THE COST OF SMOKING: A MANITOBA STUDY



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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, College of Medicine, Faculty of Health Sciences, University of Manitoba. The mission of MCHP is to provide accurate and timely information to healthcare decision–makers, analysts and providers, so they can offer services which are effective and efficient in maintaining and improving the health of Manitobans. Our researchers rely upon the unique 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, Healthy Living & Seniors. 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 Health Sciences, College 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, Healthy Living & Seniors.





TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T



DR. PATRICIA J. MARTENS | 1952-2015

Dr. Patricia Martens was many things-far too many to capture in writing.

An internationally recognized scholar: a fellow of the Royal Society of Canada and of the Academy of Health Sciences, inaugural recipient and namesake for the Journal of Human Lactation Patricia Martens Annual Award for Excellence in Breastfeeding Research, recipient of the Canadian Public Health Association's RD Defries Lifetime Achievement Award (their highest award), and the 2014 Justice Emmett Hall Laureate. Dr. Martens published over 300 peer-reviewed chapters, articles, and abstracts. Her contributions to research that improved the lives of countless Manitobans and Canadians were recognized in 2013 when she received the Order of Canada.

A teacher and mentor: she was a high school math and science teacher, an international board certified lactation consultant and a La Leche League leader; she taught graduate-level courses at the University of Manitoba and Canadian Institutes for Health Research; she was advisor to many MSc and PhD students at the University of Manitoba as well as to postdoctoral fellows; she taught Sunday school at her local church in rural Manitoba; and she always seemed to have time to mentor the scientists, analysts, research coordinators, and research staff with whom she worked.

Pat was a captivating and engaging storyteller. She had a special way of drawing her listeners in, capturing their imaginations, and inspiring them to take what she shared and apply it moving forward; her creative illustrations of difficult statistical concepts—everything from "shift and squish" to "deer jumping off the sign"—have stuck with her listeners for years; her ability to turn data into narrative is part of what made her successful as a teacher, mentor, and scholar.

For ten years, the Manitoba Centre for Health Policy benefited from Dr. Martens' unique talents and attributes. She lead the centre into new and exciting areas of research. She modeled what it means to be an intellectually curious scholar with a focus on doing research for the public good. She avidly pursued methodologically rigorous research with real-world policy application. And, she would often ask herself and the research scientists at the Centre, "What's the story?"

Dr. Patricia Martens led this study from inception to just before her death on January 10, 2015. We will greatly miss her wisdom, her love for research, and her inspiration. Several times over the past few months, staff members have been heard saying, "I wish I could ask Pat..."

This report is dedicated to her memory.

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Several work units at MCHP came together in the project's final stages to proofread the significant amount of numerical results that support our conclusions. We appreciate the time and effort given by research coordinators, research assistants, and research support personnel to help us deliver a polished, accurate report.

The authors express their apologies for inadvertently omitting anyone's name for these acknowledgements.

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TABLE OF CONTENTS

Acronyms	xxi
Executive Summary	xxiii
Key Findings	xxiv
Conclusion	xxviii
Chapter 1: Introduction	
Background and Context	1
Purpose and Hypotheses	2
Working Through the Results Chapters—An Overview of Their Contents	2
Limitations of the Study	4
Chapter 2: Literature Review	7
Literature Review 1: The Healthcare Burden Attributable to Smoking	7
Literature Review 2: Covariates that may Confound the Relationship Between Smoking Status and Healthcare Use	25
Chapter 3: Methods	
Introduction	27
Data Source	27
The Population Health Research Data Repository	27
Survey Data	
Administrative Data	29
Survey Respondents Linked to Administrative Data	
Exclusions	
Defining Cigarette Smoking Status	
Cigarette Smoking as a Dichotomous Status	32
Cigarette Smoking as a Categorical Status	
Outcome Variables: Healthcare Use	
Outcome Variables: Mortality, Years of Life Lost, and Life Expectancy	35
Outcome Variables: Cancer	
Statistical Analyses	
Confounding	
Smoking-Trend Models	
Outcome Models	
Economic Analyses	41
Strengths and Limitations	42

	Describing the Sample by Dichotomous Smoking Groups
	Prevalence of "Ever Smoked" and "Never Smoked" over Time
	Describing the Sample by Five Categories of Smoking Exposure
ļ	Prevalence of Smoking over Time by Categories of Smoking Exposure
(Changes in Categories of Smoking Exposure Post-Survey: Analysis of the Longitudinal NPHS Data
(Comparisons With Existing Literature
(Conclusions
Chap	ter 5: Differences in Healthcare-Use Patterns by Dichotomous Smoking Status ("Ever" vs. "Never")
	Sample Description for Healthcare-Use Analyses Using Dichotomous Smoking Status
	Estimated-Population-Based Sample
	Matched Sample
	Propensity-Score Sample
	Summary of Differences Between Groups After Adjustment
l	Healthcare Service Use: Comparing Respondents who Ever Smoked with those who Never Smoked
	Ambulatory Visits
	Inpatient Hospitalizations
	Days in Hospital
	Defined Daily Doses (DDDs)
	Number of Different Drugs
	PCH Admission Rates and Days in PCH
I	Healthcare Use Summary Tables
	Estimated-Population-Based Analyses
	Matched Based Analysis
	Generalized-Propensity-Score Analysis
:	Summary
Chap	ter 6: Differences in Selected Health Outcomes by Dichotomous Smoking Status ("Ever Smoked" vs. "Never Smoked")
l	Describing the Sample Used in the Analysis of Healthcare Use Patterns
l	Health Outcomes: "Ever Smoked" vs. "Never Smoked"
	Nortality Measures
	Premature Mortality Rate (PMR)
	Potential Years of Life Lost (PYLL)
	Total Mortality Rate
	Mortality Outcomes Summary Tables
	Estimated-Population-Based Analyses

Life expectancy at Age 50	90
Life Expectancy Summary Tables	91
Estimated-Population-Based Analysis	91
Matched-Based Analysis	93
Generalized-Propensity-Score Analysis	95
Cancer Types	97
Lung Cancer	97
Strongly Smoking-Associated Cancers	98
All Cancers	98
Cancer Types Summary Tables	
Estimated-Population-Based Analysis	
Matched Based Analysis	102
Generalized-Propensity-Score Analysis	104
Comparative Studies	
Summary	106
Chapter 7: Differences in Healthcare-Use Patterns by Categorical Smoking Status	109
Introduction	109
Description of Smoking-Status Categories Used in Healthcare-Use-Pattern Analyses	
Estimated-Population-Based Analyses	109
Generalized-Propensity-Score Analysis	109
Healthcare Service Use, Comparing Various Categories of Smoking	114
Ambulatory Physician Visits	114
Inpatient Hospitalizations	114
Number of Days in Hospital	115
Defined Daily Doses (DDDs)	115
Number of Different Drugs	115
Admission Rates and Days Spent in Personal Care Homes	116
Healthcare Use Summary Tables	117
Estimated-Population-Based Analyses	117
Generalized-Propensity-Score Analysis	121
Summary	125
Chapter 8: Differences in Health Outcomes by Categorical Smoking Status	127
Mortality Outcomes by Categorical Smoking Status	127
Premature Mortality Rate (PMR)	127
Potential Years of Life Lost (PYLL)	127
Total Mortality Rate	128
Mortality Outcomes Summary Tables	129
Estimated-Population-Based Analyses	129
Generalized-Propensity-Score Analysis	131

Life Expectancy at Age 50	
Life Expectancy Summary Tables	134
Estimated-Population-Based Analyses	134
Generalized-Propensity-Score Analysis	
Cancer Incidence by Categories of Smoking Status	
Lung Cancer	138
Strongly Smoking-Associated Cancers	138
All Cancers	
Cancer Types Summary Tables	140
Estimated-Population-Based Analyses	140
Generalized-Propensity-Score Analysis	142
Comparative Studies	144
Summary	144
Chapter 9: The Excess Healthcare Costs Associated with Smoking	145
Sample Descriptions for the Analysis of Healthcare Costs by Dichotomous Smoking Status	145
Estimated-Population-Based Sample	145
Matched Sample	145
Propensity-Score Sample and Methods	145
Healthcare Costs: Putting Prices on Use of Healthcare Resources	146
Cost of Physician Services	146
Cost of Prescription Drugs	146
Standard Costing: Adjusting to 2010 Canadian Dollars	146
Hospital Use	146
Calculating the Excess System Costs Incurred by Respondents Who Ever Smoked	147
Population-Based Method	147
Matched Method	149
Propensity-Score Method	150
Summary	152
Limitations of the Analysis	153
Chapter 10: Conclusion	155
Summary	
Key Findings	
Characteristics of People Who Smoked	
Smoking Prevalence	
Difference in Healthcare Use: "Ever Smoked" vs. "Never Smoked"	156
Difference in Health Outcomes: "Ever Smoked" vs. "Never Smoked"	156
Difference in Healthcare Use: Comparing Five Categories of Smoking Status	157
Difference in Health Outcomes: Comparing Five Categories of Smoking Status	157
The Healthcare Costs Attributable to Smoking in Manitoba	

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

Limitations	158
Strengths	159
Conclusions and Further Research	159
Reference List	
Glossary of Terms and Technical Definitions	
Appendix 1	193
Appendix 2	197
Descriptives	197
Population Based Rates	
Matched Rates	
Propensity Score Rates	207
Appendix 3	
Population Based Rates	
Matched Rates	213
Propensity Score Rates	215
Appendix 4	
Descriptives	217
Population Based Rates	223
Propensity Score Rates	253
Appendix 5	
Population Based Rates	
Propensity Score Rates	
Appendix 6	
Recent MCHP Publications	

LIST OF FIGURES

Figure E.1: Propensity Score Relative Rates of Healthcare Utilization for Ever Smoked 5 Years After Survey	xxviii
Figure E.2: Propensity Score Relative Rates of Cancer Types for Ever Smoked 5 Years After Survey	xxix
Figure E.3: Propensity Score Life Expectancy at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey	xxx
Figure 4.1: Percent of Respondents who Reported Ever Smoking, by Survey Year	51
Figure 4.2: Prevalence of Ever Smoked: Measured versus Estimated	52
Figure 4.3: Percent of Respondents by Smoking Status Categories, by Survey Year	58
Figure 5.1: Estimated Population-Based Annualized Rates of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey	71
Figure 5.2: Matched Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey	74
Figure 5.3: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey	77
Figure 6.1: Estimated-Population-Based Annualized Rates of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey	85
Figure 6.2: Matched Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey	87
Figure 6.3: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey	89
Figure 6.4: Estimated-Population-Based Life Expectancy at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey	92
Figure 6.5: Matched Life Expectancy at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey	94
Figure 6.6: Propensity-Score Life Expectancy at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey	96
Figure 6.7: Estimated-Population-Based Annualized Rates of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey	101
Figure 6.8: Matched Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey	103
Figure 6.9: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey	105
Figure 7.1: Population Based Annualized Rates of Healthcare Use by Smoking Status Categories	119
Figure 7.2: Propensity-Score Annualized Rates of Healthcare Use by Smoking Status Categories	123
Figure 8.1: Population Based Annualized Rates for Mortality Measures, by Smoking Status Categories	130
Figure 8.2: Propensity-Score Annualized Rates for Mortality Measures, by Smoking Status Categories	132
Figure 8.3: Estimated-Population-Based Life Expectancy at age 50 by Smoking Status Categories	135
Figure 8.4: Propensity-Score Life Expectancy at age 50 by Smoking Status Categories	137
Figure 8.5: Population Based Annualized Rates for Cancer Types, by Smoking Status Categories	141
Figure 8.6: Propensity-Score Annualized Rates for Cancer Types, by Smoking Status Categories	143

Appendix Figure 1.1: Percent of Respondents who Reported Ever Smoking, by Sex and Survey Year	3
Appendix Figure 1.2: Percent of Respondents who Reported Ever Smoking, by Age Group and Survey Year 192	3
Appendix Figure 1.3: Percent of Male Respondents who Reported Ever Smoking, by Age Group and Survey Year194	4
Appendix Figure 1.4: Percent of Female Respondents who Reported Ever Smoking, by Age Group and Survey Year194	4
Appendix Figure 1.5: Percent of Respondents who Reported Ever Smoked One Whole Cigarette and Ever Smoked 100+ Cigarettes by CCHS Survey Year	5
Appendix Figure 1.6: Percent of Respondents who Reported Current Daily Smoking and Daily or Occasional Smoking, by Survey Year	6

LIST OF TABLES

Table 2.1. Elterature Summary. Healthcare Burden Attributable to Smoking	9
Table 2.2: Literature Summary: Confounding Covariates Between Smoking Status and Healthcare Use	26
Table 3.1: Surveys and Survey Years Used in Study	28
Table 3.2: Observation Period for Each Survey	29
Table 3.3: Number of Survey Respondents Linked to Administrative Data	
Table 3.4: Study Exclusions in Order of Application	31
Table 3.5: Number of Linked Respondents Eligible for Study After Exclusions	31
Table 3.6: Questions Used to Measure Smoking Status for Ever Smoked and Never Smoked by Survey	32
Table 3.7: Final Analytic Sample: Ever Versus Never Smoked	32
Table 3.8: Final Analytic Sample: Smoking Status Categories	33
Table 4.1: Estimated-Population-Based Sample by Ever Smoked and Never Smoked by Survey	45
Table 4.2: Crude Prevalence of Never Smoked	46
Table 4.3: Basic Descriptive Statistics of the Estimated-Population-Based Sample by Ever Smoked and Never Smoked	47
Table 4.4: Chronic Diseases of Estimated-Population-Based Sample at Time of Survey by Ever Smoked and Never Smoked	49
Table 4.5: Percent of Respondents who Reported Ever Smoking, by Survey Year	50
Table 4.6: Estimated-Population-Based Sample by Smoking Status Categories by Survey	53
Table 4.7: Basic Descriptive Statistics of Estimated-Population-Based Sample by Smoking Status Cate	gories 55
Table 4.8: Chronic Diseases of Estimated-Population-Based Sample at Time of Survey by Smoking Status Categories	57
Table 4.9: Percent of Respondents by Smoking Status Categories, by Survey Year	59
Table 5.1: Matched Sample by Ever Smoked and Never Smoked by Survey	62
Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey	
Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey Table 5.3: Statistically Significant Differences in Basic Descriptives Between Ever Smoked and Never Smoked, by Analytic Approach	63
 Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey Table 5.3: Statistically Significant Differences in Basic Descriptives Between Ever Smoked and Never Smoked, by Analytic Approach Table 5.4: Statistically Significant Differences in Chronic Diseases at Time of Survey Between Ever Smoked, by Adjustment Strategy 	63 64 bked 66
 Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey Table 5.3: Statistically Significant Differences in Basic Descriptives Between Ever Smoked and Never Smoked, by Analytic Approach Table 5.4: Statistically Significant Differences in Chronic Diseases at Time of Survey Between Ever Smoked, nd Never Smoked, by Adjustment Strategy Table 5.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smokedand Never Smoked by Number of Years After Survey 	63 64 oked
 Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey Table 5.3: Statistically Significant Differences in Basic Descriptives Between Ever Smoked and Never Smoked, by Analytic Approach Table 5.4: Statistically Significant Differences in Chronic Diseases at Time of Survey Between Ever Smoked and Never Smoked, by Adjustment Strategy	63 64 oked 66
 Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey Table 5.3: Statistically Significant Differences in Basic Descriptives Between Ever Smoked and Never Smoked, by Analytic Approach Table 5.4: Statistically Significant Differences in Chronic Diseases at Time of Survey Between Ever Smoked Never Smoked, by Adjustment Strategy	63 64 oked
 Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey	
 Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey	63 64 oked
 Table 5.2: Propensity-Score Sample by Ever Smoked and Never Smoked by Survey	

Table 6.5: Matched Life Expectancy at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey	93
Table 6.6: Propensity-Score Life Expectancy at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey	95
Table 6.7: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey	100
Table 6.8: Matched Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey	102
Table 6.9: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey	104
Table 7.1: Propensity-Score Sample by Smoking Status Categories by Survey	110
Table 7.2: Statistically Significant Differences in Basic Descriptives at Time of Survey Between Smoking Status Categories and Never Smoked, by Adjustment Strategy	111
Table 7.3: Statistically Significant Differences in Chronic Diseases at Time of Survey Between Smoking Status Categories and Never Smoked, by Adjustment Strategy	113
Table 7.4: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey	117
Table 7.5: Propensity-Score Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey	121
Table 8.1: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey	129
Table 8.2: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey	131
Table 8.3: Estimated-Population-Based Life Expectancy at age 50 by Smoking Status Categories	134
Table 8.4: Propensity-Score Life Expectancy at age 50 by Smoking Status Categories	136
Table 8.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 10 Years After Survey	140
Table 8.6: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 10 Years After Survey	142
Table 9.1: Estimated-Population-Based Excess Healthcare Costs Incurred by Ever Smoked	148
Table 9.2: Matched Excess Healthcare Costs Incurred by Ever Smoked	149
Table 9.3: Propensity-Score Excess Healthcare Costs Incurred by Ever Smoked	150
Table 9.4: Total Excess Healthcare Costs Incurred by Ever Smoked Compared to Never Smoked	151
Table 9.5: Average Annual Excess Healthcare Costs Incurred by Ever Smoked Compared to Never Smoked	152
Appendix Table 1.1: Poisson Regression to Test Time Trend of Smoking Prevalence, 1989-2011	195
Appendix Table 2.1: Basic Descriptive Statistics of Matched Sample by Ever Smoked and Never Smoked	197
Appendix Table 2.2: Chronic Diseases of Matched Sample at Time of Survey by Ever Smoked and Never Smoked	198
Appenidx Table 2.3: Basic Descriptive Statistics of Propensity-Score Sample by Ever Smoked and Never Smoked	199
Appendix Table 2.4: Chronic Diseases of Propensity-Score Sample at Time of Survey by Ever Smoked and Never Smoked	200
Appendix Table 2.5: Adjusted Basic Descriptive Statistics of Propensity-Score Sample by	
Ever Smoked and Never Smoked	201

Appendix Table 2.6: Adjusted Chronic Diseases of Propensity-Score Sample at Time of Survey by Ever Smoked and Never Smoked202
Appendix Table 2.7: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey
Appendix Table 2.8: Additional Matched Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey206
Appendix Table 2.9: Additional Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey207
Appendix Table 3.1: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey
Appendix Table 3.2: Additional Estimated-Population-Based Life Expectancy at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey
Appendix Table 3.3: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey211
Appendix Table 3.4: Additional Matched Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey
Appendix Table 3.5: Additional Matched Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey
Appendix Table 3.6: Additional Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey
Appendix Table 3.7: Additional Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey
Appendix Table 4.1: Basic Descriptive Statistics of Propensity-Score Sample by Smoking Status Categories217
Appendix Table 4.2: Chronic Diseases of Propensity-Score Sample at Time of Survey by Smoking Status Categories
Appendix Table 4.3: Adjusted Basic Descriptive Statistics of Propensity-Score Sample by Smoking Status Categories
Appendix Table 4.4: Adjusted Chronic Diseases of Propensity-Score Sample at Time of Survey by Smoking Status Categories
Appendix Table 4.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 1 Year After Survey
Appendix Table 4.6: Estimated-Population-Based Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 3 Years After Survey
Appendix Table 4.7: Additional Estimated-Population-Based Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey
Appendix Table 4.8: Estimated-Population-Based Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 10 Years After Survey
Appendix Table 4.9: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 1 Year After Survey
Appendix Table 4.10: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 3 Years After Survey
Appendix Table 4.11: Additional Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey

Appendix Table 4.1	2: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 10 Years After Survey	263
Appendix Table 5.1	: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 1 Year After Survey	267
Appendix Table 5.2	: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 3 Years After Survey	271
Appendix Table 5.3	: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey	275
Appendix Table 5.4	: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 10 Years After Survey	278
Appendix Table 5.5	: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 1 Year After Survey	282
Appendix Table 5.6	: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 3 Years After Survey	280
Appendix Table 5.7	: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 5 Years After Survey	29
Appendix Table 5.8	: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 10 Years After Survey	29
Appendix Table 5.9	: Estimated-Population-Based Life Expectancy at age 50 by Smoking Status Categories	29
Appendix Table 5.1	0: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 1 Year After Survey	29
Appendix Table 5.1	1: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 3 Years After Survey	30
Appendix Table 5.1	2: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey	30
Appendix Table 5.1	3: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 10 Years After Survey	30
Appendix Table 5.1	4: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 1 Year After Survey	30
Appendix Table 5.1	5: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 3 Years After Survey	30
Appendix Table 5.1	6: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 5 Years After Survey	31
Appendix Table 5.1	7: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 10 Years After Survey	31
Appendix Table 6.1	: Total and Average Physician Costs by Ever and Never Smoked	31
Appendix Table 6.2	: Total and Average Hospital Costs (using 2010/11 CWC) by Ever and Never Smoked	31
Appendix Table 6.3	: Total and Crude Prescription (Rx) Drug Costs and Personal Care Home (PCH) Rx Costs by Ever and Never Smoked	31
Appendix Table 6.4	: Total In-year Hospital Days and Crude Average Days by Ever and Never Smoked	31
Appendix Table 6.5	: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of Ever Smoked and Never Smoked by Number of Years After Survey	31
Appendix Table 6.6	: Matched Annualized Rates, Relative Rates, and Rate Differences for Costs of Ever Smoked and Never Smoked by Number of Years After Survey	31

for Costs of Smoking Status Categories, 3 Years After Survey	,
Appendix Table 6.10: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 5 Years After Survey)
Appendix Table 6.11: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 10 Years After Survey	
Appendix Table 6.12: Estimated Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 1 Year After Survey	,
Appendix Table 6.13: Estimated Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 3 Years After Survey)
Appendix Table 6.14: Estimated Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 5 Years After Survey	

ACRONYMS

ACG	Adjusted Clinical Group
ADG	Aggregated Diagnosis Group
ATC	Anatomical Therapeutic Chemical
ATT	Average Treatment Effect in Treated
BMI	Body Mass Index
ССМВ	CancerCare Manitoba
CCHS	Canadian Community Health Survey
CI	Confidence Interval
CIHI	Canadian Institute for Health Information
CWC	Cost per Weighted Case
DA	Dissemination Area
DDD	Defined Daily Dose
FP	Family Practitioner
GP	General Practitioner
GLM	Generalized Linear Model
HDPS	High Dimensional Propensity Score
ICD	International Classification of Diseases
IHD	Ischemic Heart Disease
IPTW	Inverse Probability Treatment Weight
МСНР	Manitoba Centre for Health Policy
MHHS	Manitoba Heart Health Survey
NPHS	National Population Health Survey
РСН	Personal Care Home
PHIN	Personal Health Information Number
PMR	Premature Mortality Rate
PYLL	Potential Years of Life Lost
RHA	Regional Health Authority
RIW	Resource Intensity Weight
RUB	Resource Utilization Band
TRM	Total Respiratory Morbidity
WHO	World Health Organization

EXECUTIVE SUMMARY

The focus of this study was to estimate the burden and cost of smoking on the healthcare system in Manitoba. This was accomplished using the Population Health Research Data Repository (Repository) housed at the Manitoba Centre for Health Policy (MCHP). MCHP is a research unit in the Department of Community Health Sciences, in the College of Medicine, Faculty of Health Sciences, at the University of Manitoba. The Repository contains information on contacts with health and social services for all people registered in the province's universal healthcare program. Although linkable at the person level through time and between databases, Repository data are de-identified; i.e., they contain no names nor complete addresses. The data are stored using security measures to protect privacy. Like all projects at MCHP, this one received approval from the Health Research Ethics Board of the College of Medicine; the Manitoba Government's Health Information Privacy Committee also received notification of the study.

The purpose of this report is to quantify the provincial healthcare burden due to use and costs incurred by Manitobans who have smoked cigarettes or are currently smoking cigarettes. However, there are very few sources of information available that quantify the smoking behaviours of the population. Therefore, we needed to link our data to surveys that asked appropriate questions: the Manitoba Heart Health Survey (MHHS), the National Population Health Survey (NPHS), and 10 cycles of the Canadian Community Health Survey (CCHS). There were 25,113 people who ever smoked; of those, 17,961 were part of the CCHS surveys (71.52%), 5,428 were from the NPHS, and 1,724 from the MHHS. Of the 23,469 who never smoked, 18,658 were part of the CCHS surveys (79.50%), 3,925 were from the NPHS, and 886 from the MHHS. Therefore, the majority of the sample (48,582 people) were surveyed in the various cycles of CCHS from 2000/2001 to 2011.

Chapter 1 is the introduction. Chapter 2 briefly reviews the literature currently published in the area of smoking and healthcare burden and costs. Chapter 3 describes the study's methodology in significant detail for the different analyses for each outcome measure. We used three approaches to adjust for the differences between those who reported smoking and those who never smoked: (1) an estimated-population-based analysis that adjusted for age, sex, regional health authority (RHA), and socioeconomic status; (2) a matched analysis based on age, sex, RHA, and socioeconomic status; and (3) a propensity score analysis which adjusted for many confounding variables. Chapter 4 describes the sample used; it gives details about the similarities and differences among the various categories of smoking groups, and describes the prevalence of smoking over time for Manitobans. Smoking exposure was defined using two approaches. In the first, we distinguished between having "ever" smoked and having "never" smoked. It is important to note that the surveys used in this dichotomous approach allowed those identifying as having "never smoked" to have smoked up to 100 cigarettes. In the second approach, we used more refined categories: (1) current daily smoker at time of survey; (2) former daily smoker five years or less before survey (i.e., the individual quit daily smoking within five years of the survey); (3) former daily smoker more than five years before survey; (4) never a daily smoker and occasional smoker (this includes both current and former occasional smokers); and (5) never a smoker (never smoked even one cigarette). By smoking category, the sample sizes are current daily smoker (n=7,091); former daily \leq 5 years (n=2,684); former daily > 5 years (n=7,223); never a daily smoker (n=5,894); and never smoked (n=15,387). The total sample size was 38,279. MHHS only had a limited question on smoking behavior, which could only be used for the dichotomous—ever smoked vs. never smoked—analyses. Chapters 5 and 7 both look at healthcare service use (physician use, hospital use, pharmaceutical use, and use of nursing homes, hereafter referred to as personal care homes). The difference is that chapter 5 uses just the dichotomous comparative groups, and chapter 7 uses more refined categories of smoking. Chapters 6 and 8 also parallel each other, using the dichotomous and categorical analyses, respectively, but focus on mortality and cancer outcomes.

Finally, chapter 9 uses data on resource intensity and costs at the person level in the administrative files of hospitals, physicians, and drug programs. Because Manitoba has a universal pharmaceutical insurance plan, data are available for all prescriptions dispensed to residents from community pharmacies (this does not include those distributed during a hospital stay).

We ran analyses on the outcomes of health and healthcare use at one, three, five, and 10 years post-survey. For a majority of the sample, smoking status could only be measured at a single point in time; however, we recognized that individuals may change their smoking status over time. We did explore this issue with a subset of respondents by analyzing one longitudinal database (NPHS) to measure individual-level changes in smoking status over time. We observed that—in general—people are reducing their smoking. If this pattern holds for other individuals in the sample, our findings may be more conservative than reality.

All results—for example, hospitalizations—have been annualized at the one-, three-, five- and 10-year marks. For the key findings summarized by chapter below, we mainly focus on the five-year-post-survey data. In other words, all of the hospitalizations up to a five-year mark are included and then divided by five person-years to give an average over the five-year period. Data are available for the one-, three-, five-, and 10-year marks in either the main body of the text or in appendices.

Key Findings

Chapter 4

- In general, those who ever smoked were more likely to be older, male, from Interlake-Eastern or Northern RHA, living in the lowest income quintile urban area neighbourhoods (U1), more likely to binge drink (24.65% versus 12.65%, p<.05), and more likely to be overweight or obese. Individuals who had ever smoked were less likely to be living in the top urban income quintile neighbourhoods (U5), and less likely to be physically active. Each of these factors is associated with whether or not a person ever smoked and with the outcomes studied in this report. Therefore, they may confound our understanding of the relationship between smoking and healthcare use and healthcare costs. In order to focus on the effect of smoking on these outcomes, it is necessary to adjust for such factors.
- Those in the "ever smoked" group were more likely to have self-reported or administrative-based diagnoses of
 arthritis, cancer, diabetes, hypertension, ischemic heart disease, stroke, and mood and anxiety disorders, but less
 likely to have osteoporosis. A rather striking finding is that those in the "former daily smoker more than five years
 before survey" category showed elevated morbidities; both self-reported data and administrative-database
 diagnoses indicate greatly elevated arthritis, cancer, diabetes, hypertension, ischemic heart disease and stroke in
 this group compared to all other groups. This likely reflects the fact this group of respondents were, on average,
 older than other groups. It is possible that this group may have cut down their smoking due to health concerns
 in the past. Caution must be exerted in interpreting data from this category due to their obvious comorbidity
 profile.
- The prevalence of Manitobans who had ever smoked decreased over time from 1989 to 2011. The adjusted rate (weighted for the Manitoba population, and age- and sex-adjusted) has fallen from 65.5% (95% CI 62.7-68.2) in 1989 to 41.7% (95% CI 38.3-45.2). This is a statistically significant trend downward (p<.05). However, it is still a critical public health issue that over 40% of the population aged 12 and older report having ever smoked. In 2011, 44.2% (95% CI 41.0-47.5) of the Manitoba population reported having never smoked, which means that the majority of the population has smoked at some period in their life.
- Looking at more specific categories of smoking behavior, the trends over time among the smoking categories show distinct patterns. The percentage of people reporting current daily smoking at the time of survey decreased from 21.7% in 1996 to 13.9% in 2011. The categories "former daily smoker five years or less before survey" and "former daily smoker over five years before survey" did not show much variation over time. However, the u-shaped curve for the "never smoked" category is strikingly different; it begins at 43.6% in 1996, drops to 36.2% in 2003, and rises again to 44.2% in 2011.

Chapter 5

Our first step was to examine whether those who reported ever smoking had different healthcare use patterns compared with those who reported never smoking. The surveys defined "never smoked" roughly, allowing for the respondent to have smoked up to 100 cigarettes in a lifetime. This would, if anything, bias our results towards the null hypothesis of no difference in healthcare use between people who have "ever smoked" versus "never smoked." Therefore, the real differences in healthcare use between those who "ever smoked" and those who "never smoked" may be larger than what are reported here. Surprisingly, even with a rough distinction between ever and never smoking, we consistently found that those in the "ever" category had an elevated use of the healthcare system across a variety of sectors: hospitalizations, ambulatory visits, and prescription drugs. We observed this pattern in each of our analyses, including the most conservative propensity-score-adjusted models. The exception was use of personal care homes, where we did not find statistically significant differences between people who had ever smoked and people who had never smoked.

- The strongest relationship was found between smoking status and hospitalization; compared with those who never smoked, respondents who reported ever smoking had between 16% and 48% increased risk for hospitalization and 16% to 49% more days spent in hospital. Note that the wide range reflects the various analytic strategies used in this study.
- Those who reported ever smoking had between 4% and 14% more ambulatory-care visits per person-year.
- Those who ever smoked had increased pharmaceutical use; they also had between 9% and 25% increased number of prescription drugs and 0 to 25% increased defined daily doses of pharmaceuticals, per person-year.

Chapter 6

We examined the relationship that smoking has with mortality (premature mortality rate, potential years of life lost, total mortality rate); life expectancy at age 50; and cancer (lung cancer rates, cancers shown to be highly associated with smoking and overall cancer rates).

- After adjusting for confounding variables, we found very few differences in premature mortality rates and potential years of life lost between those who ever smoked and those who never smoked. Those who ever smoked also had increased total mortality, between 42% and 113%.
- Those in the "ever smoked" category had elevated mortality rates. However, in Manitoba premature mortality is rare. This is important to consider when interpreting our life-expectancy results. When modeling life expectancy at age 50, we found very little difference between those who ever smoked and those who never smoked. Indeed, females who never smoked had a life expectancy of 84.22 years and females who ever smoked had an estimated life expectancy of 82.86 years. Likewise, men who never smoked had a life expectancy of 80.56 years while men who ever smoked had a life expectancy of 79.16 years. After adjusting for confounding variables, there was less than a year difference in life expectancy between those who ever smoked and those who never smoked. These findings suggest that, if they live 50 years, smokers in Manitoba have an average lifespan into their late 70s and early 80s.
- Not surprisingly, those who ever smoked were found to have an elevated rate of lung cancer compared with
 those who never smoked (between a 474% and a 3,652% increased risk). When we looked at cases of lung, oral
 cavity/pharynx, esophagus, and larynx cancers, we also found that those who ever smoked had an elevated
 risk compared with those that never smoked. Finally, we examined whether smoking was associated with any
 diagnosis of cancer. We found that those who ever smoked did not have an elevated risk for cancer in general.
 Although this result may seem surprising at first glance, it reflects the facts that only a few specific cancers have
 been shown to be associated directly with smoking.

Updated May 11, 2015

Chapter 7

When analyzing healthcare outcomes by more refined smoking status, the smoking groups (including "ever smoked") were compared to those who had never smoked.

- The number of ambulatory physician visits was 5%–13% higher for the smoking groups than for those who never smoked. Remarkably, the rate of ambulatory visits was higher for those who were former daily smokers five years or less before the time of the survey compared with those who were current daily smokers. This may be because people who recently reduced or quit smoking did so because of a major smoking-related health event or a medical condition made worse by smoking.
- Hospitalizations for the smoking groups were 24%–75% higher than for the group that never smoked.
- Days in hospital for the smoking groups were 5%–13% more than for the group that never smoked.
- Daily defined doses (DDDs) measures the intensity of the drugs used (365 DDDs means you are taking a certain drug once a day for 365 days at what is deemed the appropriate dosage). The smoking groups had 18% –23% more DDDs than the group that never smoked.
- The number of different pharmaceuticals for the smoking groups shows an increase of 8%–38% compared with the group that never smoked.
- The use of personal care homes was similar for all groups.

Chapter 8

We examined the association of smoking-status groups with mortality, life expectancy, and cancer. These analyses mirrored those presented in chapter 6. After dividing survey respondents into five categories, we found that much of the mortality and cancer burden we observed was concentrated among those who had ever smoked daily: "current daily smokers,""former daily smokers ≤5 years," and the "former daily smokers >5 years."

- In our most conservative analyses, there was no statistically significant difference in premature mortality when comparing respondents from each of the smoking categories with those who never smoked.
- In our most conservative analyses, we found an elevated rate of potential years of life lost (PYLL): current daily smokers had roughly 5.8 times the rate of PYLL, former daily smokers who quit five years or less before the survey had about 4.8 times the rate of PYLL, and former daily smokers who quit more than five years before survey-date had 4.75 times the rate of PYLL.
- We found a 175% higher rate of total mortality among current daily smokers compared to the group that had never smoked. Other groups did not have any statistically significant relationships.
- Differences in life expectancy, likewise, were concentrated among current daily smokers, former daily smokers (five years or less before survey), and former daily smokers (over five years before survey). Male current daily smokers had a 3.64 year decrease in life expectancy when compared with the group that never smoked (77.13 versus 80.77 years); female current daily smokers had a 3.18 year decrease (81.41 versus 84.59 years). Males who reported being a former daily smoker five years or less before survey had a 2.89 year decrease (77.88 years); females had 2.51 year decrease (82.08 years). Finally, male former daily smokers (over five years before survey) years had a 0.7 year decrease in life expectancy (80.07 years); females had a 0.6 year decrease (83.99 years). Thus, after controlling for hundreds of characteristics, we found reductions in life expectancy when comparing each smoking category with the group that never smoked.
- After adjusting for confounding variables, we found a higher incidence of lung cancer: 2,623% among current daily smokers and 1,893% among former daily smokers (five years or less before survey).
- After adjusting for confounding variables, we found a higher rate of cancers strongly associated with smoking— Lung, Oral Cavity/Pharynx, Esophagus, Larynx—among current daily smokers (2,383% higher) and the former daily smokers (five years or less before survey; 1,464% higher).
- We did not find a statistically significant difference in overall cancer rates between the different smoking categories. Again, this reflects the fact that few cancers have been shown to be directly associated with smoking.

Chapter 9

We used the differences in healthcare use observed in the dichotomous—"ever smoked" vs. "never smoked" analyses to estimate the additional healthcare costs attributable to smoking. Healthcare costs were estimated using both micro-costing and standard costing. Costs for physician services and prescription drugs were calculated using micro-costing and hospital costs were calculated using standard-costing. We used the approach outlined by Finlayson, Ekuma, Yogendran, Burland, and Forget (2010). All costs were estimated in 2010 Canadian dollars. As with the analyses presented in chapters 5 and 6, we used three approaches: (1) estimated population-based, (2) matched based on age, sex, SES, and RHA, and (3) an analysis that used propensity scores to construct inverse probability of treatment weights which were then applied in analyses to control for measured confounding. We estimated the difference in costs—comparing "ever smoked" with "never smoked"—using all three approaches for each fiscal year 1996/97 through 2011/12. We multiplied these individual-level costs by the smoking prevalence to arrive at the population costs attributable to smoking for each year. Because annual costs can be unstable, we then averaged these costs across all years to yield an average annual cost attributable to smoking.

- Smoking was associated with increased physician costs in all three analyses. The estimated population-based analyses suggested that, on average, \$51,233,062 in excess physician costs per year is attributable to smoking. Matched analyses suggested an excess of \$30,939,807 in excess physician costs per year. Propensity-score analyses suggested \$39,147,281 in excess physician costs per year.
- Analyses showed that smoking was associated with increased prescription-drug costs. The estimated
 population-based analyses suggested that, on average, \$55,227,142 in prescription drugs per year were
 attributable to smoking. Matched analyses showed that smoking resulted in an additional \$45,235,214 per year
 in excess prescription-drug costs. Propensity-score analyses suggested that smoking was associated with an
 excess of \$39,764,686 in prescription drugs per year.
- Smoking was also associated with increased hospital costs. Having ever smoked was associated with, on average, \$175,972,657 in excess hospital costs per year in the estimated population-based analyses. Matched analyses suggested that smoking was associated with an excess \$145,895,505 in excess hospital costs per year. Finally, propensity-score analyses suggested that, on average, smoking was associated with an excess of \$147,122,809 in hospital costs per year.
- We used these results to estimate the total healthcare costs attributable to smoking, across these three sectors: physician services, prescription drugs, and hospital services. Estimated-population-based analyses showed that smoking is associated with an excess \$282,432,561 in total healthcare spending per year. Matched analyses suggested that smoking was associated with \$222,070,527 in healthcare costs. Propensity-score analyses showed that, on average, smoking costs these three sectors of the healthcare system \$226,034,777 per year.
- Additional estimates suggested that, based on smoking prevalence in Manitoba, approximately 20% of the total expenses paid for from the general fund of CancerCare is attributable to smoking. This would translate to an additional \$18,342,017 in additional direct costs attributable to smoking.

Across all analyses—estimated population based, matched, and propensity score—we found that smoking was associated with an increased burden on the healthcare system. The dichotomous ever-versus-never-smoked analyses consistently showed that individuals who reported having ever smoked used more health services than those who reported having never smoked. When we separated individuals into more refined categories we found that much of the healthcare burden was concentrated among individuals in three categories: current daily smokers, former daily smokers who quit daily smoking five years or less before survey date, and former daily smokers who quit daily smokers before survey date.

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A common perception is that while smokers may use more healthcare services, they die younger. It is believed that these individuals' burden is truncated resulting in few or no additional costs in the long run. However, our results show that if smokers live to the age of 50, they typically live well into their late 70s and early 80s. Thus, not only did we find that smoking was associated with increased healthcare use; we also found that this increase was not curtailed by smokers dying young. Those in Manitoba who ever smoked use significantly more healthcare services and they do so over a considerably long period—into their late 70s and early 80s.

When we estimated the costs of those healthcare services used by those who ever smoked compared with those who never smoked we found that those who ever smoked cost the healthcare system more, even after adjusting for several confounding characteristics. Our estimates suggest that, on average, smoking costs the Manitoba healthcare system an additional \$226,034,777 per year, plus another \$18,342,017 for cancer-related costs. Figures E.1-E.3show the relative rates of smoking by various sectors of the healthcare system to illustrate which costs are statistically significant and which are not. Error bars that do not cross over "1" are statistically significant. We illustrate the propensity-score-adjusted relative rates using the dichotomous, ever-versus-never-smoked analysis.



Figure E.1: Propensity Score Relative Rates of Healthcare Utilization for Ever Smoked 5 Years After Survey Survey weighted, age-, sex- & propensity score-adjusted; 95% Confidence Intervals

Note: Never smoked is the reference group for the relative rates *Denotes statistically significant risk ratio (i.e., p<0.05).



Figure E.2: Propensity Score Relative Rates of Cancer Types for Ever Smoked 5 Years After Survey Survey weighted, age-, sex- & propensity score-adjusted; 95% Confidence Intervals

Note: Never smoked is the reference group for the relative rates. *Denotes statistically significant risk ratio (i.e., p < 0.05).

Figure E.3: Propensity Score Life Expectancy* at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey Weighted & adjusted⁺





*Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. +Covariates included in the proportional hazards regression model were age, sex & propensity-score.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

CHAPTER 1: INTRODUCTION

Background and Context

Through an ongoing relationship with Manitoba Health, Healthy Living and Seniors (MHHLS), a branch of the Manitoba Government, the Manitoba Centre for Health Policy (MCHP) produces deliverables that are of special interest to policy- and decision-makers. The research process is led by a research team at the University of Manitoba and is as academically rigorous as possible. Research topics are decided jointly by the Director of MCHP and the Minister and Deputy Minister of MHLS.

This research study focuses on the financial and service burden that smoking places on Manitoba's healthcare system. It asks whether there is a measurable difference in healthcare use that can be attributable to smoking. This is an important question to governments because the direct and indirect costs of smoking are encumbrances on the financial resources of the healthcare system.

To address this research question, we used methods to minimize bias. This means taking into account all sorts of "confounding" variables—circumstances or lifestyle issues that may also make a person ill—such as socioeconomic status (SES), alcohol consumption, other chronic diseases, etc. By controlling for these confounding variables—characteristics that may be related to smoking and influence health—we were able to make comparisons between smokers and similar non-smokers. Any differences in healthcare use observed when comparing smokers with similar non-smokers is more likely to be attributable to smoking status rather than to these other confounding characteristics.

The focus of this report is the provincial healthcare burden, *not* disease-specific outcomes. We were not trying to obtain, for example, an estimate of heart disease in smokers compared to non-smokers. We looked, rather, at the use of hospitals, physicians, **personal care homes**¹ (long-term care facilities), and pharmaceutical prescriptions. However, we thought it important to include three health outcomes: cancer, mortality, and **life expectancy**.

Smoking status was only available via self-report for those individuals who provided it through national and provincial surveys, and also gave permission for linkage to administrative data held in the databases at MCHP. Thus, although the numbers of people answering these surveys over time from 1989 are large, they are not the entire population. Specifically, the data underrepresent First Nations people because Statistics Canada does not survey First Nations individuals living on-reserve.

This research was led by MCHP scientists. MCHP is a research unit within the Department of Community Health Sciences, in the College of Medicine, Faculty of Health Sciences at the University of Manitoba. MCHP scientists produce deliverables in a team environment with other research scientists, data analysts, research coordinators, and research support personnel. Because of the complexity of this research topic, we have both MCHP principal investigators (PIs) who led the project, and key PIs representing different areas of expertise. These are:

Project Leadership:

- Dr. Patricia Martens (Former Director and Senior Research Scientist at MCHP and Distinguished Professor, Department of Community Health Sciences)
- Dr. Nathan Nickel (MCHP Research Scientist and Assistant Professor, Department of Community Health Sciences)

Statistical Methodology:

• Dr. Lisa Lix (Professor, Department of Community Health Sciences, and Director of the Data Science Unit of the George and Fee Yee Centre for Healthcare Innovation)

1

Terms in bold typeface are defined in the Glossary at the end of this report

Health Economics:

Dr. Evelyn Forget (Professor, Department of Community Health Sciences).

Cancer:

• Dr. Donna Turner (Associate Professor, Department of Community Health Sciences, and Epidemiologist/ Provincial Director, Population Oncology, CancerCare Manitoba).

Several MCHP Analysts worked on this project: Heather Prior, Randy Walld, and Okechukwu Ekuma. The study was coordinated by Lead Research Coordinator, Ruth-Ann Sooden. Research Coordinator Ms. Tamara Thomson also provided services to this project. Leanne Rajotte served as primary research support. Additionally, students from the University of Manitoba also worked on this deliverable: Pranay Kumar Das, Jessica Jarmasz, and Susan Burchill.

An advisory group met to view and comment on the project's progress and preliminary results. This group comprised:

- Deborah Malazdrewicz (Executive Director, Health Information Management Branch, Manitoba Health, Healthy Living and Seniors (MHHLS))
- Andrew Loughhead, (Manager, Tobacco Control and Cessation/FIPPA Access and Privacy Coordinator, MHHLS)
- Ciara Shattuck (consultant, MHHLS, Chief Provincial Public Health Office)

Purpose and Hypotheses

The purpose of this report is to quantify the provincial healthcare burden due to use and costs incurred by Manitobans who have smoked or are currently smoking. The specific hypotheses² are:

- Individuals who report having ever smoked will have a significantly higher rate of **physician visits**, hospitalizations, and pharmaceutical use than those who have never smoked. This increased rate will persist after controlling for demographic, morbidity, and behavioral risk factors.
- Individuals who report having ever versus never smoked will have a significantly higher rate of lung and **strongly smoking-associated cancer incidence** and mortality. This will persist after controlling for demographic, morbidity, and behavioral risk factors.
- Life expectancy of the population that has ever smoked will be shorter than that of the population that has never smoked.
- There will be a relationship between the degree of smoking and the rates observed in the first three hypotheses, such that the greater the degree of smoking, the higher the rates of healthcare use, morbidity, and mortality.
- Costs of the use of healthcare will be higher for those who ever smoked vs. never smoked.

Working Through the Results Chapters—An Overview of Their Contents

Chapter 4 describes the analytic sample based upon various surveys that have been administered in Manitoba from 1989 forward. It also describes the **prevalence** of individuals who reported having ever smoked and the prevalence of individuals in each of the five more refined smoking categories (current daily smoker, former daily smoker five years or less before survey, former daily smoker more than five years before survey, never a daily smoker, and never smoked). This chapter includes demographic, morbidity, and lifestyle descriptions for each category. These characteristics must be considered when comparing healthcare-use patterns between people who have ever smoked versus never smoked.

² Although these alternate hypotheses are written in a one-tailed manner, all statistical testing was done using two-tailed approaches. Thus the actual alternate hypotheses tested was "there is a difference in healthcare utilization rates" rather than the alternate hypothesis that "there is a greater rate of healthcare utilization." Two-tailed tests are more conservative than one-tailed tests (less likely to reject the null-hypothesis).

Chapter 5 tries to answer the question of differential healthcare use by those who smoke versus those who do not. We used three methods to control for confounding variables: (1) A set of analyses adjusting for age, sex, SES, and regional health authority (RHA), that retained the maximum number of individuals (these will be referred to as the estimated-population-based analyses); (2) A set of analyses that matched smokers with non-smokers on age, sex, SES and RHA; and (3) A set of analyses that controlled for confounding characteristics using a propensity score that includes many known variables that confuse the relationship between smoking and healthcare use. The sample for the estimated population-based analyses kept the original 48,582 respondents. Analyses shown in the chapter were adjusted for age, sex, SES (average household income based on census dissemination area and RHA). A further analysis that included a measure of morbidity (resource utilization band (RUB)) is given in Appendix 2. The sample for the matched analyses included 38,272 people. These analyses further controlled for smaller age-category differences. The sample for the propensity-score analyses included 43,720 people. The propensity score analyses would be considered by statisticians to be the most rigorous at adjusting for biases from confounding variables. Propensity scores were derived from information obtained from the surveys and from the Population Health Research Data Repository (Repository) housed at MCHP (behavioural, demographic, self-reported morbidities, etc.). The propensity score included around 200 variables, resulting in a highly sophisticated but, perhaps, over-conservative analysis.

For each analysis, we followed the survey respondents for one, three, five, and 10 years post-survey. Some survey respondents in the recent decade may not contribute to the 10-year results if they were surveyed after 2002. Additionally, some respondents may have died, or have left the province before the 10-year mark. We followed respondents for as long as they were registered with Manitoba's universal health insurance system. The rates given at each point in time are cumulative (annualized). So this rate is *not* the rate of healthcare use by people during their 10th year post-survey, but rather the average rate over the entire 10 years.

All three types of analyses and their results are discussed. For example, our estimate of **inpatient hospitalizations** five years post-survey was 1.36 times greater for those who ever smoked compared to never smoked using an estimated population-based analysis (95% Cl 1.26-1.48), 1.34 times greater using matched (95% Cl 1.23-1.46), and 1.19 times greater using propensity scores (95% Cl 1.08-1.31). As expected, the propensity score is the most conservative estimate. The other two estimates are higher because they did not control for as many variables. Realistically, there is probably between a 19% and 36% greater rate of inpatient hospitalizations for those who smoked compared to those who did not. The chapter discusses how these rates translate in terms of persons, given the prevalence in 2011 of those who ever smoked.

The results of each analysis are presented in both tabular and graphical form to help the reader see trends.

Chapter 6: This is the first chapter that looks at differences in selected health outcomes between people who have ever vs. never smoked. Because the Repository does not directly contain data on treatments for cancer, we estimated the burden of certain cancers associated with smoking to get an idea of the number of people treated for cancer. We also analyzed three different mortality indicators—**premature mortality rates**, **potential years of life lost**, and **total mortality rates**—using the three analytical approaches. A further analysis of life expectancy at age 50 was conducted based on actuarial methods. Similar to chapter 5, figures are shown after tables for a visual representation of the information shown. Not surprisingly, significantly elevated lung cancer rates for those who ever smoked are found throughout all analyses, as are significantly elevated mortality rates. The one somewhat surprising result is a one-year difference in life expectancy at age 50 of the two groups.

Chapters 7 and 8 mirror Chapters 5 and 6. However, in these chapters we used more refined smoking categories to examine the relationship between smoking and healthcare use (Chapter 7), and smoking and health outcomes (Chapter 8). Only two types of analyses were done for these chapters: estimated population-based and propensity-score adjustment.

Timelines for Chapters 5 through 8: Our main discussion, except for cancers, focus on the five-year outcomes (i.e., 5 years after survey date). Tables for one, three, and 10 years are given in Appendices 4 and 5. Five years is long enough for rates to stabilize, it would keep within a reasonable time period of the self-reported use of cigarettes. Rates within a five-year period are presumably not affected as much by rates of quitting among the smokers or rates of starting among non-smokers. For cancers, a longer time period was necessary to account for latency (the time between exposure to smoking and the development of the disease); thus, cancer results are given from the 10-years-post-survey date. This is discussed further in chapters 6 and 8.

Chapter 9 uses well-developed methodology for a more direct approach to costing. Costing analyses exclusively used the dichotomous "**ever smoked**" and "**never smoked**" categories. We examined costs incurred across several sectors using data from **fiscal years** 1996/97 to 2011/12: costs for all physician contacts (i.e., physician visits, surgeries, laboratory tests, X-rays, and scans), **prescription drug costs**, costs associated with treating cancer, and hospitalizations.

For costing physician contacts, we used data held in the **physician claims** database housed in the Repository. After adjusting for confounding variables—e.g., age, sex, income—we compared the physician claims between the "ever smoked" and "never smoked" categories. The **Drug Program Information Network** database has costs associated with prescriptions dispensed from community pharmacies in Manitoba. After adjusting for confounding variables, we compared the costs incurred for prescription drugs among people who ever smoked versus those who never smoked. To estimate the costs attributable to treating cancer, we used results from chapter 6 to estimate the smoking-attributable proportion of cancer in Manitoba. We then assigned the proportion of the CancerCare budget required to treat cancer patients who had ever smoked. Finally, we estimated the hospital costs attributable to smoking in two ways. First, we applied the Manitoba hospital per diem to the number of days spent in hospital by respondents; this provided an estimate for the difference in hospital costs attributable to the "ever smoked" category. Second, we used information from the hospital abstracts database to model differences in resources used by respondents who ever smoked versus never smoked. Using these differences in resource use we were then able to assign costs. All costs are reported using constant dollars (2010) by fiscal year.

When we estimated costs for healthcare services used by respondents who ever smoked which were attributable to smoking, after adjusting for observed confounding variables. Our estimates suggest that, on average, smoking costs the Manitoba healthcare system an additional \$226,034,777 per year, plus another \$18,342,017 for cancer-related costs. Figures showing the **relative rates** of smoking by various sectors of the healthcare system are provided below to illustrate which costs are statistically significant and which are not (error bars that do not cross "1" are significant). These are the most conservative estimates; they do not account for other factors that are excluded from the surveys, such as people living in First Nations communities.

Limitations of the Study

Our analyses do not include the entire population of Manitoba but only those surveyed for smoking behaviour. However, each survey is representative of the entire population when survey weights are applied to the data. All cycles of the **National Population Health Survey** and **Canadian Community Health Survey** excluded individuals living in First Nations communities. Thus, although the samples may include First Nations people who are living "off reserve," there will probably be underestimates of the use of healthcare services, especially in the northern areas of the province. We were also limited by the fact that our measure of smoking is based on individuals reporting at a single point in time; thus, we are making the assumption that self-reported smoking status does not change over time. A discussion of this limitation is in chapter 4. Misclassification error tends to bias results towards the null hypothesis; therefore, our results may underestimate the relationship between smoking and healthcare use. Finally, we did not measure the impact of second-hand smoke on healthcare use; excluding second-hand smoke exposure may also bias our results towards the null hypothesis.
This research takes several methodological approaches to answer the question of burden and costs associated with smoking. Where possible, we made decisions that would tend to bias our results towards the null hypothesis, that smoking status has no relationship with healthcare use or healthcare costs.

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CHAPTER 2: LITERATURE REVIEW

Two literature reviews were conducted for this study. The relationship between smoking and health has been well-established by numerous epidemiological studies. The first literature review identified previous studies that examined the relationship smoking has with healthcare use and healthcare costs. This first literature review had two foci: to situate our findings within the broader scientific context of what others have discovered about the healthcare burden of smoking; and to identify methods previously used to estimate the relationship between smoking and healthcare use. The second literature review targeted studies that identified predictors of smoking status and provided us with an empirical starting point for identifying and selecting covariates to include in our models. Both literature reviews are summarized below in tabular form.

Literature Review 1: The Healthcare Burden Attributable to Smoking

This literature review focused on identifying studies that examined the relationship smoking has with healthcare use and healthcare costs. It is important to note that this review did not focus on identifying studies that examined health outcomes associated with smoking.

We conducted the review using the following search engines: PubMed, Web of Science, Web of Knowledge, and Google Scholar. We used several search terms to identify studies that examined the healthcare burden attributable to smoking:

- Smoking healthcare utilization
- Smoking healthcare utilisation
- Smoking health care utilization
- Smoking health care utilisation
- Smoking resource use
- Smoking hospitalization
- Smoking separations

We focused our literature search on studies published from Canada and the United States. This was not an exhaustive literature review.

Table 2.1. summarizes the articles retrieved and includes quoted and paraphrased material from the identified references. Retrieved articles' observation periods varied. The earliest observation period began in 1979; the latest began in 2007 (Azagba, Sharaf, & Xiao, 2013; Choi & Pak, 1996). Lengths of observation period also varied: the longest spanned 14 years (1996/97 to 2010/11) while several studies' observation periods lasted one year or less (Shields, Garner, & Wilkins, 2013; Shields & Wilkins, 2013). Several studies used data from Canada (Azagba et al., 2013; Baliunas, Patra, Rehm, Popova, & Taylor, 2007; Choi & Pak, 1996; Finkelstein, 2001; Harrison, Feehan, Edwards, & Segovia, 2003; Kaiserman, 1997; Shields et al., 2013; Shields & Wilkins, 2013; Single, Robson, Xie, & Rehm, 1998; Wilkins, Shields, & Rotermann, 2009). Many of these relied on survey data to measure smoking behaviours: the Canadian Community Health Survey, Canada's labour force survey, National Population Health Survey, General Social Survey, The Newfoundland Adult Health Survey, Canada's Alcohol and Other Drugs Survey, and Canada Health Promotion Survey. Healthcare use was assessed using self-report survey data, administrative healthcare and vital statistics data aggregated to provincial and pan-Canadian levels, and individual-level linkages of respondents' survey data to their respective health administrative data (Azagba et al., 2013; Baliunas et al., 2007; Choi & Pak, 1996; Finkelstein, 2001; Harrison et al., 2003; Kaiserman, 1997; Shields et al., 2013; Shields et al., 2013; Shields & Wilkins, 2013; Shields et al., 2013; Shields et al., 2013; Shields et al., 2007; Choi & Pak, 1996; Finkelstein, 2001; Harrison et al., 2003; Kaiserman, 1997; Shields et al., 2013; Shields & Wilkins, 2013; Single et al., 1996; Finkelstein, 2001; Harrison et al., 2003; Kaiserman, 1997; Shields et al., 2013; Shields & Wilkins, 2013; Single et al., 1998; Wilkins et al., 2009).

The articles defined smoking status using varying classifications. Several studies generated three categories: "Current Smokers", "Former Smokers", and "Never Smokers" (Azagba et al., 2013; Baliunas et al., 2007; Fishman, Khan, Thompson, & Curry, 2003; Kahende, Adhikari, Maurice, Rock, & Malarcher, 2009; Max, Rice, Sung, Zhang, & Miller, 2004; Neubauer et al., 2006). Levine et al. (2012) categorized respondents as "Current" and "Never," and Miller et al. (1999) classified respondents as "Ever" and "Never." Shields et al. (2013) and Shields and Wilkins (2013) categorized respondents as "Current Daily,""Former Daily,""Never Daily,""Never Smoked."

Articles also handled confounding variables differently. Studies that used aggregated data often did not adjust for confounding variables. Studies that did adjust for confounding typically adjusted for age, sex, socioeconomic status (SES; i.e., income and/or education), marital status, alcohol and drug use, physical activity, **body mass index**, and health status. Several modeling strategies were also used, including **crude** and adjusted smoking attributable fractions of healthcare use and multiple variable generalized linear models (including econometric modeling) to generate predicted healthcare use.

Studies identified during the literature review consistently found that cigarette smoking has placed an additional burden on the healthcare system. Kahende et al. (2009) estimated that smoking resulted in increased healthcare use over the period 1999–2004. Fishman et al. (2003) found that individuals who recently quit smoking had greater healthcare costs when compared with those who continued smoking. Finkelstein (2001) estimated that in 1994, smoking and being overweight cost 275 million dollars in excess physician services in Ontario, Canada. Kaiserman (1997) found that smoking cost Canada 2.5 billion dollars in 1991 in excess costs, for hospital use, physician services, institutional care, absenteeism, and future earnings lost due to death. Later, Baliunas et al. (2007) estimated that for Canada in 2002 smoking resulted in 2.5 billion dollars in hospital costs alone. One Manitoba study estimated that smoking resulted in \$557.4 million using a prevalence-based, cost-of-illness approach and considering both direct and indirect healthcare costs (Krueger, Williams, Ready, Trenaman, & Turner, 2013). Results from outside North America are also given in the summary table.

Table 2.1: Literature Summary: Healthcare Burden Attributable to Smoking

Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Azagba	Canada	2007	Those aged	Statistics Canada (Current smokers,	General	N/A	Need, socio-	Both standard negative	Among the low-use
(2013)			18–74 years.	2007 CCHS cycle 1	former smokers	practitioners		demographic	binomial model and two-	group, smokers use less
			N = 105,232	4.1. é	and never	(GP), specialists		characteristics and	component finite mixture	GP and SP services than
				vi	smokers	(SP) and		province fixed	negative binomial model	never smokers. For both
						hospitalization.		effects.	(FMM) for GP, SP and	low-use and high-use
									Hospitalization.	groups, smokers have
										more hospitalizations than
										never smokers.
										Hospitalization is higher
										for the low-use group
										after controlling for need,
										socio-demographic
										characteristics and
										province fixed effects.

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Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Baliunas (2007)	Canada	2002	People aged 15 and over.	CCHS cycle 2.1 (2003), Canadian	Former smokers, Current smokers	Smoking- attributable	Chronic disease SAFs:	Note: No information was	Risk relation from chronic diseases was combined	Smoking-attributable acute care hospital days
				Institute for Health	and Never smokers	hospital days and associated costs.	$\sum_{i=1}^{k} P_i(RR_i - 1)$	found on adjustment.	with exposure to calculate age- and sex-specific	cost over \$2.5 billion in Canada in 2002. 339,179
				Information (CIHI), Hospital			$\frac{SAR^{k}}{\sum_{i=0}^{k}} = \frac{e^{-i}}{P_{i}(RR_{i} - 1) + 1}$		smoking attributable fractions (SAFs). For fire	of all hospital diagnoses were estimated to be
				Morbidity					deaths, SAFs were taken	attributable to smoking
				Database (HMDB)			i: exposure category with		directly from available statistics. The estimates of	and 2,210,155 acute care hospital days. Ischemic
							baseline		smoking-attributable	heart disease was the
							exposure or no		hospital diagnoses from	largest single category in
							smoking		acute care facilities were	terms of hospital days
									derived by multiplying SAFs	accounting for 21 percent,
							i = 0. RR _i : relative		with the number of	followed by lung cancer at
							risk at exposure		diagnoses for each	9 percent.
							level i compared		category. Fire injury was	
							to no		calculated using direct	
							consumption. P _i :		estimates of smoking	
							prevalence of the		involvement from the	
							i th category of		Council of Canadian Fire	
							exposure.		Marshals and Fire	
									Commissioners.	

Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Choi (1996)	Ontario,	1979	Ontarian aged	Canada's labour	Current (daily	Forgone income	N/A	N/A	Cost-benefit analysis of the	The total cost of tobacco
	Canada	and	15 years and	force survey,	and occasional)	due to mortality,			consequences of tobacco	use in Ontario, Canada
		1988	older.	1981. Office of	smokers versus	partial income			use was estimated. The	was estimated to be
				the Registrar	former smokers.	loss due to			costs associated with	\$3.623 billion (in 1994\$)
				General. 1988		disability, direct			tobacco use have been	and the consumer
				income data for		costs of			compared with the annual	expenditure amounted to
				Ontario. Canada		hospitalization,			consumer expenditure on	\$2.902 billion, showing an
				health survey.		direct costs of			tobacco products in	excess of \$721 million in
				Statistics		physician visits,			Ontario in 1988.	consequences over
				Canada.		fire damage.				consumer expenditure.
				Unpublished						Comparing Ontario in
				tabulations from						1988 with Ontario in 1979,
				Ontario Ministry						the per capita costs of
				of Health.						forgone income due to
				Ontario Ministry						mortality attributable to
				of Health's						smoking increased from
				Hospital						\$335 to \$347, the costs of
				Statistics for						disability increased from
				1987/1988.						\$20 to \$24, direct costs of
				Office of the Fire						hospitalization increased
				Marshal. Ontario						from \$79 to \$89, direct
				Ministry of						costs of physician visits
				Revenue.						increased from \$7 to \$13,
										and costs of fire damage
										increased from \$4 to \$10.
_	_			_				_		

Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
(2001)	Ontario, Canada	1994	2,170 respondents aged 40 to 79 years.	Individual-level data. Both survey and administrative data. National Population Health Survey. Ontario Health Insurance Plan. Ontario Ministry of Health.	Current smokers versus former smokers. Daily smokers or occasional smokers.	Expenditures on physicians' services.	N/A	Age, sex, and household income.	Generalized additive and fractional polynomial models were used to explore the shapes of the relations between smoking and expenditures. Mean expenditures were analyzed with multiple linear with multiple linear regression modelling. Bootstrap resampling was used to compute 95% confidence limits.	The mean per capita cost of physicians' services in Ontario increased by \$1.75 for every year of daily smoking. The annual attributable cost of smoking and overweight among residents of Ontario, aged 40-79, was estimated at \$275,000,000.
(2003)	Western Washington state	1994	716 current smokers, 289 former smokers and 489 never smokers.	Group Health Cooperative of Puget Sound (GHC)	(continuing) smokers, former smokers and never smokers	No details on types of health care utilization.	NA	Age, sex, and health status.	Generalized Linear Model (GLM) multivariate regression is used. To assess the sensitivity of results model using Generalized Estimating Equations (GEE) is used.	Former smokers' costs are significantly greater in the year immediately following cessation relative to continuing smokers, but former smokers' costs fall in year two. Smoking cessation does not increase long- term health care costs.

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Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Harrison (2003)	Newfoundland & Labrador, Canada	1992/93 1998/99	8,219 adults aged 20 and older.	Individual level data. 1995 Adult Health Survey by Health and Medical Care Research Group of Memorial University's Faculty of Medicine.	A/A	Hospitalization (hospital visits, & hospital days) and visits to physicians outside hospital.	SAF = (Ua - Uns)/ Ua where Ua is predicted utilization based on actual smoking behaviour and Uns is denotes predicted utilization in the absence of smoking.	Age, sex, education, income, weight relative to height, exercise regime, marital status, presence of a disability, community size, alcohol consumption, and so forth.	Probit estimations were used. A regression equation was used to predict utilization for each person based on their actual characteristics. Another equation was used to predict utilization by that person assuming that the person assuming that the person assuming that the predict utilization by that predictions, substituted into formula, give the SAF for that person.	The associated annual monetary costs are approximately \$110 to \$140 per capita (in 1999\$). The death-benefit adjusted costs range from approximately \$80 to \$100.
(2009)	United States	2004	15,332 adults	1999–2004 National Health Examination Survey (NHANES) data (NHANES) data	Current smokers, former smokers, smokers	Inpatient services and outpatient visits.	N/A	Smoking status, gender, race/ethnicity, age, education, poverty level and health insurance insurance	Multivariate logistic regressions.	Cigarette smoking is associated with higher healthcare utilization for current and former smokers than for never smokers and former for demographic characteristics, current smokers and former smokers and former smokers were likely than never smokers. Current smokers were more likely than never smokers to have higher outpatient visits. Former smokers were likely to have more outpatient visit than never smokers

e Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Canada	1991	Ages 15 through	Prevalence	Never smokers	Smoking	SAF: (P(RR-1))/	N/A	SAF was used to calculate	Smoking-attributable
		85.	based. Cancer	versus ever	attributable	(1 + P(RR - 1))		smoking-attributable	excess healthcare costs in
			Prevention Study	smokers. Ever	mortality,	where P is		mortality and hospital	1991 were approximately
			II, General Social	smokers include	hospital costs,	prevalence of		costs. Smoking-attributable	\$2.5 billion. This is about
			Survey (GSS '91),	both current &	physician costs,	ever smokers and		physician costs and drug	3.8% of the \$66.7 billion
			Statistics	former smokers.	institutional	RR is relative risk		costs were estimated using	28 total health care bill.
			Canada, 1991/92		costs,	for particular		differences between self-	Ever smokers represent
			hospital		absenteeism,	outcome, e.g.		reported data for never and	about \$35 billion in health
			morbidity data,		future earnings	death, hospital		ever smokers. Using the	care costs. An additional
			1994 National		lost due to death,	visits, et cetera		never smokers as the	\$1.5 billion was spent on
			Population		fires.			baseline, institutional costs	former smokers in
			Health Survey.					were estimated based on	residential care facilities,
								prevalence data. Workers	\$2 billion due to workers'
								absenteeism was calculated	absenteeism, \$80 million
								using differences between	due to fires and \$10.5
								self-reported data for never	billion due to lost future
								smokers and ever smokers	income caused by
								who were employed and	premature death. Smokers
								then multiplied by salary	cost society about \$15
								per working day. Smoking-	billion.
								attributable cost of	
								residential fires was	
								obtained directly from the	
								Association of Canadian	
								Fire Marshals and Fire	
								Commissioners. Cost of	
								forest fires was estimated	
								to be about 10% of total	
								costs as provided by the	
								Canadian Forest Service.	

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 14 | Chapter 2

Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
.evine (2012)	Israel	2004-	Sample of 5,751 mandatory new 1 recruits, 95% of 6 whom are aged 1 18–19. 18–19.	Israeli Defense Force computerized administrative ecords. Dngoing health survey among military recruits.	Current smokers and never smokers.	Visits to primary clinics, chronic and nonchronic medications, laboratory tests, physio-therapy treatments, treatments, emergency room (ER) visits, and hospitalizations.	A/A	Alcohol consumption, Hookah smoking and physical activity, education, birth country.	A retrospective cohort study was done. Frequency of utilization among users was compared by Poisson log-linear model and the nonparametric Kolmogorov-Smirnov Test.	Current cigarette smoking was significantly associated with increased use of health care services (HCS).
Max (2004)	California, US	1999	California adults 1 aged 18 years and older.	V/N	Current, former, and never- smokers.	Direct costs: hospitalizations, ambulatory care, prescription drugs, home health care, and nursing home services. Indirect costs: due to lost productivity, premature deaths.	SAF for health care costs: Max et al., 2004; Miller et al., 1998. SAF for mortality: I Lilienfeld & Stolley, 1994	Age, gender, race/ethnicity, education, marital status, region of the country, family poverty status, health insurance coverage, body mass index and alcohol drinking behavior.	The SAFs were applied to total healthcare expenditures, days lost, and deaths to obtain smoking attributable total costs. Econometric models were used to estimate the SAF for direct costs. SAFs for indirect costs were estimated using epidemiological methods of attributable risks.	The total costs of smoking in California were \$15.9 billion, \$475 per resident, and \$331 per smoker. Direct costs were \$8.6 billion, indirect costs due to lost productivity from illness were \$1.5 billion, and due to premature deaths were \$5.7 billion.

Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Max (2010)	California African American Community, US	2002	Californian African American aged 18 years and older. Sample contained 39,625 adults: 5662 African Americans, 7075 Hispanics, and 26 888 others.	Linked data on Medical Expenditure Panel Survey (MEPS) and National Health Interview Survey (NHIS).	Current, former, and never- smokers. "Hypothetical" former smokers.	Smoking- attributable ambulatory care, prescription drugs, inpatient care, and home health care.	A/A	Age, gender, race/ethnicity, region, education, marital status, and family poverty status.	See note below.	The health care cost of smoking was \$626 million for the African American community. A total of 3013 African American Californians died of smoking-attributable illness in 2002, representing a loss of over 49 000 years of life and \$784 million in productivity. The total cost of smoking for this community anounted to \$1.4 billion, or \$1.8 billion expressed in 2008 dollars.
Note: Smoking measure of intr included the in second equatic of having smok services. Each r related disease: parts of the two	-attributable he rest. The nation reraction betwee in, the dependei- ing-related disc ing-related disc air comprised a s and other disc s and other disc	alth care alth care alth odel en age ar nt variabl :ases. The art ases. In th	expenditures and consisted of 10 ec al smoking status, e was the propens second equation : model. In the firs ne second-part eq me, including the	mortality costs wer quations. In the firs gender, age, educ ity of having poor was estimated as a L-part equation, the uation, the depenc interaction betwee	re estimated by us st equation, the de cation, marital statu health. The indep- an ordered probit e dependent varia dent variable was t an orde and smokin	ing a prevalence-E spendent variable v us, region, body w endent variables w model. The remain ble was the proper the logarithmic exp status, gender, a	ased annual cost <i>e</i> vas the propensity eight status, and al ere the same as th ing eight equation ing eight equation vsity of having posi enditures for thos eqe, education, mar	ppproach. SAF was e of having any smoki cohol drinking statu ose in the first equat s were pairs of expei itive expenditures in e individuals with po tral status, region, bo	titimated using a probit moc ing-related diseases. The inc ing-related diseases. The inc is This equation was estimat ion except for the addition nditure equations for the fo a given year for all kinds of sitive expenditures. The ind ody weight status, alcohol d	lel and applied to the total dependent variables red as a probit model. In the of the predicted propensity ur types of health care diseases, including smoking ependent variables in both rinking status, family

poverty status, health insurance coverage, and the predicted propensity of having poor health. The first-part equation was estimated by a probit model and the second-part equation was estimated by

ordinary least squares.

Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Max (2011)	California Hispanic	2002	Hispanic adults aged 35 years	Prevalence based individual	Current, former, and never-	Health care expenditures:	A 10-equation econometric	It's not clear what the study	A series of econometric models for four types of	The total cost of smoking for Hispanic community
	Community, US		and older.	level data.	smokers.	hospital inpatient	model was	controlled for. But	expenditures was used.	amounted to \$1.4 billion
			Sample: 7,075	1998–2002	"Hypothetical"	care, ambulatory	estimated to	their independent	Smoking-attributable	(in 2002\$) or \$1.9 billion
			Hispanics	Medical	current and	care, drugs, and	analyze the	variables were age,	health care expenditures	(in 2010S).
			(MEPS). 5,154	Expenditure	former smokers.	home health	impact of	gender,	were obtained by	
			Hispanics (CTS).	Panel Survey		care. Mortality:	smoking on	race/ethnicity,	multiplying the SAF by the	
			7,135 Hispanics	(MEPS) -		deaths, years of	health care	educational level,	total health care	
			(CHIS).	National Health		potential life lost	expenditures	marital status,	expenditures for each type	
				Interview Survey		(YPLL), and the	(Max, Rice,	region of the	of health care service.	
				(NHIS) link data.		value of lost	Zhang, Sung, &	country, family	Smoking-attributable	
				2002 California		productivity.	Miller, 2004; Max,	poverty status,	mortality was assessed	
				Tobacco Survey			Sung, Tucker, &	health insurance	using epidemiological	
				(CTS) Adult			Stark, 2010;	coverage, body	models. Three measures of	
				Interview File.			Miller, Zhang,	mass index and	mortality were estimated.	
				2003 California			Novotny, Rice, &	alcohol drinking	Smoking-attributable	
				Health Interview			Max, 1998). The	behaviour.	deaths were determined as	
				Survey (CHIS)			SAF for mortality		the product of the SAF and	
				Adult File.			was calculated		the corresponding total	
							using the		number of deaths. Smoking-	
							standard		attributable YPLL were	
							epidemiological		estimated as the product of	
							formula for		smoking-attributable	
							attributable risk		deaths and the average	
							(Lilienfeld &		number of years of life	
							Stolley, 1994).		expectancy remaining at	
							ĸ		the age of death. The value	
									of lost productivity from	
									lives lost due to smoking-	
									attributable diseases was	
									estimated as the product of	
									smoking-attributable	
									deaths and the present	
									value of lifetime earnings	
									forgone at the age of	
									death.	

Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Max (2012)	NS	2006	US non-	Household	Non-smokers:	Number of	See 2 nd next	Controlled for .	Second-hand smoke-	Second-hand smoking
			Smokers.	survey data.	adults, intants.	deatns attributabla to	column.	SOCIO-	attributable traction	exposure resulted in more
			NHNES: 12,704 adults: 6562 non-	National Health and Nutrition		attributable to second-hand		demographics.	(SAFSNS) was estimated by	than 42,000 deaths: more than 41 000 adults and
			Hispanic Whites,	Examination		smoke (SHS),			epidemiological formula:	nearly 900 infants. Blacks
			2436 non-	Survey (NHNES),		Potential Years of				accounted for 13% of all
			Hispanic Blacks,	cycles 2003 to		Life Lost, and			SAF	deaths but 24% to 36% of
			3230 Hispanics,	2006. National		value of lost			$[(-P_{shs})+P_{shs}*R_{shs}]$	infant deaths.
			NSIS: 23322	Survey (NSIS)		productivity				sns-attributable deatris resulted in a loss of nearly
			adults: 14041	2006. 2004						600,000 YPLL and \$6.6
			non-Hispanic	Maternal and					The study then calculated	billion of lost productivity,
			Whites, 3820	Child Health					mortality measures for 2	or \$158,000 per death.
			non-Hispanic	module of					conditions (lung cancer and	The value of lost
			Blacks,	Smoking-					IHD) found in adults (aged	productivity per death was
			4032Hispanics,	Attributable					20 years and older) and 4	highest among Blacks
			and 1429 others.	Mortality,					conditions (sudden infant	(\$238,000) and Hispanics
				Morbidity, and					death syndrome, low birth	(\$193,000).
				Economic Costs.					weight, respiratory distress	
				National Center					syndrome, and other	
				for Health					respiratory conditions of	
				Statistics.					newborns) found in infants	
									younger than 1 year.	
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UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 18 | Chapter 2

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Reference Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
McGhee Hong Kong (2006)	1998	Active smokers aged 35 years and over and passive smokers aged 60 years for costs of morbidity, passive smokers include both children aged 1–15 years old and adults aged 60 years and over.	University of Hong Kong Lifestyle and Mortality Study (LIMOR). Administrative data from Hospity of Hong Kong- Harvard Household Survey. University of Hong Kong Police Health Survey.	Active smokers: smoker versus never-smoker. Passive smokers: smoker versus never-smoker.	Active and passive smoking- attributable mortality, hospital admissions, outpatient, emergency and general practitioner visits, use of nursing homes and domestic help, time lost from work due to illness and premature mortality in the productive years.	SAF = [OR-1]/OR, where OR is the odds ratio for disease-specific mortality caused by smoking. For passive smokers: Population- attributable fraction (PAF) = (p [OR-1]), where p is the proportion of never-smokers exposed.	Adjusted for labor force participation rate.	SAF (PAF) methodology was used to estimate active (passive) smoking- attributable health care costs, and mortality. costs, and mortality.	See note below.
Note: The estimated annual he care) and \$230 million for pro hospital use was \$230 million. million. The value of the extra	ealth-rela ductivity l a year, \$1 medical c	ted cost of tobacc osses. The value o 69 million for activ are due to passive	in Hong Kong in f productive years /e smoking and \$6 : smoking exposure	1998 is \$688 milli of life lost was \$13 1 million for passi e in children was \$	n. This includes \$4 4 million, \$160 mil /e smoking. The co 4 million a year. Th	59 million for heal lion for active smo st of visits to speci e cost of visits to p	th care costs (\$341 r king and \$14 millior alist outpatient clini oublic primary care c	nillion for medical care and a for passive smoking. The at cs as a result of active smokin utpatient clinics atributable	5.118 million for long term tributable cost of public ng amounted to \$19 to active smoking was

smoking was \$12 million and \$32 million for passive smoking. The value of the attributable absences from work was \$11 million for active smoking and \$45 million for passive smoking. The attributable cost of nursing home care in those over 65 years for disease due to active smoking was \$117 million while the cost of home-based care was \$0.7 million. For passive smoking, home-based care cost \$0.3 million.

Estimated costs/Results	verall smoking- ttributable fractions in ne 4 to 7% range anslated into over 50 illion dollars per year in nedical care expenditures the United States.	he total costs were €21.0 illion: €7.5 billion for cute hospital care, ipatient rehabilitation are, ambulatory care and rescribed drugs; €4.7 illion for the indirect of mortality; and 8.8 billion for costs due of sork loss days and arly retirement.
Modelling strategy	Logistic regression is used C to estimate smoking- attributable fractions (SAFs). The model is analyzed for heteroscedasticity and peodness of fit. A balanced in goodness of fit. A balanced in repeated replication analysis is conducted to evaluate the variance of the SAFs.	The smoking-attributable The smoking-attributable and ambulatory visits were a and ambulatory visits were a estimated by calculating in the proportion of smoking- cattributable hospital days. A univariate sensitivity analysis was used to determine the total sum of hospital days. A univariate sensitivity analysis was used a calculated using an attributable deaths were calculated using an epidemiological model. Indirect costs were estimated using the human capital approach.
Control for confounders? If so, which ones?	Controlled for alcohol consumption.	They estimated relative risks for Germany from the relative risks of US. Age, education, alcohol use, hypertension and diabertes mellitus were adjusted to obtain relative risks from US. However, adjustment for education, alcohol use, hypertension and diabetes mellitus did not change the results substantially.
Formula for smoking- attributable fraction (SAF)	N/A	SAFs were calculated using "Smoking- attributable Morbidity, and Economic Costs Software, Release2.1 (SAMMEC 2.1)
What costs are included?	Ambulatory, hospital, prescription drug, and other and other	Number of deaths, years of potential life lost (YPLL), direct medical costs (hospital care, ambulatory care, rehabilitation, prescribed drugs) and indirect costs (mortality, work days lost, early retirement).
Division of population	Ever-smokers and never- smokers.	Current, former and never smokers.
Data types and sources	Individual level data. 1987 National Medical Expenditure Survey (NMES). National Health Interview Survey (NHIS).	Prevalence- based study from societal perspective. Telephone Health Survey 2003, "Health- cost of illness 2002," report. German Perinatal Survey (1995-1997), American Cancer Prevention Study II (6-year follow- up; 1982-1988).
Population studied and sample size	Aged 18 and above. n = 24,973	People aged 35 years and older.
Time frame	1999	2003
Location/ Country	S	Germany
Reference	Miller	(2006)

ation/ untry	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
	1996/97 to 2010/11 2010/11	Sample consists 1 of 4,712 men and 5,715 men or older and free from heart disease in 1994/1995.	Incident (heart d disease) based. Anne cycles of National Population Health Survey (1994/95 through 2010/11) 2010/11)	Current daily smoker, former daily smoker, never smoked daily	Relative risks of 1 smokers.		smoking intensity and age of nitiation.	The relative risks of heart disease for former daily smokers and never daily smokers were compared with those for continuing daily smokers.	Lower relative risks were observed as years of cessation increased, but only after 20 years did the relative risks of former daily smokers approach those of people who never smoked daily.
	1996/97 to 2010/11 2010/11	Sample consists I of 3,341 men and 4,143 women aged 40 h or older in 1994/1995. (Incident (heart d disease) based. s Nine cycles of d National Population Health Survey (1994/95 (1994/95 2010/11) 2010/11)	Current daily smoker, former daily smoker or never a daily smoker.	Health Utilities Index Mark 3 (HUI3).	YN YN	Household ncome, education, marital status and besity.	Multi-level growth modelling was used to describe health-related quality of life (HRQL) trajectories over the 16- year follow-up period in HRQL was assessed using the Health Utilities Mark 3 (HUI3), a generic preference-based measure that reflects the subjective values assigned to specific health-related outcomes.	Across all ages and for both sexes, persistent smokers had lower HRQL than did never-smokers. Among men, HRQL improved after 5 years of quitting; after 20 years, HRQL was similar to that of never-smokers. Among women, after 10 years of cessation, the HQRL of former smokers was clinically similar to that of those who had never smoked.

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Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
Single (1998)	Canada	1992	N/A	1991 General Social Survey. 1990 Canada Health Pro motion Survey. 1994 Canada's Alcohol and other Drug Survey. Published sources (Shultz et al., 1991; English et al., 1995; Fox et al., 1995)	N/A	A long list of direct and indirect costs associated with morbidity and other problems attributed to substance abuse.	N/A	N/A	A cost-of-illness (COJ) study was conducted in accordance with international guidelines developed 1994 developed 1994 International Symposium on the Economic and Social Costs of Substance Abuse.	Tobacco accounts for approximately \$9.56 billion or \$336 per capita in costs including \$6.82 billion for lost productivity and \$2.68 billion for direct health care costs.

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2002) US	6	1998	Adults ages 18	Healthcare for E	Ever smoking,	Inpatient and	N/A	N/A	Two health care measures	Current or ever smoking	-
			to 65.	Communities	daily smoking,	ambulatory care,			were used. The first	increases inpatient and	
				(HCC) survey,	and never	regularly used			measure of service use is	ambulatory care, on an	
				wave 1. Medical	smoking.	medication			spending on inpatient and	average, about \$230 per	
				Expenditure		(prescription			ambulatory care, based on	year. They also increase	
				Panel Survey		drugs, and			the number of reported	service costs (inpatient	
				(MEPS).		others).			hospital stays and	and outpatient spending)	
									ambulatory visits and	by 21 percent and	
									multiplied by unit costs	medications costs by	
									from the Medical	28-30 percent.	
									Expenditure Panel Survey		
									(MEPS). The second		
									evaluates health-related		
									quality of life by the		
									physical health scale on the		
									SF-12 (PCS12); The second		
									measure is medication use		
									based on survey questions		
									about regularly used		
									medication, mapped to		
									insurance claims (for		
									prescription drugs) or		
									wholesale prices (others) to		
									obtain spending estimates.		
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Reference	Location/ Country	Time frame	Population studied and sample size	Data types and sources	Division of population	What costs are included?	Formula for smoking- attributable fraction (SAF)	Control for confounders? If so, which ones?	Modelling strategy	Estimated costs/Results
(2001)	Oregon, US	1996 1996	Aged 35 and over n = 46,321	Administrative d as well as survey data. 1989–1996 Oregon death certificate data. 1988–1995 Oregon behavioural risk factor survey.	Current and former smokers	Smoking attributable deaths (SADs).	NA	4/Z	"Smoking-attributable mortality, morbidity and economic costs" software version 3 (SAM-MEC 3.0) to estimate smoking attributable deaths (SADs). Compared SAMMEC 3.0 estimates of SADs with those physician reported fobacco attributable fobacco attributable fobactos (TADs).	Of 212,448 Oregon deaths, SAMMEC 3.0 estimated that 42,778 (33.7%) were attributable to smoking. For the same diagnoses, physicians reported that tobacco contributed to 42,839 (33.8%) deaths, a (33.8%) deaths, a cumulative difference of only 61 deaths over the eight year period.
Wilkins (2009)	(excluding Quebec)		Sample of 28,255 respondents.	Individual level.	Current versus former smokers. Long-term quitter versus recent quitter. Daily smokers versus who do not smoke daily. not smoke daily.	Hospital days.	AM	First model adjusted for age and sex. 2 nd model controlled for age, sex, education, hh income, and urban/rural income, and urban/rural education, hh income, education, hh inc	Frequencies, cross- labulation, means were used to estimate smoking orevalence. Variance on estimates was calculated with bootstrap technique. Four multiple logistic egressions were used to fit the association. Cox oroportional hazards oroportional hazards issessing association.	Former smokers aged 45 to 64 who had quit for more than five years averaged no more days in hospital than did never- daily smokers. Compared with never-daily smokers, excess days used by excess days used by turrent daily and former daily smokers aged 45 to 74 amounted to nearly one-third of all acute care hospital days used by the population of this age range.

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Literature Review 2: Covariates that may Confound the Relationship Between Smoking Status and Healthcare Use

When estimating the relationship between smoking status and healthcare burden, it is necessary to adjust for variables that are related to both smoking status and healthcare use that may result in biased results (confounding variables). This second literature review identified confounding variables to include in our models.

This review included studies conducted in the United States and Canada. We performed our literature review using PubMed and Google Scholar. Search terms included:

- Predictors of smoking
- Predictors of smoking in Canada
- Predictors of smoking in the US

Table 2.2. summarizes the articles retrieved in this review. Certain characteristics were consistently found to be associated with smoking, which may also be related to healthcare use. Several studies found that men were more likely to smoke than women (Emmons, Wechsler, Dowdall, & Abraham, 1998; Health Canada, 2012; Pan, 2004; Reid, Hammond, Rynard, & Burkhalter, 2014). Studies also found that smoking was concentrated among individuals with lower SES (lower income and educational attainment) (Reid et al., 2014; Sanmartin et al., 2013). **Binge drinking** and mixing alcohol with energy drinks was also noted as a risk factor for smoking cigarettes (Azagba & Sharaf, 2014; Emmons et al., 1998). Finally, the US Surgeon General report found several variables related to smoking: Body image, use of other drugs, mental health, religion, race/ethnicity/culture, gender, SES, educational and academic achievement, school environment, extra-curricular and organized activities, adolescent friends and peer groups, family/genetics, prenatal exposure to nicotine, and marketing (U.S. Department of Health and Human Services, 2012). Krueger et al. (2013) reported that smoking, physical inactivity, and obesity interact with respect to healthcare costs. One must control for these lifestyle factors when modeling the costs specifically attributable to smoking.

We controlled for as many of these variables as possible. In doing so, we hoped to make fair comparisons between smokers and non-smokers to identify whether smoking has placed an excess burden on Manitoba's healthcare system.

Authors	Title of Article	Location	Journal	Year	Variables that predict smoking
Azagba	Is alcohol mixed with energy drinks consumption associated with susceptibility to smoking	Canada	Preventative Medicine	2014	Alcohol mixed with energy drinks
Becklake	Childhood Predictors of Smoking in Adolescence: A Follow-up Study of Montreal Schoolchildren	Canada	СМЈА	2005	Parental smoking during childhood Adolescent peer pressure
de Vries et al.	Parents' and Friends Smoking Status as Predictors of Smoking Onset: finding from six European Countries	Europe	Health Education Research	2003	Parents and friends smoking status
Emmons	Predictors of Smoking among US College students	US	American Journal of Public Health	1998	Demographic Precollege drinking behaviors College lifestyle choices High risk behaviors Self-reported happiness
Health Canada	Canadian Tobacco Use Monitoring Survey	Canada		2012	Comparison of 2012 rates to those of 2001 when the Federal Tobacco Control Strategy was launched
Krueger H	Improved estimation of the health and economic burden of chronic disease risk factors in Manitoba	Canada	Chronic Diseases and Injuries in Canada	2013	Physical Inactivity, Obesity, and Smoking interact
Lovato	School and Community Predictors of Smoking: A Longitudinal Study of Canadian High Schools	Canada	American Journal of Public Health	2013	School based tobacco control policies Prevention programs Area surrounding the school (neighborhood) Regional environments (municipal)
Pan	Socioeconomic predictors of smoking and frequency in urban China: evidence of smoking a social function	China	Health Promotion International	2004	Sex Age Marital status Education Job status Income
Reid	Tobacco Use in Canada: Patterns and Trends	Canada	A report prepared by Propel Centre for Population Health Impact	2014	Age Sex Education Geographical location
Sanmartin	Modelling risk factor information for linked census data: The case of smoking	Canada	Health Reports	2013	
Schmidt	Tobacco and Socioeconomic Status	US	Campaign for Tobacco – Free Kids	2014	Income Education
Surgeon General – many authors	Preventing Tobacco Use Among Youth and Young Adults	US	A Report of the Surgeon General	2012	Epidemiology and causes of tobacco use among youth ages 12 through 17 and young adults ages 18 through 25.

Table 2.2: Literature Summary: Confounding Covariates Between Smoking Status and Healthcare Use

CHAPTER 3: METHODS

Introduction

This chapter outlines the methods used to estimate costs attributable to smoking in Manitoba, including healthcare use, health outcomes, and healthcare costs.

We first describe the administrative- and survey-data sources used in our analyses. Next, we describe how we operationalized our exposure variable of interest—cigarette smoking, and our outcome variables of interest—(1) healthcare use and (2) healthcare costs. We then provide a description of the analytic methods that were used to measure the relationship between smoking and healthcare use and healthcare costs. Finally, we identify the limitations that we faced in both operationalizing smoking status and in modelling its relationship with healthcare use and costs.

Data Source

Data for this study came from the Population Health Research Data Repository (Repository) housed at the Manitoba Centre for Health Policy (MCHP). The Repository contains administrative, clinical, survey, and programmatic data. Administrative and survey data were used in these analyses. All management, programming, and analyses of these data were performed using SAS[®] statistical analysis software, version 9.3.

The Population Health Research Data Repository

The Repository has its origins in 1979 when a registry was established to conduct longitudinal studies on surgical outcomes (Roos & Nicol, 1999). The Repository now contains data on nearly every individual registered with Manitoba's universal health insurance plan since 1970 (Roos & Nicol, 1999). Since the Repository comprises more than 99% of individuals living in Manitoba and covers a period of more than 40 years, scientists are in a unique position to conduct both estimated population-based and longitudinal health research. Furthermore, being population-based, the Repository allows scientists to study populations that otherwise may be difficult to follow over time (Jutte, Roos, & Brownell, 2011; Roos et al., 2008; Roos, Roos, Brownell, & Fuller, 2010).

The Repository contains around 70 databases grouped into six domains: health, education, social, justice, registries, and database support files. Temporary, individual-level linkages across databases allow scientists to conduct cross-sector, estimated population-based research in a wide variety of areas. Linkages across databases can be conducted using an encrypted unique personal identifier provided by Manitoba Health, Health Living and Seniors to maintain confidentiality. Validity checks on the Repository have demonstrated that the data have high quality for conducting health research (Mustard, Derksen, Berthelot, & Wolfson, 1999; Roos et al., 2008; Roos, Gupta, Soodeen, & Jebamani, 2005; Roos & Nicol, 1999).

This study's objective was to identify the patterns of healthcare use and excess healthcare costs attributable to cigarette smoking. We used three surveys to identify individuals' cigarette smoking behaviours: the **Manitoba Heart Health Survey (MHHS**), the National Population Health Survey, and several years of the Canadian Community Health Survey. The latter two are run by Statistics Canada. The respective dates of each survey are given below in Table 3.1.

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Survey	Survey Years
MHHS	1989-1990
NPHS	1996-1997
CCHS 1.1	2000-2001
CCHS 2.1	2003
CCHS 2.2	2004
CCHS 3.1	2005
CCHS 2007	2007
CCHS 2008	2008
CCHS Healthy Aging	2008-2009
CCHS 2009	2009
CCHS 2010	2010
CCHS 2011	2011

Table 3.1: Surveys and Survey Years Used in Study

MHHS - Manitoba Heart Health Survey

NPHS - National Population Health Survey

CCHS - Canadian Community Health Survey

The Manitoba Heart Health Survey was conducted to measure cardiovascular risk factors in the Canadian population. It was administered from October 1989 through February 1990. It is a **cross-sectional survey** of a stratified random sample of individuals registered with Manitoba's universal health insurance plan. The MHHS consists of a Manitoba-representative sample of the non-institutionalized population 17–74 years of age. Trained nurse interviewers visited respondents at home to administer the questionnaire. Additionally, respondents visited a clinic for both clinical and laboratory measurements.

The MHHS captures sociodemographic data (age, sex, education, income, etc.), disease history, and cardiovascular risk factors (smoking status, obesity, cholesterol levels, etc.). Additional information about the MHHS is available elsewhere (See Gelskey, MacDonald, & Young, 1991; Young, 1991).

The National Population Health Survey (NPHS) was designed to gather data on the health status of the Canadian population (Statistics Canada, 2008). It was administered by Statistics Canada. Cycles 1-3 (1994-95, 1996-97, and 1998-99) comprise both longitudinal and cross-sectional samples. During this time, households were sampled and a member aged 12 or older was selected as a longitudinal study participant. The NPHS targeted Canadian household residences; it excluded individuals living on Reserves, Crown lands, health institution residents, full-time members of the Canadian Forces Bases, and remote areas of Ontario and Quebec. We used the 1996–97 cross-sectional sample in our analyses. The NPHS captured data on sociodemographic characteristics (income, labour force participation, etc.) and health characteristics (alcohol consumption, breastfeeding, **physical activity-leisure**, smoking, etc.). A full description of the NPHS study design and methods is available elsewhere (see Statistics Canada, 2008). Manitoba longitudinal data were used for one analysis to assess changes in smoking status over time. This analysis used survey data from 1994–2008.

Statistics Canada's Canadian Community Health Survey (CCHS) is a cross-sectional survey comprising a representative sample of the non-institutionalized Canadian population, aged 12 and older. Certain sub-populations were excluded from the sampling frame: individuals living on reserve and on Crown Lands, institutional residents, full-time members of the Canadian Forces, and some residents of remote regions. CCHS used a multi-stage sampling strategy to ensure that results are representative of both provincial and regional populations.

Statistics Canada has administered several cycles of the CCHS, beginning in 2000. A new sample is selected at each cycle.

The CCHS captures data on health behaviours (physical activity, alcohol intake, vegetable consumption, smoking, etc.) and measures of health. Additional information on the CCHS is available from Statistics Canada (see Statistics Canada, 2010).

Administrative Data

Data on health outcomes, patterns of healthcare use, and healthcare costs came from several administrative databases held in the repository: **Manitoba Health Insurance Registry** (used to collect birth, death, coverage status, sex, etc.); Hospital Abstracts Database (used to collect data on hospitalizations, diagnoses, procedures, length of stay, etc.); Medical Services (used to collect data on ambulatory services, diagnoses, etc.); Drug Program Information Network (used to collect data on prescription drugs, carriers, pharmacy, etc.); **Canada Census; Vital Statistics Mortality Registry**; and **Long Term Care Utilization History**. Data from the **Manitoba Cancer Registry**, maintained by CancerCare Manitoba were brought into the Repository specifically for this study and used to collect data on cancer diagnoses, treatment, pharmacy/drug data, etc.

Analyses used administrative data from April 1, 1984 to March 31, 2012. Table 3.2. shows the observation period for each survey. Administrative data from the five years before survey date were used to generate baseline descriptive statistics. We followed each individual from survey date until up to 10 years post-survey to capture differences in healthcare use. All individuals were retained in the sample until they died or had a lapse in healthcare coverage of more than 90 days.

	Years of Administrative Data	Years of Administrative Data
Survey	Used to Create Baseline	Used to Measure Outcomes
	Descriptive Statistics	Attributable to Smoking
MHHS	1984/85 - 1989/90	1989/90 - 1999/2000
NPHS	1992 - 1997	1997 - 2007
CCHS 1.1	1995/96 - 2000/01	2000/01 - 2010/11
CCHS 2.1	1998- 2003	2003 to March 31, 2012
CCHS 2.2	1999 - 2004	2004 to March 31, 2012
CCHS 3.1	2000 - 2005	2005 to March 31, 2012
CCHS 2007	2002 - 2007	2007 to March 31, 2012
CCHS 2008	2003 - 2008	2008 to March 31, 2012
CCHS Healthy Aging	2003 - 2008	2008 to March 31, 2012
CCHS 2009	2004 - 2009	2009 to March 31, 2012
CCHS 2010	2005 - 2010	2010 to March 31, 2012
CCHS 2011	2006 - 2011	2011 to March 31, 2012

Table 3.2: Observation Period for Each Survey

Survey Respondents Linked to Administrative Data

We linked respondents' survey data with administrative data files held in the Repository. Table 3.3 shows the number of survey respondents linked to administrative data in the Repository. The number of linked respondents is the number of Manitobans that consented to have their survey data linked with administrative data held in the Repository and that we were able to successfully link within the Repository.

Survoy	Number of Linked
Survey	Respondents
MHHS	2,776
NPHS	10,129
CCHS 1.1	6,833
CCHS 2.1	6,134
CCHS 2.2	3,570
CCHS 3.1	6,063
CCHS 2007	3,155
CCHS 2008	3,084
CCHS Healthy Aging	1,817
CCHS 2009	2,828
CCHS 2010	2,778
CCHS 2011	2,879
Total	52,046

Table 3.3: Number of Survey Respondents Linked to Administrative Data

Exclusions

Several exclusions were applied to the data when creating the study sample. Counts for each exclusion are given in Table 3.4 in the order in which they were applied. If an individual responded to more than one cross-sectional survey wave we kept data from the most recent wave. For example, if John Doe responded to CCHS 3.1 and CCHS 2008, we would only keep data from CCHS 2008. This was done to make use of the most recent data regarding smoking status.

- 1. If an individual responded to the same survey wave more than once (e.g., Jane Doe responded to CCHS 2.1 twice), we only kept the data from the first response.
- 2. Any survey respondents younger than 12 years were excluded.
- 3. If all smoking data were missing for an individual, then she or he was excluded.
- 4. Individuals without registry coverage at the time of the survey were excluded.
- 5. Individuals without a valid Manitoba postal code at time of survey were excluded.

As noted above, the NPHS and the CCHS excludes individuals who are institutionalized, First Nations people living in a First Nations community (i.e., "on reserve"), those living on Canadian Forces Bases (CCHS) or Full-time members of Canadian Forces (NPHS), and those living in some remote areas.

Table 3.4: Study Exclusions in Order of Application

Reason for Exclusion	Number Excluded	Percentage of Linked Respondents
Respondents surveyed more than once in the same survey wave	58	0.11%
Respondents without registry coverage at time of survey	171	0.33%
Respondents without valid MB postal code at time of survey	70	0.13%
Respondents surveyed more than once in a different survey wave	1,929	3.71%
Respondents under age 12 at time of survey	1,129	2.17%
Respondents with missing smoking information	89	0.17%
Total	3,446	6.62%

Table 3.5 shows the number of individuals, by survey, remaining after applying the above exclusions. A total of 48,600 individuals remained, from across all surveys. This is the maximum possible number of individuals available for inclusion in any particular analysis.

Sum out	Number Eligible
Survey	for Study
MHHS	2,614
NPHS	9,353
CCHS 1.1	6,395
CCHS 2.1	5,742
CCHS 2.2	2,417
CCHS 3.1	5,829
CCHS 2007	3,054
CCHS 2008	3,014
CCHS Healthy Aging	1,806
CCHS 2009	2,783
CCHS 2010	2,745
CCHS 2011	2,848
Total	48,600

Table 3.5: Number of Linked Respondents Eligible for Study After Exclusions

Defining Cigarette Smoking Status

For the purposes of this study, we limited our analyses to smoking cigarettes; we did not examine outcomes attributable to chewing tobacco, smoking pipes, smoking cigars, or other forms of tobacco use. Thus, we excluded smoking-related questions that did not specifically identify cigarette use. This section describes the two approaches we used to operationalize cigarette smoking in this study: (1) as a dichotomous variable and (2) as a categorical variable.

Smoking status is based on self-reported data. A study by Wong et al. (2012) compared self-reported smoking status to urinary cotinine concentrations. They concluded that self-reported smoking status provides a valid measure of smoking behaviours among Canadians.

Cigarette Smoking as a Dichotomous Status

Dichotomous smoking status was operationalized separately for MHHS, NPHS, and CCHS. MHHS lacked a specific question that solely measured cigarette smoking. It asked, "Have you ever smoked cigarettes, cigars or a pipe?" A follow up question asked about cigarette smoking, specifically; however, fewer than 100 respondents indicated that they smoked something other than a cigarette. NPHS asked, "Have you ever smoked cigarettes at all?" CCHS asked, "In [your] lifetime, have [you] smoked a total of 100 or more cigarettes?" We collapsed affirmative answers to these distinct questions into a single category, "ever smoked." Respondents who answered these questions negatively were collapsed into the category "never smoked." Table 3.6. shows the questions used to define the "ever smoked" category.

Table 3.6: Questions Used to Measure Smoking Status for Ever Smoked and Never Smoked by Survey

Survey	Survey Question
MHHS	Have you ever smoked cigarettes, cigars, or a pipe? Yes/No
NPHS	Have you ever smoked cigarettes at all? Yes/No
CCHS	In [your] lifetime, have [you]smoked a total of 100 or more cigarettes? Yes/No

Although the three surveys measured smoking status with slightly different questions, it was important to have the maximum amount of follow-up time in order to capture differences in healthcare use among individuals who ever smoked versus those who never smoked. Limiting analyses to CCHS respondents would have truncated the observation period. Indeed, we would have only been able to follow respondents from the first round of the CCHS for ten years post-survey date. Many CCHS respondents could not be followed for 10 years, post-survey. MHHS and NPHS provided the opportunity to follow more individuals for ten years after survey date. Thus, we were able to capture longer-term patterns in healthcare use that may be attributable to smoking. Moreover, the earlier MHHS and NPHS allowed us to estimate Manitoba-specific smoking prevalence rates going back to 1989/90.

Across all surveys, individuals were followed until either (a) the end of the 10 years of observation time, (b) until the most recent data acquisition (2011/12), (c) until death, or (d) until loss of coverage (i.e., the individual moved out of the province).

Respondents from any survey who answered "don't know" or "not sure," and those with missing or invalid data, were excluded from analyses. The final sample used in the dichotomous analyses—along with exclusions—is summarized in Table 3.7.

Table 3.7: Final Analytic Sample: Ever Versus Never Smoked

	Sample Size
Eligible Linked Respondents	48,600
Number Excluded*	18
Total	48,582

* Due to missing responses for questions used in categorizing smoking status

Cigarette Smoking as a Categorical Status

All respondents (except MHHS respondents) were also grouped into one of several **smoking-status categories** in order to operationalize different levels of exposure:

- 1. Current Daily Smoker (i.e., the individual was a daily smoker at the time of survey),
- 2. Former Daily Smoker-Five or fewer years before survey (i.e., the individual quit smoking five years or less before time of survey),
- 3. Former Daily Smoker-More than five years before survey (i.e., the individual quit smoking more than five years before time of survey),
- 4. Never A Daily Smoker-Occasional smokers (category includes both current and former occasional smokers),
- 5. Never Smoked (never smoked one cigarette in their lifetime).

Wilkins et al. (2009) used these five categories in previous research using CCHS data. We used the same categories to allow comparison with other findings.

We wanted a high degree of specificity in categories of smoking. Hence, note that "never smoked" was defined differently in the categorical analyses from the dichotomous analyses. In the categorical analyses it classifies people who never smoked even one cigarette. Those who smoked up to 100 cigarettes in a lifetime were assigned to the fourth category, "never a daily smoker". If anything, this may dilute the effect of this fourth category, in comparison with the "never smoked" since those in this category will have only smoked a very small number of cigarettes in their life. However, we wanted to make the most stringent distinction between the smoking categories and those who truly never smoked, to get a clear picture of the relationship between healthcare use and smoking behaviours.

Out of the 48,600 respondents, 5,126 were excluded from the categorical analyses because of non-response, failing to give a definitive answer, and/or had missing data on the questions used to measure "daily smoking." This group of 5,126 individuals includes the 2,614 respondents from MHHS since MHHS did not ask about daily smoking, nor former daily smoking.

Table 3.8: Final Analytic Sample: Smoking Status Categories

	Sample Size
Eligible Linked Respondents	48,600
Number Excluded*	5,126
Total	43,474

* Due to missing responses for questions used in categorizing smoking status

Outcome Variables: Healthcare Use

This section describes the variables used to measure patterns of healthcare use. We measured healthcare use in three ways: physician visits, hospitalizations, personal-care-home use, and pharmaceutical use.

To study the relationship that smoking has with healthcare use, we followed individuals for 10 years post-survey, conducting analyses at the one-, three-, five-, and 10-year mark. Respondents were followed until: (a) the end of the 10 years of observation time, (b) the most recent data acquisition (2011/12), (c) death, or (d) until loss of coverage (i.e., the individual moved out of the province). We estimated weighted, annualized rates (**per person-year rates**), over each observation period (1, 3, 5, and 10 years) to measure healthcare use. Weighted per-person-year rates were calculated using data from survey respondents aged 12 years and older.

Ambulatory Physician Visits

We limited physician visits to ambulatory-care visits, which include almost all contacts with physicians outside of hospital: office visits, walk-in clinics, home visits, personal-care-home visits, and visits to outpatient departments, to **general/family practitioners** and specialists. Although previous MCHP studies have excluded visits for prenatal care, improved coding practices allowed us to include these in this study. Visits to the emergency department and physician contacts during hospitalization were excluded.

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We annualized the rate of ambulatory-care visits per survey respondent for each of the four observation periods. Survey **sample weights** were applied to ensure that rates were representative of the Manitoba population.

Hospitalizations

We measured hospitalization in two ways: as the number of hospitalizations an individual had annually, and as the total number of days the individual was hospitalized annually. Data used to measure hospitalizations came from the Hospital Discharge Abstracts database in the Repository. We included data from all Manitoba hospitals; data from out-of-province hospitalizations were included. Data from nursing homes, nursing stations, and long-term care facilities were excluded. We describe how hospitalizations and **days in hospital** were measured, below.

<u>Inpatient Hospitalizations</u>: A hospitalization where a patient is formally admitted to hospital and stays one or more days. We estimated a weighted hospitalization rate, per 1,000 person years, for each observation period.

<u>Days in Hospital:</u> The total number of days spent in hospital for each observation period were counted, taking into consideration transfers so as to not double-count any days. We estimated the annualized, weighted rate of days spent in hospital per 1,000 person years.

Pharmaceutical Use

We measured pharmaceutical use using data held in the Drug Program Information Network (DPIN). DPIN is a point-of-sale prescription drug database that connects Manitoba Health, Healthy Living and Seniors with all community pharmacies in Manitoba. DPIN can be used to generate a complete prescription drug profile of prescriptions filled for all individuals registered with Manitoba Health, Healthy Living and Seniors. DPIN does not capture data on pharmaceutical services provided by hospital pharmacies, nursing stations, ward stock, and outpatient visits at CancerCare Manitoba. Thus, we limited pharmaceutical drug use to out-of-hospital, community-based prescriptions. We also limited analyses to pharmaceuticals that were covered by Manitoba Health's Pharmacare program. The following exclusions were made: prescription drugs given to hospitalized patients, some personal-care-home residents with hospital-based pharmacies, and prescriptions for over-the-counter drugs. We used two measures to capture prescriptions: **number of different types of drugs dispensed** and number of **defined daily doses** post-survey-date observation period.

Number of different types of drugs dispensed: Each pharmaceutical agent was classified using the **Anatomical Therapeutic Chemical (ATC) Classification**. The ATC divides drugs into different groups at five levels according to the organ or system upon which they act. Each pharmaceutical agent that falls under a different fourth-level ATC class was counted as a new drug for each respondent. An individual could have had several prescriptions for drugs in the same fourth-level ATC class, but this was only counted as one drug type for that year. We used DPIN data to calculate a weighted, annualized average number of different types of drugs (using the fourth-level ATC class) dispensed to each survey respondent for each observation period.

<u>Number of defined daily doses (DDDs)</u>: DDD is a measure of the intensity of use of pharmaceuticals. DDD is the assumed average maintenance for a drug product when used for its major indication in everyday practice. This is a technical unit of measurement and does not necessarily reflect the actual amount or dose used. DDDs are limited to solid forms of drugs; liquid and injectable pharmaceuticals are not included in DDDs. DPIN data were used to calculate a weighted, annualized number of DDDs for a survey respondent for each observation period.

Personal-Care-Home (PCH) Use

We measured use of PCH services using data held in the Long Term Care program administrative database. Primarily, older individuals with chronic illness or disability use PCH services. We measured two PCH outcomes: admission rates to a PCH and days spent in a PCH.

<u>Admissions to a PCH:</u> We measured first time admissions to a PCH after survey date for individuals aged 70 years and older when they were surveyed. We estimated a weighted PCH admission rate, per 1,000 person years, for each observation period.

<u>Days in a PCH:</u> We measured the number of days spent in a PCH for each observation period. We estimated an annualized, weighted rate of days, per 1,000 person years for each observation period.

Outcome Variables: Mortality, Years of Life Lost, and Life Expectancy

In addition to measuring healthcare use attributable to smoking, we measured premature mortality, potential years of life lost, and total mortality associated with smoking. For each measure we calculated rates per 1,000 person years for each observation period: one, three, five, and 10 years.

Premature Mortality Rate (PMR)

PMR can serve as an overall indicator of the health of a population (Carstairs & Morris, 1991; Eyles & Birch, 1993; Eyles, Birch, Chambers, Hurley, & Hutchison, 1991; Martens, Frohlich, Carriere, Derksen, & Brownell, 2002; Reid, Roos, MacWilliam, Frohlich, & Black, 2002). The Manitoba PMR is the age- and sex-adjusted death rate of Manitobans aged less than 75 years, per 1, 000 residents. We estimated age- and sex-adjusted PMR for respondents categorized as "ever smoked" and "never smoked" in the dichotomous analyses. Additionally, we estimated age- and sex-adjusted PMR for the categorical analyses.

Potential Years of Life Lost (PYLL)

PYLL provides an indicator of early death (death before age 75). In this study, we are limited to deaths at ages 12 to 74. PYLL gives greater weight to deaths occurring at a younger age than to those deaths occurring later. For example, the death of a 50-year-old contributes 25 years of life lost in PYLL estimates, whereas the death of a 70-year-old contributes five years of life lost to PYLL. We estimated PYLL for respondents categorized as "ever smoked" and "never smoked" in the dichotomous analyses, and the five statuses in the categorical analyses.

Total Mortality Rate (TMR)

TMR was estimated as the number of deaths, per 1,000 **person-years** for survey respondents aged 12 and older. We estimated age- and sex-adjusted TMR for respondents categorized as "ever smoked" and "never smoked" in the dichotomous analyses, and the five statuses in the categorical analyses.

Life Expectancy at age 50

We calculated life expectancies for individuals aged 50 and older by smoking status to estimate whether smokers die younger than non-smokers.

Life expectancy is a summary measure of the average lifespan for a population and is usually computed using the life-table method (Chiang, 1984). Life-table construction requires the estimation of age- and sex-specific mortality rates which once known can be applied to a hypothetical population—of say 100,000 or 1,000—to derive the other components of the life table such as life expectancies. The use of the life-table method in the computation of life expectancies is most suitable when working with a population having "fixed" characteristics such as sex, race, or chronic-disease conditions.

Using life-table methods—alone—to compute life expectancies for different smoking statuses could produce misleading results. We used both statistical-survival modeling and life-table methods in the computation of life expectancies. The survival analysis method that we used to compute the age- and sex-specific mortality rates was proportional hazards regression. We incorporated the survey sample weights in our regression model to estimate rates that are representative of the Manitoba population. These rates were then applied in the life-table method to compute life expectancies. Strauss et al. (2005) discuss one method for computing life expectancies when both survival analysis and life table methods are used: the "**Proportional Life Expectancy**." This method assumes that excess death rate at any age is inversely proportional to the remaining life expectancies. This approach takes into account a population's distribution of mortality when considering and adjusting for confounding covariates. Both Shavelle, et al. (2009) and Richard and Singer (2005) have used this method. We used this method in our study.

After weighting our survey sample, death before age 50 was observed rarely for smokers and non-smokers alike. Therefore, we used life expectancy at age 50 as a more reasonable calculation for both groups. Expected lifespan from age 50—given that an individual lives to 50—was calculated based on the weighted patterns of mortality for survey respondents one, three, five, and 10 years after survey.

Outcome Variables: Cancer

We measured three cancer outcomes: (1) incident cases of lung cancer, (2) incident cases of any cancer that is strongly-associated with smoking (lung, oral/pharyngeal, esophageal, and larynx), and (3) incident cases of any cancer. Any new cancer diagnosis up to ten years after survey was included in the incidence calculation. If a person was diagnosed with multiple primary cancer sites in the follow up period, or a new instance of cancer at the same site, then all cases were counted. We estimated the weighted incidence rate for each cancer outcome per 100,000 person years for survey respondents age 12 and older, for each observation period. Data used to measure incident cases of cancer came from the Manitoba Cancer Registry.

Lung Cancer: Cancer sites included the lung and bronchus. An incident case of lung cancer was defined by ICD-O-3 topography axis codes C340:C349, excluding morphology axis codes 9590-9989.

<u>Strongly Smoking-Associated Cancer</u>: Cancer sites included lung, oral/pharyngeal, esophageal, and larynx. The glossary provides a complete listing of the ICD-O-3 codes used to identify specific cancer sites.

<u>Any Cancer</u>: We finally examined any incident case of malignant cancer using data from the Manitoba Cancer Registry, excluding non-melanoma skin cancers.

Statistical Analyses

This section describes the statistical analyses used to estimate differences in healthcare use and health outcomes. We begin by providing the reader with a brief overview of the challenges of confounding encountered when estimating differences in healthcare use attributable to smoking. We then outline the three different strategies that we used to address confounding variables. Next, we provide an overview of the outcome models used to estimate the differences in healthcare-user rates, cancer rates, mortality rates, and life expectancy. Finally, we outline the costing methods that we used to estimate the healthcare costs attributable to smoking. Estimations of the differences in healthcare use attributable to smoking must address issues of confounding. Consider the following scenario. A scientist is interested in identifying whether daily smokers visit the doctor more frequently than non-smokers. He recruits 1,000 people into his study: 500 daily smokers and 500 non-smokers. The scientist then follows his participants for two years, counting the number of times each person visits the doctor over the two-year period. At the end of the two years the scientist discovers that the average smoker enrolled in his study visited the doctor 4.3 times per year, whereas the average non-smoker enrolled in his study visited the doctor only 1.2 times per year. At first glance, it could appear that smoking causes people to visit the doctor more. However, when we examine the study participants more closely, we learn that the average smoker has lower income, poorer living conditions, a more hazardous job, alcohol- and drug-abuse problems, has unprotected sex more frequently, and higher BMI when compared with the average non-smoker. Each of these factors could have led to the increased physician-visit rate, and are related to both smoking and the outcome. Thus, these risk factors will confound the observed relationship.

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The question is how to compare smokers versus non-smokers fairly. We wanted to compare smokers and non-smokers who were *similar* at the time of survey. Comparing patterns of healthcare use among smokers with patterns of healthcare use among a group of *similar* non-smokers helps to reduce confounding. Put another way, if the two groups, smokers and non-smokers, are very similar on baseline characteristics, then it is more probable that any differences in healthcare costs can be attributable to smoking and not to confounding characteristics. We cannot know for certain whether we have eliminated all confounding; we cannot state for certain whether the observed relationships are causal.

