



# Reducing Gaps in Health

## A Focus on Socio-Economic Status in Urban Canada

C a n a d i a n   P o p u l a t i o n   H e a l t h   I n i t i a t i v e



Canadian Institute  
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## Executive Summary

Canadians are among the world's healthiest populations, but not all Canadians are equally healthy. Gaps (or differences) in health are particularly observable in urban Canada, where links between health and socio-economic status (SES) can be analyzed at small geographical levels.

The first section of this report highlights some of what we know about the numerous links between SES and health. This includes what research has shown about how income and education, family structure, gender, social ties and place of residence may impact one's state of well-being.

Using 21 indicators, including hospitalization rates for a number of medical conditions and self-reported health status, the second section looks at how health in 15 of Canada's census metropolitan areas (CMAs) varies in small geographical urban areas with different socio-economic characteristics. Research examining socio-economic factors and health tends to use single-item measures (for example, measuring income alone) to examine gaps in health across different populations. This report, however, addresses multiple material and social dimensions of SES by using an index that incorporates education, income, employment, single-parent families, persons living alone and the proportion of persons separated, divorced or widowed.

Small geographical urban areas (Statistics Canada "dissemination areas" or DAs) within each of the 15 CMAs were classified into one of three SES groups: low SES, average SES and high SES. Hospitalization rates and self-reported health percentages were calculated within each of those three SES groups for each of the 15 CMAs.

What do the analyses reveal? In support of previous research, the analyses in this report showed consistent links between SES and health in urban Canada. Looking at differences in hospitalization rates between SES groups across all 15 CMAs combined (Figure 2), low-SES areas had significantly higher rates than the average-SES areas, which in turn had higher rates compared with the high-SES areas for each of the hospitalization indicators examined. What does this mean? As one moves from low SES (through average SES) to high SES, hospitalization rates get smaller. These incremental differences are referred to in this report as “gradients.”

Similar results (that is, gradients) were found for indicators using self-reported information from the Canadian Community Health Survey (CCHS) (see Figure 3). People from low-SES areas were less likely to say that their health was “excellent” or “very good,” and they were more likely to report engaging in unhealthy behaviours such as smoking. Once again, as one moves from low SES (through average SES) to high SES, self-reported involvement in unhealthy behaviours declined, and self-reported positive health went up. The data for the 15 CMAs combined showed that these gaps in health between SES groups were found for 20 of the 21 indicators examined. The only exception was the self-reported overweight and obesity indicator, for which the gaps between SES groups were small.

The report then takes a closer look at the size of the gaps between SES groups for the 21 indicators (figures 4 and 5). This closer look revealed that the size of the gaps between groups varied among the types of indicators examined. For example, the gap in hospitalization rates between low- and high-SES groups was greater for mental illness-related conditions and ambulatory care sensitive conditions (ACSC) than it was for various injuries or for low birth weight. In addition, hospitalization rates from substance-related disorders in the low-SES group were about 3.4 times those of the high-SES group. Hospitalization rates for chronic obstructive pulmonary disease (COPD) in the low-SES group were about 2.7 times those of the high-SES group across all 15 CMAs. The report refers to these larger gaps as “steeper” gradients.

For the self-reported health indicators (Figure 5), gaps between SES groups were widest for smoking. Self-reported smoking among the low-SES group was almost twice that found in the high-SES group. On the other hand, there was virtually no gap between the groups for overweight and obesity, influenza immunization and alcohol bingeing.

What are the implications of these data? One possibility is that for indicators with larger gaps between SES groups, health improvements might be gained through targeted interventions tailored to meet the needs of the lower-SES groups. On the other hand, for the indicators where the gaps between groups were narrower, more universal approaches encompassing the whole population may be needed.

Section 2 then takes a closer look at the data specific to the individual CMAs and the six regions in which they are located. In each case, one indicator per CMA was selected for comparison with the data from the 15 CMAs combined (figures 6 to 20). What these data show is that, just as gaps between SES groups vary by indicator, gaps may also vary between CMAs. In other words, whereas an indicator may have large gaps between groups in one CMA, in another, the gaps may be considerably smaller for the same indicator. It is beyond the scope of this report to explore the reasons for these inter-CMA differences. Jurisdictions looking to reduce gaps for specific indicators may have much to learn from jurisdictions in which the gaps are smaller.

The final section of the report looks at some factors that might inform actions to improve health and reduce gaps in health between groups. The section provides a high-level overview of what seems to be working, both within Canada and abroad, to reduce gaps in health linked to SES. It concludes with a discussion regarding improving the evidence base for the development of applicable and actionable interventions.

The data analyses in this report revealed differences in terms of the size of the gaps between SES groups for a number of the 21 indicators examined. Some indicators had wider gaps than others, and in some cases the same indicator had gaps that differed between CMAs. These kinds of differences in gaps between indicators and CMAs may provide a starting point for planning action to improve health. In addition, the 15 CMAs featured in the report differed extensively in terms of their socio-economic and demographic characteristics (Table 4). These CMA-specific characteristics may also provide useful information for the development of policies and programs to improve health. Such interventions, if evaluated, could add to the knowledge base concerning the reduction of gaps in health.

Other jurisdictions have shown promising results using both targeted and universal interventions in reducing gaps in health resulting from unequal SES. One example is the U.K., where *Tackling Health Inequalities: A Programme for Action* appears to have successfully reduced gaps in infant mortality, child poverty, housing quality, heart disease and cancer mortality. Another example comes from Sweden, where a national public health policy appears to have had some success in reducing smoking rates across the entire population, reducing illicit drug use among school-aged children and reducing work- and traffic-related injuries through successful prevention programs.

Examining what is happening within Canada also points to some promising initiatives. For example, Canada was successful in reducing the number of children living below Statistics Canada's low income cut-off (LICO) between 1996 and 2005. Additionally, Canada's performance in terms of reducing poverty among seniors is above average compared with other prosperous countries. What is missing, however, is evaluations of the impact of such accomplishments in terms of improving the health of the people who may benefit from these programs. This report discusses potential ways to broaden the knowledge base for informed policies through the use of natural experiments and by strengthening partnerships between researchers and policy-makers.

This report supports previous research indicating that gaps in health linked to SES exist in urban areas. The innovative aspect of this report lies partly in the level of geography used in the analyses (that is, dissemination areas), which allowed for the results to be generalized to a large proportion of urban Canada—about 66% of Canada's urban population is accounted for in this study. Additionally, the Deprivation Index used in the analyses allowed for inclusion of multiple dimensions of SES, which have been shown to be related to health, in the categorization of areas by SES.



# About the Canadian Population Health Initiative

The Canadian Population Health Initiative (CPHI), a part of the Canadian Institute for Health Information (CIHI), was created in 1999. CPHI's mission is twofold:

- To foster a better understanding of factors that affect the health of individuals and communities; and
- To contribute to the development of policies that reduce inequities and improve the health and well-being of Canadians.

As a key actor in population health, CPHI:

- Provides analysis of Canadian and international population health evidence to inform policies that improve the health of Canadians;
- Commissions research and builds research partnerships to enhance understanding of research findings and to promote analysis of strategies that improve population health;
- Synthesizes evidence about policy experiences, analyzes evidence on the effectiveness of policy initiatives and develops policy options;
- Works to improve public knowledge and understanding of the determinants that affect individual and community health and well-being; and
- Works within CIHI to contribute to improvements in Canada's health system and the health of Canadians.







## About the Canadian Institute for Health Information

CIHI collects and analyzes information on health and health care in Canada and makes it publicly available. Canada's federal, provincial and territorial governments created CIHI as a not-for-profit, independent organization dedicated to forging a common approach to Canadian health information. CIHI's goal: to provide timely, accurate and comparable information. CIHI's data and reports inform health policies, support the effective delivery of health services and raise awareness among Canadians of the factors that contribute to good health.



## CPHI Council (as of May 2008)

A council of respected researchers and decision-makers from across Canada guides CPHI in its work:

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- **Elinor Wilson**, President, Assisted Human Reproduction, Health Canada, Ontario; and
- **Michael Wolfson** (ex officio), Assistant Chief Statistician, Analysis and Development, Statistics Canada, Ontario.





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Please note that the analyses and conclusions in this report do not necessarily reflect those of the individual members of the Expert Advisory Group or peer reviewers, or their affiliated organizations.

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**Institut national  
de santé publique**  
**Québec**



- **Institut national de santé publique du Québec (INSPQ)**. Since 1998, INSPQ has united Quebec's principal public health laboratories and centres of expertise and promoted national and international cooperation and the exchange of knowledge concerning public health. Further information can be obtained from the INSPQ website at [www.inspq.qc.ca](http://www.inspq.qc.ca).



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- **Statistics Canada** is recognized as an invaluable source of rigorous and available data and information for all Canadians. The Health Statistics Division provides health-related information and conducts cross-sectional and longitudinal surveys, including those related to population health. Information on the wide range of data available from Statistics Canada can be obtained from Statistics Canada's regional offices, its website at [www.statcan.ca](http://www.statcan.ca) and its toll-free number (1-800-263-1136).



URBAN PUBLIC HEALTH NETWORK  
RÉSEAU CANADIEN POUR LA SANTÉ URBAINE

- **Urban Public Health Network (UPHN)** helps to address public health issues that are common to urban populations and to develop strategies to address these issues. The UPHN serves as a forum for sharing best practices, advocating for policy changes and fostering and facilitating research in public health. More information can be found on the UPHN website at [www.uphn.ca](http://www.uphn.ca).

We appreciate the ongoing efforts of researchers working in the field of population health to further our knowledge and understanding of the important issues surrounding health determinants and related health improvements.



# Introduction



**“Being poor is in itself a health hazard; worse, however, is being urban and poor.”<sup>1</sup>**

In general, Canada is a prosperous country with a healthy population. We enjoy a high quality of life, a wealth of natural resources and a strong economy. Yet, not all Canadians are benefiting from the strong economy and not all Canadians are equally healthy.

According to United Nations forecasts, the global population is expected to increase by an additional 2 billion inhabitants by the year 2030, of whom about 1.9 billion are predicted to live in urban areas.<sup>2</sup> Canada too is becoming increasingly urban. At the 2006 Census of Canada, just over two-thirds (68%) of Canadians lived in one of Canada’s 33 census metropolitan areas (CMAs).<sup>3</sup> Those same CMAs accounted for about 90% of the 1.6-million increase in Canada’s population from 2001 to 2006.<sup>3</sup>

Our cities provide a unique lens through which to view and understand the extent of unequal socio-economic status (SES). Where people choose to live in a city depends, to varying degrees, on income and related factors, such as affordability of housing, quality of public services, local tax rates and transportation infrastructure, among others.<sup>4</sup> Research has shown that our cities are becoming segregated based on income. For example, a Canadian study using 1996 census data found that “central cities” or the urban core of Canada’s largest cities had a poverty rate about 1.7 times that of the surrounding suburban areas (27% in the urban core versus 16% in suburban areas).<sup>4</sup>

In meeting their basic needs, those living in poverty face a number of challenges not necessarily faced by those earning higher incomes. Issues related to sub-standard and overcrowded housing, exposure to hazardous materials and elevated levels of pollution





all disproportionately affect those living in poverty in urban centres.<sup>5</sup> Additionally, those in poverty are more likely to smoke, abuse alcohol or drugs and report higher incidences of accidents and violence than those not in poverty.<sup>5</sup>

Numerous recent studies have explored SES, not as a dichotomy of poverty versus affluence, but as a gradient with intermediate points in between (for example, the middle class). That is, “an individual situated at any point on an income scale is likely to be less healthy than any of those above and more healthy than any of those below that particular point.”<sup>6</sup> A 2002 Canadian study on mortality by neighbourhood income in Canada’s CMAs found that life expectancy at birth and the probability of surviving to age 75 tend to increase as neighbourhood income rises.<sup>7</sup>

Why do these gaps exist in Canada’s urban centres? To better answer this question, it is important to consider the socio-economic and demographic makeup of our urban areas. A better understanding of those characteristics and the linkages among them can help to further our knowledge about gaps in socio-economic status and health in urban Canada and, ultimately, generate workable and actionable solutions to address those gaps.

While this report focuses specifically on urban populations in Canada, much work has been done to understand and address rural populations and rural health. For example, please refer to the CPHI-funded report *How Healthy Are Rural Canadians? An Assessment of Their Health Status and Health Determinants*.<sup>8</sup>

**Health:** According to the World Health Organization, “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”<sup>9</sup>

In the context of this report, health and the determinants of health are measured by a variety of indicators, such as healthy or unhealthy behaviours (for example, level of physical activity, obtaining vaccinations against influenza, smoking and alcohol intake), self-reported health (such as health and weight status and activity limitation) and hospital admissions for both mental and physical health concerns.

**Socio-economic status:** In this report, socio-economic status is used as a “descriptive term for the position of persons in society, based on a combination of occupational, economic, and educational criteria.”<sup>10</sup> Other factors, such as “ethnicity, literacy and cultural characteristics, influence socio-economic status, which is an important determinant of health.”<sup>10</sup>

## Terminology Used in This Report

## Terminology Used in This Report (cont'd)

**Urban:** According to Statistics Canada, an **urban area** has “a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre”<sup>11</sup> and includes the following geographies:

- **Census metropolitan area (CMA)** has “a total population of at least 100,000 of which 50,000 or more must live in the urban core.”<sup>12</sup>
- **Urban core** is “a large urban area around which a CMA . . . is delineated. The urban core must have a population . . . of at least 50,000 persons in the case of a CMA.”<sup>13</sup>
- **Secondary urban core** is “the urban core of a CA<sup>i</sup> that has been merged with an adjacent CMA.”<sup>13</sup>
- **Urban fringe** “includes all small urban areas within a CMA . . . that are not contiguous with the urban core of the CMA.”<sup>13</sup>

## Background and Purpose of the Report

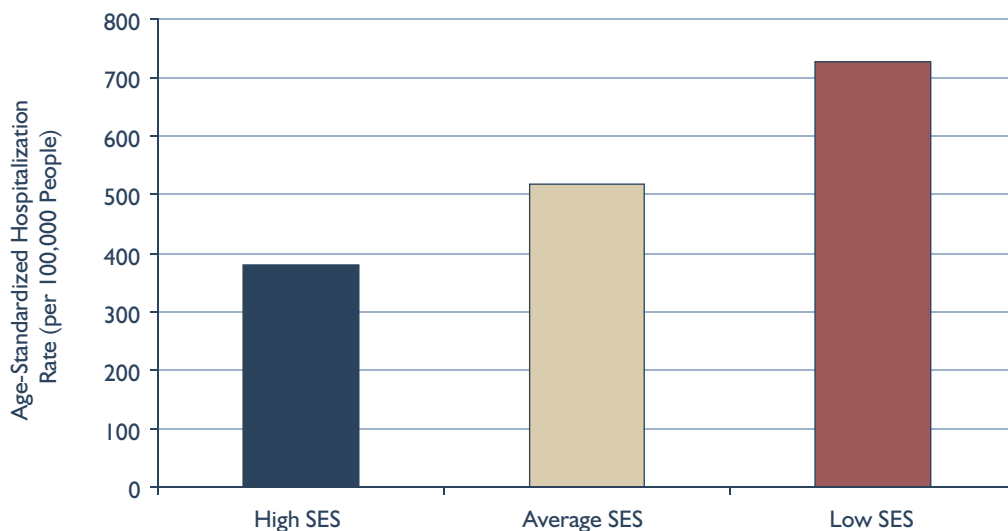
This report follows previous work done by CPHI in the areas of income and urban health. In 2004, CPHI released its first *Improving the Health of Canadians* report. One chapter of that report examined income and the health consequences of income, including trends and interpretations of gradients in health. In 2006, CPHI released *Improving the Health of Canadians: An Introduction to Health in Urban Places*. That report examined neighbourhoods and health, housing and health, and urban living and health as a starting point for discussion about the health of Canadians in urban areas. *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada* continues to build on this work.

*Reducing Gaps in Health* was born out of a partnership between CPHI and the Urban Public Health Network (UPHN). The UPHN is a collaboration of the chief medical officers of health in 18 of the largest cities in Canada (see Appendix A for a listing of the cities). The nature of the partnership and overall purpose of this report is to further explore the links between socio-economic status and health in Canada’s urban areas.

i. A **census agglomeration area (CA)** “must have an urban core population of at least 10,000.”<sup>12</sup>

## What Do We Mean by the “Gradient”?

In this report, the “gradient” refers to observable differences between constructed groups (that is, among groups with varying socio-economic status). When visually depicted, an incline or slope is present among the constructed groups for the outcome studied, with varying degrees of steepness or pitch (as shown in the illustration below).



This report contributes to that partnership by providing a broad overview of the links between SES and health, while profiling differences within and across 15 of Canada’s CMAs. This report will examine how health, as measured by a variety of indicators, varies in small geographical areas in those CMAs with different socio-economic characteristics. The purpose is not to rank or compare those 15 CMAs, but to explore patterns and examine the gradients both within those CMAs and across urban Canada. As with other research on urban health patterns, this report is framed by the assumption that CMA size, density, diversity and complexity shape the health of urban inhabitants, as do municipal, national and global trends.<sup>14</sup> These will be explored further in subsequent sections of this report.

## Organization of the Report

This report is organized into three sections.

### **Section 1. The Urban Lens: What Do We Know About the Links Between Socio-Economic Status and Health?**

Exploring the literature, this section provides a brief overview of the multiple links that exist between socio-economic status and health from an urban perspective. Areas of focus include income, education, family structure, gender, social ties and geography, among others.

### **Section 2. Socio-Economic Status and Health in Canada's Urban Context**

Using the Deprivation Index for health in Canada developed by the Institut national de santé publique du Québec (INSPQ), this section looks at three socio-economic status groups (low SES, average SES and high SES) in 15 Canadian CMAs based on data derived from the census. A range of health-related indicators are examined within the framework of the Deprivation Index, including CIHI hospitalization data and self-reported health data from Statistics Canada's Canadian Community Health Survey (CCHS).

### **Section 3. Dimensions of Socio-Economic Status and Urban Health: A Policy Perspective**

This section provides a few examples of types of policies and interventions that are directly or indirectly linked to socio-economic status and health at municipal, provincial, federal and international levels. A number of questions are raised that may offer areas for policy-related research in the future.

## Target Audiences for the Report

It is anticipated that this report will be of interest to federal, provincial, territorial, municipal and regional health authorities, as well as decision-makers, practitioners, researchers and officers responsible for public health. We also anticipate that this report will be of interest to policy-makers and urban planners in non-health sectors, such as economic and social development planners in urban centres and others with a general interest in gaps in health as a result of unequal socio-economic status.

### CPHI Reports

CPHI's reports aim to synthesize key research findings on a given theme, present new data analysis on an issue and share evidence on what we know and what we do not know about what works from a policy and program perspective. The underlying goal of each report is to tell a story that will be of interest to policy- and decision-makers in order to advance thinking and action on population health in Canada.

CPHI does not make policy or program recommendations. Our approach is to review and synthesize what is known and not known about policies and programs and to make that information available to support evidence-informed policy- and decision-making.



# The Urban Lens: What Do We Know About the Links Between Socio-Economic Status and Health?



**“Many factors determine our health status . . . our behaviours (eating well, being physically active, not smoking or abusing drugs and alcohol), as well as other factors such as our social, economic and physical environment (our genetics, biology and early development; our education, income and work; our housing, neighbourhoods and communities; and our air, land and water quality).”<sup>15</sup>**

Health can vary from one individual or group of individuals to the next. While biology plays an important role in how healthy we are, so too do environmental factors, such as where we live, work and play; economic factors, such as our income and level of education; and social factors, such as the availability of social supports and family structure.<sup>104</sup> Each of these factors is tied to socio-economic status in varying ways and to various degrees.

We have long known that SES is linked to the health and well-being of Canadians. This link has been observed in such health outcomes as hospitalization rates, the incidence of disabilities, acute and chronic health conditions and variations in mortality rates.<sup>104</sup> Behaviours and lifestyle may partially explain gaps in health. For example, low-income individuals are more likely to report being inactive and daily smokers than those with middle or high incomes.<sup>16</sup> However, since the Whitehall

study in the U.K., which followed 17,530 civil servants over a decade, it has been clear that gaps in health linked to social and economic factors persist after individual characteristics are taken into consideration.<sup>17</sup>

As mentioned at the outset of this report, urban areas provide a useful lens through which to view the complex relationships between SES and health. That is, they provide a distinctive context (or geography) in which SES can be studied and interventions applied. Previous CPHI reports have examined the literature on links between health and urban sprawl, the built environment, cultural diversity, transportation, access to services and housing.<sup>18, 19</sup> Please see *Improving the Health of Canadians: An Introduction to Health in Urban Places*<sup>18</sup> and *Improving the Health of Canadians: Promoting Healthy Weights*<sup>19</sup> for more information on the literature reviewed and the links that were examined.

This section provides a brief overview of the links between socio-economic status and health in urban Canada by examining the following:

- Multiple dimensions of individual SES, such as income and education, family structure, gender and social ties;
- Geographies of potential gaps in health as a result of unequal SES, including health status and health outcomes at the neighbourhood level; and
- Costs associated with gaps in health as a result of unequal SES.

While there is overlap among the aforementioned links between SES and health (for example, an individual can be unemployed and in a common-law relationship), those links will be considered individually in this section to facilitate discussion and to provide clearer ties between the body of existing literature and the new CPHI analyses presented in this report. The studies presented in this section are by no means an exhaustive inventory of research that has attempted to understand SES and health. They do, however, provide some examples and general insights into the multiple links that exist between SES and health.

## How Was the Literature for This Report Selected?

A search protocol was developed in order to identify studies in the areas of social and economic gaps in health as they relate to urban areas. The protocol outlined the published journal literature databases to be searched and appropriate search terms, as well as web-based grey literature sources (non-traditional literature that is not available through commercial sources) and specific items targeted for hand-searching. Where possible, database searches were limited to studies published in English or French. Published articles were limited to those that had been peer-reviewed.

Search strategies were developed for the following databases: Applied Social Science Index and Abstracts (ASSIA), EconLit, PsychInfo, Public Affairs Information Services (PAIS), PubMed, Sociological Abstracts and Urban Studies and Planning (full-text collection). Google was the primary web-based resource searched for books, systematic reviews and grey literature. The following websites were hand-searched: Amicus (Library and Archives Canada), WHOLIS (World Health Organization library), Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre), Bibliomap, [healthevidence.ca](http://healthevidence.ca), Evidence-Based Health Promotion, Community Guide, Center for Spatially Integrated Social Science, Statistics Canada and Institut national de santé publique du Québec. CPHI also maintains a library of published materials related to its key themes and, more broadly, population health, and this library was searched for materials relevant to the topic of this report.

The searches returned 17,024 articles screened for relevance by date. Only works published within the last 11 years were retained (1997 to 2007, inclusive). The database was then cleaned to remove publications that were not in English or French or related to humans. Publications pertaining to rural or remote areas and low- or middle-income countries were also removed, as were articles specifically on HIV/AIDS (as these articles generally relate to HIV/AIDS in Africa). This reduced the pool to 9,616 articles. The articles were screened for relevance by title, reducing the pool to 2,059 articles. The abstracts of those articles then underwent a second relevance review. This left a pool of 1,704 journal and grey-literature articles, which were reviewed in their entirety. The final pool of articles was reviewed and sorted by study type, research focus, year of publication, location of study, research hypothesis, sample descriptors, measures, outcomes and study strengths and limitations. The 984 articles that remained formed the pool of literature available for use in writing this report.

## Multiple Dimensions of Individual Socio-Economic Status

According to Duncan et al. (2002), “indicators of SES are meant to provide information about an individual’s access to social and economic resources... they are markers of social relationships and command over resources and skills that vary over time.”<sup>20</sup> This section explores those indicators and provides a few examples of how income and education, family structure, gender and social ties can frame the daily reality of individuals living in Canada’s urban centres.

### Income and Education

A 2007 study on income and mortality in urban Canada (based on the total population of all Canadian CMAs) found variations among the richest and poorest neighbourhoods.<sup>21</sup> For example, in 2001, the disparity in life expectancy between the 20% in Canada’s urban neighbourhoods earning the lowest income and the 20% in Canada’s urban neighbourhoods earning the highest income was about three years, or just over four years for men and about two years for women.<sup>21</sup> Other findings from that 2007 study include the following:

- A greater number of deaths among those in Canada’s poorest neighbourhoods (31,876 total deaths in the poorest neighbourhoods, compared with 18,662 total deaths in the richest neighbourhoods);<sup>21</sup>
- Higher-than-average infant mortality rates among those in the poorest neighbourhoods (7.1 deaths per 1,000 live births in Canada’s poorest neighbourhoods, compared with 5.0 deaths per 1,000 live births in Canada’s richest neighbourhoods);<sup>21</sup> and
- Diminished probability of survival to age 75 (57% of men and 74% of women in Canada’s poorest neighbourhoods were expected to survive to the age of 75, compared with 73% of men and 81% of women in the richest neighbourhoods).<sup>21</sup>

A 2006 study that examined income gradients and health outcomes found steeper gradients for behaviour-related health outcomes.<sup>22</sup> For example, the gradients for lung cancer, cirrhosis of the liver and alcoholism, and diseases of the digestive system all exhibited a steady decline from those with a low income to those with a high income.<sup>22</sup> Other findings of significance from that study include the following:

- Steeper income gradients for men than women among diseases of the circulatory system, ischemic heart disease and lung cancer;<sup>22</sup>

- Steeper income gradients in the Montréal, Ottawa–Gatineau and Toronto CMAs than all other CMAs studied;<sup>22</sup> and
- Steeper income gradients among those CMAs with higher proportions of recent immigrants.<sup>22</sup>

Education (like income) is often considered a key measure or indicator of SES and health. Higher levels of education are commonly associated with improved health status and increased life expectancy.<sup>23</sup> In Canada (using Statistics Canada's National Population Health Survey [NPHS] data), self-rated health status was found to increase with level of education (elementary to secondary to university), while self-reported chronic conditions generally decreased as education increased.<sup>24</sup>

## Income and Health:

### The Montréal Experience

A 2002 annual report on the health of Montréal residents found numerous differences in health status and health outcomes related to income. Some of the key findings of that report were as follows:

- Compared with Ottawa, Toronto, Winnipeg, Calgary and Vancouver, in 2001, Montréal had the highest proportion of seniors (15%)<sup>25</sup> and single-parent families (33%),<sup>25</sup> as well as the highest unemployment rate (10%).<sup>25</sup> Montréal also had the lowest percentage of income earned by the poorest half of households in 1995 (18%).<sup>25</sup>
- In 1998, 39% of Montréalers with a low income reported smoking, compared with 34% of Montréalers with an average income and 30% with a high income;<sup>25</sup> 24% with a low income exhibited poor eating habits, compared with 14% with an average income and 13% with a high income;<sup>25</sup> and 52% of Montréalers with a low and average income reported physical inactivity, compared with 44% of those with a high income.<sup>25</sup>
- Residents of east-central and southwest Montréal (sub-regions of Montréal that reflect the region's socio-demographic structure through territorial contiguity, homogeneous populations, land use and historic/natural boundaries) were less likely to consider their neighbourhoods to be safe.<sup>25</sup> Residents of the two sub-regions had lower life expectancies,<sup>25</sup> higher rates of adolescent pregnancy<sup>25</sup> and higher rates of avoidable hospitalization<sup>25</sup> and avoidable mortality rates<sup>25</sup> than other sub-regions in Montréal.



A 2001 Canadian study on individual-level health and the impact of education found that individuals with higher educational attainment generally experienced the following:

- Higher functional health (based on self-reported vision, hearing, speech, mobility, dexterity, cognition, emotions and pain and discomfort) at each stage of their lives;<sup>26</sup>
- Fewer restrictions or limitations on daily activities;<sup>26</sup> and
- A greater incidence of positive self-reported health.<sup>26</sup>

CPHI's report *Improving the Health of Canadians: An Introduction to Health in Urban Places* found that residents of urban neighbourhoods with a higher-than-average percentage of post-secondary graduates were more likely to be physically active and less likely to smoke.<sup>18</sup>

## Family Structure

A 2007 study using Statistics Canada's NPHS examined the relationship between marital breakdown and depression among Canadians aged 20 to 64. The study found that episodes of depression were more common among those who had experienced a dissolution in their marriage or cohabitating relationship than among those who had not.<sup>27</sup> More specifically, it was discovered that depression was about four times as common among those who had been separated, divorced or single following a relationship, with men being at a higher risk for depression than women.<sup>27</sup> Another study (2006) by the Public Health Agency of Canada found that single parents or those who were unattached were more likely than those who were with a partner or spouse to report fair or poor mental health.<sup>28</sup>

Family structure is changing in urban Canada. For example, during the 1990s, the proportion of couples with children in Canada's CMAs declined, while one-person and single-parent households increased.<sup>29</sup> Children in single-parent families tend to experience increased behavioural problems, higher rates of teenage pregnancy and lower academic achievement.<sup>30</sup> For female single-parent families, household income is another consideration. For example, single mothers generally support families on about 60% of the income of their male counterparts.<sup>105</sup> Furthermore, children residing with single-parent mothers have the second-highest poverty rates in Canada, at 71%.<sup>31</sup>

## Gender

From a health care utilization perspective, a 2004 CIHI report found that men were less likely than women to report having a regular family physician (16% of men and 9% of women report having no family doctor); less likely than women to report having five or more contacts a year with a primary care provider; and more likely to report longer wait times (55.4 days) than women (20.9 days) in obtaining mental health services.<sup>32</sup>

The same report also found the following:

- Women generally reported lower incomes than men (10% of men and 23% of women aged 65 and over were in the lowest income quartile, while 40% of men and 33% of women between 45 and 64 were in the highest income quartile);<sup>32</sup>
- Lower household income and education were associated with an increased prevalence of poor self-rated health in both women and men;<sup>32</sup> and
- Lower overall household income was linked to an increased reporting of chronic conditions in women—this was not the case with men.<sup>32</sup>

Researching the interactions between women's health and poverty, a Canadian centre studying the health of women found that variations exist in women's health. According to a 2003 study prepared by the centre, women make up most of Canada's poor.<sup>31</sup> For example, it was found that 60% of all poor adults in Manitoba were women.<sup>31</sup>

Viewing gender and SES through an urban lens, a 2006 Canadian study looked at the amount of variation among males and females in body mass index (BMI) by neighbourhood and CMA. Among other findings, the study found the following:

- Among males, associations were observed between demographic characteristics, social position, health behaviours, stress and BMI. For example, males who lived in neighbourhoods with a high proportion of new immigrants had lower BMI scores than those living in other neighbourhoods, while males in neighbourhoods with generally low educational achievement had higher BMI scores, as did those living in a sprawling CMA.<sup>22</sup>
- Among females, associations were also observed between demographic characteristics, social position, health behaviours, stress and BMI. For example, women living in neighbourhoods with generally low educational attainment had higher BMI scores than those living in neighbourhoods with high educational attainment, while living in a CMA in Quebec generally produced a higher BMI score compared with CMAs outside of Quebec.<sup>22</sup>

## Social Ties

A number of concepts are used to describe the nature of social ties among individuals, including social support, social networks, social cohesion and community engagement.

Social support networks are commonly associated with improved mental health.<sup>33</sup> A lack of these supports has been shown to be correlated with a diminished ability to develop and maintain healthy peer relationships.<sup>34</sup> In addition, weakened social supports have been linked to increased incidences of criminal violence.<sup>35</sup>

A 2007 study of Quebec City neighbourhoods found social cohesion to vary by neighbourhood, with perceptions of social cohesion as a predictor of health.<sup>36</sup> According to a 2006 study by the Public Health Agency of Canada on mental health and mental illness in Canada, about one in five Canadians (19%) reported a very strong sense of belonging to their community and a further 40% reported a somewhat strong sense of belonging.<sup>28</sup> While similar proportions of men and women reported similar levels of belonging to their community, those younger than 45 were generally not as strongly connected to their community as those over 45.<sup>28</sup>

## Geographies of Socio-Economic Status: Health and Neighbourhoods

Most studies on the links between SES and health have historically focused on either the individual<sup>37</sup> or the city/CMA.<sup>22</sup> Recent studies (2004 and 2006) have suggested that neighbourhoods can influence health beyond individual-level SES.<sup>38</sup> This section briefly explores how neighbourhoods may be linked, both positively and negatively, to health and well-being.

A 2006 study on income and inter-neighbourhood health disparities in Saskatoon found significantly higher rates for each of the following among low-income neighbourhoods than high-income neighbourhoods:

- Suicide attempts;
- Mental disorders;
- Injuries and poisonings;
- Diabetes;
- Chronic obstructive pulmonary disease;
- Coronary heart disease;
- Chlamydia;
- Gonorrhoea;
- Hepatitis C;
- Births to teens;
- Low birth weights;
- Infant mortality; and
- All-cause mortality.<sup>37</sup>

### Neighbourhood and Health: The Saskatoon Experience



Cities, regardless of size, are characterized by a collection of neighbourhoods. These neighbourhoods, each with its own distinctive characteristics, provide a unique context for viewing the lives and livelihoods of those within various urban settings. Health, crime and employment levels, among other features, can be measured at the neighbourhood level. For example, a 2004 Canadian study looking at mortality in Manitoba and Nova Scotia neighbourhoods found that the more affluent neighbourhoods generally experienced lower mortality than the poorer or more deprived neighbourhoods, when classified by household income, property values and education.<sup>39</sup>

Research has shown that living in poor or disadvantaged neighbourhoods is associated with generally poorer health status and health outcomes, independent of individual-level socio-economic characteristics.<sup>40</sup> Research has also shown that larger cities tend to have greater inter-neighbourhood differences than do smaller cities.<sup>41</sup>

Other aspects of neighbourhoods can also be linked to health. Physical factors, such as air and water quality, as well as human-built factors, such as housing, workplace safety and roads, can influence health and well-being.<sup>28</sup> For example:

- A 2004 study on urban sprawl and physical and mental health found that physical activity is constrained by sprawling urban development.<sup>42</sup>
- A 2005 Canadian study using data from Statistics Canada's National Longitudinal Survey of Children and Youth (NLSCY) found that parents and caregivers in lower-SES neighbourhoods were three times more likely than those in higher-SES neighbourhoods to disagree that their neighbourhood had access to safe play spaces.<sup>43</sup>
- A 2005 U.S. study found that characteristics of the built urban environment were associated with an increased likelihood of depression.<sup>44</sup> That is, those who live in neighbourhoods with poorer features of the built environment, such as housing units with non-functioning kitchens, were more likely to report depression in the previous six months and more likely to report depression in their lifetime than those living in neighbourhoods with a better quality physical environment.<sup>44</sup>

## Costs of Gaps in Health as a Result of Unequal Socio-Economic Status

A Canadian study (1995 to 1999) looked at the city of Winnipeg and potential cost savings that could be realized by reducing inequalities in health among its residents. Dividing city neighbourhoods into income quintiles revealed a number of disparities and quantified costs associated with those disparities:

- The poorest neighbourhoods in Winnipeg had a premature mortality rate of 5.25 deaths per 1,000 residents, in comparison with 3.03 deaths per 1,000 residents in the middle- or average-income neighbourhoods and 2.05 deaths per 1,000 residents in the city's richest neighbourhoods (over a five-year period, this is equivalent to 591 premature deaths among the poorest neighbourhoods, 344 among the middle- or average-income neighbourhoods and 232 among the wealthiest neighbourhoods);<sup>45</sup>
- Eliminating the gap between the poorest and wealthiest neighbourhoods in Winnipeg would reduce heart attacks by 22% and hip fractures by 20% (eliminating the gap between the poorest and middle- or average-income neighbourhoods would reduce heart attacks by 3% and hip fractures by 9%);<sup>45</sup>
- An average of \$822 was spent providing health services to individuals in the lowest-income quintile, compared with \$640 on each individual in the middle- or average-income quintile and \$567 on each individual in the highest-income quintile;<sup>45</sup> and
- Bridging the gap between all other neighbourhoods and the wealthiest neighbourhoods would have resulted in a savings of about \$62 million in 1999—or 15% of all hospital and physician expenditures in Winnipeg in 1999.<sup>45</sup>

The costs of gaps in health as a result of unequal SES are difficult to calculate, given their complex nature. Few studies have attempted to make the link from gaps to an actual dollar figure. Studies that have done so have focused on specific groups or communities rather than macro-level analyses that tend to be more difficult to calculate and even more difficult to apply to broader, heterogeneous populations. This section will provide a few examples of those studies.

