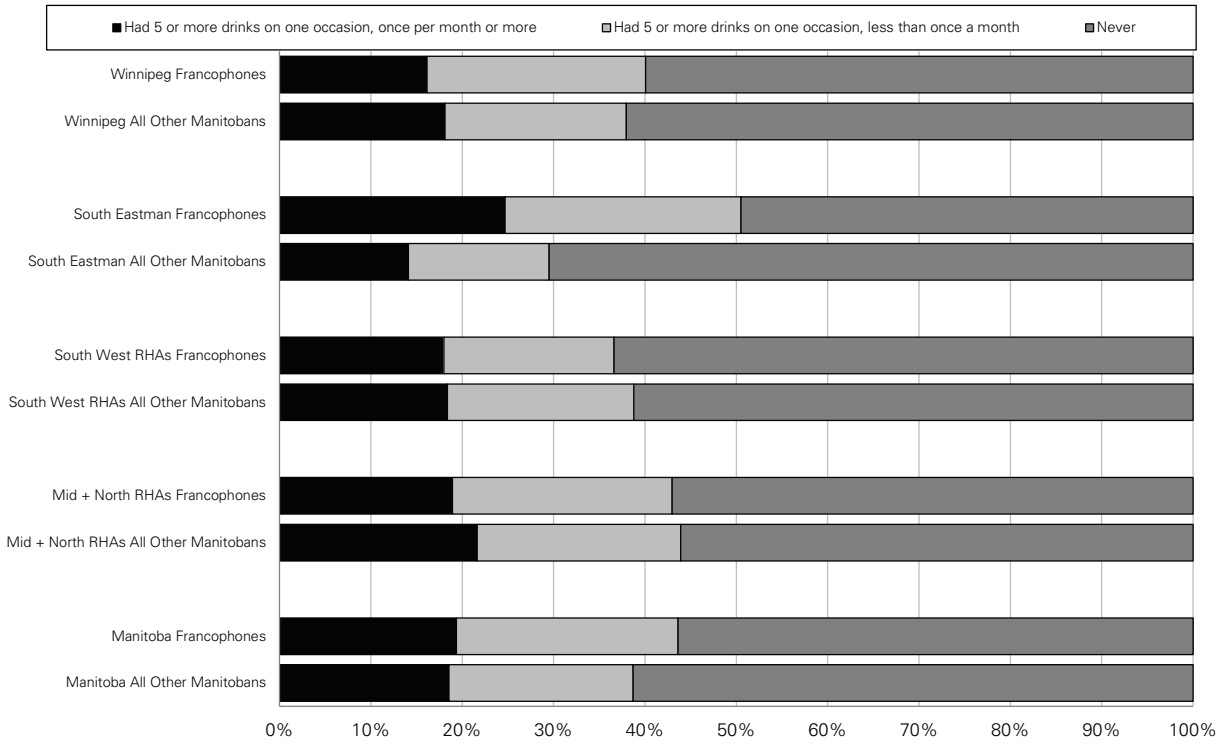
Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial level, 17.9% of Francophones and 18.5% of Other Manitobans answered that they were involved in binge drinking. This difference was not statistically significant.
- At regional levels, a significant difference in binge drinking rates was found in South Eastman between Francophones (24.8%) and Other Manitobans (14.5%), however no differences were found in the other regions.
- The binge drinking rates of Francophones in some areas were different from the Francophone provincial rate (Tables 15.15.12 and 15.15.13). These rates were higher in South Eastman and lower in Winnipeg.

Figure 15.9.2 also shows those who are involved in binge drinking but less frequently. The Francophones in the South Eastman region appear to have the highest rates of binge drinking.

Figure 15.9.2: Binge Drinking (Stacked Bar)
Age– & sex–standardized percent of weighted sample, aged 12 and older, from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008



Source: Manitoba Centre for Health Policy, 2012

15.10 Smoking

Smoking is the act of inhaling tobacco smoke from cigarettes, pipes, or cigars. Smoking damages the lungs and increases the risk of developing cancer, especially lung cancer, as well as chronic obstructive pulmonary disease, asthma, heart disease, and many other illnesses.

The smoking indicator was derived from responses to several questions on smoking habits and uses the groupings "Current smoker"(includes daily smoker, occasional daily smoker who previously was a daily smoker, and always an occasional smoker); "Former smoker" (includes former daily smoker and former occasional smoker); and "Non–Smoker" (never smoked). Results from six cycles (or years) of CCHS were included and were adjusted for age and sex.

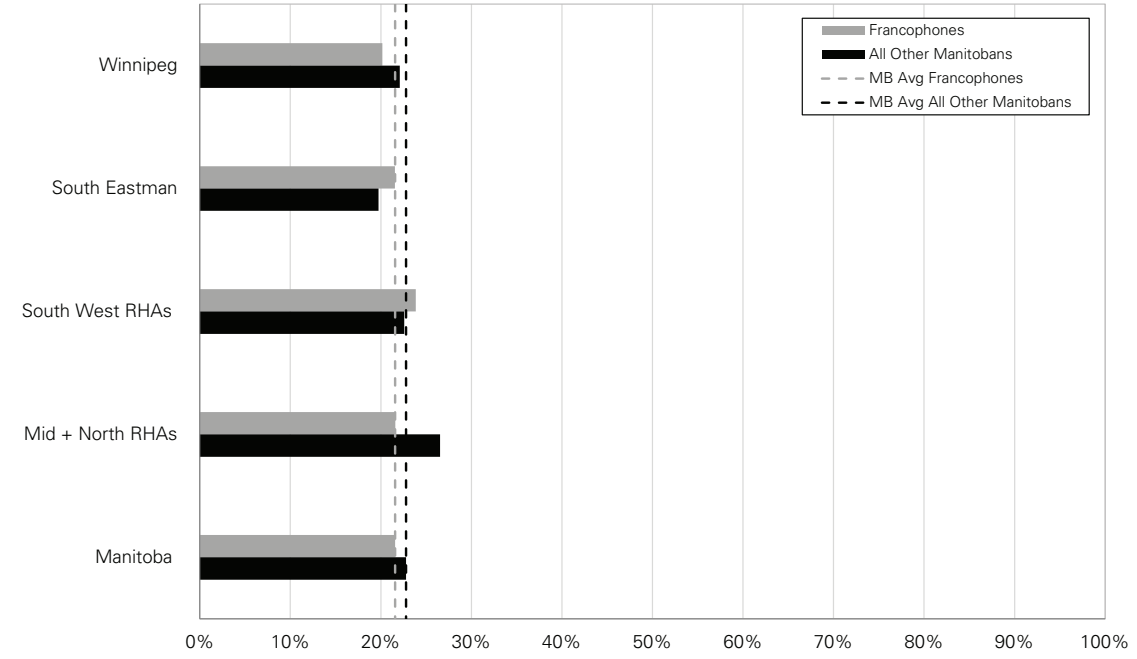
Key findings

- At the provincial level, 21.2% of Francophones and 22.8% of Other Manitobans reported being a smoker. The observed difference was not statistically significant.
- At regional levels, no significant differences were found in smoking rates between Francophones and Other Manitobans.
- The smoking rates of Francophones in all areas were similar to the Francophone provincial rate (Tables 15.15.14 and 15.15.15).

Figure 15.10.2 shows all categories of smokers. There are no apparent differences between the groups.

Figure 15.10.1: Current Tobacco Smoker

Age– & sex–standardized percent of weighted sample, aged 12 and older, who smoke daily or occasionally from combined CCHS cycles 1.1, 2.1, 2.2, 3.1, 2007, and 2008



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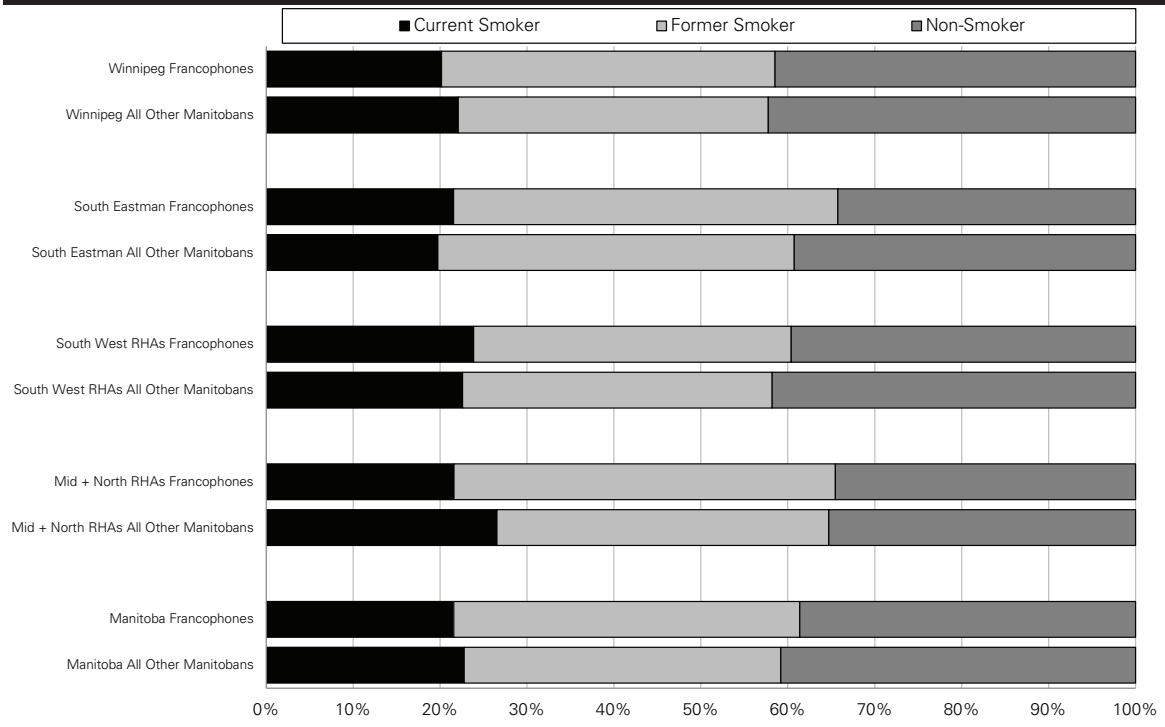
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Figure 15.10.2: Tobacco Smoking

Age– & sex–standardized percent of weighted sample, aged 12 and older, from combined CCHS cycles 1.1, 2.1, 2.2, 3.1, 2007, and 2008



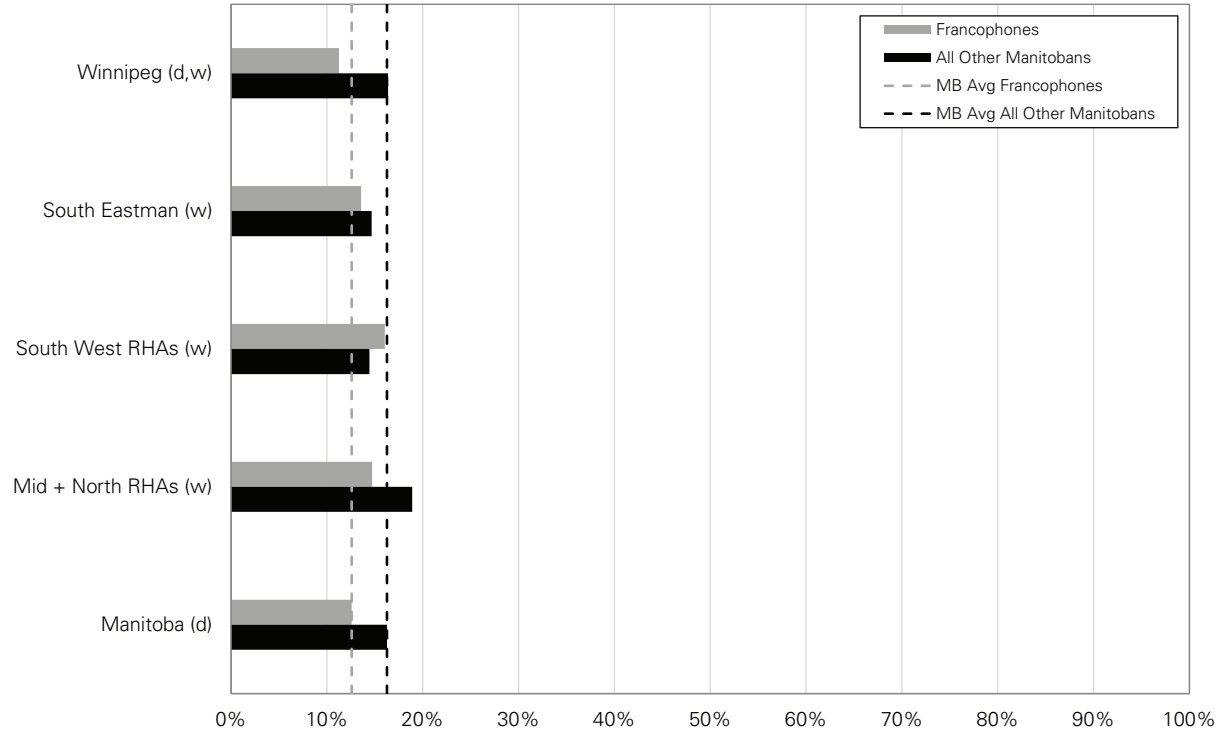
Source: Manitoba Centre for Health Policy, 2012

15.11 Second–Hand Smoke Exposure

Second–hand smoke is the ambient smoke from a burning cigarette, pipe, or cigar or the smoke exhaled by a smoker. When you are inside the same enclosed space (e.g., home or car) as a smoker, you may breathe in second–hand smoke which is deleterious to health.

Survey respondents who did not live alone or were non–smokers were asked the question, "Including both household members and regular visitors, does anyone smoke inside your home, every day or almost every day?" Respondents were then grouped into two categories, 'Exposed to Second–hand Smoke' or 'No Exposure to Second–hand Smoke'. Results from four cycles (or years) of CCHS were included and were age–and sex–adjusted.

Figure 15.11.1: Exposure to Smoke Inside the Home
Age– & sex–standardized percent of weighted sample, aged 12 and older, from combined CCHS cycles 2.1, 3.1, 2007, and 2008



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'd' indicates the difference between the two groups' rate was statistically significant
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's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial level, 12.6% of Francophones and 16.3% of Other Manitobans reported second–hand smoke exposure. This difference was statistically significant.
- At regional levels, a significant difference was found in Winnipeg between Francophones (11.3%) and Other Manitobans (16.4%), however no differences were found in the other regions.
- The second–hand smoke exposure rates of Francophones in all areas were similar to the Francophone provincial rate (Table 15.15.16).

Tables 15.11.1 and 15.11.2 show the results of two logistic regression models—a basic model where the association between being Francophone and exposure to second–hand smoke is controlled by age, sex, and region and the full model which includes additional sociodemographic and life style factors. The general direction of the results of the basic model is consistent with the results in the initial analysis; Francophones are less likely to report that they are exposed to second–hand smoke (Odds Ratio: 0.81). However, in this basic model, this result is not statistically significant. The differences between the initial analyses and the present one is likely due to the different statistical methods used between the two analyses.

Exposure to second–hand smoke may be influenced by sociodemographic and lifestyle factors. In the full model, when these additional factors are introduced into the model, the effect of being Francophone on exposure to second–hand smoke no longer exists (Odds Ratio: 1.01). This suggests that the relationship between being Francophone and exposure to second–hand smoke is explained by sociodemographic and lifestyle factors.

Table 15.11.1: Logistic Regression Modeling of the Probability of Second–Hand Smoke Exposure Inside the Home
Basic Model

Covariates	Adjusted Odds Ratio (95% Confidence Limits)
Francophone Cohort (vs. Matched Cohort)	0.81 (0.60, 1.09)
Age	**0.98 (0.98, 0.99)**
Males (vs. Females)	0.96 (0.82, 1.12)
Aggregate Regions (ref = Winnipeg)	
Rural South	**0.83 (0.69, 0.98)**
Mid	**1.00 (0.85, 1.18)**
North	**1.78 (1.44, 2.19)**
Brandon	1.06 (0.79, 1.41)

Bold indicates statistically significant at p<0.05

Source: Manitoba Centre for Health Policy, 2012

Table 15.11.2: Logistic Regression Modeling of the Probability of Second–Hand Smoke Exposure Inside the Home
Full Model

Covariates	Adjusted Odds Ratio (95% Confidence Limits)
Francophone Cohort (vs. Matched Cohort)	1.01 (0.71, 1.44)
Age	1.00 (0.99, 1.01)
Males (vs. Females)	0.82 (0.65, 1.02)
Aggregate Regions (ref = Winnipeg)	
Rural South	**0.69 (0.55, 0.87)**
Mid	0.83 (0.66, 1.05)
North	1.13 (0.84, 1.51)
Brandon	0.74 (0.54, 1.01)
Married or Common Law (vs. Single)	0.92 (0.73, 1.15)
Household Income (per $10,000)	1.00 (0.99, 1.00)
High School Graduate (vs. not)	**0.69 (0.53, 0.90)**
Currently Employed (vs. not)	0.99 (0.77, 1.27)
Sense of Belonging to Local Community (vs. no)	**0.78 (0.63, 0.96)**
Five or more Drinks on One Occasion (vs. no)	**1.55 (1.20, 1.99)**
Currently Smoker (vs. no)	**10.19 (8.22, 12.63)**
Body Mass Index	**1.03 (1.01, 1.04)**
Leisure Time Physical Activity Index (ref = Inactive)	
Active	**0.67 (0.51, 0.87)**
Moderate	**0.56 (0.44, 0.72)**

Bold indicates statistically significant at p<0.05

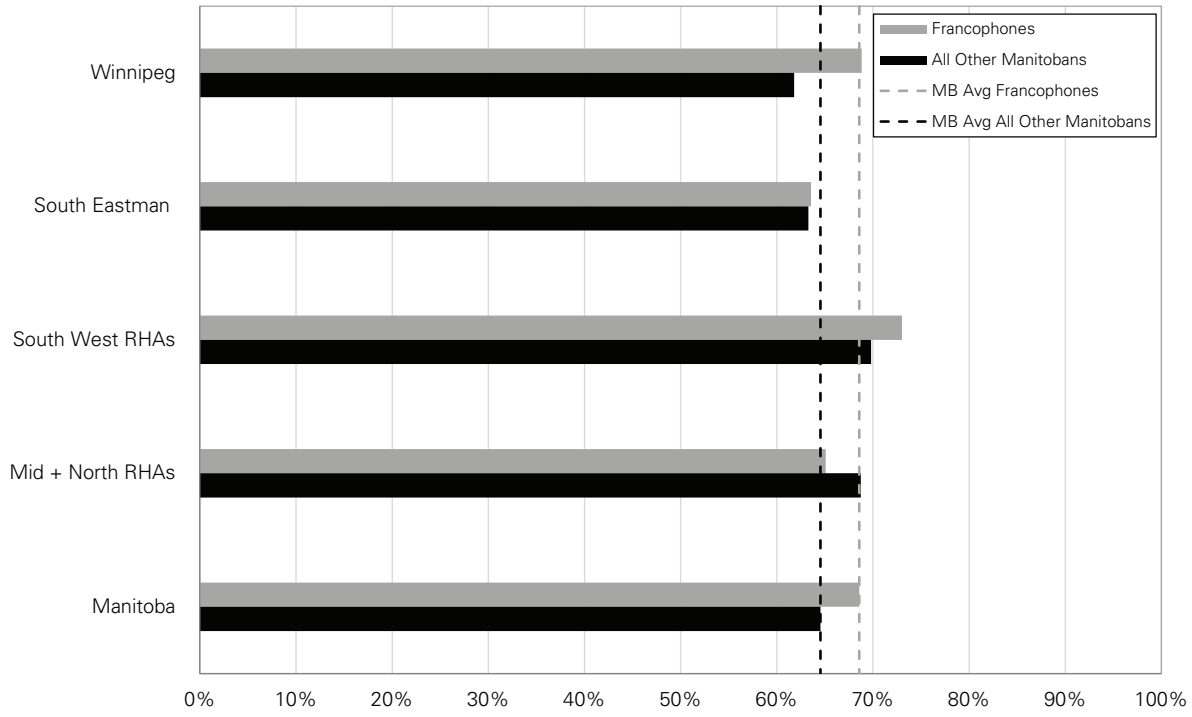
Source: Manitoba Centre for Health Policy, 2012

15.12 Physical Activity (Work, Travel, and Leisure)

Canada's Physical Activity Guide to Healthy Active Living recommends that Canadians accumulate 30 to 60 minutes of moderate physical activity every day to achieve the health benefits from physical activity. The Public Health Agency of Canada states that the benefits of regular physical activity include protection against disease and premature death, enhanced well–being, optimal childhood growth and development, and continued independent living in later life.

The indicator for total physical activity is based on the average daily energy expenditure values (kcal/kg/day) calculated from a series of questions on usual physical activity for work, travel, or leisure. Survey respondents, aged 15 to 75, were grouped into two categories: "Active and Moderate" or "Inactive". Results from four cycles (or years) of CCHS were included and were adjusted for age and sex.

Figure 15.12.1: Physical Activity (Work, Travel, and Leisure)
Age– & sex–standardized percent of residents, aged 15–75, who are physically activefrom combined CCHS cycles 1.1, 1.2, 2.1, and 3.1



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'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

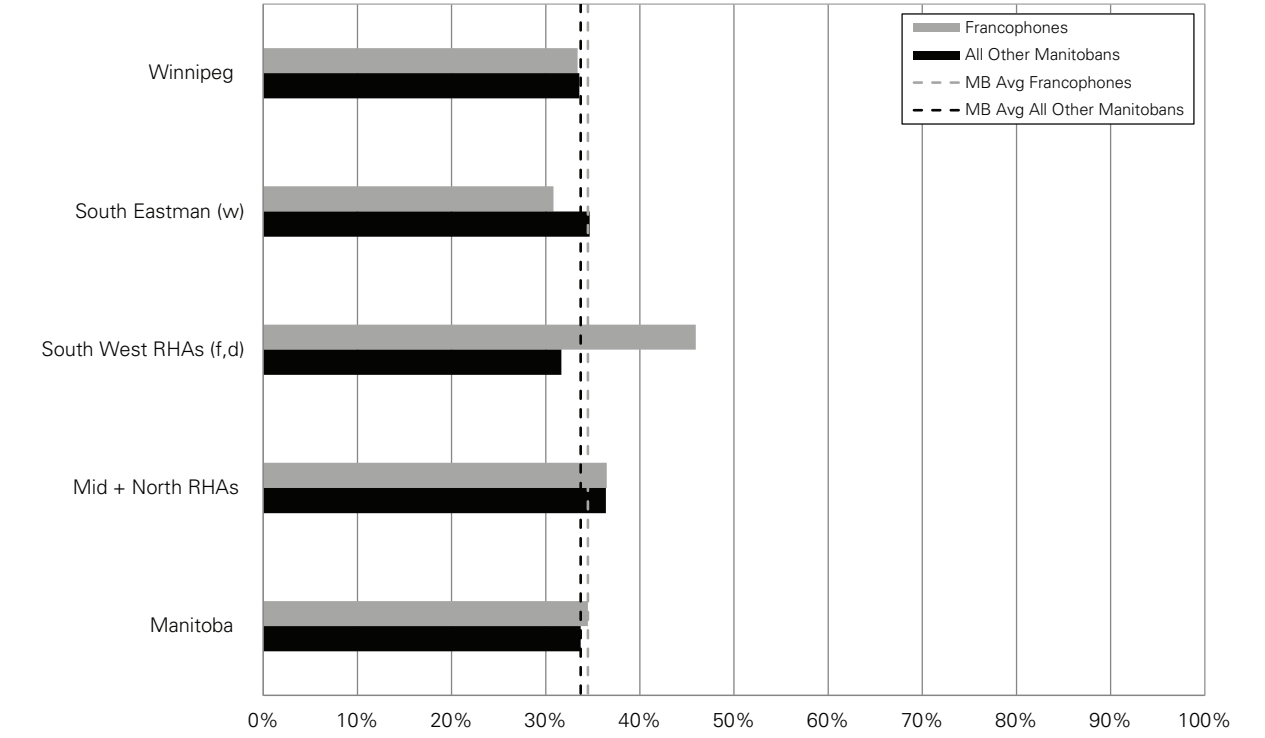
- At the provincial level, 68.6% of Francophones and 64.5% of Other Manitobans were physically active. This was not a statistically significant finding.
- At regional levels, no significant differences were found in rates of physical activity between Francophones and Other Manitobans.
- The rates of physical activity of Francophones in all areas were similar to the Francophone provincial rate (Table 15.15.17).

15.13 Activity Limitations

According to the Public Health Agency of Canada, approximately one in eight Canadians has a physical or mental disability. Disabilities can range from mild limitations such as back pain, to moderate limitations such as arthritis, to severe limitations such as paraplegia. Individuals living with disabilities can face challenges with their daily activities, from climbing a flight of stairs to dressing and feeding themselves.

The indicator for activity limitations is based on a series of questions which classified respondents on the frequency with which they experience activity limitations imposed on them by a condition or by long–term physical and/or mental health problems that has lasted or is expected to last six months or more. Survey respondents are grouped into two categories "Has limitations"'or "No limitations" Results from five cycles (or years) of CCHS were included and were adjusted for age and sex.

Figure 15.13.1: Limitations of Activity Due to Physical and/or Mental Health Problems
Age– & sex–adjusted percent of residents, aged 12 and older, from combined CCHS cycles 1.2, 2.1, 3.1, 2007, and 2008



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'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Key findings

- At the provincial level, 34.5% of Francophones and 33.7% of Other Manitobans reported activity limitations due to physical or mental health problems. This was not a statistically significant finding.
- At regional levels, differences were found in rates of activity limitations between Francophones and Other Manitobans in the South West RHAs, but not in other areas.
- The rates of activity limitations of Francophones in all areas, with the exception of the South West RHAs, were similar to the Francophone provincial rate (Table 15.15.18).

15.14 Findings from the Literature

(Comparisons to the results in this study are in italics)

- Bouchard, Gilbert, Landry, and Deveau wrote that people from the bottom of the social hierarchy are more likely to engage in lifestyles detrimental to their health (smoking, alcoholism, poor diet, risky sexual behaviour, etc.). They also have limited access to resources and social and health services (2006).

Self–Rated Health Status

- Bouchard, Gaboury, Chomienne, Gilbert, and Dubois, utilizing data from CCHS, found that among Canadians living outside of Québec, Francophones were more likely to report fair or poor health (18%) than Anglophones (13%). When logistic regression models were created controlling for lifestyle, sociodemographic factors, family type, place of residence, and presence of chronic disease, differences remained for men. This did not hold true for women; the differences were no longer apparent after controlling for these additional factors. In addition, the authors reported that in Québec, Francophones were less likely to report fair or poor health (12%) than Anglophones (14%) (2009).
- A recent study from Bélanger et al. found that no differences existed between perceived health status of Francophones and Anglophones in New Brunswick once they had controlled for age, health–related behaviours, sociodemographic variables, and medical conditions. The authors remark on the great strides made to the access to health services for Francophones in the province of New Brunswick – including increases in the number of French–speaking physicians, medical training in French within the province, and an appointment of a Deputy Minister of Health for Francophones (2011).
- Kopec, Williams, To, and Austin utilized the National Population Health Survey (NPHS 1994–1995) to study health status of French Canadians, English Canadians, and bilingual Canadians. They concluded that cross–cultural comparisons of health status may lead to different conclusions, depending on whether the outcome is defined as health or ill–health. The authors reported that chronic pain or discomfort was highest in French Canadians, followed by bilingual Canadians. Cognitive function was better in French Canadians and bilingual Canadians compared with English Canadians. Finally, bilingual Canadians were less likely to be classified as dysfunctional than English Canadians, after controlling for socioeconomic variables (2001).
- Using the Ontario Health Survey (1996/1997), Institute for Clinical Evaluative Sciences (ICES) reported that Francophones (62%) were less likely to rate their health status as "very good" or "excellent" compared to the total population in Ontario (65%) (2010).
- Using the Ontario Health Survey, Boudreau and Farmer found that 22% of English males (aged 45 to 64) indicated having excellent health compared to 15% Francophones (1999).
- *In this study, no differences were found in "excellent" or "very good" self–rated health status between Francophones and Other Manitobans (58.9% versus 59.1%). The analysis by birth cohort (in Chapter 17) found no statistically significant differences by age group.*

Body Mass Index (BMI)

- Joffres and MacLean found that residents in Québec had a lower prevalence of being overweight than those in the other provinces (Québec 28%, other provinces 33%) with the exception of Québec women, aged 65 to 74, who were more likely to be overweight than women, aged 65 to 74, in other provinces (45% versus 38% in other provinces). These authors remarked that the lower prevalence of being overweight in Québec is consistent with the lower prevalence of hypertension. High smoking rates, on the other hand, could account for lower BMI and higher dyslipidemia (1999).

