Peterborough County-City
HEALTH UNIT
...because health matters!

Community Assessment Report 2010

Prepared for the purposes of
Healthy Communities

PARTNERSHIPS
Population
BUILT ENVIRONMENT
TOBACCO
physical activity
substance
Social Determinants of Health
employment
INJURY
health inequities
alcohol
INCOME
Education
policy
Healthy Eating
mental health

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Executive Summary

The delivery of public health programs and services occurs in diverse and complex geographic, physical, cultural, social and economic environments. There are also systemic differences in health status that exist across socio-economic groups (i.e., health inequities). Therefore, in order to achieve a desired health outcome, effective public health programming must take into account communities' needs through data collection and analysis processes (population health assessment, surveillance, research and knowledge exchange, and program evaluation (Ministry of Health and Long-Term Care [MOHLTC], 2008).

In May 2009, the Ministry of Health Promotion (MHP) (now the Ministry of Health Promotion and Sport [MHPS]) launched Healthy Communities, an integrated approach to improving the health of Ontarians (MHP, 2010). The Healthy Communities framework has been developed to support six priority areas: Physical Activity, Sport and Recreation; Injury Prevention; Healthy Eating; Tobacco Use/Exposure; Substance and Alcohol Misuse; and Mental Health Promotion. One component of Healthy Communities is the Partnership Stream, which has been designed to improve health outcomes through the development of healthy public policies in 36 communities across Ontario (MHP, 2010). Peterborough is one of these selected communities and the Peterborough County-City Health Unit (PCCHU) has been chosen to lead this Partnership.

The extensive report that follows is a culmination of one of the first tasks associated with the development of Peterborough's Healthy Communities Partnership - carrying out a community assessment. Information is presented in this report as follows:

Part 1 **Purpose of the Report**	This section provides the context for this report. It contains: an overview of the Healthy Communities initiative and how it is linked to public health; an outline of the community assessment expectations; a description of the methodology employed to develop the report; a summary of the limitations of the report; and an explanation of the existing data gaps.
Part 2 **Socio-demographic Profile**	In this section, a broad overview of the community is provided that explores geographic and population information (e.g., ethnicity, income, education, labour, etc.)
Part 3 **Morbidity and Mortality**	This section briefly explores the major diseases contributing to death in Peterborough.

Part 4 **Health Behaviour Profile for Healthy Communities Priority Areas**	This section provides a wealth of information about the health behaviours of Peterborough residents with respect to physical activity, injury, nutrition, tobacco, alcohol and substance use, and mental health.
Part 5 **Social Determinants of Health and Health Inequities**	The social determinants of health are explored in this section. In addition, poverty in Peterborough is discussed in considerable detail. The section concludes with an analysis of health inequities in Peterborough .
Part 6 **Priority Populations for the Purposes of Healthy Communities Consultations**	This section outlines how four priority populations were determined using the collection and analysis of Peterborough's socio-demographic data. These priority populations were determined for the purposes of facilitating community consultations with respect to the six Healthy Communities priority areas.
Part 7 **Scan of Community Assets**	In this section, community assets as they relate to the development of Peterborough's Healthy Communities Partnership are explored.

It is hoped that the information on the pages that follow will serve to provide the PCCHU, the new Healthy Communities Partnership in Peterborough and individual community agencies and organizations with the necessary information to (MHP, 2010):

1. Better understand the people who live in the community in terms of their characteristics, the status of their health and who is most affected by poor health;
2. Anticipate the trends and issues that may affect the implementation of Healthy Communities in Peterborough;
3. Identify strengths, capacities and assets in the community to strengthen future planning;
4. Identify community wants and needs; and
5. Set priorities based on the needs, issues, and capacities identified.

Part 1

Purpose of the Report

A. Overview of Healthy Communities

In May 2009, the MHP now the MHPS launched Healthy Communities, an integrated approach to improving the health of Ontarians (MHP, 2010). The MHPS has developed a strategic framework to support Healthy Communities (Figure 1.1). It is focused on six priorities: Physical Activity, Sport and Recreation; Injury Prevention; Healthy Eating; Tobacco Use/Exposure; Substance and Alcohol Misuse; and Mental Health.

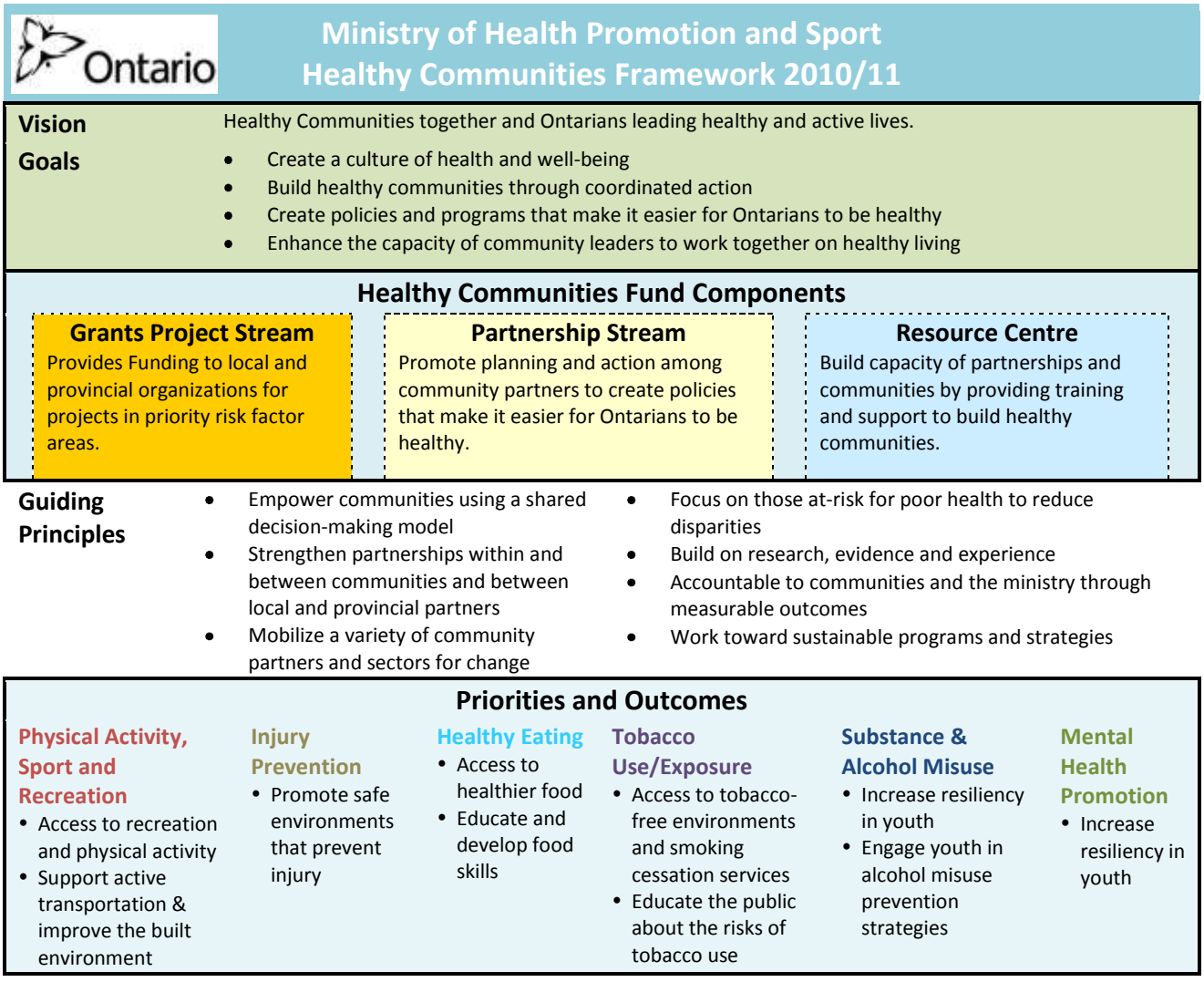


Figure 1.1: Ministry of Health Promotion and Sport: Healthy Communities framework.
Note. From Ministry of Health Promotion and Sport. (2010). *Healthy Communities Framework.* Retrieved from http://www.mhp.gov.on.ca/en/healthy-communities/hcf/Framework-2010-2011.pdf

