



THE CHAMPLAIN
CARDIOVASCULAR DISEASE
PREVENTION NETWORK

ATLAS

OF CARDIOVASCULAR HEALTH
IN THE CHAMPLAIN DISTRICT
2008

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CHAMPLAIN CARDIOVASCULAR DISEASE PREVENTION NETWORK



THE CHAMPLAIN
CARDIOVASCULAR DISEASE
PREVENTION NETWORK

The Champlain Cardiovascular Disease Prevention Network (CCPN) is a strategically aligned network of health and community partners which include public health, specialty (cardiac and stroke) care, primary care, hospitals, community health, and academia. The Network was formed in 2005 to provide leadership to the implementation of the Champlain Cardiovascular Disease (CVD) Prevention Strategy. The overarching goal of the CCPN is to build a system of excellence in integrated CVD prevention and management to ensure that the citizens of the Champlain District are the most heart healthy and stroke-free in Canada. This will be accomplished through implementation of large-scale, community-based initiatives recommended by the CCPN Expert Panels and endorsed by the CCPN Coordinating Committee as the most important actions to improve the CVD health of Champlain residents in six key areas: primary care, specialty care, hospitals, schools, workplaces, and communities. The approach is community-based, coordinated, action-focused and outcome-oriented.

CCPN Partners

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Eastern Ontario Community Primary Health Care Network
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Institute of Population Health, University of Ottawa
Leeds, Grenville & Lanark District Health Unit
Renfrew County & District Health Unit
The Ottawa Hospital
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CCPN Founding Industry Partner

Pfizer Canada Inc.

The Champlain Cardiovascular Disease Prevention Network (CCPN) was catalyzed by the Division of Prevention and Rehabilitation, University of Ottawa Heart Institute (UOHI), recognizing the need for a coordinated, strategic, regional approach to successfully address the burden of cardiovascular disease (CVD) in the Champlain District. The CCPN Project Management Team is housed at the UOHI.



UNIVERSITY OF OTTAWA
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DE L'UNIVERSITÉ D'OTTAWA

FOREWORD

The *Atlas of Cardiovascular Health in the Champlain District, 2008*, an initiative of the CCPN, is a comprehensive regional report on the state of cardiovascular health and risk factors across the Champlain District. This document was developed as a local resource to inform and to assist a broad audience, including the policy makers, health care providers, health planners, researchers, and the general public of the Champlain District, responding to the growing epidemic of cardiovascular disease (CVD) in the region.

As is the case globally, nationally, and provincially, ischemic heart disease is the leading cause of death, hospitalization, and disability in the Champlain District, generating the greatest personal, community, and health care costs. This disease is largely preventable, and targeted public health efforts can help reduce its negative impact. Thus, this document is meant to provide actionable, population-based information relevant for the development and implementation of appropriate policies to improve the delivery of preventive health services and to create heart healthy and stroke-free living and working environments for all residents of the Champlain District. Since it is well known that significant cardiovascular health benefits can best be achieved through prevention, the information on the temporal and geographical trends in CVD and its risk factor rates contained here will provide insights into geographic and other disparities and indicate where the delivery of primary and secondary preventive health services, programs, and policies is needed the most and where it can be expected to have the greatest impact.

The CCPN and its stakeholders are committed to the widest possible dissemination of this document. We hope that this publication will be a valuable resource in the design of programs and policies to prevent heart disease and stroke in all the communities of the Champlain District. We look forward to constructive feedback, further research, and above all, to positive changes that will help reduce the growing burden of CVD in the Champlain District.



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EXECUTIVE SUMMARY

The *Atlas of Cardiovascular Health in the Champlain District, 2008* is the third edition of earlier documents profiling the heart health of Champlain residents. These early publications brought to attention the regional disparities in CVD and risk factors observed within the Champlain District, and served to support the planning activities underlying the development of the regional CVD Prevention Strategy being led by the CCPN. Specifically, three regions within Champlain – Renfrew, Eastern Ontario (in particular Prescott & Russell), and Leeds, Grenville & Lanark – were identified as Ontario “hot spots” for CVD morbidity and mortality, with rates significantly higher than those reported for the City of Ottawa, the province of Ontario, and Canada, as shown in the summary table below. In an effort to close these regional gaps in cardiovascular health, the CCPN launched its five-year CVD Prevention Strategy which includes six major initiatives designed to address the prevention and management of the leading modifiable risk factors for heart disease and stroke. These include: smoking, physical inactivity, unhealthy eating habits, obesity/ overweight, diabetes/ blood glucose, abnormal blood cholesterol, and high blood pressure.

The 2008 Atlas is the product of a more extensive and thorough examination of CVD, risk factors, and determinants of cardiovascular health in the Champlain District, chronicled in a systematic fashion for the four public health units. It begins with a regional, health unit-by-health unit profile of the population of the Champlain District (Chapter 1), then moves to systematically dissect the regional variations in CVD mortality and morbidity (Chapter 2), and continues with an examination of the prevalence of the major cardiovascular risk factors (Chapter 3) with breakdown by socio-economic status (Chapter 4). While CVD remains the primary focus of the Atlas, an effort was taken to include a wider scope and cover other related conditions, such as diabetes, as well as to extend the presentation of risk factors to include some of the socio-demographic characteristics within the region. Chapters 1 to 4 begin with an introductory overview and continue with a presentation of regional data, broken down where possible, by district health unit, and with provincial and national-level data provided as comparators. The final chapter of the Atlas (Chapter 5) includes a discussion of the current surveillance gaps and future directions, and describes a new regional initiative led by the CCPN – the Champlain Community Heart Health Survey – designed to address some of the gaps, for example lack of physical measures, by collecting key information relevant to the heart health of the residents of the Champlain District. A summary of data sources and data notes, as well as a glossary of terms, are included in the Appendix.

Based on the currently available data, most of the population in the Champlain District, particularly outside of the City of Ottawa, is not at an optimal low level of risk. Since decreasing cardiovascular risk factors in the population can have a great impact on reducing the disease and economic burdens of CVD, it follows that efforts should be directed towards promoting a population-wide strategy to prevent, and not just restrain at best, “the most preventable of major epidemics”¹. The challenge is to implement a population approach to prevention while lacking the necessary data identifying populations at greatest risk for CVD and in greatest need of prevention efforts. In the absence of a robust surveillance system, currently existing health and non-health status data are incomplete and fragmented.

This Atlas emphasizes the importance of measurement to health outcome improvements and is intended to stimulate better data-gathering and regular monitoring of the temporal and geographic distribution and trends in disease and risk factor rates. Furthermore, with regional efforts, such as the Champlain Community Heart Health Survey, meaningful benchmarks will be established to measure progress and guide the future planning, priority setting, and evaluation of primary and secondary prevention efforts by health care providers and organizations within the Champlain District.

¹ Beaglehole, R., Saracci, R., Panico, S. “Cardiovascular diseases: causes, surveillance, and prevention”. *International Journal of Epidemiology*, 30 (2001), p.S1.

Summary Table: Cardiovascular Disease (CVD) mortality and self-reported prevalence of risk factors in persons aged 12 years and older in Canada, Ontario, and Champlain District and its Health Regions

REGION	CVD Mortality n (rate per 100,000)	Hypertension n (%)	Diabetes n (%)	Overweight* n (%)	Obesity* n (%)	Daily Smoking n (%)	Physical Inactivity n (%)	< 5 servings fruit & veg/day n (%)
Canada	63,542 (201)	4,530,842 (15)	1,490,008 (5)	8,256,350 (33)	3,831,540 (16)	5,777,584 (19)	14,200,692 (47)	16,815,809 (55)
Ontario	24,929 (205)	1,681,611 (15)	531,034 (5)	3,152,950 (33)	1,425,435 (15)	2,290,088 (15)	5,066,958 (46)	5,907,764 (53)
Champlain	2,375 (207)	147,785 (14)	52,707 (5)	292,249 (34)	121,409 (14)	161,220 (16)	435,087 (42)	550,835 (53)
City of Ottawa	1,519 (187)	98,461 (14)	33,550 (4)	204,934 (32)	78,282 (12)	91,168 (13)	301,948 (41)	380,718 (52)
Eastern Counties	473 (248)	27,320 (16)	12,181 (7)	56,904 (39)	27,568 (19)	36,195 (21)	79,176 (46)	101,102 (58)
Renfrew County	251 (257)	15,723 (18)	5,412 (6)	24,823 (32)	15,476 (20)	19,245 (22)	37,975 (44)	44,590 (52)
Leeds, Grenville & Lanark	367 (225)	24,846 (17)	9,034 (6)	47,416 (37)	23,039 (15)	19,607 (23)	61,437 (41)	79,206 (53)

*Prevalence based on the population aged 18 and over.

Sources: CVD Mortality: Vital Statistics 2004, Provincial Health Planning Database (PBPD), Health Data and Decision Support Unit, Ontario, MOHLTC.

Risk Factor Prevalence: Statistics Canada's health indicators data and Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005; Population Estimates from Statistics Canada, 2006 Census of Population.

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INTRODUCTION

How heart healthy are the residents of the Champlain District? To answer this question, the *Atlas of Cardiovascular Health in the Champlain District, 2008* was produced as part of an ongoing assessment of the heart health of the population in the region. The geographic area of the Champlain District encompasses a significant portion of Eastern Ontario, home to almost 1.2 million residents, with a rich diversity of urban and rural communities, as well as socio-economic, cultural, and linguistic populations. Comprised of four municipal planning areas – City of Ottawa, Eastern Counties of Prescott & Russell and Stormont, Dundas & Glengarry, Renfrew County, and the northern parts of Leeds, Grenville & Lanark County – the Champlain District faces unique challenges in terms of health, health care planning, and health care provision. This is because these areas vary by not only population size, but also the age structure, social characteristics, and economic conditions.

This Atlas was developed by the CCPN as a local resource meant to inform a diverse group of readers on the state of cardiovascular health in the region. Inspired by several provincial and national atlases and publications of the Institute for Clinical Evaluative Sciences (ICES), the Canadian Cardiovascular Outcomes Research Team (CCORT), and the Heart and Stroke Foundation of Canada (HSFC), this document focuses on mapping and charting the cardiovascular health status on a population-wide basis within the Champlain District, drawing comparisons across age groups and genders and, where possible, across the four public health units within the boundaries of the Champlain District.

This publication examines, on a local level, the diverse elements of the epidemiology of CVD. Where possible, the regional variations in CVD mortality and morbidity observed within each public health unit are related to differences in the prevalence of the major cardiovascular risk factors and presented along with the district, provincial, and national averages. The Atlas also identifies the CVD “hot spots” where Champlain residents are at particularly high risk for cardiac death.

The development of the Atlas was driven by the premise that one strategy to overcome the growing burden of CVD involves providing actionable information relevant for the development and implementation of appropriate policies. The availability of actionable information depends on our ability to measure and monitor the state of CVD and health care. In the absence of a robust surveillance system, these data are not always available or they are limited and fragmented. This is why the CCPN established a Monitoring, Surveillance & Evaluation Expert Panel to overlook the development of systems to monitor trends, risk factors, and behaviours in our region needed to support research, health planning, case finding and patient management, as well as to develop infrastructure, teams, and methodologies to support high quality evaluation of CVD prevention activities. This Atlas represents a significant early product of this Panel’s work and aims to accomplish several objectives:

- To present the best available data and identify gaps in knowledge on the state of cardiovascular health across the Champlain District, including prevalence of disease, risk factors, and associated health outcomes;
- To identify and bring to attention important geographic and other disparities in cardiovascular health within the Champlain District; and,
- To demonstrate the value and importance of surveillance activities and encourage better data-gathering as integral parts of achieving heart health for all residents of the Champlain District.

Within the realm of the CCPN, this Atlas constitutes a valuable resource for future planning, priority setting, and evaluation of the CCPN strategy for helping the residents of Champlain District achieve better cardiovascular health. At the same time, it is a significant tool for several levels of government, policy makers, organizations, health professionals, as well as the Champlain residents to fight the epidemic of heart disease and stroke in our region by engaging in local/ regional advocacy and education.

CHAPTER 1: THE CHAMPLAIN DISTRICT AND ITS PEOPLE

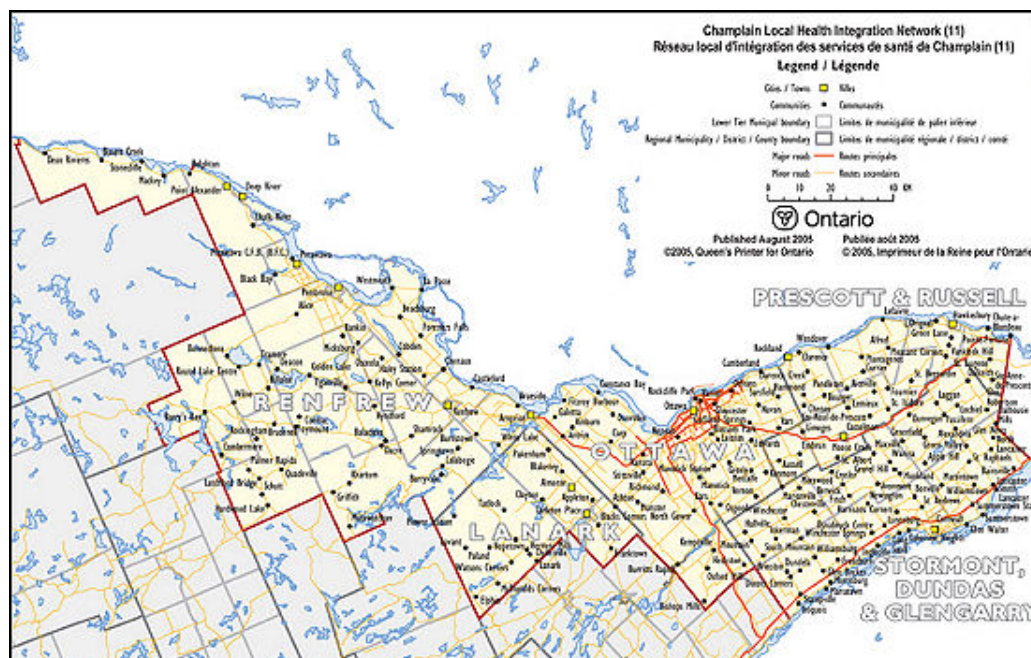
Champlain District Overview

Geographically, the Champlain District encompasses a significant portion of Eastern Ontario. It covers almost 15,500 square kilometres, following the south side of the Ottawa River from the border with the province of Quebec to Deux Rivières in the northwest, and to the south, following the St. Lawrence River to Iroquois and then stretching across eastern Ontario to Algonquin Park. The Champlain District includes the following municipal planning areas and counties:

- City of Ottawa;
- Eastern Counties (Prescott & Russell, and Stormont, Dundas & Glengarry);
- Renfrew County; and
- Northern parts of Leeds, Greenville & Lanark County.

The geographic boundaries of the Champlain District align with the boundaries of the Champlain Local Health Integration Network (LHIN), a not-for-profit corporation with a mandate to plan, coordinate and fund health services for the Champlain District. Fourteen LHINs were created by the Government of Ontario in March 2006 as part of the initiative to transform the health care system and were intended to take on the functions of planning, system integration and service coordination, and evaluation of performance through accountability agreements. Their mission to “build an integrated and accountable health system for people where and when they need it” is based on a strong foundation of local community engagement, comprehensive planning, and appropriate resource allocation.

Figure 1.1: Champlain LHIN of Ontario



SOURCE: Ministry of Health and Long-term Care, www.health.gov.on.ca/transformation/lhin/lhinmap_mn.html

In many ways, the Champlain District can be considered a microcosm of the rest of Canada:

- Champlain District is home to almost 1.2 million residents, representing about 10% of the Ontario population, with a population density per square kilometre of 65.07 (2006 Census, Statistics Canada). Ottawa is the largest of the planning areas with 812,129 residents, and North Lanark/ North Grenville the smallest with 46,952 residents (2006 Census, Statistics Canada).
- Going from east to west, the counties of Champlain with their respective share of the population are the Eastern Counties of Stormont, Dundas & Glengarry (10%) and Prescott & Russell (7%), City of Ottawa (70%), and Renfrew County (9%). As well, Champlain includes a northern part of Leeds-Grenville, and parts of Lanark County; these parts altogether comprise 4% of Champlain's population.
- The region boasts a rich diversity of urban and rural communities, as well as socio-economic, cultural, and linguistic populations.
- There is a strong Francophone presence in Champlain reinforced by its shared border with Quebec. Close to 20% of the population is Francophone (as compared to 23% in Canada).
- There is also a strong multi-cultural presence in Champlain, with 14% of the population being a member of a visible minority (as compared to 19% in Canada).
- Champlain differs from Canada the most in economic activity, which is driven mainly by services (especially the public service), where employment requires relatively high levels of education.

The 2006 Census revealed a growth in the Champlain District population of 4.26% since the 2001 Census. Ottawa and Prescott & Russell had the largest growth (4.9%), followed by North Lanark/ North Grenville (4.0%) (Table 1.1). A similar growth pattern was projected for the years 2006-2011. Ottawa (6.4%) and Prescott & Russell (5%) were expected to grow faster than Renfrew County (1.7%) and Stormont, Dundas & Glengarry (1.7%).

Table 1.1: Champlain District population, 2006

REGION	2001 Population	2006 Population	% Change 2001 to 2006	Pop/Sq km
Champlain	1,100,330	1,147,209	4.26	65.07
City of Ottawa	774,072	812,129	4.90	292.30
Eastern Counties	185,968	190,583	2.40	35.90
Renfrew County	95,138	97,545	2.50	13.20
North Lanark* / North Grenville	45,152	46,952	4.0	21.9

SOURCE: Statistics Canada, 2006 Community Profiles, 2006 Census

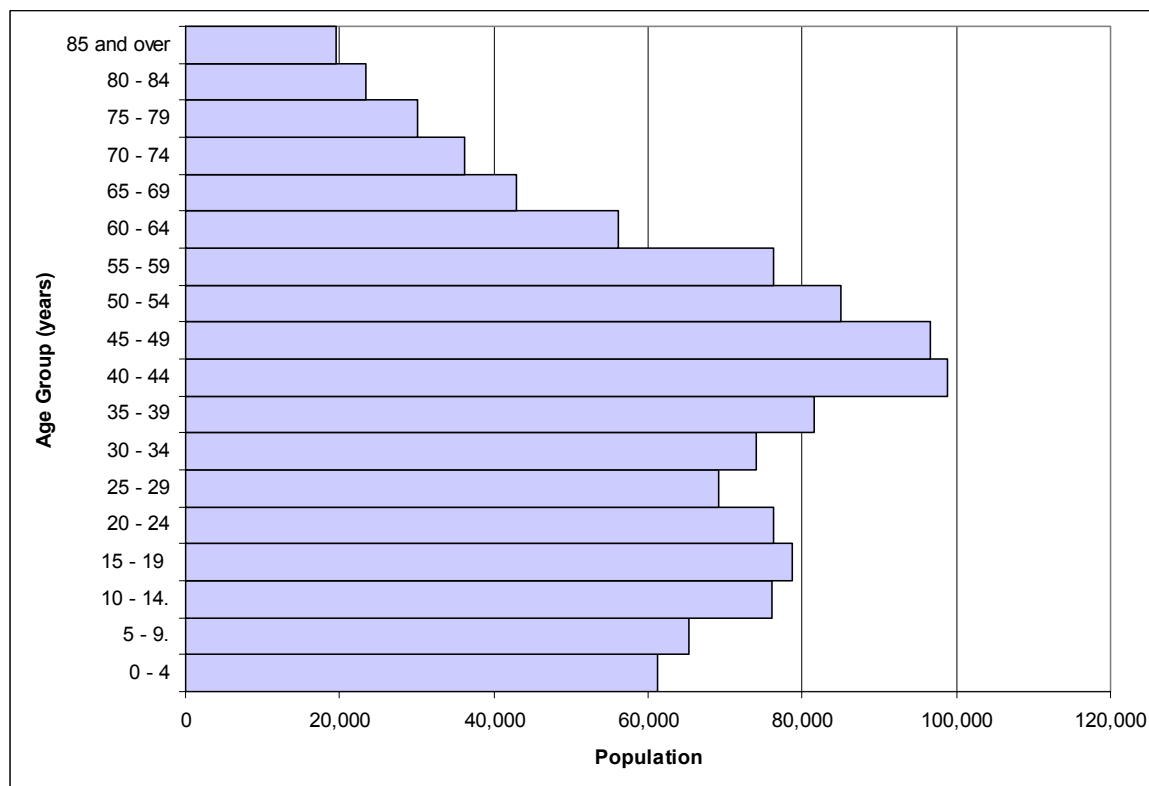
*North Lanark/ North Grenville includes the (northern) parts of Lanark and/or Leeds & Grenville that fall within the boundaries of Champlain District: North Grenville, Beckwith Township, Carleton Place, Mississippi Mills and Lanark Highlands Township. The population of North Lanark/ North Grenville represents 29% of the Leeds, Grenville & Lanark total.