We used several strategies to make comparisons fair between smokers and non-smokers and between different smoking categories.

Population-level analyses compared rates of healthcare use and health outcomes between smokers and non-smokers. In order to make fair comparisons we adjusted the healthcare-use rates among smokers and non-smokers by four characteristics: age, sex, regional health authority (RHA) of residence, and **income quintile**. The latter was based on the average income in the community in which they live. **Age calculations** used in these models were based on the respondent's age at the time of the survey. Smokers may, on average, be older than non-smokers; older individuals may use more healthcare services than younger. Adjusting for age accounts for these differences and allows for more fair comparisons between smokers and non-smokers. We conducted two estimated population-based analyses: one dichotomous ("ever smoked" vs. "never smoked") and one comparing more refined categories of smoking. The analytic sample for the dichotomous analyses included 48,582 individuals. The analytic sample for the categorical analyses included 43,474 individuals.

Matched analyses compared smokers who were similar to non-smokers in our sample. For each smoker in our sample, we looked for a similar non-smoker. The non-smoker needed to be from the same RHA, be the same sex, and be from the same income quintile. We also required the non-smoker to be approximately the same age (i.e., \pm 5 years of the smoker's age). We performed 1:1 matching, which means we matched one non-smoker to each smoker. We excluded individuals for whom we could not find a match. We were only able to perform matching for the dichotomous analysis and the costing analyses; we were unable to identify matches when conducting the categorical analyses. The analytic sample for the matched, dichotomous analysis included 38,272 individuals. After constructing a matched sample, we ran a generalized linear model to assess whether the group that smoked had differing rates for each of our outcomes when compared with the group that did not smoke.

Propensity Scores: Finding non-smokers who are identical to smokers is a challenging task. The more characteristics we want to be similar in a matched analysis, the more difficult it is to find similar individuals to compare. In the 1970s, statisticians developed an elegant approach whereby researchers can compare smokers with non-smokers who are similar on several-to-hundreds of characteristics using propensity scores (Rubin, 1977; Rubin, 2002; Rubin, 2008). A propensity score is simply the probability of exposure. In our study, it would be the probability that an individual is a smoker. Propensity scores range from 0 to 1, where scores closer to one indicate that an individual has a high probability of being a smoker and scores closer to zero indicate that an individual has a low probability of being a smoker.

We estimated individuals' propensity scores using multivariable logistic regression, where smoking status was the outcome variable and many confounding variables were included as predictor variables. We refer to this multivariable logistic regression model as "the propensity-score model." Specifically, we used a high-dimensional propensity-score model that included hundreds of covariates ranging from demographic characteristics (e.g., age, sex, education level achieved, income), lifestyle factors (e.g., history of binge drinking, history of addictive behaviour), health measures at the time of survey (e.g., BMI), and healthcare use during the five years prior to survey. A complete list of covariates is available from the authors on request. High-dimensional propensity-score models are the optimal approach to deal with residual confounding in large administrative databases (Polinski, Schneeweiss, Glynn, Lii, & Rassen, 2012; Rassen, Glynn, Brookhart, & Schneeweiss, 2011; Rassen & Schneeweiss, 2012; Schneeweiss et al., 2009). We then used this model to estimate each individual's predicted probability for smoking. All of the information from the hundreds of included covariates was reduced to a single variable, the estimated propensity score. Comparing a smoker with a non-smoker with a similar propensity score can be thought of as comparing two individuals who are similar, based on all the variables included in the propensity-score model (Guo & Fraser, 2009; Rosenbaum & Rubin, 1983; Rubin, 1977; Rubin, 2002; Rubin, 2005; Rubin, 2008). The set of covariates that we used to model individuals' propensity scores for smoking allowed us to address potential differences between smokers and non-smokers such as:

- sicker individuals choose to smoke and, thus, their increased healthcare use is not due to smoking but rather to the fact that they started off sicker;
- smokers make other unhealthy lifestyle decisions and, thus, their increased healthcare costs are due to lifestyle factors other than smoking; and
- smokers tend to be from lower socioeconomic groups and their increased healthcare use is related to low SES and not due to smoking.

The sample size for the dichotomous (ever vs. never) analyses began at 48,582 individuals. We then trimmed the top and bottom five percent of propensity scores. This was done to minimize the influence of outliers in our models. (Guo & Fraser, 2009) After trimming, our sample size for these analyses comprised 43,720 individuals: 22,716 who ever smoked and 21,004 who never smoked. We next examined the distribution of propensity scores in the "ever" and "never" categories to ensure propensity scores from each smoking status group overlapped.

During the early 2000s, statisticians developed the generalized propensity score to use in dose-response studies (Imbens, 2000). In such studies, the generalized propensity score is estimated using a multivariable, multinomial logistic regression model in which researchers estimate the predicted probability that an individual is in each respective dosage category. We estimated individuals' generalized propensity score for each smoking category:

- Probability of being a Current Daily Smoker,
- Probability of being a Former Daily Smoker-Five years or less before survey,
- Probability of being a Former Daily Smoker-More than five years before survey,
- Probability of being a Never a Daily Smoker-Occasional smokers (category includes both current and former occasional smokers).

The sample for the categorical smoking analyses began with 43,474 individuals. We examined the distribution of generalized propensity scores across each smoking-exposure category to identify outliers, based on their generalized propensity score. These outliers do not have fair comparisons within the sample. We removed 5,195 outliers. The final generalized propensity score sample for categorical smoking status included 38,279 respondents.

The propensity score and the generalized propensity score can be used in several ways: they can be used as a covariate that is included in regression models, they can be used to construct weights, and they can be used as a matching variable. In analyses examining healthcare use, we used the propensity score and the generalized propensity score as a covariate in our outcome models, grouped as deciles, quintiles, or tertiles depending on what fit the model best. This method has been used previously with administrative data (Filion et al., 2014). In costing analyses, the propensity score was used to calculate a weight for each individual. More information on this subject is given under Economic Analyses below.

Finally (after trimming and checking the distribution of propensity scores) we examined whether adjusting for the propensity score made our smoking-status groups comparable. To assess this, we estimated propensity-score-adjusted characteristics for each group. If descriptive statistics were comparable across groups after adjusting with the propensity score, we had evidence that we were comparing "apples to apples" in our healthcare-use analyses. That is, this provided us with evidence that we were comparing smokers with similar non-smokers.

To adjust for confounding variables when estimating healthcare use and health outcomes in the dichotomous (ever vs. never) analyses, we included propensity score, age, and sex as covariates in the regression models. Likewise, when estimating healthcare use in the categorical analyses, we included the generalized propensity score (probability of being in each group), age, and sex as covariates in our models.

Smoking-Trend Models

We modelled estimated population trends for smoking from 1989 to 2011. Trends were modelled using Poisson regression models. Regression models were adjusted for age and sex to account for changes in the Manitoba population over time. This allows one to make fair comparisons with respect to smoking rates over time. We used linear trend tests to examine whether trends in smoking were changing over time.

Outcome Models

We modelled rates for healthcare use, mortality, and cancer using generalized linear models with either a negative binomial distribution or a Poisson distribution, and a log offset of person years to account for each person's follow-up time. **Generalized linear models** are a set of models that allow one to analyse a wide range of outcomes, including counts of events. Negative binomial distributions and Poisson distributions are used when modelling counts; we chose the distribution that yielded the best model fit, for each outcome. We used the log of person-years as an offset to account for the fact that individuals had different observation times. For example, someone surveyed in 2009 was only followed for two years, whereas someone surveyed in 2000 was followed for 10 years. All models included an indicator variable, or set of indicator variables, to classify individuals by smoking status. In the dichotomous analyses the variable was either "ever smoked" or "never smoked." In the categorical analyses, we included a set of mutually exclusive smoking-status indicator variables.

We used the three techniques outlined above to adjust for confounding in our models. For example, in the estimated population-based analyses, we included age, sex, RHA, and income quintile as confounding variables in our outcome models. For the propensity-score analysis, we included age, sex, and propensity score as confounding covariates in our outcome models. We then used these multivariable models to estimate **adjusted rates** for each of our outcomes.

We used relative rates—sometimes called rate ratios—and **rate differences** to estimate whether there was a statistically significant rate difference in the health outcome of interest among those who ever smoked compared with those who never smoked. We indicate statistical significance using 95% **confidence intervals** around our estimated rate ratios and rate differences in our study. The 95% confidence interval can be thought of as a "wiggle factor." It shows that if a different sample were drawn from the Manitoba population, we would expect that 95% of the time the point estimate would fall between the confidence intervals presented. For rate ratios, when the 95% confidence interval included one, we concluded that there was no evidence that smoking was associated with a relative difference in the outcome. For rate differences, when the 95% confidence interval included zero, we concluded that there was no evidence interval included zero, we concluded that there was no evidence interval included zero, we

A relative rate is another means for comparing the rate of an outcome among smokers versus non-smokers. Relative rates are calculated by dividing the rate among smokers by the rate among non-smokers. We tested whether rate ratios were statistically significantly different from one. When analytical expressions are complicated or when the distribution of an estimate is unknown (as can sometimes be the case with rate ratios) it can be difficult to obtain a standard-error estimate that can be used in statistical tests. In these situations, researchers need to use an empirical distribution of the data in order to perform significance tests. **Bootstrapping** is one approach for using the empirical distribution of the data when conducting statistical tests. We bootstrapped our estimates and obtained the standard deviation of our bootstrapped parameters. We used the bootstrapped standard errors to calculate the Z statistics for differences in proportions. We used two-tailed tests with a priori **p-values** <0.05 to determine statistical significance.

A rate difference is simply the difference between the rate of an outcome between smokers and non-smokers. This is calculated by subtracting the rate among non-smokers from the rate among smokers. We tested whether the rate differences were statistically significantly different from zero. To do this, we bootstrapped our estimates and obtained the standard deviation of our bootstrapped parameters. We used these bootstrapped standard errors in our significance testing. We used two-tailed tests with a priori p-values <0.05 to determine statistical significance. If the rate difference was statistically significantly different from zero, then we say that smokers had a different rate of healthcare use compared with non-smokers.

We also calculated the life expectancy for the sample, by smoking status, at age 50. This can be thought of as answering the question, "what is the average lifespan of a person, if they survive to age 50?" We calculated life expectancy at age 50 because deaths before 50 are a rare event in Manitoba, and their inclusion in estimates can produce significant variation. We calculated life expectancy as proportional life expectancy. This approach uses a combination of mortality rates estimated from survival analyses and life-table methods. First, we modeled adjusted mortality rates using proportional-hazards regression models. We used the three techniques outlined above (estimated population-based, matched, and propensity score adjusted) to adjust for confounding in our models. For example, in the estimated population-based analyses, we included age, sex, RHA, and income quintile as confounding variables in our outcome models. For the propensity score analysis, we included age, sex, and propensity score as confounding covariates in our outcome models. We then used these multiple variable models to estimate adjusted mortality rates, by smoking status, and then applied these adjusted mortality rates to the life-tables method to estimate average life expectancy associated with smoking status.

Throughout this research, data were suppressed when the number of people or events involved was five or fewer, or if the length of stay in hospital was one day or less. However, data is not suppressed when the actual count is zero.
Economic Analyses

Healthcare costs were estimated using both standard and micro-costing. Costs for **physician services** and prescription drugs were calculated using micro-costing and hospital costs were calculated using standard costing; we used the approaches outlined by Finlayson et al. (2010). All costs were estimated in Canadian dollars. Costs were converted to 2010 dollars to allow for comparisons across years while accounting for inflation.

Micro-Costing

We summed the cost of the amount billed for physician services for all contacts with physicians ambulatory care visits, defined above, for each individual in each fiscal year (1996/97–2011/12). Physicians who are paid on a fee-for-service basis submit a cost claim for each service they provide. Each service has a code with a corresponding fee. There are situations where a physician has been over- or underpaid for a service. In these situations there may be two fees attached to a claim: the original fee and the adjustment. Analyses combined these two to make a corrected net fee for the service. Other physicians are paid through alternative payment models such as salaries or per diem. Most of these physicians submit "shadow" claims that report the services provided and corresponding diagnosis codes for administrative purposes. The service codes were linked to the corresponding fee to estimate the service cost. Once the fee for each service was determined, we summed the annual fees for each individual. We then used the Consumer Price Index (CPI) to convert current dollar costs into 2010 Canadian dollars:

Value in 2010 \$ = (current \$ value) * CPI₂₀₁₀ / CPI_{current}

The Drug Plan Information Network (DPIN) records the cost of every drug dispensed in Manitoba community pharmacies. In addition to the drug cost, pharmacies charge a dispensing fee which can vary by pharmacy. We included the dispensing fee in the drug price to calculate prescription-drug costs. It should be noted that the prescription drug costs used in our analyses only included those paid by the Manitoba Government; costs did not include those paid by private insurance, out-of pocket, or dispensed during a hospitalization.

We summed prescription drug costs for each individual in each fiscal year. We then converted these costs into 2010 Canadian dollars using the Statistics Canada all-item CPI.

Standard Costing

Hospital costs were calculated using a standard-costing method. These costs use two values: a resource intensity weight (RIW[™]) for inpatient procedures and a provincial average **cost per weighted case** (**CWC**). RIWs for inpatient stays are a measure of the relative resources used to provide care to one type of case compared to another. More complex cases receive higher RIWs compared to simple cases since complex cases use more resources. The Canadian Institute for Health Information (CIHI) calculates these weights. Annually, Manitoba Health, Healthy Living and Seniors sends hospitalization data to CIHI. CIHI then uses an algorithm to assign RIWs to each case based on its characteristics.

The average CWC is a measure of inpatient care that excludes capital costs but includes the indirect costs associated with hospital operation. This cost is calculated as:

 $\Sigma Costs$ for inpatient care for all hospitals

∑Weighted cases for all hospitals

The denominator Σ *Weighted cases for all hospitals* was calculated by summing the RIWs assigned to all cases.

The standard cost was estimated by multiplying a case weight by CWC. This calculation provided an average cost for a particular type of hospitalization. The 2010 CWC in Manitoba was \$5,438, as calculated by CIHI. (Canadian Institute for Health Information, 2015) Annual hospital costs for inpatient care were calculated for each individual for each fiscal year using 2010 Canadian dollars.

A variety of factors may confound the relationship between smoking and healthcare costs. For example, one could hypothesize that sicker individuals start smoking; thus, any additional burden on the healthcare system observed among smokers may be attributable to the fact that they were sicker to begin with, and not to their smoking status. In estimating the extra costs attributable to smoking, we compared smokers with similar non-smokers. For example, we attempted to compare sick non-smokers with sick smokers and compare healthy non-smokers with healthy smokers. We wanted to make fair comparisons. In order to do this, we used three analytic techniques: estimated population-based analyses, matched analyses, and propensity weighting. The analytic samples used in the estimated population-based and matched analyses (described above) were also used in these analyses. The weighted prevalence of smokers and non-smokers was adjusted for age, sex, RHA, and income quintile. Then, annual crude, unadjusted costs were applied to the annual estimated population of smokers (based on the prevalence estimates).

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The propensity-score analyses included the same individuals and the same propensity score described above. However, rather than using the propensity score as a covariate in the outcome models (i.e., costs = smoking status + propensity score), we used it to construct probability of treatment weights. Specifically, we constructed "Average Treatment Effect on the Treated" (ATT) weights. The sample was first divided into two groups: those who ever smoked and those who never smoked. Everyone in the "ever smoked" category was assigned a weight of one. Everyone in the "never smoked" category is assigned a weight equal to:

(Propensity Score)

(1-Propensity Score)

Thus, non-smokers who looked like smokers were assigned a larger weight, whereas non-smokers who do not look like smokers were assigned a smaller weight. Propensity-score weights can be sensitive to outliers. Therefore, we stabilized our propensity-score weights; we multiplied each non-smoker's weight by the average probability of being a non-smoker. After applying the propensity-score weights to the data, we (1) calculated the crude, unweighted costs for hospitalizations, physician contacts and prescriptions per fiscal year for smokers and non-smokers; (2) calculated the excess cost for smokers per year; and (c) applied the annual adjusted, weighted prevalence of smokers to the excess costs to get estimated population costs for smokers. By applying these propensity-score weights, we were able to make our "never smoked" group look similar to the "ever smoked" group, and thus move toward making fair comparisons of healthcare costs.

Strengths and Limitations

There are many strengths of this study, including the use of estimated population-based data containing a rich set of outcomes and many confounding covariates. As in all studies, there are some limitations. Smoking status was assigned using an individual's response at the time of survey. Due to the method of measurement, our analyses treated smoking status as if it remained constant over time, which may not be realistic. Consider the following scenarios involving hypothetical respondents to the 2007 CCHS, which uses dichotomous exposure status:

- 1. The respondent indicated that she is a smoker and remained a smoker until the end of the study period, 2012.
- 2. The respondent indicated the he is a smoker on the CCHS 2007 then quit smoking sometime between 2007 and 2012.
- 3. The respondent indicated that he never smoked and remained a non-smoker until the end of the study period.
- 4. The respondent indicated that she never smoked and subsequently began smoking sometime between 2007 and 2012.

Misclassification of smoking status over time would bias our estimates towards the null; that is, we expect that these misclassifications would result in a more conservative estimate of the relationship between smoking and healthcare use or costs. Imagine an extreme scenario where all of the individuals who were misclassified fall into the second option given above. This form of misclassification may result in the smoking group having outcomes that are similar to the non-smoking group; thus, any differences in healthcare use or costs would be attenuated. Now, imagine an alternative scenario where all of the misclassified individuals reported that they never smoked on the 2007 CCHS and, subsequently, started smoking (option four). This would result in the non-smoking group looking more like the smoking group; thus, any differences in healthcare use or costs would be attenuated.

Because we used self-reported survey data, it is important to point out that we categorized people according to how they answered the survey at a given point in time. In our research of subsequent health status and healthcare-service use, we therefore had to assume that this categorization remained constant over time. Of course, people may change behaviour related to health issues over time, including smoking. Some people who reported never smoking may begin to smoke, while others who reported some degree of smoking may reduce their exposure from daily to occasional, or quit smoking altogether.

We were able to look at a very small subset of people from the NPHS **longitudinal survey**, following them every two years from 1994 to 2008, to test our hypothesis that smoking behaviors do change over time. We found that of the 217 daily smokers, 121 remained daily smokers (55.8%). Of the 46 occasional smokers, 37 quit (80.4%). Of the 610 non-smokers, 551 remained non-smokers (90.3%). However, loss-to-follow-up and increased non-response rates make it difficult to do any analyses other than descriptive statistics. Overall, there was a trend towards reduced smoking over time. The decrease could be partly explained by health concerns or critical health events that encouraged people to reduce or quit smoking. Again, misclassification could only attenuate measured results and bias our findings towards the null hypothesis (that smoking has no relationship with healthcare use). Thus, our results may understate the relationship between smoking and healthcare use.

Other limitations include: (a) the challenges of measuring smoking status in a consistent way across a diverse set of surveys; (b) being limited to outcomes that are measurable using administrative health data; for example, we were unable to examine smoking's relationship with work productivity; and (c) the absence of data on the smoking exposure of First Nations people who live on reserve (they were not included in the survey panel).

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CHAPTER 4: DESCRIPTION AND PREVALENCE OF THE ANALYTIC SAMPLES

This chapter contains descriptive information about the respondents to the surveys used in the research, and the prevalence of smoking exposure by category over time. The first section of the chapter describes the analytic sample used in the dichotomous—"ever smoked" vs. "never smoked"—analyses; the second section contains information on the sample used in the categorical analyses.

Describing the Sample by Dichotomous Smoking Groups

Table 4.1 shows the number of respondents in each category derived from each of the surveys used in this study. There were 25,113 respondents who ever smoked; of those, 17,961 were part of the CCHS surveys (71.52%), 5,428 were from the NPHS, and 1,724 from the MHHS. Similarly, of the 23,469 in the "never smoked" category, 18,658 were part of the CCHS surveys (79.50%), 3,925 were from the NPHS, and 886 from the MHHS. Therefore, the majority of the sample of 48,582 were surveyed in the various cycles of CCHS from 2000–2001 to 2011.

		Ever S	moked	Never S	Smoked
		Ν	%	Ν	%
	MHHS	1,724	6.86	886	3.78
	NPHS	5,428	21.61	3,925	16.72
	CCHS 1.1	3,181	12.67	3,213	13.69
	CCHS 2.1	2,884	11.48	2,856	12.17
	CCHS 2.2	1,039	4.14	1,378	5.87
	CCHS 3.1	2,891	11.51	2,935	12.51
Survey	CCHS 2007	1,512	6.02	1,540	6.56
-	CCHS 2008	1,545	6.15	1,467	6.25
	CCHS Healthy Aging	1,014	4.04	792	3.37
	CCHS 2009	1,319	5.25	1,462	6.23
	CCHS 2010	1,276	5.08	1,469	6.26
	CCHS 2011	1,300	5.18	1,546	6.59
	Total	25,113	100	23,469	100

Table 4.1: Estimated-Population-Based Sample* by Ever Smoked and Never Smoked by Survey

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

The various definitions of smoking varied slightly by survey. The MHHS asked, "have you ever smoked cigarettes, cigars, or a pipe?"; the NPHS asked, "have you ever smoked cigarettes at all?"; and the CCHS asked, "in your lifetime, have you smoked a total of 100 or more cigarettes?" In a further analysis of CCHS data, we determined that the difference between the weighted prevalence of having ever smoked even one cigarette (39.75%) and having "smoked 100 or more cigarettes in one's lifetime" (52.62%) was around 13 percentage points. This means that fewer individuals were classified as having never smoked when using the more stringent definition of "not even one cigarette." Those who smoked between 1 and 99 cigarettes were classified as having never smoked in the dichotomous analyses.

In Table 4.2, we present the weighted total across all the surveys used in the dichotomous smoked analyses. Each survey was weighted to the total population of Manitoba. Combining data from several surveys yields weighted counts greater than the Manitoba population.

Table 4.2: Crude Prevalence of Never Smoked

Surveys used: NPHS & CCHS*

		Unwe	ighted	Weig	Jhted
	Sample Size	Count	Percent	Count	Percent
Ever and Never Smoked Analyses	43,555	21,205	48.69%	3,967,790	52.62%
Smoking Status Categories Analyses	43,474	16,468	37.88%	2,993,061	39.75%

* excludes CCHS 2.2 (2004)

Unless otherwise noted, all analyses used survey sample weights to ensure that our results were representative of the overall Manitoba population. More information about survey sample weights can be found in the glossary. Table 4.3 and 4.4 show descriptive statistics for the "ever smoked" and "never smoked" groups, weighted to represent the Manitoba population. Note that the CCHS and NPHS do not include First Nations people living on reserve.

In general, those who ever smoked were more likely to be older, male, from the Interlake-Eastern or Northern RHA, living in neighborhoods with lower socioeconomic status (as measured by **income quintile**), more likely to binge drink (24.65% versus 12.65%, p<.05), or be overweight or obese. They were also less likely to be active. Those in the "ever smoked" group were more likely to have self-reported or administrative-based diagnoses of **arthritis**, cancer, **diabetes**, **hypertension**, **ischemic heart disease**, **stroke**, and mood and anxiety disorders. The **osteoporosis prevalence** among those in this group was lower compared with the "never smoked" group; however, we found no difference in **osteoporosis-related fracture prevalence** among the two groups. We also found that those in the "ever smoked" group had, on average, higher morbidity, as defined by Resource Utilization Bands (RUBs).³ Finding differences between individuals in the dichotomous smoking groups underscores the importance of adjusting for these factors when estimating the relationship between smoking and healthcare use. Each of these differences is related to smoking as well as an individual's healthcare use; thus these factors will confound the relationship between smoking and healthcare use.

³ RUBs provide a means for ranking a person's overall sickness level using information from diagnoses attributed to her/him during all medical visits and hospitalizations from the previous year. RUBs are part of the Johns Hopkins **Adjusted Clinical Group**[®] (ACG[®]) Case Mix System version 10.0.

Table 4.3: Basic Descriptive Statistics of the Estimated-Population-Based Sample* by Ever Smoked and Never Smoked

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Survey weighted; 95% Confidence Intervals

		Ever Smoked (%)	Never Smoked (%)
		N=25,113	N=23,469
Demographics			
	Mean	47.12 (46.81-47.41)	40.31 (40.02-40.57)
Age (years)	Median	47	38
Person-years	Mean	6.89 (6.76-7.02)	6.03 (5.93-6.14)
Post Survey	Median	4.88	4.48
Corr	Males	54.17 (53.27-55.07)	44.61 (43.71-45.52)
Sex	Females	45.83 (44.93-46.73)	55.39 (54.48-56.29)
	Southern	13.75 (13.11-14.39)	14.51 (13.96-15.05)
	Winnipeg	57.39 (56.37-58.42)	61.06 (60.14-61.98)
RHA	Prairie-Mountain	13.81 (13.21-14.41)	13.28 (12.74-13.82)
	Interlake-Eastern	11.43 (10.85-12.01)	9.16 (8.57-9.75)
	Northern	3.63 (3.39-3.86)	1.99 (1.83-2.16)
	Urban 1 (Lowest)	11.22 (10.34-12.09)	9.21 (8.46-9.95)
	Urban 2	13.56 (12.59-14.53)	12.28 (11.23-13.32)
	Urban 3	12.79 (11.90-13.69)	12.04 (11.06-13.03)
	Urban 4	12.36 (11.38-13.34)	13.97 (12.88-15.05)
Incomo	Urban 5 (Highest)	10.67 (9.84-11.50)	16.34 (15.18-17.50)
Ouintile	Rural 1 (Lowest)	4.60 (4.21-5.00)	4.30 (3.92-4.69)
Quintile	Rural 2	8.11 (7.56-8.66)	7.00 (6.49-7.51)
	Rural 3	7.67 (7.07-8.26)	7.20 (6.63-7.77)
	Rural 4	8.37 (7.77-8.96)	6.76 (6.30-7.23)
	Rural 5 (Highest)	8.58 (7.94-9.22)	8.40 (7.78-9.01)
	Income Unknown	2.07 (1.80-2.34)	2.51 (2.15-2.87)
	Less than \$5,000	0.72 (0.54-0.91)	1.08 (0.82-1.34)
	\$5,000-\$9,999	1.96 (1.62-2.30)	0.99 (0.79-1.20)
	\$10,000-\$14,999	4.12 (3.70-4.55)	3.34 (3.00-3.68)
	\$15,000-\$19,999	4.35 (3.98-4.72)	3.81 (3.32-4.29)
Total Household	\$20,000 to \$29,999	11.36 (10.61-12.11)	8.92 (8.27-9.57)
Income	\$30,000 to \$39,999	12.23 (11.37-13.10)	10.38 (9.61-11.15)
	\$40,000 to \$49,999	11.68 (10.85-12.51)	10.36 (9.61-11.11)
	\$50,000 to \$59,999	10.89 (10.06-11.73)	10.31 (9.46-11.16)
	\$60,000 to \$79,999	17.12 (16.11-18.13)	16.90 (15.82-17.97)
	\$80,000 or more	25.57 (24.39-26.74)	33.91 (32.60-35.22)
	RUB 0 (Non-User)	16.19 (15.35-17.04)	18.83 (17.90-19.75)
Resource	RUB 1	9.78 (9.08-10.48)	14.09 (13.26-14.91)
Utilization Band	RUB 2	24.21 (23.25-25.17)	27.97 (26.95-28.98)
(RUB)	RUB 3	42.12 (40.92-43.32)	34.59 (33.51-35.68)
(1.00)	RUB 4	6.26 (5.72-6.81)	3.58 (3.20-3.96)
	RUB 5 (Very High Morbidity)	1.43 (1.23-1.63)	0.95 (0.67-1.22)

Table 4.3: Continued

		Ever Smoked (%)	Never Smoked (%)
Lifestyle Factors	5		
Binge Drinking	5+drinks once/month or more	24.65 (23.54-25.75)	12.65 (11.82-13.47)
	Underweight/Normal	32.77 (31.74-33.81)	42.10 (40.94-43.27)
BMI	Overweight	40.14 (39.02-41.26)	35.78 (34.62-36.94)
	Obese	27.09 (26.13-28.05)	22.11 (21.04-23.19)
	Did Not Complete High School	25.72 (24.81-26.62)	28.73 (27.82-29.65)
Education Level	High School Graduate/Some Post-Secondary	32.61 (31.46-33.75)	27.04 (25.95-28.12)
	Post-Secondary Graduate	41.68 (40.52-42.83)	44.23 (43.07-45.40)
Leisure Time	Active	22.81 (21.82-23.79)	29.24 (28.06-30.43)
Physical Activity	Moderate	23.37 (22.33-24.41)	24.09 (23.08-25.10)
Index	Inactive	53.83 (52.67-54.98)	46.67 (45.40-47.94)

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Values in **bold** type indicate significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Survey weighted; 95% Confidence Intervals

		Ever Smoked (%)	Never Smoked (%)
Arthritic	Self-Reported	22.01 (21.04-22.98)	14.44 (13.64-15.24)
Arthritis	Administrative Data	23.38 (22.39-24.37)	17.99 (17.08-18.90)
	Self-Reported	2.06 (1.80-2.32)	1.28 (1.03-1.53)
All Cancers	MB Cancer Registry Data	1.89 (1.64-2.13)	1.14 (0.94-1.34)
Lung Cancer	MB Cancer Registry Data	0.18 (0.12-0.24)	0.01 (0.00-0.02)
Disheter	Self-Reported	6.52 (6.08-6.96)	4.06 (3.62-4.50)
Diabetes	Administrative Data	7.08 (6.60-7.55)	4.68 (4.20-5.16)
Hyportopsion	Self-Reported	19.90 (19.07-20.72)	14.26 (13.52-15.00)
rypertension	Administrative Data	14.97 (14.29-15.66)	12.08 (11.41-12.75)
Ischemic Heart	Self-Reported	7.25 (6.74-7.77)	3.54 (3.19-3.88)
Disease	Administrative Data	7.67 (7.15-8.19)	4.07 (3.67-4.46)
Listom, of Studio	Self-Reported	2.00 (1.67-2.32)	0.88 (0.71-1.05)
HISTORY OF STROKE	Administrative Data	2.11 (1.86-2.37)	1.37 (1.11-1.63)
Total Respiratory	Self-Reported	13.62 (12.72-14.51)	15.42 (14.25-16.59)
Morbidity	Administrative Data	12.49 (11.80-13.17)	8.75 (8.13-9.37)
Mood or Anxiety	Self-Reported	13.09 (11.94-14.24)	7.98 (7.01-8.96)
Disorder	Administrative Data	22.97 (22.02-23.92)	15.60 (14.71-16.48)
Osteoporosis	Self-Reported	8.34 (6.50-10.19)	9.64 (7.52-11.76)
(Aged 50+)	Administrative Data	5.72 (4.95-6.49)	8.89 (7.87-9.90)
1+ Osteoporosis- Related Fractures (Aged 50+)	Administrative Data	2.40 (2.02-2.77)	3.04 (2.36-3.72)

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*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Italicized values indicate a warning and should be interpreted with caution.

Values in **bold** type indicate significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Prevalence of "Ever Smoked" and "Never Smoked" over Time

The prevalence of smoking exposure decreased from 1989 to 2011. The adjusted rate, according to Table 4.5 below, has fallen from 65.5% (95% CI 62.7-68.2) to 41.7% (95% CI 38.3-45.2) (weighted for the Manitoba population, age- and sex-adjusted). This is a statistically significant trend. Appendix Table 1.1 shows the Poisson regression model, which shows a statistically significant decrease of 0.982, 95% CI 0.979–0.984, per year, p<.05). The 2008/09 CCHS Healthy Aging study only included individuals 45 years of age and older. Therefore, the smoking prevalence estimated using the CCHS Healthy Aging data may be biased—an overly high estimate—because it excludes younger people.

Year	Sample Size	Crude Percent	Adjusted Percent
MHHS 1989	2,610	65.49 (62.88-68.10)	65.45 (62.72-68.18)
NPHS 1996	9,353	56.27 (54.40-58.14)	56.40 (54.52-58.28)
CCHS 1.1 2000	6,394	47.61 (45.73-49.49)	48.22 (46.40-50.03)
CCHS 2.1 2003	5,740	49.05 (47.01-51.08)	48.81 (46.85-50.76)
CCHS 2.2 2004	2,417	48.25 (45.11-51.39)	49.34 (46.20-52.48)
CCHS 3.1 2005	5,826	46.90 (44.96-48.83)	47.43 (45.53-49.33)
CCHS 2007	3,052	46.57 (43.52-49.62)	46.26 (43.42-49.09)
CCHS 2008	3,012	47.21 (44.39-50.04)	47.56 (44.79-50.32)
CCHS Healthy Aging 2008/09	1,806	54.12 (50.36-57.89)	54.02 (50.38-57.67)
CCHS 2009	2,781	45.06 (41.80-48.32)	44.71 (41.59-47.84)
CCHS 2010	2,745	43.72 (40.43-47.01)	42.76 (39.61-45.91)
CCHS 2011	2,846	41.78 (38.23-45.32)	41.74 (38.27-45.22)

Table 4.5: Percent of Respondents who Reported Ever Smoking, by Survey Year* Survey weighted, age- & sex-adjusted; 95% Confidence Intervals

*MHHS (1989; aged 17-76), NPHS (1996; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever 100+ cigarettes in lifetime.

The take-home message for healthcare providers and policy analysts is that the prevalence of those in the "ever smoked" category in Manitoba has declined substantially over our observation period, and appears to be continuing on a downward trend (Figure 4.1).





*MHHS (1989; aged 17-76), NPHS (1996; aged 12+) and CCHS (2000, 2003-2005 & 2007-2011; aged 12+). CCHS Healthy Aging (2008/09) not shown. Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

It should be noted that the MHHS simply asked whether the individual ever smoked. In contrast, the NPHS and CCHS used more specific questions to measure smoking; they asked whether the respondent smoked at least 100 cigarettes and they asked whether the respondent ever smoked a whole cigarette. Additionally, the CCHS also asked the more generic question of whether the respondent ever smoked—similar to the question used in the MHHS. We conducted a sub-analysis to assess the difference between (1) the more specific question about whether the respondent smoked 100 cigarettes in her/his lifetime and (2) the more generic question used in the MHHS to measure whether an individual ever smoked using data from the CCHS.

We estimated the trend in the weighted prevalence for smoking 100 cigarettes in one's lifetime using NPHS survey data (1996) and CCHS survey data (2000-2011). Assuming that the time trend for prevalence of smoking 100 cigarettes remained constant, we extended it back to 1989 to estimate the prevalence of ever smoking 100 cigarettes in 1989. We found a weighted difference of 13 percentage points between using the more specific "100 cigarettes" question versus the more generic "ever smoked" question using this approach. Assuming this trend in prevalence, the adjusted rate for the "ever smoked" group in 1989 could be lowered from 65.5% to 52.6% (see Figure 4.2). If anything, this bias would make our results more conservative, closer to the null hypothesis (i.e., no difference between the health outcomes of people who ever smoked vs. those who never smoked). MHHS respondents would have included those who may only have smoked one cigarette in their lives. That said, MHHS only contributed around 7% of the overall sample for the "ever smoked" group, and 4% for the "never smoked" group.





*MHHS (1989; aged 17-76), NPHS (1996; aged 12+) and CCHS (2000, 2003-2005 & 2007-2011; aged 12+). CCHS Healthy Aging (2008/09) not shown. Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Describing the Sample by Five Categories of Smoking Exposure

Because the MHHS in 1989 only asked whether respondents ever smoked, it was not used in the categorical analyses. The NPHS and CCHS asked respondents more specific questions about smoking exposure, including questions about current and former daily smoking. Chapter 3 describes the five categories of exposure for which these surveys collected data.

Table 4.6 shows the number of respondents by smoking-status category for each of the surveys used in this analysis. A total of 43,474 respondents were included in these analyses: 8,265 current daily smokers at time of survey; 3,459 former daily smokers less than five years from survey; 8,509 former daily smokers more than five years from survey; 6,773 people who were never a daily smoker (i.e., either current occasional, or former occasional); and 16,468 people who never smoked.

Iy Smoker Former Daily Smoker Never a Daily Smoker ars before (Daily > 5 years before (Occasional/Former ey) survey) Occasional)	% N % N %	20.03 1,700 19.98 894 13.20 3,925 23.83	13.82 1,183 13.90 1,156 17.07 2,282 13.86	15.41 1,082 12.72 1,028 15.18 2,024 12.29	16.13 1,071 12.59 940 13.88 2,174 13.20	7.17 595 6.99 505 7.46 1,131 6.87	7.05 631 7.42 451 6.66 1,108 6.73	3.15 577 6.78 286 4.22 571 3.47	5.58 564 6.63 516 7.62 1,049 6.37	5.61 525 6.17 498 7.35 1,068 6.49	6.04 581 6.83 499 7.37 1,136 6.90	100 8509 100 6773 100 16468 100
ever a Daily Smoker Occasional/Former Occasional)	% N	894 13.20	1,156 17.07	1,028 15.18	940 13.88	505 7.46	451 6.66	286 4.22	516 7.62	498 7.35	499 7.37	6773 100
aily Smoker No years before ((vey)	%	19.98	13.90	12.72	12.59	6.99	7.42	6.78	6.63	6.17	6.83	100
Former Da (Daily > 5 sur	N	1,700	1,183	1,082	1,071	595	631	577	564	525	581	8 509
ily Smoker ears before /ey)	%	20.03	13.82	15.41	16.13	7.17	7.05	3.15	5.58	5.61	6.04	100
Former Da (Daily ≤ 5 y sun	N	693	478	533	558	248	244	109	193	194	209	3 459
ily Smoker	%	25.90	15.62	12.90	12.91	6.82	6.92	3.09	5.43	5.44	4.96	100
Current Da	z	2,141	1,291	1,066	1,067	564	572	255	449	450	410	8 265
		SHON	CCHS 1.1	CCHS 2.1	CCHS 3.1	CCHS 2007	CCHS 2008	CCHS Healthy Aging	CCHS 2009	CCHS 2010	CCHS 2011	Total
							Survey					

Table 4.6: Estimated-Population-Based Sample* by Smoking Status Categories by Survey

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. *NPHS (1996; aged 12+), CCHS (2000, 2003, 2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

> umanitoba.ca/faculties/medicine/units/mchp Chapter 4 | page 53

Table 4.7 shows the descriptive statistics by smoking category, including age, sex, income, and health-related behaviours. Compared to other categories, current daily smokers generally had lower household incomes, were more likely to be in the lowest urban quintile (U1), less likely to be in the highest urban quintile (U5), and had a higher likelihood of being inactive. Those in the smoking categories had lower levels of education attainment compared with the group that never smoked. A few clinically significant differences were found in the category comparisons: the median age at the time of survey was around 40 years old for all categories except former daily smokers (more than five years before survey), whose median age is 58 years; and the prevalence of binge drinking is 32.82% for current daily smokers, significantly higher than for the most other categories including never smoked (9.98%).

For morbidity, a rather striking finding is shown in Table 4.8 former daily smokers (more than five years before survey) tended to show significantly elevated morbidities. Self-reported and administrative data indicate greatly elevated arthritis, cancer, diabetes, hypertension, ischemic heart disease, and stroke in this category compared to all others. This is likely because this group is older and may have more comorbidities. Caution must be exercised in interpreting data from this category because of its obvious comorbidity profile. We adjusted for these comorbidities to mitigate the biases these difference could potentially introduce. Definitions of the diseases appearing in Table 4.7 can be found in the glossary.

Table 4.7: Basic Descriptive Statistics of Estimated-Population-Based Sample* by Smoking Status Categories Survey weighted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Dailv ≤5 vears before	Former Daily Smoker (Dailv >5 vears before	Never a Daily Smoker (Occasional/	Never Smoked
		(%)	survey) (%)	survey) (%)	Former Occasional) (%)	(%)
		N=8,265	N=3,459	N=8,509	N=6,773	N=16,468
Demographic	S					
(37501) 02V	Mean	41.87 (41.31-42.47)	41.32 (40.36-42.24)	57.78 (57.32-58.25)	43.18 (42.56-43.92)	39.62 (39.22-39.96)
Age (years)	Median	42	39	58	42	37
Person-years	Mean	5.67 (5.50-5.83)	5.11 (4.86-5.33)	5.13 (4.99-5.24)	4.92 (4.77-5.08)	5.34 (5.24-5.43)
Post Survey	Median	4.22	4.01	3.69	3.54	3.98
Sav	Males	52.73 (51.03-54.44)	51.90 (48.86-54.93)	56.95 (55.27-58.63)	52.31 (50.33-54.30)	42.72 (41.48-43.96)
767	Females	47.27 (45.56-48.98)	48.10 (45.07-51.14)	43.05 (41.37-44.74)	47.69 (45.70-49.67)	57.28 (56.04-58.52)
	Southern	13.97 (12.79-15.15)	12.92 (11.13-14.70)	13.29 (12.15-14.43)	14.13 (12.96-15.30)	14.68 (14.01-15.34)
	Winnipeg	55.50 (53.72-57.28)	60.64 (57.62-63.67)	57.22 (55.41-59.04)	59.00 (56.95-61.05)	61.89 (60.74-63.03)
RHA	Prairie-Mountain	14.01 (12.99-15.02)	11.97 (10.62-13.33)	13.93 (12.88-14.98)	14.76 (13.56-15.95)	12.48 (11.90-13.06)
	Interlake-Eastern	11.89 (10.88-12.91)	11.30 (9.71-12.90)	13.12 (12.12-14.13)	9.72 (8.60-10.84)	9.16 (8.50-9.82)
	Northern	4.63 (4.18-5.07)	3.17 (2.68-3.66)	2.43 (2.20-2.67)	2.40 (2.00-2.79)	1.80 (1.64-1.95)
	Urban 1 (Lowest)	15.01 (13.35-16.67)	11.91 (9.61-14.22)	7.61 (6.63-8.60)	8.75 (7.51-10.00)	9.69 (8.71-10.68)
	Urban 2	14.64 (13.03-16.26)	15.10 (12.44-17.75)	11.58 (10.06-13.10)	10.84 (9.39-12.30)	12.85 (11.50-14.20)
	Urban 3	12.85 (11.24-14.46)	14.42 (11.69-17.14)	13.16 (11.58-14.74)	11.18 (9.70-12.65)	12.33 (11.10-13.56)
	Urban 4	9.96 (8.41-11.51)	13.26 (10.55-15.97)	13.68 (12.03-15.34)	14.68 (12.51-16.85)	13.07 (11.89-14.25)
Income	Urban 5 (Highest)	6.69 (5.54-7.84)	9.39 (7.37-11.40)	14.23 (12.58-15.88)	17.36 (15.20-19.51)	16.24 (14.89-17.60)
Ouintile	Rural 1 (Lowest)	5.17 (4.45-5.90)	3.95 (3.15-4.75)	4.03 (3.49-4.57)	4.26 (3.64-4.88)	4.21 (3.81-4.62)
	Rural 2	7.93 (6.96-8.89)	6.27 (5.20-7.35)	7.95 (7.08-8.83)	7.10 (6.24-7.97)	6.93 (6.33-7.54)
	Rural 3	8.07 (7.12-9.03)	6.81 (5.69-7.93)	7.98 (7.06-8.90)	8.05 (7.07-9.03)	6.98 (6.36-7.59)
	Rural 4	9.30 (8.28-10.31)	7.98 (6.81-9.15)	9.22 (8.13-10.32)	6.92 (6.12-7.73)	6.72 (6.16-7.28)
	Rural 5 (Highest)	8.75 (7.77-9.73)	9.28 (7.56-11.00)	8.60 (7.67-9.54)	9.13 (7.93-10.32)	8.46 (7.71-9.21)
	Income Unknown	1.64 (1.19-2.08)	1.64 (0.87-2.42)	1.95 (1.58-2.33)	1.74 (1.08-2.39)	2.53 (2.12-2.93)
	Less than \$5,000	0.67 (0.45-0.89)	0.79 (0.42-1.15)	0.61 (0.36-0.87)	1.31 (0.68-1.95)	0.97 (0.73-1.22)
	\$5,000-\$9,999	3.53 (2.67-4.39)	1.44 (0.89-2.00)	0.60 (0.42-0.79)	1.10 (0.64-1.56)	1.01 (0.77-1.24)
	\$10,000-\$14,999	5.60 (4.73-6.48)	3.32 (2.48-4.16)	3.15 (2.50-3.80)	2.51 (2.03-2.98)	3.60 (3.18-4.02)
Total	\$15,000-\$19,999	5.07 (4.40-5.75)	4.14 (2.93-5.36)	3.98 (3.39-4.57)	3.11 (2.57-3.66)	3.83 (3.35-4.32)
Household	\$20,000 to \$29,999	12.10 (10.81-13.39)	8.60 (7.17-10.03)	11.44 (10.04-12.85)	8.09 (6.93-9.25)	9.34 (8.57-10.11)
Tacamo	\$30,000 to \$39,999	13.23 (11.84-14.61)	11.58 (9.35-13.81)	11.78 (10.66-12.90)	10.06 (8.73-11.39)	10.28 (9.36-11.20)
TILCOILLE	\$40,000 to \$49,999	12.54 (11.03-14.05)	9.53 (7.95-11.11)	10.76 (9.70-11.81)	10.51 (8.97-12.05)	10.95 (10.06-11.84)
	\$50,000 to \$59,999	10.44 (9.20-11.68)	13.00 (10.47-15.52)	10.19 (9.01-11.38)	8.83 (7.78-9.88)	10.73 (9.67-11.80)
	\$60,000 to \$79,999	17.51 (15.65-19.36)	19.30 (16.01-22.60)	17.24 (15.65-18.84)	16.58 (14.78-18.38)	16.43 (15.22-17.64)
	\$80,000 or more	19.31 (17.43-21.20)	28.31 (24.81-31.80)	30.24 (28.17-32.31)	37.90 (35.22-40.59)	32.86 (31.36-34.36)

Table 4.7: Continued

			Former Daily Smoker	Former Daily Smoker	Never a Daily Smoker	
		Current Daily Smoker	(Daily ≤ 5 years	(Daily > 5 years before	(Occasional/	Never Smoked
		(%)	before survey)	survey)	Former Occasional)	(%)
			(%)	(%)	(%)	
	RUB 0 (Non-User)	20.20 (18.56-21.85)	15.10 (12.84-17.37)	10.94 (9.70-12.18)	18.93 (17.21-20.65)	18.73 (17.62-19.84)
Decourted	RUB 1	11.02 (9.79-12.24)	8.81 (6.89-10.73)	7.09 (6.10-8.09)	12.46 (10.98-13.94)	14.33 (13.33-15.33)
	RUB 2	24.88 (23.12-26.64)	23.84 (21.16-26.53)	22.46 (20.80-24.13)	26.18 (24.10-28.26)	28.58 (27.28-29.89)
	RUB 3	38.17 (36.12-40.21)	43.98 (40.80-47.17)	49.68 (47.83-51.54)	37.54 (35.35-39.73)	33.93 (32.68-35.18)
Bang (KUB)	RUB 4	4.67 (3.72-5.61)	6.85 (5.26-8.44)	7.85 (6.84-8.86)	3.76 (3.08-4.44)	3.48 (3.05-3.91)
	RUB 5 (Very High Morbidity)	1.05 (0.79-1.31)	1.42 (0.88-1.96)	1.97 (1.54-2.40)	1.13 (0.52-1.74)	0.95 (0.62-1.29)
Lifestyle Facto	Drs					
Binge Drinking	5+drinks once/month or more	32.82 (30.63-35.01)	29.21 (26.00-32.43)	15.45 (14.01-16.89)	23.00 (21.11-24.88)	9.98 (9.06-10.90)
	Underweight/Normal	37.60 (35.55-39.65)	30.40 (26.89-33.90)	23.39 (21.79-24.98)	32.98 (30.78-35.19)	44.37 (42.96-45.78)
BMI	Overweight	37.36 (35.43-39.29)	40.62 (37.05-44.19)	43.86 (41.95-45.77)	42.94 (40.69-45.19)	34.70 (33.32-36.09)
	Obese	25.04 (23.21-26.87)	28.99 (26.01-31.96)	32.75 (30.95-34.55)	24.08 (21.93-26.23)	20.93 (19.79-22.07)
Education	Did Not Complete High School	30.56 (28.67-32.44)	22.66 (19.90-25.43)	23.20 (21.76-24.65)	19.13 (17.75-20.51)	32.44 (31.23-33.66)
	High School Graduate/Some Post-Secondary	32.86 (30.90-34.82)	33.84 (30.54-37.14)	26.59 (24.77-28.40)	30.02 (27.83-32.21)	25.61 (24.30-26.92)
гелег	Post-Secondary Graduate	36.59 (34.54-38.63)	43.50 (39.99-47.01)	50.21 (48.27-52.15)	50.86 (48.59-53.12)	41.95 (40.54-43.36)
Leisure Time	Active	19.71 (17.84-21.58)	23.76 (20.91-26.61)	21.32 (19.66-22.99)	28.43 (26.31-30.55)	29.89 (28.33-31.45)
Physical	Moderate	20.96 (19.29-22.64)	28.36 (25.03-31.69)	25.85 (23.99-27.72)	26.80 (24.67-28.92)	24.02 (22.77-25.27)
Activity Index	Inactive	59.33 (57.11-61.55)	47.88 (44.47-51.30)	52.82 (50.79-54.86)	44.78 (42.34-47.21)	46.09 (44.53-47.65)
*NPHS (1996; age	d 12+), CCHS (2000, 2003, 2005 & 2007-2011; aged 12+	+), CCHS Healthy Aging (200	8/09; aged 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

Italicized values indicate a warning and should be interpreted with caution.

Values in **bold** type indicate significantly different values from the Never Smoked smoking status category.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Table 4.8: Chronic Diseases of Estimated-Population-Based Sample* at Time of Survey by Smoking Status Categories Survey weighted; 95% Confidence Intervals

		Current Daily Smoker (%)	Former Daily Smoker (Daily ≤5 years before survey) (%)	Former Daily Smoker (Daily >5 years before survey) (%)	Never a Daily Smoker (Occasional/ Former Occasional) (%)	Never Smoked (%)
:	Self-Reported	18.69 (17.21-20.17)	14.85 (12.88-16.83)	29.95 (28.18-31.71)	16.16 (14.51-17.80)	13.80 (12.93-14.67)
Arthritis	Administrative Data	21.52 (19.86-23.17)	20.79 (18.23-23.35)	29.51 (27.80-31.22)	19.06 (17.34-20.77)	18.04 (17.00-19.09)
	Self-Reported	1.53 (1.11-1.95)	1.44 (0.95-1.93)	2.99 (2.42-3.56)	1.33 (1.01-1.65)	1.30 (0.99-1.60)
All Cancers	MB Cancer Registry Data	1.11 (0.80-1.41)	1.80 (1.30-2.29)	3.30 (2.65-3.95)	1.44 (1.07-1.81)	1.07 (0.81-1.34)
Lung Cancer	MB Cancer Registry Data	0.12 (0.01-0.24)	0.46 (0.18-0.75)	0.23 (0.12-0.35)	S	0.01 (0.00-0.02)
Dickotor	Self-Reported	4.79 (4.04-5.54)	4.97 (3.85-6.08)	10.19 (9.16-11.22)	4.24 (3.49-4.98)	4.20 (3.60-4.79)
Diapetes	Administrative Data	5.16 (4.39-5.92)	5.87 (4.64-7.09)	11.51 (10.42-12.61)	4.84 (4.03-5.65)	4.98 (4.33-5.63)
Ulimontonoion	Self-Reported	13.12 (11.54-14.70)	13.82 (11.85-15.80)	29.56 (27.90-31.21)	14.55 (13.09-16.01)	13.93 (13.02-14.83)
пуретепзіоп	Administrative Data	9.93 (8.53-11.33)	11.19 (9.42-12.96)	24.96 (23.45-26.47)	11.31 (10.21-12.41)	12.62 (11.75-13.50)
Ischemic Heart	Self-Reported	4.14 (3.26-5.01)	5.19 (4.17-6.22)	11.08 (9.94-12.23)	3.13 (2.65-3.62)	3.34 (2.89-3.79)
Disease	Administrative Data	4.07 (3.27-4.88)	5.78 (4.63-6.94)	12.91 (11.72-14.09)	4.23 (3.56-4.89)	4.08 (3.62-4.55)
Histom: of Stucks	Self-Reported	1.08 (0.79-1.37)	1.82 (1.12-2.52)	3.24 (2.38-4.10)	0.75 (0.50-1.00)	0.92 (0.70-1.14)
nistory of stroke	Administrative Data	1.50 (1.11-1.89)	1.55 (1.04-2.07)	3.43 (2.78-4.08)	1.25 (0.90-1.61)	1.47 (1.12-1.82)
Total Respiratory	Self-Reported	15.59 (13.96-17.22)	20.81 (17.36-24.27)	10.44 (9.35-11.52)	12.47 (10.67-14.27)	16.08 (14.72-17.44)
Morbidity	Administrative Data	13.79 (12.54-15.04)	13.89 (11.70-16.08)	11.57 (10.45-12.69)	9.41 (8.02-10.80)	8.59 (7.86-9.32)
Mood or Anxiety	Self-Reported	17.01 (15.15-18.86)	11.65 (9.08-14.21)	11.36 (9.68-13.03)	9.04 (7.20-10.88)	7.50 (6.44-8.55)
Disorder	Administrative Data	26.62 (24.89-28.35)	26.50 (23.51-29.49)	22.14 (20.53-23.75)	17.55 (15.75-19.34)	15.32 (14.28-16.37)
Osteoporosis	Self-Reported	10.66 (5.87-15.45)	S	7.85 (4.35-11.35)	7.50 (4.34-10.66)	9.60 (6.53-12.67)
(Aged 50+)	Administrative Data	3.99 (2.91-5.07)	7.10 (3.85-10.35)	6.46 (5.35-7.58)	7.96 (6.26-9.67)	8.64 (7.48-9.79)
1+ Osteoporosis-						
Related Fractures	Administrative Data	2.06 (1.43-2.70)	3.53 (2.10-4.97)	2.05 (1.59-2.50)	2.41 (1.61-3.21)	3.30 (2.37-4.23)
(Aged 50+)						
*NDL5 /1006: 5204		2011: 202 12 V CLUS H22	1+h: A cinc /2008 /00: 5254 4			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Thrns (1290), aged 12+1), CCMS (2000), 2003, 2003 & 2007-2011, aged 12+1), CCMS nealing Aging (2008/09, aged 43+ s indicates data suppressed due to small numbers.

Italicized values indicate a warning and should be interpreted with caution.

Values in **bold** type indicate significantly different valuesf from the Never Smoked smoking status category.

Prevalence of Smoking over Time by Categories of Smoking Exposure

The overall time trends of the categories of smoking exposure show distinct patterns. The adjusted percentage of people reporting current daily smoking at the time of survey has decreased from 21.7% in 1996 to 13.9% in 2011. Across all surveys used in the categorical analyses—NPHS and all cycles of the CCHS—the prevalence of those who never smoked even one cigarette was 39.8%. Former daily smokers (five years or less before survey) showed little difference over time, increasing only slightly from around 6.7% to 8.8%. Nor did former daily smokers (more than five years before survey), which decreased only slightly from 17.7% to 15.7%. However, the u-shaped curve for the "never smoked" category is strikingly different, beginning high at 43.6% in 1996, dropping to 36.2% in 2003, and increasing again to 44.2% in 2011.



Figure 4.3: Percent of Respondents by Smoking Status Categories, by Survey Year*

*NPHS (1996; aged 12+), CCHS (2000, 2003, 2005 & 2007-2011; aged 12+). CCHS Healthy Aging (2008/09) not shown. Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.
 Table 4.9: Percent of Respondents by Smoking Status Categories, by Survey Year*

 Survey weighted, age- & sex-adjusted; 95% Confidence Intervals

Survey Year (sample size)	Percentages	Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years	Former Daily Smoker (Daily>5 years	Never a Daily Smoker (Occasional/Former	Never Smoked
					Occasional)	
9661 SHAN	Crude Percent	22.08 (20.48-23.69)	6.72 (5.82-7.62)	16.90 (15.62-18.19)	10.57 (9.28-11.86)	43.73 (41.86-45.60)
(N=9,353)	Adjusted Percent	21.73 (20.13-23.34)	6.70 (5.80-7.61)	17.65 (16.38-18.91)	10.32 (9.08-11.55)	43.60 (41.72-45.48)
CCHS 1.1 2000	Crude Percent	19.67 (18.21-21.14)	7.23 (6.32-8.13)	17.32 (16.15-18.49)	18.44 (17.05-19.84)	37.34 (35.49-39.19)
(N=6, 390)	Adjusted Percent	19.39 (17.98-20.80)	7.26 (6.35-8.18)	18.21 (16.99-19.43)	18.22 (16.83-19.60)	36.92 (35.13-38.71)
CCHS 2.1 2003	Crude Percent	18.17 (16.53-19.82)	9.92 (8.60-11.24)	17.67 (16.09-19.26)	18.32 (16.53-20.11)	35.91 (33.87-37.96)
(N=5,733)	Adjusted Percent	17.53 (15.98-19.08)	9.58 (8.34-10.81)	18.50 (16.95-20.05)	18.20 (16.51-19.90)	36.20 (34.16-38.23)
CCHS 3.1 2005	Crude Percent	16.56 (15.12-18.00)	9.42 (8.39-10.44)	17.31 (15.87-18.75)	16.28 (14.71-17.85)	40.43 (38.57-42.29)
(N=5,810)	Adjusted Percent	16.31 (14.91-17.70)	9.36 (8.35-10.37)	18.10 (16.67-19.53)	16.26 (14.70-17.82)	39.98 (38.16-41.79)
CCHS 2007	Crude Percent	18.73 (16.33-21.14)	8.01 (6.43-9.59)	17.11 (14.88-19.34)	15.07 (13.19-16.94)	41.08 (38.10-44.06)
(N=3,043)	Adjusted Percent	18.48 (16.19-20.77)	7.93 (6.36-9.50)	17.16 (15.03-19.29)	15.06 (13.24-16.89)	41.37 (38.59-44.14)
CCHS 2008	Crude Percent	18.84 (16.69-20.99)	7.64 (6.19-9.09)	17.73 (15.93-19.52)	16.21 (14.12-18.31)	39.58 (36.87-42.29)
(N=3,006)	Adjusted Percent	18.72 (16.59-20.84)	7.51 (6.09-8.92)	18.26 (16.50-20.02)	16.23 (14.16-18.30)	39.29 (36.75-41.84)
CCHS Healthy	Crude Percent	13.71 (11.30-16.11)	6.50 (4.67-8.33)	30.29 (27.01-33.58)	17.92 (15.38-20.46)	31.58 (28.24-34.92)
Aging 2008/09 (N=1,798)	Adjusted Percent	13.62 (11.29-15.95)	6.46 (4.73-8.20)	30.27 (27.09-33.44)	17.80 (15.34-20.25)	31.85 (28.59-35.12)
CCHS 2009	Crude Percent	14.83 (12.78-16.88)	8.89 (6.57-11.22)	17.19 (15.12-19.25)	20.49 (17.76-23.22)	38.60 (35.57-41.64)
(N=2,771)	Adjusted Percent	14.68 (12.71-16.65)	8.47 (6.30-10.64)	17.36 (15.37-19.36)	20.43 (17.77-23.09)	39.06 (36.00-42.11)
CCHS 2010	Crude Percent	15.28 (13.00-17.57)	7.50 (5.64-9.36)	16.88 (14.59-19.16)	19.91 (16.84-22.97)	40.43 (36.90-43.97)
(N=2,735)	Adjusted Percent	14.96 (12.79-17.13)	7.37 (5.57-9.16)	16.61 (14.51-18.70)	19.31 (16.47-22.16)	41.76 (38.37-45.14)
CCHS 2011	Crude Percent	13.98 (11.33-16.64)	8.63 (6.57-10.68)	15.62 (13.52-17.71)	17.56 (15.17-19.95)	44.22 (40.83-47.60)
(N=2,835)	Adjusted Percent	13.86 (11.31-16.42)	8.83 (6.74-10.93)	15.65 (13.66-17.63)	17.44 (15.02-19.86)	44.22 (40.99-47.45)
*NDHS /1096. and 1	2+) CCHS (2000 2003 2005	5 & 2007-2011· aded 12+)				

umanitoba.ca/faculties/medicine/units/mchp Chapter 4 | page 59

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Changes in Categories of Smoking Exposure Post-Survey: Analysis of the Longitudinal NPHS Data

Because these analyses use self-reported survey data, it is important to remember that people were categorized according to how they answered the survey at a given point in time. As with other lifestyle choices, people may change their smoking behaviours. Some who reported never smoking may begin to smoke, while others who reported some degree of smoking may reduce from daily to occasional smoking, or quit altogether. These category changes may be thought of as misclassification. Misclassification tends to bias results towards the null, reducing differences in healthcare use between the various categories of smoking exposure.

We were able to look at a very small subset of people from the NPHS longitudinal survey, following them every two years from 1994 to 2008, to test our hypothesis that smoking behaviors change over time. We found that of the 217 daily smokers, 121 remained daily smokers (55.8%). Of the 46 occasional smokers, 37 quit (80.4%). Of the 610 non-smokers, 551 remained non-smokers (90.3%). However, loss-to-follow-up and increased non-response rates make it difficult to do any analyses other than descriptive statistics. Overall, there was a trend towards reduced smoking over time. The decrease could be partly explained by health concerns or critical health events that encouraged people to reduce or quit smoking. Again, misclassification could only attenuate measured results and bias our findings towards the null hypothesis (that smoking has no relationship with healthcare use). Thus, our results may understate the relationship between smoking and healthcare use.

Comparisons With Existing Literature

In their study of tobacco use in Canada using the Canadian Tobacco Use Monitoring Survey, Reid et al. (2013) report the prevalence of smoking in Manitoba to have decreased from 23.3% in 1999 to 18.7% in 2011. This includes both daily and non-daily smoking, and is based upon data obtained from respondents 15 years and older. Our adjusted rates of current daily smoking show a decrease over time from 19.4% in 2000 to 13.9% in 2011 (See Table 4.9). However, our prevalence was lower because we focused on current daily smokers, where Reid et al. included both "current daily" and "current occasional" smokers.

Conclusions

The prevalence of "ever smoked," as well as the degree of smoking (i.e., current daily smoking) showed decreases over time in the last two decades in Manitoba. However, when we used the literal category of "never smoked" from the categorical analyses, where it meant a respondent had never smoked even one cigarette, we found that, in 2011, a majority of the Manitoba population (55.8%) had engaged in some sort of smoking behaviour during their lifetime.

CHAPTER 5: DIFFERENCES IN HEALTHCARE-USE PATTERNS BY DICHOTOMOUS SMOKING STATUS ("EVER" VS. "NEVER")

This chapter presents results from analyses that compared healthcare-use patterns between the dichotomous "ever smoked" and "never smoked" groups. First, we look at the characteristics of the individuals in these two groups. Three types of analyses are presented: an estimated-population-based approach, a matched approach, and a propensity-score approach. All three are attempts at making the comparison of individuals in the dichotomous analyses as unbiased as possible.

Consider that a person who smokes may also have attributes associated with smoking that may in themselves lead to poorer health status. A smoker may have a lower socioeconomic status (SES), be more likely male, be more likely to lead a sedentary lifestyle, or more likely to consume alcohol. To untangle the effects of smoking itself, it is necessary to make the smoking and non-smoking groups as characteristically similar as possible apart from their smoking status. We want to compare apples with apples, as the saying goes. The three analyses presented in this chapter use three different techniques to compare similar people, so that the only difference is their smoking status. By adjusting regression modelling for the estimated-population-based analysis—for age, sex, SES based on census data for the dissemination area of their residence, regional health authority (RHA), and comorbidities—we have a better idea of what smoking itself added to the use of the healthcare system. Similarly, by matching individuals by age, sex, SES, and RHA, we only look at those people who are directly comparable. In this technique the sample size is necessarily reduced. Finally, in using propensity scoring, we use a sophisticated analytical technique that accounts for a huge number of descriptive and health-related behavioral characteristics to estimate a person's probability of being a smoker. The propensity score was included as a covariate in our regression models; this allowed us to adjust for the many (upwards of 200) confounding characteristics. Thus, any remaining differences in healthcare use by smoking status—after adjusting for the propensity score—is more likely attributable to smoking itself.

Sample Description for Healthcare-Use Analyses Using Dichotomous Smoking Status

The first step in determining whether we are able to make fair comparisons is to see whether our groups are similar; the more similar the groups, the more likely that differences in healthcare use can be attributed to smoking.

Below we present descriptions for the sample used in each analytic approach: the estimated-population-based sample, the matched sample, and the propensity-score-adjusted sample. As well, we describe the differences before and after making our adjustments to demonstrate whether our adjustment strategies were successful in making our smoking and non-smoking groups similar.

Estimated-Population-Based Sample

The inclusion/exclusion criteria we used to construct the analytic sample for the estimated-population-based analyses are presented in chapter 3. These analyses included 25,113 individuals who ever smoked and 23,469 who never smoked. The total sample comprised 48,582 individuals.

This analytic sample is described in chapter 4 (see Tables 4.3 and 4.4). We saw from those results that the "ever smoked" group was significantly different from the "never smoked" group by age, sex, RHA, SES, resource utilization band, binge drinking, educational attainment, physical activity, BMI, and numerous chronic-disease indicators. These descriptive statistics are presented in greater detail in Appendix 2 of this report.

In order to address concerns about confounding characteristics, we refined the "ever" and "never" groups by matching individuals between them . They were matched on age, sex, SES, and RHA. Details on matching are given in chapter 3 (Methods). After matching, a total of 38,272 individuals remained—19,136 in each group. Table 5.1 below presents the number of individuals included in the analytic sample from each survey.

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After matching respondents who ever smoked with ones who never smoked, we found that the groups resembled each other more closely. However, although the differences were attenuated, some remained. The "ever smoked" group still had a higher rate of chronic disease, binge drinking, and inactivity than the "never smoked" group. The differences are summarized in Tables 5.3 and 5.4. A more detailed breakdown of the differences is given in Appendix 2.

		Ever S	moked	Never S	Smoked
		Ν	%	Ν	%
	MHHS	825	4.31	825	4.31
	NPHS	3,759	19.64	3,759	19.64
	CCHS 1.1	2,591	13.54	2,591	13.54
	CCHS 2.1	2,395	12.52	2,395	12.52
	CCHS 2.2	819	4.28	819	4.28
	CCHS 3.1	2,351	12.29	2,351	12.29
Survey	CCHS 2007	1,212	6.33	1,212	6.33
_	CCHS 2008	1,223	6.39	1,223	6.39
	CCHS Healthy Aging	720	3.76	720	3.76
	CCHS 2009	1,061	5.54	1,061	5.54
	CCHS 2010	1,092	5.71	1,092	5.71
	CCHS 2011	1,088	5.69	1,088	5.69
	Total	19,136	100	19,136	100

Table 5.1: Matched Sample* by Ever Smoked and Never Smoked by Survey

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Propensity-Score Sample

In order to more fully control for differences between those who ever smoked vs. never smoked, we used a technique called propensity-score adjustment. We described the methods used to produce the propensity score and exclusions used in the propensity score sample in chapter 3 (Methods). After applying those exclusions, 43,720 individuals remained in the analytic sample: 22,716 who ever smoked and 21,004 who never smoked. Table 5.2. below shows the breakdown of the sample, by survey.

Propensity-score adjustment is used to create similar comparison groups. To assess whether the propensity score accomplished this goal, we tested whether significant differences between smokers and non-smokers remained after adjusting for the propensity score. Tables 5.3 and 5.4 summarize the differences between those in the "ever smoked" and "never smoked" categories, after propensity score adjustment. We present a detailed breakdown of these differences in Appendix 2.

		Ever S	moked	Never S	Smoked
		Ν	%	Ν	%
	MHHS	1,608	7.08	880	4.19
	NPHS	4,900	21.57	3,860	18.38
	CCHS 1.1	3,149	13.86	2,847	13.55
	CCHS 2.1	2,640	11.62	2,554	12.16
	CCHS 2.2	998	4.39	1,193	5.68
	CCHS 3.1	2,509	11.05	2,490	11.85
Survey	CCHS 2007	1,325	5.83	1,382	6.58
	CCHS 2008	1,343	5.91	1,271	6.05
	CCHS Healthy Aging	853	3.76	761	3.62
	CCHS 2009	1,149	5.06	1,242	5.91
	CCHS 2010	1,094	4.82	1,216	5.79
	CCHS 2011	1,148	5.05	1,308	6.23
	Total	22,716	100	21,004	100

Table 5.2: Propensity-Score Sample* by Ever Smoked and Never Smoked by Survey

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Summary of Differences Between Groups After Adjustment

Differences after adjustment are summarized in Tables 5.3 and 5.4. An arrow pointing up indicates that those in the "ever smoked" category had statistically significantly higher rates than those in the "never smoked" category. Downward-pointing arrows indicate that the "ever smoked" category had statistically significantly lower rates.

Before adjustment, respondents who ever smoked were statistically significantly different based on many confounding variables. This is shown by the numerous arrows in the "Estimated Population-Based" column of Tables 5.3 and 5.4. After matching, the number of statistically significant differences between the two groups were fewer. Differences were further reduced after performing propensity-score adjustment, such that we were comparing roughly similar groups.

Table 5.3: Statistically Significant Differences in Basic Descriptives Between Ever Smoked and Never Smoked, by Analytic Approach

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		Estimated-Population-	Matched	Propensity-Score-
		Based	Waterieu	Adjusted
Demographics				
Age (years)	Mean	↑	^	^
Person-years	Mean	^		
Post Survey	Malac			
Sex	Fomalos	 		<u> </u>
			J.	• • •
	Southern	L	•	<u> </u>
DUA	winnipeg	• •		•
RHA			•	
	Interlake-Eastern	Ť	<u> </u>	
	Northern	<u>^</u>	^	
	Urban 1 (Lowest)	^	^	
	Urban 2		1	
	Urban 3		<u>↑</u>	
	Urban 4	•		¥
Income	Urban 5 (Highest)	*	¥	•
Quintile	Rural 1 (Lowest)			
Quintine	Rural 2	↑		
	Rural 3			
	Rural 4	↑	^	^
	Rural 5 (Highest)			
	Income Unknown		¥	
	Less than \$5,000	¥	¥	
	\$5,000-\$9,999	↑	^	
	\$10,000-\$14,999	↑	^	
	\$15,000-\$19,999			
Total Household	\$20,000 to \$29,999	↑	^	
Income	\$30,000 to \$39,999	↑		
	\$40,000 to \$49,999	↑		
	\$50,000 to \$59,999			
	\$60,000 to \$79,999			
	\$80,000 or more	↓	¥	
	RUB 0 (Non-User)	+		
Pasaurea	RUB 1	4	¥	•
Litilization Pand	RUB 2	¥	¥	↓
	RUB 3	<u>↑</u>	^	^
(RUB)	RUB 4	<u> </u>	^	^
	RUB 5 (Very High Morbidity)	^		

Survey weighted; 95% Confidence Intervals

Table 5.3: Con	tinued	Estimated-Population- Based	Matched	Propensity-Score- Adjusted
Lifestyle Factors	s			•
Binge Drinking	5+drinks once/month or more	^	^	^
	Underweight/Normal	¥	Ŷ	
BMI	Overweight	^		^
	Obese	^	^	↓
	Did Not Complete High School	¥	↑	
Education Level	High School Graduate/Some Post-Secondary	↑	↑	
	Post-Secondary Graduate	¥	¥	
Leisure Time	Active	¥	¥	
Physical Activity	Moderate			
Index	Inactive	^	1	

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+),

CCHS Healthy Aging (2008/09; aged 45+)

 \blacklozenge indicates that Ever Smoked have a statistically significantly higher rate than Never Smoked.

ullet indicates that Ever Smoked have a statistically significantly lower rate than Never Smoked.

Blank entries indicate that the values were not statistically significantly different.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Table 5.4: Statistically Significant Differences in Chronic Diseases at Time of Survey Between Ever Smoked and Never Smoked, by Adjustment Strategy

		Estimated-Population- Based	Matched	Propensity-Score- Adjusted
Authoritie	Self-Reported	^	^	^
Arthritis	Administrative Data	↑	↑	
Concor	Self-Reported	↑		↑
Cancer	CancerCare Manitoba Data	↑	↑	↑
Lung Cancer	CancerCare Manitoba Data	↑	^	↑
Diabotos	Self-Reported	↑	^	
Diabetes	Administrative Data	↑		
Hypertension	Self-Reported	↑	↑	
Hypertension	Administrative Data	↑		
Ischemic Heart	Self-Reported	↑	↑	↑
Disease	Administrative Data	↑	↑	
History of Stroke	Self-Reported	↑	↑	
HISTORY OF STROKE	Administrative Data	↑		
Total Respiratory	Self-Reported	\checkmark	↑	
Morbidity	Administrative Data	↑	↑	^
Mood or Anxiety	Self-Reported	^	^	
Disorder	Administrative Data	^	1	^
Osteoporosis	Self-Reported			
(Aged 50+)	Administrative Data	↓		↓
1+ Osteoporosis-				
Related Fractures (Aged 50+)	Administrative Data			

Survey weighted; 95% Confidence Intervals

* MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+),

CCHS Healthy Aging (2008/09; aged 45+)

↑ indicates that, after adjustment, the Ever Smoked group have a statistically significantly higher rate than the Never Smoked group.

♥ indicates that, after adjustment, the Ever Smoked group have a statistically significantly lower rate than the Never Smoked group. Blank entries indicate that the values were not statistically significantly different

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Healthcare Service Use: Comparing Respondents who Ever Smoked with those who Never Smoked

In this section, tables and graphs are provided for each of the three analytic approaches to illustrate the actual rates and differences in rates by smoking status.⁴ We grouped these respondents by smoking status at time of survey, but then looking in the "future" (i.e., post-survey) at one, three, five, and 10 years after they responded. As discussed in chapters 3 and 4, over time smokers tend to continue smoking or reduce their smoking behavior. Consider a smoker who quits shortly after survey. As a result of quitting, his health improves. His improved health is credited to the "ever smoked" group, making that group appear healthier on average. This will tend to reduce outcome differences between the "ever smoked" and "never smoked" groups, such that the burden of smoking on the healthcare system may be underestimated the longer we follow a person. On the other hand, many of the effects of smoking may take years to observe, so it is important to follow people for several years. A one-year follow-up may not capture the long-term detriments of smoking. This is why we chose to examine outcomes using one, three, five, and 10 years of follow-up data.

We describe healthcare use patterns by type of healthcare systems: physician visits (**ambulatory visits**), hospital (inpatient hospitalizations and number of days in hospital), prescription drug use (number of defined daily doses (DDDs) of prescription drugs and number of different drugs), and use of personal care homes (PCH; admission rates and **days in PCH**).

Our discussion concentrates on the results from the five years of follow-up time, but all years of follow-up are displayed in both tables and figures. To get a complete picture of the outcomes over time, the reader may wish to look closely at Tables 5.5-5.7, and Figures 5.1-5.3.

We also estimated the excess healthcare services use by smokers based on our model results. Please note that, because we applied exclusions to both the matched and propensity-score analyses, these results cannot be weighted to represent the entire population. Therefore, we are only able to present the excess number of cases calculated from the estimated population-based analyses.

Ambulatory Visits

For the estimated-population-based analysis five years post-survey, **ambulatory visits** per person-year for the "ever smoked" category were elevated by 13% (RR=1.13, 95% Cl 1.10–1.17). Rates were 5.39 visits per person-year for respondents who ever smoked and 4.76 for those who never smoked. This rate difference (RD) was 0.63 visits per person-year (95% Cl 0.46–0.79). Figure 5.1 shows increasing rates for both groups over time, with a statistically significantly elevated rate observed among the "ever smoked" category throughout all time periods.

The matched analysis gives very similar results, showing a 12% elevation in ambulatory visits for the "ever smoked" category (RR=1.12, 95% CI 1.08–1.17): rates were 5.43 visits per person-year ("ever") vs. 4.83 ("never"). This gives a RD over five years of 0.60 visits per person-year. Figure 5.2 once again shows a slight increase in visit rates over time, but a very persistent gap at all time periods.

The propensity-score analysis showed a statistically significant five-year effect. There was a 4% elevation in ambulatory visits for the "ever smoked" category (RR=1.04, 95% CI 1.00–1.09); the rates were 5.21 vs. 4.99 visits per person-year. The RD was 0.22 visits per person-year.

⁴ Results are shown here for the age-, sex-, RHA- and SES-adjusted population-based analyses. Appendix 2 includes crude; age- and sex-adjusted; and age-, sex-, RHA-, SES- and RUB-adjusted analyses. Similarly, the matched analyses included in this chapter are age- and sex-adjusted, and the appendix includes the crude analysis. For propensity-score analyses, we show the age-, sex- and propensity-score-adjusted results here, but the appendix shows the rates only adjusted for propensity score, before adjusting for age and sex.

We estimated the extra ambulatory care visits that were attributable to having ever smoked. Because of the additional exclusions in the matched and propensity-score analyses, results from these models could not be weighted to equal the entire Manitoba population. We present results only from the estimated population-based analyses. In these analyses, we found that smoking resulted in 240,122.07 extra ambulatory care visits each year (95% CI 185,095.88–302,867.43).

Inpatient Hospitalizations

The estimated-population-based results over five years showed a 36% elevated rate for inpatient hospitalizations among the "ever smoked" group (RR = 1.36, 95% CI 1.26–1.48). They had 88.5 more inpatient hospitalizations per 1,000 person-years.

The matched analysis shows similar results, with a 34% elevation in hospitalization rates for those who ever smoked (RR=1.34, 95% CI 1.23–1.46). The count was 28.8 more inpatient hospitalizations per 1,000 person-years. The relationship weakened in the propensity-score analyses. Those who ever smoked had a 19% elevated rate of inpatient hospitalizations (18.6 more hospitalizations per 1,000 person-years).

We applied the survey sample weights to our models and estimated the additional burden of having ever smoked placed on the hospital system. Smoking resulted in 13,577.89 extra hospitalizations each year (95% Cl 11,273.42–16,858.25).

Days in Hospital

The estimated-population-based analyses showed a 33% elevation in hospital days for the "ever smoked" group (RR=1.33, 95% CI 1.12–1.58). Those who ever smoked spent 3,030 more days in hospital, per 1,000 person-years when compared with those who never smoked.

The corresponding matched analysis showed a 32% elevation (RR=1.32, 95% CI 1.13–1.55), with respondents who ever smoked spending 269.0 additional days per 1,000 person-years compared with those who never smoked.

Finally, the propensity score analysis showed a 21% elevation in days spent in hospital (RR=1.21, 95% CI 1.02–1.43) among those who ever smoked. The results showed that smokers spent 205.6 additional days in hospital per 1,000 person-years, compared to those who never smoked.

Across all three analyses, we found that smoking placed an increased burden on the healthcare system in terms of days spent in hospital. Based on our estimated-population-based model, after applying the survey sample weights to our models we found that smoking resulted in 139,198.21 additional days spent in hospital (95% CI 76,910.90–239,823.06).

Defined Daily Doses (DDDs)

DDDs are a measure of the intensity of use of pharmaceutical prescriptions filled for a person. For instance, if a person were to take the recommended dose of a prescribed drug for a whole year, 365 DDDs would be attributed to them. A more complete definition is given in this report's glossary.

The estimated-population-based analysis showed a 16% elevation in DDDs for respondents who ever smoked (RR=1.16, 95% Cl 1.07–1.26); rates were 448.8 vs. 386.2 DDDs per person-year, using five years of data post-survey. This resulted in an RD of 62.64 DDDs per person-year. Similar effects were seen in the matched analysis, with an elevation of 25% in DDDs for respondents who ever smoked (RR=1.25, 95% Cl 1.12–1.40), rates of 472.2 vs. 378.0 DDDs per person year, an RD of 94.27 DDDs per person year. There were no statistically significant differences using five years of post-survey data in the propensity-score analysis.

Based on our estimated-population-based model, after applying the survey sample weights to our models, we calculated that smoking resulted in an additional 18,980,181.15 DDDs each year (6,912,938.96–32,091,030.68).

Number of Different Drugs

The number of different drugs used by respondents who ever smoked was elevated compared to those who never smoked.

Looking at the five-year-post-survey results, the estimated-population-based analysis shows a 23% elevation in the number of different drugs for respondents who ever smoked (RR=1.23, 95% CI 1.18–1.28), with rates of "ever smoked" and "never smoked" at 3.72 and 3.03 different drugs per year, respectively. This yields an RD of 0.69. The graphical representation shows a consistent gap over time between the two groups, despite the slight decline in number of drugs from one year post-survey to ten years post-survey.

Similar results are evident in the matched sample analysis, where we found a 25% elevation in the number of different drugs for those who ever smoked (RR=1.25, 95% Cl 1.19–1.31), and rates at 3.73 vs. 2.98 different drugs per year for ever vs. never smoked.

Finally, in the most conservative estimate using propensity-score analysis, there is still a statistically significant 10% elevation (RR=1.10, 95% CI 1.05–1.16), with rates at 3.60 and 3.27 different drugs per year for the "ever smoked" and "never smoked" categories, respectively (RD=0.33).

Using our models, we then applied the survey sample weights and estimated the excess number of different drugs per year attributable to smoking. Based on our estimated-population-based model we calculated that 172,235.61 extra different drugs each year are attributable to smoking (95% Cl 124,218.65–211,768.37).

PCH Admission Rates and Days in PCH

Interestingly, in the analysis of the use of long-term institutionalized care in PCHs, none of the analyses showed statistically significant differences in the five-year-post-survey rate comparing respondents who ever smoked vs. never smoked. It is important to note that the surveys, by virtue of their design, exclude residents of PCHs as respondents. So we could only analyze **incidence** rates of new PCH placements. Although Figures 5.1-5.3 hint at a very slightly elevated rate of PCH use by respondents who ever smoked, the majority of analyses over each time period show no statistically significant difference. The only exception is the rate difference of PCH days in the propensity-score analysis at one-year post-survey. Therefore, there appears to be little, if any additional burden of smoking on the healthcare system based on **PCH admissions** and days spent in PCHs.

Table 5.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey

Esti

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	5.29 (5.16 - 5.42)	5.36 (5.24 - 5.47)	5.39 (5.29 - 5.50)	5.44 (5.34 - 5.54)
Ambulatory Visits*	Never Smoked	4.64 (4.54 - 4.75)	4.73 (4.63 - 4.83)	4.76 (4.66 - 4.87)	4.91 (4.81 - 5.00)
per person-year	Relative Rate	1.14 (1.10 - 1.19)	1.13 (1.09 - 1.17)	1.13 (1.10 - 1.17)	1.11 (1.08 - 1.14)
	Rate Difference	0.65 (0.46 - 0.84)	0.63 (0.45 - 0.80)	0.63 (0.46 - 0.79)	0.54 (0.38 - 0.69)
	Ever Smoked	116.56 (109.85 - 123.69)	119.49 (114.13 - 125.09)	120.70 (116.02 - 125.58)	121.08 (116.62 - 125.71)
Inpatient Hospitalizations*	Never Smoked	78.85 (70.64 - 88.02)	84.32 (78.77 - 90.26)	88.46 (83.44 - 93.79)	96.48 (91.53 - 101.70)
per 1,000 person-years	Relative Rate	1.48 (1.28 - 1.71)	1.42 (1.29 - 1.56)	1.36 (1.26 - 1.48)	1.25 (1.17 - 1.35)
	Rate Difference	37.71 (24.63 - 50.80)	35.17 (25.99 - 44.35)	32.24 (24.25 - 40.23)	24.59 (16.78 - 32.41)
	Ever Smoked	1,051.06 (962.27 - 1,148.06)	1,194.71 (1,097.61 - 1,300.40)	1,227.71 (1,133.24 - 1,330.05)	1,242.31 (1,143.03 - 1,350.20)
Days in Hospital*	Never Smoked	706.47 (619.85 - 805.19)	836.37 (750.54 - 932.02)	924.96 (809.77 - 1,056.55)	1,068.86 (947.10 - 1,206.28)
per 1,000 person-years	Relative Rate	1.49 (1.23 - 1.79)	1.43 (1.22 - 1.68)	1.33 (1.12 - 1.58)	1.16 (0.99 - 1.37)
	Rate Difference	344.60 (188.80 - 500.39)	358.34 (198.98 - 517.70)	302.75 (129.70 - 475.80)	173.44 (-6.50 - 353.39)
hen 3.0 3.0 med and 1.0 med M	Ever Smoked	434.58 (410.35 - 460.24)	443.18 (421.11 - 466.40)	448.84 (425.70 - 473.23)	466.55 (439.02 - 495.81)
Mean Number of Defined	Never Smoked	375.75 (358.57 - 393.75)	387.45 (370.94 - 404.68)	386.20 (369.36 - 403.80)	402.31 (382.16 - 423.52)
	Relative Rate	1.16 (1.06 - 1.26)	1.14 (1.06 - 1.24)	1.16 (1.07 - 1.26)	1.16 (1.06 - 1.27)
per person-year	Rate Difference	58.83 (24.52 - 93.15)	55.73 (23.63 - 87.83)	62.64 (28.29 - 96.99)	64.24 (23.57 - 104.92)
Maco Nimbor of	Ever Smoked	4.48 (4.34 - 4.63)	3.86 (3.75 - 3.97)	3.72 (3.63 - 3.82)	3.65 (3.56 - 3.74)
Different Durrer of	Never Smoked	3.59 (3.48 - 3.70)	3.12 (3.05 - 3.21)	3.03 (2.96 - 3.10)	3.06 (2.98 - 3.15)
	Relative Rate	1.25 (1.19 - 1.32)	1.23 (1.18 - 1.29)	1.23 (1.18 - 1.28)	1.19 (1.14 - 1.24)
per person-year	Rate Difference	0.90 (0.69 - 1.10)	0.73 (0.58 - 0.89)	0.69 (0.56 - 0.83)	0.59 (0.44 - 0.73)
	Ever Smoked	17.14 (12.39 - 23.71)	18.35 (15.09 - 22.33)	23.28 (16.50 - 32.84)	22.77 (18.36 - 28.24)
PCH Admission Rates [†]	Never Smoked	10.12 (5.23 - 19.57)	19.35 (14.52 - 25.78)	21.03 (16.14 - 27.41)	25.06 (20.88 - 30.07)
per 1,000 person-years	Relative Rate	1.69 (0.68 - 4.20)	0.95 (0.61 - 1.47)	1.11 (0.69 - 1.79)	0.91 (0.65 - 1.27)
	Rate Difference	7.02 (-3.66 - 17.71)	-0.99 (-9.21 - 7.22)	2.25 (-9.01 - 13.51)	-2.29 (-10.84 - 6.26)
	Ever Smoked	2.55 (1.83 - 3.56)	6.18 (4.93 - 7.74)	10.24 (7.90 - 13.28)	15.40 (12.93 - 18.34)
Days in PCH ⁺	Never Smoked	1.50 (0.69 - 3.23)	6.63 (4.81 - 9.15)	10.31 (7.84 - 13.55)	15.04 (12.01 - 18.84)
per person-year	Relative Rate	1.70 (0.60 - 4.83)	0.93 (0.56 - 1.54)	0.99 (0.64 - 1.54)	1.02 (0.72 - 1.45)
	Rate Difference	1 05 (-0 67 - 2 77)	-046 (-350 - 259)	-0.06 (-4.51 - 4.39)	0 36 (-4 87 - 5 59)

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

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Healthcare Use Summary Tables

Figure 5.1: Estimated Population-Based Annualized Rates of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted, age-, sex-, RHA- & SES-adjusted; 95% Confidence Intervals

Inpatient Hospitalization Rates, per 1,000 person-years*

140 120 80 60 40 20



Ever Smoked



Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime. *Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

umanitoba.ca/faculties/medicine/units/mchp

Chapter 5 | page 71

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³ Years After Survey

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Figure 5.1: Continued



REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPL

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	5.30 (5.16 - 5.45)	5.43 (5.29 - 5.56)	5.43 (5.32 - 5.55)	5.47 (5.36 - 5.59)
Ambulatory Visits*	Never Smoked	4.80 (4.68 - 4.92)	4.81 (4.72 - 4.91)	4.83 (4.75 - 4.92)	4.90 (4.82 - 4.98)
per person-year	Relative Rate	1.10 (1.05 - 1.16)	1.13 (1.08 - 1.17)	1.12 (1.08 - 1.17)	1.12 (1.08 - 1.16)
	Rate Difference	0.50 (0.26 - 0.75)	0.62 (0.41 - 0.82)	0.60 (0.41 - 0.79)	0.57 (0.38 - 0.76)
	Ever Smoked	112.92 (105.29 - 121.11)	111.91 (105.89 - 118.26)	114.03 (108.60 - 119.72)	117.91 (112.70 - 123.37)
Inpatient Hospitalizations*	Never Smoked	75.51 (69.92 - 81.55)	84.78 (80.56 - 89.22)	85.24 (81.66 - 88.97)	89.65 (86.26 - 93.17)
per 1,000 person-years	Relative Rate	1.50 (1.30 - 1.72)	1.32 (1.19 - 1.46)	1.34 (1.23 - 1.46)	1.32 (1.21 - 1.43)
	Rate Difference	37.41 (24.35 - 50.47)	27.13 (17.12 - 37.14)	28.79 (19.92 - 37.65)	28.27 (19.79 - 36.75)
	Ever Smoked	934.93 (811.57 - 1,077.04)	1,043.75 (946.69 - 1,150.76)	1,097.46 (1,002.96 - 1,200.86)	1,126.90 (1,032.20 - 1,230.28
Days in Hospital*	Never Smoked	721.96 (620.93 - 839.44)	814.38 (747.90 - 886.76)	828.53 (769.66 - 891.91)	884.45 (826.62 - 946.33)
per 1,000 person-years	Relative Rate	1.29 (0.98 - 1.72)	1.28 (1.08 - 1.53)	1.32 (1.13 - 1.55)	1.27 (1.10 - 1.48)
	Rate Difference	212.97 (-18.30 - 444.23)	229.37 (64.75 - 393.99)	268.93 (114.82 - 423.04)	242.45 (89.63 - 395.26)
Moon Nimbor of Dofinod	Ever Smoked	437.60 (409.97 - 467.09)	458.31 (431.91 - 486.32)	472.22 (443.32 - 503.00)	486.86 (458.18 - 517.34)
Daily, Decor**	Never Smoked	377.27 (356.72 - 399.01)	382.88 (363.28 - 403.54)	377.95 (358.20 - 398.78)	388.51 (370.06 - 407.88)
	Relative Rate	1.16 (1.03 - 1.30)	1.20 (1.07 - 1.33)	1.25 (1.12 - 1.40)	1.25 (1.13 - 1.39)
her person-year	Rate Difference	60.32 (12.43 - 108.22)	75.43 (29.55 - 121.30)	94.27 (45.51 - 143.04)	98.35 (51.10 - 145.61)
Mann Number of	Ever Smoked	4.43 (4.31 - 4.56)	3.80 (3.71 - 3.90)	3.73 (3.62 - 3.83)	3.70 (3.61 - 3.78)
Different Duringer OI	Never Smoked	3.55 (3.45 - 3.66)	3.08 (3.01 - 3.15)	2.98 (2.92 - 3.04)	2.98 (2.92 - 3.04)
	Relative Rate	1.25 (1.18 - 1.32)	1.24 (1.18 - 1.29)	1.25 (1.19 - 1.31)	1.24 (1.19 - 1.29)
hei heisoir-year	Rate Difference	0.88 (0.66 - 1.09)	0.73 (0.57 - 0.88)	0.74 (0.59 - 0.90)	0.72 (0.58 - 0.85)
	Ever Smoked	16.31 (11.77 - 22.61)	19.56 (15.76 - 24.28)	21.03 (17.68 - 25.01)	22.48 (19.21 - 26.29)
PCH Admission Rates ⁺	Never Smoked	7.74 (4.55 - 13.17)	15.78 (12.86 - 19.38)	17.26 (14.72 - 20.23)	20.80 (18.05 - 23.98)
per 1,000 person-years	Relative Rate	2.11 (0.93 - 4.76)	1.24 (0.83 - 1.86)	1.22 (0.88 - 1.68)	1.08 (0.81 - 1.45)
	Rate Difference	8.57 (0.08 - 17.06)	3.78 (-3.22 - 10.78)	3.77 (-2.38 - 9.92)	1.67 (-4.67 - 8.01)
	Ever Smoked	2.20 (1.43 - 3.39)	6.51 (4.97 - 8.53)	9.84 (7.91 - 12.25)	15.66 (12.92 - 19.00)
Days in PCH+	Never Smoked	1.15 (0.58 - 2.28)	5.45 (4.24 - 7.00)	8.59 (6.95 - 10.62)	13.43 (11.14 - 16.18)
per person-year	Relative Rate	1.92 (0.66 - 5.55)	1.20 (0.72 - 1.97)	1.15 (0.75 - 1.74)	1.17 (0.80 - 1.70)
	Rate Difference	1.05 (-0.43 - 2.54)	1.06 (-1.83 - 3.95)	1.25 (-2.53 - 5.03)	2.24 (-3.15 - 7.63)

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Figure 5.2: Matched Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey Inpatient Hospitalization Rates, per 1,000 person-years*

140 120 80 60 40 20



Ever Smoked

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*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

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Years After Survey

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Figure 5.2: Continued

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR



REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR

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and Rate Differences of Healthcare L	
Annualized Rates, Relative Rates,	s After Survey
Table 5.7: Propensity-Score A	by Number of Year:

Survev weighted, age-, sex- & propensity score-adjusted: 95% Confidence Intervals

Ambulatory Visits' Ever Smoked 5.23 (5.0 ⁺ 5.33) 5.23 (5.0 ⁺ 5.34) 5.21 (5.06 ⁺ 5.34) 1.06 (1.00 ⁺ 1.00) 1.04 (1.05 ⁺ 1.32) 1.11 1.06 (1.00 ⁺ 1.00) 1.02 (1.00 ⁺ 1.00) <th></th> <th></th> <th>1 year after Survey</th> <th>3 years after Survey</th> <th>5 years after Survey</th> <th>10 years after Survey</th>			1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
Ambulatory Visits' per person-year Never Smoked 494 (478 - 5.11) 4.96 (4.82 - 5.10) 4.99 (4.85 - 5.13) 1.04 Per person-year Reith Faste 0.23 (0.01 - 1.13) 1.06 (1.01 - 1.13) 1.06 (1.01 - 1.13) 1.04 (1.00 - 0.49) 1.04 Inpatient Hospitalizations' per lu00 person-year Reith Faste 0.23 (1.10 - 1.30.4) 1.1466 (10.652 - 122.9) 1.144 (10.75 - 1.21.9) 1.04 Newer Smoked 88.44 (80.07 - 97.69) 9301 (87.10 - 9933) 95.77 (90.23 - 10.165) 1.10 Per Lu00 person-years Reith Faste 1.23 (1.18 - 1.58) 1.135.74 (1.01759 - 1.167.16) 1.045 Per Smoked 88.705 (733.57 - 97.450) 9301 (87.10 - 9333) 980.94 (877.37 - 1.096.74) 1.024 Per Lu00 person-years Reith Faste 1.123 (0.98 - 1.50) 1.136.54 (1.07.55 - 1.301.3) 1.104 Per Lu00 person-years Reith Faste 1.124 (10.75 - 1.46.5) 980.94 (877.37 - 1.096.74) 1.034 Per Lu00 person-years Reith Faste 1.123 (1.06 - 1.44.05) 980.94 (877.37 - 1.096.74) 1.044 Per Lu00 person-years Reith Faste 1.123 (1.06 - 1.48.3) 1.139 (1.01 - 1.40.3)		Ever Smoked	5.23 (5.07 - 5.38)	5.23 (5.10 - 5.37)	5.21 (5.08 - 5.34)	5.30 (5.18 - 5.42)
per person-year Relative frate 1.06 (1.01 - 1.11) 1.06 (1.01 - 1.10) 1.04 (1.00 - 1.09) 1.04 (1.00 - 1.09) Impatient Hoopitalizations Rate Difference 0.23 (0.03 - 0.54) 9301 (87.10 - 92.39) 114.34 (10.75 - 1.259) 114.34 (10.75 - 1.259) 114.34 (10.75 - 1.259) 114.34 (10.75 - 1.259) 114.34 (10.75 - 1.259) 114.34 (10.75 - 1.259) 114.34 (10.75 - 1.259) 112.34 (10.75 - 1.259) 112.34 (10.75 - 1.259) 112.34 (10.75 - 1.251) 112.34 Per 1,000 person-years Rate Difference 31.34 (15.95 - 46.23) 11.35 (1.11 - 1.37) 11.34 (10.75 - 1.310) 112.34 Days in Hospital* Newer Smoked 837.05 (75357 97476) 313.44 (1.00 - 1.40) 385.74 (1.27 - 1.30) 10.24 Days in Hospital* Newer Smoked 1.04 (1.00 - 1.40) 1.24 (1.01 - 4.40) 1.24 (1.01 - 4.20) 1.24 (1.01 - 4.20) 1.24 (1.01 - 4.20) 1.24 (1.01 - 4.20) 1.24 (1.01 - 4.20) 1.24 (1.01 - 4.20) 1.24 (1.02 - 1.43) 1.24 (1.01 - 4.20) 1.24 (1.02 - 1.43) 1.24 (1.01 - 4.20) 1.24 (1.01 - 6.2) 1.24 (1.01 - 6.2) 1.24 (1.01 - 6.2) 1.24 (1.01 - 6.2) 1.24 (1.01 - 6.2) 1.24 (1.01 - 6.2) 1.24 (1.01 - 6.2) 1.24 (Ambulatory Visits*	Never Smoked	4.94 (4.78 - 5.11)	4.96 (4.82 - 5.10)	4.99 (4.85 - 5.13)	5.07 (4.94 - 5.21)
	per person-year	Relative Rate	1.06 (1.01 - 1.11)	1.06 (1.01 - 1.10)	1.04 (1.00 - 1.09)	1.05 (1.00 - 1.09)
Indextend 120.38 (11105 - 130.48) 11466 (106.92 - 122.95) 114.34 (107.53 - 121.59) 111 Inpatient Hospitalizations Never Smoked $88.44 (80.07 - 97.69)$ $9301 (67.10 - 93.33)$ $95.77 (60.23 - 110.16)$ 100 Per LoOD person-years Rate fifteence $31.36 (1.1.8 \cdot 1.58)$ $1.135 74 (1.0.17.95 - 1.267.16)$ $1.185 51 (1.0745 - 1.310.14)$ 1.234 Days in Hospital Never Smoked $857.05 (75.357 - 974.76)$ $933.06 (871.09 - 1.04.40)$ $1.234.287.13$ $1.234.287.13$ Days in Hospital* Never Smoked $857.05 (75.357 - 974.76)$ $933.06 (871.09 - 1.04.40)$ $1.234.287.237.106.74.31$ $1.024.232.74.206.74.31$ Days in Hospital* Never Smoked $857.05 (75.357 - 974.76)$ $933.06 (871.09 - 1.04.05)$ $1.024.24.22.130.14.1$ $1.224.24.22.126.74.22.14.24.26.22.14.26.22.14.26.22.10.2.24.22.26.22.14.26.22.12.27.26.22.20.22.2$		Rate Difference	0.29 (0.03 - 0.54)	0.27 (0.05 - 0.50)	0.22 (0.00 - 0.44)	0.23 (0.02 - 0.44)
		Ever Smoked	120.38 (111.05 - 130.48)	114.66 (106.92 - 122.95)	114.34 (107.53 - 121.59)	117.54 (111.06 - 124.39)
per 1,000 person-years Relative Rate 1.36 (1.18 - 1.58) 1.23 (1.11 - 1.37) 1.19 (1.08 - 1.31) 1.13 Days in Hospital* Ever Sinoked 31.94 (16.55 - 46.92) 21.65 (10.27 - 33.02) 1.135.7 (4.31 - 38.71) 1.23 Days in Hospital* Ever Sinoked 1.04189 (91706 - 1.183.70) 1.135.74 (1.017 - 95 - 1.267.16) 1.148651 (1.074-55 - 1.300.24) 1.23 Days in Hospital* Rever Sinoked 857.05 (735.57 - 947.56) 953.06 (871.09 - 1.044.05) 980.948 (877.37 - 1.096.74) 1.04 Ret 1.000 person-year Rate Difference 184.83 (-17.99 - 387.66) 182.08 (7.97 - 356.19) 205.57 (24.82 - 386.32) 486 Mean Number of Define Unver Sinoked 403.44 (378.07 - 430.51) 433 405 Daily Doses** Relative Rate 0.08 (0.90 - 1.08) 1.00 (0.91 - 1.09) 1.04 (0.95 - 1.14) 225 Mean Number of Define Relative Rate 0.08 (0.014 - 442.06) 1.09 (0.95 - 1.14) 235 466 Newer Sinoked 405.21 (387.34 - 40.7) 3.66 (3.52 - 34.7) 3.66 (3.52 - 34.7) 205.57 (24.82 - 386.37) 246 Newer Sinoked 3.03 (3.1 - 4	Inpatient Hospitalizations*	Never Smoked	88.44 (80.07 - 97.69)	93.01 (87.10 - 99.33)	95.77 (90.23 - 101.65)	101.04 (95.63 - 106.75)
	per 1,000 person-years	Relative Rate	1.36 (1.18 - 1.58)	1.23 (1.11 - 1.37)	1.19 (1.08 - 1.31)	1.16 (1.06 - 1.27)
		Rate Difference	31.94 (16.95 - 46.92)	21.65 (10.27 - 33.02)	18.57 (8.43 - 28.71)	16.50 (6.57 - 26.42)
Days in Hospital* Never Smoked $857.05 (753.7 - 974.76)$ $953.66 (871.09 - 1.044.05)$ $980.94 (877.37 - 1.096.74)$ 1.04 Per 1,000 person-years Relative Rate $1.22 (0.98 - 1.50)$ $1.19 (1.01 \cdot 1.40)$ $1.21 (1.02 \cdot 1.43)$ 1.04 Rel Difference $184.85 (-1799 - 387.66)$ $1.82.08 (7.97 \cdot 356.19)$ $205.57 (24.82 \cdot 386.32)$ 1.82 Mean Number of Defined $403.4 (378.07 - 430.51)$ $410.81 (39.477 - 446.45)$ $435.47 (490.28 - 435.32)$ 435 Mean Number of Defined $409.62 (387.83 - 432.64)$ $410.81 (39.477 - 440.51)$ 437 437 Daily Doses** Relative Rate $0.98 (0.90 - 1.08)$ $1.00 (0.01 - 1.09)$ $1.04 (0.95 - 1.14)$ 437 Daily Doses** Relative Rate $0.98 (0.94 - 1.83)$ $3.36 (3.25 - 3.47)$ $3.36 (3.26 - 3.27)$ 2.37 Mean Number of Number of Never Smoked $3.30 (3.14 - 4.07)$ $3.36 (3.25 - 3.47)$ $3.27 (3.16 - 3.38)$ $2.27 (3.8 - 3.73)$ $2.27 (3.8 - 3.73)$ $2.27 (3.8 - 3.73)$ $2.27 (3.8 - 3.73)$ $2.27 (3.8 - 3.73)$ $2.27 (3.8 - 3.73)$ $2.27 (3.8 - 3.73)$ $2.27 (3.8 - 3.73)$ 2.27		Ever Smoked	1,041.89 (917.06 - 1,183.70)	1,135.74 (1,017.95 - 1,267.16)	1,186.51 (1,074.55 - 1,310.14)	1,234.56 (1,124.27 - 1,355.68)
per 1,000 person-years Relative Rate 1.22 (0.98 - 1.50) 1.19 (1.01 - 1.40) 1.21 (1.02 - 1.43) 1.88 Mean Number of Defined Rate Difference 184.83 (-17.99 - 387.66) 182.08 (7.97 - 356.19) 205.57 (24.82 - 386.32) 188 Mean Number of Defined Ever Smoked 403.44 (378) 430.81 (378) 430.81 (394.77 - 446.45) 455.47 (409.28 - 463.32) 466 Newer Smoked 409.82 (387.83 - 432.64) 40.93.41 (378.07 - 430.51) 437 400.51) 437 Daily Doses** Relative Rate 0.98 (0.90 - 1.08) 1.00 (0.91 - 1.09) 1.04 (0.95 - 1.14) 432.64 Newer Smoked 40.52 (4.10 - 4.40) 3.66 (3.54 - 3.78) 3.60 (3.48 - 3.73) 435 Newer Smoked 3.90 (3.7 - 4.407) 3.56 (3.54 - 3.78) 3.66 (3.48 - 3.73) 2.57 (3.16 - 3.38) 2.57 (3.16 - 3.38) 2.55 (3.27 - 3.43) 2.55 (3.26 - 3.25) 2.55 (3.26 - 3.25) 2.55 (3.26 - 3.25) 2.55 (3.26 - 3.25) 2.55 (3.26 - 3.25) 2.55 (3.26 - 3.25) 2.55 (3.26 - 3.25) 2.55 (3.27 - 3.43) 2.55 (3.26 - 3.25) 2.55 (3.27 - 3.43) 2.55 (3.27 - 3.43) 2.55 (3.27 - 3.43) 2.55 (3.27 - 3.43) 2.55	Days in Hospital*	Never Smoked	857.05 (753.57 - 974.76)	953.66 (871.09 - 1,044.05)	980.94 (877.37 - 1,096.74)	1,045.88 (965.12 - 1,133.40)
	per 1,000 person-years	Relative Rate	1.22 (0.98 - 1.50)	1.19 (1.01 - 1.40)	1.21 (1.02 - 1.43)	1.18 (1.03 - 1.35)
Mean Number of Defined Daily Doses** Ever Smoked 403.44 (378.07 - 430.51) 419.81 (394.77 - 446.45) 435.47 (409.28 - 463.32) 466 Naily Doses** Never Smoked 409.62 (387.83 - 432.64) 420.58 (400.14 - 442.06) 419.29 (399.10 - 440.51) 433 Per person-year Rata bifference $6.18 (-37.7 - 31.41)$ $0.06 (0.91 - 1.09)$ $1.04 (0.95 - 1.14)$ $2.00 (0.95 - 1.14)$ $2.00 (0.92 - 1.03)$ $1.04 (0.95 - 1.14)$ $2.00 (0.92 - 1.03)$ $1.02 (0.95 - 1.14)$ $2.00 (0.91 - 4.05)$ $1.04 (0.95 - 1.14)$ $2.00 (0.91 - 4.05)$		Rate Difference	184.83 (-17.99 - 387.66)	182.08 (7.97 - 356.19)	205.57 (24.82 - 386.32)	188.68 (29.22 - 348.14)
Mean Number of per person-year Never Smoked 409.62 (387.83 - 43.2.64) 420.58 (400.14 - 442.06) 419.29 (399.10 - 440.51) 437 Daily Doses* Relative Rate 0.098 (0.90 - 1.08) 1.00 (0.91 - 1.09) 1.04 (0.95 - 1.14) 437 Per person-year Rate Difference -6.18 ($43.77 - 31.41$) $-0.76 (-37.80 - 36.28)$ 16.17 ($-21.78 - 54.12$) 27 Mean Number of Different Dugs ** Ever Smoked $3.20 (3.74 - 407)$ $3.36 (3.54 - 3.78)$ $3.60 (3.48 - 3.73)$ 2.77 Mean Number of Different Dugs ** Relative Rate $1.09 (1.03 - 1.15)$ $3.36 (3.25 - 3.47)$ $3.27 (3.16 - 3.38)$ 2.77 Per person-year Relative Rate $0.33 (0.11 - 0.59)$ $0.30 (0.12 - 0.48)$ $0.33 (0.15 - 0.51)$ 2.7 Per Hollosion Rates Never Smoked $1.403 (10.41 - 18.91)$ $1.96 (1.03 - 1.15)$ $0.33 (0.15 - 0.51)$ 2.7 Per Hollosion Rates Rate Difference $0.35 (0.11 - 0.59)$ $0.30 (0.12 - 0.48)$ $0.33 (0.15 - 0.51)$ 2.7 Per Hollosion Rates Relative Rate $1.20 (0.32 - 1.48)$ $1.70 (0.3 - 1.15)$ $0.20 (2.17 - 0.52)$ $2.22 (2.17$	Moon New of Definition	Ever Smoked	403.44 (378.07 - 430.51)	419.81 (394.77 - 446.45)	435.47 (409.28 - 463.32)	465.10 (435.83 - 496.34)
Der person-year Relative Rate 0.98 (0.90 - 1.08) 1.00 (0.91 - 1.09) 1.04 (0.95 - 1.14) 27 Per Person-year Rate Difference -6.18 (-43.77 - 31.41) $-0.76 (-37.80 - 36.28)$ 1.04 (0.95 - 1.14) 27 Mean Number of Difference vevr Smoked $4.25 (4.10 - 4.40)$ $3.66 (3.54 - 3.78)$ $3.60 (3.48 - 3.73)$ $3.27 (3.16 - 3.38)$ 2.5 Mean Number of Difference Never Smoked $3.90 (3.74 - 4.07)$ $3.36 (3.25 - 3.47)$ $3.27 (3.16 - 3.38)$ 2.5 Mean Number of Difference Never Smoked $3.90 (3.74 - 4.07)$ $3.36 (3.25 - 3.47)$ $3.27 (3.16 - 3.38)$ 2.2 Per person-year Relative Rate $1.09 (1.03 - 1.16)$ $1.09 (1.03 - 1.15)$ $0.33 (0.15 - 0.51)$ 2.7 Per Parson-year Rate Difference $0.35 (0.11 - 0.59)$ $0.30 (0.12 - 0.48)$ $0.33 (0.15 - 0.51)$ 2.7 Per Non year Never Smoked $1.403 (10.41 - 18.91)$ $1.797 (14.16 - 2.281)$ $0.20 (2.170 - 2.93)$ 2.7 Per Non year Relative Rate $1.52 (0.74 - 3.09)$ $1.71 (-5.60 - 9.02)$ $0.94 (0.65 - 1.35)$ $2.202 (17.05 - 2.493)$		Never Smoked	409.62 (387.83 - 432.64)	420.58 (400.14 - 442.06)	419.29 (399.10 - 440.51)	437.69 (416.21 - 460.28)
		Relative Rate	0.98 (0.90 - 1.08)	1.00 (0.91 - 1.09)	1.04 (0.95 - 1.14)	1.06 (0.97 - 1.16)
Mean Number of Different Drugs ** Ever Smoked $4.25 (4.10 - 4.40)$ $3.66 (3.54 - 3.78)$ $3.60 (3.48 - 3.73)$ $3.27 (3.16 - 3.38)$ Newer Smoked $3.90 (3.74 - 4.07)$ $3.36 (3.25 - 3.47)$ $3.27 (3.16 - 3.38)$ $3.27 (3.16 - 3.38)$ Der Person-year Relative Rate $1.09 (1.03 - 1.15)$ $1.10 (1.05 - 1.16)$ $3.27 (3.15 - 0.51)$ $2.20 (1.2 - 0.51)$ Per Person-year Rate Difference $0.35 (0.11 - 0.59)$ $0.30 (0.12 - 0.48)$ $0.33 (0.15 - 0.51)$ $2.0 (2.17 - 0.52)$ Per Person-year Rate Difference $0.35 (0.11 - 0.59)$ $0.30 (0.12 - 0.48)$ $0.33 (0.15 - 0.51)$ $2.0 (2.17 - 0.52)$ PCH Admission Ratest Never Smoked $9.25 (5.91 - 14.48)$ $17.97 (14.16 - 2.2.81)$ $2.0.62 (17.05 - 2.4.93)$ $2.0 (2.17 - 0.5 - 1.3.5)$ PCH Admission Ratest Never Smoked $9.25 (5.91 - 14.48)$ $17.07 (1.4.16 - 2.2.81)$ $2.0.62 (17.05 - 2.4.93)$ $2.0.62 (17.05 - 2.4.93)$ PCH Admission Ratest Never Smoked $9.25 (5.91 - 14.48)$ $17.07 (1.4.16 - 2.2.81)$ $2.0.62 (17.05 - 2.4.93)$ $2.0.62 (17.05 - 2.4.93)$ PCH Admission Rate Rate Difference $4.77 (-2.85 - 12.40)$	her person-year	Rate Difference	-6.18 (-43.77 - 31.41)	-0.76 (-37.80 - 36.28)	16.17 (-21.78 - 54.12)	27.41 (-14.13 - 68.96)
Different Drugs ** Never Smoked $3.90(3,74-4,07)$ $3.36(3,25-3,47)$ $3.27(3,16-3,38)$ $3.27(3,16-3,38)$ Different Drugs ** Relative Rate $1.09(1.03-1.16)$ $1.00(1.05-1.16)$ $3.27(3,16-3,38)$ $3.27(3,16-3,38)$ Per Person-year Rate Difference $0.35(0.11-0.59)$ $1.09(1.03-1.15)$ $1.10(1.05-1.16)$ $3.27(3,16-3,38)$ Per Person-year Rate Difference $0.35(0.11-0.59)$ $0.30(0.12-0.48)$ $0.33(0.15-0.51)$ $1.20(1.5-2.493)$ $2.202(17.58-2.16)$ $2.202(17.58-2.75,8)$ PCH Admission Ratest Never Smoked $9.25(5,91-14.48)$ $11.0(0.73-1.65)$ $0.094(0.65-1.35)$ $2.202(17.58-27,58)$ $2.202(17.58-27,58)$ $2.202(17.58-27,58)$ $2.202(17.58-27,58)$ $2.202(17.58-27,58)$ $2.202(17.58-27,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$ $2.202(17.58-21,58)$	fo volumin acom	Ever Smoked	4.25 (4.10 - 4.40)	3.66 (3.54 - 3.78)	3.60 (3.48 - 3.73)	3.58 (3.47 - 3.68)
Transmission feature fast 1.09 (1.03 - 1.15) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 1.16) 1.10 (1.05 - 2.493) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 24.93) 2.20 (1.7 .05 - 1.35) 2.20 (1.7 .0 - 1.3 .0 .0 .0 .0 .0 .		Never Smoked	3.90 (3.74 - 4.07)	3.36 (3.25 - 3.47)	3.27 (3.16 - 3.38)	3.28 (3.18 - 3.38)
Per person year Rate Difference $0.35 (0.11 - 0.59)$ $0.30 (0.12 - 0.48)$ $0.33 (0.15 - 0.51)$ $0.33 (0.15 - 0.51)$ $0.33 (0.15 - 0.51)$ $0.33 (0.15 - 0.51)$ $0.33 (0.15 - 0.51)$ $0.33 (0.15 - 0.51)$ $0.30 (0.12 - 0.48)$ $0.36 (0.17 \cdot 0.5 - 24.93)$ $2.2 \cdot 0.2 \cdot 0.75 - 24.93$ $2.2 \cdot 0.2 \cdot 0.2 \cdot 0.23$ $2.2 \cdot 0.2 \cdot 0.23 \cdot 0.23$ $2.2 \cdot 0.2 \cdot 0.23 \cdot 0.23$ $2.2 \cdot 0.2 \cdot 0.23 \cdot 0.24$ $2.2 \cdot 0.2 \cdot 0.24$		Relative Rate	1.09 (1.03 - 1.16)	1.09 (1.03 - 1.15)	1.10 (1.05 - 1.16)	1.09 (1.04 - 1.15)
Ever Smoked 14.03 (10.41 - 18.91) 19.68 (15.68 - 24.70) 20.62 (17.05 - 24.93) 2 PCH Admission Rates ¹ Never Smoked 9.25 (5.91 - 14.48) 17.97 (14.16 - 22.81) 20.02 (17.58 - 27.58) 2 Per 1,000 person-years Relative Rate 1.52 (0.74 - 3.09) 1.10 (0.73 - 1.65) 0.94 (0.65 - 1.35) 2 Per 1,000 person-years Relative Rate 1.52 (0.74 - 3.09) 1.110 (0.73 - 1.65) 0.94 (0.65 - 1.35) 2 Per 1,000 person-years Relative Rate 1.52 (0.74 - 3.09) 1.110 (0.73 - 1.65) 0.94 (0.65 - 1.35) 2 Days in PCH [‡] Never Smoked 2.58 (1.91 - 3.49) 6.66 (5.17 - 8.57) 10.046 (8.12 - 13.47) 1 Days in PCH [‡] Never Smoked 1.23 (0.69 - 2.20) 5.12 (4.01 - 6.54) 8.71 (6.88 - 11.02) 1 Per person-year Relative Rate 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1	her person-year	Rate Difference	0.35 (0.11 - 0.59)	0.30 (0.12 - 0.48)	0.33 (0.15 - 0.51)	0.30 (0.13 - 0.47)
PCH Admission Ratest Never Smoked 9.25 (5.91 - 14.48) 17.97 (14.16 - 22.81) 22.02 (17.58 - 27.58) 2 per 1,000 person-years Relative Rate 1.52 (0.74 - 3.09) 1.10 (0.73 - 1.65) 0.94 (0.65 - 1.35) 2 per 1,000 person-years Relative Rate 1.52 (0.74 - 3.09) 1.10 (0.73 - 1.65) 0.94 (0.65 - 1.35) 2 Rate Difference 4.77 (-2.85 - 12.40) 1.71 (-5.60 - 9.02) -1.40 (-8.97 - 6.17) 1 Days in PCH [‡] Never Smoked 2.58 (1.91 - 3.49) 6.66 (5.17 - 8.57) 10.46 (8.12 - 13.47) 1 Pays in PCH [‡] Never Smoked 1.23 (0.69 - 2.20) 5.12 (4.01 - 6.54) 8.71 (6.88 - 11.02) 1 Pays in PCH [‡] Never Smoked 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1		Ever Smoked	14.03 (10.41 - 18.91)	19.68 (15.68 - 24.70)	20.62 (17.05 - 24.93)	25.48 (21.30 - 30.48)
per 1,000 person-years Relative Rate 1.52 (0.74 - 3.09) 1.10 (0.73 - 1.65) 0.94 (0.65 - 1.35) Rate Difference 4.77 (-2.85 - 12.40) 1.71 (-5.60 - 9.02) -1.40 (-8.97 - 6.17) Ever Smoked 2.58 (1.91 - 3.49) 6.66 (5.17 - 8.57) 10.46 (8.12 - 13.47) 1 Days in PCH+ Never Smoked 1.23 (0.69 - 2.20) 5.12 (4.01 - 6.54) 8.71 (6.88 - 11.02) 1 per person-year Rative Rate 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 18.4) 1	PCH Admission Rates ⁺	Never Smoked	9.25 (5.91 - 14.48)	17.97 (14.16 - 22.81)	22.02 (17.58 - 27.58)	25.95 (20.53 - 32.81)
Rate Difference 4.77 (-2.85 - 12.40) 1.71 (-5.60 - 9.02) -1.40 (-8.97 - 6.17) - Ever Smoked 2.58 (1.91 - 3.49) 6.66 (5.17 - 8.57) 10.46 (8.12 - 13.47) 1 Days in PCH ⁺ Never Smoked 1.23 (0.69 - 2.20) 5.12 (4.01 - 6.54) 8.71 (6.88 - 11.02) 1 per person-year Relative Rate 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1 per person-year Relative Rate 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1	per 1,000 person-years	Relative Rate	1.52 (0.74 - 3.09)	1.10 (0.73 - 1.65)	0.94 (0.65 - 1.35)	0.98 (0.69 - 1.39)
Ever Smoked 2.58 (1.91 - 3.49) 6.66 (5.17 - 8.57) 10.46 (8.12 - 13.47) 1 Days in PCH ⁺ Never Smoked 1.23 (0.69 - 2.20) 5.12 (4.01 - 6.54) 8.71 (6.88 - 11.02) 1 per person-year Relative Rate 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1 per person-year 1.21 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1		Rate Difference	4.77 (-2.85 - 12.40)	1.71 (-5.60 - 9.02)	-1.40 (-8.97 - 6.17)	-0.47 (-9.32 - 8.38)
Days in PCH+ Never Smoked 1.23 (0.69 - 2.20) 5.12 (4.01 - 6.54) 8.71 (6.88 - 11.02) 1 per person-year Relative Rate 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1 per person-year 1.21 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) 1		Ever Smoked	2.58 (1.91 - 3.49)	6.66 (5.17 - 8.57)	10.46 (8.12 - 13.47)	18.15 (14.36 - 22.94)
per person-year Relative Rate 2.10 (0.92 - 4.80) 1.30 (0.82 - 2.05) 1.20 (0.78 - 1.84) Percention Percention Percention Percention Percention Percention	Days in PCH ⁺	Never Smoked	1.23 (0.69 - 2.20)	5.12 (4.01 - 6.54)	8.71 (6.88 - 11.02)	13.61 (10.81 - 17.14)
	per person-year	Relative Rate	2.10 (0.92 - 4.80)	1.30 (0.82 - 2.05)	1.20 (0.78 - 1.84)	1.33 (0.90 - 1.98)
		Rate Difference	1.35 (0.09 - 2.62)	1.53 (-1.06 - 4.13)	1.75 (-2.26 - 5.76)	4.54 (-1.58 - 10.66)

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Generalized-Propensity-Score Analysis
Figure 5.3: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted, age-, sex-, RHA- & SES-adjusted; 95% Confidence Intervals







Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime. *Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

Figure 5.3: Continued

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR



REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER

KPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR

Summary

Despite the fact that we are using a very crude, dichotomous smoking variable ("ever" vs. "never"), where respondents who "ever smoked" include those who may have been daily, heavy smokers and those who only smoked occasionally, our results show a consistent association between smoking and elevated healthcare use across most of the healthcare system. This relationship did not vary by analytical method. The one exception in our results was the use of PCHs, for which rates are not statistically significantly different between the two groups, up to 10 years post-survey.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER

CREATOR EXPLORER DEFENDER TRAIL BLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REREL PIONEER CREATOR EXPLORER DEFENDER T

We want to emphasize that our results reflect associations, not causation. At the heart of our research was the question, "does smoking cause an increased burden on the healthcare system?" Although we could not answer this question directly using observational data, we did take steps to assess the likelihood that observed associations reflected underlying causal relationships. First, we adjusted for many variables that confound the relationship between smoking and healthcare use. Second, we assessed whether our adjustment strategy made our "ever smoked" and "never smoked" groups comparable on observed characteristics. Finding that our two groups were comparable after propensity-score adjustment strengthens our ability to draw inferences about potential, underlying causal relationships. However, we cannot know for certain that we have, in fact, controlled for all measured and unmeasured confounding.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDE

CHAPTER 6: DIFFERENCES IN SELECTED HEALTH OUTCOMES BY DICHOTOMOUS SMOKING STATUS ("EVER SMOKED" VS. "NEVER SMOKED")

This chapter compares selected health outcomes between the "ever smoked" and "never smoked" categories. Our analyses are designed to untangle the effect that smoking itself had on a select few health outcomes, taking into consideration as many other characteristics of the people in the sample as possible.