One component of the Healthy Communities Fund is the Partnership Stream. The purpose of the Healthy Communities Partnerships is to work in communities to improve health outcomes through the development of healthy public policies (MHP, 2010). Built on the success of the Ontario Heart Health Program (OHHP), these partnerships will be coordinated through 36 Host Agencies throughout the province. **The PCCHU is one of these Host Agencies.**

Local Partnerships, such as the one being lead by the PCCHU, "…will provide coordination and support to bring people together to create a shared vision, identify key priorities, develop partnerships and networks and activate their communities to create and implement healthy public policy" (MHP, 2010, p.4). In addition, local partnerships will have an opportunity to link local priorities to programs funded under the Healthy Communities Fund – Grants Stream (MHP, 2010).

Provincial Objectives of the Partnerships are (MHP, 2010):

- To identify recommended actions across the six key Healthy Communities priority areas that are supported by partners and individuals in the community.
- To increase the number of networks, community leaders, and decisions-makers involved in identifying recommended actions across the six key priority areas.
- To increase the number of partnerships and sectors actively involved in the work of the Healthy Communities Partnership.
- To increase the quantity and impact of local and regional policies that effectively support health.
- To build capacity of networks, community leaders and decision-makers to create supportive environments and build healthy public policies.
- To establish a functioning Partnership and associated infrastructure that meets the mandate of the Partnership Stream.

Therefore, local Partnerships within the Partnership Stream are to focus on community engagement and planning, partnership development, and community mobilization (MHP, 2010).

B. Link With Public Health

Public Health Units in Ontario are guided by the Ontario Public Health Standards (OPHS) established in 2008. These Standards establish requirements for fundamental public health programs and services which include assessment and surveillance, health promotion and policy development, disease and injury prevention, and health protection (MOHLTC, 2008).

The MHPS hopes to align Healthy Communities with the OPHS as both provide a framework for public health to engage communities, set priorities, build partnerships and mobilize communities to take collective action to build healthy public policy (MHP, 2010).

C. The Community Assessment

Healthy Communities guidelines state that one of the fundamental components of a community planning process is the development of a local Community Picture, which should include a comprehensive community assessment and a community engagement process (MHP, 2010). Therefore, the purpose of this report is to focus on the community assessment portion. As per MHPS guidelines (MHP, 2010), this assessment will collect the following information:

- **Statistical profile** of our community including: general description of the community and its history; location, geography/physical characteristics; number of municipalities, townships; rural/urban centres.
- **Summary of socio-demographic information** including: population data such as age groups, economic groups and education status; priority populations (such as New Canadians, Francophones, First Nations peoples, etc.) in our community; current health status , health behaviours, and preventive health practices data; and determinants of health and health inequities (e.g., levels of education, employment rates, housing statistics, etc.).
- **Community assets** including: assets, resources, services and support available in our community; networks and organizations that could potentially contribute to Partnership activities; and strategies/plans in our community that relate to Healthy Communities.
- **Community contexts** that would include: policy context in our community; results of the Ontario Heart Health Network (OHHN) Collaborative Policy Scan for our community; and local, regional and provincial strategies that may further or impede the work of the Partnership.

This community assessment report will provide a broad overview of the social, economic, demographic and geographic health status of the residents of the counties served by the PCCHU.

Further, this community assessment is intended to act as a living document, with sections added or modified as they are produced. In time, it is anticipated that the report will incorporate relevant data on: reproductive and sexual health indicators such as fertility rates, teenage pregnancy rates, healthy birth weights, and breastfeeding initiation and maintenance trends; environmental health indicators such as health hazard types and trends, food and water safety (including recreational water quality); the built environment; and communicable disease indicators such as incidence of communicable diseases of interest.

D. Methodology

The purpose of writing this report was to, as accurately and comprehensively as possible, quantitatively describe our community. This in turn would provide a sound basis for the Partnership to develop plans and identify priorities for the community. The following steps outline how this report was developed:

1. In early spring 2010, the PCCHU called together a small group of community agencies – who had already been engaged through the local OHHP Partnership (formerly Health for Life) – to discuss the MHPS's proposed Healthy Communities Partnership. The suggested components of the community assessment (outlined above) as provided by the MHPS in their Healthy Communities Partnership support material were reviewed and all agencies agreed that the PCCHU would take the lead in developing the community assessment report. Many agencies present at this meeting provided access to pre-existing documents that would assist with the development of this report (e.g., The Peterborough Profile, The Quality of Life Report, etc.).

2. In May 2010, the Healthy Communities Coordinator and Epidemiologist at PCCHU were tasked with identifying which indicators would be used in each section of the report and what data would be used to measure each indicator. Additionally, one PCCHU staff member working in the area of each of the six Healthy Communities priority areas was asked to be a "specialist" for that specific priority area.

3. For the socio-demographic (Part 2), health status (Part 3), and social determinants of health (Part 5) sections of this report, the Epidemiologist and the Healthy Communities Coordinator used commonly accepted and validated health indicators as developed by the Association for Public Health Epidemiologist in Ontario (APHEO).

4. For the health behaviour (Part 4) section of this report, the PCCHU staff member working in each Healthy Communities priority area brainstormed a list of indicators for their issue. The Epidemiologist located the appropriate data for each indicator – where possible, with the assistance of the PCCHU staff member. Once the data for each priority area was located, the PCCHU staff member wrote a summary for their issue.

5. For the health inequities (Part 5) section of this report, the Healthy Communities Coordinator, the Epidemiologist and the Poverty and Health staff member at PCCHU brainstormed a list of indicators to measure health inequities in Peterborough. Various data were assessed in order to find the most reliable measure of health inequities for Peterborough. When all the data was located, a summary of the results was written.

6. Once data was located for each section and the summaries written for each Healthy Communities priority area, a core group of PCCHU staff worked to format and standardize each section of the report.

7. When the entire report was developed in draft form, it was reviewed by the Medical Officer of Health (MOH), PCCHU Director and Managers, an Epidemiologist who had limited involvement in the development of the report, and PCCHU staff within each Healthy Communities priority area.

E. Limitations

As conscientious as staff were with the data gathering and analysis process, there are still some limitations related to the information presented in this report. As the Healthy Communities Partnership evolves over time it may be possible to fill some of these data gaps and address these limitations.

Data for this report was obtained from a variety of sources. The data related to socio-demographic indicators (i.e., unemployment rate, income, household structure) were obtained from the 2006 Census, which is administered by Statistics Canada. The census is conducted every five years in Canada and collects information on demographic, social and economic characteristics. Traditionally, the census is considered free of sampling error as it involves the entire Canadian population; however, because the long-form census is sent to only a sample of the population, data obtained from the long-form census are subject to routine sources of error such as non-response and sampling errors. Population estimates and projections were obtained from the MOHLTC's inteliHEALTH database. The population estimates are inter-censal (interpolated between census years), and projections are extrapolated from the most recent census year forward.