Demographic and Social Profile

The 2006 age distribution of the Champlain District population is presented in Figure 1.2. Approximately one quarter of the population is under 20 years of age, and 13 % is over 65 years of age. Just over 60% of the population is between the ages of 20 and 65, with population numbers highest for age groups 40 to 44 and 45 to 49, respectively. The age distribution for each of the Champlain counties follows a similar pattern (Table 1.2).

Generally, the urban regions (planning areas) have fewer people over the age of 65 (10-12%) than the rural counties (~15%). There are no urban-rural differences in the under 15 years of age portion of the population. Growth rates of greater than 15% are projected over the next 5 years for residents aged 45 to 65, with a 20% increase in residents aged 65 and older by 2011.¹

Figure 1.2: Champlain District, age characteristics, both sexes, 2006



SOURCE: Statistics Canada, 2006 Community Profiles, 2006 Census

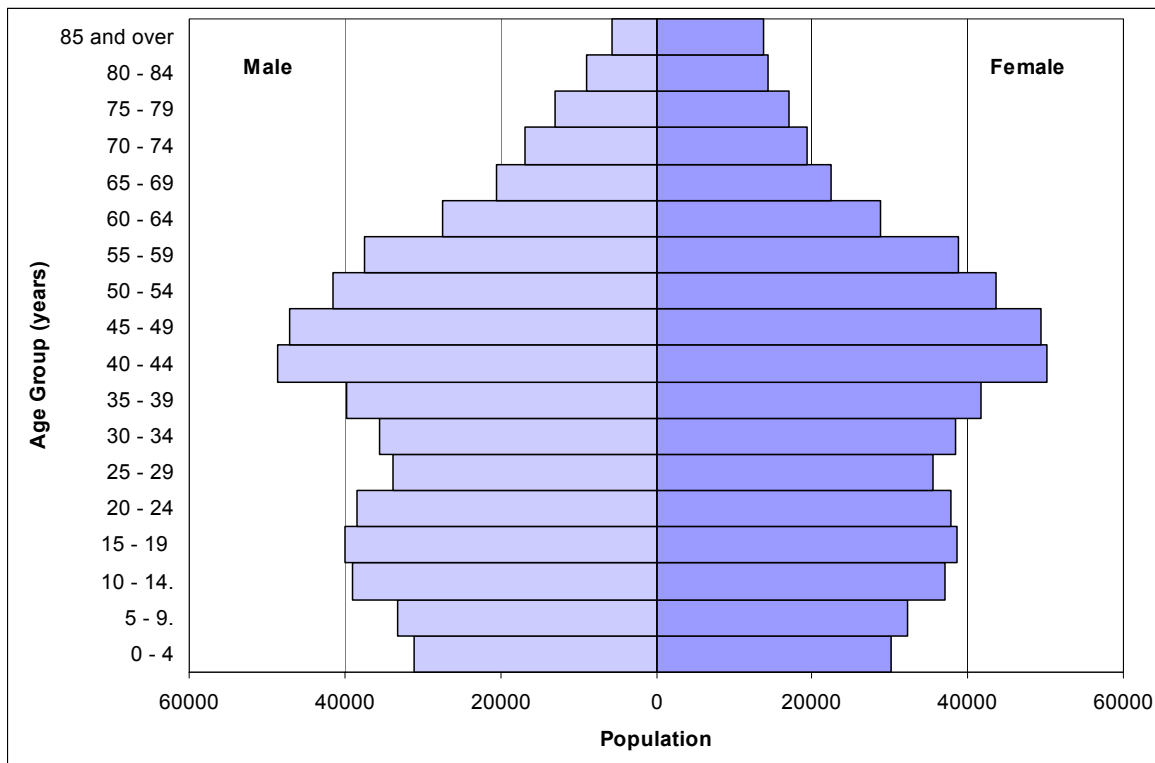
Table 1.2: Age characteristics, by Champlain District Health Units, 2006

REGION	% of Population		
	< 20 years of age	20 to 65 years of age	> 65 years of age
Champlain	24.5	62.2	13.2
City of Ottawa	24.3	63.3	12.4
Eastern Counties	25.3	59.7	15.0
Renfrew County	23.9	59.2	16.8
Leeds, Grenville & Lanark	27.9	59.2	16.9

SOURCE: Statistics Canada, 2006 Community Profiles, 2006 Census

The proportion of males to females in the Champlain District varies somewhat across the age groups (Figure 1.3). Population numbers for males appear to be marginally higher than for females between the ages of 0 and 19 years, however they reverse around the age of 20. By age group 75 to 79 years, male population numbers are increasingly lower than female numbers, and they continue to decline through ages 80 and over.

Figure 1.3: Champlain District, age characteristics, males and females, 2006



SOURCE: Statistics Canada, 2006 Community Profiles, 2006 Census

Language

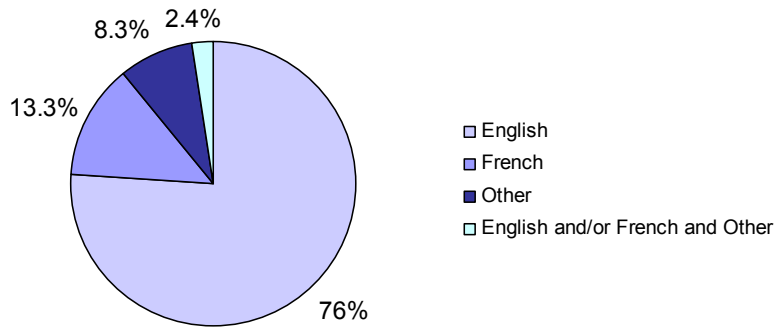
Mother Tongue

- In 2006, the majority of the population within the Champlain District (76%) identified English as their mother tongue (first and only official language learned and still understood).
- Almost one in five residents of the Champlain District (18%) identified French as their mother tongue, and 1% identified both French and English as their first official language learned. Sixteen percent identified neither French nor English as their first language learned.

Language Spoken Most Often at Home

- The 2006 Census showed that English remained the language most often spoken at home (76%) in the Champlain District, followed by French (13.3%), and other non-official languages (8.3%) (Figure 1.4).

Figure 1.4: Language spoken most often at home, Champlain District, 2006



SOURCE: Statistics Canada, 2006 Community Profiles, 2006 Census

Other Languages

- The “other”, non-official languages spoken in the Champlain District have long been associated with immigration. The top 10 mother tongues other than English and French identified in the 2006 Census include: Arabic (1.96%), Chinese (1.47%), Italian (1.03%), German (0.94%), Spanish (0.73%), Polish (0.72%), Cantonese (0.48%), Vietnamese (0.48%), Dutch (0.44%), and Persian (0.41%).

Francophones in the Champlain District

As in Canada, there is a strong francophone presence in Champlain, reinforced by its shared border with Quebec. Close to 20% of the population is francophone (23.5% in Ontario, 23% in Canada), making it the region with the highest proportion of Francophones in the province. For the purpose of this report, the term “Francophones” designates those who reported French as their sole mother tongue or as one of their mother tongues (single or multiple response). Significantly more Francophones reside in the Eastern Counties region of Prescott & Russell, where 67.6% of its population is francophone compared to the next highest sub-planning region, Stormont, Dundas & Glengarry, with a francophone population of 23.5%.

Table 1.3: Distribution of Francophones in Champlain District, 2006

REGION		Total Population	Francophone Population	Francophones (%)
Ontario		12,028,900	521,500	4.3
Champlain		1,131,355	212,835	18.8
City of Ottawa		835,470	146,360	17.5
Eastern Counties	Stormont, Dundas & Glengarry	108,585	25,465	23.5
	Prescott & Russell	78,740	53,190	67.6
Renfrew County		98,130	5,405	5.5
Leeds, Grenville & Lanark		160,370	19,165	12

SOURCE: Statistics Canada, 2006 Community Profiles, 2006 Census

Ethnicity

There is a strong multi-cultural presence in Champlain, with 14.9% of the population being a member of a visible minority, compared to 16.2% in Canada. Specifically, 19.4% of the population in the City of Ottawa is a visible minority compared to 3.0% in Stormont, Dundas & Glengarry and less than 2% in the other planning areas.

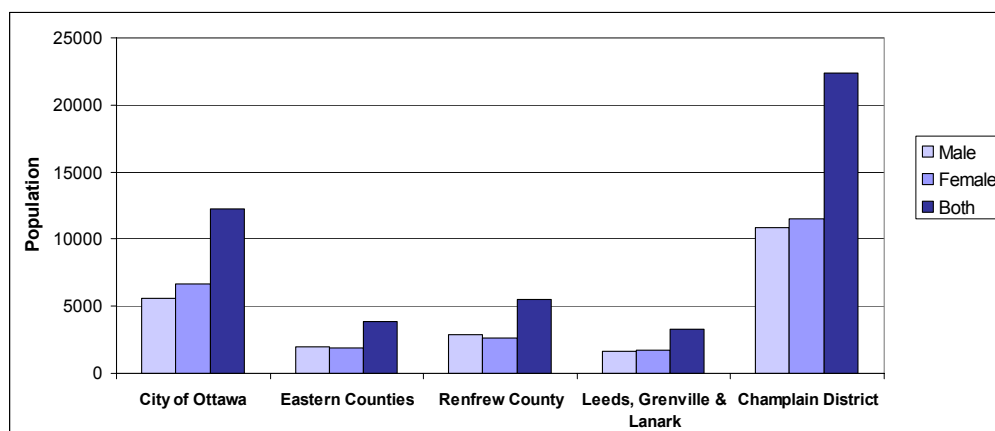
To characterize the visible minorities, the top 4 places of birth for recent immigrants are China, India, Somalia, and Iran, respectively.

A majority (approximately 84%) of the Champlain District population identifies their cultural or racial background as White. A number of other backgrounds including Chinese (2.65%), South Asian (2.11%), Black (3.25%), Filipino (0.46%), Latin American (0.61%), Southeast Asian (0.84%), Arab (1.87%), West Asian (0.48%), Korean (0.14%), and Japanese (0.15%) were also identified (2006 Census).

Aboriginal Persons

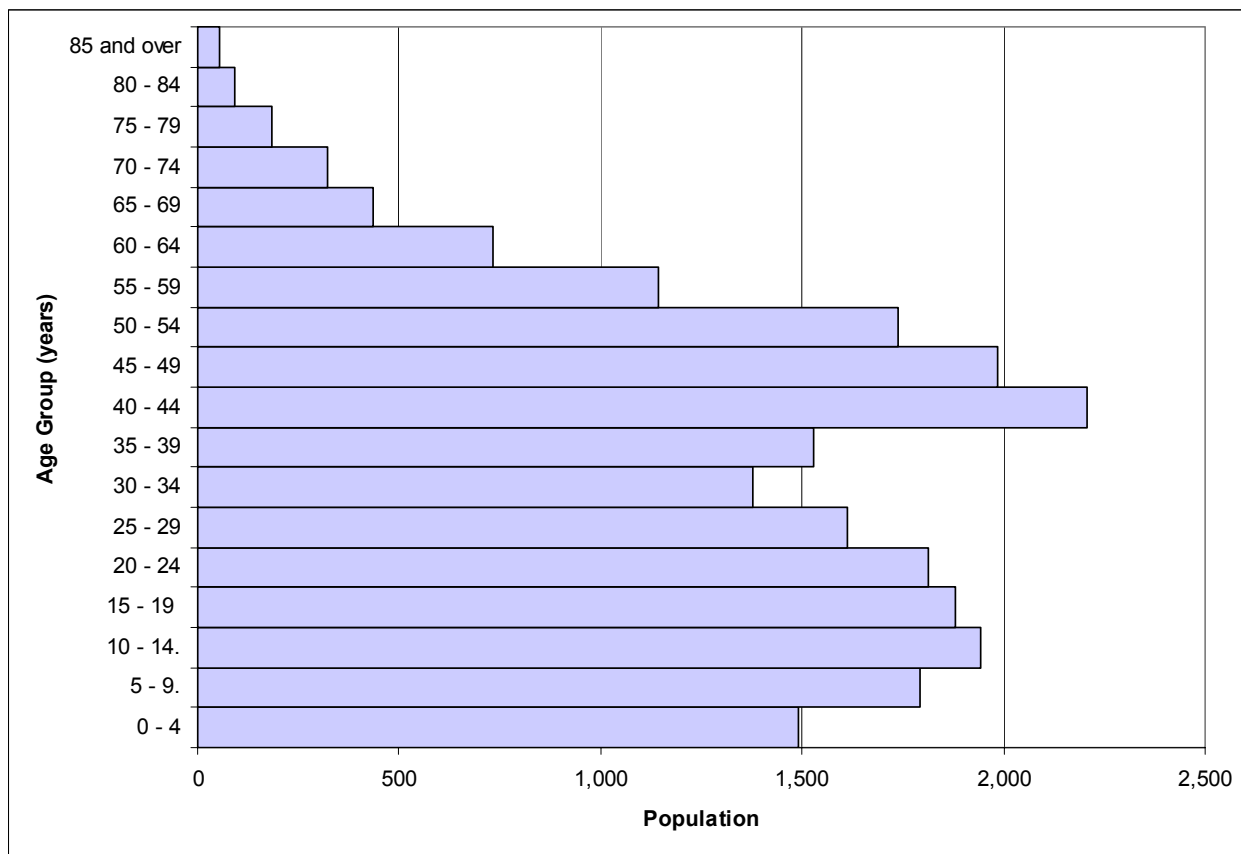
- According to the 2006 Census, Aboriginal persons comprised 2.0% of the Champlain District population. Within the Champlain District, the county with the highest relative proportion of Aboriginal persons is Renfrew County (5.6%), followed by Prescott & Russell and Leeds, Grenville, & Lanark (both 2.0%). Figure 1.5 presents the total number of Aboriginal persons by sex, county, and for the Champlain District.
- Almost 24% the Aboriginal population in 2006 were less than 15 years of age, and approximately 5% were 65 years and older. The largest proportion of the population (34%) was in the 35 to 55 year age groups (Figure 1.6).
- A majority of the Aboriginal population in the Champlain District identify themselves as North American Indian (55%), followed by Métis (36%) (Figure 1.7).
- The percentage of the population that identifies itself as Aboriginal in Renfrew County is 2 to 3 times greater than in the other sub-planning areas; nevertheless, over half the Aboriginal population of Champlain (12,250 persons) resides within the City of Ottawa.
- Less than 30% of the Aboriginal population aged 15 years and over have a high school graduation certificate, and unemployment ranges from 8.6% to 13.1% depending on the county of residence (Table 1.4).

Figure 1.5: Number of Aboriginal persons, by sex, for Ottawa, Prescott & Russell, Renfrew County, and Leeds, Grenville & Lanark, 2006



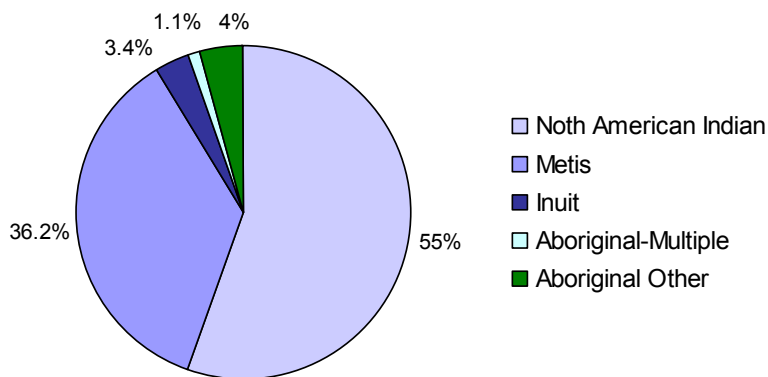
SOURCE: Statistics Canada, Aboriginal Population Profile, 2006 Census

Figure 1.6: Number of Aboriginal persons in Champlain District, age characteristics, both sexes, 2006



SOURCE: Statistics Canada, Aboriginal Population Profile, 2006 Census

Figure 1.7: Percentage of the Aboriginal identities within the Champlain District, 2006



SOURCE: Statistics Canada, Aboriginal Population Profile, 2006 Census

Table 1.4: Educational attainment and unemployment status for Aboriginal persons in Ottawa, Prescott & Russell, Renfrew County, and Leeds, Grenville & Lanark, 2006

REGION		% of the Aboriginal population (≥ 15 years of age) with a high school certificate or equivalent	% of the Aboriginal population (≥ 15 years of age) with a university certificate or degree	Unemployment Rates
City of Ottawa		24.3	17.9	9.2
Eastern Counties	Stormont, Dundas & Glengarry	28.1	4.1	13.1
	Prescott & Russell	18.2	10.3	8.6
Renfrew County		29.9	3.3	9.8
Leeds, Grenville & Lanark		23.7	3.8	7.9

SOURCE: Statistics Canada, Aboriginal Population Profile, 2006 Census

Income and Employment

- The 2006 overall unemployment rate (individuals 15 years and over) and youth unemployment rate (15 to 24 years of age) for the Champlain District are both lower than the rates for Ontario (Table 1.5). Within the Champlain District, Leeds, Grenville & Lanark has the highest overall and youth unemployment rates, and Ottawa has the lowest.
- Of the Champlain District population aged 20 years and over, 6.4% reported having a total household income of less than \$20,000. Approximately 14% reported an income between \$20,000 and \$39,000 and 70.4% reported an income of \$40,000 or more. Of those reporting an income greater than \$40,000, the largest percentage (30%) reported an income of \$100,000 or more (CCHS 3.1).
- In 2005, the median income reported for all census families (married couple (with or without children of either or both spouses), a couple living common-law (with or without children of either or both partners) or a lone parent of any marital status, with at least one child living in the same dwelling) was 77,091 in the Champlain District, compared to 69,156 in Ontario (Statistics Canada, 2006 Community Profiles, 2006 Census).