- Using the Ontario Health Survey (1996/1997), ICES found that less than half (44%) of Francophones had an acceptable weight according to their BMI (BMI 20–27). They report that almost a third of Francophones (31%), between the ages of 20 and 64, were overweight in 1996, which was higher than the overall provincial rate (28%). ICES observed that, in the total population, a significant relationship between weight category and smoking status exists. In the Francophone population, 33% of those who were underweight (BMI<20) were smokers compared to 24% of those who were overweight (BMI>27) (2010).
- Partners in Planning for Healthy Living reported that, among Francophone youth in Manitoba, 67% of males and 76% of females fall within the recommended healthy weight category. They found that 13% of students consider themselves underweight, 18% overweight, and 67% healthy weight (Cancer Care Manitoba, DSFM, and CCS, 2009).
- *In this study, no significant differences were found in rates of being overweight or obese between Francophones and Other Manitobans at a provincial level (63% versus 66%).*

Binge Drinking

- Using the Ontario Health Survey (1996/1997), ICES reported a lower proportion of Francophones (9%) tended to report having five or more drinks on one occasion than did their Anglophone counterparts (11%). Allophones (5%) were significantly lower than both groups. Whereas in Ontario, more women than men are low risk drinkers, this gender difference was not significant in the Francophone population (2010).
- Partners in Planning for Healthy Living reported that 52% of Francophone youth in Manitoba had at least one drink of alcohol in the last 30 days (Cancer Care Manitoba et al., 2009).
- *In this study, no significant differences were found in binge drinking rates (five or more drinks on one occasion) between Francophones and Other Manitobans at a provincial level (18% versus 19%).*

Smoking

- Joffres and MacLean reported that the smoking rate was much higher in Québec (32%) than in the other provinces (25%). The authors remarked that higher prevalence of smoking was due to the high smoking rates in the younger age groups (1999).
- O'Loughlin, Maximova, Tan, Gray, and Donald found that the prevalence of smoking was highest among participants of French Canadian family origin (2007).
- Using the Ontario Health Survey (1996/1997), ICES reported that a significantly greater proportion of Francophones in Ontario smoke as compared to other language groups. Smoking rates among Francophones was 30%, among Anglophones was 27%, and among Allophones was 19%. These differences persisted when current smoking rates were compared: Francophones (26%), Anglophones (22%), and Allophones (14%). The difference between the language groups was consistent across all age groups. Francophones were also less likely to have never smoked (39%) as compared to the total population (47%) (2010).
- Boudreau and Farmer found that, in the Ontario Health Survey, there were 7% more smokers among Francophones than Anglophones (1999).
- In the Manitoba Youth Health Survey, Partners in Planning for Healthy Living found that 17% males and 13% of females for Francophones (Grades 9 to 12) were current smokers. They also reported that 36% of male smokers and 44% of female smokers have plans to quit smoking sometime in the future (Cancer Care Manitoba et al., 2009).
- *In this study, no significant differences were found in smoking rates between Francophones and Other Manitobans at a provincial level (21% versus 23%).*

Second–Hand Smoke Exposure

- Using the Ontario Health Survey (1996/1997), ICES found that, along with a higher smoking rate among Francophones, comes a greater exposure to second–hand smoke. In 1996, 69% of Ontarians lived in smoke–free homes. This percentage was significantly lower for Francophones (62%) than the rate for the Anglophone (67%) and Allophone (77%) populations (2010).
- *In this study, once sociodemographic and lifestyle factors were taken into consideration, no significant differences were found in rates of exposure to second–hand smoke between Francophones and Other Manitobans at a provincial level (13% versus 16%).*

Total Physical Activity (Work, Travel, and Leisure)

- Joffres and MacLean reported no distinct patterns in terms of sedentary lifestyle between residents in Québec and those in other provinces. Québec men, aged 18 to 34, and Québec women, aged 35 to 64, tended to be less sedentary than those of similar ages in the other provinces (31% versus 35% and 36% versus 40%, respectively) (1999).
- Bourque, Ouellette, Singleton, and Béland examined lifestyle factors in a sub–set older Acadians, including 834 women and 447 men, aged 65 to 94. Older Acadian women reported less physical activity than men. An association was observed between the number of functional limitations and less physical activity and between being a non–smoker and more physical activity (2005).
- Using the Ontario Health Survey (1996/1997), ICES indicated that a significantly greater proportion of Francophones (24%) were active according to the Physical Activity Index than in the overall Ontario population (21%). When the linguistic groups were compared, differences between the Allophones and Francophones remained significant while differences between the Francophone and Anglophone population only approached significance (2010).
- *In this study, no significant differences were found in rates of being physically active between Francophones and Other Manitobans at a provincial level (69% versus 65%).*

Activity Limitations

- ICES, with data from the Ontario Health Survey, found that a greater proportion of Francophones reported some activity limitations due to physical and/or mental disabilities as compared to the total population (Francophones aged: 20–44, 5%; 45–64, 15%; 65–74, 22%; 75 and older, 50% versus Anglophones aged: 20–44, 4%; 45–64 , 9%; 65–74, 20%; 75 and older, 43%) (2010).
- *In this study, no significant differences were found in activity limitation rates between Francophones and Other Manitobans at a provincial level (35% versus 34%).*

15.15 Supplementary Tables

Table 15.15.1: Self–Rated Health

Age– & sex–standardized percent of weighted sample, aged 12 and older, who reported excellent or very good health from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	61.56 (56.26, 66.85)	59.71 (58.26, 61.16)
South Eastman	54.84 (48.93, 60.74)	58.13 (54.33, 61.93)
South West RHAs	57.96 (50.61, 65.30)	61.19 (59.72, 62.66)
Mid + North RHAs	54.39 (45.32, 63.45)	55.30 (53.66, 56.94)
Manitoba	58.93 (55.34, 62.52)	59.18 (58.21, 60.15)

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'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.2: Age– and Sex–Standardized Rates of Self–Rated Health, aged 12 and older

Combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

Area	Excellent/Very Good	Good	Fair/Poor	
Winnipeg RHA Francophones	61.6%	27.3%	11.1%	
Winnipeg RHA All Other Manitobans	59.7%	28.8%	11.5%	
South Eastman RHA Francophones	54.8%	32.2%	12.9%	
South Eastman RHA All Other Manitobans	58.1%	29.7%	12.1%	
South West RHAs Francophones	58.0%	29.7%	12.3%	(w)
South West RHAs All Other Manitobans	61.2%	28.5%	10.3%	
Mid and North RHAs Francophones	54.4%	32.1%	13.5%	(w)
Mid and North RHAs All Other Manitobans	55.3%	30.7%	14.0%	
Manitoba Francophones	58.9%	28.8%	12.3%	
Manitoba All Other Manitobans	59.2%	29.1%	11.7%	

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Source: Manitoba Centre for Health Policy, 2012

Table 15.15.3: Self–Rated Mental Health

Age– & sex–standardized percent of weighted sample, aged 12 and older, who reported excellent or very good mental health from combined CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg (d)	**65.98 (58.24, 73.71)**	**75.93 (74.20, 77.66)**
South Eastman	65.46 (57.53, 73.38)	71.05 (67.68, 74.43)
South West RHAs	68.87 (60.69, 77.04)	72.79 (70.89, 74.69)
Mid + North RHAs	74.88 (67.02, 82.73)	71.01 (69.35, 72.66)
Manitoba (d)	**66.88 (62.05, 71.71)**	**74.23 (73.13, 75.34)**

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's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.4: Age– and Sex–Standardized Rates of Self–Rated Mental Health, aged 12 and older

Combined CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008

Area	Excellent/Very Good		Good		Fair/Poor	
South Eastman RHA Francophones	65.5%			(s)		(s)
South Eastman RHA All Other Manitobans	71.1%		24.3%		4.6%	(w)
South West RHAs Francophones	68.9%		23.1%		8.1%	
South West RHAs All Other Manitobans	72.8%		22.8%		4.4%	
Mid and North RHAs Francophones	74.9%			(s)		(s)
Mid and North RHAs All Other Manitobans	71.0%		23.9%		5.1%	(w)
Winnipeg RHA Francophones	**66.0%**	**(d)**	**27.4%**	**(d)**	**6.6%**	
Winnipeg RHA All Other Manitobans	**75.9%**	**(d)**	**19.7%**	**(d)**	**4.4%**	(w)
Manitoba Francophones	**66.9%**	**(d)**	**27.5%**	**(d)**	**5.7%**	
Manitoba All Other Manitobans	**74.2%**	**(d)**	**21.2%**	**(d)**	**4.5%**	

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.5: Emotional Well–Being

Age– & sex–standardized percent of weighted sample, aged 12 and older, who reported being happy and interested in life from CCHS cycle 1.1

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	71.02 (59.70, 82.34)	73.53 (71.04, 76.03)
South Eastman	80.36 (71.69, 89.04)	80.54 (75.81, 85.27)
South West RHAs	78.18 (62.93, 93.43)	75.95 (73.48, 78.43)
Mid + North RHAs	82.65 (70.68, 94.62)	78.91 (76.16, 81.66)
Manitoba	75.78 (69.05, 82.50)	75.24 (73.65, 76.84)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.6: Life Satisfaction

Age– & sex–standardized percent of weighted sampled, aged 12 and older, who were satisfied or very satisfied from combined CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg RHA	0.92 (0.88, 0.95)	0.91 (0.90, 0.92)
South Eastman RHA	0.94 (0.90, 0.98)	0.95 (0.94, 0.96)
South West RHAs	0.90 (0.84, 0.96)	0.94 (0.93, 0.95)
Mid + North RHAs	0.86 (0.78, 0.95)	0.93 (0.92, 0.94)
Manitoba	0.92 (0.89, 0.94)	0.92 (0.91, 0.93)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.7: Self–Perceived Life Stress

Age– & sex–standardized percent of weighted sample, aged 15 and older, with quite a bit to extreme amounts of life stress from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	22.02 (16.88, 27.16)	20.60 (19.37, 21.82)
South Eastman	18.29 (13.39, 23.19)	18.72 (15.95, 21.49)
South West RHAs	25.31 (18.27, 32.34)	21.72 (20.10, 23.35)
Mid + North RHAs (w)	15.84 (9.31, 22.37)	20.75 (19.46, 22.03)
Manitoba	21.05 (17.56, 24.54)	20.72 (19.88, 21.56)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.8: Self–Perceived Work Stress

Age– & sex–standardized percent of weighted sample, aged 15–75, with quite a bit to extreme amounts of work stress from combined CCHS cycles 1.1, 1.2, 2.1, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	24.59 (18.86, 30.32)	28.56 (26.76, 30.36)
South Eastman (w)	23.24 (15.06, 31.42)	17.84 (14.57, 21.10)
South West RHAs (w)	24.81 (16.74, 32.89)	21.22 (19.59, 22.86)
Mid + North RHAs (w)	20.86 (12.74, 28.98)	25.64 (23.79, 27.50)
Manitoba	23.81 (19.95, 27.67)	26.08 (24.89, 27.26)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.9: High Body Mass Index (BMI)

Age– & sex standardized percent of weighted sample, aged 18 and older, in the overweight or obese BMI category from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg RHA	62.93 (57.32, 68.54)	63.14 (61.73, 64.55)
South Eastman RHA (f,d)	**56.86 (50.58, 63.14)**	**68.18 (64.43, 71.92)**
South West RHAs	66.50 (57.94, 75.06)	67.94 (66.24, 69.63)
Mid + North RHAs (f)	**76.42 (70.17, 82.67)**	73.06 (71.37, 74.75)
Manitoba	63.22 (59.46, 66.98)	65.84 (64.90, 66.78)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.10: Age– and Sex–Standardized Rates of Body Mass Index (BMI), aged 18 and older

Combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

Area	Normal/ Underweight	Overweight	Obese
Winnipeg Francophones	37.1%	39.9%	23.0%
Winnipeg All Other Manitobans	36.9%	39.7%	23.5%
South Eastman Francophones	**43.1% (f,d)**	34.0%	22.8%
South Eastman All Other Manitobans	**31.8% (d)**	41.6%	26.6%
South West RHAs Francophones	33.5%	35.9%	30.6%
South West RHAs All Other Manitobans	32.1%	38.2%	29.7%
Mid + North RHAs Francophones	**23.6% (f)**	**47.3% (f.d)**	29.2%
Mid and North RHAs All Other Manitobans	26.9%	**38.2% (d)**	34.8%
Manitoba Francophones	36.8%	39.1%	24.2%
Manitoba All Other Manitobans	34.2%	39.1%	26.7%

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.11: Average Daily Consumption of Fruits and Vegetables

Age– & sex standardized percent of weighted sample, aged 12 and older, consuming fruits and vegetables five or more times per day from combined CCHS cycles 1.1, 2.1, 2.2, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	37.00 (30.55, 43.45)	33.00 (31.03, 34.96)
South Eastman	31.98 (25.30, 38.66)	26.51 (21.35, 31.66)
South West RHAs	38.24 (28.28, 48.20)	30.86 (28.81, 32.92)
Mid + North RHAs	33.02 (23.17, 42.88)	32.29 (30.43, 34.16)
Manitoba	35.84 (31.79, 39.88)	32.18 (30.86, 33.49)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.12: Binge Drinking

Age– & sex standardized percent of weighted sample, aged 12 and older, from combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg (f)	**14.55 (10.09, 19.01)**	18.35 (17.08, 19.63)
South Eastman (f,d)	**24.84 (19.91, 29.76)**	**14.48 (11.63, 17.33)**
South West RHAs	18.39 (13.14, 23.64)	17.97 (16.52, 19.42)
Mid + North RHAs (w)	17.65 (11.29, 24.02)	21.01 (19.60, 22.42)
Manitoba	17.87 (14.86, 20.88)	18.54 (17.68, 19.41)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.13: Age– and Sex–Standardized Rates of Binge Drinking, aged 12 and older

Combined CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008

Area	Had 5 or more drinks on one occasion, once per month or more		Had 5 or more drinks on one occasion, less than once a month		Never	
Winnipeg Francophones	**16.1%**	**(f)**	23.9%		**59.9%**	**(f)**
Winnipeg All Other Manitobans	18.1%		19.8%		62.0%	
South Eastman Francophones	**24.7%**	**(f,d)**	**25.8%**	**(d)**	**49.5%**	**(f,d)**
South Eastman All Other Manitobans	**14.1%**	**(d)**	**15.4%**	**(d)**	**70.5%**	**(d)**
South West RHAs Francophones	18.0%		18.6%		**63.4%**	**(f)**
South West RHAs All Other Manitobans	18.4%		20.4%		61.2%	
Mid and North RHAs Francophones	**18.9%**	**(w)**	24.0%		57.0%	
Mid and North RHAs All Other Manitobans	21.6%		22.3%		56.1%	
Manitoba Francophones	19.4%		24.3%		**56.4%**	**(d)**
Manitoba All Other Manitobans	18.5%		20.1%		**61.3%**	**(d)**

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.14: Current Smoker

Age– & sex–standardized percent of weighted sample, aged 12 and older, who smoke daily or occasionally from combined CCHS cycles 1.1, 2.1, 2.2, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	20.17 (15.20, 25.13)	22.08 (20.68, 23.49)
South Eastman	21.55 (15.24, 27.86)	19.74 (16.81, 22.67)
South West RHAs	23.85 (16.82, 30.88)	22.58 (21.12, 24.05)
Mid + North RHAs	21.60 (15.58, 27.62)	26.55 (25.08, 28.02)
Manitoba	21.58 (18.23, 24.92)	22.77 (21.84, 23.71)

f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.15: Age– and Sex–Standardized Rates of Tobacco Smoking, aged 12 and older

Combined CCHS cycles 1.1, 2.1, 2.2, 3.1, 2007, and 2008

Area	Current Smoker	Former Smoker	Non-Smoker
Winnipeg Francophones	20.2%	38.4%	41.5%
Winnipeg All Other Manitobans	22.1%	35.7%	42.2%
South Eastman Francophones	21.5%	44.2%	34.3%
South Eastman All Other Manitobans	19.7%	41.0%	39.2%
South West RHAs Francophones	23.9%	36.5%	39.6%
South West RHAs All Other Manitobans	22.6%	35.6%	41.8%
Mid + North RHAs Francophones	21.6%	43.9%	34.5%
Mid + North RHAs All Other Manitobans	26.5%	38.2%	35.3%
Manitoba Francophones	21.6%	39.8%	38.6%
Manitoba All Other Manitobans	22.8%	36.4%	40.8%

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.16: Exposure to Smoke Inside the Home

Age– & sex–standardized percent of weighted sample, aged 12 and older, from combined CCHS cycles 2.1, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg (d,w)	**11.25 (6.91, 15.58)**	**16.38 (14.75, 18.02)**
South Eastman (w)	13.56 (8.20, 18.91)	14.66 (11.79, 17.52)
South West RHAs (w)	16.03 (8.18, 23.89)	14.43 (12.97, 15.89)
Mid + North RHAs (w)	14.72 (8.99, 20.45)	18.90 (17.46, 20.35)
Manitoba (d)	**12.59 (9.69, 15.48)**	**16.28 (15.23, 17.33)**

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.17: Physical Activity (Work, Travel, and Leisure)

Age– & sex–standardized percent of residents, aged 15–75, who are physically active from combined CCHS cycles 1.1, 1.2, 2.1, and 3.1

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	68.84 (61.52, 76.15)	61.81 (59.50, 64.12)
South Eastman	63.55 (55.11, 71.99)	63.29 (58.60, 67.97)
South West RHAs	73.02 (61.74, 84.30)	69.81 (67.61, 72.01)
Mid + North RHAs	65.09 (57.57, 72.61)	68.74 (65.86, 71.63)
Manitoba	68.57 (63.52, 73.62)	64.53 (62.98, 66.08)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone
'd' indicates the difference between the two groups' rate was statistically significant
'w' indicates a warning -- the area's rate is highly variable and should be interpreted with caution
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Table 15.15.18: Limitations of Activity Due to Physical and/or Mental Health Problems

Age– & sex–adjusted percent of residents, aged 12 and older, from combined CCHS cycles 1.2, 2.1, 3.1, 2007, and 2008

Region	Francophone Cohort Adjusted Rate (95% CI)	Matched Cohort Adjusted Rate (95% CI)
Winnipeg	33.38 (27.13, 39.63)	33.56 (31.74, 35.38)
South Eastman (w)	30.83 (20.77, 40.89)	34.67 (30.97, 38.36)
South West RHAs (f,d)	**45.94 (36.13, 55.75)**	**31.67 (29.82, 33.51)**
Mid + North RHAs	36.48 (26.17, 46.79)	36.39 (34.39, 38.38)
Manitoba	34.47 (29.97, 38.97)	33.72 (32.52, 34.92)

'f' indicates the area's rate for Francophones was statistically different from Manitoba average for Francophone

'd' indicates the difference between the two groups' rate was statistically significant

'w' indicates a warning – the area's rate is highly variable and should be interpreted with caution

's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2012

Chapter 16: Education Services

Indicators in this Chapter

- 16.1 Early Development Index
- 16.1.1 Not Ready for School
- 16.1.2 Not Ready for School Physical Well–Being
- 16.1.3 Not Ready for School Social Competence
- 16.1.4 Not Ready for School Emotional Maturity
- 16.1.5 Not Ready for School Language and Cognitive Development
- 16.1.6 Not Ready for School Communication and General Knowledge
- 16.2 No School Changes—Grade 3 Students
- 16.3 On–Time Pass for Grade 12 Language Arts (LA) Exam
- 16.4 On–Time Pass for Grade 12 Mathematics Exam
- 16.5 High School Completion
- 16.6 Findings from the Literature
- 16.7 Supplementary Tables

Overall Key Findings:

- Overall, children in the Francophone Cohort had a higher "not ready for school" rate on the Early Development Instrument (EDI) than those in a Matched Cohort of Other Manitoban children. While the groups are similar for the domains **physical well–being and social competence,** on average Francophone children scored less for **emotional maturity, language and cognitive development,** and **communication skills and general knowledge**. However, among Francophones, the high school completion rate and the proportion passing the Grade 12 standardized mathematics and language arts exams was higher.
- When looking at each indicator by area, there is consistency with the provincial difference between the two groups with a few exceptions.
- Within the Francophone Cohort, there is some variability between areas and the provincial average for most of the indicators.

This chapter will present graphs of rate ratios in order to compare the rates of health indicators for the Francophone Cohort to the Matched Cohort of Other Manitobans. A rate ratio higher than 1 indicates that the health indicator rate is higher for Francophones; a rate ratio lower than 1 indicates that the rate is lower for Francophones. Statistical testing indicates if the rates are significantly different or if apparent differences are due to chance. The statistically significant differences are depicted in black bars on the graphs. When possible, the rate ratio is also calculated on a smaller survey sample and is found at the bottom of each graph.

The calculated rates are also shown at the end of the chapter. These calculated rates are not the true population rates as the Francophone Cohort and the Other Manitobans tended to be younger than the Francophone and overall Manitoban population.

All of the graphs in this report use PMR as a way in which to order the RHA and the Winnipeg CAs with the most healthy regions on top and the least healthy on the bottom of the y–axis (left–hand side) of each graph. This ordering was based upon the 10–year PMR to stabilize the rate. For each graph, the Manitoba rate is directly standardized to reflect the true Manitoba population.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

Table 16.0: Summary of Education Services Indicators Comparing Francophone and Matched Cohort by Area of Residence

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Proportion of Children Scoring Not Ready on One or More of the EDI Domains Academic Years 2005/06-2006/07		
Manitoba (d)	↑	
Brandon (f,d)	↑	↑
Winnipeg (d)	↑	
St. Boniface (d)	↑	
Proportion of Children Scoring Not Ready the EDI Domain of Emotional Maturity, Academic Years 2005/06-2006/07		
Manitoba (d)	↑	
Winnipeg (d)	↑	
Winnipeg Other (d)	↑	
Proportion of Children Scoring Not Ready the EDI Domain of Language and Cognitive, Academic Years 2005/06-2006/07		
Manitoba (d)	↑	
Mid RHAs (d)	↑	
Proportion of Children Scoring Not Ready the EDI Domain of Communication and General Knowledge, Academic Years 2005/06-2006/07		
Manitoba (d)	↑	
Proportion of Grade 3 Students with no School Transfer, Academic Years 2003/2006-2005/2008		
Manitoba		
South Eastman		
SE Northern (f)		↕
Brandon (f,d)	↓	↓
Winnipeg		
St. Vital		
St. Vital South (d)	↓	
River Heights (f,d)	↓	↓
Downtown (f)		↓
Point Douglas (f)		↓
Proportion of On-time Pass for Grade 12 LA Test by RHA, 2005/06-2007/08		
Manitoba (d)	↑	
South Eastman (d)	↑	
Central (d)	↑	
North Eastman (d)		
Parkland (d)	↑	
Winnipeg (d)	↑	
St. Boniface		
St. Boniface West (d)	↑	
St. Vital (f,d)	↑	↑
St. Vital South (f,d)	↑	↑
River East (f)		↓
Downtown (f)		↓
Mid RHAs (d)	↑	
North RHAs (d)	↑	

Region	Francophone Cohort Area's Rate Compared to the Matched Cohort Rate in the same Area (d)	Francophone Cohort Area's Rate Compared to the Manitoba Average for the Francophone Cohort (f)
Proportion of On-time Pass for Grade 12 Math Test by RHA, 2005/06-2007/08		
Manitoba (d)	↑	
South Eastman		
SE Western (f)		↑
Central (d)	↑	
North Eastman (d)	↑	
Parkland (d)	↑	
Burntwood (d)	↑	
Winnipeg (d)	↑	
St. Boniface		
St. Boniface West (d)	↑	
St. Vital (f,d)	↑	↑
St. Vital South (f,d)	↑	↑↓
Downtown (f)		↓
Mid RHAs (d)	↑	
North RHAs (d)	↑	
High School Completion Rates, 2005/06-2007/08		
Manitoba (d)	↑	
South Eastman (d)	↑	
SE Northern (d)	↑	
Central (d)	↑	
Parkland (d)	↑	
Winnipeg (d)	↑	
St. Boniface		
St. Boniface West (d)	↑	
Downtown (f)		↓

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

↑ indicates the Francophone rate is higher than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically higher than the average for all Francophones (column 3)

↓ indicates the Francophone rate is lower than the matched cohort in that area (column 2) or rate for the Francophone cohort in an area is statistically lower
If no arrow appears, there is no difference between the two comparison groups.

Source: Manitoba Centre for Health Policy, 2012

16.1 Early Development Instrument

The **Early Development Instrument (EDI)** is a population–based, community level measure of children's development in Kindergarten. It 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 as shown in the table below. Children can be classified as being "not ready" in a given EDI domain by using the 10th percentile cut–off score[21].

Table 16.1: Early Development Instrument (EDI) Domains and Subdomains

DOMAINS (Areas of Development)	SUB-DOMAINS
Physical Health and Well-Being	• Physical readiness for school day • Physical independence • Gross and fine motor skills
Social Competence	• Overall social competence • Responsibility and respect • Approaches to learning • Readiness to explore new things
Emotional Maturity	• Pro-social and helping behaviour • Anxious and fearful behaviour • Appears unhappy or sad • Hyperactivity and inattention
Language and Cognitive Development	• Basic literacy • Interest in literacy/numeracy and uses memory • Advanced literacy • Basic numeracy
Communication Skills and General Knowledge	• Ability to communicate • Interest in general knowledge

Source: Manitoba Centre for Health Policy, 2012

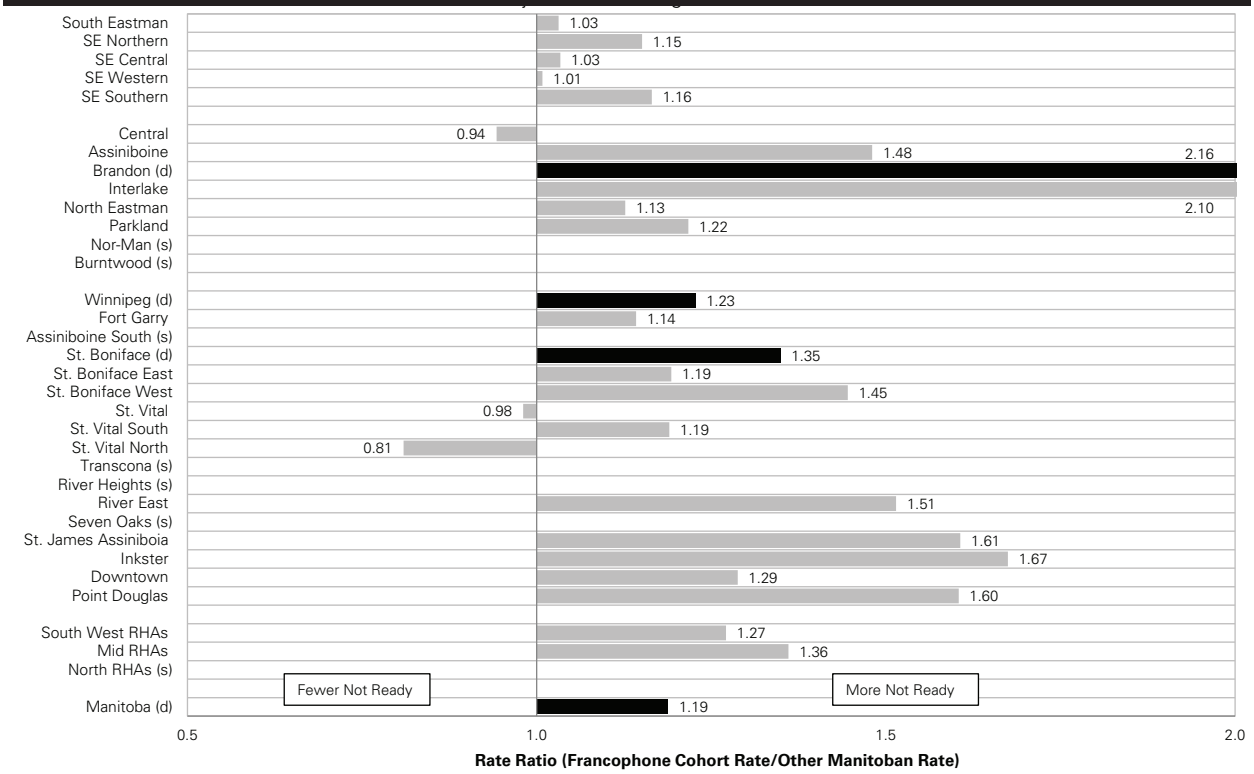
16.1.1 Not Ready for School

Children who score in the bottom 10th percentile of at least one EDI domain are referred to as being "Not Ready" for school[22]. Not ready for school is therefore defined as the proportion of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile for all children in Kindergarten. Values were calculated for a two–year period, 2005/06 and 2006/07, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

21, 22 The cut–off is based on Manitoba EDI results.

Figure 16.1.1: Not Ready for School on One or More EDI Domains—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07
Sex–adjusted for Kindergarten children



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key Findings

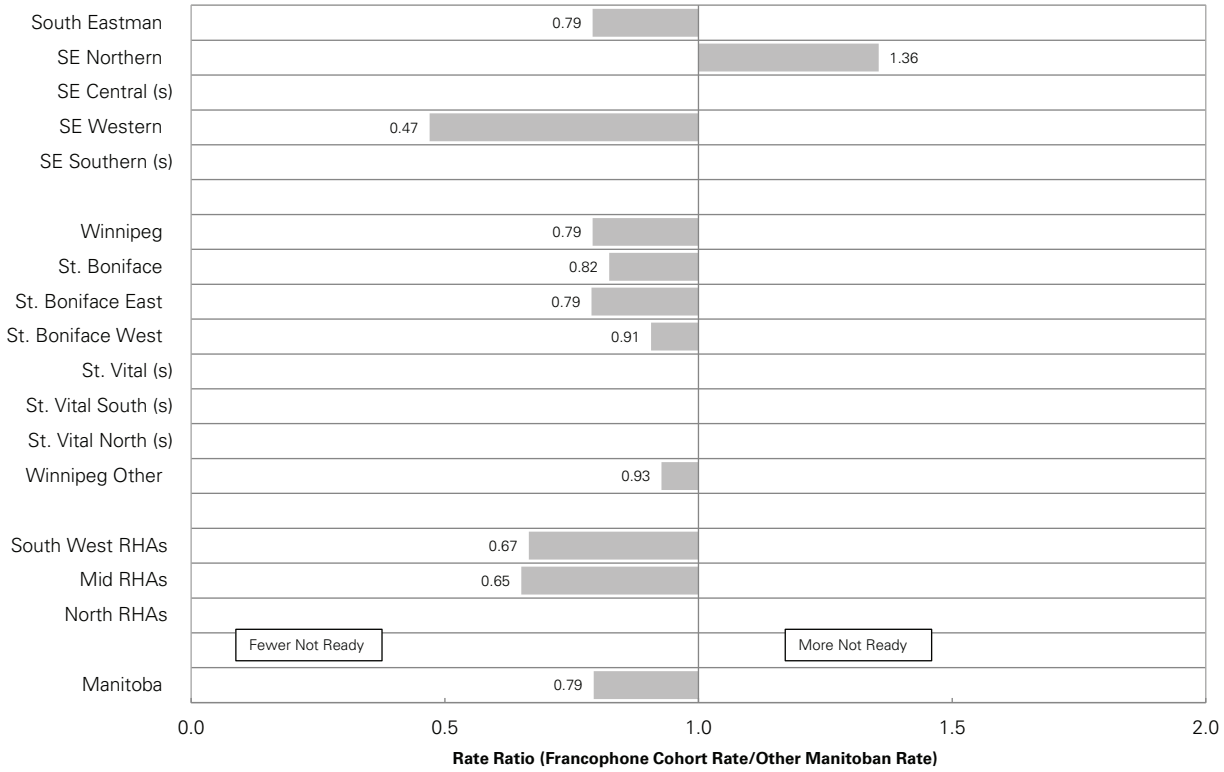
- Provincially, the Francophone Cohort had a higher not ready for school rate than the Matched Cohort of Other Manitobans (Rate Ratio: 1.19).
- Significant differences were also noted in Brandon (Rate Ratio: 2.16), Winnipeg (Rate Ratio: 1.23), and St. Boniface (1.35) where the Francophone Cohort had higher rates than the Matched Cohort of Other Manitobans.
- The rates of not ready for school of Francophones in most areas was similar to the Francophone provincial rate except for those in Brandon where the rates were higher than the Francophone provincial rate (Supplementary Table 16.7.1).

16.1.2 Not Ready for School on Physical Well–Being

Physical well–being is physical readiness for school, physical independence, general health, gross and fine motor skills, etc. Not ready for school on physical well–being is defined as the proportion of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of physical well–being of all Kindergarten children. Values were calculated for a two–year period, 2005/06 and 2006/07, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

Figure 16.1.2: Not Ready for School on Physical Well Being—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07
Sex–adjusted for Kindergarten children



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

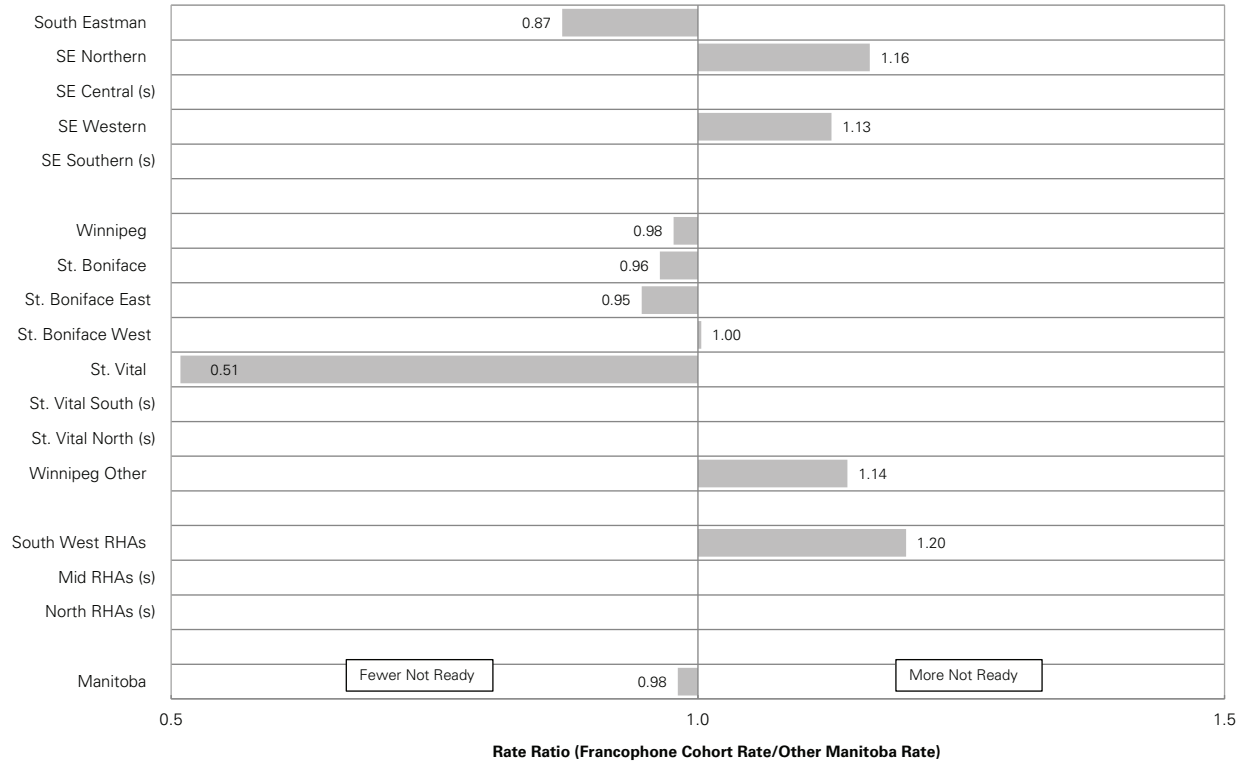
- Provincially and regionally, no significant differences were found in the rates of not being ready for school on physical well–being between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.79).
- The physical well–being rates of Francophones in all areas were similar to the Francophone provincial rate (Supplementary Table 16.7.2).