The majority of health behaviour data (i.e., tobacco use, physical activity) was obtained from the Canadian Community Health Survey (CCHS) conducted by Statistics Canada. The CCHS collects health determinants, health status and health system utilization data from people aged 12 years or older living in households across Canada. The CCHS has several notable limitations:

- People living in First Nations communities are not included in the sample for the CCHS. Therefore data presented for Peterborough does not include residents of Curve Lake or Hiawatha First Nations.
- Sample sizes for Peterborough are small (Table 1.1), and as a result there is large degree of variability associated with some of the estimates provided, particularly in groups which there is low representation (e.g., youth) and for those variables where positive responses relatively rare (e.g., suicidal thoughts). Estimates from the CCHS have been presented with 95% confidence intervals (19 times out of 20 the *true*

value will fall in this range) to provide an indication of the reliability of the estimate. In some cases reliable estimates could not be obtained and therefore data are suppressed.

Table 1.1
Peterborough CCHS Sample Size by Year, 2001-2008

Year	2001	2003	2005	2007	2008	2007-8
Sample Size	819	810	777	392	403	795

Note. *For the purpose of this report the 2007 and 2008 CCHS wre collapsed into one year (2007-8) to achieve a larger sample size (795). From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

- Public health units produce estimates from CCHS data using the Ontario Share File provided by the MOHLTC. The Share File is a cleaner dataset for Ontario analysis because all variables that were not common content, theme content or optional content of the CCHS for Ontario have been removed. The Share File has a slightly smaller sample size than the complete Statistics Canada dataset because data is only included for those respondents who have agreed to share their information. As a result, there may be slight differences between estimates produced from the Share File and data published on the Statistics Canada website.
- Caution should be taken when comparing the results from Cycle 1.1 (2000/01) to subsequent years of the survey, due to a change in the mode of data collection. The sample in Cycle 1.1 had a higher proportion of respondents interviewed in person, which can affect the comparability of some key health indicators.

In addition to health behaviours, self-reported illness data were also tabulated using the CCHS. Self-report data may be subject to errors in recall, over or under-reporting due to social desirability, and errors from proxy reporting. The reliability of self-reported data can vary depending on the nature of the illness; therefore the prevalence of some illnesses may be over or under-estimated.

Little data are available for illicit drug use at the local level for Peterborough. In this report, data collected from the Ontario Student Drug Use and Health Survey (OSDUHS) are presented at a provincial level.

Mortality data are made available by the Ontario Office of Registrar General (OORG) and was retrieved using the MOHLTC intelliHEALTH database. The major limitation of Ontario mortality data is its timeliness, as 2005 is the most current year available to public health units. Data were extracted using International Classification of Diseases (ICD) codes for the underlying cause of death. However, co-morbidity contributes uncertainty to classifying underlying cause of death. In addition, as ICD codes are routinely updated, significant discontinuities can be found in cause of death trends from the last year of ICD-9 use to the

first year of ICD-10 use (between 1999-2000 for mortality data) – see Table 1.2. In particular, decreases should be expected in deaths due to acute myocardial infarction and increases for ischaemic heart disease as a larger grouping. Additionally, increases should be expected in deaths due to cerebrovascular disease, chronic obstructive lung disease, chronic obstructive pulmonary disease, bronchitis, emphysema and asthma as well as diabetes.

Hospitalization (inpatient discharge) data are collected by the Canadian Institute for Health Information (CIHI) Discharge Abstract Database (DAD) and was also obtained via intelliHEALTH which is also distributed by MOHLTC. To avoid artificial changes in hospitalization data due to the implementation of ICD-10 codes, data for the years 2003 to 2009 are presented which are all coded using ICD-10. Other limitations with hospitalization data include:

- Data can include multiple admissions for a single individual; multiple admissions are more likely to occur for chronic diseases.
- Data are influenced by the availability of services and the practice patterns of providers.
- Provides only a crude measure of the prevalence and/or incidence of a disease or injury.

Table 1.2
ICD Codes Used for Mortality and Hospitalization Data

Diseases	ICD-9	ICD-10
Cardiovascular disease (All)	390-459	I00-I99
Ischaemic heart disease	410-414	I20-I25
Cerebrovascular disease	430-434,436-438	I60-I69
Chronic obstructive pulmonary disease	490-492, 496	J40-J44

Note. From Association of Public Health Epidemiologists in Ontario. *Core Indicators.* Retrieved from http://www.apheo.ca/index.php?pid=55

Cancer incidence and mortality data are collected by The Ontario Cancer Registry and data for this report were obtained from Cancer Care Ontario (CCO). Records of new cancer diagnoses and deaths in Ontario are based on hospital discharge summaries, pathology reports, records from regional cancer centres and death records.

Data for both mortality and hospitalizations are presented as age-sex standardized rates. Standardization removes the effects of differences in the age and gender structure of populations and allows comparisons to be made among different populations and over time. Standardized rates show the number of events (e.g., deaths) per 100,000 population that would have occurred in a given area if the age and sex distribution of the population of that

area was the same as a specified standard population. For the purposes of this document, the 1991 Canadian population has been used as standard. Where the number of events is small, a standardized ratio (standardized incidence ratio [SIR] or standardized mortality ratio [SMR]) is presented. The standardized ratio in this report is the ratio of observed events among Peterborough residents divided by the number events that would be expected if Peterborough had the same age-specific rates as Ontario.

In addition to the data limitations outlined above, there were a number of data gaps related to the six Healthy Communities priority areas identified through the process of developing this report. Table 1.3 summarizes these gaps in local information and also itemizes where local data is needed to foster a better understanding of the effects of social determinants of health and health inequities in our community.

Table 1.3
Local Data Gaps in the Report

Physical Activity, Sport and Recreation	Local information on the proportion of the population within 1 km of a recreational facility; the proportion of population within 1 km of recreational land (publicly accessible green space); the proportion of students living within 1.6 km of a publicly funded school; and the level of urban sprawl, age friendly design and the mix of land use were not available for this report.
Injury Prevention	Geographical location of persons injured by falls was not collected for this report to enable mapping of falls related to their location in Peterborough. Local data is also lacking with respect to: socioeconomic status of injured persons; childhood injuries that occur in the home; car seat safety; bicycle safety; pedestrian safety; and bullying.
Healthy Eating	With respect to Body Mass Index data, Peterborough data demonstrated a similar trend as Ontario's, however Peterborough data has high variability. Therefore, Peterborough data was not used. Local outcome evaluation data regarding nutrition policies in local schools and community garden policies at the municipal level were also not available when writing this report.
Tobacco Use/Exposure	Peterborough-specific data was not available with respect to: how much of local tobacco used is contraband; the rate of chew tobacco; the methods of social supply of tobacco products; how many health care providers have been trained in Minimal Contact Intervention (MCI) and are actively screening clients for tobacco use; and the levels of public support for tobacco control initiatives.
Substance and Alcohol Misuse	Local data on alcohol use among certain age and genders has high variability and therefore was not calculated for the purpose of this report. Data on the misuse of medications and illicit drug use for youth and adults was not available. Also lacking in this report is Peterborough-specific data related to injuries involving substance use (e.g., impaired collisions, falls, overdoses, other "misadventure").

Mental Health Promotion	Peterborough data was not available for a number of indicators that would illustrate positive mental health characteristics of the community including: community belonging, coping ability, life enjoyment, social supports, and social connectedness. In addition, data on resiliency were also lacking for this report. However, a survey to gather this data from youth is planned in the near future.
Social Determinants of Health/Health Inequities	This report provides some local data related to social determinants of health and health inequities, however it is limited. It was not possible for this report to provide neighbourhood or postal code level data for hospitalizations and death. It was also not possible to report on program delivery data by neighbourhood or income for these same small areas.