Education

- Of the Champlain District population aged 20 years and over, 81.8% reported that they graduated from high school, and only 8% reported no post-secondary education. In terms of the highest degree, certificate or diploma obtained, 23.5% reported having completed a college diploma, 18.8% a bachelor's degree, and 10.4% a university degree or certificate above a bachelor's degree (CCHS 3.1).
- Within the Champlain District, Ottawa had the lowest percentage of people without high school graduation.

Table 1.5: Adult and youth unemployment rate in Ontario, Champlain and its District Health Units, 2005 and 2006

REGION	2005		2006	
	≥ 15 years of age	15 to 24 years of age	≥ 15 years of age	15 to 24 years of age
Ontario	6.6	13.9	6.3	13.1
Champlain	6.6	13.3	5.4	11.5
City of Ottawa	6.7	12.9	5.1	10.7
Eastern Counties	6.8	15.0	6.4	12.5
Renfrew County	6.4	x	6.2	x
Leeds, Grenville & Lanark	6.5	14.7	6.5	15.7

SOURCE: Statistics Canada, Labour Force Survey, CANSIM Table 109-5304

x = Suppressed to meet the confidentiality requirements of the Statistics Act

Socio-economic Status

Based on the 2001 Census, the Health System Intelligence Project (HSIP) summarized multiple indicators including education, employment status, and income, and produced a composite index of relative socio-economic disadvantage for each census subdivision (CSD) of the Champlain LHIN, as part of the Socio-Economic Indicators Atlases provided for each LHIN. Within Champlain, as shown in Figure 1.8ⁱⁱ, the disadvantage index is highest (red) in CSDs in Renfrew County, in several CSDs in Ottawa, and in Cornwall and Hawkesbury. The disadvantage index is lowest (green) in the Russell parts of Prescott & Russell and in suburban parts of Ottawa. The rural area of Ottawa has the highest household income of all the sub-planning areas.

Health Status

Overall Self-rated Health

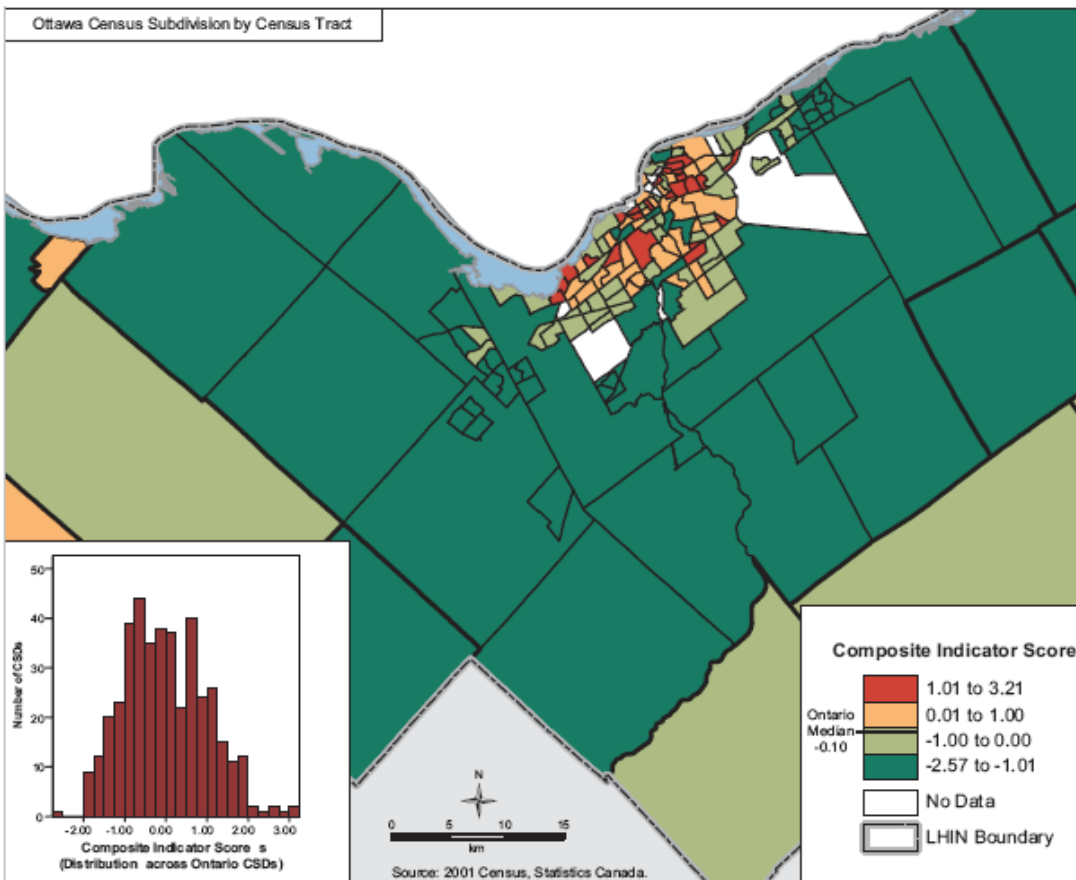
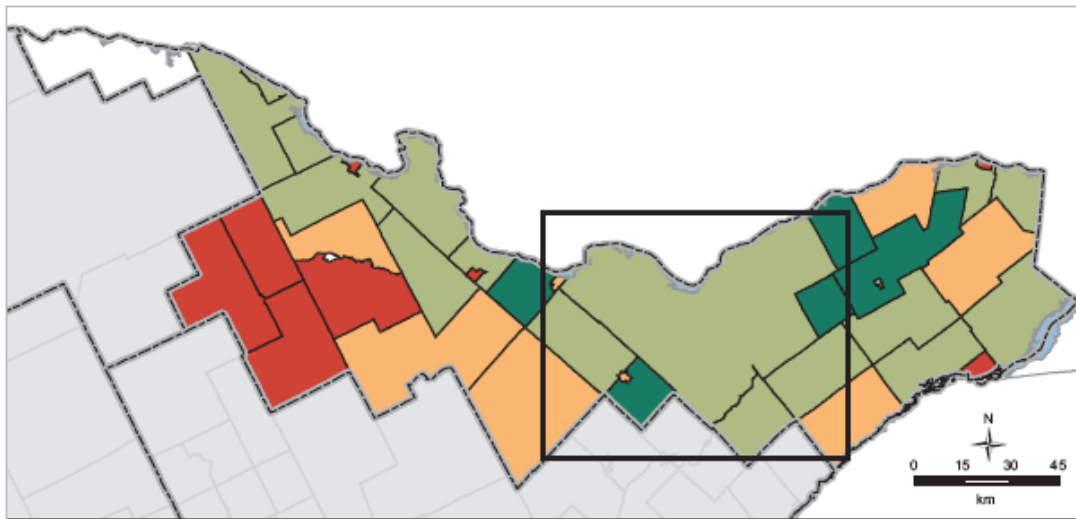
- A majority (40.6%) of Champlain residents rated their overall health as very good, 26.2% as good, and 22.5% as excellent. Only 8.0% rated their overall health as fair and 2.7% as poor (CCHS 3.1).

Access to a Family Physician

- Approximately 89% of the Champlain District population, a proportion slightly lower than in Ontario as a whole (91.1%), reported that they have a regular medical doctor (CCHS 3.1).
- The main reasons for not having a regular medical doctor included: Have not tried to contact one (33.1%); Had a medical doctor who left or retired (20.5%); Medical doctors in the area are not taking new patients (17.8%); No medical doctors available in the area (15.8%) (CCHS 3.1).

ⁱⁱ Socio-Economic Indicators Atlas: Champlain LHIN. Health System Intelligence Project, Spring 2006, p. 5-6.

Figure 1.8: Index of relative socio-economic disadvantage in the Champlain District



SOURCE: Socio-Economic Indicators Atlas, Champlain LHIN; available at www.champlainlhin.on.ca/lhinresearch.aspx

CHAPTER 2: BURDEN OF CARDIOVASCULAR DISEASE

Cardiovascular disease (CVD) affects the heart and the circulatory system and includes acute myocardial infarction (AMI), ischemic heart disease (IHD), heart valve disease, peripheral vascular disease (PVD), arrhythmias, high blood pressure, and stroke. CVD is the leading cause of death, hospitalization, and disability in Canada and the Champlain District. In 1999, it has been reported to claim over one-third (36%) of all deaths in Canada, accounting for 78,942 deaths.² IHD, a condition characterized by a compromised blood supply to the heart muscle, usually as a result of atherosclerosis or “hardening” of the coronary arteries that supply blood to the heart muscle, accounted for the greatest percentage of cardiovascular deaths (20%).² Of these, half were attributable to AMI, a type of IHD where prolonged ischemia leads to muscle damage (a heart attack). The Eastern Counties (particularly Prescott & Russell) and Renfrew County of the Champlain District are amongst the five provincial hot spots for CVD and ischemic mortality with mortality rates higher than the provincial and national rates.³⁻⁵

Although CVD is often thought to primarily affect men and older people, statistics show that this disease is a leading cause of death in women and affects men in their prime of life. More than half of all CVD deaths each year occur among women, with the percentage of all deaths due to CVD increasing after the age of 50.² In men, these rates increase steadily after the age of 40.² The potential years of life lost (PYLL) for heart disease, an indicator of premature mortality calculated by subtracting the age at which death actually occurred from age 75, is three times as high for men as it is for women.² Although in Canada, the leading cause of PYLL in 2001 in men was unintentional injuries followed by IHD, the order for Ontario and the Champlain District was reversed, with IHD being the leading cause of PYLL.⁴

The mortality data alone severely understate the burden of CVD and the impacts on quality of life. For example, 5.7% of Canadian adults over the age of 20 and nearly 25% of those aged 70 years and over report having heart problems.⁵ Only 51% of those with self-reported heart disease and 36.8% of those with self-reported stroke rate their health as good or better.² Activity restrictions are reported by 60% of those with self-reported heart disease and 77.2% of those with self-reported stroke.²

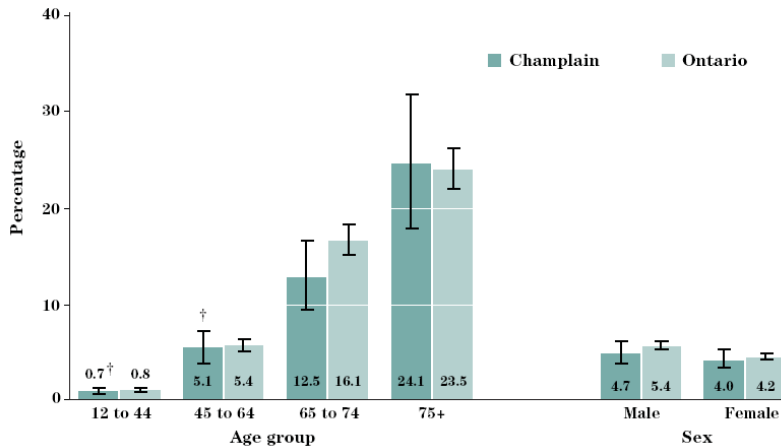
CVD is also the leading contributor to direct and indirect health costs. In 1998, the total cost of heart disease and stroke to the Canadian economy was approximately \$18.5 billion (\$6.8 billion in direct costs and \$11.7 billion in indirect costs) – more than any other disease.⁶ In Ontario, spending of \$5.5 billion has been reported annually on the treatment of CVD.⁷ Heart disease and stroke combined are the number one cause of hospitalization among men and women in Canada (18% of hospitalizations in 2000-01).² Unfortunately, more recent data on the economic burden of CVD are not available at the time of this writing.

Although the mortality rates from various forms of CVD have decreased significantly over the past 20 years, with the aging Canadian population and a general growth of the population, the actual numbers of people diagnosed with CVD are expected to increase. For example, based on the provincial population projections, the number of deaths in the CVD category is expected to double by 2018 as a result of population growth and aging.⁷ Consequently, the burden of CVD on the population is expected to persist.

Prevalence

Prevalence refers to the proportion of the population with a particular disease at a given moment in time. Some sense of the prevalence of CVD can be obtained from Statistics Canada Canadian Community Health Survey (CCHS), although this approach is limited by the fact that the collected data are self-reported and thus dependent on the individuals having already been diagnosed with heart disease by a physician as well as reporting this information correctly in the survey. Based on the CCHS (cycle 3.1) in 2005, 4.3 % of Champlain

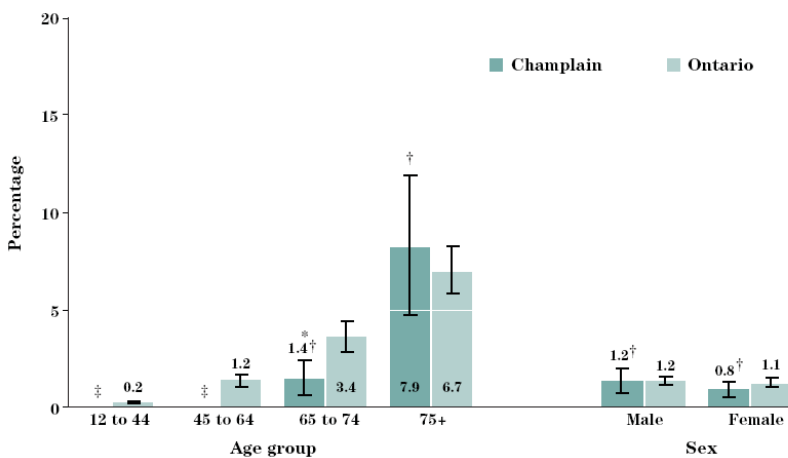
Figure 2.1: Prevalence of IHD by age group and sex, population aged 12 and over, Champlain District and Ontario, 2005



SOURCE: 2005 Canadian Community Heart Survey, Statistic Canada – Chronic Conditions in the Champlain LHIN, Health System Intelligence Project – October 2007

[†]Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

Figure 2.2: Prevalence of cerebrovascular disease by age group and sex, population aged 12 and over, Champlain District and Ontario, 2005



SOURCE: 2005 Canadian Community Heart Survey, Statistic Canada – Chronic Conditions in the Champlain LHIN, Health System Intelligence Project – October 2007

[†]Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

[‡]Data not reportable because of high sampling variability

^{*}Significantly different from provincial average based on assessment of 95% confidence intervals

District residents aged 12 and older reported having IHD^{III} and 1.0% reported having cerebrovascular disease^{IV} (Figures 2.1 and 2.2). These rates were comparable to provincial rates of 4.8% for IHD and 1.1% for

^{III} Chronic Conditions in the Champlain LHIN, Health System Intelligence Project – October 2007, p.14.

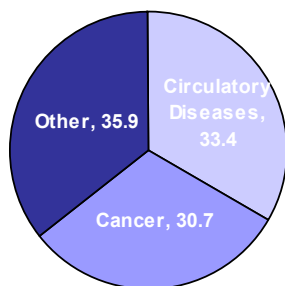
^{IV} Ibid, p. 18.

cerebrovascular disease. The prevalence of these conditions increased with age and was the highest in the 75+ group, with almost 1 in 4 Champlain residents aged 75 and older reporting having been diagnosed with IHD and 1 in 10 reporting having been diagnosed with cerebrovascular disease.

Mortality

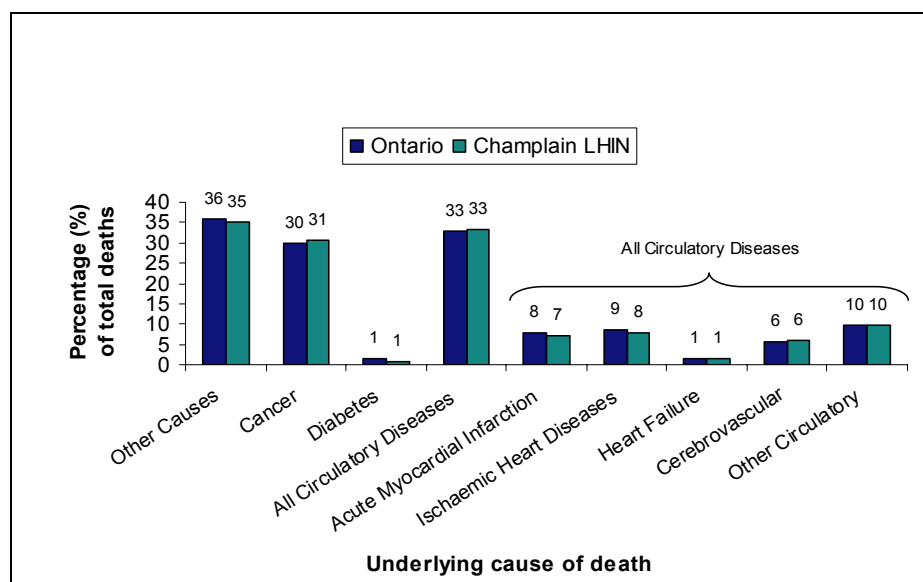
When describing the burden of CVD, mortality tends to receive the greatest attention due to the availability of the data. In 2004, as shown in Figure 2.3, circulatory disease was the leading cause of death in Champlain District and Ontario, accounting for 1 in 3 deaths. IHD accounted for the greatest percentage of total deaths (8%), followed by AMI (7%), and cerebrovascular disease (6%) (Figure 2.4). Data on diabetes are presented given that diabetes and heart disease are closely related with 4 out of 5 people with diabetes expected to die from heart attack or stroke.

Figure 2.3: Percentage of total deaths due to circulatory diseases, cancer and other, Champlain District, 2004



SOURCE: Vital Statistics 2004, Provincial Health Planning Database (PHPDB)
 Extracted November 15, 2007, Health Data and Decision Support Unit, Ontario, MOHLTC

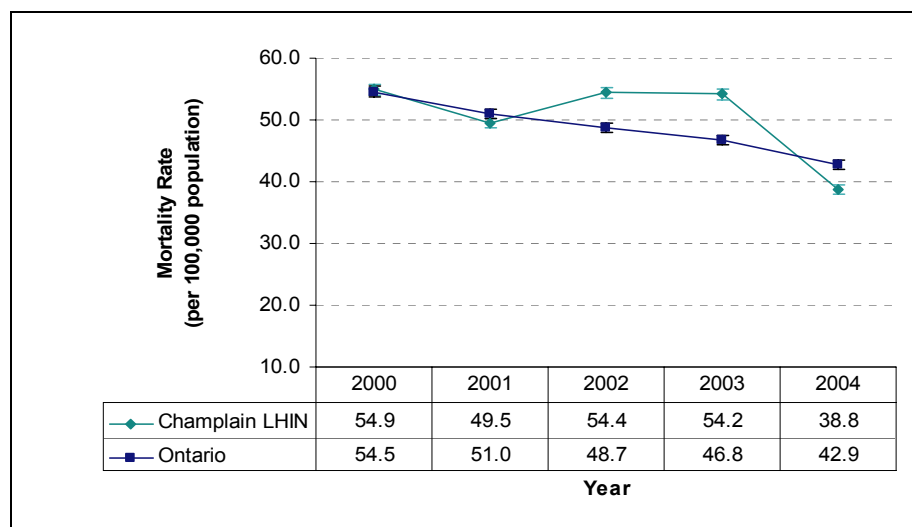
Figure 2.4: Percentage of total deaths due to circulatory diseases, cancer and other, Champlain District and Ontario, 2004



SOURCE: Vital Statistics 2004, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

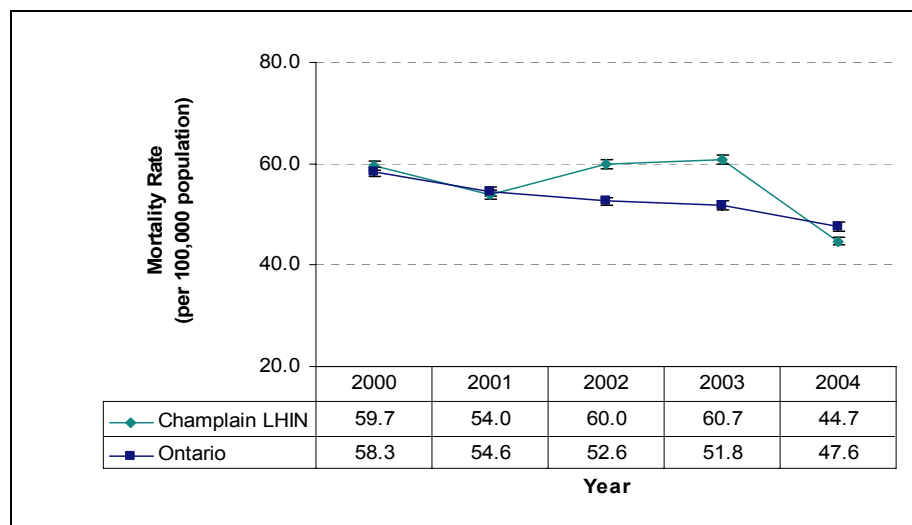
Between 2000 and 2004, the age-standardized mortality rates for AMI, IHD, and heart failure have been declining in Champlain District and Ontario (Figures 2.5-2.7). This pattern has not been observed for cerebrovascular disease (Figure 2.6). For diabetes (Figure 2.9), the regional rates have declined, whereas provincial rates have increased slightly. Despite the observed declines in mortality rates, due to the aging population and the general growth of the population, the actual numbers of people dying from CVD are expected to increase.