16.1.3 Not Ready for School on Social Competence

Social competence is responsibility and respect for others, approaches to learning, readiness to explore new things, and sharing. Not ready for school on social competence is defined as the proportion of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of social competence of all Kindergarten children. Values were calculated for a two–year period, 2005/06 and 2006/07, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

Figure 16.1.3: Not Ready for School on Social Competence—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07
Sex–adjusted for Kindergarten children



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

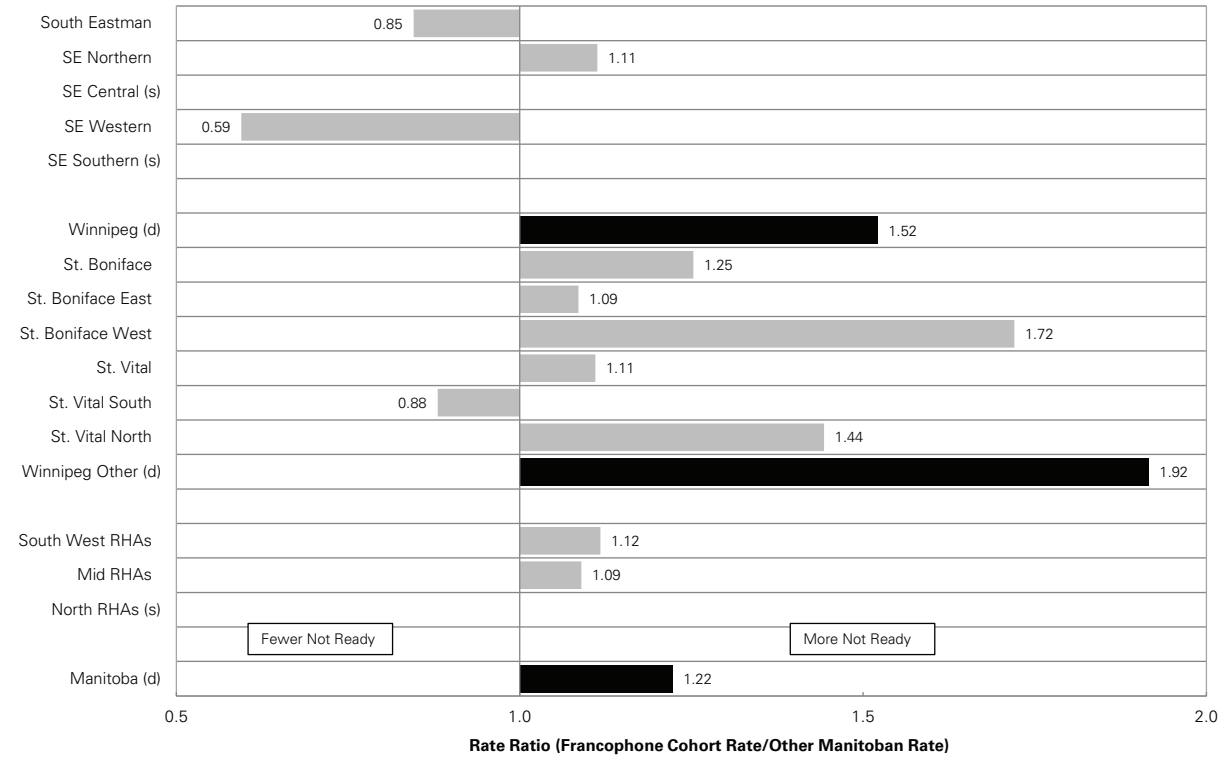
- Provincially and regionally, no significant differences were found in the rates of not being ready for school on social competence between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 0.98).
- The social competence rates of Francophones in all areas were similar to the Francophone provincial rate (Supplementary Table 16.7.3).

16.1.4 Not Ready for School on Emotional Maturity

Emotional maturity is pro–social behaviour; ability to concentrate; patience; and lack of anxious, fearful, or aggressive behaviour. Not ready for school on emotional maturity is defined as the proportion of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of emotional maturity of all Kindergarten children. Values were calculated for a two–year period, 2005/06 and 2006/07, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

Figure 16.1.4: Not Ready for School on Emotional Maturity—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07
Sex–adjusted for Kindergarten children



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

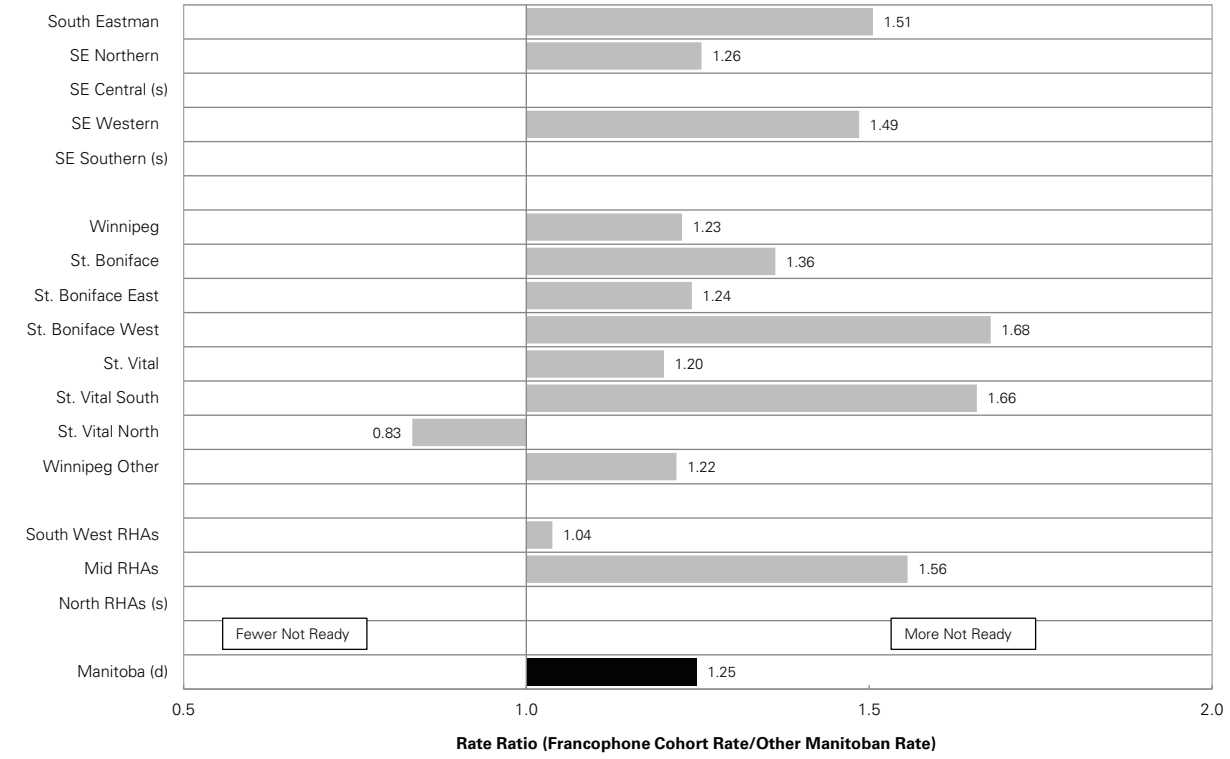
- Provincially, the Francophone Cohort had a higher rate of not being ready for school on emotional maturity than the Matched Cohort of Other Manitobans (Rate Ratio: 1.22).
- A significant difference was also noted in Winnipeg (Rate Ratio: 1.52), particularly in areas of Winnipeg outside of St. Boniface and St. Vital (Rate Ratio: 1.92) where the Francophone Cohort had higher rates than the Matched Cohort of Other Manitobans.
- The rates of emotional maturity of Francophones in all areas were similar to the Francophone provincial rate (Supplementary Table 16.7.4).

16.1.5 Not Ready for School on Language and Cognitive Development

Language and cognitive development is basic literacy, interest in reading, recognition of numbers and shapes, and awareness of time concepts. Not ready for school on language and cognitive development is defined as the proportion of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of language and cognitive development of all Kindergarten children. Values were calculated for a two–year period, 2005/06 and 2006/07, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

Figure 16.1.5: Not Ready for School on Language and Cognitive Development—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07
Sex–adjusted for Kindergarten children



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

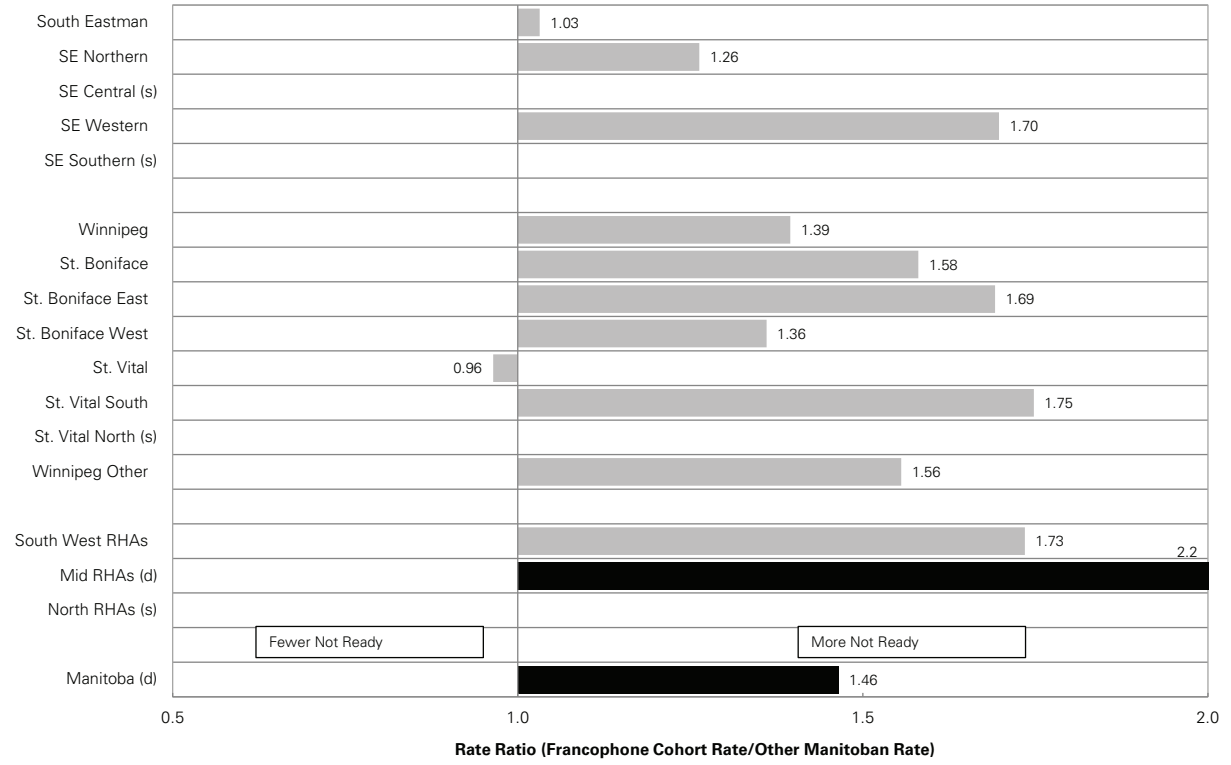
- Provincially, the Francophone Cohort had a higher rate of not being ready for school on language and cognitive development than the Matched Cohort of Other Manitobans (Rate Ratio: 1.25).
- No significant differences were found at the RHA or Winnipeg CA level.
- The rates of language and cognitive development of Francophones in all areas was similar to the Francophone provincial rate (Supplementary Table 16.7.5).

16.1.6 Not Ready for School on Communication and General Knowledge

Communication and general knowledge is the ability to clearly communicate one's own needs and understand others, active participation in story–telling, and interest in general knowledge about the world. Not ready for school on communication and general knowledge is defined as the proportion of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of communication and general knowledge of all Kindergarten children. Values were calculated for a two–year period, 2005/06 and 2006/07, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

Figure 16.1.6: Not Ready for School on Communication and General Knowledge—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, 2005/06–2006/07
Sex–adjusted for Kindergarten children



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had a higher rate of not being ready for school on communication and general knowledge than the Matched Cohort of Other Manitobans (Rate Ratio: 1.46). However, no significant differences were found at the RHA or Winnipeg CA level.
- A significant difference was also noted in the Mid RHAs (Rate Ratio: 2.2) where the Francophone Cohort had higher rates than the Matched Cohort of Other Manitobans.
- The rates of communication and general knowledge of Francophones in all areas was similar to the Francophone provincial rate (Supplementary Table 16.7.6).

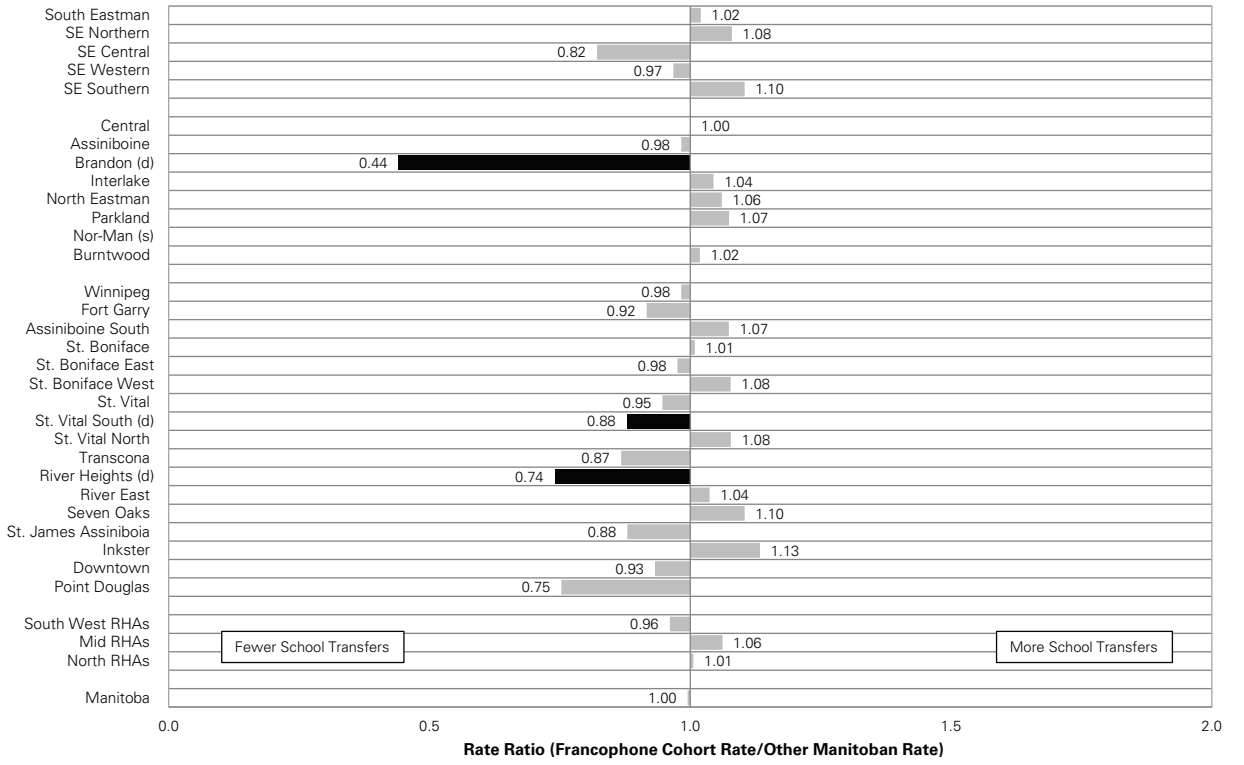
16.2 No School Transfers—Grade 3 Students

School tranfers refers to the number of times a student changed schools that was not part of an expected progression from Kindergarten through to Grade 3. No School Transfers—Grade 3 Students is defined as the percentage of students who did not transfer schools from the start of Grade 3 to the end of Grade 6.

Three groups of children were followed for four academic years (i.e., from Grade 3 to Grade 6) —those who entered Grade 3 in 2003, 2004, and 2005. Rates were age–and sex– adjusted based on Grade 3 populations.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone children are doing compared to a similar group of Other Manitoban children.

Figure 16.2.1: Grade 3 Students with No School Transfers—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2003/06–2005/08
Age– & sex–adjusted, children aged 7–9



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

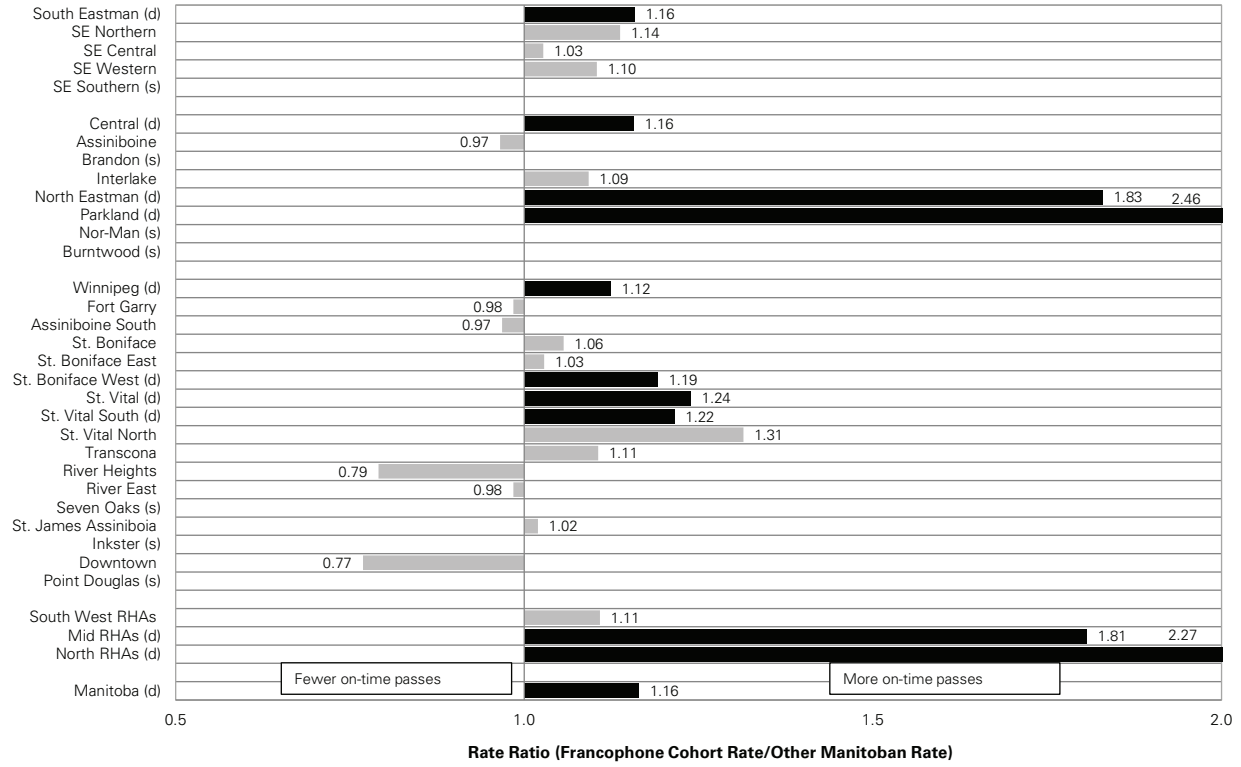
- Provincially, no significant differences were found in the rate of school changes for Grade 3 students between the Francophone Cohort and the Matched Cohort of Other Manitobans (Rate Ratio: 1.00).
- However, a significant difference was noted in Brandon (Rate Ratio: 0.44), South St. Vital (Rate Ratio: 0.88), and River Heights (Rate Ratio: 0.74) where the Francophone Cohort had lower rates than the Matched Cohort of Other Manitobans.
- The school changes rates for Grade Three Francophones in most areas were similar to the provincial Francophone rate, except in the Northern district of South Eastman where the rate was higher and in Brandon, River Heights, Downtown, and Point Douglas where the rates were lower (Supplementary Table 16.7.7).

16.3 On–Time Pass for Grade 12 Language Arts (LA) Exam

Manitoba students in Grade 12 write standard provincial examinations, including Language Arts (LA) and Mathematics exams. On–time pass for Grade 12 LA exam is defined as the proportion of students born in 1988 to 1990 who have passed the Grade 12 LA exam in 2005–2007 over all Manitoba residents born in 1988–1990. Note that the denominator includes all residents of Manitoba born in 1988 to 1990 (and still covered by Manitoba Health) including those who were absent from school, did not complete the test, were in Grade 11 or lower, or who withdrew from school altogether. Values were calculated for three academic years, 2005/06–2007/08, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone youth are doing compared to a similar group of Other Manitoban youth.

Figure 16.3.1: On–Time Pass for Grade 12 Language Arts Exam—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2005/06–2007/08
Sex–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

Key findings

- Provincially, the Francophone Cohort had a higher rate of on–time pass for the LA exam than the Matched Cohort of Other Manitobans (Rate Ratio: 1.16).
- This trend was also observed in many RHAs and Winnipeg CAs. Significant differences were noted in the Mid RHAs (Rate Ratio: 1.81), the Northern RHAs (Rate Ratio: 2.27), South Eastman (Rate Ratio: 1.16), Central (Rate Ratio: 1.16), North Eastman (Rate Ratio: 1.83), Parkland (Rate Ratio: 2.46), Winnipeg (Rate Ratio: 1.12), West St. Boniface (Rate Ratio: 1.19), and St. Vital (Rate Ratio: 1.24) where Francophones had a higher rate than the Matched Cohort of Other Manitobans.
- The rates of on–time pass for the LA exam of Francophones in most areas was similar to the provincial Francophone rate except in South St. Vital where the rates were higher and in River East and Downtown where the rates were lower (Supplementary Table 16.7.8).

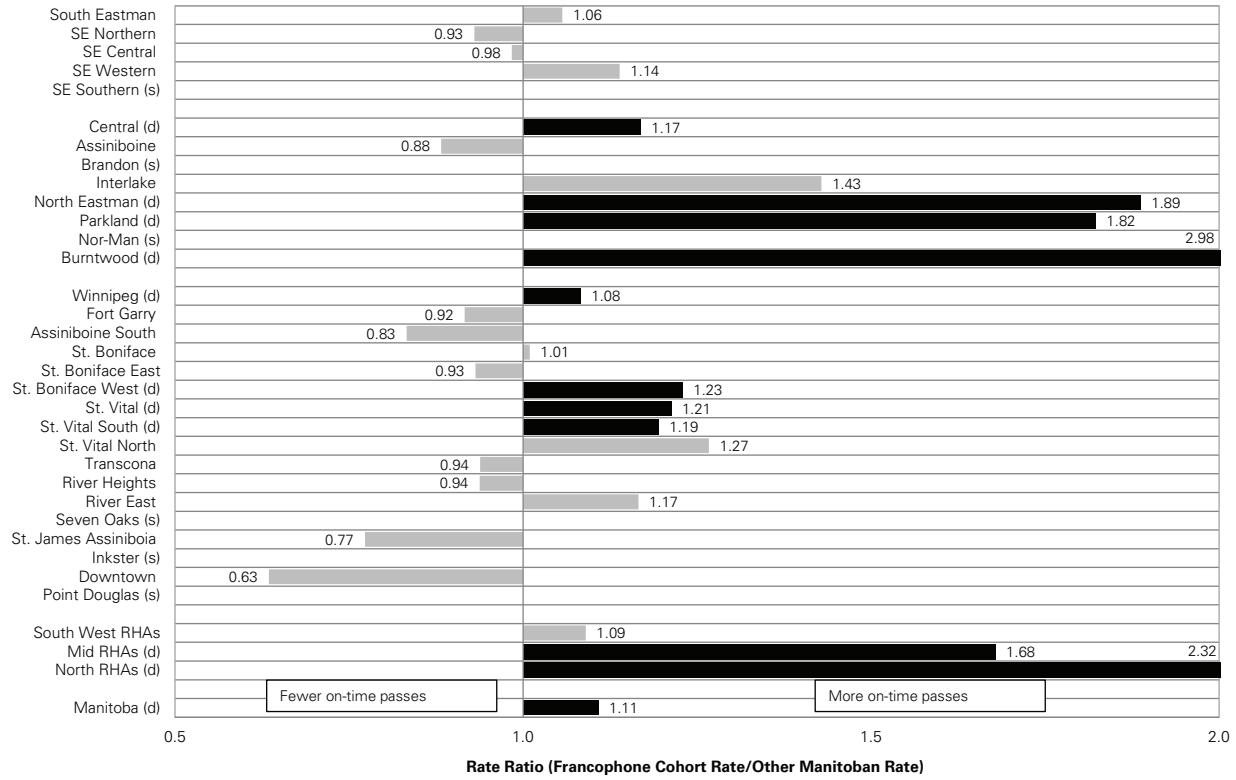
16.4 On–Time Pass for Grade 12 Mathematics Exam

Manitoba students in Grade 12 write standard provincial examinations, including Mathematics (Math) and Language Arts exams. On–time pass for Grade 12 Math exam is defined as the proportion of students born in 1988 to 1990 who have passed the Grade 12 Math exam in 2005–2007 over all

Manitoba residents born in 1988–1990. Note that the denominator includes all residents of Manitoba born in 1988 to 1990 (and still covered by Manitoba Health) including those who were absent from school, did not complete the test, were in Grade 11 or lower, or who withdrew from school altogether. Values were calculated for three academic years, 2005/06–2007/08, and were sex–adjusted.

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone youth are doing compared to a similar group of Other Manitoban youth.

Figure 16.4.1: On–Time Pass for Grade 12 Mathematics Exam—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2005/06–2007/08
Sex–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

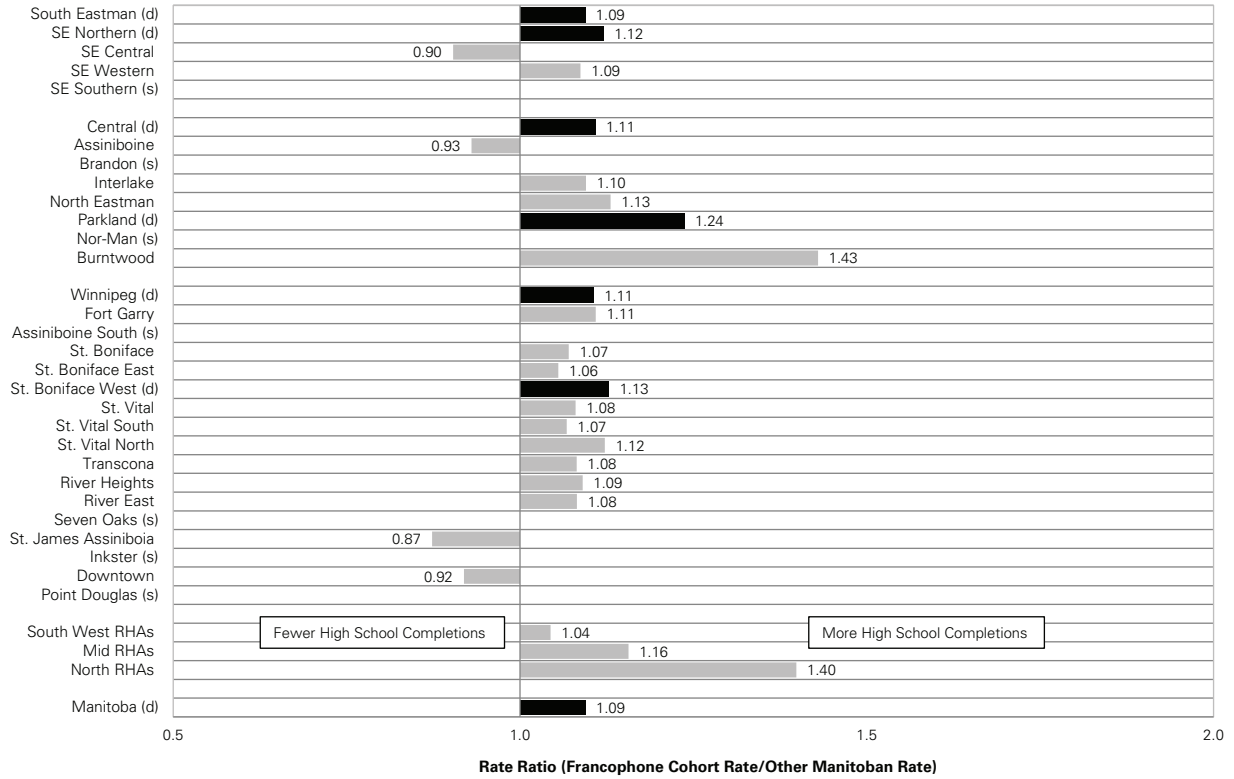
Key findings

- Provincially, the Francophone Cohort had a higher rate of on–time pass for the Math exam than the Matched Cohort of Other Manitobans (Rate Ratio: 1.11).
- This trend was also observed in many RHAs and Winnipeg CAs. Significant differences were noted in the Mid RHAs (Rate Ratio: 1.68), the Northern RHAs (Rate Ratio: 2.32), Central (Rate Ratio: 1.17), North Eastman (Rate Ratio: 1.89), Parkland (Rate Ratio: 1.82), Burntwood (Rate Ratio: 2.98), Winnipeg (Rate Ratio: 1.08), West St. Boniface (Rate Ratio: 1.23), and St. Vital (Rate Ratio: 1.21) where the Francophone Cohort had a higher rate than the Matched Cohort of Other Manitobans.
- The rates of on–time pass for the Math exam of Francophones in most areas was similar to the provincial Francophone rate except in the Western district of South Eastman and St. Vital where the rates were higher and in Downtown where the rates were lower (Supplementary Table 16.7.9).

16.5 High School Completion

A high school graduate is defined as a student who accumulated 28 or more course credits during high school or who had a Manitoba Department of Education student record that indicated graduation. All children who were in Grade Nine during the 2000/01, 2001/02 and 2002/03 school year were identified and followed for five years until the end of the 2005/06, 2006/07 and 2007/08 school year. Values were sex–adjusted.

Figure 16.5.1: High School Completion—Rate Ratios for Francophones versus Other Manitobans in Matched Cohort, Academic Years, 2005/06–2007/08
Sex–adjusted



'd' indicates that there was a difference between the two groups' rates, the rate ratio is statistically different from one
's' indicates data suppressed due to small numbers
For the underlying rates and statistical testing of the rates, please refer to the table corresponding to this graph

Source: Manitoba Centre for Health Policy, 2012

The rate ratios were calculated by dividing the Francophone Cohort Rate by the Matched Cohort Rate. The rate ratio indicates how Francophone youth are doing compared to a similar group of Other Manitoban youth.

Key findings

- Provincially, the Francophone Cohort had a higher high school completion rate than the Matched Cohort of Other Manitobans (Rate Ratio: 1.09).
- This trend was also observed in many RHAs and in Winnipeg CAs. Significant differences were noted in South Eastman (Rate Ratio: 1.09), Central (Rate Ratio: 1.11), Parkland (Rate Ratio: 1.24), Winnipeg (Rate Ratio: 1.11), and West St. Boniface (Rate Ratio: 1.13) where the Francophone Cohort had higher rates than the Matched Cohort of Other Manitobans.
- The rates of high school completion of Francophones in most areas were similar to the Francophone provincial rate except South St. Vital where the rate was higher and in Downtown where the rate was lower (Supplementary Table 16.7.10).