Note: In this document, unless otherwise specified, the term "Peterborough" refers to both the County and City of Peterborough.

Part 2

Socio-demographic Profile

A. General Description of the Community

In 1818, Adam Scott was the first to settle on the west shore of the Otonabee River in Upper Canada, establishing the area as Scott's Plains. In 1825, as part of an experimental emigration plan by the British Parliament, 1,878 Irish immigrants moved to the area. This endeavor was managed by Peter Robinson, a politician from York (now Toronto). Subsequently, in honour of Peter Robinson, the area of Scott's Plains was renamed as Peterborough. Peterborough was incorporated as a town in 1850 (population 2,191) and at that time became part of Peterborough County (Wikipedia, 2010).

Peterborough County is located approximately 120 kilometers northeast of Toronto (Figure 2.1). It includes a land area of 3,800 square kilometres, with a population living in an urban/rural mix. The southern section of the County is mix of agriculture, urban and lakefront properties. The northern section of the County is mostly sparsely populated wilderness with numerous rivers, lakes and parks.

Figure 2.1. Peterborough County and City in relation to southwestern Ontario

The County consists of eight municipalities. As shown in Figure 2.2, these townships are Asphodel-Norwood, Cavan-Monaghan, Douro-Dummer, Galway-Cavendish-Harvey, Havelock-Belmont-Methuen, North Kawartha, Otonabee-South Monaghan, and Smith-

Ennismore-Lakefield. The City of Peterborough is within the Peterborough County census division, but is separated from the County's administration. There are also two First Nation communities in Peterborough County: Curve Lake First Nation and Hiawatha First Nation.

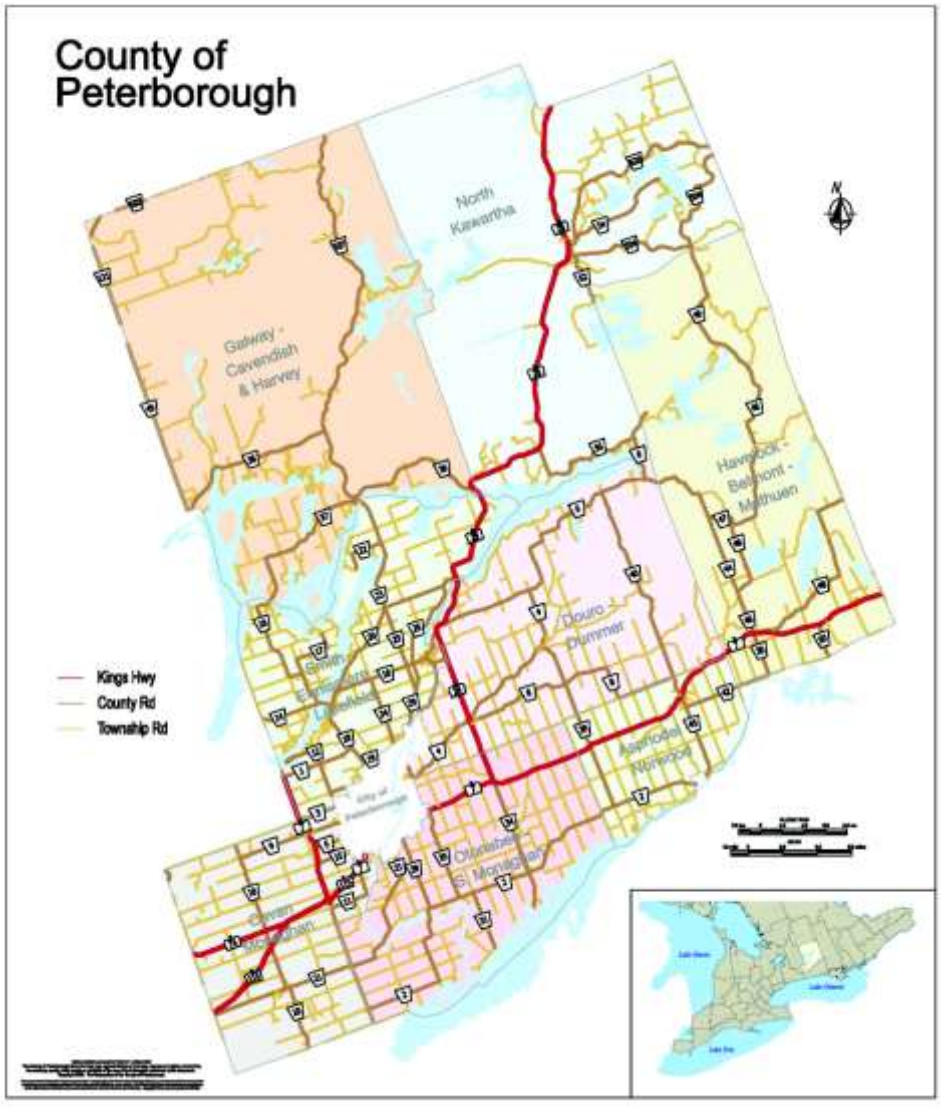


Figure 2.2. County of Peterborough, Townships, and City of Peterborough

Both the County and City are home to many attractions including the historic Trent-Severn Waterway, the Peterborough Lift Lock (the highest hydraulic Lift Lock in the world), and Artspace, one of Canada's oldest artist-run art centres. There are over 300 festivals and events in the summer months and over 134 lakes in the Peterborough region. Because of these attractions, tourism is a major part of the economy.

The vast majority of health and social services are located in the City of Peterborough with only a few agencies having satellite offices in the County. Therefore, transportation to these services from outside the city is a challenge for people without access to a vehicle. Only one

town, the Village of Lakefield, and a few small villages are linked to Peterborough by limited daily transit through a private bus company. Distances from the City of Peterborough to the towns/villages located in the rural municipalities are listed below (see Table 2.1).

Table 2.1
Distance of Rural Towns/Villages from the City of Peterborough

Town/Village	Distance (Km)
Apsley	62
Havelock	41
Curve Lake First Nation	35
Buckhorn	31
Norwood	31
Millbrook	27
Hiawatha First Nation	25

For residents living in the City of Peterborough, there is a public bus system that travels throughout the City and a GO Bus that provides transportation to the nearest GO Station (Oshawa). Peterborough is a 30 minute drive north of Highway 401; therefore, for those with access to a vehicle, there is fairly easy access to Toronto or Montreal. For the manufacturing sector, there is rail and airport service available, with plans to develop passenger rail and airport service in the future.

Peterborough also houses one hospital (Peterborough Regional Health Centre which is funded by the Central East Local Health Integration Network), two post-secondary institutions (Fleming College and Trent University), 41 elementary schools, 1 First Nation elementary school, 1 French elementary school, 9 high schools, 1 alternative high school, and 1 private high school.

B. Population

Between 2001 and 2006, the Peterborough population grew by approximately 7,225 persons (5.7%) from a population of 125,856 to 133,080. By comparison, Ontario grew 6.6% from a population of 11,410,046 people to 12,160,282. Population projections' indicate that Peterborough is expected to grow at a rate of approximately one percent (1%) per year. At this rate, by 2030 the population of Peterborough is expected to increase to approximately 171,720 persons.