### Costs of Gaps in Health as a Result of Unequal Socio-Economic Status: The Winnipeg Experience

Canadian research has looked at costs associated with preventable hospitalizations and hospital use. Research shows that hospital use is generally higher among those of a lower SES and lower among those with a higher SES.<sup>46</sup> For example, about 15% more (\$319 per person per year) is spent providing physician services to those neighbourhoods with low SES, compared with those with high SES (\$275 per person per year).<sup>47</sup> Furthermore, yearly hospital care expenditures are 73% higher in the poorest neighbourhoods (\$474 per person per year) compared with the richest neighbourhoods (\$273 per person per year).<sup>47</sup>

A 2000 Canadian study that looked at hospital usage in poor neighbourhoods found that hospitalization rates increase as one moves from the richest to poorest income quintile.<sup>48</sup> In more specific terms, that study found that the average cost of providing health services to the poorest quintile was about 36% higher than the middle or average quintile and about 50% higher than the richest quintile.<sup>48</sup>

### To Recap . . .

In this section, we have explored, to varying degrees, a number of links between socio-economic status and health.

This section has demonstrated how economic indicators, such as income and education, are positively or negatively associated with health. This section has also shown how social indicators, such as family structure, gender and social ties, are linked to the health and well-being of those living in urban areas. Neighbourhoods and how neighbourhood of residence is connected to socio-economic status and health were also briefly explored. The section was concluded with a brief review of studies that have linked costs to the individual or community with gaps in health as a result of unequal socio-economic status.



# Socio-Economic Status and Health in Canada's Urban Context



**This section presents new CPHI analyses of 15 Canadian census metropolitan areas (CMAs) through an examination of the following:**

- Hospitalization rates and self-reported health percentages across all 15 CMAs profiled in this report (also known as the pan-Canadian data<sup>i</sup> presented herein);
- Steepness of gradients, both within and across those 15 CMAs; and
- Regional and CMA-level analyses, including regional patterns and trends in gradients, regional/geographical patterns and trends in socio-economic status and CMA-to-pan-Canadian-data comparisons for select indicators.

i. Throughout this report, the terms “pan-Canadian data” and “all 15 CMAs” are used interchangeably to describe the combined data for the 15 CMAs that were examined.

## An Introduction to Measures of Income and Deprivation

To frame the discussion and forthcoming analyses of those 15 CMAs, what follows is a brief overview of the more commonly used measures of income and deprivation and the chosen measure for this report.

Divided into two categories, income measures focus solely on material disadvantage, while deprivation measures also account for social disadvantage.

### Income Measures

Typically, income is presented in a relative manner, with incomes ranked from lowest to highest and divided in deciles (that is, 10 groups of 10%) or quintiles (that is, 5 groups of 20%).<sup>49</sup> Income adequacy at the household level is a common measure available in the Canadian Community Health Survey (CCHS) data file. It is based on household income in relation to the size of the household and the size of the community.<sup>50</sup> At the neighbourhood level, median income is often calculated and applied at standard geographical boundaries, such as Statistics Canada's census tracts.<sup>51</sup>

Poverty-line measures are commonly constructed as criteria against which individuals, households or groups can be assessed to identify those living in poverty. Although not created as a poverty-line measure, in Canada the low income cut-off (LICO) is often used as such.<sup>52</sup> LICO identifies households below which a family would be spending at least 20% or more than an average family on food, shelter and clothing.<sup>52</sup> In 2004, 35 different low income cut-offs were used.<sup>50</sup> Those cut-offs were based on the number of persons in the household and the relative size of the community.<sup>50</sup> The LICO can also be used to identify low-income neighbourhoods. To do so, an absolute percentage can be used as the defining standard. Canadian researchers have used 40% or more of households living below the LICO in a census tract as the definition of a low-income neighbourhood.<sup>53</sup>

The low income measure (LIM) is another income measure developed by Statistics Canada. The LIM is defined as 50% of the median adjusted family income of a comparable household. It is adjusted to take family size and composition into account. Unlike the LICO, the LIM does not have a geographical component and is commonly used in international comparisons.<sup>54</sup>

## LICO Versus the Deprivation Index

CPHI conducted an agreement analysis to identify the likelihood of Statistics Canada dissemination areas being “below low income cut-off (LICO)” (per Statistics Canada’s LICO measure) and “low SES” (per CPHI analyses using the INSPQ’s Deprivation Index). Similar to prior research,<sup>53</sup> if 40% or more of a DA’s population lives below the LICO, the DA was labelled “below LICO” for this analysis. Results indicate that 67% of the DAs that were identified as below the LICO were also identified by CPHI analyses (using the INSPQ’s Deprivation Index) as low SES. Additionally, 88% of all DAs identified as above the LICO were also identified as either average or high SES.

Another set of income measures centres on the concept of income inequality and attempts to measure the distribution of incomes among residents of a given area. While not directly concerned with identifying poor or deprived populations, measures such as the Gini Coefficient and the Dissimilarity Index are measures of inequality that have been used to link the unequal distribution of income to health outcomes.<sup>55, 56</sup>

## Deprivation Measures

Deprivation measures identify those who experience material or social disadvantage compared with others in their community. The concept of deprivation has its origins in Britain and has been defined as “a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs.”<sup>57</sup> Examples of material deprivation include such factors as inadequate dietary intake or clothing and inadequate housing conditions. Examples of social deprivation include poor integration into the community, a lack of participation in social institutions and poor working environments.<sup>56</sup>

## What Is a Dissemination Area?

According to Statistics Canada, a dissemination area (DA) is a small geographical area, typically with a population of 400 to 700 people. DAs are the smallest area for which census data can be distributed and cover all provinces and territories in Canada.<sup>58</sup>

There are a number of advantages to using deprivation indices in health research. As previously stated, deprivation measures employ a multi-faceted approach to identifying individuals, households and neighbourhoods that are disadvantaged in material or social terms by measuring the socio-economic position of an area.<sup>56</sup> This is useful in analyzing socio-economic or geographical inequalities in health status or in access to health services. Deprivation indices can also be used to condense a large number of variables into a single figure.<sup>56</sup>



In Canada, there are four commonly used deprivation indices. They are summarized and presented in Table 1. Three of the four were developed for use in health research, while the other is not intended for health research. All use data from Statistics Canada’s census. While there is some overlap in the choice of variables used among the four indices, each is slightly different, reflecting the varying methods used to select which variables are included in the index.

**Table 1**

### Deprivation Indices Used in Canada

	<b>Frohlich and Mustard, 1996<sup>59</sup></b>	<b>Broadway and Jetsy, 1998<sup>60</sup></b>	<b>Pampalon and Raymond, 2000 (INSPQ)<sup>61</sup></b>	<b>Matheson, Moineddin and Glazier, 2008<sup>62</sup></b>
<b>Type of Index</b>	Composite	Separate variables	Factorial	Factorial
<b>Aim</b>	Health research (multiple health outcomes)	Changes in inner-city deprivation over time	Health research (multiple health outcomes)	Health research (body mass index)
<b>Level of Application of the Index</b>	Enumeration area aggregated at municipal level, grouped into eight regions, Manitoba	Census tract, Canada’s 22 largest CMAs	Dissemination area level, Quebec and subsequently Canada	Census tract, urban Canada
<b>Variables Included in the Index</b>	Percent unemployment (aged 15 to 24) Percent unemployment (aged 45 to 54) Percent single-parent female-headed households Percent having graduated high school (aged 25 to 34) Percent female labour force participation Average value of owner-occupied dwellings	Percent unemployment Percent persons aged 15 and over with less than a Grade 9 education Percent of low-income families	Percent without high school graduation Employment ratio Average income Percent single-parent families Percent persons living alone Percent persons separated, divorced or widowed	Percent 20 and over without high school graduation Percent single-parent families Percent families receiving government transfer payments Percent 15 and over unemployed Percent living below the low income cut-off Percent homes needing major repairs

For the purposes of this report, CPHI has chosen to use INSPQ’s (Pampalon and Raymond, 2000) Deprivation Index as the conceptual framework for the data analyses. This particular index was selected not only because it takes both material and social factors into account (as noted in Table 1), but also because it allows data to be presented at a smaller level of geography than the other indices—at Statistics Canada’s DA level.



## Methodological Overview

The Deprivation Index was used to assign geographical areas in each of the 15 CMAs profiled in this report into one of three SES groups through the following process:

- Urban populations were geographically defined using Statistics Canada's DAs.
- DAs in each of the 15 CMAs were classified as either urban or rural. Those that were identified as rural in nature were excluded from the subsequent analyses. The remaining urban DAs (30,294 urban DAs across the 15 CMAs) were classified into quintiles (five groups of 20%) based on the material and social components identified in the Deprivation Index.
- To ensure that relatively equal proportions of the highest and lowest quintiles were distributed within the 15 CMAs examined in this report, Canada was split into six regions that tend to reflect the unique material and social reality of the provinces that comprise that region. The six regions were British Columbia, Alberta, Saskatchewan/Manitoba, Ontario, Quebec and Nova Scotia/Newfoundland and Labrador.<sup>ii</sup> This was done to ensure that the application of the material and social quintiles was locally relevant.
- From those material and social quintiles, a Deprivation Index score was applied by region to each of the urban DAs. As shown in the matrix, DAs in the top two quintiles on **both** material and social components of the Deprivation Index were labelled as "high SES." DAs in the bottom two quintiles on **both** material and social components of the Deprivation Index were labelled as "low SES." All other DAs were labelled as "average SES."
- Hospitalization rates and self-reported health percentages were then analyzed by these three SES groups for within-CMA comparisons and CMA-to-pan-Canadian-data comparisons.

		Social Components				
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Material Components	Quintile 1	High SES				
	Quintile 2	High SES				
	Quintile 3			Average SES		
	Quintile 4				Low SES	
	Quintile 5				Low SES	

For further details on the data and analysis methodology employed in this study, please see Appendix B.

ii. The provinces of New Brunswick and Prince Edward Island and the territories of Nunavut, the Northwest Territories and the Yukon were excluded from the analyses, given the smaller populations of the two New Brunswick CMAs (Moncton and Saint John) and the absence of CMAs in Prince Edward Island, Nunavut, the Northwest Territories and the Yukon.

## Census Metropolitan Areas Selected for This Report

The specific case studies profiling the links between SES and health in Canada, presented in this section of the report, focus on 15 CMAs that provide a broad geographic representation of Canada’s urban areas (see Figure 1 for a map indicating the geographical location of each of the 15 CMAs). They are some of Canada’s largest CMAs and all encompass Urban Public Health Network (UPHN) member cities. These CMAs include the following:

- Victoria;
- Vancouver;
- Calgary;
- Edmonton;
- Saskatoon;
- Regina;
- Winnipeg;
- London;
- Hamilton;
- Toronto;
- Ottawa–Gatineau;
- Montréal;
- Québec;
- Halifax; and
- St. John’s.

Figure 1

### Geographical Location of the 15 Canadian CMAs



An analysis of the urban DAs across the 15 CMAs (30,294 DAs) revealed that approximately 66% of all CPHI-defined urban DAs in Canada (46,173 DAs) are accounted for in this study. DA boundary maps for the 15 CMAs can be found in Appendix C, including DA assignments of the low-, average- and high-SES groups in those CMAs.

## Indicators Chosen for This Report

The new CPHI analyses presented in this section examine health service utilization for a number of acute and chronic conditions within the 15 CMAs. Indicators examined (extracted from CIHI's Discharge Abstract Database and National Trauma Registry) include the following:

- Ambulatory care sensitive conditions (ACSC) (under 75 years of age);
- Diabetes (all ages);
- Chronic obstructive pulmonary disease (COPD) (20 years of age or older);
- Asthma in children (under 20 years of age);
- Injuries (all ages);
- Land transport accidents<sup>iii</sup> (all ages);
- Unintentional falls (all ages);
- Injuries in children (under 20 years of age);
- Mental health<sup>iv</sup> (all ages);
- Anxiety disorders (all ages);
- Affective disorders (all ages);
- Substance-related disorders (all ages); and
- Low birth weight<sup>v</sup> (newborns).

Self-reported health (collected by the CCHS) is also examined to gauge level of perceived health and well-being. Indicators examined (extracted from Statistics Canada's CCHS, cycles 2.1 and 3.1 combined) include the following:

- Self-rated health (ages 12 and over);
- Physical inactivity (ages 12 and over);
- Smoking (ages 12 and over);

iii. "Land transport accidents" is the official indicator title employed by CIHI.

iv. "Mental health hospitalization rate" refers only to acute care hospitalizations (psychiatric hospitals are excluded).

v. "Low birth weight" includes newborns weighing  $\geq 500$  grams but  $\leq 2,499$  grams and is not adjusted for gestational age.

- Alcohol intake (heavy drinking), referred to herein as “alcohol binging” (ages 12 and over);
- Overweight or obese (ages 18 and over);
- Risk factors (self-reported physical inactivity, body mass index (BMI), smoking and/or alcohol intake) (ages 18 and over);
- Influenza immunization (ages 65 and over); and
- Participation and activity limitation, referred to herein as “activity limitation” (ages 65 and over).

Through a consultative process with the UPHN, these indicators were chosen based on their potential relevance to SES and health in urban Canada, the availability of data at the chosen level of geography (at Statistics Canada’s DA level) and the ability to produce reliable estimates at the DA level (for CCHS self-reported health indicators).

## Limitations

The methodology employed in this report is subject to several limitations:

- Aside from the six variables that comprise the material and social components of the Deprivation Index (see Table 1 for the variables included in the Index), a number of potentially relevant variables are excluded from the Index. For example, demographic variables, such as ethnicity (that is, recent immigrants or Aboriginal Peoples) and social/cultural variables, such as language, are not considered in the Index.
- The analyses are based on 15 Canadian CMAs that represent approximately 66% of all CPHI-defined urban DAs in Canada. This leaves 18 Canadian CMAs (there were 33 Canadian CMAs at the 2006 census) and about 34% of all urban DAs unaccounted for in this report.
- Analyses were performed at the CMA level rather than the city or municipality level. Those CMA boundaries may not necessarily overlap with natural political or administrative boundaries.<sup>vi</sup>
- Hospitalization rates and self-reported health percentages presented in this report do not necessarily reflect overall health and health status on their own. Multiple factors can influence hospitalization rates and self-reported health percentages, such as access to primary health care and preventative community services.

vi. Larger CMAs (that is, Toronto, Montréal and Vancouver) encompass multiple cities or municipalities.

- Indicators presented in this report represent only a small fraction of the indicators available from CIHI and Statistics Canada's CCHS.
- Utilizing Statistics Canada DAs as the base level of geography precluded the inclusion of key indicators (that is, vital statistics such as mortality rates) that were not available at the chosen level of geography at the time of writing.

### Note to the Reader

The subsequent discussion and analyses of the indicators presented in this section will focus on those instances where statistically significant differences have been observed in the data. For more detailed results, including significance testing, please refer to Appendix D.

For a glossary of the 21 indicators discussed in this section, see Appendix E.

## Hospitalization Rates Across 15 Canadian Census Metropolitan Areas

Hospitalization rates were calculated for each of the 13 indicators by SES group based on pooled data over the fiscal years 2003–2004 to 2005–2006. Hospitalization rates were chosen for both longer-term chronic health problems and acute conditions, and reflect admissions to acute care facilities only. Hospitalization rates were imputed for each of the 15 CMAs profiled in this report and the 15 CMAs combined, representing the pan-Canadian rates. All rates are age-standardized to the 1991 Canadian population and presented as a rate per 100,000 people.<sup>vii</sup>

Figure 2 presents the pan-Canadian age-standardized hospitalization rates for all 15 CMAs combined across 12 indicators.<sup>viii</sup>

As shown in Figure 2, there are significant variations across the three SES groups. These variations also exist across the 12 indicators examined. Within each of the indicators, the gradients among the low-, average- and high-SES groups were statistically significant at the 95% confidence level.

Hospitalization rates for mental health (that is, anxiety disorders, affective disorders, substance-related disorders, dementia, etc.) were the highest among those with a low SES, at 596 per 100,000 people. Hospitalization rates decreased to 368 per 100,000 people among those with an average SES and 256 per 100,000 people among those with a high SES.

vii. With the exception of the low birth weight indicator, which is presented as a rate per 100 live births and not an age-standardized indicator.

viii. The low birth weight indicator was excluded from Figure 2 as it is presented as a rate per 100 live births and is not an age-standardized indicator.

Injuries and ACSC exhibit high hospitalization rates among those with a low SES and steep gradients among the three SES groups. More specifically, the hospitalization rates due to injuries were 537 per 100,000 people among those with a low SES, compared with 434 per 100,000 people among those with an average SES and 386 per 100,000 people among those with a high SES. Within ACSC, the hospitalization rates were 458 per 100,000 people among those with a low SES, declining to 285 per 100,000 people among those with an average SES and 196 among those with a high SES.

Hospitalization rates for anxiety disorders were lowest across the three SES groups (19 per 100,000 people among those of a low SES, 14 per 100,000 people among those of an average SES and 12 per 100,000 people among those of a high SES).

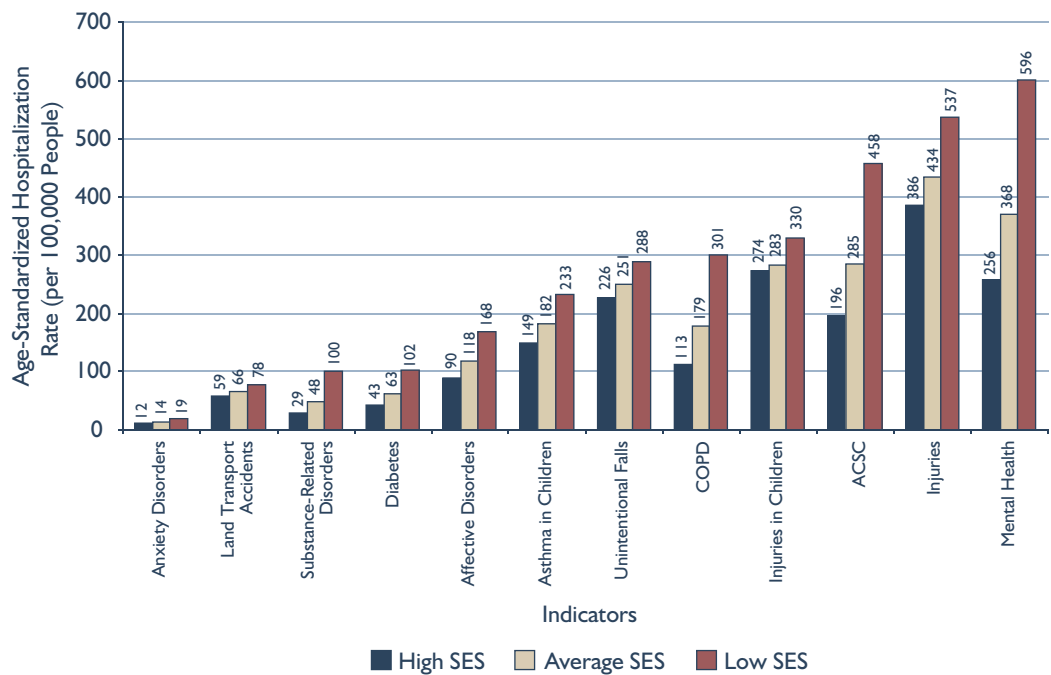
Other age-standardized hospitalization rates depicted in Figure 2 include:

- **Injuries in children:** hospitalization rates of 330 per 100,000 people in the low-SES group, 283 per 100,000 people in the average-SES group and 274 per 100,000 people in the high-SES group;
- **COPD:** hospitalization rates of 301 per 100,000 people in the low-SES group, 179 per 100,000 people in the average-SES group and 113 per 100,000 people in the high-SES group;
- **Unintentional falls:** hospitalization rates of 288 per 100,000 people in the low-SES group, 251 per 100,000 people in the average-SES group and 226 per 100,000 people in the high-SES group;
- **Asthma in children:** hospitalization rates of 233 per 100,000 people in the low-SES group, 182 per 100,000 people in the average-SES group and 149 per 100,000 people in the high-SES group;
- **Affective disorders:** hospitalization rates of 168 per 100,000 people in the low-SES group, 118 per 100,000 people in the average-SES group and 90 per 100,000 people in the high-SES group;
- **Diabetes:** hospitalization rates of 102 per 100,000 people in the low-SES group, 63 per 100,000 people in the average-SES group and 43 per 100,000 people in the high-SES group;
- **Substance-related disorders:** hospitalization rates of 100 per 100,000 people in the low-SES group, 48 per 100,000 people in the average-SES group and 29 per 100,000 people in the high-SES group; and
- **Land transport accidents:** hospitalization rates of 78 per 100,000 people in the low-SES group, 66 per 100,000 people in the average-SES group and 59 per 100,000 people in the high-SES group.

Examining rates of low birth weight babies (see Appendix D for results), the data again exhibited a significant gradient that decreased from those in the low-SES group to the average-SES group and the high-SES group. More specifically, there were 6.9 low birth weight babies per 100 live births among the low-SES group, 6.1 per 100 live births among the average-SES group and 5.6 per 100 live births among the high-SES group.

Figure 2

### Pan-Canadian Age-Standardized Hospitalization Rates by Socio-Economic Status Group\*



#### Note

\* See detailed data tables (Appendix D) for significance testing.

#### Source

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database and National Trauma Registry data, Canadian Institute for Health Information.



## Self-Reported Health Percentages Across 15 Canadian Census Metropolitan Areas

CCHS data from cycles 2.1 (2003) and 3.1 (2005) were combined to tabulate the percentage of people reporting “excellent” or “very good” health, as well as reporting certain health-related behaviours. Using the Deprivation Index, responses to specific questions in the CCHS were calculated across the three SES groups in each of the 15 CMAs. The responses were also calculated by SES group for all 15 CMAs collectively, providing the pan-Canadian data.

Figure 3 presents the pan-Canadian age-standardized self-reported health percentages by SES group for all 15 CMAs combined for eight indicators.

In all but one of the eight indicators depicted in the figure, the differences across the three SES groups were statistically significant at the 95% confidence level. Self-reported overweight or obesity was the sole exception, with no significant difference observed between the average- and high-SES groups.

Of the eight indicators examined, the self-reported influenza immunization among seniors and the self-rated “excellent” or “very good” health indicators exhibited a gradient that increased from the low-SES group to the average- and high-SES groups. This was an expected finding as, in accordance with the general findings of the literature review, poorer health has been shown to be linked to components of the Deprivation Index. Focusing specifically on those two indicators:

- **Influenza immunization:** These data show that most seniors reported having received an influenza immunization in the previous 12 months. More specifically, 63% of those seniors with a low SES reported receiving an influenza immunization, compared with 65% of those seniors with an average SES and 68% of seniors with a high SES.
- **Self-rated health:** Focusing specifically on those who rated their overall health as “excellent” or “very good” (self-rated health), 54% of those with a low SES provided a rating of “excellent” or “very good,” compared with 61% of those with an average SES and 67% of those with a high SES.

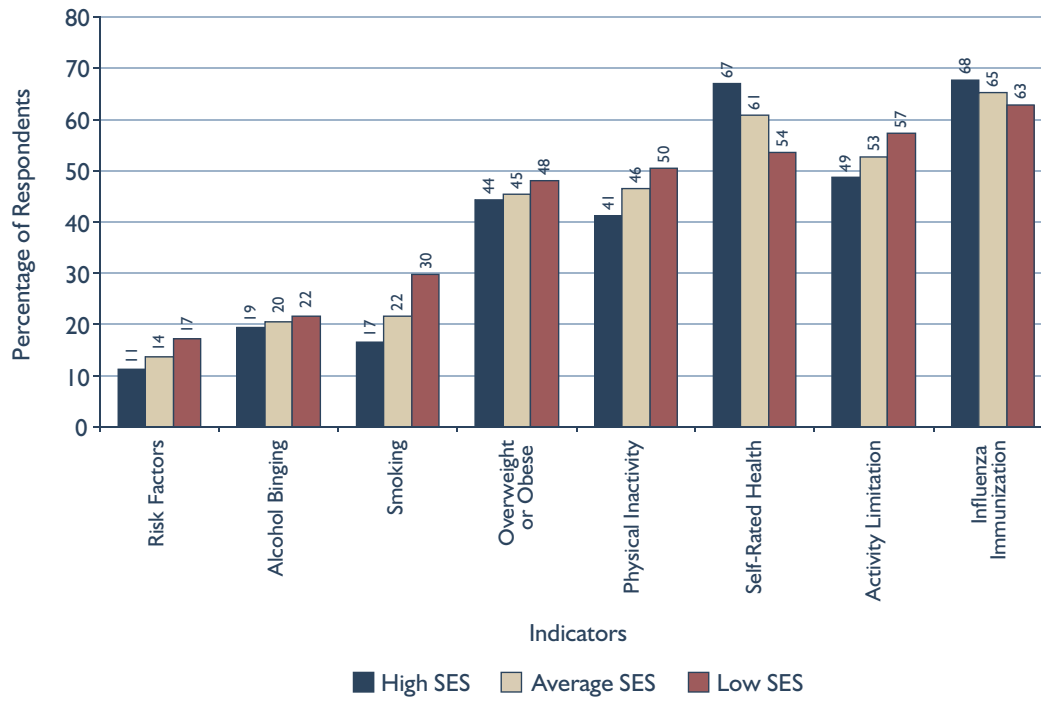


Gradients among the remaining five statistically significant indicators were as follows:

- **Activity limitation:** The percentage of seniors who reported being limited or restricted in selected activities decreased from 57% of those with a low SES to 53% of those with an average SES and 49% with a high SES;
- **Physical inactivity:** Based on reported levels of physical inactivity that considers the frequency, duration and intensity of leisure-time activity, the percentage who reported such inactivity decreased from 50% among those with a low SES to 46% of those with an average SES and 41% among those with a high SES;
- **Smoking:** The percentage of smokers declined from 30% of those in the low-SES group to 22% in the average-SES group and 17% in the high-SES group;
- **Alcohol binging:** Defined as someone who had five or more drinks on one occasion, 12 or more times a year, the percentage of heavy drinkers decreased from 22% of those in the low-SES group to 20% in the average-SES group and 19% in the high-SES group; and
- **Risk factors:** An index that identifies the percentage of the population with three or more risk factors (physical inactivity, self-reported overweight or obesity, smokers and alcohol intake [binging]) declined from 17% among those with a low SES to 14% among those with an average SES and 11% among those with a high SES.

Figure 3

### Pan-Canadian Age-Standardized Self-Reported Health Percentages by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of CCHS 2.1 (2003) and 3.1 (2005), Statistics Canada.

## Steepness of Gradients

As part of the new CPHI analyses, the steepness of gradients were calculated for each of the 21 indicators examined in this report, both within and across all 15 CMAs. Steepness of gradients are represented as a ratio between the low-SES group and the high-SES group for each indicator and CMA. Expressing these data as a ratio enables direct comparisons between the lowest and highest SES groups and provides a relative indicator of the size of the slope between the two groups.

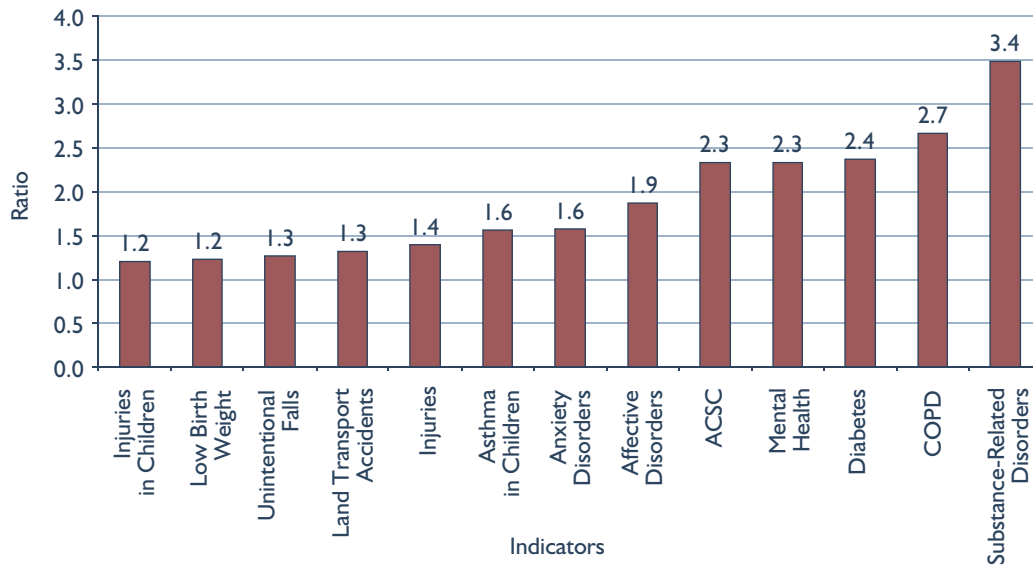
Figure 4 presents the pan-Canadian ratios between the low-SES group and high-SES group for the 13 hospitalization indicators. Of the 13 ratios presented, the steepest gradient was for substance-related disorders. Across all 15 CMAs, hospitalization rates for substance-related disorders in the low-SES group were about 3.4 times those of the high-SES group. Hospitalization rates for COPD had the second-highest ratio, at 2.7. More specifically, hospitalization rates for COPD in the low-SES group were about 2.7 times those of the high-SES group across all 15 CMAs. Hospitalization rates for diabetes had the third-highest ratio, at 2.4, meaning that hospitalization rates for diabetes in the low-SES group were about 2.4 times those of the high-SES group across all 15 CMAs.

Ratios for the remaining 10 indicators can be found in Figure 4.

It should be noted that none of the ratios was below 1.0, which would have indicated that hospitalization rates among the low-SES group were lower than among the high-SES group.

Figure 4

### Pan-Canadian Ratio of Age-Standardized Hospitalization Rates Between Low- and High-Socio-Economic Status Groups



**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database and National Trauma Registry data, Canadian Institute for Health Information.

Ratios for each of the 13 hospitalization indicators for the 15 CMAs examined in this report are presented in Table 2.

Table 2

### Ratio of Age-Standardized Hospitalization Rates Between Low- and High-Socio-Economic Status Groups in 15 Canadian CMAs

<b>Pan-Canadian</b>	<b>1.2</b>	<b>1.2</b>	<b>1.3</b>	<b>1.3</b>	<b>1.4</b>	<b>1.6</b>	<b>1.6</b>	<b>1.9</b>	<b>2.3</b>	<b>2.3</b>	<b>2.4</b>	<b>2.7</b>	<b>3.4</b>
<b>Victoria</b>	1.2	1.1	1.5	1.3	1.5	2.0	1.7	1.8	2.6	2.0	2.0	2.6	2.5
<b>Vancouver</b>	1.1	1.2	1.3	1.4	1.4	1.7	2.2	2.3	2.3	2.8	2.3	2.8	3.0
<b>Calgary</b>	1.2	1.2	1.4	1.4	1.5	1.8	2.1	2.1	3.0	2.7	2.6	3.3	3.9
<b>Edmonton</b>	1.5	1.3	1.4	1.7	1.7	1.5	1.3	2.0	3.0	2.6	3.1	3.1	4.2
<b>Saskatoon</b>	2.0	1.6	1.8	2.8	2.4	1.3	2.2	2.8	3.4	3.3	3.4	3.4	6.4
<b>Regina</b>	1.7	1.1	2.0	1.9	2.2	1.9	2.4	3.5	3.8	4.5	4.2	4.7	8.5
<b>Winnipeg</b>	2.5	1.3	1.8	1.9	2.2	3.0	3.9	2.1	3.4	3.0	3.7	2.7	5.0
<b>London</b>	1.1	1.2	1.7	1.5	1.7	1.6	4.5	2.8	3.5	2.8	3.5	4.7	4.2
<b>Hamilton</b>	1.4	1.4	1.5	1.4	1.6	1.8	1.1	1.8	2.5	2.2	2.7	3.1	2.7
<b>Toronto</b>	1.1	1.2	1.1	1.1	1.2	1.2	1.5	1.6	1.7	2.0	1.9	2.2	2.3
<b>Ottawa–Gatineau</b>	1.0	1.4	1.0	1.0	1.1	1.5	1.4	1.8	1.9	2.0	1.6	1.8	3.0
<b>Montréal</b>	1.0	1.2	1.1	1.2	1.2	1.5	1.2	1.5	2.3	1.8	2.4	2.5	3.3
<b>Québec</b>	1.1	1.3	1.1	1.2	1.2	1.5	1.4	1.9	2.0	2.7	2.3	1.8	5.4
<b>Halifax</b>	1.6	1.3	1.3	1.5	1.5	2.5	4.0	3.6	2.9	3.4	2.2	2.9	3.1
<b>St. John's</b>	1.0	1.4	1.2	1.0	1.3	1.5	8.0	2.4	2.2	2.3	1.5	2.3	3.2
	<b>Injuries in Children</b>	<b>Low Birth Weight</b>	<b>Unintentional Falls</b>	<b>Land Transport Accidents</b>	<b>Injuries</b>	<b>Asthma in Children</b>	<b>Anxiety Disorders</b>	<b>Affective Disorders</b>	<b>ACSC</b>	<b>Mental Health</b>	<b>Diabetes</b>	<b>COPD</b>	<b>Substance-Related Disorders</b>

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database and National Trauma Registry data, Canadian Institute for Health Information.