Figure 2.5: Age-standardized mortality rates (per 100,000 population) for acute myocardial infarction, 2000-2004



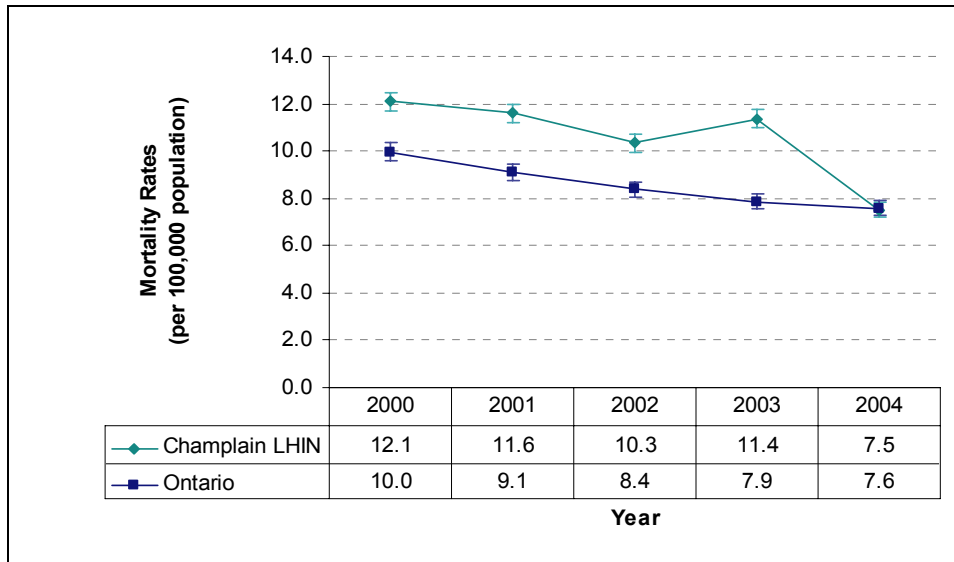
SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.6: Age-standardized mortality rates (per 100,000 population) for ischemic heart disease, 2000-2004



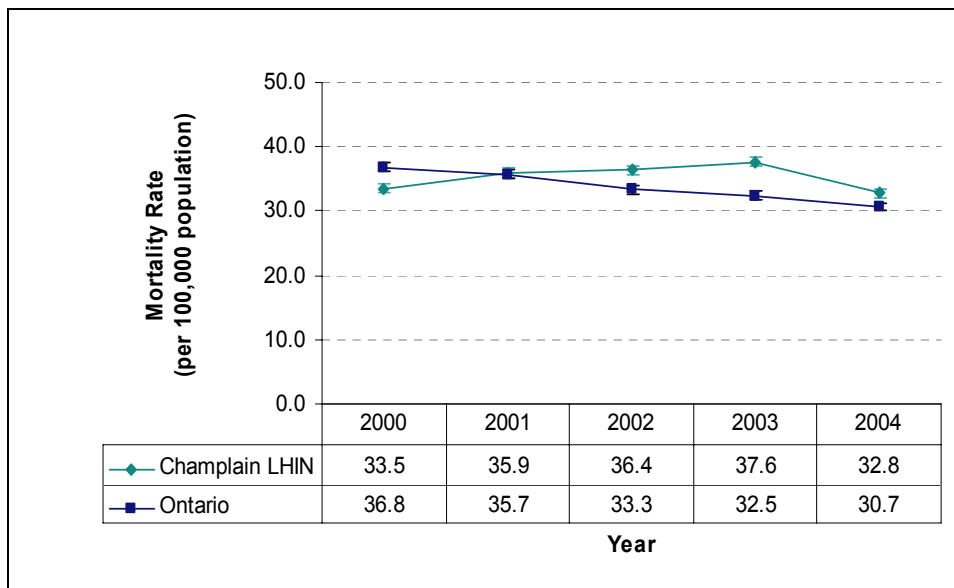
SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.7: Age-standardized mortality rates (per 100,000 population) for heart failure, 2000-2004



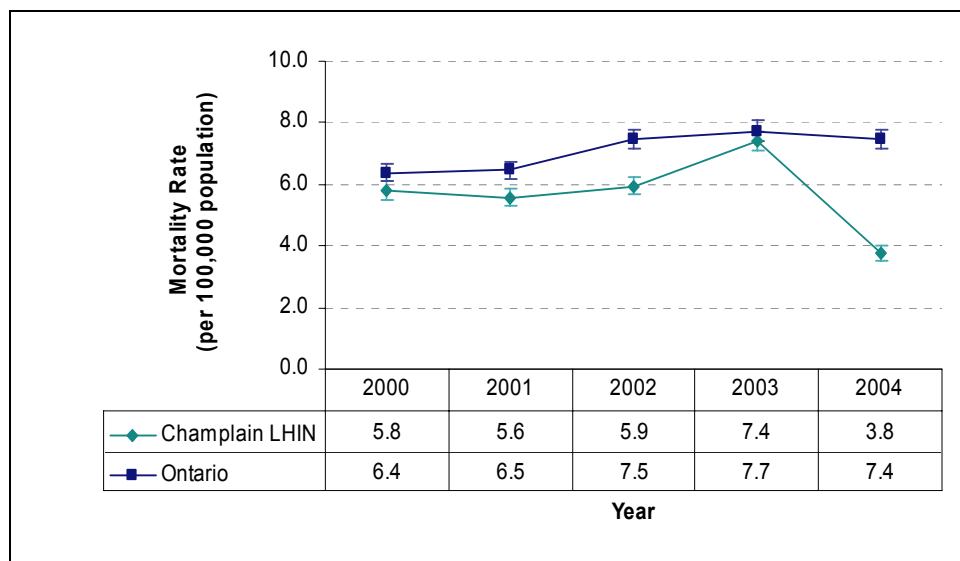
SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.8: Age-standardized mortality rates (per 100,000 population) for cerebrovascular disease, 2000-2004



SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.9: Age-standardized mortality rates (per 100,000 population) for diabetes, 2000-2004



SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

CVD affects men and women differently (Table 2.1). Specifically, more men than women die from AMI and IHD, but more women than men die from heart failure and cerebrovascular disease. Among men, the mortality rates from AMI and IHD increase significantly, and keep rising, after the age of 35; for women, after the age of 45. For heart failure and diabetes, the mortality rates for both sexes increase significantly after the age of 65, and for cerebrovascular disease, after the age of 55. These data confirm that CVD is not a disease of men or old age, but affects both men and women in the prime of their life.

Table 2.1: Age- and sex-specific mortality rates (per 100,000 population), Champlain District, 2000-2004

Acute Myocardial Infarction (AMI)										
	Females					Males				
AGE GROUP	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
35-44	1.0	1.0	2.0	3.0	1.0	10.1	5.9	6.9	2.0	11.1
45-54	9.8	5.9	12.8	9.1	3.3	32.5	35.1	37.0	25.7	28.7
55-64	21.5	24.5	12.4	25.2	9.6	128.6	75.5	99.8	87.6	69.3
65-74	97.9	75.9	77.9	77.4	81.3	275.2	235.3	226.2	198.0	200.6
75-84	388.9	382.0	305.6	292.8	275.1	614.6	468.1	632.7	679.8	496.5
85+	1206.4	907.4	1172.8	1172.7	865.1	3512.2	1556.5	1438.4	1511.6	1458.3
All Ages	44.2	38.1	38.6	38.7	31.7	73.4	49.2	55.0	52.2	46.8

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Table 2.1: Age- and sex-specific mortality rates (per 100,000 population), Champlain District, 2000-2004

Ischemic Heart Disease (IHD)										
	Females					Males				
AGE GROUP	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
35-44	1.0	1.0	3.0	3.0	1.0	10.1	5.9	6.9	3.0	12.1
45-54	9.8	5.9	12.8	9.1	5.6	35.0	36.3	37.0	26.9	33.3
55-64	23.5	24.5	12.4	28.6	12.9	134.6	79.4	112.5	98.0	77.6
65-74	107.9	88.6	85.5	102.3	96.1	292.5	249.7	260.2	223.1	236.3
75-84	437.5	413.0	329.1	335.6	333.3	662.7	526.0	688.8	758.6	577.7
85+	1339.4	1000.9	1281.0	1286.4	958.4	3804.9	1748.1	1666.7	1597.9	1687.5
All Ages	49.1	41.7	41.8	44.3	37.2	78.7	53.4	61.3	57.8	54.2
Heart Failure										
	Females					Males				
AGE GROUP	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
35-44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
45-54	0.0	0.0	0.0	1.1	0.0	1.3	0.0	1.2	0.0	1.1
55-64	2.0	1.9	1.8	1.7	1.6	0.0	0.0	3.6	3.4	3.3
65-74	12.5	15.2	5.0	20.0	4.9	26.1	31.6	14.1	30.7	16.5
75-84	90.3	72.3	60.4	55.9	71.2	144.3	84.2	51.0	93.6	76.4
85+	494.0	439.7	568.3	376.3	390.1	1609.8	718.4	411.0	669.4	416.7
All Ages	12.0	10.6	11.2	9.5	9.1	16.1	9.1	5.7	9.1	6.3
Cerebrovascular Disease										
	Females					Males				
AGE GROUP	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
35-44	2.0	8.0	3.0	3.0	5.1	3.0	0.0	2.0	3.0	2.0
45-54	3.7	7.1	3.5	9.1	3.3	8.8	2.4	11.9	8.2	6.9
55-64	19.5	20.8	8.9	25.2	24.1	16.1	21.3	18.2	12.0	21.5
65-74	55.2	63.3	65.4	67.4	78.8	98.5	80.4	82.0	94.8	107.2
75-84	322.9	309.7	261.9	259.9	275.1	347.4	352.4	295.9	330.0	310.3
85+	1177.9	1113.2	1263.0	1085.1	1399.4	2439.0	1029.7	1255.7	1425.2	1083.3
All Ages	37.1	37.8	36.1	35.3	41.0	34.3	23.9	24.9	27.0	25.7

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Table 2.1: Age- and sex-specific mortality rates (per 100,000 population), Champlain District, 2000-2004

Diabetes										
	Females					Males				
AGE GROUP	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
35-44	0.0	1.0	0.0	1.0	0.0	3.0	1.0	0.0	1.0	0.0
45-54	0.0	1.2	4.7	0.0	0.0	3.8	1.2	0.0	3.5	0.0
55-64	5.9	1.9	1.8	8.4	1.6	4.0	7.7	5.4	10.3	9.9
65-74	25.1	20.2	2.5	12.5	12.3	20.3	20.1	36.8	36.2	8.2
75-84	66.0	34.4	36.9	62.5	42.1	48.1	84.2	56.1	59.1	62.1
85+	85.5	65.5	135.3	122.5	76.3	292.7	167.6	205.5	172.7	62.5
All Ages	6.4	4.4	4.3	6.3	4.0	5.9	5.7	5.9	6.5	3.5

SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

The regional disparities in CVD and risk factors within the Champlain District noted earlier are still present. Specifically, three of the Champlain health regions – Renfrew, Eastern Ontario (in particular Prescott & Russell), and Leeds, Grenville & Lanark – were identified as Ontario “hot spots” for CVD morbidity and mortality, with rates significantly higher than those reported for the City of Ottawa, the province of Ontario, and Canada. Although data for Leeds, Grenville & Lanark were not available at the time of this writing, the patterns still hold, as shown in Table 2.2.

Table 2.2: Age-standardized mortality rates (per 100, 000 population), City of Ottawa, Eastern Counties, and Renfrew County, 2000-2004

All Causes of Death			
	City of Ottawa	Eastern Counties	Renfrew County
2000	579.6	703.7	665.2
2001	544.9	674.8	675.8
2002	546.0	652.5	699.9
2003	536.4	654.4	588.1
2004	532.2	639.0	620.8
All Circulatory Diseases			
	City of Ottawa	Eastern Counties	Renfrew County
2000	195.7	271.2	275.2
2001	178.7	250.2	258.5
2002	182.8	238.4	243.6
2003	174.1	236.8	206.6
2004	168.0	210.8	208.6
Acute Myocardial Infarction (AMI)			
	City of Ottawa	Eastern Counties	Renfrew County
2000	49.1	65.1	69.6
2001	38.6	55.5	57.1
2002	40.9	60.4	54.8
2003	41.0	57.0	53.0
2004	34.0	48.7	45.5
Ischemic Heart Disease (IHD)			
	City of Ottawa	Eastern Counties	Renfrew County
2000	109.1	174.3	144.4
2001	101.9	155.3	133.9
2002	104.5	149.6	136.6
2003	102.1	159.8	108.4
2004	93.6	131.9	108.9

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Table 2.2: Age-standardized mortality rates (per 100, 000 population), City of Ottawa, Eastern Counties, and Renfrew County, 2000-2004

Heart Failure			
	City of Ottawa	Eastern Counties	Renfrew County
2000	9.7	16.3	20.1
2001	9.8	12.5	17.8
2002	10.0	7.2	9.5
2003	8.8	12.6	13.3
2004	8.1	9.8	11.3
Cerebrovascular Disease			
	City of Ottawa	Eastern Counties	Renfrew County
2000	39.1	44.2	54.8
2001	36.8	49.1	58.8
2002	34.9	43.6	52.8
2003	34.8	38.3	42.9
2004	37.6	41.8	38.9
Diabetes			
	City of Ottawa	Eastern Counties	Renfrew County
2000	15.7	21.7	19.5
2001	12.5	22.1	19.3
2002	17.7	21.7	28.7
2003	18.0	23.0	26.0
2004	11.5	15.7	27.4

SOURCE: Generously supplied by the respective Public Health Units, Ontario Mortality Data 2000-2004, Provincial Health Planning Database (PHPDB), Health Planning Branch, Ontario MOHLTC

Potential Years of Life Lost (PYLL)

Potential years of life lost (PYLL) is an indicator of mortality that occurs prior to the approximate life expectancy (otherwise known as premature mortality). The PYLL rate takes into account the number of deaths, the age at death, and the age structure of the relevant population. It is a useful measure for health planners and policy makers in identifying program priorities for the prevention of premature death.

PYLL was calculated based on three years of mortality data (2002-2004) for ages 0 to 74. Rates for Champlain District and Ontario were generated with population estimates for ages 0 to 74 from the middle year (2003) of the three years. Rates were age- and sex-standardized using the standard 1991 Canadian population.

Ischemic heart disease was the leading cause of PYLL for circulatory diseases in Champlain District and Ontario. The PYLL for AMI, IHD, and heart failure was three times as high for men as it was for women (Table

2.3). The PYLL for cerebrovascular disease was slightly higher for men than for women, whereas for diabetes, the PYLL was twice as high for men as it was for women.

Table 2.3: Age- and sex-standardized PYLL rates per 100,000 population (avg. 2002-2004), Champlain District and Ontario

DISEASE	Champlain			Ontario		
	Male	Female	Both	Male	Female	Both
All Causes	5,270.5	3,788.1	4,523.9	5,658.0	3,634.2	4,632.6
All Circulatory Diseases	1,072.3	488.7	781.0	1,038.9	440.2	738.0
Acute Myocardial Infarction (AMI)	319.6	97.1	209.0	334.7	94.7	214.1
Heart Failure	17.2	5.9	11.8	11.5	8.8	10.2
Ischemic Heart Disease (IHD)	350.6	110.5	230.9	361.9	104.8	233.4
Cerebrovascular Disease	116.4	97.1	114.7	123.1	102.5	112.5
Diabetes	29.8	15.8	22.9	53.7	31.3	41.8

Hospitalizations

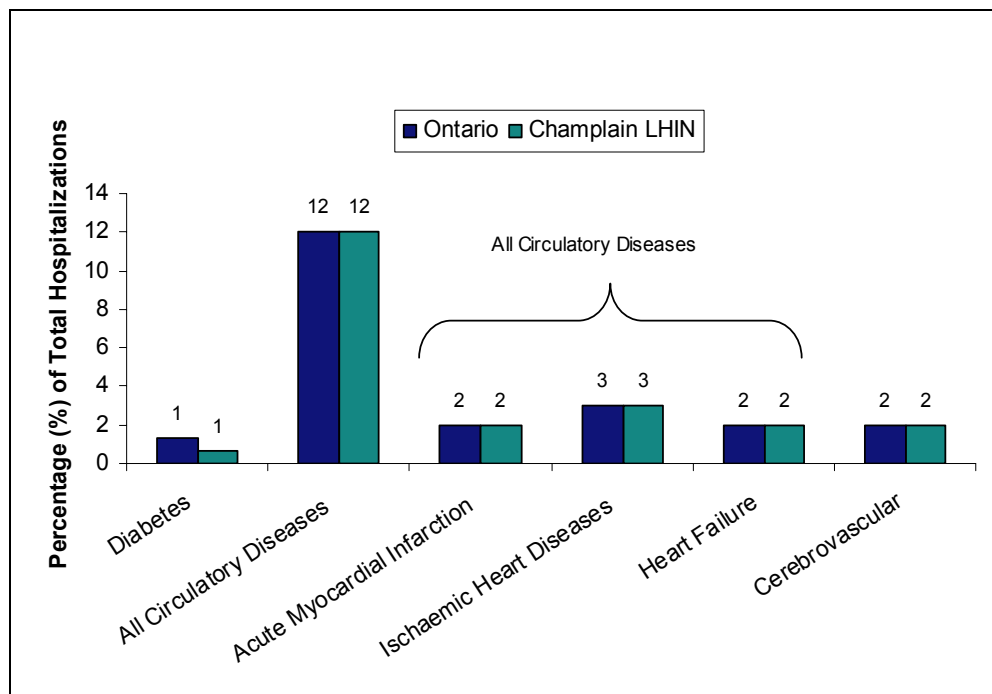
The Provincial Health Planning Database provides information on the use of hospital services for CVD and diabetes-related health problems. As shown in Figure 2.10, in addition to being the leading cause of death, CVD is also a major cause of hospitalizations in Champlain District, accounting for 12% of all admissions. The data presented record each separation from a hospital as one episode of care. As a result, an individual will be counted more than once if he or she has more than one hospital separation, even if it is related to the same health problem. The data have been extracted using the diagnosis most responsible for the length of stay, which is determined by the health care team at the time of hospitalization.