Describing the Sample Used in the Analysis of Healthcare Use Patterns

Chapter 5 gives complete descriptions of the three analyses, including tables showing comparisons of demographic information and chronic conditions for the sample. The estimated-population-based analysis used data from 48,582 respondents (25,113 who ever smoked and 23,469 who never smoked). These analyses were adjusted for age, sex, regional health authority (RHA), and socioeconomic status (SES). Other models using only age and sex, and age, sex, RHA, SES, and RUB are in Appendix 3.

The matched analysis used data from 38,272 respondents (19,136 who ever smoked and 19,136 who never smoked). The matching was done by age, sex, SES, and RHA, but the analysis adjusted further for age and sex to ensure maximal comparability.

Finally, the propensity-score analytic sample included 43,720 respondents (22,716 who ever smoked and 21,004 who never smoked). Health outcomes were analyzed after adjusting for age, sex, and propensity score (a probability of being a smoker given up to 200 other demographic and lifestyle attributes).

Health Outcomes: "Ever Smoked" vs. "Never Smoked"

In the following pages, tables and graphs are given for each of the three analyses that compare respondents who ever smoked with those who never smoked.

We grouped respondents by smoking status at time of survey, then looked one, three, five, and 10 years post-survey. Similar to chapter 5, our discussion around the relationship between smoking and mortality focuses on results from five years of follow-up time.

As discussed in chapters 3 and 4, people tend to either maintain or decrease the amount they smoke over time. Therefore, because people may be smoking less than the survey data show, the real burden of smoking may be higher than estimated. At the same time, the health effects of smoking could be delayed; for example, it could take several years for someone to develop lung cancer as a result of smoking. Therefore, although an individual may stop smoking, they could experience some delayed health outcomes, such as developing lung cancer. As a result, it is important to follow people for several years since a one-year observation period may not capture the true long-term harms of smoking. This is especially true when studying outcomes associated with cancer incidence and life expectancy. Hence, we focus our discussion on the relationship between smoking and cancer using 10 years of follow-up time. Likewise, we focus on the 10 years of follow-up time when discussing differences in life expectancy. The full set of results from all observations periods is presented in Appendix 3. Details of methods used in the calculations are described in chapter 3.

The health outcomes chosen reflect our desire *not* to focus on specific disease patterns— for example, heart attacks, chronic obstructive pulmonary disease, hypertension, etc. Instead we studied the effects on mortality to address the popular hypothesis that smokers tend to die sooner and therefore cost the system less. While this hypothesis might make sense intuitively, the reality is that healthcare costs are greatest in the few years before death, no matter the age of death. All other costs throughout a lifetime tend to be small compared to end-of-life care (Deber, Forget, & Roos, 2004; Forget, Deber, & Roos, 2002; Forget, Roos, Deber, & Walld, 2008). The one health condition we did study was cancer—specifically lung cancer and strongly smoking-associated cancers—since this is a particular concern for the administration of Manitoba's publicly-funded healthcare system.

Mortality Measures

The following descriptions refer to Tables 6.1-6.3, and Figures 6.1-6.3, which represent the three types of analyses: estimated population-based, matched, and propensity-score.⁵ Four mortality indicators are discussed: premature mortality rate (PMR), potential years of life lost (PYLL), total mortality rate, and life expectancy at age 50. As well, overall cancer rates, lung cancer rates, and strongly smoking-associated cancer rates are shown.

Premature Mortality Rate (PMR)

PMR represents a rate of "early" death, defined as the age- and sex-adjusted rate of death before age 75. It is considered a good indicator of a population's overall health, and is highly associated with morbidity and self-rated health, as well as with socioeconomic risk factors (Carstairs & Morris, 1991; Eyles & Birch, 1993; Eyles, Birch, Chambers, Hurley, & Hutchison, 1991; Martens, Frohlich, Carriere, Derksen, & Brownell, 2002; Reid, Roos, MacWilliam, Frohlich, & Black, 2002). It is easy to see how populations with a high PMR most likely require the use of more healthcare services, including preventive services.

At five years post-survey, survey respondents who ever smoked had double the PMR as those who never smoked in the estimated-population-based analysis (RR=2.14, 95% CI 1.24–3.68); this was consistent with the matched analysis (RR=2.31, 95 % CI 1.31-4.06). However, after we adjusted for confounding variables in the propensity-score analysis, we did not observe a statistically significant difference in PMR between the two categories (RR=1.66, 95% CI 0.99-2.76). It is worth noting that across our four observation periods—one, three, five, and 10 years—we only observed a statistically significant difference in PMR using three years of follow-up time; we found no difference in PMR between groups using one, five, and 10 years of follow-up data. In Figures 6.1 and 6.2, estimated-population-based and matched analyses show a very steady PMR throughout the post-survey years in the "ever smoked" category, while the "never smoked" category showed a slight upward trend over time. However, in the propensity-score analysis where we controlled for the differences between the groups, we observed a slight downward trend in PMR over time for "ever smoked." Thus, the differences in PMR observed between respondents in the two groups may, to some extent, be due to confounding, rather than smoking.

Potential Years of Life Lost (PYLL)

PYLL is a measure of years of life lost per 1,000 person-years for ages one to 74. It is similar to PMR, but gives greater weight to the death of a younger person by adding up the number of years "lost" when a person dies before age 75. PYLL is large if there is a high death rate among young or middle-aged people, and small if most of the deaths in a population occur in later life (Young, 1998).

In this chapter, results are given for the age, sex, RHA and SES-adjusted estimated-population-based analyses. Appendix 3. includes crude; age- and sex-adjusted; and age, sex, RHA, SES, and RUB-adjusted analyses. Similarly, the matched analyses included in this chapter are age- and sex-adjusted, but results for the crude analysis are given in Appendix 3. For propensity score analyses, this chapter includes the age-, sex- and propensity-score-adjusted results; Appendix 3. shows the rates only adjusted for propensity score, before adjusting for age and sex.

In the estimated-population-based analysis using five years of post-survey data, there is a 92% elevation in PYLL for the "ever smoked" group compared to the "never smoked" (RR=1.92, 95% CI 1.09-3.39). A slightly higher elevation in PYLL is noted in the matched sample (RR=2.05, 95% CI 1.08-3.88). However, after we adjusted for the observed differences between the groups using the propensity score, we did not observe any statistically significant differences in PYLL between the two groups (RR=1.64, 95% CI 0.95-2.82). It is worth noting that across all four observation periods, we only observed a difference in PYLL when using three years of follow-up data; there was not a significant difference in PYLL when using one, five, or 10 years of follow-up data. None of these are dramatically different than the PMR results, which suggests that observed differences in early death may be partially due to confounding, rather than smoking.

Total Mortality Rate

Total mortality refers to the number of deaths per 1,000 people per year, from all causes. Looking at the rates of total mortality five years post-survey, the estimated-population-based analysis shows an 86% elevation for respondents who ever smoked compared to those who never smoked (RR=1.86, 95% CI 1.30–2.67). This result is similar to the matched analysis, which shows a 96% elevation (RR=1.96, 95% CI 1.33–2.90). Finally, the propensity-score analysis shows a 74% elevation of total mortality rate for respondents who ever smoked (RR=1.74, 95% CI 1.18-2.57). Figures 6.1, 6.2 and 6.3 show a relatively consistent gap over time in the total mortality rates between the groups.

In the estimated-population-based analysis, total mortality rates were 9.53 for the "ever smoked" group and 5.12 for the "never smoked" group (RD 4.41 per 1,000). For the matched analysis, the rates were 8.41 vs. 4.29 deaths per 1,000 person-years (RD 4.12 per 1,000 per year). In the most conservative estimate—the propensity-score analysis—rates were 9.89 vs. 5.69 deaths per 1,000 person-years (RD 4.19 per 1,000).

At first glance, these results appear to suggest that smoking places a minimal burden on total mortality. However, when we used our models to estimate the population-level impact smoking has on total mortality, a different picture emerged. The estimated-population-based analyses suggest that, each year, an excess of 2,141.19 deaths occur among respondents who ever smoked vs. those who never smoked (95% Cl, 1,336.91–3,346.92).

Fremature Mortality Rates** Ever Smoked 4.71 (3.52 - 6.31) 4.65 (3.67 - 5.70) 4.53 (3.62 - 5.66) Premature Mortality Rates** Never Smoked 2.74 (1.61 - 4.80) 2.19 (1.63 - 3.39) 2.14 (1.53 - 3.00) 2.94 (2.32 - 3.73) per 1,000 person-years Relative Rate 1.70 (0.76 - 3.78) 2.13 (1.03 - 4.39) 2.14 (1.25 - 3.60) 1.54 (0.88 - 2.41) per 1,000 person-years Relative Rate 1.93 (-0.68 - 4.55) 2.41 (0.77 - 4.11) 1.59 (-0.08 - 3.25) Potential Vears of Life Lost** Never Smoked 6.273 (45.04 - 87.37) 2.901 (18.02 - 4.68) 2.84 (0.77 - 4.11) 1.59 (-0.08 - 3.25) per 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 4.11) 1.92 (0.90 - 4.12) 3.33 (3.102 - 4.98) per 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 4.11) 1.92 (0.08 - 3.23) 2.661 (4.16 - 49.07) 1.57 (-6.52 - 37.96) per 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 4.11) 1.92 (1.09 - 3.39) 1.40 (0.88 - 2.23) per 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 3.39) 1.40 (0.88 - 2.23	Ever Smoked a Survey weighted, a	nd Never Smok ge-, sex-, RHA- & SES T	ed by Number of Years At- -adjusted; 95% Confidence Interv 1 vear after Survev	ter Survey als 3 vears after Survey	5 vears affer Survey	10 voars affer Survey
Premature Mortality Rates* Never Smoked 2.78 (1.61 - 4.80) 2.19 (1.37 - 3.49) 2.14 (1.53 - 3.00) 2.94 (2.32 - 3.73) per 1,000 person-years Ralative Rate 1.70 (0.76 - 3.78) 2.13 (1.03 - 4.38) 2.14 (1.24 - 3.68) 1.59 (-0.08 - 3.25) per 1,000 person-years Rate Difference 1.93 (-0.68 - 4.55) 2.47 (0.26 - 4.68) 2.14 (1.24 - 3.68) 1.59 (-0.08 - 3.25) Potential Vears of Life Lost** Never Smoked 6.273 (45.04 - 87.37) 55.54 (40.85 - 75.87) 55.53 (43.73 - 70.52) 55.05 (43.22 - 70.13) Potential Vears of Life Lost** Never Smoked 37.23 (2058 - 67.37) 2901 (1802 - 46.69) 28.92 (2054 - 40.72) 39.33 (31.02 - 49.88) Potential Vears of Life Lost** Never Smoked 37.23 (2058 - 67.37) 2901 (1802 - 46.69) 28.92 (2054 - 40.72) 39.33 (31.02 - 49.88) Potential Vears of Life Lost** Never Smoked 87.10 - 10.98) 2.96.67 (-2.79 - 56.13) 2.66.1 (-4.16 - 49.07) 15.72 (-5.2 - 37.96) Pot 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 3.39) 1.40 (0.88 - 2.23) Pot 1,000 person-years Reta Difference 5.01 (3.27 - 7.68) 2.66.1		Ever Smoked	4.71 (3.52 - 6.31)	4.65 (3.51 - 6.16)	4.58 (3.67 - 5.70)	4.53 (3.62 - 5.66)
per 1,000 person-years Relative Rate 1.70 (0.76 - 3.78) 2.13 (1.03 - 4.38) 2.14 (1.24 - 3.68) 1.54 (0.98 - 2.41) Rate Difference 1.93 (-0.68 - 4.55) 2.47 (0.26 - 4.68) 2.44 (0.77 - 4.11) 1.59 (-0.08 - 3.25) Potential Years of Life Lost** Reve Smoked 6.2.73 (45.04 - 87.37) 55.67 (40.85 - 75.87) 55.53 (43.73 - 70.52) 55.05 (43.22 - 70.13) Potential Years of Life Lost** Never Smoked 37.23 (20.58 - 67.37) 29.01 (18.02 - 46.69) 28.92 (20.54 - 40.72) 39.33 (31.02 - 49.88) Potential Years of Life Lost** Never Smoked 37.23 (20.7 - 4.04) 1.92 (0.09 - 41.1) 1.92 (1.09 - 3.29) 1.40 (0.88 - 2.23) Port 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (1.09 - 3.29) 1.40 (0.88 - 2.23) Potal Mortality Rates* Relative Rate 1.68 (0.70 - 4.04) 1.92 (1.09 - 3.29) 1.57 (-6.52 - 37.96) Potal Mortality Rates* Never Smoked 8.12 (6.43 - 10.25) 26.61 (4.16 - 49.07) 1.57 (-6.52 - 37.96) Potal Mortality Rates* Never Smoked 5.01 (3.27 - 7.08) 28.83 (7.10 - 1.098) 29.53 (8.14 - 1.161) Potal Mortality Rates* N	Premature Mortality Rates**	Never Smoked	2.78 (1.61 - 4.80)	2.19 (1.37 - 3.49)	2.14 (1.53 - 3.00)	2.94 (2.32 - 3.73)
Rate Difference 1.93 (-0.68 - 4.55) 2.47 (0.26 - 4.63) 2.44 (0.77 - 4.11) 1.59 (-0.08 - 3.25) Potential Vears of Life Lost** Ever Smoked 62.73 (45.04 - 87.37) 55.67 (40.85 - 75.87) 55.53 (43.73 - 70.52) 55.56 (43.22 - 7013) Potential Vears of Life Lost** Never Smoked 8.27.3 (0.70 - 4.04) 1.92 (0.90 - 4.11) 1.92 (1.09 - 3.39) 1.40 (0.88 - 2.23) Port 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 4.11) 1.92 (1.09 - 3.39) 1.40 (0.88 - 2.23) Port 1,000 person-years Relative Rate 25.50 (-12.33 - 63.32) 26.67 (-2.79 - 56.13) 25.61 (4.16 - 49.07) 1.40 (0.88 - 2.23) Port 1,000 person-years Ever Smoked 8.12 (6.43 - 10.25) 8.83 (7.10 - 10.98) 9.51 (4.16 - 49.07) 1.57 (-5.2 - 37.96) Port 1,000 person-years Ever Smoked 5.01 (3.27 - 7.68) 8.83 (7.10 - 10.98) 9.51 (4.16 - 49.07) 1.40 (0.88 - 2.2) Potel 1,000 person-years Ever Smoked 5.01 (3.27 - 7.68) 1.80 (1.13 - 2.89) 1.40 (1.13 - 7.78) Potel 1,000 person-years Ever Smoked 5.01 (3.27 - 7.03) 9.51 (4.16 - 49.07) 9.50 (8.44 - 11.61)	per 1,000 person-years	Relative Rate	1.70 (0.76 - 3.78)	2.13 (1.03 - 4.38)	2.14 (1.24 - 3.68)	1.54 (0.98 - 2.41)
Potential Vears of Life Lost** Ever Smoked 62.73 (45.04 - 87.37) 55.67 (40.85 - 75.87) 55.53 (43.73 - 70.52) 55.53 (43.22 - 70.13) Potential Vears of Life Lost** Never Smoked 37.23 (20.58 - 67.37) 2901 (18.02 - 46.69) 28.92 (20.54 - 40.72) 55.53 (43.22 - 70.13) Potential Vears of Life Lost** Never Smoked 37.23 (20.58 - 67.37) 2901 (18.02 - 46.69) 28.92 (20.54 - 40.72) 39.33 (31.02 - 49.88) Potential Vears Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 4.11) 1.92 (1.09 - 3.39) 1.40 (0.88 - 2.23) Potal Mortality Rates* Rete Difference 8.12 (6.43 - 10.25) 8.83 (7.10 - 10.98) 9.53 (8.01 - 11.35) 9.90 (8.44 - 11.61) Total Mortality Rates* Never Smoked 5.01 (3.27 - 7.68) 4.90 (3.74 - 6.41) 5.12 (4.14 - 6.32) 6.67 (5.71 - 7.78) Added 12, 000 person-years Relative Rate 1.162 (0.87 - 3.01) 1.80 (1.13 - 2.67) 3.23 (0.73 - 5.73) Added 12, except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) 3.23 (0.73 - 2.70) 3.23 (0.73 - 5.73) 3.23 (0.73 - 5.73)		Rate Difference	1.93 (-0.68 - 4.55)	2.47 (0.26 - 4.68)	2.44 (0.77 - 4.11)	1.59 (-0.08 - 3.25)
Potential Vears of Life Lost** Never Smoked 37.23 (20.58 - 67.37) 29.01 (18.02 - 46.69) 28.92 (20.54 - 40.72) 39.33 (31.02 - 49.88) per 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 411) 1.92 (1.09 - 3.39) 1.40 (0.88 - 2.23) per 1,000 person-years Relative Rate 25.50 (-12.33 - 6.3.32) 26.67 (-2.79 - 56.13) 26.61 (4.16 - 49.07) 15.72 (-6.52 - 37.96) Potentialty Rates* Never Smoked 8.12 (6.43 - 10.25) 8.83 (7.10 - 10.98) 9.53 (8.01 - 11.35) 9.90 (8.44 - 11.61) Potal Mortality Rates* Never Smoked 5.01 (3.27 - 7.68) 4.90 (3.74 - 6.41) 5.12 (4.14 - 6.32) 6.67 (5.71 - 7.78) Pot 1,000 person-years Relative Rate 1.162 (0.87 - 3.01) 1.80 (1.13 - 2.67) 1.48 (1.10 - 2.00) Aged 12 + except MHHS (aged 17-76), CCHS Healthy Aging (aged 45 +) 3.33 (0.79 - 7.07) 4.41 (1.81 - 7.02) 3.23 (0.73 - 5.73)		Ever Smoked	62.73 (45.04 - 87.37)	55.67 (40.85 - 75.87)	55.53 (43.73 - 70.52)	55.05 (43.22 - 70.13)
per 1,000 person-years Relative Rate 1.68 (0.70 - 4.04) 1.92 (0.90 - 4.11) 1.92 (1.09 - 3.39) 1.40 (0.88 - 2.23) Rate Difference 25.50 (-12.33 - 63.32) 26.67 (-2.79 - 56.13) 26.61 (4.16 - 49.07) 15.72 (-6.52 - 37.96) Rate Difference 25.50 (-12.33 - 63.32) 26.67 (-2.79 - 56.13) 26.61 (4.16 - 49.07) 15.72 (-6.52 - 37.96) Poral Mortality Rates* Ever Smoked 8.12 (6.43 - 10.25) 8.83 (7.10 - 10.98) 9.53 (8.01 - 11.35) 9.90 (8.44 - 11.61) Poral Mortality Rates* Never Smoked 5.01 (3.27 - 7.68) 4.90 (3.74 - 6.41) 5.12 (4.14 - 6.32) 9.667 (5.71 - 7.78) Por 1,000 person-years Relative Rate 1.62 (0.87 - 3.01) 1.80 (1.13 - 2.88) 1.86 (1.30 - 2.67) 1.48 (1.10 - 2.00) Aged 12 + except MHHS (aged 17-76), CCHS Healthy Aging (aged 45 +) 3.33 (0.79 - 7.07) 4.41 (1.81 - 7.02) 3.23 (0.73 - 5.73)	Potential Years of Life Lost**	Never Smoked	37.23 (20.58 - 67.37)	29.01 (18.02 - 46.69)	28.92 (20.54 - 40.72)	39.33 (31.02 - 49.88)
Rate Difference 25.50 (-12.33 - 63.32) 26.67 (-2.79 - 56.13) 26.61 (4.16 - 49.07) 15.72 (-6.52 - 37.96) Rate Difference 25.50 (-12.33 - 63.32) 26.67 (-2.79 - 56.13) 26.61 (4.16 - 49.07) 15.72 (-6.52 - 37.96) For Smoked 8.12 (6.43 - 10.25) 8.83 (7.10 - 10.98) 9.53 (8.01 - 11.35) 9.90 (8.44 - 11.61) Portal Mortality Rates* Never Smoked 5.01 (3.27 - 7.68) 4.90 (3.74 - 6.41) 5.12 (4.14 - 6.32) 6.67 (5.71 - 7.78) Port 1,000 person-years Relative Rate 1.62 (0.87 - 3.01) 1.80 (1.13 - 2.89) 1.86 (1.30 - 2.67) 1.48 (1.10 - 2.00) Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) 3.33 (0.79 - 7.07) 3.31 (1.81 - 7.02) 3.23 (0.73 - 5.73)	per 1,000 person-years	Relative Rate	1.68 (0.70 - 4.04)	1.92 (0.90 - 4.11)	1.92 (1.09 - 3.39)	1.40 (0.88 - 2.23)
Total Mortality Rates* Ever Smoked 8.12 (6.43 - 10.25) 8.83 (7.10 - 10.98) 9.53 (8.01 - 11.35) 9.99 (8.44 - 11.61) Total Mortality Rates* Never Smoked 5.01 (3.27 - 7.68) 4.90 (3.74 - 6.41) 5.12 (4.14 - 6.32) 6.67 (5.71 - 7.78) Per 1,000 person-years Relative Rate 1.62 (0.87 - 3.01) 1.80 (1.13 - 2.88) 1.86 (1.30 - 2.67) 1.48 (1.10 - 2.00) *Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) 3.93 (0.79 - 7.07) 3.93 (0.79 - 7.07) 4.41 (1.81 - 7.02) 3.23 (0.73 - 5.73)		Rate Difference	25.50 (-12.33 - 63.32)	26.67 (-2.79 - 56.13)	26.61 (4.16 - 49.07)	15.72 (-6.52 - 37.96)
Total Mortality Rates* Never Smoked 5.01 (3.27 - 7.68) 4.90 (3.74 - 6.41) 5.12 (4.14 - 6.32) 6.67 (5.71 - 7.78) Per 1,000 person-years Relative Rate 1.62 (0.87 - 3.01) 1.80 (1.13 - 2.88) 1.86 (1.30 - 2.67) 1.48 (1.10 - 2.00) Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) 3.393 (0.79 - 7.07) 3.93 (0.79 - 7.07) 4.41 (1.81 - 7.02) 3.23 (0.73 - 5.73)		Ever Smoked	8.12 (6.43 - 10.25)	8.83 (7.10 - 10.98)	9.53 (8.01 - 11.35)	9.90 (8.44 - 11.61)
per 1,000 person-years Relative Rate 1.62 (0.87 - 3.01) 1.80 (1.13 - 2.88) 1.86 (1.30 - 2.67) 1.48 (1.10 - 2.00) Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) 3.93 (0.79 - 7.07) 4.41 (1.81 - 7.02) 3.23 (0.73 - 5.73)	Total Mortality Rates*	Never Smoked	5.01 (3.27 - 7.68)	4.90 (3.74 - 6.41)	5.12 (4.14 - 6.32)	6.67 (5.71 - 7.78)
Rate Difference 3.11 (-0.60 - 6.82) 3.93 (0.79 - 7.07) 4.41 (1.81 - 7.02) 3.23 (0.73 - 5.73) Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) ** Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) ** Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) ** Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) ** Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) ** Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)	per 1,000 person-years	Relative Rate	1.62 (0.87 - 3.01)	1.80 (1.13 - 2.88)	1.86 (1.30 - 2.67)	1.48 (1.10 - 2.00)
Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)		Rate Difference	3.11 (-0.60 - 6.82)	3.93 (0.79 - 7.07)	4.41 (1.81 - 7.02)	3.23 (0.73 - 5.73)
**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)	*Aged 12+ except MHHS (aged	17-76), CCHS Health	y Aging (aged 45+)			
	**Aged 12-74 except MHHS (agu	ed 17-74), CCHS Hea	lthy Aging (aged 45-74)			

Values in **bold** type indicate statistically significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

Mortality Outcomes Summary Tables

Figure 6.1: Estimated-Population-Based Annualized Rates of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey

Survey weighted, age-, sex-, RHA- & SES-adjusted; 95% Confidence Intervals







Potential Years of Life Lost, per 1,000 person-years**





		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	4.60 (3.14 - 6.74)	4.32 (3.25 - 5.73)	4.49 (3.67 - 5.48)	4.30 (3.49 - 5.30)
Premature Mortality Rates**	Never Smoked	2.62 (1.40 - 4.88)	2.16 (1.39 - 3.38)	1.94 (1.34 - 2.81)	2.67 (2.03 - 3.52)
per 1,000 person-years	Relative Rate	1.76 (0.66 - 4.70)	1.99 (0.97 - 4.09)	2.31 (1.31 - 4.06)	1.61 (1.00 - 2.60)
	Rate Difference	1.98 (-1.11 - 5.07)	2.15 (0.06 - 4.25)	2.54 (0.97 - 4.11)	1.63 (0.04 - 3.22)
	Ever Smoked	66.42 (42.78 - 103.13)	55.39 (39.94 - 76.81)	58.54 (46.12 - 74.30)	58.15 (45.32 - 74.62)
Potential Years of Life Lost**	Never Smoked	39.46 (19.45 - 80.05)	30.61 (19.03 - 49.23)	28.55 (19.04 - 42.82)	39.38 (29.11 - 53.27)
per 1,000 person-years	Relative Rate	1.68 (0.55 - 5.16)	1.81 (0.82 - 3.99)	2.05 (1.08 - 3.88)	1.48 (0.86 - 2.55)
	Rate Difference	26.96 (-24.50 - 78.42)	24.78 (-6.26 - 55.83)	29.98 (5.31 - 54.65)	18.78 (-7.00 - 44.55)
	Ever Smoked	6.89 (5.21 - 9.09)	7.64 (6.18 - 9.45)	8.41 (7.22 - 9.80)	8.78 (7.58 - 10.18)
Total Mortality Rates*	Never Smoked	4.23 (2.66 - 6.71)	4.41 (3.30 - 5.89)	4.29 (3.37 - 5.47)	5.73 (4.76 - 6.89)
per 1,000 person-years	Relative Rate	1.63 (0.79 - 3.37)	1.73 (1.06 - 2.84)	1.96 (1.33 - 2.90)	1.53 (1.10 - 2.13)
	Rate Difference	2.66 (-1.01 - 6.33)	3.23 (0.40 - 6.06)	4.12 (1.84 - 6.39)	3.06 (0.74 - 5.37)
*Aged 12+ except MHHS (aged	17-76). CCHS Health	v Aaina (aaed 45+)			

Table 6.2: Matched Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Matched Analysis

Figure 6.2: Matched Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey

Survey weighted, age-, sex-, RHA- & SES-adjusted; 95% Confidence Intervals





**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime. *Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)



REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFE

Survey weighted, age	:-, sex- & propensity s	score-adjusted; 95% Confidence In	tervals		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	4.83 (3.21 - 7.27)	4.57 (3.54 - 5.90)	4.04 (3.15 - 5.19)	3.82 (3.12 - 4.66)
Premature Mortality Rates**	Never Smoked	2.98 (1.50 - 5.93)	2.14 (1.41 - 3.25)	2.44 (1.80 - 3.32)	3.01 (2.45 - 3.68)
per 1,000 person-years	Relative Rate	1.62 (0.60 - 4.39)	2.13 (1.17 - 3.89)	1.66 (0.99 - 2.76)	1.27 (0.87 - 1.85)
	Rate Difference	1.85 (-1.48 - 5.17)	2.42 (0.59 - 4.26)	1.60 (-0.02 - 3.23)	0.81 (-0.48 - 2.10)
	Ever Smoked	62.58 (38.71 - 101.18)	56.61 (42.55 - 75.32)	51.34 (39.61 - 66.54)	50.56 (41.02 - 62.33)
Potential Years of Life Lost**	Never Smoked	45.54 (21.49 - 96.49)	26.20 (16.43 - 41.77)	31.33 (22.59 - 43.46)	37.83 (30.64 - 46.70)
per 1,000 person-years	Relative Rate	1.37 (0.46 - 4.08)	2.16 (1.09 - 4.29)	1.64 (0.95 - 2.82)	1.34 (0.91 - 1.97)
	Rate Difference	17.05 (-37.10 - 71.19)	30.41 (4.98 - 55.85)	20.00 (-1.76 - 41.77)	12.73 (-4.46 - 29.93)
	Ever Smoked	8.32 (6.05 - 11.42)	10.38 (8.15 - 13.22)	9.89 (7.96 - 12.29)	9.81 (8.29 - 11.60)
Total Mortality Rates*	Never Smoked	4.54 (2.91 - 7.08)	4.86 (3.46 - 6.84)	5.69 (4.47 - 7.24)	6.89 (5.89 - 8.06)
per 1,000 person-years	Relative Rate	1.83 (0.94 - 3.56)	2.13 (1.32 - 3.44)	1.74 (1.18 - 2.57)	1.42 (1.07 - 1.89)

Table 6.3: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER

2.91 (0.48 - 5.34)

4.19 (1.16 - 7.23)

5.51 (2.15 - 8.88)

3.77 (-0.30 - 7.85)

Rate Difference

Generalized-Propensity-Score Analysis

Figure 6.3: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey



Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime. 10 **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) *Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) ഹ Years After Survey ω . 0

Ever Smoked
 Never Smoked

4 0



TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPL

Years After Survey

Life expectancy at Age 50

To estimate the impact of smoking on life expectancy, we followed a "proportional life expectancy" approach, which uses time-to-event statistical modeling to estimate age- and sex-specific mortality rates (Strauss, Vachon, & Shavelle, 2005). These rates were applied in the life-table method to compute life expectancy.

In the estimated-population-based analysis, men who never smoked had a life expectancy of 80.56 years; men who had ever smoked had an average life expectancy of 79.16 years. This difference in observed life expectancy was statistically significant. Women who never smoked had a life expectancy of 84.22 years, whereas women who had ever smoked had an average life expectancy of 82.86 years. Again, this difference was statistically significant.

In the matched analysis, men who ever smoked had a life expectancy of 78.66 years; and men who never smoked, 80.35 years. Women who ever smoked had a life expectancy of 82.50 years and women who never smoked, 84.08 years. Both differences were statistically significant.

Finally, in the propensity-score-adjusted analysis, men who ever smoked had an average life expectancy of 79.64 years while men who never smoked had a life expectancy of 80.53 years. Women who smoked had an average life expectancy of 83.29 years and women who never smoked had a life expectancy of 84.16 years.

Life Expectancy Summary Tables

Estimated-Population-Based Analysis

Table 6.4:	: Estimated-Popula Survey weighted & adju	<pre>tion-Based Life Expectancy* stedt; 95% Confidence Intervals</pre>	* at age 50 for Ever Smoked a	nd Never Smoked by Number	of Years After Survey
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
- M	Ever Smoked	80.04 (79.96 - 80.13)	80.08 (79.99 - 80.17)	80.10 (80.01 - 80.18)	79.16 (79.07 - 79.25)
INIAIES	Never Smoked	81.45 (81.33 - 81.57)	81.14 (81.02 - 81.25)	81.12 (81.01 - 81.23)	80.56 (80.45 - 80.68)
	Ever Smoked	83.70 (83.61 - 83.78)	83.81 (83.72 - 83.89)	83.78 (83.69 - 83.87)	82.86 (82.77 - 82.96)
remale	Never Smoked	85.06 (84.93 - 85.18)	84.80 (84.68 - 84.91)	84.76 (84.64 - 84.87)	84.22 (84.10 - 84.33)
*Life expe	sctancy calculations ba	ised on a combined life table/semi	i-parametric approach; mortality rat	tes estimated using proportional ha	azards regression.
+Covariate	se included in the nror	ortional bazards regression mode	Mara and Sev DHA and SES		

covariates included in the proportional nazards regression model were age, sex, KHA and SES.

Values in **bold** type indicate statistically significantly different values from Never Smoked.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Figure 6.4: Estimated-Population-Based Life Expectancy* at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted & adjusted1; 95% Confidence Intervals



+Covariates included in the proportional hazards regression model were age, sex, RHA and SES.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Hales Ever Smoked 78.36 (78.57 - 78.45) 79.32 (79.23 - 79.41) 79.44 (79.35 - 79.53) 78.66 (78.57 - 78.75) Males Never Smoked 80.93 (80.80 - 81.06) 80.87 (80.75 - 80.98) 80.86 (80.75 - 80.98) 80.35 (80.24 - 80.47) Females Ever Smoked 80.32 (82.23 - 82.41) 83.21 (83.18 - 83.36) 83.31 (83.22 - 83.40) 82.50 (82.40 - 82.59) *Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. *46.60 (84.53 - 84.79) 84.60 (84.48 - 84.71) 84.08 (83.96 - 84.20) *Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. *46.60 (84.48 - 84.71) 84.60 (84.38 - 84.20) 84.60 (84.38 - 84.70) 84.60 (84.38 - 84.70) 84.60 (84.38 - 84.70) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.71) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.70) 84.60 (84.68 - 84.70) 84.60			1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
Mates Noter Smoked 80.93 (80.80 - 81.06) 80.87 (80.75 - 80.98) 80.86 (80.75 - 80.98) 80.35 (80.24 - 80.47) Females Ever Smoked 82.32 (82.23 - 82.41) 83.27 (83.18 - 83.36) 83.31 (83.22 - 83.40) 82.50 (82.40 - 82.59) Females Never Smoked 84.66 (84.53 - 84.79) 84.64 (84.52 - 84.75) 84.60 (84.48 - 84.71) 84.08 (83.96 - 84.20) *Life expertancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. *Covariates included in the proportional hazards regression model were age and sex. Yalues in bold type indicate statistically significantly different values from Never Smoked.		Ever Smoked	78.36 (78.27 - 78.45)	79.32 (79.23 - 79.41)	79.44 (79.35 - 79.53)	78.66 (78.57 - 78.75)
Females Ever Smoked 82.32 (82.23 - 82.41) 83.27 (83.18 - 83.36) 83.31 (83.22 - 83.40) 82.50 (82.40 - 82.59) Never Smoked 84.66 (84.53 - 84.79) 84.64 (84.52 - 84.75) 84.60 (84.48 - 84.71) 84.08 (83.96 - 84.20) *Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. *Covariates included in the proportional hazards regression model were age and sex. Values in bold type indicate statistically significantly different values from Never Smoked.	Males	Never Smoked	80.93 (80.80 - 81.06)	80.87 (80.75 - 80.98)	80.86 (80.75 - 80.98)	80.35 (80.24 - 80.47)
Termane Never Smoked 84.66 (84.53 - 84.79) 84.64 (84.52 - 84.75) 84.60 (84.48 - 84.71) 84.08 (83.96 - 84.20) *Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. *Covariates included in the proportional hazards regression model were age and sex. Values in bold type indicate statistically significantly different values from Never Smoked.		Ever Smoked	82.32 (82.23 - 82.41)	83.27 (83.18 - 83.36)	83.31 (83.22 - 83.40)	82.50 (82.40 - 82.59)
*Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. +Covariates included in the proportional hazards regression model were age and sex. Values in bold type indicate statistically significantly different values from Never Smoked.	remales	Never Smoked	84.66 (84.53 - 84.79)	84.64 (84.52 - 84.75)	84.60 (84.48 - 84.71)	84.08 (83.96 - 84.20)
+Covariates included in the proportional hazards regression model were age and sex. Values in bold type indicate statistically significantly different values from Never Smoked.	*Life expe	ctancy calculations b	ased on a combined life table/semi	i-parametric approach; mortality ra	tes estimated using proportional ha	azards regression.
Values in bold type indicate statistically significantly different values from Never Smoked.	+Covariate	s included in the pro	portional hazards regression model	el were age and sex.		
	Values in I	bold type indicate sta	atistically significantly different valu	les from Never Smoked.		

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CHALLENGE REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T Figure 6.5: Matched Life Expectancy* at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted & adjusted 1; 95% Confidence Intervals



*Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. +Covariates included in the proportional hazards regression model were age and sex.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
Malac	Ever Smoked	79.91 (79.82 - 80.00)	80.22 (80.13 - 80.31)	80.35 (80.26 - 80.44)	79.64 (79.55 - 79.73)
INIAIES	Never Smoked	81.05 (80.94 - 81.17)	80.99 (80.88 - 81.09)	81.01 (80.91 - 81.12)	80.53 (80.42 - 80.64)
- Colomo	Ever Smoked	83.61 (83.52 - 83.69)	83.90 (83.81 - 83.99)	83.98 (83.89 - 84.07)	83.29 (83.19 - 83.38)
Lemales	Never Smoked	84.70 (84.58 - 84.81)	84.63 (84.52 - 84.74)	84.63 (84.52 - 84.73)	84.16 (84.05 - 84.27)
*Life expe	ectancy calculations be	ased on a combined life table/semi	i-parametric approach; mortality rat	tes estimated using proportional ha	azards regression.
	•				

Table 6.6: Propensity-Score Life Expectancy* at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey

+Covariates included in the proportional hazards regression model were age, sex & propensity-score.

Values in **bold** type indicate statistically significantly different values from Never Smoked.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CHALLENGER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONFFR CREATOR FXPI ORFR DEFENDER T

Figure 6.6: Propensity-Score Life Expectancy* at age 50 for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted & adjusted +; 95% Confidence Intervals



*Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression. \pm Covariates included in the proportional hazards regression model were age, sex & propensity-score.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Thus, in all three analyses, there is less than two years' difference between smokers and non-smokers 10 years post-survey, for both men and women. The estimated-population-based analysis shows a difference of 1.40 years for men and 1.36 years for women; the matched analysis shows a difference of 1.69 years for men and 1.58 years for women; and the most conservative estimate from the propensity score analysis is 0.89 years for men and 0.87 years for men. The reality is that smokers have a comparable average lifespan, and thus incur healthcare costs for almost as many years as non-smokers.

Cancer Types

Cancer is a broad category of 200 or more diseases, all connected by one unifying feature: cells are growing outside of the body's usual "cell growth control" mechanisms. Some cancers are associated with smoking, such as lung and various head and neck malignancies, while many others have little or no relationship to smoking (Parkin, Boyd, & Walker, 2011). Furthermore, most cancers have a long latency period between initial exposure to a carcinogen and onset of clinically-detectable disease—as much as 10–15 years or even more. For that reason, it was important for us to describe the relationship between smoking and cancer using 10 years of post-survey data; using only one, three, or five years of observation data would not provide a sufficient latency period between smoking and onset of clinically detectable cancer. Using 10 years of observation data allowed us to consider the strongest biologically plausible interval between smoking exposure and **cancer incidence**.

Lung Cancer

We first examined the association between smoking and lung cancer. Previous research suggests that 80–90% of all incidence is attributable to past smoking status (Agudo et al., 2012; U.S.Department of Health and Human Services, 2004).

The estimated-population-based analysis showed that the relative risk for developing lung cancer was significantly elevated for respondents who ever smoked compared with those who never smoked, at all points beyond the first year post-survey, with a seven-fold increase at the 10-year point (RR=7.17, 95% CI 2.77–18.55). (Given what is known about latency, the first year post-survey is not biologically relevant anyway.) Similarly, the matched analysis found significantly elevated risks (RR=9.16, 95% CI 3.24–25.89). Propensity-score analysis further confirmed the elevated risk for respondents who ever smoked (RR=9.97, 95% CI 4.20–23.67), underscoring the significance of smoking in lung cancer risk even when controlling for many of other factors. Figures 6.7-6.9 clearly illustrate the strong pattern of higher rates of lung cancer in respondents who smoked.

The analysis of rate differences served to further quantify the dramatic effect of smoking on **lung cancer incidence**. In the estimated-population-based analysis, at 10 years after the survey there were 150.97 incidents of lung cancer per 100,000 person-years⁶ among those who ever smoked, compared with only 21.06 incidents per 100,000 for those who never smoked (RD 129.91 per 100,000 person-years). A very similar magnitude of effect was seen in the matched analysis; the lung cancer rates among respondents who ever smoked was 145.52 per 100,000 person-years, compared to only 15.88 per 100,000 person-years for those who never smoked (RD 129.63 per 100,000 person-years). Even with the propensity-score analysis, which controls for many more confounding variables, strikingly similar results were found: among those who ever smoked, lung cancer incidence was 168.44 per 100,000, while among those who never smoked it was 16.90 (RD 151.54 per 100,000 person-years).

We next turned our attention to estimating the excess number of incident cases of lung cancer that result from smoking, each year. After adjusting for age, sex, RHA, and SES, the estimated-population-based analysis suggested that 561.17 incident cases of lung cancer occur each year because of smoking (95% CI 422.48–827.90). As a point of reference, in 2011, CancerCare Manitoba reported 869 incident cases of lung cancer (Department of Epidemiology and Cancer Registry, 2011). This point estimate appears low. However, we remind the reader that point estimates of rare events have a lot of variation; this is reflected by the wide 95% confidence interval.

6 Note that we have used the standard cancer statistics reporting convention of "per 100,000".

Strongly Smoking-Associated Cancers

The analysis focusing on lung cancer demonstrated strong associations consistent with the literature. We next explored the relationship between smoking and other cancers strongly attributable to tobacco use: lung cancer plus those found in the oral cavity/pharynx, esophagus, and larynx.

We combined the incidence of these cancers in a further analysis to investigate the patterns among the dichotomous smoking groups ("ever smoked" vs. "never smoked"). The trends seen with lung cancer persisted. This is not surprising given that lung cancer accounted for more than 70% of these cancers.

The estimated-population-based analysis showed a significant increase in the strongly smoking-associated cancers, with a six-fold increase in the risk for developing these cancers for people who ever smoked (RR=6.23, 95% CI 2.60–14.95). The matched analysis found similarly, significantly elevated risks at 10 years (RR=6.74, 95% CI 2.73-16.65). Propensity-score analysis showed an even greater risk at the 10-year interval for people who ever smoked (RR=10.30, 95% CI 4.54-23.37). Figures 6.7-6.9 show the strong pattern of persistently higher rates of this subset of smoking-related cancers in those who ever smoked compared to those who never smoked.

The analysis of rate differences reinforced the association of smoking with these cancers. In the estimated-population-based analysis using 10 years of post-survey data, there were 158.93 incidents of strongly smoking-associated cancer per 100,000 person-years among those who ever smoked, compared with only 25.52 per 100,000 for those who never smoked (RD 133.41 per 100,000 person-years). A similar effect was seen in the matched analysis: rates of the smoking-related subset of cancers among people who ever smoked were 147.24 per 100,000 person-years at 10 years post-survey, compared to only 21.83 per 100,000 person-years for people who never smoked (RD 125.41 per 100,000 person-years). Finally, the propensity-score analysis produced similar findings: among people who ever smoked the strongly smoking-associated cancer incidence was 187.51 per 100,000 person-years, while among people who never smoked it was 18.20 per 100,000 (RD 169.31 per 100,000).

We next used our models to estimate the excess number of incident cases of strongly smoking-associated cancers. The estimated-population-based analysis, which was adjusted for age, sex, RHA, and SES, suggested 579.27 incident cases of cancer result from smoking each year (95% CI 430.89–868.16).

All Cancers

Finally, we examined the relationship between smoking and incident cases of any cancer. The estimated-population-based analysis of dichotomous smoking groups shows no significant elevation in risk at any time point, even when considering the strongest biologically plausible interval at 10 years post-survey (RR=1.12, 95% CI 0.84–1.50). Similar results were seen in the matched analysis, with no significant increase even at the longest latency period (RR=1.17, 95% CI 0.87-1.57). The propensity-score analysis further attenuated the difference (at 10 years, RR=1.03, 95% CI 0.75-1.40). Figures 6.7-6.9 illustrate the similar "all cancer" experience for the dichotomous smoking groups, as their rates are not statistically significantly different.

The analysis of rate differences provided further evidence of little difference in 'all cancer' rates, regardless of the post-survey window used. In the estimated-population-based analysis, among those who ever smoked there were 646.5 incident cases of cancer per 100,000 person-years at 10 years post-survey, vs. 575.02 per 100,000 for those who never smoked. The rate difference of 71.49 per 100,000 person-years is not statistically significant. The matched analysis produced very similar results; respondents who ever smoked had 618.12 incidents of cancer per 100,000 person-years at 10 years post-survey, compared to 527.92 per 100,000 person-years for those who never smoked. The rate difference of 90.21 per 100,000 person-years was not significant. Propensity-score analyses showed the lowest rate difference, with cancer incidence among respondents who ever smoked at 623.80 per 100,000 person-years and 606.93 among those who never smoked. The rate difference of 16.87 per 100,000 person-years was not significant.

The analysis of "all cancers" produced the most conservative estimates of smoking's effect on cancer incidence, showing no statistically significant difference between the "ever smoked" and "never smoked" groups. However, it must be remembered that the majority of cancers have little or no known biological association with smoking. Thus, these non-significant findings are not surprising.

Our approach demonstrates the need to consider those strongly smoking-associated cancers, and not just "all cancers," in order to produce results that are biologically plausible, and reflect disease mechanisms and underlying latency periods.

istimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and	Vever Smoked by Number of Years After Survey	urvey weighted, age-, sex-, RHA- & SES-adjusted; 95% Confidence Intervals
Table 6.7: Estimated-F	Never Smok	Survey weighte

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	516.17 (382.43 - 696.69)	510.21 (425.04 - 612.45)	590.50 (462.95 - 753.20)	646.50 (522.88 - 799.35)
Cancer Incidence Rates*	Never Smoked	681.59 (476.21 - 975.56)	616.32 (505.90 - 750.83)	571.66 (487.36 - 670.55)	575.02 (510.38 - 647.85)
per 100,000 person-years	Relative Rate	0.76 (0.41 - 1.39)	0.83 (0.58 - 1.18)	1.03 (0.72 - 1.48)	1.12 (0.84 - 1.50)
	Rate Difference	-165.43 (-543.52 - 212.66)	-106.11 (-308.27 - 96.06)	18.84 (-195.98 - 233.66)	71.49 (-115.15 - 258.12)
	Ever Smoked	174.44 (143.74 - 211.69)	159.05 (142.39 - 177.67)	147.10 (126.49 - 171.05)	150.97 (134.92 - 168.93)
Lung Cancer Incidence Rates*	Never Smoked	31.41 (2.76 - 357.34)	27.02 (6.20 - 117.82)	25.64 (7.95 - 82.63)	21.06 (8.79 - 50.47)
per 100,000 person-years	Relative Rate	5.55 (0.43 - 71.88)	5.89 (1.25 - 27.74)	5.74 (1.60 - 20.60)	7.17 (2.77 - 18.55)
	Rate Difference	143.03 (72.21 - 213.85)	132.03 (91.44 - 172.62)	121.46 (79.26 - 163.66)	129.91 (100.13 - 159.70)
Strongly Smoking	Ever Smoked	180.59 (149.93 - 217.51)	167.24 (150.58 - 185.74)	156.11 (133.36 - 182.74)	158.93 (141.38 - 178.66)
Associated** Cancers	Never Smoked	32.16 (2.83 - 365.96)	26.92 (6.26 - 115.77)	28.75 (9.27 - 89.13)	25.52 (11.59 - 56.16)
Incidence Rates*	Relative Rate	5.61 (0.44 - 72.33)	6.21 (1.35 - 28.69)	5.43 (1.56 - 18.90)	6.23 (2.60 - 14.95)
per 100,000 person-years	Rate Difference	148.42 (77.06 - 219.78)	140.32 (100.15 - 180.49)	127.36 (80.62 - 174.10)	133.41 (99.71 - 167.11)
*Aged 12+ except MHHS (aged	17-76), CCHS Healthy	/ Aging (aged 45+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

Estimat S Figure 6.7: Estimated-Population-Based Annualized Rates of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted, age-, sex-, RHA- & SES-adjusted; 95% Confidence Intervals









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Years After Survey

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Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime. ±5trongly smoking associated cancers are lung and bronchus, oropharynx, esophasus and larynx cancers.

Ever Smoked and Never Smoked		
ched Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for	Jumber of Years After Survey	y weighted, age- & sex-adjusted, matched on age, sex, RHA & income quintile; 95% Confidence Intervals
Fable 6.8: Ma	ру	Surv

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	534.43 (383.76 - 744.26)	509.53 (425.54 - 610.10)	580.82 (481.83 - 700.15)	618.12 (527.69 - 724.06)
Cancer Incidence Rates*	Never Smoked	606.50 (432.05 - 851.37)	553.18 (472.69 - 647.38)	513.53 (433.86 - 607.83)	527.92 (459.19 - 606.93)
per 100,000 person-years	Relative Rate	0.88 (0.46 - 1.70)	0.92 (0.66 - 1.28)	1.13 (0.80 - 1.61)	1.17 (0.87 - 1.57)
	Rate Difference	-72.06 (-439.54 - 295.42)	-43.65 (-220.57 - 133.27)	67.29 (-125.57 - 260.16)	90.21 (-79.18 - 259.60)
	Ever Smoked	212.23 (188.48 - 238.97)	164.93 (149.78 - 181.61)	137.86 (118.80 - 159.97)	145.52 (132.11 - 160.28)
Lung Cancer Incidence Rates*	Never Smoked	S	14.66 (4.77 - 45.06)	19.76 (6.07 - 64.32)	15.88 (6.11 - 41.30)
per 100,000 person-years	Relative Rate	S	11.25 (3.39 - 37.37)	6.97 (1.88 - 25.82)	9.16 (3.24 - 25.89)
	Rate Difference	S	150.26 (118.39 - 182.13)	118.09 (78.66 - 157.52)	129.63 (102.89 - 156.38)
Strongly Smoking	Ever Smoked	221.83 (197.25 - 249.48)	172.32 (157.05 - 189.07)	143.71 (122.87 - 168.09)	147.24 (132.03 - 164.20)
Associated** Cancers	Never Smoked	S	14.89 (4.86 - 45.59)	23.88 (8.56 - 66.60)	21.83 (9.76 - 48.82)
Incidence Rates*	Relative Rate	S	11.57 (3.51 - 38.17)	6.02 (1.87 - 19.33)	6.74 (2.73 - 16.65)
per 100,000 person-years	Rate Difference	S	157.43 (125.28 - 189.58)	119.83 (76.28 - 163.38)	125.41 (94.75 - 156.06)
*Aged 12+ except MHHS (aged	17-76). CCHS Health	/ Aaina (aaed 45+)			

*Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values.

s indicates data suppressed due to small numbers.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

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Matched Based Analysis

Figure 6.8: Matched Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey









*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

f Values should be interpreted with caution due to small numbers of events and large standard errors.

±5trongly smoking associated cancers are lung and bronchus, oropharynx, esophasus and larynx cancers.

s indicates data suppressed due to small numbers.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

10

Years After Survey

m

-

ypes for Ever Smoked and Never Smoked	
Table 6.9: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer $\overline{\Gamma}$	by Number of Years After Survey

Survey weighted, age-, sex- & propensity score-adjusted; 95% Confidence Intervals

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	558.24 (403.72 - 771.91)	548.14 (423.95 - 708.72)	586.36 (459.01 - 749.04)	623.80 (515.46 - 754.92)
Cancer Incidence Rates*	Never Smoked	521.51 (373.67 - 727.83)	639.83 (490.10 - 835.32)	602.24 (490.51 - 739.43)	606.93 (507.38 - 726.01)
per 100,000 person-years	Relative Rate	1.07 (0.58 - 1.98)	0.86 (0.55 - 1.32)	0.97 (0.67 - 1.42)	1.03 (0.75 - 1.40)
	Rate Difference	36.73 (-292.65 - 366.11)	-91.69 (-347.83 - 164.45)	-15.89 (-241.38 - 209.61)	16.87 (-176.35 - 210.10)
	Ever Smoked	183.12 (149.23 - 224.71)	164.09 (136.53 - 197.21)	171.46 (129.76 - 226.55)	168.44 (134.33 - 211.20)
Lung Cancer Incidence Rates*	Never Smoked	9.25 (0.26 - 328.40)	4.37 (1.13 - 16.90)	13.42 (5.49 - 32.80)	16.90 (8.17 - 34.94)
per 100,000 person-years	Relative Rate	19.79 (0.51 - 773.03)	37.52 (8.73 - 161.27)	12.77 (4.39 - 37.16)	9.97 (4.20 - 23.67)
	Rate Difference	173.87 (118.96 - 228.78)	159.71 (126.35 - 193.08)	158.04 (106.64 - 209.44)	151.54 (107.90 - 195.17)
Strongly Smoking	Ever Smoked	190.78 (155.54 - 234.02)	172.20 (144.96 - 204.56)	186.86 (142.43 - 245.16)	187.51 (149.57 - 235.07)
Associated** Cancers	Never Smoked	9.68 (0.27 - 344.11)	4.01 (1.08 - 14.85)	14.28 (6.19 - 32.98)	18.20 (9.28 - 35.69)
Incidence Rates*	Relative Rate	19.71 (0.50 - 770.85)	42.92 (10.55 - 174.63)	13.08 (4.76 - 35.99)	10.30 (4.54 - 23.37)
per 100,000 person-years	Rate Difference	181.11 (124.02 - 238.20)	168.19 (135.81 - 200.56)	172.58 (118.42 - 226.75)	169.31 (121.56 - 217.06)
*Aged 12+ except MHHS (aged	17-76), CCHS Healthy	y Aging (aged 45+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

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Generalized-Propensity-Score Analysis

Figure 6.9: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey









*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

[†] Values should be interpreted with caution due to small numbers of events and large standard errors.

±Strongly smoking associated cancers are lung and bronchus, oropharynx, esophasus and larynx cancers.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Comparative Studies

Mortality comparisons

A systematic review and meta-analysis of all-cause mortality associated with smoking was completed by Gellert et al. (2012) for people age 60 and older. The relative rate (RR), derived from a meta-analysis of 17 publications, was 1.83 (95% CI 1.65–2.03) for current smokers (compared to people who never smoked), and 1.34 (95% CI 1.28–1.40) for former smokers. These RRs were highest in the youngest age group studied, and declined with increasing age. RRs for current smokers were 1.94 (60-69, years) 1.86 (70-79 years), and 1.66 for current smokers age 80 and older. The RRs for former smokers were 1.54 for ages 60-69, 1.36 for ages 70-79, and 1.27 for ages 80 and older.

We found similar results. In our three analyses of mortality, the range of results we obtained for total mortality of those who ever smoked vs. never smoked ranged from 1.42 to 2.13 deaths per person-year, considering ages 12 and older.

Cancer incidence comparisons

In terms of cancer, we observed that the RR for lung cancer was 10-fold higher at 10 years post-survey in people who ever smoked compared to those who never smoked, and the risk for other cancers known to be associated with smoking being approximately seven-fold higher. The recent US Surgeon General's report on the health effects of smoking cites increased risk of lung and other cancers with a biologically plausible connection with tobacco (U.S. Department of Health and Human Services, 2014). A recent case-control study reviewed trends of the effect of smoking, showing risks in a recent cohort of lung cancer patients diagnosed between 2000 and 2010 to be as high as 25-fold (Thun et al., 2013). However, using prospective data more comparable to our design, a European study found hazard ratios for lung cancer to be similar to ours (~12-fold higher for smokers vs. people who never smoked). This study used a more generous definition of "tobacco-related cancers" than we did, and as a result found a modest 2.5-fold increase in these cancers for smokers vs. people who never smoked. However, a review of the risks for the distinct types of cancer indicates the range of elevated risks, in the same direction as our findings (Agudo et al., 2012). Thus, our findings are within the range of results found in the published literature.

Summary

Despite crudeness of our dichotomous smoking variable, for which "ever smoked" included people who may have been daily, heavy smokers or those who only smoked occasionally, the results are clear: there is consistently higher mortality for people who ever smoked.

Interestingly, we found that, although mortality rates were higher among those who ever smoked, PMR and PYLL were not significantly different between the groups. Moreover, the differences in life expectancy were only about a year.

Life-expectancy results correspond with PMR and PYLL results; both PMR and PYLL consider deaths before the age of 75. We found, by and large, that there was no difference in PMR rates comparing those who ever versus never smoked. This means that before the age of 75, smokers and nonsmokers do not have different mortality rates. And, these mortality rates are very small in both groups. The life expectancy results present a similar story which is that smokers are—on average—living to their late 70s, past the age of 75. We observed that the average lifespan among smokers in Manitoba was in the late 70s and early 80s for males and females, respectively. This has serious implications for the healthcare system.

We want to reiterate that our results show associations, not causation. Our observational data cannot say definitively whether smoking causes compromised health. We did take steps, however, to determine whether it was likely that the observed associations reflected underlying causal relationships. First, we adjusted for many

variables that confound the relationship between smoking and healthcare use. Second, we assessed whether our adjustment strategy made our "ever" and "never" groups comparable on observed characteristics. Finding that our two groups were comparable after propensity-score adjustment strengthens our ability to draw inferences about potential underlying causal relationships. However, it is not possible to know certainly that we have controlled for all measured and unmeasured confounding variables

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CHAPTER 7: DIFFERENCES IN HEALTHCARE-USE PATTERNS BY CATEGORICAL SMOKING STATUS

Introduction

In this chapter, we present results from analyses that compared healthcare use across five categories of smoking status. We conducted two types of analyses: an estimated-population-based approach, and a generalized-propensity-score approach. For the latter, we extended the propensity score used for the dichotomous smoking status to the five smoking status categories. We could not use a matched approach, since it was not possible to match respondents from the five categories by age, sex, RHA, and socioeconomic status (SES), due to small numbers.

We used slightly different samples for our two analyses. The sample used in the estimated-population-based analyses comprised 43,474 individuals, whereas the sample used in the propensity-score analyses used 38,279. This was because we trimmed propensity scores to reduce the influence of outliers.

In the following section we present characteristics of each sample, by categorical smoking status. Next, we present healthcare-use patterns by smoking status for the two samples.

The categories of smoking status used in these analyses are more specific than the dichotomous, "ever" vs. "never" analyses presented in chapters 5 and 6. In these analyses "never smoked" was defined as having never smoked even one cigarette.

Description of Smoking-Status Categories Used in Healthcare-Use-Pattern Analyses

Estimated-Population-Based Analyses

Table 4.6 shows the number of survey respondents from each of the NPHS and CCHS cycles. Around 1/5 to 1/4 of survey respondents in each category came from the NPHS, and the rest from various cycles of the CCHS. The respondent numbers for each category were as follows: current smoker (n=8,265); former daily smoker (five years or less before survey; n=3,459); former daily smoker (over five years before survey; n=8,509); never a daily smoker (n=6,773); never smoked (n=16,468). There were a total of 43,474 respondents.

The descriptive characteristics of these five categories are given in Table 4.7. The largest differences in the smoking categories were in age, sex, SES, income, and alcohol consumption. Smokers were older, more likely male, more likely to be in urban income quintile U1 (low) and less likely to be in in U5 (high)), less likely to earn \$80,000 or more, and more likely to binge drink. The estimated-population-based analysis controls for age, sex, RHA, and SES.

Regarding chronic diseases, as shown in Table 4.8, the individuals at most risk are former daily smokers (over five years before survey). Higher rates of diabetes, hypertension, arthritis, ischemic heart disease, and stroke were observed. In general, respondents in the various smoking categories had higher rates of lung cancer, respiratory morbidity, and mood and anxiety disorders compared to respondents who never smoked.

Generalized-Propensity-Score Analysis

We used a generalized propensity score for categorical smoking status to adjust for differences in characteristics that may confound the relationship between smoking and healthcare use. For the remainder of chapter 7, we will use the term "propensity score" to refer to the generalized propensity score applied to categorical smoking status in these analyses.

Table 7.1 shows the number of respondents by smoking categories and survey. The sample sizes are: current daily smoker (n=7,091); former daily smoker (five years or less before survey; n=2,684); former daily smoker (over five years before survey; n=7,223); never a daily smoker (n=5,894); and never smoked (n=15,387). The total sample size was 38,279.

		Current Daily Smoker		Former Daily Smoker (Daily ≤ 5 years before survey)		Former Daily Smoker (Daily > 5 years before survey)		Never a Daily Smoker (Occasional/Former Occasional)		Never Smoked	
		N	%	N	%	N	%	N	%	N	%
Survey	NPHS	2,005	28.28	661	24.63	1,663	23.02	871	14.78	3,905	25.38
	CCHS 1.1	1,284	18.11	465	17.32	1,162	16.09	1,139	19.32	2,275	14.79
	CCHS 2.1	999	14.09	462	17.21	1,025	14.19	989	16.78	1,995	12.97
	CCHS 3.1	811	11.44	384	14.31	933	12.92	808	13.71	2,079	13.51
	CCHS	471	6.64	174	6.48	478	6.62	426	7.23	1,049	6.82
	CCHS	461	6.50	181	6.74	510	7.06	401	6.80	1,060	6.89
	CCHS Healthy Aging	60	0.85	n/a	n/a	116	1.61	48	0.81	109	0.71
	CCHS 2009	344	4.85	121	4.51	457	6.33	411	6.97	901	5.86
	CCHS 2010	336	4.74	109	4.06	416	5.76	388	6.58	948	6.16
	CCHS 2011	320	4.51	127	4.73	463	6.41	413	7.01	1,066	6.93
	Total	7,091	100	2,684	100	7,223	100	5,894	100	15,387	100

Table 7.1: Propensity-Score Sample* by Smoking Status Categories by Survey

* NPHS (1996; aged 12+), CCHS (2000, 2003, 2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Basic demographic differences were also observed across the smoking categories. On average, respondents who never smoked were younger and more likely female compared with each of the smoking categories. The "never smoked,""never a daily smoker," and "former daily smoker (over five years before survey)" categories had greater percentages of individuals living in high-income neighbourhoods compared to current daily smokers and former daily smokers (five years or less before survey). The average age for those who quit smoking more than five years before survey was higher than for the other smoking categories, at 56.5 years. Respondents who never smoked were less likely to binge drink, more likely to be a normal weight, and more likely to be physically active than current daily smokers or former daily smokers (both categories). Smokers and former smokers were more likely than people who never smoked to have mood and anxiety disorders, and arthritis. Former daily smokers (over five years before survey) were at higher risk for diabetes, hypertension, ischemic heart disease, and stroke than people who never smoked. A detailed breakdown of these differences is given in Appendix 4, Tables 4.1-4.4.

To examine how well the propensity score performed in controlling for confounding variables, we also examined propensity-score-adjusted characteristics of the individuals in each smoking category. If, after adjustment, individuals across the five categories are similar, then we are more likely making "apples to apples" comparisons. Thus, any differences observed in healthcare use across smoking categories are more likely attributable to smoking rather than to confounding variables. Appendix Tables 4.3 and 4.4 show the propensity-score-adjusted characteristics of survey respondents. Upward-pointing arrows indicate that, after adjustment, the smoking group had a statistically significantly higher rate than respondents who never smoked; downward arrows indicate statistically significantly lower rates. Empty cells indicate that, after adjustment, the groups are statistically similar. Note that all comparisons were made to respondents who never smoked.

After applying the propensity-score adjustment, many differences in characteristics, across smoking groups became statistically insignificant. Although differences in binge drinking were attenuated when compared with the estimated-population-based sample, respondents who never smoked were still less likely to report binge drinking than current daily smokers and former daily smokers (daily five years or less before survey). We also found that, after applying the propensity-score adjustment, differences in chronic diseases across smoking categories were either attenuated or became statistically insignificant.

Tables 7.2 and 7.3 give evidence that we are making comparisons between groups that are more similar after adjustment than before adjustment; thus, differences observed in healthcare use across groups are more likely attributable to smoking rather than to confounding variables.

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					Former Daily Smoker		Former Daily Smoker		Never a Daily Smoker	
		Current Daily Smoker		(Daily ≤5 years before		(Daily >5 years before		(Occasional/Former		
		(%)	surv	ey) (%)	surve	y) (%)	Occasional) (%)		
		EPB	PSA	EPB	PSA	EPB	PSA	EPB	PSA	
Demographics										
Age (years)	Mean	1		1		1	^			
Person-years	Mean	↑	1	+		+		¥		
Sex	Males	Λ	1	1		Λ		Λ		
	Females	+	1	1	↓	+		¥		
	Southern	+	1	+	↑	+		¥	+	
	Winnipeg	+	¥	¥	↓	+		¥		
RHA	Prairie-Mountain		1	1		1	¥			
	Interlake-Eastern	1		1		1		↑		
	Northern	1	^	1	^	^	^	^	^	
	Urban 1 (Lowest)	1	^	Λ		¥				
	Urban 2	1		^		¥		¥		
	Urban 3	1		1		^				
	Urban 4		+	1				1		
Income	Urban 5 (Highest)		+				÷			
Income	Rural 1 (Lowest)	1		1	+					
Quintile	Rural 2	1		+		^				
	Rural 3	1			1					
	Rural 4			1	^	^				
	Rural 5 (Highest)	1		1		^		1		
	Income Unknown	+		+		¥		¥	+	
	Less than \$5,000		+			+				
	\$5,000-\$9,999	1		1		+		1		
	\$10,000-\$14,999					¥	1			
	\$15,000-\$19,999	1				^				
Total Household	\$20,000 to \$29,999	1						¥		
Income	\$30,000 to \$39,999	1						¥		
	\$40,000 to \$49,999	1				¥				
	\$50,000 to \$59,999	+				+				
	\$60,000 to \$79,999									
	\$80,000 or more							1		
	RUB 0 (Non-User)			¥		$\mathbf{+}$				
Resource	RUB 1	+		¥		+	+	+		
Litilization Double	RUB 2	¥	+	¥	¥	¥	¥		¥	
	RUB 3	1	1	^	1	^	1	1	1	
(KUB)	RUB 4	1		^		^				
	RUB 5 (Very High Morbidity)					•				

Continued Table 7.2

		Current Daily Smoker (%)		Former Daily Smoker (Daily ≤5 years before survey) (%)		Former Daily Smoker (Daily >5 years before survey) (%)		Never a Daily Smoker (Occasional/Former Occasional) (%)	
		EPB PSA		EPB	PSA	EPB	PSA	EPB	PSA
Lifestyle Factors	5								
Binge Drinking	5+drinks once/month or more	↑	1	٨		↑		↑	↑
	Underweight/Normal	¥	1	¥		¥		¥	
BMI	Overweight	1		1		^		1	
	Obese	1		1		^		1	
	Did Not Complete High School			¥		¥		¥	
Education Level	High School Graduate/Some Post-Secondary	↑		↑			÷	↑	
	Post-Secondary Graduate	¥				^	1		
Leisure Time	Active	¥		¥		¥			
Physical Activity	Moderate	¥		1	^		1	1	
Index	Inactive	1				^			

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EPB is Estimated Population-Based

PSA is Propensity Score Adjusted

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

↑ indicates that, after adjustment, the Ever Smoked group have a statistically significantly higher rate than the Never Smoked group.

↓ indicates that, after adjustment, the Ever Smoked group have a statistically significantly lower rate than the Never Smoked group.

Blank entries indicate that the values were not statistically significantly different.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.
Table 7.3: Statistically Significant Differences in Chronic Diseases at Time of Survey BetweenSmoking Status Categories and Never Smoked, by Adjustment StrategySurvey weighted; 95% Confidence Intervals

		Current Da	aily Smoker %)	Former Da (Daily ≤5 y surve	aily Smoker years before y) (%)	Former Da (Daily >5 y surve	nily Smoker rears before ry) (%)	Never a Da (Occasion Occasio	iily Smoker al/Former nal) (%)
		EPB	PSA	EPB	PSA	EPB	PSA	EPB	PSA
Arthritic	Self-Reported	1				1	^	1	
Artimus	Administrative Data	↑				^	^		1
Cancor	Self-Reported					^			
Cancer	CancerCare Manitoba Data			↑	↑	↑	↑		
Lung Cancer	CancerCare Manitoba Data	^		1	^	^			
Diabotos	Self-Reported					^			
Diabetes	Administrative Data					↑			
Hyportonsion	Self-Reported					^	↑		
rigpertension	Administrative Data	¥	¥			↑	↑		
Ischemic Heart	Self-Reported			↑		1			
Disease	Administrative Data			1	1	1	↑		
History of Stroke	Self-Reported			1	^	^	1		
ristory of Stroke	Administrative Data				↑	↑	↑		
Total Respiratory	Self-Reported			1	1	¥		¥	
Morbidity	Administrative Data	1	1	1	1	1			
Mood or Anxiety	Self-Reported	^		1		1			
Disorder	Administrative Data	^	1	1	1	1	^	^	1
Osteoporosis	Self-Reported			s	¥				
(Aged 50+)	Administrative Data	¥	¥			¥			
1+ Osteoporosis- Related Fractures (Aged 50+)	Administrative Data	¥				¥			

EPB is Estimated Population-Based

PSA is Propensity Score Adjusted

*NPHS (1996; aged 12+), CCHS (2000, 2003, 2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

↑ indicates that, after adjustment, the Ever Smoked group have a statistically significantly higher rate than the Never Smoked group.

♥ indicates that, after adjustment, the Ever Smoked group have a statistically significantly lower rate than the Never Smoked group.

Blank entries indicate that the values were not statistically significantly different.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Healthcare Service Use, Comparing Various Categories of Smoking

This chapter asks whether there is an association between the extent of smoking behavior and use of healthcare resources. As an individual's smoking behaviour increases, is there a corresponding increased burden on healthcare resources? Analyses used two models—estimated-population-based and propensity-score—to see whether patterns were evident after controlling for a maximum of confounding variables.

For simplicity, we discuss the results from five years of data; outcomes for one-, three-, and 10-year intervals are given in Appendix 4. As with the dichotomous analyses, we used respondents' self-reported smoking status at time of survey and then measured healthcare use over time. See chapter 5, for further discussion of the potential for under-reporting the effect of smoking that could result from respondents reducing the intensity of their smoking behaviour over the measurement period.

Ambulatory Physician Visits

In the estimated-population-based analysis, ambulatory visits per person-year were elevated for each smoking category compared with respondents who never smoked: current daily smoker RR=1.13 (95% CI 1.08-1.18); former daily smoker (five years or less before survey), RR=1.23 (95% CI 1.17–1.29); former daily smoker (over five years before survey), RR=1.13 (95% CI 1.08–1.18); never a daily smoker, RR=1.05 (95% CI1.01–1.10). Notably, the rate of ambulatory physician visits is higher for those who reported being former daily smokers five years or less before survey, compared with those who were current daily smokers. This may be because people who recently reduced or quit smoking may have done so for a major health crisis that was brought on or worsened by smoking.

After adjusting for confounding variables using the propensity score, we did not observe any statistically significant relationships between smoking status and ambulatory visits.

Inpatient Hospitalizations

For the estimated-population-based analysis five years post survey, hospitalization rates per 1,000 person-years were elevated among smokers: current daily smokers had an elevated risk for hospitalization when compared with respondents who never smoked (RR=1.75, 95% CI 1.55–1.98). There was an increased risk of hospitalization for former daily smokers (five years or less before survey; RR=1.65, 1.40–1.94); former daily smokers (over five years before survey; RR=1.65, 1.40–1.94); former daily smokers (over five years before survey; RR=1.41, 95% CI 1.19–1.68); and respondents who never smoked daily (RR=1.24, 95% CI 1.08–1.43). Similar trends were seen when examining rate differences at five years post survey; rate differences between smoking categories and respondents who never smoked were correlated with smoking, with a maximum RD of 63.86 hospitalizations per 1,000 person-years.

The propensity-score analysis showed similar patterns in the relationship between smoking and hospitalizations. Compared to respondents who never smoked, elevated rates were observed for all smoking categories: current daily smokers, RR=1.32 (95% CI 1.05-1.66); former daily smokers (five years or less before survey), RR=1.50 (95% CI 1.22-1.85); former daily smokers (over five years before survey), RR=1.36 (95% CI 1.11-1.67); and occasional smokers, RR=1.34 (95% CI 1.08-1.65). Rates for all smoking categories were statistically higher than for respondents who never smoked, even after adjusting for several lifestyle and health issues in the propensity score. The rate for former daily smokers (five years or less before survey) was especially high. Finding statistically significant differences for these different smoking categories supports drawing causal inferences about the relationship between the smoking and the increase in hospitalizations. Smoking appears to have a persistent effect on hospitalizations, despite people's tendency to reduce smoking behaviour. Similar trends are seen in rate differences at five years post survey.

We used modeling to estimate the excess hospitalizations attributable to each of the smoking categories. In the estimated-population-based model, we calculated that 7,177.69 extra hospitalizations occur each year in Manitoba among current daily smokers (95% CI 5,721.82–9004.44); 2,944.63 extra hospitalizations among former daily smokers (five years or less before survey; 95% CI 2,122.42–3,687.35); and 6,503.26 additional hospitalizations each year among former daily smokers (over five years before survey; 95% CI 2,869.76–8,699.10).

The graphs of these findings show a distinct trend of an exposure gradient throughout the one-, three-, five-, and 10-year periods, with most categories elevated compared with respondents who never smoked. The full set of results from all observation periods are presented in detail in the appendix.

Number of Days in Hospital

When comparing the number of days spent in hospital by smoking status, our analyses were limited by small sample sizes that reduced statistical power and resulted in less stable results.

Compared with respondents who never smoked, there was a definite trend toward more days in hospital per year among the current and former daily smokers: current daily smoker, RR=1.99 (95% CI 1.53-2.59); former daily smoker (five years or less before survey), RR=1.48 (95% CI 1.01-2.19); former daily smoker (over five years before survey), RR=1.43 (95% CI 1.09-1.88). Similarly, even stronger trends are seen in the rate difference, from 851.39 per 1,000 person-years for current daily smokers to 369.12 for former daily smokers (more than five years before survey) compared with respondents who never smoked. The propensity-score analysis showed similar trends, albeit with fewer statistically significant results. However, the figures show consistent gaps, with elevated hospitals days for respondents who smoked compared with those who never smoked.

We estimated the additional days in hospital attributable to smoking each year. Using our population-based model, we estimated that daily smoking results in 76,213.67 additional hospital days in Manitoba each year (95% CI 47,872.52–11,0141.07). People who quit daily smoking five years or less before survey required 20,915.37 additional hospital days each year (95% CI 9,658.33–5,8028.34); people who quit daily smoking over five years before survey used 10,0759.67 additional hospital days each year (95% CI 10,365.19–15,5495.10).

Defined Daily Doses (DDDs)

DDDs are a measure of the intensity of use of pharmaceutical prescriptions that have been filled for a person (a fuller definition is given in this report's glossary). If a person were to take a recommended dose of a drug for a whole year, 365 DDDs would be attributed to them.

Using estimated-population-based rates five years post survey, the comparison of DDDs shows a statistically significant elevation of RRs for three of the smoking categories—between 18% and 23% higher This is also true for the RDs, where former daily smokers (over five years before survey) had an elevation of 67.31 DDDs per person-year compared with those who never smoked (95% CI 31.85-102.78). When we compared DDDs using the propensity-score analysis, we observed a 22% elevation for former daily smokers (five years or less before survey; RR=1.22, 95% CI 1.07–1.40), and a 17% elevation for respondents who were never daily smokers (RR=1.17, 95% CI 1.01-1.35). Similar trends were also seen for the RD values—for example, the former daily smokers (over five years before survey) had 62.03 more DDDs per person-year than respondents who never smoked (95% CI 4.78-119.28).

Number of Different Drugs

For the five-year observation period the number of different drugs was statistically significantly higher for most of the smoking groups compared with respondents who never smoked. Former daily smokers (over five years before survey) were not statistically significantly different from respondents who never smoked. RRs in the estimated-population-based analysis showed an 11%–38% higher number of different drugs across all smoking categories compared with respondents who never smoked (all were statistically significant). The propensity-score analysis was more conservative, showing RRs for the mean number of different drugs 8%–22% higher.

Our results appear to show that the number of different drugs per person-year decreases the further you measure from the survey. This is a data artifact. If a person were already on several different drugs in the first year post survey, the drugs would all count towards that person-year calculation. Assuming that many of these drugs would carry over to other years, and possibly only a few additional drugs would be added, there are many more person-years at three, five, and 10 years post survey. Thus, the number of different drugs per person year declines as more person-years are added to the observation time.

Admission Rates and Days Spent in Personal Care Homes

Interestingly, none of the analyses of the use of personal care homes (PCHs) showed statistically significant differences in rates five years post survey. It is important to note that the surveys exclude residents of PCHs as respondents by design. We noted also that this trend continued when using data from three, five, and 10 years post survey; there was not a statistically significant relationship between smoking and PCH use at each of these time points. The exception is the RD in the propensity-score analysis of PCH days one year post survey. These results are presented in detail in the appendix.

Graphs for the propensity-score analysis appear to show a trend toward greater PCH use for respondents who reported quitting daily smoking over five years before survey, compared to those who never smoked (see Figure 7.2). It should be noted that we did find a statistically significant association between smoking and PCH use using 10 years of follow-up data. Current daily smokers and former daily smokers (five years or less before survey) had fewer days in PCHs compared with those who never smoked. These results are presented in Appendix 4.

Table 7.4: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey Survey weighted, age-, sex-, RHA- and SES-adjusted; 95% Confidence Intervals

Table 7.4: Estim Healt Survey	ated-Pop hcare Use weighted, a	ulation-Based Annualize by Smoking Status Cate ge., sex., RHA- and SES-adjusted	d Rates, Relative Rates, gories, 5 Years After Su 95% Confidence Intervals	and Rate Differences of rvey			Health Estimat
		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked	ncare ted-Po
	Rate	5.37 (5.18 - 5.56)	5.81 (5.56 - 6.08)	5.38 (5.21 - 5.55)	4.98 (4.81 - 5.17)	4.74 (4.62 - 4.87)	Use pula
Ambulatory Visits* per person-year	Relative Rate	1.13 (1.08 - 1.18)	1.23 (1.17 - 1.29)	1.13 (1.08 - 1.18)	1.05 (1.01 - 1.10)	ref	Sur
	Rate Difference	0.63 (0.41 - 0.85)	1.07 (0.81 - 1.33)	0.63 (0.41 - 0.85)	0.24 (0.03 - 0.45)	ref	nma Base
Inpatient	Rate	149.25 (135.94 - 163.86)	140.88 (121.22 - 163.71)	120.54 (104.42 - 139.15)	106.21 (95.01 - 118.73)	85.39 (78.71 - 92.64)	ary ' d An
Hospitalizations* per 1,000 person-	Relative Rate	1.75 (1.55 - 1.98)	1.65 (1.40 - 1.94)	1.41 (1.19 - 1.68)	1.24 (1.08 - 1.43)	ref	Fabl nalys
years	Rate Difference	63.86 (48.61 - 79.11)	55.49 (33.51 - 77.46)	35.15 (16.88 - 53.42)	20.82 (7.83 - 33.82)	ref	es es
:	Rate	1,712.88 (1,400.55 - 2,094.84)	1,278.63 (888.56 - 1,839.94)	1,230.60 (1,025.19 - 1,477.17)	1,186.26 (906.90 - 1,551.66)	861.48 (715.79 - 1,036.83)	
Days in Hospital* per 1,000 person- vears	Relative Rate	1.99 (1.53 - 2.59)	1.48 (1.01 - 2.19)	1.43 (1.09 - 1.88)	1.38 (0.99 - 1.91)	ref	
	Rate Difference	851.39 (445.25 - 1,257.54)	417.15 (-148.60 - 982.89)	369.12 (94.84 - 643.40)	324.77 (-8.43 - 657.97)	ref	

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Table 7.4: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
Mean Number of	Rate	426.29 (390.88 - 464.90)	442.21 (402.46 - 485.89)	427.69 (400.19 - 457.08)	388.37 (354.05 - 426.00)	360.38 (340.02 - 381.95)
Defined Daily Doses**	Relative Rate	1.18 (1.05 - 1.33)	1.23 (1.10 - 1.37)	1.19 (1.08 - 1.30)	1.08 (0.96 - 1.22)	ref
per person-year	Rate Difference	65.91 (21.21 - 110.62)	81.83 (38.19 - 125.47)	67.31 (31.85 - 102.78)	27.99 (-15.53 - 71.51)	ref
	Rate	3.87 (3.71 - 4.04)	4.15 (3.94 - 4.37)	3.70 (3.57 - 3.85)	3.34 (3.21 - 3.49)	3.01 (2.92 - 3.10)
Mean Number of Different Drugs**	Relative Rate	1.29 (1.22 - 1.36)	1.38 (1.30 - 1.46)	1.23 (1.17 - 1.30)	1.11 (1.05 - 1.17)	ref
	Rate Difference	0.86 (0.68 - 1.04)	1.14 (0.93 - 1.36)	0.70 (0.52 - 0.87)	0.34 (0.17 - 0.50)	ref
PCH Admission	Rate	22.76 (14.64 - 35.39)	20.70 (11.79 - 36.35)	24.34 (13.97 - 42.41)	19.53 (12.70 - 30.03)	19.40 (13.10 - 28.75)
Rates† per 1,000 person-	Relative Rate	1.17 (0.67 - 2.05)	1.07 (0.58 - 1.96)	1.25 (0.61 - 2.56)	1.01 (0.58 - 1.75)	ref
years	Rate Difference	3.35 (-8.54 - 15.25)	1.30 (-10.03 - 12.63)	4.93 (-13.09 - 22.96)	0.13 (-10.35 - 10.60)	ref
	Rate	10.66 (5.70 - 19.93)	7.82 (4.34 - 14.08)	10.87 (7.24 - 16.33)	9.77 (5.52 - 17.27)	9.13 (6.63 - 12.58)
Days in PCH ⁺ per person-year	Relative Rate	1.17 (0.61 - 2.25)	0.86 (0.46 - 1.59)	1.19 (0.68 - 2.09)	1.07 (0.54 - 2.11)	ref
	Rate Difference	1.53 (-4.83 - 7.88)	-1.31 (-5.65 - 3.02)	1.74 (-4.23 - 7.72)	0.63 (-5.35 - 6.62)	ref
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**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

§Aged 50+ (HHS Aged 50-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Figure 7.1: Population Based Annualized Rates of Healthcare Use by Smoking Status Categories Survey weighted, age-, sex-, RHA- and SES-adjusted; 95% Confidence Intervals



Figure 7.1: Continued



Table 7.5: Propensity-Score Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey Survey weighted, age-, sex- and propensity score-adjusted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
	Rate	4.84 (4.64 - 5.05)	5.03 (4.80 - 5.28)	4.97 (4.77 - 5.19)	4.80 (4.60 - 5.02)	4.76 (4.54 - 4.98)
Ambulatory Visits ⁴ per person-year	* Relative Rate	1.02 (0.96 - 1.08)	1.06 (0.99 - 1.13)	1.05 (0.98 - 1.11)	1.01 (0.95 - 1.08)	ref
	Rate Difference	0.08 (-0.20 - 0.36)	0.28 (-0.02 - 0.57)	0.22 (-0.06 - 0.49)	0.05 (-0.24 - 0.33)	ref
Inpatient	Rate	112.15 (93.98 - 133.84)	127.36 (107.33 - 151.12)	115.67 (101.71 - 131.56)	113.51 (98.02 - 131.43)	84.85 (73.07 - 98.53)
Hospitalizations*	Relative Rate	1.32 (1.05 - 1.66)	1.50 (1.22 - 1.85)	1.36 (1.11 - 1.67)	1.34 (1.08 - 1.65)	ref
years	Rate Difference	27.30 (3.63 - 50.98)	42.50 (18.93 - 66.07)	30.82 (12.00 - 49.64)	28.65 (9.04 - 48.27)	ref
	Rate	996.55 (681.54 - 1,457.15)	1,208.97 (884.20 - 1,653.03)	1,313.20 (999.01 - 1,726.20)	1,203.99 (943.33 - 1,536.68)	904.10 (714.57 - 1,143.89)
Days in Hospital* per 1,000 person- vears	Relative Rate	1.10 (0.70 - 1.73)	1.34 (0.92 - 1.95)	1.45 (1.00 - 2.12)	1.33 (0.96 - 1.85)	ref
	Rate Difference	92.45 (-430.49 - 615.39)	304.88 (-134.50 - 744.26)	409.10 (18.34 - 799.86)	299.89 (-22.02 - 621.80)	ref

Generalized-Propensity-Score Analysis

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Table 7.5: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
R Mean Number of	late	381.04 (345.68 - 420.00)	424.81 (384.17 - 469.74)	409.69 (357.44 - 469.57)	405.25 (361.77 - 453.96)	347.66 (316.91 - 381.38)
Defined Daily R Doses** R	Relative Rate	1.10 (0.96 - 1.25)	1.22 (1.07 - 1.40)	1.18 (1.00 - 1.39)	1.17 (1.01 - 1.35)	ref
per person-year R	Rate Difference	33.38 (-11.85 - 78.61)	77.15 (28.33 - 125.97)	62.03 (4.78 - 119.28)	57.60 (7.06 - 108.13)	ref
	late	3.30 (3.12 - 3.50)	3.67 (3.46 - 3.90)	3.24 (3.06 - 3.43)	3.27 (3.09 - 3.46)	3.00 (2.81 - 3.21)
Different Drugs**	Relative Rate	1.10 (1.01 - 1.20)	1.22 (1.12 - 1.34)	1.08 (0.99 - 1.17)	1.09 (1.00 - 1.18)	ref
	Rate Difference	0.30 (0.05 - 0.55)	0.67 (0.39 - 0.94)	0.24 (0.00 - 0.48)	0.27 (0.03 - 0.51)	ref
R PCH Admission	Rate	18.57 (11.05 - 31.23)	12.32 (5.94 - 25.55)	27.97 (15.45 - 50.62)	15.65 (6.47 - 37.82)	18.46 (10.37 - 32.86)
Rate ⁺ R per 1,000 person-	Relative Rate	1.01 (0.46 - 2.20)	0.67 (0.25 - 1.79)	1.52 (0.59 - 3.88)	0.85 (0.30 - 2.41)	ref
years R	Rate Difference	0.11 (-13.96 - 14.19)	-6.14 (-22.05 - 9.78)	9.51 (-10.13 - 29.15)	-2.81 (-17.70 - 12.07)	ref
R	late	6.11 (2.99 - 12.50)	5.06 (1.50 - 17.04)	17.22 (8.52 - 34.80)	7.16 (1.69 - 30.35)	7.77 (4.42 - 13.66)
Days in PCH ⁺ R per person-year R	Relative Rate	0.79 (0.32 - 1.92)	0.65 (0.17 - 2.47)	2.22 (0.81 - 6.06)	0.92 (0.21 - 4.13)	ref
	Rate Difference	-1.66 (-7.64 - 4.32)	-2.71 (-12.42 - 7.01)	9.45 (-0.32 - 19.23)	-0.61 (-7.90 - 6.68)	ref

Aged 12+ except MHHS (aged 1/-/6), CCHS Healthy Aging (aged 45+)

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

+Aged 70+ except MHHS (aged 70-76)

§Aged 50+ (HHS Aged 50-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

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Figure 7.2: Propensity-Score Annualized Rates of Healthcare Use by Smoking Status Categories Survey weighted, age-, sex- and propensity score-adjusted; 95% Confidence Intervals

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Figure 7.2: Continued



+Aged 70+ except MHHS (aged 70-76) Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Summary

Using a categorical variable for smoking status, our analyses showed a consistent relationship between smoking and healthcare burden, independent of the analytical method. There was one exception: the use of PCHs. An interesting pattern that occurs in much of the data is that former daily smokers who quit daily smoking five years or less before survey showed elevated risk in many of our indicators. This may partly be due to people quitting on account of a health crisis precipitated by smoking. This effect was also noted recently by the US Surgeon General:

In interpreting the evidence related to former smokers, consideration needs to be given to the temporal relationship between illness onset and the timing of cessation. Across the studies reviewed in this section, former smokers, particularly those who have recently guit, tend to have poor outcomes. This is likely the result of quitting ill; the poor health that is experienced by recent guitters often precedes—and contributes to—the decision to guit and smoking cessation. For example, among smokers enrolled in a managed care organization in Minnesota, inpatient charges, or high ambulatory care charges, were linked with subsequent guit attempts, implying that people with illness are motivated to quit (Martinson, O'Connor, Pronk, & Rolnick, 2003). Similarly, among smokers enrolled in a managed care organization in Washington state, costs among former smokers began to increase in the period prior to smoking cessation, before peaking in the quarter following cessation (Fishman, Thompson, Merikle, & Curry, 2006). Among participants in a smoking cessation trial—all of whom were identified on the basis of a routine primary care visit—early costs were similar among successful quitters and continuing smokers, and costs among successful quitters dropped below those of continuing smokers by the sixth quarter post-quit (Hockenberry et al., 2012). Other studies also showed benefits for former smokers as the length of time since quitting increased (U.S. Department of Health and Human Services, 2004). (U.S. Department of Health and Human Services, 2014, p. 632)

Thus, one should not conclude that quitting smoking causes increased healthcare use; rather, the implication is that the group of former daily smokers likely decided to quit on account of adverse health outcomes associated with smoking. Our analyses showed that the burden smoking places onto the healthcare system is concentrated among daily smokers—whether they be current daily smokers or former daily smokers. The differences in healthcare use observed between daily smokers and people who never smoked are greater than those observed in chapter 5 where we compared those who ever smoked with those who never smoked. Two factors may be driving this: first, the "ever smoked" group included occasional smokers whose healthcare use was similar to never smokers; second, the never smoked group comprised individuals who smoked less than 100 cigarettes in their lifetime. Both of these factors lead to the ever smoked and never smoked groups being more similar in terms of their smoking and would, as a result, minimize the differences in healthcare use observed in chapter 7.

As in chapters 5 and 6, these results only reflect associations; we cannot know for certain whether these associations reflect causal relationships. However, we used methods to determine whether it was likely that the observed associations reflected underlying causal relationships. First, we adjusted for many variables that confound the relationship between smoking and healthcare use. Second, we assessed whether our adjustment strategy made our smoking groups comparable on observed characteristics, and found that they did. We also examined whether the associations held across various smoking groups. Thus, although we cannot know for certain that we have controlled for all measured and unmeasured confounding variables, the results suggest that these associations likely reflect underlying causal relationships.

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CHAPTER 8: DIFFERENCES IN HEALTH OUTCOMES BY CATEGORICAL SMOKING STATUS

This chapter includes information on selected health outcomes comparing the smoking categories described in chapters 3 and 7. Definitions of the health outcomes are given in chapter 3. Prevalence of these categorized smoking behaviours over time is described in chapter 4.

As in chapter 6, we focus on two categories of health outcomes to examine in detail: mortality- and cancer-related. Cancer is a major concern for both the public and healthcare administrators whenever the impact of smoking is being discussed. CancerCare data were linked with MCHP data to estimate the relationship between smoking and incident cases of cancer. As in Chapter 7, we discuss results from 5 years of data; we provide outcomes for one-, three-, and 10-year observation periods in Appendix 5.

Mortality Outcomes by Categorical Smoking Status

Premature Mortality Rate (PMR)

PMRs from the estimated-population-based analyses for each smoking-status category are presented in the appendix for one, three, and 10 years post survey; here, we discuss the results from five years post survey. Interestingly, in the estimated-population-based analyses, the only category that shows a statistically elevated PMR compared to respondents who never smoked is "current daily smoker" (RR=2.52, 95% CI 1.21–5.24; RD 4.12, 95% CI 0.56–7.69 deaths per 1,000 person-years). Although the former daily smoker who stopped daily smoking five years or less before survey appear to trend toward elevated PMRs, this was not significant.

In the propensity-score analysis, we did not observe any statistically significant differences in PMR using 5 years of post-survey data. This is particularly evident in Figure 8.2. This suggests that any observed differences in PMR are likely due to confounding variables rather than smoking.

Our results show that after adjusting for confounding variables smoking does not necessarily lead to early death; and this, if anything, increases smoking's burden on the healthcare system. Indeed, we consistently found that those who reported smoking were living well into later years. This emphasizes the need to cost out their burden on the healthcare system, since this burden exists and persists for most smokers well into their later years.

Potential Years of Life Lost (PYLL)

PYLL is a measure that accounts for how early the death was by reporting the number of years a person "loses" from the point of death to age 75.

In the estimated-population-based analysis of PYLL, there were no statistically significant differences observed between categories of smoking status. However, a gap can be observed in Figure 8.1 between current daily smokers and the other categories, which hints at a relationship.

The propensity-score analysis produced slightly different findings. Table 8.2 shows that current daily smokers and both categories of former daily smokers had statistically higher PYLL compared with respondents who never smoked. Respondents who quit daily smoking five years or less before survey had the highest PYLL: 58.90 years of life lost per 1,000 person-years. Those who quit daily smoking over five years before survey had the smallest reduction: 46.17 years of life lost. The "never a daily smoker" category was not statistically significantly different than the "never smoked" category.

Total Mortality Rate

In the estimated-population-based analysis, the only category with statistically significantly higher mortality (all ages) than respondents who never smoked was the "current daily smoker" category, which had a rate more than 2.5 times greater (RR=2.59, 95% CI 1.55–4.34; RD=9.77, 95% CI 3.88–15.67). Figure 8.1 illustrates the significant gap between current daily smokers and all other groups.

Surprisingly, the propensity-score analysis showed a slightly stronger relative effect of total mortality attributable to the current daily smokers group vs. respondents who never smoked (RR=2.75, 95% CI 1.33–5.69), although we observed a reduced rate difference between the two (RD=6.62, 95% CI 1.88–11.35).

Table 8.1 and Figure 8.1 summarize the estimated-population-based, five-year results for mortality outcomes. Likewise, Table 8.2 and Figure 8.2 summarize the propensity-score-adjusted five-year results.

Table 8.1: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey Survey weighted, age-, sex-, RHA- and SES-adjusted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
Premature	Rate	6.83 (4.61 - 10.12)	3.03 (1.48 - 6.20)	3.38 (1.22 - 9.38)	1.27 (0.76 - 2.11)	2.71 (1.82 - 4.02)
Mortality Rates**	· Relative Rate	2.52 (1.21 - 5.24)	1.12 (0.48 - 2.59)	1.25 (0.39 - 4.03)	0.47 (0.24 - 0.90)	ref
years	Rate Difference	4.12 (0.56 - 7.69)	0.32 (-2.13 - 2.78)	0.67 (-2.95 - 4.30)	-1.44 (-2.670.21)	ref
Potential Years of	Rate	79.76 (49.88 - 127.52)	34.04 (15.61 - 74.20)	36.12 (12.11 - 107.70)	13.95 (7.97 - 24.44)	37.41 (25.35 - 55.21)
Life Lost** per 1,000 person-	Relative Rate	2.13 (0.95 - 4.79)	0.91 (0.37 - 2.24)	0.97 (0.28 - 3.34)	0.37 (0.19 - 0.74)	ref
years	Rate Difference	42.35 (-8.59 - 93.28)	-3.37 (-34.03 - 27.28)	-1.29 (-43.79 - 41.21)	-23.46 (-39.547.38)	ref
Total Mortality	Rate	15.92 (11.94 - 21.22)	8.63 (5.24 - 14.22)	7.60 (3.93 - 14.70)	4.09 (3.00 - 5.58)	6.14 (4.66 - 8.09)
Rates* per 1,000 person-	Relative Rate	2.59 (1.55 - 4.34)	1.41 (0.78 - 2.52)	1.24 (0.58 - 2.66)	0.67 (0.44 - 1.02)	ref
years	Rate Difference	9.77 (3.88 - 15.67)	2.49 (-2.82 - 7.79)	1.45 (-4.30 - 7.20)	-2.05 (-4.18 - 0.08)	ref
*Aged 12+ except	MHHS (aged 1	7-76), CCHS Healthy Aging (agec	1 45+)			

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

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Figure 8.1: Population Based Annualized Rates for Mortality Measures, by Smoking Status Categories



Table 8.2: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey Survey weighted, age-, sex- and propensity score-adjusted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
Premature	Rate	4.37 (2.50 - 7.66)	3.28 (1.08 - 9.92)	5.87 (2.08 - 16.54)	1.79 (0.75 - 4.28)	1.44 (0.55 - 3.74)
Mortality Rates** per 1,000 person-	Relative Rate	3.04 (0.93 - 9.89)	2.28 (0.58 - 8.99)	4.08 (0.77 - 21.69)	1.24 (0.39 - 3.98)	ref
years	Rate Difference	2.93 (-1.08 - 6.95)	1.84 (-5.02 - 8.69)	4.43 (-0.73 - 9.58)	0.35 (-2.02 - 2.73)	ref
Potential Years of	Rate	58.63 (38.38 - 89.57)	71.21 (24.40 - 207.77)	58.48 (24.01 - 142.44)	25.90 (10.63 - 63.08)	12.31 (6.30 - 24.05)
Life Lost** per 1,000 person-	Relative Rate	4.76 (2.25 - 10.09)	5.78 (1.57 - 21.38)	4.75 (1.35 - 16.67)	2.10 (0.80 - 5.54)	ref
years	Rate Difference	46.32 (20.72 - 71.91)	58.90 (-18.72 - 136.51)	46.17 (2.73 - 89.60)	13.59 (-15.88 - 43.06)	ref
Total Mortality	Rate	10.39 (7.02 - 15.37)	8.54 (4.46 - 16.33)	12.05 (5.42 - 26.79)	4.19 (2.12 - 8.29)	3.77 (1.96 - 7.27)
Rates* per 1,000 person-	Relative Rate	2.75 (1.33 - 5.69)	2.26 (0.95 - 5.41)	3.20 (0.93 - 10.97)	1.11 (0.50 - 2.45)	ref
years	Rate Difference	6.62 (1.88 - 11.35)	4.77 (-2.96 - 12.49)	8.28 (-0.74 - 17.30)	0.42 (-3.74 - 4.58)	ref
*Aged 12+ except h	MHHS (aged 1	7-76), CCHS Healthy Aging (agec	145+)			

Values in **bold** type indicate statistically significantly different values than Never Smoked. **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

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**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Life Expectancy at Age 50

To estimate the impact of each category of smoking behaviour on life expectancy, we followed a proportional-lifeexpectancy approach, which uses time-to-event statistical modeling to estimate age- and sex-specific mortality rates (Strauss, Vachon, and Shavelle, 2005). These rates are then applied in the life-table method to compute life expectancy.

We modeled life expectancy, stratified by sex. The tables show results from each of the four observation periods. However, discussion concentrates on results from 10 years of follow-up data. We focus our discussion on those results using 10 years of observation data to maximize follow-up time and thereby increasing the likelihood that we will capture the relationship between smoking and life expectancy. Shorter observation periods (e.g., 5 years of post survey data) may not be sufficient to capture the relationship between smoking and life expectancy.

Life Expectancy for Males at Age 50

In the estimated-population-based analysis at 10 years post survey, current daily smokers had an average life expectancy of 77.13 years. This corresponds to roughly a 3-year reduction in average life expectancy compared with respondents who had never smoked. Male former daily smokers (five years or less before survey) had a 2.9-year reduction in average life expectancy (77.88 vs. 80.77 years). Former daily smokers (over five years before survey) had a 0.7-year reduction in life expectancy (80.07 vs. 80.77). We did not find a statistically significant difference in average life expectancy when comparing respondents who were never daily smokers with those who never smoked.

Although differences in life expectancy were attenuated in the propensity-score analyses, we still found similar results in terms of the relationship between smoking and life expectancy. In the propensity-score analyses, we observed that males who were currently daily smokers had an average life expectancy of 77.85 years. Male current daily smokers experienced a 3.0-year reduction in average life expectancy when compared with males who never smoked (77.85 vs. 80.84 years). Former daily smokers (five years or less before survey) experienced a 2.4-year reduction in average life expectancy (78.41). Finally, male former daily smokers (over five years before survey) had a 0.6-year reduction in life expectancy (80.25). We found no statistically significant difference when comparing respondents who were never daily smoker category with those who never smoked.

Life Expectancy for Females at Age 50

The relationship between smoking status and life expectancy followed a similar pattern among females. In the estimated-population-based analysis, women who were current daily smokers had an average life expectancy of 81.41 years. Women who were current smokers experienced a 3.2-year reduction in life expectancy when compared with women who never smoked (81.41 vs. 84.59 years). Former daily smokers (five years or less before survey) had a 2.5-year reduction in average life expectancy (82.08). Female former daily smokers (over five years before survey) had a 0.60-year reduction in life expectancy (83.99). We did not find a statistically significant difference in life expectancy when comparing females who were never daily smokers with those who never smoked.

Again, the propensity-score analysis yielded similar, though more conservative, results. Female current daily smokers had an average life expectancy of 82.02 years and experienced a 2.6-year reduction in average life expectancy when compared with females who never smoked (82.02 vs. 84.64 years). Former daily smokers (five years or less before survey) had a 2.1-year reduction in life expectancy (82.51). However, we did not find a statistically significant difference in average life expectancy for either the former daily smokers (over five years before survey) or the female respondents who were never daily smokers.

Results for both males and females are shown in Figures 8.3 and 8.4.

Life Expectancy Summary Tables

Estimated-Population-Based Analyses

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Current Daily Smoker	78.83 (78.58 - 79.08)	78.98 (78.73 - 79.23)	78.60 (78.35 - 78.85)	77.13 (76.85 - 77.42)
	Former Daily Smoker (Daily ≤ 5 years before survev)	77.92 (77.68 - 78.16)	79.01 (78.76 - 79.26)	79.13 (78.87 - 79.39)	77.88 (77.59 - 78.17)
Males	Former Daily Smoker (Daily > 5 years before survey)	81.28 (80.90 - 81.66)	80.93 (80.60 - 81.27)	80.86 (80.52 - 81.19)	80.07 (79.72 - 80.41)
	Never a Daily Smoker	81.65 (81.20 - 82.10)	81.34 (80.96 - 81.72)	81.18 (80.81 - 81.55)	80.60 (80.22 - 80.99)
	Never Smoked	81.79 (81.30 - 82.28)	81.38 (80.99 - 81.77)	81.30 (80.91 - 81.68)	80.77 (80.37 - 81.16)
	Current Daily Smoker	82.76 (82.49 - 83.02)	83.21 (82.96 - 83.46)	82.82 (82.57 - 83.07)	81.41 (81.12 - 81.70)
	Former Daily Smoker (Daily ≤ 5 years before survey)	81.92 (81.67 - 82.17)	83.24 (82.99 - 83.49)	83.27 (83.01 - 83.53)	82.08 (81.78 - 82.38)
Females	Former Daily Smoker (Daily > 5 years before survey)	84.98 (84.60 - 85.36)	84.81 (84.48 - 85.14)	84.71 (84.38 - 85.05)	83.99 (83.64 - 84.34)
	Never a Daily Smoker	85.30 (84.86 - 85.75)	85.14 (84.76 - 85.51)	84.98 (84.62 - 85.35)	84.45 (84.07 - 84.83)
	Never Smoked	85.43 (84.94 - 85.92)	85.17 (84.78 - 85.55)	85.08 (84.69 - 85.46)	84.59 (84.19 - 84.98)
*Life expec	tancy calculations based on a contribution of the second of the second s	ombined life table/semi-paramet	ric approach; mortality rates estin	mated using proportional hazards	s regression.

Values in **bold** type indicate statistically significantly different values from Never Smoked.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

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able 8.4: Propensity-Score Life Expectancy st at age 50 b	Survey weighted and adjusted†; 95% Confidence Intervals

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Current Daily Smoker	78.27 (78.00 - 78.54)	79.28 (79.03 - 79.53)	79.13 (78.88 - 79.37)	77.85 (77.58 - 78.13)
	Former Daily Smoker (Daily ≤ 5 years before survey)	76.82 (76.57 - 77.08)	79.01 (78.76 - 79.26)	79.58 (79.32 - 79.83)	78.41 (78.13 - 78.69)
Males	Former Daily Smoker (Daily > 5 years before survey)	81.10 (80.70 - 81.49)	81.00 (80.66 - 81.33)	81.00 (80.67 - 81.33)	80.25 (79.92 - 80.59)
	Never a Daily Smoker	81.59 (81.10 - 82.07)	81.44 (81.05 - 81.83)	81.27 (80.91 - 81.63)	80.71 (80.34 - 81.08)
	Never Smoked	81.48 (81.03 - 81.94)	81.35 (80.98 - 81.73)	81.35 (80.98 - 81.72)	80.84 (80.46 - 81.22)
	Current Daily Smoker	82.53 (82.26 - 82.80)	83.36 (83.11 - 83.62)	83.25 (83.00 - 83.49)	82.02 (81.74 - 82.30)
	Former Daily Smoker (Daily ≤ 5 years before survey)	81.28 (81.02 - 81.54)	83.14 (82.89 - 83.38)	83.63 (83.37 - 83.88)	82.51 (82.22 - 82.80)
Females	Former Daily Smoker (Daily > 5 years before survey)	84.91 (84.52 - 85.30)	84.81 (84.48 - 85.14)	84.82 (84.50 - 85.15)	84.13 (83.79 - 84.47)
	Never a Daily Smoker	85.31 (84.84 - 85.79)	85.18 (84.80 - 85.57)	85.05 (84.69 - 85.40)	84.53 (84.16 - 84.90)
	Never Smoked	85.23 (84.77 - 85.68)	85.11 (84.74 - 85.48)	85.11 (84.75 - 85.48)	84.64 (84.26 - 85.02)
*Life expec †Covariates	ctancy calculations based on a combi s included in the proportional hazard	ned life table/semi-parametri s regression model were age,	c approach; mortality rates esti sex and propensity-score.	mated using proportional haza	ırds regression.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Values in **bold** type indicate statistically significantly different values from Never Smoked.

Generalized-Propensity-Score Analysis

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

Figure 8.4: Propensity-Score Life Expectancy* at age 50 by Smoking Status Categories Survey weighted and adjusted[†], 95% Confidence Intervals



Cancer Incidence by Categories of Smoking Status

We next looked at the relationship between the different categories of smoking and cancer. Rather than using data from five years after the survey, we used data from 10 years after because the biological plausible latency period between smoking exposure and outcome (cancer) is at least a decade (Cancer Epidemiology and Prevention, 1996; Cinciripini, Hecht, Henningfield, Manley, & Kramer, 1997; Fiore et al., 1996; National Cancer Institute at the National Institutes of Health, 2014; Schottenfeld & Fraumeni, 1996; U.S.Department of Health and Human Services, 1990).

Lung Cancer

Of all the different types of cancer, lung cancer has the strongest association with smoking, with close to 90% of malignancies attributed to past cigarette smoking (Parkin et al., 2011).

The estimated-population-based analysis suggests a relationship in which the highest relative risk for lung cancer is seen for those who smoked at the time of the survey or quit recently, with much lower effects seen for those who quit smoking more than five years before survey or who never smoked daily. Specifically, the effect relative to respondents who never smoked was highest for current daily smokers (RR=13.83, 95% CI 4.01–47.67; RD=359.72 per 100,000 person-years, 95% CI 256.70–462.75) followed closely by former daily smokers (five years or less before survey; RR=10.29, 95% CI 3.19–33.15; RD=260.38 per 100,000 person-years 95% CI 135.81–384.96). The effect was similar but not statistically significant for former daily smokers (over five years before survey; RR=3.12, 95% CI 0.86–11.34; RD=59.38 per 100,000 person-years 95% CI 0.14–118.61) and those who never smoked daily (RR=0.72, 95% CI 0.18–2.91; RD=-7.96 per 100,000 person-years 95% CI -36.51–20.60).

Analyses adjusted for propensity score actually increased the risk estimates for those with the most intense and most recent smoking behaviour compared to the estimated-population-based analysis. Compared with those who never smoked, the risk was almost 30-fold higher for those who were current daily smokers when surveyed (RR=27.23, 95% CI 3.73–198.52; RD=318.63, 95% CI 124.55–512.70), and almost 20-fold higher for those who had quit daily smoking five years or less before survey (RR=19.93, 95% CI 2.43–163.77; RD=229.99, 95% CI 74.12–385.86). We did not observe a statistically significant relationship among those who had quit daily smoking over five years before nor among those who had never smoked daily.

Both analytic approaches indicate strong effects of smoking on the risk of lung cancer for current daily smokers and former daily smokers at a biologically plausible latency period of 10 years. Neither approach showed a significantly increased risk for respondents who had quit more than five years before survey or who had never smoked daily.

Strongly Smoking-Associated Cancers

While lung cancer has the strongest association with smoking, we also looked at cancers where the attributable risk is estimated to be over 60% to give more statistical power to our analyses (Parkin et al., 2011).

As expected, the patterns observed for these cancers are very similar to those observed for lung cancer alone. The magnitude of the effect was reduced, yet the confidence intervals were smaller due to inclusion of more cancers. Ultimately our conclusions did not change.

Compared to respondents who never smoked, the estimated-population-based analysis demonstrated a relationship in which the highest relative risks are seen for those who were classified as current daily smokers or former daily smokers (five years or less before survey). Specifically, the relative effect vs. respondents who never smoked was highest for current daily smokers (RR=13.28, 95% CI 4.28–41.22; RD=381.76, 95% CI 278.74–484.78) followed closely by former daily smokers who quit daily smoking five years or less before survey (RR=9.17, 95% CI 3.15–26.72; RD=253.99, 95% CI 130.08–377.90). This trend continued, but became statistically insignificant for former daily smokers who quit daily smoking over five years before survey and respondents who never smoked daily.

As with the lung-cancer analyses, the propensity-score-adjusted analysis actually increased the risk estimates for those with the most intense and most recent smoking behaviours compared to the estimated-population-based analysis. Compared to respondents who never smoked, the risk was almost 30-fold higher for those who were current daily smokers when surveyed (RR=24.83, 95% CI 3.64–169.29; RD=364.32, 95% CI 148.28–580.37), and 15-fold higher for those who had quit smoking five years or less before survey (RR=15.64, 95% CI 1.96–124.96; RD=223.85, 95% CI 59.51–388.20). We did not observe any statistically significant differences among those who had quit daily smoking for more than five years before time of the survey and for those who had never smoked daily, relative to those who never smoked.

Both analytic approaches indicate strong smoking effects on the risk of these strongly-smoking-associated cancers for current daily smokers and former daily smokers (five years or less before survey) at a biologically plausible latency period of 10 years.

All Cancers

Finally, we examined whether smoking was associated with any cancer diagnosis. While many cancers are associated with smoking, others are not. This measure, "all cancers," combined all cancers, whether they are known to be associated with smoking or not.

We did not find any statistically significant differences among the different categories of smoking status after conducting the population-based analysis. We found similar results in the propensity-score analysis. The effect of other risk factors on other cancers, which form the majority of the all-cancer group, is likely also blurring any smoking-related dose-response gradient. The vast majority of cancers are not strongly associated with cancer and, therefore, the effect of smoking on overall cancer rates is predictably insignificant.

The findings in both analyses demonstrate the importance of focusing on cancers with a strong association to smoking rather than all cancers, generally. The patterns do not demonstrate significant differences for any of the smoking categories relative to respondents who never smoked.