Pan-Canadian ratios between the low- and high-SES groups for the eight age-standardized self-reported health indicators are shown in Figure 5.

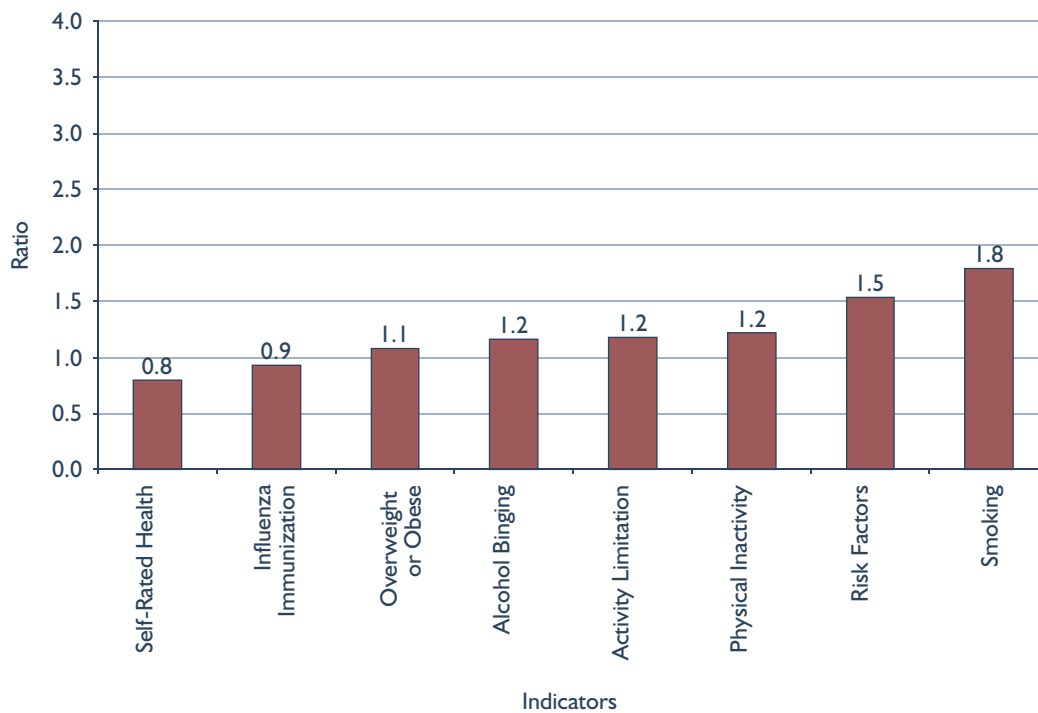
Of the eight indicators presented, the highest ratio (or steepest gradient) was for the percentage of respondents who reported being a smoker on a daily or occasional basis. That is, the incidence of smoking among those of a low SES was about 1.8 times those with a high SES.

Two of the ratios presented in Figure 5 were lower than 1.0 (self-rated “excellent” or “very good” health and influenza immunization among seniors). These two ratios correspond to the same two indicators in the self-reported health percentages (Figure 3), where those with a high SES were more likely to provide higher positive responses than those with a low SES, hence the ratios of 0.9 for influenza immunization and 0.8 for self-rated health.

Ratios for the remaining self-reported health indicators are presented in Figure 5.

Figure 5

### Pan-Canadian Ratio of Age-Standardized Self-Reported Health Percentages Between Low- and High-Socio-Economic Status Groups



**Source**  
CPHI analysis of CCHS, cycles 2.1 (2003) and 3.1 (2005), Statistics Canada.

Ratios for the eight age-standardized self-reported health indicators for each of the 15 CMAs are presented in Table 3.

Table 3

### Ratio of Age-Standardized Self-Reported Health Percentages Between Low- and High-Socio-Economic Status Groups in 15 Canadian CMAs

<b>Pan-Canadian</b>	<b>0.8</b>	<b>0.9</b>	<b>1.1</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.5</b>	<b>1.8</b>
<b>Victoria</b>	0.7	1.0	1.2	1.5	1.0	1.7	--	1.6
<b>Vancouver</b>	0.7	1.0	1.1	1.2	1.4	1.3	1.7	2.0
<b>Calgary</b>	0.8	1.3	1.1	1.3	1.1	1.5	2.1	2.3
<b>Edmonton</b>	0.8	1.0	1.1	1.1	1.7	1.3	1.8	2.4
<b>Saskatoon</b>	0.8	1.1	1.1	1.2	1.5	1.2	1.6	2.4
<b>Regina</b>	0.7	0.8	1.1	1.3	1.1	1.6	1.8	2.2
<b>Winnipeg</b>	0.8	0.8	1.1	1.4	1.3	1.4	1.5	1.8
<b>London</b>	0.8	0.9	1.2	1.5	1.2	1.3	2.1	2.5
<b>Hamilton</b>	0.7	1.0	1.1	1.1	1.4	1.2	1.7	1.5
<b>Toronto</b>	0.8	0.8	1.1	0.9	1.3	1.3	1.4	1.2
<b>Ottawa-Gatineau</b>	0.8	1.0	1.0	1.2	0.9	1.3	1.9	2.4
<b>Montréal</b>	0.8	0.8	1.0	1.1	1.0	1.2	1.2	1.6
<b>Québec</b>	0.8	1.0	1.1	1.2	1.0	1.2	1.6	2.3
<b>Halifax</b>	0.8	1.1	1.0	0.9	0.9	1.2	1.2	2.1
<b>St. John's</b>	0.8	0.8	1.0	1.3	0.7	1.1	1.3	1.7
	<b>Self-Rated Health</b>	<b>Influenza Immunization</b>	<b>Overweight or Obese</b>	<b>Alcohol Binging</b>	<b>Activity Limitation</b>	<b>Physical Inactivity</b>	<b>Risk Factors</b>	<b>Smoking</b>

**Note**

-- Suppressed data.

**Source**

CPHI analysis of CCHS, cycles 2.1 (2003) and 3.1 (2005), Statistics Canada.

## Regional and Census Metropolitan Area–Level Analyses

Previous discussions of the new CPHI analyses have focused specifically on the pan-Canadian data across the 15 CMAs profiled in this report. In this section, regional and CMA-level analyses are presented, including the following:

- **Regional patterns and trends in gradients:** From a regional perspective, these data focus on similarities among the CMAs that comprise each of the six regions (B.C., Alberta, Saskatchewan/Manitoba, Ontario, Quebec and Nova Scotia/Newfoundland and Labrador) examined in this report. Using the CMA-level ratios (steepness of gradients) presented in tables 2 and 3, patterns and trends in the data will be noted where consistent similarities exist across regional CMAs.
- **Regional/geographical patterns and trends in socio-economic status:** Using the DA counts detailed in Appendix B and the DA boundary maps presented in Appendix C, these data explore geographical similarities or differences in the distribution of SES groups within and between CMAs that comprise each of the six regions.
- **CMA-to-pan-Canadian-data comparisons for select indicators:** These data are presented for each of the 15 CMAs in a manner that facilitates comparisons with the pan-Canadian data. Given the quantity of data available for each of the 15 CMAs and the physical limitations of presenting the complete data in this report, these data will focus on one select indicator for each of the 15 CMAs. These indicators were chosen based on steepness of gradients and statistical significance. An attempt was made to highlight as many of the 21 indicators as possible across the 15 CMAs (as a result, not all indicators are presented in this section). For complete results on each of the 21 indicators examined in this report for each of the 15 CMAs, please refer to the detailed data tables listed in Appendix D.



## British Columbia

As part of the regional analysis, the CMAs of Victoria and Vancouver were examined within the region/province of B.C.

### Patterns and Trends in Gradients

As shown in Table 2, the Victoria and Vancouver CMAs had varying ratios for each of the 13 hospitalization indicators examined. The ratios for the two CMAs varied when compared with the pan-Canadian ratios and also when compared with one another. The four indicators where the Victoria and Vancouver CMAs exhibited similarities were the following:

- **Asthma in children:** The Victoria and Vancouver CMAs exhibited higher ratios than the pan-Canadian ratio (2.0 in the Victoria CMA and 1.7 in the Vancouver CMA, compared with 1.6 across all 15 CMAs);
- **Anxiety disorders:** The Victoria and Vancouver CMAs exhibited higher ratios than the pan-Canadian ratio (1.7 in the Victoria CMA and 2.2 in the Vancouver CMA, compared with 1.6 across all 15 CMAs);
- **Diabetes:** The Victoria and Vancouver CMAs exhibited lower ratios than the pan-Canadian ratio (2.0 in the Victoria CMA and 2.3 in the Vancouver CMA, compared with 2.4 across all 15 CMAs); and
- **Substance-related disorders:** The Victoria and Vancouver CMAs exhibited lower ratios than the pan-Canadian ratio (2.5 in the Victoria CMA and 3.0 in the Vancouver CMA, compared with 3.4 across all 15 CMAs).

Ratios of age-standardized self-reported health identified in Table 3 presented three instances of similarities between the Victoria and Vancouver CMAs:

- Both the Victoria and Vancouver CMAs had lower ratios for the self-rated health indicator (0.7 in the Victoria and Vancouver CMAs, compared with 0.8 across all 15 CMAs);
- Higher ratios for the influenza immunization (1.0 in the Victoria and Vancouver CMAs, compared with 0.9 across all 15 CMAs); and
- Higher ratios for physical inactivity (1.7 in the Victoria CMA and 1.3 in the Vancouver CMA, compared with 1.2 across all 15 CMAs).

## Geographical Patterns and Trends in Socio-Economic Status

As shown in the DA counts for the Victoria and Vancouver CMAs detailed in Appendix B, the distribution of DAs across the low-, average- and high-SES groups in those two CMAs were similar:

- In the Victoria CMA, 10% of the DAs were classified as low SES (53 DAs), 74% were average SES (409 DAs) and 16% were high SES (91 DAs); and
- In the Vancouver CMA, 10% were classified as low SES (341 DAs), 73% were average SES (2,604 DAs) and 17% were high SES (602 DAs).

In reviewing the DA boundary maps (see Appendix C), the geographical pattern of SES distribution varies between the two CMAs. For example, in the Vancouver CMA there were several groups of low-SES DAs scattered throughout the CMA. In the Victoria CMA, the majority of the DAs classified as low SES were concentrated in the core of the CMA, with a few isolated areas of low SES on the outskirts of the CMA. No patterns or trends in SES distribution were observed in these data.

## CMA-to-Pan-Canadian-Data Comparisons

### Victoria CMA

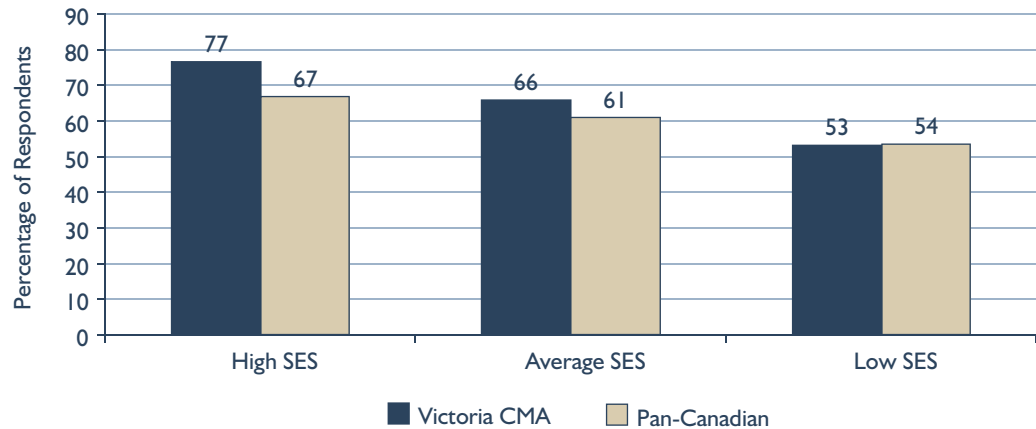
At the 2006 census, the Victoria CMA had a population of 330,088, making it the second-largest in B.C.<sup>63</sup>

Figure 6 presents the age-standardized percentages of respondents who rated their health as “excellent” or “very good” in the CCHS across all 15 CMAs and for the Victoria CMA. The differences between the three SES groups for the CMA-level and pan-Canadian data were statistically significant at the 95% confidence level. In both instances, there was a gradient, with those of a high SES more likely to report positive health than those of an average or low SES.

More specifically, 77% of those with a high SES in the Victoria CMA reported “excellent” or “very good” self-rated health, compared with 66% among those with an average SES and 53% among those with a low SES. Comparing the Victoria CMA to pan-Canadian-level data, the differences between the average- and high-SES groups were both significant, with no difference noted between the low-SES groups. Within the high-SES group, 10% more of those in the Victoria CMA reported “excellent” or “very good” self-rated health than all 15 CMAs combined. Similarly, of those with an average SES, 5% more of those in the Victoria CMA reported positive (“excellent” or “very good”) self-rated health than among the pan-Canadian data.

Figure 6

### Pan-Canadian and Victoria CMA Age-Standardized “Excellent” or “Very Good” Self-Rated Health by Socio-Economic Status Group\*



#### Note

\* See detailed data tables (Appendix D) for significance testing.

#### Source

CPHI analysis of CCHS, cycles 2.1 (2003) and 3.1 (2005), Statistics Canada.

### Vancouver CMA

As the largest CMA in B.C. and the third-largest in Canada, the Vancouver CMA (with a population of 2,116,581) covers an expansive geographical area over the lower Fraser Valley.<sup>63</sup>

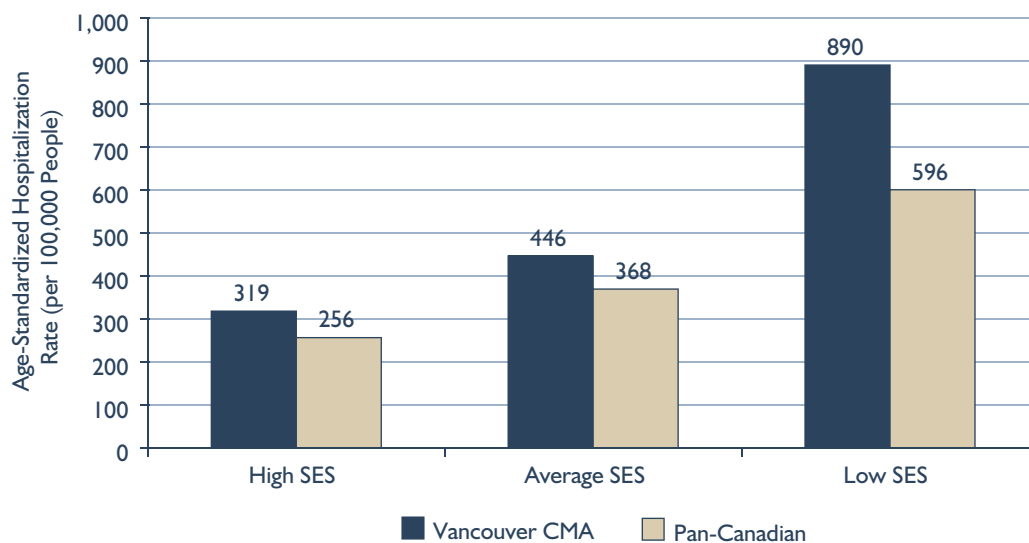
There were significant differences both within and between the Vancouver CMA and pan-Canadian hospitalization rates for mental health (see Figure 7). The differences between the three SES groups in the Vancouver CMA and across all 15 CMAs were statistically significant at the 95% confidence level.

Within the Vancouver CMA, the hospitalization rate for mental health was 890 per 100,000 people among the low-SES group. This figure declined to 446 per 100,000 people among the average-SES group and to 319 per 100,000 people among the high-SES group. These hospitalization rates were significantly different from their corresponding pan-Canadian rates. More specifically, the rates were significantly higher in the Vancouver CMA for all three SES groups than the pan-Canadian rates for those three same groups. The differences in hospitalization rates for mental health between the three groups were as follows:

- Low SES—Vancouver CMA was about 1.5 times that of all 15 CMAs;
- Average SES—Vancouver CMA was about 1.2 times that of all 15 CMAs; and
- High SES—Vancouver CMA was about 1.2 times that of all 15 CMAs.

Figure 7

### Pan-Canadian and Vancouver CMA Age-Standardized Hospitalization Rates for Mental Health by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

## Alberta

Within the region/province of Alberta, the new CPHI analyses focused specifically on the CMAs of Calgary and Edmonton.

### Patterns and Trends in Gradients

Ratios for the age-standardized hospitalization indicators were generally higher in the Calgary and Edmonton CMAs than in the pan-Canadian ratios presented in Table 2. Similarities among the Calgary and Edmonton CMAs were observed in 9 of the 13 age-standardized hospitalization indicators presented. More specifically, ratios were higher in the Calgary and Edmonton CMAs than in the corresponding pan-Canadian ratios for each of the following:

- **Unintentional falls:** 1.4 in both the Calgary and Edmonton CMAs, compared with 1.3 across all 15 CMAs;
- **Land transport accidents:** 1.4 in the Calgary CMA and 1.7 in the Edmonton CMA, compared with 1.3 across all 15 CMAs;
- **Injuries:** 1.5 in the Calgary CMA and 1.7 in the Edmonton CMA, compared with 1.4 across all 15 CMAs;

- **Affective disorders:** 2.1 in the Calgary CMA and 2.0 in the Edmonton CMA, compared with 1.9 across all 15 CMAs;
- **ACSC:** 3.0 in both the Calgary and Edmonton CMAs, compared with 2.3 across all 15 CMAs;
- **Mental health:** 2.7 in the Calgary CMA and 2.6 in the Edmonton CMA, compared with 2.3 across all 15 CMAs;
- **Diabetes:** 2.6 in the Calgary CMA and 3.1 in the Edmonton CMA, compared with 2.4 across all 15 CMAs;
- **COPD:** 3.3 in the Calgary CMA and 3.1 in the Edmonton CMA, compared with 2.7 across all 15 CMAs; and
- **Substance-related disorders:** 3.9 in the Calgary CMA and 4.2 in the Edmonton CMA, compared with 3.4 across all 15 CMAs.

The hospitalization ratios for the Calgary and Edmonton CMAs demonstrated two distinct trends in Alberta. First, they show that the differences between the low- and high-SES groups in the two Alberta CMAs were generally larger than the differences between the low- and high-SES groups for the pan-Canadian data. The result was generally steeper gradients in the two Alberta CMAs. Second, the Calgary CMA had ratios that were equal to or greater than the corresponding pan-Canadian ratios for all 13 hospitalization indicators. This points to similar or steeper gradients in the Calgary CMA.

Similarities were also observed in the ratios of age-standardized self-reported health presented in Table 3. The Calgary and Edmonton CMAs had similar patterns for six indicators, including four that were higher than their corresponding pan-Canadian ratios and two that were equal to their corresponding pan-Canadian ratios, as follows:

- **Influenza immunization:** 1.3 in the Calgary CMA and 1.0 in the Edmonton CMA, compared with 0.9 across all 15 CMAs;
- **Physical inactivity:** 1.5 in the Calgary CMA and 1.3 in the Edmonton CMA, compared with 1.2 across all 15 CMAs;
- **Risk factors:** 2.1 in the Calgary CMA and 1.8 in the Edmonton CMA, compared with 1.5 across all 15 CMAs;
- **Smoking:** 2.3 in the Calgary CMA and 2.4 in the Edmonton CMA, compared with 1.8 across all 15 CMAs;
- **Self-rated health:** 0.8 in the Calgary and Edmonton CMAs and across all 15 CMAs; and
- **Overweight or obese:** 1.1 in the Calgary and Edmonton CMAs and across all 15 CMAs.

## Geographical Patterns and Trends in Socio-Economic Status

As shown in Appendix B, the proportion of the DAs in the three SES groups varies between the Calgary and Edmonton CMAs:

- In the Calgary CMA, 11% of the DAs were identified as low SES (205 DAs), 66% were average SES (1,182 DAs) and 22% were high SES (401 DAs); and
- In the Edmonton CMA, 22% were low SES (360 DAs), 64% were average SES (1,037 DAs) and 14% were high SES (235 DAs).

Based on these data, the Edmonton CMA had a greater percentage of low-SES DAs compared with the Calgary CMA and a lower percentage of high-SES DAs.

Within Alberta, the Calgary and Edmonton CMAs had similar geographical patterns of low-SES DAs (see Appendix C). In both CMAs, low-SES DAs were scattered throughout the core, with several smaller areas of low SES in outlying regions.

## CMA-to-Pan-Canadian-Data Comparisons

### Calgary CMA

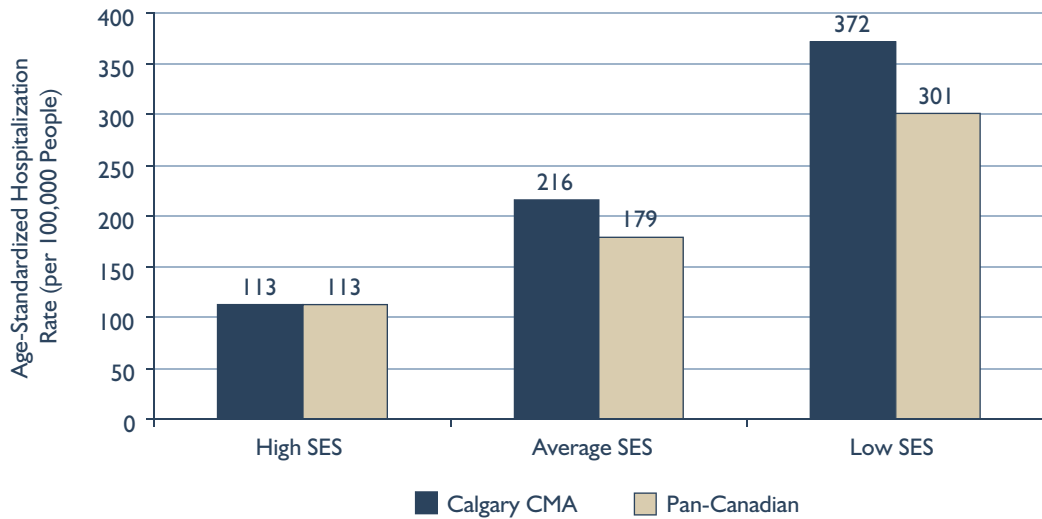
In 2006, the Calgary CMA recorded a population of 1,079,310, making it one of Canada's fastest-growing CMAs.<sup>63</sup>

Figure 8 illustrates the age-standardized hospitalization rates for COPD across the three SES groups for both the Calgary CMA and across the 15 CMAs profiled in this report. The differences between the three SES groups within the Calgary CMA were all statistically significant at the 95% confidence level. Additionally, the differences between the SES groups were statistically significant at the pan-Canadian level.

Focusing specifically on hospitalization rates for COPD among adults (20 years of age or older) in the Calgary CMA, there was a decreasing gradient from those in the low-SES group to those in the average-SES group to those in the high-SES group. Within the low-SES group, the hospitalization rate for COPD was 372 per 100,000 people. This figure decreased to 216 per 100,000 people among the average-SES group and 113 per 100,000 people among the high-SES group. Compared with the pan-Canadian hospitalization rates for COPD, the rates for the Calgary CMA were significantly different within the low- and average-SES groups. Within the low- and average-SES groups in the Calgary CMA, hospitalization rates were about 1.2 times those across all 15 CMAs. Within the high-SES groups, both the Calgary CMA and the pan-Canadian data demonstrated a similar hospitalization rate of 113 per 100,000 people.

Figure 8

### Pan-Canadian and Calgary CMA Age-Standardized Hospitalization Rates for Chronic Obstructive Pulmonary Disease by Socio-Economic Status Group\*

**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

#### Edmonton CMA

Like the Calgary CMA, the Edmonton CMA recorded one of the highest population growths over the previous five-year period. In 2006, the population of the Edmonton CMA was 1,034,945.<sup>63</sup>

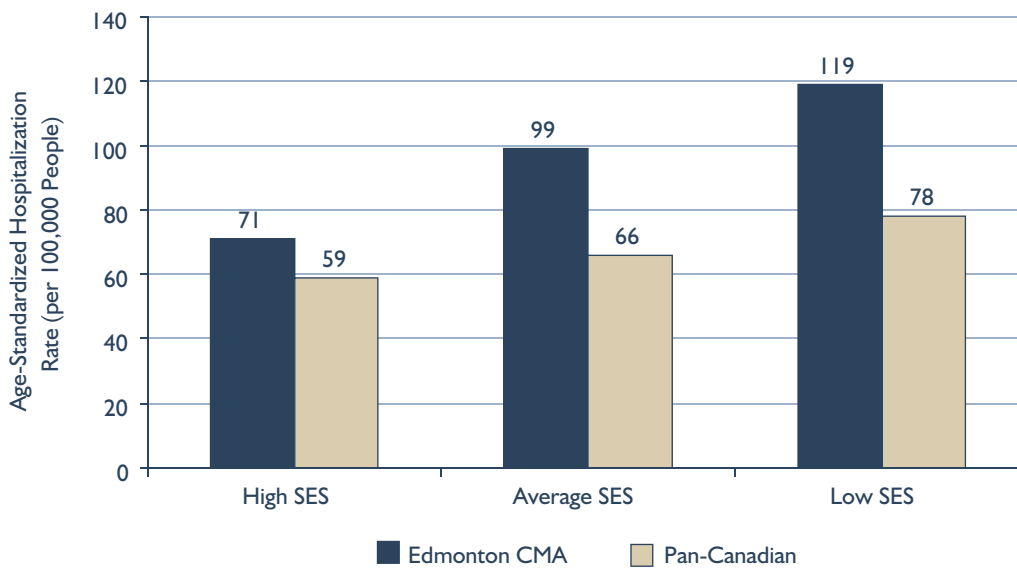
As shown in Figure 9, there were significant differences in the age-standardized hospitalization rates for land transport accidents across the three SES groups, both within the Edmonton CMA and across all 15 CMAs profiled in the report. The differences across the three SES groups at the CMA and pan-Canadian level were all statistically significant at the 95% confidence level.

Within the Edmonton CMA, hospitalization rates for land transport accidents were 119 per 100,000 people among the low-SES group. Hospitalization rates were 99 per 100,000 people among the average-SES group and 71 per 100,000 people among the high-SES group, thus exhibiting a gradient that decreases from the lowest- to the highest-SES group. These data follow a similar pattern to the pan-Canadian data depicted in Figure 9. Comparing the Edmonton CMA to the pan-Canadian data,

there were differences across the three SES groups. Hospitalization rates for land transport accidents were all significantly higher in the Edmonton CMA (across the three SES groups) than across all 15 CMAs profiled in the report. More specifically, hospitalization rates for land transport accidents in the Edmonton CMA were 1.5 times the pan-Canadian rate in the low-SES group, 1.5 times the pan-Canadian rate in the average-SES group and 1.2 times the pan-Canadian rate in the high-SES group.

Figure 9

### Pan-Canadian and Edmonton CMA Age-Standardized Hospitalization Rates for Land Transport Accidents by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 National Trauma Registry data, Canadian Institute for Health Information.



## Saskatchewan/Manitoba

The CMAs of Saskatoon, Regina and Winnipeg were examined within the Saskatchewan/Manitoba region as part of the new CPHI analyses.

### Patterns and Trends in Gradients

The ratios presented in Table 2 demonstrate a number of differences between the CMA-level ratios for the Saskatoon, Regina and Winnipeg CMAs and the pan-Canadian ratios. The ratios also demonstrated a number of similarities among those three CMAs. Similarities were noted among the Saskatoon, Regina and Winnipeg CMAs on 10 of the 13 age-standardized hospitalization indicators (all were higher than the corresponding pan-Canadian ratios):

- **Injuries in children:** 2.0 in the Saskatoon CMA, 1.7 in the Regina CMA and 2.5 in the Winnipeg CMA, compared with 1.2 across all 15 CMAs;
- **Unintentional falls:** 1.8 in the Saskatoon CMA, 2.0 in the Regina CMA and 1.8 in the Winnipeg CMA, compared with 1.3 across all 15 CMAs;
- **Land transport accidents:** 2.8 in the Saskatoon CMA, 1.9 in the Regina CMA and 1.9 in the Winnipeg CMA, compared with 1.3 across all 15 CMAs;
- **Injuries:** 2.4 in the Saskatoon CMA and 2.2 in the Regina and Winnipeg CMAs, compared with 1.4 across all 15 CMAs;
- **Anxiety disorders:** 2.2 in the Saskatoon CMA, 2.4 in the Regina CMA and 3.9 in the Winnipeg CMA, compared with 1.6 across all 15 CMAs;
- **Affective disorders:** 2.8 in the Saskatoon CMA, 3.5 in the Regina CMA and 2.1 in the Winnipeg CMA, compared with 1.9 across all 15 CMAs;
- **ACSC:** 3.4 in the Saskatoon CMA, 3.8 in the Regina CMA and 3.4 in the Winnipeg CMA, compared with 2.3 across all 15 CMAs;
- **Mental health:** 3.3 in the Saskatoon CMA, 4.5 in the Regina CMA and 3.0 in the Winnipeg CMA, compared with 2.3 across all 15 CMAs;
- **Diabetes:** 3.4 in the Saskatoon CMA, 4.2 in the Regina CMA and 3.7 in the Winnipeg CMA, compared with 2.4 across all 15 CMAs; and
- **Substance-related disorders:** 6.4 in the Saskatoon CMA, 8.5 in the Regina CMA and 5.0 in the Winnipeg CMA, compared with 3.4 across all 15 CMAs.

Similar to the data presented for Alberta, the hospitalization indicators for the three Saskatchewan and Manitoba CMAs (Saskatoon, Regina and Winnipeg) demonstrated two patterns or trends. First, ratios for the hospitalization indicators were generally higher in those three CMAs than across all 15 CMAs. The result was steeper gradients in the Saskatoon, Regina and Winnipeg CMAs. Second, for all 13 indicators, the Winnipeg CMA exhibited ratios that were either equal to or higher than the corresponding pan-Canadian ratios. As a result, the Winnipeg CMA had larger differences between the low- and the high-SES groups compared with the pan-Canadian data, and as a result, steeper gradients.

Fewer similarities were observed in the ratios of age-standardized self-reported health presented in Table 3. Ratios for the overweight or obesity indicator were similar across the Saskatoon, Regina and Winnipeg CMAs, with no observed difference from the pan-Canadian ratio (all were 1.1). Ratios for the self-rated health indicator were equal to or lower than the pan-Canadian ratio (0.8) in the Saskatoon CMA (0.8) the Regina CMA (0.7) and the Winnipeg CMA (0.8).

### Geographical Patterns and Trends in Socio-Economic Status

The three Saskatchewan and Manitoba CMAs of Saskatoon, Regina and Winnipeg exhibited percentages across the three SES groups as follows (see Appendix B):

- In the Saskatoon CMA, 20% of the DAs were low SES (92 DAs), 60% were average SES (269 DAs) and 20% were high SES (91 DAs);
- In the Regina CMA, 18% of DAs were low SES (69 DAs), 54% were average SES (207 DAs) and 28% were high SES (110 DAs); and
- In the Winnipeg CMA, 21% were low SES (240 DAs), 60% were average SES (697 DAs) and 20% were high SES (230 DAs).

As shown in these data, the Saskatoon, Regina and Winnipeg CMAs all had similar proportions of their DAs classified as low SES, at 20%, 18% and 21%, respectively. However, the Regina CMA had a higher proportion of DAs classified as high SES (28%) and a lower proportion of DAs classified as average SES (54%) compared with the other two CMAs. Both the Saskatoon and Winnipeg CMAs exhibited similar proportions across the three SES groups.

As shown in the DA boundary maps presented in Appendix C, the geographical patterns of low-SES DAs are consistent among the three Saskatchewan and Manitoba CMAs. All three had areas of low SES concentrated in the core of the CMA. The distribution of low SES in the Winnipeg CMA was slightly more scattered compared with the Saskatoon and Regina CMAs.

## CMA-to-Pan-Canadian-Data Comparisons

### Saskatoon CMA

At the 2006 census, the Saskatoon CMA recorded a population of 233,923, making it the largest CMA in the province of Saskatchewan.<sup>63</sup>

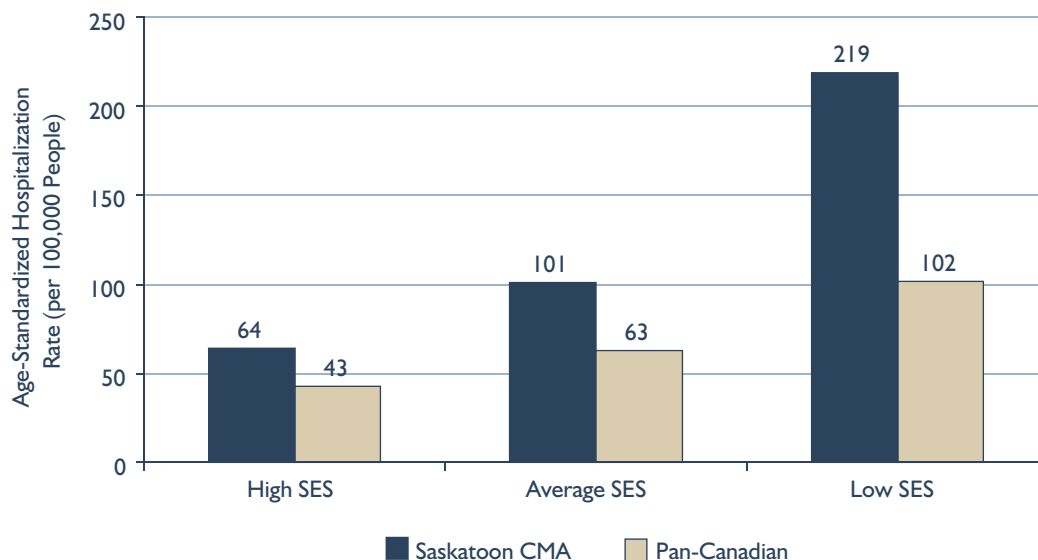
Figure 10 provides the age-standardized hospitalization rates for diabetes by SES group for the Saskatoon CMA and across all 15 CMAs in this report. The differences between the low-, average- and high-SES groups were statistically significant for both the Saskatoon CMA and pan-Canadian data at the 95% confidence level.