16.6 Findings from the Literature

(Comparisons to the results in this study are in italics)

- Kopec, Williams, To, and Austin examined educational attainment in three language groups: Bilingual (English and French) Canadians, English Canadians, and French Canadians. They reported that bilingual (French and English) Canadians were slightly better educated than English Canadians, while French Canadians had the lowest level of education. Specifically, 52% of French Canadians have no high school education compared to 33% of English Canadians and 22% of Bilingual Canadians (2001).
- Corbeil reported that ;in terms of educational attainment, Francophones lead Anglophones in every province other than Québec. This occurred not because Francophones in Québec had less education than Francophones in other provinces, but because Anglophones who lived in Quebec had significantly higher levels of education than Anglophones elsewhere. He further notes that educational improvements for Francophones took more time (than for Anglophones), as the major transformations to the French education system did not being to have an impact on youths until the early 1970s (2003).
- Corbeil further reported that the proportion of Francophone individuals who have less than a Grade Nine education has declined, from 44% in 1971 to 15% in 2001. About 21% of young men (aged 20 to 24) had not graduated from high school for Francophones, Anglophones, and Allophones. Young women were less likely to have not yet graduated (13% of Francophones, 16% of Anglophones, and 17% of Allophones) (2003).
- Forgues and Landry reported from the 2001 Census data that education levels for Francophones was comparable to Other Manitobans (2006).
- Using the 2006 Census data, we found that Francophones were slightly better educated. 47.4% of Francophones report having completed post–secondary education compared to 43.7% of Other Manitobans.
- Landry observed that Francophones living in communities with high ethnolinguisitc vitality (i.e., where the density of French speakers is high and French is used in a variety of community contexts) report stronger language skills and score higher on literacy assessments than individuals in communities with low ethnolinguistic vitality (2003).
- The 2006 Programme for International Student Assessment (PISA) found that Francophone high–school students living outside of Quebec have weaker literacy skills than their Anglophone counterparts. Reading scores for students in French–language schools in Nova Scotia, New Brunswick, Ontario, and Manitoba were lower than for students in English–language schools in the same provinces. The authors of the report note that 84% of minority Francophone students are bilingual. Weak French–language literacy skills among minority Francophone students may reflect only a portion of their overall literacy skill, which sometimes includes stronger English–language literacy skills.
- Healthy Child Manitoba found in a longitudinal study of Francophone students in Manitoba that children who attended a French child care centre in preschool had better French vocabulary scores in Kindergarten (reference: http://www.gov.mb.ca/healthychild/ecd/ecd_insights.pdf) (2010).
- *The findings in this study are consistent with previous research. Francophone children in Kindergarten were less likely to be ready for school than Other Manitoban children, based on the Early Development Instrument. Interestingly, Francophone adolescents were more likely to pass their Language Arts and Mathematics exams and more likely to graduate from high school compared to Other Manitoban adolescents.*

16.7 Supplementary Tables

Table 16.7.1: Not Ready for School on One or More EDI Domains, 2005/06–2006/07
Sex–adjusted for Kindergarten children

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percentage/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman	1.03 (0.79, 1.35)	30.00 (23.43, 38.41)	29.09 (24.88, 34.01)
SE Northern	1.15 (0.71, 1.87)	27.18 (18.99, 38.90)	23.61 (16.62, 33.55)
SE Central	1.03 (0.51, 2.09)	30.41 (15.32, 60.36)	29.41 (24.04, 35.98)
SE Western	1.01 (0.63, 1.62)	31.84 (22.13, 45.82)	31.58 (22.87, 43.61)
SE Southern	1.16 (0.49, 2.80)	38.97 (17.69, 85.83)	33.45 (22.48, 49.78)
Central	0.94 (0.59, 1.50)	24.08 (16.08, 36.06)	25.54 (19.74, 33.05)
Assiniboine	1.48 (0.69, 3.18)	40.49 (21.64, 75.75)	27.35 (17.37, 43.05)
Brandon (f,d)	**2.16 (1.15, 4.05)**	**60.00 (37.44, 96.16)**	**27.78 (18.03, 42.80)**
Interlake	2.10 (0.96, 4.63)	42.17 (23.19, 76.70)	20.04 (11.83, 33.96)
North Eastman	1.13 (0.59, 2.17)	44.86 (25.84, 77.88)	39.80 (27.50, 57.61)
Parkland	1.22 (0.50, 2.97)	29.34 (14.59, 59.01)	24.11 (13.65, 42.57)
Nor-Man (s)	s	s	s
Burntwood (s)	s	s	44.62 (23.16, 85.95)
Winnipeg (d)	**1.23 (1.02, 1.47)**	**31.40 (26.08, 37.82)**	**25.58 (22.50, 29.09)**
Fort Garry	1.14 (0.66, 1.97)	30.49 (19.25, 48.28)	26.69 (19.37, 36.77)
Assiniboine South (s)	s	s	26.88 (13.42, 53.85)
St. Boniface (d)	**1.35 (1.01, 1.81)**	**29.39 (22.99, 37.57)**	**21.78 (17.81, 26.63)**
St. Boniface East	1.19 (0.81, 1.75)	25.23 (18.05, 35.26)	21.15 (16.89, 26.49)
St. Boniface West	1.45 (0.90, 2.33)	34.50 (25.08, 47.46)	23.87 (16.40, 34.74)
St. Vital	0.98 (0.66, 1.45)	25.60 (18.12, 36.16)	26.11 (21.03, 32.41)
St. Vital South	1.19 (0.70, 2.03)	26.82 (17.08, 42.11)	22.54 (16.58, 30.65)
St. Vital North	0.81 (0.47, 1.40)	24.28 (14.88, 39.63)	30.00 (22.68, 39.68)
Transcona (s)	s	s	28.10 (16.88, 46.78)
River Heights (s)	s	s	23.64 (16.62, 33.64)
River East	1.51 (0.91, 2.53)	43.08 (27.21, 68.22)	28.44 (21.98, 36.80)
Seven Oaks (s)	s	s	31.78 (17.05, 59.24)
St. James Assiniboia	1.61 (0.65, 3.97)	35.34 (16.76, 74.50)	21.99 (12.98, 37.26)
Inkster	1.67 (0.60, 4.69)	37.80 (16.90, 84.56)	22.57 (11.71, 43.50)
Downtown	1.29 (0.81, 2.06)	40.57 (27.66, 59.50)	31.50 (23.41, 42.37)
Point Douglas	1.60 (0.71, 3.62)	50.05 (25.88, 96.80)	31.20 (19.04, 51.11)
South West RHAs	1.27 (0.92, 1.76)	33.44 (25.24, 44.31)	26.31 (21.50, 32.18)
Mid RHAs	1.36 (0.84, 2.21)	38.87 (26.00, 58.11)	28.57 (21.07, 38.74)
North RHAs (s)	s	s	40.84 (22.17, 75.23)
Manitoba (d)	**1.19 (1.05, 1.34)**	**31.85 (28.21, 35.96)**	**26.80 (25.22, 28.37)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.2: Not Ready for School on Physical Well—Being, 2005/06–2006/07
Sex–adjusted for Kindergarten children

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Prevalence (95% CI) (percentage)	Matched Cohort Adjusted Prevalence (95% CI) (percentage)
South Eastman	0.79 (0.31, 2.00)	8.62 (5.22, 14.25)	7.79 (5.70, 10.64)
SE Northern	1.36 (0.61, 3.03)	12.22 (6.82, 21.88)	9.01 (4.94, 16.44)
SE Central (s)	s	s	6.05 (3.82, 9.59)
SE Western	0.47 (0.18, 1.25)	6.46 (2.73, 15.24)	13.73 (8.13, 23.18)
SE Southern (s)	s	s	8.47 (3.65, 19.66)
Winnipeg	0.79 (0.58, 1.09)	8.51 (6.01, 12.05)	10.76 (8.86, 13.07)
St. Boniface	0.82 (0.46, 1.48)	8.22 (5.02, 13.47)	8.81 (6.31, 12.30)
St. Boniface East	0.79 (0.36, 1.72)	6.28 (3.08, 12.78)	7.96 (5.39, 11.75)
St. Boniface West	0.91 (0.41, 1.99)	11.22 (6.15, 20.50)	12.38 (7.08, 21.64)
St. Vital (s)	s	s	10.05 (6.98, 14.46)
St. Vital South (s)	s	s	9.89 (6.03, 16.23)
St. Vital North (s)	s	s	10.23 (6.15, 17.01)
Winnipeg Other	0.93 (0.62, 1.39)	11.10 (7.37, 16.72)	11.98 (9.56, 15.01)
South West RHAs	0.67 (0.34, 1.30)	7.60 (4.07, 14.18)	11.42 (8.22, 15.86)
Mid RHAs	0.65 (0.28, 1.52)	9.82 (4.50, 21.42)	15.09 (9.99, 22.78)
North RHAs	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	28.11 (13.71, 57.67)
Manitoba	0.79 (0.62, 1.01)	8.52 (6.70, 10.85)	10.74 (9.64, 11.85)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.3: Not Ready for School on Social Competence, 2005/06–2006/07
Sex adjusted for Kindergarten children

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Prevalence (95% CI) (percentage)	Matched Cohort Adjusted Prevalence (95% CI) (percentage)
South Eastman	0.87 (0.40, 1.88)	8.25 (4.88, 13.96)	9.49 (6.99, 12.89)
SE Northern	1.16 (0.39, 3.43)	7.24 (3.28, 15.98)	6.22 (2.87, 13.51)
SE Central (s)	s	s	10.01 (6.76, 14.80)
SE Western	1.13 (0.44, 2.90)	10.44 (5.11, 21.33)	9.27 (4.77, 18.00)
SE Southern (s)	s	s	16.62 (8.79, 31.43)
Winnipeg	0.98 (0.64, 1.50)	9.26 (5.95, 14.40)	9.48 (6.65, 13.51)
St. Boniface	0.96 (0.52, 1.78)	8.26 (4.96, 13.78)	7.81 (5.40, 11.29)
St. Boniface East	0.95 (0.43, 2.10)	6.81 (3.33, 13.91)	7.19 (4.69, 11.03)
St. Boniface West	1.00 (0.42, 2.43)	10.34 (5.36, 19.96)	10.31 (5.45, 19.48)
St. Vital	0.51 (0.20, 1.27)	5.05 (2.14, 11.92)	9.91 (6.70, 14.67)
St. Vital South (s)	s	s	10.18 (6.02, 17.20)
St. Vital North (s)	s	s	9.62 (5.52, 16.76)
Winnipeg Other	1.14 (0.74, 1.76)	11.34 (7.42, 17.35)	9.93 (7.66, 12.88)
South West RHAs	1.20 (0.65, 2.19)	12.23 (7.14, 20.94)	10.21 (7.06, 14.77)
Mid RHAs (s)	s	s	9.43 (5.38, 16.54)
North RHAs (s)	s	s	s
Manitoba	0.98 (0.68, 1.42)	9.47 (6.53, 13.75)	9.66 (8.61, 10.71)

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.4: Not Ready for School on Emotional Maturity, 2005/06–2006/07
Sex–adjusted for Kindergarten children

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Prevalence (95% CI) (percentage)	Matched Cohort Adjusted Prevalence (95% CI) (percentage)
South Eastman	0.85 (0.45, 1.59)	10.08 (5.69, 17.86)	13.78 (8.85, 21.47)
SE Northern	1.11 (0.43, 2.88)	10.14 (4.75, 21.63)	9.11 (4.26, 19.46)
SE Central (s)	s	s	15.65 (9.11, 26.89)
SE Western	0.59 (0.22, 1.59)	8.30 (3.54, 19.50)	13.96 (7.00, 27.86)
SE Southern (s)	s	s	15.49 (7.23, 33.20)
Winnipeg (d)	**1.52 (1.18, 1.95)**	**16.46 (12.77, 21.20)**	**10.82 (8.96, 13.06)**
St. Boniface	1.25 (0.70, 2.25)	15.26 (8.86, 26.29)	10.64 (6.36, 17.82)
St. Boniface East	1.09 (0.51, 2.33)	10.84 (5.36, 21.91)	9.99 (5.60, 17.79)
St. Boniface West	1.72 (0.75, 3.97)	22.67 (11.89, 43.21)	13.18 (6.39, 27.16)
St. Vital	1.11 (0.58, 2.13)	14.21 (7.53, 26.85)	12.79 (7.68, 21.30)
St. Vital South	0.88 (0.34, 2.25)	11.55 (4.92, 27.13)	13.12 (7.01, 24.54)
St. Vital North	1.44 (0.59, 3.52)	17.95 (8.20, 39.28)	12.44 (6.48, 23.85)
Winnipeg Other (d)	**1.92 (1.07, 3.44)**	**19.71 (11.22, 34.64)**	**10.29 (6.16, 17.18)**
South West RHAs	1.12 (0.57, 2.18)	16.02 (8.51, 30.16)	14.34 (8.38, 24.54)
Mid RHAs	1.09 (0.53, 2.22)	15.37 (8.35, 28.26)	14.10 (9.30, 21.37)
North RHAs (s)	s	s	s
Manitoba (d)	**1.22 (1.01, 1.48)**	**14.99 (12.36, 18.17)**	**12.26 (11.09, 13.43)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.5: Not Ready for School on Language and Cognitive Development, 2005/06–2006/07
Sex–adjusted for Kindergarten children

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Rate/ Matched Cohort Adjusted Rate) (95% CI)	Francophone Cohort Adjusted Prevalence (95% CI) (percentage)	Matched Cohort Adjusted Prevalence (95% CI) (percentage)
South Eastman	1.51 (0.90, 2.51)	13.69 (9.58, 19.55)	9.22 (7.07, 12.02)
SE Northern	1.26 (0.62, 2.54)	13.21 (7.93, 22.01)	10.52 (6.28, 17.65)
SE Central (s)	s	s	7.84 (5.37, 11.45)
SE Western	1.49 (0.68, 3.23)	13.99 (8.11, 24.13)	9.42 (5.27, 16.83)
SE Southern (s)	s	s	15.59 (8.72, 27.86)
Winnipeg	1.23 (0.97, 1.56)	14.62 (11.44, 18.69)	11.92 (10.04, 14.15)
St. Boniface	1.36 (0.88, 2.12)	13.40 (9.43, 19.05)	9.68 (7.23, 12.97)
St. Boniface East	1.24 (0.72, 2.14)	12.39 (7.75, 19.82)	9.98 (7.22, 13.80)
St. Boniface West	1.68 (0.79, 3.57)	14.67 (9.06, 23.76)	8.75 (4.76, 16.07)
St. Vital	1.20 (0.71, 2.05)	13.84 (8.73, 21.94)	11.53 (8.37, 15.89)
St. Vital South	1.66 (0.80, 3.45)	15.64 (8.67, 28.21)	9.44 (5.89, 15.12)
St. Vital North	0.83 (0.38, 1.81)	12.06 (6.08, 23.95)	14.47 (9.70, 21.59)
Winnipeg Other	1.22 (0.88, 1.68)	16.02 (11.75, 21.82)	13.14 (10.76, 16.05)
South West RHAs	1.04 (0.60, 1.80)	10.87 (6.71, 17.59)	10.47 (7.63, 14.37)
Mid RHAs	1.56 (0.87, 2.78)	23.26 (14.46, 37.41)	14.95 (10.22, 21.86)
North RHAs (s)	s	s	28.72 (14.78, 55.80)
Manitoba (d)	**1.25 (1.04, 1.50)**	**14.44 (12.03, 17.33)**	**11.57 (10.43, 12.71)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.6: Not Ready for School on Communication and General Knowledge, 2005/06–2006/07
Sex–adjusted for Kindergarten children

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Prevalence/ Matched Cohort Adjusted Prevalence) (95% CI)	Francophone Cohort Adjusted Prevalence (95% CI) (percentage)	Matched Cohort Adjusted Prevalence (95% CI) (percentage)
South Eastman	1.03 (0.55, 1.95)	14.85 (8.76, 25.18)	13.04 (8.37, 20.33)
SE Northern	1.26 (0.53, 3.03)	14.28 (7.12, 28.65)	11.31 (5.49, 23.28)
SE Central (s)	s	s	13.42 (7.74, 23.26)
SE Western	1.70 (0.72, 4.03)	18.91 (9.60, 37.25)	11.14 (5.40, 22.97)
SE Southern (s)	s	s	19.00 (9.25, 39.03)
Winnipeg	1.39 (0.95, 2.06)	15.10 (10.24, 22.26)	10.82 (7.68, 15.24)
St. Boniface	1.58 (0.87, 2.87)	13.52 (7.79, 23.48)	8.23 (4.83, 14.03)
St. Boniface East	1.69 (0.79, 3.62)	12.98 (6.60, 25.52)	7.67 (4.21, 13.98)
St. Boniface West	1.36 (0.54, 3.45)	14.18 (6.91, 29.08)	10.42 (4.85, 22.39)
St. Vital	0.96 (0.45, 2.07)	9.19 (4.50, 18.78)	9.53 (5.45, 16.64)
St. Vital South	1.75 (0.59, 5.15)	10.19 (4.19, 24.82)	5.83 (2.67, 12.76)
St. Vital North (s)	s	s	16.64 (9.01, 30.74)
Winnipeg Other	1.56 (0.87, 2.77)	18.94 (10.81, 33.20)	12.18 (7.36, 20.16)
South West RHAs	1.73 (0.78, 3.33)	20.26 (11.07, 37.07)	11.68 (6.78, 20.11)
Mid RHAs (d)	2.19 (1.09, 4.37)	23.93 (13.68, 41.88)	10.95 (6.41, 18.72)
North RHAs (s)	s	s	25.26 (11.75, 54.30)
Manitoba (d)	**1.46 (1.04, 2.06)**	**16.65 (11.83, 23.44)**	**11.37 (10.24, 12.50)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.7: Grade 3 Students with No School Transfers, 2003/06–2005/08

Age– & sex–adjusted, children aged 7–9

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percentage/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman	1.02 (0.95, 1.09)	89.27 (83.64, 95.27)	87.50 (84.12, 91.01)
SE Northern (f)	1.08 (0.97, 1.20)	**92.22 (84.85, 100.23)**	85.40 (79.75, 91.45)
SE Central	0.82 (0.65, 1.04)	71.37 (56.77, 89.74)	86.89 (82.52, 91.49)
SE Western	0.97 (0.86, 1.09)	87.98 (80.23, 96.49)	90.93 (84.01, 98.42)
SE Southern	1.10 (0.83, 1.48)	99.98 (76.78, 130.17)	90.54 (79.88, 102.62)
Central	1.00 (0.91, 1.10)	88.67 (81.45, 96.52)	88.62 (84.21, 93.25)
Assiniboine	0.98 (0.83, 1.16)	90.24 (77.90, 104.52)	91.83 (84.02, 100.35)
Brandon (f,d)	**0.44 (0.28, 0.68)**	**36.82 (24.56, 55.19)**	**83.46 (70.42, 98.91)**
Interlake	1.04 (0.84, 1.31)	82.57 (68.20, 99.95)	79.02 (69.99, 89.22)
North Eastman	1.06 (0.85, 1.32)	80.01 (66.45, 96.33)	75.45 (67.15, 84.77)
Parkland	1.07 (0.88, 1.31)	85.42 (72.12, 101.19)	79.50 (71.23, 88.73)
Nor-Man (s)	s	s	s
Burntwood	1.02 (0.67, 1.54)	72.83 (51.87, 102.26)	71.49 (56.26, 90.84)
Winnipeg	0.98 (0.93, 1.03)	78.74 (74.56, 83.15)	80.12 (77.65, 82.66)
Fort Garry	0.92 (0.77, 1.09)	77.78 (66.59, 90.85)	84.89 (77.82, 92.60)
Assiniboine South	1.07 (0.69, 1.67)	87.38 (58.29, 130.99)	81.35 (67.85, 97.53)
St. Boniface	1.01 (0.94, 1.09)	83.84 (78.51, 89.53)	83.10 (79.18, 87.22)
St. Boniface East	0.98 (0.88, 1.08)	82.80 (75.64, 90.63)	84.85 (80.50, 89.45)
St. Boniface West	1.08 (0.96, 1.21)	84.63 (78.20, 91.59)	78.54 (72.09, 85.56)
St. Vital	0.95 (0.86, 1.05)	80.55 (73.56, 88.21)	85.07 (80.81, 89.55)
St. Vital South (d)	**0.88 (0.78, 0.99)**	**78.58 (70.59, 87.48)**	**89.46 (84.30, 94.94)**
St. Vital North	1.08 (0.92, 1.26)	84.02 (73.32, 96.29)	77.94 (71.98, 84.40)
Transcona	0.87 (0.63, 1.20)	73.73 (55.33, 98.24)	84.98 (72.40, 99.75)
River Heights (f,d)	**0.74 (0.57, 0.95)**	**59.27 (46.31, 75.86)**	**80.07 (74.60, 85.93)**
River East	1.04 (0.87, 1.24)	77.38 (65.32, 91.66)	74.60 (70.22, 79.26)
Seven Oaks	1.10 (0.72, 1.69)	83.53 (58.42, 119.45)	75.64 (60.19, 95.06)
St. James Assiniboia	0.88 (0.68, 1.14)	73.14 (57.82, 92.52)	83.18 (74.80, 92.49)
Inkster	1.13 (0.76, 1.69)	83.26 (59.31, 116.87)	73.44 (59.27, 91.00)
Downtown (f)	0.93 (0.74, 1.18)	**57.74 (46.91, 71.06)**	61.91 (55.28, 69.34)
Point Douglas (f)	0.75 (0.51, 1.12)	**50.04 (35.01, 71.54)**	66.47 (56.20, 78.61)
South West RHAs	0.96 (0.89, 1.04)	85.51 (79.66, 91.80)	88.99 (85.32, 92.81)
Mid RHAs	1.06 (0.93, 1.21)	82.81 (73.65, 93.10)	77.99 (72.40, 84.02)
North RHAs	1.01 (0.69, 1.47)	74.85 (54.70, 102.43)	74.39 (59.85, 92.47)
Manitoba	1.00 (0.96, 1.03)	82.50 (79.80, 85.29)	82.90 (81.84, 83.96)

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d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.8: On–Time Pass for Grade 12 Language Arts Exam, 2005/06–2007/08
Sex–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percentage/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman (d)	**1.16 (1.06, 1.27)**	**76.03 (69.56, 83.10)**	**65.61 (62.03, 69.39)**
SE Northern	1.14 (0.99, 1.31)	74.98 (66.88, 84.05)	65.91 (60.08, 72.30)
SE Central	1.03 (0.68, 1.54)	65.97 (44.08, 98.74)	64.21 (59.53, 69.27)
SE Western	1.10 (0.95, 1.29)	78.87 (70.18, 88.64)	71.44 (64.13, 79.58)
SE Southern (s)	s	s	59.41 (50.18, 70.34)
Central (d)	**1.16 (1.01, 1.32)**	**74.60 (66.06, 84.25)**	**64.45 (59.79, 69.47)**
Assiniboine	0.97 (0.73, 1.28)	58.50 (45.59, 75.06)	60.60 (52.46, 70.01)
Brandon (s)	s	s	51.56 (34.84, 76.32)
Interlake	1.09 (0.73, 1.64)	55.28 (38.96, 78.45)	50.61 (41.04, 62.42)
North Eastman (d)	**1.83 (1.24, 2.71)**	**73.72 (53.96, 100.72)**	**40.29 (31.66, 51.27)**
Parkland (d)	**2.46 (1.85, 3.26)**	**70.92 (58.33, 86.22)**	**28.86 (23.40, 35.59)**
Nor-Man (s)	s	s	34.52 (18.59, 64.10)
Burntwood (s)	s	56.21 (31.66, 99.79)	s
Winnipeg (d)	**1.12 (1.05, 1.20)**	**70.48 (65.95, 75.33)**	**62.68 (60.17, 65.30)**
Fort Garry	0.98 (0.76, 1.28)	71.20 (56.45, 89.81)	72.32 (63.16, 82.81)
Assiniboine South	0.97 (0.57, 1.64)	75.97 (46.97, 122.87)	78.45 (62.80, 98.00)
St. Boniface	1.06 (0.95, 1.18)	75.25 (68.35, 82.85)	71.22 (66.39, 76.40)
St. Boniface East	1.03 (0.89, 1.18)	76.62 (67.37, 87.14)	74.48 (69.08, 80.30)
St. Boniface West (d)	**1.19 (1.00, 1.41)**	**74.14 (65.80, 83.52)**	**62.22 (54.56, 70.95)**
St. Vital (f,d)	**1.24 (1.08, 1.42)**	**84.61 (74.87, 95.61)**	**68.27 (63.21, 73.73)**
St. Vital South (f,d)	**1.22 (1.05, 1.41)**	**87.60 (76.93, 99.75)**	**72.05 (66.39, 78.18)**
St. Vital North	1.31 (0.99, 1.74)	75.11 (59.01, 95.59)	57.14 (49.07, 66.52)
Transcona	1.11 (0.70, 1.76)	58.73 (39.63, 87.03)	53.10 (41.33, 68.21)
River Heights	0.79 (0.46, 1.37)	49.75 (29.07, 85.13)	62.89 (55.40, 71.40)
River East (f)	0.98 (0.66, 1.46)	**42.47 (29.01, 62.16)**	43.14 (38.13, 48.80)
Seven Oaks (s)	s	s	64.24 (42.81, 96.38)
St. James Assiniboia	1.02 (0.58, 1.79)	68.37 (41.19, 113.47)	67.05 (52.37, 85.85)
Inkster (s)	s	s	s
Downtown (f)	0.77 (0.47, 1.25)	**24.87 (16.03, 38.59)**	32.36 (25.91, 40.43)
Point Douglas (s)	s	s	39.56 (26.73, 58.55)
South West RHAs	1.11 (0.99, 1.24)	70.16 (63.13, 77.98)	63.28 (59.33, 67.50)
Mid RHAs (d)	**1.81 (1.52, 2.15)**	**68.05 (59.39, 77.98)**	**37.66 (33.60, 42.21)**
North RHAs (d)	**2.27 (1.24, 4.16)**	**45.95 (29.27, 72.12)**	**20.24 (13.47, 30.41)**
Manitoba (d)	**1.16 (1.11, 1.22)**	**71.44 (67.99, 75.07)**	**61.34 (60.04, 62.64)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.9: On–Time Pass for Grade 12 Math Exam, Academic Years 2005/06–2007/08

Sex–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percentage/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman	1.06 (0.95, 1.17)	62.55 (56.52, 69.22)	59.22 (55.70, 62.95)
SE Northern	0.93 (0.82, 1.06)	54.30 (48.62, 60.64)	58.39 (53.81, 63.36)
SE Central	0.98 (0.69, 1.40)	60.49 (42.65, 85.81)	61.49 (57.64, 65.59)
SE Western (f)	1.14 (1.00, 1.30)	**73.22 (66.15, 81.04)**	64.29 (58.48, 70.68)
SE Southern (s)	s	s	39.64 (33.38, 47.07)
Central (d)	**1.17 (1.02, 1.35)**	**72.75 (63.96, 82.76)**	**62.24 (57.48, 67.39)**
Assiniboine	0.88 (0.64, 1.21)	48.91 (36.89, 64.86)	55.43 (47.41, 64.81)
Brandon (s)	s	s	53.42 (36.00, 79.28)
Interlake	1.43 (0.95, 2.15)	64.32 (45.84, 90.27)	45.02 (35.72, 56.74)
North Eastman (d)	**1.89 (1.22, 2.92)**	**65.01 (45.96, 91.94)**	**34.45 (26.26, 45.19)**
Parkland (d)	**1.82 (1.34, 2.48)**	**55.39 (44.02, 69.70)**	**30.39 (24.58, 37.58)**
Nor-Man (s)	s	s	s
Burntwood (d)	**2.98 (1.29, 6.92)**	**57.15 (31.46, 103.79)**	**19.16 (10.56, 34.76)**
Winnipeg (d)	**1.08 (1.00, 1.17)**	**60.37 (55.78, 65.33)**	**55.76 (53.18, 58.47)**
Fort Garry	0.92 (0.68, 1.24)	56.97 (43.48, 74.64)	62.18 (53.40, 72.40)
Assiniboine South	0.83 (0.45, 1.52)	61.12 (34.96, 106.83)	73.39 (57.79, 93.21)
St. Boniface	1.01 (0.89, 1.14)	63.39 (56.85, 70.67)	62.79 (58.10, 67.86)
St. Boniface East	0.93 (0.82, 1.06)	61.95 (55.01, 69.77)	66.51 (62.24, 71.06)
St. Boniface West (d)	**1.23 (1.05, 1.43)**	**64.56 (58.03, 71.82)**	**52.52 (46.62, 59.16)**
St. Vital (f,d)	**1.21 (1.05, 1.41)**	**76.28 (66.71, 87.23)**	**62.90 (57.87, 68.36)**
St. Vital South (f,d)	**1.19 (1.05, 1.36)**	**79.38 (70.83, 88.96)**	**66.44 (61.89, 71.32)**
St. Vital North	1.27 (0.99, 1.62)	66.54 (53.79, 82.32)	52.52 (46.03, 59.91)
Transcona	0.94 (0.54, 1.63)	42.72 (26.52, 68.83)	45.53 (34.42, 60.23)
River Heights	0.94 (0.53, 1.66)	49.86 (28.53, 87.16)	53.18 (46.08, 61.36)
River East	1.17 (0.78, 1.75)	45.49 (30.96, 66.82)	39.02 (34.09, 44.67)
Seven Oaks (s)	s	s	51.31 (31.90, 82.55)
St. James Assiniboia	0.77 (0.41, 1.47)	53.48 (29.44, 97.12)	69.18 (53.68, 89.16)
Inkster (s)	s	s	s
Downtown (f)	0.63 (0.34, 1.17)	**16.62 (9.51, 29.05)**	26.18 (20.25, 33.85)
Point Douglas (s)	s	s	31.25 (19.82, 49.26)
South West RHAs	1.09 (0.99, 1.20)	66.05 (60.30, 72.35)	60.59 (57.35, 64.02)
Mid RHAs (d)	**1.68 (1.37, 2.05)**	**59.37 (50.55, 69.72)**	**35.37 (31.07, 40.26)**
North RHAs (d)	**2.32 (1.23, 4.37)**	**51.75 (32.32, 82.87)**	**22.33 (14.54, 34.28)**
Manitoba (d)	**1.11 (1.05, 1.17)**	**61.75 (58.45, 65.24)**	**55.72 (54.40, 57.05)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average

d' indicates that there was a difference between the two groups' rates

's' indicates data suppressed due to small numbers

'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Table 16.7.10: High School Completion, Academic Years 2005/06–2007/08

Sex–adjusted

Region	Adjusted Rate Ratio (Francophone Cohort Adjusted Percentage/ Matched Cohort Adjusted Percentage) (95% CI)	Francophone Cohort Adjusted Percentage (95% CI)	Matched Cohort Adjusted Percentage (95% CI)
South Eastman (d)	**1.09 (1.02, 1.17)**	**93.33 (87.43, 99.63)**	**85.32 (81.95, 88.83)**
SE Northern (d)	**1.12 (1.02, 1.23)**	**94.38 (87.59, 101.69)**	**84.23 (79.34, 89.42)**
SE Central	0.90 (0.61, 1.34)	77.44 (52.34, 114.59)	85.72 (81.55, 90.10)
SE Western	1.09 (0.98, 1.21)	93.17 (86.06, 100.87)	85.70 (79.67, 92.18)
SE Southern (s)	s	s	86.31 (77.29, 96.37)
Central (d)	**1.11 (1.01, 1.22)**	**93.80 (85.87, 102.46)**	**84.62 (80.12, 89.37)**
Assiniboine	0.93 (0.78, 1.11)	84.53 (71.93, 99.32)	90.88 (83.07, 99.43)
Brandon (s)	s	s	74.73 (56.49, 98.87)
Interlake	1.10 (0.87, 1.38)	90.23 (74.08, 109.89)	82.38 (72.55, 93.53)
North Eastman	1.13 (0.85, 1.50)	87.71 (70.24, 109.53)	77.57 (65.19, 92.30)
Parkland (d)	**1.24 (1.03, 1.49)**	**83.08 (71.80, 96.14)**	**67.18 (59.62, 75.71)**
Nor-Man (s)	s	s	73.42 (51.34, 104.99)
Burntwood	1.43 (0.80, 2.57)	74.93 (46.15, 121.65)	52.41 (37.71, 72.84)
Winnipeg (d)	**1.11 (1.04, 1.18)**	**90.16 (84.45, 96.25)**	**81.52 (78.36, 84.82)**
Fort Garry	1.11 (0.91, 1.35)	96.41 (81.31, 114.32)	86.91 (78.34, 96.41)
Assiniboine South (s)	s	s	81.35 (64.72, 102.27)
St. Boniface	1.07 (0.99, 1.16)	92.79 (86.28, 99.80)	86.70 (82.23, 91.41)
St. Boniface East	1.06 (0.96, 1.17)	93.44 (85.40, 102.25)	88.55 (84.00, 93.35)
St. Boniface West (d)	**1.13 (1.01, 1.27)**	**92.27 (85.00, 100.17)**	**81.79 (75.03, 89.17)**
St. Vital	1.08 (0.97, 1.20)	93.72 (85.31, 102.96)	86.77 (81.98, 91.84)
St. Vital South	1.07 (0.96, 1.19)	95.49 (86.84, 105.00)	89.46 (84.55, 94.65)
St. Vital North	1.12 (0.94, 1.34)	89.35 (76.89, 103.83)	79.61 (72.41, 87.52)
Transcona	1.08 (0.76, 1.54)	83.44 (61.95, 112.38)	77.13 (63.58, 93.56)
River Heights	1.09 (0.67, 1.78)	84.50 (52.04, 137.19)	77.49 (70.39, 85.32)
River East	1.08 (0.85, 1.38)	75.70 (59.88, 95.69)	69.95 (64.47, 75.89)
Seven Oaks (s)	s	s	71.68 (49.26, 104.30)
St. James Assiniboia	0.87 (0.54, 1.42)	76.90 (49.09, 120.46)	88.06 (72.21, 107.38)
Inkster (s)	s	s	55.26 (35.30, 86.51)
Downtown (f)	0.92 (0.60, 1.41)	**52.15 (35.81, 75.95)**	56.73 (46.26, 69.57)
Point Douglas (s)	s	s	44.77 (30.77, 65.15)
South West RHAs	1.04 (0.97, 1.12)	89.57 (83.60, 95.97)	85.80 (82.30, 89.45)
Mid RHAs	1.16 (1.00, 1.34)	85.92 (75.94, 97.22)	74.30 (67.78, 81.45)
North RHAs	1.40 (0.85, 2.31)	84.34 (55.66, 127.79)	60.31 (45.53, 79.89)
Manitoba (d)	**1.09 (1.06, 1.13)**	**90.48 (87.25, 93.83)**	**82.70 (81.61, 83.78)**

'f' indicates the area's rate for the Francophone cohort was statistically different from the Francophone cohort average
d' indicates that there was a difference between the two groups' rates
's' indicates data suppressed due to small numbers
'D' indicates the survey respondents rate ratio was statistically different from the directly standardized rate ratio

Source: Manitoba Centre for Health Policy, 2012

Chapter 17: Birth Cohort Effect

Introduction

The majority of indicators studied in this report suggest that Francophones are as healthy and are as likely to access health services as Other Manitobans. Some indicators (20% of all indicators) indicated that Francophones were in better health and fewer (12% of all indicators) show that they were in poorer health. The study also pointed to some regional differences in the health of Francophones across the province. This leads us to the last question posed in this study—Do rates of health indicators of Francophones relative to Other Manitobans differ by birth cohort? In other words, has the relative health of Francophones changed over generations?

The effects of the social, political, and historical context on the health of populations have been recognized by epidemiologists. These effects are known as cohort effects. Last defines cohort or generational effect as "the variation in health status arising from the different causal factors to which each birth cohort is exposed, as the surrounding environment and society change" *(A Dictionary of Epidemiology, 1995)*. Generally speaking, growing up in 1930s was very different than growing up in 1970s. It is widely recognized that major differences existed in diet, sanitation, medical practices and mortality rates *(Dubos, 1968; McKeown, Record, & Turner, 1975)*. In this chapter, we will examine whether a cohort effect played a part in explaining the health of Francophones in Manitoba.

As was described earlier in this report, the socio–political climate of Manitoba has changed dramatically for Francophones in Manitoba. After the arrival of La Verendrye to the region now known as Manitoba in 1738, Francophones with First Nations and the Scottish lived and developed communities along the Red River. The Metis Francophone, Louis Riel, was instrumental in founding the province of Manitoba based on the Manitoba Act of 1870. In subsequent years and legislation, the linguistic rights of Francophones in Manitoba were removed. Francophones struggled to maintain their language and culture throughout this period. In the early 1960s, recognition of language rights began to return. Currently, Francophones in Manitoba receive an array of rights and services.