Table 8.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 10 Years After Survey Survey weighted, age-, sex-, RHA- and SES-adjusted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
Cancer Incidence	Rate	823.00 (641.03 - 1,056.64)	871.00 (640.06 - 1,185.26)	726.82 (396.14 - 1,333.55)	536.13 (323.86 - 887.53)	642.73 (526.31 - 784.91)
Rates* per 100,000 person	Relative - Rate	1.28 (0.86 - 1.90)	1.36 (0.88 - 2.08)	1.13 (0.56 - 2.28)	0.83 (0.45 - 1.56)	ref
years	Rate Difference	180.27 (-113.40 - 473.94)	228.27 (-113.68 - 570.22)	84.09 (-423.24 - 591.43)	-106.60 (-446.49 - 233.28)	ref
Lung Cancer	Rate	387.75 (304.83 - 493.23)	288.42 (173.58 - 479.23)	87.41 (42.57 - 179.48)	20.08 (7.99 - 50.46)	28.03 (8.68 - 90.49)
Incidence Rates* per 100,000 person	Relative - Rate	13.83 (4.01 - 47.67)	10.29 (3.19 - 33.15)	3.12 (0.86 - 11.34)	0.72 (0.18 - 2.91)	ref
years	Rate Difference	359.72 (256.70 - 462.75)	260.38 (135.81 - 384.96)	59.38 (0.14 - 118.61)	-7.96 (-36.51 - 20.60)	ref
Strongly Smoking Associated**	Rate	412.84 (329.89 - 516.64)	285.07 (170.79 - 475.85)	85.78 (41.43 - 177.60)	20.34 (8.59 - 48.15)	31.08 (10.68 - 90.44)
Cancers Incidence Rates*	Relative Rate	13.28 (4.28 - 41.22)	9.17 (3.15 - 26.72)	2.76 (0.82 - 9.28)	0.65 (0.19 - 2.30)	ref
per 100,000 person years	Rate Difference	381.76 (278.74 - 484.78)	253.99 (130.08 - 377.90)	54.69 (-4.71 - 114.10)	-10.74 (-39.97 - 18.48)	ref
*Aged 12+ except N	AHHS (aged 1	7-76), CCHS Healthy Aging (aged	(45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Cancer Types Summary Tables

Estimat

Figure 8.5: Population Based Annualized Rates for Cancer Types, by Smoking Status Categories

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR



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umanitoba.ca/faculties/medicine/units/mchp Chapter 8 | page 141

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors. ¹⁵ Strongly smoking associated cancers are lung and bronchus, oropharynx, esophasus and larynx cancers.

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

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ole 8.6: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types	by Smoking Status Categories, 10 Years After Survey	Survey weighted, age-, sex- and propensity score-adjusted; 95% Confidence Intervals
ole 8.6: Propensity-Score Annualized Rates, Relative Rates,	by Smoking Status Categories, 10 Years After Surv	Survey weighted, age-, sex- and propensity score-adjusted; 95% Co

Cancer Incidence P47.87 (665.00 - 1,351.08) Rates* 947.87 (665.00 - 1,351.08) Per 100,000 person- Relative years 1.01 (0.49 - 2.11) years Rate Jear 1.01 (0.49 - 2.11) years Rate Jear 13.06 (-605.13 - 631.24) Difference 13.06 (-605.13 - 631.24) Lung Cancer Rate Incidence Rates* Relative Per 100,000 person- Rate years 27.23 (3.73 - 198.52)	survey 1.08) 803.64 (480.46 - 1,344.23) 0.86 (0.35 - 2.14) 0.86 (0.35 - 2.14) -131.17 (-923.49 - 661.14) -131.17 (-923.49 - 661.14) (.94) 242.14 (115.56 - 507.37)	urvey) 1,080.31 (678.17 - 1,720.90) 1.16 (0.47 - 2.84) 145.49 (-626.34 - 917.32) 27720 (9.30 - 79.58)	599.43 (358.69 - 1,001.75) 0.64 (0.26 - 1.59) -335.39 (-1,029.92 - 359.15)	934.82 (455.49 - 1,918.55) ref
Cancer Incidence Relative 1.01 (0.49 - 2.11) per 100,000 person- Rate 1.01 (0.49 - 2.11) years Rate 13.06 (-605.13 - 631.24) Difference 13.05 (-605.13 - 631.24) Lung Cancer Rate 330.78 (186.41 - 586.94) Incidence Rates* Relative 27.23 (3.73 - 198.52) per 100,000 person-Rate Rate 27.23 (3.73 - 198.52)	0.86 (0.35 - 2.14) (0.86 (0.35 - 2.14) (-131.17 (-923.49 - 661.14) (-94) 242.14 (115.56 - 507.37)	1.16 (0.47 - 2.84) 145.49 (-626.34 - 917.32) 27.20 (9.30 - 79.58)	0.64 (0.26 - 1.59) -335.39 (-1,029.92 - 359.15)	ref ref
years Rate 13.06 (-605.13 - 631.24) Difference 330.78 (186.41 - 586.94) Lung Cancer 330.78 (186.41 - 586.94) Incidence Rates* Relative 27.23 (3.73 - 198.52) per 100.000 person-Rate 27.23 (3.73 - 198.52) years Rate 27.23 (3.73 - 198.52)	.24) -131.17 (-923.49 - 661.14) (-923.49 - 661.14) (-94) 242.14 (115.56 - 507.37)	145.49 (-626.34 - 917.32) 27.20 (9.30 - 79.58)	-335.39 (-1,029.92 - 359.15)	ref
Rate 330.78 (186.41 - 586.94) Lung Cancer Relative 330.78 (186.41 - 586.94) Incidence Rates* Relative 330.78 (186.41 - 586.94) per 100,000 person-Rate 27.23 (3.73 - 198.52) years Rate 27.23 (3.73 - 198.52)	.94) 242.14 (115.56 - 507.37)	27.20 (9.30 - 79.58)		
Incidence Rates* Relative 27.23 (3.73 - 198.52) per 100,000 person-Rate 27.23 (a.73 - 198.52) years Rate			8.70 (2.11 - 35.94)	12.15 (1.76 - 83.88)
years Rate	52) 19.93 (2.43 - 163.77)	2.24 (0.31 - 16.26)	0.72 (0.08 - 6.15)	ref
Difference 318.63 (124.55 - 512.70)	2.70) 229.99 (74.12 - 385.86)	15.05 (-27.97 - 58.08)	-3.45 (-35.29 - 28.39)	ref
Strongly Smoking Rate 379.61 (213.37 - 675.37) Associated**	:37) 239.14 (110.04 - 519.70)	33.61 (10.66 - 105.95)	21.41 (5.00 - 91.66)	15.29 (2.35 - 99.44)
Cancers Incidence Relative 24.83 (3.64 - 169.29) Rates* Rate	29) 15.64 (1.96 - 124.96)	2.20 (0.30 - 15.93)	1.40 (0.15 - 12.93)	ref
per 100,000 person- Rate 364.32 (148.28 - 580.37) years Difference	0.37) 223.85 (59.51 - 388.20)	18.32 (-37.82 - 74.45)	6.12 (-32.84 - 45.08)	ref

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Generalized-Propensity-Score Analysis

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER

Figure 8.6: Propensity-Score Annualized Rates for Cancer Types, by Smoking Status Categories Survey weighted, age-, sex- and propensity score-adjusted; 95% Confidence Intervals





Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Note: Values should be interpreted with caution due to small numbers of events and large standard errors. ⁵ Strongly smoking associated cancers are lung and bronchus, oropharynx, esophasus and larynx cancers. *Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

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Comparative Studies

Our results show that, for total mortality rates for the entire sample, there was 2.75 times higher risk for current daily smokers compared with those who never smoked (95% Cl 1.33-5.69); this result was statistically significant. Our results are comparable to the results presented by Gellert et al., who found that being a current daily smoker was associated with almost a doubling in total mortality when compared with people who never smoked (Gellert et al., 2012).

Other studies have examined the relationship between smoking and mortality. Studies in the US and in India (Jha 2008, Jha 2013) used survival models to estimate the relationship between smoking and survival probabilities. When modeling survival probabilities, Jha found that non-smokers in the US had a 60% to 70% probability of living to the age of 80 whereas current smokers had a 60% to 70% probability of living to the age of 70. Jha et al also found a relationship between smoking and total mortality. A recent Australian study used this same approach and found a similar difference based on survival probabilities (Banks E, Joshy G, Weber MF, Liu B et al. 2015). However, neither of these sets of results correspond with life expectancy nor with the relationship between smoking and life expectancy. Instead, both Jha and Banks examined the relationship between smoking and survival probabilities—a subtle but important difference.

When we examined differences in premature mortality rates—mortality rate among individuals aged 75 years or less—we found no difference in PMR between smoking categories and non-smokers. This reinforces the idea that smokers in Manitoba are—on average—living past the age of 75. Neither Jha nor Banks examined the relationship between smoking and premature mortality (Jha 2008, Jha 2013, Banks E, Joshy G, Weber MF, Liu B et al. 2015).

Furthermore, neither Jha nor Banks studies directly modeled life expectancy; thus, they cannot report the life expectancy among smokers nor the relationship between smoking and life expectancy. Our results for premature mortality—deaths among individuals aged 75 years or less—correspond with our findings on the relationship between smoking and life expectancy. In the population-based analyses—only adjusting for age, sex, RHA, and SES—we found that daily smokers had an average life expectancy 77.13 years and 81.41 years among males and females, respectively. Current smokers' life expectancy was roughly three years less than the life expectancy for non-smokers. By modeling life expectancy directly—as compared with modeling survival probabilities—we were able to estimate the average life span among smokers and non-smokers and calculate the average difference between the two.

Summary

This chapter analyzed health outcomes by various categories of smoking status, using both estimated-populationbased and propensity-score analyses. Most of the mortality effects were seen among current daily smokers and, to a lesser extent, former daily smokers (five years or less before survey). There were greater than two-fold elevations of mortality for current daily smokers, compared to survey respondents who never smoked. That being said, it was somewhat surprising to observe that smokers' life expectancies were not substantially different than non-smokers' life expectancy—somewhere in the range of a three-year or smaller reduction in average life expectancy overall. Though smokers die slightly sooner, on average they live well into their late seventies and early eighties. Thus any additional burden of smoking on the healthcare system of Manitoba is incurred over an average lifespan with less-than-optimal health.

As previously stated, these results only reflect associations; we cannot know for certain whether these associations reflect causal relationships. However, we used methods to determine whether it was likely that the observed associations reflected underlying causal relationships. Thus, although we cannot know for certain that we have controlled for all measured and unmeasured confounding variables, the results suggest that these associations likely reflect underlying causal relationships.

CHAPTER 9: THE EXCESS HEALTHCARE COSTS ASSOCIATED WITH SMOKING

This chapter presents information on the direct costs to the healthcare system attributable to smoking, comparing the dichotomous smoking groups ("ever smoked" vs. "never smoked"). We venture to answer the question, "how much extra is the healthcare system paying each year to deal with the additional healthcare needs of people who have smoked?" This chapter builds on the analyses of chapter 5, in which we examined the different patterns of healthcare use for the two groups. It is understood that the costs attributed to the smoking categories in the categorical analyses would average out to equal the costs of the "ever smoked" category in the dichotomous analyses. Therefore, we focused on the cost differences between the dichotomous smoking groups.

We conducted the analyses three times: first, using an estimated-population-based approach; second, a matched-sample approach (based on age, sex, socioeconomic status (SES), and regional health authority (RHA)); and third, an approach that adjusts for confounding variables by using individuals' propensity scores for smoking to construct inverse-probability-of-treatment weights.

Sample Descriptions for the Analysis of Healthcare Costs by Dichotomous Smoking Status

Estimated-Population-Based Sample

Descriptive details of the estimated-population-based samples are given in chapter 4. This includes the numbers of respondents from each survey, the basic descriptive profiles, and the chronic-disease profiles of these respondents. There were 25,113 respondents in the "ever smoked" category, and 23,469 in the "never smoked" category, for a total of 48,582.

Matched Sample

A description of the methods for producing the matched sample for the analyses using dichotomous smoking status is available in chapter 3 (Methods). Chapter 5, shows tables comparing demographic and chronic-condition profiles for both groups. Data from 38,272 respondents were used: 19,136 who ever smoked and 19,136 who never smoked.

Propensity-Score Sample and Methods

Methods used to produce the sample used in the propensity-score analysis and methods pertaining to inverse-probability-of-treatment weights are described in chapter 4. In brief, we constructed average-treatment-effect-on-the-treated (ATT) weights. ATT weights work such that respondents who ever smoked receive a weight of 1; those who never smoked are assigned a weight equal to:

Propensity Score

1–Propensity Score

After applying the propensity-score weights to the data, we estimated (a) the total healthcare costs among the ever smoked group, (b) the total healthcare costs among the "never smoked" group, and then (c) the difference in costs between the two groups. As with the propensity-score analysis in chapter 5, after trimming and excluding outliers, there were 21,004 individuals in the "never smoked" category and 22,716 in "ever smoked."

Healthcare Costs: Putting Prices on Use of Healthcare Resources

In chapter 5 we compared the use of the healthcare system by dichotomous smoking status. Specifically, we looked at ambulatory visits, hospitalizations, hospital days, defined daily doses, different drugs, and use of personal care homes (PCHs). We found statistically significant relationships between smoking and healthcare use across all measures except PCH use. The challenge in this chapter is to put a price on the excess use of health system resources we observed in chapter 5. It should be noted that we were unable to include costs associated with treating cancer—costs from radiation, at-home services, chemotherapy, etc.—since these data were not available for our analyses.

Cost of Physician Services

Tariff codes available in the **medical services data** indicate how much each patient contact costs among fee-forservice physicians. Using this information we were able to calculate the costs for most physician services. In the case of those physicians who are not paid on a fee-for-service basis, the practice of **shadow billing** allowed us to impute the costs directly attributable to physician services.

Cost of Prescription Drugs

The Drug Program Information Network provided data on the costs associated with each prescription, as well as pharmacy-specific dispensation fees. We used these data to calculate the prescription-drug costs incurred by respondents who ever smoked vs. those who never smoked.

Standard Costing: Adjusting to 2010 Canadian Dollars

A further adjustment was required when we compared physician services and prescription drug costs in different years. We wanted to examine the total costs over a number of years because annual costs fluctuate significantly in a relatively small sample. In order to disentangle price changes from changes in the amount of drugs or the number of physician contacts associated with smoking over time, we adjusted physician billings and prescription drugs for price-level changes. We used Statistics Canada's all-item Consumer Price Index (CPI) to adjust physician costs and prescription-drug costs, standardizing them to 2010 Canadian Dollars. All costs are reported in 2010 Canadian dollars.

Hospital Use

It is difficult to put a cost on hospital use in a system in which neither patients nor private insurance companies are billed for particular procedures. We used two approaches to generate costs.

The first approach allowed us to account for the fact that some types of hospitalization use more resources and are more costly than others. This approach used two key measures: Cost per Weighted Case (CWC) and Resource Intensity Weight (RIW). CWC compares the total acute inpatient care expenses with the number of acute inpatient weighted cases. The result is the cost of treating the average acute inpatient. According to the Canadian Institute for Health Information (CIHI), Manitoba's CWC in 2010 was \$5,438. RIWs were provided by CIHI for each hospital discharge. Every hospitalization is assigned an RIW that depends on a number of factors known to be associated with complexity and resource use (e.g., an individual's diagnostic procedure, surgical procedure, demographic characteristics, co-morbidity profile, and type of discharge). Multiplying the RIW assigned to a hospitalization by the 2010 CWC gives us a case-specific estimate of the cost of that **hospital episode** which takes into account the relative complexity of care provided to the patient. Tables 9.1 through 9.4 in this chapter show results for this method of hospital costing.

We used a second approach to estimate hospital costs using the CWC and **hospital per diem costs** (i.e. the average cost of a day spent in hospital). According to CIHI, the mean length of stay for acute inpatients in Manitoba is nine days. This translates to weighted hospital per diem cost of \$607 for 2010. The Manitoba hospital per diem is multiplied by the number of days spent in hospital. This provides a cost associated with each patient stay. Using the per diem is an established method for adjusting the price of an average hospital stay to 2010 Canadian dollars. Results using this method are given in Appendix 6.

The two methods generated similar but not identical results. On average, RIWs assigned to respondents who ever smoked were higher than those assigned to respondents who never smoked. Since the RIW costing approach takes into account the relative complexity of care a patient received, it may be a more accurate measure for hospital costs attributable to smoking; thus, the remainder of this chapter will focus on this first method.

Calculating the Excess System Costs Incurred by Respondents Who Ever Smoked

Population-Based Method

The estimated-population-based analysis quantified the difference in costs without adjusting for confounding characteristics between the dichotomous smoking categories. In order to calculate the excess costs of smoking, we first calculated the extra costs in 2010 dollars for physicians, prescription drugs, and hospitals incurred by respondents who ever smoked, then multiplied these costs by the number of people in the population who ever smoked. This allowed us to extrapolate smoking-attributable costs to the Manitoba population. Tables 9.1-9.3 use RIW to estimate hospital costs.

Table 9.1 shows that, if we simply calculate the excess costs for respondents who ever smoked without adjusting for the different characteristics of smokers and non-smokers, then it appears that the healthcare system in Manitoba incurs an extra cost each year, on average, of more than 282 million dollars (physician, prescription, and hospital costs measured in 2010 dollars).

Fiscal Year	Smoking Population	Physician	Prescription	Hospital ⁺
1996/97	531,339	\$16,134,357	-\$5,245,362	\$74,123,943
		(-\$1,229,212 - \$33,971,443)	(-\$20,175,085 - \$7,910,146)	(-\$76,136,928 - \$219,622,842)
1997/98	507.050	\$20,608,170	\$2,673,299	\$236,742,616
1357750	507,050	(\$6,530,466 - \$33,614,779)	(-\$8,265,894 - \$13,899,528)	(\$81,417,975 - \$401,261,960)
1009/00	500 685	\$14,652,611	\$9,977,061	\$29,892,934
1556,55	500,005	(\$107,555 - \$26,583,697)	(-\$2,488,298 - \$24,174,305)	(-\$179,655,835 - \$236,905,402)
1999/00	496 119	\$22,188,302	\$6,697,063	\$74,402,143
1333700	130,113	(\$7,602,247 - \$35,960,514)	(-\$6,136,695 - \$21,097,074)	(-\$139,212,307 - \$295,033,563)
2000/01	457,238	\$25,458,810	\$12,450,372	\$50,552,169
		(\$12,690,329 - \$38,248,524)	(-\$1,566,115 - \$26,826,980)	(-\$136,240,926 - \$207,194,745)
2001/02	486,331	\$46,717,898	\$42,328,462	\$320,211,091
		(\$32,996,898 - \$60,889,903)	(\$22,080,715 - \$61,847,672)	(\$149,676,355 - \$521,130,775)
2002/03	482,384	\$48,512,841	\$53,525,290	\$142,960,985
		(\$32,772,490 - \$66,357,950)	(\$29,998,584 - \$76,837,204)	(\$2,192,998 - \$278,934,062)
2003/04	481,378	\$57,742,807	\$67,977,488	\$213,182,034
		(\$44,528,513 - \$71,522,185)	(\$44,841,968 - \$89,857,871)	(\$111,195,646 - \$318,582,083)
2004/05	477,020	\$58,220,546	\$72,340,160	\$125,520,571
		(\$45,113,334 - \$71,992,589)	(\$48,638,762 - \$92,617,825)	(\$9,328,050 - \$248,413,201)
2005/06	466,490	\$60,159,619	\$65,756,384	\$238,618,327
		(\$46,926,427 - \$73,285,227)	(\$42,000,571 - \$87,326,297)	(\$131,917,418 - \$357,755,254)
2006/07	466,854	\$63,661,271	\$79,062,102	\$132,445,468
		(\$50,915,673 - \$77,998,338)	(\$54,804,280 - \$99,343,578)	(\$19,844,156 - \$250,509,537)
2007/08	472 222	\$72,577,559	\$93,195,149	\$221,291,076
	472,222	(\$58,469,721 - \$85,344,974)	(\$69,365,676 - \$115,868,354)	(\$94,294,397 - \$337,010,848)
2008/09	483,588	\$69,610,470	\$96,872,524	\$262,406,876
		(\$52,350,061 - \$87,510,314)	(\$71,128,269 - \$123,945,603)	(\$131,984,566 - \$397,932,216)
2009/10	468,077	\$85,305,711	\$71,898,628	\$259,042,370
		(\$69,609,875 - \$102,628,044)	(\$36,376,766 - \$103,891,050)	(\$112,351,123 - \$401,123,818)
2010/11	461,075	\$80,529,425	\$107,845,442	\$235,058,793
		(\$60,614,451 - \$99,109,151)	(\$65,059,407 - \$153,430,080)	(\$36,916,587 - \$408,925,737)
2011/12	447,471	\$77,648,593	\$106,280,207	\$199,106,318
		(\$61,323,400 - \$95,191,780)	(\$62,808,263 - \$145,978,553)	(\$64,712,716 - \$347,820,667)
Average for	490 222	\$51,233,062	\$55,227,142	\$175,972,357
All Years	400,332	(\$45,868,646 - \$57,080,037)	(\$44,152,855 - \$66,052,562)	(\$133,894,591 - \$223,298,052)

 Table 9.1: Estimated-Population-Based Excess Healthcare Costs Incurred by Ever Smoked*

 1996/97-2011/12, in 2010 Dollars, Aged 12+; 95% Confidence Intervals

* Excess healthcare costs are compared to Never Smoked

+Cost per Weighted Case
If we adjust for the fact that people who ever smoked tend to be less healthy than those who never smoked largely because they are older and poorer, then our estimate of the excess costs associated with smoking declines. For the results in Table 9.2, we adjusted for age, sex, SES, and RHA. This adjusted estimate suggests that the extra costs associated with smoking directly incurred by the Manitoba healthcare system average about \$222 million per year (measured in 2010 dollars).

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Fiscal Year	Smoking Population	Physician	Prescription	Hospital ⁺
1006/07	521 220	\$19,999,835	-\$635,897	\$88,897,485
1990/97	331,339	(\$745,276 - \$37,258,394)	(-\$16,009,109 - \$14,353,340)	(-\$45,731,117 - \$223,956,427)
1007/09	507.050	\$23,156,812	\$7,603,317	\$279,231,179
1337738	507,050	(\$7,107,495 - \$34,983,663)	(-\$2,344,336 - \$17,460,995)	(\$124,379,276 - \$455,855,742)
1009/00	500 685	\$16,194,825	\$10,520,684	\$111,789,934
1998/99	500,085	(-\$129,660 - \$30,587,411)	(-\$482,243 - \$21,234,263)	(-\$100,944,838 - \$316,234,848)
1000/00	406 110	\$25,102,808	\$11,060,862	\$225,951,366
1999/00	490,119	(\$9,443,447 - \$41,328,889)	(-\$1,443,211 - \$23,723,014)	(\$8,300,769 - \$446,268,983)
2000/01	457 220	\$20,020,491	\$14,176,985	\$90,484,437
2000/01	437,230	(\$7,142,603 - \$33,741,875)	(-\$1,351,240 - \$27,362,242)	(-\$63,896,944 - \$247,320,611)
2001/02	196 221	\$29,642,835	\$33,738,234	\$307,544,945
2001/02	400,551	(\$15,537,695 - \$46,177,852)	(\$15,370,050 - \$52,936,207)	(\$126,272,612 - \$520,866,773)
2002/02	492 294	\$30,239,043	\$48,477,811	\$75,441,212
2002/03	402,304	(\$11,988,655 - \$48,388,608)	(\$24,113,500 - \$70,419,977)	(-\$48,412,931 - \$217,066,796)
2002/04	481,378	\$37,190,282	\$57,533,555	\$189,095,396
2003/04		(\$23,594,681 - \$50,631,095)	(\$31,574,475 - \$80,577,684)	(\$89,201,831 - \$284,940,054)
2004/05	477,020	\$32,985,602	\$58,035,232	\$51,197,033
		(\$19,510,904 - \$45,799,123)	(\$33,271,548 - \$80,977,522)	(-\$83,705,391 - \$161,828,418)
2005/06	466 400	\$33,362,292	\$46,988,169	\$187,742,400
		(\$20,277,315 - \$46,273,985)	(\$24,460,710 - \$68,159,492)	(\$79,796,585 - \$297,897,394)
2006/07	466.954	\$34,452,887	\$66,129,996	\$63,241,871
		(\$21,519,091 - \$49,489,146)	(\$41,938,320 - \$93,087,303)	(-\$45,738,196 - \$198,818,441)
2007/09	472 222	\$39,044,481	\$79,483,442	\$110,355,983
2007/08	472,222	(\$26,176,131 - \$53,148,224)	(\$50,566,059 - \$108,302,565)	(-\$17,729,635 - \$243,876,678)
2008/00	483,588	\$33,637,537	\$77,285,368	\$199,459,834
2008/09		(\$16,818,867 - \$53,574,380)	(\$42,723,513 - \$112,392,371)	(\$53,855,572 - \$353,362,890)
2000/10	469.077	\$57,890,059	\$49,804,182	\$233,827,000
2009/10	468,077	(\$40,120,363 - \$77,973,533)	(\$8,037,251 - \$90,152,602)	(\$80,358,817 - \$418,915,970)
2010/11	461.075	\$31,071,296	\$82,162,481	\$56,311,835
	461,075	(\$10,510,132 - \$52,614,455)	(\$30,364,636 - \$132,176,322)	(-\$140,666,525 - \$220,978,038)
2011/12	447 471	\$31,045,831	\$81,399,007	\$63,756,171
2011/12	447,471	(\$14,452,808 - \$48,584,841)	(\$26,471,099 - \$131,770,620)	(-\$82,319,600 - \$213,610,681)
Average for	490 222	\$30,939,807	\$45,235,214	\$145,895,505
All Years	480,332	(\$25,459,906 - \$36,427,261)	(\$32,618,745 - \$58,591,246)	(\$104,299,585 - \$186,805,977)

Table 9.2: Matched Excess Healthcare Costs Incurred by Ever Smoked* 1996/97-2011/12, in 2010 Dollars, Aged 12+; 95% Confidence Intervals

* Excess healthcare costs are compared to Never Smoked

+Cost per Weighted Case

We can further adjust for differences between the two smoking-status groups by taking into account many more differences between the two groups that might affect their use of healthcare resources. This method generated a very similar estimate to that yielded by simply adjusting for age, sex, RHA, and SES—\$226 million per year, on average, in 2010 dollars. This difference adjusted for the many confounding variables included in the propensity score.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER

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Year	Smoking Population	Physician	Prescription	Hospital ⁺
1000/07	E21 220	\$15,454,314	-\$5,804,565	\$62,301,790
1990/97	551,559	(-\$2,551,360 - \$33,311,526)	(-\$20,857,060 - \$8,310,740)	(-\$92,901,252 - \$198,021,008)
1007/09	507.050	\$19,611,428	\$3,174,900	\$262,322,228
1997/98	307,030	(\$7,102,776 - \$34,322,790)	(-\$8,943,854 - \$13,117,064)	(\$98,239,625 - \$441,131,348)
1009/00	E00 69E	\$16,920,801	\$11,150,179	\$66,173,608
1990/99	300,083	(\$3,124,155 - \$32,796,021)	(-\$1,859,627 - \$25,668,366)	(-\$136,658,455 - \$272,380,014)
1000/00	406 110	\$21,564,917	\$5,734,402	\$97,860,133
1999/00	490,119	(\$7,061,141 - \$35,743,933)	(-\$7,279,247 - \$19,413,285)	(-\$133,082,839 - \$310,688,783)
2000/01	457 229	\$20,732,377	\$7,750,089	\$36,711,863
2000/01	457,256	(\$7,796,065 - \$32,684,397)	(-\$6,612,108 - \$21,955,905)	(-\$149,728,231 - \$195,705,559)
2001/02	496 221	\$36,264,009	\$33,544,590	\$286,027,972
2001/02	400,551	(\$20,853,282 - \$51,746,502)	(\$14,767,601 - \$53,528,681)	(\$86,948,833 - \$499,309,650)
2002/02	402 204	\$36,604,736	\$41,003,881	\$108,211,526
2002/03	402,304	(\$20,922,491 - \$55,210,217)	(\$20,747,794 - \$63,779,044)	(-\$50,574,062 - \$251,938,535)
2002/04	481,378	\$44,805,069	\$54,410,780	\$175,917,692
2003/04		(\$30,072,676 - \$60,490,325)	(\$32,317,967 - \$78,901,118)	(\$43,694,726 - \$288,128,698)
2004/05	477,020	\$44,566,557	\$56,197,769	\$70,050,939
2004/03		(\$29,738,800 - \$58,812,405)	(\$33,757,819 - \$77,216,005)	(-\$66,779,248 - \$202,015,135)
2005/06	466 400	\$50,000,137	\$49,156,333	\$210,235,380
2005/00	400,490	(\$38,233,278 - \$63,464,149)	(\$28,187,862 - \$72,197,100)	(\$85,859,793 - \$340,174,558)
2006/07	466.954	\$49,964,706	\$61,443,909	\$79,946,699
	400,834	(\$34,164,208 - \$65,055,002)	(\$39,438,540 - \$84,176,736)	(-\$55,779,873 - \$210,460,589)
2007/08	472,222	\$61,963,148	\$72,305,010	\$196,622,521
2007/08		(\$46,972,398 - \$75,440,643)	(\$50,050,208 - \$96,774,705)	(\$63,055,259 - \$339,053,952)
2008/00	483,588	\$51,941,806	\$70,781,618	\$240,710,665
2008/09		(\$35,467,081 - \$69,163,010)	(\$40,607,714 - \$100,583,871)	(\$93,277,873 - \$382,243,918)
2000/10	469.077	\$57,699,044	\$35,958,201	\$195,733,476
2009/10	406,077	(\$41,100,501 - \$75,648,162)	(-\$3,133,725 - \$70,653,033)	(\$51,761,263 - \$352,435,224)
2010/11	461.075	\$52,152,112	\$69,113,055	\$181,099,323
	461,075	(\$32,364,840 - \$71,742,511)	(\$20,354,853 - \$114,186,789)	(-\$20,464,421 - \$359,311,312)
2011/12	447 471	\$46,111,334	\$70,314,833	\$84,039,136
2011/12	447,471	(\$28,436,633 - \$67,335,793)	(\$22,861,996 - \$121,664,170)	(-\$67,232,764 - \$231,316,005)
Average for	490 222	\$39,147,281	\$39,764,686	\$147,122,809
All Years	480,332	(\$33,803,388 - \$44,934 <u>,</u> 267)	(\$29,465,286 - \$50,943,000)	(\$92,431,537 - \$190,062,536)

Table 9.3: Propensity-Score Excess Healthcare Costs Incurred by Ever Smoked* 1996/97-2011/12, in 2010 Dollars, Aged 12+; 95% Confidence Intervals

* Excess healthcare costs are compared to Never Smoked

+Cost per Weighted Case

Year	Smoking Population	Estimated Population-Based	Matched	Propensity Score
1996/97	521 220	\$85,012,938	\$108,261,423	\$71,951,540
2000,07	331,333	(-\$81,364,636 - \$244,995,240)	(-\$45,846,866 - \$260,576,482)	(-\$98,694,214 - \$232,552,689)
1997/98	507.050	\$260,024,085	\$309,991,308	\$285,108,555
1007,00	507,050	(\$103,344,700 - \$436,405,263)	(\$135,102,552 - \$497,476,607)	(\$101,590,401 - \$466,031,608)
1998/99	500 685	\$54,522,605	\$138,505,444	\$94,244,589
2000,00	500,005	(-\$160,429,958 - \$264,167,007)	(-\$74,020,391 - \$348,897,642)	(-\$120,220,311 - \$311,813,157)
1999/00	496 1 1 9	\$103,287,508	\$262,115,035	\$125,159,453
1555,00	450,115	(-\$117,614,139 - \$335,769,115)	(\$40,636,803 - \$495,201,258)	(-\$110,084,294 - \$340,048,788)
2000/01	457 238	\$88,461,352	\$124,681,913	\$65,194,329
2000/01	437,230	(-\$117,579,037 - \$260,330,568)	(-\$36,543,674 - \$280,504,149)	(-\$115,710,663 - \$229,929,460)
2001/02	486 331	\$409,257,450	\$370,926,014	\$355,836,570
2001/02	400,001	(\$227,022,179 - \$626,612,544)	(\$183,347,680 - \$599,563,903)	(\$153,105,211 - \$573,992,245)
2002/03	182 384	\$244,999,115	\$154,158,065	\$185,820,143
2002/03	402,304	(\$80,571,309 - \$402,017,027)	(\$19,906,296 - \$306,662,258)	(\$6,972,493 - \$344,180,603)
2003/04	481,378	\$338,902,329	\$283,819,233	\$275,133,541
2003/04		(\$220,779,386 - \$460,817,904)	(\$171,906,970 - \$390,587,249)	(\$125,350,602 - \$400,032,917)
2004/05	477,020	\$256,081,277	\$142,217,867	\$170,815,264
2004/05		(\$131,147,916 - \$390,528,372)	(-\$5,764,377 - \$265,534,936)	(\$15,575,355 - \$317,130,856)
2005/06	466,490	\$364,534,330	\$268,092,861	\$309,391,850
2003/00		(\$246,692,033 - \$498,449,410)	(\$146,942,712 - \$399,812,316)	(\$164,507,331 - \$451,953,254)
2006/07	466 854	\$275,168,842	\$163,824,754	\$191,355,315
	100,001	(\$152,872,336 - \$406,690,140)	(\$42,540,305 - \$305,769,178)	(\$43,384,518 - \$332,838,168)
2007/08	472,222	\$387,063,784	\$228,883,906	\$330,890,679
2007/00		(\$254,754,783 - \$511,118,055)	(\$93,102,895 - \$387,367,185)	(\$186,965,990 - \$486,405,566)
2008/09	483,588	\$428,889,870	\$310,382,739	\$363,434,089
2000/05		(\$275,860,951 - \$584,615,887)	(\$143,873,640 - \$491,299,062)	(\$205,667,573 - \$511,175,453)
2009/10	468,077	\$416,246,709	\$341,521,241	\$289,390,721
2009/10		(\$267,249,906 - \$574,198,873)	(\$167,225,607 - \$540,237,317)	(\$127,980,418 - \$466,025,680)
2010/11	461.075	\$423,433,660	\$169,545,613	\$302,364,489
	401,075	(\$187,579,026 - \$612,556,804)	(-\$53,001,861 - \$354,957,493)	(\$76,410,079 - \$495,235,807)
2011/12	447 471	\$383,035,117	\$176,201,009	\$200,465,302
2011/12	447,471	(\$221,950,899 - \$546,456,289)	(\$19,673,120 - \$354,554,362)	(\$20,702,840 - \$372,422,479)
Average for	480 222	\$282,432,561	\$222,070,527	\$226,034,777
All Years	460,332	(\$234,352,249 - \$336,398,628)	(\$173,152,026 - \$272,607,476)	(\$166,735,324 - \$275,170,857)

Table 9.4: Total Excess Healthcare Costs Incurred by Ever Smoked Compared to Never Smoked 1996/97-2011/12, in 2010 Dollars, Aged 12+; 95% Confidence Intervals

Summary

Table 9.5 summarizes the average annual excess system cost measured in 2010 dollars for each component of healthcare, using the three different methods described above for comparing the dichotomous smoking-status groups.

Excess Costs	Estimated Population-Based	Matched	Propensity Score Weighted
Physician	\$51,233,062	\$30,939,807	\$39,147,281
Physician	(\$45,868,646 - \$57,080,037)	(\$25,459,906 - \$36,427,261)	(\$33,803,388 - \$44,934,267)
Prescription	\$55,227,142	\$45,235,214	\$39,764,686
	(\$44,152,855 - \$66,052,562)	(\$32,618,745 - \$58,591,246)	(\$29,465,286 - \$50,943,000)
Hospital	\$175,972,357	\$145,895,505	\$147,122,809
	(\$133,894,591 - \$223,298,052)	(\$104,299,585 - \$186,805,977)	(\$92,431,537 - \$190,062,536)
Total	\$282,432,561	\$222,070,527	\$226,034,777
	(\$234,352,249 - \$336,398,628)	(\$173,152,026 - \$272,607,476)	(\$166,735,324 - \$275,170,857)

Table 9.5: Average Annual Excess Healthcare Costs Incurred by Ever Smoked Compared to Never Smoked

The different methods of estimating excess costs per person reported in Tables 9.1–9.4 can be understood as a form of sensitivity analysis. The estimated-population analysis generated the highest excess costs for people who ever smoked. The matched sample suggests that the excess costs of smoking over this period are very likely to be somewhat less. The most sophisticated method—propensity-score weighting—presented in Table 9.3, takes into account all the information we have about the differences between people who had ever smoked and people who had never smoked, which might affect their healthcare use. The similarity between the two estimates for the average annual costs attributable to smoking—the estimated costs from the matched analyses and the costs generated from the propensity-score weighting—suggest that we should have confidence in our results.

These cost estimates are conservative because they exclude costs directly associated with cancer. An Ontario study estimated the mean, post-diagnosis costs for cancer at \$25,914 per person (de Oliveira et al., 2013). Mean costs per case varied by type of cancer from \$8,757 for melanoma to \$48,779 for brain cancer. The authors found that the mean cost for treating lung cancer was \$31,550. Parkin, Boyd and Walker (2011), for example, estimated that 19.4% of all newly diagnosed cancers in Britain in 2010 were attributable to tobacco. Therefore, a reasonable argument could be made that about 20% of the total expenses paid for from the general fund of CancerCare should be considered a cost attributable to smoking. In 2010, this would add \$18,342,017 to the total direct excess costs of smoking in Manitoba.

Limitations of the Analysis

Our estimates are very conservative. We limited the scope of this analysis to the direct patient costs incurred by the healthcare system. Therefore, we did not attempt to measure the productivity costs to the Manitoba economy associated with premature death or disability. For example, we did not capture costs associated with Manitoba's Employment and Income Assistance Program that might be accessed by smokers who are not able to work as long as they had planned. We did not attempt to estimate costs of informal caregiving borne by families of those smokers who suffered poor health because of tobacco use. Although these are important costs to consider, they were beyond the scope of our study.

All estimates are subject to uncertainty. Two major sources of uncertainty in the analysis in this chapter are associated with estimates of resource use and prices. Resource use and associated variances are reported in chapter 6. The prices and the CPI we used for adjusting prices to 2010 dollars are both based on statistical analyses and, therefore, subject to standard errors of estimation. Statistics Canada does not report error bounds associated with the CPI, and CIHI does not report error bounds associated with the estimates of hospital costs. We generated confidence intervals through boot-strapping. Our results here are presented with measures of precision to reflect the variability of our estimates.

One major limitation of our analysis is that we were unable to capture costs incurred by CancerCare Manitoba. Most of the chemotherapy drugs used to treat cancers are not captured by our administrative data at MCHP. Based on the previous literature, we estimated that approximately 20% of the CancerCare budget, or \$18,342,017, would be attributable to smoking (Parkin et al., 2011). This should be added to the total direct excess healthcare costs of smoking in Manitoba.

Finally, we reiterate that we were only able to measure the excess costs associated with smoking. We cannot be certain that this is a causal relationship. We used several strategies to assess the probability that these measured associations reflect underlying causal relationships. First, we used a propensity score to adjust for over 200 variables known to confound the relationship between smoking and healthcare use. Next, we compared whether our dichotomous smoking-status groups were similar. Finding that our groups were similar after adjusting for the propensity score increases the probability that our measured associations reflect underlying causal relationships. However, we cannot know for certain that we have, in fact, adjusted for all measured and unmeasured confounding. Therefore, it is best to interpret these results as associations first, and ask whether it is probable that an underlying causal relationship may exist.

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CHAPTER 10: CONCLUSION

Summary

This study's research objective was to estimate the burden that smoking places on the healthcare system in terms of healthcare use and associated costs. We used a combination of survey data and administrative data to meet this objective. Specifically, we used data from three surveys to measure smoking behaviours in the Manitoba population: the Manitoba Heart Health Survey (MHHS), the National Population Health Survey (NPHS), and 10 cycles of the Canadian Community Health Survey (CCHS). These survey data were then linked with administrative data held in MCHP's Population Health Research Data Repository. We used these linked data to measure differences in healthcare use by smoking status.

We operationalized our research objective in three broad steps:

We divided individuals into two groups, those who had ever smoked and those who had not, and then we compared their healthcare-use patterns.

We divided individuals into five categories and compared healthcare-use patterns among these categories: (1) current daily smoker at time of survey; (2) former daily smoker five years or less before survey (i.e., the individual quit smoking daily five years or less before the time of survey); (3) former daily smoker more than five years before survey; (4) never a daily smoker and occasional smoker (this includes both current and former occasional smokers); and (5) never a smoker (never smoked, not even one cigarette).

We assigned direct costs for each individual's healthcare use. Assigned costs were used to estimate the total costs for treating respondents in the "ever smoked" and "never smoked" categories. We calculated the difference in costs between these groups to estimate the additional cost burden smoking places on Manitoba's healthcare system.

We used statistical techniques to make the dichotomous "ever smoked" and "never smoked" categories as similar as possible. That is, we sought to compare smokers with very similar non-smokers. The more similar our comparison groups are, the more plausible that any observed differences in healthcare use and healthcare costs can be attributable to differences in smoking status. We used this analytic approach, comparing similar individuals across exposure categories, in each of our analyses. We consistently found that, after adjusting for several confounding characteristics, smoking was associated with increased healthcare use and increased costs, across a variety of sectors. We also found that in Manitoba smokers tended to have a relatively normal lifespan, living into their late 70s and early 80s. To summarize:

Smokers used more healthcare services compared with people who never smoked.

This increase in healthcare use translates into increased costs.

The burden smoking places on the healthcare system is not reduced by early mortality.

Thus, our study suggests that smoking leads to increased use of healthcare services over the same lifespan. Smoking places a substantial burden on Manitoba's healthcare system. We estimate that, on average, smoking costs the Manitoba healthcare system between \$222 million and \$282 million per year. This estimate is based on the prevalence of smoking in 2011, which was the lowest in our observation period. Therefore, this estimate may underestimate the total direct cost of smoking on the healthcare system.

Key Findings

Characteristics of People Who Smoked

Consistent with other studies, we found that people who smoked are more likely to be older, male, and from neighborhoods with lower SES (Emmons et al., 1998; Health Canada, 2012; Pan, 2004; Reid et al., 2014; Sanmartin et al., 2013). We also found behavioural characteristics that were associated with smoking: smokers were more likely to report being overweight or obese and more likely to report binge drinking; these findings also mirrored other studies' results (Azagba & Sharaf, 2014; Emmons et al., 1998). We found that those who reported smoking had higher rates of arthritis, cancer, diabetes, hypertension, ischemic heart disease, stroke, and mood and anxiety disorders, but less likely to have osteoporosis (administrative-based diagnoses).

Smoking Prevalence

Our data suggests that smoking prevalence has decreased in Manitoba from 1989 to 2011. The adjusted rate (weighted for the Manitoba population, and age- and sex-adjusted) decreased from 65.5% (95% CI 62.7–68.2) in 1989 to 41.7% (95% CI 38.3–45.2) (p<0.05) in 2011. The prevalence of current daily smoking also decreased: from 21.7% in 1996 to 13.9% in 2011 (p<0.05).

Difference in Healthcare Use: "Ever Smoked" vs. "Never Smoked"

We found the strongest relationship between smoking status and hospitalization; compared with those who "never smoked," respondents who "ever smoked" had a 16%–48% increased risk for hospitalization and a 16%–49% increased number of days spent in hospital. These results translate to 11,047 to 16,840 extra hospitalizations and 78,061 to 161,158 extra hospital days associated with smoking per year. Our analyses also showed that respondents who reported ever smoking had between a 4% and 14% elevation in ambulatory-care visits per person year. Thus, we estimate that 98,820–291,968 ambulatory visits each year can be attributed to smoking. We also found that those in the "ever smoked" category had between a 9% and 25% higher number of prescription drugs and 0%–25% increased defined daily doses of pharmaceuticals per person year. This means that 135,024 to 405,072 extra different drugs and up to 44,081,373 additional defined daily doses can be attributed to smoking per year. Personal care home use was not associated with being in the "ever smoked" versus "never smoked" group.

Difference in Health Outcomes: "Ever Smoked" vs. "Never Smoked"

Although our study did not focus on examining health outcomes , we did study a select few: mortality, life expectancy at age 50, and cancer.

After adjusting for confounding characteristics, we observed very few statistically significant differences in premature mortality rate (PMR) and potential years of life lost (PYLL) between the "ever smoked" and "never smoked" groups. However, we did observe that those in the "ever smoked" group had a statistically significantly higher totally mortality rate compared with the "never smoked" group. This suggests that, for the most part, individuals who have smoked are living beyond the age of 75.

When we estimated differences in life expectancy, we found small differences between the two smoking categories. Females who never smoked had a life expectancy of 84 years and females who ever smoked had an estimated life expectancy of 83 years. Likewise, males who never smoked had a life expectancy of 81 years while males who never smoked had a life expectancy of 80 years. After adjusting for confounding, both sexes had a difference in life expectancy of approximately one year.

Results for life expectancy correspond with results for PMR where we found that those who smoked do not have different mortality rates compared with those who have never smoked—before the age of 75. This corresponded with our life-expectancy results where we observed that the average lifespan among smokers in Manitoba is in the late 70s and early 80s for males and females, respectively.

We found that respondents in the "ever smoked" category had a 474% to 3,652% increased risk of lung cancer, which translates to 531–782 additional cases of lung cancer per year. When we turned our attention on those cancers that have been shown in the literature to be related to smoking, we found statistically significant results. For cancers that are strongly associated with smoking, we found that those in the "ever smoked" category had between a 443% and 4,192% increased risk for cancer, which translates to 539–814 additional cases of strongly-smoking-associated cancers per year. We did not find any statistically significant differences in overall cancer incidence rates when comparing the two smoking categories. Although this result may seem surprising at first glance, it reflects the facts that (a) cancer is a rare event, and (b) few cancers have been shown to be directly associated with smoking.

Difference in Healthcare Use: Comparing Five Categories of Smoking Status

After dividing the respondents into five smoking categories, we examined differences in healthcare use.

Similar to the analysis that used a dichotomous variable for smoking exposure, we found the strongest relationship between smoking and hospitalization. When comparing the four smoking categories to the "never smoked" category, we observed a 24%–75% elevation in hospitalizations. We also found that individuals in the smoking categories had between 5% and 13% extra days in hospital compared with those who never smoked. We found that the smoking categories had increased use of pharmaceuticals, both in terms of defined daily doses and the mean number of different drugs. As with the dichotomous smoking-exposure analyses, we failed to find statistically significant differences in the use of personal care homes.

Difference in Health Outcomes: Comparing Five Categories of Smoking Status

We also examined differences in a select few health outcomes across the five categories of smoking status. In our propensity-score adjusted analyses, we found few significant differences in PMR when comparing respondents from each of the smoking categories with those who never smoked. In our propensity-score adjusted analysis, we found a significant difference in PYLL among current and former daily smokers. When examining total mortality, we found an elevated rate of mortality among current daily smokers. Other categories did not show statistically significant associations.

Differences in life expectancy were concentrated among current daily smokers, and both categories of former daily smokers. Male current daily smokers had a 3.64-year decrease in life expectancy compared with respondents who never smoked (77.13 vs. 80.77 years); female current daily smokers had a 3.18 year decrease (81.41 vs. 84.59 years). Males who reported quitting daily smoking five years or less before survey had a 2.89 year decrease (77.88 years); females in the same category had a 2.51 year decrease (82.08 years). Finally, males who quit smoking over five years before survey had a 0.70 year decrease in life expectancy (80.07 years); females in the same category had a 0.60 year decrease (83.99 years).

We found that current daily smokers and former daily smokers who quit five years or less before survey had elevated incidence rates of lung cancer (2,623% and 1,893%, respectively). We also found that current daily smokers and former daily smokers who quit fives years or less before survey had elevated rates of cancers strongly associated with smoking (2,372% and 1,464%, respectively). Similar to the analyses that used a dichotomous exposure variable ("ever smoked" vs. "never smoked"), we did not find any statistically significant differences in overall cancer incidence rates among the different smoking categories.

The Healthcare Costs Attributable to Smoking in Manitoba

After examining differences in healthcare use associated with smoking, we were equipped to examine smoking-related healthcare costs. We calculated the direct healthcare costs attributable to smoking in Manitoba. Our cost estimates used results from the analyses that used a dichotomous smoking-exposure variable. We estimated the average, individual-level difference in costs, comparing respondents who ever smoked with those who never smoked. We adjusted for confounding variables in a variety of ways to make fair comparisons. The result was that we compared sick smokers with sick non-smokers and we compared healthy smokers with healthy

non-smokers. Thus, any difference in average individual-level costs can more readily be attributed to smoking rather than to other factors. We then multiplied these individual cost differences by the prevalence of smoking in Manitoba to estimate the provincial cost burden of smoking.

In our most conservative analyses, which adjusted for over 200 measured characteristics with a propensity score, we found that respondents who ever smoked, had \$39,147,281 in excess physician costs per year. In our most conservative analyses, we found that smoking was associated with an excess of \$39,764,686 in prescription drugs per year. We also observed that smoking was associated with an excess of \$147,122,809 in hospital costs per year. When we modelled the total costs, across all sectors of the healthcare system, we found that, on average, smoking costs the health system \$226,034,777, per year. These results are comparable to a recent study published by Krueger et al., which found that smoking costs the healthcare system approximately \$260 million in direct costs (Primary Prevention Syndicate, 2013).

Limitations

Our analyses did not include the entire population of Manitoba, but only those surveyed for information about smoking behaviour. However, each survey was designed to be representative of the entire population after applying survey-sample weights.

All iterations of the NPHS and the CCHS excluded people living in First Nations communities. Therefore, our results regarding the associations between smoking and healthcare use and costs may not be generalizable to these populations.

We were also limited by the fact that smoking status is self-reported. Our data may have been subject to status-misclassification: (1) individuals could report that they smoke less than they really do, and (2) individuals may change their smoking status over time.

Relating to the first point, Wong et al. compared self-reported smoking status to urinary cotinine concentrations and found that self-report of smoking provides a valid measure of smoking behaviour among Canadians (2012). Furthermore, we would expect that misclassification due to a social desirability bias would push our results towards null; that is, smokers would underreport the intensity of their smoking behaviours and, as a result, minimize any differences between the two groups.

Clearly, we were unable to assign individuals randomly to categories of smoking status. Thus, any observed differences in healthcare use and healthcare costs could be attributable to unobserved characteristics rather than to smoking. Since we are unable to know for certain whether differences in healthcare use and costs are from smoking or from unobserved characteristics, we remind the reader that the results we presented are associations. We do ask, though, whether it is likely that observed differences reflect underlying causal relationships. In order to strengthen our ability to draw causal inferences from our results, we employed a variety of techniques. One of those techniques was to use a **high-dimensional propensity score**, comprising over 200 measured characteristics, to control for confounding characteristics. After adjusting for the propensity score, we found that our categories of smoking status were similar on a wide variety of confounding characteristics at baseline—comorbidity, SES, sex, health behaviours, etc.—makes it more likely that observed differences in healthcare use and costs can be attributable to smoking rather than to unobserved, confounding characteristics.

Strengths

One of the major strengths of our study is the use of linkable administrative data. Much of the previous work on smoking's relationship with healthcare use has employed healthcare data that are self-reported. We were able to make use of individuals' interaction with the healthcare system. Since our data are linkable, at the individual-level, we were able to follow our sample across all sectors of the healthcare system and over time. We also took several steps to assess the likelihood that our observed associations reflected underlying causal relationships. For example, we used a strategy to adjust for over 200 confounding covariates, we examined whether our adjustment strategy made our smoking groups comparable, and we assessed whether the relationships between smoking and healthcare use persisted across a variety of analytic approaches. Each of these steps strengthens our ability to ascertain whether it is likely that the observed associations reflected underlying causal relationships. Thus, our results are able to paint a comprehensive picture of the relationship that smoking has to costs in a publicly funded healthcare system.

Conclusions and Further Research

Our findings suggest that efforts to reduce smoking rates in Manitoba have the potential to significantly reduce the burden placed on the healthcare system: in terms of hospital use, physician services, and pharmaceuticals. The biggest differences in healthcare use were observed among the current daily smokers and those who recently quit daily smoking. This suggests a possible target population for smoking-reduction efforts.

We may already be reaping some of the benefits of a reduction in smoking rates. Over the past 20 years the prevalence of daily smoking has decreased. This was confirmed in a sub-analysis we conducted, where we found that, of the 217 daily smokers identified in 1994 data, only 121 remained daily smokers in 2008. Thus, it appears that some of the strategies adopted by Manitoba Health Healthy Living and Seniors may be effective in reducing smoking rates.

We acknowledge that the numbers presented in this report exclude important smoking exposures such as second-hand smoke. Further research is required to study whether exposure to second-hand smoke is also associated with increased healthcare use and whether it places a population-level financial burden on our publicly funded healthcare system.

Although smoking rates are decreasing, e-cigarettes are becoming increasingly popular. This study was only able to examine the relationship between smoking cigarettes and healthcare use. Future research is required to examine whether e-cigarettes are associated with similar increases in healthcare use and costs.

Future research that goes beyond the direct costs to the healthcare system and assesses the indirect costs associated with smoking such as lost productivity due to illness, decreased performance, etc., is also required.

While the sum of our results identifies a direct burden that smoking cigarettes places on the healthcare system, it is only the starting point for quantifying the full burden of smoking in Manitoba.

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GLOSSARY OF TERMS AND TECHNICAL DEFINITIONS

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

A population/patient case-mix-adjustment system developed by researchers at Johns Hopkins University School of Hygiene and Public Health in Baltimore, Maryland, U.S.A to measure the illness burden (morbidity) of individual patients and enrolled populations. This system quantifies morbidity by grouping individuals based on their age, gender, and ICD-9-CM and ICD-10-CA diagnoses from their hospitalizations and **physician visits** over a defined time period (typically one year). The goal of the ACG system is to assign each individual a single, mutually exclusive ACG value, which is a relative measure of the individual's expected or actual consumption of health services.

Adjusted Rates

Rate values that are statistically adjusted to control for differences in the distributions of confounding variables (e.g., demographic, socio-economic, comorbidity) to allow fair comparisons between study cohorts.

For example, an age- and sex-adjusted rate represents the value that the cohort would have had if their age and sex distribution was the same as the standard population.

In this study, statistical models were used to calculate and compare rates between the smoking and non-smoking groups. Rates were calculated using several adjustments: i) crude (no adjustment); ii) age- and sex-adjusted; iii) age-, sex-, regional-health-authority- (RHA), and income-quintile-adjusted; and iv) age-, sex-, RHA-, income-quintile- and resource-utilization-band (RUB)-adjusted.

To estimate and compare most adjusted rates of events measured in this study, the count of events for each indicator was modeled using a **generalized linear model** (**GLM**). GLMs are used to model non–normal data, such as count data. Essentially, when data follows a non-linear distribution, a link function transforms the data so that the non-linear response can be analyzed using linear regression techniques. Non-linear distributions chosen to model data in this report were the Poisson distribution, negative binomial distribution, or binomial distribution, depending on which distribution provided the best fit to the data. Covariates included in each model varied depending on the indicator under study, and the adjustment, but all models contained a covariate describing the smoking status—i.e., "**ever smoked**" vs. "**never smoked**" groups or categories of smoking status (reference=overall). Other covariates included were age (age groups or linear and quadratic terms, depending on model fit), sex (reference=female), RHA (reference=Winnipeg), income quintile (reference=Q5, highest income), and RUB (reference=5, most comorbidities). In cases of underdispersion, RHA, income quintile and RUB covariates were further grouped: RHA grouped as Winnipeg and Non-Winnipeg, income quintile grouped as low income (Q1, Q2, income unknown) and mid/high income (Q3, Q4, Q5); and RUB grouped as few comorbidities (0, 1, 2, 3) and many comorbidities (4, 5).

To generate the adjusted rates, relative risks were estimated via contrast estimates for each smoking cohort. To estimate relative risks of rates rather than events, the log of the **person-years** in each stratum was included in the model as an offset. Relative risks were calculated from the contrast estimates, and these contrasts were also used to compare the relative risks between smoking cohorts. The values obtained from the contrasts were actually a linear combination of the natural logarithm of the parameter estimates, so an exponential transformation was necessary to obtain estimates of relative risk of events in their original scale. Finally, the adjusted rates were calculated by multiplying the crude reference rate—the overall **crude rate** for all smoking cohorts combined—by the appropriate relative risk estimate.

Age Calculations

For most indicators in this report, age is calculated as of the survey date for each respondent. For rates including more than one year of data, individuals are aged one year per person-year of follow-up. So for a rate per 10 **person-years** an individual may change age strata more than once, depending on how age is grouped in the regression model.

Ambulatory Visits (Physician Visits)

Almost all contacts with physicians (general (family) practitioners and specialists): office visits, walk-in clinics, home visits, visits to **personal care homes**, and visits to outpatient departments. Excluded are services provided to patients while admitted to hospital and emergency department visits. In previous MCHP reports, visits for prenatal care were excluded due to global physician tariffs that could not capture the actual number of prenatal visits, but now due to improved coding practices prenatal visits are included.

The weighted rate of ambulatory visits per survey respondent aged 12 and older was calculated one, three, five, and 10 years after survey. Prenatal visits were included, but how prenatal visits were captured in medical claims data has changed over time. Before October 2000, physicians billed for all prenatal visits related to one woman's pregnancy under a global tariff, which meant that the actual number of prenatal visits were not captured. After this date physicians billed for each prenatal visit separately rather than using a global tariff.

Anatomical Therapeutic Chemical (ATC) Classification

A widely used drug classification system, derived from the World Health Organization's Collaborating Centre for Drug Statistics Methodology. The drugs are divided into different groups at five levels according to the organ or system on which they act and/or therapeutic and chemical characteristics: i) anatomical group; ii) therapeutic main group; iii) therapeutic/pharmacological subgroup; iv) chemical/therapeutic/pharmacological subgroup; and v) subgroup for chemical substance.

Arthritis Prevalence

In this study, using administrative data, the weighted crude **prevalence** of arthritis was calculated for survey respondents aged 12 and older in the two years prior to their survey date. Arthritis was defined by one of the following conditions:

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

Drug Program Information Network data were not available for respondents of the **Manitoba Heart Health Survey**, so a different algorithm was chosen with similar sensitivity and specificity: one or more hospitalizations or two or more **physician visits** in the three years prior to survey date.

In the survey data, a question about arthritis was asked in the **National Population Health Survey** and nearly all the **Canadian Community Health Survey** (**CCHS**) waves with the exception of CCHS 2.2. Respondents were asked, "Do you have arthritis or rheumatism excluding fibromyalgia?" ("Or rheumatism" was dropped from the question after 2005.) Possible responses include "yes", "no" or "don't know."

The weighted crude self-reported prevalence of arthritis was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" and those with missing or invalid data were excluded from the prevalence calculation.

ATC code	Generic Drug Name	ATC code	Generic Drug Name
A07EC01	sulfasalazine	M02AA09	bufexamac
H02AB04	methylprednisolone	M02AA15	diclofenac
H02AB06	prednisolone	M02AC	Preparations with salicylic acid derivatives
H02AB07	prednisone	M04AA01	allopurinol
H02AB08	triamcinolone	M04AA03	febuxostat
H02AB10	cortisone	M04AB01	probenecid
J01AA08	minocycline	M04AC01	colchicine
L01AA01	cyclophosphamide	N02AA01	morphine
L01BA01	methotrexate	N02AA03	hydromorphone
L04AA01	cyclosporine	N02AA05	oxycodone
L04AA11	etanercept	N02AA55	oxycodone, combinations
L04AA12	infliximab	N02AA59	codeine, combinations excl. psychotropic drugs
L04AA13	leflunomide	N02AB02	meperidine
L04AA14	anakinra	N02AB03	fentanyl
L04AA17	adalimumab	N02AD01	pentazocine
L04AB05	certolizumab pegol	N02AX02	tramadol
L04AB06	golimumab	N02AX52	tramadol, combinations
L04AX01	azathioprine	N02BA01	acetylsalicylic acid (tablet strength > 325 mg)
M01AA01	phenylbutazone	N02BA11	diflunisal
M01AB01	indometacin	N02BE01	acetaminophen
M01AB02	sulindac	N02BE51	acetaminophen, combinations excl. psychotropic drugs
M01AB03	tolmetin	P01BA02	hydroxychloroquine
M01AB05	diclofenac	R05DA04	codeine
M01AB08	etodolac		
M01AB15	ketorolac		
M01AB55	diclofenac, combinations		
M01AC01	piroxicam		
M01AC02	tenoxicam		

List of Drugs Used to Treat Arthritis

umanitoba.ca/faculties/medicine/units/mchp
Glossary page 169

H02AB06prednisoloneH02AB07prednisoneH02AB08triamcinoloneH02AB08triamcinoloneH02AB10cortisoneJ01AA08minocyclineL01AA01cyclophosphamideL01AA01cyclosporineL04AA01cyclosporineL04AA11etanerceptL04AA12infliximabL04AA13leflunomideL04AA14anakinraL04AA17adalimumabL04AA17adalimumabL04A805certolizumab pegolL04A806golimumabL04A801phenylbutazoneM01A801indometacinM01A802sulindacM01A803tolmetinM01A804etoolacM01A805diclofenacM01A805diclofenac, combinationsM01A806neloxicamM01AC01piroxicamM01AC02tenoxicamM01AC03ketoprofenM01AE04fenoprofenM01AE05ficuprofenM01AE09flubiprofenM01AE09flubiprofenM01AE09flubiprofenM01AE09flubiprofenM01AE09flubiprofenM01AE09rofecoxibM01AE01iaprozenM01AE02rofecoxibM01AE03valdecoxibM01AE04fenoprofenM01AE05sodium aurothiomalateM01AE01sodium aurothiomalateM01AE03auranofinM01AE04penicillamine	H02AB04	methylprednisolone
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J01AA08minocyclineL01AA01cyclophosphamideL01BA01methotrexateL04AA01cyclosporineL04AA11etanerceptL04AA12infliximabL04AA13leflunomideL04AA14anakinraL04AA15certolizumab pegolL04A805certolizumab pegolL04A806golimumabL04A807azathioprineM01A801phenylbutazoneM01A802sulindacM01A803tolmetinM01A804etoolacM01A805diclofenacM01A805diclofenac, combinationsM01A805diclofenac, combinationsM01A805diclofenac, combinationsM01A806meloxicamM01A807piroxicamM01A808tetorolacM01A809ibuprofenM01A800meloxicamM01A801ibuprofenM01A802naproxenM01A803ketoprofenM01A804fenoprofenM01A805flurbiprofenM01A809flurbiprofenM01A809mefenamic acidM01A800mefenamic acidM01A801nabumetoneM01A803valdecoxibM01A804auronfinM01A805sodium aurothiomalateM01A805aurothioglucoseM01A804aurothioglucoseM01A805aurothioglucoseM01A805aurothioglucoseM01A805aurothioglucoseM01A805aurothioglucoseM01A805aurothiogluco	H02AB10	cortisone
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M01AE11tiaprofenic acidM01AE12oxaprozinM01AG01mefenamic acidM01AH02rofecoxibM01AH03valdecoxibM01AK01nabumetoneM01CB01sodium aurothiomalateM01CB03auranofinM01CB04aurothioglucoseM01CC01penicillamine	M01AE09	flurbiprofen
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M01AH03valdecoxibM01AX01nabumetoneM01CB01sodium aurothiomalateM01CB03auranofinM01CB04aurothioglucoseM01CC01penicillamine	M01AH02	rofecoxib
M01AX01nabumetoneM01CB01sodium aurothiomalateM01CB03auranofinM01CB04aurothioglucoseM01CC01penicillamine	M01AH03	valdecoxib
M01CB01sodium aurothiomalateM01CB03auranofinM01CB04aurothioglucoseM01CC01penicillamine	M01AX01	nabumetone
M01CB03 auranofin M01CB04 aurothioglucose M01CC01 penicillamine	M01CB01	sodium aurothiomalate
M01CB04 aurothioglucose M01CC01 penicillamine	M01CB03	auranofin
M01CC01 penicillamine	M01CB04	aurothioglucose
· · ·	M01CC01	penicillamine

Commonly defined in the social sciences as having five or more alcoholic drinks on one occasion. In the **Canadian Community Health Survey (CCHS)** and **National Population Health Survey (NPHS)**, 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 1.5 ounces of liquor.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER R

In this study, using survey data, the weighted crude **prevalence** of binge drinking was calculated for survey respondents aged 12 and older as the percentage of respondents who reported consuming five or more alcoholic drinks on one occasion at least once per month over the past year (in the CCHS and NPHS); and five or more drinks on a day that they drink alcohol (in the **Manitoba Heart Health Survey** (**MHHS**)). Respondents who answered "don't know" and those with missing or invalid data were excluded from the prevalence calculation.

Questions about alcohol consumption were asked in all the survey waves. In the MHHS respondents were asked, "In the past 12 months, have you had a drink of beer, wine, liquor or other alcoholic drink?" Those that answered "yes" were then asked, "On a day when you drink alcohol, how many drinks on average do you have throughout the day?" Responses were grouped as five or more drinks and four or fewer. In the NPHS and CCHS respondents were asked, "During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?" Those who did not answer "no" were then asked, "How often in the past 12 months have you had five or more drinks on one occasion?" Possible responses include "never,""less than once a month," "once a month," "2 to 3 times a month," "once a week," "more than once a week," "don't know," or not stated or a refusal to answer.

Body Mass Index (BMI)

A statistical 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 and, typically, ranges from 15 to 45.

Questions about, or measurements of height and weight were included in all the surveys. The weighted crude **prevalence** of normal/underweight, overweight and obese persons were calculated for survey respondents aged 12 and older as the percentage of respondents with BMI values less than 25, 25 to less than 30, and 30 and over, respectively. BMI values were based on either measured or self-reported values of height and weight. In the case of self-reported values of height and/or weight, BMI was corrected using the formulae below, specific for men and women. Due to a different sampling frame for the **Manitoba Heart Health Survey (MHHS**), such as the inclusion of First Nations living on reserve, respondents of the MHHS had a different set of correction formulae. These corrections are not applicable to children, and so were only applied to adults age 18 and older. Women pregnant at the time of survey and respondents who answered "don't know" and those with missing or invalid data were excluded from the prevalence calculation.

NPHS and CCHS:

Males:	Corrected BMI = Self-reported BMI x 1.0531 – 0.4082
Females:	Corrected $BMI = Self$ -reported $BMI \times 1.0506 + 0.0850$
MHHS:	
Males:	Corrected BMI = Self-reported BMI x 0.9764 + 0.8411
Females:	Corrected BMI = Self-reported BMI x 1.0005 + 0.2095

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)

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Last JM. A dictionary of epidemiology. 3rd edition. New York, NY: Oxford University Press; 1995.

Canadian Census Data

Social data based on a population survey (census) that include aggregate demographic information such as age, sex, marital status, employment, and income for all persons and housing units within a dissemination area in Canada. Statistics Canada conducts a census every five years. It takes account of all Canadian citizens (by birth and by naturalization), landed immigrants, and non-permanent residents together with family members living with them (Statistics Canada, 2009). Dissemination areas include 400–700 persons and the data can be aggregated upward to various geographic levels.

Statistics Canada. 2006 Census Dictionary: Overview of the Census. 2009. http://www12.statcan.ca/english/ census06/reference/dictionary/ovtoc.cfm. Accessed on December 11, 2014.

Canadian Community Health Survey (CCHS)

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 use for 136 health regions in Canada, including the territories. In Manitoba, survey participants are sampled from 11 different regions. Participants for most surveys are 12 years of age and older; the sampling methodology was designed to ensure over-representation of youth under 19 and seniors aged 65 years and older. The survey excludes populations living on Indian reserves, Canadian Forces bases, in some remote areas, and those not living in households.

Cancer Incidence and Prevalence (Any Site)

In this study, using administrative data, the weighted **incidence** rate of cancer per 100,000 **person-years** was calculated for survey respondents aged 12 and older at one, three, five, and 10 years post survey date. Any new case diagnosed up to ten years after survey was included in the incidence rates, so that if a person were diagnosed with a new, different type of cancer in the follow-up period, both cases would be counted. In addition, the weighted crude **prevalence** of cancer was calculated for survey respondents aged 12 and older in the five years prior to their survey date as the percentage of people diagnosed with at least one case of cancer from any site. All types of invasive cancer are included, except for non-melanoma skin cancers diagnosed between 1984 and 2011. Cancer sites included were identified by ICD-O-3 topography axis codes C00-C97, except C44. Cancer data were provided by CancerCare Manitoba.

In the survey data used in this study, a question about cancer was asked in all the survey waves except for the **Manitoba Heart Health Survey**. Respondents were asked, "Do you have cancer?" Possible responses include "yes", "no" or "don't know."

The weighted crude self-reported prevalence of cancer was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" or those with missing or invalid data were excluded from the prevalence calculation.

Confidence Interval

An interval, calculated from data, which contains a population parameter, such as the population median or mean, with specified probability. For example, a 95% Confidence Interval (written as "95% CI") would have a 95% probability of containing the true population value.

Costs per Weighted Case (CWC)—See Hospital Costs per Weighted Case (CWC)

Cross-sectional Survey

A survey that collects data on a sample population at one point in time. As such, all measures resulting from this type of survey are static measures and changes to the sample population over time cannot be determined. Cross-sectional surveys are useful for estimating **prevalence** of a disease or condition in a population, as well as comparing two or more groups at a single point in time.

Crude Rate

A crude rate measures the frequency of events within a defined population over specified metric (often time). One common crude rate is the crude incident rate. A crude incident rate measures the number of new cases in a population relative to person-time over the observation period. For example, if we follow 100,000 Manitoba residents over an observation period of one year, we have 100,000 person-years. If three individuals in this group develop an incident case of lung cancer during this observation period, then the crude incident rate is 3 incident cases of lung cancer per 100,000 person-years. Based on this rate, we would expect 3 additional incident cases of lung cancer for each additional 100,000 person-years. If we followed 100,000 individuals for two years, we would expect six incident cases of lung cancer. If we followed 200,000 individuals for one year, we would expect six cases of lung cancer. Rates do not have to involve the element of time. For example, we could be interested in the number of motor vehicle collisions in a population relative to the number of kilometers driven in the population. If 1,000 individuals each drive 100 kilometers, this represents 100,000 person-kilometers. If there are 3 motor vehicle collisions in this population, the collision rate becomes 3 per 100,000 person-kilometers. Crude rates are helpful in determining the burden of disease, or number of residents who have an illness or have experienced an event. This is in contrast to **adjusted rates**, which statistically adjust the crude rates to estimate what a region's rate might have been if the local population's age and sex distribution was the same as that for the entire province. Crude rates can potentially be affected by the age and sex distribution of a region; hence most rates are adjusted for fair comparisons between regions

Days in a Personal Care Home (PCH)

In this study, the weighted rate of days residing in a PCH per survey respondent aged 70 and older was calculated one, three, five, and 10 years post survey. Institutionalized people, such as those residing in a PCH, are not included in the sampling frame of the surveys so all survey respondents would only be admitted to PCH after they took the survey. The total number of days residing in a PCH after survey were counted, taking into account transfers so as to not double-count any days. Stays lasting longer than the follow-up period were truncated so that the maximum number of days would not exceed each respondent's person-time.

The total number of days spent as an inpatient in a hospital. In this study, the weighted rate of days in hospital per 1,000 survey respondents aged 12 and older was calculated one, three, five, and 10 years after survey. The total number of days in hospital after survey were counted, taking into account transfers so as to not double-count any days. All Manitoba hospitals were included; PCHs, nursing stations, and long-term care facilities were excluded (Deer Lodge Centre, Manitoba Adolescent Treatment Centre, Rehabilitation Centre for Children, and Riverview Health Centre). Out-of-province hospitalizations for Manitoba residents were also included.

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Defined Daily Doses (DDD)

A measure of the intensity of use of pharmaceuticals. It is the assumed average maintenance dose per day for a drug product when used for its major indication in everyday practice. It standardizes the measurement of drug utilization within and between drug entities and can be used to describe drug utilization across a population, and measure various aspects of intensity. A clinical measure can also be calculated. This is a technical unit of measurement and does not necessarily reflect the actual amount or dose used; it is also limited to solid drug forms only. DDDs are assigned per **Anatomical Therapeutic Chemical (ATC) Classification** 4th level by the WHO Collaborating Centre for Drug Statistics Methodology in Norway.

In this study, the weighted average number of DDDs for each survey respondent was calculated one, three, five, and 10 years post survey. Nearly all prescriptions dispensed from community-based pharmacies across the province were included; prescription drugs given to hospitalized patients and some nursing home residents in PCHs with hospital-based pharmacies were not included. Prescriptions were limited to solid drugs covered by Manitoba Health's Pharmacare program, and prescriptions for over-the-counter drugs were excluded. These exclusions were made in order to common set of drugs that could be compared fairly across the province.

Diabetes Prevalence

In this study, using administrative data, the weighted crude **prevalence** of diabetes was calculated for survey respondents aged 12 and older in the three years prior to their survey date. Diabetes was defined by one of the following conditions:

- one or more hospitalizations with a diagnosis of diabetes, ICD-9-CM code 250; ICD-10-CA codes E10–E14;
- two or more **physician visits** with a diagnosis of diabetes (ICD-9-CM code as above); or
- one or more prescriptions for medications to treat diabetes (ATC code A10, specific drugs that were included are listed below).

DPIN data were not available for respondents of **Manitoba Heart Health Survey** (**MHHS**), so a different algorithm was chosen with similar sensitivity and specificity: one or more hospitalizations or two or more physician visits in the three years prior to survey date. This measure of diabetes combines type 1 and type 2 diabetes because **physician claims** data do not allow separate identification. Gestational diabetes has a separate diagnosis code and is not specifically included here, but some cases may be included if gestational diabetes was not properly coded.

A question about diabetes was asked in all the survey waves. MHHS respondents were asked, "Have you been told by a doctor that you have diabetes?" Possible responses include "yes," "no" or "not sure." In the **National Population Health Survey** and **Canadian Community Health Survey** respondents were asked, "Do you have diabetes?" Possible responses include "yes, "no," or "don't know." The weighted crude self-reported prevalence of diabetes was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" or "not sure" or those with missing or invalid data were excluded from the prevalence calculation.

List of drugs used to treat diabetes:

ATC code	Generic Drug Name
A10A	insulins and analogues
A10BA02	metformin
A10BB01	glibenclamide
A10BB02	chlorpropamide
A10BB03	tolbutamide
A10BB09	gliclazide
A10BB12	glimepiride
A10BB31	acetohexamide
A10BD03	metformin and rosiglitazone
A10BD04	glimepiride and rosiglitazone
A10BD07	metformin and sitagliptin
A10BF01	acarbose
A10BG01	troglitazone
A10BG02	rosiglitazone
A10BG03	pioglitazone
A10BH01	sitagliptin
A10BH03	saxagliptin
A10BH05	linagliptin
A10BX02	repaglinide
A10BX03	nateglinide
A10BX04	exenatide
A10BX07	liraglutide

Drug Program Information Network (DPIN) Data

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

The highest level of formal education achieved. In all waves of the survey data used in this study, respondents were asked about the highest level of education they achieved. The weighted crude **prevalence** of highest level of education achieved was calculated for survey respondents aged 12 and older as the percentage of respondents with no high school graduation, high school graduation or some post-secondary education, and post-secondary graduation.

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In the **Manitoba Heart Health Survey** respondents were asked, "What is the highest grade or year of education you have completed?" Possible responses include "no schooling," "elementary (Grade 6)," "secondary (Grade 12)," "post-secondary," "not sure" and no response. In the **Canadian Community Health Survey** and **National Population Health Survey**, highest level of education is a derived variable based on respondents' answers to series of questions on education such as "What is the highest grade of elementary or high school you ever completed?" and "What is the highest degree, certificate or diploma have you obtained?" Respondents who answered "don't know" or "not sure" and those with missing or invalid data were excluded from the prevalence calculation.

"Ever Smoked" Category

In this study, survey data from a series of questions about lifetime smoking habits (up to time of survey) were used to classify respondents from all surveys as either "ever smoked" or "**never smoked**" at time of survey. Due to differences between surveys, different questions were utilized to categorize respondents into the ever smoked cohort. In the **Manitoba Heart Health Survey** respondents who answered "yes" to the question, "Have you ever smoked cigarettes, cigars or a pipe?" were assigned to the "ever smoked" cohort, and those who answered "no" were assigned to the "never smoked" cohort. In the **National Population Health Survey** respondents were asked a series of questions on smoking habits and history to determine if they currently (at time of survey) or ever had smoked cigarettes daily or occasionally. Respondents who were classified as a daily smoker, always an occasional smoker, former daily smoker or former occasional smoker were assigned to the ever smoked cohort, and those who answered "yes" to the question, "In your lifetime, have you smoked a total of 100 or more cigarettes (about 4 packs)?" were assigned to the "ever smoked" cohort, and those who answered "no" were assigned to the "never smoked" cohort. Respondents who answered "don't know" or "not sure" and those with missing or invalid data were not assigned to either cohort and were excluded from analyses.

Fiscal Year

The financial accounting period. For most Canadian government agencies and healthcare institutions and in this study, it starts on April 1 and ends the following March 31. For example, the 2009/10 fiscal year would be April 1, 2009 to March 31, 2010, inclusive.

General Practitioner/Family Practitioner (GP/FP)

A physician who operates a general or family practice and is not certified in another specialty in Manitoba.

Generalized Liner Model (GLM)

A unified class of models for regression analysis of independent observations of a discrete or continuous response. A characteristic feature of GLMs is that a suitable non-linear transformation of the mean response is a linear function of the covariates. GLMs provide a unified method for analyzing diverse types of univariate responses (e.g., continuous, binary, counts). GLMs 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 J., 1997).

Fox J. Applied Regression Analysis, Linear Models, and Related Methods. Sage Publications, Inc. 1997. 0-0.

High-Dimensional Propensity Score (HDPS)

A probability score between zero and one typically obtained from a **logistic regression** model that reflects the likelihood of the outcome regressed, be it the likelihood of belonging to a group or having a disease. An HDPS is different from a **propensity score** in that hundreds of covariates are included in the regression model. In this study, covariates from six data dimensions were included in the HDPS regression model: diagnoses and physician tariff codes from medical claims data, diagnoses and interventions from **hospital abstract data**, **Anatomical Therapeutic Chemical** codes from prescription drug data and survey questions from survey data.

Hospital Costs per Weighted Case (CWC)

Expected costs for hospitalizations derived from a case-mix weighting system that groups similar hospitalization records in terms of the amount of hospital resources required and the complexity of medical care patients received during their hospital stay. Hospital costs based on the case-mix approach were calculated by **fiscal year** for years 1996/97–2011/12. The Canadian Institute for Health Information (CIHI) uses the **hospital abstract data** to divide patients into clinically meaningful groups that are expected to use similar amounts of hospital resources. Each hospitalization, or "case," is assigned a Resource Intensity Weight (RIW) by CIHI; higher weights are assigned to patients who are expected to consume more hospital resources. Costs for each inpatient hospitalization were calculated by multiplying the RIW by the cost per weighted case (CWC) for 2010/11, which was \$5,438 (Canadian Institute for Health Information,2015)

(Canadian Institute for Health Information. Cost of a Standard Hospital Stay. January 1, 2015. http://ourhealthsystem.ca/#!/indicators/015/average-cost-of-a-hospital-stay. Accessed May 16, 2014.

Total costs for smokers and non-smokers per fiscal year were calculated by summing the costs for each group's hospitalizations. All Manitoba hospitals were included; PCHs, nursing stations and long-term care facilities were excluded (Deer Lodge Centre, Manitoba Adolescent Treatment Centre, Rehabilitation Centre for Children, and Riverview Health Centre). Out-of-province hospitalizations for Manitoba residents do not have RIWs assigned by CIHI and thus were not included in this analysis.

Hospital Abstract Data

Health data maintained by Manitoba Health consisting of hospital forms/computerized records containing summaries of demographic and clinical information—e.g., gender, postal code, diagnoses, and procedure codes— completed at the point of discharge from the hospital. Several hundred thousand abstracts per year are submitted for all separations from acute- and chronic-care facilities in Manitoba and for all Manitobans admitted to out-of-province facilities. The hospital abstracts data include records of both Manitoba residents and non-Manitoba residents hospitalized in Manitoba facilities and information about inpatient and day-surgery services.

Hospital Episode

A single, continuous stay in the hospital system, irrespective of transfers between hospitals.

Average costs per day associated with providing medical care to patients while in hospital. Costs for hospital services were calculated as a per diem based on the total hospital expenditures spent by the Manitoba Government for hospital services and number of days survey respondents spent admitted to a hospital within a **fiscal year** for years 1996/97 to 2011/12. **Days in hospital** were counted for survey respondents for the fiscal year they were surveyed, and the following four years, or until loss to follow-up or end of study (March 31, 2012). The total number of days in hospital per fiscal year were counted, taking into account transfers so as to not double-count any days. The average number of days in hospital was calculated as the sum of all in-year days divided by the number of **person-years** for each fiscal year. Expenditures were calculated using the Canadian Institute for Health Information's cost per weighted case for Manitoba in 2010, which was \$5,438. The mean length of stay for acute inpatients in Manitoba was nine days, which yields a per diem cost of \$607 in 2010. This figure was applied to the average number of days in hospital for smokers and non-smokers. All Manitoba hospitals were included; PCHs, nursing stations and long-term care facilities were excluded (Deer Lodge Centre, Manitoba Adolescent Treatment Centre, Rehabilitation Centre for Children, and Riverview Health Centre). Out-of-province hospitalizations for Manitoba residents were also included because the Manitoba Government reimburses other provinces and countries for hospital care.

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Household Income (Survey Data)

Total annual income for the household as reported by the survey respondent. All surveys used in this study included questions about household income. The weighted crude **prevalence** of ranges of household income were calculated for survey respondents aged 12 and older. Respondents who answered "don't know" or those with missing or invalid data were excluded from the prevalence calculation.

In the **Manitoba Heart Health Survey** respondents were asked, "For statistical purposes only, we need to know the range of your total, gross household income last year. Could you please indicate from the following list the income range for your household?" Possible responses include "under \$12,000,""\$12,000 to \$24,999,""\$25,000 to \$49,999,""\$50,000 to \$74,999," and "\$75,000 and over." In the **National Population Health Survey** and **Canadian Community Health Survey** respondents were asked a series of questions about the range of their household income such as, "Can you estimate in which of the following groups your household income falls? Was the total household income less than \$40,000 or \$40,000 or more?" Based on their answers, a derived variable for household income was calculated that grouped household income as no income, less than \$5,000, \$5,000-\$9,999, \$10,000-\$14,999, \$15,000-\$19,999, \$20,000-\$29,999, \$30,000-\$39,999, \$40,000-\$49,999, \$50,000-\$59,999, \$60,000-\$79,999, and \$80,000 or more.

In this study, using administrative data, the weighted crude **prevalence** of hypertension was calculated for survey respondents aged 12 and older in the two years before their survey date. Hypertension was defined by one of the following conditions:

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- one or more hospitalizations with a diagnosis of hypertension, ICD-9-CM codes 401–405; ICD-10-CA codes 110– 113, 115; or
- two or more **physician visits** with a diagnosis of hypertension (ICD-9-CM codes as above).

A question about hypertension was asked in all the survey waves. In the **Manitoba Heart Health Survey** respondents were asked, "Have you been told by a doctor or nurse that you have high blood pressure?" Possible responses include "yes, "no," or "not sure." In the **National Population Health Survey** and **Canadian Community Health Survey** respondents were asked, "Do you have high blood pressure?" Possible responses include "yes, "no," or "don't know."

The weighted crude self-reported prevalence of hypertension was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" or "not sure," and those with missing or invalid data were excluded from the prevalence calculation.

Incidence Rate

The number of new cases of a given event over a specified time period. The incidence rate counts only new cases in the numerator; individuals with a history of the condition are not included in either the numerator or denominator. Thus, the denominator for incidence rates only includes the population at risk of developing the disease or having the event.

Income Quintiles

A grouping of the population by average **household income**. Income quintiles are created by dividing the urban and rural population into five groups (quintiles), such that 20% of the population is in each group. The groups are ordered from lowest to highest income. As a result of this process, the income range within each quintile may not be equal across quintiles. The quintiles are based on dissemination-area (DA)-level average household income values from a public-use census files. Income quintiles are created within two population groups: urban (Winnipeg and Brandon) and rural (other Manitoba areas). Each person within a DA is "attributed" the average household income of the DA, so this is not an individual income but rather an area-level income measure. Individuals whose postal code does not link with a DA, whose DA has a suppressed average household income, and those who live in DA where 90% or more of the population is institutionalized (e.g., PCH, prison) cannot not be attributed an income quintile and are referred to as "Income Unknown."

Inpatient Hospitalizations

Hospitalizations where patients are formally admitted to the hospital for diagnostic, medical, or surgical treatment and typically stay for one or more days.

In this study, the weighted rate of inpatient hospitalizations per 1,000 survey respondents aged 12 and older was calculated one, three, five, and 10 years after survey. Multiple admissions of the same person were counted as separate events. All Manitoba hospitals were included; PCHs, nursing stations and long-term care facilities were excluded (Deer Lodge Centre, Manitoba Adolescent Treatment Centre, Rehabilitation Centre for Children, and Riverview Health Centre). Out-of-province hospitalizations for Manitoba residents were also included.

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 codes (alphabetic and/or numeric combinations depending on the ICD version) in hierarchical order. There are several versions of the ICD coding system, including ICDA-8, ICD-9, ICD-9-CM (Clinical Modifications), ICD-0 (Oncology), ICD-10 and ICD-10-CA (Canadian Enhancements). The 9th (with Clinical Modifications) and 10th versions of the ICD coding system were developed by the WHO and are used to classify diseases, health conditions and procedures (ICD-9 only). The Canadian version of ICD-10, ICD-10-CA, was developed by the Canadian Institute for Health Information and is based on the WHO ICD-10. Before April 1 2004 the Hospital Discharge Abstract Data included diagnoses coded in ICD-9-CM. Since that date, diagnoses have been coded in ICD-10-CA.

Ischemic Heart Disease (IHD) Prevalence

In this study, using administrative data, the weighted crude **prevalence** of IHD was calculated for survey respondents aged 12 and older in the five years before their survey date. IHD was defined by one of the following conditions:

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

DPIN data were not available for respondents of **Manitoba Heart Health Survey** (**MHHS**), so a different algorithm was chosen with similar sensitivity and specificity: one or more hospitalizations or two or more **physician visits** in the five years before survey date.

In the survey data, questions about IHD were asked in all the survey waves. In the MHHS respondents were asked, "Have you ever had a heart attack?" Possible responses include "yes, "no," or "not sure." They were then also asked, "Do you suffer from any other kind of heart disease?" Possible responses include yes or no. In the **National Population Health Survey** and **Canadian Community Health Survey** respondents were asked, "Do you have heart disease?" Possible responses include "yes, "no," or "don't know."

The weighted crude self-reported prevalence of IHD was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" or "not sure" or those with missing or invalid data were excluded from the prevalence calculation.

List of drugs used to treat IHD:

ATC code	Generic Drug Name
B01AC04	clopidogrel
B01AC22	prasugrel
B01AC24	ticagrelor
C01DA02	glyceryl trinitrate
C01DA05	pentaerithrityl tetranitrate
C01DA08	isosorbide dinitrate
C01DA14	isosorbide mononitrate
C07AA02	oxprenolol
C07AA03	pindolol
C07AA05	propranolol
C07AA06	timolol
C07AA12	nadolol
C07AB02	metoprolol
C07AB03	atenolol
C07AB04	acebutolol
C07AB07	bisoprolol
C07AG01	labetalol
C07BA05	propranolol and thiazides
C07CA03	pindolol and other diuretics
C07CB03	atenolol and other diuretics
C08CA01	amlodipine
C08CA02	felodipine
C08CA04	nicardipine
C08CA05	nifedipine
C08CA06	nimodipine
C08DA01	verapamil
C08DB01	diltiazem
C09AA01	captopril
C09AA02	enalapril
C09AA03	lisinopril
C09AA04	perindopril
C09AA05	ramipril
C09AA06	quinapril
C09AA07	benazepril
C09AA08	cilazapril
C09AA09	fosinopril
C09AA10	trandolapril
C09BA02	enalapril and diuretics
C09BA03	lisinopril and diuretics
C09BA04	perindopril and diuretics
C09BA06	quinapril and diuretics
C09BA08	cilazapril and diuretics
C09CA01	losartan
C09CA02	eprosartan

ATC code	Generic Drug Name
C09CA03	valsartan
C09CA04	irbesartan
C09CA06	candesartan
C09CA07	telmisartan
C09CA08	olmesartan
C09DA01	losartan and diuretics
C09DA02	eprosartan and diuretics
C09DA03	valsartan and diuretics
C09DA04	irbesartan and diuretics
C09DA06	candesartan and diuretics
C09DA07	telmisartan and diuretics
C09DA08	olmesartan and diuretics
C10AA01	simvastatin
C10AA02	lovastatin
C10AA03	pravastatin
C10AA04	fluvastatin
C10AA05	atorvastatin
C10AA06	cerivastatin
C10AA07	rosuvastatin
C10AB02	bezafibrate
C10AB04	gemfibrozil
C10AB05	fenofibrate
C10AX09	ezetimibe
C10BX03	atorvastatin and amlodipine
N02BA01	acetylsalicylic acid (tablet strength <= 325 mg)

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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 0–74 (as for the premature mortality measure). Life expectancy can be calculated at any age (e.g., 65), and also specific to sex. In this study it was calculated at age 50.

Logistic Regression

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

Longitudinal Survey

A survey that collects data on a sample population at multiple points in time. Longitudinal survey data can be used to estimate the **incidence** of new cases of a disease or condition and examine trends over time in a population. An advantage of collecting repeated observations for the same population over time is that any change identified will be controlled for time-invariant unmeasured confounders at the individual level.

Long-Term-Care Utilization Data

Data maintained by Manitoba Health that consists of records of chronic and rehabilitative services provided by long-term care institutions in Manitoba, including hospital patients awaiting placement. These records include information on admissions, separations, assessments, levels of care, and rate changes.

Lung Cancer Incidence and Prevalence

The weighted **incidence** rate of lung cancer per 100,000 **person-years** was calculated for survey respondents aged 12 and older one, three, five, and 10 years after survey date. Any new case diagnosed up to ten years after survey was included in the incidence rates, so that if a person is diagnosed with a new, different type of lung cancer in the follow-up period, both cases would be counted. In addition, the weighted crude **prevalence** of lung cancer was calculated for survey respondents aged 12 and older in the five years before their survey date as the percentage of people diagnosed with at least one case of lung cancer. Cancer sites include the lung and bronchus. Lung cancer was identified by ICD-O-3 topography axis codes C340:C349, excluding morphology axis codes 9590-9989. Cancer data was provided by CancerCare Manitoba.

Manitoba Cancer Registry

A population-based central cancer registry of all cancer cases in the province, maintained by CancerCare Manitoba. It contains "details on the type of cancer, place of diagnosis, date of diagnosis, method of diagnosis and other steps along the patient's journey, including treatment information, such as if surgery, chemotherapy or radiation took place" (CancerCare Manitoba, 2015)

CancerCare Manitoba. What is the Manitoba Cancer Registry? 2015. http://www.cancercare.mb.ca/home/cancer_research/epidemiology_and_cancer_registry/manitoba_cancer_registry/. Accessed March 3, 2015.

Manitoba Health Insurance Registry

A longitudinal, population-based registry maintained by Manitoba Health, consisting of all individuals who have been registered with Manitoba Health at some point since 1970. The registry includes individual-level demographics, family composition information, residential postal codes, and data fields for registration, birth, entry into province, and migration in or out of province. It provides the needed follow-up information to track residents for longitudinal and intergenerational analyses. Federally insured individuals such as military personnel and federal inmates are not included in this dataset. MCHP receives "snapshot files" of registry data semi-annually from Manitoba Health; these files are central to the use of MCHP's **Population Health Research Data Repository**.

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Manitoba Heart Health Survey (MHHS)

A **cross-sectional survey** of a representative sample of non-institutionalized Manitoba residents—including First Nations 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. Socio-demographic information, chronic disease history, measures of hypertension, and cardiovascular risk factors were collected via an interviewer-administered questionnaire and clinic visits.

Matched Cohorts

Two groups of individuals in a study who are made to have a similar distribution on some confounding characteristics (typically demographics such as age, sex, residence, income, etc.). One group is the study cohort and they will all share a characteristic to be analyzed, such as diagnosed with a disease or exposed to a drug or vaccine, while the other group is the comparison cohort and they will not have this characteristic or exposure. In this study, smokers were matched to non-smokers on age (within five years, with priority given to exact matches), sex, income quintile, and **regional health authority**, and matching was nested within survey.

Medical Services Data

Health data maintained by Manitoba Health, which consists of claims for **physician visits** in offices, hospitals, and outpatient departments; fee-for-service components for tests such as lab and x-ray procedures performed in offices and hospitals; payments for on-call agreements (e.g. anaesthetists) that are not attributed to individual patients; and information about physicians' specialities. These data files contain records for both Manitoba and non-Manitoba residents who visit Manitoba providers. Some information is also included for services received by Manitoba residents from providers in other provinces. In Manitoba, fee-for-service providers must submit claims to Manitoba Health for reimbursement; a small proportion of salaried physicians also submit evaluation claims (**shadow billing**).

Mood and Anxiety Disorders Prevalence

In this study, using administrative data, the weighted crude **prevalence** of mood and anxiety disorders was calculated for survey respondents aged 12 and older in the five years before their survey date. Mood and anxiety disorders were defined by one of the following conditions:

- one or more hospitalizations with a diagnosis of depression, episodic mood disorders (e.g., bipolar disorder, manic episode) or anxiety (e.g., anxiety disorders, phobic disorders, obsessive-compulsive disorders), ICD-9-CM codes 296.1–296.8, 300.0, 300.2–300.4, 300.7, 309, 311; ICD-10-CA codes F31, F32, F33, F34.1, F38.0, F38.1, F40, F41.0–F41.3, F41.8, F41.9, F42, F43.1, F43.2, F43.8, F45.2, F53.0, F93.0;
- one or more **physician visits** with a diagnosis of depression or episodic mood disorders, ICD-9-CM codes 296 and 311;
- one or more hospitalizations or physician visits with a diagnosis of anxiety, dissociative and somatoform disorders, ICD-9-CM code 300; ICD-10-CA codes F32, F34.1, F40, F41, F42, F44, F45.0, F45.1, F48, F68.0, F99 and one or more prescriptions for an antidepressant (e.g., fluoxetine, citalopram, desipramine, venlafaxine), benzodiazepine derivatives anxiolytics (e.g., diazepam), or lithium (an antipsychotic), ATC codes N05AN01, N05BA, N06A; or
- three or more physician visits with a diagnosis of anxiety, dissociative and somatoform disorders or adjustment reaction, ICD-9-CM codes 300 and 309.

DPIN data were not available for respondents of **Manitoba Heart Health Survey**, so only the first, second, and third conditions of the algorithm above were used to calculate prevalence for those respondents.

In the survey data, questions about mood and anxiety disorders were asked in the **Canadian Community Health Survey** (**CCHS**) waves from CCHS 3.1 (2005) onward. Respondents were asked, "Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?" Possible responses include "yes, "no," or "don't know." They were then also asked, "Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?" Possible responses include "yes, "no," or "don't know."

The weighted crude self-reported prevalence of mood and anxiety disorders was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" and those with missing or invalid data were excluded from the prevalence calculation.

National Population Health Survey (NPHS)

A survey administered by Statistics Canada that collected sample information related to the health of the Canadian population and related socio-demographic information. It is composed of three components: the Households, the Health Institutions, and the North components. The survey excluded populations living on Indian reserves, on Canadian Forces bases, and in some remote areas. In 2000, the NPHS was replaced with the **Canadian Community Health Survey**.

Number of Different Types of Drugs Dispensed per User

The average number of different types of drugs prescribed to each respondent. Each pharmaceutical agent that falls under a different fourth-level **Anatomical Therapeutic Chemical (ATC) Classification** class is counted as a new drug for each resident. A person could have several prescriptions for drugs in the same fourth-level ATC class, but this would only count as one drug type in that year. This essentially separates drugs used for different health problems and avoids double-counting prescriptions for drugs in the same group.

In this study, the weighted average number of different types of drugs dispensed to each survey respondent was calculated one, three, five and ten years after survey. Nearly all prescriptions dispensed from community-based pharmacies across the province were included; prescription drugs given to hospitalized patients and some nursing home residents in PCHs with hospital-based pharmacies were not included. Prescriptions were limited to those covered by Manitoba Health's Pharmacare program and prescriptions for over-the-counter drugs were excluded. These exclusions were made in order to have a common set of drugs that could be compared fairly across the province.

Osteoporosis Prevalence

In this study, using administrative data, the weighted crude **prevalence** of osteoporosis was calculated for survey respondents aged 50 or older in the three years before their survey date. Osteoporosis was defined by one of the following conditions:

- one or more hospitalizations with a diagnosis of osteoporosis, ICD-9-CM code 733.0; ICD-10-CA code M81;
- one or more **physician visits** with a diagnosis of diabetes, ICD-9-CM code 733; or
- one or more prescriptions for medications to treat osteoporosis (listed below).

DPIN data were not available for respondents of **Manitoba Heart Health Survey**. Because these data are required to obtain a good sensitivity of osteoporosis cases, these respondents are excluded from prevalence estimates of osteoporosis.

In the survey data, a question about osteoporosis was asked in the **Canadian Community Health Survey** (**CCHS**) 2.2 and the CCHS Healthy Aging Survey. Respondents aged 50 and older were asked, "Do you have osteoporosis?" Possible responses include "yes, "no," or "don't know."

The weighted crude self-reported prevalence of osteoporosis was calculated for survey respondents aged 50 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" or those with inapplicable, missing, or invalid data were excluded from the prevalence calculation.

ATC code	Generic Drug Name
G03XC01	raloxifene
H05AA02	teriparatide
H05BA01	calcitonin (salmon synthetic)
M05BA04	alendronic acid
M05BA07	risedronic acid
M05BA08	zoledronic acid
M05BB01	etidronic acid and calcium
M05BB02	risedronic acid and calcium
M05BB03	alendronic acid and vitamin D
M05BB04	risedronic acid and calcium and vitamin D
M05BX04	denosumab

List of drugs used to treat osteoporosis:
Osteoporosis-Related Fracture Prevalence

The weighted crude **prevalence** of osteoporosis-related fractures was calculated for survey respondents aged 50 and older as the percentage of people who suffered one or more osteoporosis-related fractures in the five years before their survey date. Fracture sites included:

- hip fracture, defined as one or more hospitalizations with a most responsible diagnosis of fracture, ICD-9-CM code 820; ICD-10-CA codes S72.0-S72.2;
- wrist fracture, one or more hospitalizations with a diagnosis of fracture, or one or more **physician visits** with a diagnosis of fracture in combination with physician tariff code for fracture repair, ICD-9-CM code 813; ICD-10-CA code S52; physician tariff codes 0807, 0810, 0811, 0821, 1851, 1854, 1856, 1860;
- humerus fracture, defined as one or more hospitalizations with a most responsible diagnosis of fracture, or one or more physician visits with a diagnosis of fracture, ICD-9-CM code 812; ICD-10-CA code S42.2; and
- vertebral (spine) fracture, defined as one or more hospitalizations with a diagnosis of fracture, or one or more physician visits with a diagnosis of fracture, ICD-9-CM code 805; ICD-10-CA code S22.0, S22.1, S32.0.

Person-Years

A measurement of observation time per person that is often used as the denominator in **incidence** rates when, for varying periods, individuals are at risk of developing a disease, using a health service, or dying. Instead of using the number of people at the start of the observation period as the denominator, one can determine for each person the actual time at risk, from the beginning of the study period until the disease is detected, the person is lost to follow-up (e.g., moves out of province or dies) or the end of the study period. If a study period is one year, and a person is disease-free for the entire period, they will have a person-year value of one; if another person develops a disease six months after the start of the study, they will have a person-year value of 0.5. (Young, 1998).

Young TK. Population Health: Concepts and Methods. New York, NY: Oxford University Press; 1998

Personal Care Home (PCH)

Also referred to as a nursing home, this is a residential facility for persons with chronic illness or disability, predominantly older adults. In Manitoba, PCHs can be proprietary (for profit) or non-proprietary. Non-proprietary homes can be secular or ethno-cultural (associated with a particular religious faith or language), as well as either freestanding or adjacent an acute-care facility. Some PCH facilities may be funded by the provincial or federal government. There is no designated PCH facility in Churchill; however, seven of the hospital beds in the Churchill Health Centre serve as PCH beds.

Personal Care Home (PCH) Admissions

In this study, the weighted rate of PCH admission per 1,000 survey respondents aged 70 and older was calculated one, three, five and ten years after survey. Institutionalized people, including those residing in a PCH, were not included in the sampling frame of the surveys so survey respondents would only be admitted to PCH after they took the survey. Only the first admission to PCH was counted, not transfers between PCHs.

Physician Claims

Also called physician billing claims or medical claims, physician claims are stored in the **Medical Services Database** and contain information about ambulatory services: physician service information (which identifies provider), type of service provided, when and to whom the service was provided, and the fee or tariff related to the service. Claims are submitted to the provincial government by individual physicians for services they provide. Fee-for-service physicians receive payment based on these claims, while those submitted by physicians on alternate payment plans (APP) are for administrative purposes only (sometimes referred to as **shadow billing**).

Physical Activity—Leisure (Survey Data)

Questions about physical activity during leisure time, i.e., not during work or school, were asked in all the survey waves except for the **Canadian Community Health Survey**'s Healthy Aging Survey. The weighted crude **prevalence** of levels of physical activity were calculated for survey respondents aged 12 and older. Respondents who answered "don't know" and those with missing or invalid data were excluded from the prevalence calculation.

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In the **Manitoba Heart Health Survey** respondents were asked, "Do you regularly engage in physical exercise during your leisure time? By regularly we mean at least once a week during the past two months." Those who did not answer "no" were then asked, "How many times per week do you exercise at least 15 minutes?" Responses were grouped as "active" (includes daily, 5–6 times per week, 3–4 times per week), "moderate" (1–2 times per week), and "inactive" (less than once per week and never.) Those who answered "no" to the previous question were assigned to the "inactive" category.

In the CCHS and **National Population Health Survey**, the leisure-time-physical-activity index is a derived variable for survey respondents based on their average daily energy expenditure values (kcal/kg/day), calculated from a series of questions on physical activity. It includes physical activity for a variety of activities such as walking, running, gardening, soccer, etc., by the participant in the past three months. Respondents were asked questions such as, "In the past 3 months, how many times did you walk for exercise? About how much time did you spend on each occasion?" Based on their answers, respondents' intensity of physical activity and total time spent active was converted into their average daily expenditure. Then respondents were grouped into three categories based on this value: active (three or more metabolic equivalent values or METs), moderate (1.5 to less than three METs), or inactive (zero to less than 1.5 METs).

Physician Services Costs

The costs associated with patients' contacts with physicians for medical services, be it visits, surgeries, imaging or lab tests. Costs for physician services were extracted from the fee associated with each physician claim in the **Medical Services database** in the **Population Health Research Data Repository**. The Physician Services database contains a record of the majority of encounters an individual has with a physician, including visits to physician's offices and clinics, in other settings such as hospitals and **personal care homes**, and fees for other services such as scans, X-rays and laboratory tests. Many physicians are paid on a fee-for-service basis and submit a claim to Manitoba Health for each services they provide. Other physicians are paid on a salary basis; however, most of these submit a "shadow bill" of the services they provided so there is a record in the Medical Services database. The total dollar amount paid to physicians for services rendered to survey respondents were summed within a **fiscal year** for years 1996/97 to 2011/12. Costs for survey respondents were calculated for the fiscal year they were surveyed, plus the following four years, or until loss to follow-up or end of the study (March 31, 2012). The average cost of physician services was calculated as the sum of all fees paid divided by the number of **person-years** for each fiscal year. Expenditures were adjusted to 2010 dollars using Statistics Canada's Consumer Price Index.

Physician Visits—See Ambulatory Visits

Population Health Research Data Repository

Also referred to as the **Repository**, this is a comprehensive collection of administrative, registry, survey and other databases primarily composed of residents of Manitoba. The 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, facilitating inter-sectoral research in areas such as healthcare, education, and social services. The administrative health database, for example, holds records for virtually all contacts with the provincial healthcare system, the Manitoba Health Services Insurance Plan (including physicians, hospitals, **personal care homes**, home care, and pharmaceutical prescriptions), for all registered individuals. MCHP acts as a trustee, or steward, of the information in the Repository for agencies such as Manitoba Health.

Potential Years of Life Lost (PYLL)

An indicator of early death—i.e., death before age 75—which gives greater weight to deaths occurring at a younger age than to those at later ages. PYLL emphasizes the loss of the potential contribution that younger individuals can make to society. By emphasizing the loss of life at an early age, PYLL draws attention to the major causes of early deaths, such as injury, and their importance for population health. This indicator has some similarity to premature mortality and **life expectancy**, but PYLL is more sensitive to deaths at younger ages (beyond infancy). For example, the death of a 50-year-old contributes "one death" to premature mortality, but 25 years to PYLL; likewise, the death of a 70-year-old also contributes "one death" to premature mortality, but 5 years to PYLL.

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The average number of years between age at death and age of 75 for survey respondents aged 12–74 was calculated one, three, five, and 10 years post survey date. For each death, the PYLL value is calculated as: PYLL = 75 – age at death.

Premature Mortality Rate (PMR)

The number of deaths per population occurring before age 75. PMR is an important indicator of a population's general health; high premature mortality rates indicate poor health.

In this study, the weighted rate of premature deaths per 1,000 **person-years** was calculated for survey respondents aged 12–75 one, three, five and ten years after survey date.

Prescription Drug Costs

The government-related costs associated with prescription drugs. In this study, costs for prescription drugs were extracted from the charge associated with each prescription in the Drug Plan Information Network (DPIN) database in the Population Health Research Data Repository. Each time a drug is dispensed at a pharmacy in Manitoba, a record is generated in DPIN, and for each prescription the charge is recorded. An average dispensing fee is added to each drug charge in order to calculate the total charge for each prescription. Only prescription drugs paid for by the Manitoba Government were included in this analysis; prescriptions paid out-of-pocket or by private insurance were excluded. As well, prescriptions that were not covered under an individual's Pharmacare plan if they had not yet met their deductible for the year were also excluded. Drugs dispensed while an individual is hospitalized are not included in the DPIN database; however, the cost of these drugs is included in hospitalization costs. In addition, some personal care homes that are adjacent to hospitals may receive prescription drugs directly from a hospital-based pharmacy, and these prescriptions also are not captured in DPIN. Thus, some residents of personal care homes will have missing prescription drug costs. The total dollar amount for all prescription drugs paid for by Manitoba Health for survey respondents was summed within a **fiscal year** for years 1996/97 to 2011/12. Prescription drug costs were summed for survey respondents for the fiscal year they were surveyed, and the following four years, or until loss to follow-up or end of study (March 31, 2012). The average cost of prescription drugs was calculated as the sum of all drug charges paid divided by the number of person-years for each fiscal year. Expenditures are adjusted to 2010 dollars using Statistics Canada's Consumer Price Index.

Prevalence

The proportion of the population that has a given disease at a given time. The administrative data used in this study do not directly indicate who has a disease, but rather who received health services treatment for that disease; that is, they received some combination of **physician visits**, hospitalizations, or prescription drugs associated with it. Period prevalence is the measure of a disease or condition in a population during a given period of time.

Proportional Life Expectancy—See Life Expectancy

Propensity Score

A method to estimate the effect of receiving treatment when random assignment of treatments to subjects is not feasible. Propensity scores are used to estimate the effect of receiving treatment when random assignment of treatments to subjects is not feasible. The estimated propensity score for a subject is the conditional probability of being assigned to a particular treatment given a vector of observed covariates.

p-value

The probability of obtaining a test statistic or estimate that is at least as extreme as the one observed, assuming that the null hypothesis is true. When the p-value is below the set significance value α (usually set at 0.05), the null hypothesis is rejected and the obtained estimate or test statistic is statistically significant.

Rate Difference

The difference of the rate of disease or death between the group exposed—e.g., the **"ever smoked" category**—to the rate among the group that was not exposed—e.g., the **"never smoked" category**.

Regional Health Authority (RHA)

A regional governance structure set up by the provincial government to be responsible for the delivery and administration of health services in a specific geographical area. This structure was implemented across Manitoba in 1997 and continues today. As of July 1, 2002, there were 11 RHAs in Manitoba: Assiniboine, Brandon, Burntwood, Central, Churchill, Interlake, NOR–MAN, North Eastman, Parkland, South Eastman, and Winnipeg. On April 17, 2012, the Ministry of Health announced that the former 11 RHAs would be amalgamated into five RHAs as follows: Interlake-Eastern RHA (includes the former Interlake and North Eastman RHAs), Northern Heath Region (includes the former Burntwood and NOR–MAN RHAs), Prairie Mountain Health (includes the former Assiniboine, Brandon and Parkland RHAs), Southern Health – Santé Sud (includes the former Central and South Eastman RHAs), and Winnipeg RHA (includes former Churchill and Winnipeg proper RHAs).

Virtually all analyses in this report allocate health service use to the patient's region of residence, regardless of where the service was provided. For example, if a resident of Northern Health Region travels to Winnipeg for a physician visit, the visit contributes to the visit rate for Northern residents.

Relative Rate (RR)

Also called a rate ratio, this is the ratio of the rate of disease or death among the group exposed (e.g., **"ever smoked" category**) to the risk among the unexposed group (the **"never smoked" category**).

Repository—see Population Health Research Data Repository

Resource Utilization Band (RUB)

RUBs are a part of the Johns Hopkins **Adjusted Clinical Group** (**ACG**) case-mix system. They are a simplified ranking system of overall morbidity level instead of grouping by type of illness so that individuals who are expected to use the same level of resources are grouped together, even if they have very different illnesses with different epidemiological patterns. Individuals are assigned an RUB based on sorting their ACG value into one of six categories: 0. Non-user, 1. Healthy User, 2. Low Morbidity, 3. Moderate Morbidity, 4. High Morbidity, 5. Very High Morbidity.

Sample Weight

A statistical correction factor that adjusts for sampling bias due to over- or under-representation of certain segments of a population. Using these weights ensures that all estimates can be considered representative of the entire population.

The principle behind estimation in a probability sample such as the **Canadian Community Health Survey** is that in addition to "representing" themselves, each person in the sample also represents several other people who are not in the sample. For example, in a simple random 2% sample of the population, each person in the sample represents 50 people in the population. Thus, it can be said that each person has a weight of 50.

Shadow Billing

Claims (billings) submitted to the provincial government by physicians on alternate payment plans (APP) for services they provide. Unlike **physician claims** submitted by fee-for-service physicians for payment, these claims are for administrative purposes only; they are a record of services provided, but are not used for remunerative purposes.

Smoking-Status Categories

In this study, respondents from all survey waves except the **Manitoba Heart Health Survey** were categorized into one of the following groups: current daily smoker (at time of survey), former daily smoker (daily smoker five years or less before survey), former daily smoker (daily smoker more than five years before survey), never a daily smoker (includes occasional smokers and former occasional smokers) and never smoked. To create these categories, the type of smoker in the **National Population Health Survey** and **Canadian Community Health Survey** was used in conjunction with the reported number of years since quitting daily smoking; the latter being a question asked only of respondents who said they had at one time smoked cigarettes daily but no longer do so. Type of smoker is a derived variable that categorizes respondents based on answers to questions on their smoking habits and history, such as, "At the present time, do you smoke cigarettes daily, occasionally or not at all?" and "Have you ever smoked cigarettes daily, such as "When did you stop smoking daily? Was it: (less than one year ago, 1 year to less than 2 years ago, 2 years to less than 3 years ago, 3 or more years ago)?" and "How many years ago was it?" Respondents who answered "don't know" or "not sure" and those with missing or invalid data were not assigned to any cohort and were excluded from analyses.

Stroke Prevalence

In this study, using administrative data, the weighted crude **prevalence** of stroke was calculated for survey respondents aged 12 and older in the five years prior to their survey date. Stroke history was defined by one of the following conditions:

- one or more hospitalizations with a diagnosis of stroke, ICD-9-CM codes 430-438; ICD-10-CA codes I60–I69; or
- two or more **physician visits** with a diagnosis of stroke (ICD-9-CM code as above).

A question about stroke history was asked in all the survey waves with the exception of **Canadian Community Health Survey** (**CCHS**) 2.2. In the **Manitoba Heart Health Survey** respondents were asked, "Have you ever had a stroke?" Possible responses include "yes, "no," or "not sure." In the **National Population Health Survey** and CCHS respondents were asked, "Do you suffer from the effects of a stroke?" Possible responses include "yes, "no," or "don't know."

The weighted crude self-reported prevalence of stroke was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" or "not sure" or those with missing or invalid data were excluded from the prevalence calculation.

In this study, the weighted **incidence** rate of strongly-smoking-associated cancers per 100,000 **person-years** was calculated for survey respondents aged 12 and older one, three, five, and 10 years after survey date. Strongly-smoking-associated cancers include the following sites: esophagus, larynx, lung and bronchus, and oropharynx. See below for a list of ICD-O-3 codes used to identify specific cancer sites. Cancer data was provided by CancerCare Manitoba.

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Cancer Site	ICD-O-3 Topography Axis	ICD-O-3 Morphology Axis
Oropharynx	C100:C109	excluding 9590-9989
Esophagus	C150:C159	excluding 9590-9989
Larynx	C320:C329	excluding 9590-9989
Lung and bronchus	C340:C349	excluding 9590-9989

Total Mortality Rate

In this study, the weighted rate of deaths per 1,000 **person-years** was calculated for survey respondents aged 12 and older one, three, five, and 10 years after survey date.

Total Respiratory Morbidity (TRM) Prevalence

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

In this study, using administrative data, the weighted crude **prevalence** of TRM was calculated for survey respondents aged 12 and older in the year before their survey date. TRM was defined by one of the following conditions:

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

In survey data, questions about respiratory disease were asked in the **National Population Health Survey** and all waves of the **Canadian Community Health Survey** (**CCHS**) except CCHS 2.2. Respondents were asked a series of questions that varied slightly across surveys, but most respondents were asked questions such as, "Do you have asthma?", "Do you have chronic bronchitis?" and "Do you have emphysema?" Possible responses include "yes, "no," or "don't know."

The weighted crude self-reported prevalence of TRM was calculated for survey respondents aged 12 and older as the percentage of respondents who answered "yes" out of all respondents who gave a valid answer. Respondents who answered "don't know" or those with missing or invalid data were excluded from the prevalence calculation.

A longitudinal population-based registry containing mortality records and causes of death of people who died in Manitoba. This data is maintained by the Manitoba Vital Statistics Agency, a member of the Vital Statistics Council for Canada.

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APPENDIX 1





*MHHS (1989; aged 17-76), NPHS (1996; aged 12+) and CCHS (2000, 2003-2005 & 2007-2011; aged 12+). CCHS Healthy Aging (2008/09) not shown.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Appendix Figure 1.2: Percent of Respondents who Reported Ever Smoking, by Age Group and Survey Year* Survey weighted; 95% Confidence Intervals



*MHHS (1989; aged 17-76), NPHS (1996; aged 12+) and CCHS (2000, 2003-2005 & 2007-2011; aged 12+). CCHS Healthy Aging (2008/09) not shown. Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.





Appendix Figure 1.3: Percent of Male Respondents who Reported Ever Smoking, by Age Group and Survey Year* Survey weighted; 95% Confidence Intervals

*MHHS (1989; aged 17-76), NPHS (1996; aged 12+) and CCHS (2000, 2003-2005 & 2007-2011; aged 12+). CCHS Healthy Aging (2008/09) not shown. Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Appendix Figure 1.4: Percent of Female Respondents who Reported Ever Smoking, by Age Group and Survey Year*





Appendix Figure 1.5: Percent of Respondents who Reported Ever Smoked One Whole Cigarette and Ever Smoked 100+ Cigarettes by CCHS Survey Year* Survey weighted, age- & sex-adjusted; 95% Confidence Intervals

Appendix Table 1.1: Poisson Regression to Test Time Trend of Smoking Prevalence, 1989-2011 Survey-weighted relative rate of year; 95% Confidence Intervals

		Relative Rate
Ever Smeled	Intercept	0.636 (0.616 - 0.658)
Ever Smoked	Year	0.982 (0.979 - 0.984)
Daily or Occasional Smekers	Intercept	0.292 (0.272 - 0.313)
Daily of Occasional Smokers	Year	0.984 (0.979 - 0.988)
Current Daily Smokars	Intercept	0.256 (0.238 - 0.275)
Current Daily Smokers	Year	0.977 (0.972 - 0.982)

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)





Appendix Figure 1.6: Percent of Respondents who Reported Current Daily Smoking and Daily or Occasional Smoking, by Survey Year* Survey weighted, age-& sex-adjusted; 95% Confidence Intervals

*MHHS (1989; aged 17-76), NPHS (1996; aged 12+) and CCHS (2000, 2003-2005 & 2007-2011; aged 12+). CCHS Healthy Aging (2008/09) not shown.