Even though national hospitalization rates for CVD (except heart failure; data not shown) have been decreasing, this does not seem to be the case in Champlain District (Figures 2.11-2.14), with age-standardized hospitalization rates for AMI, IHD, and heart failure remaining the same, and cerebrovascular disease and diabetes (Figure 2.15) actually increasing in the period between 2002 and 2006. Similarly to what has been predicted for mortality, the actual numbers of hospitalizations are expected to increase in the future due to the aging of the population.

Table 2.4 presents the hospitalization rates by age and sex. It is evident that hospitalization rates for all conditions increase dramatically with age. The trends for hospitalization rates for men and women over time parallel the trends observed for mortality, at least for AMI and IHD, where more men than women are hospitalized. For heart failure and stroke, hospitalization rates were comparable, with the exception of cerebrovascular disease-related hospitalizations in 2006, when women were hospitalized three times as often as men. Diabetes-related hospitalizations were consistently higher for men.

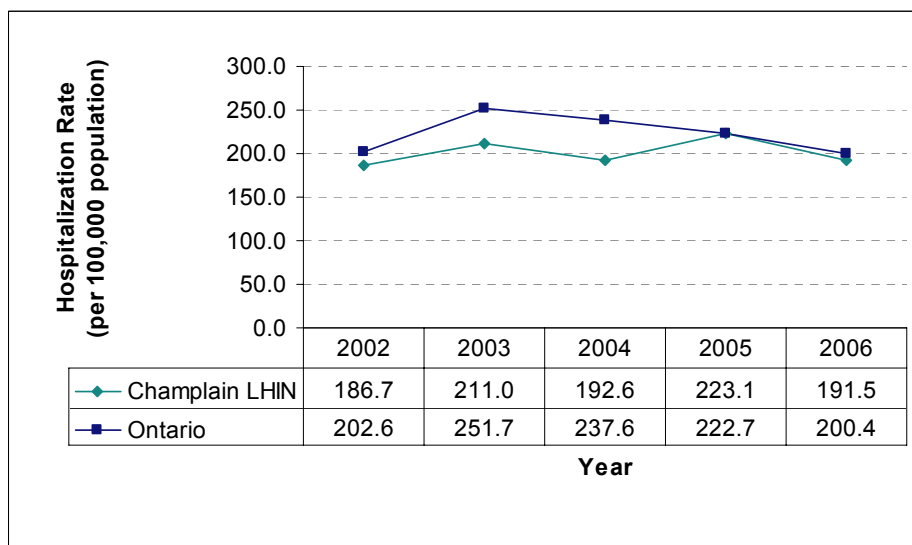
The regional disparities in CVD mortality within the Champlain District reported earlier are similar for CVD- and diabetes-related hospitalization rates. The available hospitalization rates from the Eastern Counties and Renfrew County are disproportionately higher than those observed within the City of Ottawa (Table 2.5).

Figure 2.10: Percentage of total hospitalizations due to cardiovascular diseases, Champlain District and Ontario, 2006



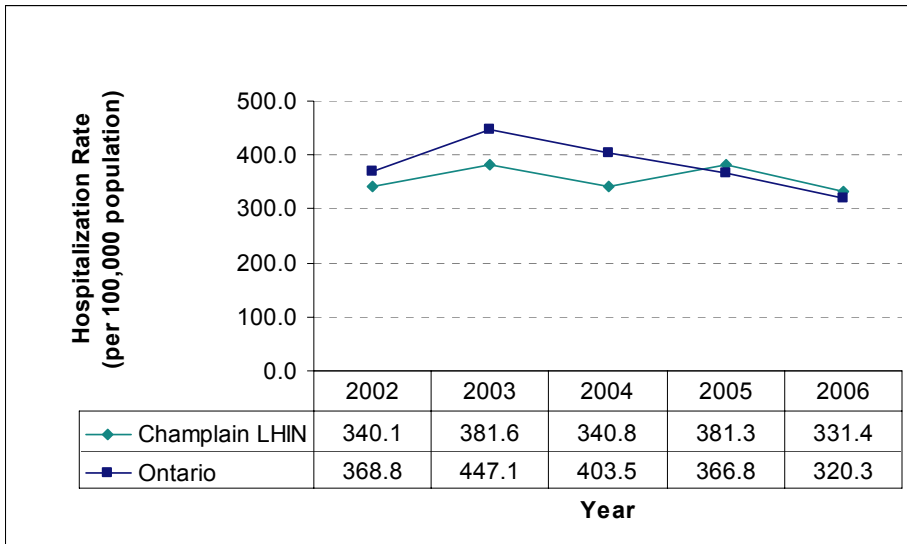
SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.11: Age-standardized hospitalization rates (per 100,000 population) for acute myocardial infarction, 2002-2006



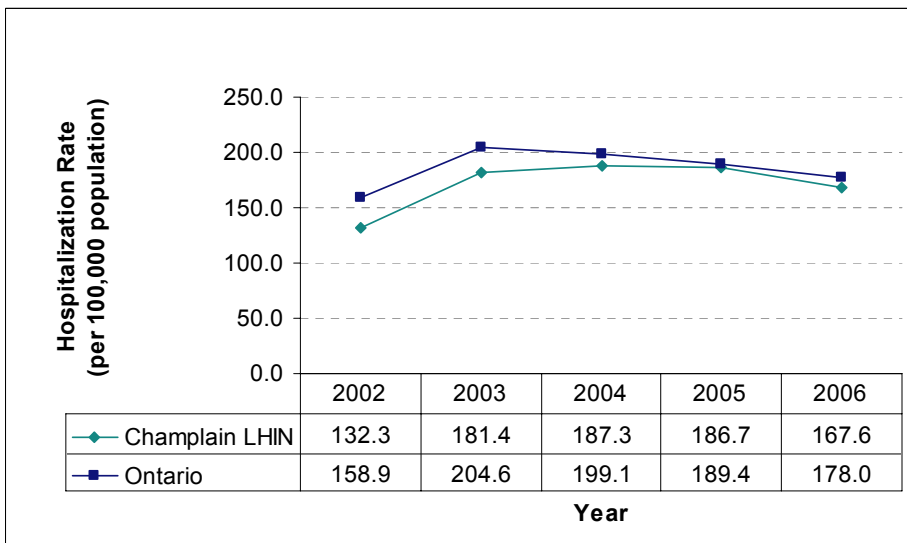
SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.12: Age-standardized hospitalization rates (per 100,000 population) for ischemic heart disease, 2002-2006



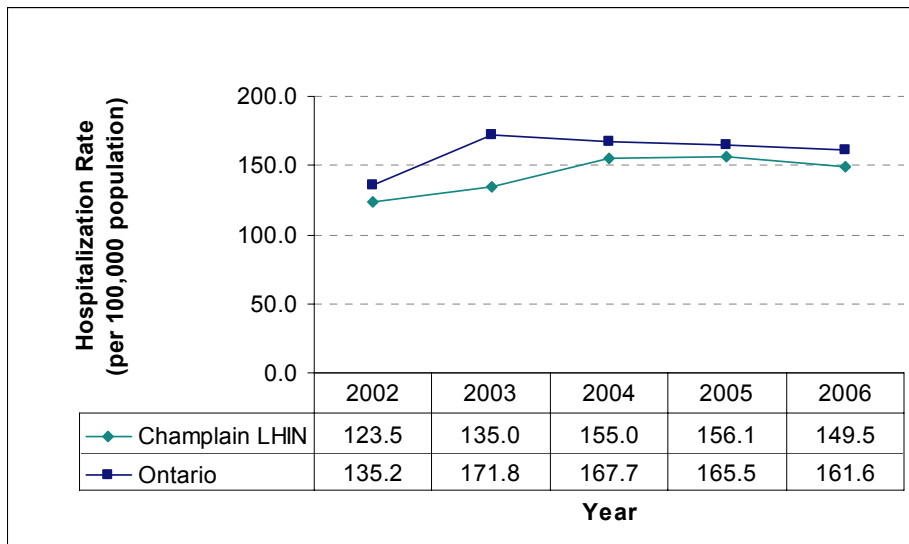
SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.13: Age-standardized hospitalization rates (per 100,000 population) for heart failure, 2002-2006



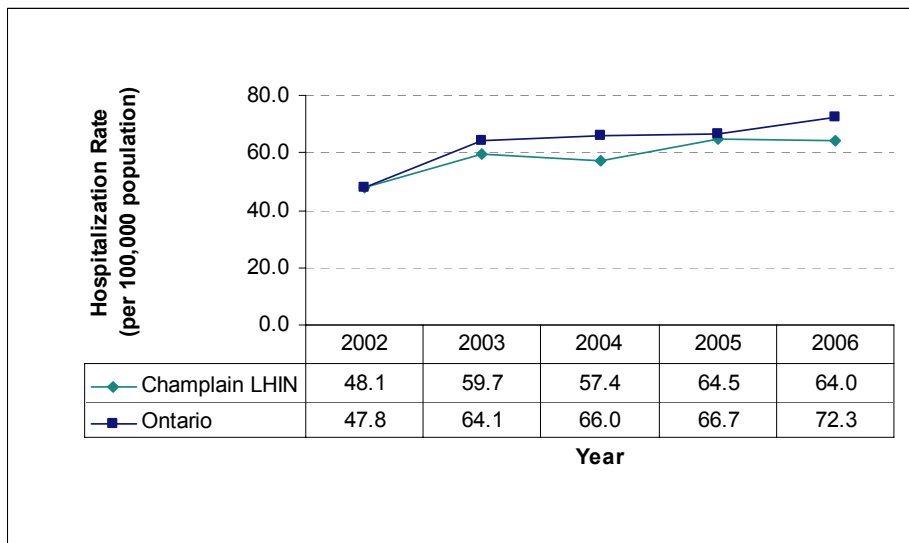
SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.14: Age-standardized hospitalization rates (per 100,000 population) for cerebrovascular disease, 2002-2006



SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Figure 2.15: Age-standardized hospitalization rates (per 100,000 population) for diabetes, 2002-2006



SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
 Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Table 2.4: Age- and sex-specific hospitalization rates (per 100,000 population), Champlain District, 2002-2006

Acute Myocardial Infarction (AMI)										
	Females					Males				
AGE GROUP	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
20-49	22.2	16.1	13.5	18.4	18.5	59.4	66.5	57.7	71.6	56.7
50-64	123.2	137.8	106.8	139.1	122.1	368.9	424.9	365.9	436.5	364.2
65-74	364.5	344.4	384.3	410.4	375.8	673.0	836.4	719.9	847.4	649.2
75+	907.9	1061.7	1044.7	1113.9	995.2	1288.6	1500.1	1394.4	1605.1	1469.5
All Ages	144.6	153.3	148.8	165.9	150.0	231.2	271.1	238.7	282.8	235.3
Ischemic Heart Disease (IHD)										
	Females					Males				
AGE GROUP	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
20-49	38.7	33.3	27.0	33.4	32.8	104.7	120.0	94.3	112.7	95.2
50-64	269.2	279.5	236.8	279.1	244.3	658.3	741.4	655.5	743.4	616.0
65-74	789.3	743.8	702.1	786.6	717.9	1337.6	1575.3	1390.3	1543.2	1223.9
75+	1519.7	1736.1	1714.6	1775.4	1618.1	2051.8	2579.0	2272.2	2558.4	2335.9
All Ages	272.9	283.5	265.8	291.0	264.9	411.4	483.8	419.2	475.5	401.0
Heart Failure										
	Females					Males				
AGE GROUP	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
20-49	4.5	6.0	9.4	5.3	2.6	11.1	12.6	11.5	10.4	9.7
50-64	38.3	87.9	89.5	78.8	65.6	117.7	142.3	167.6	159.2	132.9
65-74	294.1	419.3	413.9	383.5	346.9	534.5	666.4	681.4	674.1	542.8
75+	1103.7	1437.2	1592.8	1646.8	1541.3	1292.8	1961.3	1802.2	1899.0	1791.2
All Ages	125.9	174.7	188.7	185.2	169.2	139.4	189.2	186.7	188.5	166.4
Cerebrovascular Disease										
	Females					Males				
AGE GROUP	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
20-49	12.0	23.9	28.8	25.9	532.8	15.6	13.7	21.1	26.0	24.6
50-64	68.3	119.8	116.5	96.4	99.7	145.2	144.4	168.6	163.1	158.9
65-74	321.8	304.5	303.0	324.9	315.6	429.8	566.0	522.0	555.0	529.5
75+	888.3	992.4	1182.9	1097.9	1094.5	1009.2	1415.9	1141.9	1296.2	1107.6
All Ages	122.2	145.6	162.8	152.9	475.2	124.6	154.9	147.2	159.9	146.8

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Table 2.4: Age- and sex-specific hospitalization rates (per 100,000 population), Champlain District, 2002-2006

Diabetes										
AGE GROUP	Females					Males				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
20-49	10.2	7.1	8.2	10.1	9.8	11.1	10.3	14.8	17.8	13.1
50-64	53.8	43.9	55.8	53.8	62.9	70.0	108.5	118.0	135.3	104.1
65-74	105.6	142.3	142.9	119.7	149.4	200.8	326.2	230.8	292.4	284.7
75+	183.5	227.2	224.9	268.7	234.7	350.3	393.1	314.6	350.4	486.2
All Ages	41.4	44.8	47.6	49.5	51.3	55.3	75.0	67.7	80.1	77.0

SOURCE: Health Services 2006, Provincial Health Planning Database (PHPDB)
Extracted March, 2008, Health Data and Decision Support Unit, Ontario, MOHLTC

Table 2.5: Age-standardized hospitalization rates (per 100,000 population) for City of Ottawa, Eastern Counties, and Renfrew County, 2002-2006

All Circulatory Diseases			
	City of Ottawa	Eastern Counties	Renfrew County
2002	768.1	---	1498.9
2003	732.6	1228.2	1241.0
2004	720.7	1161.7	1334.6
2005	707.9	1135.4	1385.1
2006	664.1	1101.8	1283.8
Acute Myocardial Infarction (AMI)			
	City of Ottawa	Eastern Counties	Renfrew County
2002	138.5	---	195.5
2003	118.2	226.7	181.7
2004	102.3	212.5	165.5
2005	133.3	237.9	170.3
2006	90.3	226.1	129.0
Ischemic Heart Disease (IHD)			
	City of Ottawa	Eastern Counties	Renfrew County
2002	357.6	---	621.8
2003	346.6	654.2	474.3
2004	324.6	612.2	565.5
2005	316.1	561.7	484.2
2006	288.3	554.5	525.9

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Table 2.5: Age-standardized hospitalization rates (per 100,000 population) for City of Ottawa, Eastern Counties, and Renfrew County, 2002-2006

Heart Failure			
	City of Ottawa	Eastern Counties	Renfrew County
2002	138.5	---	41.4
2003	118.2	163.2	34.4
2004	102.3	169.3	29.5
2005	133.3	188.6	13.2
2006	90.3	157.7	14.9
Cerebrovascular Disease			
	City of Ottawa	Eastern Counties	Renfrew County
2002	110.6	---	178.5
2003	100.8	112.1	108.3
2004	100.7	116.8	128.0
2005	102.3	130.1	172.3
2006	91.8	116.9	161.9
Diabetes			
	City of Ottawa	Eastern Counties	Renfrew County
2002	62.7	---	165.7
2003	51.2	86.2	150.1
2004	52.8	86.1	145.6
2005	64.2	90.5	163.9
2006	63.0	112.8	175.8

SOURCE: Generously supplied by the respective Public Health Units, Ontario Mortality Data 2000-2004, Provincial Health Planning Database (PHPDB), Health Planning Branch, Ontario MOHLTC

--- For Eastern Counties, the hospitalization data were calculated for calendar and not fiscal years. The 2002 data for this health unit were calculated using ICD9 rather than ICD10 codes. For this reason, it was not included in the present table.

Emergency Department Visits and General Practitioner/Family Practitioner Visits

The burden of CVD on the health care system is also evident when examining the rates for emergency department (ED) visits and general practitioner (GP)/family practitioner (FP) visits. Table 2.6 presents the utilization rates of these health services for IHD, cerebrovascular disease and diabetes^v. As was the case for hospitalizations, the rates of ED visits and GP/FP visits in Champlain and Ontario increase dramatically with age for all conditions. For IHD and diabetes, ED and GP/FP visit rates were higher among males than females. GP/FP visit rates among Champlain District residents were lower than the provincial rates.

^v Chronic Conditions in the Champlain LHIN, Health System Intelligence Project – October 2007, p.11, 15, 19.

Table 2.6: Emergency department visit and GP/FP visit rates by age group and sex, per 100, 000 population, Champlain District and Ontario, 2005-2006

Ischemic Heart Disease (IHD)				
Age group, sex	ED visit rate		GP/FP visit rate	
	Champlain	Ontario	Champlain	Ontario
12-44	34	35	328	372
45-64	436	438	4,424	5,611
65-74	1,127	1,094	15,398	19,735
75+	2,251	2,071	26,500	32,778
Males, 12+	465	458	5,622	7,215
Females, 12+	318	304	3,432	4,266
Total, age 12+	390	380	4,506	5,714
Cerebrovascular Disease				
12-44	20	15	54	64
45-64	182	159	598	653
65-74	663	594	2397	2489
75+	1,721	1,502	6,693	6,134
Males, 12+	232	207	835	873
Females, 12+	237	208	867	835
Total, age 12+	234	208	851	854
Diabetes				
0-11	44	44	135	171
12-44	109	113	2,350	2,946
45-64	241	236	17,450	21,150
65-74	452	434	37,567	45,158
75+	620	616	35,154	38,794
Male	217	208	11,032	13,218
Female	159	165	9,465	11,160
All Ages	187	186	10,237	12,176

Source: Provincial Health Planning Database (PHPDB), Health Planning Branch, Ontario MOHLTC, 2005/06 fiscal year. Chronic Conditions in the Champlain LHIN, Health System Intelligence Project – October 2007.

CHAPTER 3: RISK FACTORS FOR CARDIOVASCULAR DISEASE

While there are many factors that can influence whether or not someone develops a chronic health condition such as CVD, there is increasing recognition that lifestyle factors play a primary role. In particular, the following nine major, potentially modifiable risk factors have been identified in a worldwide landmark study of patients from 52 countries (INTERHEART)⁸ to account for over 90% of the population-attributable risk of a first myocardial infarction (heart attack): cigarette smoking, adverse blood lipid profile, high blood pressure, diabetes, abdominal obesity, psycho-social factors, alcohol consumption, lack of daily consumption of fruits and vegetables, and lack of daily exercise. Decreasing these risk factors in the population can have a great impact on reducing the health and the economic burden of this disease. At the present time, approximately 80% of the Canadian population has at least one of the following risk factors for CVD: smoking, physical inactivity, being overweight, high blood pressure, and diabetes.² Nearly two-thirds have 2 risk factors, and another 11% have 3 or more. Although the way in which the nine risk factors interact to produce the disease reflects a complex interplay of environmental and constitutional (genetic) influences which remain to be further explored, sufficient knowledge has accumulated over the last few decades to prevent CVD. This knowledge spans the full range of laboratory, clinical, observational, and experimental research. A striking deficiency, however, has been noted in the development and application of appropriate evidence-based prevention and control policies. There is an urgent need to promote community interventions as part of a population-wide CVD prevention strategy. Addressing the modifiable cardiovascular risk factors will prevent not only CVD, but also many other chronic diseases, such as diabetes, cancer, chronic obstructive pulmonary disease, and others that share the same risk factors.