As shown in the figure, both the Saskatoon CMA and the pan-Canadian data demonstrated a gradient, declining from the low-SES group to the average- and high-SES groups. More specifically, within the Saskatoon CMA, hospitalization rates for diabetes were 219 per 100,000 people among those with a low SES. This rate decreased to 101 per 100,000 people among the average-SES group and to 64 per 100,000 people among the high-SES group. Comparing the Saskatoon CMA to pan-Canadian-level data, the differences between the low-, average- and high-SES groups were statistically significant. That is, hospitalization rates from diabetes in the Saskatoon CMA were significantly higher than across all 15 CMAs for each of the three SES groups. The differences in hospitalization rates for diabetes were as follows:

- Low SES—Saskatoon CMA was about 2.1 times that of all 15 CMAs;
- Average SES—Saskatoon CMA was about 1.6 times that of all 15 CMAs; and
- High SES—Saskatoon CMA was about 1.5 times that of all 15 CMAs.

Figure 10

### Pan-Canadian and Saskatoon CMA Age-Standardized Hospitalization Rates for Diabetes by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

#### Regina CMA

Covering a fairly large area in southeast Saskatchewan, the Regina CMA recorded a population of 194,971 at the 2006 census.<sup>63</sup>

Age-standardized hospitalization rates from ACSC by SES group for both the Regina CMA and across all 15 CMAs are presented in Figure 11. The differences between the low-, average- and high-SES groups within the Regina CMA and across the 15 CMAs were statistically significant at the 95% confidence level.

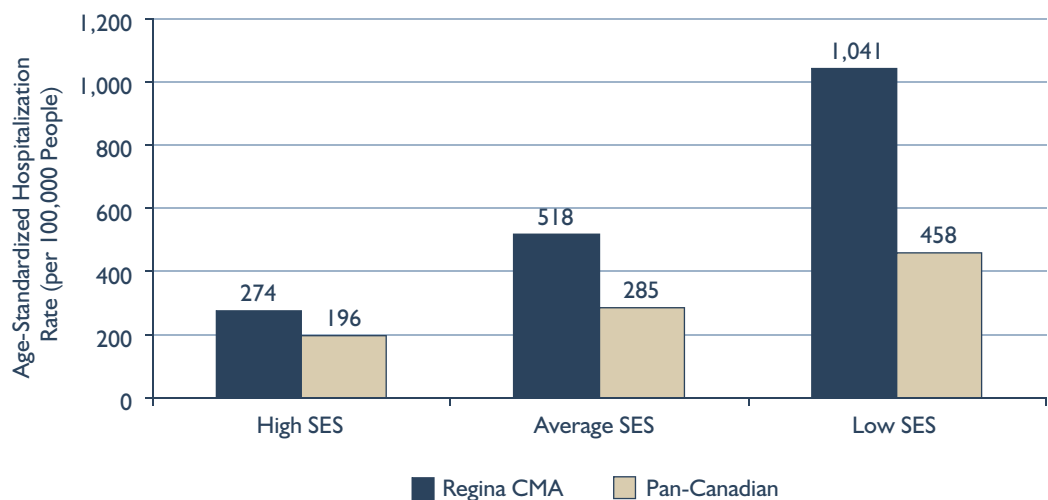
Within the Regina CMA, hospitalization rates from ACSC exhibited a gradient, decreasing from those in the low-SES group to those in the average- and high-SES groups. These data followed a similar pattern to the pan-Canadian data depicted in Figure 11.

The exact hospitalization rates for ACSC in the Regina CMA were as follows: 1,041 per 100,000 people among those with a low SES, 518 per 100,000 people among those with an average SES and 274 per 100,000 people among those with a high SES. Across the three SES groups, hospitalization rates from ACSC in the Regina CMA were all significantly higher than their corresponding pan-Canadian rates. More specifically:

- Low SES—Regina CMA was about 2.3 times that of all 15 CMAs;
- Average SES—Regina CMA was about 1.8 times that of all 15 CMAs; and
- High SES—Regina CMA was about 1.4 times that of all 15 CMAs.

**Figure 11**

### Pan-Canadian and Regina CMA Age-Standardized Hospitalization Rates for Ambulatory Care Sensitive Conditions by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

### Winnipeg CMA

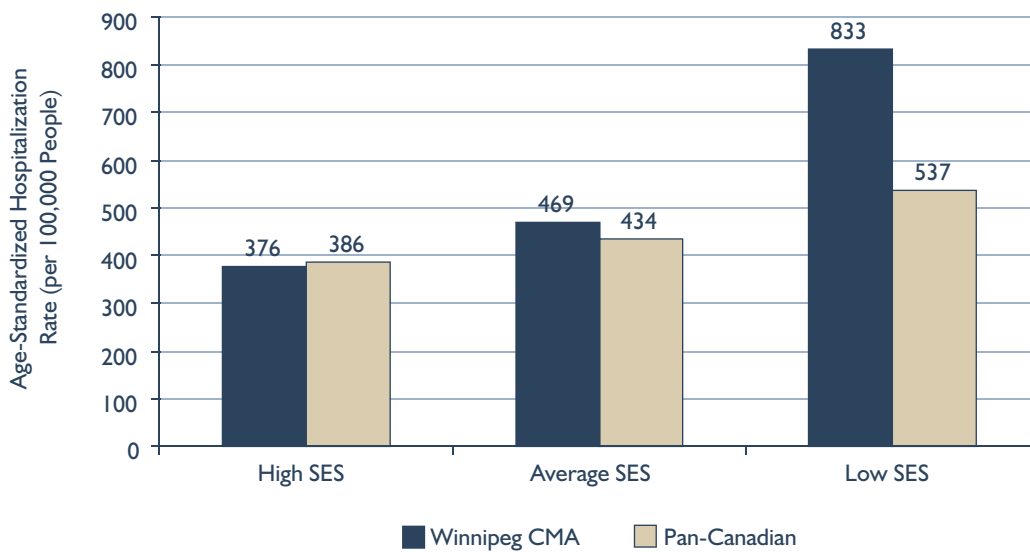
As the only CMA in the province of Manitoba, the Winnipeg CMA had a population of 694,668 at the 2006 census.<sup>63</sup>

As shown in Figure 12, there were variations in the age-standardized hospitalization rates for injuries by SES group, both within the Winnipeg CMA and across all 15 CMAs examined in this report. The differences between these three SES groups (low, average and high SES) were significant within the Winnipeg CMA and across all 15 CMAs at the 95% confidence level.

Both the Winnipeg CMA and the pan-Canadian data demonstrated a gradient that decreased from the low-SES group to the average-SES group and finally to the high-SES group. Within the Winnipeg CMA, hospitalization rates for injuries decreased from 833 per 100,000 people among the low-SES group to 469 per 100,000 people among the average-SES group. Within the high-SES group in the Winnipeg CMA, there were 376 hospitalizations per 100,000 people. Comparing the hospitalization rates in the Winnipeg CMA to those across all 15 CMAs, rates were significantly higher in the Winnipeg CMA among the low- and average-SES groups. Hospitalization rates from injuries in the Winnipeg CMA were about 1.6 times the pan-Canadian rate among the low-SES group and about 1.1 times the pan-Canadian rate among the average-SES group. There was no statistical difference between the high-SES groups (a rate of 376 per 100,000 people in the Winnipeg CMA versus 386 per 100,000 people across all 15 CMAs).

Figure 12

### Pan-Canadian and Winnipeg CMA Age-Standardized Hospitalization Rates for Injuries by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 National Trauma Registry data, Canadian Institute for Health Information.

## Ontario

Within the new CPHI analyses, four Ontario CMAs were examined, including London, Hamilton, Toronto and Ottawa–Gatineau.<sup>ix</sup>

### Patterns and Trends in Gradients

As shown in Table 2, the ratios of age-standardized hospitalization indicators varied across the four Ontario CMAs examined in this report. There were no similarities among the four Ontario CMAs of London, Hamilton, Toronto or Ottawa–Gatineau when compared with the pan-Canadian ratios. A pattern does emerge, however, when looking at the London and Hamilton CMAs together and the Toronto and Ottawa–Gatineau CMAs together. The London and Hamilton CMAs generally exhibited higher ratios than the pan-Canadian ratios, while the Toronto and Ottawa–Gatineau CMAs generally exhibited lower ratios.

Similarities among the London and Hamilton CMAs were as follows:

- **Unintentional falls:** 1.7 in the London CMA and 1.5 in the Hamilton CMA, compared with 1.3 across all 15 CMAs;
- **Land transport accidents:** 1.5 in the London CMA and 1.4 in the Hamilton CMA, compared with 1.3 across all 15 CMAs;
- **Injuries:** 1.7 in the London CMA and 1.6 in the Hamilton CMA, compared with 1.4 across all 15 CMAs;
- **ACSC:** 3.5 in the London CMA and 2.5 in the Hamilton CMA, compared with 2.3 across all 15 CMAs;
- **Diabetes:** 3.5 in the London CMA and 2.7 in the Hamilton CMA, compared with 2.4 across all 15 CMAs; and
- **COPD:** 4.7 in the London CMA and 3.1 in the Hamilton CMA, compared with 2.7 across all 15 CMAs.

Similarities among the Toronto and Ottawa–Gatineau CMAs were as follows:

- **Injuries in children:** 1.1 in the Toronto CMA and 1.0 in the Ottawa–Gatineau CMA, compared with 1.2 across all 15 CMAs;
- **Unintentional falls:** 1.1 in the Toronto CMA and 1.0 in the Ottawa–Gatineau CMA, compared with 1.3 across all 15 CMAs;
- **Land transport accidents:** 1.1 in the Toronto CMA and 1.0 in the Ottawa–Gatineau CMA, compared with 1.3 across all 15 CMAs;

ix. The Ottawa–Gatineau CMA was included in the Ontario region for the purposes of this report.

- **Injuries:** 1.2 in the Toronto CMA and 1.1 in the Ottawa–Gatineau CMA, compared with 1.4 across all 15 CMAs;
- **Asthma in children:** 1.2 in the Toronto CMA and 1.5 in the Ottawa–Gatineau CMA, compared with 1.6 across all 15 CMAs;
- **Anxiety disorders:** 1.5 in the Toronto CMA and 1.4 in the Ottawa–Gatineau CMA, compared with 1.6 across all 15 CMAs;
- **Affective disorders:** 1.6 in the Toronto CMA and 1.8 in the Ottawa–Gatineau CMA, compared with 1.9 across all 15 CMAs;
- **ACSC:** 1.7 in the Toronto CMA and 1.9 in the Ottawa–Gatineau CMA, compared with 2.3 across all 15 CMAs;
- **Mental health:** 2.0 in the Toronto and Ottawa–Gatineau CMAs, compared with 2.3 across all 15 CMAs;
- **Diabetes:** 1.9 in the Toronto CMA and 1.6 in the Ottawa–Gatineau CMA, compared with 2.4 across all 15 CMAs;
- **COPD:** 2.2 in the Toronto CMA and 1.8 in the Ottawa–Gatineau CMA, compared with 2.7 across all 15 CMAs; and
- **Substance-related disorders:** 2.3 in the Toronto CMA and 3.0 in the Ottawa–Gatineau CMA, compared with 3.4 across all 15 CMAs.

As noted above, there were no patterns or trends observed across all four Ontario CMAs. Rather, they clustered into two distinct groups, with the London and Hamilton CMAs having generally higher ratios (and thus steeper gradients) than the pan-Canadian ratios and the Toronto and Ottawa–Gatineau CMAs having generally lower ratios (and thus shallower gradients) than the pan-Canadian ratios.

The ratios of self-reported health presented in Table 3 show no similarities across all four Ontario CMAs. A few differences were exhibited again in the groupings of the London/Hamilton CMAs and the Toronto/Ottawa–Gatineau CMAs when compared with the pan-Canadian ratios as follows:

- **Self-rated health:** Both the Toronto and Ottawa–Gatineau CMAs had similar ratios to the pan-Canadian ratio (all were 0.8);
- **Physical inactivity:** Ratios in the Toronto CMA (1.3) and the Ottawa–Gatineau CMA (1.3) were higher than the pan-Canadian ratio (1.2); and
- **Risk factors:** Ratios in the London CMA (2.1) and the Hamilton CMA (1.7) were higher than the pan-Canadian ratio (1.5).

Although the clustering of the London/Hamilton CMAs and the Toronto/Ottawa–Gatineau CMAs is observable in the self-reported health indicators, the similarities among those CMAs were not as consistent as those demonstrated in the hospitalization indicators.



## Geographical Patterns and Trends in Socio-Economic Status

As shown in the DA counts presented in Appendix B, the distribution of SES groups by DA across the four Ontario CMAs was as follows:

- In the London CMA, 23% of the DAs were identified as low SES (175 DAs), 60% were average SES (467 DAs) and 17% were high SES (131 DAs);
- In the Hamilton CMA, 19% of the DAs were low SES (226 DAs), 60% were average SES (700 DAs) and 21% were high SES (249 DAs);
- In the Toronto CMA, 12% of the DAs were low SES (932 DAs), 69% were average SES (5,551 DAs) and 19% were high SES (1,557 DAs); and
- In the Ottawa–Gatineau CMA, 11% of the DAs were low SES (212 DAs), 62% were average SES (1,153 DAs) and 26% were high SES (483 DAs).

The Toronto and Ottawa–Gatineau CMAs had similar proportions of low-SES DAs (12% and 11%, respectively); however, the Ottawa–Gatineau CMA had a higher proportion of high-SES DAs, at 26%, compared with the Toronto CMA, at 19%, as well as compared with the other two CMAs. The proportion of DAs classified as average SES in the Ottawa–Gatineau CMA (62%), Hamilton CMA (60%) and London CMA (60%) were similar, while the Toronto CMA had a higher proportion, at 69%.

The four Ontario CMAs did not reveal any consistent patterns of SES distribution (see Appendix C). Most of the DAs classified as low SES in the London CMA were in the central core, with smaller areas of low SES in outlying regions. The Hamilton CMA had wide areas of low SES throughout the CMA. Toronto had low-SES DAs scattered through the CMA, with several areas of concentration in the CMA core. Ottawa–Gatineau had areas of low SES distributed through the CMA core on both sides of the Ottawa River.

## CMA-to-Pan-Canadian-Data Comparisons

### London CMA

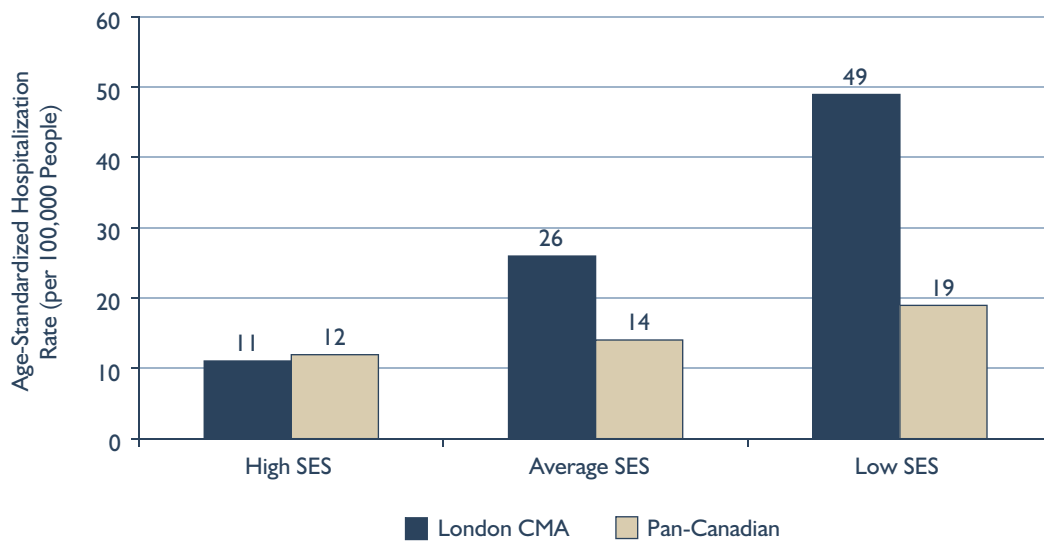
At the 2006 census, the London CMA had a population of 457,720, making it the largest in the southwestern part of the province.<sup>63</sup>

Figure 13 illustrates the age-standardized hospitalization rates for anxiety disorders by SES group (low SES, average SES and high SES) for the London CMA and for all 15 CMAs profiled in this report. The differences between the three SES groups for the CMA-level and pan-Canadian data were statistically significant at the 95% confidence level. In both instances, there was a gradient, with those of a low SES more likely to be hospitalized for anxiety disorders than those of an average SES or high SES.

More specifically, hospitalization rates for anxiety disorders were 49 per 100,000 people among those of a low SES in the London CMA. These rates decreased to 26 per 100,000 people among those with an average SES and to 11 per 100,000 people among those with a high SES. Comparing the London CMA data to the pan-Canadian data, there were significant differences among the low- and average-SES groups. Hospitalization rates for anxiety disorders among those of a low SES in the London CMA were about 2.6 times those across all 15 CMAs profiled in this report. Of those with an average SES, hospitalization rates were about 1.9 times those across all 15 CMAs profiled in this report. No significant differences were observed in hospitalization rates for anxiety disorders between the London CMA and pan-Canadian high-SES rates (11 per 100,000 people in the London CMA versus 12 per 100,000 people across all 15 CMAs).

Figure 13

### Pan-Canadian and London CMA Age-Standardized Hospitalization Rates for Anxiety Disorders by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

### Hamilton CMA

Encompassing a large geographical portion of the “golden horseshoe” around Lake Ontario, the Hamilton CMA had a recorded population of 692,911 at the 2006 census.<sup>63</sup>

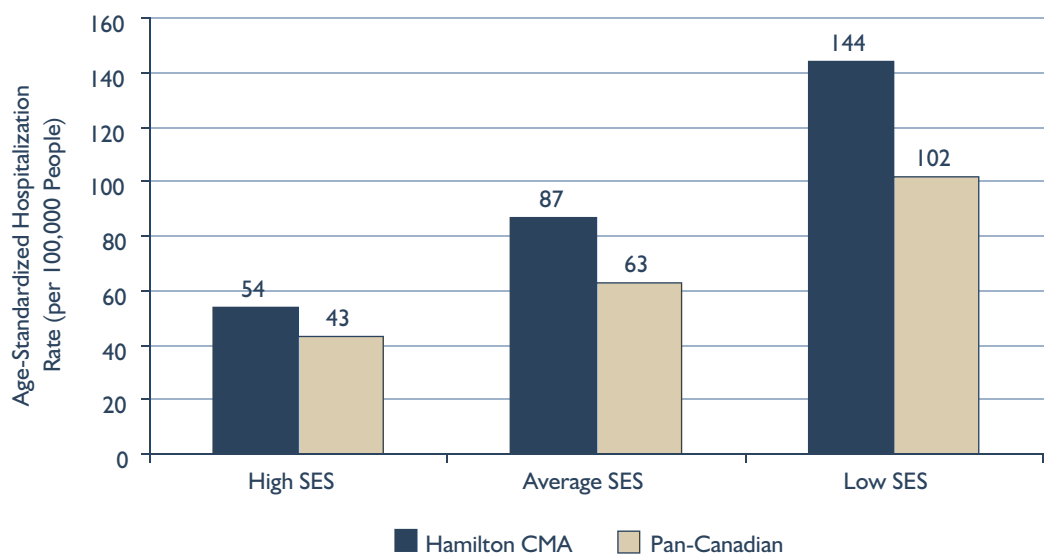
Figure 14 presents the age-standardized hospitalization rates for diabetes among the low-, average- and high-SES groups within the Hamilton CMA and across all 15 CMAs profiled in this report. Differences between the three SES groups were statistically significant at the 95% confidence level for both the CMA-level and pan-Canadian data depicted in the figure.

Both sets of data illustrate a gradient among the three SES groups that decreased from those in the low-SES group to those in the average- and high-SES groups. Within the Hamilton CMA, hospitalization rates for diabetes were 144 per 100,000 people among the low-SES group. Hospitalization rates for diabetes decreased to 87 per 100,000 people among the average-SES group and to 54 per 100,000 people among the high-SES group. The hospitalization rates for those three SES groups were significantly higher than the pan-Canadian hospitalization rates illustrated in Figure 14. More specifically:

- Low SES—Hamilton CMA was about 1.4 times that of all 15 CMAs;
- Average SES—Hamilton CMA was about 1.4 times that of all 15 CMAs; and
- High SES—Hamilton CMA was about 1.3 times that of all 15 CMAs.

Figure 14

### Pan-Canadian and Hamilton CMA Age-Standardized Hospitalization Rates for Diabetes by Socio-Economic Status Group\*



#### Note

\* See detailed data tables (Appendix D) for significance testing.

#### Source

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

## Toronto CMA

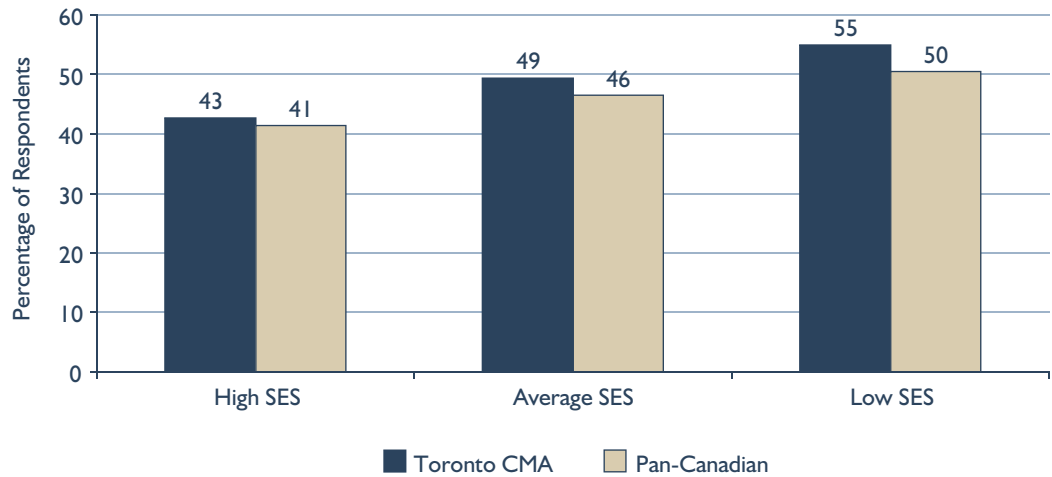
As the largest CMA in Canada, which encompasses a large geographical area of southern Ontario, the Toronto CMA recorded a population of 5,113,149 at the 2006 Canadian census.<sup>63</sup>

Figure 15 presents the age-standardized percentages of those who are considered physically inactive based on their responses (in the CCHS) to questions about the duration, frequency and intensity of their participation in leisure-time physical activities for the Toronto CMA and across all 15 CMAs profiled in this report. The differences between the three SES groups for the CMA-level and pan-Canadian data were statistically significant at the 95% confidence level. In both instances, there was a gradient, with those of a low SES more likely to report that they are physically inactive than those of an average or high SES.

Focusing specifically on the Toronto CMA data, 55% of those in the low-SES group reported being physically inactive. The percentage of physical inactivity decreased in the Toronto CMA to 49% among those in the average-SES group and 43% in the high-SES group. These data follow a similar gradient to the pan-Canadian data depicted in Figure 15. Comparing the CMA-level data to the pan-Canadian data revealed a number of differences, specifically with respect to the low- and average-SES groups. Within the low-SES group, 5% more of those in the Toronto CMA reported being physically inactive compared with those across all 15 CMAs. Within the average-SES group, 3% more of those in the Toronto CMA reported being physically inactive compared with those across all 15 CMAs.

Figure 15

### Pan-Canadian and Toronto CMA Age-Standardized Self-Reported Physical Inactivity by Socio-Economic Status Group\*

**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of CCHS, cycles 2.1 (2003) and 3.1 (2005), Statistics Canada.

#### Ottawa–Gatineau CMA

Crossing the interprovincial boundary of Ontario and Quebec, the Ottawa–Gatineau CMA had a population of 1,130,761 at the 2006 census.<sup>63</sup>

Figure 16 illustrates the rates of low birth weight babies per 100 live births in acute care institutions for the Ottawa–Gatineau CMA and across all 15 CMAs profiled in this report. Differences between the three SES groups for the Ottawa–Gatineau CMA and the pan-Canadian data are all significant at the 95% confidence level.

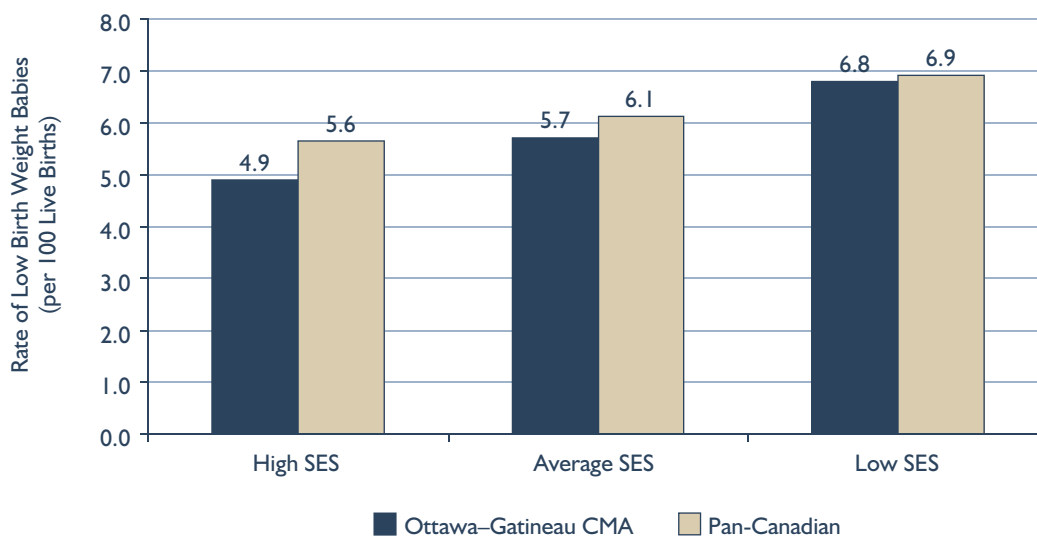
These data demonstrated a gradient, with higher rates of low birth weight babies among those of a low SES than those of an average or a high SES. Including babies weighing less than 2,500 grams, but more than or equal to 500 grams, there were 6.8 low birth weight babies born per 100 live births among those of a low SES in the Ottawa–Gatineau CMA. This figure decreased to 5.7 low birth weight babies per 100 live births among the average-SES group and 4.9 low birth weight babies per 100 live births among the high-SES group. Among the average- and high-SES groups, the rates of low birth weight babies in the Ottawa–Gatineau CMA were significantly different

from the pan-Canadian rates depicted in Figure 16. That is, rates of low birth weight babies were lower in the Ottawa–Gatineau CMA than across all 15 CMAs profiled in this report. More specifically:

- Average SES—the low birth weight rate was 6.1 per 100 live births among all 15 CMAs, compared with 5.7 per 100 live births in the Ottawa–Gatineau CMA; and
- High SES—the low birth weight rate was 5.6 per 100 live births among all 15 CMAs, compared with 4.9 per 100 live births in the Ottawa–Gatineau CMA.

Figure 16

### Pan-Canadian and Ottawa–Gatineau CMA Rates of Low Birth Weight Babies by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

## Quebec

Within the region/province of Quebec, the new CPHI analyses focused on the CMAs of Montréal and Québec.

### Patterns and Trends in Gradients

The ratios for each of the 13 age-standardized hospitalization indicators presented in Table 2 demonstrate some unique differences within the region/province of Quebec. When compared with the pan-Canadian ratios, seven of the 13 indicators exhibited similarities between the Montréal and Québec CMAs. More specifically, ratios in both the Montréal and Québec CMAs were lower than the corresponding pan-Canadian ratios for each of the following indicators:

- **Injuries in children:** 1.0 in the Montréal CMA and 1.1 in the Québec CMA, compared with 1.2 across all 15 CMAs;
- **Unintentional falls:** 1.1 in the Montréal and Québec CMAs, compared with 1.3 across all 15 CMAs;
- **Land transport accidents:** 1.2 in the Montréal and Québec CMAs, compared with 1.3 across all 15 CMAs;
- **Injuries:** 1.2 in the Montréal and Québec CMAs, compared with 1.4 across all 15 CMAs;
- **Asthma in children:** 1.5 in the Montréal and Québec CMAs, compared with 1.6 across all 15 CMAs;
- **Anxiety disorders:** 1.2 in the Montréal CMA and 1.4 in the Québec CMA, compared with 1.6 across all 15 CMAs; and
- **COPD:** 2.5 in the Montréal CMA and 1.8 in the Québec CMA, compared with 2.7 across all 15 CMAs.

As noted above, the two CMAs in Quebec generally had lower ratios for the hospitalization indicators and, as a result, had a smaller difference between the low- and high-SES groups (resulting in shallower gradients). In the Montréal CMA, none of the ratios for the 13 age-standardized hospitalization indicators was higher than its corresponding pan-Canadian ratio. The result was generally shallower gradients in the Montréal CMA than for the pan-Canadian data.

A number of similarities were also observed in the ratios of age-standardized self-reported health indicators between the Montréal and Québec CMAs (see Table 3):

- **Self-rated health:** Both the Montréal and Québec CMAs had similar ratios to the pan-Canadian ratio (all were 0.8); and
- **Physical inactivity:** Both the Montréal and Québec CMAs had similar ratios to the pan-Canadian ratio (all were 1.2).

Once again, none of the ratios for the eight age-standardized self-reported health indicators was higher in the Montréal CMA than the corresponding pan-Canadian ratios (resulting in shallower gradients in the Montréal CMA).

### Geographical Patterns and Trends in Socio-Economic Status

The distribution of SES groups by DA in the Montréal and Québec CMAs were as follows (see Appendix B):

- In the Montréal CMA, 18% of the DAs were identified as low SES (1,136 DAs), 63% were average SES (4,058 DAs) and 19% were high SES (1,250 DAs); and
- In the Québec CMA, 13% of DAs were low SES (179 DAs), 67% were average SES (920 DAs) and 21% were high SES (284 DAs).

Based on these figures, the two CMAs in the Quebec region had similar proportions of DAs in the high-SES group; however, Montréal had a higher proportion of low-SES DAs (18%) compared with Québec (13%).

The geographical pattern of SES distribution is different between the Montréal and Québec CMAs (see Appendix C). For example, Montréal had scattered areas of low SES throughout the CMA, while the areas of low SES in the Québec CMA tended to be concentrated in the CMA core.

### CMA-to-Pan-Canadian-Data Comparisons

#### Montréal CMA

With a 2006 census population of 3,635,571, the Montréal CMA is the second-largest CMA in Canada and the largest CMA in the province of Quebec.<sup>63</sup>

Figure 17 presents the age-standardized percentages of self-reported smokers who reported smoking on either a daily or occasional basis by SES group (low, average and high SES) for the Montréal CMA and across all 15 CMAs profiled in this report. The differences between the three SES groups for the CMA-level and pan-Canadian data were statistically significant at the 95% confidence level. In both instances, there was a gradient, with those of a low SES more likely to smoke than those of an average or high SES.

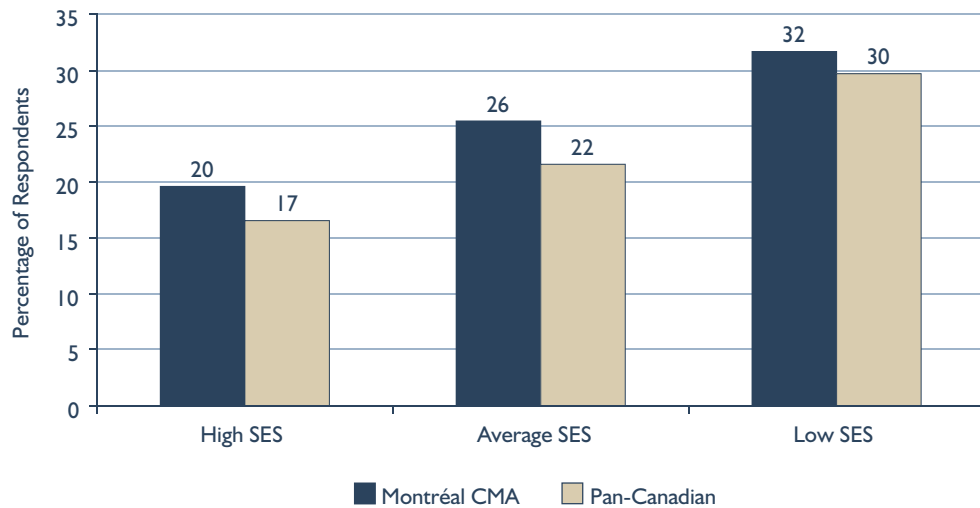


While the Montréal CMA and pan-Canadian data exhibited a similar gradient in Figure 17, the differences between the Montréal CMA and pan-Canadian low-, average- and high-SES groups were statistically significant. That is, those in the Montréal CMA were more likely to smoke, regardless of SES. More specifically:

- Low SES—32% in the Montréal CMA reported that they were smokers, compared with 30% across all 15 CMAs;
- Average SES—26% in the Montréal CMA reported that they were smokers, compared with 22% across all 15 CMAs; and
- High SES—20% in the Montréal CMA reported that they were smokers, compared with 17% across all 15 CMAs.

Figure 17

### Pan-Canadian and Montréal CMA Age-Standardized Self-Reported Smokers by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of CCHS, cycles 2.1 (2003) and 3.1 (2005), Statistics Canada.

### Québec CMA

As the second-largest CMA in the province of Quebec, the Québec CMA had a population of 715,515 at the 2006 census.<sup>63</sup>

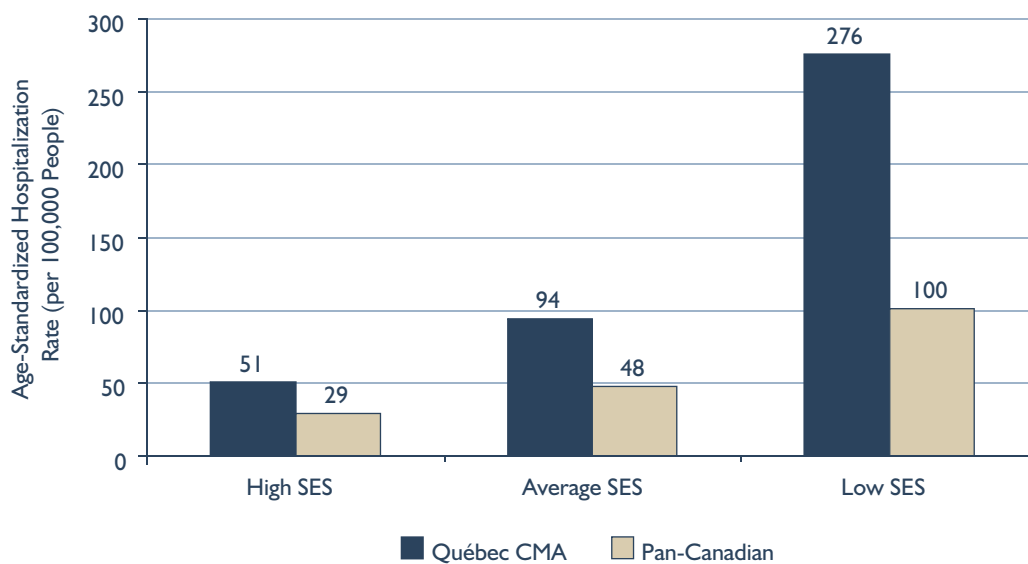
Figure 18 illustrates the age-standardized hospitalization rates for substance-related disorders for the Québec CMA and across all 15 CMAs profiled in this report by SES group. Differences between the low-, average- and high-SES groups were statistically significant at the 95% confidence level for both the Québec CMA data and the pan-Canadian data provided.