Methods

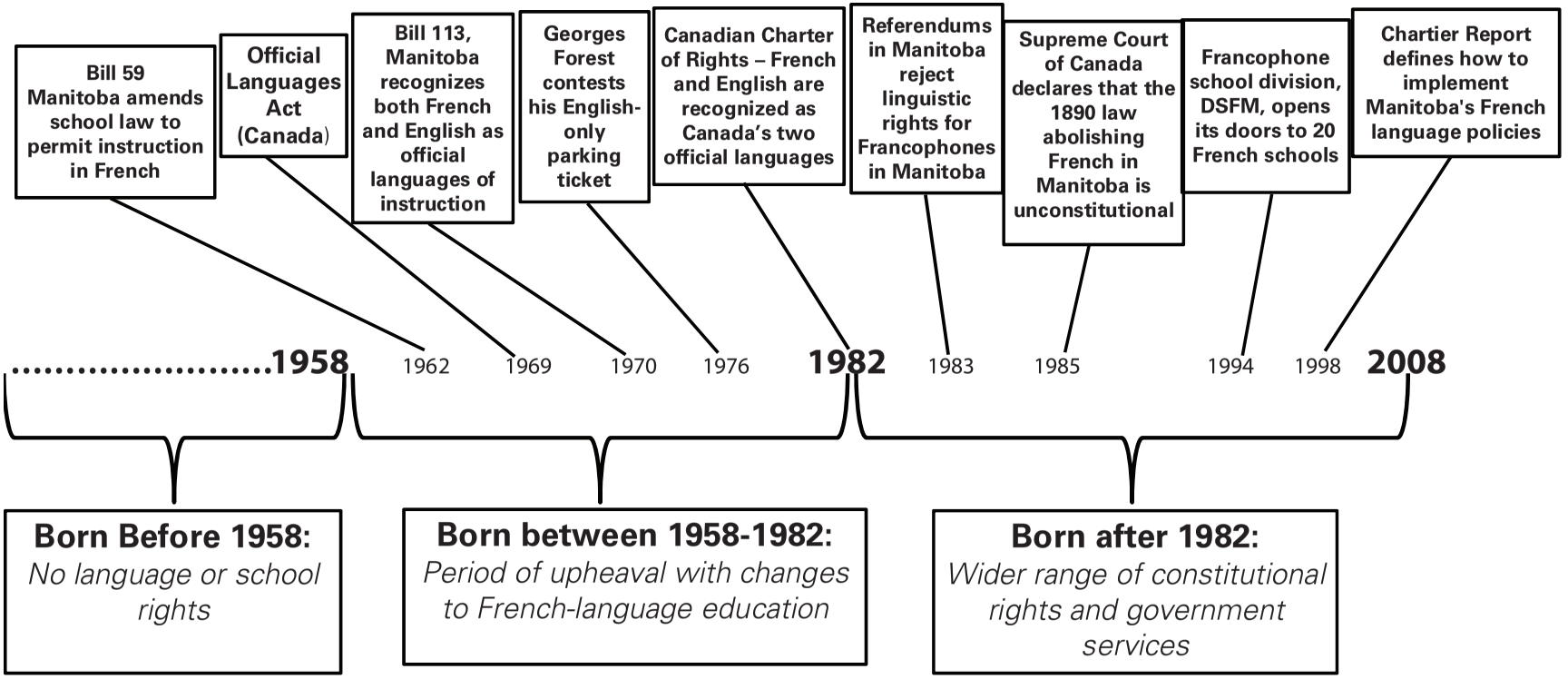
Birth cohort effects were examined by first dividing the people used in the study into three age groups. We determined that the Francophone Cohort and the Matched Cohort of Other Manitobans were large enough to detect birth cohort effects in some of the variables. The three age groups were established, based on knowledge of historical events believed to influence the well–being of Francophones. In consultation with Jacqueline Blay (personal communication, 2010), the research team developed the following chart and divided the group into three age groups or birth cohorts: those born before 1958, those born between 1958 and 1982, and those born after 1982.

Figure 17.1 outlines some major events regarding language rights for Manitoba Francophones:

- Before 1962: No French language laws existed on the books other than section 258 of the 1897 Laurier–Greenway agreement, which allowed some French instruction.
- 1962–1967: Bill 59 (Manitoba) amends the School Law to permit instruction in French for at least 50% of subjects. It was announced and then approved in 1967, but did not make a noticeable difference in the education framework for the Francophone minority.
- 1969: Official Languages Act, French and English are reaffirmed as official languages in Canada.

Figure 17.1: Key Historical Events by Generation

Table 17.1: Key Historical Events by Birth Cohort



DSFM - Division scolaire franco-manitobaine

Source: Manitoba Centre for Health Policy, 2012

- 1970: Bill 113 (Manitoba) recognizes that English and French have equal status in education in Manitoba. This proves to be disruptive because it forces parents to ask permission from school boards to have français classes and then français schools.
- 1976–1979: The Forest case where Georges Forest contests his English–only parking ticket. The Supreme Court of Canada reaffirms French and English as official languages in Manitoba, but does not indicate how to implement the decision.
- 1982: Canadian Charter of Rights defines fundamental rights for Canadians. In education, Section 23 of the Charter guarantees the right of instruction in the language of the minority. Manitoba Francophones will obtain school governance in 1993 after a lengthy court battle.
- 1983: Municipal referendums throughout Manitoba reject the provincial French Language Services constitutional entrenchment proposal.
- 1985: The Supreme Court of Canada indicates that all bills approved in Manitoba in English only since 1890 are invalid. Manitoba has 120 days to present a priority translation calendar.
- 1994: Division scolaire franco–manitobaine (DSFM), the Francophone school division in Manitoba, opens its doors to 20 French schools.
- 1998: The Chartier Report updates Manitoba's 1989 French Language Services Policy and defines its implementation.

During the period before 1958, the French language had no official status in Manitoba. Laws and services were in English only. Teaching French in schools was not allowed. Teachers would provide instruction to Francophone students without the knowledge of the school inspectors. Those born during this period had relatively few French language rights. During the period between 1958 and 1982, attitudes began to shift on the provincial and national level. It was also a turbulent time for Francophones with many meetings and protests. In reviewing the minutes of the political organization, **Société franco–manitobaine** in 1968, considerable discouragement was expressed regarding the future of the French language in Manitoba. Nonetheless, the progress of language rights during that period indicates that the efforts of the Francophone community and their supporters were beginning to bear fruit. After 1982, there was a period where more rights were added to those gained in the earlier period. The Francophone community and their provincial and national partners continued to promote and maintain language rights and services. Those born during this period enjoyed French education; most government documents (income tax, driver's license, etc.) were available in French; and a growing number of government services—including health services—were available in French. With the growing number of French–immersion students fluent in French, attitudes towards the French language improved.

The research team chose six indicators to test for birth cohort effects: mortality rate, suicide and suicide attempts, diabetes, hospitalization, number of different drugs, and self–rated health. These indicators were chosen because they were thought to be sensitive to health status. Most indicators that are utilized using the MCHP Repository are based on healthcare utilization and these are not always dependent on health status. Mortality and suicide rates need no explanation. Diabetes, hospitalization and number of different drugs are services considered to not be subject to differences in health providers' systems. Self–rated health has been shown to be associated with health status. Mossey and Shapiro found that the risk of subsequent death was three times greater for individuals who rated their health as bad compared to those who rated their health as excellent (1982).

Results

Table 17.1 shows the rates of six indicators by birth cohort. The last column displays the statistical testing indicating whether the differences between the Francophone Cohort and the Matched Cohort of Other Manitobans are actual differences or not. As expected, there are large changes in all the indicators with birth cohort. We also notice differences between the Francophone Cohort and Matched Cohort Rates. Older Francophones (born before 1958) have higher rates of diabetes compared to other older Manitobans (15.2% versus 14.7%), but this difference is not statistically significant (the p–value is higher than 0.05). The middle group of Francophones (born between 1958 and 1982) has statistically lower rates of diabetes (3.1% versus 3.9%). A greater difference in diabetes rates is found between younger Francophones (born after 1982) and other younger Manitobans (0.58% versus 0.99%) and it is statistically significant. A similar pattern is found across the other indicators with the exception of self–rated health.

Table 17.1: Comparison between Francophone and Matched Cohort Crude Rates for Specific Age Cohorts

Indicator	Age Cohort	Francophone Cohort Crude Rate		Matched Cohort Crude Rate		Probability (Francophone versus Matched Cohort)
Mortality Rate	Born before 1958	19.38	per 1,000 person years	20.13	per 1,000 person years	0.1391
	Born between 1958-1982	0.81	per 1,000 person years	1.08	per 1,000 person years	0.0060
	Born after 1982	0.44	per 1,000 person years	0.53	per 1,000 person years	0.2017
Suicide Prevalence	Born before 1958	0.42	per 1,000 person years	0.44	per 1,000 person years	0.7921
	Born between 1958-1982	0.59	per 1,000 person years	0.87	per 1,000 person years	0.0033
	Born after 1982	0.36	per 1,000 person years	0.88	per 1,000 person years	0.0024
Diabetes	Born before 1958	15.22	percent	14.68	percent	0.2369
	Born between 1958-1982	3.12	percent	3.92	percent	<.0001
	Born after 1982	0.58	percent	0.99	percent	0.0333
Hospital Separation Rate	Born before 1958	214.84	per 1,000 person years	196.60	per 1,000 person years	0.0008
	Born between 1958-1982	110.63	per 1,000 person years	113.54	per 1,000 person years	0.3810
	Born after 1982	44.45	per 1,000 person years	55.35	per 1,000 person years	<.0001
Number of Different Drugs	Born before 1958	5.92	per resident with 1+ Rx	5.81	per resident with 1+ Rx	0.0006
	Born between 1958-1982	3.40	per resident with 1+ Rx	3.67	per resident with 1+ Rx	<.0001
	Born after 1982	2.39	per resident with 1+ Rx	2.55	per resident with 1+ Rx	<.0001
Self-Rated Health (Excellent or Very Good)*	Born before 1958	49.53	percent	49.45	percent	not significant at α=0.05
	Born between 1958-1982	69.02	percent	66.84	percent	not significant at α=0.05
	Born after 1982	66.51	percent	66.52	percent	not significant at α=0.05

*Rates for all CCHS survey respondents, not matched cohorts

Source: Manitoba Centre for Health Policy, 2012

Table 17.2 shows the statistical testing of effects of being Francophone, the birth cohort, and the interaction of birth cohort and being Francophone. As expected, the results indicate that birth cohort influences the indicator rates. The testing also indicates that being Francophone influences the indicator rates. The results show that there is an **interaction effect** across five indicators meaning that the effects of being Francophone depend upon the birth cohort. Note the sixth indicator was not tested for interaction due to the nature of the sample. Generally, older Francophones are less healthy than other older Manitobans and younger Francophones are healthier than other younger Manitobans. This difference is particularly striking in the hospital separation rates. Older Francophones had an average of 212 hospital discharges per 1,000 person years compared to 194 for older Other Manitobans. The middle birth cohort had similar rates between the groups (110 versus 113) and the younger Francophones had less hospital discharges than younger Other Manitobans (44 versus 55). Suicide rates are fortunately low for both groups, but a similar trend is noted. Suicide rates for older Francophones are similar to older Other Manitobans (0.42 versus 0.44 per 1,000 person–years). Francophones in the middle birth cohort have statistically lower rates (0.59 versus 0.87 per 1,000 person–years) and the difference is greater yet for the younger birth cohort (0.36 versus 0.88 per 1,000 person–years).

Table 17.2: Comparison between Francophone and Matched Cohort Crude Rates for Specific Age Cohorts

Indicator	Significance of Parameters		
	Francophone Effect	Age Cohort Effect	Interaction Effect
Mortality Rate	0.0043	<.0001	0.0387
Suicide Prevalence	0.0001	<.0001	0.0391
Diabetes	0.0027	<.0001	<.0001
Hospital Seperation Rate	0.0084	<.0001	<.0001
Number of Different Drugs	<.0001	<.0001	<.0001
Self-Rated Health (Excellent or Very Good)*	N/A	N/A	N/A

*Rates for all CCHS survey respondents, not matched chorts. Tests of significance for regression parameters with more than two levels (age effect, interaction effect) were not available due to the requirement of bootstrapping when analyzing survey data.

Source: Manitoba Centre for Health Policy, 2012

Table 17.3: Comparison of Socioeconomic Factor Index (SEFI) Scores between the Francophone and Matched Cohort by Birth Cohort

Birth Cohort	Francophone Cohort	Matched Cohort	p-value
Born before 1958	-0.148	-0.182	0.0001
Born between 1958-1982	-0.147	-0.114	<0.0001
Born after 1982	-0.139	-0.088	<0.0001

Source: Manitoba Centre for Health Policy, 2012

Table 17.4: T–Test to Compare Mean Age between Francophone and Matched Cohorts in each Birth Cohort

Birth Cohort	Francophone Cohort	Matched Cohort	p-value
Born before 1958	63.554	63.492	0.6554
Born between 1958-1982	39.038	39.112	0.3134
Born after 1982	13.121	13.196	0.2630

Source: Manitoba Centre for Health Policy, 2012

Table 17.5: Chi–Square Test for Equality of Proportions by Sex

Birth Cohort	Male Percentage		
	Francophone Cohort	Matched Cohort	p-value
Born before 1958	0.501	0.502	0.7822
Born between 1958-1982	0.446	0.446	0.9348
Born after 1982	0.501	0.500	0.9378

Source: Manitoba Centre for Health Policy, 2012

The analyses done by birth cohort show that the influence of being Francophone depends on the birth cohort. In reviewing the results of the six indicators (shown earlier in this report), we observe that for some of the indicators it appears that, overall, there are no differences between Francophones and Other Manitobans or that the differences are less pronounced. This may be because the relatively poorer health of older Francophones offsets the relatively better health of younger Francophones. This was noted for diabetes and hospital separations where it appears that no differences exist between Francophones and Other Manitobans.

We wondered if the results from the birth cohort effect analyses may be due to differences in socioeconomic status in the three different cohorts. We were particularly concerned with the younger age group where the young Francophones appeared to have better outcomes than younger Other Manitobans. We wondered if this younger generation, who had managed to maintain their language, might come from a more advantaged group. Table 17.3 show some statistically significant socioeconomic status (based on the **Socioeconomic Factor Index (SEFI))** difference between the Francophone Cohort and the Matched Cohort. These differences are small though and not likely to completely explain the differences in health outcomes consistently observed in the birth cohort analyses. No differences were noted in age or gender (Tables 17.3, 17.4, and 17.5)

Albert & Williams have noted that the health disparities between racial groups are not completely explained by socioeconomic status (2010). In the Whitehall study, perceived unfairness has been related to incident coronary events, psychiatric events, and metabolic syndrome (De Vogli, Brunner and Marmot, 2007). Emerging research suggests that historical loss, enculturation, and discrimination may have an impact on health. Whitbeck, Chen, Hoyt, and Adams defined historical loss as loss of land, language, culture, and traditional spiritual ways and enculturation, such as participation in traditional activities, identification with culture and traditional spirituality (2004). The authors found, in a study of Americans Indians in the United States, that discrimination and historical loss were positively associated with alcohol abuse and that enculturation was negatively associated with alcohol abuse suggesting that enculturation has a protective effect against alcohol abuse.

We are aware that each birth cohort of Francophones was exposed to a very different social and political climate. Some of the major milestones have been indicated in this report, but many more events occurred that marked the progress of language rights provincially and nationally. The positive changes to language rights for linguistic minorities may be partially reflected in the changes in SEFI scores. Given what is known about social influences on health and the attachment that Francophones have to their language and culture, these changes may be responsible for the improvements in health.

Chapter 18: Discussion

The Manitoba Centre for Health Policy was asked by Manitoba Health to describe the health status and health services utilization of the Francophone population living in the province. Very little information on Francophone health is available in the literature, and a research project such as this has never been undertaken in Manitoba. This study is the foundation for guiding policies and planning initiatives, both provincially and at the RHA level, by providing baseline data on an array of health–related indicators.

The research team was faced with three initial problems:

- How to identify Francophones
- How to make comparisons between Francophones and other Manitobans
- What indicators were most important for describing the health status of this population

We were able to identify a cohort of individuals who are very likely to be Francophone because they reported that they were Francophone on a survey or indicated a linguistic preference for health and education services or a linguistic preference for health related correspondence. We then identified the children, siblings, and parents of this group to determine the group of people who are probably Francophones. This approach gave us a cohort of individuals who likely are Francophone or at least have been exposed to the French language and culture through family ties.

Our next step was to determine how to compare this group of people to Other Manitobans. Rather than simply comparing this cohort of Francophones to all Other Manitobans, we decided to use a matching process. Matching involves identifying other people with similar characteristics so reasonable comparisons can be made. We matched each individual in our Francophone cohort with three Other Manitobans on three dimensions: age, sex, and area of residence. Area of residence is a proxy for a number of characteristics including SES. Francophone individuals who were living in personal care homes at the time they were selected for the cohort were also matched with non–Francophone individuals living in personal care homes at that same time point. It was important to have a comparison group that closely resembled the Francophone Cohort, and we believe this process achieved this goal.

We then moved to developing a list of indicators that would help assess the health status of Francophones. After reviewing the list of indicators presented in other MCHP atlases, and with the assistance of the Advisory Group, a list of 76 indicators was selected that would provide the most insight into the health of Francophones in Manitoba relative to the matched group.

On the "big picture" measures, we found little difference between the Francophone Cohort and the Matched Cohort. For example, at the provincial level, there was no difference in the premature mortality rate of Francophones and other similar Manitobans. Overall, we found no differences between Francophones and their Matched Cohort for 52 indicators; Francophones had more positive results for 15 indicators and were worse off than the comparison group for 9 indicators. There was some variation between different areas of the province and those differences provide opportunities for further investigation. We also observed that Francophones as a group tended to be similar; there was little variation in health status of Francophones across the province.

An intriguing and important finding of this work is that, although we find a similar overall health status between the two groups, it appears that there may be a birth cohort effect. French language rights in Manitoba have changed over time (as discussed in Chapter 17). We found a strong association between when a Francophone was born and their current health status, in comparison with similar

non–Francophone Manitobans. While overall things look good, older Franco–Manitobans (those born before 1958) are less healthy than other Manitobans born during this time period, those born between 1958 and 1987 have similar health, and those born after 1982 are in better health than their matched Manitobans. While this does not allow us to establish a causal relationship between policy and outcomes, it does provide some evidence that should be considered in future research.

Overall, Francophones have lower rates of hypertension and diabetes. These results remained after controlling for socio–demographic and lifestyle factors suggesting that being Francophone is associated with lower rates of these conditions. This report indicated many areas where Francophones appear to have better use of services and better health outcomes. Francophones have better rates of preventative health services for influenza vaccination, mammography and cervical cancer screening when compared to Other Manitobans. It would be useful to explore if Francophones are receiving their services from a model that could be utilized for all Manitobans or if Francophones have characteristics such as social cohesion or social capital that could be cultivated in other groups of people. Some authors have observed that people with a high social capital have high levels of social interactions characterized by trust in others and reciprocity in those interactions (Nyqvist, Finnas, Jakobsson, & Koskinen, 2008). A higher social capital has been associated with higher self–rated health.

Using data from the Canadian Community Health Survey, we found that Francophones were less likely to indicate that they were mentally healthy compared to Other Manitobans. This result remained pronounced after controlling for socio–demographic and lifestyle factors, suggesting that being Francophone was associated with poorer self–rated mental health. However, this perception of lower mental health status did not translate in higher diagnosis of mental health problems. In fact, attempted or completed suicide rates and rates of a diagnosis of substance abuse, schizophrenia, and personality disorders were lower than the rates of Other Manitobans. There were no differences in rates of diagnosis for depression and anxiety between Francophones and Other Manitobans.

Francophones in early childhood (aged 0 to 5) and those over 50 are groups that may be particularly vulnerable. The study found that Francophone children in Kindergarten were less ready for school than a comparable group of children who were not Francophone—specifically in the domains of *emotional maturity*, *language and cognitive development*, and *communications and general knowledge*. Francophone women at the birth of their children were more likely to report alcohol use during pregnancy as well as depression and anxiety. These maternal characteristics, in turn, have a negative influence on healthy child development.

The birth cohort effect suggested that Francophones over 50 had poorer health outcomes than Other Manitobans in the same age group. More coronary interventions were observed among Francophones than Other Manitobans. The study reported a higher potentially inappropriate use of benzodiazepines in Francophones aged 75 and older than in other Manitobans and Francophones waited longer for a personal care home than other Manitobans of the same age.

This project benefited from the incredible richness of the deidentified and linkable health, social service, and education administrative data held at MCHP. There are likely few places in the world (if any) in which a project of this sort could be completed. Our partnerships with the Advisory Group ensured that this work was relevant to policy–makers and planners. Although we are confident that we have made every effort possible to identify a Cohort of Francophones, we acknowledge that some individuals who are Francophone were not identified (and could then become part of the Other Manitobans Cohort); and some people who are not Francophone have been included in the Francophone Cohort (and

would be ineligible to be part of the "other" group). This second issue is likely to occur when classifying family members as Francophone, e.g., both parents of a child in a Francophone school are considered Francophone although we know that increasingly in recent years that Francophones and non–Francophones are marrying. Similarly, when we identify an adult as being Francophone, we assume their children are Francophone. Although not perfect, it is the best possible given the available data. Results found using the Francophone Cohort were also found in a smaller representative survey sample. This increased our confidence that the results found in this study are valid.

Recommendations (Based on Study Findings)

Ensure that Francophone children have access to early childhood programs in order to increase school readiness.

This report found that Francophone children were less likely to be ready for school than a comparable group of children in Manitoba. These results are from the Early Development Instrument (EDI) administered by Kindergarten teachers. Children's communications skills are assessed in French in the francophone school division, Division scolaire franco–manitobaine (DSFM), and in English in other school divisions. These trends have been observed in previous years by the Manitoba Government and the DSFM. A study by Healthy Child Manitoba Office and the DSFM found that children with limited exposure to the French language in the preschool years had lower vocabulary scores in Kindergarten (Healthy Child Manitoba, 2010). Irwin, Siddiqui, and Hertzman commented that "The environmental conditions to which children are exposed including the quality of relationships and language environment in the earliest years literally "sculpt" the developing brain" (p. 7). Early experiences are believed to influence all aspects of development from socio–emotional development to cognitive and language skills (2007).

A school based hub model, called Centre de la petite enfance et de la famille, offers a solution by providing a comprehensive continuum of integrated services and resources for minority language parents of children from prenatal through to school entry. The services offered include universal resources for increasing support and education of parents, access to specialized early intervention services such as the Healthy Baby program, as well as comprehensive speech/language and other specialized developmental/learning services. A challenge has been to link Francophone families to the Centre de la petite enfance et de la famille. Through partnerships with public health, Francophone parents at the birth of their child could be informed of French–language services and resources for families.

Ensure that Francophones have access to mental health promotion resources and mental health services

This study indicated that while Francophones are more likely to self–report poorer mental health, they had lower rates of diagnosed mental health problems. These findings suggest that Francophones may be experiencing mental health problems but are less likely to seek help for them. Desroches, Simard, Di Ruggiero, and Levesque found that Francophones are interested in and requesting more information about mental health, drug abuse, and sexuality (1999).

The present study also suggests that Francophone women may be more prone to anxiety and depression and to alcohol use during pregnancy than a comparable group of women. Emotional distress in the perinatal period has been deemed a public health concern because it is highly prevalent and is believed to adversely affect child development. Alcohol use during pregnancy has been linked to

fetal alcohol syndrome disorder, preterm births, and miscarriages (British Columbia Centre of Excellence, 2011). Mental health promotion aims to improve emotional, psychological, and social well–being by increasing awareness and encouraging healthy behaviors such as social connections, physical exercise, and goal setting.

Ensure that older Francophones have adequate access to health services and educational resources

This study found that older Francophones had a poorer health status than other older Manitobans. They also had to wait longer to be admitted to a personal care home and were more likely to utilize benzodiazepines inappropriately. They are also the age group that would benefit from French–language services because their language skills in English are likely to be poorer than the younger Francophones. The report examining the health of older Francophones in Ontario noted that older Francophones indicated being more comfortable in a French–speaking environment.

Facilitate knowledge exchange between Division scolaire franco–manitobaine and other school divisions

While Francophone children start school with lower school readiness, the older students have higher high school graduation rates and fare better on language arts and mathematic exams than a comparable group of students. These results point to an opportunity to learn from the possible successes of the DSFM in supporting their students improve academically. The DSFM offers full day Kindergarten, offers intensive extra classes for students to catch up on their language skills, focuses on cultural and linguistic identity, and has smaller class sizes. However, we must keep in mind that students graduating in 2009 were in Kindergarten 1996 and are a different group than the students who are just starting Kindergarten. There may have been changes in the type of students enrolled in the DSFM over the 12–year period.

More research on the role, and mechanisms underlying that role, that linguistic and other policies have on health and education outcomes of linguistic and cultural groups

The birth cohort analyses suggest that Francophones exposed to a higher degree of language rights had better health–related outcomes. It is important for the Francophone community, as well as other cultural groups, to be aware that social and political factors may influence health. The ecological model of Bronfenbrenner points to the many layers of factors that influence human development, from those in the immediate environment to societal factors such as services, neighborhoods, attitudes, ideologies, and policies (1979). It has been well–documented, for example, that socioeconomic status influences health through a number of possible mechanisms. Martens, et al. have found that Manitoba residents living in areas of the lowest SES have higher mortality rates, heart disease, hospitalizations, suicide deaths, and suicide attempts than those living in areas of highest socioeconomic status (2010).

To our knowledge, very little research has examined if and how social context and policies affecting minority groups may have an impact on their health. Some research has explored this indirectly in Aboriginal communities. Chandler and Lalonde studied 197 Aboriginal communities and 23 tribal councils in British Columbia and observed very different suicide rates across these communities (1998). Communities with lower suicide rates also had a measure of self–government; a measure of local control over health, education, and policing services; had litigated for Aboriginal title to traditional lands; and had created community facilities for the preservation of culture. The cultural policies in these Aboriginal communities provided very different social and cultural environments for its members and appeared to

have influenced their mental health. This supports our observation that social policies can be associated with health outcomes.

Efforts at recruiting and training French–speaking physicians and other health professionals should be continued.

The present study found that 28% of Francophones have seen a physician who is either French–speaking or who could provide French translation services. We included translation services in our definition because some RHAs provide translation services; and for newcomers to Manitoba, these are an essential part of access to health services. It was not possible with the available data to know if the visit was conducted in French or not. This definition of French–language services was quite broad, perhaps overly inclusive, and yet showed that the majority of Francophones have no access to a French–speaking physician. A report by the Consultative Committee for French–Speaking Minority Communities notes that many improvements have occurred in the last five years regarding health services in French in Canada (2010). These include provincial plans for French language services, networking between provinces and territories, more healthcare providers who can provide services in French, and a greater number of services offered in French. The report makes several recommendations including continued efforts in providing health services in French, ensuring that young children and the elderly are priorities because they are most vulnerable to lack of French language services, and supporting community institutions.

Concluding Remarks

In summary, we have found that for the most part, the health status and health services utilization of Francophones is not very different from a Matched Cohort of Other Manitobans; but there is some variation according to where one lives. For some indicators, the Francophone population is worse–off; for some, it is better–off. Future research should investigate: how policy over–time is associated with future outcomes, what factors are associated with differential health status/health services utilization between groups (i.e., Francophones versus non–Francophones), and what factors are associated with differential health status/health services utilization between different areas of the province.

This study found that generally speaking Francophones were just as healthy as other Manitobans. While this is definitely good news for the Francophone community, this does not mean that efforts to continue to improve health should be discontinued. Over the last decade, there has been an interest in improving access to health services for Francophones. Innovative models like the *Centre de Santé* in St. Boniface and the *Centre Albert Gailliot* in Notre Dame de Lourdes provide a holistic approach to health in a culturally and linguistically sensitive environment. The *Centre Medical Seine Medical Centre* in St. Anne offers primary care in French and English and serves the majority of Francophones in the area. The findings in this report should encourage policy makers and service providers to build on the apparent health improvements in this population.

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Glossary

Aboriginal
The descendants of the original inhabitants of North America. The Canadian Constitution recognizes three groups of Aboriginal people – First Nation, Metis, and Inuit. Aboriginal people are from different cultures with unique heritages, languages, cultural practices, and spiritual beliefs

Acellular Pertussis Immunization – see Acellular Pertussis Vaccine

Acellular Pertussis Vaccine
A vaccine to protect against illness due to whooping cough (**pertussis**); it is a more purified product than the whole cell vaccine; it contains only specific proteins as opposed to entire cells.

Acute Care Facilities – see Acute Care Hospitals

Acute Care Hospitals
Hospitals providing acute care services such as emergency services and general medical and surgical treatment for acute disorders. Excludes long term and rehabilitation hospitals (e.g., Deer Lodge, Riverview) and special purpose facilities such as the Manitoba Adolescent Treatment Centre and Eden Mental Health Centre.

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

Administrative Data
Information collected "usually by government, for some administrative purpose (e.g., keeping track of the population eligible for certain benefits, paying doctors or hospitals), but not primarily for research or surveillance purposes" (Spasoff, 1999). Manitoba Centre for Health Policy's research uses administrative data from hospital abstracts, physician billing claims, claims for prescription drugs, and other health related data. Using these data, researchers can study the utilization of health resources over time and the variations in rates within and across the provinces.
(Spasoff RA. *Epidemiologic Methods for Health Policy*. New York, NY: Oxford University Press; 1999)

Administrative Databases – see Administrative Data

Administrative Health Data – see Administrative Data

Adult Influenza Immunization – see **Trivalent Inactivated Influenza Vaccine (TIV)**

Age–Adjusted
Adjusted for age to allow populations with different age profiles to be compared (see Rate Adjustment).

Age–Standardized – see Age–Adjusted and Rate Adjustment

Ambulatory Consultation – see Consultations (Ambulatory)

Ambulatory Physician Visit – see Ambulatory Visits – Physician

Ambulatory Visits – Physician
Almost all contacts with physicians: office visits, walk–in clinics, home visits, personal care home (PCH) 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. Also known as Ambulatory Visits, Ambulatory Physician Visits, and Physician Visits.

Angiogram – see Angiography

Angiography
A radiographic technique where a radio–opaque (shows up on X–ray) contrast material is injected into a blood vessel for the purpose of identifying its anatomy on X–ray. This technique is used to image arteries in the brain, heart, kidneys, gastrointestinal tract, aorta, neck (carotids), chest, limbs, and pulmonary circuit.

Angioplasty
Also called Percutaneous Transluminal Coronary Angioplasty (PTCA), angioplasty is a procedure using a balloon–tipped catheter to enlarge a narrowing in a coronary artery. If necessary, a stent is inserted permanently into the artery to help hold it open so that blood can flow through it more easily.

Anglophone
The word Anglophone generally means an English–speaking person. Statistics Canada uses Anglophone to mean someone whose mother tongue is English, that is, the first language learned at home in childhood and still understood at the time of the Census.
(Corbeil JP, Chavez B, & Pereira D. Portrait of Official – Language Minorities in Canada – Anglophones in Quebec. 2010. http://www.statcan.gc.ca/pub/89–642–x/89–642–x2010002–eng.pdf. Accessed February 22, 2011)

Antidepressant
Antidepressants are a type of medication used to help people who have depression, anxiety disorders, and other health problems.

Anxiety Disorders

Anxiety disorders include excessive feelings of apprehension or fear that persist to the point that they interfere with daily life for an extended period of time.

Arthritis

A group of conditions that affect the health of the bone joints in the body. Arthritic diseases include **rheumatoid arthritis** and psoriatic arthritis, which are autoimmune diseases; septic arthritis caused by joint infection; and the more common **osteoarthritis** or degenerative joint disease. Arthritis can be caused from strains and injuries caused by repetitive motion, sports, overexertion, and falls. Unlike the autoimmune diseases, osteoarthritis largely affects older people and results from the degeneration of joint cartilage.

Asthma

A disease in which inflammation of the airways causes airflow into and out of the lungs to be restricted. It is characterized by periodic attacks of wheezing, shortness of breath, chest tightness, and coughing.

Asthma Care: Controller Medication Use

Asthma treatment guidelines recommend that all patients requiring the use of acute treatment medication (e.g., Beta 2–agonists) more than once a day should also be treated with long–acting anti–inflammatory medication for long–term control.

Attention–Deficit Hyperactivity Disorder (ADHD)

A neurobehavioral developmental disorder that typically presents during childhood and is characterized by a persistent pattern of impulsiveness and inattention.