High Blood Pressure

The percentage of all Canadians who reported having been diagnosed as having high blood pressure ($\geq 140/90$ mmHg) has increased significantly from 2003 to 2005 (Table 3.1). The prevalence of high blood pressure in Ontario also increased in 2005 (15.2%), and is significantly higher than the national rate (14.9%) (CCHS 3.1).

Approximately 14% of the population in the Champlain District reported being diagnosed with high blood pressure in 2005, which is lower than both the provincial and national rates. Renfrew County reported the highest percentage (18.3%) for both sexes, and for males alone (16.3%). Leeds, Grenville & Lanark had the highest percentage overall for women (20.2%), a rate significantly different from both the national and provincial rates. In contrast, the percentage of females in Ottawa with high blood pressure (12.6%) was significantly lower than the national and provincial rates. Interestingly, the percentage of males in Ottawa with high blood pressure increased significantly in 2005 from 2003; 11.1% to 14.4% (CCHS 3.1).

Figure 3.1 shows the percentage of the general population who reported having been diagnosed with high blood pressure by age group for the Champlain District and respective health units. Between 40 and 50% of the population in the 65 and older age group reported having high blood pressure in the Champlain District. The 44 to 65 year age group was the next highest, with approximately 20% having high blood pressure. Caution must be taken when interpreting the age group rates for the health units, due to small population counts.

Of the population in Champlain that reported having been diagnosed with high blood pressure, 21% indicated that they had taken medication for high blood pressure within the last month.

Table 3.1: Percentage (95% CI) of general population aged 12 and over who reported having been diagnosed by a health professional as having high blood pressure, by sex, 2003 and 2005

REGION	2003			2005		
	Both	Male	Female	Both	Male	Female
Canada	14.3 (14.1, 14.7)	13.3 (13, 13.7)	15.4 (15, 15.7)	14.9 (14.7, 15.2)*	14.1 (13.8, 14.5)*	15.7 (15.4, 16.1)
Ontario	14.7 (14.3, 15.2) †	14.4 (13.7, 15.1) †	15 (14.5, 15.6)	15.2 (14.8, 15.7) †	14.7 (14.1, 15.4) †	15.7 (15.1, 16.4)
Champlain	13.5 (12.3, 14.6) ‡	12.6 (10.9, 14.3) ‡	14.3 (12.6, 16.1)	14.3 (13.1, 15.6)	14.2 (12.3, 16.1)	14.5 (12.8, 16.1)
City of Ottawa	12.3 (10.8, 13.8) †‡	11.1 (8.8, 13.3) †‡	13.4 (11.1, 15.8)	13.5 (11.8, 15.2)	14.4 (12, 16.8)*	12.6 (10.5, 14.8) †‡
Eastern Counties	17.1 (14.8, 19.5) †‡	17.4 (13.5, 21.3) †	16.8 (13.9, 19.8)	15.7 (13.5, 17.8)	13.8 (10.5, 17.2)	17.5 (14.5, 20.6)
Renfrew County	16.9 (14.2, 19.6)	16.7 (12.8, 20.6)	17 (13.5, 20.5)	18.3 (15, 21.6)	16.3 (12, 20.7)	20.1 (15.7, 24.5)
Leeds, Grenville & Lanark	15.5 (13.3, 17.8)	14.6 (11.2, 18)	16.4 (13.5, 19.3)	16.5 (13.9, 19.1)	12.7 (8.7, 16.7)	20.2 (17, 23.5) †‡

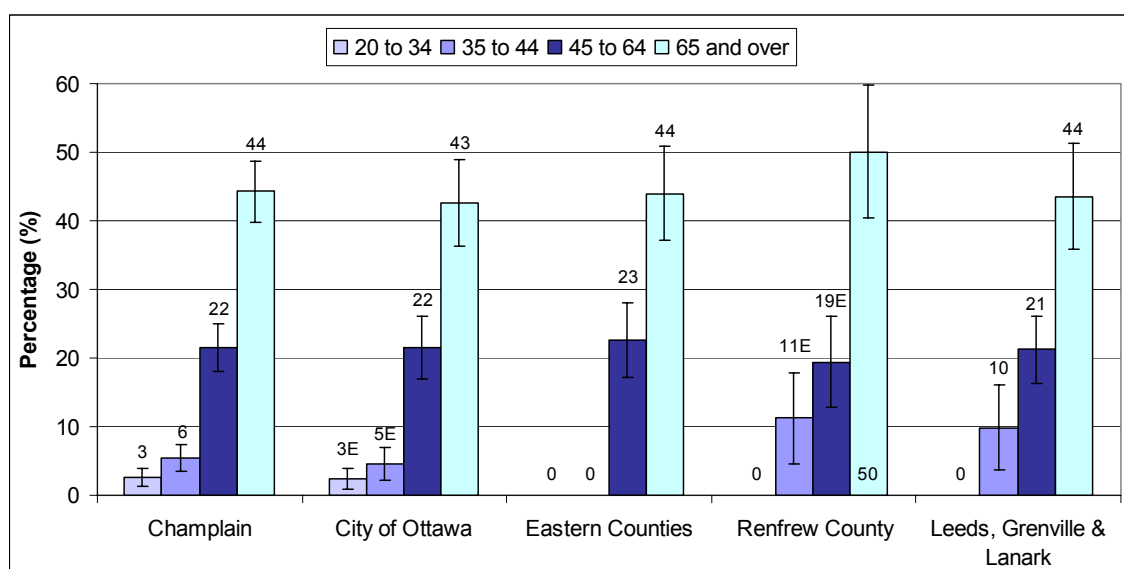
SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005. CANSIM Table 105-0400

† Statistically significant from the national rate

‡ Statistically significant from the provincial rate

*Statistically significant from previous cycle

Figure 3.1: Percentage (95% CI) of general population who reported having been diagnosed by a health professional as having high blood pressure, by age group (years), 2005



SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005. CANSIM Table 105-0410

^E Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

Tobacco Smoking

Smoking Status

The prevalence of current or daily smokers in 2005 in the Champlain District was approximately 20% (Tables 3.2-3.3), a rate consistent with that of Ontario and Canada. Within the Champlain District, the highest rates in 2005 were reported for Renfrew County (27.6%), followed by Eastern Ontario (27.1%) and Leeds, Grenville & Lanark (24.5%). The rates for these three counties were significantly higher than both provincial and national rates.

Table 3.2: Percentage (95% CI) of general population aged 12 and over who reported being a current smoker (daily or occasional), by sex, 2003 and 2005

REGION	2003			2005		
	Both	Male	Female	Both	Male	Female
Canada	22.9 (22.5, 23.3)	25 (24.4, 25.5)	20.9 (20.4, 21.4)	21.7 (21.3, 22.0)*	23.6 (23.1, 24.1)	19.8 (19.3, 20.2)
Ontario	22.1 (21.5, 22.7)†	24.9 (24, 25.8)	19.4 (18.6, 20.2)†	20.7 (20.1, 21.3)†	23.3 (22.5, 24.1)	18.2 (17.4, 18.9)†
Champlain	21.3 (19.5, 23.2)	23 (20.4, 25.7)	19.7 (17.3, 22.2)	20.9 (19.2, 22.7)	21.4 (18.9, 23.9)	20.4 (18.1, 22.8)
City of Ottawa	19.7 (17.4, 22.1)†‡	21.6 (18.2, 25.1)	17.9 (14.8, 21)	18.5 (16.2, 20.8)†	19.4 (16.3, 22.5)†‡	17.6 (14.6, 20.6)
Eastern Counties	24.5 (20.9, 28)	24.6 (19.4, 29.8)	24.3 (19.6, 29)‡	27.1 (23.8, 30.5)†‡	25.5 (20.6, 30.4)	28.7 (24.2, 33.3)†‡
Renfrew County	27.5 (23.1, 31.8)†‡	28.7 (22.6, 34.8)	26.4 (20.4, 32.3)‡	27.6 (23.5, 31.7)†‡	29.7 (23.9, 35.5)†‡	25.7 (19.8, 31.6)‡
Leeds, Grenville & Lanark	27.2 (23.4, 31)†‡	30.6 (25.1, 36)†‡	23.9 (18.5, 29.2)	24.5 (21.5, 27.5)‡	22 (16.9, 27.1)	26.9 (22.6, 31.3)†‡

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005. CANSIM Table 105-0400

† Statistically significant from the national rate

‡ Statistically significant from the provincial rate

*Statistically significant from previous cycle

Age at Initiation of Smoking

Thirty-three percent of residents within the Champlain District in 2005 reported initiating smoking between the ages of 5 and 14 years (Table 3.4). Renfrew County reported the highest percent (41.7%), followed by Eastern Ontario (35.6%), and Ottawa the lowest (31.7%). Age at initiation of smoking appears to have remained fairly stable between 2003 and 2005, within both Champlain and the province.

Table 3.3: Percentage (95% CI) of general population aged 12 and over who reported being a daily smoker or an occasional smoker, by sex, 2005

REGION	Daily Smoker			Occasional Smoker		
	Both	Male	Female	Both	Male	Female
Ontario	15.4 (14.7, 16.1)	17.2 (16.0, 18.3)	13.6 (12.8, 14.5)	4.8 (4.3, 5.3)	5.0 (4.3, 5.8)	4.6 (3.9, 5.3)
City of Ottawa	12.5 (9.8, 15.1)	12.0 (8.3, 15.7)	24.5 (21.2, 27.7)	4.5 (2.9, 6.1) ^E	3.4 (1.2, 5.5) ^E	5.5 (3.1, 7.9) ^E
Eastern Counties	20.8 (16, 25.6)	18.5 (12.1, 24.8) ^E	23.1 (16.3, 29.8)	5.8 (2.8, 8.8) ^E	F	8.0 (3.9, 12.1) ^E
Renfrew County	22.4 (18, 26.8)	24.9 (18.2, 31.6)	20.1 (13.9, 26.3)	4.7 (2.5, 7) ^E	5.8 (2.3, 9.2) ^E	F
Leeds, Grenville & Lanark	23 (18.3, 27.6)	22 (13.7, 30.4) ^E	12.9 (9.2, 16.6)	F	F	F

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005. CANSIM Table 105-0327

^E Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

F Data not reportable due to high sampling variability, CV greater than 33.3%

Table 3.4: Percentage (95% CI) of general population who reported initiating smoking between the ages of 5 and 14 years, by sex, 2003 and 2005

REGION	2003			2005		
	Both	Male	Female	Both	Male	Female
Canada	37.2 (36.7, 37.7)	39.1 (38.4, 39.8)	35.1 (34.3, 35.8)	36.6 (36.1, 37.1)	38.7 (38.1, 39.4)	34.2 (33.5, 34.8)
Ontario	32.9 (32.1, 33.7)†	36.2 (34.9, 37.4)†	29.1 (28, 30.2)†	32.7 (31.9, 33.5)†	35.5 (34.3, 36.7)†‡	29.4 (28.2, 30.5)†
Champlain	34.1 (31.3, 36.9)†	36.1 (32.3, 40)	31.9 (28.3, 35.4)	33 (30.5, 35.6)†	37 (33.3, 40.7)	28.7 (25.2, 32.1)†
City of Ottawa	33.5 (29.8, 37.2)†	36.4 (31.2, 41.5)	30.4 (25.7, 35)†	31.7 (28.3, 35.2)†	36.3 (31.3, 41.2)	26.9 (22.4, 31.3)†
Eastern Counties	35.6 (30.8, 40.5)	34.7 (28, 41.3)	36.7 (29.7, 43.7)‡	35.6 (31.1, 40.1)	36.7 (30.3, 43.1)	34.4 (28, 40.7)
Renfrew County	40.4 (34.7, 46.2)‡	43.9 (36.1, 51.7)	36.6 (28.9, 44.3)	41.7 (36.2, 47.2)‡	48.3 (40.3, 56.4)†‡	34.7 (27.8, 41.6)
Leeds, Grenville & Lanark	33.7 (28.7, 38.7)	33.3 (26.6, 40)	34.2 (27.1, 41.2)	33.3 (28.6, 38)	36.2 (29.5, 42.8)	30.1 (24.4, 35.8)

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005. CANSIM Table 105-0400

† Statistically significant from the national rate

‡ Statistically significant from the provincial rate

*Statistically significant from previous cycle

Exposure to Second-hand Smoke in Past Month in Public Places

Exposure to second-hand smoke improved in 2005 compared to 2003 with lower reported rates across Canada and Ontario (Table 3.5). Ontario had a significantly lower rate of reported exposure to second-hand smoke for males and females compared to Canada. The introduction of smoke-free policies across Ontario may be largely responsible for this observed rate. Leeds, Grenville & Lanark, Renfrew County, and Eastern Ontario all had rates higher than the province. Only Eastern Ontario however, was significantly different.

Table 3.5: Percentage (95% CI) of general population who reported exposure to second-hand smoke in the past month, in vehicles and/ or public places, by sex, 2003 and 2005

REGION	2003			2005		
	Both	Male	Female	Both	Male	Female
Canada	24.1 (23.7, 24.6)	27.1 (26.5, 27.8)	21.4 (20.8, 22)	19 (18.6, 19.4)*	21.3 (20.8, 21.9)*	16.9 (16.4, 17.4)*
Ontario	22.4 (21.7, 23.1)†	25.2 (24.1, 26.3)†	20 (19.1, 20.9)†	17.3 (16.7, 18)†*	19.3 (18.4, 20.3)†	15.5 (14.8, 16.3)†
Champlain	19.5 (17.6, 21.4)†‡	19.8 (16.9, 22.6)†‡	19.3 (16.7, 21.9)	18.1 (16.2, 20.1)	20.6 (17.4, 23.7)	15.8 (13.6, 18)
City of Ottawa	18.7 (16.3, 21.1)†‡	18.1 (14.6, 21.7)†‡	19.2 (15.8, 22.6)	17 (14.5, 19.5)	19.1 (15.1, 23.2)	15.1 (12.3, 17.8)
Eastern Counties	21.3 (17.9, 24.7)	24.3 (18.7, 29.9)	18.2 (13.7, 22.8)	21.4 (17.6, 25.2)‡	25.4 (19.1, 31.8)	17.2 (12.8, 21.7)
Renfrew County	20.9 (16.4, 25.3)	23.1 (16.7, 29.5)	18.9 (13.1, 24.6)	19.4 (15.2, 23.7)	21.2 (14.8, 27.7)	17.9 (12.8, 22.9)
Leeds, Grenville & Lanark	22.7 (19.1, 26.2)	24.7 (18.9, 30.6)	20.8 (15.9, 25.8)	20.7 (16.5, 23.6)	23.3 (18, 28.5)	16.7 (12.3, 21.2)

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005

† Statistically significant from the national rate

‡ Statistically significant from the provincial rate

*Statistically significant from previous cycle

Diabetes

The percentage of the general population who reported having been diagnosed with diabetes is presented in Table 3.6. Nationally, the prevalence of diabetes increased significantly from 4.6% in 2003 to 4.9% in 2005. The percentage of males with diabetes has also significantly increased from 4.9% to 5.3%. Similar patterns were observed in Ontario and the Champlain District; however, the observed increases in the prevalence of diabetes from 2003 to 2005 were not statistically significant.

In 2005, Eastern Ontario had the highest prevalence, with 7.0% of the population having diabetes, a rate significantly higher than both the provincial and national rates. City of Ottawa had the lowest prevalence of diabetes, with only 4.6%.

The age group with the highest prevalence of diabetes in 2005 was the 65 and over group, followed by the 45 to 64 years age group. Approximately 13% of Champlain District residents in the 65 and over age group reported having diabetes. Renfrew County reported the highest rates of diabetes for both age groups (Figure 3.2).

Table 3.6: Percentage (95% CI) of general population aged 12 and over who reported having been diagnosed by a health professional as having diabetes, by sex, 2003 and 2005

REGION	2003			2005		
	Both	Male	Female	Both	Male	Female
Canada	4.6 (4.4, 4.8)	4.9 (4.7, 5.2)	4.3 (4.1, 4.5)	4.9 (4.7, 5.0)*	5.3 (5.1, 5.6)*	4.4 (4.2, 4.6)
Ontario	4.6 (4.3, 4.9)	4.8 (4.4, 5.2)	4.4 (4.0, 4.8)	4.8 (4.5, 5.1)†	5.6 (5.1, 6.0)	4.1 (3.8, 4.4)
Champlain	4.6 (3.8, 5.3)	5.1 (4.0, 6.2)	4.0 (3.0, 5.0)	5.1 (4.1, 6.1)	5.7 (4.1, 7.3)	4.5 (3.3, 5.8)
City of Ottawa	4.2 (3.2, 5.2)	4.7 (3.3, 6.1) ^E	3.7 (2.3, 5.1) ^E	4.6 (3.3, 5.9)	5.4 (3.3, 7.5) ^E	3.8 (2.3, 5.4) ^E
Eastern Counties	5.6 (4.1, 7.0)	6.5 (3.9, 9.0) ^E	4.7 (3.0, 6.3) ^E	7.0 (4.9, 9.0)†‡	7.3 (4.7, 9.8) ^E	6.6 (3.8, 9.4) ^E
Renfrew County	5.8 (4.1, 7.4)	7.0 (4.4, 9.5) ^E	4.7 (2.3, 7.0) ^E	6.3 (4.3, 8.4)	6.0 (3.4, 8.5) ^E	6.7 (3.5, 9.8) ^E
Leeds, Grenville & Lanark	5.8 (4.2, 7.4)	6.7 (4.3, 9.1) ^E	4.9 (2.9, 6.9) ^E	6.0 (4.1, 7.9)	6.3 (3.8, 8.7) ^E	5.7 (3.3, 8.1) ^E

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005. CANSIM Table 105-0400

^E Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

† Statistically significant from the national rate

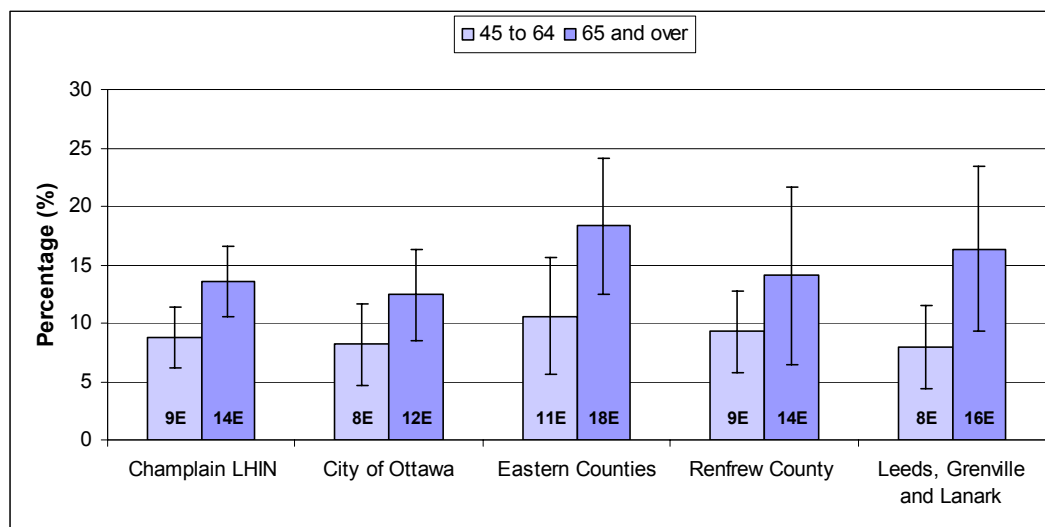
‡ Statistically significant from the provincial rate

*Statistically significant from previous cycle

Overweight & Obesity

In 2005, over 30% of the population within the Champlain District had a BMI based on self-reported information classified as overweight (Table 3.7), and close to 15% as obese (Table 3.8). The self-reported prevalence was much higher in males and individuals in the 45 to 64 years age group (Figure 3.3). The prevalence of overweight and obese youth (aged 12 to 17) was approximately 11% and 7% respectively (Table 3.9). Low population counts for these categories however, mean that these rates must be interpreted with caution.