APPENDIX 2 Descriptives

Appendix Table 2.1: Basic Descriptive Statistics of Matched Sample* by Ever Smoked and Never Smoked Survey weighted, matched on age, sex, RHA and income quintile; 95% Confidence Intervals

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		Ever Smoked (%)	Never Smoked (%)
		N=19,136	N=19,136
Demographics			
	Mean	44.88 (44.51-45.21)	44.25 (43.88-44.54)
Age (years)	Median	44	43
Person-years	Mean	6.39 (6.25-6.52)	6.46 (6.32-6.59)
Post Survey	Median	4.70	4.73
Sov	Males	46.14 (45.04-47.25)	44.73 (43.62-45.84)
Sex	Females	53.86 (52.75-54.96)	55.27 (54.17-56.38)
	Southern	13.45 (12.78-14.12)	14.61 (14.00-15.22)
	Winnipeg	59.57 (58.47-60.67)	60.73 (59.67-61.79)
RHA	Prairie-Mountain	13.08 (12.48-13.69)	13.22 (12.62-13.81)
	Interlake-Eastern	10.65 (10.01-11.30)	9.42 (8.75-10.10)
	Northern	3.25 (3.03-3.47)	2.02 (1.83-2.21)
	Urban 1 (Lowest)	11.15 (10.19-12.12)	9.28 (8.46-10.10)
	Urban 2	14.13 (13.02-15.23)	12.28 (11.08-13.48)
	Urban 3	13.76 (12.69-14.83)	12.01 (10.95-13.07)
	Urban 4	12.96 (11.85-14.08)	14.05 (12.86-15.24)
_	Urban 5 (Highest)	11.07 (10.15-11.99)	16.00 (14.73-17.27)
Income	Rural 1 (Lowest)	4.24 (3.81-4.67)	4.35 (3.93-4.78)
Quintile	Rural 2	7.50 (6.93-8.08)	7.12 (6.58-7.66)
	Rural 3	7.50 (6.87-8.13)	7.33 (6.72-7.94)
	Rural 4	8.06 (7.42-8.69)	6.96 (6.45-7.47)
	Rural 5 (Highest)	8.28 (7.61-8.95)	8.47 (7.79-9.14)
	Income Unknown	1.36 (1.12-1.60)	2.16 (1.79-2.53)
	Less than \$5,000	0.71 (0.50-0.92)	1.14 (0.85-1.44)
	\$5,000-\$9,999	2.04 (1.63-2.44)	1.01 (0.79-1.23)
	\$10,000-\$14,999	4.30 (3.78-4.81)	3.14 (2.78-3.49)
	\$15,000-\$19,999	4.17 (3.76-4.58)	3.93 (3.37-4.48)
Total Household	\$20,000 to \$29,999	11.06 (10.23-11.90)	8.98 (8.22-9.73)
Income	\$30,000 to \$39,999	11.82 (10.87-12.76)	10.86 (9.97-11.75)
	\$40,000 to \$49,999	11.51 (10.56-12.45)	10.56 (9.75-11.37)
	\$50,000 to \$59,999	10.94 (10.00-11.88)	10.56 (9.60-11.52)
	\$60,000 to \$79,999	17.17 (16.01-18.33)	16.86 (15.66-18.06)
	\$80,000 or more	26.29 (24.93-27.65)	32.98 (31.48-34.47)
	RUB 0 (Non-User)	16.77 (15.77-17.76)	17.95 (16.93-18.96)
	RUB 1	10.29 (9.45-11.13)	12.27 (11.39-13.15)
Resource	RUB 2	24.66 (23.52-25.80)	26.68 (25.57-27.79)
Utilization Band	RUB 3	41.26 (39.84-42.68)	38.13 (36.88-39.39)
(RUB 4	5.74 (5.14-6.35)	3.92 (3.47-4.37)
	RUB 5 (Very High Morbidity)	1.28 (1.05-1.50)	1.05 (0.71-1.39)

Appendix Table 2.1: Continued

		Ever Smoked (%)	Never Smoked (%)
Lifestyle Factors	5		
Binge Drinking	5+drinks once/month or more	26.04 (24.76-27.32)	13.11 (12.17-14.05)
	Underweight/Normal	34.19 (32.99-35.39)	36.33 (35.00-37.66)
BMI	Overweight	38.73 (37.46-40.01)	38.74 (37.40-40.08)
	Obese	27.08 (25.92-28.24)	24.93 (23.72-26.14)
	Did Not Complete High School	24.36 (23.33-25.40)	18.71 (17.74-19.69)
Education Level	High School Graduate/Some Post-Secondary	32.88 (31.55-34.20)	29.66 (28.42-30.91)
	Post-Secondary Graduate	42.76 (41.42-44.11)	51.63 (50.24-53.01)
Leisure Time	Active	22.44 (21.31-23.56)	25.62 (24.38-26.86)
Physical Activity	Moderate	23.98 (22.83-25.14)	24.43 (23.27-25.59)
Index	Inactive	53.58 (52.25-54.91)	49.95 (48.48-51.42)

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+),

CCHS Healthy Aging (2008/09; aged 45+)

Values in \boldsymbol{bold} type indicate significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Appendix Table 2.2: Chronic Diseases of Matched Sample* at Time of Survey by Ever Smoked and Never Smoked

Survey weighted, matched on age, sex, RHA & income quintile; 95% Confidence Intervals

		Ever Smoked (%)	Never Smoked (%)
Arthritic	Self-Reported	20.88 (19.85-21.91)	15.91 (14.99-16.83)
Arumus	Administrative Data	22.78 (21.63-23.93)	19.85 (18.81-20.89)
All Concorr	Self-Reported	1.74 (1.46-2.02)	1.48 (1.18-1.79)
All cancers	MB Cancer Registry Data	1.67 (1.40-1.95)	1.29 (1.04-1.54)
Lung Cancer	MB Cancer Registry Data	0.15 (0.09-0.22)	0.01 (0.00-0.02)
Diabotos	Self-Reported	5.41 (4.95-5.87)	4.66 (4.13-5.19)
Diabetes	Administrative Data	5.88 (5.38-6.38)	5.36 (4.79-5.93)
Hypertension	Self-Reported	17.49 (16.58-18.41)	16.12 (15.23-17.01)
	Administrative Data	13.50 (12.74-14.26)	13.48 (12.68-14.29)
Ischemic Heart	Self-Reported	5.81 (5.25-6.37)	3.82 (3.41-4.22)
Disease	Administrative Data	5.91 (5.37-6.45)	4.38 (3.93-4.83)
History of Stroko	Self-Reported	1.78 (1.41-2.14)	0.87 (0.68-1.05)
HISTORY OF STROKE	Administrative Data	1.70 (1.43-1.96)	1.51 (1.20-1.83)
Total Respiratory	Self-Reported	14.69 (13.61-15.78)	12.50 (11.32-13.67)
Morbidity	Administrative Data	12.64 (11.82-13.46)	8.74 (8.02-9.47)
Mood or Anxiety	Self-Reported	13.86 (12.53-15.18)	8.58 (7.39-9.76)
Disorder	Administrative Data	24.30 (23.21-25.39)	17.23 (16.19-18.26)
Osteoporosis	Self-Reported	10.11 (7.70-12.52)	8.61 (6.52-10.71)
(Aged 50+)	Administrative Data	7.17 (6.18-8.17)	8.09 (7.06-9.12)
1+ Osteoporosis- Related Fractures (Aged 50+)	Administrative Data	2.71 (2.22-3.20)	2.75 (2.06-3.44)

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Italicized values indicate a warning and should be interpreted with caution.

Values in **bold** type indicate significantly different values.

Survey weighted, matched on age, sex, RHA & income quintile; 95% Confidence Intervals

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		Ever Smoked (%)	Never Smoked (%)
		N=22,716	N=21,004
Demographics			
	Mean	47.10 (46.77-47.42)	42.86 (42.53-43.15)
Age (years)	Median	47	41
Person-years	Mean	7.01 (6.86-7.14)	6.25 (6.14-6.37)
Post Survey	Median	5.04	4.60
Carr	Males	53.57 (52.57-54.56)	44.69 (43.69-45.70)
Sex	Females	46.43 (45.44-47.43)	55.31 (54.30-56.31)
	Southern	14.08 (13.40-14.76)	14.28 (13.69-14.87)
	Winnipeg	57.11 (56.01-58.20)	60.81 (59.77-61.85)
RHA	Prairie-Mountain	14.06 (13.44-14.68)	13.53 (12.94-14.12)
	Interlake-Eastern	11.29 (10.69-11.89)	9.36 (8.71-10.01)
	Northern	3.46 (3.24-3.69)	2.02 (1.84-2.20)
	Urban 1 (Lowest)	10.66 (9.77-11.56)	9.39 (8.58-10.20)
	Urban 2	13.09 (12.14-14.03)	12.32 (11.18-13.46)
	Urban 3	12.84 (11.89-13.79)	11.98 (11.00-12.97)
	Urban 4	12.57 (11.57-13.57)	13.99 (12.82-15.15)
Incomo	Urban 5 (Highest)	11.23 (10.33-12.13)	15.88 (14.65-17.10)
Quintilo	Rural 1 (Lowest)	4.68 (4.27-5.09)	4.36 (3.95-4.77)
Quintile	Rural 2	8.21 (7.66-8.77)	7.17 (6.64-7.71)
	Rural 3	7.76 (7.14-8.38)	7.17 (6.57-7.77)
	Rural 4	8.33 (7.72-8.94)	6.81 (6.32-7.30)
	Rural 5 (Highest)	8.53 (7.86-9.20)	8.24 (7.58-8.91)
	Income Unknown	2.10 (1.81-2.39)	2.69 (2.30-3.08)
	Less than \$5,000	0.73 (0.53-0.93)	0.97 (0.73-1.20)
	\$5,000-\$9,999	1.71 (1.36-2.06)	1.00 (0.79-1.21)
	\$10,000-\$14,999	3.88 (3.48-4.29)	3.53 (3.17-3.89)
	\$15,000-\$19,999	4.23 (3.84-4.63)	4.19 (3.64-4.74)
Total Household	\$20,000 to \$29,999	11.35 (10.55-12.15)	9.16 (8.45-9.87)
Income	\$30,000 to \$39,999	11.94 (11.09-12.79)	10.81 (9.99-11.63)
	\$40,000 to \$49,999	11.18 (10.33-12.04)	10.20 (9.45-10.96)
	\$50,000 to \$59,999	10.95 (10.07-11.82)	10.39 (9.46-11.33)
	\$60,000 to \$79,999	17.24 (16.15-18.33)	16.99 (15.81-18.18)
	\$80,000 or more	26.78 (25.55-28.02)	32.75 (31.35-34.16)
	RUB 0 (Non-User)	16.12 (15.27-16.98)	17.98 (16.99-18.97)
Resource	RUB 1	10.04 (9.27-10.80)	13.06 (12.19-13.94)
Utilization Band	RUB 2	24.37 (23.36-25.37)	27.04 (25.99-28.10)
(RIIR)	RUB 3	41.77 (40.54-43.01)	37.01 (35.83-38.19)
	RUB 4	6.30 (5.71-6.90)	3.92 (3.49-4.34)
	RUB 5 (Very High Morbidity)	1.40 (1.19-1.61)	0.99 (0.71-1.27)

Appendix Table 2.3: Continued

		Ever Smoked (%)	Never Smoked (%)
Lifestyle Factors	5		
Binge Drinking	5+drinks once/month or more	22.83 (21.74-23.92)	13.79 (12.88-14.71)
	Underweight/Normal	33.08 (31.98-34.18)	38.49 (37.28-39.70)
BMI	Overweight	40.21 (39.05-41.37)	37.53 (36.28-38.77)
	Obese	26.71 (25.70-27.72)	23.99 (22.80-25.17)
	Did Not Complete High School	24.68 (23.77-25.59)	23.16 (22.22-24.10)
Education Level	High School Graduate/Some Post-Secondary	32.82 (31.63-34.02)	28.60 (27.44-29.76)
	Post-Secondary Graduate	42.50 (41.26-43.73)	48.24 (46.98-49.51)
Leisure Time	Active	23.33 (22.29-24.37)	26.96 (25.74-28.19)
Physical Activity	Moderate	23.63 (22.54-24.72)	24.29 (23.17-25.41)
Index	Inactive	53.04 (51.87-54.22)	48.75 (47.35-50.15)

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Values in **bold** type indicate significantly different values.

Note: Ever Smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Appendix Table 2.4: Chronic Diseases of Propensity-Score Sample* at Time of Survey by Ever Smoked and Never Smoked

Survey weighted, matched on age, sex, RHA & income quintile; 95% Confidence Intervals

		Ever Smoked (%)	Never Smoked (%)
Arthritic	Self-Reported	21.32 (20.31-22.34)	15.64 (14.74-16.54)
Arumus	Administrative Data	22.75 (21.71-23.79)	19.01 (18.02-20.00)
All Cancors	Self-Reported	2.02 (1.74-2.30)	1.38 (1.13-1.64)
All CallCers	MB Cancer Registry Data	1.88 (1.62-2.13)	1.26 (1.02-1.49)
Lung Cancer	MB Cancer Registry Data	0.20 (0.13-0.26)	0.01 (0.00-0.02)
Diabotos	Self-Reported	6.15 (5.69-6.61)	4.25 (3.80-4.69)
Diabetes	Administrative Data	6.66 (6.17-7.16)	4.98 (4.47-5.49)
Hypertension	Self-Reported	19.50 (18.64-20.36)	15.56 (14.74-16.37)
Hypertension	Administrative Data	15.03 (14.29-15.78)	12.98 (12.24-13.72)
Ischemic Heart	Self-Reported	6.82 (6.29-7.36)	3.89 (3.52-4.26)
Disease	Administrative Data	7.31 (6.78-7.84)	4.47 (4.04-4.89)
History of Stroke	Self-Reported	1.94 (1.59-2.30)	0.99 (0.80-1.17)
HISTORY OF STORE	Administrative Data	2.09 (1.82-2.37)	1.48 (1.20-1.76)
Total Respiratory	Self-Reported	12.98 (12.04-13.92)	13.94 (12.74-15.14)
Morbidity	Administrative Data	12.22 (11.47-12.96)	8.84 (8.15-9.52)
Mood or Anxiety	Self-Reported	12.08 (10.87-13.29)	8.76 (7.65-9.87)
Disorder	Administrative Data	22.01 (20.98-23.03)	17.13 (16.15-18.11)
Osteoporosis	Self-Reported	8.04 (6.14-9.94)	9.41 (7.25-11.57)
(Aged 50+)	Administrative Data	5.85 (5.02-6.68)	8.95 (7.89-10.00)
1+ Osteoporosis- Related Fractures (Aged 50+)	Administrative Data	2.42 (2.02-2.82)	3.11 (2.41-3.81)

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Italicized values indicate a warning and should be interpreted with caution.

Values in **bold** type indicate significantly different values.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Survey weighted, propensity score-adjusted; 95% Confidence Intervals

		Ever Smoked (%)	Never Smoked (%)
		N=22,716	N=21,004
Demographics			
Age (years)	Mean	45.91 (45.55-46.26)	44.44 (44.09-44.79)
Person-years			
Post Survey	Mean	6.59 (6.45-6.73)	6.80 (6.66-6.95)
Sev	Males	51.20 (49.68-52.76)	47.61 (46.36-48.88)
Sex	Females	49.05 (47.80-50.33)	52.47 (50.98-54.01)
	Southern	14.46 (13.77-15.19)	13.17 (12.54-13.84)
	Winnipeg	58.46 (57.28-59.67)	60.40 (59.23-61.58)
RHA	Prairie-Mountain	13.70 (13.03-14.41)	13.81 (13.24-14.40)
	Interlake-Eastern	10.56 (9.81-11.36)	10.19 (9.58-10.83)
	Northern	2.84 (2.60-3.10)	2.51 (2.32-2.72)
	Urban 1 (Lowest)	10.38 (9.47-11.38)	9.87 (9.04-10.78)
	Urban 2	13.48 (12.44-14.60)	12.25 (11.36-13.22)
	Urban 3	12.64 (11.75-13.59)	11.96 (11.25-12.72)
	Urban 4	11.92 (11.12-12.78)	13.58 (12.57-14.68)
Incomo	Urban 5 (Highest)	12.69 (11.75-13.70)	15.84 (14.76-17.01)
Income	Rural 1 (Lowest)	4.58 (4.22-4.98)	4.55 (4.21-4.91)
Quintile	Rural 2	7.90 (7.31-8.52)	7.45 (7.05-7.88)
	Rural 3	7.47 (7.02-7.95)	7.16 (6.73-7.62)
	Rural 4	7.97 (7.37-8.62)	7.02 (6.56-7.52)
	Rural 5 (Highest)	8.36 (7.75-9.01)	8.12 (7.50-8.80)
	Income Unknown	2.51 (2.12-2.98)	2.74 (2.41-3.10)
	Less than \$5,000	0.59 (0.45-0.78)	0.75 (0.61-0.93)
	\$5,000-\$9,999	1.08 (0.84-1.39)	1.06 (0.90-1.25)
	\$10,000-\$14,999	2.91 (2.61-3.24)	3.00 (2.72-3.30)
	\$15,000-\$19,999	3.33 (2.91-3.80)	3.51 (3.14-3.93)
Total Household	\$20,000 to \$29,999	8.48 (7.78-9.25)	8.03 (7.50-8.59)
Income	\$30,000 to \$39,999	9.36 (8.65-10.13)	9.84 (9.14-10.59)
	\$40,000 to \$49,999	8.27 (7.61-9.00)	8.93 (8.23-9.69)
	\$50,000 to \$59,999	8.54 (7.87-9.26)	8.55 (7.78-9.39)
	\$60,000 to \$79,999	14.02 (13.15-14.95)	14.15 (13.26-15.10)
	\$80,000 or more	25.02 (23.99-26.10)	25.58 (24.07-27.19)
	RUB 0 (Non-User)	15.96 (15.00-16.98)	17.54 (16.53-18.62)
Deserves	RUB 1	10.63 (9.86-11.46)	12.95 (11.94-14.05)
Resource	RUB 2	25.04 (24.01-26.13)	26.81 (25.82-27.85)
	RUB 3	41.37 (40.08-42.70)	37.53 (36.43-38.67)
(RUB)	RUB 4	6.05 (5.26-6.96)	4.44 (3.88-5.07)
	RUB 5 (Very High Morbidity)	1.28 (1.06-1.56)	1.07 (0.86-1.34)

Appendix Table 2.5: Continued

		Ever Smoked (%)	Never Smoked (%)
Lifestyle Factors	5		
Binge Drinking	5+drinks once/month or more	21.53 (19.99-23.18)	17.20 (16.32-18.13)
	Underweight/Normal	33.18 (32.06-34.34)	32.09 (30.84-33.39)
BMI	Overweight	38.30 (36.92-39.74)	35.95 (34.83-37.10)
	Obese	24.48 (23.26-25.76)	26.43 (25.49-27.41)
	Did Not Complete High School	23.07 (22.02-24.18)	22.87 (21.92-23.86)
Education Level	High School Graduate/Some Post-Secondary	30.33 (29.10-31.61)	30.27 (29.15-31.43)
	Post-Secondary Graduate	45.48 (44.32-46.67)	46.15 (44.77-47.56)
Leisure Time	Active	23.06 (21.98-24.19)	23.98 (22.82-25.21)
Physical Activity	Moderate	22.90 (21.96-23.89)	21.55 (20.56-22.59)
Index	Inactive	47.90 (46.46-49.38)	47.09 (45.89-48.33)

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Values in **bold** type indicate significantly different values.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Appendix Table 2.6: Adjusted Chronic Diseases of Propensity-Score Sample* at Time of Survey by Ever Smoked and Never Smoked

Survey weighted, propensity score-adjusted; 95% Confidence Intervals

		Ever Smoked (%)	Never Smoked (%)
Arthritic	Self-Reported	16.68 (15.64-17.80)	15.04 (14.24-15.89)
Artifittis	Administrative Data	21.79 (20.68-22.95)	20.81 (19.83-21.84)
All Cancers	Self-Reported	1.80 (1.50-2.16)	1.35 (1.17-1.56)
An cancers	MB Cancer Registry Data	1.82 (1.56-2.13)	1.34 (1.12-1.60)
Lung Cancer	MB Cancer Registry Data	0.19 (0.16-0.22)	0.01 (0.00-0.02)
Diabetes	Self-Reported	5.17 (4.65-5.75)	5.23 (4.76-5.74)
	Administrative Data	5.84 (5.26-6.48)	5.90 (5.39-6.46)
Hypertension	Self-Reported	18.45 (17.42-19.54)	17.42 (16.58-18.29)
	Administrative Data	14.55 (13.71-15.44)	13.43 (12.76-14.13)
Ischemic Heart	Self-Reported	5.79 (5.29-6.33)	4.70 (4.21-5.25)
Disease	Administrative Data	6.32 (5.78-6.93)	5.44 (4.91-6.03)
History of Stroko	Self-Reported	1.69 (1.31-2.17)	1.19 (0.88-1.62)
Thistory of Stroke	Administrative Data	1.76 (1.52-2.04)	1.66 (1.44-1.92)
Total Respiratory	Self-Reported	8.48 (7.79-9.23)	8.40 (7.75-9.12)
Morbidity	Administrative Data	11.67 (10.78-12.63)	9.46 (8.73-10.25)
Mood or Anxiety	Self-Reported	6.73 (5.89-7.68)	5.52 (4.91-6.19)
Disorder	Administrative Data	22.25 (21.05-23.51)	18.00 (17.13-18.92)
Osteoporosis	Self-Reported	0.66 (0.50-0.88)	0.73 (0.52-1.02)
(Aged 50+)	Administrative Data	2.29 (1.97-2.65)	3.46 (3.08-3.87)
1+ Osteoporosis-			
Related Fractures	Administrative Data	1.03 (0.85-1.24)	1.07 (0.92-1.24)
(Aged 50+)			

*MHHS (1989; aged 17-76), NPHS (1996/97; aged 12+), CCHS (2000, 2003-2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

Values in **bold** type indicate significantly different values.

Appendix Table 2.7: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted; 95% Confidence Intervals

		1 year after Survey	3 years atter Survey	5 years atter Survey	10 years after Survey
Û	ver Smoked	5.48 (5.35 - 5.61)	5.52 (5.40 - 5.64)	5.52 (5.41 - 5.64)	5.56 (5.45 - 5.67)
Ambulatory Visits*	lever Smoked	4.52 (4.40 - 4.63)	4.59 (4.49 - 4.69)	4.62 (4.52 - 4.72)	4.71 (4.62 - 4.81)
per person-year	elative Rate	1.21 (1.17 - 1.26)	1.20 (1.17 - 1.24)	1.20 (1.16 - 1.23)	1.18 (1.15 - 1.21)
R	ate Difference	0.97 (0.79 - 1.15)	0.93 (0.77 - 1.09)	0.90 (0.75 - 1.06)	0.85 (0.70 - 0.99)
Ű	ver Smoked	123.30 (114.53 - 132.06)	123.81 (118.18 - 129.45)	124.04 (119.02 - 129.07)	126.40 (121.77 - 131.03)
Inpatient Hospitalizations*	lever Smoked	74.03 (68.07 - 79.98)	80.86 (76.76 - 84.96)	82.52 (78.86 - 86.18)	87.56 (84.05 - 91.06)
per 1,000 person-years	elative Rate	1.67 (1.49 - 1.86)	1.53 (1.43 - 1.64)	1.50 (1.42 - 1.60)	1.44 (1.37 - 1.52)
	ate Difference	49.27 (38.43 - 60.11)	42.95 (35.87 - 50.03)	41.52 (35.32 - 47.73)	38.84 (33.09 - 44.60)
Û	ver Smoked	1,072.24 (959.25 - 1,185.23)	1,205.25 (1,104.19 - 1,306.30)	1,247.29 (1,159.82 - 1,334.75)	1,272.25 (1,201.15 - 1,343.35
Days in Hospital*	lever Smoked	714.88 (608.25 - 821.51)	825.84 (746.80 - 904.88)	854.23 (784.93 - 923.52)	910.84 (848.01 - 973.67)
per 1,000 person-years	elative Rate	1.50 (1.24 - 1.81)	1.46 (1.28 - 1.66)	1.46 (1.31 - 1.63)	1.40 (1.28 - 1.53)
	ate Difference	357.36 (198.64 - 516.08)	379.41 (248.54 - 510.27)	393.06 (280.40 - 505.72)	361.42 (265.71 - 457.12)
	ver Smoked	535.01 (507.67 - 562.35)	542.59 (518.55 - 566.64)	545.81 (523.49 - 568.14)	562.31 (540.95 - 583.66)
Nean Number of Defined	lever Smoked	307.28 (290.53 - 324.02)	327.00 (306.16 - 347.84)	331.37 (307.84 - 354.90)	344.45 (324.50 - 364.39)
	elative Rate	1.74 (1.62 - 1.88)	1.66 (1.53 - 1.79)	1.65 (1.52 - 1.79)	1.63 (1.52 - 1.75)
per person-year	ate Difference	227.73 (195.85 - 259.62)	215.60 (183.29 - 247.91)	214.44 (181.29 - 247.60)	217.86 (187.92 - 247.80)
	ver Smoked	4.76 (4.63 - 4.89)	4.04 (3.94 - 4.13)	3.92 (3.83 - 4.01)	3.88 (3.80 - 3.96)
	lever Smoked	3.30 (3.19 - 3.41)	2.89 (2.82 - 2.96)	2.83 (2.76 - 2.89)	2.83 (2.77 - 2.89)
	telative Rate	1.44 (1.38 - 1.51)	1.40 (1.35 - 1.45)	1.39 (1.34 - 1.43)	1.37 (1.33 - 1.41)
	ate Difference	1.46 (1.29 - 1.63)	1.14 (1.02 - 1.27)	1.09 (0.98 - 1.21)	1.04 (0.94 - 1.15)
Ű	ver Smoked	15.63 (10.66 - 20.61)	16.88 (13.61 - 20.15)	19.19 (16.08 - 22.31)	21.62 (18.97 - 24.27)
PCH Admission Rates ⁺	Jever Smoked	11.68 (7.03 - 16.32)	20.64 (16.46 - 24.82)	22.52 (19.17 - 25.87)	25.54 (22.57 - 28.51)
per 1,000 person-years	elative Rate	1.34 (0.79 - 2.28)	0.82 (0.61 - 1.10)	0.85 (0.68 - 1.07)	0.85 (0.72 - 1.00)
R	ate Difference	3.96 (-3.02 - 10.93)	-3.76 (-9.27 - 1.74)	-3.33 (-8.02 - 1.37)	-3.92 (-7.85 - 0.01)
Ű	ver Smoked	2.27 (1.36 - 3.18)	6.05 (4.69 - 7.41)	8.97 (7.22 - 10.72)	14.11 (11.79 - 16.44)
Days in PCH ⁺	Jever Smoked	1.84 (1.05 - 2.63)	6.68 (5.25 - 8.10)	10.69 (8.74 - 12.65)	16.64 (14.16 - 19.11)
per person-year	elative Rate	1.23 (0.67 - 2.27)	0.91 (0.66 - 1.24)	0.84 (0.64 - 1.10)	0.85 (0.68 - 1.06)
R	ate Difference	0.43 (-0.80 - 1.66)	-0.63 (-2.61 - 1.36)	-1.73 (-4.41 - 0.96)	-2.52 (-5.93 - 0.89)

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER R REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

Values in **bold** type indicate statistically significantly different values. ⁺Aged 70+ except MHHS (aged 70-76)

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Population Based Rates

Appendix Table 2.7: Continued

	Ever Smoked	5.22 (5.07 - 5.37)	5.37 (5.26 - 5.49)	5.39 (5.29 - 5.49)	5.45 (5.35 - 5.55)
Ambulatory Visits*	Never Smoked	4.79 (4.68 - 4.90)	4.82 (4.71 - 4.93)	4.85 (4.74 - 4.96)	4.88 (4.79 - 4.98)
per person-year	Relative Rate	1.09 (1.04 - 1.14)	1.11 (1.07 - 1.16)	1.11 (1.07 - 1.15)	1.12 (1.08 - 1.16)
	Rate Difference	0.43 (0.20 - 0.66)	0.55 (0.35 - 0.75)	0.55 (0.36 - 0.73)	0.57 (0.39 - 0.75)
	Ever Smoked	117.83 (111.20 - 124.84)	116.07 (110.82 - 121.57)	118.36 (113.31 - 123.64)	122.76 (117.72 - 128.02)
Inpatient Hospitalizations*	Never Smoked	77.33 (71.18 - 84.01)	87.66 (83.09 - 92.47)	88.82 (84.70 - 93.13)	93.19 (89.52 - 97.01)
per 1,000 person-years	Relative Rate	1.52 (1.34 - 1.73)	1.32 (1.21 - 1.45)	1.33 (1.23 - 1.44)	1.32 (1.23 - 1.41)
	Rate Difference	40.50 (28.49 - 52.51)	28.41 (19.59 - 37.23)	29.55 (21.41 - 37.68)	29.57 (21.85 - 37.28)
	Ever Smoked	1,024.98 (903.30 - 1,163.05)	1,147.30 (1,045.30 - 1,259.26)	1,203.56 (1,103.29 - 1,312.95)	1,241.29 (1,137.85 - 1,354.13)
Days in Hospital*	Never Smoked	801.44 (695.09 - 924.05)	897.70 (820.56 - 982.08)	919.84 (850.11 - 995.27)	971.10 (906.94 - 1,039.79)
per 1,000 person-years	Relative Rate	1.28 (1.00 - 1.64)	1.28 (1.09 - 1.50)	1.31 (1.13 - 1.51)	1.28 (1.11 - 1.47)
	Rate Difference	223.54 (1.53 - 445.56)	249.61 (82.20 - 417.01)	283.73 (125.81 - 441.65)	270.19 (114.11 - 426.27)
	Ever Smoked	403.29 (371.69 - 437.58)	417.21 (386.04 - 450.90)	420.75 (387.55 - 456.80)	442.87 (407.16 - 481.71)
Mean Number of Defined	Never Smoked	369.92 (354.95 - 385.53)	389.24 (374.77 - 404.27)	392.66 (377.95 - 407.94)	404.33 (390.19 - 418.98)
	Relative Rate	1.09 (0.98 - 1.21)	1.07 (0.97 - 1.19)	1.07 (0.96 - 1.19)	1.10 (0.99 - 1.22)
per person-year	Rate Difference	33.37 (-7.96 - 74.70)	27.97 (-13.70 - 69.64)	28.09 (-16.71 - 72.90)	38.54 (-7.83 - 84.91)
30 modernin acom	Ever Smoked	4.33 (4.20 - 4.47)	3.77 (3.68 - 3.86)	3.69 (3.60 - 3.77)	3.67 (3.59 - 3.76)
Different Dumber of	Never Smoked	3.56 (3.48 - 3.65)	3.12 (3.05 - 3.18)	3.04 (2.98 - 3.11)	3.03 (2.97 - 3.10)
	Relative Rate	1.22 (1.16 - 1.28)	1.21 (1.16 - 1.26)	1.21 (1.17 - 1.26)	1.21 (1.17 - 1.26)
her person-year	Rate Difference	0.77 (0.58 - 0.96)	0.65 (0.51 - 0.79)	0.64 (0.52 - 0.77)	0.64 (0.52 - 0.76)
	Ever Smoked	18.52 (14.23 - 24.11)	19.83 (16.69 - 23.55)	21.75 (18.82 - 25.13)	24.46 (21.66 - 27.62)
PCH Admission Rates [†]	Never Smoked	11.48 (7.33 - 17.99)	20.06 (16.01 - 25.13)	22.03 (18.29 - 26.53)	23.95 (20.47 - 28.03)
per 1,000 person-years	Relative Rate	1.61 (0.84 - 3.11)	0.99 (0.69 - 1.43)	0.99 (0.73 - 1.34)	1.02 (0.79 - 1.33)
	Rate Difference	7.05 (-1.69 - 15.78)	-0.23 (-7.39 - 6.93)	-0.28 (-6.88 - 6.32)	0.50 (-5.78 - 6.79)
	Ever Smoked	2.88 (2.15 - 3.85)	6.98 (5.67 - 8.58)	10.32 (8.69 - 12.25)	16.22 (14.13 - 18.62)
Days in PCH ⁺	Never Smoked	1.45 (0.86 - 2.45)	6.73 (5.12 - 8.84)	10.30 (8.14 - 13.04)	14.79 (12.05 - 18.14)
per person-year	Relative Rate	1.98 (0.93 - 4.24)	1.04 (0.67 - 1.61)	1.00 (0.69 - 1.46)	1.10 (0.80 - 1.51)
	Rate Difference	1.43 (0.01 - 2.84)	0.25 (-2.66 - 3.15)	0.02 (-3.76 - 3.79)	1.44 (-3.37 - 6.25)
*Ared 12± evrent MHHS (ared		V Aripa (ared AE+)			

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values.

Appendix Table 2.7: Continued

	Ever Smoked	5.14 (5.05 - 5.24)	5.21 (5.14 - 5.29)	5.27 (5.19 - 5.35)	5.36 (5.28 - 5.44)
Ambulatory Visits*	Never Smoked	4.74 (4.64 - 4.84)	4.80 (4.71 - 4.89)	4.80 (4.71 - 4.89)	4.90 (4.81 - 4.98)
per person-year	Relative Rate	1.08 (1.05 - 1.12)	1.09 (1.06 - 1.12)	1.10 (1.07 - 1.13)	1.09 (1.06 - 1.12)
	Rate Difference	0.40 (0.25 - 0.56)	0.42 (0.28 - 0.55)	0.47 (0.34 - 0.61)	0.46 (0.33 - 0.59)
	Ever Smoked	111.55 (104.80 - 118.73)	118.87 (114.27 - 123.66)	115.94 (111.79 - 120.24)	121.21 (116.98 - 125.59)
Inpatient Hospitalizations*	Never Smoked	81.66 (73.90 - 90.22)	84.98 (79.44 - 90.90)	88.57 (83.33 - 94.15)	95.35 (90.31 - 100.67)
per 1,000 person-years	Relative Rate	1.37 (1.19 - 1.57)	1.40 (1.28 - 1.53)	1.31 (1.21 - 1.42)	1.27 (1.18 - 1.37)
	Rate Difference	29.89 (17.25 - 42.54)	33.89 (25.65 - 42.14)	27.36 (19.70 - 35.03)	25.86 (18.40 - 33.32)
	Ever Smoked	994.28 (902.85 - 1,094.95)	1,147.76 (1,066.20 - 1,235.55)	1,127.96 (1,054.72 - 1,206.28)	1,181.43 (1,101.74 - 1,266.88)
Days in Hospital*	Never Smoked	748.59 (656.92 - 853.05)	870.41 (791.77 - 956.86)	890.57 (815.10 - 973.03)	962.22 (883.83 - 1,047.57)
per 1,000 person-years	Relative Rate	1.33 (1.09 - 1.62)	1.32 (1.14 - 1.52)	1.27 (1.11 - 1.45)	1.23 (1.08 - 1.40)
	Rate Difference	245.69 (83.82 - 407.55)	277.35 (139.60 - 415.09)	237.39 (106.74 - 368.03)	219.21 (85.15 - 353.26)
Maniho of Patient	Ever Smoked	425.96 (406.78 - 446.04)	432.26 (416.39 - 448.74)	434.28 (419.18 - 449.93)	455.89 (440.01 - 472.36)
Mean Number of Defined	Never Smoked	384.69 (366.32 - 403.97)	389.45 (374.44 - 405.06)	394.23 (380.46 - 408.50)	404.59 (389.55 - 420.21)
	Relative Rate	1.11 (1.02 - 1.20)	1.11 (1.04 - 1.19)	1.10 (1.04 - 1.17)	1.13 (1.06 - 1.20)
per person-year	Rate Difference	41.27 (9.53 - 73.02)	42.81 (16.86 - 68.76)	40.05 (15.67 - 64.44)	51.30 (25.31 - 77.30)
Mann Niimhar af	Ever Smoked	4.38 (4.28 - 4.48)	3.78 (3.71 - 3.85)	3.67 (3.60 - 3.75)	3.67 (3.60 - 3.74)
Different Durac **	Never Smoked	3.62 (3.51 - 3.72)	3.15 (3.08 - 3.23)	3.08 (3.01 - 3.15)	3.11 (3.04 - 3.17)
	Relative Rate	1.21 (1.16 - 1.26)	1.20 (1.16 - 1.24)	1.19 (1.15 - 1.24)	1.18 (1.14 - 1.22)
per personi-year	Rate Difference	0.76 (0.60 - 0.93)	0.63 (0.51 - 0.74)	0.60 (0.49 - 0.71)	0.56 (0.46 - 0.67)
	Ever Smoked	15.79 (11.90 - 20.94)	17.23 (13.97 - 21.25)	22.89 (17.15 - 30.56)	22.21 (17.37 - 28.41)
PCH Admission Rates ⁺	Never Smoked	9.00 (5.20 - 15.57)	21.65 (15.60 - 30.04)	23.01 (17.10 - 30.96)	28.15 (22.46 - 35.27)
per 1,000 person-years	Relative Rate	1.75 (0.81 - 3.81)	0.80 (0.50 - 1.28)	1.00 (0.63 - 1.58)	0.79 (0.54 - 1.15)
	Rate Difference	6.79 (-1.80 - 15.37)	-4.42 (-13.57 - 4.73)	-0.11 (-10.68 - 10.45)	-5.93 (-15.40 - 3.53)
	Ever Smoked	2.27 (1.66 - 3.11)	5.73 (4.55 - 7.22)	9.51 (7.50 - 12.07)	14.61 (12.14 - 17.58)
Days in PCH ⁺	Never Smoked	1.39 (0.70 - 2.77)	7.06 (5.12 - 9.74)	11.15 (8.25 - 15.06)	16.47 (12.87 - 21.08)
per person-year	Relative Rate	1.64 (0.63 - 4.28)	0.81 (0.49 - 1.33)	0.85 (0.55 - 1.33)	0.89 (0.62 - 1.27)
	Rate Difference	0.89 (-0.57 - 2.35)	-1.34 (-4.40 - 1.73)	-1.64 (-6.19 - 2.92)	-1.86 (-7.43 - 3.71)
*Aged 12+ except MHHS (aged	17-76), CCHS Health	y Aging (aged 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values.

Survey	weighted; 95% Confi	idence Intervals			
			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	5.35 (5.20 - 5.50)	5.38 (5.25 - 5.51)	5.37 (5.25 - 5.50)	5.41 (5.29 - 5.53)
Ambulatory Visits*	Never Smoked	4.80 (4.66 - 4.93)	4.85 (4.73 - 4.97)	4.87 (4.75 - 4.99)	4.93 (4.82 - 5.04)
per person-year	Relative Rate	1.11 (1.07 - 1.16)	1.11 (1.07 - 1.15)	1.10 (1.07 - 1.14)	1.10 (1.06 - 1.13)
	Rate Difference	0.55 (0.35 - 0.75)	0.53 (0.35 - 0.72)	0.51 (0.33 - 0.69)	0.47 (0.30 - 0.64)
	Ever Smoked	110.41 (101.21 - 119.61)	111.67 (105.28 - 118.06)	113.20 (107.47 - 118.94)	115.84 (110.45 - 121.23)
Inpatient Hospitalizations*	Never Smoked	77.76 (70.98 - 84.54)	84.28 (79.58 - 88.98)	85.45 (81.29 - 89.62)	90.15 (86.23 - 94.08)
per 1,000 person-years	Relative Rate	1.42 (1.26 - 1.60)	1.32 (1.22 - 1.44)	1.32 (1.23 - 1.42)	1.28 (1.20 - 1.37)
	Rate Difference	32.65 (21.15 - 44.15)	27.39 (19.23 - 35.55)	27.75 (20.60 - 34.90)	25.69 (18.92 - 32.45)
	Ever Smoked	952.25 (830.12 - 1,074.38)	1,034.76 (949.50 - 1,120.01)	1,088.23 (1,003.94 - 1,172.53)	1,096.42 (1,026.63 - 1,166.20)
Days in Hospital*	Never Smoked	691.75 (578.14 - 805.36)	805.66 (719.13 - 892.19)	819.62 (749.02 - 890.23)	882.65 (815.28 - 950.03)
per 1,000 person-years	Relative Rate	1.38 (1.11 - 1.70)	1.28 (1.12 - 1.47)	1.33 (1.18 - 1.49)	1.24 (1.12 - 1.37)
	Rate Difference	260.50 (90.27 - 430.73)	229.10 (106.80 - 351.39)	268.61 (159.23 - 377.99)	213.76 (115.85 - 311.67)
hearing of medamine another	Ever Smoked	480.52 (450.27 - 510.77)	483.75 (457.60 - 509.90)	484.44 (460.53 - 508.34)	494.33 (471.95 - 516.71)
Mean Number of Defined	Never Smoked	339.49 (320.14 - 358.83)	358.52 (333.83 - 383.20)	362.70 (334.63 - 390.77)	376.43 (352.98 - 399.89)
	Relative Rate	1.42 (1.30 - 1.54)	1.35 (1.24 - 1.47)	1.34 (1.22 - 1.46)	1.31 (1.22 - 1.42)
per person-year	Rate Difference	141.03 (105.53 - 176.54)	125.24 (89.18 - 161.30)	121.74 (84.70 - 158.78)	117.90 (85.32 - 150.47)
Moza Niimbar of	Ever Smoked	4.49 (4.35 - 4.63)	3.82 (3.72 - 3.93)	3.71 (3.61 - 3.81)	3.66 (3.57 - 3.75)
	Never Smoked	3.51 (3.38 - 3.64)	3.05 (2.97 - 3.14)	2.97 (2.90 - 3.05)	2.97 (2.90 - 3.04)
	Relative Rate	1.28 (1.22 - 1.34)	1.25 (1.20 - 1.30)	1.25 (1.20 - 1.30)	1.23 (1.19 - 1.28)
hei personi-year	Rate Difference	0.98 (0.78 - 1.17)	0.77 (0.63 - 0.91)	0.74 (0.61 - 0.86)	0.69 (0.58 - 0.81)
	Ever Smoked	16.73 (10.06 - 23.40)	20.48 (15.96 - 25.00)	22.00 (17.64 - 26.36)	23.54 (19.91 - 27.18)
PCH Admission Rates ⁺	Never Smoked	7.53 (3.21 - 11.86)	15.26 (11.14 - 19.39)	16.90 (13.68 - 20.13)	19.96 (17.04 - 22.89)
per 1,000 person-years	Relative Rate	2.22 (1.04 - 4.72)	1.34 (0.93 - 1.94)	1.30 (0.98 - 1.73)	1.18 (0.95 - 1.46)
	Rate Difference	9.19 (1.13 - 17.25)	5.22 (-1.07 - 11.51)	5.09 (-0.47 - 10.66)	3.58 (-1.07 - 8.24)
	Ever Smoked	2.30 (1.05 - 3.54)	6.94 (5.05 - 8.82)	10.19 (7.84 - 12.54)	15.90 (12.71 - 19.08)
Days in PCH ⁺	Never Smoked	1.16 (0.46 - 1.85)	4.99 (3.54 - 6.44)	8.23 (6.13 - 10.33)	13.24 (10.57 - 15.92)
per person-year	Relative Rate	1.99 (0.83 - 4.75)	1.39 (0.92 - 2.09)	1.24 (0.87 - 1.76)	1.20 (0.90 - 1.60)
	Rate Difference	1.14 (-0.30 - 2.58)	1.95 (-0.45 - 4.35)	1.96 (-1.24 - 5.16)	2.65 (-1.54 - 6.85)

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFEND

Appendix Table 2.8: Additional Matched Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and Never Smoked by Number of Years After Survey

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Matched Rates

2.9: Additional Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use for Ever Smoked and	Never Smoked by Number of Years After Survey	Survey weighted; 95% Confidence Intervals
Appendix Table 2.9: Additio	Never S	Survey we

			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	5.44 (5.30 - 5.58)	5.44 (5.31 - 5.57)	5.45 (5.33 - 5.57)	5.50 (5.39 - 5.62)
Ambulatory Visits*	Never Smoked	4.71 (4.59 - 4.83)	4.77 (4.67 - 4.88)	4.79 (4.69 - 4.89)	4.87 (4.77 - 4.97)
per person-year	Relative Rate	1.15 (1.11 - 1.20)	1.14 (1.10 - 1.18)	1.14 (1.10 - 1.17)	1.13 (1.10 - 1.16)
	Rate Difference	0.73 (0.54 - 0.91)	0.66 (0.50 - 0.83)	0.66 (0.50 - 0.82)	0.64 (0.48 - 0.79)
	Ever Smoked	122.01 (112.87 - 131.16)	121.40 (115.39 - 127.42)	121.19 (115.85 - 126.54)	123.90 (118.93 - 128.87)
Inpatient Hospitalizations*	Never Smoked	80.74 (74.13 - 87.36)	87.42 (82.90 - 91.94)	88.67 (84.63 - 92.70)	92.93 (89.14 - 96.72)
per 1,000 person-years	Relative Rate	1.51 (1.35 - 1.69)	1.39 (1.29 - 1.50)	1.37 (1.28 - 1.46)	1.33 (1.26 - 1.41)
	Rate Difference	41.27 (29.95 - 52.59)	33.98 (26.21 - 41.75)	32.53 (25.75 - 39.31)	30.96 (24.64 - 37.29)
	Ever Smoked	1,067.58 (946.44 - 1,188.73)	1,177.25 (1,085.63 - 1,268.88)	1,219.97 (1,134.79 - 1,305.15)	1,246.30 (1,175.05 - 1,317.55)
Days in Hospital*	Never Smoked	787.83 (666.92 - 908.74)	902.63 (813.15 - 992.11)	929.59 (851.51 - 1,007.67)	980.84 (910.82 - 1,050.86)
per 1,000 person-years	Relative Rate	1.36 (1.12 - 1.64)	1.30 (1.15 - 1.48)	1.31 (1.18 - 1.47)	1.27 (1.16 - 1.39)
	Rate Difference	279.75 (107.01 - 452.50)	274.62 (143.77 - 405.48)	290.38 (173.84 - 406.91)	265.47 (165.43 - 365.50)
pongog go zoganily neoM	Ever Smoked	519.71 (491.26 - 548.17)	526.35 (501.83 - 550.87)	531.52 (509.06 - 553.97)	551.45 (529.75 - 573.14)
	Never Smoked	330.83 (312.82 - 348.84)	344.10 (327.73 - 360.47)	346.41 (330.53 - 362.29)	364.03 (347.62 - 380.43)
	Relative Rate	1.57 (1.46 - 1.69)	1.53 (1.43 - 1.64)	1.53 (1.44 - 1.64)	1.51 (1.43 - 1.61)
per person-year	Rate Difference	188.89 (155.97 - 221.81)	182.25 (152.33 - 212.17)	185.11 (156.97 - 213.26)	187.42 (159.70 - 215.14)
je requirily seem	Ever Smoked	4.64 (4.50 - 4.77)	3.92 (3.82 - 4.02)	3.82 (3.73 - 3.91)	3.80 (3.72 - 3.88)
	Never Smoked	3.50 (3.38 - 3.62)	3.05 (2.97 - 3.12)	2.96 (2.89 - 3.03)	2.96 (2.90 - 3.02)
	Relative Rate	1.32 (1.27 - 1.38)	1.29 (1.24 - 1.33)	1.29 (1.25 - 1.33)	1.28 (1.24 - 1.32)
per person-year	Rate Difference	1.13 (0.96 - 1.31)	0.88 (0.75 - 1.00)	0.86 (0.74 - 0.97)	0.84 (0.73 - 0.94)
	Ever Smoked	15.29 (10.34 - 20.25)	17.24 (13.83 - 20.65)	19.58 (16.34 - 22.82)	21.90 (19.16 - 24.63)
PCH Admission Rates ⁺	Never Smoked	11.85 (6.99 - 16.70)	20.96 (16.61 - 25.30)	22.91 (19.45 - 26.36)	26.11 (23.05 - 29.16)
per 1,000 person-years	Relative Rate	1.29 (0.74 - 2.24)	0.82 (0.61 - 1.11)	0.85 (0.68 - 1.08)	0.84 (0.71 - 0.99)
	Rate Difference	3.45 (-3.71 - 10.61)	-3.72 (-9.44 - 2.01)	-3.32 (-8.18 - 1.53)	-4.21 (-8.240.18)
	Ever Smoked	2.19 (1.28 - 3.09)	6.07 (4.68 - 7.46)	9.15 (7.33 - 10.96)	14.54 (12.10 - 16.97)
Days in PCH ⁺	Never Smoked	1.92 (1.09 - 2.76)	6.71 (5.23 - 8.18)	10.78 (8.78 - 12.77)	16.95 (14.41 - 19.48)
per person-year	Relative Rate	1.14 (0.61 - 2.13)	0.91 (0.66 - 1.25)	0.85 (0.64 - 1.12)	0.86 (0.68 - 1.08)
	Rate Difference	0.26 (-1.00 - 1.52)	-0.64 (-2.68 - 1.41)	-1.63 (-4.39 - 1.13)	-2.41 (-5.94 - 1.12)
*Aged 12+ except MHHS (aged :	17-76), CCHS Health	y Aging (aged 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CHALLENGE REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

+Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values.

			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	6.05 (4.49 - 7.60)	5.56 (4.63 - 6.50)	5.54 (4.82 - 6.26)	5.80 (5.21 - 6.39)
Dremature Mortality Rates**	Never Smoked	1.69 (0.90 - 2.49)	1.54 (1.09 - 1.99)	1.44 (1.09 - 1.80)	1.84 (1.50 - 2.19)
per 1,000 person-years	Relative Rate	3.58 (2.04 - 6.26)	3.62 (2.57 - 5.09)	3.83 (2.89 - 5.09)	3.15 (2.54 - 3.89)
	Rate Difference	4.36 (2.55 - 6.16)	4.03 (2.97 - 5.08)	4.10 (3.27 - 4.92)	3.96 (3.27 - 4.64)
	Ever Smoked	75.84 (51.81 - 99.88)	70.10 (55.07 - 85.14)	70.64 (57.99 - 83.30)	71.23 (61.51 - 80.94)
³ otential Years of Life Lost**	Never Smoked	28.27 (11.71 - 44.83)	20.91 (13.27 - 28.55)	20.78 (14.64 - 26.92)	29.68 (22.25 - 37.12)
per 1,000 person-years	Relative Rate	2.68 (1.34 - 5.39)	3.35 (2.20 - 5.12)	3.40 (2.40 - 4.81)	2.40 (1.80 - 3.20)
	Rate Difference	47.57 (17.60 - 77.54)	49.19 (32.09 - 66.30)	49.86 (35.68 - 64.05)	41.54 (29.33 - 53.76)
	Ever Smoked	9.54 (7.72 - 11.35)	9.73 (8.63 - 10.83)	10.03 (9.16 - 10.91)	11.04 (10.33 - 11.74)
Total Mortality Rates*	Never Smoked	3.35 (2.44 - 4.26)	4.46 (3.86 - 5.06)	4.92 (4.39 - 5.46)	5.83 (5.34 - 6.31)
per 1,000 person-years	Relative Rate	2.85 (2.01 - 4.03)	2.18 (1.82 - 2.61)	2.04 (1.77 - 2.35)	1.89 (1.71 - 2.10)
	Rate Difference	6.19 (4.04 - 8.33)	5.26 (3.98 - 6.55)	5.11 (4.05 - 6.17)	5.21 (4.36 - 6.06)
		Age	e- & sex-adjusted		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	5.02 (3.48 - 7.26)	4.86 (3.73 - 6.34)	4.74 (3.86 - 5.83)	4.61 (3.70 - 5.73)
Premature Mortality Rates**	Never Smoked	2.60 (1.48 - 4.56)	2.02 (1.32 - 3.08)	1.97 (1.44 - 2.69)	2.84 (2.25 - 3.57)
per 1,000 person-years	Relative Rate	1.93 (0.79 - 4.76)	2.41 (1.24 - 4.69)	2.41 (1.46 - 3.98)	1.62 (1.05 - 2.51)
	Rate Difference	2.43 (-0.61 - 5.46)	2.84 (0.82 - 4.86)	2.77 (1.25 - 4.30)	1.77 (0.17 - 3.37)
	Ever Smoked	63.53 (41.87 - 96.38)	57.86 (43.28 - 77.34)	57.40 (46.08 - 71.49)	55.83 (44.23 - 70.47)
² otential Years of Life Lost**	Never Smoked	35.04 (19.47 - 63.06)	26.65 (17.56 - 40.45)	26.65 (19.62 - 36.20)	37.61 (30.10 - 47.01)
per 1,000 person-years	Relative Rate	1.81 (0.69 - 4.75)	2.17 (1.09 - 4.32)	2.15 (1.29 - 3.59)	1.48 (0.95 - 2.31)
	Rate Difference	28.49 (-14.48 - 71.46)	31.21 (4.60 - 57.82)	30.74 (10.56 - 50.92)	18.21 (-2.61 - 39.04)
	Ever Smoked	8.14 (6.28 - 10.56)	9.10 (7.37 - 11.24)	9.61 (8.16 - 11.32)	9.93 (8.49 - 11.62)
Total Mortality Rates*	Never Smoked	4.42 (2.99 - 6.55)	4.69 (3.65 - 6.02)	4.95 (4.09 - 6.00)	6.54 (5.62 - 7.62)
per 1,000 person-years	Relative Rate	1.84 (0.98 - 3.47)	1.94 (1.24 - 3.03)	1.94 (1.38 - 2.73)	1.52 (1.13 - 2.04)
	Date Difference	2 72 (0 DE - 7 28)	A 41 /1 AE 7 301	100 2 1 2 2 2 2	2 20 (0 0 L 02)

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74) Values in **bold type indicate statistically significantly different values.

APPENDIX 3 Population Based Rates

Appendix Table 3.1: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 208 | Appendix 3

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		Age-, sex-, R	HA-, SES- & RUB-adjusted		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	4.00 (2.74 - 5.85)	3.88 (2.96 - 5.08)	3.97 (3.16 - 4.99)	3.65 (2.88 - 4.63)
Premature Mortality Rates**	Never Smoked	2.74 (1.63 - 4.62)	2.78 (1.67 - 4.62)	2.51 (1.60 - 3.95)	3.58 (2.49 - 5.13)
per 1,000 person-years	Relative Rate	1.46 (0.65 - 3.29)	1.40 (0.69 - 2.84)	1.58 (0.87 - 2.88)	1.02 (0.60 - 1.73)
	Rate Difference	1.26 (-1.38 - 3.90)	1.10 (-1.21 - 3.41)	1.46 (-0.41 - 3.32)	0.07 (-1.92 - 2.06)
	Ever Smoked	52.73 (33.48 - 83.04)	46.67 (34.23 - 63.62)	48.77 (38.21 - 62.25)	45.29 (35.28 - 58.13)
Potential Years of Life Lost**	Never Smoked	36.93 (19.24 - 70.88)	36.69 (19.44 - 69.24)	34.48 (20.95 - 56.75)	47.87 (32.56 - 70.38)
per 1,000 person-years	Relative Rate	1.43 (0.52 - 3.94)	1.27 (0.53 - 3.03)	1.41 (0.74 - 2.71)	0.95 (0.55 - 1.64)
	Rate Difference	15.79 (-27.48 - 59.07)	9.98 (-24.50 - 44.45)	14.29 (-12.18 - 40.77)	-2.59 (-29.88 - 24.71)
	Ever Smoked	6.99 (5.19 - 9.42)	7.42 (6.01 - 9.17)	8.34 (6.93 - 10.04)	8.13 (6.82 - 9.68)
Total Mortality Rates*	Never Smoked	4.83 (3.24 - 7.20)	6.00 (4.47 - 8.06)	5.98 (4.35 - 8.21)	8.26 (6.23 - 10.94)
per 1,000 person-years	Relative Rate	1.45 (0.81 - 2.57)	1.24 (0.80 - 1.91)	1.40 (0.91 - 2.13)	0.98 (0.67 - 1.45)
	Rate Difference	2.16 (-1.25 - 5.57)	1.42 (-1.65 - 4.49)	2.36 (-0.66 - 5.38)	-0.13 (-3.43 - 3.17)

'Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
		Adjus	ted (PHreg model includes ag	ge & sex)	
Malac	Ever Smoked	79.23 (79.15 - 79.32)	79.75 (79.66 - 79.84)	79.82 (79.74 - 79.91)	78.93 (78.84 - 79.02)
INIAIES	Never Smoked	81.10 (80.98 - 81.23)	80.95 (80.84 - 81.07)	80.95 (80.84 - 81.07)	80.41 (80.30 - 80.53)
	Ever Smoked	82.93 (82.84 - 83.02)	83.51 (83.42 - 83.60)	83.53 (83.44 - 83.62)	82.64 (82.54 - 82.73)
remaies	Never Smoked	84.73 (84.61 - 84.86)	84.63 (84.52 - 84.75)	84.61 (84.49 - 84.72)	84.07 (83.96 - 84.19)
		Adjusted (PH	reg model includes age, sex, F	RHA, SES & RUB)	
Malac	Ever Smoked	80.70 (80.62 - 80.78)	80.40 (80.31 - 80.48)	80.34 (80.26 - 80.43)	79.40 (79.31 - 79.49)
INIGIES	Never Smoked	81.67 (81.55 - 81.78)	81.26 (81.15 - 81.37)	81.22 (81.11 - 81.33)	80.66 (80.54 - 80.77)
Eomoloc	Ever Smoked	84.37 (84.29 - 84.45)	84.13 (84.05 - 84.22)	84.05 (83.96 - 84.14)	83.12 (83.03 - 83.22)
	Never Smoked	85.28 (85.16 - 85.40)	84.93 (84.82 - 85.04)	84.87 (84.76 - 84.98)	84.33 (84.21 - 84.44)

*Life expectancy calculations based on a combined life table/semi-parametric approach; mortality rates estimated using proportional hazards regression.

Values in **bold** type indicate statistically significantly different values from Never Smoked.

Appendix Table 3.3: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted; 95% Confidence Intervals

			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	807.51 (641.06 - 973.96)	825.72 (729.21 - 922.22)	787.89 (711.22 - 864.56)	837.02 (768.21 - 905.82)
Cancer Incidence Rates*	Never Smoked	437.72 (304.45 - 570.98)	398.60 (326.84 - 470.36)	422.37 (360.62 - 484.12)	424.67 (374.97 - 474.36)
per 100,000 person-years	Relative Rate	1.84 (1.26 - 2.69)	2.07 (1.68 - 2.56)	1.87 (1.57 - 2.22)	1.97 (1.72 - 2.26)
	Rate Difference	369.80 (156.08 - 583.51)	427.12 (309.90 - 544.34)	365.52 (268.73 - 462.31)	412.35 (330.63 - 494.06)
	Ever Smoked	217.76 (126.81 - 308.70)	188.62 (141.84 - 235.41)	177.89 (141.63 - 214.14)	176.17 (146.15 - 206.18)
Lung Cancer Incidence Rates*	Never Smoked	19.53 (2.16 - 36.90)	13.10 (4.22 - 21.99)	13.84 (6.65 - 21.04)	13.78 (7.80 - 19.77)
per 100,000 person-years	Relative Rate	11.15 (3.11 - 39.96)	14.39 (6.65 - 31.13)	12.85 (7.25 - 22.78)	12.78 (7.96 - 20.52)
	Rate Difference	198.23 (105.73 - 290.73)	175.52 (127.93 - 223.11)	164.04 (127.21 - 200.87)	162.38 (131.94 - 192.83)
Strongly Smoking	Ever Smoked	225.79 (133.22 - 318.37)	197.13 (148.63 - 245.62)	186.94 (149.50 - 224.38)	186.99 (155.75 - 218.23)
Associated** Cancers	Never Smoked	19.53 (2.16 - 36.90)	13.10 (4.22 - 21.99)	15.77 (7.60 - 23.94)	16.61 (9.66 - 23.56)
Incidence Rates*	Relative Rate	11.56 (3.24 - 41.30)	15.04 (6.95 - 32.54)	11.85 (6.78 - 20.70)	11.26 (7.22 - 17.56)
per 100,000 person-years	Rate Difference	206.27 (112.23 - 300.30)	184.02 (134.69 - 233.35)	171.17 (133.10 - 209.24)	170.38 (138.81 - 201.96)
		Age	به که sex-adjusted		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	459.56 (336.22 - 628.15)	495.32 (412.91 - 594.19)	567.56 (447.41 - 719.99)	612.62 (505.91 - 741.84)
Cancer Incidence Rates*	Never Smoked	647.19 (483.43 - 866.42)	626.06 (508.53 - 770.76)	591.96 (499.00 - 702.23)	596.56 (522.27 - 681.43)
per 100,000 person-years	Relative Rate	0.71 (0.40 - 1.27)	0.79 (0.55 - 1.13)	0.96 (0.67 - 1.37)	1.03 (0.78 - 1.35)
	Rate Difference	-187.62 (-511.86 - 136.61)	-130.74 (-335.74 - 74.26)	-24.39 (-234.47 - 185.68)	16.06 (-156.21 - 188.33)
	Ever Smoked	196.12 (169.12 - 227.43)	156.36 (139.06 - 175.81)	149.72 (129.69 - 172.85)	156.46 (140.10 - 174.74)
Lung Cancer Incidence Rates*	Never Smoked	16.58 (3.32 - 82.69)	17.02 (6.82 - 42.48)	24.77 (9.46 - 64.87)	20.47 (9.32 - 44.94)
per 100,000 person-years	Relative Rate	11.83 (2.20 - 63.52)	9.19 (3.39 - 24.88)	6.05 (2.06 - 17.74)	7.65 (3.21 - 18.22)
	Rate Difference	179.54 (130.39 - 228.69)	139.34 (110.28 - 168.41)	124.95 (85.46 - 164.44)	136.00 (107.10 - 164.90)
Strongly Smoking	Ever Smoked	202.93 (175.04 - 235.27)	163.02 (145.47 - 182.69)	157.56 (135.52 - 183.19)	163.21 (145.46 - 183.13)
Associated ** Cancers	Never Smoked	16.95 (3.41 - 84.22)	17.22 (6.94 - 42.74)	29.67 (12.67 - 69.49)	25.00 (12.52 - 49.91)
Incidence Rates*	Relative Rate	11.98 (2.24 - 63.96)	9.47 (3.53 - 25.42)	5.31 (2.00 - 14.08)	6.53 (2.99 - 14.28)
per 100,000 person-years	Rate Difference	185.98 (135.78 - 236.19)	145.80 (116.53 - 175.08)	127.89 (84.16 - 171.62)	138.21 (105.90 - 170.53)
*Aned 12+ excent MHHS (aned :	17-76) CCHS Health	/ Aning (aged 45+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

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		Age-, sex-, Rl	HA-, SES- & RUB-adjusted		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	625.64 (446.28 - 877.09)	546.28 (420.43 - 709.78)	605.67 (474.33 - 773.36)	669.57 (542.95 - 825.71)
Cancer Incidence Rates*	Never Smoked	696.32 (356.68 - 1,359.38)	638.28 (418.62 - 973.19)	628.61 (415.28 - 951.54)	639.16 (474.96 - 860.13)
per 100,000 person-years	Relative Rate	0.90 (0.36 - 2.21)	0.86 (0.47 - 1.55)	0.96 (0.56 - 1.65)	1.05 (0.68 - 1.60)
	Rate Difference	-70.67 (-624.74 - 483.39)	-92.00 (-468.20 - 284.19)	-22.95 (-380.45 - 334.56)	30.40 (-252.27 - 313.08)
	Ever Smoked	205.10 (180.44 - 233.12)	156.75 (138.40 - 177.53)	150.58 (135.41 - 167.45)	154.21 (141.33 - 168.25)
Lung Cancer Incidence Rates*	Never Smoked	7.02 (0.80 - 61.42)	21.63 (4.97 - 94.01)	18.98 (5.52 - 65.27)	15.79 (5.47 - 45.61)
per 100,000 person-years	Relative Rate	29.21 (3.28 - 260.41)	7.25 (1.54 - 34.12)	7.93 (2.15 - 29.24)	9.77 (3.22 - 29.66)
	Rate Difference	198.07 (168.04 - 228.11)	135.12 (95.75 - 174.50)	131.60 (100.65 - 162.55)	138.42 (114.94 - 161.89)
Strongly Smoking	Ever Smoked	212.21 (186.95 - 240.89)	165.02 (145.92 - 186.63)	160.94 (144.00 - 179.88)	166.37 (152.07 - 182.02)
Associated** Cancers	Never Smoked	7.18 (0.83 - 62.33)	21.11 (4.80 - 92.95)	21.80 (6.89 - 69.00)	19.21 (7.54 - 48.94)
Incidence Rates*	Relative Rate	29.54 (3.35 - 260.67)	7.82 (1.64 - 37.14)	7.38 (2.17 - 25.17)	8.66 (3.22 - 23.29)
per 100,000 person-years	Rate Difference	205.03 (174.55 - 235.50)	143.91 (104.23 - 183.59)	139.15 (104.73 - 173.56)	147.16 (120.67 - 173.66)
*Aged 12+ except MHHS (aged	17-76). CCHS Health	/ Aning (aged 45+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Survey	weighted, matched	on age, sex, RHA & income quintil	le; 95% Confidence Intervals		
			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	5.18 (3.69 - 6.68)	4.62 (3.55 - 5.68)	4.70 (3.86 - 5.54)	4.84 (4.19 - 5.49)
Premature Mortality Rates**	Never Smoked	2.03 (1.07 - 3.00)	1.83 (1.28 - 2.37)	1.68 (1.27 - 2.10)	2.11 (1.71 - 2.52)
per 1,000 person-years	Relative Rate	2.55 (1.42 - 4.58)	2.53 (1.73 - 3.69)	2.79 (2.04 - 3.81)	2.29 (1.81 - 2.89)
	Rate Difference	3.15 (1.30 - 5.00)	2.79 (1.59 - 4.00)	3.01 (2.05 - 3.97)	2.72 (1.96 - 3.48)
	Ever Smoked	73.70 (46.50 - 100.90)	63.17 (45.52 - 80.82)	65.82 (50.50 - 81.15)	67.27 (55.34 - 79.19)
Potential Years of Life Lost**	Never Smoked	34.03 (13.89 - 54.18)	24.28 (15.19 - 33.37)	22.94 (15.95 - 29.92)	32.47 (23.92 - 41.01)
per 1,000 person-years	Relative Rate	2.17 (1.04 - 4.52)	2.60 (1.63 - 4.15)	2.87 (1.96 - 4.21)	2.07 (1.51 - 2.84)
	Rate Difference	39.67 (4.69 - 74.64)	38.89 (18.78 - 58.99)	42.89 (25.96 - 59.82)	34.80 (20.42 - 49.18)
	Ever Smoked	7.89 (6.20 - 9.58)	7.91 (6.71 - 9.10)	8.15 (7.21 - 9.09)	8.94 (8.18 - 9.70)
Total Mortality Rates*	Never Smoked	3.14 (2.11 - 4.16)	4.11 (3.46 - 4.77)	4.49 (3.91 - 5.07)	5.45 (4.93 - 5.97)

Appendix Table 3.4: Additional Matched Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures for Ever Smoked and Never Smoked by Number of Years After Survey

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

Relative Rate Rate Difference

per 1,000 person-years

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER VISIONARY INNOVATOR ADVENTUREN REBEL PIONEER CREATOR EXPLORER VISIONARY INNOVATOR ADVENTUREN REBEL PIONEER CREATOR EXPLORER VISIONARY INNOVATOR ADVENTUREN REBEL PIONEER CREATOR EXPLORER VISIONARY

PIONEER CREATOR EXPLORER DEFENDER TRAILRIATER CHALLENGER VISIONARY INNOVATOR ADVENTURER REREL PIONEER CREATOR

1.64 (1.44 - 1.86) 3.49 (2.57 - 4.40)

1.82 (1.52 - 2.17) 3.66 (2.52 - 4.80)

1.92 (1.54 - 2.41) 3.79 (2.41 - 5.18)

2.51 (1.67 - 3.79) 4.75 (2.66 - 6.84) Appendix Table 3.5: Additional Matched Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey

Survey weighted, matched on age, sex, RHA & income quintile; 95% Confidence Intervals

			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	759.61 (569.26 - 949.95)	678.85 (577.81 - 779.88)	657.30 (574.30 - 740.30)	709.63 (634.52 - 784.74)
Cancer Incidence Rates*	Never Smoked	419.67 (287.76 - 551.58)	411.11 (332.88 - 489.35)	444.74 (375.41 - 514.07)	444.24 (388.82 - 499.65)
per 100,000 person-years	Relative Rate	1.81 (1.21 - 2.71)	1.65 (1.30 - 2.09)	1.48 (1.21 - 1.80)	1.60 (1.36 - 1.87)
	Rate Difference	339.94 (108.03 - 571.84)	267.73 (140.66 - 394.81)	212.56 (104.95 - 320.17)	265.40 (174.54 - 356.25)
	Ever Smoked	208.75 (107.34 - 310.17)	166.16 (113.98 - 218.34)	146.66 (108.90 - 184.42)	149.25 (118.65 - 179.85)
Lung Cancer Incidence Rates*	Never Smoked	S	10.56 (2.76 - 18.36)	12.45 (5.57 - 19.33)	13.35 (7.23 - 19.47)
per 100,000 person-years	Relative Rate	S	15.74 (6.10 - 40.60)	11.78 (6.12 - 22.66)	11.18 (6.69 - 18.67)
	Rate Difference	S	155.60 (103.10 - 208.10)	134.21 (96.28 - 172.13)	135.90 (105.32 - 166.48)
Strongly Smoking	Ever Smoked	218.90 (115.45 - 322.34)	174.08 (119.83 - 228.34)	154.36 (115.11 - 193.60)	155.49 (124.03 - 186.95)
Associated** Cancers	Never Smoked	S	10.56 (2.76 - 18.36)	14.75 (6.52 - 22.99)	16.67 (9.32 - 24.01)
Incidence Rates*	Relative Rate	S	16.49 (6.38 - 42.62)	10.46 (5.52 - 19.84)	9.33 (5.74 - 15.16)
per 100,000 person-years	Rate Difference	S	163.52 (108.93 - 218.12)	139.60 (100.02 - 179.19)	138.83 (107.42 - 170.24)
*Aged 12+ except MHHS (aged	17-76). CCHS Health	/ Aging (aged 45+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	6.11 (4.43 - 7.79)	5.39 (4.39 - 6.39)	5.39 (4.61 - 6.17)	5.65 (5.02 - 6.28)
Premature Mortality Rates**	Never Smoked	1.94 (1.03 - 2.85)	1.73 (1.22 - 2.24)	1.62 (1.22 - 2.02)	2.05 (1.66 - 2.44)
per 1,000 person-years	Relative Rate	3.15 (1.79 - 5.54)	3.12 (2.19 - 4.44)	3.33 (2.48 - 4.46)	2.76 (2.21 - 3.44)
	Rate Difference	4.17 (2.21 - 6.13)	3.66 (2.51 - 4.80)	3.77 (2.87 - 4.67)	3.60 (2.86 - 4.34)
	Ever Smoked	77.22 (51.18 - 103.26)	69.21 (52.95 - 85.47)	70.19 (56.45 - 83.92)	70.37 (59.93 - 80.80)
Potential Years of Life Lost**	Never Smoked	32.44 (13.43 - 51.44)	22.51 (13.98 - 31.05)	22.50 (15.61 - 29.38)	32.44 (24.19 - 40.70)
per 1,000 person-years	Relative Rate	2.38 (1.18 - 4.80)	3.07 (1.97 - 4.81)	3.12 (2.17 - 4.50)	2.17 (1.61 - 2.93)
	Rate Difference	44.78 (12.15 - 77.41)	46.70 (28.12 - 65.27)	47.69 (32.23 - 63.16)	37.92 (24.54 - 51.31)
	Ever Smoked	9.58 (7.70 - 11.47)	9.73 (8.54 - 10.91)	10.05 (9.11 - 10.99)	11.12 (10.37 - 11.88)
Total Mortality Rates*	Never Smoked	3.80 (2.76 - 4.84)	4.92 (4.25 - 5.60)	5.38 (4.78 - 5.99)	6.28 (5.74 - 6.81)
per 1,000 person-years	Relative Rate	2.52 (1.78 - 3.58)	1.98 (1.64 - 2.39)	1.87 (1.61 - 2.17)	1.77 (1.59 - 1.98)
	Rate Difference	5.79 (3.54 - 8.04)	4.81 (3.40 - 6.21)	4.67 (3.51 - 5.82)	4.84 (3.91 - 5.78)
*Aged 12+ except MHHS (aged	17-76), CCHS Health	y Aging (aged 45+)			

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Ageu 12-14 except Minno (ageu 1774), CCD3 neanny Aging (ageu -Values in **bold** type indicate statistically significantly different values.

Note: Ever smoked in MHHS is ever smoked cigarettes, cigars or pipes, NPHS is ever smoked daily or occasionally and CCHS is ever smoked 100+ cigarettes in lifetime.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER

Appendix Table 3.7: Additional Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types for Ever Smoked and Never Smoked by Number of Years After Survey Survey weighted; 95% Confidence Intervals

			Crude Rates		
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
	Ever Smoked	789.91 (616.00 - 963.82)	798.32 (699.83 - 896.80)	774.57 (694.65 - 854.50)	829.53 (758.09 - 900.97)
Cancer Incidence Rates*	Never Smoked	467.86 (318.94 - 616.78)	433.61 (353.50 - 513.72)	462.86 (394.14 - 531.59)	462.47 (407.48 - 517.46)
per 100,000 person-years	Relative Rate	1.69 (1.13 - 2.52)	1.84 (1.48 - 2.30)	1.67 (1.40 - 2.00)	1.79 (1.56 - 2.07)
	Rate Difference	322.05 (92.95 - 551.16)	364.71 (239.01 - 490.41)	311.71 (207.20 - 416.22)	367.06 (280.40 - 453.73)
	Ever Smoked	199.10 (106.02 - 292.18)	161.44 (115.06 - 207.81)	162.48 (125.89 - 199.06)	161.53 (131.62 - 191.45)
Lung Cancer Incidence Rates*	Never Smoked	16.85 (0.45 - 33.25)	12.79 (3.64 - 21.95)	14.18 (6.68 - 21.68)	14.39 (8.03 - 20.75)
per 100,000 person-years	Relative Rate	11.82 (2.65 - 52.63)	12.62 (5.37 - 29.64)	11.46 (6.33 - 20.75)	11.22 (6.88 - 18.31)
	Rate Difference	182.25 (87.34 - 277.16)	148.64 (101.19 - 196.10)	148.30 (110.99 - 185.61)	147.14 (116.71 - 177.57)
Strongly Smoking	Ever Smoked	208.00 (113.01 - 302.99)	168.33 (120.20 - 216.46)	170.72 (132.91 - 208.53)	172.19 (140.78 - 203.59)
Associated** Cancers	Never Smoked	16.85 (0.45 - 33.25)	12.79 (3.64 - 21.95)	16.35 (7.62 - 25.08)	17.54 (10.02 - 25.07)
Incidence Rates*	Relative Rate	12.34 (2.78 - 54.80)	13.16 (5.59 - 30.95)	10.44 (5.85 - 18.65)	9.81 (6.20 - 15.54)
per 100,000 person-years	Rate Difference	191.15 (94.35 - 287.95)	155.54 (106.27 - 204.80)	154.37 (115.72 - 193.02)	154.64 (122.77 - 186.51)
*Aged 12+ except MHHS (aged	17-76), CCHS Health	y Aging (aged 45+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

		Current Daily Smoker	Former Daily Smoker (Daily <5 years hefore	Former Daily Smoker (Daily >5 years hefore	Never a Daily Smoker (Occasional/	Never Smoked
		(%)	(Valiy 20 years belore survey) (%)	(baily 2) years before survey) (%)	Former Occasional) (%)	(%)
		N=7,091	N=2,684	N=7,223	N=5,894	N=15,387
Demographic	S					
(arean) on V	Mean	41.37 (40.82-42.04)	41.31 (40.13-42.29)	56.47 (55.95-57.04)	42.29 (41.69-43.19)	39.15 (38.74-39.51)
Age (years)	Median	41	39	56	41	36
Person-years	Mean	6.19 (6.00-6.36)	5.82 (5.50-6.14)	5.60 (5.44-5.73)	5.26 (5.06-5.45)	5.58 (5.47-5.69)
Post Survey	Median	4.74	4.67	4.28	3.98	4.29
	Males	53.27 (51.33-55.22)	53.22 (49.53-56.92)	56.05 (54.11-57.99)	51.83 (49.70-53.96)	43.24 (41.92-44.56)
Xac	Females	46.73 (44.79-48.67)	46.78 (43.08-50.47)	43.96 (42.01-45.90)	48.18 (46.05-50.30)	56.76 (55.44-58.08)
	Southern	14.46 (13.16-15.76)	13.44 (11.58-15.29)	13.87 (12.76-14.98)	14.45 (13.18-15.72)	15.00 (14.29-15.70)
	Winnipeg	54.13 (52.19-56.06)	58.36 (54.83-61.90)	56.16 (54.32-58.00)	59.65 (57.55-61.75)	61.83 (60.67-63.00)
RHA	Prairie-Mountain	14.38 (13.32-15.44)	12.98 (11.39-14.56)	14.14 (13.19-15.10)	14.05 (12.93-15.16)	12.64 (12.07-13.21)
	Interlake-Eastern	12.42 (11.29-13.55)	11.89 (10.13-13.66)	13.12 (12.08-14.15)	9.39 (8.35-10.43)	8.64 (8.05-9.23)
	Northern	4.61 (4.14-5.09)	3.33 (2.76-3.91)	2.71 (2.43-3.00)	2.46 (2.05-2.87)	1.89 (1.73-2.05)
	Urban 1 (Lowest)	14.66 (12.80-16.52)	10.80 (8.17-13.43)	7.33 (6.25-8.42)	8.77 (7.40-10.15)	9.82 (8.76-10.87)
	Urban 2	13.53 (12.00-15.05)	15.13 (12.08-18.19)	11.64 (9.94-13.35)	11.13 (9.56-12.71)	12.97 (11.54-14.40)
	Urban 3	12.75 (11.08-14.41)	12.88 (9.50-16.26)	12.65 (10.93-14.38)	11.67 (10.03-13.32)	12.40 (11.09-13.72)
	Urban 4	9.86 (8.33-11.38)	14.14 (10.70-17.58)	13.36 (11.62-15.10)	14.28 (11.93-16.63)	12.99 (11.75-14.22)
Incomo	Urban 5 (Highest)	6.97 (5.63-8.31)	8.66 (6.58-10.75)	14.11 (12.34-15.89)	17.36 (14.96-19.75)	16.00 (14.57-17.44)
Ouintilo	Rural 1 (Lowest)	5.21 (4.43-5.98)	4.17 (3.21-5.14)	4.23 (3.64-4.81)	4.40 (3.71-5.10)	4.32 (3.89-4.74)
Zuintie	Rural 2	8.27 (7.18-9.36)	7.23 (5.84-8.62)	8.37 (7.41-9.34)	6.88 (6.06-7.70)	7.12 (6.49-7.75)
	Rural 3	8.30 (7.32-9.27)	7.23 (5.90-8.56)	7.97 (7.11-8.83)	7.91 (6.94-8.88)	6.96 (6.36-7.57)
	Rural 4	9.53 (8.51-10.54)	9.02 (7.59-10.46)	9.25 (8.23-10.26)	6.96 (6.15-7.76)	6.70 (6.14-7.25)
	Rural 5 (Highest)	9.23 (8.13-10.34)	8.38 (6.88-9.88)	9.00 (8.04-9.97)	9.12 (7.93-10.30)	8.23 (7.50-8.95)
	Income Unknown	1.72 (1.20-2.23)	2.35 (1.22-3.48)	2.07 (1.65-2.50)	1.52 (0.98-2.07)	2.50 (2.08-2.92)
	Less than \$5,000	0.70 (0.44-0.95)	0.67 (0.32-1.02)	0.70 (0.39-1.00)	1.25 (0.53-1.98)	0.97 (0.72-1.23)
	\$5,000-\$9,999	2.59 (2.04-3.14)	1.17 (0.64-1.71)	0.66 (0.45-0.88)	1.21 (0.67-1.75)	1.04 (0.79-1.30)
	\$10,000-\$14,999	5.75 (4.79-6.71)	3.23 (2.23-4.24)	3.37 (2.59-4.14)	2.51 (1.97-3.04)	3.60 (3.16-4.03)
Total	\$15,000-\$19,999	5.27 (4.48-6.06)	4.94 (3.32-6.56)	4.06 (3.41-4.71)	3.28 (2.65-3.91)	3.93 (3.41-4.45)
Household	\$20,000 to \$29,999	12.02 (10.62-13.42)	7.92 (6.22-9.62)	11.73 (10.10-13.36)	8.42 (7.11-9.73)	9.39 (8.58-10.19)
Treemo	\$30,000 to \$39,999	12.97 (11.58-14.36)	13.03 (9.94-16.13)	11.55 (10.33-12.77)	10.69 (9.20-12.18)	10.46 (9.50-11.43)
	\$40,000 to \$49,999	11.84 (10.44-13.23)	9.43 (7.70-11.17)	10.54 (9.44-11.63)	11.23 (9.47-12.99)	11.14 (10.23-12.05)
	\$50,000 to \$59,999	10.93 (9.51-12.36)	13.12 (10.17-16.07)	10.24 (9.04-11.45)	9.16 (7.99-10.34)	10.88 (9.75-12.02)
	\$60,000 to \$79,999	17.15 (15.30-19.01)	19.02 (14.96-23.07)	16.99 (15.27-18.71)	15.72 (14.00-17.44)	16.69 (15.38-18.00)
	\$80,000 or more	20.78 (18.68-22.88)	27.46 (23.48-31.44)	30.17 (27.92-32.41)	36.52 (33.65-39.39)	31.90 (30.34-33.47)

Appendix Table 4.1: Basic Descriptive Statistics of Propensity-Score Sample* by Smoking Status Categories Survey weighted; 95% Confidence Intervals

Appendix Table 4.1: Continued

			Former Daily Smoker	Former Daily Smoker	Never a Daily Smoker	
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	(Occasional/	Never Smoked
		(%)	survey)	survey)	Former Occasional)	(%)
			(%)	(%)	(%)	
	RUB 0 (Non-User)	20.09 (18.42-21.76)	16.26 (13.61-18.91)	12.28 (10.83-13.74)	19.38 (17.57-21.18)	19.19 (17.97-20.42)
Decourse	RUB 1	11.95 (10.55-13.34)	10.53 (7.86-13.20)	7.86 (6.76-8.96)	12.51 (10.96-14.06)	14.51 (13.45-15.57)
	RUB 2	25.22 (23.36-27.08)	22.89 (20.16-25.61)	23.54 (21.64-25.44)	27.29 (24.99-29.58)	28.94 (27.58-30.30)
	RUB 3	37.49 (35.49-39.50)	43.02 (39.20-46.84)	47.79 (45.75-49.84)	36.50 (34.08-38.91)	32.87 (31.53-34.22)
Bang (KUB)	RUB 4	4.34 (3.42-5.27)	6.12 (4.27-7.97)	6.87 (5.81-7.93)	3.57 (2.85-4.30)	3.57 (3.11-4.03)
	RUB 5 (Very High Morbidity)	0.90 (0.62-1.17)	1.19 (0.62-1.76)	1.65 (1.20-2.10)	0.76 (0.43-1.09)	0.92 (0.56-1.29)
Lifestyle Facto	Drs					
Binge Drinking	5+drinks once/month or more	31.72 (29.51-33.93)	28.13 (24.67-31.60)	15.57 (13.90-17.25)	22.69 (20.65-24.73)	10.27 (9.30-11.24)
	Underweight/Normal	37.21 (35.09-39.32)	31.11 (27.13-35.10)	23.97 (22.25-25.68)	33.80 (31.33-36.26)	44.63 (43.15-46.11)
BMI	Overweight	38.03 (36.01-40.04)	42.38 (38.38-46.39)	44.41 (42.32-46.49)	42.31 (39.93-44.69)	34.66 (33.21-36.11)
	Obese	24.77 (22.81-26.73)	26.51 (23.29-29.72)	31.63 (29.64-33.62)	23.90 (21.66-26.13)	20.71 (19.51-21.91)
Education	Did Not Complete High School	29.26 (27.32-31.20)	23.18 (19.93-26.43)	23.54 (21.93-25.15)	19.92 (18.34-21.50)	31.76 (30.48-33.05)
	High School Graduate/Some Post-Secondary	33.96 (31.90-36.02)	33.78 (30.33-37.23)	27.55 (25.57-29.54)	30.38 (28.07-32.68)	26.06 (24.71-27.41)
гелег	Post-Secondary Graduate	36.78 (34.61-38.95)	43.04 (39.08-46.99)	48.91 (46.84-50.97)	49.71 (47.30-52.11)	42.18 (40.71-43.65)
Leisure Time	Active	19.83 (17.85-21.81)	22.04 (18.96-25.12)	21.69 (19.87-23.50)	28.31 (26.08-30.54)	29.67 (28.05-31.29)
Physical	Moderate	20.80 (19.08-22.52)	28.62 (24.87-32.37)	25.65 (23.73-27.56)	26.54 (24.33-28.75)	24.06 (22.74-25.38)
Activity Index	Inactive	59.37 (57.07-61.67)	49.34 (45.41-53.27)	52.67 (50.50-54.84)	45.15 (42.61-47.69)	46.26 (44.66-47.87)
*NPHS (1996: aged	112+). CCHS (2000. 2003. 2005 & 2007-2011: aged 12+	.). CCHS Healthy Aging (2008	(09: aaed 45+)			

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TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

Italicized values indicate a warning and should be interpreted with caution.

Values in **bold** type indicate significantly different values from the Never Smoked smoking status category.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Appendix Table 4.2: Chronic Diseases of Propensity-Score Sample* at Time of Survey by Smoking Status Categories Survey weighted; 95% Confidence Intervals

		Current Daily Smoker (%)	Former Daily Smoker (Daily ≤5 years before survey) (%)	Former Daily Smoker (Daily >5 years before survey) (%)	Never a Daily Smoker (Occasional/ Former Occasional) (%)	Never Smoked (%)
- (a (A a A	Self-Reported	18.36 (16.74-19.98)	14.46 (11.91-17.00)	27.68 (25.74-29.62)	15.43 (13.60-17.25)	12.93 (12.05-13.81)
Artificia	Administrative Data	20.78 (19.03-22.52)	20.69 (17.25-24.13)	28.16 (26.26-30.06)	18.09 (16.24-19.94)	17.50 (16.40-18.61)
	Self-Reported	1.45 (1.04-1.86)	1.50 (0.87-2.13)	2.85 (2.19-3.52)	1.28 (0.93-1.64)	1.20 (0.89-1.50)
	MB Cancer Registry Data	1.11 (0.77-1.45)	1.89 (1.28-2.50)	3.02 (2.38-3.66)	1.38 (0.96-1.80)	1.01 (0.72-1.29)
Lung Cancer	MB Cancer Registry Data	0.15 (0.01-0.29)	0.57 (0.17-0.97)	0.25 (0.11-0.39)	S	S
Dishatar	Self-Reported	4.37 (3.58-5.17)	4.84 (3.46-6.21)	8.20 (7.23-9.18)	4.07 (3.25-4.89)	3.89 (3.29-4.49)
Didpetes	Administrative Data	4.90 (4.08-5.73)	5.25 (3.85-6.65)	9.20 (8.14-10.26)	4.54 (3.68-5.40)	4.70 (4.04-5.35)
Uniontoniou	Self-Reported	12.43 (10.84-14.02)	12.60 (10.42-14.79)	26.31 (24.62-28.01)	12.76 (11.38-14.15)	13.22 (12.27-14.16)
пурегензион	Administrative Data	9.69 (8.32-11.06)	9.93 (7.93-11.93)	22.83 (21.19-24.47)	10.46 (9.25-11.67)	11.91 (11.00-12.83)
Ischemic Heart	Self-Reported	3.17 (2.57-3.77)	4.39 (3.26-5.53)	9.18 (7.98-10.38)	2.77 (2.27-3.27)	3.01 (2.55-3.47)
Disease	Administrative Data	3.55 (2.98-4.13)	5.14 (3.84-6.44)	10.94 (9.68-12.20)	3.75 (3.05-4.45)	3.83 (3.35-4.31)
History of Stroke	Self-Reported	0.97 (0.66-1.27)	1.56 (0.75-2.38)	2.95 (1.99-3.92)	0.66 (0.41-0.91)	0.86 (0.65-1.08)
	Administrative Data	1.51 (1.07-1.94)	1.58 (0.96-2.20)	3.06 (2.45-3.68)	1.15 (0.78-1.53)	1.39 (1.01-1.77)
Total Respiratory	Self-Reported	15.47 (13.63-17.31)	20.04 (15.72-24.35)	10.07 (8.86-11.27)	13.13 (11.08-15.19)	16.16 (14.70-17.62)
Morbidity	Administrative Data	13.64 (12.29-15.00)	12.97 (10.40-15.55)	11.70 (10.44-12.96)	9.16 (7.71-10.61)	8.55 (7.77-9.33)
Mood or Anxiety	Self-Reported	15.30 (13.19-17.41)	9.67 (6.80-12.53)	10.04 (8.18-11.90)	8.77 (6.81-10.74)	7.37 (6.20-8.54)
Disorder	Administrative Data	24.89 (23.06-26.72)	24.11 (20.92-27.30)	20.94 (19.23-22.64)	16.76 (14.87-18.66)	15.13 (14.02-16.25)
Osteoporosis	Self-Reported	S	S	12.06 (4.58-19.53)	S	16.67 (6.16-27.18)
(Aged 50+)	Administrative Data	3.89 (2.73-5.04)	7.77 (3.12-12.42)	6.66 (5.40-7.93)	7.98 (6.06-9.89)	8.44 (7.14-9.73)
1+ Osteoporosis- Related Fractures	Administrative Data	2.12 (1.38-2.86)	3.21 (1.44-4.98)	2.23 (1.68-2.79)	2.48 (1.54-3.41)	3.29 (2.24-4.34)
(Aged 50+)						

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

•NPHS (1996; aged 12+), CCHS (2000, 2003, 2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

s indicates data suppressed due to small numbers.

Italicized values indicate a warning and should be interpreted with caution.

Values in **bold** type indicate significantly different values from the Never Smoked smoking status category.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Appendix Table 4.3: Adjusted Basic Descriptive Statistics of Propensity-Score Sample* by Smoking Status Categories Survey weighted, propensity score-adjusted; 95% Confidence Intervals

Former Daily Smoker Former Daily Smoker Never a Daily Smoker

		Current Daily Smoker	(Daily ≤5 years before	(Daily >5 years before	(Occasional/	Never Smoked
		(%)	survey) (%)	survey) (%)	FOTTIEL OCCASIONAL) (%)	(%)
		N=7,091	N=2,684	N=7,223	N=5,894	N=15,387
Demographic	S					
Age (years)	Mean	43.77 (43.00-44.55)	43.48 (42.46-44.51)	46.43 (45.74-47.12)	43.69 (43.01-44.38)	43.45 (43.00-43.91)
Person-years Post Survey	Mean	5.54 (5.30-5.77)	5.59 (5.26-5.92)	5.80 (5.62-5.97)	5.66 (5.46-5.85)	5.76 (5.63-5.89)
	Males	47.23 (45.06-49.51)	51.83 (49.39-54.39)	50.01 (47.81-52.31)	47.60 (45.09-50.26)	48.46 (46.09-50.97)
Xac	Females	53.29 (50.56-56.16)	47.39 (44.76-50.18)	49.40 (46.83-52.11)	53.37 (50.43-56.48)	52.47 (49.71-55.38)
	Southern	16.97 (15.21-18.93)	19.02 (17.00-21.27)	16.38 (14.61-18.36)	12.55 (11.19-14.09)	15.54 (13.85-17.44)
	Winnipeg	47.36 (44.51-50.38)	46.04 (42.94-49.36)	50.82 (47.92-53.91)	54.04 (51.01-57.25)	52.43 (49.13-55.96)
RHA	Prairie-Mountain	16.80 (15.24-18.52)	15.85 (14.24-17.64)	14.04 (12.71-15.51)	16.74 (15.21-18.44)	16.14 (14.58-17.87)
	Interlake-Eastern	10.10 (8.98-11.37)	11.55 (10.30-12.94)	12.60 (11.28-14.08)	9.92 (8.78-11.20)	11.01 (9.72-12.47)
	Northern	4.62 (3.84-5.56)	4.15 (3.38-5.10)	3.77 (3.11-4.56)	4.19 (3.50-5.02)	2.75 (2.23-3.39)
	Urban 1 (Lowest)	11.63 (10.00-13.52)	9.83 (8.24-11.72)	9.16 (7.82-10.72)	9.84 (8.44-11.47)	8.58 (7.33-10.05)
	Urban 2	11.06 (9.63-12.70)	11.92 (10.34-13.75)	9.62 (8.35-11.09)	10.32 (8.80-12.11)	11.23 (9.68-13.03)
	Urban 3	10.91 (9.43-12.63)	9.59 (8.11-11.33)	10.04 (8.74-11.54)	10.45 (9.05-12.06)	11.61 (10.00-13.47)
	Urban 4	6.77 (4.82-9.50)	12.29 (8.00-18.86)	9.84 (7.68-12.62)	11.72 (8.98-15.28)	13.04 (8.75-19.45)
Income	Urban 5 (Highest)	8.41 (5.73-12.35)	11.98 (7.59-18.93)	9.30 (6.83-12.68)	18.95 (14.50-24.78)	18.18 (10.94-30.22)
	Rural 1 (Lowest)	5.22 (4.32-6.30)	4.61 (3.72-5.72)	5.09 (4.26-6.08)	5.34 (4.38-6.51)	6.46 (5.27-7.93)
Auntile	Rural 2	9.73 (8.44-11.22)	8.90 (7.63-10.40)	9.41 (8.10-10.92)	8.10 (6.91-9.49)	9.14 (7.78-10.75)
	Rural 3	8.88 (7.67-10.27)	10.36 (8.89-12.07)	9.16 (7.93-10.58)	9.02 (7.89-10.33)	8.40 (7.24-9.75)
	Rural 4	8.80 (7.67-10.09)	10.43 (9.15-11.88)	8.70 (7.61-9.94)	7.21 (6.20-8.38)	7.57 (6.63-8.66)
	Rural 5 (Highest)	9.36 (8.16-10.74)	9.19 (8.00-10.57)	10.46 (9.32-11.74)	9.09 (7.88-10.48)	8.65 (7.46-10.03)
	Income Unknown	2.62 (1.45-4.75)	3.16 (1.49-6.70)	2.33 (1.01-5.37)	0.83 (0.47-1.46)	2.71 (1.25-5.86)
	Less than \$5,000	0.21 (0.08-0.55)	0.51 (0.21-1.23)	1.47 (0.47-4.55)	0.30 (0.14-0.65)	1.94 (0.29-12.94)
	\$5,000-\$9,999	1.38 (0.61-3.13)	3.60 (0.63-20.58)	0.60 (0.28-1.29)	2.32 (0.94-5.73)	1.27 (0.63-2.55)
	\$10,000-\$14,999	4.22 (2.38-7.47)	3.47 (2.12-5.67)	6.49 (3.62-11.63)	1.80 (1.23-2.64)	2.86 (1.70-4.81)
Total	\$15,000-\$19,999	2.56 (1.63-4.02)	6.03 (3.47-10.50)	3.66 (2.35-5.70)	3.45 (2.31-5.16)	3.90 (2.31-6.56)
Household	\$20,000 to \$29,999	9.40 (8.15-10.83)	8.73 (7.40-10.32)	9.04 (7.80-10.47)	10.15 (8.83-11.66)	9.12 (7.69-10.81)
Theomo	\$30,000 to \$39,999	9.86 (8.64-11.25)	9.66 (8.39-11.12)	9.88 (8.70-11.22)	10.09 (8.82-11.54)	11.04 (9.50-12.83)
	\$40,000 to \$49,999	11.75 (8.26-16.71)	12.04 (8.41-17.25)	11.34 (8.62-14.92)	10.46 (7.63-14.36)	8.75 (6.39-11.98)
	\$50,000 to \$59,999	10.46 (8.94-12.23)	12.15 (10.48-14.09)	10.53 (9.06-12.24)	8.73 (7.42-10.26)	9.95 (8.57-11.55)
	\$60,000 to \$79,999	15.54 (13.93-17.33)	14.54 (12.85-16.45)	12.57 (11.12-14.21)	13.89 (12.32-15.66)	13.92 (12.35-15.68)
	\$80,000 or more	24.75 (22.48-27.25)	24.27 (21.88-26.92)	27.25 (24.90-29.82)	26.11 (23.59-28.90)	26.25 (23.67-29.12)
			Former Daily Smoker	Former Daily Smoker	Never a Daily Smoker	
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		Current Daily Smoker	(Daily ≤ 5 years	(Daily > 5 years before	(Occasional/	Never Smoked
		(%)	before survey)	survey)	Former Occasional)	(%)
			(%)	(%)	(%)	
	RUB 0 (Non-User)	20.88 (18.67-23.36)	16.98 (14.89-19.35)	17.63 (15.56-19.98)	19.01 (16.96-21.31)	18.11 (16.02-20.48)
Decourse	RUB 1	12.52 (10.77-14.55)	11.87 (10.08-13.98)	10.08 (8.62-11.77)	13.01 (11.25-15.03)	13.31 (11.49-15.41)
	RUB 2	27.39 (25.16-29.81)	26.35 (24.12-28.80)	26.37 (24.31-28.60)	26.70 (24.35-29.28)	32.69 (30.12-35.47)
	RUB 3	35.95 (33.72-38.33)	37.53 (35.27-39.93)	38.52 (36.51-40.64)	36.02 (34.01-38.13)	32.54 (30.49-34.74)
Band (KUB)	RUB 4	2.81 (1.96-4.02)	4.23 (2.91-6.13)	5.14 (3.25-8.13)	5.84 (3.91-8.74)	3.07 (1.82-5.18)
	RUB 5 (Very High Morbidity)	0.61 (0.30-1.27)	1.83 (0.42-8.04)	1.21 (0.57-2.57)	0.58 (0.23-1.41)	0.49 (0.23-1.06)
Lifestyle Facto	Drs					
Binge Drinking	5+drinks once/month or more	20.30 (18.67-22.07)	19.02 (17.41-20.78)	16.54 (15.25-17.94)	18.84 (17.33-20.49)	14.89 (13.57-16.34)
	Underweight/Normal	39.98 (36.59-43.69)	35.41 (32.28-38.84)	34.62 (31.73-37.78)	35.26 (31.98-38.88)	32.30 (29.42-35.46)
BMI	Overweight	32.90 (30.86-35.08)	35.46 (33.14-37.93)	36.57 (34.40-38.88)	34.06 (31.93-36.33)	35.62 (33.39-38.00)
	Obese	23.99 (22.15-25.99)	24.27 (22.32-26.39)	24.93 (23.12-26.88)	25.91 (24.15-27.81)	25.79 (23.91-27.81)
Education	Did Not Complete High School	31.06 (28.42-33.94)	30.54 (27.98-33.34)	29.06 (26.65-31.68)	26.65 (24.33-29.18)	28.50 (25.84-31.43)
	High School Graduate/Some Post-Secondary	27.38 (25.37-29.54)	29.65 (27.60-31.84)	24.68 (22.81-26.70)	29.71 (27.62-31.95)	28.57 (26.51-30.79)
Гелег	Post-Secondary Graduate	42.04 (39.67-44.54)	39.66 (37.15-42.35)	46.88 (44.37-49.53)	41.21 (38.81-43.76)	42.50 (39.96-45.20)
Leisure Time	Active	25.12 (22.79-27.70)	24.79 (22.48-27.34)	22.77 (20.63-25.14)	25.75 (23.41-28.34)	24.72 (22.54-27.10)
Physical	Moderate	22.14 (20.19-24.26)	24.69 (22.59-26.99)	25.01 (23.04-27.14)	24.52 (22.35-26.91)	21.75 (19.87-23.81)
Activity Index	Inactive	47.69 (45.40-50.09)	47.52 (45.05-50.13)	48.52 (46.24-50.91)	47.36 (45.12-49.71)	48.99 (46.55-51.56)
*NIPHS /1996. aner	12+) CCHS (2000 2003 2005 & 2007-2011: aded 12.	+) CCHS Healthy Aging (200	8/09: arred 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

Values in **bold** type indicate significantly different values.

Appendix Table 4.4: Adjusted Chronic Diseases of Propensity-Score Sample* at Time of Survey by Smoking Status Categories Survey weighted, propensity score-adjusted; 95% Confidence Intervals

		Current Daily Smoker (%)	Former Daily Smoker (Daily ≤5 years before survey) (%)	Former Daily Smoker (Daily >5 years before survey) (%)	Never a Daily Smoker (Occasional/ Former Occasional) (%)	Never Smoked (%)
م تفاسافه ۸	Self-Reported	15.83 (14.36-17.46)	15.10 (13.59-16.78)	20.84 (18.87-23.02)	16.69 (15.11-18.45)	16.84 (15.21-18.65)
	Administrative Data	18.31 (16.73-20.04)	18.67 (17.06-20.43)	22.97 (21.16-24.93)	21.05 (19.31-22.94)	18.33 (16.74-20.07)
	Self-Reported	0.82 (0.40-1.66)	1.05 (0.54-2.01)	3.09 (1.59-5.99)	1.04 (0.49-2.22)	1.27 (0.58-2.79)
	MB Cancer Registry Data	1.23 (0.79-1.92)	1.54 (0.82-2.87)	2.18 (1.07-4.41)	1.25 (0.50-3.14)	0.65 (0.32-1.31)
Lung Cancer	MB Cancer Registry Data	0.15 (0.05-0.46)	0.80 (0.09-7.41)	0.03 (0.00-0.22)	S	S
Dishator	Self-Reported	4.49 (2.87-7.02)	3.64 (2.34-5.68)	5.50 (3.74-8.09)	5.61 (3.94-7.99)	4.27 (2.59-7.03)
nabeles	Administrative Data	4.92 (3.25-7.45)	4.06 (2.73-6.04)	4.98 (3.41-7.27)	6.96 (4.93-9.84)	5.43 (3.40-8.70)
Unsutantian	Self-Reported	13.60 (12.02-15.37)	15.09 (13.23-17.21)	20.51 (18.34-22.93)	14.25 (12.69-16.01)	15.25 (13.55-17.17)
пуретепзіоп	Administrative Data	10.69 (9.27-12.31)	12.49 (10.81-14.43)	18.13 (15.98-20.57)	11.78 (10.28-13.49)	13.01 (11.31-14.98)
Ischemic Heart	Self-Reported	2.92 (1.82-4.69)	5.63 (3.47-9.14)	5.16 (3.33-8.01)	3.34 (2.16-5.15)	2.74 (1.42-5.28)
Disease	Administrative Data	4.03 (2.83-5.74)	5.88 (3.63-9.54)	6.96 (4.31-11.24)	3.95 (2.59-6.03)	2.28 (1.31-3.97)
History of Strake	Self-Reported	0.99 (0.38-2.59)	1.19 (0.55-2.59)	1.17 (0.45-3.05)	0.62 (0.27-1.43)	0.43 (0.23-0.82)
AND INC ID KIDISILI	Administrative Data	1.67 (0.88-3.17)	1.70 (0.88-3.31)	3.55 (1.25-10.05)	1.88 (0.80-4.39)	0.79 (0.49-1.25)
Total Respiratory	Self-Reported	10.30 (8.93-11.88)	12.47 (10.88-14.28)	8.93 (7.75-10.28)	10.99 (9.60-12.58)	9.08 (7.84-10.51)
Morbidity	Administrative Data	11.59 (10.28-13.07)	11.47 (10.06-13.08)	9.31 (8.08-10.72)	9.76 (8.48-11.23)	8.73 (7.57-10.06)
Mood or Anxiety	Self-Reported	5.57 (4.03-7.70)	5.31 (3.49-8.08)	8.00 (6.20-10.33)	6.20 (4.30-8.95)	6.56 (4.76-9.04)
Disorder	Administrative Data	19.20 (17.62-20.92)	19.56 (17.71-21.61)	18.45 (16.90-20.15)	18.08 (16.53-19.77)	15.81 (14.42-17.34)
Osteoporosis	Self-Reported	S	0.00 (0.00-0.00)	0.10 (0.02-0.44)	S	0.12 (0.01-1.09)
(Aged 50+)	Administrative Data	0.65 (0.39-1.11)	2.31 (1.26-4.24)	2.15 (1.28-3.61)	2.70 (1.87-3.91)	2.56 (1.59-4.13)
1+ Osteoporosis-						
Related Fractures	Administrative Data	1.21 (0.59-2.50)	0.88 (0.42-1.83)	0.66 (0.35-1.24)	0.74 (0.39-1.42)	0.89 (0.41-1.95)
1.22226.1						

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER VISIONARY INNOVATOR ADVENTURER VISIONARY INNOVATOR ADVENTURE REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

'NPHS (1996; aged 12+), CCHS (2000, 2003, 2005 & 2007-2011; aged 12+), CCHS Healthy Aging (2008/09; aged 45+)

s indicates data suppressed due to small numbers.

Values in **bold** type indicate significantly different values.