A slight majority of the population of Peterborough (56.3%) is urban, living in the City of Peterborough; the remainder of the population (43.7%) is rural and resides in the surrounding municipalities in Peterborough County. The rate of growth over the aforementioned time frame was not equivalent across all of the municipalities in Peterborough County. Communities such as Hiawatha First Nation grew by as much as approximately 63% (while this change appears dramatic, this community is small and an increase of 63% amounts to approximately 185 people), whereas Havelock-Belmont-Methuen Township grew by only 3.5%.

Table 2.2

Population Demographics of Municipalities in Peterborough County

	2006 Population	Population Change '01-06 (%)	Median Age	Population under 15 (%)	Population over 65 (%)
Asphodel-Norwood	4,247	6.6	44.9	15.4	18.4
Cavan-Millbrook-North Monaghan	8,828	4.4	42.5	17.8	13.3
Curve Lake First Nation	1,060	12.2	39.2	21.2	11.3
Douro-Dummer	6,954	4.5	42.8	16.8	14.7
Galway-Cavendish-Harvey	5,284	20.9	51.7	11.8	22.4
Havelock-Belmont-Methuen	4,637	3.5	49.4	13.7	22.3
Hiawatha First Nation	483	62.6	-	-	-
North Kawartha	2,342	9.2	51.2	12.8	23.7
Otonabee-South Monaghan	6,934	4.0	44.3	16.0	15.0
Smith-Ennismore-Lakefield	17,413	6.1	46.2	15.4	18.4
Peterborough City	74,898	4.8	41.7	15.3	19.4
PCC*	**133,080**	**5.7**	**43.6**	**15.4**	**18.6**
Ontario	**12,160,282**	**6.6**	**39**	**18.2**	**13.6**

Note. *PCC = Peterborough City and County. From Statistics Canada 2006 Census. *2006 Community Profiles.*

Table 2.2 illustrates the diversity in age structures across the municipalities in the Peterborough region. The median age in Ontario is 39 while Peterborough as a whole is somewhat older with a median age of 43.6. Galway-Cavendish-Harvey has the oldest

population with a median age of 51.7 and 22.4% of its population over the age of 65. By comparison, Curve Lake First Nation has the youngest median age at 39.2 years old and only 11.3% of its residents are over the age of 65.

The increasing proportion of the population over the age of 65 illustrates the trend of an aging population in Canada. This cohort is expected to grow even larger in the future, with projections indicating that by 2030, 28.6% of Peterborough will be 65 or older (Ontario: 21.9%). As this cohort continues to grow, the age dependency ratio (i.e., the number of people aged 65 years and older relative to the total number of people aged 15-64 years) will also grow. Conversely, the Peterborough child dependency ratio (i.e., the number of people aged zero-14 years relative to the total number of people aged 15-64 years) is not expected to change considerably (Table 2.3). Population pyramids for Peterborough and Ontario and are presented in Figures 2.3 and 2.4.

Table 2.3
Dependency Ratios in Peterborough and Ontario; 2006 and 2030 (projected)

	Peterborough		Ontario	
Year	**2006**	**2030**	**2006**	**2030**
% over 65 years of age	18.8	28.6	13.6	21.9
Age Dependency Ratio (%)	28.2	50.0	19.9	35.6
Child Dependency Ratio (%)	23.4	25.2	26.6	35.7

Note. From Statistics Canada 2006 Census. *2006 Community Profiles.*

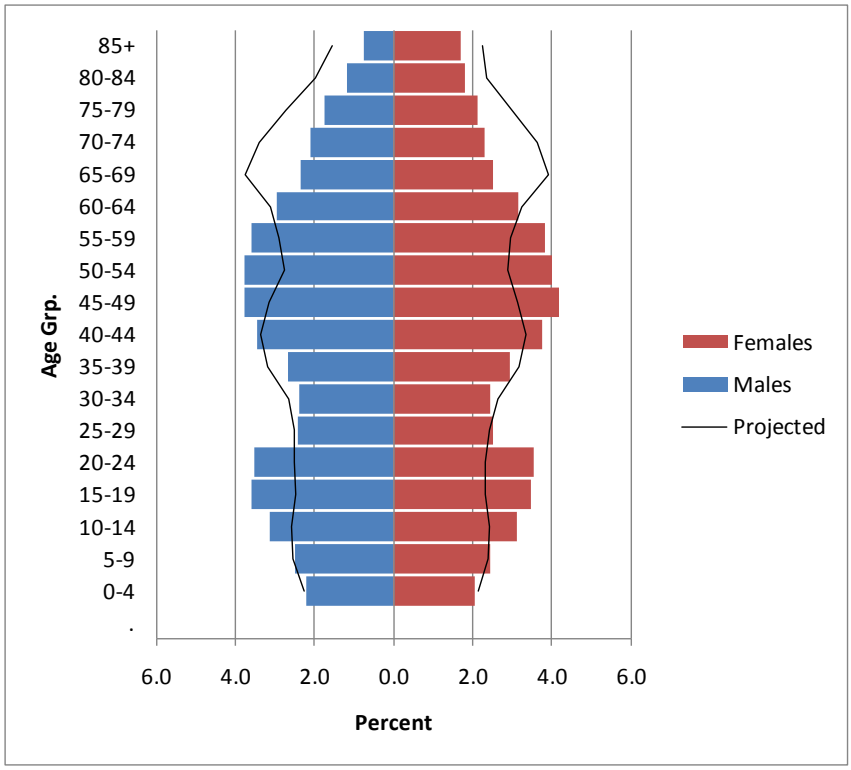


Figure 2.3. Peterborough population pyramid: current (2006) and projected (2030)
From Statistics Canada 2006 Census. *2006 Community Profiles*; Ministry of Health and Long-Term Care.

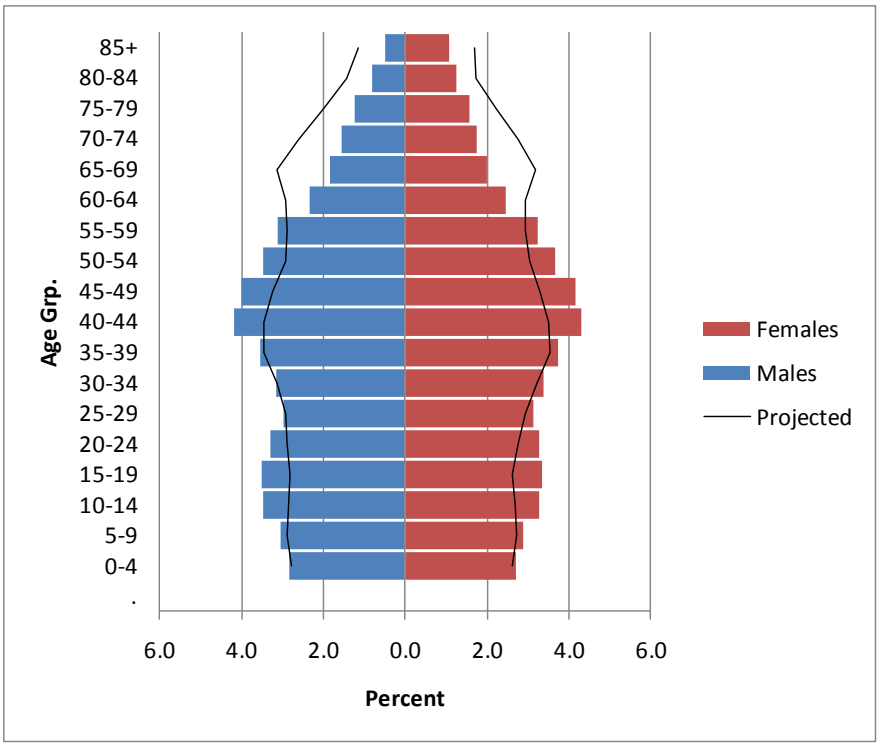


Figure 2.4. Ontario population pyramid: current (2006) and projected (2030)
From Statistics Canada 2006 Census. *2006 Community Profiles*; Ministry of Health and Long-Term Care.