Figure 3.2: Percentage (95% CI) of general population who reported having been diagnosed by a health professional as having diabetes, by age group, Champlain District and Health Units, 2005



SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005. CANSIM Table 105-0411

^E Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

Table 3.7: Percentage (95% CI) of general population aged 18 and over whose BMI based on self-reported information indicated overweight (25.00 to 29.99), by sex, Canada, Ontario, Champlain District, and Health Unit, 2003 and 2005

REGION	2003			2005		
	Both	Male	Female	Both	Male	Female
Canada	33.3 (32.9, 33.7)	41.0 (40.4, 41.6)	25.7 (25.1, 26.2)	33.4 (33, 33.8)	40.9 (40.2, 41.5)	26.1 (25.6, 26.6)
Ontario	33.3 (32.6, 34)	40.9 (39.8, 41.9)	26.0 (25.1, 26.9)	33.4 (32.6, 34.2)	41.1 (39.9, 42.3)	25.9 (25, 26.8)
Champlain	36.6 (34.5, 38.7)†‡	45.6 (42.5, 48.7)†‡	27.9 (24.9, 30.9)	33.7 (31.6, 35.7)	42.5 (39.3, 45.8)	25.2 (22.5, 27.8)
City of Ottawa	35.6 (32.9, 38.2)	44.4 (40.4, 48.4)	26.9 (23.0, 30.9)	32.2 (29.6, 34.9)	40.3 (36.1, 44.5)	24.5 (21.2, 27.7)
Eastern Counties	40.9 (37.1, 44.7)†‡	52.4 (46.6, 58.2)†‡	29.4 (24.8, 34)	38.6 (34.7, 42.5)†‡	48.1 (41.6, 54.7)†‡	29.1 (24.1, 34.1)
Renfrew County	36.6 (31.8, 41.4)	39.4 (32.2, 46.5)	34.1 (28.1, 40.2)†‡	32.4 (28.4, 36.3)	42.1 (35, 49.2)	23.4 (16.9, 30)*
Leeds, Grenville & Lanark	35.6 (31.3, 40)	44.8 (37.8, 51.7)	26.8 (21.6, 31.9)	37.0 (32.9, 41.1)	48.0 (40.7, 55.2)	26.4 (21.6, 31.2)

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005. CANSIM Table 105-0400

† Statistically significant from the national rate

‡ Statistically significant from the provincial rate

* Statistically significant from previous cycle

Table 3.8: Percentage (95% CI) of general population aged 18 and over whose BMI based on self-reported information indicated obese (30.00 or higher), by sex, 2003 and 2005

REGION	2003			2005		
	Both	Male	Female	Both	Male	Female
Canada	14.9 (14.6, 15.2)	15.9 (15.5, 16.3)	13.9 (13.4, 14.3)	15.5 (15.1, 15.8)*	16.8 (16.3, 17.3)*	14.2 (13.8, 14.6)
Ontario	14.8 (14.3, 15.4)	16.0 (15.3, 16.7)	13.7 (13, 14.5)	15.1 (14.5, 15.6)	16.3 (15.5, 17.2)	13.9 (13.2, 14.5)
Champlain	14.6 (12.9, 16.2)	14.5 (12.1, 16.8)	14.6 (12.3, 16.9)	14.0 (12.4, 15.6)	15.4 (12.8, 18.0)	12.7 (11, 14.3)
City of Ottawa	12.8 (10.7, 14.8)†‡	12.6 (9.6, 15.5)†‡	13.0 (10, 15.9)	12.3 (10.2, 14.3)†‡	14.1 (10.7, 17.6)	10.5 (8.4, 12.6)†‡
Eastern Counties	18.8 (15.6, 22)†‡	20.3 (15.4, 25.3)	17.3 (13.3, 21.2)	18.7 (15.6, 21.7)†‡	19.0 (14.1, 23.8)	18.3 (14.4, 22.2)†‡
Renfrew County	18.4 (14.4, 22.5)	19.3 (13.3, 25.3)	17.6 (12.3, 15.5)	20.2 (16.3, 24.0)†‡	20.7 (15, 26.4)	19.7 (14.8, 24.5)†‡
Leeds, Grenville & Lanark	18.1 (14.9, 21.2)†‡	18.8 (14.1, 23.5)	17.4 (12.9, 21.8)	15.3 (12.2, 18.3)	16.4 (11.7, 21.1)	14.1 (10, 18.3)

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005. CANSIM Table 105-0400

† Statistically significant from the national rate

‡ Statistically significant from the provincial rate

*Statistically significant from previous cycle

Table 3.9: Percentage (95% CI) of Champlain District youth aged 12 to 17 whose BMI based on self-reported information indicated overweight or obese, 2005

	Overweight	Obese
Both	11.7 (7.7, 15.6) ^E	7.7 (4.0, 11.4) ^E
Males	11.2 (5.9, 16.5) ^E	F
Females	12.1 (6.1, 18.2) ^E	F

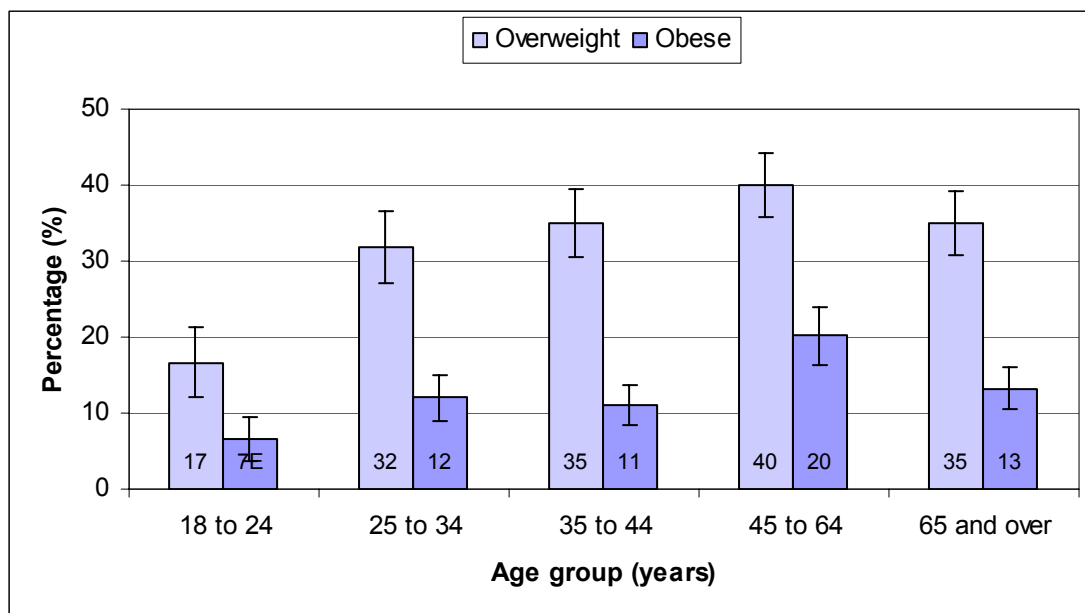
SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 2.1 and 3.1), 2003 and 2005.

CANSIM Table 105-0400

^E Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

F Data not reportable due to high sampling variability, CV greater than 33.3%

Figure 3.3: Percentage of general population in the Champlain District whose BMI based on self-reported information indicated overweight or obese, by age group, 2005



SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005

^E Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

Physical Inactivity

In 2005, approximately 47% of the Canadian population and 46% of the Ontario population reported being physically inactive during their leisure time (daily energy expenditure less than 1.5 kcal/kg/day). The prevalence in the Champlain District (42.1%) was slightly lower than the provincial rate (45.8) (Table 3.10). The highest rates of physical inactivity were reported in Eastern Ontario (45.5%) and Renfrew County (44.2%). The prevalence of physical inactivity was also higher for females than males across the Champlain District, Ontario, and Canada.

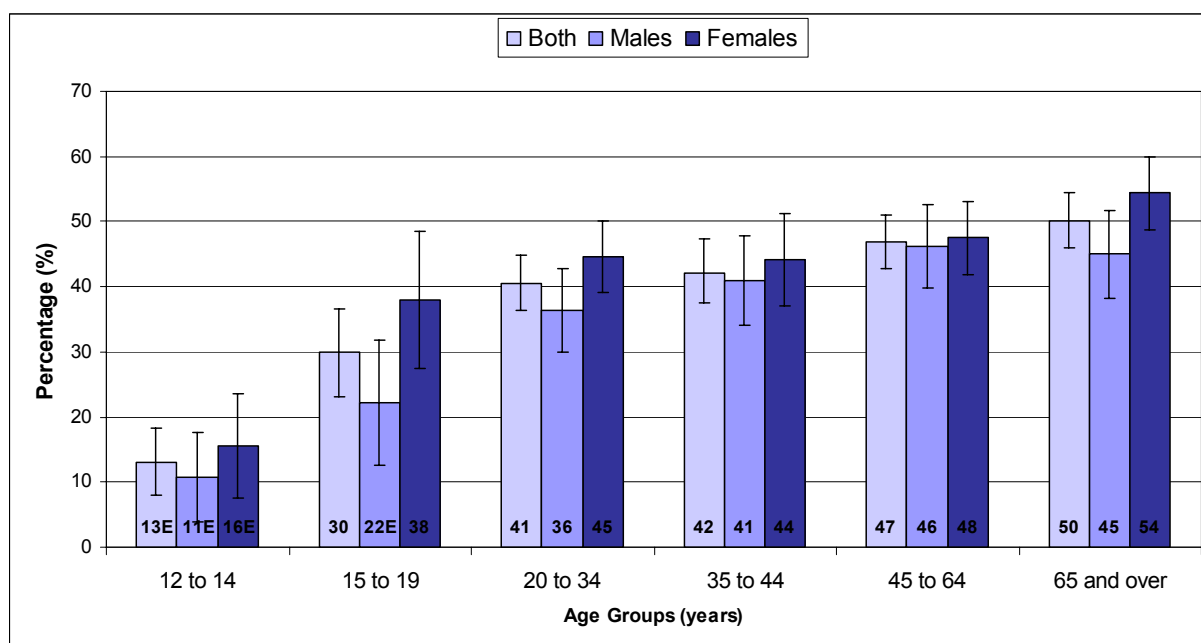
Self-reported physical inactivity rates increased across age groups, with the percentage increasing substantially between the 12 to 14 and 15 to 19 year age groups, as well as between the 15 to 19 and 20 to 34 year age groups (Figure 3.4). Female rates of inactivity in particular tend to increase rapidly across these three age groups.

Table 3.10: Percentage (95% CI) of general population aged 12 and over who reported being physically inactive, 2005

REGION	Both	Male	Female
Canada	46.7 (46.3, 47.1)	44.1 (43.4, 44.7)	49.3 (48.7, 49.8)
Ontario	45.8 (45, 46.5)	42.4 (41.3, 43.5)	49 (48, 50)
Champlain	42.1 (40, 44.3)	39 (35.7, 42.2)	45.2 (42.4, 48)
City of Ottawa	41.4 (38.7, 44.1)	38.4 (34.3, 42.4)	44.3 (40.7, 48)
Eastern Counties	45.5 (41.4, 49.6)	41.7 (35.8, 47.7)	49.2 (43.6, 54.9)
Renfrew County	44.2 (39.4, 49.1)	39.5 (31.5, 47.5)	48.6 (42.2, 54.9)
Leeds, Grenville & Lanark	40.8 (36.8, 44.9)	36.9 (31.2, 42.7)	44.6 (39.3, 49.9)

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005. CANSIM Table 105-0433

Figure 3.4: Percentage (95% CI) of general population in the Champlain District who reported being physically inactive, by age group, 2005



SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005. CANSIM Table 105-0433

^E Interpret with caution, coefficient of variation (CV) ranged from 16.6% to 33.3%

Inadequate Consumption of Fruit & Vegetables

In 2005, approximately 50% of the population in Canada, Ontario, and the Champlain District reported consuming less than the recommended five servings of fruit and vegetables per day. The percentage of men who reported eating less than the recommended servings was significantly higher than women across all regions (Table 3.11) (CCHS 3.1).

Fruit and vegetable consumption did not appear to vary significantly by age group; however, the percentage of individuals who reported consuming less than five servings decreased in the 65 year and older age group consistently across all regions (CCHS 3.1).

Consumption of less than five servings was higher in Eastern Ontario compared to the other regions for both sexes combined, and across all age groups (CCHS 3.1).

Table 3.11: Percentage (95% CI) of general population aged 12 and over who reported consuming less than 5 servings of fruit and vegetables per day, by sex, 2005

REGION	Male	Female	Both
Canada	60 (58.8, 61.3)	46.7 (45.6, 47.8)	53.3 (52.4, 54.1)
Ontario	59.5 (58.5, 60.5)	47.5 (46.5, 48.6)	53.4 (52.7, 54.2)
Champlain	61.6 (58.4, 64.8)	45.3 (42.5, 48.1)	53.3 (51.1, 55.4)
City of Ottawa	59.8 (55.7, 63.9)	44.9 (41.3, 48.5)	52.2 (49.4, 54.9)
Eastern Counties	66.7 (61.2, 72.2)	49.6 (44.6, 54.7)	58.1 (54.2, 62)
Renfrew County	62.9 (56, 69.7)	41.7 (34.4, 49)	51.9 (46.5, 57.2)
Leeds, Grenville & Lanark	59.2 (53.1, 65.4)	46.2 (40.8, 51.6)	52.6 (48.7, 56.6)

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005. CANSIM Table 105-0449

As of 2008, Canada's Food Guide now issues specific recommendations for consumption of fruit and vegetables by age and gender.

CHAPTER 4: RISK FACTORS BY SOCIO-ECONOMIC STATUS

Socio-economic status (SES), as defined by education, income, occupation, social status, and neighbourhood environment, is an important contributor to health. Associations between SES and a number of health outcomes including all-cause mortality, CVD mortality, and risk factor prevalence have been established; however, the mechanism underlying this relationship remains uncertain. Data from the National Population Health Survey in Canada (1994-95 and 2002-03) indicated that among middle-aged adults aged 45 to 64, socio-economic characteristics such as level of education and household income were more important determinants of healthy aging than lifestyle behaviours.⁹ There is also evidence that CVD is related in part to poverty in combination with excessive psycho-social stress and the adoption of unhealthy coping behaviours.¹⁰ Similarly, diabetes in Canada appears to be more prevalent among the poor and disadvantaged.¹¹ Income and employment are intricately related to adequate access to heart healthy food, and in general, SES dictates health behaviours, access to medical care, and long-term stress.

The evidence on the CVD-SES relationship continues to accumulate and suggests that in order to fully address the burden of CVD, programs and policies addressing socio-economic variables need to become part of strategies and interventions targeting the traditional cardiovascular risk factors.

Household Income

In looking at cardiovascular risk factors by household income, it is evident that the self-reported prevalence of high blood pressure, diabetes, and smoking was lower within higher household income groups (Figure 4.1).

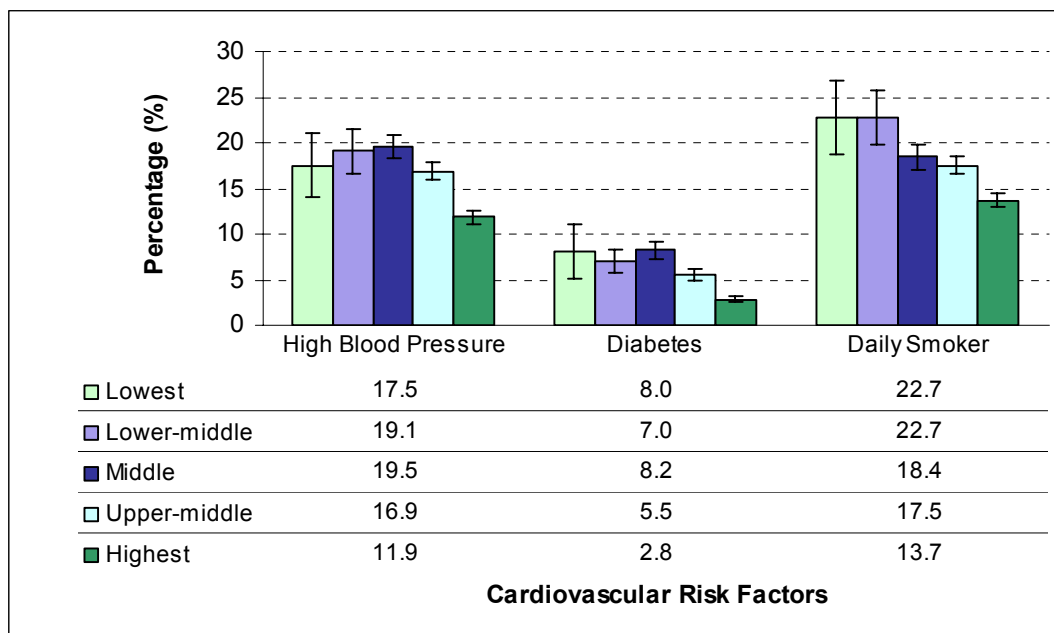
The prevalence of physical inactivity was lower within higher household income groups (Figure 4.2). The consumption of fruit and vegetables was fairly constant across income levels, while the percentage of persons overweight tended to increase with household income. The prevalence of obesity did not change significantly across income levels.

Education

In looking at self-reported cardiovascular risk factors by level of education, it appears that the prevalence of high blood pressure was higher in those with a certificate or diploma obtained. For diabetes, there was no strong trend in prevalence across level of educational attainment. For smoking, the lower the level of education attained, the higher the prevalence (Figure 4.3), with the prevalence of daily smokers in the lowest educational attainment category approximately three times higher than in the highest educational attainment group.