Benzodiazepine Prescriptions

Benzodiazepines are a family of prescription drugs that act on the central nervous system. They can be used to treat: anxiety disorders, panic disorders, insomnia, seizures, muscle spasticity, alcohol withdrawal, and as a perioperative adjunct to anesthesia. Tolerance and physical and psychological dependence may occur with prolonged use; their long–term use is not recommended for older adults. (Centre for Addiction and Mental Health. Do you know…Benzodiazepines. 2011. http://www.camh.net/About_Addiction_Mental_Health/Drug_and_Addiction_Information/benzodiazepines_dyk.html. Accessed February 22, 2011)

Beta–Blocker

Beta–blockers, properly known as beta–adrenergic blocking drugs, have been shown to lower the risk of subsequent heart attacks. These drugs block the responses from the beta nerve receptors to reduce the workload on the heart by slowing the heart rate and lowering the blood pressure.
(Heart and Stroke Society. Betablockers. 2011. http://www.heartandstroke.com/site/c.ikIQLcMWJtE/b.3484113/k.7B27/Heart_disease__Betablockers.htm. Accessed February 22, 2011)

Bilingual

A person who speaks two languages. In this report, it refers to people who speak French and English.

Birth Cohort
Also known as age cohort, birth cohort is defined by birth in a particular year or a range of birth years.

"Boarder" Babies
Newborn babies who are readmitted to hospital not because they are ill themselves, but because their mother is hospitalized and an effort is being made to keep the mother and newborn together.

Body Mass Index (BMI)
A measure used to classify and compare individuals according to their height and weight. BMI is calculated as weight (in kilograms) divided by height (in metres) squared. Typically there are four categories: Underweight (less than 18.5), Normal (18.5–24.9), Overweight (25.0–29.0), and Obese (30 or more). In this report, underweight and normal were combined into one category.

Bonferroni Adjustments – see Bonferroni Method

Bonferroni Method
A statistical method that adjusts the significance level when multiple comparisons are made.

Bootstrap
"A technique for estimating the variance and the bias of an estimator by repeatedly drawing random samples with replacement from the observations at hand. One applies the estimator to each sample drawn, thus obtaining a set of estimates. The observed variance of this set is the bootstrap estimate of variance. The difference between the average of the set of estimates and the original estimate is the bootstrap estimate of bias" (Last, 1995).
(Last JM. *A Dictionary of Epidemiology*. New York, NY: Oxford University Press; 1995)

Breast Cancer Screening – see Mammography

Breastfeeding Initiation
Breastfeeding initiation starts when a mother begins to feed her infant milk from her breast. In this report, breastfeeding initiation was identified as any newborn (live birth) hospitalization that indicates partial or exclusive breastfeeding initiation on the hospital discharge abstract.

Bronchitis
Inflammation of the bronchial tubes.

Caesarean Section
A procedure in which a baby, rather than being born vaginally, is surgically removed from the uterus.

Calendar Year
A calendar year runs from January 1 to December 31 inclusive, in the same year.

Canadian Community Health Survey (CCHS)

The CCHS is an annual survey (biennial until 2007) conducted by Statistics Canada to provide regular and timely cross–sectional estimates of health determinants, health status, and health system utilization for 136 health regions in Canada, including the territories. In Manitoba, survey respondents were sampled from 11 different regions. Participants for most surveys were 12 years of age and older; the sampling methodology was designed to ensure over–representation of youth under 19 years of age and seniors 65 years of age and older. The survey excludes populations living on First Nation reserve, on Canadian Forces Bases, in some remote areas, and those not living in households

Cardiac Catheterization

The most accurate method for evaluating and defining ischemic heart disease (IHD), also known as coronary artery disease (CAD). Cardiac catheterization is used to identify the location and severity of CAD. During cardiac catheterization, a small catheter (a thin hollow tube with a diameter of 2–3 mm) is inserted through the skin into an artery in the groin or the arm. Guided with the assistance of a fluoroscope (a special x–ray viewing instrument), the catheter is then advanced to the opening of the coronary arteries, the vessels supplying blood to the heart. When the catheter is used to inject radiographic contrast (a solution containing iodine, which is easily visualized with x–ray images) into each coronary artery, the cardiac catheterization is termed coronary **angiography**. The images that are produced are called the angiogram, which shows the extent and severity of blockages in coronary arteries.

Cataract Surgery

Cataract surgery involves replacing the lens of the eye with an artificial lens. The clouded lens is removed in its entirety by surgery and replaced with an intraocular lens made of plastic. This surgery takes less than an hour and usually does not need overnight stay in hospital.

Cause of Death

This indicator measures the distribution of the reason or event that precipitated death, based on the Vital Statistics file. The causes are categorized using the 17 chapters of the International Classification of Diseases (ICD–9–CM) system. From January 1, 2000, Vital Statistics data were coded using **ICD–10–CA**, so these codes were converted to ICD–9–CM codes, using the conversion file created by the Canadian Institute for Health Information (CIHI).

Causes of Hospitalization

This indicator measures the distribution of "Most Responsible" diagnoses attributed during inpatient hospitalizations, grouped according to the **International Classification of Diseases (ICD)** system. "Health Status and Contact" contains a variety of cases including convalescence and aftercare following surgery, rehabilitation procedures and physical therapy, sterilization, and palliative care. In this study, ICD–9–CM was used for groupings.

Causes of Injury Hospitalization – see Injury Hospitalization Causes

Census

Official count of a population, often including demographic information such as age, sex, employment, and income. Statistics Canada conducts a Census every five years. It takes account of all persons living in Canada, including any individuals residing in Canada on a temporary basis. The Census also includes Canadians abroad on military missions or on merchant vessels that are registered in Canada.
(Statistics Canada. 2006 Census. http://www12.statcan.gc.ca/census–recensement/2006/index–eng.cfm. Accessed February 22, 2011)

Cervical Cancer Screening

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

Child Care Centres

Licensed centres for early learning and care of children at 0–12 years of age. The license ensures that the centres meet the government standards on several subject matters (e.g., staff qualifications, behaviour management policies, daily activities, sanitization, lighting, heating, and compliance with the Manitoba Fire Code).

Child Mortality

The number of deaths of children aged 1 to 19 years in a given year.

Cohort

A group of subjects under examination in a study who share at least one common characteristic (i.e., age).

College of Physicians and Surgeons of Manitoba

The professional regulatory body for all physicians practicing medicine in Manitoba. "Membership in the College is mandatory for all physicians seeking to practice medicine in Manitoba. The jurisdiction of the College extends to its members and associate members, including physicians and clinical assistants (including physicians in training). The College's mandate is to protect the public as consumers of medical care and promote the safe and ethical delivery of quality medical care by physicians in Manitoba."
(College of Physicians and Surgeons of Manitoba. The Role of the College. http://www.cpsm.mb.ca/1_1_role.php. Accessed February 22, 2011)

Communication Skills and General Knowledge – Early Development Instrument (EDI) Domain

A set of eight items on the EDI used to assess a kindergarten child's readiness for school in terms of their "ability to clearly communicate one's own needs and understand others, active participation in story–telling, interest in general knowledge about the world," and other similar characteristics.
(Consortium for International Population–Based Early Child Development Indicators. The Early Development Instrument (EDI) – A Brief Description. http://www.councilecd.ca/internationaledi/09.%20The%20EDI%20–%20A%20Brief%20Description.pdf. Accessed February 22, 2011)

Community Areas – see Winnipeg Community Areas

Complete Immunization Schedule (Two–Year–Olds) – see **Primary Series**

Confidence Interval (CI)
The computed interval with a given probability that the true value of a variable (e.g., a mean or rate) is contained within the interval. For example, a 95% CI would have a 95% probability of containing the true population value.

Confidence Limits (CL)
The lower and upper boundaries of a confidence interval or the values that define the range of a confidence interval.

Consultations (Ambulatory)
Consultations are a subset of ambulatory visits: they occur when one physician refers a patient to another physician (usually a specialist or surgeon) because of the complexity, obscurity, or seriousness of the condition or when the patient requests a second opinion. A consultation can be with either a general practitioner/family physician (GP/FP) or a specialist, after which the patient usually returns to their GP/FP for ongoing management.

Continuity of Care
The extent to which individuals see a given healthcare provider (versus two or more other providers) over a specified period of time. A provider may be defined either as an individual physician, a physician group practice, or a clinic.

Controller Medication Use – see Asthma Care: Controller Medication Use

Coronary Artery Bypass Graft (CABG) Surgery
Surgical procedure that reroutes blood around a blocked coronary artery using a healthy blood vessel from another part of the body, thereby improving oxygen and blood flow to the heart.

Covariate
A secondary variable that can have an effect on the dependent variable.

Crude Rate
The number of people with a given condition or procedure, divided by the number of people living in that area; often expressed as a rate per 1,000 residents (for less frequent events). Crude rates are helpful in figuring out the burden of disease and/or number of residents with that condition or procedure. This is in contrast to adjusted rates, which statistically adjust the crude rates, to arrive at an estimate of what an area's rate might have been if the local population's age and sex distribution was the same as that for the entire province. See also Adjusted Rate.

Cumulative Mental Health Disorders

Cumulative mental health disorders include one or more of the following five mental illnesses that were diagnosed: depression, anxiety disorder, substance abuse, personality disorder, and schizophrenia.

Data Suppression

Data is **suppressed** when the number of persons or events involved is five or less in order to avoid identification of individuals in an area. Data is not suppressed when the actual event count is zero. This process of suppressing data is conducted to protect the anonymity of study participants. For Canadian Community Health Survey (CCHS) indicators, data was suppressed when the sample size of positive responses from the un–weighted sample was less than 10 respondents or if the Coefficient of Variation calculated from the standard error of the rate was 33.3 or greater.

Day Procedure

A "same day" surgical procedure where the patient is not admitted to the hospital.

De–Identified Data – see De–Identified Individual Level Information

De–Identified Individual Level Information

"**De–identified Individual Level Information** means information about an individual that has been modified or from which identifying or potentially identifying information has been removed in a way that minimizes the likelihood that an individual's identity can be determined by any reasonably foreseeable method. Methods of de–identifying information can include scrambling or encrypting identifying or potentially identifying information."
(from section 1.01 (d) within *An Agreement Respecting Access to Manitoba Health Information at the Manitoba Centre for Health Policy (University of Manitoba) for Research Being Conducted by University Researchers Within The Secure Data Environment of MCHP*. http://umanitoba.ca/admin/vp_admin/ofp/legal/media/MCHP_UofM_Researchers_2010.doc. Accessed December 8, 2010)

Dementia

Dementia is a term used to define the loss of cognitive function of the brain. This usually affects decision–making and problem solving, memory and verbal communications, and in some instances, results in behaviour changes.
(National Institute of Neurological Disorders and Stroke (NINDS). NINDS Dementia Information Page. 2011. http://www.ninds.nih.gov/disorders/dementias/dementia.htm. Accessed February 22, 2011)

Depression

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

Diabetes Care: Prevalence of Annual Eye Exam

Regular eye examinations for people with diabetes help to diagnose retinopathy (non–inflammatory damage to the retina) early and initiate treatment to slow its progression.

Diabetes Mellitus

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. The most common endocrine disorder, Diabetes Mellitus, affects many organs and body functions, especially those involved in metabolism, and can cause serious health complications including renal failure, heart disease, stroke, and blindness. Symptoms include frequent urination, fatigue, excessive thirst, and hunger. 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.

Dialysis

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

Diphtheria

An acute, infectious disease often characterized by fever, sore throat, and difficulty breathing, which is caused by the bacterium *Corynebacterium diphtheriae*.

Direct Standardization

The specific rates in a study population are averaged, using as weights the distribution of a specified standard population. The directly standardized rate represents what the crude rate would have been in the study population if that population had the same distribution as the standard population with respect to the variable(s) for which the adjustment or standardization was carried out.

Discharge – see Hospital Separations

Dissemination Area

A small, relatively stable geographic unit composed of one or more blocks. It is the smallest standard geographic area for which all Census data are disseminated. Dissemination areas cover all the territory of Canada.

Districts – see **Regional Health Authority Districts**

Division scolaire franco–manitobaine (DSFM)

The school division in Manitoba that is responsible for French–language schools since 1994. French immersion schools are not included in the DSFM (See French–Immersion School Program).

Drug Programs Information Network (DPIN)

An electronic, on–line, point–of–sale drug database. It links all community pharmacies (but not pharmacies in hospitals or nursing homes/personal care homes) and captures information about all

Manitoba residents, including most prescriptions dispensed to status First Nations. DPIN contains information such as unique patient identification, age, birthdate, sex, medication history, over–the–counter (OTC) medication history, patient postal code, new drugs prescribed, date dispensed, and unique pharmacy identification number. DPIN is maintained by the Government of Manitoba's Ministry of Health.

Early Development Instrument (EDI)

This is a population–based, community level measure of children's development in Kindergarten. It is designed to assess children's readiness to learn at school entry. The EDI indicates how children are doing in five domains (physical health and well–being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge) of child development. Children can be classified as being "not ready" in a given EDI domain (by using the 10th percentile cut–off score). In this report, the cut–off is based on Manitoba EDI results.

Emotional Maturity – Early Development Instrument (EDI) Domain

A set of 30 items on the EDI used to assess a kindergarten child's readiness for school in terms of their pro–social and helping behaviours, ability to concentrate, patience, lack of anxious, fearful or aggressive behaviour, and other similar characteristics.
(Consortium for International Population–Based Early Child Development Indicators. The Early Development Instrument (EDI) – A Brief Description. http://www.councilecd.ca/internationaledi/09.%20The%20EDI%20–%20A%20Brief%20Description.pdf. Accessed February 22, 2011)

Families First Screening Form

A brief measure of biological, social, and demographic risk factors. 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. This was previously known BabyFirst Screening Form.

Family Registration Number (REGNO) – see Registration Number

Fetal Alcohol Spectrum Disorder (FASD)

A term that describes a wide range of effects that can occur in an individual who was exposed to alcohol during pregnancy (Chudley et al. 2005). Some of these effects last a lifetime and may include physical,mental, behavioural, and cognitive disabilities.
(Chudley A, Conry J, Cook J, et al. Fetal Alcohol Spectrum Disorder: Canadian Guidelines for Diagnosis. *Canadian Medical Association Journal*. 2005;172(Suppl 5):S1–S21)

First Degree Relatives

A first degree relative is a family member who shares about 50 percent of their genes with a particular individual in a family. First degree relatives include parents, offspring, and siblings.

First Official Language Spoken

A derived variable from Statistics Canada that refers to whether a person first learned English or French (the two official languages). It also takes into account the mother tongue and the language spoken most often at home.

First Order Family Members – see First Degree Relatives

Fiscal Year (FY)

For most Canadian government agencies and healthcare institutions, the fiscal year is defined as starting April 1 and ending the following year at March 31. For example, the 2005/06 fiscal year would be April 1, 2005 to March 31, 2006 inclusive and may also be denoted as FY 2005.

Français (FL1) Program

Refers to the stream of educational instruction in Manitoba in which the language of instruction is in French. Since 1994, the programs have all been operated within the Division scolaire franco–manitobaine (DSFM).

Francisation

An intensive educational intervention offered by the Division scolaire franco–manitobaine (DSFM) to improve the french language skills of students. "Francisation interventions are designed to provide the students with knowledge and oral and written language skills sufficient for understanding and functioning in everyday social and school situations. Francisation also aims to develop in a student a positive attitude toward the French language and culture as well as a sense of belonging to the student's francophone community and more broadly, to the worldwide francophone community." (*Project Proposal: Pan–Canadian French as a First Language*. Toronto, ON: Council of Ministers of Education, Canada; 2000)

Francophone

A commonly used definition for the term Francophone is an individual who reported French as their mother tongue, who reported that French was the first official language spoken, or who reported that French was the language most commonly used in their home. This definition therefore includes Manitobans who learned French as children or who utilize it at home. It also includes a growing number of immigrants who may have a language other than either official language as their mother tongue but who communicate more effectively in French than in English. For respondents in the Canadian Community Health Survey (CCHS) survey sample, a Francophone is defined as a respondent who reported French as their mother tongue, who reported that French was the language most commonly used in their home, or whose first official language spoken was French (last item was derived through a series of questions). For residents identified using the Repository, a Francophone was a Manitoban who indicated French as a preferred language for services, whose maternal language was French, or who attended a facility where French is the main language used (i.e., school in the Division scolaire franco–manitobaine (DSFM), certain child care centres, and personal care homes).

French–Immersion School Program

A second language program designed for children whose first language is not French and who have little or no knowledge of French prior to entering the program. Also known as FL2 .
(Curriculum Policy for the French Immersion Program. Winnipeg, MB: Manitoba Education and Training; 1996:3)

General Practitioner (GP)/Family Physician (FP)

A physician who operates a general or family practice and is not certified in another specialty in Manitoba.

Generalized Linear Modelling (GLM)

A unified class of models for regression analysis of independent observations of a discrete or continuous response. A characteristic feature of generalized linear models is that a suitable non–linear transformation of the mean response is a linear function of the covariates. Generalized linear models provide a unified method for analyzing diverse types of univariate responses (e.g., continuous, binary, counts). Generalized linear models are actually a collection of regression models; and they include as special cases the standard linear regression for normally distributed continuous outcomes, logistic regression models for a binary outcome, or Poisson regression models for counts (Fox, 1997).
(Fox, J. *Applied regression analysis, linear models, and related methods*. Thousand Oaks, CA: Sage Publications; 1997)

Gestational Diabetes

Refers to diabetes diagnosed during pregnancy that is not clearly overt diabetes.
(American Diabetes Association. *Diabetes Care*. 2011;34(Suppl 1):S11)

Haemophilus Influenzae Type B (HIB)

A ubiquitous bacterium that does not survive in the environment and is known to colonize humans as the only reservoir. This encapsulated organism is highly pathogenic and can cause severe disease in those under six years of age.

Health Status

An indication of the risk of death of patients based on the type and number of comorbid conditions or on a number of socioeconomic indicators.

Health Utilities Index

A generic health status index, developed at McMaster University's Centre for Health Economics and Policy Analysis, which measures health status and health–related quality of life.

Healthcare Utilization

The measure of the population's use of the healthcare services available to them. This includes the utilization of hospital resources, Personal Care Home (PCH) resources, and physician resources. Healthcare utilization and health status are used to examine how efficiently a healthcare system produces health in a population.

Heart Attack – see Acute Myocardial Infarction (AMI)

Heart Health Survey – see Manitoba Heart Health Survey

Hip Replacement Surgery

During hip replacement surgery, the ball and socket of the hip joint are completely removed and replaced with artificial materials. A metal ball with a stem (a prosthesis) is inserted into the femur (thigh bone) and an artificial plastic cup socket is placed in the acetabulum (a "cup–shaped" part of the pelvis). The prosthesis may be fixed in the central core of the femur with cement. Alternatively, a "cementless" prosthesis is used which has microscopic pores that allow bony ingrowth from the normal femur into the prosthesis stem. The cementless hip lasts longer and is especially an option for younger patients.

Hospital Abstract

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

Hospital Discharge Abstract – see Hospital Abstract

Hospital Separation – see Separations

Hypertension

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

Hysterectomy

A surgical operation to remove the uterus and, sometimes, the cervix. Removal of the body of the uterus without removing the cervix is referred to as a subtotal hysterectomy. Removal of the entire uterus and the cervix is referred to as a total hysterectomy.

ICD–10–CA

Acronym for International Classification of Diseases, 10th Revision with Canadian Enhancements (ICD–10–CA), which is based on the 10th version of the International Classification of Disease (ICD) coding system. It is developed by the World Health Organization and is used to classify diseases and related health problems (**morbidity**), but also includes enhancements developed by Canadian Institute for Health Information (CIHI) for use in Canadian hospitals and other medical facilities. The Canadian Classification of Health Interventions (CCI) is the companion classification system to ICD–10–CA for

coding procedures in Canada. ICD–10–CA and CCI are being used on Manitoba hospital abstracts beginning April 1, 2004.

ICD–9–CM

Acronym for International Classification of Diseases, 9th Revision with Clinical Modifications (ICD–9–CM), which is the 9th version of the ICD (International Classification of Disease) coding system (with Clinical Modifications). It is developed by the World Health Organization and is used to classify diseases, health conditions, and procedures. This version was used extensively in Canadian hospitals. As of April 1, 2004, Manitoba hospitals replaced ICD–9–CM with ICD–10–CA for coding diagnoses and the Canadian Classification of Health Interventions for coding procedures.

Immunization

An intervention to initiate or increase resistance against infectious disease.

Immunization Schedule

Timetable of recommended times to receive immunizations. In Manitoba, this schedule is based on current provincial immunization programs and policies and reflects the most common immunization scenarios.

Incidence

The number of new cases of a specific disease/condition/event over a specified time period. The incidence rate uses new cases in the numerator; individuals with a history of the disease/condition are not included. The denominator for incidence rates is the population at risk. Even though individuals who have already developed the condition should be eliminated from the denominator, incidence rates are often expressed based on the average population rather than the population at risk. In the case of chronic conditions, where most people appear to be at risk, the distinction between populations at risk and the whole population appears to be less critical.

Income Quintiles

A method to measure the average (mean) household income of residents, ranking them from poorest to wealthiest and then grouping them into five income quintiles (one being poorest and five being wealthiest). Each quintile contains approximately 20% of the population. The income quintile measure is derived from Statistics Canada Census data by aggregating household income to the dissemination area and then ranking neighbourhoods by income quintile. Income quintiles are available for both urban and rural populations. Income quintiles are often used as a proxy measure of socioeconomic status.

Infant Mortality

An indicator of death among infants within one year of birth.

Influenza

Commonly referred to as the flu, it is an infectious respiratory disease. Caused by influenza A and B viruses, it spreads from person to person via virus–laden respiratory secretions. It is an important cause of morbidity and death.

Injury Hospitalization

Hospitalizations lasting one day or longer that resulted from an injury as indicated by the presence of one of the ICD–9–CM E–Codes or ICD–10–CA V–, W–, X–, Y–Codes listed on the hospital discharge abstract.

Injury Hospitalization Causes

The distribution of causes of injury hospitalizations grouped according to the major categories in the International Classification of Diseases (ICD) system, based on information from the hospital abstract. Excluded from the count of hospitalizations due to injury are those related to medical error and drug complications.

Injury Mortality

Death due to injury, as defined by the presence of one of the ICD–9–CM E–Codes or ICD–10–CA V–, W–, X–, Y–Codes on the Vital Statistics death record, except those for misadventures; reactions; complications; or adverse effects of medical, surgical, or pharmaceutical treatments.

Injury Mortality Causes

The distribution of causes of injury deaths grouped according to the major categories in the International Classification of Diseases (ICD) system, based on death data from the Vital Statistics files. In this study, ICD–9–CM was used for groupings.

Inpatient Hospital Separation – see Hospital Separations

Interaction Effect

"The joint effect of two or more independent variables on a dependent variable. Interaction effects occur when independent variables not only have separate effects but also have combined effects on a dependent variable. Put somewhat differently, interaction effects occur when the relation between two variables differs depending on the value of another variable" (Vogt, 1993).
(Vogt W Paul. *Dictionary of Statistics and Methodology: A Nontechnical Guide for the Social Sciences*. Newbury Park, CA: Sage Publications; 1993)

International Classification of Diseases (ICD)

A classification system of diseases, health conditions, and procedures developed by the World Health Organization (WHO), 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).

Ischemic Heart Disease

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

Knee Replacement Surgery

In knee replacement surgery, parts of the knee joint are replaced with prosthetic components. The surgery is done by separating the muscles and ligaments around the knee to expose the inside of the joint. The ends of the thigh bone (femur) and the shin bone (tibia) are removed as is often the underside of the kneecap (patella). The artificial parts are then cemented into place. The new knee typically has a metal shell on the end of the femur, a metal and plastic trough on the tibia, and sometimes a plastic button in the kneecap. Knee replacements often occur in the young due to injury and in older adults due to fractures, falls, and conditions associated with osteoarthritis.

Language and Cognitive Development – Early Development Instrument (EDI) Domain

A set of 26 items on the EDI to assess a kindergarten child's readiness for school in terms of their "basic literacy, interest in reading, recognition of numbers and shapes, awareness of time concepts" and other similar characteristics.
(Consortium for International Population–Based Early Child Development Indicators. The Early Development Instrument (EDI) – A Brief Description. http://www.councilecd.ca/internationaledi/09.%20The%20EDI%20–%20A%20Brief%20Description.pdf. Accessed February 22, 2011)

Life Expectancy

The average number of years an individual of a given age is expected to live if current age–sex–specific mortality rates remain stable. Life expectancy is a commonly accepted indicator of population health. Typically calculated at birth, this indicator has the advantage of describing the experience of all people in the population, not just those 0 to 74 (as for the premature mortality measure).

Linking – see **Record Linkage**

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. Note that 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).

Longitudinal Data

Data that covers multiple years; it allows one to study change over time for numerous variables.

Mammography

Mammography is 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.

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, concentrating 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

A provincial government department responsible for providing healthcare services in Manitoba.

Manitoba Health Insurance Registry

A database, maintained by Manitoba Health for administrative purposes, of all individuals registered to receive health services in Manitoba. Every family in Manitoba is assigned a family registration number, and every individual is assigned a unique encrypted Personal Health Identification Number (PHIN).

Manitoba Health Services Insurance Plan

The health insurance plan provided by **Manitoba Health**. It is financed from general revenues of the Province of Manitoba and with funds provided by the Government of Canada.

Manitoba Heart Health Survey

The Manitoba Heart Health Survey is a cross–sectional survey of a representative sample of non–institutionalized Manitoba residents (including First Nation community residents) between the ages of 18 and 74 years. It was conducted as a part of the Canadian Heart Health Initiative to estimate the **prevalence** of cardiovascular **risk factors** and to ascertain the level of cardiovascular–related knowledge among Canadians. Sociodemographic information, chronic disease history, measures of **hypertension**, and cardiovascular risk factors were collected via interviewer–administered questionnaires and clinic visits.

Manitoba Immunization Monitoring System (MIMS)

A population–based monitoring system that provides monitoring and reminders to help achieve high levels of immunization. The goal of this system is to compile information on all immunizations administered in Manitoba to ensure 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 and some demographic information from the **Manitoba Health Insurance Registry**. The MIMS database, as of 2005/2006, includes approximately 200,000 immunization records and about 170 data elements which are input by 134 sites in Manitoba with MIMS access.

Maternal Languages – see Mother Tongue

Measles

A highly contagious and acutely infectious viral disease. Symptoms include fever, cough, head cold, rash, conjunctivitis (inflammation or infection of the membrane lining the eyelids), and Koplik spots (white spots on the inner lining of the mouth).

Medical Error
Failure to complete a planned action as intended or the use of a wrong plan to achieve an aim.

Mental Health Disorder
Can be described as any disturbance of emotional equilibrium, as manifested in maladaptive behaviour and impaired functioning. It can be caused by genetic, physical, chemical, biological, psychological, or social and cultural factors. A mental health disorder is diagnostically classified by psychiatry on criteria of manifesting symptoms and signs (using the DSM–IV–TR system).

Mental Illness – see Mental Health Disorder

Metis
One of three distinct groups of people recognized as **Aboriginal** in the Constitution Act (1982), the others being Indian and Inuit. The Metis are people of mixed First Nation and European ancestry. The Metis have a unique culture that draws on their diverse ancestral origins, such as Scottish, French, Ojibway, and Cree. Note: In Manitoba, the Manitoba Metis Federation (MMF) do not use the accent in the spelling of the word Metis.

Mid RHAs
An aggregate geographical area including all of the **Regional Health Authorities (RHA**s) in central Manitoba— Interlake, North Eastman, and Parkland.

Morbidity
Any departure, subjective or objective, from a state of physiological or psychological well–being (i.e., sickness or illness).

Mortality Rate
The number of deaths in a population, divided by the number of residents. It is used as an indication of the overall health of the population, similar to what is measured by **life expectancy**. The **rate** is age– and sex–standardized to account for differences in populations. Also described as the rate at which death occurs within a certain time period after a specified event.

Mother Tongue
"Mother tongue refers to the first language learned at home in childhood and still understood by the person at the time the data was collected. If the person no longer understands the first language learned, the mother tongue is the second language learned. For a person who learned two languages at the same time in early childhood, the mother tongue is the language this person spoke most often at home before starting school. The person has two mother tongues only if the two languages were used equally often and are still understood by the person. For a child who has not yet learned to speak, the mother tongue is the language spoken most often to this child at home."
(Statistics Canada. Mother tongue of person. 2009. http://www.statcan.gc.ca/concepts/definitions/language–langue01–eng.htm. Accessed February 22, 2011)

Mumps
An acute contagious viral disease characterized by swollen saliva glands and fever.

National Population Health Survey (NPHS)
The NPHS, administered by **Statistics Canada**, collects **longitudinal data** related to the health and sociodemographic conditions of the Canadian population. It is a biennial survey where respondents are re–interviewed every two years. The NPHS is composed of three components: the Households, the Health Institutions, and the North components. MCHP houses the Households component only. The survey excludes populations living in First Nation Reserves, on Canadian Forces Bases, and in some remote areas.

Negative Binomial Distribution
A discrete probability distribution appropriate for analyzing count data when an event is relatively rare, but is highly variable over the entire population. The negative binomial distribution is often employed in regression analyses when the Poisson distribution results in an over–dispersed model.

Neighbourhood Clusters (NC)
Aggregate geographies of neighborhoods within Winnipeg defined based on population and natural community boundaries (**Census** divisions). Winnipeg is divided into 25 NCs based on Census Divisions—23 of which are within the boundaries of the City of Winnipeg and two additional divisions (East and West St. Paul) just outside the city boundaries.

Newborn
A child that is from 0 to 28 days old.

Newborn Readmission
A hospital readmission of a **newborn** that occurs more than one day after the **discharge** from the birth hospital stay.

North RHAs
An aggregate geographical area including all of the 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 or to a data–based estimate of that ratio. These groups might be men and women, an experimental group and a control group, or any other dichotomous classification.

Osteoarthritis
Also known as degenerative **arthritis** or degenerative joint disease, and sometimes referred to as "arthrosis" or "osteoarthrosis"), is a condition in which low–grade inflammation results in pain in the joints. It is caused by wearing of the cartilage that covers and acts as a cushion inside joints. As the bone

surfaces become less well protected by cartilage, the patient experiences pain upon weight bearing, including walking and standing. Due to decreased movement because of the pain, regional muscles may atrophy and ligaments may become more lax. OA is the most common form of arthritis. The word is derived from the Greek word "osteo", meaning "of the bone"; "arthro", meaning "joint"; and "itis", meaning inflammation, although many sufferers have little or no inflammation.

Osteoporosis

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

Paediatrician

A physician who oversees the healthcare of infants and children and the treatment of their diseases.

Percutaneous Coronary Intervention (PCI)

Percutaneous coronary interventions include percutaneous transluminal coronary **angioplasty** (PTCA) procedures, commonly known as "angioplasty" or "balloon angioplasty". These procedures treat the narrowed coronary arteries of the heart often found in people with coronary heart disease. Angioplasty procedures use a balloon–tipped catheter to enlarge a narrowing in a coronary artery; if necessary, a small lattice–shaped metal tube called a stent is inserted permanently into the artery to help hold it open so blood can flow through it more easily.

Period Prevalence

The measure of a disease or condition in a population during a given point in time. It is a combination of **point prevalence** and **incidence**.

Personal Care Home (PCH)

Residential facilities for predominantly older persons with chronic illness or disability. They may be proprietary (for profit) or non–proprietary. Non–proprietary PCHs may further be classified as secular or ethno–cultural (associated with a particular religious faith or language other than English) as well as either freestanding or juxtaposed with an **acute care facility**.

Personal Health Information Number (PHIN)

A unique 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.

Personality Disorders

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

Person–Years
A measurement combining person and times as the denominator in **incidence** and **prevalence rates** when, for varying periods, individuals are at risk of developing a disease, using a health service, or dying. Person–years are utilized in the analyses to allow us to include as many individuals as possible in the calculations.

Pertussis
Also known as whooping cough, it is a highly contagious bacterial infection of the respiratory tract.

Physical Health and Well–Being – Early Development Instrument (EDI) Domain
A set of 13 items on the EDI used to assess a kindergarten child's readiness for school in terms of their "physical independence, general health, gross and fine motor skills" and other similar characteristics. (Consortium for International Population–Based Early Child Development Indicators. The Early Development Instrument (EDI) – A Brief Description. http://www.councilecd.ca/internationaledi/09.%20The%20EDI%20–%20A%20Brief%20Description.pdf. Accessed February 22, 2011)

Pneumococcal Conjugate 7 Vaccine (PCV–7)
A **vaccine** for infants and young children to help prevent serious **pneumococcal disease**. This vaccine protects against seven strains of ***Streptococcus pneumoniae***.

Pneumococcal Disease
Caused by the bacteria ***Streptococcus pneumoniae*** (pneumococcus), it is the leading cause of bacteremia, meningitis, and bacterial pneumonia. Pneumococcal disease is most common in the very young, the elderly; and certain high risk groups such as those with asplenia, immune deficiency, or chronic illness.

Point Prevalence
The measure of a disease or condition in a population at a given point in time.

Poisson Distribution
The pattern usually followed by a set of results in which the measurements are counts. It is a special case of the binomial distribution in which the number of individuals is very large and the chance of one of the two possible outcomes occurring is very small.

Polio
A highly infectious viral disease that affects the nerve cells of the brain and spinal cord and may result in paralysis.

Population Health
Measuring and reporting the **health status** of the population.

Population Health Research Data Repository (Repository)

The Population Health Research Data Repository is a comprehensive collection of administrative, registry, survey, and other databases primarily comprised of residents of Manitoba. This repository is housed at the **Manitoba Centre for Health Policy (MCHP)**. It was developed to describe and explain patterns of healthcare and profiles of health and illness, which facilitates 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. NOTE: This term Population Health Research Data Repository is commonly referred to as the Repository.