C. Families

Statistics Canada defines census families as a married couple, a couple living in common-law, or a lone parent of any marital status with a minimum of one child living in the same dwelling. In 2006, there were 38,855 census families in Peterborough. Just over half (53.2%) of these families were located within the City of Peterborough. Table 2.4 shows the breakdown of married/common law and lone parent families in Peterborough and Ontario. There are more lone parent families in the City of Peterborough than in the County, and an even greater proportion of these are female lone parent families.

Table 2.4
Distribution of Family Types in Peterborough and Ontario; 2006

	PCC*	City	County	Ontario
Total Number of Families	38,855	20,660	18,195	3,422,315
Married/Common Law (%)	85.5	81.5	90.0	84.2
Lone Parent (%)	14.5	18.5	10.0	15.8
Female Lone Parent (%)	82.5	85.8	75.5	81.6

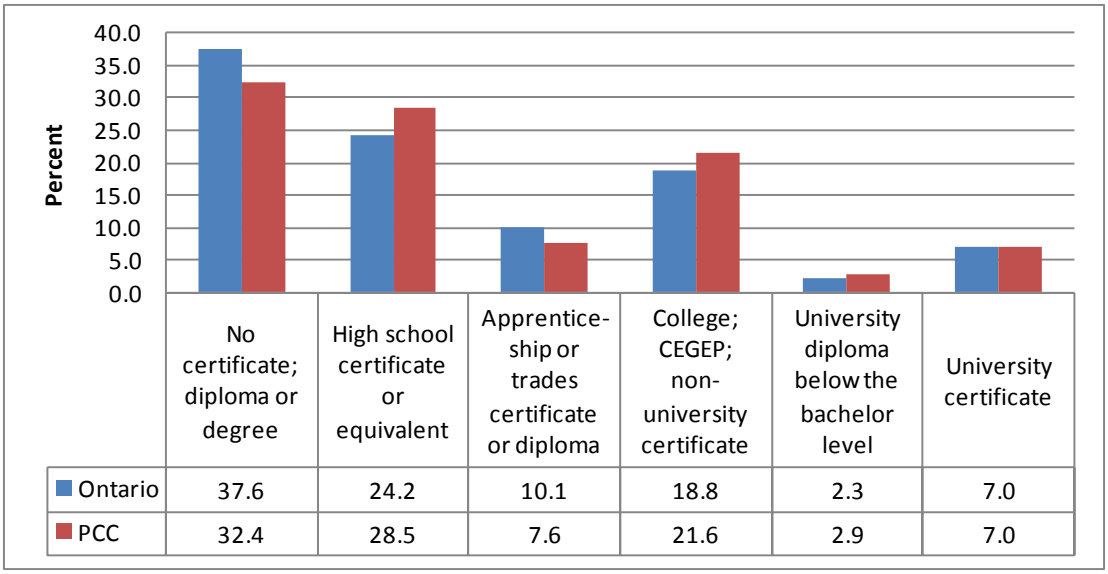
Note. *PCC = Peterborough County and City. From Statistics Canada 2006 Census. *2006 Community Profiles.*

D. Aboriginal Population

In Peterborough there are two First Nations communities, Curve Lake and Hiawatha. In 2006, 4,145 people (2,020 males; 2,130 females) in Peterborough identified themselves as Aboriginal, with just over half (2,155, or 51.9%) having Registered Indian Status (this includes on and off-Reserve Aboriginals). The majority (2665, or 64.1%) identified themselves as North American Indian, while roughly a third (1225, or 29.5%) identified themselves as Métis; the remaining 6.4% self-identify as Inuit, Multiple Aboriginal identity responses, or other Aboriginal responses (MOHLTC, 2009).

Of the 4,145 Aboriginal people living in the Peterborough area, the majority (84.9%) were in a 'census family'; of which 8.4% were lone parents. Females made up the large majority (81.4%) of the lone parent families (MOHLTC, 2009).

In terms of the educational profile of Aboriginal peoples in Peterborough, with the exception of apprenticeships and trades, there is a greater proportion of Aboriginal people obtaining their high school certificate, as well pursuing post secondary education than Ontario Aboriginal peoples as a whole (see Figure 2.5).



	No certificate; diploma or degree	High school certificate or equivalent	Apprentice-ship or trades certificate or diploma	College; CEGEP; non-university certificate	University diploma below the bachelor level	University certificate
Ontario	37.6	24.2	10.1	18.8	2.3	7.0
PCC	32.4	28.5	7.6	21.6	2.9	7.0

Figure 2.5. Peterborough Aboriginal educational attainment, 2006
PCC=Peterborough County and City. From First Nations Peoples in Ontario: A Demographic Portrait, 2009

The median household income in 2006 for Peteborough Aboriginals was $42,737, which is slightly below the provincial median of $46,865. Unemployment rates are similar for both Peterborough and Ontario Aboriginals (11.4% and 12.3%, respectively).

Participation rates - the percentage of the total number of people of labour-force age (15 years and over) that is in the labour force (either working or looking for work) - are similar for both Peterborough and Ontario Aboriginal populations (64.6% and 62.5%); participation rates are also similar among males and females. Of those in the labour force the unemployment rate among Peterborough Aboriginals (11.4%) is slightly lower than the Ontario Aboriginal unemployment rate (12.3%); unemployment rates are higher among males than females in both populations.

E. New Canadians

Immigration has historically played an integral role in the growth of Ontario; however, people that come to Canada from another country are often at a disadvantage as it can be difficult to become accustomed to Canadian culture and find adequate employment. By comparison to Ontario where nearly one quarter (28.3%) of the population is comprised of New Canadians, only 9.5% of the Peterborough population is considered a New Canadian.

The majority (82.9%) immigrated to Peterborough prior to 1991, meaning that there is a smaller proportion of New Canadians settling in Peterborough after 1991. In Ontario, nearly half of all New Canadians immigrated after 1991 (44.6%). Table 2.5 shows the number and proportion of the selected populations made up of New Canadians. Likely due to the small proportion of New Canadians to Peterborough, the proportion of visible minorities is also low as illustrated in Table 2.6; Ontario, however, is much more diverse. Finally, 0.1% of the population has no knowledge of English or French. In Ontario, this proportion is slightly larger (2.2%).