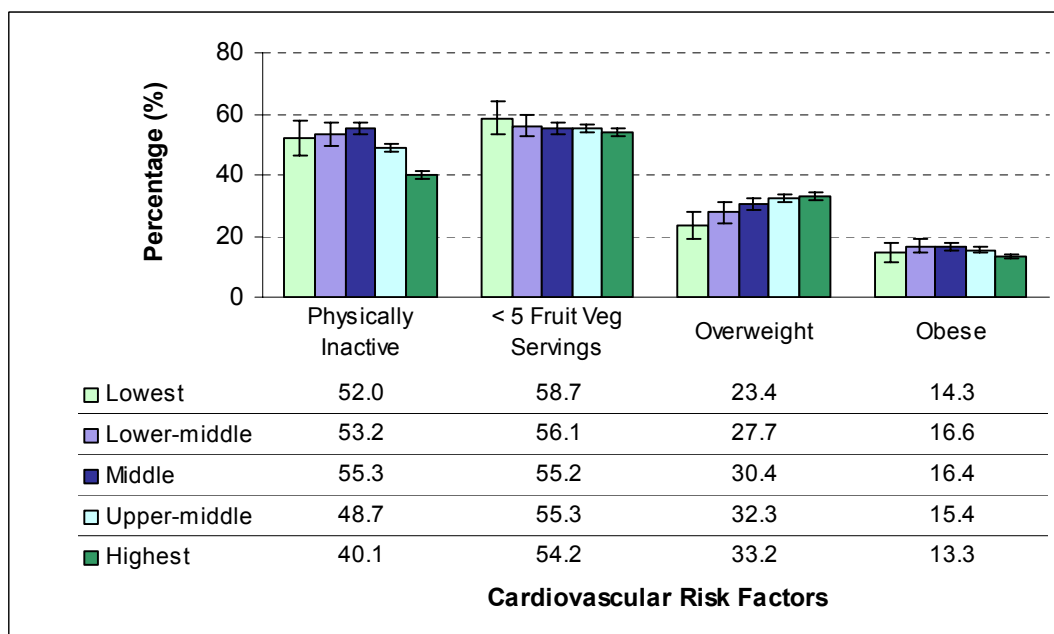
Levels of activity, consumption of less than the recommended five daily servings of fruit and vegetables, and overweight or obese status does not change significantly based on educational attainment (Figure 4.4).

Figure 4.1: Percentage of Champlain population aged 12 and over with self-reported cardiovascular risk factors, by household income group, 2005



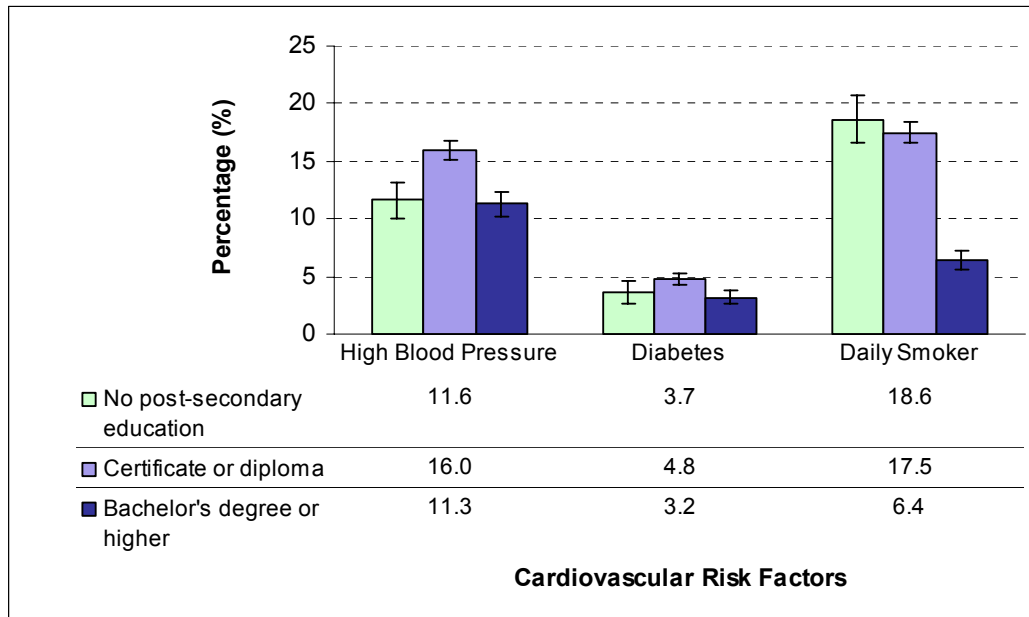
SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005

Figure 4.2: Percentage of Champlain population aged 12 and over with self-reported cardiovascular risk factors, by household income group, 2005



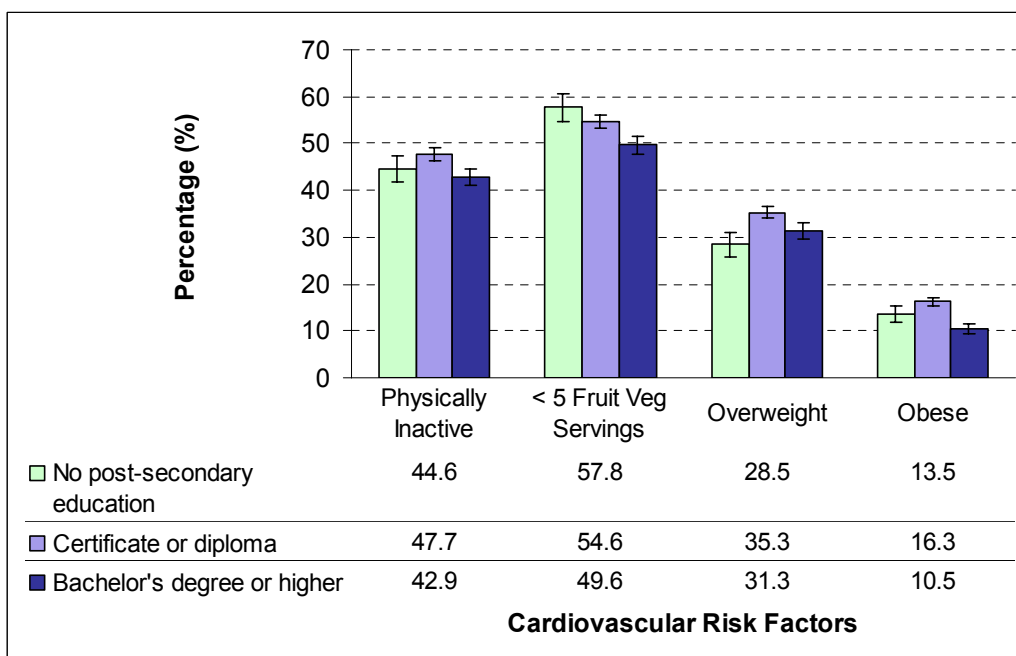
SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005

Figure 4.3: Percentage of Champlain population with self-reported cardiovascular risk factors, by highest degree, certificate or diploma obtained, 2005



SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005

Figure 4.4: Percentage of Champlain population with self-reported cardiovascular risk factors, by highest degree, certificate or diploma obtained, 2005



SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005

CHAPTER 5: SURVEILLANCE GAPS & FUTURE DIRECTIONS

As is the case globally, nationally, and provincially, CVD is the leading cause of death, hospitalization, and disability in the Champlain District. Evidence affirms that CVD is largely preventable and that targeted public health efforts can help reduce its negative impact. Effective prevention must occur at the national as well as provincial and local levels and requires timely, actionable, population-based information on CVD and related risk factors, including temporal and geographical trends. Such information will guide the delivery of primary and secondary preventive health services, programs, and policies to where they are needed the most and where they can be expected to have the greatest impact. The availability of such information depends on our ability to measure and monitor the state of CVD and the corresponding burden on the health care system. In the absence of a robust surveillance system, the available data are limited and fragmented.

Current surveillance efforts in Canada include collection of demographic, mortality, morbidity, risk factor prevalence, and related health care data. Although these are available, they are often limited in their scope, data collection procedures, and generalizability. National population surveys often lack an adequate sample size nationally and the geographical representation needed to allow comparisons on a sub-provincial regional level. Typically, the smaller the jurisdiction, the smaller the sample, and the higher the variability of the data collected. Consequently, the extent to which the findings and conclusions can be applied to the community at large is significantly limited.

There is also a paucity of data on the burden of CVD among special groups and high risk populations. Aboriginal status, for example, has not been included as a variable in most national surveys. Community-based surveillance studies generally have small numbers of predominantly white communities, emphasize disease prevalence, and include little longitudinal follow-up. In general, events rather than individuals are tracked, making it difficult to determine incidence or the rate of occurrence of new cases. In addition, they are often restricted to in-hospital events and do not capture the evolving detection and treatment of CVD in the outpatient setting.

Levels of risk factors in the population are determined from self-reports with no current data on physical and biochemical measures of risk. Although some sense of disease and risk factor prevalence can be obtained through this approach, the validity of self-reported data has been questioned as research shows a discrepancy between self-reported and objectively measured data. Self-reports are dependent not only on the individuals having already been diagnosed with the condition by a physician, but also on their reporting of this information correctly in the survey. In addition, self-reports are also subject to the social-desirability bias in the results, which may contribute to an underestimation of the prevalence of certain risk factors (i.e. obesity, physical inactivity, poor diet).

The last survey that included collection of physical measures - the Canadian Heart Health Survey (CHHS) - was conducted between 1986 and 1992 and did not include data on the residents of the Champlain District. It has not been repeated in most provinces, leaving a void in information on control of major risk factors, including high blood pressure and dyslipidemia. Only recently, the Canadian Health Measures Survey was developed to collect direct measures of health from 5,000 Canadians, aged 6 to 79, and randomly selected from 15 sites across the country. The Champlain District was not selected as one of the collection sites. The survey has been scheduled to take place between 2007 and 2009, with data dissemination planned for late 2009-10.

The currently available local data on CVD and risk factor rates, including temporal and geographical trends, are not available in a timely, on-going manner. Information on the physical and biochemical measures of risk is lacking altogether. This, in turn, forces health care providers and administrators to access customized databases yielding comparisons limited in scope and generalizability. The need for a robust information system capable of supplying meaningful and actionable data to health care providers, patients, consumers, and

decision-makers was identified as a priority by the CCPN and its Monitoring, Surveillance & Evaluation Expert Panel. As part of the regional efforts to develop systems to monitor trends, risk factors, and behaviours in the Champlain District, the Champlain Community Heart Health Survey (CCHHS) was launched in August 2008.

The Champlain Community Heart Health Survey (CCHHS)

The CCHHS is a collaborative effort led by the CCPN and the international PURE (Prospective Urban and Rural Epidemiologic) Study being coordinated from McMaster University. This community-based survey is designed to collect key information relevant to the cardiovascular health and lifestyles of the residents of the Champlain District, using a standardized data collection methodology designed for tracking lifestyles, risk factors, and outcomes in urban and rural settings.

The survey involves collection of physical measures (blood pressure, height and weight, waist to hip ratio, body fat, blood cholesterol and glucose tests) as well as completion of questionnaires related to lifestyles, current health status, medical history, nutrition, physical activity, smoking habits, and alcohol use. This information will be collected from 3,000 randomly polled residents of the Champlain District, with longitudinal, yearly follow up. The initial (baseline) data collection period is estimated to take 12-18 months. The survey will become an ongoing part of Champlain District's health information system. This will require a major commitment of resources; however, the benefits will be substantial. With regular monitoring of the temporal and geographic distribution and trends in CVD and risk factor rates, real benchmarks will be established by which to measure progress and to guide the future planning, priority setting, and evaluation of primary and secondary prevention efforts by health care providers and organizations within the Champlain District.

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APPENDICES

DATA SOURCES

Chapter 1

Data Sources

Population and demographic statistics for the Champlain District and associated health regions were derived from Statistics Canada 2006 Community Profiles. The population and demographic statistics for Aboriginal persons were derived from the Statistics Canada 2006 Aboriginal Population Profile.

Demographic data including unemployment, education, access to a family physician and overall self-rated health were derived from the 2005 (3.1) cycle of the Canadian Community Health Survey (CCHS). Income and unemployment rates were derived from the Statistics Canada Labour Force Survey.

Data Notes

CCHS

Champlain District data were derived using LHIN geographic region of residence code. Data for each respective Public Health Unit were derived using the health region of residence code. Note that the Leeds, Grenville & Lanark District Health Unit's boundary extends beyond the boundary of the Champlain LHIN.

Chapter 2

Data Sources

Hospitalization and mortality data were derived from the Ministry of Health and Long-term Care, Provincial Health Planning Database (PHPDB).

Data Notes

Mortality Numbers and Rates

The numbers of deaths across a calendar year are for individuals who reside within the region of interest (i.e. Champlain District, Ontario). ICD 10 codes for the Underlying Cause of Death were utilized (Table 2.1). Age- and sex-specific rates were calculated using year-specific PHPDB population estimates for the region of interest. Age-standardized rates were calculated using the standard 1991 Canadian population.

Hospitalizations

The numbers of inpatient discharges across a calendar year are for individuals who reside within the region of interest (i.e. Champlain District, Ontario). ICD 10 codes for the most responsible diagnosis were utilized (Table 2.1). Age- and sex-specific rates were calculated using year-specific PHPDB population estimates for the region of interest. Age-standardized rates were calculated using the standard 1991 Canadian population.

ICD 10 CA Codes

The ICD 10 codes used to derive hospitalization and mortality data are presented in the table below. These codes are consistent with the recommendations put forward by the World Health Organization^{VI}.

^{VI} Becker, R., Silvi, J., Ma Fat, D., L'Hours, A., & Laurenti, R. "A method for deriving leading causes of death". *Bulletin of the World Health Organization*, 2006; 84: 297-304.

Table: ICD 10 codes used for hospitalization and mortality data

Disease	ICD 10 Codes
Cancer	C00 – C97
Circulatory Disease	I00 – I99
Acute Myocardial Infarction (AMI)	I21 – I22
Heart Failure	I50 – I51
Ischemic Heart Disease	I20 – I25
Stroke / Cerebrovascular Disease	I60 – I69
Diabetes	E10 – E14

SOURCE: World Health Organization, International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10), available online at <http://www.who.int/classifications/apps/icd/icd10online/>

Chapters 3 and 4

Data Sources

Data presented within this chapter were derived from two cycles (2.1 and 3.1) of the Canadian Community Health Survey (CCHS).

Data Notes

CCHS Data

Champlain District data were derived using LHIN geographic region of residence code. Data for each respective Public Health Unit were derived using the Health Region of residence code. Note that the Leeds, Grenville & Lanark District Health Unit's boundary extends beyond the boundary of the Champlain LHIN.

Household income was calculated based on the number of people in the household and total income from all sources in the 12 months before the CCHS interview (see table below):

Household Income Group	People in Household	Total Household Income
Lowest Income	1 to 4	Less than \$10,000
	5 or more	Less than \$15,000
Lower-middle	1 or 2	\$10,000 to \$14,999
	3 or 4	\$10,000 to \$19,999
	5 or more	\$15,000 to \$29,999
Middle	1 or 2	\$15,000 to \$29,999
	3 or 4	\$20,000 to \$39,999
	5 or more	\$30,000 to \$59,999
Upper-middle	1 or 2	\$30,000 to \$59,999
	3 or 4	\$40,000 to \$79,999
	5 or more	\$60,000 to \$79,999
Highest	1 or 2	\$60,000 or more

SOURCE: Statistics Canada, Canadian Community Health Survey (CCHS 3.1), 2005

GLOSSARY OF TERMS

Acute Myocardial Infarction (AMI)

Also called a heart attack. This occurs when a blood clot completely blocks one of the arteries that provides oxygen-rich blood to the heart.

Age-standardized Rates

Represents what the crude rate would be if the population under study had the age distribution of the standard population.

Atherosclerosis

The build-up of fat, calcium, and other substances under the inner lining of an artery. Atherosclerosis may cause the arteries to the heart to become narrower, leading to angina or a heart attack.

Body Mass Index (BMI)

A method of measuring body weight while taking height into account. It is calculated by dividing weight (in kilograms) by height (in meters) squared (weight/height²).

Canadian Community Health Survey (CCHS)

A survey conducted every two years by Statistics Canada to provide regular and timely cross-sectional estimates of health determinants, health status, and health system utilization for health regions across the country. The CCHS began in 2000-01, replacing the National Population Health Survey. The CCHS collects health-related information from the Canadian population focusing on health status, health care utilization, and determinants of health.

The CCHS has a sample size of 130,000 respondents and targets persons aged 12 years or older who are living in private dwellings in all 122 Health Regions in Canada. Persons living on Indian Reserves or Crown lands, residents of institutions, full-time members of the Canadian Armed Forces, and residents of certain remote regions are excluded from the survey. Interviews are done in person using computer-assisted interviewing. The CCHS is unique because of its focus on collecting data at the sub-provincial level, giving health researchers the ability to report regional data as well as national and provincial level data.

Coefficient of Variation (CV)

The ratio of the standard deviation to the mean. It provides a relative measure of the variation. Guidelines for the release or publishing of data estimates are based on the coefficient of variation. Only marginal and acceptable estimates have been included within this publication.

Type of Estimate	CV (in %)
Acceptable	$0.0 \leq CV \leq 16.5$
Marginal	$16.6 < CV \leq 33.3$
Unacceptable	$CV > 33.3$

Confidence Interval (CI)

The computed interval (range) with a given probability (e.g. 95%) of which the true value of a variable is contained.

Congestive Heart Failure (CHF)

Also called heart failure.

Coronary Artery Disease (CAD)

Also called ischemic heart disease, or heart disease.

Diabetes Mellitus

A disease characterized by an elevation in blood sugar that can lead to many long-term complications.

Diagnostic Codes (ICD 10)

A set of internationally accepted codes for classification of medical diagnosis, conditions, and procedures.

Epidemiology

The study of the distribution and determinants of health-related states or events in specific populations and the application of this study to control of health problems.

Ethnicity

A term for the ethnic group to which people belong. Usually refers to group identity based on culture, religion, traditions, and customs.

Household Income Group

Household income was calculated based on the number of people in the household and total income from all sources in the 12 months before the CCHS interview:

Household Income Group	People in Household	Total Household Income
Lowest Income	1 to 4	Less than \$10,000
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	5 or more	\$30,000 to \$59,999
Upper-middle	1 or 2	\$30,000 to \$59,999
	3 or 4	\$40,000 to \$79,999
	5 or more	\$60,000 to \$79,999
Highest	1 or 2	\$60,000 or more

Hypertension

High blood pressure.

Incidence

The number of new events (e.g. new cases of a disease) in a defined population within a specified period of time.

Incident Rate

The rate at which new events occur in a population within a defined period.

Ischemic Heart Disease (IHD)

Also called coronary artery disease.

Local Health Integration Network (LHIN)

LHINs are not-for-profit corporations in Ontario that work with local health providers and community members to determine the health service priorities of their regions. They were created in April 2006 and took on their full role of planning and funding health services April 1st, 2007.

Mean

Also called the average. Computed by adding all the individual values in a group and dividing by the number of values in the same group.

Morbidity

Sickness, the state or condition of being unwell.

Mortality

Death.

Mortality Rate

Death rate. A statistic calculated by dividing the number of deaths for a specified condition by the number of people in a specified population.

Obesity

The presence of excessive body fat.

Prevalence

The number of events in a given population at a designated time.

Physical Inactivity

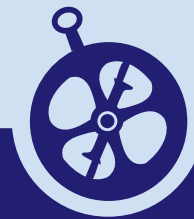
Daily energy expenditure less than 1.5 kcal/kg/day.

Risk Factor

An aspect of behaviour, way of living, biological characteristic, genetic trait, health related condition, or environmental exposure with predictable effects on the risk of disease due to a specific cause.

Stroke

A sudden loss of brain function caused by the interruption of flow of blood to the brain (ischemic stroke) or the rupture of blood vessels in the brain (hemorrhagic stroke).



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