Both sets of data in Figure 18 demonstrated a gradient that decreased from the low-SES group to the high-SES group. That is, hospitalization rates for substance-related disorders decreased from the lowest to the highest SES group. Within the Québec CMA, hospitalization rates from substance-related disorders were 276 per 100,000 people among the low-SES group. This declined to 94 per 100,000 people among the average-SES group and 51 per 100,000 people among the high-SES group. Comparing these data to the pan-Canadian data provided, hospitalization rates for substance-related disorders were significantly higher in the Québec CMA than across all 15 CMAs profiled in the report. Investigating these data further:

- Low SES—Québec CMA was about 2.8 times that of all 15 CMAs;
- Average SES—Québec CMA was about 2.0 times that of all 15 CMAs; and
- High SES—Québec CMA was about 1.8 times that of all 15 CMAs.

Figure 18

### Pan-Canadian and Québec CMA Age-Standardized Hospitalization Rates for Substance-Related Disorders by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPII analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

## Nova Scotia/Newfoundland and Labrador

Within Nova Scotia/Newfoundland and Labrador, the new CPHI analyses focused specifically on the Halifax and St. John's CMAs.

### Patterns and Trends in Gradients

A number of similarities between the Halifax and St. John's CMAs were worth noting from the ratios of age-standardized hospitalization indicators presented in Table 2. The Halifax and St. John's CMAs exhibited similar or higher ratios than the pan-Canadian ratios for each of the following:

- **Low birth weight:** higher in the Halifax CMA (1.3) and the St. John's CMA (1.4) than across all 15 CMAs (1.2);
- **Anxiety disorders:** higher in the Halifax CMA (4.0) and the St. John's CMA (8.0) than across all 15 CMAs (1.6);
- **Affective disorders:** higher in the Halifax CMA (3.6) and the St. John's CMA (2.4) than across all 15 CMAs (1.9); and
- **Mental health:** higher in the Halifax CMA (3.4) and similar in the St. John's CMA (2.3) compared with all 15 CMAs (2.3).

Ratios in the Halifax and St. John's CMAs were lower than across all 15 CMAs for the following two hospitalization indicators (Table 2):

- **Substance-related disorders:** lower in the Halifax CMA (3.1) and the St. John's CMA (3.2) than across all 15 CMAs (3.4); and
- **Diabetes:** lower in the Halifax CMA (2.2) and the St. John's CMA (1.5) than across all 15 CMAs (2.4).

Similarities of ratios between both the Halifax and St. John's CMAs and the pan-Canadian data among the self-reported health indicators (see Table 3) were as follows:

- **Self-rated health:** Both the Halifax and St. John's CMAs had the same ratios as the pan-Canadian ratio (0.8 for all);
- **Overweight or obese:** 1.0 in both the Halifax and St. John's CMAs, compared with 1.1 across all 15 CMAs;
- **Activity limitation:** 0.9 in the Halifax CMA and 0.7 in the St. John's CMA, compared with 1.2 across all 15 CMAs; and
- **Risk factors:** 1.2 in the Halifax CMA and 1.3 in the St. John's CMA, compared with 1.5 across all 15 CMAs.

## Geographical Patterns and Trends in Socio-Economic Status

As shown in the DA counts listed in Appendix B, the distribution of DAs across the low-, average- and high-SES groups in the Halifax and St. John's CMAs were varied:

- In the Halifax CMA, 12% of the DAs were low SES (90 DAs), 65% were average SES (471 DAs) and 23% were high SES (166 DAs); and
- In the St. John's CMA, 16% of the DAs were low SES (59 DAs), 68% were average SES (256 DAs) and 17% were high SES (64 DAs).

There were similar proportions of DAs classified as average SES in each of the two Nova Scotia/Newfoundland and Labrador CMAs (65% in the Halifax CMA and 68% in the St. John's CMA). There was a higher percentage of high-SES DAs in the Halifax CMA (23%) than the St. John's CMA (17%).

The geographical distribution of low-SES DAs in the Nova Scotia/Newfoundland and Labrador region was similar between the two CMAs examined (see DA boundary maps in Appendix C). Both the Halifax and St. John's CMAs had areas of low SES scattered throughout their CMA cores.

## CMA-to-Pan-Canadian-Data Comparisons

### Halifax CMA

At the 2006 census, the Halifax CMA had a population of 372,858, making it the largest CMA in Canada's Maritime provinces.<sup>63</sup>

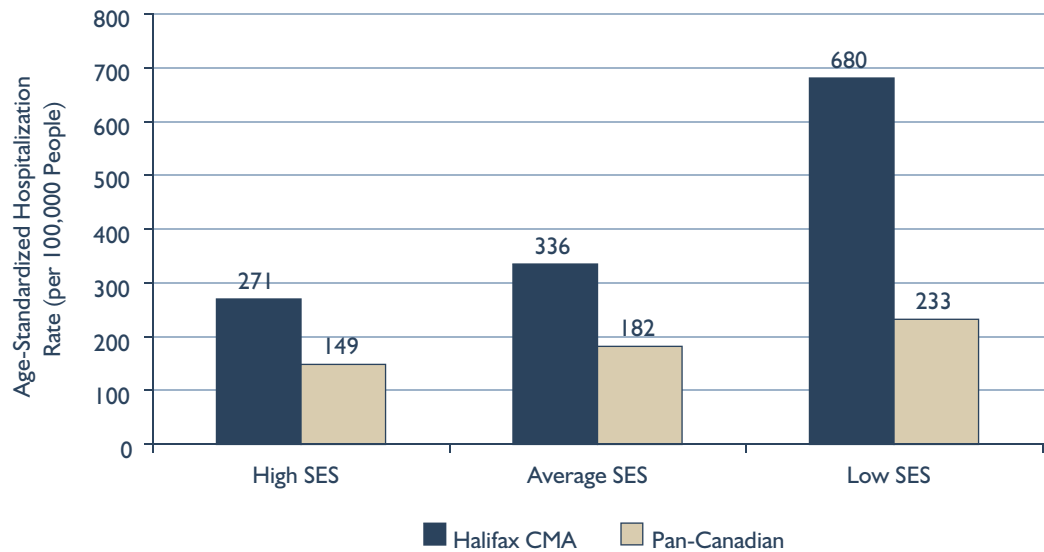
Age-standardized hospitalization rates for asthma in children by low-, average- and high-SES groups for the Halifax CMA and across all 15 CMAs profiled in this report are presented in Figure 19. Differences between the three SES groups were statistically significant at the 95% confidence level, both within the Halifax CMA and across all 15 CMAs.

Both the CMA-specific and pan-Canadian data depict a gradient that decreased from those in the low-SES group to those in the average- and high-SES groups. In terms of actual rates within the Halifax CMA, hospitalization rates for asthma in children were 680 per 100,000 people among those of a low SES. The rates declined to 336 per 100,000 people among those with an average SES and to 271 per 100,000 people among those with a high SES. While the Halifax CMA data followed a similar gradient to the pan-Canadian data shown in Figure 19, hospitalization rates in the Halifax CMA were significantly higher for all three SES groups. In terms of differences between the two groups:

- Low SES—Halifax CMA was about 2.9 times that of all 15 CMAs;
- Average SES—Halifax CMA was about 1.8 times that of all 15 CMAs; and
- High SES—Halifax CMA was about 1.8 times that of all 15 CMAs.

Figure 19

### Pan-Canadian and Halifax CMA Age-Standardized Hospitalization Rates for Asthma in Children by Socio-Economic Status Group\*



#### Note

\* See detailed data tables (Appendix D) for significance testing.

#### Source

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

### St. John's CMA

As the only CMA in the province of Newfoundland and Labrador, the St. John's CMA recorded a population of 181,113 at the 2006 census.<sup>63</sup>

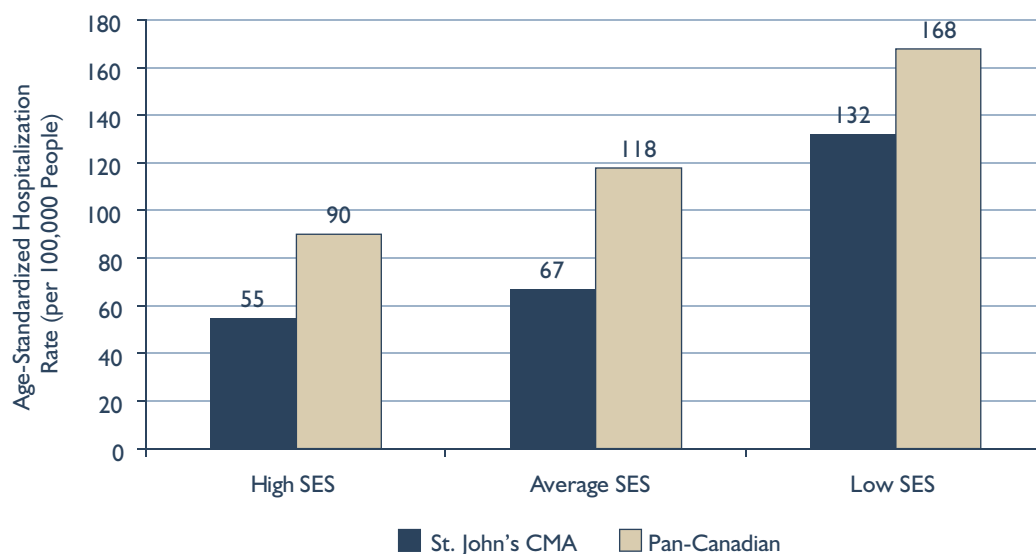
Figure 20 presents the age-standardized hospitalization rates for affective disorders by low-, average- and high-SES group for the St. John's CMA and across all 15 CMAs profiled in this report. Differences between the low- and average-SES groups and the low- and high-SES groups were statistically significant at the 95% confidence level in the St. John's CMA. The pan-Canadian data exhibited a gradient, with hospitalization rates for affective disorders decreasing from those with a low SES to those with an average or high SES, and the differences between those three groups were significant at the 95% confidence level.

Within the St. John's CMA, hospitalization rates for affective disorders were 132 per 100,000 people among those with a low SES, 67 per 100,000 people among those with an average SES and 55 per 100,000 people among those with a high SES. The differences between the St. John's CMA-level data and the pan-Canadian data were statistically significant, although the differences varied depending on the specific SES group.

Among those with a low SES, hospitalization rates for affective disorders in the St. John’s CMA were lower (about 0.8 times) than across all 15 CMAs. Among those with an average SES, hospitalization rates in the St. John’s CMA were lower (about 0.6 times) than across all 15 CMAs. Among those with a high SES, hospitalization rates in the St. John’s CMA were lower (about 0.6 times) than across all 15 CMAs.

Figure 20

### Pan-Canadian and St. John’s CMA Age-Standardized Hospitalization Rates for Affective Disorders by Socio-Economic Status Group\*



**Note**

\* See detailed data tables (Appendix D) for significance testing.

**Source**

CPHI analysis of 2003–2004 to 2005–2006 Discharge Abstract Database data, Canadian Institute for Health Information.

**To Recap . . .**

In this section, we have explored a number of health service utilization and self-reported health indicators using INSPQ's Deprivation Index. We chose to examine health service utilization (hospitalization rates), incorporating both chronic and acute conditions. Self-rated health was also examined, as well as level of perceived health and well-being. Differences across the three SES groups and across 15 CMAs were examined.

As we saw from the new CPHI analyses presented in this section, there were a number of key themes and trends worth noting:

- Those who live in urban areas characterized as low SES are more likely to be hospitalized for a variety of acute and chronic conditions than those living in areas characterized as average or high SES. Hospitalization rates tend to vary, depending on the specific acute or chronic condition under consideration.
- Those who live in urban areas characterized as low SES are less likely to report positive health than those living in areas characterized as average SES or high SES. Percentages of self-reported health tend to vary, depending upon the specific indicator under consideration.
- Hospitalization rates and percentages of self-reported health (and accompanying gradients) within the low-, average- and high-SES groups also tend to vary based on the CMA and region of residence.

The data presented in this section suggest that a more comprehensive understanding of the differences within and across CMAs might be gained through further consideration of population composition, individual demographic and socio-economic characteristics, elements of infrastructure and local labour markets. Studying Canada's CMAs in this way may increase our understanding of the differences that exist within and across our urban areas. Hence, further local- and national-level research may be warranted to determine the extent to which variability in these data may be further explained.

The data analyses presented in this report are just a small fraction of the overall data that were available for inclusion. While these preliminary analyses point to broad patterns and trends related to SES and health, further analyses of these data may be warranted.





## Dimensions of Socio-Economic Status and Urban Health: A Policy Perspective



**CPHI seeks to contribute to evidence-informed decision-making. This report, like others published by CPHI, offers a summary and synthesis of current policy-relevant research and analyses. Recommendations are beyond the scope of this report.**

As shown in the literature and new CPHI analyses presented in this report, social, economic and other factors are linked to health. The range of policies and programs related to these factors is vast and beyond the scope of this report to address in any meaningful detail. The literature review found relatively little outcome information about policies or programs designed to, or that could potentially, reduce gaps in health related to SES. This finding has been observed by others who have scanned the research literature for information about effective interventions in relation to health inequalities.<sup>64-66</sup> What follows are questions arising from this report that may provide useful areas for policy-related research that point to areas of possible intervention at different levels of jurisdiction.

## Review of the Evidence

A review of the evidence concerning policies and interventions is subject to several limitations:

**First**, there is possible selection bias in the availability of rigorous evaluations of policies. It is possible that evaluations that are readily available report on interventions with more positive outcomes than would be found in evaluations that are more difficult to obtain.

**Second**, methodologically rigorous evaluations are available for a limited subset of programs, mainly those at the pan-Canadian level. Formal evaluations of provincial, municipal and non-governmental programs are not often publicly available.

**Third**, the review of interventions is intended to provide a profile of types of policies rather than an exhaustive inventory.

## What Factors Might Help Identify Areas for Action to Reduce Gaps in Health?

The literature reviewed in the first section of this report showed that income and education are strongly associated with health.<sup>21, 23</sup> There are consistent income and education gradients for health as measured by various indicators.<sup>22, 23</sup> Research has also shown that social factors, such as family structure,<sup>27</sup> gender<sup>32</sup> and social ties,<sup>36</sup> are linked to gaps in health and that factors such as income, family structure and gender can be closely connected. Lone-parent, female-headed families, for example, tend to be among the groups most likely to experience low income.<sup>31</sup> While the evidence base for interventions to reduce gaps in health may be under-developed, the connections repeatedly demonstrated in the literature between the economic and social factors may provide information that can guide decisions about where to focus interventions. In addition to broad and universal policies relating, for example, to education and access to health services, this literature may point to the potential gains in reducing gaps in health that could be achieved through more targeted interventions, including those tailored for groups most likely to experience the poorest health.

The analyses in Section 2 of this report show that gaps between SES groups for some of the self-reported health indicators, such as overweight and obesity, alcohol bingeing and hospitalizations for injuries in children, are small. Such data may suggest that universal programs aimed at the whole population may be an effective way to achieve health improvements in these areas. On the other hand, the analyses demonstrated larger gaps between groups (a steeper gradient) for other indicators, such as smoking and hospitalizations for substance-related disorders, COPD, diabetes and mental health, which were higher among the lower-SES group. In these cases the data may be pointing to the value of targeted programs tailored for specific groups to achieve improvements in these areas.

Targeted programs to improve health might be informed by data that show that demographic and socio-economic characteristics of the 15 CMAs examined in this report differ widely, as shown in Table 4. The new CPHI analyses have shown differences within and among those 15 CMAs. This raises the question of whether it would be useful for stakeholders, planners or policy-makers to examine the demographic and socio-economic characteristics specific to each of those 15 CMAs. While the table presents CMA-level data, federal, provincial and municipal interventions may also be tailored with demographic and socio-economic characteristics in mind.

Table 4

## Overview of the Demographic and Socio-Economic Characteristics of 15 Canadian CMAs

<b>Canada</b>	31,612,897	\$57,178	11	24	(6.8)	6.3	11	16	17	18	14	4	16	4
<b>Victoria</b>	330,088	\$61,218	10	15	(6.7)	3.7	15	16	21	14	18	2	10	3
<b>Vancouver</b>	2,116,581	\$60,885	17	17	(5.8)	4.4	11	15	16	16	13	7	42	2
<b>Calgary</b>	1,079,310	\$70,016	10	18	(4.5)	3.2	10	14	15	18	9	5	22	2
<b>Edmonton</b>	1,034,945	\$66,567	11	22	(5.6)	3.9	10	16	16	18	11	3	17	5
<b>Saskatoon</b>	233,923	\$56,540	12	22	(5.6)	4.4	12	18	16	18	12	1	6	9
<b>Regina</b>	194,971	\$61,030	10	22	(4.9)	4.9	12	19	16	18	13	1	7	9
<b>Winnipeg</b>	694,668	\$56,275	15	23	(5.3)	4.6	12	18	17	18	14	4	15	10
<b>London</b>	457,720	\$60,359	10	21	(6.1)	6.2	11	17	18	18	14	3	11	1
<b>Hamilton</b>	692,911	\$63,460	12	23	(5.1)	5.9	10	16	18	18	15	3	12	1
<b>Toronto</b>	5,113,149	\$65,184	14	20	(5.5)	6.6	8	17	15	19	12	9	43	0.5
<b>Ottawa–Gatineau<sup>†</sup></b>	1,130,761	\$68,803	12	18	(5.6)	5.1 (Ottawa) (6.0) 5.6 (Gatineau)	11	16	17	18	12	3	16	2
<b>Montréal</b>	3,635,571	\$53,879	16	22	(7.8)	8.4	13	18	19	17	14	5	16	0.5
<b>Québec</b>	715,515	\$55,984	12	18	(8.1)	5.2	15	16	19	15	14	1	2	*
<b>Halifax</b>	372,858	\$57,413	11	19	(6.3)	5.0	12	17	17	16	12	1	7	1
<b>St. John's</b>	181,113	\$54,160	12	22	(9.5)	8.1	9	19	15	16	11	1	2	*
	<b>Population Size 2006<sup>63</sup></b>	<b>Median After-Tax Family Income 2005<sup>67</sup></b>	<b>Percent in Low Income After Tax 2005<sup>68</sup></b>	<b>Percent Without Certificate, Diploma or Degree 2006<sup>68</sup></b>	<b>Unemployment Rate (2000) 2006<sup>69</sup></b>	<b>Percent of Persons Living Alone 2006<sup>68</sup></b>	<b>Percent of Families Headed by a Single Parent 2006<sup>68</sup></b>	<b>Percent of Persons 15 and Over Who Are Separated, Divorced or Widowed 2006<sup>68</sup></b>	<b>Percent Who Are Children Under 15 2006<sup>68</sup></b>	<b>Percent Who Are Seniors 65 and Over 2006<sup>68</sup></b>	<b>Percent Who Are Immigrants Arrived Between 2001 and 2006<sup>68</sup></b>	<b>Percent Who Are Visible Minorities 2006<sup>70</sup></b>	<b>Percent Who Are Aboriginal Peoples 2006<sup>68</sup></b>	

### Notes

\* Aboriginal population is less than 5,000.

† The Ottawa–Gatineau CMA includes both the city of Ottawa in Ontario and the city of Gatineau in Quebec. As a consequence, the health and social services in this region are provided by two provincial jurisdictions.

### Source

2006 Census of Canada, Statistics Canada, and E. Akyeampong (2007).

Examining gaps in health due to unequal SES in the context of demographic and socio-economic characteristics may highlight important findings that can inform interventions. For example, being a recent immigrant or of Aboriginal decent has been shown to be linked to low income.<sup>53</sup> Statistics Canada analyses (2004) have demonstrated that recent immigrants make up a large share of the low-income population in Canada.<sup>53</sup> Additionally, when examining all CMAs together, the proportion of recent immigrants in the low-income population increased from 9% in 1980 to 18% in 2000.<sup>53</sup> A 2004 study of hospitalizations of recent immigrants in Toronto found that for most categories of hospitalization, rates of admission were higher in certain areas of the city as the proportion of recent immigrants in that area of the city increased.<sup>71</sup> The study also found that income was associated with most types of hospitalization.<sup>71</sup> Where targeted interventions aimed at improving the social and economic conditions of new immigrants have been implemented, evaluation of such programs may provide insights into what works to reduce gaps in health.

Similarly, Statistics Canada analyses (2004) demonstrated that the proportion of Aboriginal Peoples among the low-income population is high in some CMAs.<sup>53</sup> In certain CMAs, over 20% of the low-income population was composed of Aboriginal Peoples.<sup>53</sup> For example, the proportion of Aboriginal Peoples comprising the low-income population in the Winnipeg CMA increased from 20% to nearly 24% between 1995 and 2000.<sup>53</sup> Data such as these may also point to the possibility that policies and interventions sensitive to the needs of Aboriginal Peoples could be part of an approach to improving health that encompasses both universal and targeted interventions.

Finally, just as the CMAs included in this report differ widely in terms of demographic and socio-economic characteristics, the new analyses in Section 2 reveal that gaps between SES groups for some indicators vary between CMAs. In other words, for the same indicator, gaps between SES groups may be smaller in one CMA than in another. This raises the possibility that lessons about what works to improve health and reduce gaps can be shared between jurisdictions.

## What Are Other Jurisdictions Doing to Address Gaps in Health as a Result of Unequal Socio-Economic Status?

Many other countries also have demonstrated gaps in health as a result of unequal SES. For example, among the countries of the European Union (EU), the yearly number of deaths attributed to health inequalities was estimated to be 458,000 per year in 2004.<sup>72</sup> The number of life years lost due to health inequalities was about 7.4 million, and the number of cases of ill-health due to health inequalities was estimated at over 33 million.<sup>72</sup> A 2007 report estimated that the economic impact of socio-economic inequalities in health in the EU was over €1,000 billion, or 9.5% of the gross domestic product (GDP).<sup>72</sup>

Several European countries have adopted strategies that address social inequalities in health.<sup>73</sup> Experiences from the U.K. and Sweden are briefly discussed:

- In 2003, the U.K. Department of Health presented *Tackling Health Inequalities: A Programme for Action*, aimed to meet the target of reducing gaps in health outcomes by 10% as measured by life expectancy and infant mortality.<sup>74</sup> This program acknowledged that in order to reduce gaps in health, the health of the poorest 30% to 40% of the population must be improved at a faster rate than the health of the rest of the population.<sup>74</sup> Interventions were tailored to the major elements contributing to gaps in life expectancy (that is, smoking, heart disease and stroke) and infant mortality (that is, smoking during pregnancy, maternal obesity, sudden unexpected deaths in infancy and teenage pregnancy).<sup>74</sup> A 2007 status report on the Programme for Action suggests that there is a slight yet significant narrowing of the infant mortality gap between those with a low SES and the population as a whole.<sup>74</sup> Also, a reduction in child poverty, a narrowing of gaps in housing quality and in heart disease and cancer mortality was demonstrated.<sup>74</sup>
- In 2003, a national public health policy was adopted by the Swedish government with the overall aim of creating social conditions that ensure good health for the whole population.<sup>75</sup> Eleven objectives reflecting the development of social capital, the reduction of income gaps and relative poverty, and the support of increased employment outline the determinants that are important in achieving the goal of this policy.<sup>75</sup> In 2005, a public health policy report examined the health of various segments of the Swedish population and noted socio-economic inequalities in overall health, disease prevalence, disorders and disability.<sup>76</sup> The report also noted that the implementation and monitoring of the national public health policy was shown to have helped strengthen public health issues locally and regionally.<sup>76</sup>



Favourable health outcomes were noted, including a drop in smoking rates across the entire population, a drop in illicit drug use among school-aged children and fewer work- and traffic-related injuries due to successful injury-prevention initiatives.<sup>76</sup> The National Institute of Public Health lists several recommendations touching upon the 11 goal objectives—among them, priority should be given to developing measures and programs with broad population perspectives in an effort to reduce gaps in health.<sup>76</sup>

## The Canadian Context

Federal-level programs addressing the income gap among the elderly and children exist in Canada; however, health is not a targeted outcome of those programs. The literature review for this report identified few evaluated programs (at the provincial and municipal level) that were found to improve health, or decrease unhealthy behaviours, among low-income groups. What follows are some examples of evaluated universal and targeted policies and programs that address—when possible—some of the health indicators examined in this report. These examples are intended to illustrate the kinds of initiatives aimed at reducing gaps in health that may be feasible at different levels of government.

### Federal Initiatives

Canada's income support system for seniors comprises various government programs and private retirement savings plans. The Canada Pension Plan and accompanying programs supply an increasingly important share of seniors' gross income.<sup>77</sup> In 2005, about 6% of seniors were below Statistics Canada's low income cut-offs, lower than the corresponding rate for all Canadians of 11%.<sup>78</sup> As discussed in CPHI's 2004 *Improving the Health of Canadians* report, Canada ranked fourth out of 12 developed countries in reducing poverty among seniors through government taxes and transfers.<sup>79</sup> However, evaluations of policies aimed at increasing the health of low-income seniors through income supplementation were not identified in the literature.

The percentage of Canadian children living below Statistics Canada's low income cut-off rate decreased from about 19% in 1996 to around 12% in 2005.<sup>78</sup> Federal and provincial efforts to reduce poverty among children, such as the National Child Benefit (NCB) initiative, are designed to support low-income families,<sup>80</sup> in part by providing child benefits, and it ensures that these benefits and services continue when parents move from social assistance to paid employment.<sup>81</sup> Evaluations of the NCB initiative (in 2005) demonstrated a positive impact on low-income families with children. For instance, there was a decline of 55,000 children living in low-income families and a

decline of 22,900 families living in low income between January 2000 and December 2000.<sup>80</sup> Evaluation studies examining the impact that this initiative may have had on the health of these low-income families has not been identified in the literature.

## Provincial Initiatives

The Mother Baby Nutrition Supplement (MBNS) program provides financial support to low-income families to help offset additional nutritional costs encountered during pregnancy and offers referral services to public health nurses.<sup>82</sup> A preliminary assessment of outcomes among Newfoundland and Labrador women indicated that about 83% of participants lived in urban areas<sup>82</sup> and received monthly financial supplements to help defray these costs.<sup>82</sup> The birth weight of children was significantly higher for mothers who received benefits in all trimesters,<sup>82</sup> and among participants who received the benefit for at least five months, the incidence of low birth weight and preterm birth was lower than the respective provincial and national rates.<sup>82</sup>

## Municipal Initiatives

A smoking cessation program called “Yes, I Quit” geared toward low-income women was carried out in the St. Henri neighbourhood of Montréal, Quebec.<sup>83</sup> A trained community facilitator taught participants skills to increase their motivation to quit, to cope with the psychological and physical symptoms, how to live without smoking and, among other things, how to control weight gain.<sup>83</sup> An evaluation of this program found that at the one-, three- and six-month follow-up, 31%, 25% and 22% of participants, respectively, reported that they had quit smoking.<sup>83</sup> Among those who did not quit, at one-, three- and six-month follow-up, 73%, 64% and 67%, respectively, had reduced their cigarette consumption.<sup>83</sup>

## Improving the Evidence Base

The evidence base supporting effective ways of reducing gaps in health is limited.<sup>64, 66</sup> This suggests that there is much to be gained from evaluations of policies and programs. From a research perspective, the social determinants of health often cannot be examined in a scientifically randomized fashion.<sup>84</sup> It has been suggested that natural experiments can be beneficial in the absence of randomized controlled trials.<sup>84</sup> Natural experiments usually take the form of observational studies where researchers cannot control the distribution of an intervention to a particular group of people.<sup>84</sup> For example, natural experiments can be used to study the effects of a new supermarket on diet, or the effect of housing investment on burglary rates and level of social capital, which may in turn affect health.<sup>84</sup> Natural experiments created by new policies provide opportunities for strengthening the knowledge base for informed preventative public health policy.<sup>85</sup>



Engaging policy-makers at the outset of a research project and maintaining those links for the duration of the study (including during the interpretation of findings) may enhance the relevance of research findings for policy and practice domains.<sup>86</sup> The potential benefits of working together include the following:

- An influence on policy-making and the delivery of interventions;<sup>86</sup>
- A better understanding of research results by highlighting key points from a policy perspective;<sup>86</sup> and
- An efficient working relationship that draws on the specific skills and strengths of researchers and policy-makers.<sup>86</sup>

While the research on which these collaborative methods were based did not relate directly to reducing gaps in health, the methods of engaging policy-makers in the research arena may be applied to any research interest aimed at improving the health of Canadians, including the reduction of gaps in health due to unequal SES.

### To Recap . . .

In this section, we have identified that relatively little outcome information exists about policies or interventions designed to reduce gaps in health linked to socio-economic status.

We have highlighted that demographic and socio-economic characteristics differ widely between the CMAs examined in this report, citing the example of recent immigrants and Aboriginal Peoples. We have raised the question of whether there exists any benefit (in terms of developing actionable interventions) in taking these characteristics into account when examining the gradients in health between SES groups. Policies that have been shown to work in reducing the gaps in health from unequal SES from international jurisdictions were briefly discussed. Universal and targeted policies and interventions that seem to be working within Canada's borders at the federal, provincial and municipal levels were also presented. This section was concluded with a short discussion of a potential method to bridge the research evidence/policy interventions gap.



# Conclusions



## **The purpose of *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada* was to explore the multiple links between SES and health in Canada's CMAs.**

Citing previous research that has studied the links between SES and health at different levels of geography, including city and neighbourhood levels, this report has shown that there are links between SES and health in Canada's CMAs. In general, locations characterized by low SES are more likely to experience poorer health than locations with higher SES.

What key findings emerged from this report?

**First**, the new CPHI analyses presented in this report demonstrated differences in hospitalization rates and self-reported health percentages within and across CMAs. Those differences were associated with SES, measured at the smallest geographical unit possible—Statistics Canada's dissemination areas. To varying degrees, differences existed both within and across 15 of Canada's CMAs for the 21 indicators that were examined.

**Second**, hospitalization rates were generally higher for the low-SES group than for the average-SES group and generally higher among the average group than for the highest-SES group. In other words, the analyses demonstrated gaps in health for most, though not all, of the hospitalization indicators. The extent of those gaps in health varied among indicators. Gaps in health were most pronounced for the conditions grouped under ambulatory care sensitive conditions and for mental health. ACSC are conditions for which hospitalization, while not completely avoidable, may be preventable. A question that emerges from the data, which this report does not address, is, Why do hospitalization rates for these conditions vary the way they do between the different socio-economic groups? A second question is, Could the overall rate be reduced, along with a reduction in the differences between the three groups?

The **third** key finding generated from this report is that while the existence of gaps in health is relatively consistent across the three socio-economic groups, there are variations in the degree of those gaps among the 15 CMAs profiled. In addition, there are observable differences between CMAs for some indicators. For example, hospitalization rates for some conditions are generally higher in some CMAs than they are in others. Why is this so? While this report has presented some basic demographic and socio-economic characteristics for each of the CMAs, it is beyond the scope of this report to answer this question. Previous CPHI reports, such as *Improving the Health of Canadians: Promoting Healthy Weights*<sup>19</sup> and *Improving the Health of Canadians: An Introduction to Health in Urban Places*,<sup>18</sup> illustrated that various aspects of place—such as social environment, urban design, housing and transit—may be linked to health. This suggests that understanding the differences between CMAs reflected in the analysis of this report might be gained through an examination of conditions and experiences specific to the CMAs and their provincial contexts. This could include an examination of population composition, individual demographic and socio-economic characteristics, elements of infrastructure—such as education, housing and social services—as well as local labour markets. Studying Canada’s CMAs in this way may increase our understanding of the differences that exist within and between our urban areas.

It is clear that a number of communities and jurisdictions are attempting to address gaps in health associated with unequal SES, either at the individual or community level. Evidence suggests that there are many opportunities for interventions and policies that target gaps in health as a result of unequal SES—particularly at the neighbourhood or DA level. In seeking to address gaps in health as a result of unequal SES, it is important to consider the individual-level factors and the broader social determinants of health that contribute to those gaps.

This report contributes to the growing body of literature about SES and health of people in urban areas. It provides some insight into those complex relationships through its review of the literature and analysis of 15 Canadian CMAs. There is still much to be learned about what policies and interventions work, and in what contexts, to reduce gaps in health related to SES. There is also an opportunity to conduct additional analyses on these and other data related to SES and health and to investigate the sustainability of these gaps in SES and health. CPHI will continue to work with our partners and stakeholders to advance knowledge in this important, growing area of research. In the interim, other work is under way that will further our understanding of the determinants of health, such as the final report of the World Health Organization Commission on the Social Determinants of Health, the first annual report of Canada’s chief public health officer and the report from the Senate Standing Committee on Social Affairs, Science and Technology, Subcommittee on Population Health. There is a role across all levels of government and sectors, both within and outside of health, to broaden our understanding of SES and health in urban areas. This report has taken one small step in that direction.

## Key Messages and Information Gaps

### What Do We Know?

- In most countries, socio-economic gradients in health exist.
- In general, Canadians are relatively healthy.
- Health outcomes and behaviours vary between places within Canada.
- Economic factors (such as income, employment and education) and social factors (such as family structure and social ties) are linked to health at individual and aggregate levels.
- Urban areas in Canada characterized as low SES are likely to have higher hospitalization rates for a range of acute and chronic conditions than areas characterized as average or high SES, with variations by indicator and CMA.
- Canadian Community Health Survey respondents in urban areas characterized as low SES are more likely, in general, to report negatively about their health than those in average- or high-SES areas, with variations by indicator and CMA.
- There is wide variation among Canadian CMAs according to their economic, social and demographic characteristics.
- There are policies in place in Canada that have reduced rates of low income among seniors and children.
- There are existing Canadian policies that are designed to facilitate access to education and employment.

### What Do We Still

#### Need to Know?

- Which interventions or combinations of interventions are most likely to reduce gaps in health within and across urban areas?
- Do policies that are effective in improving SES also lead to positive health outcomes and reductions in gaps in health?
- What are the financial costs associated with gaps in health as a result of unequal socio-economic status?
- To what extent are differences between CMAs in terms of economic, social, demographic and other factors related to differences in health outcomes between and within CMAs?