Popul

Appendix Table 4.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 1 Year After Survey Survey weighted; 95% Confidence Intervals

	_		Former Daily Smoker	Former Daily Smoker		
	_	Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cru	de		
	Rate	4.87 (4.65 - 5.09)	5.54 (5.11 - 5.97)	6.48 (6.24 - 6.73)	4.47 (4.26 - 4.69)	4.49 (4.36 - 4.63)
Visits*	Relative Rate	1.08 (1.03 - 1.15)	1.23 (1.13 - 1.34)	1.44 (1.38 - 1.51)	0.99 (0.94 - 1.05)	ref
per person year	Rate Difference	0.38 (0.12 - 0.64)	1.05 (0.59 - 1.51)	1.99 (1.71 - 2.27)	-0.02 (-0.28 - 0.23)	ref
Inpatient	Rate	101.99 (88.83 - 115.14)	144.44 (114.42 - 174.45)	134.52 (119.64 - 149.41)	72.25 (60.10 - 84.39)	72.35 (65.73 - 78.96)
Hospitalizations* per 1,000 person-	Relative Rate	1.41 (1.20 - 1.65)	2.00 (1.59 - 2.51)	1.86 (1.60 - 2.16)	1.00 (0.82 - 1.21)	ref
years	Rate Difference	29.64 (14.79 - 44.49)	72.09 (41.41 - 102.77)	62.18 (45.30 - 79.05)	-0.10 (-13.90 - 13.70)	ref
	Rate	856.98 (703.40 - 1,010.55)	1,017.32 (799.78 - 1,234.86)	1,401.87 (1,142.11 - 1,661.64)	658.95 (516.81 - 801.09)	723.49 (587.15 - 859.82)
per 1,000 person-	Relative Rate	1.18 (0.91 - 1.54)	1.41 (1.05 - 1.89)	1.94 (1.48 - 2.54)	0.91 (0.68 - 1.22)	ref
c include	Rate Difference	133.49 (-75.51 - 342.49)	293.84 (29.84 - 557.83)	678.39 (379.09 - 977.69)	-64.54 (-264.56 - 135.49)	ref
*Aaed 12+ except l	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	145+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cru	de		
Mean Number of	Rate	378.14 (341.64 - 414.64)	464.13 (385.93 - 542.33)	779.73 (718.54 - 840.92)	314.52 (288.06 - 340.98)	307.76 (287.95 - 327.58)
Defined Daily Doses**	Relative Rate	1.23 (1.09 - 1.39)	1.51 (1.26 - 1.80)	2.53 (2.30 - 2.80)	1.02 (0.92 - 1.14)	ref
per person-year	Rate Difference	70.38 (27.20 - 113.56)	156.37 (76.80 - 235.94)	471.97 (408.70 - 535.24)	6.76 (-26.32 - 39.83)	ref
	Rate	4.02 (3.84 - 4.21)	4.41 (4.01 - 4.80)	6.02 (5.75 - 6.28)	3.32 (3.15 - 3.50)	3.32 (3.18 - 3.46)
Different Drugs**	* Relative Rate	1.21 (1.14 - 1.29)	1.33 (1.20 - 1.47)	1.81 (1.71 - 1.92)	1.00 (0.94 - 1.07)	ref
hei heisoi yea	Rate Difference	0.70 (0.47 - 0.94)	1.09 (0.66 - 1.51)	2.70 (2.41 - 2.98)	0.00 (-0.22 - 0.23)	ref
PCH Admission	Rate	13.44 (1.13 - 25.75)	20.26 (1.33 - 39.20)	15.48 (8.77 - 22.19)	15.64 (5.23 - 26.05)	10.88 (5.62 - 16.15)
Rates ⁺ per 1,000 person-	Relative Rate	1.23 (0.40 - 3.79)	1.86 (0.54 - 6.43)	1.42 (0.74 - 2.72)	1.44 (0.60 - 3.44)	ref
years	Rate Difference	2.55 (-10.86 - 15.97)	9.38 (-10.37 - 29.13)	4.59 (-3.84 - 13.03)	4.76 (-7.05 - 16.56)	ref
	Rate	1.46 (0.04 - 2.88)	2.58 (0.20 - 4.96)	2.41 (1.12 - 3.70)	2.12 (0.13 - 4.11)	1.73 (0.85 - 2.61)
Days in PCH ⁺ per person-year	Relative Rate	0.84 (0.26 - 2.74)	1.49 (0.42 - 5.26)	1.39 (0.66 - 2.94)	1.22 (0.37 - 4.08)	ref
	Rate Difference	-0.28 (-1.98 - 1.43)	0.85 (-1.70 - 3.39)	0.67 (-0.89 - 2.24)	0.39 (-1.78 - 2.55)	ref
**Ared 12+ evrent	+ CCHS Healthy	Aning (aged 45+) MHHS not in	cluded due to lack of DDIN data			

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 224 | Appendix 4 **Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN +Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
-	Rate	4.80 (4.53 - 5.08)	5.77 (5.32 - 6.25)	5.37 (5.09 - 5.66)	4.69 (4.45 - 4.94)	4.77 (4.64 - 4.91)
Visits*	Relative Rate	1.01 (0.94 - 1.08)	1.21 (1.11 - 1.32)	1.12 (1.05 - 1.20)	0.98 (0.92 - 1.05)	ref
hei peisoiryea	Rate Difference	0.03 (-0.30 - 0.36)	1.00 (0.50 - 1.49)	0.60 (0.24 - 0.95)	-0.08 (-0.39 - 0.22)	ref
Inpatient	Rate	141.21 (118.85 - 167.77)	167.44 (139.83 - 200.51)	104.38 (82.51 - 132.06)	72.96 (62.43 - 85.28)	76.16 (68.96 - 84.10)
Hospitalizations ⁴ per 1,000 person-	* Relative Rate	1.85 (1.50 - 2.29)	2.20 (1.77 - 2.73)	1.37 (1.05 - 1.80)	0.96 (0.79 - 1.16)	ref
years	Rate Difference	65.05 (38.32 - 91.77)	91.28 (59.25 - 123.32)	28.23 (1.21 - 55.24)	-3.19 (-17.44 - 11.06)	ref
	Rate	1,575.13 (1,181.94 - 2,099.13)	1,339.82 (1,067.12 - 1,682.22)	746.52 (599.38 - 929.79)	732.47 (552.88 - 970.39)	804.59 (657.48 - 984.63)
per 1,000 person-	Relative Rate	1.96 (1.32 - 2.91)	1.67 (1.18 - 2.35)	0.93 (0.66 - 1.31)	0.91 (0.61 - 1.36)	ref
) car 2	Rate Difference	770.54 (239.55 - 1,301.53)	535.23 (149.06 - 921.40)	-58.07 (-322.28 - 206.14)	-72.13 (-366.88 - 222.62)	ref
*Aged 12+ except	MHHS (aged 1	17-76), CCHS Healthy Aging (agec	145+)			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

> umanitoba.ca/faculties/medicine/units/mchp Appendix 4 | page 225

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age- & sex	-adjusted		
Mean Number of	f	338.88 (294.94 - 389.38)	430.28 (360.18 - 514.03)	397.32 (340.47 - 463.65)	328.64 (277.82 - 388.76)	370.72 (352.61 - 389.75)
Defined Daily Doses**	Relative Rate	0.91 (0.77 - 1.08)	1.16 (0.95 - 1.42)	1.07 (0.90 - 1.28)	0.89 (0.73 - 1.07)	ref
per person-year	Rate Difference	-31.84 (-89.55 - 25.88)	59.56 (-25.76 - 144.88)	26.60 (-43.88 - 97.08)	-42.08 (-107.01 - 22.85)	ref
	Rate	4.14 (3.89 - 4.41)	4.98 (4.46 - 5.56)	4.29 (3.94 - 4.66)	3.56 (3.31 - 3.82)	3.56 (3.46 - 3.68)
Different Drugs**	Relative Rate	1.16 (1.08 - 1.25)	1.40 (1.25 - 1.57)	1.20 (1.09 - 1.32)	1.00 (0.92 - 1.08)	ref
per person year	Rate Difference	0.58 (0.28 - 0.87)	1.42 (0.85 - 1.99)	0.72 (0.33 - 1.12)	-0.01 (-0.30 - 0.29)	ref
PCH Admission	Rate	25.58 (9.45 - 69.25)	34.34 (3.55 - 331.81)	17.91 (10.02 - 32.03)	15.40 (7.69 - 30.87)	9.30 (5.95 - 14.54)
Rates† per 1,000 person-	Relative - Rate	2.75 (0.90 - 8.38)	3.69 (0.37 - 37.03)	1.93 (0.85 - 4.35)	1.66 (0.68 - 4.03)	ref
years	Rate Difference	16.28 (-9.17 - 41.73)	25.04 (-8.25 - 58.33)	8.61 (-2.51 - 19.74)	6.10 (-5.81 - 18.02)	ref
	Rate	3.61 (1.16 - 11.22)	4.42 (0.48 - 41.04)	3.24 (1.63 - 6.43)	2.03 (0.75 - 5.55)	1.19 (0.67 - 2.14)
Days in PCH ⁺ per person-year	Relative Rate	3.02 (0.82 - 11.13)	3.70 (0.36 - 38.15)	2.71 (0.94 - 7.78)	1.70 (0.50 - 5.80)	ref
	Rate Difference	2.41 (-1.16 - 5.98)	3.23 (-1.77 - 8.23)	2.04 (-0.16 - 4.25)	0.84 (-1.20 - 2.88)	ref
**Aned 12 + excent	+ CCHS Health	/ Aning (aged 45+) MHHS not in	cluded due to lack of DDIN data			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN +Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

:			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-	& SES-adjusted		
	Rate	5.20 (4.99 - 5.42)	5.84 (5.56 - 6.14)	5.35 (5.17 - 5.55)	4.80 (4.61 - 5.01)	4.70 (4.56 - 4.85)
Ambulatory Visits ⁴ per person-year	* Relative Rate	1.11 (1.05 - 1.17)	1.24 (1.18 - 1.31)	1.14 (1.08 - 1.20)	1.02 (0.97 - 1.08)	ref
	Rate Difference	0.50 (0.25 - 0.75)	1.14 (0.86 - 1.42)	0.65 (0.41 - 0.89)	0.10 (-0.13 - 0.33)	ref
Inpatient	Rate	131.82 (116.29 - 149.42)	165.13 (137.64 - 198.12)	108.19 (90.93 - 128.72)	84.28 (71.16 - 99.81)	83.60 (74.03 - 94.40)
Hospitalizations* per 1,000 person-	Relative Rate	1.58 (1.33 - 1.87)	1.98 (1.59 - 2.46)	1.29 (1.04 - 1.62)	1.01 (0.81 - 1.25)	ref
years	Rate Difference	48.22 (30.22 - 66.23)	81.54 (53.18 - 109.89)	24.59 (3.76 - 45.42)	0.68 (-15.98 - 17.34)	ref
:	Rate	1,503.13 (1,237.24 - 1,826.16)	1,376.20 (1,115.84 - 1,697.31)	936.19 (773.16 - 1,133.59)	876.55 (689.51 - 1,114.34)	687.82 (580.82 - 814.53)
Days in Hospital [*] per 1,000 person- vears	Relative Rate	2.19 (1.70 - 2.81)	2.00 (1.56 - 2.57)	1.36 (1.05 - 1.76)	1.27 (0.94 - 1.73)	ref
	Rate Difference	815.31 (525.64 - 1,104.99)	688.38 (415.20 - 961.56)	248.37 (51.11 - 445.63)	188.73 (-36.85 - 414.31)	ref
*Aged 12+ except N	WHHS (aged 1	7-76), CCHS Healthy Aging (aged	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

Aged 127 except writins (aged 17-70), CCn3 meanly Aging (aged 437) Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-	& SES-adjusted		
Mean Number of	Rate	412.50 (375.54 - 453.10)	439.59 (398.36 - 485.09)	432.82 (402.79 - 465.08)	369.77 (331.61 - 412.32)	353.53 (329.05 - 379.83)
Defined Daily Doses**	Relative Rate	1.17 (1.03 - 1.33)	1.24 (1.09 - 1.41)	1.22 (1.09 - 1.37)	1.05 (0.90 - 1.21)	ref
per person-year	Rate Difference	58.98 (11.73 - 106.22)	86.06 (38.37 - 133.75)	79.29 (37.26 - 121.32)	16.24 (-33.99 - 66.48)	ref
-	Rate	4.47 (4.26 - 4.68)	5.14 (4.84 - 5.46)	4.47 (4.28 - 4.67)	3.83 (3.66 - 4.02)	3.58 (3.44 - 3.72)
Mean Number of Different Drugs**	Relative Rate	1.25 (1.17 - 1.33)	1.44 (1.34 - 1.54)	1.25 (1.17 - 1.33)	1.07 (1.01 - 1.14)	ref
	Rate Difference	0.89 (0.65 - 1.13)	1.56 (1.26 - 1.86)	0.89 (0.65 - 1.14)	0.25 (0.04 - 0.47)	ref
PCH Admission	Rate	14.49 (3.22 - 65.16)	14.18 (1.43 - 140.92)	16.61 (8.84 - 31.20)	12.55 (4.09 - 38.50)	6.98 (2.97 - 16.40)
Rates ⁺ per 1,000 person-	Relative Rate	2.08 (0.38 - 11.35)	2.03 (0.17 - 23.84)	2.38 (0.63 - 8.93)	1.80 (0.48 - 6.77)	ref
years	Rate Difference	7.52 (-14.49 - 29.52)	7.20 (-7.02 - 21.43)	9.63 (-3.64 - 22.90)	5.57 (-9.32 - 20.46)	ref
	Rate	2.12 (0.21 - 21.03)	2.39 (0.06 - 91.77)	2.78 (1.28 - 6.01)	1.39 (0.27 - 7.24)	1.15 (0.45 - 2.94)
Days in PCH ⁺ per person-year	Relative Rate	1.85 (0.17 - 20.14)	2.08 (0.05 - 86.87)	2.42 (0.56 - 10.53)	1.21 (0.20 - 7.47)	ref
	Rate Difference	0.98 (-3.18 - 5.13)	1.24 (-1.94 - 4.43)	1.63 (-0.69 - 3.95)	0.24 (-2.05 - 2.54)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			Age sex RHA SE	S- & RUB-adiusted		
	Rate	5.05 (4.88 - 5.24)	5.41 (5.15 - 5.68)	5.18 (5.01 - 5.36)	4.94 (4.75 - 5.14)	4.64 (4.51 - 4.77)
Visits*	Relative Rate	1.09 (1.04 - 1.14)	1.17 (1.11 - 1.23)	1.12 (1.07 - 1.17)	1.07 (1.02 - 1.12)	ref
	Rate Difference	0.42 (0.21 - 0.63)	0.77 (0.53 - 1.02)	0.55 (0.35 - 0.74)	0.31 (0.09 - 0.52)	ref
Inpatient	Rate	136.30 (115.58 - 160.75)	150.31 (125.83 - 179.55)	116.07 (83.45 - 161.45)	82.66 (67.50 - 101.23)	76.12 (61.56 - 94.14)
Hospitalizations* per 1,000 person-	· Relative Rate	1.79 (1.36 - 2.36)	1.97 (1.48 - 2.63)	1.52 (1.03 - 2.27)	1.09 (0.82 - 1.44)	ref
years	Rate Difference	60.18 (30.99 - 89.38)	74.19 (42.56 - 105.82)	39.95 (2.11 - 77.80)	6.53 (-15.74 - 28.81)	ref
	Rate	1,383.13 (1,106.88 - 1,728.32)	1,169.52 (935.97 - 1,461.35)	906.66 (647.12 - 1,270.29)	830.97 (624.51 - 1,105.66)	746.28 (588.90 - 945.71)
per 1,000 person-	Relative Rate	1.85 (1.29 - 2.65)	1.57 (1.13 - 2.18)	1.21 (0.81 - 1.83)	1.11 (0.75 - 1.66)	ref
) Joan	Rate Difference	636.85 (235.40 - 1,038.30)	423.25 (106.81 - 739.68)	160.38 (-165.38 - 486.14)	84.69 (-221.85 - 391.22)	ref
*Ared 12+ evrent 1	1 Panel SHUM	7-76) CCHS Healthy Aging (aged	4 46 4 1			

*Aged 1.2+ except MHHS (aged 1.7-7b), CCHS Healthy Aging (aged 45+) Values in **bold** type indicate statistically significantly different values than Never Smoked.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
Mean Number of	Rate	404.70 (376.08 - 435.50)	445.35 (390.99 - 507.27)	449.77 (418.69 - 483.14)	429.96 (368.94 - 501.08)	352.57 (330.04 - 376.65)
Defined Daily Doses**	Relative Rate	1.15 (1.04 - 1.27)	1.26 (1.09 - 1.47)	1.28 (1.15 - 1.41)	1.22 (1.01 - 1.47)	ref
per person-year	Rate Difference	52.12 (16.48 - 87.77)	92.78 (39.40 - 146.15)	97.19 (59.65 - 134.73)	77.39 (10.20 - 144.58)	ref
	Rate	4.34 (4.18 - 4.51)	4.70 (4.41 - 5.01)	4.25 (4.09 - 4.42)	3.98 (3.80 - 4.18)	3.52 (3.41 - 3.63)
Different Drugs**	, Relative Rate	1.23 (1.17 - 1.30)	1.33 (1.24 - 1.43)	1.21 (1.15 - 1.27)	1.13 (1.07 - 1.20)	ref
	Rate Difference	0.82 (0.64 - 1.00)	1.18 (0.91 - 1.45)	0.73 (0.54 - 0.92)	0.46 (0.26 - 0.66)	ref
PCH Admission	Rate	11.96 (1.71 - 83.69)	9.28 (0.86 - 99.71)	14.59 (9.45 - 22.53)	8.28 (2.93 - 23.41)	6.50 (3.15 - 13.41)
Rates† per 1,000 person-	Relative Rate	1.84 (0.23 - 14.87)	1.43 (0.11 - 18.14)	2.24 (0.82 - 6.11)	1.27 (0.35 - 4.61)	ref
years	Rate Difference	5.46 (-14.82 - 25.74)	2.77 (-8.16 - 13.71)	8.09 (-1.73 - 17.91)	1.78 (-8.62 - 12.18)	ref
	Rate	1.55 (0.09 - 26.72)	1.27 (0.04 - 41.49)	2.33 (1.50 - 3.62)	0.69 (0.17 - 2.70)	1.02 (0.41 - 2.54)
Days in PCH ⁺ per person-year	Relative Rate	1.51 (0.08 - 29.15)	1.24 (0.04 - 43.08)	2.28 (0.69 - 7.50)	0.67 (0.11 - 4.03)	ref
	Rate Difference	0.52 (-2.08 - 3.13)	0.25 (-1.57 - 2.07)	1.31 (-0.39 - 3.00)	-0.34 (-1.68 - 1.00)	ref
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UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 230 | Appendix 4 **Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DF +Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.6: Estimated-Population-Based Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 3 Years After Survey Survey weighted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cru	de		
-	Rate	5.07 (4.88 - 5.27)	5.33 (4.99 - 5.67)	6.43 (6.21 - 6.65)	4.62 (4.43 - 4.81)	4.54 (4.41 - 4.66)
Ambulatory Visits*	Relative Rate	1.12 (1.07 - 1.17)	1.18 (1.10 - 1.26)	1.42 (1.36 - 1.48)	1.02 (0.97 - 1.07)	ref
per person-year	Rate Difference	0.54 (0.31 - 0.76)	0.80 (0.44 - 1.16)	1.89 (1.64 - 2.15)	0.08 (-0.14 - 0.31)	ref
Inpatient	Rate	108.09 (97.86 - 118.32)	125.50 (109.07 - 141.94)	142.20 (131.81 - 152.60)	81.75 (73.45 - 90.05)	79.20 (74.04 - 84.37)
Hospitalizations* per 1,000 person-	Relative Rate	1.36 (1.22 - 1.53)	1.58 (1.37 - 1.83)	1.80 (1.62 - 1.99)	1.03 (0.91 - 1.17)	ref
years	Rate Difference	28.89 (17.56 - 40.22)	46.30 (29.20 - 63.40)	63.00 (51.07 - 74.94)	2.55 (-7.34 - 12.43)	ref
	Rate	1,000.16 (787.84 - 1,212.48)	1,037.16 (836.85 - 1,237.46)	1,681.06 (1,481.72 - 1,880.39)	719.08 (613.67 - 824.49)	871.44 (763.33 - 979.54)
per 1,000 person-	Relative Rate	1.15 (0.90 - 1.46)	1.19 (0.94 - 1.51)	1.93 (1.62 - 2.30)	0.83 (0.68 - 1.00)	ref
y car o	Rate Difference	128.72 (-110.30 - 367.74)	165.72 (-71.25 - 402.69)	809.62 (578.95 - 1,040.29)	-152.36 (-304.000.72)	ref
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Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before	Former Daily Smoker (Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cru	de		
Mean Number of	Rate	405.02 (367.78 - 442.25)	440.82 (382.72 - 498.91)	775.51 (722.90 - 828.13)	339.96 (310.13 - 369.80)	318.31 (299.25 - 337.37)
Defined Daily Doses**	Relative Rate	1.27 (1.14 - 1.42)	1.38 (1.21 - 1.59)	2.44 (2.23 - 2.66)	1.07 (0.96 - 1.19)	ref
per person-year	Rate Difference	86.71 (44.17 - 129.24)	122.50 (63.17 - 181.84)	457.20 (401.74 - 512.66)	21.65 (-14.65 - 57.95)	ref
	Rate	3.56 (3.42 - 3.69)	3.68 (3.43 - 3.94)	4.95 (4.76 - 5.14)	2.96 (2.83 - 3.08)	2.90 (2.82 - 2.99)
Different Drugs**	Relative Rate	1.22 (1.17 - 1.29)	1.27 (1.18 - 1.37)	1.70 (1.62 - 1.79)	1.02 (0.97 - 1.07)	ref
	Rate Difference	0.65 (0.49 - 0.81)	0.78 (0.51 - 1.05)	2.04 (1.84 - 2.25)	0.05 (-0.10 - 0.21)	ref
PCH Admission	Rate	15.90 (7.56 - 24.24)	19.91 (6.44 - 33.37)	15.71 (11.50 - 19.93)	13.44 (8.00 - 18.87)	22.35 (17.38 - 27.33)
Rates [†] per 1,000 person-	Relative Rate	0.71 (0.40 - 1.27)	0.89 (0.40 - 1.97)	0.70 (0.49 - 1.00)	0.60 (0.38 - 0.95)	ref
years	Rate Difference	-6.45 (-16.31 - 3.41)	-2.44 (-16.88 - 11.99)	-6.64 (-13.240.04)	-8.91 (-16.091.73)	ref
	Rate	5.24 (2.14 - 8.33)	7.53 (1.87 - 13.18)	6.01 (4.15 - 7.87)	5.06 (2.96 - 7.17)	7.53 (5.66 - 9.40)
Days in PCH ⁺ per person-year	Relative Rate	0.70 (0.36 - 1.34)	1.00 (0.39 - 2.56)	0.80 (0.54 - 1.17)	0.67 (0.41 - 1.10)	ref
	Rate Difference	-2.29 (-5.95 - 1.37)	0.00 (-6.04 - 6.04)	-1.52 (-4.09 - 1.05)	-2.46 (-5.28 - 0.35)	ref
**Ared 12+ evrent	+ CCHS Healthy	Ading (aded 45+) MHHS not in	cluded due to lack of DDIN data			

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 232 | Appendix 4 **Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DP †Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before	Former Daily Smoker (Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
-	Rate	5.30 (4.99 - 5.64)	5.59 (5.19 - 6.01)	5.40 (5.03 - 5.80)	4.82 (4.63 - 5.03)	4.77 (4.66 - 4.89)
Visits*	Relative Rate	1.11 (1.04 - 1.19)	1.17 (1.08 - 1.27)	1.13 (1.05 - 1.22)	1.01 (0.96 - 1.07)	ref
bei bei soit-year	Rate Difference	0.53 (0.17 - 0.89)	0.82 (0.38 - 1.25)	0.63 (0.21 - 1.04)	0.05 (-0.21 - 0.31)	ref
Inpatient	Rate	140.06 (123.78 - 158.49)	151.26 (129.70 - 176.41)	106.95 (89.80 - 127.38)	85.54 (69.55 - 105.22)	84.67 (79.57 - 90.09)
Hospitalizations* per 1,000 person-	Relative Rate	1.65 (1.43 - 1.92)	1.79 (1.50 - 2.13)	1.26 (1.04 - 1.53)	1.01 (0.81 - 1.27)	ref
years	Rate Difference	55.40 (36.17 - 74.62)	66.60 (41.80 - 91.40)	22.28 (1.69 - 42.88)	0.88 (-21.77 - 23.53)	ref
	Rate	1,760.93 (1,345.50 - 2,304.62)	1,468.39 (1,183.98 - 1,821.13)	992.37 (822.28 - 1,197.63)	807.54 (676.87 - 963.44)	911.41 (798.73 - 1,039.97)
per 1,000 person-	Relative Rate	1.93 (1.40 - 2.67)	1.61 (1.22 - 2.13)	1.09 (0.84 - 1.41)	0.89 (0.69 - 1.14)	ref
л Эр	Rate Difference	849.53 (327.62 - 1,371.43)	556.99 (191.63 - 922.35)	80.96 (-166.98 - 328.90)	-103.87 (-317.13 - 109.39)	ref
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TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age- & sex	-adjusted		
Mean Number of	Rate	375.08 (322.30 - 436.50)	422.58 (363.13 - 491.77)	402.37 (350.53 - 461.88)	341.81 (296.46 - 394.09)	385.69 (368.90 - 403.25)
Defined Daily Doses**	Relative Rate	0.97 (0.81 - 1.16)	1.10 (0.92 - 1.30)	1.04 (0.89 - 1.23)	0.89 (0.75 - 1.05)	ref
per person-year	Rate Difference	-10.61 (-77.89 - 56.66)	36.89 (-35.64 - 109.43)	16.68 (-47.87 - 81.23)	-43.89 (-103.01 - 15.24)	ref
	Rate	3.65 (3.44 - 3.87)	4.18 (3.77 - 4.63)	3.65 (3.39 - 3.92)	3.20 (3.03 - 3.38)	3.11 (3.04 - 3.18)
Different Drugs**	Relative * Rate	1.17 (1.10 - 1.25)	1.34 (1.21 - 1.49)	1.17 (1.08 - 1.27)	1.03 (0.97 - 1.09)	ref
bei bei soli-yea	Rate Difference	0.54 (0.30 - 0.78)	1.07 (0.62 - 1.52)	0.54 (0.25 - 0.83)	0.09 (-0.11 - 0.29)	ref
PCH Admission	Rate	30.76 (17.14 - 55.20)	32.79 (13.92 - 77.21)	17.10 (12.78 - 22.88)	11.13 (7.24 - 17.12)	18.36 (14.43 - 23.37)
Rates [†] per 1,000 person-	Relative Rate	1.68 (0.86 - 3.28)	1.79 (0.73 - 4.38)	0.93 (0.61 - 1.43)	0.61 (0.36 - 1.01)	ref
years	Rate Difference	12.40 (-5.40 - 30.19)	14.42 (-13.99 - 42.84)	-1.26 (-8.68 - 6.15)	-7.23 (-13.950.50)	ref
	Rate	10.23 (5.58 - 18.75)	10.32 (4.67 - 22.81)	7.01 (5.02 - 9.79)	5.44 (2.95 - 10.04)	6.19 (4.69 - 8.19)
Days in PCH ⁺ per person-year	Relative Rate	1.65 (0.83 - 3.27)	1.67 (0.69 - 4.01)	1.13 (0.67 - 1.91)	0.88 (0.43 - 1.81)	ref
	Rate Difference	4.04 (-1.64 - 9.71)	4.13 (-2.90 - 11.15)	0.82 (-2.39 - 4.02)	-0.75 (-4.48 - 2.98)	ref
**Aaed 12+ except	t CCHS Healthy	/ Aaina (aaed 45+). MHHS not in	cluded due to lack of DPIN data			

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 234 | Appendix 4 **Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN +Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-	& SES-adjusted		
	Rate	5.38 (5.18 - 5.59)	5.87 (5.60 - 6.16)	5.37 (5.19 - 5.57)	4.92 (4.74 - 5.11)	4.77 (4.63 - 4.90)
Ambulatory Visits per person-year	** Relative Rate	1.13 (1.08 - 1.18)	1.23 (1.17 - 1.30)	1.13 (1.07 - 1.18)	1.03 (0.99 - 1.08)	ref
	Rate Difference	0.61 (0.38 - 0.84)	1.11 (0.83 - 1.39)	0.61 (0.37 - 0.84)	0.16 (-0.06 - 0.37)	ref
Inpatient	Rate	144.21 (129.22 - 160.94)	150.50 (123.62 - 183.23)	120.02 (102.51 - 140.51)	104.27 (91.94 - 118.25)	83.55 (76.29 - 91.51)
Hospitalizations* per 1,000 person-	* Relative Rate	1.73 (1.51 - 1.98)	1.80 (1.46 - 2.22)	1.44 (1.19 - 1.74)	1.25 (1.07 - 1.46)	ref
years	Rate Difference	60.65 (43.93 - 77.38)	66.95 (36.45 - 97.45)	36.46 (16.47 - 56.45)	20.71 (6.47 - 34.95)	ref
:	Rate	1,660.31 (1,383.07 - 1,993.11)	1,424.00 (840.33 - 2,413.08)	1,196.37 (985.40 - 1,452.51)	1,206.52 (922.96 - 1,577.21)	822.37 (719.74 - 939.62)
Days in Hospital* per 1,000 person-	Relative Rate	2.02 (1.61 - 2.54)	1.73 (1.02 - 2.94)	1.45 (1.15 - 1.84)	1.47 (1.08 - 2.00)	ref
2	Rate Difference	837.94 (529.00 - 1,146.88)	601.64 (-306.73 - 1,510.00)	374.00 (137.97 - 610.04)	384.16 (89.92 - 678.39)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

*Aged 12+ except MHHS (aged 1/-76), CCHS Healthy Aging (aged 45+) Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survev)	Former Daily Smoker (Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-	& SES-adjusted		
Mean Number of	Rate	424.25 (390.99 - 460.34)	443.58 (403.76 - 487.32)	432.06 (405.04 - 460.89)	390.11 (352.67 - 431.53)	365.60 (343.98 - 388.57)
Defined Daily Doses**	Relative Rate	1.16 (1.04 - 1.29)	1.21 (1.08 - 1.36)	1.18 (1.08 - 1.30)	1.07 (0.93 - 1.22)	ref
per person-year	Rate Difference	58.66 (17.74 - 99.57)	77.98 (33.96 - 122.01)	66.47 (31.12 - 101.81)	24.51 (-23.50 - 72.53)	ref
:	Rate	3.94 (3.76 - 4.12)	4.32 (4.08 - 4.59)	3.86 (3.71 - 4.02)	3.37 (3.22 - 3.52)	3.14 (3.03 - 3.25)
Mean Number of Different Drugs**	Relative Rate	1.25 (1.18 - 1.33)	1.38 (1.29 - 1.47)	1.23 (1.16 - 1.30)	1.07 (1.01 - 1.13)	ref
	Rate Difference	0.80 (0.60 - 1.00)	1.18 (0.94 - 1.43)	0.72 (0.53 - 0.91)	0.22 (0.05 - 0.40)	ref
PCH Admission	Rate	18.45 (10.28 - 33.13)	16.69 (8.66 - 32.17)	19.07 (14.14 - 25.72)	12.23 (6.60 - 22.69)	20.81 (13.93 - 31.08)
Ratest per 1,000 person-	Relative Rate	0.89 (0.43 - 1.82)	0.80 (0.41 - 1.58)	0.92 (0.49 - 1.70)	0.59 (0.27 - 1.26)	ref
years	Rate Difference	-2.36 (-15.24 - 10.52)	-4.12 (-13.95 - 5.72)	-1.74 (-13.33 - 9.85)	-8.58 (-19.44 - 2.29)	ref
	Rate	6.85 (3.14 - 14.95)	5.36 (2.37 - 12.12)	6.64 (4.70 - 9.37)	5.82 (2.46 - 13.76)	5.64 (3.89 - 8.19)
Days in PCH ⁺ per person-year	Relative Rate	1.21 (0.52 - 2.86)	0.95 (0.39 - 2.33)	1.18 (0.63 - 2.21)	1.03 (0.38 - 2.84)	ref
	Rate Difference	1.21 (-3.90 - 6.32)	-0.28 (-3.95 - 3.39)	0.99 (-2.68 - 4.66)	0.18 (-4.73 - 5.09)	ref
**Ared 12+ avrent	CCHS Haalthu	Ading (154) MHHS not inc	-luded due to lack of DDIN data			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

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+Aged 70+ except MHHS (aged 70-76)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 236 | Appendix 4

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
-	Rate	5.23 (5.08 - 5.39)	5.20 (5.00 - 5.42)	5.18 (5.05 - 5.31)	5.02 (4.86 - 5.19)	4.74 (4.64 - 4.85)
Visits*	Relative Rate	1.10 (1.06 - 1.14)	1.10 (1.05 - 1.15)	1.09 (1.05 - 1.13)	1.06 (1.02 - 1.10)	ref
per person - y car	Rate Difference	0.49 (0.32 - 0.66)	0.46 (0.26 - 0.66)	0.43 (0.27 - 0.60)	0.28 (0.10 - 0.46)	ref
Inpatient	Rate	150.87 (136.75 - 166.45)	124.23 (107.28 - 143.87)	107.49 (97.95 - 117.96)	89.26 (80.56 - 98.91)	78.47 (71.89 - 85.66)
Hospitalizations* per 1,000 person-	Relative Rate	1.92 (1.70 - 2.18)	1.58 (1.35 - 1.86)	1.37 (1.19 - 1.58)	1.14 (1.00 - 1.29)	ref
years	Rate Difference	72.40 (58.25 - 86.55)	45.76 (28.38 - 63.14)	29.02 (16.31 - 41.73)	10.79 (0.68 - 20.91)	ref
-	Rate	1,580.42 (1,393.46 - 1,792.47)	1,140.12 (820.50 - 1,584.24)	1,104.84 (953.56 - 1,280.12)	939.93 (772.94 - 1,142.98)	775.89 (690.00 - 872.48)
Days in Hospital" per 1,000 person-	Relative Rate	2.04 (1.72 - 2.41)	1.47 (1.05 - 2.06)	1.42 (1.15 - 1.76)	1.21 (0.95 - 1.55)	ref
ycaro	Rate Difference	804.53 (612.06 - 997.00)	364.23 (-12.16 - 740.61)	328.95 (141.97 - 515.94)	164.03 (-28.44 - 356.51)	ref
* * * * * * * * * * * * * * * * * * * *		12-76/ CCUS Used the Value (220)	4 AE +1			

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Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
Mean Number of	Rate	407.90 (380.92 - 436.78)	395.13 (359.09 - 434.80)	439.42 (414.90 - 465.40)	410.64 (376.01 - 448.46)	366.87 (348.19 - 386.54)
Defined Daily Doses**	Relative Rate	1.11 (1.02 - 1.22)	1.08 (0.96 - 1.20)	1.20 (1.10 - 1.30)	1.12 (1.00 - 1.26)	ref
per person-year	Rate Difference	41.03 (8.65 - 73.41)	28.27 (-8.71 - 65.24)	72.56 (41.46 - 103.66)	43.78 (3.21 - 84.34)	ref
	Rate	3.89 (3.76 - 4.03)	3.98 (3.77 - 4.21)	3.70 (3.58 - 3.82)	3.46 (3.33 - 3.59)	3.12 (3.03 - 3.21)
Different Drugs**	Relative Rate	1.25 (1.20 - 1.30)	1.28 (1.20 - 1.36)	1.19 (1.13 - 1.24)	1.11 (1.06 - 1.16)	ref
	Rate Difference	0.78 (0.63 - 0.92)	0.87 (0.66 - 1.07)	0.58 (0.43 - 0.73)	0.35 (0.20 - 0.49)	ref
PCH Admission	Rate	22.72 (10.90 - 47.37)	13.43 (7.41 - 24.31)	17.26 (13.01 - 22.89)	11.45 (6.02 - 21.77)	23.24 (14.92 - 36.21)
Rates [†] per 1,000 person-	Relative Rate	0.98 (0.38 - 2.49)	0.58 (0.29 - 1.14)	0.74 (0.40 - 1.39)	0.49 (0.22 - 1.12)	ref
years	Rate Difference	-0.52 (-20.40 - 19.35)	-9.82 (-20.27 - 0.63)	-5.98 (-18.17 - 6.21)	-11.79 (-24.39 - 0.80)	ref
	Rate	10.05 (3.93 - 25.68)	4.27 (1.82 - 10.01)	6.54 (4.61 - 9.28)	5.36 (2.26 - 12.70)	6.58 (4.18 - 10.36)
Days in PCH ⁺ per person-year	Relative Rate	1.53 (0.52 - 4.48)	0.65 (0.26 - 1.63)	0.99 (0.50 - 1.98)	0.81 (0.28 - 2.33)	ref
	Rate Difference	3.46 (-4.55 - 11.48)	-2.32 (-5.79 - 1.16)	-0.04 (-4.21 - 4.13)	-1.22 (-6.07 - 3.62)	ref
**Δned 12+ evcent	+ CCHS Health	Aning (aged 45+) MHHS not in	cluded due to lack of DDIN data			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPI †Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.7: Additional Estimated-Population-Based Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey Survey weighted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cru	de		
-	Rate	5.11 (4.91 - 5.31)	5.28 (4.98 - 5.57)	6.43 (6.22 - 6.64)	4.68 (4.51 - 4.86)	4.57 (4.45 - 4.69)
Visits*	Relative Rate	1.12 (1.07 - 1.17)	1.15 (1.09 - 1.23)	1.41 (1.35 - 1.47)	1.02 (0.98 - 1.07)	ref
per person-year	Rate Difference	0.54 (0.31 - 0.77)	0.71 (0.39 - 1.02)	1.86 (1.62 - 2.10)	0.11 (-0.11 - 0.33)	ref
Inpatient	Rate	112.45 (103.61 - 121.30)	122.30 (107.88 - 136.71)	143.55 (134.58 - 152.52)	84.13 (77.00 - 91.26)	81.52 (76.90 - 86.14)
Hospitalizations* per 1,000 person-	 Relative Rate 	1.38 (1.26 - 1.51)	1.50 (1.32 - 1.71)	1.76 (1.61 - 1.92)	1.03 (0.93 - 1.14)	ref
years	Rate Difference	30.93 (21.33 - 40.54)	40.77 (25.81 - 55.74)	62.03 (51.69 - 72.37)	2.61 (-5.94 - 11.16)	ref
	Rate	1,035.76 (873.22 - 1,198.29)	1,001.98 (837.59 - 1,166.37)	1,774.03 (1,590.18 - 1,957.89)	765.60 (673.61 - 857.58)	906.78 (816.98 - 996.57)
per 1,000 person-	Relative Rate	1.14 (0.95 - 1.37)	1.10 (0.91 - 1.34)	1.96 (1.69 - 2.26)	0.84 (0.72 - 0.99)	ref
) cars	Rate Difference	128.98 (-54.58 - 312.53)	95.20 (-96.36 - 286.77)	867.26 (660.23 - 1,074.28)	-141.18 (-272.3610.00)	ref
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Values in **bold** type indicate statistically significantly different values than Never Smoked.

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Rate415.79 (379)Mean Number of Defined DailyRate1.31 (1.1Defined DailyRate1.31 (1.1Porses**Rate98.22 (57.1per person-yearRate98.22 (57.1Difference87463.48 (3.3Rate87463.48 (3.3	379.56 - 452.01) (1.18 - 1.46)		de		
Defined Daily Relative 1.31 (1.1 Doses** Rate 98.22 (57.1 per person-year Difference 98.22 (57.1 Rate 1.348 (3.3)	(1.18 - 1.46)	440.49 (386.62 - 494.36)	768.28 (722.57 - 813.99)	348.25 (316.63 - 379.88)	317.57 (299.53 - 335.60)
per person-year Rate 98.22 (57.1 Difference 3.48 (3.3 Rate 3.48 (3.3)		1.39 (1.22 - 1.58)	2.42 (2.23 - 2.62)	1.10 (0.98 - 1.23)	ref
Rate 3.48 (3.3	(7.13 - 139.30)	122.92 (68.10 - 177.74)	450.71 (402.04 - 499.38)	30.69 (-7.06 - 68.43)	ref
	(3.35 - 3.62)	3.57 (3.35 - 3.79)	4.79 (4.61 - 4.96)	2.92 (2.80 - 3.04)	2.84 (2.76 - 2.91)
Different Drugs** Different Drugs** Poer percon-vear Rate	(1.17 - 1.29)	1.26 (1.18 - 1.35)	1.69 (1.61 - 1.76)	1.03 (0.98 - 1.08)	ref
Difference 0.65 (0.4	(0.49 - 0.80)	0.73 (0.50 - 0.97)	1.95 (1.76 - 2.14)	0.09 (-0.06 - 0.23)	ref
PCH Admission Rate 18.20 (10.	(10.73 - 25.66)	19.99 (8.62 - 31.36)	17.72 (13.97 - 21.47)	17.86 (12.51 - 23.22)	23.64 (19.68 - 27.60)
Relative 0.77 (0.5 per 1,000 person-	(0.50 - 1.20)	0.85 (0.46 - 1.56)	0.75 (0.57 - 0.98)	0.76 (0.54 - 1.07)	ref
years Rate -5.44 (-13 Difference	(-13.97 - 3.08)	-3.65 (-15.72 - 8.42)	-5.92 (-11.430.42)	-5.78 (-12.42 - 0.86)	ref
Rate 7.76 (4.1:	(4.13 - 11.40)	8.84 (3.49 - 14.19)	8.67 (6.47 - 10.87)	8.00 (5.43 - 10.57)	12.04 (9.34 - 14.75)
Days in PCH ⁺ Relative 0.64 (0.3 per person-year Rate	(0.38 - 1.09)	0.73 (0.36 - 1.49)	0.72 (0.52 - 1.00)	0.66 (0.44 - 1.00)	ref
Rate -4.28 (-8) Difference	(-8.89 - 0.33)	-3.20 (-9.36 - 2.95)	-3.37 (-6.80 - 0.05)	-4.04 (-7.880.21)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
	Rate	5.39 (5.07 - 5.73)	5.46 (5.10 - 5.84)	5.43 (5.03 - 5.85)	4.88 (4.70 - 5.06)	4.82 (4.71 - 4.92)
Visits*	Relative Rate	1.12 (1.05 - 1.20)	1.13 (1.05 - 1.22)	1.13 (1.04 - 1.22)	1.01 (0.96 - 1.06)	ref
per personiryear	Rate Difference	0.58 (0.22 - 0.93)	0.64 (0.25 - 1.03)	0.61 (0.18 - 1.04)	0.06 (-0.17 - 0.29)	ref
Inpatient	Rate	145.33 (129.95 - 162.53)	151.82 (131.39 - 175.42)	110.53 (93.44 - 130.74)	90.72 (76.34 - 107.80)	85.18 (80.60 - 90.03)
Hospitalizations* per 1,000 person-	Relative Rate	1.71 (1.49 - 1.95)	1.78 (1.51 - 2.10)	1.30 (1.08 - 1.56)	1.06 (0.88 - 1.29)	ref
years	Rate Difference	60.15 (42.02 - 78.28)	66.63 (43.67 - 89.60)	25.35 (5.28 - 45.42)	5.53 (-13.73 - 24.80)	ref
	Rate	1,808.97 (1,390.79 - 2,352.88)	1,433.67 (1,182.87 - 1,737.63)	1,060.12 (887.89 - 1,265.76)	861.09 (739.72 - 1,002.37)	946.52 (844.53 - 1,060.84)
per 1,000 person-	Relative Rate	1.91 (1.41 - 2.60)	1.51 (1.18 - 1.94)	1.12 (0.89 - 1.41)	0.91 (0.73 - 1.13)	ref
ycara	Rate Difference	862.44 (340.21 - 1,384.68)	487.14 (173.09 - 801.19)	113.60 (-126.38 - 353.58)	-85.43 (-279.93 - 109.06)	ref
*Aged 12+ except	MHHS (aged	17-76), CCHS Healthy Aging (age	ed 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDE

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before	Former Daily Smoker (Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey) Age- & sex	-adjusted		
Mean Number of	f	385.74 (330.79 - 449.82)	413.48 (358.51 - 476.89)	405.40 (355.71 - 462.02)	345.37 (302.20 - 394.71)	382.12 (366.62 - 398.27)
Defined Daily Doses**	Relative Rate	1.01 (0.85 - 1.21)	1.08 (0.92 - 1.27)	1.06 (0.91 - 1.24)	0.90 (0.77 - 1.06)	ref
per person-year	Rate Difference	3.63 (-64.95 - 72.21)	31.37 (-34.82 - 97.55)	23.28 (-38.17 - 84.72)	-36.75 (-92.19 - 18.70)	ref
-	Rate	3.58 (3.37 - 3.79)	3.97 (3.60 - 4.37)	3.58 (3.33 - 3.84)	3.15 (2.93 - 3.40)	3.02 (2.96 - 3.09)
Different Drugs**	r * Rate	1.18 (1.11 - 1.26)	1.31 (1.19 - 1.45)	1.18 (1.10 - 1.28)	1.04 (0.96 - 1.13)	ref
her person-year	Rate Difference	0.55 (0.32 - 0.78)	0.94 (0.54 - 1.35)	0.56 (0.28 - 0.83)	0.13 (-0.13 - 0.40)	ref
PCH Admission	Rate	32.74 (19.88 - 53.94)	26.91 (16.90 - 42.84)	19.48 (14.53 - 26.12)	14.77 (9.61 - 22.69)	19.55 (16.19 - 23.62)
Rates† per 1,000 person-	Relative - Rate	1.67 (0.94 - 2.97)	1.38 (0.84 - 2.27)	1.00 (0.68 - 1.47)	0.76 (0.45 - 1.26)	ref
years	Rate Difference	13.19 (-4.06 - 30.44)	7.36 (-4.01 - 18.72)	-0.07 (-7.60 - 7.45)	-4.79 (-13.28 - 3.71)	ref
	Rate	13.79 (8.18 - 23.23)	11.09 (5.99 - 20.55)	9.92 (7.26 - 13.56)	8.50 (5.03 - 14.36)	9.68 (7.69 - 12.18)
Days in PCH ⁺ per person-year	Relative Rate	1.42 (0.79 - 2.56)	1.15 (0.58 - 2.27)	1.03 (0.65 - 1.62)	0.88 (0.47 - 1.65)	ref
	Rate Difference	4.11 (-3.24 - 11.46)	1.42 (-4.78 - 7.61)	0.24 (-4.10 - 4.59)	-1.18 (-6.40 - 4.05)	ref
**Aged 12+ except	rt CCHS Health	y Aging (aged 45+), MHHS not i	ncluded due to lack of DPIN dat	e		

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

+Aged 70+ except MHHS (aged 70-76)

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
-	Rate	5.26 (5.11 - 5.41)	5.20 (5.00 - 5.40)	5.17 (5.04 - 5.30)	5.10 (4.94 - 5.27)	4.76 (4.66 - 4.86)
Visits*	Relative Rate	1.10 (1.07 - 1.14)	1.09 (1.04 - 1.14)	1.09 (1.05 - 1.12)	1.07 (1.03 - 1.11)	ref
her periodiat	Rate Difference	0.50 (0.34 - 0.66)	0.44 (0.24 - 0.63)	0.41 (0.24 - 0.57)	0.34 (0.16 - 0.52)	ref
Inpatient	Rate	142.89 (130.67 - 156.25)	115.25 (101.69 - 130.63)	107.90 (98.96 - 117.65)	96.76 (87.67 - 106.80)	79.42 (73.45 - 85.87)
Hospitalizations* per 1,000 person-	* Relative Rate	1.80 (1.61 - 2.01)	1.45 (1.27 - 1.66)	1.36 (1.19 - 1.55)	1.22 (1.08 - 1.37)	ref
years	Rate Difference	63.47 (51.08 - 75.86)	35.83 (22.10 - 49.56)	28.49 (16.51 - 40.46)	17.34 (7.35 - 27.34)	ref
	Rate	1,513.27 (1,256.71 - 1,822.21)	1,034.56 (774.77 - 1,381.45)	1,073.71 (934.23 - 1,234.02)	1,125.27 (905.81 - 1,397.88)	749.19 (665.94 - 842.86)
per 1,000 person-	Relative Rate	2.02 (1.62 - 2.52)	1.38 (1.03 - 1.86)	1.43 (1.17 - 1.76)	1.50 (1.16 - 1.95)	ref
) cars	Rate Difference	764.07 (471.10 - 1,057.05)	285.36 (-14.83 - 585.55)	324.52 (144.77 - 504.26)	376.07 (135.76 - 616.38)	ref
*Aged 12+ except	MHHS (aged	17-76), CCHS Healthy Aging (age	ed 45+)			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
Mean Number of	Rate	412.28 (388.30 - 437.74)	402.86 (371.41 - 436.97)	431.26 (407.29 - 456.65)	404.87 (374.90 - 437.22)	373.37 (355.64 - 391.98)
Defined Daily Doses**	Relative Rate	1.10 (1.02 - 1.20)	1.08 (0.98 - 1.19)	1.16 (1.07 - 1.25)	1.08 (0.98 - 1.21)	ref
per person-year	Rate Difference	38.91 (9.72 - 68.11)	29.49 (-2.81 - 61.79)	57.89 (28.33 - 87.46)	31.50 (-5.34 - 68.33)	ref
	Rate	3.83 (3.70 - 3.96)	3.85 (3.66 - 4.04)	3.57 (3.45 - 3.69)	3.48 (3.34 - 3.64)	3.07 (2.98 - 3.15)
Different Drugs**	Relative Rate	1.25 (1.19 - 1.30)	1.25 (1.19 - 1.32)	1.16 (1.11 - 1.22)	1.14 (1.08 - 1.20)	ref
	Rate Difference	0.76 (0.62 - 0.90)	0.78 (0.60 - 0.95)	0.50 (0.36 - 0.64)	0.42 (0.26 - 0.58)	ref
PCH Admission	Rate	23.49 (12.29 - 44.90)	16.52 (9.62 - 28.36)	21.68 (13.84 - 33.95)	18.14 (11.94 - 27.58)	23.65 (15.60 - 35.84)
Rates [†] per 1,000 person-	Relative Rate	0.99 (0.43 - 2.29)	0.70 (0.36 - 1.34)	0.92 (0.47 - 1.77)	0.77 (0.43 - 1.38)	ref
years	Rate Difference	-0.15 (-19.52 - 19.22)	-7.13 (-19.15 - 4.89)	-1.97 (-17.30 - 13.36)	-5.51 (-17.25 - 6.24)	ref
	Rate	12.07 (5.25 - 27.72)	5.87 (3.24 - 10.65)	9.90 (6.87 - 14.28)	8.68 (5.10 - 14.77)	11.67 (7.58 - 17.97)
Days in PCH ⁺ per person-year	Relative Rate	1.03 (0.39 - 2.73)	0.50 (0.25 - 1.01)	0.85 (0.45 - 1.61)	0.74 (0.36 - 1.56)	ref
	Rate Difference	0.40 (-10.37 - 11.16)	-5.80 (-10.990.61)	-1.77 (-8.52 - 4.98)	-3.00 (-9.78 - 3.79)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.8: Estimated-Population-Based Annualized Rate, Relative Rate, and Rate Differences of Healthcare Use by Smoking Status Categories, 10 Years After Survey Survey weighted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker Daily < 5 years hefore	Former Daily Smoker (Daily > 5 years hefore	Never a Daily Smoker	Never Smoked
				survey)		
			Cru	de		
	Rate	5.17 (4.99 - 5.36)	5.28 (5.03 - 5.53)	6.49 (6.29 - 6.68)	4.76 (4.60 - 4.93)	4.67 (4.56 - 4.78)
Visits*	Relative Rate	1.11 (1.06 - 1.15)	1.13 (1.07 - 1.19)	1.39 (1.34 - 1.44)	1.02 (0.98 - 1.07)	ref
bei beison-year	Rate Difference	0.50 (0.29 - 0.71)	0.61 (0.34 - 0.88)	1.81 (1.59 - 2.04)	0.09 (-0.12 - 0.30)	ref
Inpatient	Rate	116.62 (108.45 - 124.78)	117.27 (105.50 - 129.04)	144.05 (135.93 - 152.16)	86.53 (80.23 - 92.84)	85.20 (80.91 - 89.48)
Hospitalizations* per 1,000 person-	Relative Rate	1.37 (1.26 - 1.49)	1.38 (1.23 - 1.54)	1.69 (1.57 - 1.82)	1.02 (0.93 - 1.11)	ref
years	Rate Difference	31.42 (22.33 - 40.51)	32.07 (19.75 - 44.39)	58.85 (49.73 - 67.97)	1.34 (-6.32 - 8.99)	ref
	Rate	1,063.77 (929.75 - 1,197.79)	978.64 (852.11 - 1,105.16)	1,796.75 (1,636.25 - 1,957.25)	812.96 (725.28 - 900.64)	945.87 (869.17 - 1,022.56)
per 1,000 person-	Relative Rate	1.12 (0.97 - 1.30)	1.03 (0.88 - 1.21)	1.90 (1.68 - 2.15)	0.86 (0.75 - 0.98)	ref
) car a	Rate Difference	117.90 (-33.49 - 269.30)	32.77 (-119.30 - 184.84)	850.89 (670.52 - 1,031.26)	-132.91 (-250.4515.36)	ref
*Ared 12+ evrent	, hane) SHHM	17-76) CCHS Healthy Aging (age	d 45+)			

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Crude Mean Number of befined Daily Be fined Daily Relative Rate 134 (122 - 148) 1.35 (121 - 1122) 2.30 (2.13 - 2.49) 1.06 (0.95 - 118) Defined Daily Befined Daily Ber person-year Rate Rate 1.34 (1.22 - 1.48) 1.35 (1.21 - 1.12) 2.30 (2.13 - 2.49) 1.06 (0.95 - 118) Defined Daily Ber person-year Rate Rate 1.51.8 (74.26 - 156.10) 1.825 (67.93 - 168.58) 438.26 (391.55 - 484.97) 2.001 (-16.73 - 56.75) Defined Daily Rate 1.15.18 (74.26 - 156.10) 1.825 (67.93 - 168.58) 438.26 (391.55 - 484.97) 2.001 (-16.73 - 56.75) Defined Daily Rate 1.15.18 (74.26 - 156.10) 1.18.25 (67.93 - 168.58) 438.26 (391.55 - 484.97) 2.001 (-16.73 - 56.75) Defined Daily Rate 1.15.18 (74.26 - 156.10) 1.18.25 (67.93 - 168.58) 438.26 (391.55 - 484.97) 2.001 (-16.73 - 56.75) Defined Daily Rate 1.23 (1.18 - 1.29) 1.25 (1.17 - 1.132) 1.66 (4.52 - 2.4.83) 2.91 (2.091.07) Defined Daily Rate 0.56 (0.52 - 0.81) 0.70 (0.49 - 0.90) 1.84 (1.66 - 2.01) 0.06 (-007 - 0.20) Per LADMISION Rate 0.74 (0.51 - 1.03) 0.78 (0.49 - 0.30) 0.84 (0.64 - 1.10)			Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
				Cru	de		
	Mean Number of	Rate	451.39 (415.52 - 487.26)	454.46 (406.03 - 502.89)	774.47 (732.01 - 816.93)	356.22 (326.93 - 385.51)	336.21 (317.46 - 354.96)
	Defined Daily Doses**	Relative Rate	1.34 (1.22 - 1.48)	1.35 (1.21 - 1.52)	2.30 (2.13 - 2.49)	1.06 (0.95 - 1.18)	ref
	per person-year	Rate Difference	115.18 (74.26 - 156.10)	118.25 (67.93 - 168.58)	438.26 (391.55 - 484.97)	20.01 (-16.73 - 56.75)	ref
Mean Number of Different Drugs** Rate Per Person-year Relative Rate 1.23 (1.18 - 1.29) 1.25 (1.17 - 1.32) 1.65 (1.58 - 1.72) 1.02 (0.97 - 1.07) Per Person-year Rate Different Drugs** Rate 0.66 (0.52 - 0.81) 0.70 (0.49 - 0.90) 1.84 (1.66 - 2.01) 0.06 (-0.07 - 0.20) Per Person-year Rate 0.66 (0.52 - 0.81) 0.70 (0.49 - 0.90) 1.84 (1.66 - 2.01) 0.06 (-0.07 - 0.20) Perl Per Jourson- Per 1,000 person- Search Rate 0.56 (0.52 - 0.81) 0.70 (0.38 - 1.17) 20.95 (17.62 - 24.28) 0.84 (0.64 - 1.10) Perl Joud person- Per 1,000 person- Search Ratesi 0.74 (0.51 - 1.08) 0.67 (0.38 - 1.17) 0.78 (0.63 - 0.95) 0.84 (0.64 - 1.10) Perl Joud person- Per 1,000 person- Search Ratesi 0.74 (0.51 - 1.08) 0.67 (0.38 - 1.23) 0.78 (0.63 - 0.95) 0.84 (0.64 - 1.10) Perl Joud Perl Perl Perl Perl Perl Perl Perl Perl		Rate	3.51 (3.38 - 3.63)	3.54 (3.34 - 3.74)	4.68 (4.52 - 4.83)	2.91 (2.79 - 3.02)	2.84 (2.77 - 2.91)
Potr Part Surf Surf Surf Surf Surf Surf Surf Surf	Different Drugs**	Relative Rate	1.23 (1.18 - 1.29)	1.25 (1.17 - 1.32)	1.65 (1.58 - 1.72)	1.02 (0.97 - 1.07)	ref
PCH Admission Rates ¹ 19.98 (12.97 - 26.99) 18.04 (8.42 - 27.67) 20.95 (17.62 - 24.28) 22.58 (17.36 - 27.81) PCH Admission Relative 0.74 (0.51 - 1.08) 0.67 (0.38 - 1.17) 0.78 (0.63 - 0.95) 0.84 (0.64 - 1.10) Per 1,000 person- Rate 0.74 (0.51 - 1.08) 0.67 (0.38 - 1.17) 0.78 (0.63 - 0.95) 0.84 (0.64 - 1.10) Per 1,000 person- Rate 0.74 (0.51 - 1.08) 0.67 (1.36 - 1.23) 0.78 (0.63 - 0.95) 0.84 (0.64 - 1.10) Per 1,000 person- Rate -6.97 (-14.83 - 0.89) 8.91 (-19.05 - 1.23) 0.78 (0.63 - 0.95) 0.84 (0.64 - 1.10) Person-year Rate -6.97 (-14.83 - 0.89) 8.91 (-19.05 - 1.23) 14.45 (11.27 - 17.63) 13.81 (10.17 - 17.44) Pays in PCH ¹ Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Pays in PCH ¹ Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.48) -4.07 (-0.20) 0.75 (0.54 - 1.03) Pays in PCH ¹ Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.83) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03)		Rate Difference	0.66 (0.52 - 0.81)	0.70 (0.49 - 0.90)	1.84 (1.66 - 2.01)	0.06 (-0.07 - 0.20)	ref
Ratest per 1,000 person- years Relative Rate 0.74 (0.51 - 1.08) 0.67 (0.38 - 1.17) 0.78 (0.63 - 0.95) 0.84 (0.64 - 1.10) years Rate -6.97 (-14.83 - 0.89) -8.91 (-19.05 - 1.23) 0.78 (0.63 - 0.95) -4.37 (-10.77 - 2.02) years Rate -6.97 (-14.83 - 0.89) -8.91 (-19.05 - 1.23) 14.45 (11.27 - 17.63) -13.81 (10.17 - 17.44) Pays in PCH ⁺ 9.72 (5.92 - 13.52) 8.79 (4.07 - 13.52) 14.45 (11.27 - 17.63) 13.81 (10.17 - 17.44) Pays in PCH ⁺ 9.72 (5.92 - 13.52) 8.79 (4.07 - 13.52) 14.45 (11.27 - 17.63) 13.81 (10.17 - 17.44) Pays in PCH ⁺ Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Pays in PCH ⁺ Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Pays in PCH ⁺ 8.80 (-13.99 - 3.61) -9.73 (-15.613.84) -4.07 (-8.62 - 0.48) -4.71 (-9.71 - 0.29)	PCH Admission	Rate	19.98 (12.97 - 26.99)	18.04 (8.42 - 27.67)	20.95 (17.62 - 24.28)	22.58 (17.36 - 27.81)	26.96 (23.45 - 30.46)
years Rate -6.97 (-14.83 - 0.89) -8.91 (-19.05 - 1.23) -6.00 (-10.761.25) -4.37 (-10.77 - 2.02) Difference 9.72 (5.92 - 13.52) 8.79 (4.07 - 13.52) 14.45 (11.27 - 17.63) 13.81 (10.17 - 17.44) Days in PCH [‡] 9.72 (5.92 - 13.52) 8.79 (4.07 - 13.52) 14.45 (11.27 - 17.63) 13.81 (10.17 - 17.44) Days in PCH [‡] 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) per person-year Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03)	Rates ⁺ per 1,000 person-	Relative Rate	0.74 (0.51 - 1.08)	0.67 (0.38 - 1.17)	0.78 (0.63 - 0.95)	0.84 (0.64 - 1.10)	ref
Rate 9.72 (5.92 - 13.52) 8.79 (4.07 - 13.52) 14.45 (11.27 - 17.63) 13.81 (10.17 - 17.44) Days in PCH ⁺ Relative 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Per person-year Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Rate 0.880 (-13.99 - 3.61) -9.73 (-15.613.84) -4.07 (-8.62 - 0.48) -4.71 (-9.71 - 0.29)	years	Rate Difference	-6.97 (-14.83 - 0.89)	-8.91 (-19.05 - 1.23)	-6.00 (-10.761.25)	-4.37 (-10.77 - 2.02)	ref
Days in PCH ⁺ Relative 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) per person-year Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Rate 0.52 (0.34 - 0.81) 0.47 (0.26 - 0.87) 0.78 (0.59 - 1.03) 0.75 (0.54 - 1.03) Rate 0.58 (0.59 - 3.61) -9.73 (-1.5613.84) -4.07 (-8.62 - 0.48) -4.71 (-9.71 - 0.29)		Rate	9.72 (5.92 - 13.52)	8.79 (4.07 - 13.52)	14.45 (11.27 - 17.63)	13.81 (10.17 - 17.44)	18.52 (15.13 - 21.90)
Rate -8.80 (-13.993.61) -9.73 (-15.613.84) -4.07 (-8.62 - 0.48) -4.71 (-9.71 - 0.29)	Days in PCH ⁺ per person-year	Relative Rate	0.52 (0.34 - 0.81)	0.47 (0.26 - 0.87)	0.78 (0.59 - 1.03)	0.75 (0.54 - 1.03)	ref
Unrerence		Rate Difference	-8.80 (-13.993.61)	-9.73 (-15.613.84)	-4.07 (-8.62 - 0.48)	-4.71 (-9.71 - 0.29)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

'Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
-	Rate	5.48 (5.22 - 5.76)	5.48 (5.15 - 5.83)	5.47 (5.07 - 5.90)	4.95 (4.78 - 5.13)	4.90 (4.80 - 5.01)
Visits*	Relative Rate	1.12 (1.06 - 1.18)	1.12 (1.04 - 1.19)	1.12 (1.03 - 1.21)	1.01 (0.96 - 1.06)	ref
including ind	Rate Difference	0.58 (0.29 - 0.87)	0.57 (0.21 - 0.94)	0.57 (0.14 - 0.99)	0.05 (-0.19 - 0.28)	ref
Inpatient	Rate	151.09 (136.52 - 167.23)	151.03 (132.87 - 171.68)	113.67 (96.71 - 133.61)	93.25 (85.81 - 101.34)	88.85 (84.41 - 93.51)
Hospitalizations* per 1,000 person-	* Relative - Rate	1.70 (1.50 - 1.92)	1.70 (1.47 - 1.97)	1.28 (1.07 - 1.52)	1.05 (0.94 - 1.17)	ref
years	Rate Difference	62.25 (45.07 - 79.43)	62.19 (41.83 - 82.55)	24.83 (4.94 - 44.72)	4.41 (-5.56 - 14.38)	ref
	Rate	1,824.10 (1,414.03 - 2,353.09)	1,413.17 (1,207.37 - 1,654.06)	1,117.79 (961.11 - 1,300.03)	900.08 (790.30 - 1,025.10)	976.29 (889.54 - 1,071.49)
per 1,000 person-	Relative Rate	1.87 (1.40 - 2.50)	1.45 (1.18 - 1.77)	1.14 (0.94 - 1.39)	0.92 (0.77 - 1.11)	ref
ycaro	Rate Difference	847.81 (342.10 - 1,353.52)	436.89 (182.49 - 691.29)	141.51 (-69.45 - 352.47)	-76.21 (-244.59 - 92.18)	ref
*Aged 12+ except	MHHS (aged	17-76), CCHS Healthy Aging (age	ed 45+)			

Values in **bold** type indicate statistically significantly different values than Never Smoked.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDE

Age. & sex-adjusted Age. & sex-adjusted Mean Number Faite 1.05 (0.38 - 1.26) 1.09 (0.91 - 1.31) 1.03 (0.38 - 1.21) 357.02 (34.33 - 405.51) 3395.5 Defined Daily Relative Relative 1.05 (0.38 - 1.26) 1.09 (0.91 - 1.31) 1.03 (0.38 - 1.21) 0.89 (0.77 - 1.04) 359.5 Defined Daily Relative Relative 1.05 (0.38 - 1.26) 1.09 (0.91 - 1.31) 1.03 (0.38 - 1.21) 0.89 (0.77 - 1.04) 359.5 Defined Daily Relative Relative 1.05 (0.38 - 1.26) 1.09 (0.91 - 1.31) 1.03 (0.38 - 1.28) 3.14 (3.03 - 3.27) 3.31 Mean Number of Relative Relative 1.05 (0.13 - 1.28) 3.31 (3.57 - 4.29) 3.30 (3.26 - 3.76) 3.14 (3.03 - 3.27) 3.31 Mean Number of Relative Relative 1.30 (1.13 - 1.28) 3.31 (3.57 - 4.29) 3.30 (3.26 - 3.76) 3.14 (3.03 - 3.27) 3.31 Mean Number of Relative Relative 1.30 (1.13 - 1.28) 0.43 (0.27 - 1.28) 0.10 (0.09 - 1.09) 3.21 Mean Number of Relative Relative 1.30 (1.13 - 1.28) 0.43 (0.27 - 1.28) 0.104 (0.37 - 2.636)			Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
				Age- & sex	-adjusted		
	Mean Number of	Rate	420.34 (360.79 - 489.72)	436.31 (371.86 - 511.92)	412.00 (360.44 - 470.94)	357.02 (314.33 - 405.51)	399.53 (382.67 - 417.15)
Per Person year biffnemeRate biffneme $20.80(-53.71-95.32)$ $36.77(-41.35-114.89)$ $12.47(-51.89-76.83)$ $-42.51(-9791-12.88)$ 3.31 DiffnemeRelative $3.64(3.43-3.85)$ $3.91(3.57-4.29)$ $3.50(3.26-3.76)$ $3.14(3.03-3.27)$ 3.31 Relative $1.20(1.13-1.28)$ $1.30(1.18-1.42)$ $1.30(1.18-1.42)$ $1.04(0.99-109)$ 3.31 Per Person yearRelative $1.20(1.13-1.28)$ $1.30(1.18-1.42)$ $1.16(1.07-1.25)$ $0.02(0.03-0.27)$ 3.23 Per Person yearRelative $0.62(0.39-0.84)$ $0.89(0.52-1.27)$ $0.02(0.03-0.27)$ $0.22(0.39-0.27)$ 2.23 Per Person yearRelative $0.62(0.39-0.84)$ $0.89(0.52-1.27)$ $0.03(0.67-1.25)$ $0.12(-003-0.27)$ 2.23 Per Person yearsRelative $1.67(0.94-2.96)$ $1.14(0.69-1.87)$ $0.95(0.67-1.35)$ $0.03(0.67-1.25)$ 2.29 Per Louo yearsRelative $1.527(-4.91-35.45)$ $1.14(0.69-1.87)$ $0.95(0.67-1.35)$ $0.33(0.57-1.21)$ 2.29 Per Person yearsRelative $1.527(-4.91-35.45)$ $1.14(0.69-1.87)$ $0.95(0.67-1.35)$ $0.29(-11.50-3.71)$ 1.64 Per Person yearsRelative $1.527(-4.91-35.45)$ $1.181(6.43-2169)$ $1.534(11.60-2029)$ $1.329(-11.50-3.71)$ 1.64 Person yearsRelative $1.24(0.66-2.31)$ $0.72(0.37-1.39)$ $0.93(0.61-1.42)$ $0.32(0.61-1.42)$ 1.64 Person yearsRelative $1.24(0.66-2.31)$ $0.72(0.37-1.39)$ $0.93(0.61-1.42)$ $0.229(-1.29)$ 1.64 </th <th>Defined Daily Doses**</th> <th>Relative Rate</th> <th>1.05 (0.88 - 1.26)</th> <th>1.09 (0.91 - 1.31)</th> <th>1.03 (0.88 - 1.21)</th> <th>0.89 (0.77 - 1.04)</th> <th>ref</th>	Defined Daily Doses**	Relative Rate	1.05 (0.88 - 1.26)	1.09 (0.91 - 1.31)	1.03 (0.88 - 1.21)	0.89 (0.77 - 1.04)	ref
	per person-year	Rate Difference	20.80 (-53.71 - 95.32)	36.77 (-41.35 - 114.89)	12.47 (-51.89 - 76.83)	-42.51 (-97.91 - 12.88)	ref
Mean Mediative leftive leftive 1.20 (1.13 - 1.28) 1.30 (1.18 - 1.42) 1.16 (1.07 - 1.25) 1.04 (0.99 - 109) 1.04 (0.99 - 109) Per Person-year left Rate 0.62 (0.39 - 0.84) 0.89 (0.52 - 1.27) 0.48 (0.22 - 0.75) 0.12 (-0.03 - 0.27) 229 Per Person-year left Rate 0.62 (0.39 - 0.84) 0.89 (0.52 - 1.27) 0.48 (0.22 - 0.75) 0.12 (-0.03 - 0.27) 229 Per Hamiston Rate 0.62 (0.39 - 0.84) 0.89 (0.57 - 1.35) 0.10 (1.375 - 26.36) 229 Per L000 person-left Rate 1.67 (0.94 - 2.96) 1.14 (0.69 - 1.87) 0.95 (0.67 - 1.35) 0.03 (0.57 - 1.21) 229 Vertice 1.577 (-4.91 - 35.45) 1.14 (0.69 - 1.87) 0.95 (0.67 - 1.35) 0.83 (0.57 - 1.21) 230 (-11.50 - 3.71) 240 Vertice 1.527 (-4.91 - 35.45) 3.13 (-7.71 - 13.98) -1.06 (-8.84 - 6.72) -3.90 (-11.50 - 3.71) 240 Vertice Rate 1.527 (-4.91 - 35.83) 11.81 (6.43 - 21.69) 15.34 (11.60 - 20.29) 13.53 (8.52 - 21.49) 240 Pays in PCH ⁺ Rate 2.24 (0.66 - 2.31) 0.72 (0.37 - 1.39)		Rate	3.64 (3.43 - 3.85)	3.91 (3.57 - 4.29)	3.50 (3.26 - 3.76)	3.14 (3.03 - 3.27)	3.02 (2.96 - 3.08)
Defending Rate 0.62 (0.39 - 0.84) 0.89 (0.52 - 1.27) 0.48 (0.22 - 0.75) 0.12 (-0.03 - 0.27) 229 PCH Admission Rates 38.20 (2.295 - 63.60) 26.07 (16.28 - 41.74) 21.88 (16.71 - 2863) 19.04 (13.75 - 26.36) 22.9 PCH Admission Rates 1.67 (0.94 - 2.96) 2.607 (16.28 - 41.74) 21.88 (16.71 - 2863) 19.04 (13.75 - 26.36) 22.9 Per L1000 person Rates 1.67 (0.94 - 2.96) 1.14 (0.69 - 1.87) 0.95 (0.67 - 1.35) 0.033 (0.57 - 1.21) 22.9 Per L1000 person Rates 1.67 (0.94 - 2.96) 1.14 (0.69 - 1.87) 0.95 (0.67 - 1.35) 0.033 (0.57 - 1.21) 23.9 Per L1000 person Rates 1.527 (4.91 - 35.45) 1.181 (6.43 - 21.69) 1.534 (11.60 - 20.29) 13.53 (8.52 - 21.49) 164 Days in PCH* Rate 2.040 (11.61 - 35.83) 11.81 (6.43 - 21.69) 15.34 (11.60 - 20.29) 0.83 (0.46 - 1.48) 164 Days in PCH* Rate 2.040 (11.61 - 35.83) 11.81 (6.43 - 21.69) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 164 Days in PCH* Rate 2.124 (0.66 - 2.31)	Different Drugs**	* Relative Rate	1.20 (1.13 - 1.28)	1.30 (1.18 - 1.42)	1.16 (1.07 - 1.25)	1.04 (0.99 - 1.09)	ref
PcH Admission Rates ¹ 38.20 (22.95 - 63.60) 26.07 (16.28 - 41.74) 21.88 (16.71 - 28.63) 19.04 (13.75 - 26.36) 22.9 PcH Admission Relative 1.67 (0.94 - 2.96) 1.14 (0.69 - 1.87) 0.95 (0.67 - 1.35) 0.83 (0.57 - 1.21) 2.39 Per 1,000 person- Rate 1.5.27 (-4.91 - 35.45) 1.14 (0.69 - 1.87) 0.95 (0.67 - 1.35) 0.83 (0.57 - 1.21) 2.39 Per 1,000 person- Rate 1.5.27 (-4.91 - 35.45) 3.13 (-7.71 - 13.98) -1.06 (-8.84 - 6.72) -3.90 (-11.50 - 3.71) 164 Perla 15.27 (-4.91 - 35.83) 11.81 (6.43 - 21.69) 15.34 (11.60 - 20.29) 13.53 (8.52 - 21.49) 164 Pays in PCH ¹ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.49) 164 Pays in PCH ¹ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.49) 164 Pays in PCH ¹ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.49) 164 Pays in PCH ¹ Relative 1.24 (0.66 - 2.31)		Rate Difference	0.62 (0.39 - 0.84)	0.89 (0.52 - 1.27)	0.48 (0.22 - 0.75)	0.12 (-0.03 - 0.27)	ref
Ratest per 1,000 person- years Relative Rate 1.67 (0.94 - 2.96) 1.14 (0.69 - 1.87) 0.95 (0.67 - 1.35) 0.83 (0.57 - 1.21) 0 years Rate 15.27 (-4.91 - 35.45) 3.13 (-7.71 - 13.98) -1.06 (-8.84 - 6.72) -3.90 (-11.50 - 3.71) 16.4 years Rate 15.27 (-4.91 - 35.83) 11.81 (6.43 - 21.69) 15.34 (11.60 - 20.29) 13.53 (8.52 - 21.49) 16.4 Days in PCH ⁴ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁴ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁴ Rate 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁴ Rate 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁴ Rate 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.294 (-1029 - 4.41) 16.4	PCH Admission	Rate	38.20 (22.95 - 63.60)	26.07 (16.28 - 41.74)	21.88 (16.71 - 28.63)	19.04 (13.75 - 26.36)	22.94 (19.38 - 27.14)
years Rate 15.27 (-4.91 - 35.45) 3.13 (-7.71 - 13.98) -1.06 (-8.84 - 6.72) -3.90 (-11.50 - 3.71) 16.4 Difference 20.40 (11.61 - 35.83) 11.81 (6.43 - 21.69) 15.34 (11.60 - 20.29) 13.53 (8.52 - 21.49) 16.4 Days in PCH ⁺ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁺ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁺ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁺ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁺ Bays in PCH ⁺ 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Pays in PCH ⁺ Bays in PCH ⁺ 0.33 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 16.4	Rates [†] per 1,000 person-	Relative Rate	1.67 (0.94 - 2.96)	1.14 (0.69 - 1.87)	0.95 (0.67 - 1.35)	0.83 (0.57 - 1.21)	ref
Rate 20.40 (11.61 - 35.83) 11.81 (6.43 - 21.69) 15.34 (11.60 - 20.29) 13.53 (8.52 - 21.49) 16.4 Days in PCH ¹ Relative 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Per person-year Rate 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) 16.4 Difference 3.92 (-7.64 - 15.49) -4.66 (-11.42 - 2.10) -1.13 (-7.33 - 5.06) -2.94 (-10.29 - 4.41) 16.4	years	Rate Difference	15.27 (-4.91 - 35.45)	3.13 (-7.71 - 13.98)	-1.06 (-8.84 - 6.72)	-3.90 (-11.50 - 3.71)	ref
Days in PCH ⁺ per per son-year Relative Rate 1.24 (0.66 - 2.31) 0.72 (0.37 - 1.39) 0.93 (0.61 - 1.42) 0.82 (0.46 - 1.48) Per per son-year Rate 3.92 (-7.64 - 15.49) -4.66 (-11.42 - 2.10) -1.13 (-7.33 - 5.06) -2.94 (-10.29 - 4.41)		Rate	20.40 (11.61 - 35.83)	11.81 (6.43 - 21.69)	15.34 (11.60 - 20.29)	13.53 (8.52 - 21.49)	16.47 (12.71 - 21.35)
Rate 3.92 (-7.64 - 15.49) -4.66 (-11.42 - 2.10) -1.13 (-7.33 - 5.06) -2.94 (-10.29 - 4.41) Difference 3.92 (-7.64 - 15.49) -4.66 (-11.42 - 2.10) -1.13 (-7.33 - 5.06) -2.94 (-10.29 - 4.41)	Days in PCH ⁺ per person-year	Relative Rate	1.24 (0.66 - 2.31)	0.72 (0.37 - 1.39)	0.93 (0.61 - 1.42)	0.82 (0.46 - 1.48)	ref
		Rate Difference	3.92 (-7.64 - 15.49)	-4.66 (-11.42 - 2.10)	-1.13 (-7.33 - 5.06)	-2.94 (-10.29 - 4.41)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-	& SES-adjusted		
	Rate	5.47 (5.29 - 5.66)	5.78 (5.54 - 6.03)	5.42 (5.25 - 5.60)	5.13 (4.96 - 5.31)	4.87 (4.76 - 4.99)
Ambulatory Visits* per person-year	* Relative Rate	1.12 (1.07 - 1.17)	1.19 (1.13 - 1.25)	1.11 (1.07 - 1.16)	1.05 (1.01 - 1.10)	ref
	Rate Difference	0.60 (0.38 - 0.82)	0.91 (0.65 - 1.16)	0.55 (0.34 - 0.76)	0.26 (0.05 - 0.47)	ref
Inpatient	Rate	153.05 (141.61 - 165.42)	137.29 (116.26 - 162.12)	119.19 (103.70 - 137.00)	110.35 (98.38 - 123.77)	92.24 (86.30 - 98.59)
Hospitalizations* per 1,000 person-	Relative Rate	1.66 (1.49 - 1.85)	1.49 (1.24 - 1.78)	1.29 (1.10 - 1.52)	1.20 (1.04 - 1.37)	ref
years	Rate Difference	60.81 (47.10 - 74.52)	45.05 (20.19 - 69.90)	26.95 (9.16 - 44.75)	18.10 (4.26 - 31.95)	ref
:	Rate	1,836.02 (1,585.89 - 2,125.59)	1,344.06 (1,040.54 - 1,736.10)	1,206.14 (1,024.63 - 1,419.79)	1,218.20 (976.93 - 1,519.06)	993.57 (863.15 - 1,143.70)
Days in Hospital* per 1,000 person- vears	Relative Rate	1.85 (1.50 - 2.27)	1.35 (1.01 - 1.81)	1.21 (0.97 - 1.52)	1.23 (0.95 - 1.58)	ref
	Rate Difference	842.45 (553.34 - 1,131.55)	350.48 (-65.93 - 766.90)	212.56 (-24.30 - 449.43)	224.63 (-50.02 - 499.28)	ref
*Ared 12+ evrent M	AHHS (aned 1)	7-76) CCHS Healthy Aning (aged	. 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDE

Values in **bold** type indicate statistically significantly different values than Never Smoked.

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-	& SES-adjusted		
Mean Number of	Rate	463.75 (422.86 - 508.59)	468.27 (425.20 - 515.70)	437.57 (407.83 - 469.48)	400.39 (364.44 - 439.88)	374.75 (351.88 - 399.10)
Defined Daily Doses**	Relative Rate	1.24 (1.09 - 1.40)	1.25 (1.12 - 1.39)	1.17 (1.06 - 1.28)	1.07 (0.95 - 1.20)	ref
per person-year	Rate Difference	89.00 (37.08 - 140.92)	93.52 (48.11 - 138.93)	62.82 (25.97 - 99.67)	25.64 (-17.65 - 68.92)	ref
	Rate	3.84 (3.69 - 4.00)	4.16 (3.94 - 4.39)	3.60 (3.46 - 3.74)	3.38 (3.24 - 3.53)	3.00 (2.91 - 3.09)
Different Drugs**	Relative Rate	1.28 (1.21 - 1.35)	1.39 (1.30 - 1.47)	1.20 (1.14 - 1.26)	1.13 (1.07 - 1.19)	ref
	Rate Difference	0.84 (0.66 - 1.02)	1.16 (0.93 - 1.38)	0.60 (0.43 - 0.77)	0.38 (0.22 - 0.55)	ref
PCH Admission	Rate	27.66 (17.60 - 43.47)	20.46 (12.36 - 33.86)	24.07 (16.98 - 34.12)	21.98 (15.42 - 31.32)	27.09 (19.90 - 36.88)
Rates [†] per 1,000 person-	Relative Rate	1.02 (0.57 - 1.83)	0.76 (0.42 - 1.37)	0.89 (0.52 - 1.52)	0.81 (0.47 - 1.39)	ref
years	Rate Difference	0.56 (-15.63 - 16.75)	-6.64 (-18.99 - 5.72)	-3.03 (-18.02 - 11.96)	-5.11 (-17.95 - 7.72)	ref
	Rate	15.68 (8.58 - 28.67)	8.35 (4.81 - 14.51)	17.69 (13.15 - 23.81)	14.38 (8.82 - 23.46)	14.29 (11.07 - 18.43)
Days in PCH ⁺ per person-year	Relative Rate	1.10 (0.58 - 2.09)	0.58 (0.32 - 1.06)	1.24 (0.78 - 1.96)	1.01 (0.55 - 1.84)	ref
	Rate Difference	1.40 (-7.60 - 10.40)	-5.93 (-11.080.79)	3.41 (-4.13 - 10.95)	0.10 (-7.96 - 8.15)	ref
**Aged 12+ except	CCHS Healthy	Aging (aged 45+), MHHS not in	cluded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

⁺Aged 70+ except MHHS (aged 70-76)

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
-	Rate	5.35 (5.21 - 5.49)	5.29 (5.09 - 5.49)	5.22 (5.09 - 5.35)	5.12 (4.96 - 5.28)	4.86 (4.76 - 4.96)
Visits*	Relative Rate	1.10 (1.07 - 1.14)	1.09 (1.04 - 1.14)	1.07 (1.04 - 1.11)	1.05 (1.01 - 1.09)	ref
hei peisui-year	Rate Difference	0.49 (0.33 - 0.64)	0.43 (0.23 - 0.62)	0.36 (0.19 - 0.52)	0.26 (0.08 - 0.43)	ref
Inpatient	Rate	143.11 (132.50 - 154.58)	131.83 (117.04 - 148.48)	108.96 (100.30 - 118.36)	104.27 (94.90 - 114.55)	84.51 (78.64 - 90.83)
Hospitalizations* per 1,000 person-	Relative Rate	1.69 (1.55 - 1.85)	1.56 (1.37 - 1.78)	1.29 (1.14 - 1.46)	1.23 (1.11 - 1.38)	ref
years	Rate Difference	58.60 (48.09 - 69.12)	47.32 (32.83 - 61.80)	24.44 (13.04 - 35.85)	19.75 (10.02 - 29.48)	ref
	Rate	1,602.80 (1,408.17 - 1,824.33)	1,217.48 (995.49 - 1,488.97)	1,070.53 (947.97 - 1,208.92)	1,143.66 (977.78 - 1,337.67)	829.07 (745.94 - 921.46)
per 1,000 person-	Relative Rate	1.93 (1.64 - 2.28)	1.47 (1.18 - 1.83)	1.29 (1.08 - 1.54)	1.38 (1.14 - 1.68)	ref
) cai o	Rate Difference	773.73 (559.29 - 988.18)	388.41 (155.98 - 620.83)	241.46 (80.36 - 402.56)	314.59 (133.80 - 495.37)	ref
*Aged 12 + except	MHHS (aged .	17-76), CCHS Healthy Aging (age	ed 45+)			

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) Values in **bold** type indicate statistically significantly different values than Never Smoked.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDE

alues in **bold** type indicate statistically significantly different values than Never Smoked.

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
Mean Number of	Rate	442.32 (416.66 - 469.57)	442.13 (384.36 - 508.58)	424.27 (401.21 - 448.65)	409.03 (380.82 - 439.33)	384.22 (366.39 - 402.92)
Defined Daily Doses**	Relative Rate	1.15 (1.06 - 1.25)	1.15 (0.99 - 1.33)	1.10 (1.03 - 1.19)	1.06 (0.97 - 1.17)	ref
per person-year	Rate Difference	58.10 (27.02 - 89.19)	57.91 (1.51 - 114.31)	40.05 (12.22 - 67.88)	24.81 (-9.27 - 58.89)	ref
-	Rate	3.86 (3.74 - 3.98)	3.91 (3.72 - 4.12)	3.49 (3.38 - 3.61)	3.43 (3.30 - 3.57)	3.04 (2.96 - 3.11)
Different Drugs**	Relative Rate	1.27 (1.22 - 1.32)	1.29 (1.22 - 1.36)	1.15 (1.11 - 1.20)	1.13 (1.08 - 1.18)	ref
	Rate Difference	0.82 (0.70 - 0.95)	0.88 (0.70 - 1.06)	0.46 (0.33 - 0.58)	0.39 (0.25 - 0.53)	ref
PCH Admission	Rate	26.47 (14.53 - 48.21)	15.95 (9.67 - 26.33)	21.05 (14.69 - 30.17)	19.49 (13.80 - 27.51)	30.97 (22.60 - 42.44)
Rates† per 1,000 person-	Relative Rate	0.85 (0.41 - 1.79)	0.52 (0.28 - 0.94)	0.68 (0.40 - 1.15)	0.63 (0.38 - 1.04)	ref
years	Rate Difference	-4.51 (-24.80 - 15.78)	-15.02 (-26.853.19)	-9.92 (-24.01 - 4.16)	-11.49 (-23.34 - 0.36)	ref
	Rate	15.85 (7.02 - 35.77)	6.16 (3.51 - 10.82)	15.68 (11.79 - 20.85)	12.11 (7.64 - 19.18)	18.83 (13.40 - 26.47)
Days in PCH ⁺ per person-year	Relative Rate	0.84 (0.33 - 2.12)	0.33 (0.17 - 0.64)	0.83 (0.50 - 1.39)	0.64 (0.34 - 1.20)	ref
	Rate Difference	-2.98 (-16.82 - 10.86)	-12.67 (-19.246.11)	-3.15 (-11.66 - 5.35)	-6.73 (-15.18 - 1.73)	ref
	11 11 01 100					

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Agea 12+ except uutho Healthy Aging (agea 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

id Rate Differences of Healthcare Use	
vppendix Table 4.9: Propensity-Score Annualized Rates, Relative Rates, ar	by Smoking Status Categories, 1 Year After Survey

Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cru	de		
-	Rate	4.79 (4.54 - 5.03)	5.13 (4.72 - 5.55)	6.10 (5.84 - 6.36)	4.33 (4.09 - 4.56)	4.44 (4.30 - 4.59)
Visits*	Relative Rate	1.08 (1.01 - 1.15)	1.16 (1.06 - 1.26)	1.37 (1.30 - 1.45)	0.97 (0.91 - 1.04)	ref
bei beisei yea	Rate Difference	0.34 (0.06 - 0.63)	0.69 (0.24 - 1.14)	1.66 (1.36 - 1.96)	-0.12 (-0.40 - 0.16)	ref
Inpatient	Rate	105.63 (90.92 - 120.34)	141.07 (103.92 - 178.22)	123.38 (109.21 - 137.56)	71.45 (57.96 - 84.94)	69.87 (63.05 - 76.69)
Hospitalizations* per 1,000 person-	Relative Rate	1.51 (1.28 - 1.79)	2.02 (1.53 - 2.66)	1.77 (1.51 - 2.06)	1.02 (0.83 - 1.27)	ref
years	Rate Difference	35.76 (19.58 - 51.93)	71.19 (33.79 - 108.59)	53.51 (37.38 - 69.64)	1.57 (-13.28 - 16.43)	ref
	Rate	817.70 (666.09 - 969.30)	1,014.23 (738.42 - 1,290.04)	1,377.17 (1,071.20 - 1,683.13)	637.78 (480.93 - 794.63)	696.65 (550.38 - 842.92)
per 1,000 person-	Relative Rate	1.17 (0.89 - 1.55)	1.46 (1.03 - 2.07)	1.98 (1.45 - 2.69)	0.92 (0.66 - 1.28)	ref
n 1997 (Rate Difference	121.05 (-89.07 - 331.16)	317.58 (0.56 - 634.60)	680.52 (337.39 - 1,023.64)	-58.87 (-274.54 - 156.80)	ref
*Aged 12+ except f	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

'Адеа 1∠+ ехсерт мінн> (адеа 1/-/b), ССН> неаітту Аділд (адеа 45+) Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Propensity Score Rates

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cru	de		
Mean Number of	f f	351.12 (311.53 - 390.70)	435.42 (333.92 - 536.91)	664.53 (605.64 - 723.42)	289.93 (260.47 - 319.39)	283.91 (262.97 - 304.85)
Defined Daily Doses**	Relative Rate	1.24 (1.07 - 1.43)	1.53 (1.21 - 1.95)	2.34 (2.09 - 2.62)	1.02 (0.90 - 1.16)	ref
per person-year	Rate Difference	67.21 (20.39 - 114.02)	151.51 (48.98 - 254.04)	380.62 (319.18 - 442.05)	6.02 (-30.44 - 42.49)	ref
	Rate	3.80 (3.60 - 4.01)	4.04 (3.58 - 4.51)	5.43 (5.15 - 5.72)	3.13 (2.94 - 3.32)	3.21 (3.06 - 3.35)
Different Drugs**	r * Rate	1.19 (1.10 - 1.27)	1.26 (1.12 - 1.43)	1.70 (1.59 - 1.81)	0.98 (0.90 - 1.06)	ref
including	Rate Difference	0.60 (0.35 - 0.85)	0.84 (0.35 - 1.32)	2.23 (1.92 - 2.54)	-0.08 (-0.33 - 0.18)	ref
PCH Admission	Rate	12.91 (2.41 - 23.41)	31.22 (2.80 - 59.64)	19.20 (10.61 - 27.79)	19.62 (6.30 - 32.94)	11.47 (5.54 - 17.40)
Rates ⁺ per 1,000 person-	Relative Rate	1.13 (0.40 - 3.20)	2.72 (0.78 - 9.49)	1.67 (0.83 - 3.38)	1.71 (0.69 - 4.23)	ref
years	Rate Difference	1.44 (-10.46 - 13.34)	19.75 (-9.33 - 48.83)	7.74 (-2.71 - 18.19)	8.16 (-6.52 - 22.83)	ref
	Rate	1.24 (0.14 - 2.35)	3.97 (0.40 - 7.55)	2.89 (1.28 - 4.50)	2.65 (0.10 - 5.20)	1.86 (0.86 - 2.85)
Days in PCH ⁺ per person-year	Relative Rate	0.67 (0.22 - 2.06)	2.14 (0.60 - 7.64)	1.55 (0.70 - 3.45)	1.42 (0.41 - 4.99)	ref
	Rate Difference	-0.62 (-2.13 - 0.90)	2.11 (-1.60 - 5.83)	1.03 (-0.88 - 2.94)	0.79 (-1.93 - 3.51)	ref
**Aged 12+ except	t CCHS Healthy	/ Aging (aged 45+), MHHS not in	cluded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

+Aged 70+ except MHHS (aged 70-76)

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survev)	(Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propens	sity score-adjusted		
	Rate	4.67 (4.46 - 4.89)	4.97 (4.71 - 5.24)	4.83 (4.62 - 5.05)	4.52 (4.30 - 4.76)	4.54 (4.32 - 4.77)
Ambulatory Visits	** Relative Rate	1.03 (0.96 - 1.10)	1.09 (1.02 - 1.18)	1.06 (0.99 - 1.14)	1.00 (0.93 - 1.07)	ref
	Rate Difference	0.14 (-0.16 - 0.43)	0.43 (0.11 - 0.75)	0.29 (0.00 - 0.58)	-0.01 (-0.31 - 0.28)	ref
Inpatient	Rate	100.43 (85.62 - 117.81)	130.29 (105.60 - 160.75)	103.86 (87.85 - 122.79)	92.18 (75.27 - 112.88)	65.57 (53.51 - 80.35)
Hospitalizations*	* Relative Rate	1.53 (1.19 - 1.97)	1.99 (1.45 - 2.72)	1.58 (1.22 - 2.06)	1.41 (1.05 - 1.88)	ref
years	Rate Difference	34.86 (15.80 - 53.92)	64.72 (33.83 - 95.61)	38.29 (17.99 - 58.60)	26.61 (4.77 - 48.45)	ref
:	Rate	884.07 (694.69 - 1,125.08)	1,143.82 (761.01 - 1,719.19)	852.91 (616.62 - 1,179.73)	936.26 (699.19 - 1,253.72)	561.66 (405.52 - 777.91)
Days in Hospital* per 1,000 person- vears	Relative Rate	1.57 (1.07 - 2.31)	2.04 (1.15 - 3.62)	1.52 (0.98 - 2.35)	1.67 (1.08 - 2.57)	ref
200	Rate Difference	322.41 (67.13 - 577.70)	582.16 (17.75 - 1,146.58)	291.25 (-23.47 - 605.96)	374.60 (67.12 - 682.08)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

Aged 127 except winth (aged 17710), CCH3 regirity Aging (aged 1771) Values in **bold** type indicate statistically significantly different values than Never Smoked.

			- - - -	- - - -		
		Current Daily Smoker	Former Dally Smoker (Daily ≤ 5 years before survey)	Former Dally Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propens	ity score-adjusted		
Mean Number of	Rate	360.38 (327.45 - 396.63)	391.84 (348.46 - 440.62)	377.26 (340.30 - 418.23)	356.83 (313.92 - 405.60)	322.23 (291.52 - 356.18)
Defined Daily Doses**	Relative Rate	1.12 (0.97 - 1.28)	1.22 (1.04 - 1.42)	1.17 (1.02 - 1.34)	1.11 (0.93 - 1.31)	ref
per person-year	Rate Difference	38.15 (-4.33 - 80.63)	69.61 (17.76 - 121.45)	55.02 (12.50 - 97.55)	34.60 (-19.54 - 88.73)	ref
	Rate	3.86 (3.66 - 4.07)	4.16 (3.87 - 4.48)	3.93 (3.65 - 4.23)	3.49 (3.28 - 3.70)	3.45 (3.22 - 3.69)
Different Drugs**	, Relative Rate	1.12 (1.03 - 1.22)	1.21 (1.09 - 1.33)	1.14 (1.03 - 1.26)	1.01 (0.92 - 1.11)	ref
	Rate Difference	0.41 (0.14 - 0.68)	0.72 (0.36 - 1.07)	0.48 (0.15 - 0.81)	0.04 (-0.25 - 0.33)	ref
PCH Admission	Rate	20.77 (5.95 - 72.45)	15.88 (1.56 - 161.80)	15.97 (6.65 - 38.35)	18.94 (8.75 - 40.96)	10.50 (3.60 - 30.64)
Ratest per 1,000 person-	Relative Rate	1.98 (0.37 - 10.64)	1.51 (0.11 - 21.09)	1.52 (0.36 - 6.40)	1.80 (0.46 - 7.04)	ref
years	Rate Difference	10.27 (-14.07 - 34.61)	5.38 (-35.09 - 45.86)	5.48 (-11.86 - 22.81)	8.44 (-10.08 - 26.96)	ref
	Rate	2.25 (0.39 - 13.10)	1.28 (0.01 - 161.06)	1.70 (0.51 - 5.70)	2.64 (0.60 - 11.59)	0.51 (0.08 - 3.15)
Days in PCH ⁺ per person-year	Relative Rate	4.42 (0.27 - 72.10)	2.52 (0.01 - 648.76)	3.34 (0.44 - 25.28)	5.19 (0.70 - 38.34)	ref
	Rate Difference	1.74 (-2.38 - 5.86)	0.77 (-10.41 - 11.96)	1.19 (-1.06 - 3.44)	2.13 (-0.22 - 4.48)	ref
**Aged 12+ except	CCHS Healthy	Aging (aged 45+), MHHS not inc	luded due to lack of DPIN data			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

⁺Aged 70+ except MHHS (aged 70-76)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.
Appendix Table 4.10: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 3 Years After Survey Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		_
			Cru	de		
-	Rate	4.95 (4.74 - 5.15)	5.10 (4.78 - 5.43)	6.09 (5.85 - 6.32)	4.43 (4.24 - 4.62)	4.47 (4.34 - 4.61)
Visits*	Relative Rate	1.11 (1.05 - 1.16)	1.14 (1.06 - 1.22)	1.36 (1.29 - 1.43)	0.99 (0.94 - 1.05)	ref
her being bea	Rate Difference	0.47 (0.22 - 0.72)	0.63 (0.29 - 0.97)	1.61 (1.33 - 1.89)	-0.04 (-0.28 - 0.20)	ref
Inpatient	Rate	107.12 (96.37 - 117.87)	121.17 (103.03 - 139.31)	133.42 (122.51 - 144.32)	78.44 (69.89 - 86.99)	76.77 (71.50 - 82.05)
Hospitalizations* per 1,000 person-	Relative Rate	1.40 (1.24 - 1.57)	1.58 (1.34 - 1.85)	1.74 (1.56 - 1.94)	1.02 (0.90 - 1.16)	ref
years	Rate Difference	30.35 (18.38 - 42.32)	44.39 (25.71 - 63.08)	56.64 (44.33 - 68.95)	1.67 (-8.40 - 11.74)	ref
	Rate	865.55 (743.44 - 987.67)	1,037.55 (789.16 - 1,285.94)	1,615.34 (1,390.97 - 1,839.71)	625.64 (526.23 - 725.05)	814.19 (702.48 - 925.89)
per 1,000 person-	Relative Rate	1.06 (0.88 - 1.29)	1.27 (0.96 - 1.70)	1.98 (1.63 - 2.41)	0.77 (0.62 - 0.95)	ref
c mod	Rate Difference	51.37 (-112.49 - 215.23)	223.37 (-57.57 - 504.30)	801.15 (549.98 - 1,052.32)	-188.55 (-337.3239.77)	ref
*Ared 12± evrent !	MHHS (anad 1	7-76) CCHS Healthy Aring (area	4 45 +)		đ	

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.10: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survev)	(Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
			Cru	de	«).	
Mean Number of	Rate	387.14 (344.93 - 429.36)	408.46 (338.99 - 477.93)	665.99 (616.58 - 715.40)	312.99 (279.42 - 346.55)	294.94 (275.01 - 314.87)
Defined Daily Doses**	Relative Rate	1.31 (1.15 - 1.50)	1.38 (1.16 - 1.65)	2.26 (2.04 - 2.50)	1.06 (0.93 - 1.21)	ref
per person-year	Rate Difference	92.20 (44.43 - 139.97)	113.52 (42.94 - 184.10)	371.05 (317.46 - 424.63)	18.04 (-22.45 - 58.54)	ref
-	Rate	3.38 (3.22 - 3.53)	3.42 (3.14 - 3.70)	4.51 (4.30 - 4.71)	2.78 (2.65 - 2.91)	2.81 (2.71 - 2.90)
Different Drugs**	Relative * Rate	1.20 (1.14 - 1.27)	1.22 (1.12 - 1.33)	1.61 (1.52 - 1.70)	0.99 (0.93 - 1.05)	ref
per person-year	Rate Difference	0.57 (0.39 - 0.75)	0.62 (0.32 - 0.91)	1.70 (1.47 - 1.93)	-0.03 (-0.19 - 0.14)	ref
PCH Admission	Rate	16.80 (7.92 - 25.67)	26.84 (7.33 - 46.35)	18.42 (13.05 - 23.78)	13.60 (7.28 - 19.91)	21.95 (16.53 - 27.38)
Rates ⁺ per 1,000 person-	Relative Rate	0.77 (0.43 - 1.37)	1.22 (0.50 - 3.01)	0.84 (0.57 - 1.23)	0.62 (0.36 - 1.06)	ref
years	Rate Difference	-5.16 (-15.55 - 5.24)	4.89 (-15.37 - 25.14)	-3.54 (-11.19 - 4.11)	-8.36 (-16.500.21)	ref
	Rate	4.74 (1.96 - 7.52)	9.72 (1.69 - 17.74)	7.01 (4.74 - 9.28)	5.52 (2.99 - 8.06)	7.34 (5.30 - 9.39)
Days in PCH ⁺ per person-year	Relative Rate	0.65 (0.34 - 1.23)	1.32 (0.43 - 4.11)	0.95 (0.63 - 1.44)	0.75 (0.44 - 1.29)	ref
	Rate Difference	-2.60 (-6.03 - 0.82)	2.37 (-5.99 - 10.74)	-0.34 (-3.31 - 2.64)	-1.82 (-5.03 - 1.39)	ref
**Aned 12+ excent	t CCHS Healthy	Ading (aged 45+) MHHS not in	cluded due to lack of DPIN data			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DF †Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.10: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survev)	(Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propen	sity score-adjusted		
	Rate	4.77 (4.57 - 4.98)	5.03 (4.79 - 5.28)	4.87 (4.67 - 5.08)	4.74 (4.51 - 4.98)	4.65 (4.45 - 4.86)
Ambulatory Visits ⁴ per person-year	* Relative Rate	1.03 (0.96 - 1.09)	1.08 (1.01 - 1.16)	1.05 (0.99 - 1.11)	1.02 (0.95 - 1.09)	ref
	Rate Difference	0.12 (-0.15 - 0.40)	0.38 (0.08 - 0.68)	0.22 (-0.04 - 0.49)	0.09 (-0.20 - 0.38)	ref
Inpatient	Rate	111.08 (97.62 - 126.39)	143.31 (118.02 - 174.03)	113.68 (99.47 - 129.93)	103.24 (86.11 - 123.77)	82.23 (70.63 - 95.73)
Hospitalizations* per 1,000 person-	Relative Rate	1.35 (1.13 - 1.62)	1.74 (1.38 - 2.21)	1.38 (1.13 - 1.69)	1.26 (1.00 - 1.58)	ref
years	Rate Difference	28.85 (12.43 - 45.27)	61.08 (32.32 - 89.84)	31.45 (13.25 - 49.65)	21.01 (0.15 - 41.87)	ref
:	Rate	926.39 (762.09 - 1,126.11)	1,289.78 (894.92 - 1,858.87)	1,249.88 (923.36 - 1,691.87)	1,025.30 (767.09 - 1,370.43)	800.67 (614.90 - 1,042.57)
Days in Hospital [*] per 1,000 person- vears	Relative Rate	1.16 (0.85 - 1.58)	1.61 (1.03 - 2.51)	1.56 (1.03 - 2.35)	1.28 (0.87 - 1.89)	ref
2	Rate Difference	125.72 (-127.47 - 378.91)	489.11 (-60.06 - 1,038.29)	449.21 (45.40 - 853.01)	224.63 (-123.64 - 572.90)	ref
*Ared 12± event A	MHHS (and 1	7-76) CCHS Healthy Aning (aged	45+1			

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.10: Continued

Age, sex. & propensity score-adjustee Mean Number of Defined Daily Rate Rate 364.67 (331.30 - 401.40) 407.36 (368.65 - 450.12) 378.49 (341.84 - 1 378.49 (341.84 - 1 42.40 (2.53 - 8 Deses** Rate 1.09 (0.95 - 123) 1.21 (1.06 - 1.39) 1.13 (0.98 - 1 Per person-year Rate 28.59 (-13.06 - 70.23) 71.27 (24.95 - 117.60) 42.40 (-2.53 - 8 Mean Number of Different Drugs** Rate 28.59 (-13.06 - 70.23) 71.27 (24.95 - 117.60) 42.40 (-2.53 - 8 Mean Number of Enternet Drugs** Rate 28.59 (-13.06 - 70.23) 71.27 (24.95 - 117.60) 42.40 (-2.53 - 8 Mean Number of Enternet Drugs** Rate 0.30 (0.07 - 0.24) 71.27 (24.95 - 117.60) 42.40 (-2.53 - 8 Mean Number of Enternet Drugs** Rate 1.10 (1.02 - 1.19) 1.20 (1.10 - 1.31) 1.06 (0.98 - 1.00 Mean Number of Enternet Drugs** Rate 0.30 (0.07 - 0.54) 0.22 (0.34 - 0.89) 0.18 (-0.04 - 0 Mean Number of Enternet Drugs** Rate 0.30 (0.07 - 0.54) 1.20 (1.10 - 1.31) 1.06 (0.98 - 1.50) Mean Number of Enternet Drugs** Rate 0.30 (0.07 - 0.54) 0.52 (0.34 - 0.89)	ear Rate 36 19 Relative 2 8ar Rate 2 Difference 2	4.67 (331.30 - 401.40) 1.09 (0.95 - 1.23) 8.59 (-13.06 - 70.23) 3.40 (3.21 - 3.60) 1.10 (1.02 - 1.19)	Age-, sex- & propensit 407.36 (368.65 - 450.12) 1.21 (1.06 - 1.39) 71.27 (24.95 - 117.60) 3.71 (3.48 - 3.95) 1.20 (1.10 - 1.31)	y score-adjusted 378.49 (341.84 - 419.07) 1.13 (0.98 - 1.29) 47 40 (-7 53 - 87 33)		
Mean Number of Defined Daily Nean Number of Defined Daily Bate Rate $364.67 (331.30 - 401.40)$ $407.36 (368.65 - 450.12)$ $378.49 (341.84 - 1)$ Defined Daily Doses** Rate $1.09 (0.95 - 1.23)$ $1.21 (1.06 - 1.39)$ $1.13 (0.98 - 1)$ Per person-year Rate $28.59 (-13.06 - 70.23)$ $71.27 (24.95 - 117.60)$ $42.40 (-2.53 - 8)$ Per person-year Rate $28.59 (-13.06 - 70.23)$ $71.27 (24.95 - 117.60)$ $42.40 (-2.53 - 8)$ Mean Number of Different Drugs** Rate $3.40 (3.21 - 3.60)$ $3.71 (3.48 - 3.95)$ $3.28 (3.10 - 3)$ Mean Number of Different Drugs** Rate $0.30 (0.27 - 1.3.60)$ $3.71 (3.48 - 3.95)$ $3.28 (3.10 - 3)$ Per person-year Rate $0.30 (0.27 - 1.3.60)$ $3.71 (3.48 - 3.95)$ $3.28 (3.10 - 3)$ Mean Number of Different Drugs** Rate $0.30 (0.07 - 0.23)$ $0.12 (-1.31)$ $0.08 (-1.31)$ $0.18 (-0.04 - 0)$ Per Person-year Rate $0.30 (0.07 - 0.54)$ $0.52 (-3.63)$ $0.18 (-0.04 - 0)$ Per Person-year Rate $0.30 (0.07 - 0.54)$ $0.52 (-3.40)$ $0.18 (-0.77 - 4)$ Per Number	ear Rate 36 ily Relative 2 ear Rate 2 Difference 2	4.67 (331.30 - 401.40) 1.09 (0.95 - 1.23) 8.59 (-13.06 - 70.23) 3.40 (3.21 - 3.60) 1.10 (1.02 - 1.19)	407.36 (368.65 - 450.12) 1.21 (1.06 - 1.39) 71.27 (24.95 - 117.60) 3.71 (3.48 - 3.95) 1.20 (1.10 - 1.31)	378.49 (341.84 - 419.07) 1.13 (0.98 - 1.29) 42.40 (-2 53 - 87.33)		
Defined Daily ber Relative Relative $1.09 (0.95 - 1.23)$ $1.21 (1.06 - 1.39)$ $1.13 (0.98 - 1.3)$ Doses** Rate $28.59 (-13.06 - 70.23)$ $71.27 (24.95 - 117.60)$ $42.40 (-2.53 - 8.3)$ Per Person-year Rate $28.59 (-13.06 - 70.23)$ $71.27 (24.95 - 117.60)$ $42.40 (-2.53 - 8.3)$ Per Person-year Rate $3.40 (3.21 - 3.60)$ $3.71 (3.48 - 3.95)$ $3.28 (3.10 - 3.3)$ Mean Number of Different Drugs** Rate $3.40 (3.21 - 3.60)$ $3.71 (3.48 - 3.95)$ $3.28 (3.10 - 3.3)$ Mean Number of Different Drugs** Rate $3.40 (3.21 - 3.60)$ $3.71 (3.48 - 3.95)$ $3.28 (3.10 - 3.3)$ Mean Number of Different Drugs** Rate $0.30 (0.07 - 0.54)$ $0.52 (1.10 - 1.31)$ $1.06 (0.98 - 1.0)$ Per Person-year Rate $0.30 (0.07 - 0.54)$ $0.52 (0.34 - 0.89)$ $0.18 (-0.04 - 0.6)$ Per Person-year Rate $0.30 (0.07 - 0.54)$ $0.52 (0.34 - 0.89)$ $0.18 (-0.77 - 4.9)$ Per Per Person-year Rate $0.00 (0.41 - 2.47)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.9)$ Per Per Person-year Rate $0.01 (-1$	lly Relative Rate ear Rate Difference 2	1.09 (0.95 - 1.23) 8.59 (-13.06 - 70.23) 3.40 (3.21 - 3.60) 1.10 (1.02 - 1.19)	1.21 (1.06 - 1.39) 71.27 (24.95 - 117.60) 3.71 (3.48 - 3.95) 1.20 (1.10 - 1.31)	1.13 (0.98 - 1.29) 47 40 (-7 53 - 87 33)	384.95 (343.48 - 431.42)	336.09 (306.39 - 368.66)
Per Person-year Rate 28.59 (-13.06 - 70.23) 71.27 (24.95 - 117.60) 42.40 (-2.53 - 8 Difference Bifference 3.40 (3.21 - 3.60) 3.71 (3.48 - 3.95) 3.28 (3.10 - 3. Mean Number of Different Drugs** Rate 3.40 (3.21 - 3.60) 3.71 (3.48 - 3.95) 3.28 (3.10 - 3. Mean Number of Different Drugs** Rate 1.10 (1.02 - 1.19) 1.20 (1.10 - 1.31) 1.06 (0.98 - 1. Per person-year Rate 0.30 (0.07 - 0.54) 0.62 (0.34 - 0.89) 0.18 (-0.04 - 0. Different Drugs** Rate 0.30 (0.07 - 0.54) 0.62 (0.34 - 0.89) 0.18 (-0.77 - 4. Per Hative 15.77 (8.51 - 29.21) 12.40 (4.70 - 32.67) 29.27 (15.03 - 5. PCH Admission Rate 1.577 (8.51 - 29.21) 12.40 (4.70 - 32.67) 29.27 (15.03 - 5. PCH Admission Rate 1.60 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. Per 1,000 person- Perest 0.001 (-14.23 - 14.26) -3.36 (-21.52 - 14.80) 13.51 (-4.98 - 3. Parts Parts 0.01 (-14.23 - 14.26) -3.36 (-21.52 - 14.80) 10.57 (3.88 - 2. Parts	ear Rate 2 Difference 2	(8.59 (-13.06 - 70.23) 3.40 (3.21 - 3.60) 1.10 (1.02 - 1.19)	71.27 (24.95 - 117.60) 3.71 (3.48 - 3.95) 1.20 (1.10 - 1.31)	4240(-253-8733)	1.15 (0.99 - 1.33)	ref
Rate ber lorgs** per person-year ber person-yearRate teb $3.40 (3.21 - 3.60)$ $3.71 (3.48 - 3.95)$ $3.28 (3.10 - 3.2)$ Mean Number of per person-year per person-yearRelative teb $1.10 (1.02 - 1.19)$ $1.20 (1.10 - 1.31)$ $1.06 (0.98 - 1.10)$ Per person-year per person-yearRate teb $0.30 (0.07 - 0.54)$ $0.62 (0.34 - 0.89)$ $0.18 (-0.04 - 0.0)$ Per person-year per person-yearRate teb $0.30 (0.07 - 0.54)$ $0.62 (0.34 - 0.89)$ $0.18 (-0.04 - 0.0)$ Per person-year per 1,000 person- yearsRate teb $1.5.77 (8.51 - 29.21)$ $12.40 (4.70 - 32.67)$ $29.27 (15.03 - 5.0)$ Per 1,000 person- yearsRate teb $1.00 (0.41 - 2.47)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.0)$ Per 1,000 person- yearsRate teb $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.0)$ Per 1,000 person- yearsRate teb $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.0)$ Per 1,000 person- yearsRate teb $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.0)$ Per 1,000 person- yearsRate teb $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.0)$ Per 1,000 person- yearsRate teb $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.0)$ Per 1,000 person- yearsRate teb $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.95 (-2.48 - 2.0)$ Per 1,000 person- yearsRate teb $0.01 (-14.23 - 14.$		3.40 (3.21 - 3.60) 1.10 (1.02 - 1.19)	3.71 (3.48 - 3.95) 1.20 (1.10 - 1.31)		48.86 (-1.78 - 99.51)	ref
Mean Number of Different Drugs** Relative Rate 1.10 (1.02 - 1.19) 1.20 (1.10 - 1.31) 1.06 (0.98 - 1. Per Person-year Rate 0.30 (0.07 - 0.54) 0.62 (0.34 - 0.89) 0.18 (-0.04 - 0 Per Person-year Rate 0.30 (0.07 - 0.54) 0.62 (0.34 - 0.89) 0.18 (-0.04 - 0 Per Person-year Rate 15.77 (8.51 - 29.21) 12.40 (4.70 - 32.67) 29.27 (15.03 - 5 PCH Admission Ratest 1.00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. Per 1,000 person- Ratest 1.00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. Vears Ratest 1.00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. Vears Ratest 1.00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. Vears Ratest 1.00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. Vears Ratest 1.00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. Vears Ratest 1.00 (0.41 - 2.3 - 14.26) -3.36 (-21.52 - 14.80) 13.51 (-4.98 - 3. Person Ratest <t< th=""><th>Rate</th><th>1.10 (1.02 - 1.19)</th><th>1.20 (1.10 - 1.31)</th><th>3.28 (3.10 - 3.46)</th><th>3.31 (3.11 - 3.52)</th><th>3.10 (2.93 - 3.27)</th></t<>	Rate	1.10 (1.02 - 1.19)	1.20 (1.10 - 1.31)	3.28 (3.10 - 3.46)	3.31 (3.11 - 3.52)	3.10 (2.93 - 3.27)
Part Protection Rate Difference 0.30 (0.07 - 0.54) 0.62 (0.34 - 0.89) 0.18 (-0.04 - 0.04 - 0.04) PCH Admission Rate 15,77 (8.51 - 29.21) 12.40 (4.70 - 32.67) 29.27 (15.03 - 5 2.01) PCH Admission Rate 10,00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4.00) Per 1,000 person- Rate 10,00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4.00) Per 1,000 person- Rate 10,00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4.00) Per 1,000 person- Rate 10,00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4.00) Per 1,000 person- Per 1,000 person- Per 1,000 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4.00) Per 1,000 person- Per 1,000 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4.00) Per 1,000 person- Rate 0.001 (-14.23 - 14.26) -3.36 (-21.52 - 14.80) 13.51 (-4.98 - 3.0) Per 1,000 person- Per 1,000 (-14.203 - 11.04) -10.03 (0.86 - 18.92) 10.57 (3.88 - 2.0)	r of Relative gs** Rate			1.06 (0.98 - 1.14)	1.07 (0.99 - 1.16)	ref
PCH Admission Rate $15.77 (8.51 - 29.21)$ $12.40 (4.70 - 32.67)$ $29.27 (15.03 - 5.2)$ PCH Admission Ratest $100 (0.41 - 2.47)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.2)$ Per 1,000 person- Rate $1.00 (0.41 - 2.47)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.2)$ Per 1,000 person- Rate $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.2)$ Per 1,000 person- Rate $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.2)$ Per 1,000 person- Rate $0.01 (-14.23 - 14.26)$ $0.79 (0.25 - 2.46)$ $1.86 (0.77 - 4.2)$ Per 1,000 person- Rate $0.01 (-14.23 - 14.26)$ $-3.36 (-21.52 - 14.80)$ $13.51 (-4.98 - 3.2)$ Per 1,01 Rate $4.74 (2.03 - 11.04)$ $4.03 (0.86 - 18.92)$ $10.57 (3.88 - 2.2)$	Rate Difference	0.30 (0.07 - 0.54)	0.62 (0.34 - 0.89)	0.18 (-0.04 - 0.40)	0.22 (-0.02 - 0.45)	ref
Ratest per 1,000 person- years Relative Rate 1.00 (0.41 - 2.47) 0.79 (0.25 - 2.46) 1.86 (0.77 - 4. per 1,000 person- years Rate 0.01 (-14.23 - 14.26) -3.36 (-21.52 - 14.80) 13.51 (-4.98 - 3. provide Rate 0.01 (-14.23 - 14.26) -3.36 (-21.52 - 14.80) 13.51 (-4.98 - 3. provide Rate 0.01 (-14.23 - 11.04) -3.00 (0.86 - 18.92) 10.57 (3.88 - 2.	Rate	15.77 (8.51 - 29.21)	12.40 (4.70 - 32.67)	29.27 (15.03 - 57.00)	13.90 (4.58 - 42.22)	15.76 (8.73 - 28.45)
years Rate 0.01 (-14.23 - 14.26) -3.36 (-21.52 - 14.80) 13.51 (-4.98 - 3 Difference 0.01 (-14.23 - 14.26) -3.36 (-21.52 - 14.80) 13.51 (-3.98 - 3 Rate 4.74 (2.03 - 11.04) 4.03 (0.86 - 18.92) 10.57 (3.88 - 2)	Relative con- Rate	1.00 (0.41 - 2.47)	0.79 (0.25 - 2.46)	1.86 (0.77 - 4.46)	0.88 (0.24 - 3.26)	ref
Rate 4.74 (2.03 - 11.04) 4.03 (0.86 - 18.92) 10.57 (3.88 - 2)	Rate Difference	0.01 (-14.23 - 14.26)	-3.36 (-21.52 - 14.80)	13.51 (-4.98 - 32.00)	-1.85 (-17.51 - 13.81)	ref
	Rate	4.74 (2.03 - 11.04)	4.03 (0.86 - 18.92)	10.57 (3.88 - 28.82)	5.69 (0.99 - 32.54)	5.56 (2.31 - 13.39)
Days in PCH ⁺ Relative 0.85 (0.23 - 3.21) 0.73 (0.10 - 5.28) 1.90 (0.61 - 5.28) per person-year Rate 0.85 (0.23 - 3.21) 0.73 (0.10 - 5.28) 1.90 (0.61 - 5.28)	H ⁺ Relative ear Rate	0.85 (0.23 - 3.21)	0.73 (0.10 - 5.28)	1.90 (0.61 - 5.90)	1.02 (0.15 - 7.02)	ref
Rate -0.82 (-6.84 - 5.20) -1.53 (-13.02 - 9.97) 5.01 (-2.45 - 1) Difference -0.82 (-6.84 - 5.20) -1.53 (-13.02 - 9.97) 5.01 (-2.45 - 1)	Rate Difference	-0.82 (-6.84 - 5.20)	-1.53 (-13.02 - 9.97)	5.01 (-2.45 - 12.47)	0.13 (-6.69 - 6.95)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

UPIN data Б 45+), IMHHS NOT INCludeC

**Aged 1∠+ except ULHS Healthy Aging (aged †Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.11: Additional Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 5 Years After Survey Survey weighted; 95% Confidence Intervals

859.90 (768.36 - 951.43) 80.00 (75.27 - 84.73) 4.52 (4.39 - 4.65) **Never Smoked** ref ref ref ref ref ref -173.45 (-302.39 - -44.51) 686.45 (597.92 - 774.97) Never a Daily Smoker 81.55 (74.17 - 88.92) 1.55 (-7.16 - 10.26) -0.01 (-0.24 - 0.21) 0.80 (0.67 - 0.95) 1.02 (0.92 - 1.14) 4.51 (4.33 - 4.68) 1.00 (0.95 - 1.05) 1,720.93 (1,513.71 - 1,928.15) 861.04 (632.82 - 1,089.25) (Daily > 5 years before 135.96 (126.27 - 145.65) Former Daily Smoker 55.96 (45.04 - 66.87) 1.35 (1.29 - 1.42) 1.60 (1.35 - 1.86) 1.70 (1.55 - 1.87) 2.00 (1.70 - 2.35) 6.12 (5.90 - 6.34) survey) Crude 1,011.95 (810.40 - 1,213.51) (Daily ≤ 5 years before 152.06 (-73.73 - 377.84) 120.00 (104.31 - 135.69) Former Daily Smoker 40.00 (23.83 - 56.17) 0.58 (0.27 - 0.90) 1.50 (1.30 - 1.73) 1.13 (1.06 - 1.20) 5.10 (4.81 - 5.39) 1.18 (0.93 - 1.48) survey) 946.72 (833.66 - 1,059.79) 111.53 (102.35 - 120.70) **Current Daily Smoker** 86.83 (-54.27 - 227.93) 31.53 (21.48 - 41.58) 0.50 (0.25 - 0.74) 1.11 (1.06 - 1.17) 1.39 (1.26 - 1.54) 5.02 (4.81 - 5.23) 1.10 (0.94 - 1.28) Difference Difference Relative Relative Relative Rate Rate Rate Rate Rate Rate Rate Rate Rate Hospitalizations* Days in Hospital* per 1,000 personper 1,000 personper person-year Ambulatory Inpatient Visits* years years

Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Difference Brate Relative Rate Difference d in these and d in these and