Table 2.5
New Canadians in Peterborough and Ontario, 2006

	PCC*	City	County	Ontario
No. of Immigrants	12,450	7,340	5,110	3,398,725
% of population	9.5	9.9	8.9	28.3
% of New Canadians who immigrated prior to 1991	82.9	77.7	90.4	55.4
% of New Canadians who immigrated between 2001 and 2006	7.6	10.1	4.1	17.1

Note. *PCC = Peterborough County and City. From Statistics Canada 2006 Census. *2006 Community Profiles.*

Table 2.6
Proportion of Population Self-Identifying as a Visible Minority in Peterborough and Ontario; 2006

	PCC*	City	County	Ontario
Chinese	0.6	0.9	0.1	4.8
South Asian	0.5	0.8	0.2	6.6
Black	0.5	0.6	0.3	3.9
Filipino	0.1	0.1	0.1	1.7
Latin American	0.2	0.3	0.1	1.2
Southeast Asian	0.1	0.2	0.0	0.9
Arab	0.1	0.1	0.0	0.9
West Asian	0.1	0.1	0.0	0.8
Korean	0.2	0.3	0.0	0.6
Japanese	0.1	0.1	0.0	0.2
Not a visible minority	97.6	96.4	99.0	77.2

Note. *PCC = Peterborough County and City. From Statistics Canada 2006 Census. *2006 Community Profiles.*

F. Education

Education level is one of the main determinants of health at a population level; higher levels of educational attainment are associated with lower risks for negative health outcomes throughout the lifespan. In Ontario, 22.2% of the population 15 years and older do not have a high school certificate, diploma, or degree; there is a slightly greater proportion of Peterborough residents who do not have at least a high-school education (24%). Figure 2.6 highlights the differences in education attainment between Peterborough and the province. Where there is the greatest discrepancy is the proportion of persons attaining a university certificate, degree, or diploma of any type. Ontario boasts a combined attainment of university-level certification in 24.6% of its residents 15 years and older, whereas only 16.3% of Peterborough residents have acquired the same level of certification.

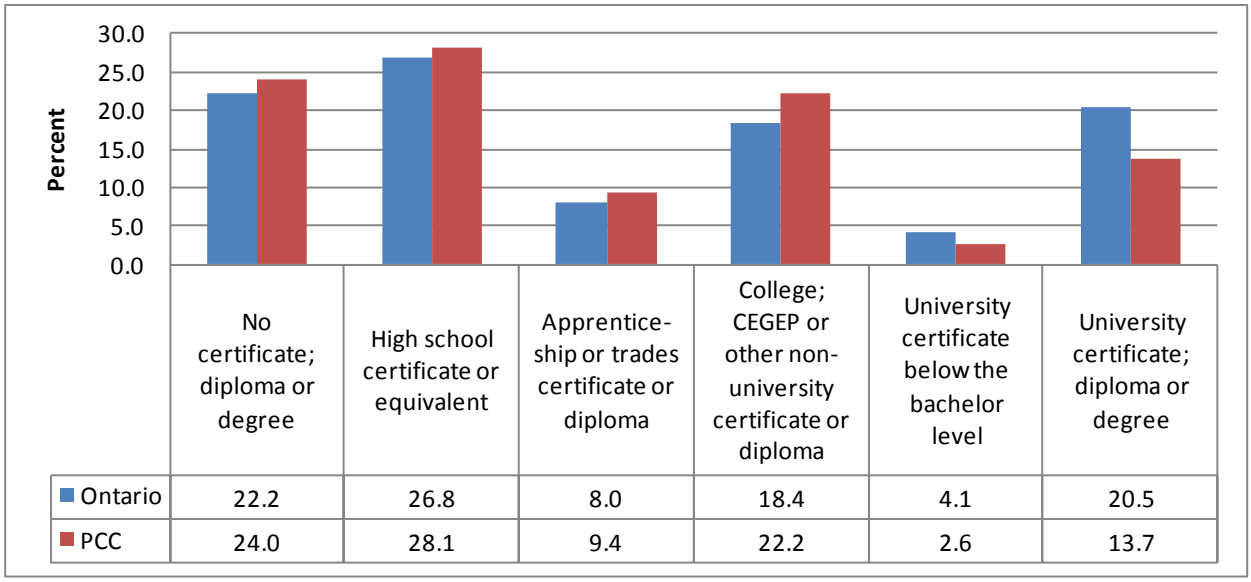


Figure 2.6. Educational attainment for Peterborough and Ontario, 2006

Note. *PCC = Peterborough County and City. From Statistics Canada 2006 Census. *2006 Community Profiles.*

There are also differences in the highest level of education attained across the municipalities of Peterborough County as well as shown in Figure 2.7. Havelock-Belmont-Methuen is the municipality with the highest proportion of its population with no certificate, diploma or degree of any type at 37.1%, while the City of Peterborough boast the largest proportion of its residents with a university certificate of any type (18.0%).

Table 2.7

Proportion of Population 15 years and Older by Highest Level of Education; 2006

	No certificate; diploma or degree	High school certificate or equivalent	Apprenticeship or trades certificate or diploma	College; CEGEP or other non-university certificate or diploma	University certificate below the bachelor level	University certificate; diploma or degree
AN	27.7	29.7	10.2	23.5	1.0	7.9
CMM	23.8	26.2	9.7	25.5	1.9	12.7
CLFN	33.5	25.7	7.8	25.7	1.8	6.0
DD	23.8	29.3	11.3	22.4	1.8	11.4
GCH	25.1	26.1	13.6	20.3	4.5	10.4
HBM	37.1	24.2	12.6	19.1	1.1	5.8
HFN	-	-	-	-	-	-
NK	25.2	24.2	14.1	20.9	4.0	11.3
OM	24.7	28.7	10.6	21.3	2.3	12.3
SEL	19.8	27.6	11.7	23.5	3.2	14.3
City	23.6	28.7	7.8	21.8	2.6	15.4
PCC	**24.0**	**28.1**	**9.4**	**22.2**	**2.6**	**13.7**

Note. AN=Asphodel-Norwood; CMM= Cavan-Millbrook-North Monaghan; CLFN=Curve Lake First Nation; DD= Douro-Dummer; GCH= Galway-Cavendish-Harvey; HBM= Havelock-Belmont-Methuen; HFN= Hiawatha First Nation; NK= North Kawartha; OM= Otonabee-South Monaghan; SEL= Smith-Ennismore-Lakefield; City=City of Peterborough; PCC=Peterborough City and County. From Statistics Canada 2006 Census. *2006 Community Profiles*.

G. Labour/Workforce Characteristics

In the Peterborough area, when reviewing 2006 figures, there is a lower number of individuals aged 15 and over in the labour force (also known as the participation rate), a lower employment and higher unemployment rate than Ontario (Table 2.8).

Table 2.8
Labour Force Activity, 2006

	Peterborough County	City of Peterborough	Ontario
	Total	**Total**	**Total**
Total population 15 years and over	111,000	62,355	9,819,420
In the labour force	68,870	38,350	6,587,580
Employed	63,950	35,260	6,164,245
Unemployed	4,920	3,090	423,335
Not in the labour force	42,125	24,010	3,231,840
Participation rate	62.0	61.5	67.1
Employment rate	57.6	56.5	62.8
Unemployment rate	7.1	8.1	6.4

Note. From Greater Peterborough Area Economic Development Corporation. (2009). *2009/2010 Community Profile*. Retrieved from http://www.gpaedc.on.ca/community.php

Very little difference is evident when volunteer labour is explored. The percentage of the Peterborough population age 15 years and over reporting hours of unpaid work, hours of unpaid housework, hours looking after children without pay, and hours of unpaid care or assistance to seniors are very similar to those found for Ontario as a whole (see Table 2.9).

Table 2.9
Volunteer Labour Force, 2006

	Peterborough County	City of Peterborough	Ontario
	Total	**Total**	**Total**
Population 15 years and over reporting hours of unpaid work	102, 675 (93%)	56,940 (91%)	8,991,010 (92%)
Population 15 years and over reporting hours of unpaid housework	101,780 (92%)	56,355 (90%)	8,869,060 (90%)
Population 15 years and over reporting hours looking after children without pay	37, 115 (33%)	20,355 (33%)	3,736,900 (34%)
Population 15 years and over reporting hours of unpaid care or assistance to seniors	22,020 (20%)	12,200 (20%)	1,838,830 (19%)

Note. From Greater Peterborough Area Economic Development Corporation. (2009). *2009/2010 Community Profile.* Retrieved from http://www.gpaedc.on.ca/community.php

As shown in Table 2.10, Peterborough's labour force by occupation, some differences from the province are noted. Peterborough has a higher proportion of people aged 15 years and over in health occupations; occupations in the social science, education, government service and religion; sales and service occupations; and trades, transport and equipment operators and related occupations. Peterborough, however, has lower percentages than Ontario for management occupations; business, finance and administration occupations; natural and applied sciences and related occupations; occupations in art, culture, recreation and sport; and occupations unique to processing, manufacturing and utilities.