- How are differences in population composition (that is, percentage of recent immigrants, Aboriginal Peoples and single-parent families) and population trends (that is, population growth rates) related to differences within and between CMAs?
- How do gaps in health at the CMA level differ from gaps in health at the individual or household level? A related question is, How do gaps in health at the CMA level differ from those at the neighbourhood, municipality, regional, provincial or national level?
- What lies behind hospitalization rates for conditions for which hospitalization is potentially avoidable? To what extent are hospitalization rates for ambulatory care sensitive conditions, for example, an indirect measure of access to primary care? What other factors may be related to such hospitalization rates?
- Are there links between SES and other health-related indicators not examined in this report (that is, disease-specific indicators such as those related to cancer or vital statistics such as mortality rates)?

**What Do We Still  
Need to Know?  
(cont'd)**

## What CPHI Research Is Happening in the Area?

CPHI has funded and commissioned a number of research projects and products related to gaps in health, including those listed below.

### CPHI-Funded

#### Research Projects and Programs

- Inequalities in Child Health: The Roles of Family, Community, Education and Health Care (M. Brownell, University of Manitoba)
- Canada's Rural Communities: Understanding Rural Health and Its Determinants (collaboration between CPHI, the Public Health Agency of Canada and the Centre for Rural and Northern Health Research at Laurentian University)
- Health Inequalities and Living Conditions: Social Determinants and Their Interactions (M. De Koninck, Université Laval)
- The Quality of Diet Eaten by Québec Four-Year Olds (L. Dubois, University of Ottawa)
- Metropolitan Socio-Economic Inequality and Population Health (J. Dunn, St. Michael's Hospital, Toronto, and N. Ross, McGill University)
- Cohort Mortality by Individual, Family, Household and Neighbourhood Socio-Economic Characteristics, Based on a 15% Sample of the 1991 Population for All of Canada (R. Wilkins, Statistics Canada)
- Material and Social Inequalities in the Montréal Metropolitan Area: Association With Physical and Mental Health Outcomes (M. Zunzunegui, Université de Montréal)

#### Other Complementary

#### Products

- *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada*—companion products that will be available on CPHI's website:
  - Summary report
  - PowerPoint presentation
  - Literature search methodology
  - Data and analysis methodology
  - Interactive maps



**Other Complementary  
Products (cont'd)**

- *Improving the Health of Canadians: An Introduction to Health in Urban Places*—and companion products that are currently available on CPHI's website:
  - Summary report
  - PowerPoint presentation
- *Canadian Journal of Public Health: Place and Health Research in Canada*—Volume 98, Supplement 1, July/August 2007



## For More Information

CPHI's reports aim to synthesize key research findings on a given theme, present new data analysis on an issue and share evidence on what we know and what we do not know about what works from a policy and program perspective. The underlying goal of each report is to tell a story that will be of interest to policy- and decision-makers in order to advance thinking and action on population health in Canada.

*Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada* is available in both official languages on the CIHI website at [www.cihi.ca/cphi](http://www.cihi.ca/cphi). To order additional copies of the report, please contact:

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- Download a presentation of the highlights of *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada*.
- Sign up to receive updates and information through CPHI's e-newsletter, *Health of the Nation*.
- Learn about previous CPHI reports.
- Learn about upcoming CPHI events.
- Download copies of other CPHI reports.

CPHI	Name of Report	Author and Publication Date
Reports	<b>Reducing Gaps in Health</b>	
	<i>Reducing Gaps in Health: Workshop Proceedings Report</i>	CIHI and National Collaborating Centre for Determinants of Health (November 2007)
	<i>What Have We Learned Studying Income Inequality and Population Health?</i>	Nancy Ross (December 2004)
	<i>Improving the Health of Canadians—Income chapter</i>	CIHI (February 2004)
	<i>Poverty and Health CPHI Collected Papers</i>	CIHI, Shelley Phipps and David Ross (September 2003)
	<b>Place and Health</b>	
	<i>Place and Health Research in Canada</i>	CIHI and <i>Canadian Journal of Public Health</i> (July/August 2007)
	<i>Improving the Health of Canadians: An Introduction to Health in Urban Places</i>	CIHI (November 2006)
	<i>How Healthy Are Rural Canadians? An Assessment of Their Health Status and Health Determinants</i>	CIHI, Public Health Agency of Canada and Laurentian University (September 2006)

Name of Report (cont'd.)	Author and Publication Date (cont'd)
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<i>Kachimaa Mawiin—Maybe for Sure: Finding a Place for Place in Health Research and Policy</i>	CIHI (October 2005)
<i>Developing a Healthy Community Index: A Collection of Papers</i>	CIHI (February 2005)
<i>Housing and Population Health</i>	Brent Moloughney (June 2004)
<i>Prairie Regional Workshop on the Determinants of Healthy Communities</i>	CIHI (August 2003)
<i>CPHI Workshop on Place and Health Synthesis Report (Banff)</i>	CIHI (June 2003)
<b>Mental Health</b>	
<i>What Makes a Community Mentally Healthy? A Collection of Papers</i>	CIHI (September 2008)
<i>Improving the Health of Canadians: Mental Health, Delinquency and Criminal Activity</i>	CIHI (April 2008)
<i>Improving the Health of Canadians: Mental Health and Homelessness</i>	CIHI (August 2007)
<b>Promoting Healthy Weights</b>	
<i>State of the Evidence Review on Urban Health and Healthy Weights</i>	Kim D. Raine et al. (March 2008)
<i>Improving the Health of Canadians: Promoting Healthy Weights</i>	CIHI (February 2006)
<i>Socio-Demographic and Lifestyle Correlates of Obesity—Technical Report on the Secondary Analyses Using the 2000–2001 Canadian Community Health Survey</i>	Cora Lynn Craig, Christine Cameron and Adrian Bauman (August 2005)
<i>Overweight and Obesity in Canada: A Population Health Perspective</i>	Kim D. Raine (August 2004)
<i>Improving the Health of Canadians—Obesity chapter</i>	CIHI (February 2004)
<i>Obesity in Canada—Identifying Policy Priorities</i>	CIHI and the Canadian Institutes of Health Research (CIHR) (June 2003)

Name of Report (cont'd.)	Author and Publication Date (cont'd)
<b>Healthy Transitions to Adulthood</b>	
<i>From Patches to a Quilt: Piecing Together a Place for Youth</i>	CIHI (September 2006)
<i>Improving the Health of Young Canadians</i>	CIHI (October 2005)
<i>“You say ‘to-may-to(e)’ and I say ‘to-mah-to(e)’”: Bridging the Communication Gap Between Researchers and Policy-Makers</i>	CIHI (September 2004)
<i>CPHI Regional Workshop—Atlantic Proceedings (Fredericton)</i>	CIHI (July 2003)
<b>Early Childhood Development</b>	
<i>Early Development in Vancouver: Report of the Community Asset Mapping Project (CAMP)</i>	Clyde Hertzman et al. (March 2004)
<i>Improving the Health of Canadians—Early Childhood Development chapter</i>	CIHI (February 2004)
<b>Aboriginal Peoples' Health</b>	
<i>Improving the Health of Canadians—Aboriginal Peoples' Health chapter</i>	CIHI (February 2004)
<i>Measuring Social Capital: A Guide for First Nations Communities</i>	Javier Mignone (December 2003)
<i>Initial Directions: Proceedings of a Meeting on Aboriginal Peoples' Health</i>	CIHI (June 2003)
<i>Urban Aboriginal Communities: Proceedings of a Roundtable Meeting on the Health of Urban Aboriginal People</i>	CIHI (March 2003)
<i>Broadening the Lens: Proceedings of a Roundtable on Aboriginal Peoples' Health</i>	CIHI (January 2003)

**Name of Report (cont'd.)** **Author and Publication Date (cont'd)**

**Cross-Cutting Issues/Tools**

<i>The Canadian Population Health Initiative Action Plan 2007–2010</i>	CIHI (December 2006)
<i>Health of the Nation—e-newsletter</i>	CIHI (Quarterly)
<i>Moving Population and Public Health Knowledge Into Action</i>	CIHR and CIHI (February 2006)
<i>Select Highlights on Public Views of the Determinants of Health</i>	CIHI (February 2005)
<i>Women’s Health Surveillance Report: Supplementary Chapters</i>	CIHI and Health Canada (October 2004)
<i>Charting the Course Progress: Two Years Later: How Are We Doing?</i>	CIHI and CIHR (February 2004)
<i>Women’s Health Surveillance Report: A Multidimensional Look at the Health of Canadian Women</i>	CIHI and Health Canada (October 2003)
<i>Barriers to Accessing and Analyzing Health Information in Canada</i>	George Kephart (November 2002)
<i>Tools for Knowledge Exchange: Best Practices for Policy Research</i>	CIHI (October 2002)
<i>Charting the Course: A Pan-Canadian Consultation on Population and Public Health Priorities</i>	CIHI and CIHR (May 2002)
<i>Partnership Meeting Report</i>	CIHI (March 2002)
<i>An Environmental Scan of Research Transfer Strategies</i>	CIHI (February 2001)

## Appendices

### Appendix A. List of UPHN Member Cities

The purpose of the Urban Public Health Network (UPHN) is to exchange knowledge and experience in dealing with public health issues and to develop strategies to address those issues. These include emergency preparedness, common standardized indicators for public health activity, the provision of tertiary public health services, immunization capacity, poverty and health. More information on the network can be obtained from the UPHN website at [www.uphn.ca](http://www.uphn.ca).

The following cities/regions are current members of the UPHN:

- Calgary (Alberta)
- Edmonton (Alberta)
- Halifax (Nova Scotia)
- Hamilton (Ontario)
- London (Ontario)
- Longueuil (Quebec)
- Montréal (Quebec)
- Ottawa (Ontario)
- Peel Region (Ontario)
- Quebec City (Quebec)
- Regina (Saskatchewan)
- Saskatoon (Saskatchewan)
- St. John's (Newfoundland and Labrador)
- Surrey (British Columbia)
- Toronto (Ontario)
- Vancouver (British Columbia)
- Victoria (British Columbia)
- Winnipeg (Manitoba)

## Appendix B. Data and Analysis Methodology

### Data Sources

This report examines the health of Canada's urban populations across different levels of deprivation. Age-standardized hospitalization rates (explained below) for a number of medical conditions, as well as percentages of self-reported health factors, were compared relative to the socio-economic status (SES) of people living in 15 of Canada's census metropolitan areas (CMAs). These rates and percentages identified differences in status between those from low-, average- and high-SES groups living in 15 Canadian CMAs. Data for this report were obtained from various sources, including the following:

- Institut national de santé publique du Québec (INSPQ) Deprivation Index;
- 2001 and 2006 Canadian Census Profiles, Statistics Canada;
- Discharge Abstract Database (DAD), CIHI;
- National Trauma Registry (NTR), CIHI; and
- Canadian Community Health Survey (CCHS), cycles 2.1 (2003) and 3.1 (2005) combined,<sup>87</sup> Statistics Canada.

### Census of Canada

The census provides a reliable estimate of the Canadian population and dwelling counts of provinces, territories and local municipal areas. Demographic, social and economic characteristics of the population, along with information on housing within small geographic areas, are provided. Not only does this information support the planning, administration, policy development and evaluation activities of government across all levels, but it also supports the activities by data users in the private sector. The census provides an archival account of how populations, communities and the country changes over time.

Statistics Canada provided population counts at the dissemination area (DA) level broken down by five-year age groups for Census 2001 and Census 2006. The age groups were as follows:

- |            |            |            |
|------------|------------|------------|
| • 0 to 4   | • 25 to 29 | • 50 to 54 |
| • 5 to 9   | • 30 to 34 | • 55 to 59 |
| • 10 to 14 | • 35 to 39 | • 60 to 64 |
| • 15 to 19 | • 40 to 44 | • 65 to 69 |
| • 20 to 24 | • 45 to 49 | • 70+      |



## Discharge Abstract Database, CIHI

The Discharge Abstract Database (DAD) provides information on hospital discharges across Canada.<sup>88</sup> These data are provided directly to CIHI from participating hospitals from all provinces and territories excluding Quebec.<sup>88</sup> For this report, Quebec's crude hospitalization rates were obtained from our partners at the INSPQ and the age-standardization of these rates was calculated by the Health Indicators Department of CIHI.

The DAD was used to extract hospitalization cases based on their most responsible diagnosis (except for injuries), representing the diagnosis responsible for the greatest portion of the patient's length of stay in hospital. Only acute care cases were used in this report, thereby excluding hospital admissions to long-term care facilities, rehabilitation and psychiatric facilities, as well as day surgery. The following CIHI indicators examined in this report were selected from the DAD:

- Ambulatory care sensitive conditions (ACSC) (under 75 years of age);
- Diabetes (all ages);
- Chronic obstructive pulmonary disease (COPD) (20 years of age or older);
- Asthma in children (under 20 years of age);
- Mental health (all ages);
- Anxiety disorders (all ages);
- Affective disorders (all ages);
- Substance-related disorders (all ages); and
- Low birth weight (excludes babies under 500 grams due to data quality concerns) (newborns).

## National Trauma Registry, CIHI

National data on injuries in Canada are provided by the National Trauma Registry (NTR).<sup>89</sup> Statistics came from the Hospital Morbidity Database and from provincial trauma registries or trauma centres across Canada.<sup>89</sup> While supporting CIHI's mandate, the NTR serves many functions. Among others, the NTR gathers and analyzes summary data discharges and deaths, contributes to the reduction of trauma and fatalities by sharing data with researchers examining national injury epidemiology and facilitates injury comparisons both provincially and internationally.<sup>89</sup> The following CIHI indicators examined in this report were selected from the NTR:

- Injuries (all ages);
- Land transport accidents (all ages);
- Unintentional falls (all ages); and
- Injuries in children (under 20 years of age).

## Canadian Community Health Survey (Cycles 2.1 and 3.1 Combined)<sup>87</sup>

The CCHS supports health regions in planning, implementing and evaluating health promotion campaigns by providing estimates of health determinants, health status and health system utilization at a sub-provincial level.<sup>90</sup> It provides data at the health region level<sup>90</sup> on key topics related to youth and adults aged 12 and older living in private-occupied dwellings. Certain groups are excluded; thus, the CCHS covers approximately 98% of the Canadian population aged 12 years and over.

A subset of indicators was chosen from the CCHS based on the relevance to SES and health in urban Canada. This subset included the following eight self-reported health indicators:

- Self-rated health (ages 12 and over);
- Physical inactivity (ages 12 and over);
- Smoking (ages 12 and over);
- Alcohol intake (alcohol binging) (ages 12 and over);
- Body mass index (overweight or obese) (ages 18 and over);
- Risk-factor index (risk factors, including self reported physical inactivity, body mass index, smoking and/or alcohol intake) (ages 18 and over);
- Influenza immunization (ages 65 and over); and
- Participation and activity limitation (activity limitation) (ages 65 and over).

These rates were age-standardized to the 1991 population of Canada (described later in more detail).<sup>87</sup>

## Socio-Economic Status: INSPQ Deprivation Index

The Institut national de santé publique du Québec's Deprivation Index categorizes dissemination areas into two sets of quintile groups: one for the material components of deprivation (that is, income, education and employment) and the other for the social components (that is, single-parent families, living alone, divorced, widowed or separated). In each quintile group, Quintile 1 represents the 20% least deprived and Quintile 5 represents the 20% most deprived.

For this report, CPHI has categorized DAs with particular combinations of material and social quintile scores into one of the following three groups: "high SES," "average SES" or "low SES." DAs with material and social combinations found in the top left (shaded) portion of the matrix below were categorized by CPHI as "high SES." DAs found with material and social combinations found in the bottom right (shaded) portion of the matrix were categorized by CPHI as "low SES." All other DAs were categorized as "average SES."

		Social Components				
		Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Material Components	Quintile 1	High SES				
	Quintile 2	High SES				
	Quintile 3			Average SES		
	Quintile 4				Low SES	
	Quintile 5				Low SES	

## 2006 Canadian Census: Community Profiles

Demographic and socio-economic characteristics of Canada's CMAs presented in this report were obtained directly from Statistics Canada 2006 Community Profiles. Some of the characteristics listed below were not directly provided in the census tables and needed to be calculated from existing census data:

- Population size;
- Median family income;
- Rates of low income;
- Percent without high school graduation;
- Unemployment rate, 2000 to 2006;

- Percent of persons living alone;
- Percent of families headed by a single parent;
- Percent of persons 15 and over who are separated, divorced or widowed;
- Percent who are children under 15;
- Percent who are seniors 65 and over;
- Percent who are immigrants;
- Percent who are visible minorities; and
- Percent who are Aboriginal Peoples.

## Methods

### INSPQ Deprivation Index

The INSPQ Deprivation Index for health, originally published by Robert Pampalon and Guy Raymond in 2000, emphasizes the material and social aspects of deprivation.<sup>61</sup> As the index is intended to serve as a proxy for individual-level measures, the geographical unit to which it is applied must be as small as possible. That is, the socio-economic categorization of a geographical area by this measure should be generalizable to the people living in that area. The smaller the area, the stronger the likelihood that people living in this area share similar socio-economic conditions. As such, the basic unit on which the Deprivation Index is based is Statistics Canada's dissemination area (DA)—the smallest geostatistical unit of the census.<sup>91</sup> The index combined six indicators related to a high number of health and welfare issues, associated with either social or material deprivation and that were available at the enumeration area (EA) level.<sup>61</sup> Statistics Canada later replaced the enumeration area with the DA.<sup>92</sup> The six indicators included the following:

- The proportion of people who have not graduated from high school;
- The ratio of employment to population;
- Average income;
- Proportion of persons who are separated, divorced or widowed;
- Proportion of single-parent families; and
- Proportion of people living alone.<sup>61</sup>

A principle-component analysis of the Deprivation Index indicators revealed two components: the *material* component consisted of variations in education, employment and income while the *social* component consisted of variations in the proportion of widowed, separated and divorced, single-parent families and persons living alone.<sup>61</sup> For each component, DAs were ranked on the basis of their factor score and then arranged in quintiles ranging from one (representing the 20% least deprived portion of the selected population) to five (representing the 20% most deprived).<sup>61</sup> These material and social quintiles were then cross-tabulated, creating a matrix of 25 distinct cells in which DAs were classified according to their scores on both dimensions.<sup>61</sup> For further details on INSPQ's Deprivation Index, including reliability and validity testing, see R. Pampalon and G. Raymond, "A Deprivation Index for Health and Welfare Planning in Québec," in *Chronic Diseases in Canada, 2000*.<sup>61</sup>

### Population Estimates

The population counts by SES group for each CMA and pan-Canadian totals (pan-Canadian totals are based on the 15 CMAs included in this report) were estimated based on DA-level population counts from the 2001 and 2006 census, assuming a linear increase or decrease of the DA population between 2001 and 2006. Technical specifications for between census years' population estimates may be provided upon request.

### Indicators

This report examined differences in age-standardized hospitalization rates and self-reported health indicators, as well as the percentage of low birth weight (LBW) babies among the different SES groups comprising the 15 CMAs. As mentioned above, data were collected from two different sources: i) CIHI provided age-standardized hospitalization rates per 100,000 people for 12 different medical conditions (extracted from the DAD and NTR) as well as the percentage of LBW babies per 100 live births; and ii) a subset of Statistics Canada indicators from the CCHS provided data on self-reported health by respondents aged 12 years and older on eight indicators. CIHI indicators are referred to herein as "hospitalization indicators," whereas Statistics Canada indicators are referred to as "self-reported health indicators."

Hospitalization indicators were collected for 2003–2004 to 2005–2006, as well as the pooled data across those years. Since hospitalization rates were very consistent for the three years, only the data pooled from those three years appeared in this report.

Patient postal codes were used to determine hospitalization rates per CMA. For example, if a resident from the Hamilton CMA was hospitalized in the Toronto CMA, that particular hospitalization was counted for the Hamilton CMA and not the Toronto CMA.

## Analyses

### Age-Standardization

For all hospitalization indicators, the rates were standardized per 100,000 people, with the exception of LBW (presented per 100 live births). The standardized rates were adjusted by age using a direct method of standardization based on the July 1, 1991, Canadian population. An age-standardized rate is a weighted average of the age-specific rates, where the weights are the proportions of a standard population in the corresponding age groups. It represents what the crude rate would have been in the study population if that population had the same age distribution as the standard population. The potential confounding effect of age is removed when comparing age-standardized rates computed using the same standard population.

### Statistical Comparisons of Indicators

This report examined whether or not statistical differences in indicators existed between SES groups within a CMA, and if differences existed between SES groups and the pan-Canadian rates. To do this, 95% confidence levels, which refers to the range of values where the true rate lies (95% means 19 times out of 20), were calculated and presented for all indicators including the LBW percentage. The lower-confidence limit represents the low number of this range and the upper-confidence limit represents the high number in the range. The rates by SES groups were pairwise compared by calculating the rate difference and 95% confidence level for the difference. If this confidence level does not include 0, we concluded that the two rates were statistically significantly different with 95% certainty; otherwise, we could not make the conclusion. More detailed information is available upon request.

As the same methodology defining SES was applied to all DAs included in this report, within-CMA comparisons and CMA-to-pan-Canadian comparisons by SES were possible.

## CMA Inclusion Criteria

The following 15 CMAs were examined in this report:

- Victoria
- Vancouver
- Calgary
- Edmonton
- Saskatoon
- Regina
- Winnipeg
- London
- Hamilton
- Toronto
- Ottawa–Gatineau
- Montréal
- Québec
- Halifax
- St. John's

As this report focuses on SES and health in urban Canada, rural DAs were not included. The Postal Code Conversion File (PCCF) for 2006, which provides a link between six-character postal codes and standard 2001 census geographic areas (including DAs), was used to identify which DAs were considered urban areas for inclusion in this report.

Statistical area classification (SAC) codes group together census subdivisions (CSD) based on whether they are part of a CMA, a census agglomeration (CA), a CMA- or CA-influenced zone, or the territories.<sup>93</sup> Census subdivisions outside a CMA are identified as one of four zones according to the degree of influence the CMA has upon it.<sup>94</sup> The degree of influence is determined by the percentage of those residents working in the urban core of a CMA.<sup>94</sup> Dissemination areas found within the following geographical boundaries and zones were excluded from the analyses, as these were not CMAs:

- 000 = Territories;
- 996 = Strongly influenced zone (over 30% work in a CMA);
- 997 = Moderately influenced zone (5% to 30% work in a CMA);
- 998 = Weakly influenced zone (0% to 5% work in a CMA); and
- 999 = No influenced zone (fewer than 40 or none of the residents work in a CMA).<sup>93, 94</sup>

Dissemination areas with the following urban area rural area type (UARAtype) codes (these codes indicate the relationship of the urban area to the CMA structure)<sup>93</sup> were not included in the analyses:

- Rural fringe inside CMA/CAs (code 3);
- Urban areas outside CMA/CAs (code 4); and
- Rural fringe outside CMA/CAs (code 5).<sup>93</sup>

Dissemination areas with the following UARAtype were included in the analyses:

- Urban core (code 1);
- Urban fringe (code 2); and
- Secondary urban core (code 6).<sup>93</sup>

A UARAtype code “0” was linked to some DAs, requiring verification of the delivery mode type (DMT) assigned to the DA by the PCCF to ascertain whether these urban areas had anyone living within their boundaries. Dissemination areas with a UARAtype code “0” and the accompanying DMT codes were identified as urban residential and were included in the analyses:

- A—Delivery to block-face address;
- B—Delivery to an apartment building;
- E—Delivery to a business building;
- J—General delivery; and
- K—Delivery to a post office box (not a community mail box).<sup>93</sup>

This filtering method resulted in the inclusion of 30,294 urban DAs comprising the 15 CMAs for this report.



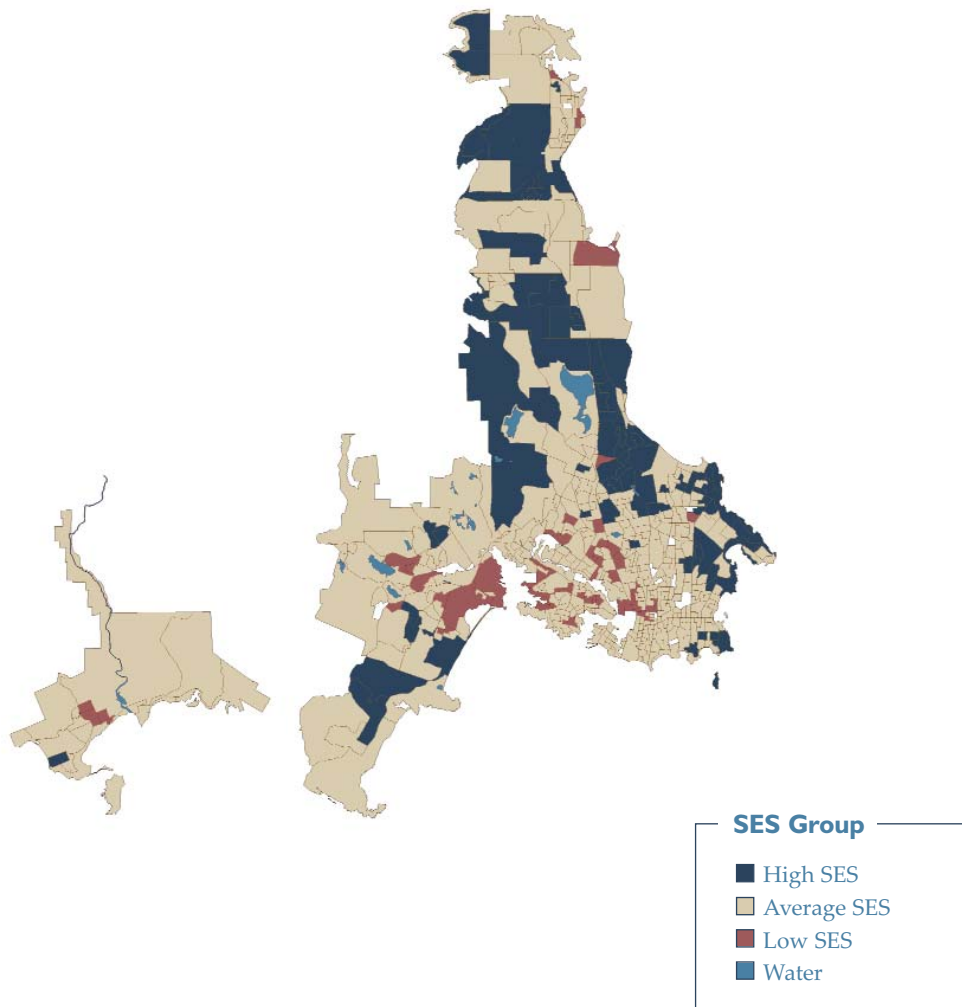
The following table presents the numbers of DAs in each of the 15 CMAs, including a detailed breakdown by SES group:

<b>CMA Name</b>	<b>Number of Low-SES DAs</b>	<b>Number of Average-SES DAs</b>	<b>Number of High-SES DAs</b>	<b>Total Number of DAs</b>
<b>Victoria</b>	53	409	91	<b>553</b>
<b>Vancouver</b>	341	2,604	602	<b>3,547</b>
<b>Calgary</b>	205	1,182	401	<b>1,788</b>
<b>Edmonton</b>	360	1,037	235	<b>1,632</b>
<b>Saskatoon</b>	92	269	91	<b>452</b>
<b>Regina</b>	69	207	110	<b>386</b>
<b>Winnipeg</b>	240	697	230	<b>1,167</b>
<b>London</b>	175	467	131	<b>773</b>
<b>Hamilton</b>	226	700	249	<b>1,175</b>
<b>Toronto</b>	932	5,551	1,557	<b>8,040</b>
<b>Ottawa–Gatineau</b>	212	1,153	483	<b>1,848</b>
<b>Montréal</b>	1,136	4,058	1,250	<b>6,444</b>
<b>Québec</b>	179	920	284	<b>1,383</b>
<b>Halifax</b>	90	471	166	<b>727</b>
<b>St. John's</b>	59	256	64	<b>379</b>
<b>Total</b>	<b>4,369</b>	<b>19,981</b>	<b>5,944</b>	<b>30,294</b>

# Appendix C. Boundary Maps for 15 Canadian CMAs

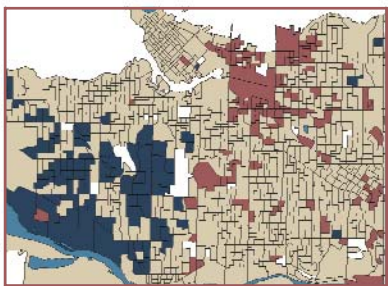
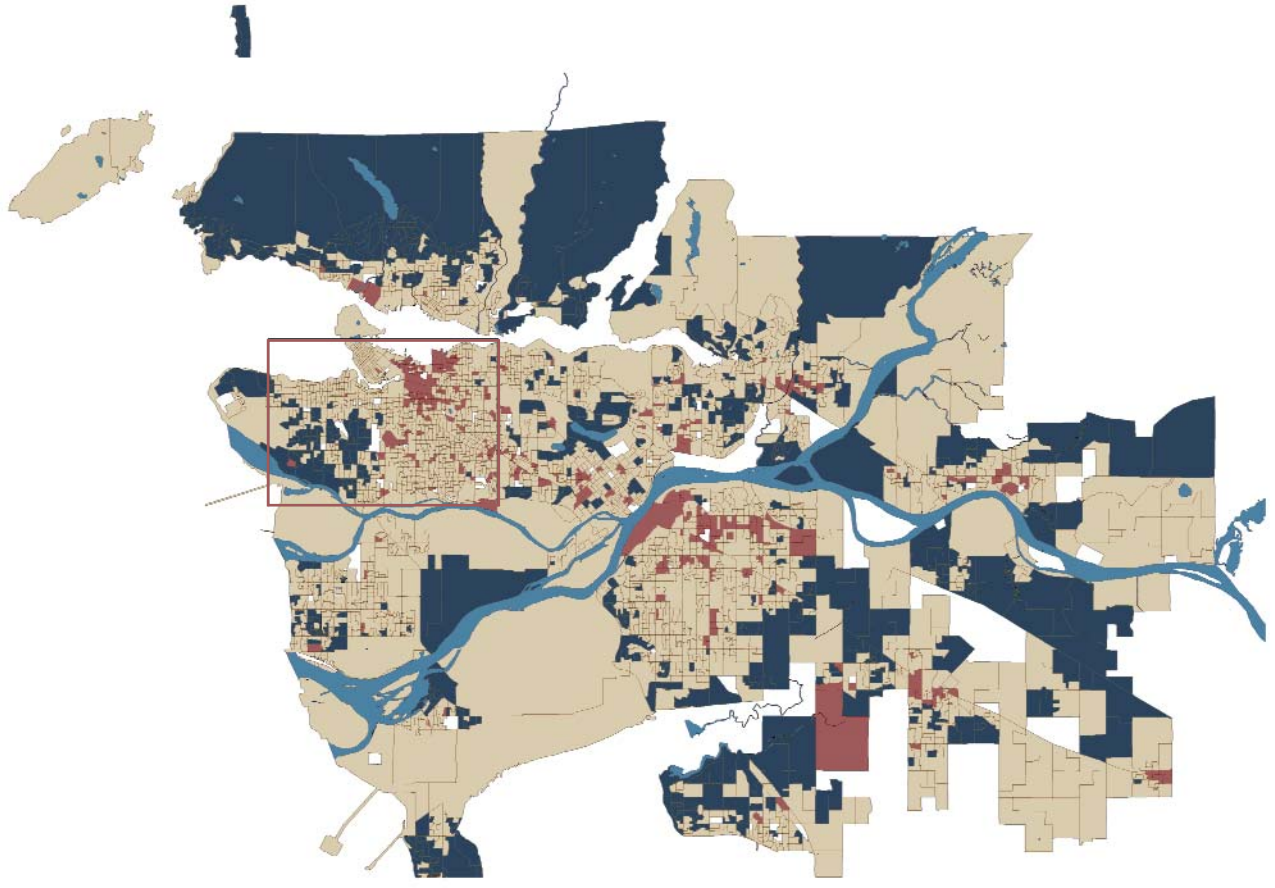
Map 1