Appendix Table 4.11: Continued

Anude Anude Mean Number Optime Loging Rate 40766 (36.57 - 448.60) 41365 (35.131 - 475.99) 671.49 (52.84 - 714.03) 32481 (289.39 - 360.22) 298.36 Defined Daily Relative Relative 1.37 (1.21 - 1.54) 1.39 (1.19 - 1.62) 2.25 (2.06 - 2.46) 1.09 (0.95 - 1.24) 298.36 Desset* Relative 1.37 (1.21 - 1.54) 1.39 (1.31 - 1.32) 2.25 (2.06 - 2.46) 1.09 (0.95 - 1.24) 20 Mean Number House Relative 1.37 (1.21 - 1.58) 1.39 (1.31 - 3.58) 4.38 (4.20 - 4.56) 2.75 (2.63 - 2.87) 2.31 Mean Number House Relative 1.22 (1.15 - 1.28) 3.34 (3.11 - 3.58) 4.38 (4.20 - 4.56) 2.75 (2.63 - 2.87) 2.31 Mean Number House Relative 1.22 (1.15 - 1.28) 3.34 (3.11 - 3.58) 4.38 (4.20 - 4.56) 2.75 (2.63 - 2.87) 2.31 Mean Number House Relative 1.22 (1.15 - 1.28) 3.34 (3.11 - 3.58) 1.38 (4.20 - 4.56) 2.75 (2.63 - 2.87) 2.31 Mean Number House Relative 1.22 (1.13 - 1.38) 1.23 (1.31 - 1.26) 2.75 (2.63 - 2.87) 2.3			Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
				Cru	de		
	Mean Number of	Rate	407.66 (366.73 - 448.60)	413.65 (351.31 - 475.99)	671.49 (628.94 - 714.03)	324.81 (289.39 - 360.22)	298.36 (279.53 - 317.19)
Per Person-year DifferenceRate Difference109.30 (63.38 - 155.23)115.30 (52.13 - 178.46)373.13 (326.25 - 420.01)26.45 (-15.40 - 68.30)277Difference Difference3.35 (3.20 - 3.50)3.34 (3.11 - 3.58)4.38 (4.20 - 4.56)2.75 (2.63 - 2.87)2.77Reat Der Person-year Rete1.22 (1.15 - 1.28)1.21 (1.13 - 1.31)1.59 (1.51 - 1.68)1.00 (0.95 - 1.06)2.73Per Person-year ReteRete0.60 (0.43 - 0.77)0.59 (0.34 - 0.34)1.63 (1.43 - 1.83)0.00 (-0.15 - 0.15)2.311Per Person-year ReteRete0.60 (0.43 - 0.77)0.59 (0.34 - 0.95)1.63 (1.43 - 1.83)0.00 (-0.15 - 0.15)2.311Per Person-year Per NouseRete0.60 (0.43 - 0.77)0.59 (0.34 - 0.95)2.032 (15.72 - 24.92)1.738 (1.47 - 23.30)2.311Per NouseRete0.84 (0.54 - 1.31)1.09 (0.54 - 2.20)0.08 (0.66 - 1.18)0.07 (0.15 - 0.15)2.311Per NouseRete0.84 (0.54 - 1.31)1.09 (0.54 - 2.20)0.88 (0.66 - 1.18)0.738 (1.47 - 23.30)2.311Per NouseRete0.84 (0.54 - 1.31)1.09 (0.54 - 1.28)1.144 (3.56 (0.51 - 1.01)0.758 (0.51 - 1.10)1.818Per NouseRete0.84 (0.54 - 1.31)1.09 (0.54 - 1.28)1.144 (3.55 (1.54 - 5.34)0.758 (0.51 - 1.10)1.88Per NouseRete0.84 (0.54 - 1.18)0.97 (0.43 - 1.82)0.97 (0.43 - 1.89)0.97 (0.43 - 1.10)1.88Per NouseRete0.66 (0.39 - 1.15)0.97 (0.43 - 1.19)0.97 (0.43 - 1.19)	Defined Daily Doses**	Relative Rate	1.37 (1.21 - 1.54)	1.39 (1.19 - 1.62)	2.25 (2.06 - 2.46)	1.09 (0.95 - 1.24)	ref
	per person-year	Rate Difference	109.30 (63.38 - 155.23)	115.30 (52.13 - 178.46)	373.13 (326.25 - 420.01)	26.45 (-15.40 - 68.30)	ref
Mean Number of fielding I.22 (1.15 - 1.28) I.21 (1.13 - 1.31) I.59 (1.51 - 1.68) I.00 (0.95 - 1.06) I.00 (0.95 - 1.06) Pifferent Drugs* Rate I.22 (1.15 - 1.28) I.21 (1.13 - 1.31) I.59 (1.51 - 1.68) I.00 (0.95 - 1.06) I.00 (0.95 - 1.05) I.00 (0.95 - 1.05) I.00 (0.95 - 1.05) I.00 (0.95 - 0.15) I.01 Per Person-year Rate 0.60 (0.43 - 0.77) 0.59 (0.34 - 0.84) I.63 (1.43 - 1.83) 0.00 (-0.15 - 0.15) 23.14 Per Lood Per Lood I.947 (11.47 - 27.46) 25.28 (9.61 - 40.95) 20.32 (15.72 - 24.92) 17.38 (11.47 - 23.30) 23.14 Per Lood Rates 0.84 (0.54 - 1.31) 1.09 (0.54 - 2.20) 0.88 (0.66 - 1.18) 0.75 (0.51 - 1.10) 23.14 Vertice 0.84 (0.54 - 1.31) 1.09 (0.54 - 2.20) 0.88 (0.66 - 1.18) 0.75 (0.51 - 1.10) 23.14 Vertice 0.84 (0.54 - 1.31) 1.09 (0.54 - 2.20) 0.88 (0.66 - 1.18) 0.75 (0.51 - 1.10) 11.8 Vertice Rate 2.3.65 (-12.64 - 5.34) 2.16 (-13.94 - 18.26) 2.28 (-9.08 - 3.48) 0.75 (-12.83 - 1.36) 11.8 Vertice<		Rate	3.35 (3.20 - 3.50)	3.34 (3.11 - 3.58)	4.38 (4.20 - 4.56)	2.75 (2.63 - 2.87)	2.75 (2.67 - 2.83)
Protection of the condition of the condi	Different Drugs**	Relative Rate	1.22 (1.15 - 1.28)	1.21 (1.13 - 1.31)	1.59 (1.51 - 1.68)	1.00 (0.95 - 1.06)	ref
PCH Admission Rate 19.47 (11.47 - 27.46) 25.28 (9.61 - 40.95) 20.32 (15.72 - 24.92) 17.38 (11.47 - 23.30) 23.12 PCH Admission Relative 0.84 (0.54 - 1.31) 1.09 (0.54 - 2.20) 0.88 (0.66 - 1.18) 0.75 (0.51 - 1.10) 23.11 per 1,000 person- Rate -3.65 (-12.64 - 5.34) 2.16 (-13.94 - 18.26) 0.88 (0.66 - 1.18) 0.75 (0.51 - 1.10) 23.13 per 1,000 person- Rate -3.65 (-12.64 - 5.34) 2.16 (-13.94 - 18.26) 0.280 (-908 - 3.48) 0.75 (0.51 - 1.10) 211 per 1,000 person- Rate -3.65 (-12.64 - 5.34) 2.16 (-13.94 - 18.26) 0.280 (-908 - 3.48) 0.75 (0.51 - 1.10) 213 per Person-year Rate 7.81 (4.08 - 11.55) 11.44 (3.95 - 18.93) 9.97 (7.33 - 12.61) 8.09 (5.13 - 11.05) 11.8 Days in PCH1 Rate 0.66 (0.39 - 1.12) 0.97 (0.43 - 2.18) 0.94 (0.59 - 1.19) 0.68 (0.44 - 1.06) 2.36 (-7.88 - 0.35) Days in PCH1 Rate -4.04 (-881 - 0.73) 0.91 (-8.62 - 7.79) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) 1.89 (-7.88 - 0.35) 1.89 (-7.88 - 0.35)		Rate Difference	0.60 (0.43 - 0.77)	0.59 (0.34 - 0.84)	1.63 (1.43 - 1.83)	0.00 (-0.15 - 0.15)	ref
Rates ^t per 1,000 person- years Relative Rate 0.84 (0.54 - 1.31) 1.09 (0.54 - 2.20) 0.88 (0.66 - 1.18) 0.75 (0.51 - 1.10) years Rate -3.65 (-12.64 - 5.34) 2.16 (-13.94 - 18.26) -2.80 (-9.08 - 3.48) -5.74 (-12.83 - 1.36) 11.8 years Rate -3.65 (-12.64 - 5.34) 2.16 (-13.94 - 18.26) -2.80 (-9.08 - 3.48) -5.74 (-12.83 - 1.36) 11.8 briftenence 7.81 (4.08 - 11.55) 11.44 (3.95 - 18.93) 9.97 (7.33 - 12.61) 8.09 (5.13 - 11.05) 11.8 brysin PCH ¹ Relative 0.66 (0.39 - 11.55) 11.44 (3.95 - 18.93) 9.97 (7.33 - 12.61) 8.09 (5.13 - 11.05) 11.8 brysin PCH ¹ Relative 0.66 (0.39 - 1.12) 0.97 (0.43 - 2.18) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) 11.8 ber person-year Rate -4.04 (-881 - 0.73) -0.41 (-8.62 - 7.79) -1.89 (-5.70 - 1.93) -3.76 (-7.88 - 0.35) 11.8	PCH Admission	Rate	19.47 (11.47 - 27.46)	25.28 (9.61 - 40.95)	20.32 (15.72 - 24.92)	17.38 (11.47 - 23.30)	23.12 (18.91 - 27.33)
years Rate -3.65 (-12.64 - 5.34) 2.16 (-13.94 - 18.26) -2.80 (-9.08 - 3.48) -5.74 (-12.83 - 1.36) 11.8 Difference Rate 7.81 (4.08 - 11.55) 11.44 (3.95 - 18.93) 9.97 (7.33 - 12.61) 8.09 (5.13 - 11.05) 11.8 Days in PCH ⁺ Rate 0.66 (0.39 - 1.12) 0.97 (0.43 - 2.18) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) 11.8 Rate 0.66 (0.39 - 1.12) 0.97 (0.43 - 2.18) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) 11.8 Rate 0.66 (0.39 - 1.12) 0.91 (-8.62 - 7.79) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) 11.8 Difference Difference -4.04 (-881 - 0.73) -0.41 (-8.62 - 7.79) -1.89 (-5.70 - 1.93) -3.76 (-7.88 - 0.35) 11.8	Rates [†] per 1,000 person-	Relative Rate	0.84 (0.54 - 1.31)	1.09 (0.54 - 2.20)	0.88 (0.66 - 1.18)	0.75 (0.51 - 1.10)	ref
Rate 7.81 (4.08 - 11.55) 11.44 (3.95 - 18.93) 9.97 (7.33 - 12.61) 8.09 (5.13 - 11.05) 11.8 Days in PCH ⁺ Relative 0.66 (0.39 - 1.12) 0.97 (0.43 - 2.18) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) 11.8 Per person-year Rate 0.66 (0.39 - 1.12) 0.97 (0.43 - 2.18) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) 11.8 Difference -4.04 (-8.81 - 0.73) -0.41 (-8.62 - 7.79) -1.89 (-5.70 - 1.93) -3.76 (-7.88 - 0.35) 11.8	years	Rate Difference	-3.65 (-12.64 - 5.34)	2.16 (-13.94 - 18.26)	-2.80 (-9.08 - 3.48)	-5.74 (-12.83 - 1.36)	ref
Days in PCH ⁺ per per son-year Relative Rate 0.66 (0.39 - 1.12) 0.97 (0.43 - 2.18) 0.84 (0.59 - 1.19) 0.68 (0.44 - 1.06) Per per son-year Rate -4.04 (-8.81 - 0.73) -0.41 (-8.62 - 7.79) -1.89 (-5.70 - 1.93) -3.76 (-7.88 - 0.35) Difference Difference -4.04 (-8.81 - 0.73) -0.41 (-8.62 - 7.79) -1.89 (-5.70 - 1.93) -3.76 (-7.88 - 0.35)		Rate	7.81 (4.08 - 11.55)	11.44 (3.95 - 18.93)	9.97 (7.33 - 12.61)	8.09 (5.13 - 11.05)	11.85 (8.94 - 14.77)
Rate -4.04 (-8.81 - 0.73) -0.41 (-8.62 - 7.79) -1.89 (-5.70 - 1.93) -3.76 (-7.88 - 0.35) Difference -4.04 (-8.81 - 0.73) -0.41 (-8.62 - 7.79) -1.89 (-5.70 - 1.93) -3.76 (-7.88 - 0.35)	Days in PCH ⁺ per person-year	Relative Rate	0.66 (0.39 - 1.12)	0.97 (0.43 - 2.18)	0.84 (0.59 - 1.19)	0.68 (0.44 - 1.06)	ref
		Rate Difference	-4.04 (-8.81 - 0.73)	-0.41 (-8.62 - 7.79)	-1.89 (-5.70 - 1.93)	-3.76 (-7.88 - 0.35)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.12: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Healthcare Use by Smoking Status Categories, 10 Years After Survey Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cru	de		
	Rate	5.11 (4.91 - 5.30)	5.17 (4.92 - 5.42)	6.24 (6.04 - 6.45)	4.62 (4.45 - 4.79)	4.64 (4.52 - 4.76)
Visits*	Relative Rate	1.10 (1.05 - 1.15)	1.11 (1.05 - 1.18)	1.35 (1.29 - 1.40)	1.00 (0.95 - 1.04)	ref
	Rate Difference	0.46 (0.24 - 0.69)	0.53 (0.25 - 0.80)	1.60 (1.36 - 1.84)	-0.02 (-0.23 - 0.20)	ref
Inpatient	Rate	116.35 (107.62 - 125.07)	116.07 (103.14 - 129.00)	137.39 (128.77 - 146.01)	84.52 (78.03 - 91.01)	84.14 (79.77 - 88.51)
Hospitalizations* per 1,000 person-	* Relative - Rate	1.38 (1.26 - 1.51)	1.38 (1.22 - 1.56)	1.63 (1.51 - 1.77)	1.00 (0.92 - 1.10)	ref
years	Rate Difference	32.21 (22.55 - 41.86)	31.93 (18.52 - 45.33)	53.25 (43.75 - 62.75)	0.38 (-7.39 - 8.14)	ref
	Rate	1,011.97 (905.42 - 1,118.51)	1,001.35 (848.74 - 1,153.96)	1,717.55 (1,545.61 - 1,889.50)	756.73 (668.87 - 844.58)	911.60 (833.37 - 989.82)
per 1,000 person-	Relative Rate	1.11 (0.97 - 1.27)	1.10 (0.92 - 1.31)	1.88 (1.65 - 2.15)	0.83 (0.72 - 0.96)	ref
200	Rate Difference	100.37 (-27.99 - 228.73)	89.75 (-84.88 - 264.39)	805.96 (615.67 - 996.25)	-154.87 (-273.6736.07)	ref
*Ared 12+ over	. אמראל אין אין	17-76) CCHS Haalthy Aning (age	14 A5 +1			

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.12: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cru	de		
Mean Number of	Rate	450.70 (410.99 - 490.41)	437.80 (382.97 - 492.64)	694.72 (655.83 - 733.61)	338.54 (306.35 - 370.73)	322.71 (303.25 - 342.18)
Defined Daily Doses**	Relative Rate	1.40 (1.25 - 1.56)	1.36 (1.19 - 1.55)	2.15 (1.98 - 2.34)	1.05 (0.93 - 1.18)	ref
per person-year	Rate Difference	127.99 (83.39 - 172.59)	115.09 (58.33 - 171.86)	372.01 (327.56 - 416.46)	15.83 (-23.93 - 55.59)	ref
	Rate	3.41 (3.28 - 3.55)	3.37 (3.16 - 3.58)	4.34 (4.18 - 4.50)	2.77 (2.65 - 2.88)	2.78 (2.71 - 2.85)
Different Drugs**	, Relative Rate	1.23 (1.17 - 1.29)	1.21 (1.14 - 1.30)	1.56 (1.49 - 1.64)	0.99 (0.94 - 1.05)	ref
	Rate Difference	0.63 (0.48 - 0.79)	0.59 (0.38 - 0.81)	1.56 (1.39 - 1.74)	-0.01 (-0.16 - 0.13)	ref
PCH Admission	Rate	21.27 (13.71 - 28.83)	21.60 (8.98 - 34.23)	23.04 (19.05 - 27.03)	22.97 (17.16 - 28.78)	26.74 (22.99 - 30.50)
Rates [†] per 1,000 person-	Relative Rate	0.80 (0.55 - 1.16)	0.81 (0.43 - 1.52)	0.86 (0.69 - 1.07)	0.86 (0.64 - 1.15)	ref
years	Rate Difference	-5.48 (-13.84 - 2.89)	-5.14 (-18.08 - 7.79)	-3.71 (-9.13 - 1.72)	-3.78 (-10.70 - 3.15)	ref
	Rate	10.03 (6.03 - 14.04)	10.87 (4.58 - 17.16)	16.61 (12.77 - 20.45)	14.30 (10.25 - 18.34)	18.96 (15.31 - 22.61)
Days in PCH ⁺ per person-year	Relative Rate	0.53 (0.34 - 0.83)	0.57 (0.29 - 1.13)	0.88 (0.66 - 1.17)	0.75 (0.54 - 1.06)	ref
	Rate Difference	-8.93 (-14.433.42)	-8.09 (-15.430.75)	-2.35 (-7.47 - 2.78)	-4.66 (-10.01 - 0.69)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

'Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

⁺Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 264 | Appendix 4

Appendix Table 4.12: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survev)	(Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propens	ity score-adjusted		
	Rate	4.99 (4.78 - 5.20)	5.15 (4.93 - 5.39)	5.11 (4.90 - 5.32)	4.97 (4.75 - 5.19)	5.02 (4.79 - 5.27)
Ambulatory Visits	s* Relative Rate	0.99 (0.93 - 1.06)	1.03 (0.96 - 1.09)	1.02 (0.95 - 1.08)	0.99 (0.93 - 1.05)	ref
	Rate Difference	-0.03 (-0.33 - 0.26)	0.13 (-0.17 - 0.43)	0.08 (-0.21 - 0.37)	-0.06 (-0.35 - 0.24)	ref
Inpatient	Rate	124.35 (109.30 - 141.48)	136.22 (115.83 - 160.21)	111.75 (99.56 - 125.44)	114.31 (101.40 - 128.86)	86.77 (75.65 - 99.52)
Hospitalizations* per 1,000 person-	 Relative Rate 	1.43 (1.20 - 1.72)	1.57 (1.29 - 1.92)	1.29 (1.08 - 1.54)	1.32 (1.10 - 1.58)	ref
years	Rate Difference	37.58 (18.74 - 56.43)	49.45 (26.40 - 72.50)	24.98 (8.16 - 41.81)	27.54 (10.32 - 44.76)	ref
:	Rate	1,168.91 (927.92 - 1,472.49)	1,327.85 (1,028.32 - 1,714.63)	1,300.60 (1,017.87 - 1,661.86)	1,163.26 (943.27 - 1,434.54)	919.98 (760.72 - 1,112.59)
Days in Hospital* per 1,000 person- vears	Relative Rate	1.27 (0.94 - 1.71)	1.44 (1.06 - 1.97)	1.41 (1.02 - 1.95)	1.26 (0.97 - 1.65)	ref
	Rate Difference	248.93 (-97.20 - 595.07)	407.87 (37.16 - 778.59)	380.62 (38.10 - 723.14)	243.28 (-14.22 - 500.77)	ref
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TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+) Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 4.12: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propen:	sity score-adjusted		
Mean Number of	Rate	422.38 (378.57 - 471.26)	465.24 (421.26 - 513.81)	429.53 (375.80 - 490.95)	416.11 (370.85 - 466.89)	384.22 (349.54 - 422.34)
Defined Daily Doses**	Relative Rate	1.10 (0.95 - 1.28)	1.21 (1.06 - 1.38)	1.12 (0.95 - 1.31)	1.08 (0.94 - 1.25)	ref
per person-year	Rate Difference	38.16 (-18.39 - 94.72)	81.02 (29.19 - 132.85)	45.31 (-14.60 - 105.22)	31.89 (-21.51 - 85.28)	ref
:	Rate	3.33 (3.17 - 3.49)	3.75 (3.53 - 3.98)	3.24 (3.06 - 3.43)	3.27 (3.11 - 3.45)	3.15 (2.98 - 3.33)
Mean Number of Different Drugs**	Relative Rate	1.06 (0.99 - 1.14)	1.19 (1.10 - 1.30)	1.03 (0.95 - 1.11)	1.04 (0.96 - 1.12)	ref
	Rate Difference	0.18 (-0.03 - 0.39)	0.61 (0.34 - 0.87)	0.10 (-0.14 - 0.33)	0.13 (-0.09 - 0.35)	ref
PCH Admission	Rate	23.85 (16.01 - 35.52)	12.50 (6.56 - 23.84)	37.25 (23.67 - 58.61)	24.51 (11.21 - 53.60)	19.18 (11.35 - 32.40)
Rates [†] per 1,000 person-	Relative Rate	1.24 (0.65 - 2.38)	0.65 (0.28 - 1.51)	1.94 (0.92 - 4.11)	1.28 (0.50 - 3.26)	ref
years	Rate Difference	4.67 (-7.81 - 17.15)	-6.68 (-20.17 - 6.81)	18.07 (-0.91 - 37.04)	5.33 (-13.59 - 24.24)	ref
	Rate	9.31 (5.18 - 16.74)	6.21 (2.21 - 17.45)	30.04 (18.94 - 47.65)	14.37 (5.47 - 37.77)	12.38 (7.48 - 20.48)
Days in PCH ⁺ per person-year	Relative Rate	0.75 (0.36 - 1.55)	0.50 (0.17 - 1.49)	2.43 (1.16 - 5.09)	1.16 (0.41 - 3.32)	ref
	Rate Difference	-3.07 (-10.59 - 4.46)	-6.17 (-15.98 - 3.64)	17.67 (4.99 - 30.34)	2.00 (-9.68 - 13.68)	ref
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TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

*Aged 70+ except MHHS (aged 70-76)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Image: Second control in the standard served of the standard serve				ווכן עמוס			
Crude Premature Mortaliy Rates: Rate 6.12 (3.73 - 8.52) 11.12 (4.69 - 17.55) 4.62 (1.67 - 7.57) 2.54 (1.05 - 4.04) 1.59 (0.54 - 2.64) Premature Mortaliy Rates: Rate 3.84 (1.68 - 8.78) 6.97 (2.62 - 18.59) 2.90 (1.11 - 7.58) 1.59 (0.62 - 4.10) 1.59 (0.54 - 2.64) Premature Ventaly Rates: Rate 3.84 (1.68 - 8.78) 6.97 (2.62 - 18.59) 3.02 (-007 - 6.12) 0.95 (-090 - 2.79) ref Premature Ventaly Venses Rate 9.53 (1.83 - 142.61) 9.52 (2.94 - 16.10) 3.02 (-007 - 6.12) 0.95 (-090 - 2.79) ref Premature Ventaly Venses Rate 9.56 (5.1.32 - 142.65) 106.47 (43.80 - 169.15) 3.02 (-007 - 6.12) 0.95 (-090 - 2.79) ref Premature Venses Rate 9.56 (5.1.32 - 142.65) 106.47 (43.80 - 169.15) 45.43 (9.99 - 80.88) 36.41 (728 - 65.55) 30.73 (6.55 - 54.91) Premature Venses Rate 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) ref Premature Venses Rate 3.16 (1.17 - 8.52) 3.47 (1.23 - 51.21) 1.48 (0.45 - 4.87) 1.19 (0			Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survev)	Former Daily Smoker (Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
Premature Internative Premature P				Cruc	le		
	Premature	Rate	6.12 (3.73 - 8.52)	11.12 (4.69 - 17.55)	4.62 (1.67 - 7.57)	2.54 (1.05 - 4.04)	1.59 (0.54 - 2.64)
years Rate Difference 4.53 (1.85 - 7.21) 9.52 (2.94 - 16.10) 3.02 (-0.07 - 6.12) 0.95 (-0.90 - 2.79) ref Difference 4.53 (1.85 - 7.21) 9.52 (2.94 - 16.10) 3.02 (-0.07 - 6.12) 0.95 (-0.90 - 2.79) 30.73 (6.55 - 54.91) Petential Years 96.98 (51.32 - 142.65) 106.47 (43.80 - 169.15) 45.43 (9.99 - 80.88) 36.41 (7.28 - 65.55) 30.73 (6.55 - 54.91) Petential Years 8tele 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) ref Vertial Years 8tele 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) ref Vertial Years 8tele 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) ref Vertial Years 8tele 3.16 (1.17 - 8.52) 3.47 (1.23 - 6.5.99) 3.64 (7.12 - 8.5.99) 3.56 (1.3.4.54) ref Vertial Years 8tele 9.36 (6.40 - 12.31) 13.93 (7.46 - 20.41) 10.84 (7.16 - 14.53) 3.52 (1.92 - 5.13) 3.36 (2.18 - 4.54) Port Iono prison 8tele 2.79 (1.21 - 4.54)	Mortality Rates** per 1,000 person-	Relative Rate	3.84 (1.68 - 8.78)	6.97 (2.62 - 18.58)	2.90 (1.11 - 7.58)	1.59 (0.62 - 4.10)	ref
Hete 96.38 (51.32 - 142.65) 106.47 (43.80 - 169.15) 45.43 (9.99 - 80.88) 36.41 (7.28 - 65.55) 30.73 (6.55 - 54.91) Petential Veans Relative 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 148 (0.45 - 4.87) 1.19 (0.36 - 3.91) 7.77 (cf Per Life Lost** Relative 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) 7.77 (cf Per Life Lost** Relative 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) 7.6f Per Life Lost** Relative 6.26 (13.56 - 118.95) 7.57 (8.78 - 14.271) 1.47 (-27.58 - 56.99) 5.69 (-31.79 - 43.16) ref Veals Relative 9.36 (6.40 - 12.31) 13.93 (7.46 - 20.41) 10.84 (7.16 - 14.53) 3.52 (1.92 - 5.13) 3.36 (2.18 - 4.54) Veals Relative 2.79 (1.71 - 4.54) 1.05 (0.58 - 1.83) 3.36 (2.18 - 4.54) Veals Relative 2.79 (1.71 - 4.54) 1.05 (0.58 - 1.83) 0.17 (-18 - 2.13) 3.36 (2.18 - 2.13) Veals Relative 2.79 (1.71 - 4.54) 1.057 (1.32 - 5.13) 0.17 (-18 - 2.13) <	years	Rate Difference	4.53 (1.85 - 7.21)	9.52 (2.94 - 16.10)	3.02 (-0.07 - 6.12)	0.95 (-0.90 - 2.79)	ref
Life Lost** Relative ate 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) ref Per 1,000 person- years Rate 3.16 (1.17 - 8.52) 3.47 (1.23 - 9.73) 1.48 (0.45 - 4.87) 1.19 (0.36 - 3.91) ref years Rate 6.26 (13.56 - 118.95) 7.5.75 (8.78 - 142.71) 14.70 (-27.58 - 56.99) 5.69 (-31.79 - 43.16) ref years Bifference 9.36 (6.40 - 12.31) 13.93 (7.46 - 20.41) 10.84 (7.16 - 14.53) 3.52 (1.92 - 5.13) 3.36 (2.18 - 4.54) reates* Relative 2.79 (1.71 - 4.54) 4.15 (2.24 - 7.68) 3.23 (1.97 - 5.13) 3.36 (2.18 - 4.54) vertionoperson- vert Relative 2.79 (1.71 - 4.54) 4.15 (2.24 - 7.68) 3.23 (1.97 - 5.13) 3.36 (2.18 - 4.54) vertionoperson- vert Relative 2.79 (1.71 - 4.54) 4.15 (2.24 - 7.68) 3.23 (1.97 - 5.13) 3.56 (1.8 - 4.54) vertionoperson- vert Relative 2.79 (1.71 - 4.54) 4.15 (1.57 - 5.13) 0.17 (-1.84 - 2.17) ref vertionoperson- vertionoperson- vertionoperson- vertionoperson- vertionoperson- vertionoperson 0.017 (- 0.30) 10.	Potential Years of	Rate	96.98 (51.32 - 142.65)	106.47 (43.80 - 169.15)	45.43 (9.99 - 80.88)	36.41 (7.28 - 65.55)	30.73 (6.55 - 54.91)
years Rate 66.26 (13.56 - 118.95) 75.75 (8.78 - 142.71) 14.70 (-27.58 - 56.99) 5.69 (-31.79 - 43.16) ref Infference 9.36 (6.40 - 12.31) 13.93 (7.46 - 20.41) 10.84 (7.16 - 14.53) 3.52 (1.92 - 5.13) 3.36 (2.18 - 4.54) reative 9.36 (6.40 - 12.31) 13.93 (7.46 - 20.41) 10.84 (7.16 - 14.53) 3.52 (1.92 - 5.13) 3.36 (2.18 - 4.54) reative 8tative 2.79 (1.71 - 4.54) 4.15 (2.24 - 7.68) 3.23 (1.97 - 5.30) 1.05 (0.58 - 1.89) ref years Rates 8tative 0.07 (0.930) 10.57 (3.92 - 17.23) 7.49 (3.59 - 11.38) 0.17 (-1.84 - 2.17) ref	Life Lost** per 1,000 person-	Relative Rate	3.16 (1.17 - 8.52)	3.47 (1.23 - 9.73)	1.48 (0.45 - 4.87)	1.19 (0.36 - 3.91)	ref
Total Mortality Rates* 9.36 (6.40 - 12.31) 13.93 (7.46 - 20.41) 10.84 (7.16 - 14.53) 3.52 (1.92 - 5.13) 3.36 (2.18 - 4.54) Per 1,000 person Rates* Rative 2.79 (1.71 - 4.54) 4.15 (2.24 - 7.68) 3.23 (1.97 - 5.30) 1.05 (0.58 - 1.89) ref Vears Rate 6.00 (2.70 - 9.30) 10.57 (3.92 - 17.23) 7.49 (3.59 - 11.38) 0.17 (-1.84 - 2.17) ref	years	Rate Difference	66.26 (13.56 - 118.95)	75.75 (8.78 - 142.71)	14.70 (-27.58 - 56.99)	5.69 (-31.79 - 43.16)	ref
Rates* Relative 2.79 (1.71 - 4.54) 4.15 (2.24 - 7.68) 3.23 (1.97 - 5.30) 1.05 (0.58 - 1.89) ref per 1,000 person- years Rate 6.00 (2.70 - 9.30) 10.57 (3.92 - 17.23) 7.49 (3.59 - 11.38) 0.17 (-1.84 - 2.17) ref	Total Mortality	Rate	9.36 (6.40 - 12.31)	13.93 (7.46 - 20.41)	10.84 (7.16 - 14.53)	3.52 (1.92 - 5.13)	3.36 (2.18 - 4.54)
years Rate 6.00 (2.70 - 9.30) 10.57 (3.92 - 17.23) 7.49 (3.59 - 11.38) 0.17 (-1.84 - 2.17) ref	Rates* per 1,000 person-	Relative Rate	2.79 (1.71 - 4.54)	4.15 (2.24 - 7.68)	3.23 (1.97 - 5.30)	1.05 (0.58 - 1.89)	ref
	years	Rate Difference	6.00 (2.70 - 9.30)	10.57 (3.92 - 17.23)	7.49 (3.59 - 11.38)	0.17 (-1.84 - 2.17)	ref

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

Appendix Table 5.1: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

APPENDIX 5 Population Based Rates

Appendix Table 5.1: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex-	adjusted		
Premature	Rate	9.94 (4.30 - 22.97)	4.31 (1.50 - 12.38)	0.57 (0.25 - 1.31)	1.21 (0.38 - 3.84)	3.14 (1.02 - 9.72)
Mortality Rates** per 1,000 person-	· Relative Rate	3.16 (0.51 - 19.76)	1.37 (0.35 - 5.38)	0.18 (0.04 - 0.77)	0.38 (0.07 - 2.24)	ref
years	Rate Difference	6.80 (-2.57 - 16.18)	1.17 (-3.81 - 6.15)	-2.57 (-5.52 - 0.38)	-1.94 (-5.39 - 1.51)	ref
Potential Years of	Rate	132.41 (42.33 - 414.19)	40.27 (10.38 - 156.23)	4.93 (1.49 - 16.28)	10.17 (2.42 - 42.82)	41.82 (7.45 - 234.67)
Life Lost** per 1,000 person-	Relative Rate	3.17 (0.23 - 43.55)	0.96 (0.18 - 5.19)	0.12 (0.02 - 0.71)	0.24 (0.03 - 2.14)	ref
years	Rate Difference	90.59 (-68.01 - 249.18)	-1.55 (-60.30 - 57.21)	-36.89 (-81.80 - 8.03)	-31.64 (-79.63 - 16.34)	ref
Total Mortality	Rate	17.91 (10.42 - 30.77)	11.15 (6.14 - 20.22)	2.44 (1.61 - 3.70)	2.36 (1.12 - 4.96)	5.27 (2.47 - 11.27)
Rates* per 1,000 person-	Relative Rate	3.40 (0.99 - 11.60)	2.11 (0.87 - 5.14)	0.46 (0.19 - 1.11)	0.45 (0.14 - 1.43)	ref
years	Rate Difference	12.63 (0.46 - 24.81)	5.87 (-1.50 - 13.25)	-2.83 (-6.76 - 1.09)	-2.92 (-7.39 - 1.56)	ref
*Aged 12+ except l	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.1: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-	& SES-adjusted		
Premature	Rate	8.98 (5.89 - 13.68)	7.12 (2.83 - 17.89)	0.91 (0.41 - 1.99)	2.01 (0.82 - 4.94)	2.31 (1.01 - 5.31)
Mortality Rates** per 1,000 person-	· Relative Rate	3.89 (1.26 - 11.94)	3.08 (0.85 - 11.16)	0.39 (0.12 - 1.33)	0.87 (0.22 - 3.38)	ref
years	Rate Difference	6.67 (1.85 - 11.49)	4.80 (-1.83 - 11.44)	-1.40 (-3.28 - 0.47)	-0.30 (-3.06 - 2.46)	ref
Potential Years of	Rate	130.38 (84.37 - 201.49)	77.60 (25.51 - 236.09)	10.50 (3.15 - 35.01)	23.15 (7.68 - 69.76)	32.76 (12.59 - 85.20)
Life Lost** per 1,000 person-	Relative Rate	3.98 (1.12 - 14.10)	2.37 (0.56 - 10.01)	0.32 (0.07 - 1.55)	0.71 (0.15 - 3.42)	ref
years	Rate Difference	97.63 (25.50 - 169.75)	44.85 (-41.20 - 130.90)	-22.25 (-49.86 - 5.36)	-9.60 (-47.80 - 28.59)	ref
Total Mortality	Rate	16.72 (9.86 - 28.33)	8.43 (4.39 - 16.19)	2.31 (1.40 - 3.80)	2.24 (1.13 - 4.44)	6.25 (3.04 - 12.82)
Rates* per 1,000 person-	Relative Rate	2.68 (0.87 - 8.26)	1.35 (0.51 - 3.58)	0.37 (0.14 - 0.96)	0.36 (0.12 - 1.11)	ref
years	Rate Difference	10.47 (-0.82 - 21.76)	2.19 (-5.21 - 9.59)	-3.94 (-8.62 - 0.75)	-4.00 (-9.04 - 1.03)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	1 45+)			

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.1: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	5- & RUB-adjusted		
Premature	Rate	8.46 (5.36 - 13.34)	5.24 (1.85 - 14.88)	0.82 (0.31 - 2.20)	1.75 (0.57 - 5.37)	2.47 (0.87 - 6.99)
Mortality Rates** per 1,000 person-	· Relative Rate	3.42 (0.89 - 13.20)	2.12 (0.42 - 10.68)	0.33 (0.06 - 1.85)	0.71 (0.11 - 4.51)	ref
years	Rate Difference	5.98 (0.68 - 11.28)	2.77 (-3.94 - 9.49)	-1.65 (-4.13 - 0.82)	-0.72 (-4.65 - 3.21)	ref
Potential Years of	Rate	117.23 (70.59 - 194.69)	54.90 (15.32 - 196.72)	8.39 (2.11 - 33.32)	18.19 (4.35 - 76.01)	35.66 (8.88 - 143.18)
Life Lost** per 1,000 person-	Relative Rate	3.29 (0.59 - 18.28)	1.54 (0.20 - 11.97)	0.24 (0.02 - 2.49)	0.51 (0.05 - 5.56)	ref
years	Rate Difference	81.58 (-0.28 - 163.44)	19.24 (-72.78 - 111.27)	-27.27 (-65.59 - 11.05)	-17.46 (-78.44 - 43.51)	ref
Total Mortality	Rate	16.26 (11.05 - 23.92)	11.11 (5.51 - 22.41)	2.35 (1.55 - 3.58)	3.55 (1.59 - 7.92)	4.47 (2.19 - 9.14)
Rates* per 1,000 person-	Relative Rate	3.63 (1.32 - 10.00)	2.48 (0.81 - 7.65)	0.53 (0.21 - 1.35)	0.79 (0.21 - 2.93)	ref
years	Rate Difference	11.79 (3.37 - 20.21)	6.64 (-3.22 - 16.50)	-2.12 (-5.43 - 1.19)	-0.92 (-6.13 - 4.28)	ref
*Aged 12+ except l	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

Values in **bold** type indicate statistically significantly different values than Never Smoked. **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 270 | Appendix 5

Appendix Table 5.2: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 3 Years After Survey Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	le		
Premature	Rate	5.85 (4.40 - 7.30)	7.05 (4.19 - 9.91)	6.08 (3.70 - 8.46)	1.81 (1.03 - 2.59)	1.51 (0.97 - 2.05)
Mortality Rates** per 1,000 person-	Relative Rate	3.87 (2.49 - 6.00)	4.66 (2.67 - 8.13)	4.02 (2.33 - 6.93)	1.20 (0.68 - 2.11)	ref
years	Rate Difference	4.34 (2.79 - 5.89)	5.54 (2.62 - 8.45)	4.57 (2.12 - 7.02)	0.30 (-0.65 - 1.25)	ref
Potential Years of	Rate	84.88 (59.03 - 110.73)	68.83 (40.68 - 96.99)	70.53 (35.32 - 105.74)	20.53 (8.39 - 32.68)	21.48 (11.06 - 31.90)
Life Lost** per 1,000 person-	Relative Rate	3.95 (2.19 - 7.13)	3.20 (1.72 - 5.96)	3.28 (1.62 - 6.67)	0.96 (0.45 - 2.03)	ref
years	Rate Difference	63.40 (35.09 - 91.71)	47.36 (17.70 - 77.02)	49.05 (12.95 - 85.15)	-0.94 (-16.61 - 14.72)	ref
Total Mortality	Rate	8.11 (6.51 - 9.72)	9.85 (6.66 - 13.03)	14.17 (11.60 - 16.75)	4.48 (3.36 - 5.60)	4.75 (4.02 - 5.49)
Rates* per 1,000 person-	Relative Rate	1.71 (1.31 - 2.22)	2.07 (1.44 - 2.97)	2.98 (2.34 - 3.80)	0.94 (0.70 - 1.27)	ref
years	Rate Difference	3.36 (1.52 - 5.20)	5.09 (1.82 - 8.36)	9.42 (6.71 - 12.13)	-0.27 (-1.62 - 1.07)	ref
*Aned 12+ excent N	WHHS (aged 1	7-76). CCHS Healthy Aging (age	145+)			

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.2: Continued

	_		Former Daily Smoker	Former Daily Smoker		
	_	Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
Premature	Rate	7.97 (4.63 - 13.73)	3.88 (1.89 - 8.00)	2.30 (0.80 - 6.58)	0.86 (0.44 - 1.71)	2.48 (1.42 - 4.30)
Mortality Rates** per 1,000 person-	Relative Rate	3.22 (1.15 - 9.05)	1.57 (0.65 - 3.81)	0.93 (0.27 - 3.19)	0.35 (0.14 - 0.87)	ref
years	Rate Difference	5.50 (0.31 - 10.69)	1.41 (-1.76 - 4.58)	-0.18 (-2.67 - 2.32)	-1.61 (-3.100.12)	ref
Potential Years of	Rate	89.35 (44.61 - 178.96)	38.43 (17.53 - 84.22)	20.76 (6.82 - 63.23)	7.94 (3.82 - 16.50)	32.47 (18.61 - 56.66)
Life Lost** per 1,000 person-	Relative Rate	2.75 (0.83 - 9.09)	1.18 (0.47 - 2.98)	0.64 (0.18 - 2.28)	0.24 (0.10 - 0.63)	ref
years	Rate Difference	56.88 (-16.70 - 130.46)	5.95 (-29.65 - 41.55)	-11.71 (-38.15 - 14.73)	-24.54 (-43.066.02)	ref
Total Mortality	Rate	15.09 (10.03 - 22.70)	9.90 (6.37 - 15.38)	5.21 (2.98 - 9.10)	3.01 (2.06 - 4.40)	5.42 (3.78 - 7.77)
Rates* per 1,000 person-	Relative Rate	2.78 (1.35 - 5.74)	1.83 (1.04 - 3.21)	0.96 (0.48 - 1.94)	0.56 (0.33 - 0.95)	ref
years	Rate Difference	9.67 (1.93 - 17.41)	4.48 (-0.47 - 9.43)	-0.21 (-3.82 - 3.40)	-2.41 (-4.710.11)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (age-	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.2: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-	& SES-adjusted		
Premature	Rate	6.76 (3.97 - 11.50)	4.13 (2.08 - 8.21)	2.83 (0.93 - 8.64)	1.00 (0.56 - 1.77)	2.88 (1.72 - 4.80)
Mortality Rates** per 1,000 person-	· Relative Rate	2.35 (0.89 - 6.24)	1.44 (0.59 - 3.52)	0.98 (0.27 - 3.59)	0.35 (0.15 - 0.80)	ref
years	Rate Difference	3.88 (-0.76 - 8.52)	1.25 (-2.10 - 4.61)	-0.04 (-3.25 - 3.17)	-1.88 (-3.540.22)	ref
Potential Years of	Rate	79.24 (41.63 - 150.80)	45.82 (20.29 - 103.43)	27.07 (8.21 - 89.26)	10.01 (5.12 - 19.58)	37.65 (22.64 - 62.63)
Life Lost** per 1,000 person-	Relative Rate	2.10 (0.71 - 6.26)	1.22 (0.44 - 3.33)	0.72 (0.18 - 2.82)	0.27 (0.10 - 0.67)	ref
years	Rate Difference	41.58 (-22.45 - 105.61)	8.16 (-34.51 - 50.83)	-10.58 (-44.84 - 23.68)	-27.64 (-48.776.51)	ref
Total Mortality	Rate	14.83 (9.87 - 22.30)	10.38 (6.24 - 17.25)	5.61 (3.10 - 10.17)	3.49 (2.36 - 5.16)	5.87 (3.98 - 8.65)
Rates* per 1,000 person-	Relative Rate	2.53 (1.21 - 5.29)	1.77 (0.93 - 3.37)	0.96 (0.45 - 2.04)	0.60 (0.33 - 1.06)	ref
years	Rate Difference	8.96 (0.96 - 16.97)	4.51 (-1.76 - 10.77)	-0.26 (-4.46 - 3.95)	-2.38 (-5.14 - 0.39)	ref
*Aged 12+ except h	MHHS (aged 1	7-76), CCHS Healthy Aging (agec	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDE

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

umanitoba.ca/faculties/medicine/units/mchp Appendix 5 | page 273

Appendix Table 5.2: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	5- & RUB-adjusted		
Premature	Rate	5.03 (3.04 - 8.32)	3.25 (1.61 - 6.54)	2.78 (1.15 - 6.72)	3.91 (1.06 - 14.39)	2.95 (1.27 - 6.82)
Mortality Rates** per 1,000 person-	Relative Rate	1.70 (0.59 - 4.93)	1.10 (0.41 - 2.97)	0.94 (0.26 - 3.37)	1.33 (0.29 - 6.11)	ref
years	Rate Difference	2.08 (-3.28 - 7.44)	0.30 (-4.10 - 4.70)	-0.17 (-5.08 - 4.74)	0.96 (-5.79 - 7.70)	ref
Potential Years of	Rate	78.04 (50.03 - 121.74)	44.68 (22.49 - 88.75)	35.57 (12.81 - 98.71)	36.80 (9.21 - 147.05)	31.61 (14.27 - 70.02)
Life Lost** per 1,000 person-	Relative Rate	2.47 (0.80 - 7.66)	1.41 (0.49 - 4.05)	1.13 (0.24 - 5.28)	1.16 (0.21 - 6.54)	ref
years	Rate Difference	46.43 (-7.29 - 100.16)	13.07 (-24.83 - 50.97)	3.96 (-46.75 - 54.66)	5.19 (-60.20 - 70.58)	ref
Total Mortality	Rate	11.19 (7.62 - 16.42)	9.06 (5.79 - 14.18)	5.64 (3.41 - 9.33)	7.46 (2.94 - 18.95)	6.10 (3.28 - 11.33)
Rates* per 1,000 person-	Relative Rate	1.83 (0.86 - 3.91)	1.49 (0.74 - 2.97)	0.93 (0.42 - 2.05)	1.22 (0.42 - 3.56)	ref
years	Rate Difference	5.09 (-2.82 - 12.99)	2.96 (-3.57 - 9.49)	-0.46 (-7.10 - 6.19)	1.36 (-9.54 - 12.26)	ref
*Aged 12+ except N	WHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 274 | Appendix 5

Appendix Table 5.3: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey Survey weighted; 95% Confidence Intervals

	_		Former Daily Smoker	Former Daily Smoker		
	_	Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	łe		
Premature	Rate	6.16 (4.94 - 7.39)	5.89 (3.75 - 8.03)	5.99 (4.18 - 7.80)	2.10 (1.38 - 2.81)	1.39 (0.97 - 1.80)
Mortality Rates** per 1,000 person-	Relative Rate	4.45 (3.08 - 6.43)	4.25 (2.62 - 6.90)	4.33 (2.81 - 6.67)	1.52 (0.95 - 2.40)	ref
years	Rate Difference	4.78 (3.47 - 6.09)	4.50 (2.32 - 6.69)	4.61 (2.74 - 6.47)	0.71 (-0.12 - 1.55)	ref
Potential Years of	Rate	94.23 (67.87 - 120.58)	57.57 (35.73 - 79.40)	68.11 (41.54 - 94.67)	24.05 (13.33 - 34.77)	22.23 (13.62 - 30.83)
Life Lost** per 1,000 person-	Relative Rate	4.24 (2.60 - 6.91)	2.59 (1.51 - 4.45)	3.06 (1.77 - 5.30)	1.08 (0.61 - 1.93)	ref
years	Rate Difference	72.00 (43.98 - 100.02)	35.34 (11.87 - 58.81)	45.88 (18.39 - 73.37)	1.83 (-11.56 - 15.22)	ref
Total Mortality	Rate	8.77 (7.39 - 10.15)	9.20 (6.68 - 11.73)	14.51 (12.49 - 16.52)	5.11 (4.18 - 6.05)	5.24 (4.57 - 5.91)
Rates* per 1,000 person-	Relative Rate	1.67 (1.35 - 2.06)	1.76 (1.29 - 2.39)	2.77 (2.29 - 3.35)	0.98 (0.78 - 1.22)	ref
years	Rate Difference	3.52 (1.93 - 5.12)	3.96 (1.32 - 6.59)	9.27 (7.12 - 11.41)	-0.13 (-1.30 - 1.04)	ref
*Aaed 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

umanitoba.ca/faculties/medicine/units/mchp Appendix 5 | page 275

Appendix Table 5.3: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
Premature	Rate	7.70 (5.28 - 11.23)	3.13 (1.74 - 5.64)	3.84 (1.11 - 13.34)	1.24 (0.76 - 2.03)	2.43 (1.67 - 3.55)
Mortality Rates** per 1,000 person-	Relative Rate	3.17 (1.56 - 6.42)	1.29 (0.63 - 2.64)	1.58 (0.40 - 6.18)	0.51 (0.27 - 0.96)	ref
years	Rate Difference	5.27 (1.72 - 8.81)	0.70 (-1.38 - 2.78)	1.41 (-3.93 - 6.75)	-1.19 (-2.280.10)	ref
Potential Years of	Rate	89.46 (56.74 - 141.06)	33.47 (17.61 - 63.62)	39.09 (10.15 - 150.51)	13.18 (7.73 - 22.50)	33.72 (23.52 - 48.34)
Life Lost** per 1,000 person-	Relative Rate	2.65 (1.22 - 5.76)	0.99 (0.46 - 2.13)	1.16 (0.27 - 5.01)	0.39 (0.20 - 0.77)	ref
years	Rate Difference	55.75 (5.78 - 105.72)	-0.25 (-25.74 - 25.25)	5.37 (-55.30 - 66.05)	-20.53 (-34.656.41)	ref
Total Mortality	Rate	16.49 (12.41 - 21.91)	9.04 (6.30 - 12.98)	7.98 (3.32 - 19.18)	3.72 (2.74 - 5.04)	5.75 (4.48 - 7.39)
Rates* per 1,000 person-	Relative Rate	2.87 (1.74 - 4.71)	1.57 (1.00 - 2.48)	1.39 (0.53 - 3.61)	0.65 (0.43 - 0.97)	ref
years	Rate Difference	10.73 (4.93 - 16.54)	3.29 (-0.35 - 6.92)	2.23 (-6.25 - 10.71)	-2.04 (-3.900.17)	ref
*Aged 12+ except f	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.3: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	5- & RUB-adjusted		
Premature	Rate	5.64 (3.60 - 8.83)	2.87 (1.51 - 5.46)	3.34 (1.33 - 8.39)	4.21 (1.45 - 12.17)	2.75 (1.35 - 5.59)
Mortality Rates** per 1,000 person-	· Relative Rate	2.05 (0.81 - 5.18)	1.05 (0.44 - 2.48)	1.21 (0.34 - 4.29)	1.53 (0.44 - 5.34)	ref
years	Rate Difference	2.89 (-1.63 - 7.42)	0.13 (-3.21 - 3.46)	0.59 (-4.24 - 5.42)	1.46 (-4.27 - 7.19)	ref
Potential Years of	Rate	91.31 (62.73 - 132.91)	36.14 (19.97 - 65.41)	36.20 (15.97 - 82.02)	30.94 (10.75 - 89.07)	29.40 (15.88 - 54.45)
Life Lost** per 1,000 person-	Relative Rate	3.11 (1.24 - 7.77)	1.23 (0.53 - 2.85)	1.23 (0.39 - 3.87)	1.05 (0.32 - 3.50)	ref
years	Rate Difference	61.91 (13.71 - 110.12)	6.74 (-20.41 - 33.89)	6.80 (-31.26 - 44.85)	1.54 (-42.93 - 46.01)	ref
Total Mortality	Rate	13.98 (9.60 - 20.36)	8.59 (5.49 - 13.45)	6.88 (3.64 - 13.00)	8.91 (3.89 - 20.37)	6.22 (3.65 - 10.59)
Rates* per 1,000 person-	Relative Rate	2.25 (1.12 - 4.52)	1.38 (0.74 - 2.57)	1.11 (0.46 - 2.65)	1.43 (0.57 - 3.63)	ref
years	Rate Difference	7.76 (-0.19 - 15.71)	2.37 (-3.16 - 7.90)	0.66 (-6.57 - 7.89)	2.68 (-7.51 - 12.88)	ref
*Aged 12+ except	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.4: Additional Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 10 Years After Survey Survey weighted: 95% Confidence Intervals

	5					
	_		Former Daily Smoker	Former Daily Smoker		
	_	Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
	1		survey)	survey)		
			Cruc	le		
Premature	Rate	6.37 (5.35 - 7.39)	5.92 (4.05 - 7.79)	6.70 (5.24 - 8.17)	2.18 (1.58 - 2.78)	1.58 (1.22 - 1.94)
Mortality Rates** per 1,000 person-	* Relative Rate	4.04 (3.04 - 5.36)	3.75 (2.52 - 5.60)	4.25 (3.07 - 5.88)	1.38 (0.97 - 1.98)	ref
years	Rate Difference	4.79 (3.70 - 5.88)	4.35 (2.45 - 6.24)	5.13 (3.60 - 6.65)	0.61 (-0.09 - 1.31)	ref
Potential Years of	f	94.59 (74.24 - 114.93)	55.24 (37.13 - 73.35)	76.34 (54.57 - 98.10)	24.72 (15.68 - 33.76)	25.26 (17.51 - 33.02)
Life Lost** per 1,000 person-	Relative Rate	3.74 (2.57 - 5.45)	2.19 (1.39 - 3.43)	3.02 (2.00 - 4.56)	0.98 (0.61 - 1.57)	ref
years	Rate Difference	69.32 (47.58 - 91.07)	29.98 (10.34 - 49.62)	51.07 (28.40 - 73.74)	-0.54 (-12.34 - 11.25)	ref
Total Mortality	Rate	9.37 (8.21 - 10.52)	9.69 (7.59 - 11.78)	16.66 (14.98 - 18.34)	5.84 (4.96 - 6.71)	6.10 (5.51 - 6.68)
Rates* per 1,000 person-	Relative Rate	1.54 (1.31 - 1.80)	1.59 (1.25 - 2.02)	2.73 (2.37 - 3.15)	0.96 (0.80 - 1.15)	ref
years	Rate Difference	3.27 (1.97 - 4.58)	3.59 (1.42 - 5.76)	10.57 (8.77 - 12.36)	-0.26 (-1.32 - 0.80)	ref
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Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.4: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
Premature	Rate	7.42 (5.12 - 10.76)	3.10 (1.96 - 4.91)	4.61 (1.84 - 11.56)	1.51 (0.93 - 2.46)	2.85 (2.11 - 3.86)
Mortality Rates** per 1,000 person-	 Relative Rate 	2.60 (1.39 - 4.86)	1.09 (0.60 - 1.96)	1.61 (0.58 - 4.46)	0.53 (0.29 - 0.98)	ref
years	Rate Difference	4.57 (1.19 - 7.95)	0.25 (-1.52 - 2.02)	1.75 (-3.16 - 6.67)	-1.35 (-2.530.16)	ref
Potential Years of	Rate	85.07 (54.69 - 132.33)	32.65 (19.77 - 53.91)	47.47 (17.87 - 126.08)	16.49 (9.34 - 29.11)	38.12 (28.78 - 50.49)
Life Lost** per 1,000 person-	Relative Rate	2.23 (1.13 - 4.41)	0.86 (0.46 - 1.60)	1.25 (0.43 - 3.64)	0.43 (0.22 - 0.86)	ref
years	Rate Difference	46.95 (0.69 - 93.21)	-5.47 (-27.11 - 16.17)	9.34 (-46.34 - 65.03)	-21.64 (-36.936.34)	ref
Total Mortality	Rate	17.34 (13.23 - 22.74)	9.48 (7.14 - 12.58)	9.71 (4.83 - 19.52)	4.45 (3.29 - 6.00)	6.83 (5.58 - 8.36)
Rates* per 1,000 person-	Relative Rate	2.54 (1.64 - 3.92)	1.39 (0.95 - 2.03)	1.42 (0.66 - 3.04)	0.65 (0.44 - 0.96)	ref
years	Rate Difference	10.51 (4.71 - 16.32)	2.65 (-0.56 - 5.86)	2.88 (-5.35 - 11.11)	-2.38 (-4.440.32)	ref
*Aged 12+ except	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+)			

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.4: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before	Former Daily Smoker (Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-	& SES-adjusted		
Premature	Rate	6.80 (4.77 - 9.68)	2.84 (1.74 - 4.65)	4.29 (2.13 - 8.63)	1.61 (1.00 - 2.57)	2.95 (2.21 - 3.92)
Mortality Rates** per 1,000 person-	Relative Rate	2.31 (1.28 - 4.16)	0.96 (0.53 - 1.77)	1.46 (0.65 - 3.27)	0.54 (0.30 - 0.98)	ref
years	Rate Difference	3.85 (0.76 - 6.94)	-0.10 (-1.86 - 1.65)	1.34 (-1.96 - 4.65)	-1.34 (-2.520.17)	ref
Potential Years of	Rate	79.14 (52.38 - 119.57)	31.11 (18.21 - 53.17)	46.26 (22.29 - 95.99)	17.94 (10.58 - 30.41)	39.61 (30.04 - 52.24)
Life Lost** per 1,000 person-	Relative Rate	2.00 (1.05 - 3.80)	0.79 (0.41 - 1.49)	1.17 (0.51 - 2.70)	0.45 (0.24 - 0.85)	ref
years	Rate Difference	39.52 (-3.30 - 82.34)	-8.50 (-30.26 - 13.26)	6.64 (-31.70 - 44.98)	-21.68 (-36.886.47)	ref
Total Mortality	Rate	16.91 (13.14 - 21.77)	8.90 (4.55 - 17.40)	9.33 (5.61 - 15.51)	4.84 (3.61 - 6.49)	7.00 (5.72 - 8.55)
Rates* per 1,000 person-	Relative Rate	2.42 (1.60 - 3.65)	1.27 (0.61 - 2.66)	1.33 (0.75 - 2.39)	0.69 (0.48 - 1.00)	ref
years	Rate Difference	9.92 (4.53 - 15.30)	1.90 (-8.29 - 12.09)	2.34 (-3.11 - 7.78)	-2.16 (-4.240.07)	ref
*Aded 12+ excent N	AHHS (aged 1)	7-76). CCHS Healthy Aging (aged	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.4: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	5- & RUB-adjusted		
Premature	Rate	4.55 (2.80 - 7.40)	2.48 (1.43 - 4.29)	3.17 (1.51 - 6.67)	2.13 (0.80 - 5.67)	3.79 (1.92 - 7.47)
Mortality Rates** per 1,000 person-	· Relative Rate	1.20 (0.47 - 3.06)	0.65 (0.28 - 1.51)	0.84 (0.28 - 2.48)	0.56 (0.17 - 1.89)	ref
years	Rate Difference	0.76 (-3.95 - 5.47)	-1.31 (-4.90 - 2.27)	-0.61 (-5.34 - 4.11)	-1.66 (-6.83 - 3.51)	ref
Potential Years of	Rate	54.34 (31.85 - 92.71)	27.11 (14.60 - 50.32)	34.33 (15.83 - 74.46)	23.91 (7.99 - 71.53)	49.99 (21.09 - 118.49)
Life Lost** per 1,000 person-	Relative Rate	1.09 (0.37 - 3.20)	0.54 (0.21 - 1.39)	0.69 (0.21 - 2.28)	0.48 (0.12 - 1.87)	ref
years	Rate Difference	4.35 (-78.15 - 86.84)	-22.88 (-92.45 - 46.69)	-15.66 (-96.33 - 65.01)	-26.08 (-118.04 - 65.88)	ref
Total Mortality	Rate	13.93 (10.17 - 19.06)	7.54 (3.37 - 16.86)	6.99 (4.73 - 10.33)	7.44 (3.48 - 15.91)	8.70 (5.78 - 13.10)
Rates* per 1,000 person-	Relative Rate	1.60 (0.88 - 2.91)	0.87 (0.35 - 2.14)	0.80 (0.45 - 1.44)	0.86 (0.36 - 2.02)	ref
years	Rate Difference	5.23 (-1.93 - 12.38)	-1.16 (-12.76 - 10.44)	-1.71 (-6.71 - 3.29)	-1.26 (-10.41 - 7.89)	ref
*Aged 12+ except l	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 1 Year After Survey Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	de		
Cancer Incidence	Rate	706.88 (459.66 - 954.10)	959.88 (469.40 - 1,450.36)	1,081.60 (754.70 - 1,408.49)	324.89 (179.48 - 470.30)	535.02 (352.30 - 717.74)
Rates* per 100,000 person	Relative - Rate	1.32 (0.79 - 2.21)	1.79 (0.95 - 3.39)	2.02 (1.24 - 3.30)	0.61 (0.34 - 1.08)	ref
years	Rate Difference	171.86 (-138.83 - 482.54)	424.86 (-96.40 - 946.12)	546.58 (167.47 - 925.69)	-210.13 (-442.34 - 22.08)	ref
Lung Cancer	Rate	337.36 (144.34 - 530.39)	438.29 (75.90 - 800.67)	137.64 (48.19 - 227.09)	0	30.23 (3.43 - 57.02)
Incidence Rates* per 100,000 person	Relative 1- Rate	11.16 (2.86 - 43.50)	14.50 (3.09 - 67.98)	4.55 (1.19 - 17.47)	0	ref
years	Rate Difference	307.14 (111.00 - 503.28)	408.06 (46.17 - 769.95)	107.41 (15.47 - 199.36)	-30.23 (-57.023.43)	ref
Strongly Smoking Associated**	Rate	364.77 (165.71 - 563.84)	438.29 (75.90 - 800.67)	137.64 (48.19 - 227.09)	0	30.23 (3.43 - 57.02)
Cancers Incidence Rates*	Relative Rate	12.07 (3.15 - 46.22)	14.50 (3.09 - 67.98)	4.55 (1.19 - 17.47)	0	ref
per 100,000 person years	Rate Difference	334.55 (132.61 - 536.48)	408.06 (46.17 - 769.95)	107.41 (15.47 - 199.36)	-30.23 (-57.023.43)	ref
*Aged 12+ except N	WHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.5: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex-	adjusted		
Cancer Incidence	Rate	433.80 (245.94 - 765.14)	490.65 (228.88 - 1,051.79)	341.20 (183.89 - 633.08)	169.39 (84.26 - 340.53)	876.20 (622.73 - 1,232.86)
Rates* per 100,000 person	Relative 1- Rate	0.50 (0.22 - 1.11)	0.56 (0.21 - 1.49)	0.39 (0.17 - 0.92)	0.19 (0.08 - 0.49)	ref
years	Rate Difference	-442.41 (-937.77 - 52.96)	-385.55 (-1,054.40 - 283.29)	-535.01 (-994.9375.08)	-706.82 (-1,088.37325.26)	ref
Lung Cancer	Rate	694.76 (359.37 - 1,343.16)	224.73 (50.53 - 999.43)	49.62 (14.58 - 168.88)	0	56.39 (6.19 - 514.06)
Incidence Rates* per 100,000 person	Relative - Rate	12.32 (1.11 - 137.26)	3.99 (0.30 - 53.58)	0.88 (0.10 - 7.90)	o	ref
years	Rate Difference	638.37 (233.94 - 1,042.80)	168.34 (-107.95 - 444.62)	-6.78 (-96.65 - 83.09)	-56.39 (-6.19514.06)	ref
Strongly Smoking Associated**	^J Rate	724.37 (376.37 - 1,394.11)	230.92 (51.86 - 1,028.33)	51.19 (15.00 - 174.69)	0	57.85 (6.34 - 528.33)
Cancers Incidence Rates*	e Relative Rate	12.52 (1.13 - 139.22)	3.99 (0.30 - 53.90)	0.88 (0.10 - 7.93)	0	ref
per 100,000 person years	¹ -Rate Difference	666.51 (248.60 - 1,084.43)	173.07 (-111.24 - 457.38)	-6.67 (-98.94 - 85.61)	-57.85 (-6.34528.33)	ref
*Aged 12+ except I	MHHS (aged 1	L7-76), CCHS Healthy Aging (age	d 45+)			

Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix 5 | page 283

Appendix Table 5.5: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-	& SES-adjusted		
Cancer Incidence	Rate	446.71 (241.66 - 825.76)	789.47 (297.86 - 2,092.47)	336.30 (157.52 - 718.02)	185.16 (82.25 - 416.83)	1,131.48 (669.05 - 1,913.53)
Rates* per 100,000 person	Relative - Rate	0.39 (0.14 - 1.11)	0.70 (0.21 - 2.33)	0.30 (0.10 - 0.92)	0.16 (0.05 - 0.50)	ref
years	Rate Difference	-684.76 (-1,491.29 - 121.76)	-342.00 (-1,532.06 - 848.05)	-795.17 (-1,568.2622.09)	-946.31 (-1,608.77283.86)	ref
Lung Cancer	Rate	379.90 (164.97 - 874.86)	634.41 (113.15 - 3,556.95)	36.14 (12.23 - 106.82)	0	13.98 (1.55 - 125.81)
Incidence Rates* per 100,000 person	Relative - Rate	27.17 (1.97 - 375.10)	45.37 (5.39 - 382.04)	2.58 (0.33 - 20.47)	0	ref
years	Rate Difference	365.91 (72.22 - 659.61)	620.43 (-13.14 - 1,254.00)	22.16 (-18.56 - 62.87)	-13.98 (-1.55125.81)	ref
Strongly Smoking Associated**	Rate	400.91 (181.42 - 885.95)	654.05 (117.55 - 3,639.14)	37.37 (12.73 - 109.72)	0	14.11 (1.61 - 123.85)
Cancers Incidence Rates*	e Relative Rate	28.41 (2.17 - 371.20)	46.34 (5.55 - 386.81)	2.65 (0.35 - 20.20)	0	ref
per 100,000 person years	¹⁻ Rate Difference	386.79 (88.74 - 684.85)	639.94 (-2.98 - 1,282.86)	23.25 (-18.11 - 64.62)	-14.11 (-1.61123.85)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	(45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.5: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SE	ו- & RUB-adjusted		
Cancer Incidence	Rate	635.60 (371.34 - 1,087.91)	2,055.39 (635.08 - 6,652.07)	465.28 (273.10 - 792.69)	286.97 (138.09 - 596.37)	504.40 (235.66 - 1,079.63)
Rates* per 100,000 person	Relative 	1.26 (0.52 - 3.05)	4.07 (0.66 - 25.28)	0.92 (0.37 - 2.30)	0.57 (0.20 - 1.58)	ref
years	Rate Difference	131.19 (-378.34 - 640.73)	1,550.98 (-494.23 - 3,596.20)	-39.12 (-553.35 - 475.11)	-217.43 (-667.90 - 233.04)	ref
Lung Cancer	Rate	400.47 (201.08 - 797.58)	252.49 (41.99 - 1,518.39)	73.44 (25.38 - 212.47)	0	43.08 (2.88 - 644.23)
Incidence Rates* per 100,000 person	Relative 1- Rate	9.30 (0.47 - 183.20)	5.86 (0.25 - 134.85)	1.70 (0.11 - 26.65)	0	ref
years	Rate Difference	357.39 (32.67 - 682.11)	209.41 (-98.86 - 517.67)	30.36 (-57.66 - 118.37)	-43.08 (-2.88644.23)	ref
Strongly Smoking Associated**) Rate	417.86 (210.84 - 828.12)	260.68 (43.25 - 1,571.03)	76.00 (26.29 - 219.64)	0	44.60 (2.99 - 666.28)
Cancers Incidence Rates*	e Relative Rate	9.37 (0.48 - 183.80)	5.85 (0.25 - 134.96)	1.70 (0.11 - 26.57)	0	ref
per 100,000 persor years	¹⁻ Rate Difference	373.26 (36.61 - 709.91)	216.08 (-102.64 - 534.81)	31.40 (-59.43 - 122.22)	-44.60 (-2.99666.28)	ref
*Aged 12+ except 1	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+) ·			

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*Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.6: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 3 Years After Survey Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cruc	de		
Cancer Incidence	Rate	781.21 (608.41 - 954.01)	804.67 (552.69 - 1,056.64)	1,109.49 (910.85 - 1,308.13)	443.26 (323.83 - 562.70)	440.13 (341.70 - 538.57)
Rates* per 100,000 person	Relative Rate	1.77 (1.29 - 2.44)	1.83 (1.24 - 2.69)	2.52 (1.88 - 3.38)	1.01 (0.71 - 1.43)	ref
years	Rate Difference	341.08 (142.63 - 539.53)	364.53 (95.94 - 633.13)	669.36 (447.12 - 891.59)	3.13 (-148.22 - 154.48)	ref
Lung Cancer	Rate	278.81 (184.48 - 373.14)	283.32 (114.60 - 452.03)	170.02 (80.75 - 259.28)	S	16.41 (3.50 - 29.32)
Incidence Rates* per 100,000 person	Relative Rate	16.99 (6.69 - 43.17)	17.27 (6.04 - 49.32)	10.36 (3.79 - 28.31)	S	ref
years	Rate Difference	262.40 (166.73 - 358.07)	266.91 (98.24 - 435.57)	153.61 (63.89 - 243.33)	S	ref
Strongly Smoking Associated**	Rate	299.54 (198.05 - 401.03)	283.32 (114.60 - 452.03)	172.19 (82.81 - 261.58)	S	16.41 (3.50 - 29.32)
Cancers Incidence Rates*	Relative Rate	18.25 (7.19 - 46.32)	17.27 (6.04 - 49.32)	10.49 (3.85 - 28.58)	S	ref
per 100,000 person years	1-Rate Difference	283.13 (180.30 - 385.97)	266.91 (98.24 - 435.57)	155.78 (65.96 - 245.61)	S	ref
*Aged 12+ except N	MHHS (aged 1	7-76). CCHS Healthy Aging (age	145+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

s indicates data suppressed due to small numbers.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.6: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
Cancer Incidence	Rate	646.06 (464.79 - 898.01)	577.32 (367.66 - 906.54)	361.98 (265.42 - 493.68)	423.00 (209.74 - 853.11)	716.63 (535.44 - 959.13)
Rates* per 100,000 person	Relative Rate	0.90 (0.52 - 1.55)	0.81 (0.43 - 1.51)	0.51 (0.30 - 0.86)	0.59 (0.24 - 1.43)	ref
years	Rate Difference	-70.57 (-431.74 - 290.60)	-139.31 (-544.99 - 266.38)	-354.64 (-630.0679.23)	-293.62 (-759.06 - 171.81)	ref
Lung Cancer	Rate	379.35 (230.73 - 623.72)	343.97 (76.38 - 1,549.12)	64.79 (28.76 - 145.95)	S	29.27 (8.67 - 98.85)
Incidence Rates* per 100,000 person	Relative Rate	12.96 (2.85 - 58.98)	11.75 (2.13 - 64.72)	2.21 (0.50 - 9.79)	S	ref
years	Rate Difference	350.08 (140.81 - 559.36)	314.70 (-48.30 - 677.71)	35.52 (-23.69 - 94.73)	S	ref
Strongly Smoking Associated**	Rate	398.34 (247.72 - 640.52)	342.43 (74.95 - 1,564.45)	64.80 (28.91 - 145.24)	S	30.12 (8.86 - 102.37)
Cancers Incidence Rates*	e Relative Rate	13.22 (2.93 - 59.76)	11.37 (2.04 - 63.21)	2.15 (0.48 - 9.67)	S	ref
per 100,000 person years	¹⁻ Rate Difference	368.22 (157.51 - 578.92)	312.31 (-52.38 - 677.00)	34.68 (-25.13 - 94.48)	S	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

s indicates data suppressed due to small numbers.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.6: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA- a	ind SES-adjusted		
Cancer Incidence	Rate	644.16 (464.55 - 893.21)	738.49 (436.10 - 1,250.57)	397.77 (288.37 - 548.67)	443.45 (235.11 - 836.38)	767.04 (525.47 - 1,119.67)
Rates* per 100,000 person	Relative ^{]-} Rate	0.84 (0.45 - 1.56)	0.96 (0.46 - 1.99)	0.52 (0.28 - 0.98)	0.58 (0.24 - 1.40)	ref
years	Rate Difference	-122.88 (-568.33 - 322.57)	-28.55 (-599.40 - 542.31)	-369.27 (-751.54 - 13.00)	-323.59 (-822.86 - 175.68)	ref
Lung Cancer	Rate	513.47 (310.66 - 848.69)	149.55 (66.11 - 338.27)	107.75 (47.09 - 246.58)	S	32.37 (5.60 - 186.97)
Incidence Rates* per 100,000 person	Relative)- Rate	15.86 (2.43 - 103.40)	4.62 (0.65 - 32.61)	3.33 (0.58 - 19.20)	v	ref
years	Rate Difference	481.10 (230.47 - 731.74)	117.18 (1.76 - 232.60)	75.39 (0.65 - 150.12)	S	ref
Strongly Smoking Associated**	g Rate	539.41 (336.28 - 865.24)	141.03 (63.41 - 313.65)	102.38 (44.04 - 238.02)	S	29.81 (5.28 - 168.23)
Cancers Incidence Rates*	e Relative Rate	18.09 (2.85 - 114.71)	4.73 (0.71 - 31.67)	3.43 (0.64 - 18.42)	S	ref
per 100,000 persor years	^{]-} Rate Difference	509.59 (261.81 - 757.37)	111.22 (6.17 - 216.26)	72.57 (1.91 - 143.23)	S	ref
*Aged 12+ except h	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

*Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

s indicates data suppressed due to small numbers.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.6: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
		,	Age-, sex-, RHA-, SE	5- & RUB-adjusted		
Cancer Incidence	Rate	842.95 (441.53 - 1,609.31)	1,162.49 (634.88 - 2,128.54)	425.87 (299.92 - 604.70)	360.95 (195.17 - 667.54)	719.32 (378.52 - 1,366.96)
Rates* per 100,000 person-	Relative Rate	1.17 (0.43 - 3.18)	1.62 (0.67 - 3.91)	0.59 (0.25 - 1.41)	0.50 (0.19 - 1.34)	ref
years	Rate Difference	123.63 (-747.75 - 995.01)	443.17 (-374.74 - 1,261.08)	-293.45 (-900.38 - 313.47)	-358.37 (-970.49 - 253.75)	ref
Lung Cancer	Rate	287.01 (167.27 - 492.44)	394.10 (115.82 - 1,341.06)	105.39 (47.60 - 233.34)	S	6.83 (1.96 - 23.75)
Incidence Rates* per 100,000 person	Relative - Rate	42.05 (10.32 - 171.42)	57.74 (11.57 - 288.19)	15.44 (3.78 - 63.17)	S	ref
years	Rate Difference	280.18 (110.67 - 449.70)	387.27 (42.39 - 732.16)	98.57 (31.82 - 165.31)	S	ref
Strongly Smoking Associated**	l Rate	302.79 (178.83 - 512.67)	402.16 (116.60 - 1,387.05)	107.60 (48.65 - 238.02)	S	6.81 (1.96 - 23.71)
Cancers Incidence Rates*	e Relative Rate	44.47 (10.97 - 180.36)	59.07 (11.76 - 296.72)	15.81 (3.87 - 64.51)	S	ref
per 100,000 person years	¹ -Rate Difference	295.98 (121.80 - 470.17)	395.35 (39.93 - 750.77)	100.80 (32.63 - 168.96)	S	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (age	1 45+) -			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

s indicates data suppressed due to small numbers.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.7: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 5 Years After Survey Survey weighted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cruc	le		
Cancer Incidence	Rate	720.07 (587.98 - 852.16)	733.43 (541.12 - 925.75)	1,117.98 (960.51 - 1,275.46)	479.86 (363.84 - 595.88)	442.46 (361.79 - 523.12)
Rates* per 100,000 person	Relative Rate	1.63 (1.25 - 2.11)	1.66 (1.20 - 2.28)	2.53 (2.00 - 3.19)	1.08 (0.81 - 1.46)	ref
years	Rate Difference	277.61 (122.89 - 432.34)	290.98 (82.55 - 499.40)	675.53 (498.45 - 852.61)	37.40 (-100.00 - 174.81)	ref
Lung Cancer	Rate	246.72 (174.25 - 319.20)	239.17 (116.53 - 361.81)	178.04 (106.31 - 249.78)	23.94 (2.53 - 45.36)	16.98 (6.50 - 27.45)
Incidence Rates* per 100,000 person	Relative Rate	14.53 (7.11 - 29.73)	14.09 (6.20 - 32.03)	10.49 (5.01 - 21.97)	1.41 (0.37 - 5.33)	ref
years	Rate Difference	229.75 (156.40 - 303.10)	222.19 (99.60 - 344.79)	161.07 (89.40 - 232.74)	6.97 (-17.04 - 30.98)	ref
Strongly Smoking Associated**	Rate	266.59 (189.29 - 343.89)	239.17 (116.53 - 361.81)	185.11 (112.47 - 257.76)	29.37 (3.93 - 54.81)	17.81 (7.26 - 28.35)
Cancers Incidence Rates*	Relative Rate	14.97 (7.56 - 29.65)	13.43 (6.06 - 29.79)	10.40 (5.13 - 21.06)	1.65 (0.50 - 5.42)	ref
per 100,000 person years	Rate Difference	248.79 (170.61 - 326.97)	221.36 (98.81 - 343.92)	167.31 (94.71 - 239.90)	11.57 (-15.70 - 38.83)	ref
*Aged 12 + except N	MHHS (aged 1	7-76), CCHS Healthy Aging (age	1 45+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.7: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
Cancer Incidence	Rate	800.83 (585.16 - 1,096.00)	584.14 (410.74 - 830.73)	572.41 (290.17 - 1,129.20)	502.53 (296.05 - 853.04)	639.43 (505.55 - 808.78)
Rates* per 100,000 person	Relative)-Rate	1.25 (0.78 - 2.01)	0.91 (0.56 - 1.49)	0.90 (0.42 - 1.91)	0.79 (0.40 - 1.53)	ref
years	Rate Difference	161.40 (-191.16 - 513.96)	-55.30 (-355.04 - 244.45)	-67.02 (-537.96 - 403.92)	-136.90 (-511.06 - 237.26)	ref
Lung Cancer	Rate	441.54 (268.55 - 725.96)	286.77 (82.33 - 998.86)	63.59 (32.29 - 125.23)	12.19 (4.46 - 33.31)	39.20 (10.89 - 141.10)
Incidence Rates* per 100,000 person	Relative 	11.26 (2.39 - 53.15)	7.32 (1.23 - 43.66)	1.62 (0.40 - 6.56)	0.31 (0.07 - 1.38)	ref
years	Rate Difference	402.34 (186.00 - 618.68)	247.57 (-32.89 - 528.04)	24.39 (-33.55 - 82.32)	-27.02 (-69.77 - 15.73)	ref
Strongly Smoking Associated**) Rate	477.32 (286.16 - 796.17)	280.60 (81.11 - 970.73)	63.32 (32.58 - 123.07)	14.64 (6.09 - 35.17)	45.40 (14.05 - 146.72)
Cancers Incidence Rates*	e Relative Rate	10.51 (2.40 - 45.99)	6.18 (1.10 - 34.61)	1.39 (0.39 - 5.03)	0.32 (0.08 - 1.27)	ref
per 100,000 person years	¹ -Rate Difference	431.92 (192.92 - 670.92)	235.21 (-39.73 - 510.14)	17.92 (-41.94 - 77.79)	-30.76 (-78.52 - 16.99)	ref
*Aged 12+ except 1	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+)			

"Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

umanitoba.ca/faculties/medicine/units/mchp Appendix 5 | page 291

Appendix Table 5.7: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-	& SES-adjusted		
Cancer Incidence	Rate	843.00 (627.95 - 1,131.69)	728.61 (489.49 - 1,084.54)	658.47 (324.10 - 1,337.80)	596.69 (345.56 - 1,030.33)	654.65 (473.36 - 905.39)
Rates* per 100,000 person	Relative Rate	1.29 (0.76 - 2.18)	1.11 (0.63 - 1.96)	1.01 (0.43 - 2.33)	0.91 (0.44 - 1.90)	ref
years	Rate Difference	188.35 (-218.23 - 594.93)	73.95 (-341.47 - 489.38)	3.81 (-556.97 - 564.59)	-57.96 (-512.32 - 396.40)	ref
Lung Cancer	Rate	419.58 (291.81 - 603.30)	237.54 (108.93 - 517.98)	109.59 (52.12 - 230.41)	26.12 (7.56 - 90.23)	34.67 (7.87 - 152.77)
Incidence Rates* per 100,000 person	Relative)- Rate	12.10 (2.45 - 59.71)	6.85 (1.37 - 34.20)	3.16 (0.59 - 17.02)	0.75 (0.11 - 5.10)	ref
years	Rate Difference	384.91 (216.82 - 553.00)	202.88 (40.19 - 365.56)	74.92 (-7.75 - 157.59)	-8.55 (-52.09 - 34.99)	ref
Strongly Smoking Associated**) Rate	450.12 (321.44 - 630.31)	232.53 (106.11 - 509.56)	104.32 (48.86 - 222.75)	25.96 (8.55 - 78.80)	35.41 (8.44 - 148.55)
Cancers Incidence Rates*	e Relative Rate	12.71 (2.72 - 59.49)	6.57 (1.39 - 31.06)	2.95 (0.58 - 14.94)	0.73 (0.13 - 4.20)	ref
per 100,000 person years	^{]-} Rate Difference	414.70 (246.74 - 582.66)	197.12 (37.21 - 357.02)	68.91 (-12.24 - 150.06)	-9.45 (-51.97 - 33.06)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	(45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.
Appendix Table 5.7: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
		1	Age-, sex-, RHA-, SE	ን- & RUB-adjusted		
Cancer Incidence	Rate	994.71 (646.28 - 1,530.98)	1,029.94 (602.71 - 1,760.02)	687.82 (382.32 - 1,237.44)	478.81 (274.19 - 836.13)	611.90 (328.75 - 1,138.91)
Rates* per 100,000 person-	Relative Rate	1.63 (0.70 - 3.77)	1.68 (0.75 - 3.79)	1.12 (0.45 - 2.81)	0.78 (0.33 - 1.86)	ref
years	Rate Difference	382.81 (-347.44 - 1,113.07)	418.04 (-271.04 - 1,107.12)	75.92 (-615.77 - 767.62)	-133.09 (-714.29 - 448.11)	ref
Lung Cancer	Rate	241.74 (145.26 - 402.30)	236.18 (76.91 - 725.28)	136.11 (62.49 - 296.49)	10.98 (2.23 - 54.08)	10.10 (2.18 - 46.92)
Incidence Rates* per 100,000 person	Relative Rate	23.93 (4.28 - 133.75)	23.37 (3.57 - 153.26)	13.47 (2.61 - 69.40)	1.09 (0.14 - 8.17)	ref
years	Rate Difference	231.64 (86.31 - 376.96)	226.07 (-1.37 - 453.51)	126.01 (42.79 - 209.23)	0.87 (-16.32 - 18.07)	ref
Strongly Smoking Associated**	J Rate	265.36 (161.30 - 436.57)	250.44 (81.31 - 771.39)	137.97 (66.75 - 285.17)	13.08 (3.17 - 54.06)	13.16 (3.05 - 56.82)
Cancers Incidence Rates*	e Relative Rate	20.17 (3.76 - 108.20)	19.03 (3.10 - 116.68)	10.48 (2.31 - 47.63)	0.99 (0.16 - 6.32)	ref
per 100,000 person years	¹⁻ Rate Difference	252.21 (95.62 - 408.79)	237.28 (-4.13 - 478.69)	124.81 (42.86 - 206.76)	-0.08 (-20.15 - 19.99)	ref
*Aged 12+ except 1	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

umanitoba.ca/faculties/medicine/units/mchp Appendix 5 | page 293 Appendix Table 5.8: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 10 Years After Survey Survey weighted: 95% Confidence Intervals

	-					
			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
	_		survey)	survey)		
			Cruc	łe		
Cancer Incidence	Rate	729.20 (617.68 - 840.73)	840.95 (656.43 - 1,025.47)	1,205.15 (1,061.94 - 1,348.37)	441.21 (349.32 - 533.11)	449.49 (384.50 - 514.49)
Rates* per 100,000 person	Relative - Rate	1.62 (1.31 - 2.01)	1.87 (1.44 - 2.44)	2.68 (2.23 - 3.22)	0.98 (0.77 - 1.26)	ref
years	Rate Difference	279.71 (149.04 - 410.38)	391.46 (195.54 - 587.37)	755.66 (601.83 - 909.50)	-8.28 (-118.50 - 101.94)	ref
Lung Cancer	Rate	260.33 (196.38 - 324.27)	251.38 (151.18 - 351.57)	158.70 (105.11 - 212.29)	22.79 (6.03 - 39.55)	17.27 (8.22 - 26.31)
Incidence Rates* per 100,000 person	Relative - Rate	15.08 (8.21 - 27.69)	14.56 (7.55 - 28.09)	9.19 (4.91 - 17.21)	1.32 (0.48 - 3.60)	ref
years	Rate Difference	243.06 (178.04 - 308.08)	234.11 (134.12 - 334.10)	141.44 (87.53 - 195.35)	5.52 (-13.33 - 24.38)	ref
Strongly Smoking Associated**	Rate	276.23 (209.59 - 342.86)	251.38 (151.18 - 351.57)	163.90 (109.71 - 218.08)	26.78 (7.35 - 46.22)	20.29 (10.30 - 30.27)
Cancers Incidence Rates*	Relative Rate	13.62 (7.74 - 23.96)	12.39 (6.62 - 23.19)	8.08 (4.49 - 14.53)	1.32 (0.52 - 3.38)	ref
per 100,000 person years	Rate Difference	255.94 (188.36 - 323.53)	231.09 (131.19 - 330.99)	143.61 (89.20 - 198.02)	6.50 (-15.06 - 28.06)	ref

*Aged 12 + except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.8: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex	-adjusted		
Cancer Incidence	Rate	783.36 (592.53 - 1,035.65)	795.29 (582.64 - 1,085.55)	609.69 (349.19 - 1,064.53)	450.10 (292.04 - 693.70)	677.79 (558.23 - 822.95)
Rates* per 100,000 persor	Relative n- Rate	1.16 (0.77 - 1.73)	1.17 (0.77 - 1.79)	0.90 (0.47 - 1.70)	0.66 (0.39 - 1.13)	ref
years	Rate Difference	105.58 (-203.05 - 414.21)	117.50 (-210.01 - 445.02)	-68.10 (-489.57 - 353.37)	-227.69 (-504.17 - 48.79)	ref
Lung Cancer	Rate	432.56 (274.31 - 682.10)	323.03 (136.16 - 766.37)	52.61 (28.56 - 96.94)	10.38 (4.86 - 22.14)	28.58 (9.80 - 83.38)
Incidence Rates* per 100,000 persor	 Relative n- Rate 	15.14 (4.00 - 57.29)	11.30 (3.07 - 41.63)	1.84 (0.61 - 5.57)	0.36 (0.11 - 1.16)	ref
years	Rate Difference	403.98 (211.08 - 596.88)	294.45 (75.30 - 513.61)	24.04 (-12.39 - 60.46)	-18.20 (-43.93 - 7.52)	ref
Strongly Smoking Associated**	g Rate	438.77 (277.03 - 694.95)	319.23 (132.42 - 769.58)	51.25 (28.00 - 93.83)	11.63 (5.67 - 23.85)	35.64 (13.77 - 92.23)
Cancers Incidence Rates*	e Relative Rate	12.31 (3.55 - 42.73)	8.96 (2.63 - 30.48)	1.44 (0.52 - 3.97)	0.33 (0.11 - 0.96)	ref
per 100,000 persor years	n- Rate Difference	403.13 (199.13 - 607.14)	283.59 (65.09 - 502.09)	15.62 (-23.20 - 54.43)	-24.01 (-53.85 - 5.84)	ref
*Aged 12+ except	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	d 45+)			

 $^{
m s}$ strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked. Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.8: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex-, RHA-, SES	5- & RUB-adjusted		
Cancer Incidence	Rate	925.24 (643.21 - 1,330.93)	1,157.69 (745.31 - 1,798.23)	719.55 (436.64 - 1,185.76)	472.35 (279.84 - 797.28)	583.78 (403.43 - 844.76)
Rates* per 100,000 person-	Relative Rate	1.58 (0.88 - 2.86)	1.98 (1.07 - 3.66)	1.23 (0.63 - 2.41)	0.81 (0.41 - 1.60)	ref
years	Rate Difference	341.46 (-159.22 - 842.14)	573.91 (11.25 - 1,136.57)	135.77 (-356.82 - 628.35)	-111.43 (-490.28 - 267.42)	ref
Lung Cancer	Rate	300.88 (203.86 - 444.06)	203.19 (85.55 - 482.60)	97.96 (39.79 - 241.22)	10.71 (2.69 - 42.71)	7.65 (2.35 - 24.94)
Incidence Rates* per 100,000 person	Relative - Rate	39.31 (10.40 - 148.62)	26.55 (6.65 - 106.02)	12.80 (3.41 - 48.01)	1.40 (0.28 - 6.89)	ref
years	Rate Difference	293.22 (166.91 - 419.54)	195.54 (28.03 - 363.05)	90.31 (15.53 - 165.09)	3.06 (-8.14 - 14.26)	ref
Strongly Smoking Associated**	Rate	320.82 (218.83 - 470.33)	208.68 (88.19 - 493.80)	100.52 (41.84 - 241.46)	11.77 (3.34 - 41.52)	10.36 (3.32 - 32.31)
Cancers Incidence Rates*	e Relative Rate	30.96 (8.37 - 114.44)	20.14 (5.40 - 75.08)	9.70 (2.87 - 32.77)	1.14 (0.25 - 5.13)	ref
per 100,000 person years	1- Rate Difference	310.45 (176.59 - 444.32)	198.32 (28.16 - 368.47)	90.15 (14.69 - 165.61)	1.40 (-11.79 - 14.60)	ref
*Aged 12+ except N	MHHS (aged 1	.7-76), CCHS Healthy Aging (age	3 45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.9: Estimated-Population-Based Life Expectancy* at age 50 by Smoking Status Categories Survey weighted and adjusted; 95% Confidence Intervals

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
		Adjusted (PI	Hreg model includes age &	sex)	
	Current Daily Smoker	77.56 (77.28 - 77.84)	78.31 (78.05 - 78.58)	78.09 (77.83 - 78.35)	76.71 (76.42 - 77.00)
	Former Daily Smoker (Daily ≤ 5 years before survev)	76.28 (76.01 - 76.55)	78.29 (78.03 - 78.56)	78.65 (78.38 - 78.92)	77.50 (77.20 - 77.79)
Males	Former Daily Smoker (Daily > 5 years before survey)	80.88 (80.49 - 81.28)	80.63 (80.29 - 80.97)	80.66 (80.32 - 81.00)	79.91 (79.55 - 80.26)
	Never a Daily Smoker	81.37 (80.91 - 81.84)	81.12 (80.73 - 81.51)	81.03 (80.65 - 81.40)	80.48 (80.09 - 80.87)
	Never Smoked	81.55 (81.04 - 82.05)	81.16 (80.77 - 81.56)	81.15 (80.75 - 81.54)	80.64 (80.24 - 81.04)
	Current Daily Smoker	81.68 (81.38 - 81.97)	82.69 (82.43 - 82.95)	82.40 (82.14 - 82.67)	81.01 (80.71 - 81.32)
	Former Daily Smoker (Daily ≤ 5 years before survey)	80.50 (80.22 - 80.78)	82.67 (82.41 - 82.94)	82.88 (82.61 - 83.15)	81.72 (81.41 - 82.03)
Females	Former Daily Smoker (Daily > 5 years before survey)	84.65 (84.25 - 85.04)	84.58 (84.24 - 84.91)	84.56 (84.22 - 84.90)	83.84 (83.48 - 84.20)
	Never a Daily Smoker	85.08 (84.62 - 85.54)	84.97 (84.59 - 85.36)	84.86 (84.48 - 85.23)	84.33 (83.95 - 84.72)
	Never Smoked	85.23 (84.73 - 85.73)	85.00 (84.61 - 85.39)	84.96 (84.57 - 85.34)	84.48 (84.07 - 84.88)
*Life expec	tancy calculations based on a co	ombined life table/semi-paramet	ric approach; mortality rates estir	mated using proportional hazards	s regression

Values in **bold** type indicate statistically significantly different values from Never Smoked.

Appendix Table 5.9: Continued

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
		Adjusted (PHreg mc	odel includes age, sex, RHA,	SES & RUB)	
	Current Daily Smoker	79.21 (78.98 - 79.45)	79.18 (78.94 - 79.42)	78.78 (78.54 - 79.02)	77.35 (77.07 - 77.62)
	Former Daily Smoker (Daily ≤ 5 years before survey)	78.91 (78.68 - 79.14)	79.41 (79.17 - 79.66)	79.43 (79.17 - 79.69)	78.22 (77.93 - 78.50)
Males	Former Daily Smoker (Daily > 5 years before survey)	81.50 (81.12 - 81.88)	81.11 (80.77 - 81.45)	81.01 (80.67 - 81.35)	80.24 (79.90 - 80.59)
	Never a Daily Smoker	81.71 (81.29 - 82.14)	81.38 (81.01 - 81.75)	81.22 (80.86 - 81.59)	80.67 (80.29 - 81.05)
	Never Smoked	81.85 (81.38 - 82.32)	81.44 (81.06 - 81.82)	81.35 (80.97 - 81.73)	80.83 (80.44 - 81.22)
	Current Daily Smoker	83.16 (82.92 - 83.40)	83.39 (83.14 - 83.63)	82.96 (82.72 - 83.21)	81.53 (81.24 - 81.82)
	Former Daily Smoker (Daily ≤ 5 years before survey)	82.89 (82.65 - 83.13)	83.58 (83.33 - 83.82)	83.51 (83.25 - 83.77)	82.31 (82.02 - 82.61)
Females	Former Daily Smoker (Daily > 5 years before survey)	85.19 (84.81 - 85.56)	84.95 (84.62 - 85.28)	84.84 (84.50 - 85.17)	84.11 (83.76 - 84.46)
	Never a Daily Smoker	85.37 (84.95 - 85.79)	85.17 (84.80 - 85.54)	85.01 (84.65 - 85.37)	84.48 (84.10 - 84.86)
	Never Smoked	85.50 (85.03 - 85.96)	85.21 (84.84 - 85.59)	85.12 (84.74 - 85.50)	84.62 (84.23 - 85.01)
*l ifa avnar	tancy calculations based on a co	mhinad lifa tahla/sami-naramat	ric approach: mortality ratio	nated using proportional bazards	radraccion

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Values in **bold** type indicate statistically significantly different values from Never Smoked.

Appendix Table 5.10: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 1 Year After Survey Survey weighted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cruc	le		
Premature	Rate	5.48 (2.81 - 8.16)	10.19 (2.28 - 18.10)	4.78 (1.22 - 8.34)	1.81 (0.50 - 3.11)	1.19 (0.38 - 1.99)
Mortality Rates* ⁺ per 1,000 person-	* Relative Rate	4.63 (1.96 - 10.94)	8.60 (2.87 - 25.79)	4.04 (1.41 - 11.56)	1.52 (0.51 - 4.52)	ref
years	Rate Difference	4.30 (1.47 - 7.13)	9.01 (1.01 - 17.01)	3.60 (-0.05 - 7.24)	0.62 (-1.00 - 2.24)	ref
Potential Years o	Rate	82.84 (33.10 - 132.58)	116.28 (33.19 - 199.38)	49.87 (6.75 - 93.00)	30.43 (-0.99 - 61.86)	19.34 (3.31 - 35.37)
Life Lost** per 1,000 person-	Relative Rate	4.28 (1.52 - 12.11)	6.01 (2.01 - 17.99)	2.58 (0.73 - 9.16)	1.57 (0.35 - 7.01)	ref
years	Rate Difference	63.50 (10.85 - 116.15)	96.94 (12.62 - 181.26)	30.53 (-15.06 - 76.13)	11.09 (-25.18 - 47.37)	ref
Total Mortality	Rate	7.14 (4.30 - 9.98)	13.72 (5.60 - 21.84)	8.81 (5.18 - 12.43)	2.80 (1.26 - 4.35)	2.83 (1.80 - 3.85)
Rates* per 1,000 person-	Relative Rate	2.53 (1.48 - 4.32)	4.86 (2.43 - 9.73)	3.12 (1.81 - 5.38)	0.99 (0.50 - 1.99)	ref
years	Rate Difference	4.31 (1.28 - 7.35)	10.90 (2.67 - 19.13)	5.98 (2.21 - 9.75)	-0.02 (-1.96 - 1.92)	ref
*Aged 12+ except	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Propensity Score Rates

Appendix Table 5.10: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex- & propen	sity score-adjusted		
Premature	Rate	2.83 (0.85 - 9.42)	11.86 (3.69 - 38.13)	0.82 (0.19 - 3.60)	2.57 (0.31 - 21.13)	0.44 (0.10 - 2.06)
Mortality Rates** per 1,000 person-	Relative Rate	6.40 (1.14 - 36.07)	26.79 (3.57 - 201.09)	1.85 (0.31 - 10.92)	5.81 (0.61 - 55.14)	ref
years	Rate Difference	2.39 (-0.82 - 5.60)	11.42 (-13.35 - 36.19)	0.38 (-0.87 - 1.62)	2.13 (-3.28 - 7.54)	ref
Potential Years of	Rate	35.23 (6.38 - 194.67)	173.22 (44.84 - 669.14)	7.22 (0.98 - 53.10)	37.04 (1.79 - 765.36)	4.64 (0.55 - 39.22)
Life Lost** per 1,000 person-	Relative Rate	7.59 (0.68 - 85.16)	37.30 (2.73 - 510.28)	1.56 (0.14 - 17.34)	7.98 (0.34 - 185.12)	ref
years	Rate Difference	30.59 (-16.95 - 78.12)	168.57 (-191.74 - 528.89)	2.58 (-12.73 - 17.89)	32.40 (-59.25 - 124.04)	ref
Total Mortality	Rate	8.27 (3.53 - 19.38)	11.93 (4.15 - 34.34)	1.64 (0.70 - 3.84)	5.06 (0.86 - 29.91)	2.01 (0.77 - 5.24)
Rates* per 1,000 person-	Relative Rate	4.11 (1.06 - 15.93)	5.94 (1.50 - 23.49)	0.82 (0.25 - 2.65)	2.52 (0.36 - 17.69)	ref
years	Rate Difference	6.26 (0.13 - 12.39)	9.92 (-40.39 - 60.24)	-0.37 (-2.57 - 1.84)	3.05 (-4.88 - 10.97)	ref
*Aned 12+ excent N	AHHS (aged 1	7-76). CCHS Healthy Aging (aged	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.11: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 3 Years After Survey Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	le		
Premature	Rate	5.59 (3.99 - 7.19)	6.39 (3.10 - 9.68)	4.75 (2.87 - 6.63)	1.39 (0.68 - 2.10)	1.39 (0.90 - 1.88)
Mortality Rates** per 1,000 person-	* Relative Rate	4.03 (2.55 - 6.36)	4.61 (2.47 - 8.58)	3.42 (2.00 - 5.87)	1.00 (0.53 - 1.90)	ref
years	Rate Difference	4.20 (2.53 - 5.87)	5.00 (1.67 - 8.34)	3.36 (1.41 - 5.31)	0.00 (-0.88 - 0.89)	ref
Potential Years of	Rate	78.51 (50.09 - 106.93)	69.32 (34.16 - 104.48)	57.92 (28.07 - 87.76)	18.11 (4.98 - 31.23)	17.50 (9.58 - 25.43)
Life Lost** per 1,000 person-	Relative Rate	4.49 (2.51 - 8.00)	3.96 (2.08 - 7.53)	3.31 (1.68 - 6.53)	1.03 (0.44 - 2.45)	ref
years	Rate Difference	61.01 (31.47 - 90.55)	51.82 (16.17 - 87.47)	40.42 (10.04 - 70.80)	0.61 (-14.85 - 16.06)	ref
Total Mortality	Rate	7.43 (5.73 - 9.14)	9.81 (5.89 - 13.72)	12.15 (9.74 - 14.57)	3.58 (2.55 - 4.61)	4.31 (3.60 - 5.01)
Rates* per 1,000 person-	Relative Rate	1.73 (1.29 - 2.30)	2.28 (1.50 - 3.46)	2.82 (2.17 - 3.66)	0.83 (0.60 - 1.16)	ref
years	Rate Difference	3.12 (1.25 - 4.99)	5.50 (1.54 - 9.46)	7.84 (5.30 - 10.39)	-0.73 (-1.98 - 0.53)	ref
*Aged 12+ except	MHHS (aged 1	7-76), CCHS Healthy Aging (age	d 45+)			

Values in **bold** type indicate statistically significantly different values than Never Smoked. **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Appendix Table 5.11: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex- & propen:	sity score-adjusted		
Premature	Rate	4.65 (2.58 - 8.39)	4.59 (1.62 - 13.04)	2.03 (0.84 - 4.92)	1.78 (0.52 - 6.13)	1.05 (0.51 - 2.15)
Mortality Rates** per 1,000 person-	Relative Rate	4.43 (1.82 - 10.78)	4.37 (1.23 - 15.49)	1.93 (0.63 - 5.93)	1.69 (0.47 - 6.04)	ref
years	Rate Difference	3.60 (0.99 - 6.22)	3.54 (-5.38 - 12.47)	0.98 (-0.83 - 2.80)	0.73 (-1.77 - 3.22)	ref
Potential Years of	Rate	54.57 (29.08 - 102.40)	97.92 (32.28 - 297.07)	34.11 (9.69 - 120.04)	22.46 (4.77 - 105.80)	7.82 (3.32 - 18.44)
Life Lost** per 1,000 person-	Relative Rate	6.98 (2.47 - 19.69)	12.52 (2.81 - 55.72)	4.36 (0.90 - 21.09)	2.87 (0.62 - 13.22)	ref
years	Rate Difference	46.75 (14.06 - 79.43)	90.10 (-45.50 - 225.70)	26.29 (-10.64 - 63.22)	14.64 (-17.78 - 47.05)	ref
Total Mortality	Rate	10.19 (6.20 - 16.74)	10.16 (5.01 - 20.58)	4.96 (2.69 - 9.17)	3.89 (1.44 - 10.49)	2.99 (1.79 - 5.00)
Rates* per 1,000 person-	Relative Rate	3.41 (1.67 - 6.94)	3.40 (1.39 - 8.33)	1.66 (0.76 - 3.61)	1.30 (0.47 - 3.61)	ref
years	Rate Difference	7.20 (2.14 - 12.26)	7.17 (-3.47 - 17.81)	1.97 (-1.41 - 5.36)	0.90 (-3.77 - 5.57)	ref
*Aged 12+ except N	AHHS (aged 1)	7-76), CCHS Healthy Aging (aged	145+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.12: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 5 Years After Survey Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	de		
Premature	Rate	6.09 (4.75 - 7.44)	5.37 (2.94 - 7.79)	5.00 (3.55 - 6.46)	1.86 (1.14 - 2.57)	1.29 (0.92 - 1.67)
Mortality Rates** per 1,000 person-	* Relative Rate	4.71 (3.24 - 6.86)	4.15 (2.42 - 7.13)	3.87 (2.56 - 5.84)	1.43 (0.87 - 2.36)	ref
years	Rate Difference	4.80 (3.38 - 6.21)	4.07 (1.62 - 6.53)	3.71 (2.20 - 5.22)	0.56 (-0.26 - 1.39)	ref
Potential Years of	Rate	92.85 (63.29 - 122.41)	57.34 (30.63 - 84.05)	58.47 (35.71 - 81.24)	22.83 (11.06 - 34.61)	19.61 (12.49 - 26.72)
Life Lost** per 1,000 person-	Relative Rate	4.74 (2.90 - 7.74)	2.92 (1.64 - 5.23)	2.98 (1.78 - 5.00)	1.16 (0.62 - 2.19)	ref
years	Rate Difference	73.25 (42.62 - 103.87)	37.74 (10.02 - 65.45)	38.87 (15.48 - 62.26)	3.23 (-10.44 - 16.90)	ref
Total Mortality	Rate	8.49 (7.01 - 9.97)	9.25 (6.18 - 12.32)	13.20 (11.25 - 15.15)	4.59 (3.66 - 5.52)	4.87 (4.20 - 5.54)
Rates* per 1,000 person-	Relative Rate	1.74 (1.39 - 2.19)	1.90 (1.34 - 2.70)	2.71 (2.21 - 3.32)	0.94 (0.73 - 1.21)	ref
years	Rate Difference	3.62 (1.96 - 5.28)	4.38 (1.24 - 7.52)	8.32 (6.23 - 10.42)	-0.28 (-1.46 - 0.89)	ref
*Aged 12+ except	MHHS (aged 1	7-76), CCHS Healthy Aging (age	145+)			

Values in **bold** type indicate statistically significantly different values than Never Smoked. **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Appendix Table 5.13: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Mortality Measures by Smoking Status Categories, 10 Years After Survey ТТ

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Survey weighted; 95% Confidence Intervals

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		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Crud	e		
Premature	Rate	6.31 (5.22 - 7.40)	5.81 (3.69 - 7.93)	5.98 (4.73 - 7.23)	1.97 (1.36 - 2.58)	1.51 (1.16 - 1.86)
Mortality Rates** per 1,000 person-	Relative Rate	4.18 (3.11 - 5.62)	3.85 (2.48 - 5.98)	3.96 (2.89 - 5.44)	1.31 (0.88 - 1.94)	ref
years	Rate Difference	4.80 (3.64 - 5.96)	4.30 (2.15 - 6.44)	4.47 (3.16 - 5.78)	0.46 (-0.25 - 1.17)	ref
Potential Years of	Rate	93.41 (71.37 - 115.45)	56.60 (35.21 - 77.99)	70.04 (50.75 - 89.32)	22.39 (13.04 - 31.75)	23.53 (16.20 - 30.87)
Life Lost** per 1,000 person-	Relative Rate	3.97 (2.68 - 5.87)	2.41 (1.47 - 3.94)	2.98 (1.99 - 4.46)	0.95 (0.56 - 1.60)	ref
years	Rate Difference	69.87 (46.64 - 93.11)	33.07 (10.34 - 55.79)	46.50 (26.20 - 66.81)	-1.14 (-13.08 - 10.80)	ref
Total Mortality	Rate	9.20 (7.99 - 10.42)	10.23 (7.75 - 12.71)	15.42 (13.77 - 17.07)	5.34 (4.48 - 6.21)	5.85 (5.26 - 6.45)
Rates* per 1,000 person-	Relative Rate	1.57 (1.33 - 1.85)	1.75 (1.35 - 2.27)	2.63 (2.27 - 3.06)	0.91 (0.75 - 1.11)	ref
years	Rate Difference	3.35 (2.01 - 4.69)	4.38 (1.84 - 6.91)	9.57 (7.79 - 11.34)	-0.51 (-1.57 - 0.55)	ref

*Aged 12+ except MHHS (aged 17-76), CCHS Healthy Aging (aged 45+)

**Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Appendix Table 5.13: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex- & propen:	sity score-adjusted		
Premature	Rate	5.27 (3.18 - 8.74)	3.63 (1.62 - 8.12)	6.30 (2.80 - 14.18)	1.90 (0.86 - 4.20)	1.82 (0.97 - 3.41)
Mortality Rates** per 1,000 person-	* Relative Rate	2.89 (1.23 - 6.78)	1.99 (0.73 - 5.47)	3.46 (1.11 - 10.78)	1.04 (0.46 - 2.36)	ref
years	Rate Difference	3.45 (-0.16 - 7.06)	1.81 (-1.86 - 5.49)	4.48 (0.07 - 8.88)	0.08 (-2.11 - 2.27)	ref
Potential Years of	Rate	81.75 (49.70 - 134.48)	62.45 (25.79 - 151.23)	62.33 (29.41 - 132.11)	24.81 (12.30 - 50.07)	17.62 (10.55 - 29.43)
Life Lost** per 1,000 person-	Relative Rate	4.64 (2.31 - 9.31)	3.55 (1.23 - 10.23)	3.54 (1.31 - 9.52)	1.41 (0.64 - 3.11)	ref
years	Rate Difference	64.13 (21.16 - 107.11)	44.84 (-15.13 - 104.80)	44.72 (-0.62 - 90.05)	7.20 (-17.05 - 31.44)	ref
Total Mortality	Rate	12.44 (8.43 - 18.35)	10.28 (6.15 - 17.19)	14.54 (7.42 - 28.50)	4.87 (2.65 - 8.95)	5.10 (3.04 - 8.55)
Rates* per 1,000 person-	Relative Rate	2.44 (1.26 - 4.74)	2.02 (1.02 - 3.98)	2.85 (1.09 - 7.44)	0.96 (0.49 - 1.85)	ref
years	Rate Difference	7.34 (1.43 - 13.25)	5.18 (-0.57 - 10.93)	9.44 (0.37 - 18.51)	-0.23 (-4.71 - 4.25)	ref
*Aged 12+ except l	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	45+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDER CREATOR EXPLORER DEFENDE

Values in **bold** type indicate statistically significantly different values than Never Smoked. **Aged 12-74 except MHHS (aged 17-74), CCHS Healthy Aging (aged 45-74)

Appendix Table 5.14: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 1 Year After Survey

Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Crue	de		
Cancer Incidence	Rate	748.92 (460.99 - 1,036.85)	529.26 (114.38 - 944.15)	964.26 (601.99 - 1,326.52)	300.09 (158.68 - 441.50)	529.78 (333.55 - 726.00)
Rates* per 100,000 person	Relative ₁- Rate	1.41 (0.81 - 2.48)	1.00 (0.41 - 2.45)	1.82 (1.04 - 3.18)	0.57 (0.30 - 1.08)	ref
years	Rate Difference	219.15 (-128.74 - 567.03)	-0.51 (-445.80 - 444.77)	434.48 (23.51 - 845.46)	- 229.69 (-474.85 - 15.48)	ref
Lung Cancer	Rate	361.20 (136.65 - 585.74)	250.58 (-35.79 - 536.96)	104.34 (16.20 - 192.48)	0	33.20 (3.73 - 62.66)
Incidence Rates* per 100,000 person	Relative ₁- Rate	10.88 (2.71 - 43.70)	7.55 (1.18 - 48.16)	3.14 (0.72 - 13.66)	0	ref
years	Rate Difference	328.00 (99.95 - 556.04)	217.39 (-69.23 - 504.00)	71.14 (-20.56 - 162.84)	-33.20 (-62.663.73)	ref
Strongly Smoking Associated**	g Rate	394.97 (162.54 - 627.40)	250.58 (-35.79 - 536.96)	104.34 (16.20 - 192.48)	0	33.20 (3.73 - 62.66)
Cancers Incidence Rates*	e Relative Rate	11.90 (3.03 - 46.71)	7.55 (1.18 - 48.16)	3.14 (0.72 - 13.66)	0	ref
per 100,000 persor years	n- Rate Difference	361.77 (126.14 - 597.41)	217.39 (-69.23 - 504.00)	71.14 (-20.56 - 162.84)	-33.20 (-62.663.73)	ref
*Aged 12+ except N	MHHS (aged 1	7-76). CCHS Healthy Aging (aged	145+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.14: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
		_	survey)	survey)		
			Age-, sex- & propens	ity score-adjusted		
Cancer Incidence	Rate	676.25 (327.99 - 1,394.31)	1,367.86 (468.91 - 3,990.15)	598.62 (196.55 - 1,823.17)	129.98 (46.65 - 362.16)	173.85 (61.67 - 490.11)
Rates* per 100,000 person [.]	Relative Rate	3.89 (1.19 - 12.73)	7.87 (1.44 - 43.13)	3.44 (0.79 - 14.92)	0.75 (0.19 - 2.87)	ref
years	Rate Difference	502.41 (-15.47 - 1,020.28)	1,194.01 (103.89 - 2,284.13)	424.77 (-233.09 - 1,082.63)	-43.87 (-310.49 - 222.75)	ref
Lung Cancer	Rate	283.16 (136.68 - 586.65)	184.76 (31.62 - 1,079.55)	4.91 (0.49 - 49.00)	0	25.87 (0.51 - 1,309.94)
Incidence Rates* per 100,000 person	Relative Rate	10.94 (0.17 - 712.34)	7.14 (0.08 - 665.37)	0.19 (0.00 - 18.73)	0	ref
years	Rate Difference	257.29 (8.64 - 505.94)	158.88 (-376.56 - 694.33)	-20.97 (-111.75 - 69.82)	-25.87 (-0.511,309.94)	ref
Strongly Smoking Associated**	Rate	302.72 (154.05 - 594.86)	191.86 (33.67 - 1,093.18)	5.12 (0.52 - 50.16)	0	26.82 (0.53 - 1,345.52)
Cancers Incidence Rates*	Relative Rate	11.29 (0.18 - 715.12)	7.15 (0.08 - 655.27)	0.19 (0.00 - 19.07)	0	ref
per 100,000 person	Rate Difference	275.90 (19.10 - 532.70)	165.04 (-234.00 - 564.07)	-21.70 (-113.20 - 69.81)	-26.82 (-0.531,345.52)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	145+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette. Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

umanitoba.ca/faculties/medicine/units/mchp Appendix 5 | page 307 Appendix Table 5.15: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 3 Years After Survey Survey weighted; 95% Confidence Intervals

			Former Dailv Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	le		
Cancer Incidence	Rate	773.11 (589.47 - 956.74)	560.93 (326.71 - 795.15)	1,011.17 (789.33 - 1,233.00)	408.40 (292.15 - 524.65)	430.08 (325.32 - 534.84)
Rates* per 100,000 person	Relative ∩- Rate	1.80 (1.27 - 2.54)	1.30 (0.81 - 2.10)	2.35 (1.68 - 3.28)	0.95 (0.64 - 1.40)	ref
years	Rate Difference	343.03 (133.02 - 553.04)	130.85 (-120.57 - 382.27)	581.09 (335.49 - 826.69)	-21.68 (-180.59 - 137.24)	ref
Lung Cancer	Rate	295.38 (185.82 - 404.93)	156.86 (34.51 - 279.20)	160.22 (62.05 - 258.40)	v	17.95 (3.83 - 32.08)
Incidence Rates* per 100,000 person	Relative ∩- Rate	16.45 (6.35 - 42.61)	8.74 (2.61 - 29.22)	8.92 (3.13 - 25.43)	S	ref
years	Rate Difference	277.42 (166.35 - 388.49)	138.90 (16.72 - 261.09)	142.27 (43.85 - 240.69)	S	ref
Strongly Smoking Associated**	J Rate	320.53 (202.01 - 439.06)	156.86 (34.51 - 279.20)	162.90 (64.61 - 261.20)	S	17.95 (3.83 - 32.08)
Cancers Incidence Rates*	e Relative Rate	17.85 (6.91 - 46.09)	8.74 (2.61 - 29.22)	9.07 (3.20 - 25.69)	S	ref
per 100,000 person years	1- Rate Difference	302.58 (182.53 - 422.62)	138.90 (16.72 - 261.09)	144.95 (46.43 - 243.47)	S	ref
A +20070 - CT 2007+	1 11 1C / 20 0 1	2 2C/ CCHC Health A size / 220	J AF . V			

Teairny Aging (aged 45+, ехсерт мннэ (адеа Agea 12+ **Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

s indicates data suppressed due to small numbers.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.15: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age-, sex- & propens	ity score-adjusted		
Cancer Incidence	Rate	1,031.55 (565.85 - 1,880.53)	821.24 (388.23 - 1,737.19)	927.69 (528.19 - 1,629.35)	918.96 (354.73 - 2,380.67)	974.21 (329.54 - 2,880.04)
Rates* per 100,000 person [.]	Relative Rate	1.06 (0.32 - 3.45)	0.84 (0.22 - 3.30)	0.95 (0.29 - 3.17)	0.94 (0.19 - 4.66)	ref
years	Rate Difference	57.34 (-962.06 - 1,076.75)	-152.97 (-1,344.33 - 1,038.40)	-46.52 (-1,034.99 - 941.95)	-55.24 (-1,383.37 - 1,272.88)	ref
Lung Cancer	Rate	335.97 (179.60 - 628.51)	195.71 (65.99 - 580.41)	22.62 (5.10 - 100.43)	S	6.56 (0.90 - 47.81)
Incidence Rates* per 100,000 person	Relative Rate	51.22 (6.22 - 421.77)	29.83 (3.05 - 292.27)	3.45 (0.28 - 42.06)	v	ref
years	Rate Difference	329.41 (130.11 - 528.71)	189.15 (-46.71 - 425.00)	16.06 (-46.76 - 78.89)	S	ref
Strongly Smoking Associated**	Rate	352.70 (191.96 - 648.04)	203.95 (71.57 - 581.23)	23.91 (5.53 - 103.43)	S	6.96 (0.99 - 48.93)
Cancers Incidence Rates*	Relative Rate	50.66 (6.42 - 399.89)	29.30 (3.13 - 273.96)	3.43 (0.29 - 40.24)	S	ref
per 100,000 person years	¹⁻ Rate Difference	345.74 (142.92 - 548.56)	196.99 (-29.28 - 423.25)	16.95 (-47.35 - 81.24)	S	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (agec	1 45+) 			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER

Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

s indicates data suppressed due to small numbers.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.16: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 5 Years After Survey

Survey weighted; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	de		
Cancer Incidence	Rate	709.89 (571.81 - 847.98)	579.24 (388.02 - 770.46)	1,046.68 (873.23 - 1,220.12)	468.52 (346.73 - 590.30)	436.58 (352.34 - 520.82)
Rates* per 100,000 person	Relative - Rate	1.63 (1.24 - 2.13)	1.33 (0.91 - 1.93)	2.40 (1.85 - 3.11)	1.07 (0.77 - 1.49)	ref
years	Rate Difference	273.31 (113.33 - 433.30)	142.66 (-65.46 - 350.78)	610.10 (415.17 - 805.02)	31.94 (-117.70 - 181.57)	ref
Lung Cancer	Rate	245.60 (166.52 - 324.68)	159.23 (64.98 - 253.47)	154.61 (81.26 - 227.97)	24.02 (0.19 - 47.85)	18.24 (6.99 - 29.48)
Incidence Rates* per 100,000 person	Relative - Rate	13.47 (6.49 - 27.95)	8.73 (3.62 - 21.07)	8.48 (3.87 - 18.58)	1.32 (0.32 - 5.51)	ref
years	Rate Difference	227.36 (147.30 - 307.43)	140.99 (46.70 - 235.29)	136.38 (62.99 - 209.77)	5.78 (-20.74 - 32.31)	ref
Strongly Smoking Associated**	Rate	269.14 (183.94 - 354.34)	159.23 (64.98 - 253.47)	163.05 (88.63 - 237.46)	30.30 (1.71 - 58.90)	19.13 (7.80 - 30.45)
Cancers Incidence Rates*	e Relative Rate	14.07 (7.01 - 28.23)	8.33 (3.53 - 19.65)	8.52 (4.04 - 18.00)	1.58 (0.44 - 5.66)	ref
per 100,000 person years	Rate Difference	250.01 (163.85 - 336.17)	140.10 (45.79 - 234.41)	143.92 (69.44 - 218.41)	11.18 (-19.28 - 41.63)	ref
*Aaed 12+ except N	VHHS (aged 1	7-76). CCHS Healthy Aging (aged	145+)			

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.16: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			Age-, sex- & propens	sity score-adjusted		
Cancer Incidence	Rate	1,015.70 (664.03 - 1,553.63)	732.49 (392.55 - 1,366.81)	1,232.36 (691.61 - 2,195.90)	665.30 (343.59 - 1,288.22)	1,058.49 (434.37 - 2,579.39)
Rates* per 100,000 person	Relative)- Rate	0.96 (0.38 - 2.42)	0.69 (0.23 - 2.07)	1.16 (0.37 - 3.65)	0.63 (0.20 - 2.01)	ref
years	Rate Difference	-42.79 (-869.37 - 783.79)	-326.01 (-1,268.99 - 616.97)	173.86 (-878.71 - 1,226.44)	-393.20 (-1,341.22 - 554.82)	ref
Lung Cancer	Rate	380.10 (213.30 - 677.33)	315.27 (113.04 - 879.33)	62.20 (17.39 - 222.50)	7.36 (1.19 - 45.51)	30.32 (2.78 - 331.26)
Incidence Rates* per 100,000 person	Relative - Rate	12.54 (1.16 - 135.44)	10.40 (0.64 - 169.13)	2.05 (0.15 - 28.51)	0.24 (0.02 - 3.69)	ref
years	Rate Difference	349.78 (163.30 - 536.26)	284.95 (-0.59 - 570.49)	31.88 (-67.39 - 131.15)	-22.97 (-82.12 - 36.18)	ref
Strongly Smoking Associated**) Rate	411.37 (233.95 - 723.33)	266.67 (93.86 - 757.61)	79.96 (21.63 - 295.56)	22.78 (3.23 - 160.85)	39.34 (4.14 - 374.14)
Cancers Incidence Rates*	e Relative Rate	10.46 (1.10 - 99.59)	6.78 (0.47 - 97.47)	2.03 (0.16 - 26.00)	0.58 (0.03 - 10.11)	ref
per 100,000 person years	^{]-} Rate Difference	372.03 (171.43 - 572.62)	227.32 (-43.73 - 498.38)	40.62 (-89.31 - 170.55)	-16.57 (-91.33 - 58.19)	ref
*Aged 12+ except N	MHHS (aged 1	7-76), CCHS Healthy Aging (aged	(45+) above occaboour and lower o			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

Appendix Table 5.17: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences of Cancer Types by Smoking Status Categories, 10 Years After Survey Survey weighted; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before	Former Daily Smoker (Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Cruc	de		
Cancer Incidence	Rate	722.98 (607.70 - 838.25)	788.25 (579.04 - 997.46)	1,173.46 (1,021.56 - 1,325.37)	429.45 (334.97 - 523.93)	443.33 (376.66 - 509.99)
Rates* per 100,000 person-	Relative - Rate	1.63 (1.31 - 2.04)	1.78 (1.31 - 2.41)	2.65 (2.17 - 3.22)	0.97 (0.74 - 1.27)	ref
years	Rate Difference	279.65 (145.28 - 414.02)	344.92 (125.19 - 564.65)	730.14 (565.98 - 894.30)	-13.88 (-130.64 - 102.88)	ref
Lung Cancer	Rate	254.80 (187.79 - 321.81)	207.36 (116.81 - 297.91)	141.19 (88.25 - 194.13)	22.99 (4.89 - 41.09)	18.23 (8.69 - 27.78)
Incidence Rates* per 100,000 person-	Relative - Rate	13.98 (7.54 - 25.92)	11.37 (5.76 - 22.46)	7.75 (4.06 - 14.76)	1.26 (0.44 - 3.58)	ref
years	Rate Difference	236.57 (168.37 - 304.77)	189.13 (98.84 - 279.43)	122.96 (69.74 - 176.18)	4.76 (-15.46 - 24.97)	ref
Strongly Smoking Associated**	Rate	273.02 (202.56 - 343.47)	207.36 (116.81 - 297.91)	147.16 (93.57 - 200.75)	27.48 (6.31 - 48.66)	20.79 (10.37 - 31.21)
Cancers Incidence Rates*	Relative Rate	13.13 (7.33 - 23.54)	9.97 (5.14 - 19.34)	7.08 (3.84 - 13.03)	1.32 (0.49 - 3.54)	ref
per 100,000 person years	-Rate Difference	252.23 (180.73 - 323.72)	186.57 (96.28 - 276.86)	126.37 (72.63 - 180.11)	6.69 (-16.65 - 30.04)	ref
*Aged 12+ except N	1 AHHS (aged 1	7-76), CCHS Healthy Aging (aged	1 42+)			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER

**Strongly smoking associated cancers are lung and bronchus, oropharynx, esophagus and larynx cancers.

Values in **bold** type indicate statistically significantly different values than Never Smoked.