Population Pyramid

A graph showing the age and sex distribution of a population. Most developing countries of the world will have a population pyramid triangular in shape, indicating a very young population, with few people in the oldest age brackets. This population would have a high birth **rate**, high death rate and low **life expectancy**. Most developed industrial countries have a population pyramid that looks more rectangular with the young and middle–aged people representing similar and smaller percentages of the population, and many more elderly people in the "top part" of the pyramid. This reflects a population with a stable fertility and mortality pattern, usually with low fertility, low mortality, and long life expectancy. In instances of an aging and relatively healthy population, the "pyramid" could actually constrict at its base, showing low birth rates and a high proportion of older people.

Premature Mortality Rate (PMR)

The **rate** of deaths of residents aged 0 to 74 years. It is generally reported per 1,000 residents aged 0 to 74 years. The values are generally standardized to account for age/sex differences in populations. The rate is usually expressed as a number per 1,000, in order to provide an indicator that is comparable among different areas or regions. PMRs are often used as an overall indicator of **population health** and are correlated with other commonly used measures. The PMR is an important indicator of the general health of a population; high PMR indicates poor **health status**.

Prenatal Care

A series of regular contacts between a healthcare provider, typically a physician, and a pregnant woman, which take place at scheduled intervals between the confirmation of pregnancy and the initiation of labour. The primary function of this care is to monitor the progress of pregnancy to identify complications, to provide information to the women on beneficial practices, and to co–ordinate the involvement of other providers in the mother's labour and the delivery of the **newborn.**

Prevalence

The term prevalence refers to the proportion of the population that "has" a given disease at a given time. The measure of a condition in a population at a given point in time is referred to as point prevalence. A second type is called **period prevalence**. Over a period of time, such as five years, this measures the number of individuals with a particular condition in the population during that time

period. Period prevalence is the most common measure of prevalence used in MCHP studies. Prevalence data provide an indication of the extent of a condition and may have implications for the provision of services needed in a community. Both measures of prevalence are proportions—as such, they do not describe changes over time and should not be described as rates.

Primary Care Physician

General Practitioners (GP)/Family Physicians (FP) serve as a patient's first contact with the healthcare system.

Primary Series

The first unit of recommended **vaccinations**. Manitoba's **immunization schedule** recommends immunization with DTaP–IPV–Hib (**diphtheria, tetanus, pertussis, polio,** and ***Haemophilus influenzae* type B**) at two, four, six, and 18 months. These five antigens are delivered with a single intramuscular injection. In addition, Manitoba recommends MMR (**measles, mumps, and rubella)** and **varicella** (separate injections) at 12 months. Additionally, as of 2009, Men–C (*Neisseria meningitidis*—Serogroup C) **vaccine** has been added to the 12 month **vaccination** schedule.

Public Health Agency of Canada (PHAC)

The Government of Canada agency responsible for public health, whose "primary goal is to strengthen Canada's capacity to protect and improve the health of Canadians and to help reduce pressures on the health–care system.

Public Health Nurses

Nurses with expertise in areas such as communicable diseases, maternal–child, and school health. PHNs deliver services within communities using a community–based model whereby services are driven by the needs and resources of a defined community.

Rate

A ratio of two measurements. For example, birth rate is the number of childbirths per 1,000 persons per year.

Rate Adjustment

These **rates** mathematically remove the effects of different population structures that influence overall rates. Also called Rate Standardization or Standardized 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 that 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.

Rate Ratios

A ratio of two **rates**.

Record Linkage
A set of techniques to match, or link, records from one file with those from another. Information on the same individual in two or more files can be merged into one file by matching the records on a set of common identifiers.

Red River College – see Red River College Data

Red River College Data
This data contains administrative information for all students enrolled at Red River College (RRC), a multi–site campus with locations in Winnipeg as well as regional campuses located in Gimli, Winkler, Portage la Prairie, and Steinbach. Data are collected for individual–level enrollment, courses, and outcomes for a large number of programs. One of several community colleges in Manitoba, RRC is the largest and most comprehensive institute of applied learning. It offers over 110 diploma, certificate, and apprenticeship programs; full–time; distance education; continuing education; and regional campus programs.

Region of Residence
The area where people live at any given point in time and where their health service use is allocated, regardless of where the service was provided. Regions are assigned according to the municipal code for the last region of residence on a claim or prior to admission to a hospital or **personal care home**. For determining residency in **Regional Health Authorities (RHAs)**, postal code or municipality code is used.

Regional Health Authority (RHA)
Regional governance structure set up by the province to be responsible for the delivery and administration of health services in specified areas. In Manitoba, as of July 1, 2002, there are 11 RHAs: Winnipeg, Brandon, South Eastman, Assiniboine, Central, Parkland, North Eastman, Interlake, Burntwood, NOR–MAN, and Churchill.

Regional Health Authority Districts
Subdivisions of **Regional Health Authorities (RHA)** defined primarily based on municipal code and some postal codes for analysis purposes. Districts were created collaboratively by individual RHAs, **Manitoba Centre for Health Policy (MCHP)**, and **Manitoba Health**.

Registration Number
A six–digit number assigned by **Manitoba Health** to identify family units receiving care. Also known as **REGNO.** Individuals within a family are assigned a unique **Personal Health Identification Number (PHIN)** for identifying services provided to that individual.

Relationship Distress
Distress or conflict between parenting partners (e.g., separations, frequent arguments). This is an item on the **Families First Screening Form** assessed by **public health nurses**.

Repository – see Population Health Research Data Repository (Repository)

Respiratory Disease – see Total Respiratory Morbidity (TRM)

Rheumatoid Arthritis

A chronic, inflammatory autoimmune disorder that causes the immune system to attack the joints. It is a disabling and painful inflammatory condition, which can lead to substantial loss of mobility due to pain and joint destruction. The disease is also systemic in that it often also affects many extra–articular tissues throughout the body including the skin, blood vessels, heart, lungs, and muscles.

Risk Factors

A range of health–related behaviours and social and environmental conditions that can have a negative impact on the health of an individual by increasing the risk of ill health. Data about risk factors can assist in explaining trends in the **health status** of a population and can provide insight into why some people or groups have better or worse health than others.

Rubella

Also known as German measles, it is a viral disease characterized by rash and fever, which can seriously affect the fetus of an infected pregnant woman.

Schizophrenia

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

Separations

A separation from a healthcare facility occurs anytime a patient (or resident) leaves because of death, discharge, sign–out against medical advice, or transfer. The number of separations is the most commonly used measure of the utilization of hospital services. Separations, rather than admissions, are used because **hospital abstracts** for inpatient care are based on information gathered at the time of discharge. In some cases, both inpatient and surgical outpatient records are included. In addition, **hospital separations** may not include newborn separations, since this would essentially result in a double counting (the mother and the baby being discharged). The terms 'separation', 'discharge', 'hospital discharge', 'hospital separation', and 'stay' are used interchangeably.

Social Capital

Connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them. Social capital is closely related to what some have called "civic virtue." The difference is that social capital calls attention to the fact that civic virtue is most powerful when embedded in a network of reciprocal social relations. A society of many virtuous, but isolated, individuals is not necessarily rich in social capital.

Social Competence – Early Development Instrument (EDI) Domain

A set of items on the EDI used to assess a kindergarten child's readiness for school in terms of their "responsibility and respect for others, approaches to learning, readiness to explore new things, sharing" and other similar characteristics.
(Consortium for International Population–Based Early Child Development Indicators. The Early Development Instrument (EDI) – A Brief Description. http://www.councilecd.ca/internationaledi/09.%20The%20EDI%20–%20A%20Brief%20Description.pdf. Accessed February 22, 2011)

Société franco–manitobaine

An organization that officially represents the **Francophone** population of Manitoba. Its members endeavor to maintain the rights of Francophones and to adopt laws and government policies to ensure the vitality of the Francophone community.

Socioeconomic Factor Index (SEFI)

The SEFI is a factor score derived from **Census** data that reflects non–medical social determinants of health and includes the following variables: age dependency ratio, **rate** of single parent households, rate of female single parent households, female labour force participation rate, unemployment rate composite, and high school education rate composite. SEFI is calculated at the geographic level of **dissemination area (DA)** and is then assigned to residents based on their postal codes. SEFI scores of less than zero indicate more favourable socioeconomic conditions, while SEFI scores of greater than zero indicate less ideal socioeconomic conditions.

Socioeconomic Status (SES)

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

South West RHAs

An aggregate geographical area including all of the the **Regional Health Authorities (RHAs)** in Southwestern Manitoba—Central, Assiniboine, and Brandon.

Specialist Physicians

Physicians whose practices are limited to a specific area of medicine in which they have undergone additional training. They are identified by a code in the Physician Resource Database.

Specialists – see **Specialist Physicians**

Statistical Analysis Software (SAS®)

A statistical software package for analyzing data.

Statistical Testing

Statistical testing was performed, via contrasts in generalized linear models (for adjusted values) and Chi–square tests (for crude and directly–standardized values), to determine whether ratios of the Francophone Cohort rate to the Matched Cohort rate, within a given area, were statistically significantly different from one. This also tested whether regional rates for Francophones or Other Manitobans were statistically significantly different from their corresponding Manitoba rate. Hotelling's T2 tests, whose test statistics follow a Chi–square distribution, were employed to compare the overall Manitoba rates and rate ratios between cohort–based analyses and survey sample–based analyses and were compared primarily as a validity check into the representativeness of the Cohorts. Rate ratios of the Francophone Cohort to the Matched Cohort within a region, as well as comparisons between the cohort analyses and survey sample analyses, were tested using a 5% level of significance. Due to multiple comparisons of each area's rate to the Manitoba rate for each indicator, a more stringent level of significance of 1% (rather than the usual 5%) was selected to control the familywise error rate. Statistical significance was used to indicate how much confidence to put in the difference of the rate ratio from one or between two rates. If a difference was statistically significant, we are then 95% (99%) confident that this difference is not just due to chance.

Statistics Canada

Statistics Canada (or Stats Can) is a federal government agency commissioned with producing statistics to help better understand Canada's population, resources, economy, society, and culture.

Stillbirth

Death of a baby before delivery.

Streptococcus Pneumonia

A significant human pathogenic bacterium that causes respiratory infections in children and adults and is the leading cause of a leading cause of meningitis, bacterial pneumonia, and acute otitis media (inner ear infection).

Stroke

The rapidly developing loss of brain function due to an interruption in the supply of blood to the brain. A stroke occurs when there is a sudden death of brain cells due to a lack of oxygen when the blood flow to the brain is impaired by blockage or rupture of an artery to the brain. Symptoms of a stroke depend on the area of the brain affected. The most common symptom is weakness or paralysis of one side of the body with partial or complete loss of voluntary movement or sensation in a leg or arm. Other common symptoms include speech problems, weak facial muscles, numbness, and tingling. A stroke involving the base of the brain can affect balance, vision, swallowing, breathing, and consciousness.

Substance Abuse

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

Suicide Attempts
Suicide attempt, also known as "self–inflicted injury" or para–suicide, does not result in death.

Suicide
Suicide is the act of intentionally killing oneself.

Suppressed – see Data Suppression

Tariff Code
A specific code used to identify each service provided by a physician or a nurse practitioner as defined in the Tariff Manual.

Tetanus
An infectious disease that affects the body's muscles and nerves. It is often due to the contamination of a skin wound by a bacterium called *Clostridium tetani*, which is often found in soil.

Total Mortality Rate
The number of deaths per 1,000 area residents, per year. This measures the **rate** of death from all causes and is an indication of the overall health of the population, similar to what is measured by life expectancy. Both crude and adjusted rates can be calculated.

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 (COPD). This combination of diagnoses is used to overcome problems resulting from different physicians (or **specialists**) using different diagnosis codes for the same underlying illness (e.g., asthma versus chronic bronchitis).

Trivalent Inactivated Influenza Vaccine (TIV)
An **immunization** against influenza that includes three virus strains—two from the human influenza A subtypes and one from the influenza B lineages. TIV is reformulated annually to compensate for variation in the antigen strains.

Vaccine
A substance administered into the body to improve immunity to a certain disease.

Varicella
Also known as chicken pox, it is a contagious disease characterized by rash and fever, and is caused by the varicella zoster virus.

Vital Statistics

The Manitoba government department responsible for keeping records and registries of all births, deaths, marriages, and **stillbirths** that take place in Manitoba.

Winnipeg Community Areas (CAs)

The 12 planning districts within the Winnipeg **Regional Health Authority** (WRHA), which have similar populations to the rural and northern Regional Health Authorities (RHAs). The 12 CAs are: St. James–Assiniboia, Assiniboine South, Fort Garry, St. Vital, St. Boniface, Transcona, River East (includes East St. Paul), Seven Oaks (includes West St. Paul), Inkster, Point Douglas, Downtown, and River Heights.

Appendix 1: Definitions and Codes for Indicators

Section	Indicator	Definition and Corresponding Codes
15.13	Activity Limitations	The weighted percentage of CCHS survey respondents aged 12 and older who responded as having activity limitations (including sometimes and often) imposed on them by a condition(s) or by long–term physical and/or mental health problems that have lasted or is expected to last six months or more. Respondents who did not answer all of the questions required for the derived value were excluded from analyses. Prevalence was based on CCHS cycles 1.2, 2.1, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
5.3	Acute Myocardial Infarction (AMI)	The rate of hospitalization or death due to AMI among residents aged 40 and older, per 1,000 person–years, defined by either the "most responsible diagnosis" field for hospitalization or the cause of death field in Vital Statistics files (ICD–9–CM code 410; ICD–10–CA code I21). Hospitalizations for less than three days were excluded (unless the patient died in hospital) as likely 'rule out' AMI cases; transfers between hospitals were tracked to ensure all 'true' AMI cases staying at least three days in hospital(s) were counted. Rates were calculated annually and averaged over nine fiscal years, 1999/2000–2007/08, and were age–and sex–adjusted.
7.2	Adult Influenza Immunization	The percentage of residents aged 65 or older who received a vaccine for influenza in a one–year period. Influenza vaccinations were defined by physician tariff codes (8791, 8792, 8793, and 8799) in MIMS data. Prevalence was calculated for fiscal year 2007/08 and was age– and sex–adjusted.
9.3	Ambulatory Consultation	The rate of ambulatory consultations to a general practitioner/family physician (GP/FP) or a specialist among all area residents (all ages) in a one–year period. Physician tariff codes for consultations include: 8440, 8449, 8550, 8552, 8553, 8554, 8556, 8557. Rates were calculated for fiscal year 2008/09 and were age– and sex–adjusted.
9.2	Ambulatory Physician Visit (Number of Visits) and Causes of Visits	The rate of ambulatory physician visits among all area residents (all ages) in a one–year period. Ambulatory visits includes almost all contacts with physicians (GP/FPs and specialists): office visits, walk–in clinics, home visits, personal care home (nursing home) visits, visits to outpatient departments, and some emergency room visits (where data are recorded). Rates were calculated for fiscal year 2008/09 and were age– and sex–adjusted. Excluded are services provided to patients while admitted to hospital and visits for prenatal care. Note: 'pregnancy and birth' are included in the Ambulatory Visits by Cause pie charts.
13.3	Antibiotic Prescriptions	The percentage of residents (all ages) with one or more antibiotic prescription (ATC codes J01 and G04A) in one–year period. Prevalence was calculated for fiscal year 2008/09 and was age– and sex– adjusted.
14.1	Antidepressant Prescription Follow–Up	The crude percentage of residents with a new antidepressant prescription (ATC codes N06AA, N06AB, N06AF, N06AG, N06AX) and a diagnosis of depression (ICD–9–CM codes 296 or 311) within two weeks of each other (it is assumed that the prescription date comes after the physician visit) and who had three subsequent ambulatory visits within four months of the prescription being filled. It was measured over a five–year period. To be included in the analysis, patients had to be alive for the entire four month follow–up period. To be included as a newly depressed patient, residents could not have a prescription for antidepressants or a physician visit with a diagnosis of depression in the two years prior to the index event. Prevalence was calculated for fiscal years 2004/05–2008/09 and was not adjusted for age or sex.
13.4	Antidepressant Prescriptions	The percentage of residents (all ages) with two or more antidepressant prescriptions (ATC codes N06xx) in a one–year period. Prevalence was calculated for fiscal year 2008/09 and was age– and sex– adjusted.
6.3	Anxiety	The percentage of residents aged 10 and older diagnosed with an anxiety disorder over a five–year period by either: One or more hospitalizations with a diagnosis for anxiety states, phobic disorders, or obsessive–compulsive disorders (ICD–9–CM codes 300.0, 300.2, 300.3; ICD–10–CA codes F40, F41.0, F41.1, F41.3, F41.8, F41.9, F42) **OR** Three or more physician visits with a diagnosis for anxiety disorders (ICD–9–CM code 300). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.
13.1	Any Pharmaceutical Use	The percentage of residents (all ages) who had at least one prescription dispensed in a one–year period. Prevalence was calculated for fiscal year 2008/09 and was age– and sex–adjusted.

Section	Indicator	Definition and Corresponding Codes
5.8	Arthritis	The percentage of residents aged 19 and older diagnosed with arthritis (rheumatoid or osteo–arthritis) in a two–year period by either: At least two physician visits or one hospitalization with a diagnosis (ICD–9–CM codes 274, 446, 710–721, 725–729, 739; ICD–10–CA codes M00–M03, M05–M07, M10–M25, M30–M36, M65–M79) **OR** One physician visit for arthritis (ICD–9–CM codes 274, 446, 710–721, 725–729, 739) **AND** two or more prescriptions for medications to treat arthritis (Disease–Modifying Anti–Rheumatic Drugs (ATC codes A07EC01, J01AA08, L01AA01, L01BA01, L04AA01, L04AA13, L04AX01, L04AX03, M01CB01, M01CB03, M01CB04, M01CC01, P01BA02); Biologic Response Modifiers (ATC codes L04AA11, L04AA12, L04AA14, L04AA17); Narcotic Analgesics (ATC codes N02AA05, N02AD01, N02AA51, N02AA59, N02BA51, N02BE01, N02BE51, R05DA03, R05DA04, R05DA05); Glucocorticosteroids with some restrictions on route of administration (ATC codes H02AB04, H02AB06, H02AB07, H02AB08, H02AB10); Non–steroidal Anti–inflammatory Drugs (NSAIDS) (ATC codes M01AH03, M01AA01, M01AB01, M01AB02, M01AB03, M01AB05, M01AB08, M01AB15, M01AB55, M01AC01, M01AC02, M01AC06, M01AE01, M01AE02, M01AE03, M01AE04, M01AE09, M01AE11, M01AE12, M01AG01, M01AH01, M01AH02, M01AX01, M02AA, M02AB01, M02AC, M02AX03); Other (ATC codes M04AA , N02BA01, N02BA03)). Prevalence was calculated for fiscal years 2007/08–2008/09 and was age– and sex–adjusted.
14.2	Asthma Care: Controller Medication Use	The crude percentage of residents with asthma who filled a prescription for a medication recommended for long–term control of asthma. Residents with asthma were defined as individuals with two or more prescriptions for Beta 2–agonists (ATC codes R03AA, R03AB, or R03AC); long–term asthma medications (including inhaled corticosteroids (ATC code R03BA); Leukotriene modifiers (ATC code R03DC); or other drugs for obstructive airway diseases. This analysis excluded chronic obstructive pulmonary disease (COPD) patients as defined through one or more prescriptions of Ipratropium Bromide (ATC codes R01AX03, R03AK04, R03BB01). Prevalence was calculated for fiscal year 2008/09 and was not adjusted for age or sex.
8.6	Asthma Prevalence	The percentage of children aged five to 19 diagnosed with asthma over a two–year period by either: One physician claim (ICD–9–CM code 493) **OR** One hospital claim (ICD–9–CM code 493, ICD–10–CA code J45) **OR** One prescription for medications to treat asthma (ATC codes R03BA01, R03BA08, R03BA03, R03BA03, R03BA02, R03BA06, R03AC04, R03AC02, R03AB02, R03AC03, R03AC12, R03AC13, R03AK06, R03AK07, R03BB01, R03AK04, R03AK03, R03BB04, R03DC03, R03DC01, R03DA05, R03DA04, R03DA02, R03AB03, R06AX17, R03BC01, R03AA01, R03BC03, R03DX05, R03DA52, R01AC01, H02AB02, H02AB09, H02AB04, H02AB06, H02AB07). Prevalence was calculated for fiscal years 2007/08–2008/09 and was age– and sex–adjusted.

Section	Indicator	Definition and Corresponding Codes
8.5	Attention–Deficit Hyperactivity Disorder (ADHD)	The percentage of children aged five to 19 diagnosed with ADHD over a one–year period by either: One or more hospitalizations with a diagnosis of hyperkinetic syndrome (ICD–9–CM code 314, ICD–10–CA code F90) **OR** One or more physician visits with a diagnosis of hyperkinetic syndrome (ICD–9–CM code 314) **OR** Two or more prescriptions for medications to treat ADHD without a diagnosis of conduct disorder (ICD–9–CM code 312; ICD–10–CA codes F63, F91, F92); disturbance of emotions (ICD–9–CM code 313; ICD–10–CA codes F93, F94); and cataplexy/narcolepsy (ICD–9–CM code 347, ICD–10–CA code G47.4) **OR** One prescription for medications to treat ADHD **AND** a diagnosis of hyperkinetic syndrome (ICD–9–CM code 314, ICD–10–CA code F90) in the previous three fiscal years. Prevalence was calculated for fiscal year 2008/09 and was age– and sex–adjusted.
15.7	Body Mass Index (BMI)	The weighted percentage of CCHS survey respondents aged 18 and older who were normal/underweight (BMI less 25), overweight (BMI between 25 and 29.9), or obese (BMI of 30 or greater). It is based on either self–reported or measured values of height and weight. Respondents who did not answer all of the questions required for the derived value and women who stated they were pregnant at the time of the survey were excluded from analyses. As self–reported height and weight can be inaccurate, they were "corrected" using simple linear regression models to better reflect what the measured values might have been. Prevalence was based on CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
8.1	Breastfeeding Initiation	The crude percentage of newborns (live births) born in a Manitoba hospital who were exclusively or partially breastfed upon discharge from the hospital. The denominator includes all live born babies in a Manitoba hospital that have breastfeeding information in the hospital discharge abstract. Prevalence was calculated annually and averaged over three fiscal years, 2006/07–2008/09, and was not adjusted for age or sex.
11.7	Caesarean Section	The percentage of caesarean section births per 100 live births. Caesarean sections were defined by hospital separations with the ICD–9–CM procedure codes 74.0, 74.1, 74.2, 74.4, and 74.9 and CCI code 5.MD.60. The denominator includes all maternal birth records with a diagnosis code for a live birth on hospital abstract (ICD–9–CM code V27, ICD–10–CA code Z37). Prevalence was calculated annually and averaged over ten fiscal years, 1999/2000–2008/09, and was adjusted for maternal age.
11.1	Cardiac Catheterization	The rate cardiac catheterizations (ICD–9–CM procedure codes 37.21 to 37.23 and 88.52 to 88.57, CCI code 3.IP.10) performed on area residents aged 40 and older over a five–year period per 1,000 person–years. Note that at the time of analysis, only Manitoba's tertiary hospitals, Health Sciences Centre and St. Boniface General Hospital, were equipped to perform this surgery, so only hospital separations from those two hospitals were included in the analysis in order to prevent double–counting of procedures. Rates were calculated annually and averaged over five fiscal years, 2004/05–2008/09, and were age– and sex–adjusted.

Section	Indicator	Definition and Corresponding Codes
11.6	Cataract Surgery	The rate of cataract surgeries performed on area residents aged 50 and older over a ten–year period per 1,000 person–years. Cataract surgery was defined by either: A physician claim with tariff codes 5611, 5612 and tariff prefix 2 (surgery) **OR** A hospital separation with ICD–9–CM procedure codes 13.11, 13.19, 13.2, 13.3, 13.41, 13.42, 13.43, 13.51, 13.59; CCI code 1.CL.89. Additional cataract surgeries for Manitoba residents were added from medical reciprocal claims for out of province procedures, including Alberta (tariff code 27.72) and Saskatchewan (tariff codes 135S, 136S, 226S, and 325S). Rates were calculated annually and averaged over ten fiscal years, 1999/2000–2008/09, and were age– and sex–adjusted.
10.6	Catchment: Where Patients Came from for Separations	Of all the separations from all hospitals in each RHA, this is the proportion that were provided to RHA residents, residents of other RHAs, or Winnipeg Residents. If a patient is transferred between hospitals, each stay is counted separately and the days spent in each hospital are attributed to that hospital's location. Values were calculated for fiscal year 2008/09 and were not adjusted for age or sex.
12.5	Catchment: Where Patients Came from Prior to Admission to Personal Care Home (PCH)	Defined by a) the percentage of residents aged 75 and older who, prior to their admission, lived in the same RHA (home RHA)I; b) lived in another RHA; or c) lived in the Winnipeg RHA. Values were calculated over five fiscal years, 2004/05–2008/09, and were not adjusted for age or sex.
4.2.1	Causes of Death	The distribution of causes of deaths for Manitobans over nine calendar years, 1999–2007. Cause of death was based on Vital Statistics files and grouped into the 17 chapters of the ICD–9–CM disease classification system (ICD–10–CA codes were first converted to ICD–9–CM). Values are crude counts and are not adjusted for age or sex.
10.2	Causes of Hospitalization	The distribution of 'Most Responsible' diagnoses attributed during inpatient and day surgery hospitalizations, grouped according to the ICD–9–CM system, over one fiscal year, 2008/09. Values are crude counts and are not adjusted for age or sex.
4.3.1 and 10.3	Causes of Injury (Mortality and Hospitalization) based on ICD–9–CM External Cause of Injury Categories (ICD–10–CA codes converted to ICD–9–CM)	**Motor Vehicle Accidents** (E810, E811, E812, E813, E814, E815, E816, E817, E818, E819, E822, E823, E824, E825); **Other Vehicle Accidents** (E800, E801, E802, E803, E804, E805, E806, E807, E820, E821, E826, E827, E828, E829, E831, E833, E834, E835, E836, E837, E838, E840, E841, E842, E843, E844, E845, E846, E847, E848); **Poisoning** (E850, E851, E852, E853, E854, E855, E856, E857, E858, E860, E861, E862, E863, E864, E865, E866, E867, E868, E869, E980, E981, E982); **Accidental Falls** (E880, E881, E882, E883, E884, E885, E886.9, E888); **Accidents Caused by Fire and Flames** (E890, E891, E892, E893, E894, E895, E896, E897, E898, E899); **Accidents Due to Natural and Environmental Factors** (E900, E901, E902, E903, E904, E905, E906, E907, E908, E909, E928.0, E928.1, E928.2, E928.6); **Drowning and Submersion** (E830, E832, E910); **Choking, Suffocation, and Constriction** (E911, E912, E913, E928.4, E928.5); **Sports Injuries** (E886.0, E917.0, E917.5); **Late Effects of Injury** (E929, E989); **Suicide and Self–inflicted Injury (Violence to Self)** (E950, E951, E952, E953, E954, E955, E956, E957, E958, E959); **Homicide and Injuries Inflicted by Others** (E960, E961, E962, E963, E964, E965, E966, E967, E968, E969, E970, E971, E972, E973, E974, E975, E976, E977, E978, E928.3); **Accidents Caused by Foreign Bodies** (E914, E915); **Struck by Objects, Caught Between Objects** (E916, E917 (except E917.0, E917.5), E918); **Accidents Caused by Machinery, Explosions, Electricity** (E919, E920, E921, E922, E923, E924, E925, E926); **Overexertion, Strenuous Movements** (E927); **Injuries Due to War Operations** (E990, E991, E992, E993, E994, E995, E996, E997, E998, E999); I**njuries Undetermined as Accidental or Purposely Inflicted** (E983, E984, E985, E986, E987, E988); **Other Unspecified Accidents** (E887, E928, E928.8, E928.9)
10.4	Causes of Injury Hospitalization	The distribution of hospitalizations due to injury for Manitobans over five fiscal years, 2004/05–2008/09. See Causes of Injury for list of codes. Excluded from injury counts are injuries related to medical error and/or drug complications. Values are crude counts and are not adjusted for age or sex.

Section	Indicator	Definition and Corresponding Codes
4.3.1	Causes of Injury Mortality	The distribution of deaths due to injury for Manitobans over nine calendar years, 1999–2007. Cause of death due to injury was based on Vital Statistics files; see Causes of Injury for list of codes. Excluded from injury counts are injury deaths related to medical error and/or drug complications. Values are crude counts and are not adjusted for age or sex.
7.4	Cervical Cancer Screening	The percentage of women aged 18 to 69 who received at least one Papanicolaou (Pap) test in a three–year period. A Pap test was defined by physician visit with a tariff code for a Pap test (8470, 8495, 8496, 8498, 9795) or a pathology or laboratory claim with a tariff code (9470) for a Pap test. Prevalence was calculated for fiscal years 2006/07–2008/09 and was age–adjusted.
8.4	Child Mortality	The crude rate of deaths among children aged one to 19, per 1,000 person–years. Rates were calculated annually and averaged over ten calendar years, 1999–2008, and were not age– and sex–adjusted.
7.1	Complete Immunization Schedule (Two–Year–Olds)	The percentage of two–year–old children (born 2005–2006), who were continuously registered with Manitoba Health up to their second birthday and had all of the recommended immunizations for their age. Specifically: 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; and Four Pneumococcal Conjugate 7 (PCV7) Immunizations. Physician tariff codes for vaccinations: DTP: 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: 8611, 8612, 8613, 8619, 8798, 8802, 8804, 8805, 8806, 8807, 8924, 8931, 8932, 8933, 8939; HiB: 8781, 8782, 8783, 8789, 8802, 8804, 8806, 8807, 8901, 8902, 8903, 8909; MMR: 8621, 8670; Varicella: 8672, 8674; PCV7: 8681, 8682, 8683, 8684. Prevalence was calculated annually and averaged over two calendar years, 2007–2008, and was sex–adjusted.
9.4	Continuity of Care	The percentage of residents receiving greater than 50% of their ambulatory visits from the same physician over a two–year period. For children aged 0 to 14, the physician could be either a 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. Prevalence was calculated for fiscal years 2007/08–2008/09 and was age– and sex–adjusted. Residents with less than three ambulatory visits over the two–year period are excluded from analyses.
11.3	Coronary Artery Bypass Surgery	The number of bypass surgeries (ICD–9–CM procedure codes 36.10–36.19, CCI code 1.IJ.76) performed on area residents aged 40 and older over a ten–year period per 1,000 person–years. Note that at the time of analysis, only Manitoba's tertiary hospitals, Health Sciences Centre and St. Boniface General Hospital, were equipped to perform this surgery, so only hospital separations from those two hospitals were included in the analysis in order to prevent double–counting of procedures. Rates were calculated annually and averaged over ten fiscal years, 1999/2000–2008/09, and were age– and sex–adjusted.
6.1	Cumulative Mental Health Disorders	The percentage of residents aged 10 and older diagnosed with at least one of: depression, anxiety disorders, substance abuse, personality disorder, or schizophrenia. See each of these indicators for specifics of definition. Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.

Section	Indicator	Definition and Corresponding Codes
6.7	Dementia (55+)	The percentage of residents aged 55 and older diagnosed with dementia in a five–year period by either: One or more hospitalizations with a diagnosis for dementia, including organic psychotic conditions, cerebral degenerations, and senility (ICD–9–CM codes 290, 291.1, 292.2, 292.82, 294, 331, 797; ICD–10–CA codes F00, F01, F02, F03, F04, F05.1, F06.5, F06.6, F06.8, F06.9, F09, F10.7, F11.7, F12.7, F13.7, F14.7, F1.57, F16.7, F18.7, F19.7, G30, G31.0, G31.1, G31.9, G32.8, G91, G93.7, G94, R54) **OR** One or more physician visits with a diagnosis for dementia (ICD–9–CM codes 290, 294, 331, 797). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.
6.2	Depression	The percentage of residents aged 10 and older diagnosed with depression over a five–year period by either: One or more hospitalizations with a diagnosis for depressive disorder, affective psychoses, neurotic depression, or adjustment reaction (ICD–9–CM codes 296.2–296.8, 300.4, 309, 311; ICD–10–CA codes F31, F32, F33, F341, F38.0, F38.1, F41.2, F43.1, F43.2, F43.8, F53.0, F93.0) **OR** One or more physician visits with a diagnosis for depressive disorder, affective psychoses, or adjustment reaction (ICD–9–CM codes 296, 309, 311) **OR** One or more hospitalizations with a diagnosis for anxiety disorders (ICD–9–CM code 300; ICD–10–CA codes F32.0, F34.1, F40, F41, F42, F44, F45.0, F451, F452, F48, F68.0, F99) **AND** one or more prescriptions for an antidepressant or mood stabilizer (ATC codes N03AB02, N03AB52, N03AF01, N05AN01, N06A) **OR** One or more physician visits with a diagnosis for anxiety disorders (ICD–9–CM code 300) AND one or more prescriptions for an antidepressant or mood stabilizer (N03AB02, N03AB52, N03AF01, N05AN01, N06A). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.
14.3	Diabetes Care: Prevalence of Annual Eye Exam	The crude percentage of persons with diabetes (see diabetes prevalence for list of codes) aged 19 and older who had at least one eye examination by an ophthalmologist or optometrist. Only those ophthalmologists or optometrists who billed Manitoba Health would be captured. People with diabetes who paid the physician for the eye examination directly, or through third–party insurance, would not be counted. However, all people with diabetes are eligible for a free eye examination as required or at the discretion of the physician (Health Services Insurance Act (C.C.S.M. c.H35) Optometric Services Insurance Regulation. Regulation 50/93). Prevalence was calculated for fiscal year 2008/09 and was not adjusted for age or sex.
5.5	Diabetes Mellitus	The percentage of residents aged 19 and older diagnosed with diabetes in a three–year period by either: At least two physician visits **OR** one hospitalization with a diagnosis of diabetes (ICD–9–CM code 250, ICD–10–CA codes E10–E14) **OR** One or more prescriptions for medications to treat diabetes (ATC Codes A10xx). Diagnosis codes for gestational diabetes were not included in our definition. Prevalence was calculated for fiscal years 2006/07–2008/09 and was age– and sex–adjusted.