Victoria, British Columbia



Map 2

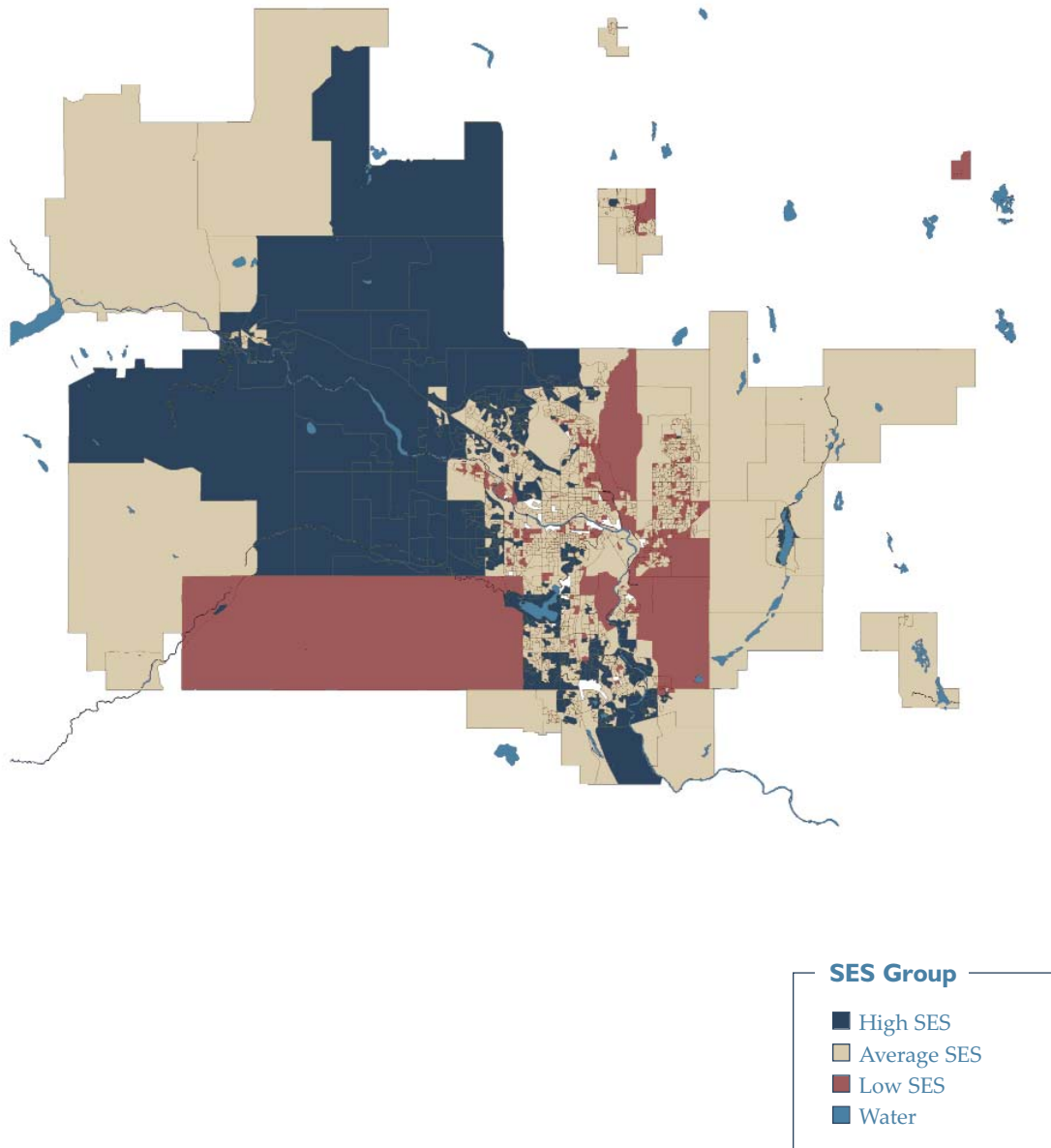
Vancouver, British Columbia



**SES Group**

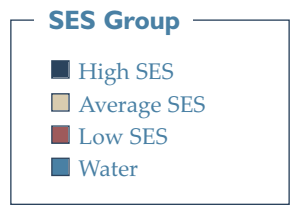
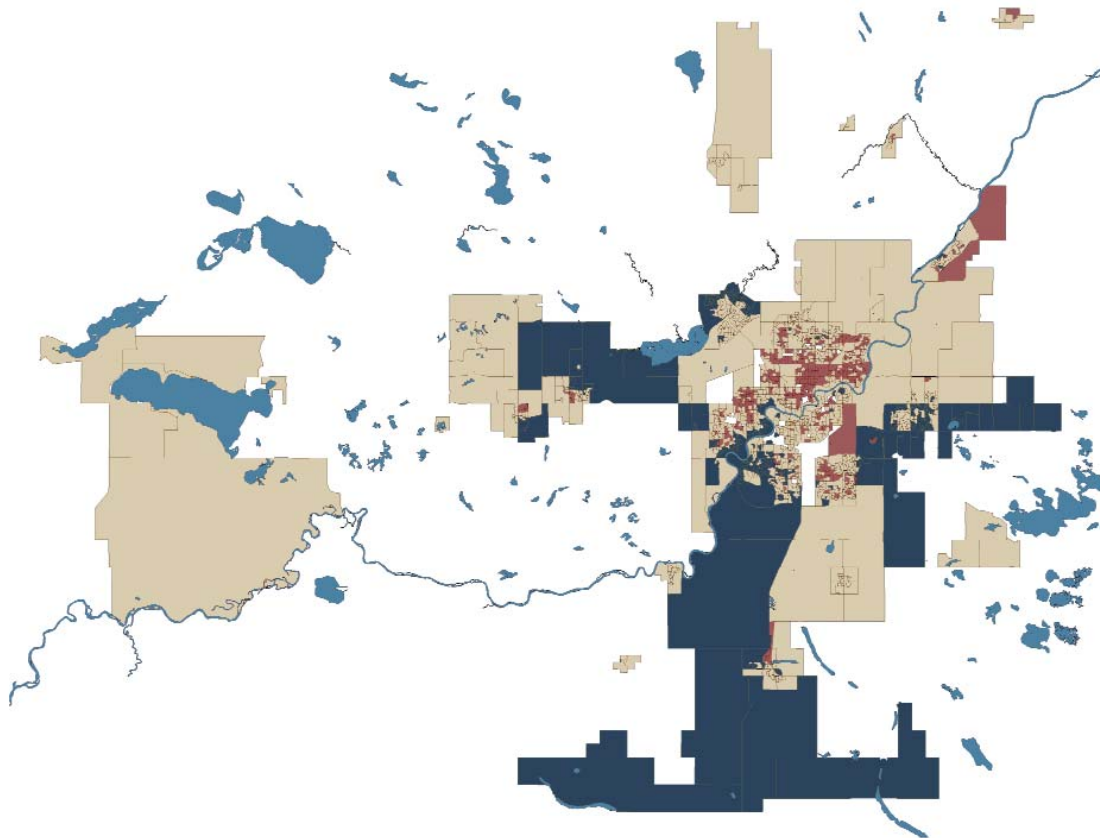
- High SES
- Average SES
- Low SES
- Water

### Calgary, Alberta

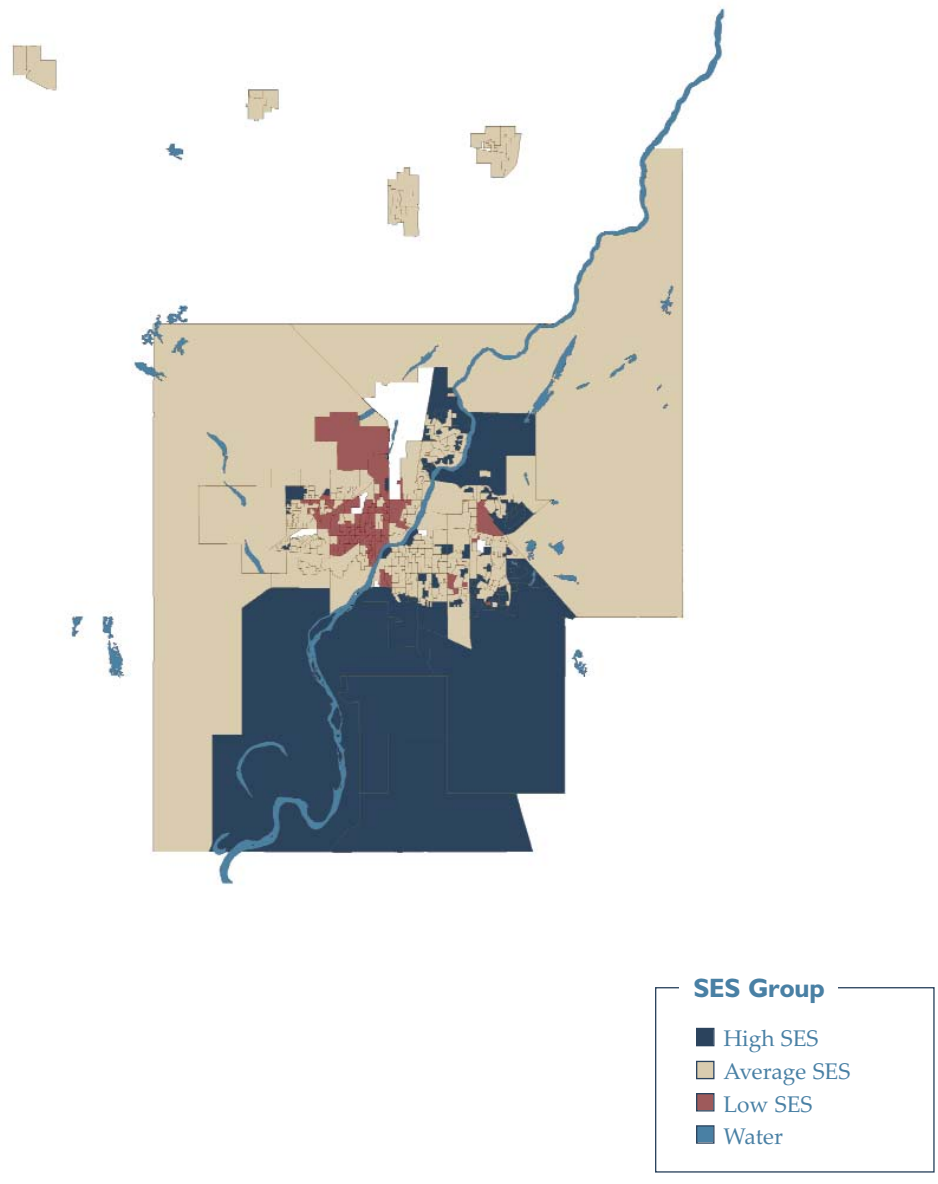


Map 4

Edmonton, Alberta

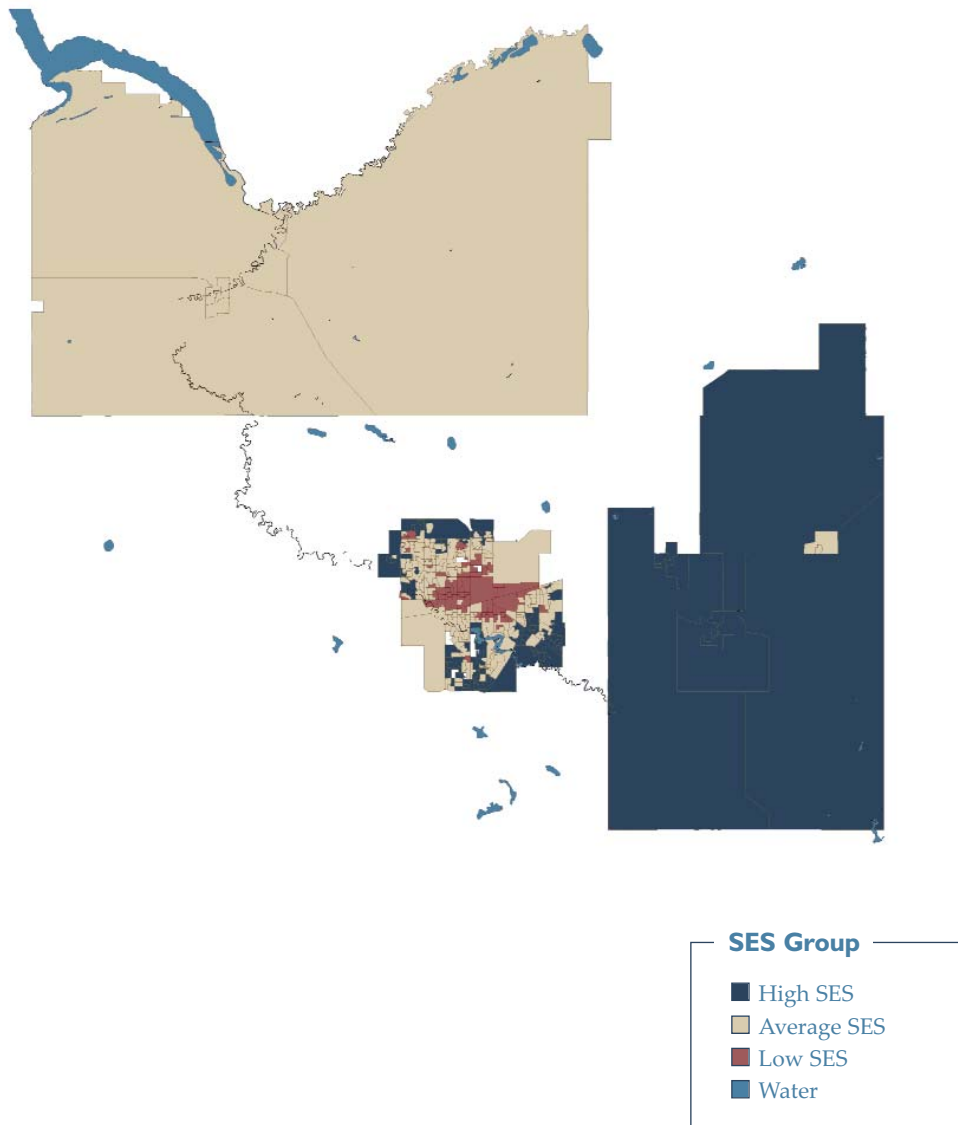


### Saskatoon, Saskatchewan

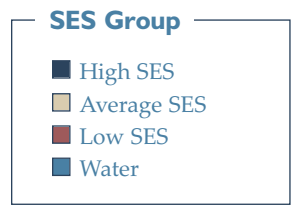
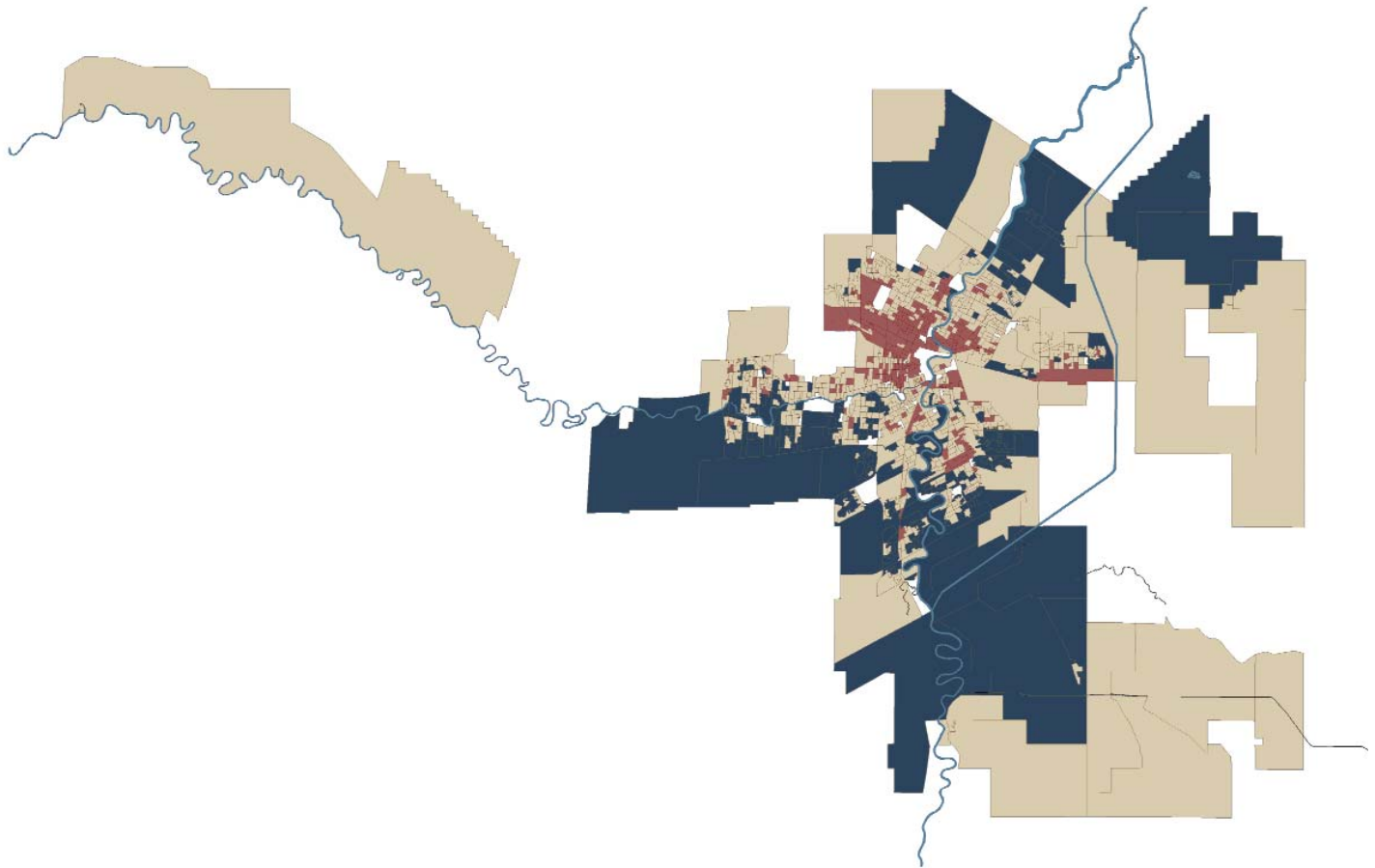


Map 6

### Regina, Saskatchewan



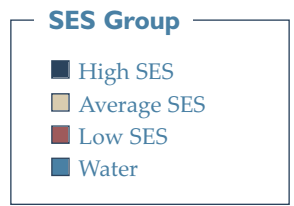
### Winnipeg, Manitoba



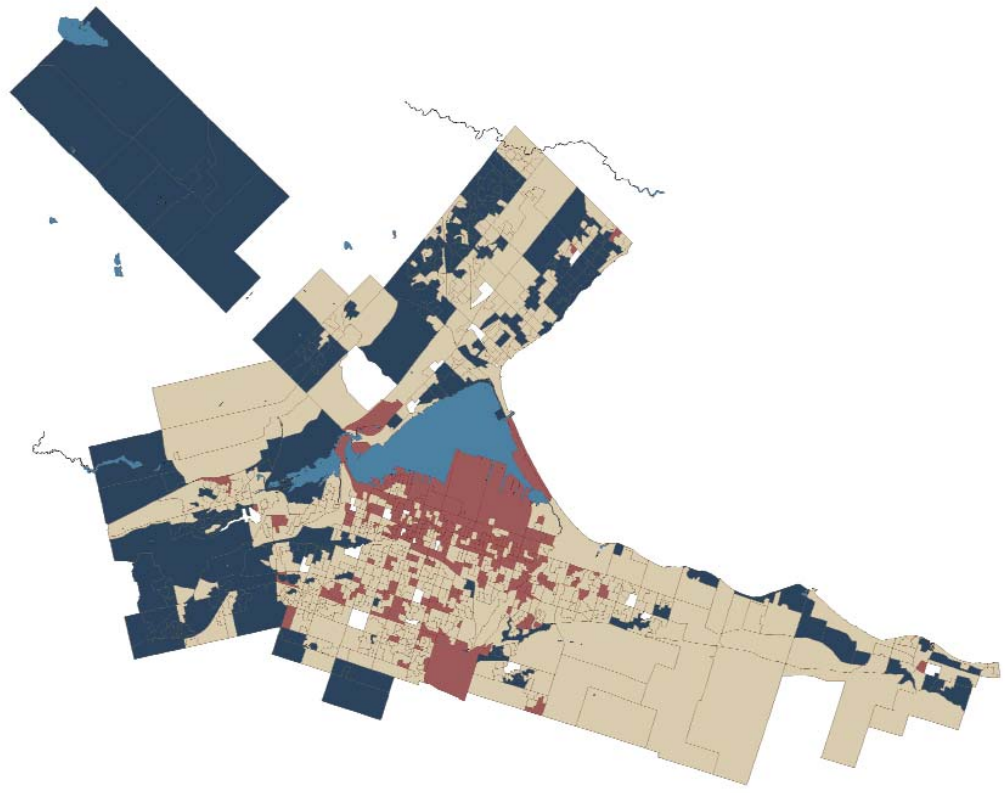


Map 8

London, Ontario



# Hamilton, Ontario

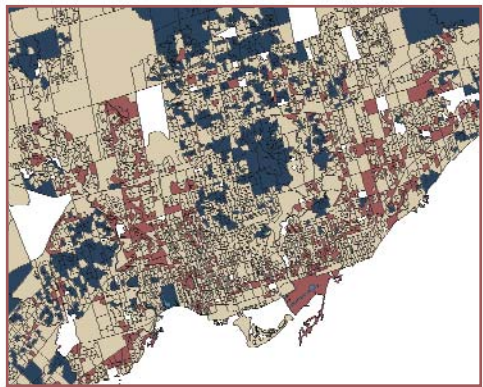


**SES Group**

- High SES
- Average SES
- Low SES
- Water

Map 10

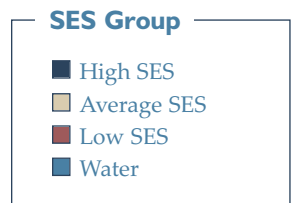
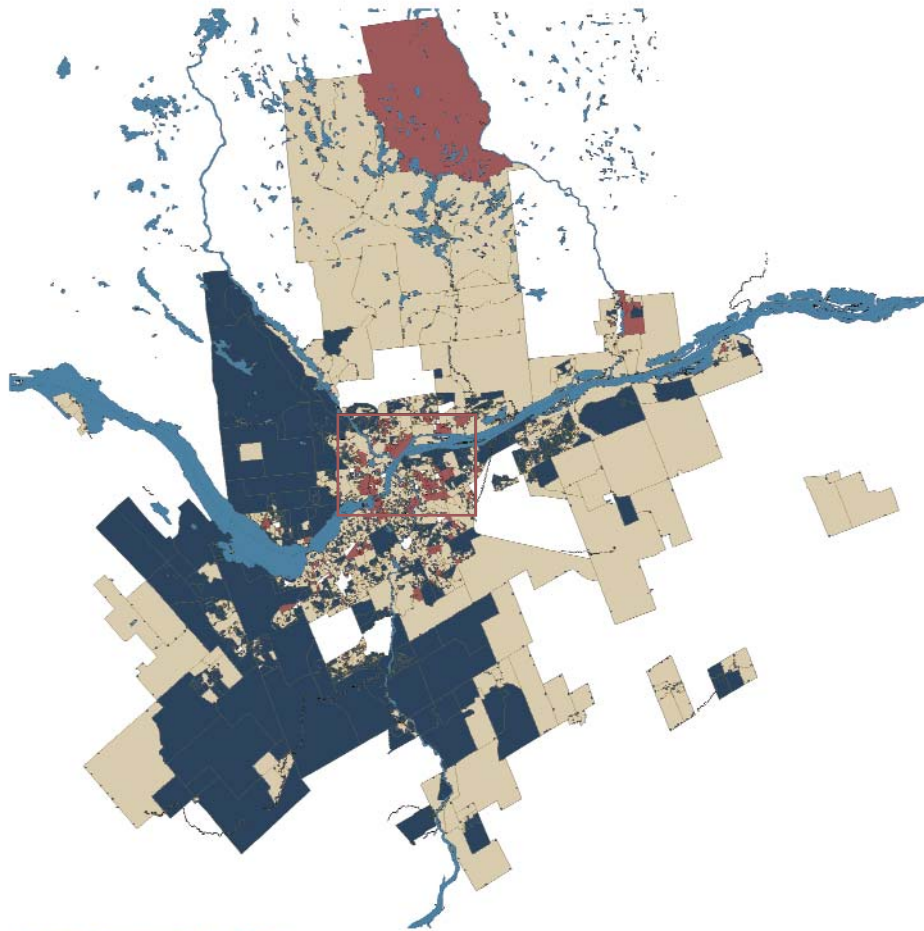
Toronto, Ontario



**SES Group**

- High SES
- Average SES
- Low SES
- Water

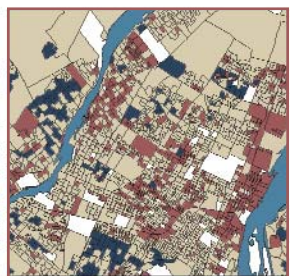
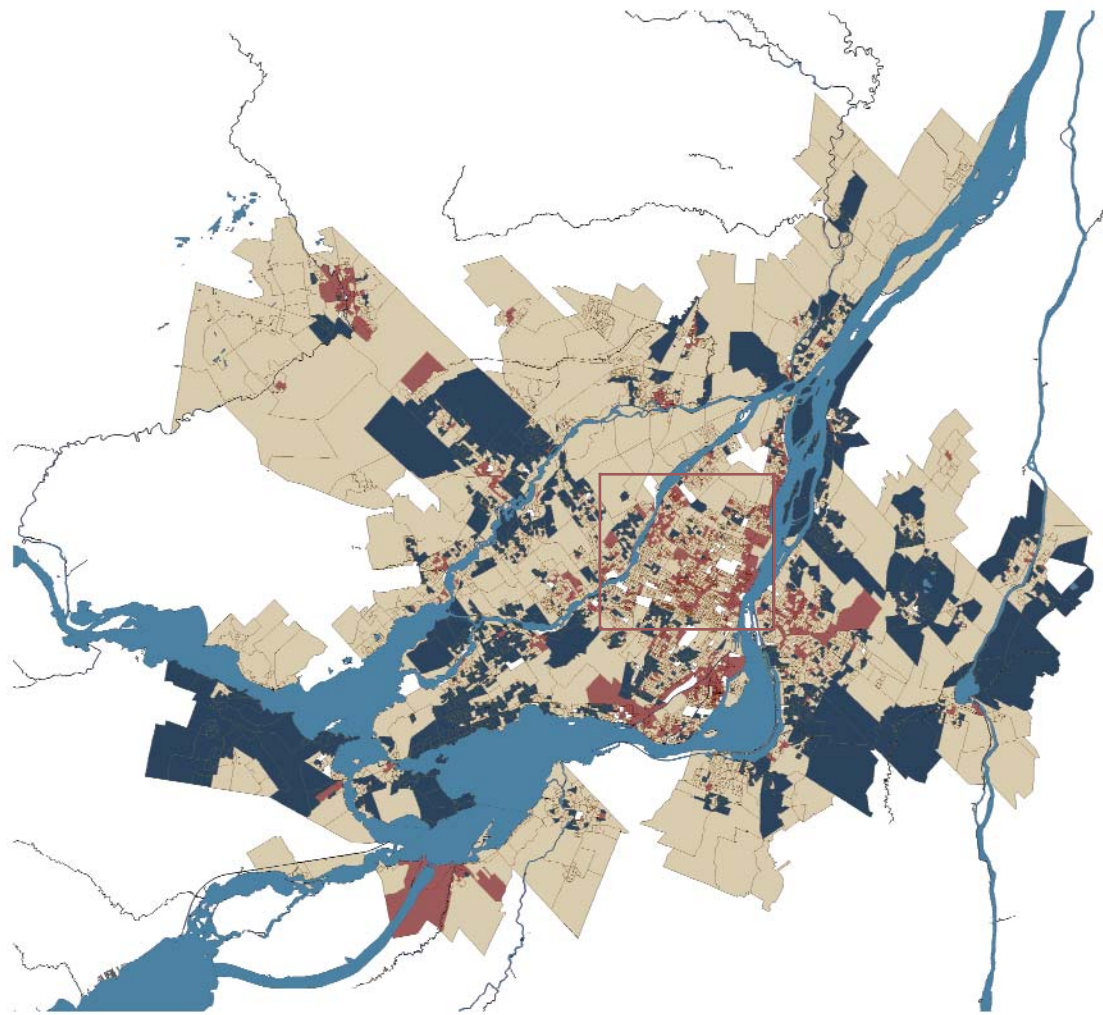
Ottawa, Ontario–Gatineau, Quebec





Map 12

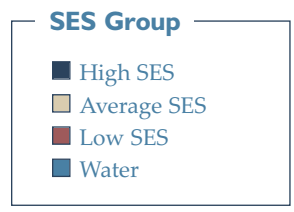
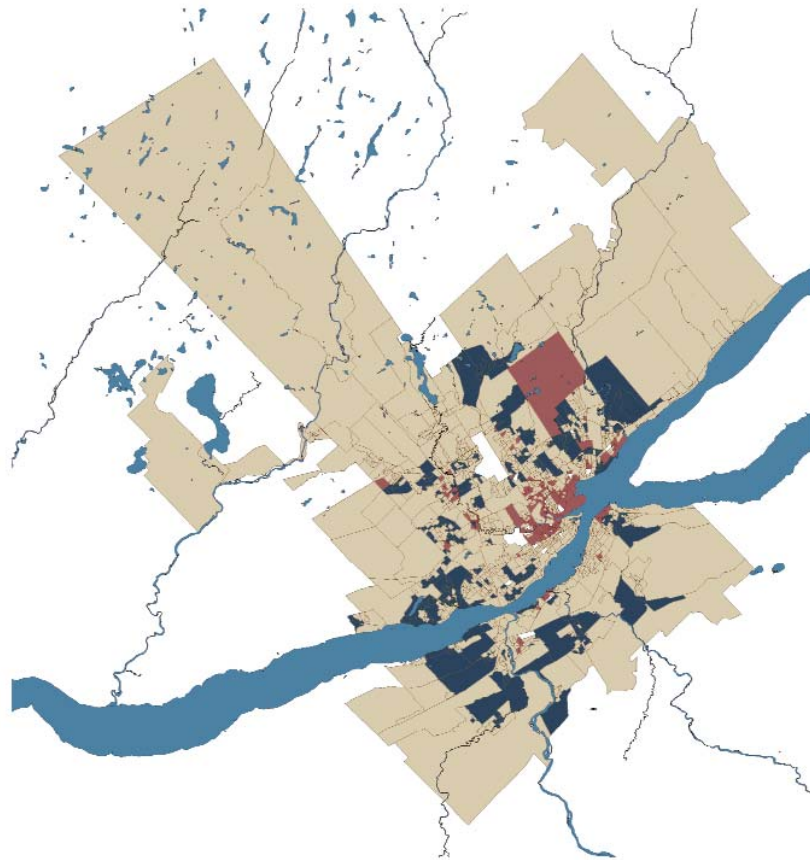
# Montréal, Quebec



**SES Group**

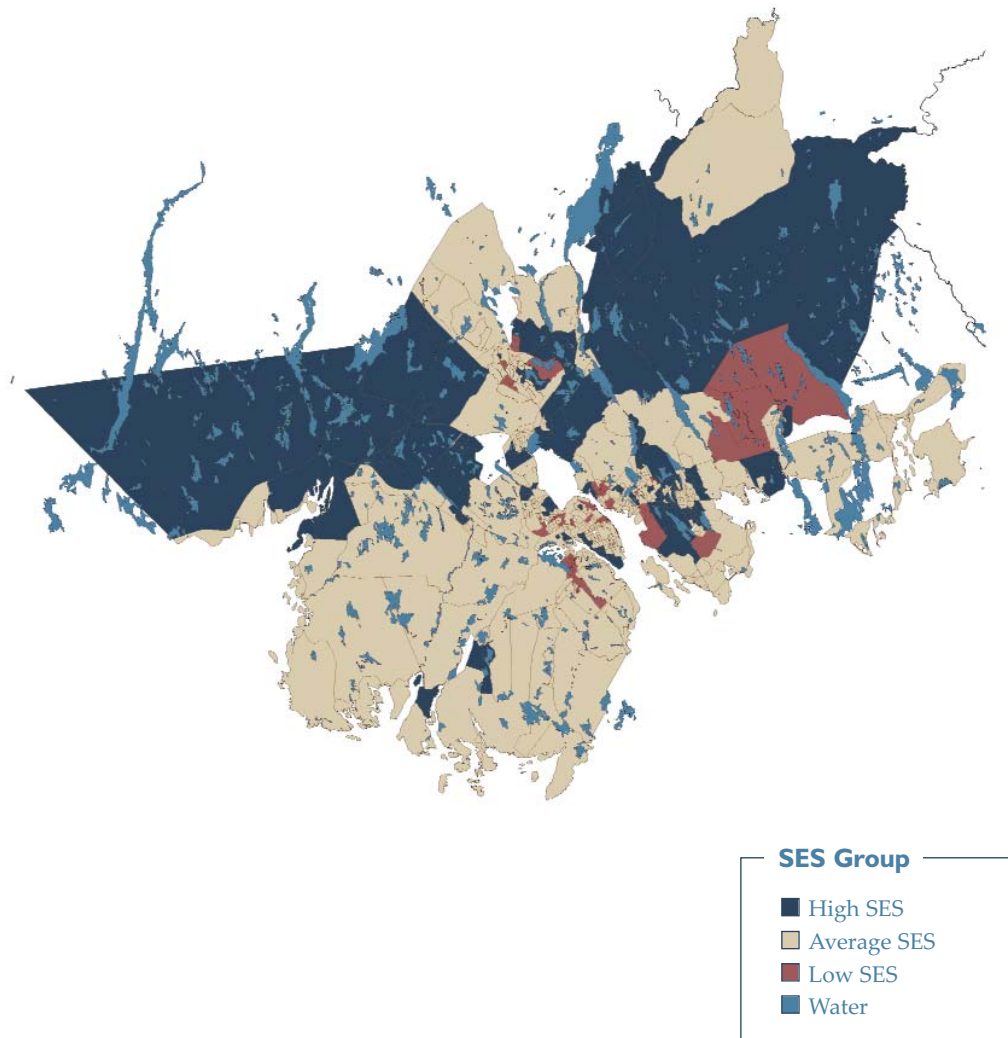
- High SES
- Average SES
- Low SES
- Water

Québec, Quebec

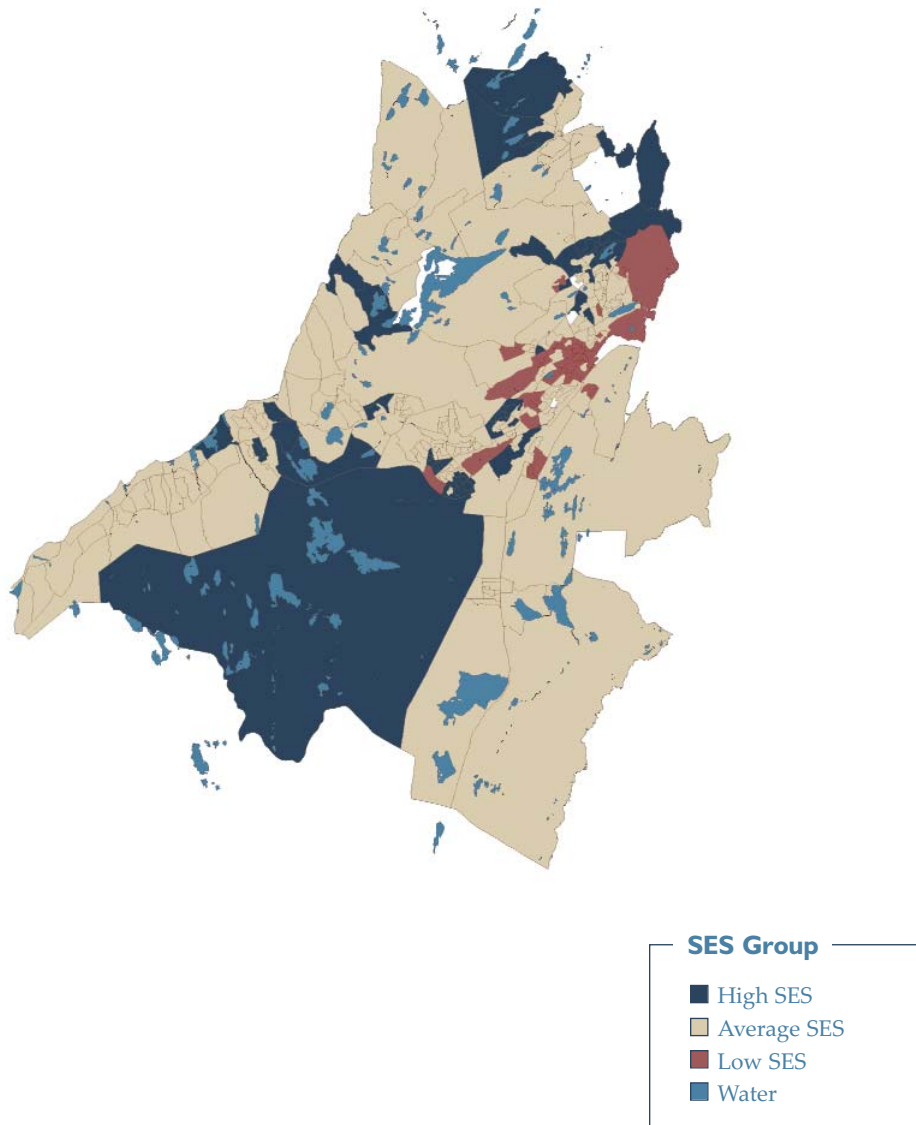


Map 14

### Halifax, Nova Scotia



### St. John's, Newfoundland and Labrador





## Appendix D. Detailed Data Tables

Table D.1

### Age-Standardized Pan-Canadian<sup>††</sup> Indicators<sup>\*\*</sup> Among Low–, Average– and High–Socio-Economic Status Groups

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
ACSC (Under 75 Years of Age)	458	285*	196*†
Diabetes (All Ages)	102	63*	43*†
COPD (20 Years of Age or Older)	301	179*	113*†
Asthma in Children (Under 20 Years of Age)	233	182*	149*†
Injuries (All Ages)	537	434*	386*†
Land Transport Accidents (All Ages)	78	66*	59*†
Unintentional Falls (All Ages)	288	251*	226*†
Injuries in Children (Under 20 Years of Age)	330	283*	274*†
<b>Mental Health (All Ages)</b>			
Anxiety Disorders (All Ages)	19	14*	12*†
Affective Disorders (All Ages)	168	118*	90*†
Substance-Related Disorders (All Ages)	100	48*	29*†
Low Birth Weight <sup>§</sup>	6.9	6.1*	5.6*†
<b>Self-Reported Health Percentages:</b>			
Self-Rated Health (Ages 12 and Over)	54	61*	67*†
Physical Inactivity (Ages 12 and Over)	50	46*	41*†
Smoking (Ages 12 and Over)	30	22*	17*†
Alcohol Binging (Ages 12 and Over)	22	20*	19*†
Overweight or Obese (Ages 18 and Over)	48	45*	44*
Risk Factors (Ages 18 and Over)	17	14*	11*†
Influenza Immunization (Ages 65 and Over)	63	65*	68*†
Activity Limitation (Ages 65 and Over)	57	53*	49*†

#### Notes

\* Significantly different from the low-SES rate at the 95% confidence level.