Note: Values should be interpreted with caution due to small numbers of events and large standard errors.

APPENDIX 6

Appendix Table 6.1: Total and Average Physician Costs by Ever and Never Smoked

Per person-year, Maximum 5 years after survey, p-score as covariate cohort, costs weighted by ATT IPTWs, fiscal year, aged 12+

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

Year	Smoking Status	Person-Years	Length of Stay	Average Days (95% CIs)	Standard Error
1006/07	Never Smoked	2,855.43	770,708.35	269.91 (269.31-270.51)	0.31
1990/97	Ever Smoked	3,066.79	778,111.21	253.72 (253.16-254.29)	0.29
1007/09	Never Smoked	4,586.31	1,172,351.23	255.62 (255.16-256.08)	0.24
1997/90	Ever Smoked	4,831.32	1,341,189.24	277.60 (277.13-278.07)	0.24
1009/00	Never Smoked	4,494.81	1,296,094.51	288.35 (287.86-288.85)	0.25
1990/99	Ever Smoked	4,684.43	1,377,690.71	294.10 (293.61-294.59)	0.25
1000/00	Never Smoked	4,388.06	1,282,429.12	292.25 (291.75-292.76)	0.26
1999/00	Ever Smoked	4,559.70	1,486,013.50	325.90 (325.38-326.43)	0.27
2000/01	Never Smoked	5,756.99	2,248,074.46	390.49 (389.98-391.01)	0.26
2000/01	Ever Smoked	6,039.58	2,261,624.70	374.47 (373.98-374.96)	0.25
2001/02	Never Smoked	4,583.54	1,787,757.77	390.04 (389.47-390.61)	0.29
2001/02	Ever Smoked	4,697.02	1,870,685.33	398.27 (397.70-398.84)	0.29
2002/02	Never Smoked	3,511.46	1,330,508.19	378.90 (378.26-379.55)	0.33
2002/05	Ever Smoked	3,622.37	1,495,580.31	412.87 (412.21-413.53)	0.34
2002/04	Never Smoked	5,508.04	2,223,430.54	403.67 (403.14-404.20)	0.27
2003/04	Ever Smoked	5,743.98	2,559,057.41	445.52 (444.97-446.07)	0.28
2004/05	Never Smoked	6,625.06	2,923,848.80	441.33 (440.83-441.84)	0.26
2004/05	Ever Smoked	6,907.94	3,325,932.92	481.46 (480.95-481.98)	0.26
2005/06	Never Smoked	7,015.54	3,125,717.97	445.54 (445.05-446.04)	0.25
2005/00	Ever Smoked	7,315.07	3,673,242.38	502.15 (501.63-502.66)	0.26
2006/07	Never Smoked	5,823.19	2,749,259.72	472.12 (471.56-472.68)	0.28
2000/07	Ever Smoked	6,126.90	3,284,906.50	536.14 (535.56-536.72)	0.30
2007/09	Never Smoked	6,577.70	3,423,232.77	520.43 (519.88-520.98)	0.28
2007/08	Ever Smoked	6,815.45	3,908,607.75	573.49 (572.92-574.06)	0.29
2009/00	Never Smoked	5,937.45	3,352,366.28	564.61 (564.01-565.22)	0.31
2008/09	Ever Smoked	6,173.52	3,678,808.24	595.90 (595.29-596.51)	0.31
2000/10	Never Smoked	6,490.76	3,970,185.61	611.67 (611.07-612.27)	0.31
2009/10	Ever Smoked	6,653.75	4,567,453.35	686.45 (685.82-687.08)	0.32
2010/11	Never Smoked	5,786.10	4,018,396.49	694.49 (693.81-695.17)	0.35
2010/11	Ever Smoked	5,853.00	4,393,170.75	750.58 (749.88-751.29)	0.36
2011/12	Never Smoked	6,218.98	4,615,590.19	742.18 (741.50-742.86)	0.35
2011/12	Ever Smoked	6,243.93	4,732,184.13	757.89 (757.20-758.57)	0.35
	Never Smoked	86,159.41	40,289,952.01	467.62 (467.48-467.77)	0.07
All rears	Ever Smoked	89,334.77	44,734,258.43	500.75 (500.60-500.90)	0.07

Per person-year, maximum 5 years after survey, p-score as covariate cohort, costs weighted by ATT IPTWs, fiscal year, age Appendix Table 6.2: Total and Average Hospital Costs (using 2010/11 CWC) by Ever and Never Smoked

Year	Smoking Status	Person- Years	Hospital Costs	Average Adjusted Hospital Costs (95% CIs)	Standard Error Adjusted Hospital Costs	Average PCH Rx Costs (95% CIs)	Standard Error Crude Hospital Costs
	Never Smoked	2,855.43	2,867,276.02	982.81 (981.68-983.95)	0.58	1,004.15 (1,002.99-1,005.31)	.0.59
1996/9/	Ever Smoked	3,066.79	3,282,094.57	971.44 (970.39-972.49)	0.54	1,070.21 (1,069.05-1,071.36)	0.59
1007/000	Never Smoked	4,586.31	4,455,557.67	886.58 (885.75-887.40)	0.42	971.49 (970.59-972.39)	0.46
06//66T	Ever Smoked	4,831.32	8,136,574.33	1,443.21 (1,442.22-1,444.20)	0.51	1,684.13 (1,682.97-1,685.29)	0.59
1000/000	Never Smoked	4,494.81	6,589,723.25	1,246.35 (1,245.40-1,247.30)	0.49	1,466.07 (1,464.95-1,467.19)	0.57
EE OEET	Ever Smoked	4,684.43	7,988,822.78	1,499.37 (1,498.33-1,500.41)	0.53	1,705.40 (1,704.22-1,706.58)	0.60
1000 /000	Never Smoked	4,388.06	4,564,614.30	910.07 (909.24-910.91)	0.43	1,040.23 (1,039.28-1,041.19)	0.49
nn leeet	Ever Smoked	4,559.70	7,930,681.32	1,480.38 (1,479.35-1,481.41)	0.53	1,739.30 (1,738.09-1,740.51)	0.62
10,0000	Never Smoked	5,756.99	7,816,858.93	1,304.14 (1,303.23-1,305.06)	0.47	1,357.80 (1,356.85-1,358.75)	0.49
	Ever Smoked	6,039.58	10,034,845.27	1,337.93 (1,337.11-1,338.76)	0.42	1,661.51 (1,660.49-1,662.54)	0.52
CO/ 100C	Never Smoked	4,583.54	5,055,245.77	977.53 (976.68-978.39)	0.43	1,102.91 (1,101.95-1,103.87)	0.49
	Ever Smoked	4,697.02	8,325,699.81	1,493.11 (1,492.09-1,494.12)	0.52	1,772.55 (1,771.34-1,773.75)	0.61
	Never Smoked	3,511.46	3,125,912.93	768.80 (767.95-769.66)	0.43	890.20 (889.22-891.19)	0.50
	Ever Smoked	3,622.37	4,681,585.08	1,076.59 (1,075.62-1,077.57)	0.50	1,292.41 (1,291.24-1,293.58)	0.60
	Never Smoked	5,508.04	4,819,839.47	776.26 (775.57-776.95)	0.35	875.06 (874.27-875.84)	0.40
+0/c002	Ever Smoked	5,743.98	7,315,306.36	1,040.48 (1,039.72-1,041.23)	0.38	1,273.56 (1,272.64-1,274.48)	0.47
2004 /0E	Never Smoked	6,625.06	7,845,182.00	1,022.78 (1,022.06-1,023.49)	0.37	1,184.17 (1,183.34-1,185.00)	0.42
	Ever Smoked	6,907.94	8,919,120.47	1,000.27 (999.61-1,000.92)	0.33	1,291.14 (1,290.29-1,291.99)	0.43
	Never Smoked	7,015.54	7,494,428.49	789.91 (789.34-790.47)	0.29	1,068.26 (1,067.50-1,069.03)	0.39
	Ever Smoked	7,315.07	10,924,664.12	1,196.39 (1,195.68-1,197.10)	0.36	1,493.45 (1,492.56-1,494.33)	0.45
201 2000	Never Smoked	5,823.19	7,142,521.90	975.76 (975.05-976.48)	0.37	1,226.57 (1,225.67-1,227.47)	0.46
10/0007	Ever Smoked	6,126.90	8,341,188.87	1,027.78 (1,027.08-1,028.47)	0.36	1,361.40 (1,360.48-1,362.33)	0.47
80/2000	Never Smoked	6,577.70	7,308,022.43	829.62 (829.02-830.22)	0.31	1,111.03 (1,110.22-1,111.84)	0.41
00//007	Ever Smoked	6,815.45	10,241,644.25	1,135.35 (1,134.66-1,136.05)	0.35	1,502.71 (1,501.79-1,503.63)	0.47
	Never Smoked	5,937.45	6,595,893.77	828.80 (828.17-829.44)	0.32	1,110.90 (1,110.05-1,111.74)	0.43
60/0007	Ever Smoked	6,173.52	9,439,382.63	1,053.48 (1,052.81-1,054.15)	0.34	1,529.01 (1,528.04-1,529.99)	0.50
01/0000	Never Smoked	6,490.76	6,438,921.45	677.60 (677.08-678.13)	0.27	992.01 (991.25-992.78)	0.39
OT /CONZ	Ever Smoked	6,653.75	9,865,317.25	1,043.58 (1,042.93-1,044.23)	0.33	1,482.67 (1,481.74-1,483.60)	0.47
11/0100	Never Smoked	5,786.10	10,915,577.51	1,478.15 (1,477.27-1,479.03)	0.45	1,886.52 (1,885.40-1,887.64)	0.57
TT /0T07	Ever Smoked	5,853.00	10,327,900.72	1,118.83 (1,118.15-1,119.51)	0.35	1,764.55 (1,763.47-1,765.63)	0.55
C L / L LUC	Never Smoked	6,218.98	10,676,817.22	1,102.66 (1,101.99-1,103.32)	0.34	1,716.81 (1,715.78-1,717.84)	0.53
77 /7707	Ever Smoked	6,243.93	10,254,433.34	1,018.28 (1,017.65-1,018.90)	0.32	1,642.30 (1,641.30-1,643.31)	0.51
	Never Smoked	86,159.41	103,712,393.10	970.27 (970.08-970.45)	0.10	1,203.73 (1,203.50-1,203.96)	0.12
All Teals	Ever Smoked	89,334.77	136,009,261.15	1,164.68 (1,164.48-1,164.87)	0.10	1,522.47 (1,522.21-1,522.72)	0.13

Appendix Table 6.3: Total and Crude Prescription (Rx) Drug Costs and Personal Care Home (PCH) Rx Costs by Ever and Never Smoked Per person-year, maximum 5 years after survey, p-score as covariate cohort, costs weighted by ATT IPTWS, fiscal year, aged 12+

		Dorron		Austra Bu Casta	Standard			Standard
Year	Smoking Status	Years	Rx Costs	CIECO XXI GER (02% CIE)	Error Rx	Cost	(95% CIs)	Error PCH
		6 800			Costs	, , , , , , , , , , , , , , , , , , , ,		Rx Costs
1 996 /97	Never Smoked	2,855.43	301,711.19	105.66 (105.29-106.04)	0.19	35.43	0.01 (0.01-0.02)	0.00
ICIOCCT	Ever Smoked	3,066.79	290,044.88	94.58 (94.23-94.92)	0.18	683.19	0.22 (0.21-0.24)	0.01
1007/00	Never Smoked	4,586.31	476,871.52	103.98 (103.68-104.27)	0.15	10,131.22	2.21 (2.17-2.25)	0.02
06//667	Ever Smoked	4,831.32	551,433.59	114.14 (113.84-114.44)	0.15	9,912.40	2.05 (2.01-2.09)	0.02
1000/000	Never Smoked	4,494.81	550,699.73	122.52 (122.20-122.84)	0.17	30,585.95	6.80 (6.73-6.88)	0.04
CC OCCT	Ever Smoked	4,684.43	676,021.37	144.31 (143.97-144.66)	0.18	25,560.58	5.46 (5.39-5.52)	0.03
1000/000	Never Smoked	4,388.06	634,559.17	144.61 (144.25-144.97)	0.18	42,185.92	9.61 (9.52-9.71)	0.05
NN/EEET	Ever Smoked	4,559.70	755,320.01	165.65 (165.28-166.02)	0.19	52,748.07	11.57 (11.47-11.67)	0.05
10/0000	Never Smoked	5,756.99	1,062,995.77	184.64 (184.29-185.00)	0.18	52,301.47	9.08 (9.01-9.16)	0.04
	Ever Smoked	6,039.58	1,309,942.67	216.89 (216.52-217.26)	0.19	80,432.68	13.32 (13.23-13.41)	0.05
2011000	Never Smoked	4,583.54	945,737.78	206.33 (205.92-206.75)	0.21	40,977.32	8.94 (8.85-9.03)	0.04
	Ever Smoked	4,697.02	1,314,338.21	279.82 (279.35-280.30)	0.24	54,398.11	11.58 (11.48-11.68)	0.05
	Never Smoked	3,511.46	931,727.05	265.34 (264.80-265.88)	0.27	17,290.59	4.92 (4.85-5.00)	0.04
cn/znnz	Ever Smoked	3,622.37	1,127,350.57	311.22 (310.64-311.79)	0.29	23,019.29	6.35 (6.27-6.44)	0.04
	Never Smoked	5,508.04	1,686,987.22	306.28 (305.82-306.74)	0.24	36,534.87	6.63 (6.56-6.70)	0.03
+n/cnnz	Ever Smoked	5,743.98	2,145,635.03	373.54 (373.04-374.04)	0.26	49,867.22	8.68 (8.61-8.76)	0.04
	Never Smoked	6,625.06	2,104,584.37	317.67 (317.24-318.10)	0.22	65,233.23	9.85 (9.77-9.92)	0.04
cn/+007	Ever Smoked	6,907.94	2,643,987.71	382.75 (382.28-383.21)	0.24	60,126.22	8.70 (8.63-8.77)	0.04
2005/06	Never Smoked	7,015.54	2,404,391.90	342.72 (342.29-343.16)	0.22	65,983.21	9.41 (9.33-9.48)	0.04
	Ever Smoked	7,315.07	2,953,240.41	403.72 (403.26-404.18)	0.23	61,846.67	8.45 (8.39-8.52)	0.03
20/2000	Never Smoked	5,823.19	1,857,979.15	319.07 (318.61-319.52)	0.23	89,337.04	15.34 (15.24-15.44)	0.05
10/0007	Ever Smoked	6,126.90	2,597,657.20	423.98 (423.46-424.49)	0.26	67,145.30	10.96 (10.88-11.04)	0.04
80/ LUUC	Never Smoked	6,577.70	2,321,154.18	352.88 (352.43-353.34)	0.23	75,207.25	11.43 (11.35-11.52)	0.04
00//007	Ever Smoked	6,815.45	3,199,771.31	469.49 (468.97-470.00)	0.26	95,076.52	13.95 (13.86-14.04)	0.05
2008/00	Never Smoked	5,937.45	2,332,345.62	392.82 (392.32-393.32)	0.26	54,850.92	9.24 (9.16-9.32)	0.04
CO /0007	Ever Smoked	6,173.52	2,967,257.09	480.64 (480.10-481.19)	0.28	51,976.80	8.42 (8.35-8.49)	0.04
01/0000	Never Smoked	6,490.76	3,187,329.48	491.06 (490.52-491.60)	0.28	34,987.96	5.39 (5.33-5.45)	0.03
0T /C007	Ever Smoked	6,653.75	3,302,994.66	496.41 (495.88-496.95)	0.27	71,045.25	10.68 (10.60-10.76)	0.04
11/0100	Never Smoked	5,786.10	2,683,186.12	463.73 (463.18-464.28)	0.28	49,778.08	8.60 (8.53-8.68)	0.04
TT /0T07	Ever Smoked	5,853.00	3,125,485.07	534.00 (533.41-534.59)	0.30	93,005.57	15.89 (15.79-15.99)	0.05
C L/ L LUC	Never Smoked	6,218.98	3,141,041.79	505.07 (504.51-505.63)	0.28	52,558.92	8.45 (8.38-8.52)	0.04
77/7707	Ever Smoked	6,243.93	3,371,809.49	540.01 (539.44-540.59)	0.29	133,766.46	21.42 (21.31-21.54)	0.06
All Vears	Never Smoked	86,159.41	26,623,302.04	309.00 (308.88-309.12)	0.06	717,979.40	8.33 (8.31-8.35)	0.01
	Ever Smoked	89,334.77	32,332,289.26	361.92 (361.80-362.05)	0.06	930,610.32	10.42 (10.40-10.44)	0.01

Year	Smoking Status	Person-Years	Length of Stay	Average Days (95% CIs)	Standard Error
1000/07	Never Smoked	2,855.43	2,598.30	0.91 (0.87-0.94)	0.02
1990/97	Ever Smoked	3,066.79	3,831.00	1.25 (1.21-1.29)	0.02
1007/00	Never Smoked	4,586.31	5,509.15	1.20 (1.17-1.23)	0.02
1997/90	Ever Smoked	4,831.32	8,968.00	1.86 (1.82-1.89)	0.02
1009/00	Never Smoked	4,494.81	8,066.77	1.79 (1.76-1.83)	0.02
1990/99	Ever Smoked	4,684.43	10,282.00	2.19 (2.15-2.24)	0.02
1000/00	Never Smoked	4,388.06	5,333.26	1.22 (1.18-1.25)	0.02
1999/00	Ever Smoked	4,559.70	9,172.00	2.01 (1.97-2.05)	0.02
2000/01	Never Smoked	5,756.99	9,209.29	1.60 (1.57-1.63)	0.02
2000/01	Ever Smoked	6,039.58	11,564.00	1.91 (1.88-1.95)	0.02
2001/02	Never Smoked	4,583.54	5,208.07	1.14 (1.11-1.17)	0.02
2001/02	Ever Smoked	4,697.02	8,867.00	1.89 (1.85-1.93)	0.02
2002/02	Never Smoked	3,511.46	4,040.68	1.15 (1.12-1.19)	0.02
2002/03	Ever Smoked	3,622.37	5,829.00	1.61 (1.57-1.65)	0.02
2002/04	Never Smoked	5,508.04	6,800.47	1.23 (1.21-1.26)	0.01
2005/04	Ever Smoked	5,743.98	9,359.00	1.63 (1.60-1.66)	0.02
2004/05	Never Smoked	6,625.06	9,186.12	1.39 (1.36-1.41)	0.01
2004/05	Ever Smoked	6,907.94	10,730.00	1.55 (1.52-1.58)	0.01
2005/06	Never Smoked	7,015.54	8,115.74	1.16 (1.13-1.18)	0.01
2005/00	Even Creation	7 215 07	12 421 00	1 70 (1 (7 1 7))	0.00

12,431.00

8,408.26

10,324.00

7,325.49

12,122.00

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1.69 (1.65-1.72)

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1.78 (1.75-1.81)

1.22 (1.19-1.24)

1.69 (1.65-1.72)

1.22 (1.19-1.24)

1.78 (1.74-1.81)

2.03 (1.99-2.07)

2.09 (2.06-2.13)

1.83 (1.80-1.87)

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2011/12

All Years

Never Smoked

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5,823.19

6,126.90

6,577.70

6,815.45

5,937.45

6,173.52

6,490.76

6,653.75

5,786.10

5,853.00

6,218.98

6,243.93

86,159.41

89,334.77

Appendix Table 6.5: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of Ever Smoked and Never Smoked by Number of Years After Survey

Survey weighted, in 2010 Dollars; 95% Confidence Intervals

	-	1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
			Cri	Ide	
	Ever Smoked	969.56 (867.84 - 1,071.28)	1,087.85 (1,009.73 - 1,165.96)	1,129.83 (1,061.04 - 1,198.62)	1,172.40 (1,108.45 - 1,236.35)
Hospital Costs*	Never Smoked	550.21 (474.37 - 626.06)	683.33 (617.83 - 748.83)	707.49 (654.35 - 760.63)	756.87 (706.87 - 806.87)
per person-year	Relative Rate	1.76 (1.48 - 2.10)	1.59 (1.41 - 1.80)	1.60 (1.45 - 1.76)	1.55 (1.42 - 1.69)
	Rate Difference	419.35 (291.63 - 547.07)	404.52 (302.53 - 506.50)	422.34 (334.69 - 509.99)	415.53 (332.44 - 498.62)
	Ever Smoked	0.18 (0.16 - 0.20)	0.20 (0.19 - 0.21)	0.21 (0.20 - 0.22)	0.22 (0.20 - 0.23)
Resource Utilization Weights *	Never Smoked	0.10 (0.09 - 0.12)	0.13 (0.11 - 0.14)	0.13 (0.12 - 0.14)	0.14 (0.13 - 0.15)
per person-year	Relative Rate	1.76 (1.48 - 2.10)	1.59 (1.41 - 1.80)	1.60 (1.45 - 1.76)	1.55 (1.42 - 1.69)
	Rate Difference	0.08 (0.05 - 0.10)	0.07 (0.06 - 0.09)	0.08 (0.06 - 0.09)	0.08 (0.06 - 0.09)
	Ever Smoked	337.49 (325.94 - 349.05)	348.73 (338.55 - 358.91)	351.08 (341.81 - 360.36)	360.12 (351.43 - 368.80)
Physician Costs*	Never Smoked	263.40 (253.24 - 273.56)	271.92 (263.18 - 280.65)	274.49 (266.55 - 282.43)	286.54 (279.01 - 294.08)
per person-year	Relative Rate	1.28 (1.21 - 1.35)	1.28 (1.23 - 1.34)	1.28 (1.23 - 1.33)	1.26 (1.21 - 1.30)
	Rate Difference	74.09 (58.22 - 89.95)	76.82 (63.32 - 90.31)	76.60 (64.24 - 88.96)	73.57 (61.93 - 85.22)
	Ever Smoked	410.88 (318.42 - 503.34)	389.66 (329.08 - 450.24)	386.28 (339.56 - 433.01)	394.36 (353.84 - 434.88)
Prescription Cost*	Never Smoked	222.98 (164.14 - 281.81)	227.65 (163.56 - 291.74)	220.68 (173.50 - 267.86)	224.80 (188.16 - 261.43)
per person-year	Relative Rate	1.84 (1.30 - 2.61)	1.71 (1.24 - 2.35)	1.75 (1.37 - 2.24)	1.75 (1.45 - 2.12)
	Rate Difference	187.90 (76.43 - 299.38)	162.01 (72.14 - 251.87)	165.61 (97.67 - 233.54)	169.56 (114.82 - 224.31)
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
			Age- & se	k-adjusted	
	Ever Smoked	878.63 (778.91 - 991.13)	1,002.17 (921.06 - 1,090.43)	1,062.27 (977.60 - 1,154.27)	1,109.29 (1,013.04 - 1,214.68)
Hospital Costs*	Never Smoked	651.78 (556.10 - 763.91)	758.43 (698.79 - 823.15)	787.61 (732.45 - 846.92)	842.95 (788.44 - 901.22)
per person-year	Relative Rate	1.35 (1.04 - 1.75)	1.32 (1.14 - 1.53)	1.35 (1.18 - 1.54)	1.32 (1.15 - 1.51)
	Rate Difference	226.86 (33.60 - 420.12)	243.75 (114.84 - 372.65)	274.66 (147.77 - 401.55)	266.34 (127.69 - 404.99)
	Ever Smoked	0.16 (0.14 - 0.18)	0.18 (0.17 - 0.20)	0.19 (0.18 - 0.21)	0.20 (0.19 - 0.22)
Resource Utilization Weights *	Never Smoked	0.12 (0.10 - 0.14)	0.14 (0.13 - 0.15)	0.14 (0.13 - 0.15)	0.15 (0.14 - 0.16)
per person-year	Relative Rate	1.35 (1.05 - 1.73)	1.32 (1.15 - 1.52)	1.35 (1.19 - 1.53)	1.31 (1.15 - 1.48)
	Rate Difference	0.04 (0.01 - 0.08)	0.04 (0.02 - 0.07)	0.05 (0.03 - 0.07)	0.05 (0.02 - 0.07)
	Ever Smoked	309.22 (298.32 - 320.52)	318.63 (309.93 - 327.57)	324.67 (316.96 - 332.57)	334.74 (327.60 - 342.04)
Physician Costs*	Never Smoked	278.14 (269.58 - 286.98)	291.72 (282.06 - 301.72)	292.55 (283.56 - 301.83)	304.33 (297.00 - 311.85)
per person-year	Relative Rate	1.11 (1.05 - 1.18)	1.09 (1.03 - 1.16)	1.11 (1.05 - 1.17)	1.10 (1.05 - 1.15)
	Rate Difference	31.08 (12.90 - 49.26)	26.90 (9.73 - 44.08)	32.12 (16.58 - 47.66)	30.41 (17.12 - 43.71)
	Ever Smoked	328.69 (288.57 - 374.38)	319.44 (283.05 - 360.50)	312.97 (280.90 - 348.71)	339.21 (304.72 - 377.61)
Prescription Cost*	Never Smoked	268.11 (225.31 - 319.04)	270.77 (232.28 - 315.65)	257.33 (226.50 - 292.36)	267.63 (239.32 - 299.27)
per person-year	Relative Rate	1.23 (0.91 - 1.65)	1.18 (0.91 - 1.53)	1.22 (0.97 - 1.52)	1.27 (1.03 - 1.56)
	Rate Difference	60.58 (-25.68 - 146.83)	48.67 (-27.92 - 125.25)	55.65 (-8.36 - 119.65)	71.59 (11.04 - 132.13)
*Aged 12+ except CCHS Healthy Values in bold type indicate stat	/ Aging (aged 45+), A istically significantly (AHHS not included due to lack of different values.	DPIN data		

Appendix Table 6.5: Continued

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
			Age-, sex-, RHA	- & SES-adjusted	
	Ever Smoked	933.00 (857.48 - 1,015.18)	1,066.99 (980.20 - 1,161.46)	1,092.92 (1,011.06 - 1,181.40)	1,141.80 (1,054.05 - 1,236.86)
Hospital Costs*	Never Smoked	579.01 (508.32 - 659.53)	723.54 (654.04 - 800.44)	821.49 (700.05 - 964.01)	920.46 (814.70 - 1,039.95)
per person-year	Relative Rate	1.61 (1.35 - 1.93)	1.47 (1.27 - 1.71)	1.33 (1.10 - 1.60)	1.24 (1.06 - 1.45)
	Rate Difference	353.99 (227.83 - 480.15)	343.45 (212.53 - 474.36)	271.43 (108.46 - 434.39)	221.34 (68.27 - 374.42)
	Ever Smoked	0.17 (0.16 - 0.19)	0.20 (0.18 - 0.21)	0.20 (0.19 - 0.22)	0.21 (0.19 - 0.23)
Resource Utilization Weights*	Never Smoked	0.11 (0.09 - 0.12)	0.13 (0.12 - 0.15)	0.15 (0.13 - 0.18)	0.17 (0.15 - 0.19)
per person-year	Relative Rate	1.62 (1.36 - 1.93)	1.47 (1.28 - 1.70)	1.33 (1.11 - 1.60)	1.24 (1.06 - 1.44)
	Rate Difference	0.07 (0.04 - 0.09)	0.06 (0.04 - 0.09)	0.05 (0.02 - 0.08)	0.04 (0.01 - 0.07)
	Ever Smoked	317.63 (306.90 - 328.75)	328.01 (317.02 - 339.39)	329.17 (318.95 - 339.72)	338.44 (327.92 - 349.30)
Physician Costs*	Never Smoked	275.79 (262.95 - 289.26)	290.57 (279.85 - 301.69)	293.82 (281.97 - 306.18)	308.61 (297.83 - 319.78)
per person-year	Relative Rate	1.15 (1.08 - 1.23)	1.13 (1.07 - 1.19)	1.12 (1.06 - 1.19)	1.10 (1.04 - 1.16)
	Rate Difference	41.84 (22.32 - 61.37)	37.45 (20.19 - 54.70)	35.35 (17.62 - 53.08)	29.84 (12.45 - 47.22)
	Ever Smoked	354.86 (321.77 - 391.36)	344.68 (314.87 - 377.32)	334.07 (305.01 - 365.91)	335.06 (304.76 - 368.36)
Prescription Cost*	Never Smoked	259.60 (232.31 - 290.09)	248.65 (225.16 - 274.60)	243.71 (221.19 - 268.52)	254.73 (232.09 - 279.58)
per person-year	Relative Rate	1.37 (1.13 - 1.65)	1.39 (1.17 - 1.65)	1.37 (1.15 - 1.63)	1.32 (1.11 - 1.56)
	Rate Difference	95.26 (39.58 - 150.94)	96.03 (46.50 - 145.56)	90.37 (41.91 - 138.83)	80.32 (30.52 - 130.12)
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
			Age-, sex-, RHA-, S	ES- & RUB-adjusted	
	Ever Smoked	846.67 (776.07 - 923.70)	1,060.88 (989.43 - 1,137.50)	991.99 (925.50 - 1,063.25)	1,049.17 (978.35 - 1,125.13)
Hospital Costs*	Never Smoked	569.72 (502.95 - 645.36)	695.60 (633.71 - 763.54)	745.81 (681.60 - 816.08)	820.82 (748.44 - 900.20)
per person-year	Relative Rate	1.49 (1.24 - 1.79)	1.53 (1.33 - 1.74)	1.33 (1.16 - 1.53)	1.28 (1.12 - 1.46)
	Rate Difference	276.95 (153.33 - 400.58)	365.28 (255.52 - 475.04)	246.17 (130.65 - 361.70)	228.35 (106.63 - 350.08)
	Ever Smoked	0.16 (0.14 - 0.17)	0.20 (0.18 - 0.21)	0.18 (0.17 - 0.20)	0.19 (0.18 - 0.21)
Resource Utilization Weights *	Never Smoked	0.10 (0.09 - 0.12)	0.13 (0.12 - 0.14)	0.14 (0.13 - 0.15)	0.15 (0.14 - 0.17)
per person-year	Relative Rate	1.49 (1.25 - 1.77)	1.51 (1.33 - 1.72)	1.33 (1.16 - 1.52)	1.27 (1.11 - 1.45)
	Rate Difference	0.05 (0.03 - 0.07)	0.07 (0.05 - 0.09)	0.05 (0.02 - 0.07)	0.04 (0.02 - 0.06)
	Ever Smoked	310.04 (301.43 - 318.90)	320.94 (312.68 - 329.41)	319.14 (311.19 - 327.29)	329.66 (320.79 - 338.76)
Physician Costs*	Never Smoked	281.15 (270.43 - 292.30)	285.59 (276.14 - 295.36)	291.93 (283.45 - 300.67)	306.58 (298.21 - 315.18)
per person-year	Relative Rate	1.10 (1.04 - 1.17)	1.12 (1.07 - 1.18)	1.09 (1.04 - 1.14)	1.08 (1.03 - 1.12)
	Rate Difference	28.90 (12.78 - 45.01)	35.35 (20.91 - 49.79)	27.20 (13.79 - 40.62)	23.08 (9.52 - 36.64)
	Ever Smoked	302.91 (273.83 - 335.07)	307.07 (277.76 - 339.48)	291.52 (268.24 - 316.81)	297.86 (274.53 - 323.16)
Prescription Cost*	Never Smoked	271.64 (236.62 - 311.85)	272.66 (242.77 - 306.22)	266.33 (240.77 - 294.59)	285.59 (257.37 - 316.91)
per person-year	Relative Rate	1.12 (0.90 - 1.38)	1.13 (0.93 - 1.37)	1.09 (0.93 - 1.29)	1.04 (0.89 - 1.22)
	Rate Difference	31.26 (-28.36 - 90.88)	34.42 (-19.54 - 88.37)	25.19 (-19.04 - 69.43)	12.26 (-32.42 - 56.94)
*Aged 12+ except CCHS Healthy	v Aging (aged 45+), N	AHHS not included due to lack of	DPIN data		

Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.6: Matched Annualized Rates, Relative Rates, and Rate Differences for Costs of Ever Smoked and Never Smoked by Number of Years After Survey

Survey weighted, in 2010 Dollars; 95% Confidence Intervals

		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
			Cn	ide	
	Ever Smoked	821.11 (718.68 - 923.53)	899.90 (827.37 - 972.43)	939.68 (873.76 - 1,005.60)	966.08 (905.72 - 1,026.45)
Hospital Costs*	Never Smoked	573.74 (484.35 - 663.14)	691.54 (616.47 - 766.61)	712.84 (652.34 - 773.34)	765.63 (708.71 - 822.55)
per person-year	Relative Rate	1.43 (1.17 - 1.75)	1.30 (1.14 - 1.49)	1.32 (1.18 - 1.47)	1.26 (1.14 - 1.39)
	Rate Difference	247.36 (110.12 - 384.60)	208.36 (103.90 - 312.82)	226.84 (137.80 - 315.87)	200.45 (117.24 - 283.67)
	Ever Smoked	0.15 (0.13 - 0.17)	0.17 (0.15 - 0.18)	0.17 (0.16 - 0.18)	0.18 (0.17 - 0.19)
Resource Utilization Weights*	* Never Smoked	0.11 (0.09 - 0.12)	0.13 (0.11 - 0.14)	0.13 (0.12 - 0.14)	0.14 (0.13 - 0.15)
per person-year	Relative Rate	1.43 (1.17 - 1.75)	1.30 (1.14 - 1.49)	1.32 (1.18 - 1.47)	1.26 (1.14 - 1.39)
	Rate Difference	0.05 (0.02 - 0.07)	0.04 (0.02 - 0.06)	0.04 (0.03 - 0.06)	0.04 (0.02 - 0.05)
	Ever Smoked	319.56 (307.32 - 331.81)	328.27 (317.30 - 339.24)	330.36 (320.08 - 340.63)	336.93 (327.39 - 346.47)
Physician Costs*	Never Smoked	276.46 (264.98 - 287.94)	285.13 (274.89 - 295.37)	287.75 (278.38 - 297.12)	299.96 (291.19 - 308.74)
per person-year	Relative Rate	1.16 (1.09 - 1.22)	1.15 (1.10 - 1.21)	1.15 (1.10 - 1.20)	1.12 (1.08 - 1.17)
	Rate Difference	43.11 (26.14 - 60.08)	43.14 (27.94 - 58.33)	42.61 (28.46 - 56.75)	36.97 (23.78 - 50.15)
	Ever Smoked	396.22 (288.29 - 504.14)	371.92 (299.66 - 444.19)	367.85 (312.23 - 423.48)	373.76 (325.81 - 421.71)
Prescription Cost*	Never Smoked	243.29 (170.57 - 316.00)	246.55 (168.14 - 324.96)	236.08 (178.78 - 293.38)	239.33 (195.50 - 283.16)
per person-year	Relative Rate	1.63 (1.08 - 2.45)	1.51 (1.04 - 2.18)	1.56 (1.17 - 2.07)	1.56 (1.25 - 1.95)
	Rate Difference	152.93 (21.30 - 284.56)	125.37 (16.90 - 233.84)	131.77 (50.15 - 213.40)	134.43 (69.71 - 199.14)
		1 year after Survey	3 years after Survey	5 years after Survey	10 years after Survey
			Age- & se	k-adjusted	
	Ever Smoked	799.74 (697.61 - 916.82)	923.12 (844.28 - 1,009.32)	968.01 (891.09 - 1,051.57)	1,016.52 (933.83 - 1,106.53)
Hospital Costs*	Never Smoked	618.37 (528.30 - 723.80)	688.41 (633.83 - 747.68)	707.36 (659.18 - 759.05)	763.24 (712.49 - 817.60)
per person-year	Relative Rate	1.29 (0.97 - 1.72)	1.34 (1.14 - 1.58)	1.37 (1.18 - 1.58)	1.33 (1.15 - 1.54)
	Rate Difference	181.37 (-15.67 - 378.41)	234.71 (101.73 - 367.69)	260.65 (135.98 - 385.32)	253.29 (121.99 - 384.58)
	Ever Smoked	0.15 (0.13 - 0.17)	0.17 (0.16 - 0.18)	0.18 (0.16 - 0.19)	0.18 (0.17 - 0.20)
Resource Utilization Weights *	Never Smoked	0.11 (0.10 - 0.13)	0.13 (0.12 - 0.14)	0.13 (0.12 - 0.14)	0.14 (0.13 - 0.15)
per person-year	Relative Rate	1.32 (1.00 - 1.73)	1.34 (1.15 - 1.57)	1.37 (1.19 - 1.57)	1.32 (1.15 - 1.51)
	Rate Difference	0.04 (0.00 - 0.07)	0.04 (0.02 - 0.07)	0.05 (0.03 - 0.07)	0.04 (0.02 - 0.07)
	Ever Smoked	320.44 (309.94 - 331.29)	325.55 (314.47 - 337.01)	331.09 (321.36 - 341.12)	339.47 (330.94 - 348.21)
Physician Costs*	Never Smoked	272.64 (263.13 - 282.49)	286.08 (277.29 - 295.16)	286.27 (278.62 - 294.12)	299.71 (292.90 - 306.67)
per person-year	Relative Rate	1.18 (1.10 - 1.25)	1.14 (1.07 - 1.21)	1.16 (1.09 - 1.22)	1.13 (1.08 - 1.19)
	Rate Difference	47.80 (28.40 - 67.20)	39.47 (20.21 - 58.73)	44.82 (27.80 - 61.84)	39.76 (24.66 - 54.86)
	Ever Smoked	353.40 (306.60 - 407.34)	338.61 (296.44 - 386.78)	341.91 (305.70 - 382.41)	345.30 (311.49 - 382.77)
Prescription Cost*	Never Smoked	277.99 (232.12 - 332.92)	270.89 (231.79 - 316.59)	255.78 (223.14 - 293.20)	262.16 (232.58 - 295.51)
per person-year	Relative Rate	1.27 (0.93 - 1.75)	1.25 (0.94 - 1.66)	1.34 (1.05 - 1.71)	1.32 (1.06 - 1.64)
	Rate Difference	75.41 (-22.80 - 173.62)	67.72 (-18.22 - 153.65)	86.13 (13.98 - 158.28)	83.14 (17.20 - 149.07)
*Aged 12+ except CCHS Healthy	/ Aging (aged 45+), N	AHHS not included due to lack of	DPIN data		

Appendix Table 6.7: Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of Ever Smoked and Never Smoked Survey weighted, in 2010 Dollars; 95% Confidence Intervals by Number of Years After Survey

1,147.42 (1,081.61 - 1,213.23) 1,071.29 (983.27 - 1,167.20) 326.28 (238.06 - 414.51) 298.95 (290.76 - 307.14) 821.13 (765.19 - 877.08) 140.53 (81.20 - 199.86) 265.91 (241.31 - 293.02) 354.20 (345.21 - 363.19) 380.73 (336.84 - 424.61) 240.20 (199.40 - 280.99) 895.66 (827.80 - 969.08) 175.64 (43.11 - 308.17) 342.77 (331.61 - 354.30) 317.58 (306.02 - 329.58) 333.16 (294.94 - 376.34) 10 years after Survey 10 years after Survey 55.25 (42.80 - 67.70) 25.19 (6.85 - 43.53) 1.40 (1.28 - 1.53) 1.40 (1.28 - 1.53) 1.18 (1.14 - 1.23) 1.59 (1.30 - 1.94) 1.20 (1.05 - 1.37) 1.20 (1.05 - 1.36) 1.08 (1.02 - 1.14) 1.25 (1.04 - 1.51) 0.06 (0.04 - 0.08) 0.15 (0.14 - 0.16) 0.03 (0.01 - 0.06) 0.16 (0.15 - 0.18) 0.20 (0.18 - 0.21) 0.21 (0.20 - 0.22) 1,102.24 (1,032.83 - 1,171.64) 1,030.26 (941.66 - 1,127.21) 327.71 (235.33 - 420.09) 774.53 (714.50 - 834.55) 370.05 (318.85 - 421.24) 132.88 (58.48 - 207.28) 200.43 (53.93 - 346.93) 287.04 (278.43 - 295.65) 237.16 (184.35 - 289.97) 829.83 (743.41 - 926.30) 329.72 (318.40 - 341.45) 301.67 (290.00 - 313.81) 258.72 (233.74 - 286.36) 342.53 (332.96 - 352.10) 320.86 (283.04 - 363.72) 55.49 (42.39 - 68.60) 5 years after Survey 5 years after Survey 28.06 (9.52 - 46.59) 1.42 (1.29 - 1.57) 1.19 (1.14 - 1.24) 1.56 (1.20 - 2.03) 1.24 (1.02 - 1.51) 1.42 (1.29 - 1.57) 0.06 (0.04 - 0.08) 1.24 (1.06 - 1.45) 1.24 (1.06 - 1.45) 1.09 (1.03 - 1.16) 0.04 (0.01 - 0.06) 0.14 (0.13 - 0.15) 0.15 (0.14 - 0.17) 0.20 (0.19 - 0.22) 0.19 (0.17 - 0.21) Age- & sex-adjusted Crude 1,059.59 (982.02 - 1,137.16) 308.61 (201.46 - 415.76) 999.50 (906.87 - 1,101.59) 750.97 (676.73 - 825.22) 246.76 (174.08 - 319.45) 125.91 (25.85 - 225.97) 209.86 (69.76 - 349.95) 322.41 (310.80 - 334.45) 269.59 (242.46 - 299.75) 285.04 (275.26 - 294.83) 372.67 (305.73 - 439.62) 789.64 (715.34 - 871.66) 299.43 (288.08 - 311.22) 309.02 (269.18 - 354.76) 339.00 (328.48 - 349.53) 53.96 (39.52 - 68.40) **3 years after Survey** 3 years after Survey 22.98 (4.31 - 41.65) 1.19 (1.14 - 1.25) 1.51 (1.07 - 2.12) 1.41 (1.25 - 1.60) 1.08 (1.01 - 1.14) 1.41 (1.25 - 1.60) 0.06 (0.04 - 0.08) 1.27 (1.09 - 1.48) 1.26 (1.09 - 1.47) 0.04 (0.01 - 0.06) 0.14 (0.12 - 0.15) 0.18 (0.17 - 0.20) 0.15 (0.13 - 0.16) 1.15 (0.93 - 1.42) 0.19 (0.18 - 0.21) 959.39 (849.98 - 1,068.79) 351.69 (214.17 - 489.22) 906.17 (802.92 - 1,022.70) 607.69 (521.34 - 694.05) 277.43 (266.06 - 288.80) 397.55 (294.07 - 501.02) 153.82 (28.72 - 278.91) 230.60 (63.21 - 397.99) 330.88 (318.47 - 343.28) 243.73 (176.43 - 311.03) 675.57 (584.20 - 781.24) 292.37 (278.44 - 306.99) 321.65 (279.72 - 369.88) 275.77 (241.54 - 314.84) 316.37 (303.94 - 329.31) 53.45 (36.64 - 70.26) 1 year after Survey 1 year after Survey 24.01 (2.99 - 45.02) 1.58 (1.32 - 1.89) 1.19 (1.13 - 1.26) 1.08 (1.01 - 1.16) 1.58 (1.32 - 1.89) 0.06 (0.04 - 0.09) 1.63 (1.11 - 2.39) 1.34 (1.08 - 1.66) 1.34 (1.09 - 1.65) 0.04 (0.01 - 0.07) 0.11 (0.10 - 0.13) 1.17 (0.92 - 1.48) 0.18 (0.16 - 0.20) 0.17 (0.15 - 0.19) 0.12 (0.11 - 0.14) **Rate Difference Rate Difference Rate Difference Rate Difference Rate Difference Rate Difference** Rate Difference **Never Smoked** Never Smoked **Never Smoked** Never Smoked Never Smoked Never Smoked **Never Smoked Never Smoked Relative Rate Relative Rate Ever Smoked Relative Rate Ever Smoked Ever Smoked Relative Rate Relative Rate Relative Rate Ever Smoked Relative Rate Ever Smoked Relative Rate Ever Smoked Ever Smoked Ever Smoked** Resource Utilization Weights* **Resource Utilization Weights*** Prescription Cost* Prescription Cost* Physician Costs* per person-year per person-year Physician Costs* Hospital Costs* per person-year per person-year per person-year per person-year per person-year Hospital Costs* per person-year

'Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

Rate Difference

67.25 (11.07 - 123.43)

62.14 (5.84 - 118.45)

39.43 (-22.10 - 100.97)

45.89 (-24.31 - 116.09)

Appendix Table 6.8: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of **Smoking Status Categories, 1 Year After Survey**

Survey weighted, in 2010 Dollars; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cruc	de		
	Rates	746.10 (626.25 - 865.95)	920.54 (724.16 - 1,116.93)	1,230.29 (1,017.68 - 1,442.91)	550.63 (425.87 - 675.38)	542.32 (451.98 - 632.66)
Hospital Costs* per person-year	Relative Rate	1.38 (1.09 - 1.74)	1.70 (1.29 - 2.24)	2.27 (1.78 - 2.90)	1.02 (0.76 - 1.36)	ref
	Rate Difference	203.78 (51.19 - 356.37)	378.22 (157.68 - 598.76)	687.97 (453.28 - 922.66)	8.31 (-147.98 - 164.60)	ref
Resource	Rates	0.14 (0.12 - 0.16)	0.17 (0.13 - 0.21)	0.23 (0.19 - 0.27)	0.10 (0.08 - 0.12)	0.10 (0.08 - 0.12)
Utilization Weights*	Relative Rate	1.38 (1.09 - 1.74)	1.70 (1.29 - 2.24)	2.27 (1.78 - 2.90)	1.02 (0.76 - 1.36)	ref
per person-year	Rate Difference	0.04 (0.01 - 0.07)	0.07 (0.03 - 0.11)	0.13 (0.08 - 0.17)	0.00 (-0.03 - 0.03)	ref
	Rates	278.73 (262.28 - 295.17)	320.14 (291.89 - 348.39)	422.23 (399.41 - 445.05)	267.14 (249.25 - 285.04)	264.58 (252.30 - 276.87)
Physician Costs* per person-year	Relative Rate	1.05 (0.97 - 1.14)	1.21 (1.10 - 1.34)	1.60 (1.48 - 1.72)	1.01 (0.93 - 1.10)	ref
	Rate Difference	14.14 (-7.12 - 35.41)	55.55 (24.66 - 86.44)	157.65 (131.30 - 183.99)	2.56 (-19.16 - 24.28)	ref
	Rates	373.09 (195.60 - 550.57)	461.57 (218.05 - 705.08)	520.16 (333.77 - 706.54)	166.68 (137.13 - 196.22)	249.09 (164.20 - 333.99)
Prescription Cost* per person-year	* Relative Rate	1.50 (0.87 - 2.57)	1.85 (0.99 - 3.46)	2.09 (1.26 - 3.47)	0.67 (0.45 - 0.99)	ref
	Rate Difference	123.99 (-70.07 - 318.06)	212.47 (-44.01 - 468.95)	271.06 (60.42 - 481.71)	-82.42 (-173.96 - 9.12)	ref

*Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.8: Continued

			Former Dailv Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age- & sex	-adjusted		
	Rates	1,497.79 (1,138.04 - 1,971.27)	1,117.38 (911.71 - 1,369.45)	724.24 (564.76 - 928.75)	582.16 (464.08 - 730.28)	641.27 (529.49 - 776.66)
Hospital Costs* per person-year	Relative Rate	2.34 (1.60 - 3.42)	1.74 (1.27 - 2.39)	1.13 (0.79 - 1.62)	0.91 (0.65 - 1.26)	ref
	Rate Difference	856.52 (424.26 - 1,288.78)	476.11 (188.49 - 763.72)	82.97 (-163.06 - 328.99)	-59.11 (-254.40 - 136.18)	ref
Resource	Rates	0.26 (0.20 - 0.35)	0.21 (0.17 - 0.25)	0.13 (0.10 - 0.17)	0.11 (0.09 - 0.13)	0.12 (0.10 - 0.14)
Utilization Weights*	Relative Rate	2.25 (1.54 - 3.29)	1.76 (1.29 - 2.40)	1.13 (0.79 - 1.62)	0.91 (0.65 - 1.27)	ref
per person-year	Rate Difference	0.15 (0.07 - 0.23)	0.09 (0.04 - 0.14)	0.02 (-0.03 - 0.06)	-0.01 (-0.05 - 0.03)	ref
	Rates	318.36 (284.18 - 356.65)	355.83 (316.76 - 399.73)	314.32 (292.46 - 337.81)	272.74 (254.16 - 292.69)	280.98 (269.02 - 293.47)
Physician Costs* per person-year	Relative Rate	1.13 (1.00 - 1.29)	1.27 (1.11 - 1.44)	1.12 (1.02 - 1.23)	0.97 (0.89 - 1.06)	ref
	Rate Difference	37.39 (-2.54 - 77.31)	74.85 (28.66 - 121.05)	33.34 (4.55 - 62.13)	-8.23 (-33.35 - 16.88)	ref
	Rates	358.69 (265.14 - 485.26)	437.33 (273.69 - 698.81)	265.02 (197.01 - 356.51)	211.18 (166.81 - 267.35)	299.52 (238.90 - 375.53)
Prescription Cost ⁴ per person-year	* Relative Rate	1.20 (0.77 - 1.87)	1.46 (0.83 - 2.58)	0.88 (0.59 - 1.32)	0.71 (0.51 - 0.98)	ref
	Rate Difference	59.17 (-92.43 - 210.78)	137.81 (-92.85 - 368.47)	-34.50 (-145.24 - 76.24)	-88.34 (-173.193.50)	ref
*Aged 12+ except (CCHS Healthy ,	Aging (aged 45+), MHHS not incl	uded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.8: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA- {	& SES-adjusted		
	Rates	1,207.10 (1,012.67 - 1,438.87)	1,255.79 (1,018.94 - 1,547.70)	819.31 (683.47 - 982.15)	672.04 (546.54 - 826.35)	582.80 (504.27 - 673.56)
Hospital Costs* per person-year	Relative Rate	2.07 (1.66 - 2.59)	2.15 (1.69 - 2.75)	1.41 (1.11 - 1.78)	1.15 (0.90 - 1.49)	ref
	Rate Difference	624.31 (413.67 - 834.95)	672.99 (438.10 - 907.89)	236.52 (77.93 - 395.10)	89.24 (-55.81 - 234.29)	ref
Resource	Rates	0.22 (0.19 - 0.26)	0.23 (0.19 - 0.28)	0.15 (0.13 - 0.18)	0.12 (0.10 - 0.15)	0.11 (0.09 - 0.12)
Utilization Weights*	Relative Rate	2.08 (1.68 - 2.58)	2.18 (1.72 - 2.75)	1.42 (1.13 - 1.78)	1.16 (0.91 - 1.48)	ref
per person-year	Rate Difference	0.12 (0.08 - 0.15)	0.13 (0.08 - 0.17)	0.04 (0.02 - 0.07)	0.02 (-0.01 - 0.04)	ref
	Rates	328.14 (308.15 - 349.42)	352.71 (328.26 - 378.98)	312.27 (295.36 - 330.15)	280.25 (263.89 - 297.62)	272.28 (257.80 - 287.57)
Physician Costs* per person-year	Relative Rate	1.21 (1.11 - 1.31)	1.30 (1.18 - 1.42)	1.15 (1.06 - 1.24)	1.03 (0.95 - 1.11)	ref
	Rate Difference	55.86 (31.46 - 80.25)	80.43 (54.32 - 106.54)	39.99 (17.65 - 62.33)	7.97 (-12.83 - 28.76)	ref
	Rates	360.56 (296.66 - 438.21)	440.77 (327.21 - 593.75)	290.22 (250.62 - 336.07)	247.03 (196.69 - 310.25)	261.47 (222.45 - 307.32)
Prescription Cost* per person-year	* Relative Rate	1.38 (1.05 - 1.81)	1.69 (1.16 - 2.45)	1.11 (0.88 - 1.40)	0.94 (0.70 - 1.28)	ref
	Rate Difference	99.09 (16.42 - 181.76)	179.30 (57.68 - 300.92)	28.75 (-33.17 - 90.67)	-14.44 (-86.92 - 58.05)	ref
*Anad 12+ avrant (CHS Healthy	Ading (aded 45+) MHHS not incl	ided due to lack of DDIN data			

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Values in **bold** type indicate statistically significantly different values.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

umanitoba.ca/faculties/medicine/units/mchp Appendix 6 | page 323

Appendix Table 6.8: Continued

Age - sex - RHA - SES - & RUB - adjusted Age - sex - RHA - SES - RUB - adjusted Rates 1,158.67 (952.65 - 1,409.23) 1,115.58 (873.66 - 1,424.49) 804.52 (585.89 - 1,104.74) Hospital Costs* Relative 1.96 (1.44 - 2.65) 1.88 (1.35 - 2.63) 1.36 (0.93 - 1.98) Per person-year Rate 1.96 (1.44 - 2.65) 1.88 (1.35 - 2.63) 1.36 (0.93 - 1.98) Per person-year Rate 0.21 (0.17 - 0.25) 0.20 (0.16 - 0.25) 0.15 (0.11 - 0.20) Resource Utilization Rate 1.97 (1.46 - 2.65) 1.88 (1.37 - 2.60) 1.38 (0.96 - 1.98) Per Person-year Rate 1.97 (1.07 - 0.25) 0.20 (0.16 - 0.25) 0.015 (0.11 - 0.20) Per Person-year Rate 1.97 (1.46 - 2.65) 1.88 (1.37 - 2.60) 1.38 (0.96 - 1.98) Per Person-year Rate 1.97 (1.46 - 2.65) 1.88 (1.37 - 2.60) 1.38 (0.96 - 1.98) Per Person-year Rate 1.97 (1.46 - 2.65) 1.88 (1.37 - 2.60) 1.38 (0.96 - 1.98) Per Person-year Rate 1.97 (1.46 - 2.65) 1.88 (1.37 - 2.60) 0.04 (-0.01 - 0.09) Per Person-year			Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
				Age-, sex-, RHA-, SES	ነ- & RUB-adjusted		
Hospital Cost* per person-year Rate DifferenceI.96 (1.44 - 2.65)I.88 (1.35 - 2.63)I.36 (0.93 - 1.98)Per person-year Rate Difference566.24 (301.87 - 830.61)523.16 (238.20 - 808.11)212.10 (-37.93 - 462.13)Resource Utilization Weights*Rates0.21 (0.17 - 0.25)0.20 (0.16 - 0.25)0.15 (0.11 - 0.20)Resource Utilization Weights*Rates0.21 (0.17 - 0.25)0.20 (0.16 - 0.25)0.15 (0.11 - 0.20)Resource Utilization Weights*Rate Rate0.021 (0.07 - 0.25)0.20 (0.16 - 0.25)0.15 (0.11 - 0.20)Per Person-year 	Rate	Sa	1,158.67 (952.65 - 1,409.23)	1,115.58 (873.66 - 1,424.49)	804.52 (585.89 - 1,104.74)	675.88 (530.96 - 860.35)	592.42 (481.98 - 728.17)
Rate Difference566.24 (301.87 - 830.61)523.16 (238.20 - 808.11) $212.10 (-37.93 - 462.13)$ $10166666666666666666666666666666666666$	Hospital Costs* Relar	ative e	1.96 (1.44 - 2.65)	1.88 (1.35 - 2.63)	1.36 (0.93 - 1.98)	1.14 (0.83 - 1.56)	ref
Resource Utilization Utilization Belative 	Rate	e erence	566.24 (301.87 - 830.61)	523.16 (238.20 - 808.11)	212.10 (-37.93 - 462.13)	83.45 (-99.91 - 266.82)	ref
Utilization Weights* Relative Rate 1.97 (1.46 - 2.65) 1.88 (1.37 - 2.60) 1.38 (0.96 - 1.98) Per Person-year Rate 0.10 (0.05 - 0.15) 0.09 (0.04 - 0.15) 0.04 (-0.01 - 0.09) Per Person-year Rate 0.10 (0.05 - 0.15) 0.09 (0.04 - 0.15) 0.04 (-0.01 - 0.09) Per Person-year Rate 0.10 (0.05 - 0.15) 0.09 (0.04 - 0.15) 0.04 (-0.01 - 0.09) Physician Costs* Rate 0.10 (0.05 - 0.15) 0.14.89 (292.59 - 338.88) 296.14 (279.07 - 314.26) Physician Costs* Rates 1.17 (1.07 - 1.27) 1.17 (1.08 - 1.27) 0.04 (-0.01 - 0.09) Physician Costs* Relative 1.17 (1.07 - 1.27) 1.17 (1.08 - 1.27) 1.10 (1.02 - 1.19) Per Person-year Rate 45.78 (22.87 - 68.70) 46.02 (24.24 - 67.79) 27.27 (7.39 - 47.16) Per Person-year Rate 318.32 (246.95 - 410.32) 378.32 (267.68 - 534.69) 307.92 (246.62 - 384.46)	Resource	S	0.21 (0.17 - 0.25)	0.20 (0.16 - 0.25)	0.15 (0.11 - 0.20)	0.12 (0.10 - 0.15)	0.11 (0.09 - 0.13)
Per Person-year Rate 0.10 (0.05 - 0.15) 0.09 (0.04 - 0.15) 0.04 (-0.01 - 0.09) Difference 314.65 (297.26 - 333.07) 314.89 (292.59 - 338.88) 296.14 (279.07 - 314.26) Physician Costs* Relative 1.17 (1.07 - 1.27) 1.17 (1.08 - 1.27) 1.10 (1.02 - 1.19) Physician Costs* Relative 1.17 (1.07 - 1.27) 1.17 (1.08 - 1.27) 1.10 (1.02 - 1.19) Proveno-year Rate 45.78 (22.87 - 68.70) 46.02 (24.24 - 67.79) 27.27 (7.39 - 47.16) Proveno-year Rate 318.32 (246.95 - 410.32) 378.32 (267.68 - 534.69) 307.92 (246.62 - 384.46)	Utilization Rela Weights* Rate	ative e	1.97 (1.46 - 2.65)	1.88 (1.37 - 2.60)	1.38 (0.96 - 1.98)	1.13 (0.83 - 1.54)	ref
Rates 314.65 (297.26 - 333.07) 314.89 (292.59 - 338.88) 296.14 (279.07 - 314.26) Physician Costs* Relative 1.17 (1.07 - 1.27) 1.17 (1.08 - 1.27) 1.10 (1.02 - 1.19) Per person-year Rate 45.78 (22.87 - 68.70) 46.02 (24.24 - 67.79) 27.27 (7.39 - 47.16) Per person-year Rate 45.78 (22.87 - 68.70) 46.02 (24.24 - 67.79) 27.27 (7.39 - 47.16) Per person-year Rate 318.32 (246.95 - 410.32) 378.32 (267.68 - 534.69) 307.92 (246.62 - 384.46)	per person-year Rate	e erence	0.10 (0.05 - 0.15)	0.09 (0.04 - 0.15)	0.04 (-0.01 - 0.09)	0.01 (-0.02 - 0.05)	ref
Physician Costs* Relative 1.17 (1.07 - 1.27) 1.17 (1.08 - 1.27) 1.10 (1.02 - 1.19) per person-year Rate 45.78 (22.87 - 68.70) 46.02 (24.24 - 67.79) 27.27 (7.39 - 47.16) per person-year Rate 45.78 (22.87 - 68.70) 46.02 (24.24 - 67.79) 27.27 (7.39 - 47.16) per person-year Rate 318.32 (246.95 - 410.32) 378.32 (267.68 - 534.69) 307.92 (246.62 - 384.46)	Rate	Sa	314.65 (297.26 - 333.07)	314.89 (292.59 - 338.88)	296.14 (279.07 - 314.26)	286.98 (271.24 - 303.63)	268.87 (255.27 - 283.19)
Rate 45.78 (22.87 - 68.70) 46.02 (24.24 - 67.79) 27.27 (7.39 - 47.16) Difference 318.32 (246.95 - 410.32) 378.32 (267.68 - 534.69) 307.92 (246.62 - 384.46)	Physician Costs* Relar per person-year Rate	ative e	1.17 (1.07 - 1.27)	1.17 (1.08 - 1.27)	1.10 (1.02 - 1.19)	1.07 (0.99 - 1.15)	ref
Rates 318.32 (246.95 - 410.32) 378.32 (267.68 - 534.69) 307.92 (246.62 - 384.46)	Rate	e erence	45.78 (22.87 - 68.70)	46.02 (24.24 - 67.79)	27.27 (7.39 - 47.16)	18.11 (-0.75 - 36.97)	ref
	Rate	Sa	318.32 (246.95 - 410.32)	378.32 (267.68 - 534.69)	307.92 (246.62 - 384.46)	198.49 (154.12 - 255.63)	295.24 (244.50 - 356.52)
Prescription Cost* Relative 1.08 (0.80 - 1.46) 1.28 (0.85 - 1.93) 1.04 (0.75 - 1.45) per person-year Rate 1.08 (0.80 - 1.46) 1.28 (0.85 - 1.93) 1.04 (0.75 - 1.45)	Prescription Cost* Relar per person-year Rate	ative e	1.08 (0.80 - 1.46)	1.28 (0.85 - 1.93)	1.04 (0.75 - 1.45)	0.67 (0.50 - 0.91)	ref
Rate 23.08 (-63.84 - 110.00) 83.08 (-36.69 - 202.85) 12.68 (-75.66 - 101.01) - Difference 23.08 (-63.84 - 110.00) 83.08 (-36.69 - 202.85) 12.68 (-75.66 - 101.01) -	Rate	erence	23.08 (-63.84 - 110.00)	83.08 (-36.69 - 202.85)	12.68 (-75.66 - 101.01)	-96.75 (-163.2930.22)	ref

Agea 12+ except UCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

Values in **bold** type indicate statistically significantly different values.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 324 | Appendix 6

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

Appendix Table 6.9: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 3 Years After Survey Survey weighted, in 2010 Dollars, 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Crui	de		
	Rates	854.88 (723.82 - 985.94)	932.73 (770.30 - 1,095.16)	1,441.85 (1,275.33 - 1,608.38)	656.56 (555.19 - 757.94)	712.52 (626.92 - 798.12)
Hospital Costs* per person-year	Relative Rate	1.20 (0.99 - 1.46)	1.31 (1.06 - 1.62)	2.02 (1.71 - 2.40)	0.92 (0.75 - 1.13)	ref
	Rate Difference	142.36 (-14.49 - 299.20)	220.21 (35.89 - 404.53)	729.33 (540.51 - 918.15)	-55.96 (-190.97 - 79.06)	ref
Resource	Rates	0.16 (0.13 - 0.18)	0.17 (0.14 - 0.20)	0.27 (0.23 - 0.30)	0.12 (0.10 - 0.14)	0.13 (0.12 - 0.15)
Utilization Weights*	Relative Rate	1.20 (0.99 - 1.46)	1.31 (1.06 - 1.62)	2.02 (1.71 - 2.40)	0.92 (0.75 - 1.13)	ref
per person-year	Rate Difference	0.03 (0.00 - 0.06)	0.04 (0.01 - 0.07)	0.13 (0.10 - 0.17)	-0.01 (-0.04 - 0.01)	ref
	Rates	305.27 (287.85 - 322.69)	313.45 (292.84 - 334.05)	428.77 (409.13 - 448.40)	277.19 (262.55 - 291.84)	272.47 (261.23 - 283.70)
Physician Costs* per person-year	Relative Rate	1.12 (1.05 - 1.20)	1.15 (1.06 - 1.24)	1.57 (1.48 - 1.68)	1.02 (0.95 - 1.09)	ref
	Rate Difference	32.80 (12.68 - 52.93)	40.98 (17.47 - 64.49)	156.30 (133.22 - 179.38)	4.72 (-13.89 - 23.34)	ref
	Rates	334.35 (255.49 - 413.21)	437.29 (199.40 - 675.18)	488.86 (366.45 - 611.26)	176.79 (145.54 - 208.05)	248.91 (155.53 - 342.29)
Prescription Cost* per person-year	* Relative Rate	1.34 (0.88 - 2.05)	1.76 (0.93 - 3.32)	1.96 (1.25 - 3.09)	0.71 (0.47 - 1.06)	ref
	Rate Difference	85.44 (-35.47 - 206.35)	188.38 (-64.57 - 441.33)	239.95 (81.08 - 398.81)	-72.12 (-171.43 - 27.19)	ref
*Aged 12+ except C	CCHS Healthy	Aging (aged 45+), MHHS not incl	uded due to lack of DPIN data			

Values in **bold** type indicate statistically significantly different values. נווא השווש וששכם

Appendix Table 6.9: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age- & sex-	adjusted		
	Rates	1,498.43 (1,177.49 - 1,906.86)	1,215.91 (1,010.54 - 1,463.02)	920.37 (754.06 - 1,123.35)	706.00 (607.75 - 820.13)	753.32 (679.32 - 835.39)
Hospital Costs* per person-year	Relative Rate	1.99 (1.50 - 2.63)	1.61 (1.29 - 2.03)	1.22 (0.96 - 1.56)	0.94 (0.77 - 1.14)	ref
	Rate Difference	745.11 (367.79 - 1,122.43)	462.58 (212.64 - 712.53)	167.04 (-42.28 - 376.37)	-47.33 (-191.12 - 96.46)	ref
Resource	Rates	0.27 (0.21 - 0.33)	0.22 (0.19 - 0.26)	0.16 (0.13 - 0.20)	0.13 (0.11 - 0.15)	0.14 (0.13 - 0.15)
Utilization Weights*	Relative Rate	1.93 (1.48 - 2.51)	1.60 (1.29 - 1.99)	1.17 (0.93 - 1.48)	0.93 (0.77 - 1.13)	ref
per person-year	Rate Difference	0.13 (0.07 - 0.19)	0.08 (0.04 - 0.13)	0.02 (-0.01 - 0.06)	-0.01 (-0.03 - 0.02)	ref
	Rates	337.65 (311.48 - 366.01)	346.88 (309.69 - 388.54)	317.38 (292.83 - 343.99)	285.37 (269.09 - 302.63)	295.53 (284.15 - 307.36)
Physician Costs* per person-year	Relative Rate	1.14 (1.04 - 1.26)	1.17 (1.03 - 1.33)	1.07 (0.97 - 1.18)	0.97 (0.89 - 1.05)	ref
	Rate Difference	42.12 (10.76 - 73.48)	51.35 (5.74 - 96.96)	21.85 (-8.81 - 52.51)	-10.16 (-33.24 - 12.92)	ref
	Rates	337.17 (271.89 - 418.11)	449.53 (289.46 - 698.13)	270.95 (199.55 - 367.91)	214.89 (173.88 - 265.57)	291.67 (237.10 - 358.82)
Prescription Cost ⁴ per person-year	* Relative Rate	1.16 (0.82 - 1.62)	1.54 (0.88 - 2.69)	0.93 (0.62 - 1.40)	0.74 (0.54 - 1.01)	ref
	Rate Difference	45.49 (-62.17 - 153.15)	157.86 (-70.90 - 386.61)	-20.72 (-133.01 - 91.56)	-76.78 (-157.71 - 4.14)	ref
*Aged 12+ except (CCHS Healthy ,	Aging (aged 45+), MHHS not incl	uded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.9: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA- 8	& SES-adjusted		
	Rates	1,458.77 (1,236.07 - 1,721.61)	1,274.32 (1,028.17 - 1,579.40)	1,131.69 (949.04 - 1,349.48)	1,009.91 (835.23 - 1,221.13)	750.97 (668.86 - 843.17)
Hospital Costs* per person-year	Relative Rate	1.94 (1.59 - 2.37)	1.70 (1.35 - 2.13)	1.51 (1.21 - 1.87)	1.34 (1.07 - 1.69)	ref
	Rate Difference	707.80 (480.41 - 935.20)	523.35 (277.59 - 769.11)	380.71 (192.66 - 568.77)	258.94 (82.63 - 435.25)	ref
Resource	Rates	0.25 (0.21 - 0.29)	0.22 (0.19 - 0.26)	0.19 (0.16 - 0.23)	0.17 (0.14 - 0.21)	0.13 (0.12 - 0.14)
Utilization Weights*	Relative Rate	1.93 (1.60 - 2.33)	1.71 (1.41 - 2.08)	1.50 (1.22 - 1.85)	1.34 (1.07 - 1.68)	ref
per person-year	Rate Difference	0.12 (0.08 - 0.16)	0.09 (0.05 - 0.13)	0.07 (0.03 - 0.10)	0.04 (0.01 - 0.08)	ref
	Rates	351.56 (331.11 - 373.27)	358.68 (333.91 - 385.29)	324.09 (305.65 - 343.65)	302.69 (287.27 - 318.93)	287.37 (274.74 - 300.59)
Physician Costs* per person-year	Relative Rate	1.22 (1.13 - 1.32)	1.25 (1.15 - 1.36)	1.13 (1.04 - 1.22)	1.05 (0.98 - 1.13)	ref
	Rate Difference	64.18 (40.38 - 87.99)	71.31 (45.17 - 97.44)	36.72 (13.80 - 59.64)	15.31 (-3.55 - 34.18)	ref
	Rates	357.51 (300.55 - 425.27)	428.19 (326.01 - 562.40)	305.38 (255.80 - 364.56)	278.18 (217.95 - 355.07)	255.22 (219.76 - 296.41)
Prescription Cost* per person-year	* Relative Rate	1.40 (1.10 - 1.78)	1.68 (1.20 - 2.34)	1.20 (0.94 - 1.52)	1.09 (0.80 - 1.48)	ref
	Rate Difference	102.28 (31.55 - 173.02)	172.97 (62.18 - 283.76)	50.15 (-14.32 - 114.62)	22.96 (-54.61 - 100.53)	ref
*Anad 12+ avrant C	TCHS Healthy	Ading (aged 45 +) MHHS not incl	inded due to lack of DDIN data			

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Values in **bold** type indicate statistically significantly different values.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

umanitoba.ca/faculties/medicine/units/mchp Appendix 6 | page 327

Appendix Table 6.9: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-, SE	5- & RUB-adjusted		
	Rates	1,434.78 (1,246.80 - 1,651.10)	964.15 (783.19 - 1,186.93)	989.33 (857.42 - 1,141.54)	820.70 (673.71 - 999.77)	652.50 (584.11 - 728.91)
Hospital Costs* per person-year	Relative Rate	2.20 (1.86 - 2.60)	1.48 (1.17 - 1.86)	1.52 (1.25 - 1.84)	1.26 (0.99 - 1.60)	ref
	Rate Difference	782.28 (602.12 - 962.43)	311.65 (118.14 - 505.16)	336.83 (187.42 - 486.25)	168.20 (2.05 - 334.35)	ref
Resource	Rates	0.26 (0.23 - 0.30)	0.18 (0.15 - 0.22)	0.18 (0.16 - 0.21)	0.15 (0.13 - 0.18)	0.12 (0.11 - 0.13)
Utilization Weights*	Relative Rate	2.19 (1.87 - 2.56)	1.49 (1.19 - 1.86)	1.52 (1.27 - 1.82)	1.26 (1.01 - 1.58)	ref
per person-year	Rate Difference	0.14 (0.11 - 0.17)	0.06 (0.02 - 0.10)	0.06 (0.04 - 0.09)	0.03 (0.00 - 0.06)	ref
	Rates	337.65 (321.79 - 354.30)	309.92 (292.82 - 328.03)	317.17 (303.24 - 331.73)	299.53 (285.04 - 314.75)	278.31 (266.76 - 290.36)
Physician Costs* per person-year	Relative Rate	1.21 (1.14 - 1.30)	1.11 (1.04 - 1.19)	1.14 (1.07 - 1.22)	1.08 (1.01 - 1.15)	ref
	Rate Difference	59.35 (40.71 - 77.98)	31.62 (13.85 - 49.39)	38.86 (21.14 - 56.57)	21.22 (4.81 - 37.63)	ref
	Rates	323.78 (266.90 - 392.77)	401.31 (300.46 - 536.00)	308.13 (255.79 - 371.17)	259.48 (195.07 - 345.17)	279.60 (233.29 - 335.12)
Prescription Cost* per person-year	* Relative Rate	1.16 (0.88 - 1.53)	1.44 (0.99 - 2.08)	1.10 (0.82 - 1.48)	0.93 (0.64 - 1.35)	ref
	Rate Difference	44.17 (-32.01 - 120.35)	121.71 (10.71 - 232.70)	28.52 (-49.08 - 106.13)	-20.12 (-107.26 - 67.03)	ref
*Aged 12+ except C	CCHS Healthy	Aging (aged 45+), MHHS not incl	uded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values.
Appendix Table 6.10: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 5 Years After Survey Survey weighted, in 2010 Dollars; 95% Confidence Intervals

742.24 (673.05 - 811.44) 236.08 (167.85 - 304.30) 275.29 (265.24 - 285.33) 0.14 (0.12 - 0.15) Never Smoked ref ref ref ref ref ref ref 177.99 (149.78 - 206.20) 693.88 (605.07 - 782.68) -48.37 (-164.15 - 67.43) 282.28 (268.74 - 295.81) Never a Daily Smoker 5.99 (-10.23 - 24.21) 0.01 (-0.03 - 0.01) 0.13 (0.11 - 0.14) 0.75 (0.55 - 1.04) 0.93 (0.79 - 1.10) 0.93 (0.79 - 1.10) 1.03 (0.96 - 1.09) 1,517.00 (1,372.46 - 1,661.55) 774.76 (611.05 - 938.47) 154.13 (133.63 - 174.64) (Daily > 5 years before 467.46 (375.99 - 558.94) 429.42 (412.04 - 446.80) **Former Daily Smoker** 2.04 (1.78 - 2.35) 2.04 (1.78 - 2.35) 0.28 (0.25 - 0.31) 0.14 (0.11 - 0.17) 1.56 (1.48 - 1.65) 1.98 (1.39 - 2.82) survey) Crude 941.31 (793.90 - 1,088.72) (Daily ≤ 5 years before 199.07 (38.32 - 359.81) 312.27 (294.32 - 330.23) 422.00 (243.34 - 600.67) Former Daily Smoker 36.99 (16.48 - 57.50) 1.79 (1.09 - 2.92) 1.27 (1.06 - 1.52) 1.27 (1.06 - 1.52) 0.04 (0.01 - 0.07) 1.13 (1.06 - 1.21) 0.17 (0.15 - 0.20) survey) 910.03 (799.96 - 1,020.11) 167.79 (39.03 - 296.56) 346.56 (275.94 - 417.17) 308.77 (292.79 - 324.76) **Current Daily Smoker** 33.49 (15.37 - 51.60) 1.23 (1.05 - 1.42) 1.23 (1.05 - 1.42) 1.47 (1.04 - 2.07) 0.03 (0.01 - 0.05) 1.12 (1.06 - 1.19) 0.17 (0.15 - 0.19) Difference Difference Difference Relative Relative Relative Relative Rates Rates Rates Rates Rate Rate Rate Rate Rate Rate Rate Rate **Prescription Cost*** Physician Costs* per person-year per person-year Hospital Costs* per person-year per person-year Utilization Resource Weights*

Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

ref

-58.09 (-131.74 - 15.56)

231.39 (113.21 - 349.57)

185.93 (-2.78 - 374.63)

110.48 (12.51 - 208.45)

Difference

Values in **bold** type indicate statistically significantly different values.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CRE

umanitoba.ca/faculties/medicine/units/mchp Appendix 6 | page 329

Appendix Table 6.10: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before	Former Daily Smoker (Daily > 5 years before	Never a Daily Smoker	Never Smoked
			survey)	survey)		
			Age- & sex-	adjusted		
	Rates	1,515.63 (1,190.77 - 1,929.12)	1,242.43 (1,033.61 - 1,493.45)	953.47 (786.78 - 1,155.46)	754.45 (658.63 - 864.21)	787.01 (719.10 - 861.33)
Hospital Costs* per person-year	Relative Rate	1.93 (1.47 - 2.53)	1.58 (1.27 - 1.96)	1.21 (0.97 - 1.51)	0.96 (0.80 - 1.15)	ref
	Rate Difference	728.62 (332.77 - 1,124.47)	455.42 (210.03 - 700.82)	166.46 (-40.92 - 373.83)	-32.56 (-170.71 - 105.59)	ref
Resource	Rates	0.27 (0.22 - 0.34)	0.23 (0.19 - 0.27)	0.17 (0.15 - 0.21)	0.14 (0.12 - 0.16)	0.15 (0.13 - 0.16)
Utilization Weights*	Relative Rate	1.89 (1.48 - 2.42)	1.58 (1.30 - 1.93)	1.20 (0.97 - 1.49)	0.96 (0.81 - 1.14)	ref
per person-year	Rate Difference	0.13 (0.07 - 0.19)	0.08 (0.04 - 0.13)	0.03 (-0.01 - 0.07)	-0.01 (-0.03 - 0.02)	ref
	Rates	340.90 (316.69 - 366.98)	352.41 (321.90 - 385.82)	323.72 (298.02 - 351.63)	294.11 (279.02 - 310.01)	293.61 (283.45 - 304.13)
Physician Costs* per person-year	Relative Rate	1.16 (1.06 - 1.27)	1.20 (1.08 - 1.33)	1.10 (1.00 - 1.22)	1.00 (0.93 - 1.08)	ref
	Rate Difference	47.30 (18.29 - 76.30)	58.80 (23.38 - 94.23)	30.11 (-0.99 - 61.22)	0.50 (-20.45 - 21.45)	ref
	Rates	346.83 (285.63 - 421.13)	443.05 (311.43 - 630.28)	267.58 (202.71 - 353.20)	210.57 (174.19 - 254.54)	275.81 (232.82 - 326.75)
Prescription Cost* per person-year	· Relative Rate	1.26 (0.94 - 1.69)	1.61 (1.03 - 2.50)	0.97 (0.68 - 1.39)	0.76 (0.58 - 1.01)	ref
	Rate Difference	71.01 (-22.34 - 164.36)	167.24 (-9.51 - 343.99)	-8.23 (-103.85 - 87.38)	-65.25 (-132.37 - 1.88)	ref

*Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.10: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-	& SES-adjusted		
	Rates	1,439.64 (1,202.31 - 1,723.82)	1,195.31 (982.74 - 1,453.86)	1,103.77 (927.79 - 1,313.14)	1,009.16 (795.25 - 1,280.60)	768.94 (631.21 - 936.73)
Hospital Costs* per person-year	Relative Rate	1.87 (1.46 - 2.40)	1.55 (1.22 - 1.98)	1.44 (1.10 - 1.88)	1.31 (0.98 - 1.76)	ref
	Rate Difference	670.70 (381.17 - 960.23)	426.37 (186.44 - 666.31)	334.83 (95.12 - 574.54)	240.22 (-23.50 - 503.94)	ref
Resource	Rates	0.26 (0.22 - 0.30)	0.22 (0.18 - 0.25)	0.20 (0.17 - 0.23)	0.18 (0.15 - 0.22)	0.14 (0.11 - 0.16)
Utilization Weights*	Relative Rate	1.86 (1.48 - 2.35)	1.56 (1.26 - 1.95)	1.43 (1.11 - 1.85)	1.31 (0.98 - 1.74)	ref
per person-year	Rate Difference	0.12 (0.07 - 0.17)	0.08 (0.04 - 0.12)	0.06 (0.02 - 0.10)	0.04 (0.00 - 0.09)	ref
	Rates	352.38 (334.00 - 371.77)	352.24 (329.29 - 376.79)	324.52 (307.17 - 342.85)	306.21 (290.78 - 322.46)	285.96 (272.68 - 299.89)
Physician Costs* per person-year	Relative Rate	1.23 (1.15 - 1.33)	1.23 (1.14 - 1.33)	1.13 (1.05 - 1.23)	1.07 (1.00 - 1.15)	ref
	Rate Difference	66.42 (43.81 - 89.03)	66.27 (41.75 - 90.80)	38.55 (15.58 - 61.52)	20.25 (0.07 - 40.42)	ref
	Rates	362.29 (305.74 - 429.29)	445.03 (346.63 - 571.36)	293.65 (246.04 - 350.48)	262.69 (211.30 - 326.57)	243.67 (211.61 - 280.58)
Prescription Cost* per person-year	· Relative Rate	1.49 (1.17 - 1.89)	1.83 (1.36 - 2.46)	1.21 (0.96 - 1.52)	1.08 (0.82 - 1.42)	ref
	Rate Difference	118.62 (46.51 - 190.73)	201.37 (98.56 - 304.17)	49.99 (-10.75 - 110.72)	19.02 (-46.62 - 84.67)	ref
*Ared 12+ evrent (CHC Hoalthin	Aripa (ared AF +) MHHS not incl	unded due to lack of DDIN data			

*Aged 1.2+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.10: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survev)	(Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-, SE	S- & RUB-adjusted		
	Rates	1,270.70 (1,095.67 - 1,473.69)	899.92 (747.74 - 1,083.09)	925.53 (801.36 - 1,068.93)	922.24 (735.04 - 1,157.11)	659.12 (585.00 - 742.63)
Hospital Costs* per person-year	Relative Rate	1.93 (1.59 - 2.34)	1.37 (1.10 - 1.70)	1.40 (1.14 - 1.73)	1.40 (1.07 - 1.83)	ref
	Rate Difference	611.58 (414.25 - 808.92)	240.81 (68.76 - 412.85)	266.41 (106.78 - 426.04)	263.12 (55.78 - 470.46)	ref
Resource	Rates	0.23 (0.20 - 0.27)	0.17 (0.14 - 0.20)	0.17 (0.15 - 0.20)	0.17 (0.14 - 0.22)	0.12 (0.11 - 0.14)
Utilization Weights*	Relative Rate	1.92 (1.60 - 2.31)	1.40 (1.14 - 1.73)	1.41 (1.16 - 1.72)	1.42 (1.09 - 1.84)	ref
per person-year	Rate Difference	0.11 (0.08 - 0.15)	0.05 (0.02 - 0.08)	0.05 (0.02 - 0.08)	0.05 (0.01 - 0.09)	ref
	Rates	333.12 (319.35 - 347.47)	312.94 (296.48 - 330.31)	314.17 (300.30 - 328.69)	307.86 (293.11 - 323.35)	281.42 (271.12 - 292.11)
Physician Costs* per person-year	Relative Rate	1.18 (1.12 - 1.26)	1.11 (1.04 - 1.19)	1.12 (1.05 - 1.19)	1.09 (1.03 - 1.17)	ref
	Rate Difference	51.70 (35.25 - 68.14)	31.52 (14.43 - 48.60)	32.75 (15.66 - 49.84)	26.44 (9.49 - 43.39)	ref
	Rates	338.41 (279.83 - 409.25)	443.38 (339.73 - 578.66)	306.98 (255.71 - 368.52)	250.45 (192.49 - 325.87)	263.09 (224.91 - 307.74)
Prescription Cost* per person-year	 Relative Rate 	1.29 (0.99 - 1.66)	1.69 (1.21 - 2.34)	1.17 (0.89 - 1.53)	0.95 (0.68 - 1.33)	ref
	Rate Difference	75.32 (4.17 - 146.47)	180.29 (74.30 - 286.29)	43.89 (-24.53 - 112.32)	-12.64 (-86.90 - 61.63)	ref
*Ared 12+ avrent (CHS Healthy	Aning (aged 45+) MHHS not incl	uided due to lack of DDIN data			

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENT

*Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of UPIN

Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.11: Estimated-Population-Based Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 10 Years After Survey

Survey weighted, in 2010 Dollars; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Cruc	de		
	Rates	981.94 (876.24 - 1,087.64)	907.03 (791.46 - 1,022.61)	1,560.99 (1,418.38 - 1,703.60)	727.81 (649.39 - 806.24)	788.88 (727.70 - 850.05)
Hospital Costs* per person-year	Relative Rate	1.24 (1.09 - 1.42)	1.15 (0.99 - 1.33)	1.98 (1.75 - 2.24)	0.92 (0.81 - 1.06)	ref
	Rate Difference	193.07 (72.63 - 313.50)	118.16 (-10.96 - 247.28)	772.11 (613.12 - 931.10)	-61.06 (-162.87 - 40.75)	ref
Resource	Rates	0.18 (0.16 - 0.20)	0.17 (0.15 - 0.19)	0.29 (0.26 - 0.31)	0.13 (0.12 - 0.15)	0.15 (0.13 - 0.16)
Utilization Weights*	Relative Rate	1.24 (1.09 - 1.42)	1.15 (0.99 - 1.33)	1.98 (1.75 - 2.24)	0.92 (0.81 - 1.06)	ref
per person-year	Rate Difference	0.04 (0.01 - 0.06)	0.02 (0.00 - 0.05)	0.14 (0.11 - 0.17)	-0.01 (-0.03 - 0.01)	ref
	Rates	316.89 (302.30 - 331.47)	323.09 (306.04 - 340.15)	436.01 (419.30 - 452.72)	289.76 (277.13 - 302.39)	285.47 (276.23 - 294.72)
Physician Costs* per person-year	Relative Rate	1.11 (1.05 - 1.17)	1.13 (1.06 - 1.20)	1.53 (1.45 - 1.61)	1.02 (0.96 - 1.07)	ref
	Rate Difference	31.41 (15.20 - 47.62)	37.62 (18.21 - 57.03)	150.53 (130.98 - 170.09)	4.29 (-11.73 - 20.31)	ref
	Rates	374.17 (303.83 - 444.50)	421.68 (272.23 - 571.14)	468.22 (395.94 - 540.50)	187.50 (161.03 - 213.97)	240.31 (188.81 - 291.82)
Prescription Cost* per person-year	· Relative Rate	1.56 (1.18 - 2.06)	1.75 (1.19 - 2.58)	1.95 (1.49 - 2.55)	0.78 (0.61 - 1.00)	ref
	Rate Difference	133.85 (46.76 - 220.95)	181.37 (28.31 - 334.43)	227.91 (136.34 - 319.48)	-52.81 (-109.80 - 4.17)	ref

Adject 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data control of the second transmission of transmi

Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.11: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age- & sex-	adjusted		
	Rates	1,565.72 (1,218.67 - 2,011.59)	1,221.69 (1,038.22 - 1,437.59)	1,001.10 (831.95 - 1,204.64)	786.40 (696.01 - 888.53)	841.03 (776.06 - 911.43)
Hospital Costs* per person-year	Relative Rate	1.86 (1.40 - 2.47)	1.45 (1.20 - 1.76)	1.19 (0.96 - 1.47)	0.94 (0.80 - 1.10)	ref
	Rate Difference	724.69 (301.89 - 1,147.49)	380.66 (162.91 - 598.42)	160.07 (-47.96 - 368.10)	-54.63 (-185.32 - 76.06)	ref
Resource	Rates	0.28 (0.23 - 0.35)	0.23 (0.20 - 0.26)	0.18 (0.16 - 0.22)	0.14 (0.13 - 0.16)	0.15 (0.14 - 0.17)
Utilization Weights*	Relative Rate	1.83 (1.45 - 2.31)	1.46 (1.23 - 1.74)	1.18 (0.98 - 1.43)	0.94 (0.80 - 1.09)	ref
per person-year	Rate Difference	0.13 (0.07 - 0.19)	0.07 (0.04 - 0.11)	0.03 (-0.01 - 0.06)	-0.01 (-0.03 - 0.01)	ref
	Rates	349.13 (328.49 - 371.07)	364.56 (337.02 - 394.35)	332.32 (306.36 - 360.47)	301.04 (288.86 - 313.73)	304.03 (295.00 - 313.34)
Physician Costs* per person-year	Relative Rate	1.15 (1.07 - 1.23)	1.20 (1.10 - 1.31)	1.09 (1.00 - 1.20)	0.99 (0.94 - 1.05)	ref
	Rate Difference	45.10 (20.47 - 69.73)	60.53 (29.66 - 91.40)	28.29 (-2.34 - 58.91)	-2.99 (-20.19 - 14.21)	ref
	Rates	368.40 (307.09 - 441.93)	424.06 (311.03 - 578.16)	262.77 (200.85 - 343.78)	210.28 (177.44 - 249.20)	284.43 (245.97 - 328.91)
Prescription Cost' per person-year	* Relative Rate	1.30 (0.98 - 1.71)	1.49 (1.02 - 2.18)	0.92 (0.66 - 1.29)	0.74 (0.58 - 0.95)	ref
	Rate Difference	83.96 (-8.96 - 176.88)	139.62 (-12.55 - 291.80)	-21.66 (-112.46 - 69.14)	-74.16 (-135.3612.95)	ref
*Aged 12+ except (CCHS Healthy	Aging (aged 45+), MHHS not incl	luded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR EXPLORER CREATOR

Appendix Table 6.11: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex-, RHA-	& SES-adjusted		
	Rates	1,572.91 (1,358.38 - 1,821.32)	1,200.02 (881.82 - 1,633.05)	1,068.49 (909.03 - 1,255.92)	1,022.28 (830.97 - 1,257.64)	887.87 (773.48 - 1,019.18)
Hospital Costs* per person-year	Relative Rate	1.77 (1.45 - 2.16)	1.35 (0.97 - 1.89)	1.20 (0.97 - 1.49)	1.15 (0.92 - 1.45)	ref
	Rate Difference	685.04 (439.82 - 930.26)	312.16 (-101.55 - 725.86)	180.62 (-22.99 - 384.23)	134.42 (-81.95 - 350.78)	ref
Resource	Rates	0.29 (0.25 - 0.33)	0.22 (0.16 - 0.30)	0.19 (0.17 - 0.23)	0.19 (0.15 - 0.22)	0.16 (0.14 - 0.18)
Utilization Weights*	Relative Rate	1.77 (1.47 - 2.13)	1.36 (0.98 - 1.89)	1.20 (0.98 - 1.48)	1.15 (0.92 - 1.43)	ref
per person-year	Rate Difference	0.12 (0.08 - 0.17)	0.06 (-0.02 - 0.13)	0.03 (0.00 - 0.07)	0.02 (-0.01 - 0.06)	ref
	Rates	360.33 (343.34 - 378.16)	359.43 (330.35 - 391.08)	325.91 (310.69 - 341.88)	317.63 (301.93 - 334.14)	300.65 (289.30 - 312.45)
Physician Costs* per person-year	Relative Rate	1.20 (1.12 - 1.28)	1.20 (1.09 - 1.31)	1.08 (1.02 - 1.16)	1.06 (0.99 - 1.13)	ref
	Rate Difference	59.68 (38.34 - 81.01)	58.78 (28.06 - 89.50)	25.26 (5.59 - 44.93)	16.98 (-2.08 - 36.03)	ref
	Rates	373.29 (319.23 - 436.51)	441.95 (348.83 - 559.92)	273.61 (228.65 - 327.41)	250.52 (205.21 - 305.83)	251.08 (218.83 - 288.09)
Prescription Cost* per person-year	* Relative Rate	1.49 (1.18 - 1.87)	1.76 (1.34 - 2.32)	1.09 (0.87 - 1.36)	1.00 (0.78 - 1.27)	ref
	Rate Difference	122.21 (51.29 - 193.13)	190.87 (89.25 - 292.49)	22.53 (-36.89 - 81.94)	-0.56 (-60.97 - 59.85)	ref
*Arred 12+ avrent (CHS Healthy	Aring (aded 45+) MHHS not incl	inded due to lack of DDIN data			

*Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.11: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before	(Daily > 5 years before	Never a Daily Smoker	Never Smoked
			Survey) Aria- sav- RHA- CF	survey) 5. & RHR-adimeted		
			10, 10, 11, 10, 10, 10, 10, 10, 10, 10,	o a nor adjusica		
	Rates	1,363.71 (1,207.62 - 1,539.98)	1,185.97 (960.08 - 1,465.00)	936.88 (819.78 - 1,070.72)	965.35 (824.95 - 1,129.64)	748.37 (668.67 - 837.58)
Hospital Costs* per person-year	Relative Rate	1.82 (1.55 - 2.15)	1.58 (1.25 - 2.01)	1.25 (1.03 - 1.52)	1.29 (1.06 - 1.57)	ref
	Rate Difference	615.34 (441.57 - 789.10)	437.59 (218.65 - 656.54)	188.51 (33.71 - 343.31)	216.97 (61.01 - 372.94)	ref
Resource	Rates	0.25 (0.22 - 0.28)	0.22 (0.18 - 0.27)	0.17 (0.15 - 0.20)	0.18 (0.15 - 0.20)	0.14 (0.12 - 0.15)
Utilization Weights*	Relative Rate	1.81 (1.55 - 2.12)	1.57 (1.25 - 1.98)	1.25 (1.04 - 1.50)	1.28 (1.06 - 1.55)	ref
per person-year	Rate Difference	0.11 (0.08 - 0.14)	0.08 (0.04 - 0.12)	0.03 (0.01 - 0.06)	0.04 (0.01 - 0.07)	ref
	Rates	345.04 (331.30 - 359.35)	343.07 (323.16 - 364.21)	317.14 (303.84 - 331.01)	320.34 (305.70 - 335.69)	294.01 (283.59 - 304.82)
Physician Costs* per person-year	Relative Rate	1.17 (1.11 - 1.24)	1.17 (1.09 - 1.25)	1.08 (1.02 - 1.14)	1.09 (1.02 - 1.16)	ref
	Rate Difference	51.03 (35.20 - 66.85)	49.06 (29.64 - 68.48)	23.13 (7.17 - 39.09)	26.33 (9.34 - 43.33)	ref
	Rates	352.25 (294.28 - 421.64)	427.28 (329.26 - 554.48)	304.11 (250.97 - 368.52)	246.10 (190.52 - 317.89)	270.88 (237.11 - 309.45)
Prescription Cost* per person-year	* Relative Rate	1.30 (1.02 - 1.66)	1.58 (1.15 - 2.16)	1.12 (0.86 - 1.46)	0.91 (0.66 - 1.25)	ref
	Rate Difference	81.38 (8.31 - 154.44)	156.40 (51.55 - 261.26)	33.24 (-38.09 - 104.57)	-24.78 (-97.46 - 47.90)	ref
*Aged 12+ except C	CCHS Healthy ,	Aging (aged 45+), MHHS not incl	uded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

Appendix Table 6.12: Estimated Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 1 Year After Survey Survey weighted, in 2010 Dollars; 95% Confidence Intervals

254.55 (241.70 - 267.39) 200.37 (157.91 - 242.84) 516.72 (422.52 - 610.91) 0.10 (0.08 - 0.11) **Never Smoked** ref ref ref ref ref ref ref 517.35 (389.33 - 645.37) 252.94 (233.14 - 272.74) 153.29 (121.04 - 185.54) Never a Daily Smoker 0.63 (-158.65 - 159.92) -1.61 (-24.77 - 21.55) 0.10 (0.07 - 0.12) 0.00 (-0.03 - 0.03) 1.00 (0.73 - 1.38) 1.00 (0.73 - 1.38) 0.99 (0.91 - 1.09) 0.77 (0.56 - 1.04) 1,158.44 (912.53 - 1,404.36) 641.73 (377.55 - 905.91) (Daily > 5 years before 128.67 (99.05 - 158.30) 383.22 (357.12 - 409.32) 509.72 (276.37 - 743.08) Former Daily Smoker 2.24 (1.69 - 2.97) 0.12 (0.07 - 0.17) 1.51 (1.38 - 1.64) 2.24 (1.69 - 2.97) 2.54 (1.53 - 4.24) 0.21 (0.17 - 0.26) Age-, sex- & propensity score-adjusted 420.90 (142.55 - 699.25) 937.61 (676.80 - 1,198.43) (Daily ≤ 5 years before 285.28 (253.75 - 316.80) 358.34 (145.10 - 571.58) Former Daily Smoker 30.73 (-3.54 - 64.99) 1.81 (1.30 - 2.53) 0.08 (0.03 - 0.13) 1.81 (1.30 - 2.53) 0.17 (0.12 - 0.22) 1.12 (0.99 - 1.27) 1.79 (0.93 - 3.42) urvey) 240.64 (78.84 - 402.43) 757.35 (625.58 - 889.13) 267.83 (249.53 - 286.14) 373.87 (156.57 - 591.17) **Current Daily Smoker** 13.29 (-9.73 - 36.31) 0.04 (0.01 - 0.07) 1.87 (1.06 - 3.29) 1.47 (1.14 - 1.88) 1.47 (1.14 - 1.88) 0.14 (0.12 - 0.16) 1.05 (0.96 - 1.15) Difference Difference Difference Relative Relative Relative Relative Rates Rates Rates Rates Rate Rate Rate Rate Rate Rate Rate Prescription Cost* Physician Costs* per person-year per person-year per person-year Hospital Costs* per person-year Utilization Weights* Resource

*Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data Values in **bold** type indicate statistically significantly different values.

ref

-47.08 (-101.47 - 7.30)

309.35 (70.54 - 548.16)

157.97 (-58.25 - 374.19)

173.50 (-48.22 - 395.21)

Difference

Rate

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DE

umanitoba.ca/faculties/medicine/units/mchp Appendix 6 | page 337

Appendix Table 6.12: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propen:	sity score-adjusted		
	Rates	1,611.96 (936.42 - 2,774.84)	761.46 (512.47 - 1,131.42)	699.82 (497.75 - 983.94)	471.34 (314.75 - 705.85)	707.53 (431.66 - 1,159.70)
Hospital Costs* per person-year	Relative Rate	2.28 (1.10 - 4.70)	1.08 (0.56 - 2.06)	0.99 (0.55 - 1.77)	0.67 (0.36 - 1.22)	ref
	Rate Difference	904.43 (116.15 - 1,692.72)	53.93 (-395.17 - 503.03)	-7.71 (-386.18 - 370.77)	-236.19 (-573.90 - 101.53)	ref
Resource	Rates	0.14 (0.10 - 0.18)	0.21 (0.15 - 0.30)	0.13 (0.09 - 0.17)	0.14 (0.10 - 0.19)	0.10 (0.07 - 0.14)
Utilization Weights*	Relative Rate	1.40 (0.94 - 2.07)	2.16 (1.32 - 3.54)	1.28 (0.84 - 1.96)	1.38 (0.88 - 2.18)	ref
per person-year	Rate Difference	0.04 (0.00 - 0.08)	0.11 (0.03 - 0.19)	0.03 (-0.02 - 0.07)	0.04 (-0.01 - 0.09)	ref
	Rates	256.60 (239.66 - 274.73)	285.09 (262.17 - 310.02)	281.55 (260.27 - 304.57)	259.33 (239.48 - 280.82)	250.81 (231.46 - 271.77)
Physician Costs* per person-year	Relative Rate	1.02 (0.92 - 1.14)	1.14 (1.01 - 1.28)	1.12 (1.00 - 1.26)	1.03 (0.93 - 1.16)	ref
	Rate Difference	5.79 (-18.92 - 30.50)	34.28 (4.94 - 63.63)	30.74 (2.83 - 58.66)	8.52 (-17.55 - 34.58)	ref
	Rates	378.03 (267.43 - 534.36)	261.06 (202.17 - 337.11)	226.72 (188.35 - 272.90)	224.12 (176.32 - 284.87)	273.26 (198.71 - 375.79)
Prescription Cost ⁴ per person-year	* Relative Rate	1.38 (0.82 - 2.33)	0.96 (0.63 - 1.44)	0.83 (0.57 - 1.20)	0.82 (0.55 - 1.23)	ref
	Rate Difference	104.76 (-38.47 - 248.00)	-12.20 (-112.33 - 87.93)	-46.55 (-133.48 - 40.39)	-49.15 (-143.96 - 45.67)	ref
*Aaed 12+ except C	CCHS Healthy,	Aging (aged 45+), MHHS not inclu	uded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values.

TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL PIONEER CREATOR EXPLORER DEFENDER T

Appendix Table 6.13: Estimated Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 3 Years After Survey Survey weighted, in 2010 Dollars; 95% Confidence Intervals

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propen	sity score-adjusted		
	Rates	797.55 (691.70 - 903.39)	895.11 (699.31 - 1,090.92)	1,361.05 (1,171.39 - 1,550.70)	564.37 (482.42 - 646.32)	669.94 (580.36 - 759.52)
Hospital Costs* per person-year	Relative Rate	1.19 (0.99 - 1.43)	1.34 (1.03 - 1.73)	2.03 (1.68 - 2.45)	0.84 (0.69 - 1.03)	ref
	Rate Difference	127.60 (-8.59 - 263.79)	225.17 (6.13 - 444.21)	691.10 (484.95 - 897.26)	-105.58 (-229.18 - 18.03)	ref
Resource	Rates	0.15 (0.13 - 0.17)	0.16 (0.13 - 0.20)	0.25 (0.22 - 0.29)	0.10 (0.09 - 0.12)	0.12 (0.11 - 0.14)
Utilization Weights*	Relative Rate	1.19 (0.99 - 1.43)	1.34 (1.03 - 1.73)	2.03 (1.68 - 2.45)	0.84 (0.69 - 1.03)	ref
per person-year	Rate Difference	0.02 (0.00 - 0.05)	0.04 (0.00 - 0.08)	0.13 (0.09 - 0.17)	-0.02 (-0.04 - 0.00)	ref
	Rates	285.61 (269.26 - 301.96)	286.65 (264.78 - 308.53)	393.57 (371.77 - 415.37)	258.00 (243.29 - 272.70)	260.23 (248.43 - 272.03)
Physician Costs* per person-year	Relative Rate	1.10 (1.02 - 1.18)	1.10 (1.01 - 1.20)	1.51 (1.40 - 1.63)	0.99 (0.92 - 1.07)	ref
	Rate Difference	25.38 (5.49 - 45.27)	26.42 (1.26 - 51.58)	133.34 (107.76 - 158.92)	-2.23 (-21.15 - 16.69)	ref
	Rates	330.96 (237.64 - 424.28)	315.96 (174.10 - 457.81)	457.89 (305.78 - 610.01)	157.43 (125.00 - 189.85)	191.79 (158.52 - 225.07)
Prescription Cost* per person-year	* Relative Rate	1.73 (1.25 - 2.38)	1.65 (1.02 - 2.65)	2.39 (1.64 - 3.47)	0.82 (0.63 - 1.07)	ref
	Rate Difference	139.17 (40.23 - 238.11)	124.17 (-19.61 - 267.94)	266.10 (109.27 - 422.94)	-34.37 (-81.18 - 12.46)	ref
			and the second of the second sec			

Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of UPIN data Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.13: Continued

			Former Daily Smoker	Former Daily Smoker		
		Current Daily Smoker	(Daily ≤ 5 years before survey)	(Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propen	sity score-adjusted		
	Rates	857.54 (713.50 - 1,030.66)	1,064.91 (829.23 - 1,367.57)	1,141.14 (806.28 - 1,615.08)	772.88 (599.38 - 996.59)	646.02 (520.13 - 802.39)
Hospital Costs* per person-year	Relative Rate	1.33 (1.03 - 1.71)	1.65 (1.20 - 2.27)	1.77 (1.18 - 2.65)	1.20 (0.87 - 1.64)	ref
	Rate Difference	211.52 (36.56 - 386.47)	418.89 (121.92 - 715.85)	495.12 (121.35 - 868.89)	126.85 (-93.17 - 346.88)	ref
Resource	Rates	0.16 (0.13 - 0.19)	0.20 (0.16 - 0.25)	0.21 (0.15 - 0.29)	0.14 (0.11 - 0.18)	0.12 (0.10 - 0.15)
Utilization Weights*	Relative Rate	1.33 (1.05 - 1.69)	1.64 (1.22 - 2.22)	1.76 (1.20 - 2.57)	1.20 (0.89 - 1.61)	ref
per person-year	Rate Difference	0.04 (0.01 - 0.07)	0.08 (0.03 - 0.13)	0.09 (0.02 - 0.16)	0.02 (-0.02 - 0.06)	ref
	Rates	266.58 (250.10 - 284.13)	295.89 (274.50 - 318.94)	297.72 (277.06 - 319.93)	273.73 (253.15 - 295.98)	272.41 (251.98 - 294.50)
Physician Costs* per person-year	Relative Rate	0.98 (0.89 - 1.08)	1.09 (0.98 - 1.21)	1.09 (0.98 - 1.22)	1.00 (0.90 - 1.12)	ref
	Rate Difference	-5.83 (-30.14 - 18.47)	23.48 (-3.51 - 50.46)	25.31 (-2.61 - 53.24)	1.32 (-26.03 - 28.67)	ref
	Rates	332.32 (243.85 - 452.90)	282.86 (222.40 - 359.75)	226.66 (186.93 - 274.84)	206.26 (162.23 - 262.22)	236.91 (178.69 - 314.10)
Prescription Cost ⁴ per person-year	* Relative Rate	1.40 (0.90 - 2.19)	1.19 (0.82 - 1.74)	0.96 (0.68 - 1.35)	0.87 (0.61 - 1.25)	ref
	Rate Difference	95.42 (-19.91 - 210.75)	45.95 (-43.46 - 135.36)	-10.25 (-85.35 - 64.86)	-30.65 (-107.52 - 46.22)	ref
*Aged 12+ except (CCHS Healthy /	Aging (aged 45+), MHHS not inc	luded due to lack of DPIN data			

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.14: Estimated Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of **Smoking Status Categories, 5 Years After Survey**

Survey weighted, in 2010 Dollars; 95% Confidence Intervals

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propen	sity score-adjusted		
	Rates	873.83 (773.87 - 973.80)	937.29 (755.84 - 1,118.73)	1,437.43 (1,278.43 - 1,596.42)	621.83 (543.71 - 699.96)	710.10 (639.30 - 780.90)
Hospital Costs* per person-year	Relative Rate	1.23 (1.06 - 1.43)	1.32 (1.06 - 1.64)	2.02 (1.74 - 2.35)	0.88 (0.74 - 1.03)	ref
	Rate Difference	163.73 (44.16 - 283.31)	227.19 (32.30 - 422.07)	727.33 (551.82 - 902.83)	-88.27 (-195.85 - 19.31)	ref
Resource	Rates	0.16 (0.14 - 0.18)	0.17 (0.14 - 0.21)	0.26 (0.24 - 0.29)	0.11 (0.10 - 0.13)	0.13 (0.12 - 0.14)
Utilization Weights*	Relative Rate	1.23 (1.06 - 1.43)	1.32 (1.06 - 1.64)	2.02 (1.74 - 2.35)	0.88 (0.74 - 1.03)	ref
per person-year	Rate Difference	0.03 (0.01 - 0.05)	0.04 (0.01 - 0.08)	0.13 (0.10 - 0.17)	-0.02 (-0.04 - 0.00)	ref
	Rates	294.79 (278.78 - 310.79)	291.21 (272.13 - 310.30)	398.33 (379.49 - 417.17)	264.94 (251.39 - 278.50)	265.61 (255.10 - 276.12)
Physician Costs* per person-year	Relative Rate	1.11 (1.04 - 1.19)	1.10 (1.02 - 1.18)	1.50 (1.41 - 1.60)	1.00 (0.93 - 1.07)	ref
	Rate Difference	29.18 (10.44 - 47.91)	25.60 (3.77 - 47.44)	132.72 (110.43 - 155.01)	-0.67 (-18.10 - 16.76)	ref
	Rates	348.61 (267.30 - 429.92)	326.46 (208.59 - 444.33)	434.40 (324.48 - 544.32)	159.36 (130.95 - 187.77)	193.04 (165.10 - 220.97)
Prescription Cost* per person-year	Relative Rate	1.81 (1.38 - 2.36)	1.69 (1.15 - 2.49)	2.25 (1.68 - 3.02)	0.83 (0.66 - 1.03)	ref
	Rate Difference	155.58 (70.23 - 240.92)	133.43 (14.00 - 252.85)	241.37 (126.73 - 356.00)	-33.68 (-73.56 - 6.21)	ref
*Aged 12+ except C	CHS Healthy A	Aning (aged 45+) MHHS not inc	luded due to lack of DDIN data			

*Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN dai Values in **bold** type indicate statistically significantly different values.

Appendix Table 6.14: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survev)	Former Daily Smoker (Daily > 5 years before survev)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propen:	sity score-adjusted		
	Rates	914.72 (675.88 - 1,237.97)	1,052.67 (854.83 - 1,296.29)	1,187.23 (871.13 - 1,618.03)	897.50 (726.86 - 1,108.19)	749.90 (606.34 - 927.46)
Hospital Costs* per person-year	Relative Rate	1.22 (0.85 - 1.75)	1.40 (1.06 - 1.87)	1.58 (1.08 - 2.32)	1.20 (0.90 - 1.60)	ref
	Rate Difference	164.82 (-165.28 - 494.92)	302.77 (46.66 - 558.88)	437.32 (76.24 - 798.41)	147.59 (-69.20 - 364.38)	ref
Resource	Rates	0.17 (0.13 - 0.23)	0.19 (0.16 - 0.23)	0.22 (0.16 - 0.29)	0.16 (0.13 - 0.20)	0.14 (0.11 - 0.17)
Utilization Weights*	Relative Rate	1.22 (0.87 - 1.72)	1.41 (1.08 - 1.83)	1.58 (1.10 - 2.28)	1.19 (0.91 - 1.57)	ref
per person-year	Rate Difference	0.03 (-0.03 - 0.09)	0.06 (0.01 - 0.10)	0.08 (0.02 - 0.15)	0.03 (-0.01 - 0.07)	ref
	Rates	281.57 (264.59 - 299.63)	301.39 (280.87 - 323.41)	308.31 (286.58 - 331.69)	285.93 (267.34 - 305.81)	282.71 (262.29 - 304.72)
Physician Costs* per person-year	Relative Rate	1.00 (0.91 - 1.09)	1.07 (0.97 - 1.17)	1.09 (0.98 - 1.22)	1.01 (0.92 - 1.12)	ref
	Rate Difference	-1.14 (-24.77 - 22.48)	18.68 (-5.86 - 43.23)	25.60 (-3.86 - 55.06)	3.22 (-22.50 - 28.93)	ref
	Rates	333.56 (239.28 - 464.99)	302.34 (243.53 - 375.36)	231.81 (190.44 - 282.16)	227.06 (179.34 - 287.48)	247.28 (192.19 - 318.16)
Prescription Cost* per person-year	Relative Rate	1.35 (0.87 - 2.10)	1.22 (0.87 - 1.71)	0.94 (0.68 - 1.30)	0.92 (0.66 - 1.27)	ref
	Rate Difference	86.28 (-34.65 - 207.21)	55.07 (-28.75 - 138.88)	-15.47 (-88.82 - 57.88)	-20.22 (-92.85 - 52.41)	ref

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'Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

Values in **bold** type indicate statistically significantly different values.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

UNIVERSITY OF MANITOBA, FACULTY OF HEALTH SCIENCES page 342 | Appendix 6

Appendix Table 6.15: Estimated Propensity-Score Annualized Rates, Relative Rates, and Rate Differences for Costs of Smoking Status Categories, 10 Years After Survey Survey weighted, in 2010 Dollars; 95% Confidence Intervals

766.05 (703.17 - 828.93) 209.75 (184.39 - 235.10) 278.79 (269.23 - 288.35) 0.14 (0.13 - 0.15) Never Smoked ref ref ref ref ref ref ref ref 674.75 (601.84 - 747.66) 171.25 (144.54 - 197.97) 276.29 (263.46 - 289.12) **Never a Daily Smoker** -38.49 (-74.84 - -2.15) 91.30 (-189.50 - 6.90) -2.49 (-18.71 - 13.72) 0.02 (-0.03 - 0.00) 0.82 (0.67 - 0.99) 0.12 (0.11 - 0.14) 0.88 (0.77 - 1.01) 0.88 (0.77 - 1.01) 0.99 (0.93 - 1.05) 1,457.78 (1,318.32 - 1,597.24) 230.25 (142.72 - 317.79) 691.73 (537.03 - 846.42) 131.94 (111.09 - 152.79) (Daily > 5 years before 410.72 (392.88 - 428.56) 440.00 (356.78 - 523.22) Former Daily Smoker 1.90 (1.67 - 2.16) 1.90 (1.67 - 2.16) 0.13 (0.10 - 0.16) 1.47 (1.39 - 1.56) 2.10 (1.68 - 2.63) 0.27 (0.24 - 0.29) Age-, sex- & propensity score-adjusted urvey) 916.62 (778.28 - 1,054.97) (Daily ≤ 5 years before 119.01 (24.11 - 213.92) 328.76 (235.94 - 421.58) 312.47 (293.21 - 331.73) 150.57 (-0.76 - 301.90) Former Daily Smoker 33.68 (12.22 - 55.14) 1.20 (1.01 - 1.42) 1.20 (1.01 - 1.42) 1.12 (1.04 - 1.20) 1.57 (1.16 - 2.12) 0.03 (0.00 - 0.06) 0.17 (0.14 - 0.19) survey) 963.71 (860.28 - 1,067.14) 197.66 (79.18 - 316.14) 170.09 (88.28 - 251.90) 307.65 (292.77 - 322.53) 379.84 (300.73 - 458.95) **Current Daily Smoker** 28.87 (11.93 - 45.80) 1.26 (1.10 - 1.44) 1.26 (1.10 - 1.44) 0.04 (0.01 - 0.06) 1.10 (1.04 - 1.17) 1.81 (1.43 - 2.29) 0.18 (0.16 - 0.20) Difference Difference Difference Difference Relative Relative Relative Relative Rates Rates Rates Rates Rate Rate Rate Rate Rate Rate Rate Rate Prescription Cost* **Physician Costs*** Hospital Costs* per person-year per person-year per person-year per person-year Utilization Resource Weights*

Adjust is bend that the indicate effective (aged 45+), MHHS not included due to lack of DPIN data

Values in **bold** type indicate statistically significantly different values.

Note: Never Smoked in these analyses only includes survey respondents who said they had never smoked a whole cigarette.

umanitoba.ca/faculties/medicine/units/mchp Appendix 6 | page 343

Appendix Table 6.15: Continued

		Current Daily Smoker	Former Daily Smoker (Daily ≤ 5 years before survey)	Former Daily Smoker (Daily > 5 years before survey)	Never a Daily Smoker	Never Smoked
			Age-, sex- & propens	sity score-adjusted		
	Rates	1,057.99 (871.07 - 1,285.02)	1,303.14 (993.27 - 1,709.67)	1,202.23 (925.66 - 1,561.45)	962.95 (802.48 - 1,155.50)	776.91 (649.16 - 929.80)
Hospital Costs* per person-year	Relative Rate	1.36 (1.06 - 1.74)	1.68 (1.23 - 2.29)	1.55 (1.12 - 2.14)	1.24 (0.97 - 1.58)	ref
	Rate Difference	281.07 (49.73 - 512.42)	526.22 (203.64 - 848.81)	425.32 (117.86 - 732.78)	186.04 (-2.88 - 374.94)	ref
Resource	Rates	0.19 (0.16 - 0.23)	0.24 (0.18 - 0.31)	0.22 (0.17 - 0.28)	0.18 (0.15 - 0.21)	0.14 (0.12 - 0.17)
Utilization Weights*	Relative Rate	1.36 (1.08 - 1.71)	1.67 (1.24 - 2.25)	1.55 (1.14 - 2.09)	1.23 (0.98 - 1.54)	ref
per person-year	Rate Difference	0.05 (0.01 - 0.09)	0.10 (0.04 - 0.15)	0.08 (0.02 - 0.13)	0.03 (0.00 - 0.07)	ref
	Rates	298.29 (281.14 - 316.48)	343.63 (314.92 - 374.97)	315.17 (293.31 - 338.65)	307.03 (287.91 - 327.42)	312.60 (288.98 - 338.14)
Physician Costs* per person-year	Relative Rate	0.95 (0.87 - 1.04)	1.10 (0.99 - 1.23)	1.01 (0.90 - 1.13)	0.98 (0.89 - 1.09)	ref
	Rate Difference	-14.31 (-39.17 - 10.55)	31.04 (-1.12 - 63.20)	2.57 (-28.91 - 34.06)	-5.57 (-33.25 - 22.12)	ref
	Rates	349.79 (253.97 - 481.78)	327.63 (266.88 - 402.22)	241.06 (195.52 - 297.20)	232.07 (181.36 - 296.96)	274.98 (218.93 - 345.39)
Prescription Cost* per person-year	 Relative Rate 	1.27 (0.84 - 1.94)	1.19 (0.86 - 1.65)	0.88 (0.64 - 1.21)	0.84 (0.61 - 1.18)	ref
	Rate Difference	74.81 (-49.44 - 199.06)	52.65 (-36.86 - 142.16)	-33.92 (-110.67 - 42.82)	-42.91 (-121.07 - 35.24)	ref

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*Aged 12+ except CCHS Healthy Aging (aged 45+), MHHS not included due to lack of DPIN data

Values in **bold** type indicate statistically significantly different values.

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