Section	Indicator	Definition and Corresponding Codes
5.6	Dialysis Initiation	The percentage of residents aged 19 and older who began dialysis treatment in a five–year period, defined by one or more physician visits with a dialysis–related tariff code (9610, 9798, 9799, 9801, 9802, 9805, 9806, 9807, 9819, 9820, 9821). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.
16.1	Early Development Index (EDI)	The EDI is a population–based, community level measure of children's development in Kindergarten 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 well–being, social competence, emotional maturity, language and cognitive development, and communication and general knowledge. 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.
16.1.6	EDI – Not Ready for School Communication and General Knowledge	The percentage of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of communication and general knowledge out of all children in Kindergarten. Prevalence was calculated annually and averaged over two school years, 2005/06–2006/07, and was sex–adjusted.
16.1.4	EDI – Not Ready for School Emotional Maturity	The percentage of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of emotional maturity out of all children in Kindergarten. Prevalence was calculated annually and averaged over two school years, 2005/06–2006/07, and was sex–adjusted.
16.1.5	EDI – Not Ready for School Language and Cognitive Development	The percentage of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of language and cognitive development out of all children in Kindergarten. Prevalence was calculated annually and averaged over two school years, 2005/06–2006/07, and was sex–adjusted.
16.1.2	EDI – Not Ready for School Physical Well–Being	The percentage of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of physical well–being out of all children in Kindergarten. Prevalence was calculated annually and averaged over two school years, 2005/06–2006/07, and was sex–adjusted.
16.1.3	EDI – Not Ready for School Social Competence	The percentage of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile in the EDI domain of social competence out of all children in Kindergarten. Prevalence was calculated annually and averaged over two school years, 2005/06–2006/07, and was sex–adjusted.
16.1.1	EDI –Not Ready for School	The percentage of children in Kindergarten (aged five or six) who scored in the bottom 10th percentile on the EDI in at least one domain out of all children in Kindergarten. Prevalence was calculated annually and averaged over two school years, 2005/06–2006/07, and was sex–adjusted.
15.3	Emotional Well–Being	The weighted percentage of CCHS survey respondents aged 12 and older who responded "happy and interested in life" to the question, "Would you describe yourself being usually: happy and interested in life, somewhat happy, somewhat unhappy, very unhappy or so unhappy that life is not worthwhile?" Respondents who answered "don't know" or did not answer the question were excluded from analyses. Prevalence was based on CCHS cycle 1.1 and was age– and sex–adjusted to the weighted CCHS population.
15.9	Frequency of Binge Drinking	The weighted percentage of CCHS survey respondents aged 12 and older who responded to the question, "How often in the past 12 months have you had five or more drinks on one occasion?" Responses were grouped as: once per month or more, less than once per month, or never. In the CCHS, one drink was defined as: one bottle or can of beer or a glass of draft, one glass of wine or a wine cooler, or one drink or cocktail with 1 and 1/2 ounces of liquor. Respondents who answered "don't know" or did not answer the question were excluded from analyses (those who did not consume any alcohol in the past year were still included.) Prevalence was based on CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.

Section	Indicator	Definition and Corresponding Codes
15.8	Fruit and Vegetable Consumption	The weighted percentage of CCHS survey respondents aged 12 and older who reported as having consumed fruits and vegetables five or more times per day on average, based on a series of questions about fruit and vegetable consumption. Respondents who did not answer all of the questions required for the derived value were excluded from analyses. Prevalence was based on CCHS cycles 1.1, 2.1, 2.2, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
16.4	High School Completion	The percentage of Grade 9 students who completed high school (defined as accumulated 28 or more high school course credits or had a Manitoba Department of Education student record that indicated graduation) within six years of beginning Grade 9. Prevalence was calculated annually and averaged for students who began Grade 9 in school years 2000/01–2002/03, followed until 2005/06–2007/08, and was sex–adjusted. As course mark and enrollment data are often incomplete for schools operated by First Nations Communities, students enrolled in band–operated schools were excluded.
11.4	Hip Replacement Surgery	The rate of total hip replacement surgeries (ICD–9–CM codes 81.50, 81.51, 81.53; CCI codes 1.VA.53.LA–PN, 1.VA.53.PN–PN) performed on area residents aged 40 and older over a ten–year period per 1,000 person–years. Rates were calculated annually and averaged over ten fiscal years, 1999/2000–2008/09, and were age– and sex–adjusted.
10.1	Hospital Separation (Discharge)	The rate of inpatient and day surgery hospital separations among area residents (all ages) in a one–year period per 1,000 person–years. All Manitoba hospitals were included; PCHs and Long–term Care facilities were excluded (Riverview, Deer Lodge, Rehabilitation Centre for Children and Adolescent Treatment Centre). Newborn abstracts were excluded. Rates were calculated for fiscal year 2008/09 and were age– and sex–adjusted. The rate is based on the area of residence, not on the area where the person is hospitalized.
10.3	Hospitalization for Injury	The rate of hospitalization for injury among area residents (all ages) in a five–year period per 1,000 person–years. See Causes of Injury for list of codes. Excluded from injury counts are injuries related to medical error and/or drug complications. Rates were calculated annually and averaged over five fiscal years, 2004/05–2008/09, and were age– and sex–adjusted.
5.1	Hypertension	The percentage of residents aged 19 and older diagnosed with hypertension in a one–year period by either: At least one physician visit (ICD–9–CM codes 401–405) **OR** One hospitalization (ICD–9–CM codes 401–405; ICD–10–CA codes I10–I13, I15) **OR** Two or more prescriptions for medications to treat hypertension (Antihypertensives (ATC codes C02AB01, C02AB02, C02AC01, C02CA04, C02CA05, C02DB02, C02DC01, C02KX01, C02LA01, C02LB01, G04CA03); Diuretics (ATC codes C03AA03, C03BA04, C03BA11, C03CA01, C03CA02, C03CC01, C03DA01, C03DB01, C03DB02, C03EA01); Beta Blocking Agents (ATC codes C07AA02, C07AA03, C07AA05, C07AA06, C07AA12, C07AB02, C07AB03, C07AB04, C07AB07, C07AG01, C07BA05, C07BA06, C07CA03, C07CB03); Calcium Channel Blockers (ATC codes C08CA01, C08CA02, C08CA04, C08CA05, C08CA06, C08DA01, C08DB01); Agents Acting on the Renin–Angiotensin System (ATC codes C09AA01, C09AA02, C09AA03, C09AA04, C09AA05, C09AA06, C09AA07, C09AA08, C09AA09, C09AA10, C09BA02, C09BA03, C09BA04, C09BA06, C09BA08, C09CA01, C09CA02, C09CA03, C09CA04, C09CA06, C09CA07, C09DA01, C09DA02, C09DA03, C09DA04, C09DA06, C09DA07)). Prevalence was calculated for fiscal year 2008/09 and was age–and sex–adjusted.
11.8	Hysterectomy	The rate of hysterectomy surgeries (ICD–9–CM procedure codes 68.4, 68.5, 68.9; CCI codes 1.RM.89, 5.CA.89.CK, 5.CA.89.DA, 5.CA.89.GB, 5.CA.89.WJ, 5.CA.89.WK) performed on women aged 25 and older per 1,000 women aged 25 years and older, over a ten–year period per 1,000 person–years. Rates were calculated annually and averaged over ten fiscal years, 1999/00–2008/09, and were age–adjusted.
8.4	Infant Mortality	The crude rate of death within the first year of life (0 to 364 days) per 1,000 newborns. The denominator includes all live births (in hospital) in the study period. Live births are identified during 1998–2007 calendar years and deaths are identified up to each child's first birthday. Rates were calculated annually and averaged over ten calendar years, 1999–2008, and were not adjusted for age or sex.

Section	Indicator	Definition and Corresponding Codes
4.3	Injury Mortality	The rate of deaths due to injury among area residents, per 1,000 person–years. Injury deaths were based on Vital Statistics files; see Causes of Injury for list of codes. Excluded from injury counts are injury deaths related to medical error and/or drug complications. Rates were calculated annually and averaged over nine calendar years, 1999–2007, and were age– and sex–adjusted.
5.2	Ischemic Heart Disease	The percentage of residents aged 19 and older diagnosed with IHD in a five–year period by either: At least two physician visits with a diagnosis of IHD (ICD–9–CM codes 410–414) **OR** One hospitalization for IHD (ICD–9–CM codes 410–414; ICD–10–CA codes I20–I22, I24, I25) **OR** At least one physician visit with a code listed (ICD–9–CM codes 410–414) **AND** two or more prescriptions for medications to treat IHD—Cardiac Therapy Drugs (ATC codes C01DA02, C01DA05, C01DA08, C01DA14, C01EB09); Beta Blocking Agents (ATC codes C07AA02, C07AA03, C07AA05, C07AA06, C07AA12, C07AB02, C07AB03, C07AB04, C07AB07, C07AG01, C07BA05, C07BA06, C07BA12, C07CA03, C07CB03); Calcium Channel Blockers (ATC codes C08CA01, C08CA02, C08CA04, C08CA05, C08CA06, C08DA01, C08DB01); Agents Acting on the Renin–Angiotensin System (ATC codes C09AA01, C09AA02, C09AA03, C09AA04, C09AA05, C09AA06, C09AA07, C09AA08, C09AA09, C09AA10, C09BA02, C09BA03, C09BA04, C09BA06, C09BA08, C09CA01, C09CA02, C09CA03, C09CA04, C09CA06, C09CA07, C09DA01, C09DA02, C09DA03, C09DA04, C09DA06, C09DA07); Other (C02LA01, C03AA03). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age–and sex–adjusted.
11.5	Knee Replacement Surgery	The rate of knee replacement surgeries (ICD–9–CM codes 81.54, 81.55; CCI code 1.VG.53) performed on area residents aged 40 and older over a ten–year period per 1,000 person–years. Rates were calculated annually and averaged over ten fiscal years, 1999/2000–2008/09, and were age– and sex–adjusted.
4.4	Life Expectancy at Birth	The expected length of life from birth based on the patterns of mortality in the population for the preceding ten calendar years, 1999–2008. Values are not age–adjusted; they are calculated directly from the mortality experience of local residents using the 'life table' approach.
15.4	Life Satisfaction	The weighted percentage of CCHS survey respondents aged 12 and older who responded "very satisfied" or "satisfied" to the question, "How satisfied are you with your life in general: very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, or very dissatisfied?" Respondents who answered "don't know" or did not answer the question were excluded from analyses. Prevalence was based on CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
15.5	Life Stress	The weighted percentage of CCHS survey respondents aged 15 and older who responded "quite a bit stressful" or "extremely stressful" to the question, "Thinking about the amount of stress in your life, would you say that most days are: not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful?" Respondents who answered "don't know" or did not answer the question were excluded from analyses. Prevalence was based on CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
12.4	Location: Where Residents Went for Personal Care Home (PCH) Admissions	Defined by a) the percentage of residents aged 75 and older who moved to a PCH within their home RHA, b) moved to a PCH in another RHA, or c) moved to a PCH in Winnipeg. Values were calculated over five fiscal years, 2004/05–2008/09, and were not adjusted for age or sex.
10.5	Location: Where Residents Went for Separations	Of all the hospital days used by area residents, this is the proportion of days that occurred in hospitals within the RHA, in another RHA, in Winnipeg, or out–of–province. If a patient is transferred between hospitals, each stay is counted separately; and the days spent in each hospital are attributed to that hospital's location. Values were calculated for fiscal year 2008/09 and were not adjusted for age or sex.

Section	Indicator	Definition and Corresponding Codes
7.3	Mammography	The percentage of women aged 50 to 69 that had at least one mammogram in a two–year period. Mammography was defined by at least one physician visit with a diagnostic or screening tariff code for a mammogram (7098, 7099, 7104, 7110, 7111). Prevalence was calculated and averaged over two 2–fiscal–year periods, 2005/06–2006/07 and 2007/08–2008/09, and was age–adjusted.
8.7.4	Maternal Depression/Anxiety	The percentage of women with newborns who showed signs of depression or anxiety. Prevalence was calculated annually and averaged for newborns born in five fiscal years, 2003/04–2007/08, and was adjusted for the mother's age at birth.
8.7.6	Maternal Education	The percentage of women with newborns who had not completed high school. Prevalence was calculated annually and averaged for newborns born in five fiscal years, 2003/04–2007/08, and was adjusted for the mother's age at birth.
12.3	Median Wait Time for Admission to Personal Care Home (PCH)	The amount of time it took for half of all PCH residents aged 75 and older to be admitted to a PCH for the first time after being assessed as requiring PCH placement. Median wait times were calculated for fiscal years 2004/05–2008/09 and were not age– or sex–adjusted.
8.3	Newborn Readmission	The crude rate of readmission to hospital one to 28 days after discharge per 1,000 infants following their birth hospitalization. Rates were calculated annually and averaged over ten calendar years, 1999–2008, and were not adjusted for age or sex.
16.2	No School Changes – Grade 3 Students	The percentage of children in Grade 3 who had no school changes in the following four years, i.e., from the start of Grade 3 to the end of Grade 6. Prevalence was calculated annually and averaged for children who began Grade 3 in school years 2003/04–2005/06 and was age– and sex–adjusted. Students enrolled in band–operated schools were excluded in this analysis.
13.2	Number of Different Drugs Dispensed	The average number of different types of drugs dispensed to each resident in a one–year period among residents with at least one prescription. A "different" drug type was determined by the fourth–level of the ATC drug classification system, which essentially separates drugs used for different health problems. An individual could have multiple prescriptions for the same type of medication, but this would have only counted as one type of drug. Rates were calculated for fiscal year 2008/09 and were age– and sex–adjusted.
16.3	On–Time Pass for Grade 12 Language Arts (LA) Exam	The percentage of residents born in Manitoba in 1988–1990 that passed the Grade 12 LA Exam 18 years later (the year they would be expected to write the exam). Students had to have lived in the province for the entire follow–up period, in that they were continously registered with Manitoba Health from birth until 18 years of age. The denominator included not only those students that wrote the exam, but also those who were exempt from the exam, absent from school, in Grade 11 or lower (i.e., retained at least one year), had withdrawn from the course, or had withdrawn from school altogether. Prevalence was calculated annually and averaged over three school years, 2005/06–2007/08, and was sex–adjusted. As course mark and enrollment data are often incomplete for schools operated by First Nations Communities, students enrolled in band–operated schools were excluded.
16.3	On–Time Pass for Grade 12 Mathematics Exam	The percentage of residents born in Manitoba in 1988–1990 that passed the Grade 12 Mathematics Exam 18 years later (the year they would be expected to write the exam). Students had to have lived in the province for the entire follow–up period, in that they were continuously registered with Manitoba Health from birth until 18 years of age. The denominator included not only those students that wrote the exam, but also those who were exempt from the exam, absent from school, in Grade 11 or lower (i.e., retained at least one year), had withdrawn from the course, or had withdrawn from school altogether. Prevalence was calculated annually and averaged over three school years, 2005/06–2007/08, and was sex–adjusted. As course mark and enrollment data are often incomplete for schools operated by First Nations Communities, students enrolled in band–operated schools were excluded.

Section	Indicator	Definition and Corresponding Codes
5.9	Osteoporosis	The percentage of residents aged 50 and older diagnosed with osteoporosis in a three–year period through either: One or more hospitalizations with one of the following diagnoses: osteoporosis (ICD–9–CM code 733.0, ICD–10–CA code M81); hip fracture (ICD–9–CM code 820–821, ICD–10–CA code S72); spine fracture (ICD–9–CM code 805; ICD–10–CA codes S12.0–S12.2, S12.7, S12.9, S22.0, S22.1, S32.0–S32.2, T08); humerus fracture (ICD–9–CM code 812, ICD–10–CA codes S42.2–S42.4); wrist fracture (radius, ulna and carpal bones) (ICD–9–CM code 813–814; ICD–10–CA codes S52, S62.0, S62.1). Note that fractures in hospital associated with a diagnosis code for a major trauma, like crushing injuries or motor vehicle accidents, are excluded: ICD–9–CM codes 925–929, E800–E848; ICD–10–CA codes S07, S17, S18, S28.0, S38, S47, S57, S67, S77, S87, S97, T04, T14.7, V01–V99 **OR** One or more physician visits with one of the following diagnoses: osteoporosis (ICD–9–CM code 733), hip fracture (ICD–9–CM codes 820–821), spine fracture (ICD–9–CM code 805), humerus fracture (ICD–9–CM code 812), wrist fracture (ICD–9–CM codes 813–814) **OR** One or more prescriptions for medications to treat osteoporosis—selective estrogen receptor modulators (ATC code G03XC01); parathyroid hormones and analogues (ATC code H05AA02); calcitonin preparations (ATC code H05BA01); bisphosphonates (ATC codes M05BA01, M05BA02, M05BA03, M05BA04, M05BA07, M05BB01). Prevalence was calculated for fiscal years 2006/07–2008/09 and was age– and sex–adjusted.
11.2	Percutaneous Coronary Intervention	The rate of angioplasty and stent insertion procedures (ICD–9–CM procedure codes 36.01, 36.02, 36.03, 36.05, 36.06, 36.07; CCI codes 1.IJ.50, 1.IJ.57) performed on area residents aged 40 and older over a ten–year period per 1,000 person–years. Note that at the time of analysis, only Manitoba's tertiary hospitals, Health Sciences Centre and St. Boniface General Hospital, were equipped to perform this surgery, so only hospital separations from those two hospitals were included in the analysis in order to prevent double–counting of procedures. Rates were calculated annually and averaged over ten fiscal years, 1999/2000–2008/09, and were age– and sex–adjusted.
12.1	Personal Care Home (PCH) Admissions	The percentage of area residents aged 75 and older admitted to a PCH for the first time in a five–year period. Prevalence was calculated annually and averaged over five fiscal years, 2004/05–2008/09, and was age– and sex–adjusted.
12.2	Personal Care Home (PCH) Residents	The percentage of area residents aged 75 and older residing in a PCH for at least one day in a fiscal year, in a five–year period. Prevalence was calculated annually and averaged over five fiscal years, 2004/05–2008/09, and was age– and sex–adjusted.
6.5	Personality Disorders	The percentage of residents aged 10 and older diagnosed with a personality disorder over a five–year period by either: One or more hospitalizations with a diagnosis for a personality disorder (ICD–9–CM code 301; ICD–10–CA codes F34.0, F60, F61, F62, F68.1, F68.8, F69) **OR** One or more physician visits with a diagnosis for a personality disorder (ICD–9–CM code 301). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.

Section	Indicator	Definition and Corresponding Codes
14.4	Post–AMI Care: Beta Blockers	The crude percentage of residents with an AMI, aged 20 and older, who filled at least one prescription for a beta–blocker within four months of hospital discharge. AMI patients were identified by a hospitalization with a diagnosis of AMI (ICD–9–CM code 410 or ICD–10–CA code I21). Beta–blocker medications were defined by ATC codes C07AA and C07AB. To be included in the analysis, patients had to be alive for the entire four month follow–up period. Patients with a previous hospitalization for an AMI in the three years prior to the index AMI hospitalization were excluded from analyses. Patients with the following diagnoses in hospital in the three years prior to the index event were also excluded from analyses as these diseases are contraindicated to the use of beta–blockers: asthma (ICD–9–CM code 493, ICD–10–CA code J45); chronic obstructive pulmonary disease (ICD–9–CM codes 491 and 492, ICD–10–CA codes J41–J44); peripheral vascular disease (ICD–9–CM codes 443 and 459; ICD–10–CA codes I73, I79.2, I87). Prevalence was calculated for fiscal years 2004/05–2008/09 and was not adjusted for age or sex.
14.5	Potentially Inappropriate Prescribing of Benzodiazepines to Community Dwelling Older Adults	The crude percentage of residents aged 75 and older residing in the community who had at least two prescriptions for benzodiazepines or at least one prescription for benzodiazepines with a greater than 30–day supply in a one–year period. Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05, and N05CD07. Only residents residing in the community are included; residents residing in a PCH for at least one day in a fiscal year are excluded. Prevalence was calculated annually and averaged over five fiscal years, 2004/05–2008/09, and was not adjusted for age or sex.
14.6	Potentially Inappropriate Prescribing of Benzodiazepines to Personal Care Home (PCH) Dwelling Older Adults	The crude percentage of residents aged 75 and older residing in a PCH who had at least two prescriptions for benzodiazepines or at least one prescription for benzodiazepines with a greater than 30–day supply in a one–year period. Benzodiazepines were identified by ATC codes N05BA01, N05BA02, N05BA04–N05BA06, N05BA08, N05BA10, N05BA12, N05CD01, N05CD02, N05CD04, N05CD05 and N05CD07. Only residents residing in a PCH for at least one day in a given fiscal year are included; residents residing in the community are excluded. PCHs with hospital–based pharmacies are excluded as records for drugs dispensed are not included in DPIN. Prevalence was calculated annually and averaged over five fiscal years, 2004/05–2008/09, and was not adjusted for age or sex.
4.1	Premature Mortality Rate (PMR)	The rate of premature deaths among area residents, aged 0 to 74, per 1,000 person–years. Rates were calculated annually and averaged over ten calendar years, 1999–2008, and were age– and sex–adjusted.
8.7.2	Prenatal Alcohol Use	The percentage of women with newborns who reported consuming beverage alcohol during pregnancy. Prevalence was calculated annually and averaged for newborns born in five fiscal years, 2003/04–2007/08, and was adjusted for the mother's age at birth.
8.7.3	Prenatal Smoking	The percentage of women with newborns who reported smoking during pregnancy. Prevalence was calculated annually and averaged for newborns born in five fiscal years, 2003/04–2007/08, and was adjusted for the mother's age at birth.
8.7.5	Relationship Distress	The percentage of women with newborns who reported experiencing relationship distress with their spouse or partner. Prevalence was calculated annually and averaged for newborns born in five fiscal years, 2003/04–2007/08, and was adjusted for the mother's age at birth.
6.6	Schizophrenia	The percentage of residents aged 10 and older diagnosed with schizophrenia over a five–year period by either: One or more hospitalizations with a diagnosis for schizophrenia (ICD–9–CM code 295; ICD–10–CA codes F20, F21, F23.2, F25) **OR** One or more physician visits with a diagnosis for schizophrenia (ICD–9–CM code 295). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.
15.11	Second–Hand Smoke Exposure	The weighted percentage of CCHS survey respondents aged 12 and older who responded "yes" to the question, "Including both household members and regular visitors, does anyone smoke inside your home, every day or almost every day?" Survey participants were limited to those who reported they either did not smoke or did not live alone. Respondents who answered "don't know" or did not answer the question were excluded from analyses. Prevalence was based on CCHS cycles 2.1, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.

Section	Indicator	Definition and Corresponding Codes
15.1	Self–Rated Health Status	The weighted percentage of CCHS survey respondents aged 12 and older who responded "excellent" or "very good" to the question, "In general, would you say your health is: excellent, very good, fair or poor?" and given the clarification, "By health, we mean not only the absence of disease or injury but also physical, mental and social wellbeing." Respondents who answered "don't know" or did not answer the question were excluded from analyses. Prevalence was based on CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
15.2	Self–Rated Mental Health	The weighted percentage of CCHS survey respondents aged 12 and older who responded "excellent" or "very good" to the question, "In general, would you say your mental health is: excellent, very good, fair or poor?" Respondents who answered "don't know" or did not answer the question were excluded from analyses. Prevalence was based on CCHS cycles 2.1, 2.2, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
15.10	Smoking	The weighted percentage of CCHS survey respondents aged 12 and older who reported as being current smokers (includes daily smoker, occasional daily smoker (former daily smoker), and always an occasional smoker); former smokers (includes former daily smoker and former occasional smoker); and non–smokers (includes never smoked). It is based on a series of questions on smoking habits. Respondents who did not answer all of the questions required for the derived value were excluded from analyses. Prevalence was based on CCHS cycles 1.1, 2.1, 2.2, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.
5.4	Stroke	The rate of hospitalization or death due to stroke among residents aged 40 and older, per 1,000 person–years, defined by either the "most responsible diagnosis" field for hospitalization or the cause of death field in Vital Statistics files (ICD–9–CM codes 431, 434, 436; ICD–10–CA codes I61, I63, I64). Transfers between hospitals were tracked and only hospital episodes were counted, not individual separations, to avoid double–counting. Rates were calculated annually and averaged over nine fiscal years, 1999/2000–2007/08, and were age– and sex–adjusted.
6.4	Substance Abuse	The percentage of residents aged 10 and older diagnosed with substance abuse disorder over a five–year period by either: One or more hospitalizations with a diagnosis for alcoholic or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs (ICD–9–CM codes 291, 292, 303, 304, 305; ICD–10–CA codes F10–F19, F55) **OR** One or more physician visits with a diagnosis for alcoholic or drug psychoses, alcohol or drug dependence, or nondependent abuse of drugs (ICD–9–CM codes 291, 292, 303, 304, 305). Prevalence was calculated for fiscal years 2004/05–2008/09 and was age– and sex–adjusted.

Section	Indicator	Definition and Corresponding Codes
4.5	Suicide or Suicide Attempt	The percentage of residents aged 10 and older who completed or attempted suicide at least once in a calendar year, measured over a nine–year period by either: Suicides were defined as any death record in Vital Statistics data with any of the following causes: accidental poisoning (ICD–9–CM codes E850–E854, E858, E862, E868; ICD–10–CA codes X40–X42, X46, X47); poisoning with undetermined intent (ICD–10–CA codes Y10–Y12, Y16, Y17); self–inflicted poisoning (ICD–9–CM codes E950–E952, ICD–10–CA codes X60–X69); self–inflicted injury by hanging, strangulation, and suffocation (ICD–9–CM code E953, ICD–10–CA code X70); self–inflicted injury by drowning (ICD–9–CM code E954, ICD–10–CA code X71); self–inflicted injury by firearms and explosives (ICD–9–CM code E955, ICD–10–CA codes X72–X75); self–inflicted injury by smoke, fire, flames, steam, hot vapours, and hot objects (ICD–9–CM codes E958.1, E958.2; ICD–10–CA codes X76, X77); self–inflicted injury by cutting and piecing instruments (ICD–9–CM code E956; ICD–10–CA codes X78, X79); self–inflicted injury by jumping from high places (ICD–9–CM code E957, ICD–10–CA code X80); self–inflicted injury by jumping or lying before a moving object (ICD–9–CM code E958.0, ICD–10–CA code X81); self–inflicted injury by crashing of motor vehicle (ICD–9–CM code E958.5, ICD–10–CA code X82); self–inflicted injury by other and unspecified means (ICD–9–CM codes E958.3, E958.4, E958.6–E958.9; ICD–10–CA codes X83, X84); late effects of self–inflicted injury (ICD–9–CM code E959) Suicide attempts were defined as: A hospitalization with a diagnosis for suicide and self–inflicted injury (ICD–9–CM codes E950–E959, ICD–10–CA codes X60–X84) **OR** A hospitalization with a diagnosis code for accidental poisoning (ICD–9–CM codes 965, 967, 969, 977.9, 986, E850–E854, E858, E862, E868; ICD–10–CA codes T39, T40,T42.3, T42.4, T42.7,T43, T50.9, T58, X40–X42, X44, X46, X47, Y10–Y12, Y16, Y17) only if there is a physician visit with a diagnosis code for accidental poisoning and a psychiatric tariff code either during the hospital stay or within 30 days post days post–discharge. Psychiatric tariff codes from the psychiatric schedule (8444, 8446, 8472, 8475, 8476, 8503, 8504, 8553, 8554, 8581, 8584, 8588, 8596) and from the general schedule (8580, 8587, 8589). Prevalence was calculated annually and averaged over nine calendar years, 1999–2007, and was age– and sex–adjusted.
8.2	Teen Pregnancy	The rate of pregnancy and birth (including all live and still births, abortions, and ectopic pregnancies) among females aged 15 to 19, per 1,000 person–years, defined by either: A hospitalization with one of the following diagnoses: live birth (ICD–9–CM code V27, ICD–10–CA code Z37); missed abortion (ICD–9–CM code 632, ICD–10–CA code O02.1); ectopic pregnancy (ICD–9–CM code 633, ICD–10–CA code O00); abortion (ICD–9–CM codes 634–637, ICD–10–CA codes O03–O07); intrauterine death (ICD–9–CM code 656.4, ICD–10–CA code O36.4) **OR** A hospitalization with one of the following procedures: surgical termination of pregnancy (ICD–9–CM codes 69.01, 69.51, 74.91; CCI codes 5.CA.89, 5.CA.90); surgical removal of extrauterine (ectopic) pregnancy (ICD–9–CM codes 66.62, 74.3; CCI code 5.CA.93); pharmacological termination of pregnancy (ICD–9–CM code 75.0, CCI code 5.CA.88); interventions during labour and delivery (CCI codes 5.MD.5, 5.MD.60). Rates were calculated annually and averaged over ten fiscal years, 1999/2000–2007/08, and were age–adjusted.
8.7.1	Three or More Family Risk Factors at Birth of Child	The percentage of families with newborns that had three or more risk factors. Prevalence was calculated annually and averaged for newborns born in five fiscal years, 2003/04–2007/08, and was adjusted for the mother's age at birth.

Section	Indicator	Definition and Corresponding Codes
4.2	Total Mortality	The rate of deaths among area residents, per 1,000 person–years. Rates were calculated annually and averaged over ten calendar years, 1999–2008, and were age– and sex–adjusted.
15.12	Total Physical Activity (Work, Travel, and Leisure)	The weighted percentage of CCHS survey respondents aged 15 to 75 who reported as being physically active (27.7 kcal/kg/day or more), moderately physically active (15.4–27.6 kcal/kg/day), or inactive (0–15.3 kcal/kg/day), derived the average estimated daily energy expenditure values (kcal/kg/day) calculated from a series of questions on physical activity, including usual daily activities or occupational–related physical activity, physical activity for travel (such as biking or walking to school or work), and leisure time physical activity (i.e., walking, running, gardening, soccer) by the respondent in the past three months. Respondents who did not answer all of the questions required for the derived value were excluded from analyses. Prevalence was based on CCHS cycles 1.1, 1.2, 2.1, and 3.1 and was age– and sex–adjusted to the weighted CCHS population.
5.7	Total Respiratory Morbidity	The percentage of residents (all ages) diagnosed with any of the following respiratory illnesses in at least one physician visit or hospitalization in one year: asthma, acute bronchitis, chronic bronchitis, bronchitis not specified as acute or chronic, emphysema or chronic airway obstruction (ICD–9–CM codes 466, 490, 491, 492, 493, 496; ICD–10–CA codes J20, J21, J40–J45). Prevalence was calculated for fiscal year 2008/09 and was age– and sex–adjusted.
9.1	Use of Physicians (At Least One Visit over the Past Year)	The percentage of area residents (all ages) who had at least one ambulatory visit in a one–year period. Ambulatory visits include virtually all contacts with physicians, except during inpatient hospitalizations. Prevalence was calculated for fiscal year 2008/09 and was age– and sex–adjusted.
9.5	Use of Physicians with Capacity to Offer Services in French	The percentage of the Francophone Cohort who had one or more visits to a physician with the capacity to offer services in French in a one–year period. This was limited to those who had one or more physician visits in 2008/09. Physicians who self–reported the capacity to offer services in French were identified through publicly available data from the College of Physicians and Surgeons of Manitoba website. Under the heading language, the presence of any of the following were considered as having the capacity to offer services in French: French, French (some), Some French, Partially fluent French, French (working knowledge), Basic French, Interpreters available for French, or French interpretation available. Prevalence was calculated for fiscal year 2008/09 and was age– and sex–adjusted.
15.6	Work Stress	The weighted percentage of CCHS survey respondents aged 15 to 75 who responded "quite a bit stressful" or "extremely stressful" to the question, "The next question is about your main job or business in the past 12 months. Would you say that most days were: not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful?" Survey participants were limited to those who did not respond "no" to the question, "Have you worked at a job or business at any time in the past 12 months?" Respondents who answered "don't know" or did not answer the question were excluded from analyses. Prevalence was based on CCHS cycles 1.1, 1.2, 2.1, 3.1, 2007, and 2008 and was age– and sex–adjusted to the weighted CCHS population.

Source: Manitoba Centre for Health Policy, 2012

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