† Significantly different from the average-SES rate at the 95% confidence level.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

†† Age-standardized pan-Canadian includes all 15 CMAs examined in this report.

Table D.2

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Victoria CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>402</b>	<b>244*</b>	<b>153*†</b>
<b>Diabetes (All Ages)</b>	90	67*	46*†
<b>COPD (20 Years of Age or Older)</b>	<b>205</b>	<b>130*</b>	<b>79*†</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	251	223	123*†
<b>Injuries (All Ages)</b>	<b>759</b>	<b>630*</b>	<b>503*†</b>
<b>Land Transport Accidents (All Ages)</b>	121	103	90*
<b>Unintentional Falls (All Ages)</b>	<b>397</b>	<b>351*</b>	<b>271*†</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	440	445	353†
<b>Mental Health (All Ages)</b>	<b>985</b>	<b>608*</b>	<b>489*†</b>
<b>Anxiety Disorders (All Ages)</b>	40	26*	23*
<b>Affective Disorders (All Ages)</b>	<b>268</b>	<b>190*</b>	<b>147*†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>200</b>	<b>97*</b>	<b>79*</b>
<b>Low Birth Weight<sup>§</sup></b>	6.2	5.3	5.6
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	53	<b>66*</b>	<b>77*†</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>40</b>	<b>32*</b>	<b>24*†</b>
<b>Smoking (Ages 12 and Over)</b>	<b>23</b>	20	14**
<b>Alcohol Binging (Ages 12 and Over)</b>	21	21	14**
<b>Overweight or Obese (Ages 18 and Over)</b>	46	42	39
<b>Risk Factors (Ages 18 and Over)</b>	13‡	<b>10</b>	–
<b>Influenza Immunization (Ages 65 and Over)</b>	65	<b>72</b>	66
<b>Activity Limitation (Ages 65 and Over)</b>	64	58	<b>64</b>

**Notes**

– Represents suppressed data.

**Bold** indicates that the rate is significantly different from the pan-Canadian rate.

\* Significantly different from the low-SES rate at the 95% confidence level.

† Significantly different from the average-SES rate at the 95% confidence level.

‡ Interpret with caution.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.3

### Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Vancouver CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>390</b>	<b>236*</b>	<b>173**</b>
<b>Diabetes (All Ages)</b>	<b>94</b>	<b>62*</b>	<b>41**</b>
<b>COPD (20 Years of Age or Older)</b>	<b>313</b>	<b>161*</b>	<b>111**</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>158</b>	<b>115*</b>	<b>92**</b>
<b>Injuries (All Ages)</b>	<b>657</b>	<b>492*</b>	<b>462**</b>
<b>Land Transport Accidents (All Ages)</b>	<b>110</b>	<b>88*</b>	<b>80*</b>
<b>Unintentional Falls (All Ages)</b>	<b>353</b>	<b>281*</b>	<b>271*</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>358</b>	<b>308*</b>	<b>316*</b>
<b>Mental Health (All Ages)</b>	<b>890</b>	<b>446*</b>	<b>319**</b>
<b>Anxiety Disorders (All Ages)</b>	<b>22</b>	<b>14*</b>	<b>10**</b>
<b>Affective Disorders (All Ages)</b>	<b>252</b>	<b>145*</b>	<b>111**</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>164</b>	<b>70*</b>	<b>55**</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>6.1</b>	<b>5.9</b>	<b>4.9**</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>51</b>	<b>60*</b>	<b>69**</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>45</b>	<b>40*</b>	<b>35**</b>
<b>Smoking (Ages 12 and Over)</b>	<b>22</b>	<b>16*</b>	<b>11**</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>22</b>	<b>18</b>	<b>18</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	<b>39</b>	<b>36</b>	<b>37</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>12</b>	<b>10</b>	<b>7*</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>65</b>	<b>65</b>	<b>63</b>
<b>Activity Limitation (Ages 65 and Over)</b>	<b>61</b>	<b>52*</b>	<b>45*</b>

**Notes**

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\* Significantly different from the low-SES rate at the 95% confidence level.

† Significantly different from the average-SES rate at the 95% confidence level.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.4

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Calgary CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	478	<b>301*</b>	<b>162*†</b>
<b>Diabetes (All Ages)</b>	104	<b>73*</b>	40*†
<b>COPD (20 Years of Age or Older)</b>	<b>372</b>	<b>216*</b>	113*†
<b>Asthma in Children (Under 20 Years of Age)</b>	235	187*	134*†
<b>Injuries (All Ages)</b>	<b>683</b>	<b>539*</b>	<b>461*†</b>
<b>Land Transport Accidents (All Ages)</b>	<b>106</b>	<b>87*</b>	<b>75*†</b>
<b>Unintentional Falls (All Ages)</b>	<b>358</b>	<b>299*</b>	<b>253*†</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	345	298*	294*
<b>Mental Health (All Ages)</b>	<b>709</b>	<b>435*</b>	260*†
<b>Anxiety Disorders (All Ages)</b>	23	<b>18</b>	11*†
<b>Affective Disorders (All Ages)</b>	<b>142</b>	<b>99*</b>	<b>69*†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>155</b>	<b>76*</b>	<b>40*†</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>8.1</b>	<b>7.2*</b>	<b>6.9*</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	56	<b>66*</b>	<b>72*†</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	51	<b>42*</b>	<b>35*†</b>
<b>Smoking (Ages 12 and Over)</b>	28	20*	<b>12*†</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	26	21*	20
<b>Overweight or Obese (Ages 18 and Over)</b>	49	45	43
<b>Risk Factors (Ages 18 and Over)</b>	19	13*	9*†
<b>Influenza Immunization (Ages 65 and Over)</b>	68	65	<b>53</b>
<b>Activity Limitation (Ages 65 and Over)</b>	60	52	55

### Notes

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\* Significantly different from the low-SES rate at the 95% confidence level.

† Significantly different from the average-SES rate at the 95% confidence level.

‡ Interpret with caution.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.5

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Edmonton CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>506</b>	<b>306*</b>	<b>167**</b>
<b>Diabetes (All Ages)</b>	<b>136</b>	<b>88*</b>	<b>44†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>437</b>	<b>264*</b>	<b>141**</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>177</b>	172	<b>117**</b>
<b>Injuries (All Ages)</b>	<b>812</b>	<b>636*</b>	<b>487**</b>
<b>Land Transport Accidents (All Ages)</b>	<b>119</b>	<b>99*</b>	<b>71†</b>
<b>Unintentional Falls (All Ages)</b>	<b>365</b>	<b>325*</b>	<b>260**</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>430</b>	<b>367*</b>	291**
<b>Mental Health (All Ages)</b>	603	<b>352*</b>	<b>230**</b>
<b>Anxiety Disorders (All Ages)</b>	<b>15</b>	14	12
<b>Affective Disorders (All Ages)</b>	<b>155</b>	<b>112*</b>	<b>78†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>113</b>	49*	27†
<b>Low Birth Weight<sup>§</sup></b>	<b>7.8</b>	6.2*	6.0*
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	54	62*	<b>71**</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	51	47*	38†
<b>Smoking (Ages 12 and Over)</b>	34	23*	14†
<b>Alcohol Binging (Ages 12 and Over)</b>	19	21*	18
<b>Overweight or Obese (Ages 18 and Over)</b>	49	<b>49</b>	43†
<b>Risk Factors (Ages 18 and Over)</b>	20	15*	11*
<b>Influenza Immunization (Ages 65 and Over)</b>	59	67	60
<b>Activity Limitation (Ages 65 and Over)</b>	<b>68</b>	57	41**

**Notes**

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† Significantly different from the average-SES rate at the 95% confidence level.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.6

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Saskatoon CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>626</b>	<b>335*</b>	<b>185*†</b>
<b>Diabetes (All Ages)</b>	<b>219</b>	<b>101*</b>	<b>64*†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>403</b>	<b>230*</b>	<b>119*†</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>127</b>	<b>88</b>	<b>97</b>
<b>Injuries (All Ages)</b>	<b>1,042</b>	<b>530*</b>	<b>432*†</b>
<b>Land Transport Accidents (All Ages)</b>	<b>168</b>	<b>84*</b>	<b>61*†</b>
<b>Unintentional Falls (All Ages)</b>	<b>451</b>	<b>288*</b>	<b>255*</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>652</b>	<b>389*</b>	<b>326*</b>
<b>Mental Health (All Ages)</b>	<b>809</b>	<b>408*</b>	<b>245*†</b>
<b>Anxiety Disorders (All Ages)</b>	<b>20</b>	<b>12</b>	<b>9*</b>
<b>Affective Disorders (All Ages)</b>	<b>339</b>	<b>192*</b>	<b>121*†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>135</b>	<b>49*</b>	<b>21*†</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>8.1</b>	<b>5.2*</b>	<b>5.2*</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>54</b>	<b>65*</b>	<b>69*</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>51</b>	<b>46*</b>	<b>43*</b>
<b>Smoking (Ages 12 and Over)</b>	<b>39</b>	<b>22*</b>	<b>16*‡</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>28</b>	<b>23</b>	<b>24</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	<b>55</b>	<b>53</b>	<b>48</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>24</b>	<b>14*</b>	<b>15‡</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>66</b>	<b>62</b>	<b>59</b>
<b>Activity Limitation (Ages 65 and Over)</b>	<b>66</b>	<b>56</b>	<b>43‡</b>

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‡ Interpret with caution.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.7

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Regina CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>1,041</b>	<b>518*</b>	<b>274**</b>
<b>Diabetes (All Ages)</b>	<b>224</b>	<b>98*</b>	<b>53†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>559</b>	<b>307*</b>	<b>120**</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>728</b>	<b>518*</b>	<b>380**</b>
<b>Injuries (All Ages)</b>	<b>1,174</b>	<b>714*</b>	<b>540**</b>
<b>Land Transport Accidents (All Ages)</b>	<b>155</b>	<b>95*</b>	<b>82*</b>
<b>Unintentional Falls (All Ages)</b>	<b>562</b>	<b>403*</b>	<b>285**</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>887</b>	<b>635*</b>	<b>512**</b>
<b>Mental Health (All Ages)</b>	<b>1,094</b>	<b>467*</b>	<b>245**</b>
<b>Anxiety Disorders (All Ages)</b>	<b>44</b>	<b>23*</b>	<b>18*</b>
<b>Affective Disorders (All Ages)</b>	<b>348</b>	<b>150*</b>	<b>100**</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>230</b>	<b>75*</b>	<b>27**</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>6.6</b>	<b>5.5</b>	<b>6.2</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>50</b>	<b>63*</b>	<b>75**</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>55</b>	<b>43*</b>	<b>35**</b>
<b>Smoking (Ages 12 and Over)</b>	<b>38</b>	<b>21*</b>	<b>17**</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>26</b>	<b>24</b>	<b>20‡</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	<b>54</b>	<b>52</b>	<b>51</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>22</b>	<b>17</b>	<b>12**</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>58</b>	<b>69</b>	<b>70</b>
<b>Activity Limitation (Ages 65 and Over)</b>	<b>58</b>	<b>61</b>	<b>55</b>

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‡ Interpret with caution.

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\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.8

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Winnipeg CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>546</b>	295*	<b>161*†</b>
<b>Diabetes (All Ages)</b>	<b>175</b>	<b>84*</b>	47*†
<b>COPD (20 Years of Age or Older)</b>	<b>353</b>	<b>217*</b>	<b>131*†</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	234	<b>149*</b>	<b>77*†</b>
<b>Injuries (All Ages)</b>	<b>833</b>	<b>469*</b>	376*†
<b>Land Transport Accidents (All Ages)</b>	<b>94</b>	<b>59*</b>	<b>49*†</b>
<b>Unintentional Falls (All Ages)</b>	<b>395</b>	<b>265*</b>	219*†
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>485</b>	<b>246*</b>	<b>194*†</b>
<b>Mental Health (All Ages)</b>	<b>944</b>	<b>467*</b>	<b>310*†</b>
<b>Anxiety Disorders (All Ages)</b>	<b>27</b>	<b>11*</b>	<b>7*†</b>
<b>Affective Disorders (All Ages)</b>	<b>231</b>	<b>155*</b>	<b>108*†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>230</b>	<b>84*</b>	<b>46*†</b>
<b>Low Birth Weight<sup>§</sup></b>	6.6	5.8*	5.2*
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	56	62*	<b>71*†</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	55	47*	39*†
<b>Smoking (Ages 12 and Over)</b>	31	21*	17*
<b>Alcohol Binging (Ages 12 and Over)</b>	23	22	17*†
<b>Overweight or Obese (Ages 18 and Over)</b>	51	<b>51</b>	47
<b>Risk Factors (Ages 18 and Over)</b>	19	14*	13*
<b>Influenza Immunization (Ages 65 and Over)</b>	56	63	72*
<b>Activity Limitation (Ages 65 and Over)</b>	65	57	50*

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\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.



Table D.9

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the London CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>580</b>	<b>318*</b>	<b>166**</b>
<b>Diabetes (All Ages)</b>	<b>138</b>	<b>83*</b>	<b>39†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>417</b>	<b>185*</b>	<b>88**</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	217	189	133**
<b>Injuries (All Ages)</b>	<b>615</b>	<b>478*</b>	<b>367**</b>
<b>Land Transport Accidents (All Ages)</b>	<b>92</b>	<b>71*</b>	<b>61*</b>
<b>Unintentional Falls (All Ages)</b>	<b>331</b>	<b>265*</b>	<b>200**</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	336	303	295
<b>Mental Health (All Ages)</b>	<b>720</b>	<b>423*</b>	<b>256**</b>
<b>Anxiety Disorders (All Ages)</b>	<b>49</b>	<b>26*</b>	<b>11†</b>
<b>Affective Disorders (All Ages)</b>	<b>293</b>	<b>179*</b>	<b>106**</b>
<b>Substance-Related Disorders (All Ages)</b>	101	51*	24†
<b>Low Birth Weight<sup>§</sup></b>	6.6	6.5	5.6
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	55	61*	70†
<b>Physical Inactivity (Ages 12 and Over)</b>	49	<b>42*</b>	<b>38†</b>
<b>Smoking (Ages 12 and Over)</b>	28	22*	<b>11**</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	22	<b>23</b>	<b>15**</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	52	<b>49</b>	<b>42†</b>
<b>Risk Factors (Ages 18 and Over)</b>	17	14	<b>8**</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	69	<b>73</b>	<b>79</b>
<b>Activity Limitation (Ages 65 and Over)</b>	57	58	48

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‡ Interpret with caution.

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\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.10

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Hamilton CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>594</b>	<b>346*</b>	<b>239*†</b>
<b>Diabetes (All Ages)</b>	<b>144</b>	<b>87*</b>	<b>54*†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>348</b>	<b>188*</b>	<b>111*†</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>195</b>	<b>133*</b>	<b>109*</b>
<b>Injuries (All Ages)</b>	<b>623</b>	<b>474*</b>	<b>398*†</b>
<b>Land Transport Accidents (All Ages)</b>	<b>78</b>	<b>57*</b>	<b>54*</b>
<b>Unintentional Falls (All Ages)</b>	<b>323</b>	<b>276*</b>	<b>222*†</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>379</b>	<b>295*</b>	<b>268*</b>
<b>Mental Health (All Ages)</b>	<b>557</b>	<b>351*</b>	<b>256*†</b>
<b>Anxiety Disorders (All Ages)</b>	<b>12</b>	<b>11</b>	<b>11</b>
<b>Affective Disorders (All Ages)</b>	<b>219</b>	<b>153*</b>	<b>123*†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>56</b>	<b>32*</b>	<b>21*†</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>7.2</b>	<b>6.1*</b>	<b>5.1*†</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>52</b>	<b>61*</b>	<b>70*†</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>49</b>	<b>43*</b>	<b>41*†</b>
<b>Smoking (Ages 12 and Over)</b>	<b>32</b>	<b>22*</b>	<b>21*</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>26</b>	<b>21*</b>	<b>23</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	<b>50</b>	<b>53</b>	<b>47†</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>22</b>	<b>15*</b>	<b>13*</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>72</b>	<b>71</b>	<b>74</b>
<b>Activity Limitation (Ages 65 and Over)</b>	<b>66</b>	<b>59</b>	<b>48*†</b>

### Notes

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§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.11

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Toronto CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>360</b>	<b>257*</b>	<b>208**</b>
<b>Diabetes (All Ages)</b>	<b>96</b>	<b>60*</b>	<b>50**</b>
<b>COPD (20 Years of Age or Older)</b>	<b>194</b>	<b>133*</b>	<b>88**</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>199</b>	<b>180*</b>	<b>167**</b>
<b>Injuries (All Ages)</b>	<b>397</b>	<b>350*</b>	<b>334**</b>
<b>Land Transport Accidents (All Ages)</b>	<b>54</b>	<b>47*</b>	<b>48*</b>
<b>Unintentional Falls (All Ages)</b>	<b>226</b>	<b>208*</b>	<b>197**</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>237</b>	<b>219*</b>	<b>224</b>
<b>Mental Health (All Ages)</b>	<b>514</b>	<b>331*</b>	<b>251**</b>
<b>Anxiety Disorders (All Ages)</b>	<b>15</b>	<b>11*</b>	<b>10*</b>
<b>Affective Disorders (All Ages)</b>	<b>171</b>	<b>124*</b>	<b>106**</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>52</b>	<b>31*</b>	<b>23**</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>7.2</b>	<b>6.6*</b>	<b>6.2**</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>52</b>	<b>60*</b>	<b>64**</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>55</b>	<b>49*</b>	<b>43**</b>
<b>Smoking (Ages 12 and Over)</b>	<b>21</b>	<b>19</b>	<b>17*</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>16</b>	<b>18</b>	<b>17</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	<b>45</b>	<b>42</b>	<b>41*</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>13</b>	<b>12</b>	<b>9**</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>63</b>	<b>67</b>	<b>76**</b>
<b>Activity Limitation (Ages 65 and Over)</b>	<b>58</b>	<b>51*</b>	<b>45*</b>

**Notes**

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† Significantly different from the average-SES rate at the 95% confidence level.

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\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.12

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Ottawa-Gatineau CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>248</b>	<b>181*</b>	<b>132*†</b>
<b>Diabetes (All Ages)</b>	<b>54</b>	<b>42*</b>	<b>33*†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>189</b>	<b>141*</b>	<b>104*†</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>109</b>	<b>80*</b>	<b>71*</b>
<b>Injuries (All Ages)</b>	<b>325</b>	<b>332</b>	<b>308†</b>
<b>Land Transport Accidents (All Ages)</b>	<b>41</b>	<b>42</b>	<b>41</b>
<b>Unintentional Falls (All Ages)</b>	<b>185</b>	<b>209*</b>	<b>193†</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>183</b>	<b>181</b>	<b>180</b>
<b>Mental Health (All Ages)</b>	<b>398</b>	<b>276*</b>	<b>198*†</b>
<b>Anxiety Disorders (All Ages)</b>	<b>10</b>	<b>7</b>	<b>7</b>
<b>Affective Disorders (All Ages)</b>	<b>131</b>	<b>98*</b>	<b>71*†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>36</b>	<b>21*</b>	<b>12*†</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>6.8</b>	<b>5.7*</b>	<b>4.9*†</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>53</b>	<b>63*</b>	<b>66*</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>48</b>	<b>43*</b>	<b>38*</b>
<b>Smoking (Ages 12 and Over)</b>	<b>31</b>	<b>20*</b>	<b>13*†</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>20</b>	<b>19</b>	<b>17</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	<b>49</b>	<b>46</b>	<b>47</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>19</b>	<b>13*</b>	<b>10*</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>73</b>	<b>73</b>	<b>74</b>
<b>Activity Limitation (Ages 65 and Over)</b>	<b>57</b>	<b>56</b>	<b>61</b>

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§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.13

### Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Montréal CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>518</b>	<b>345*</b>	<b>226**</b>
<b>Diabetes (All Ages)</b>	<b>85</b>	<b>53*</b>	<b>36**†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>337</b>	<b>214*</b>	<b>134**†</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>309</b>	<b>255*</b>	<b>201**†</b>
<b>Injuries (All Ages)</b>	<b>448</b>	<b>409*</b>	<b>368**†</b>
<b>Land Transport Accidents (All Ages)</b>	<b>71</b>	<b>67</b>	<b>60**†</b>
<b>Unintentional Falls (All Ages)</b>	<b>255</b>	<b>242*</b>	<b>224**†</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>318</b>	<b>306</b>	<b>310</b>
<b>Mental Health (All Ages)</b>	<b>459</b>	<b>343*</b>	<b>253**†</b>
<b>Anxiety Disorders (All Ages)</b>	<b>17</b>	<b>15</b>	<b>14</b>
<b>Affective Disorders (All Ages)</b>	<b>103</b>	<b>87*</b>	<b>71**†</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>75</b>	<b>44*</b>	<b>23**†</b>
<b>Low Birth Weight<sup>§</sup></b>	<b>6.3</b>	<b>5.5*</b>	<b>5.1**†</b>
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>53</b>	<b>61*</b>	<b>66**†</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	<b>53</b>	<b>51*</b>	<b>45**†</b>
<b>Smoking (Ages 12 and Over)</b>	<b>32</b>	<b>26*</b>	<b>20**†</b>
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>19</b>	<b>18</b>	<b>18</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	<b>45</b>	<b>43</b>	<b>43</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>14</b>	<b>14</b>	<b>12</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>52</b>	<b>56</b>	<b>63*</b>
<b>Activity Limitation (Ages 65 and Over)</b>	<b>49</b>	<b>45</b>	<b>49</b>

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§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.14

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Québec CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>436</b>	<b>273*</b>	<b>213*†</b>
<b>Diabetes (All Ages)</b>	<b>65</b>	<b>32*</b>	<b>28*</b>
<b>COPD (20 Years of Age or Older)</b>	305	192*	170*†
<b>Asthma in Children (Under 20 Years of Age)</b>	151	118	102*
<b>Injuries (All Ages)</b>	539	471*	442*†
<b>Land Transport Accidents (All Ages)</b>	85	74	71
<b>Unintentional Falls (All Ages)</b>	312	287*	274*
<b>Injuries in Children (Under 20 Years of Age)</b>	401	389	354
<b>Mental Health (All Ages)</b>	763	431*	282*†
<b>Anxiety Disorders (All Ages)</b>	36	36	26*†
<b>Affective Disorders (All Ages)</b>	136	100*	73*†
<b>Substance-Related Disorders (All Ages)</b>	276	94*	51*†
<b>Low Birth Weight<sup>§</sup></b>	6.5	5.2*	4.9*
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	56	65*	71*†
<b>Physical Inactivity (Ages 12 and Over)</b>	50	50*	43*†
<b>Smoking (Ages 12 and Over)</b>	30	22*	13*†
<b>Alcohol Binging (Ages 12 and Over)</b>	22	22	19
<b>Overweight or Obese (Ages 18 and Over)</b>	40	42	37
<b>Risk Factors (Ages 18 and Over)</b>	16	15	10**
<b>Influenza Immunization (Ages 65 and Over)</b>	59	65	57
<b>Activity Limitation (Ages 65 and Over)</b>	47	49	45

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‡ Interpret with caution.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.15

### Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the Halifax CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>645</b>	<b>317*</b>	219*†
<b>Diabetes (All Ages)</b>	104	<b>53*</b>	47*
<b>COPD (20 Years of Age or Older)</b>	<b>364</b>	<b>191*</b>	124*†
<b>Asthma in Children (Under 20 Years of Age)</b>	<b>680</b>	<b>336*</b>	<b>271**</b>
<b>Injuries (All Ages)</b>	<b>472</b>	<b>381*</b>	<b>310**</b>
<b>Land Transport Accidents (All Ages)</b>	72	<b>47*</b>	49*
<b>Unintentional Falls (All Ages)</b>	<b>252</b>	<b>240</b>	<b>193**</b>
<b>Injuries in Children (Under 20 Years of Age)</b>	<b>428</b>	291*	269*
<b>Mental Health (All Ages)</b>	<b>396</b>	<b>192*</b>	<b>115**</b>
<b>Anxiety Disorders (All Ages)</b>	12	<b>7*</b>	<b>3**</b>
<b>Affective Disorders (All Ages)</b>	<b>79</b>	<b>43*</b>	<b>22**</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>52</b>	<b>21*</b>	<b>17*</b>
<b>Low Birth Weight<sup>§</sup></b>	6.8	5.6	5.2
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	52	<b>66*</b>	68*
<b>Physical Inactivity (Ages 12 and Over)</b>	51	46*	44*
<b>Smoking (Ages 12 and Over)</b>	32	<b>19*</b>	15**
<b>Alcohol Binging (Ages 12 and Over)</b>	27	<b>25</b>	<b>29</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	51	<b>49</b>	52
<b>Risk Factors (Ages 18 and Over)</b>	21	16	17‡
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>79</b>	69	74
<b>Activity Limitation (Ages 65 and Over)</b>	53	<b>62</b>	56

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‡ Interpret with caution.

§ Low birth weight is presented as a rate per 100 live births (including babies weighing ≥500 grams but ≤2,499 grams) among all live births in acute care institutions; this is not an age-standardized rate.

\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.

Table D.16

## Age-Standardized Indicators\*\* Among Low-, Average- and High-Socio-Economic Status Groups in the St. John's CMA

	Low SES	Average SES	High SES
<b>Hospitalization Rates:</b>			
<b>ACSC (Under 75 Years of Age)</b>	<b>588</b>	<b>423*</b>	<b>271*†</b>
<b>Diabetes (All Ages)</b>	<b>143</b>	<b>134</b>	<b>96*†</b>
<b>COPD (20 Years of Age or Older)</b>	<b>381</b>	<b>253*</b>	<b>164*†</b>
<b>Asthma in Children (Under 20 Years of Age)</b>	295	249	200
<b>Injuries (All Ages)</b>	<b>487</b>	416*	381*
<b>Land Transport Accidents (All Ages)</b>	<b>60</b>	61	60
<b>Unintentional Falls (All Ages)</b>	270	240	223
<b>Injuries in Children (Under 20 Years of Age)</b>	363	<b>347</b>	<b>353</b>
<b>Mental Health (All Ages)</b>	<b>297</b>	<b>188*</b>	<b>130*†</b>
<b>Anxiety Disorders (All Ages)</b>	16	8	<b>2*†</b>
<b>Affective Disorders (All Ages)</b>	<b>132</b>	<b>67*</b>	<b>55*</b>
<b>Substance-Related Disorders (All Ages)</b>	<b>45</b>	<b>32</b>	<b>14*†</b>
<b>Low Birth Weight<sup>§</sup></b>	7.4	6.2	5.3
<b>Self-Reported Health Percentages:</b>			
<b>Self-Rated Health (Ages 12 and Over)</b>	<b>63</b>	<b>67</b>	<b>75*†</b>
<b>Physical Inactivity (Ages 12 and Over)</b>	52	50	48*†
<b>Smoking (Ages 12 and Over)</b>	32	20*	19*
<b>Alcohol Binging (Ages 12 and Over)</b>	<b>39</b>	<b>27*</b>	<b>31</b>
<b>Overweight or Obese (Ages 18 and Over)</b>	52	<b>55</b>	<b>53</b>
<b>Risk Factors (Ages 18 and Over)</b>	<b>24</b>	<b>18</b>	<b>18</b>
<b>Influenza Immunization (Ages 65 and Over)</b>	<b>41†</b>	<b>50</b>	53
<b>Activity Limitation (Ages 65 and Over)</b>	45†	47	61

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‡ Interpret with caution.

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\*\* ACSC, diabetes, COPD, asthma in children, injuries, land transport accidents, unintentional falls, injuries in children, mental health, anxiety disorders, affective disorders and substance-related disorders are hospitalization rates (per 100,000 people), Canadian Institute for Health Information. All other indicators are percentages of self-reported health collected from the CCHS, cycles 2.1 and 3.1 combined, Statistics Canada.



## Appendix E. Glossary of Indicators

**Affective disorders:** These are mood disorders.<sup>95</sup> The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR) states that mood disorders are divided into depressive disorders (“unipolar depression”), bipolar disorders and two disorders based on etiology—mood disorder due to a general medical condition and substance-induced mood disorder.<sup>96</sup>

**Alcohol intake (heavy drinking), referred to as “alcohol bingeing”:** Population who reported being a current drinker (having five or more drinks on one occasion), 12 or more times a year.<sup>87</sup>

**Ambulatory care sensitive conditions (ACSC):** Encompasses those conditions where proper or appropriate ambulatory care (that is, medical care provided on an outpatient basis)<sup>97</sup> can reduce or perhaps prevent the need for hospital admission. For this report, these conditions include grand mal status and other epileptic convulsions, chronic obstructive pulmonary disease, asthma, heart failure and pulmonary edema, hypertension, angina and diabetes.<sup>98</sup>

**Anxiety disorders:** Anxiety is the unpleasant emotional state consisting of psychophysiological responses to anticipation of unreal or imagined danger, ostensibly resulting from unrecognized intrapsychic conflict leading to increased heart rate, altered respiration rate, sweating, trembling, weakness and fatigue; psychological concomitants include feelings of impending danger, powerlessness, apprehension and tension.<sup>99</sup> Anxiety disorders are disorders in which anxiety is the predominant disturbance.<sup>100</sup> Phobias, obsessive-compulsive disorder and post-traumatic stress disorder are examples of some of the anxiety disorders listed in the DSM-IV.<sup>96</sup>

**Asthma in children:** A disease process that is characterized by paradoxical narrowing of the bronchi (lung passageways), making breathing difficult among people under 20 years of age.<sup>101</sup>

**Chronic obstructive pulmonary disease (COPD):** A progressive disease process that most commonly results from smoking. COPD is characterized by difficulty breathing, wheezing and a chronic cough.<sup>102</sup>

**Diabetes:** Relative or absolute lack of insulin leading to uncontrolled carbohydrate metabolism. In juvenile-onset diabetes (that may be an autoimmune response to pancreatic cells) the insulin deficiency tends to be almost total, whereas in adult-onset diabetes there seems to be no immunological component but an association with obesity.<sup>103</sup>

**Influenza immunization:** Population who report that they received an influenza immunization within the previous 12 months.<sup>87</sup>

**Injuries:** Acute care hospitalization due to injury resulting from the transfer of energy (excluding poisoning and other non-traumatic injuries).<sup>98</sup>

**Injuries in children:** Acute care hospitalization due to injury resulting from the transfer of energy (excluding poisoning and other non-traumatic injuries) among people under 20 years of age.<sup>98</sup>

**Land transport accidents:** Includes injuries that happen to drivers, passengers of vehicles, pedestrians or persons injured in collisions when their modes of transportation are unknown. Injuries due to air, water or space transportation are not included.<sup>98</sup>

**Low birth weight:** Includes babies that weigh less than 2,500 grams when born, but excludes babies that weigh less than 500 grams.<sup>98</sup>

**Mental health:** The mental health indicator identifies hospitalization rates for a variety of mental health issues (that is, anxiety disorders, affective disorders, substance-related disorders and organic disorders).<sup>98</sup>

**Overweight or obese:** Population with a body mass index (BMI) of 25 or greater. According to World Health Organization and Health Canada guidelines, a BMI of 25 or greater is classified as overweight and is associated with increased health risk. A BMI of 30 or greater is classified as obese and is associated with high health risk. BMI is calculated from self-reported weight and height collected from respondents by dividing body weight (in kilograms) by height (in metres squared).<sup>87</sup>

**Participation and activity limitation:** Population who report being limited in selected activities (home, school, work and other) because of a physical condition, mental condition or health problem which has lasted or is expected to last six months or longer.<sup>87</sup>

**Physical inactivity:** Population reporting a level of physical activity considered “inactive,” based on their responses to questions about the frequency, duration and intensity of their participation in leisure-time physical activity over the previous three months.<sup>87</sup>

**Risk factors:** Population with three or more of the following variables: physical inactivity, self-reported BMI of 25 or greater, current daily or occasional smoker and current drinker having five or more drinks on one occasion, 12 or more times a year.<sup>87</sup>

**Self-rated health:** Population who rated their own health status as being either “excellent” or “very good.” Self-rated health is an indicator of overall health status. It can reflect aspects of health not captured in other measures, such as incipient disease, disease severity, aspects of positive health status, physiological and psychological reserves and social and mental function.<sup>87</sup>

**Smoking:** Population who reported being a current smoker on either a daily or occasional basis.<sup>87</sup>

**Substance-related disorders:** The substance-related disorders include disorders related to the taking of a drug of abuse (including alcohol), to the side effects of a medication and to toxin exposure.<sup>96</sup>

**Unintentional falls:** Acute care hospitalization due to injury resulting from unintentional falls.<sup>98</sup>



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This publication is part of CPHI's ongoing inquiry into the patterns of health across this country. Consistent with our broader findings, it reflects the extent to which the health of Canadians is socially determined, interconnected, complex and changing. CPHI is committed to deepening our understanding of these patterns.