Table 2.10
Labour Force by Occupation, 2006

	Peterborough County	City of Peterborough	Ontario
	Total*	**Total***	**Total***
Total experienced labour force 15 years and over	67,710	37,500	6,473,735
Management occupations	6,095 (9%)	3,115 (8%)	666,485 (10%)
Business, finance and administration occupations	10,115 (15%)	5,780 (15%)	1,204,490 (19%)
Natural and applied sciences and related occupations	3,375 (5%)	1,990 (5%)	451,930 (7%)
Health occupations	4,475 (7%)	2,640 (7%)	340,690 (5%)
Occupations in social science, education, government service and religion	6,545 (10%)	4,160 (11%)	546,385 (8%)
Occupations in art, culture, recreation and sport	1,745 (3%)	1,120 (3%)	200,980 (3%)
Sales and service occupations	18,195 (27%)	11,155 (30%)	1,522,820 (24%)
Trades, transport and equipment operators and related occupations	10,950 (16%)	4,850 (13%)	911,250 (14%)
Occupations unique to primary industry	2,230 (3%)	500 (1%)	165,085 (3%)
Occupations unique to processing, manufacturing and utilities	3,975 (6%)	2,185 (6%)	463,610 (7%)

Note. *totals may not add up due to rounding. From Greater Peterborough Area Economic Development Corporation. (2009). *2009/2010 Community Profile.* Retrieved from http://www.gpaedc.on.ca/community.php

Peterborough differs from Ontario when you explore the type of industry where people are employed. There are less people employed in manufacturing, finance and real estate, and business services than the province; however, there are more people employed in retail trade, health care and social services, educational services, and other services (refer to Table 2.11). Generally, Peterborough has similar proportions of people employed in agriculture and wholesale trade when compared to Ontario figures.

Table 2.11
Labour Force by Industry, 2006

	Peterborough County (CD)	City of Peterborough	Ontario
	Total*	**Total***	**Total***
Total experienced labour force 15 years and over	67,710	37,500	6,473,730
Agriculture and other resource-based industries	2,760 (4%)	810 (1%)	190,000 (3%)
Construction	5,005 (7%)	2,080 (6%)	384,775 (6%)
Manufacturing	7,300 (11%)	3,855 (10%)	899,670 (14%)
Wholesale or trade	2,405 (4%)	1,335 (4%)	307,465 (5%)
Retail trade	8,605 (13%)	5,095 (14%)	720,235 (11%)
Finance and real estate	3,060 (5%)	1,735 (5%)	442,610 (7%)
Health Care and social services	8,430 (12%)	5,080 (14%)	611,740 (10%)
Educational services	5,575 (8%)	3,345 (9%)	433,485 (7%)
Business services	10,470 (15%)	6,270 (17%)	1,274,345 (20%)
Other services	13,825 (20%)	7,890 (21%)	1,209,390 (19%)

Note. *totals may not add up due to rounding. From Greater Peterborough Area Economic Development Corporation. (2009). *2009/2010 Community Profile*. Retrieved from http://www.gpaedc.on.ca/community.php

With respect to proximity to work, there are a number of key facts about the labour force (Greater Peterborough Area Economic Development Corporation [GPAEDC], 2009, p.19):

- 8.3% of Peterborough's labour force work from home;
- 43% of Peterborough's labour force are employed in the same municipality they live in;
- 24% of Peterborough's labour force are employed in a different municipality than the one they live in;
- 77% of Peterborough's residents drive their own vehicle to work; and
- 22% of Peterborough's residents either carpool, take public transit, walk or bicycle to work.

Youth out-migration is another aspect of labour that has been locally explored by the Workforce Development Board (WDB). Northumberland County, City of Kawartha Lakes, Haliburton County and the City and County of Peterborough were part of this report. It is evident that the population between 15 and 24 years of age is increasing. The population is decreasing in the later age periods (25 to 29 years of age) within the four counties. Peterborough holds the highest percentage of population decrease within 30 to 34 years of age and the rate of decline slows down within the 35 to 39 year age group. The noticeable decrease within the population of 25 to 29 years of age signifies that there is a general trend of youth out-migration (WDB, 2006, p. 29)

Further ramifications related to these labour/workforce characteristics will be explored in the Determinants of Health and Health Inequities section of this report (Part 5).

H. Income

Employment and income also play important roles in achieving maximal health: higher levels of income are associated with improved health. Across all of Peterborough in 2006, the unemployment rate was 7.1%, the median household income (in private households) was $51,660, and the proportion of the population in low income (before tax) was 12.8%. By comparison to Ontario, the unemployment rate was slightly higher, median household income was approximately nine thousand dollars lower, and there was a somewhat smaller proportion of the population living in low income as illustrated in Table 2.12.

Table 2.12
Selected Labour Force and Income Data by Municipality, 2006

	Unemployment Rate (%)	Median Income* ($)	Low Income before tax† (%)
Asphodel-Norwood	6.8	49,166	12.7
Cavan-Millbrook-North Monaghan	5.6	73,654	5.3
Curve Lake First Nation	12.5	33,408	-
Douro-Dummer	5.4	59,747	6.2
Galway-Cavendish-Harvey	8.6	49,398	8.7
Havelock-Belmont-Methuen	7.3	41,682	10.4
Hiawatha First Nation	-	-	-
North Kawartha	7.0	43,091	10.1
Otonabee-South Monaghan	6.1	58,767	6.6
Smith-Ennismore-Lakefield	4.6	63,632	5.9
Peterborough City	8.1	48,213	17.0
PCC**	**7.1**	**51,660**	**12.8**
Ontario	**6.4**	**60,455**	**14.7**

Note. **PCC = Peterborough County and City. *all private households. † all persons; proportion of people living below the low income cutoff (see Part 5). From Statistics Canada 2006 Census. *2006 Community Profiles*.

Median household incomes across the region are also presented in Table 2.12. The highest median household incomes were in Cavan-Millbrook-North Monaghan ($73,654) and Smith-Ennismore-Lakefield ($63,632); these communities also boast some of the lowest unemployment rates (5.6% and 4.6%, respectively). The lowest median household incomes were found in Curve Lake First Nation ($33,408), Havelock-Belmont-Methuen ($41,682), and North Kawartha ($43,091); these communities are much lower than the provincial average. Also of note, the City of Peterborough had a high level of unemployment (8.1%) and a significant proportion of its population living in low income (17.0%).

An expanded exploration of income as a key determinant of health in Peterborough can be found in the Determinants of Health and Health Inequities section of this report (Part 5).

Part 3

Morbidity and Mortality

This section briefly explores the major diseases contributing to death in Peterborough. The top three leading causes of death are explored and wherever possible the diseases are compared between local and provincial data.

A. Major Causes of Death

Chronic diseases, including major cardiovascular diseases, cancers, and chronic lower respiratory diseases are the leading causes of death (mortality) in Canada. In 2006, 30.1% of all deaths in Canada were caused by major cardiovascular diseases and 29.7% by cancers (malignant neoplasms). These two causes of death alone accounted for 59.9% of all deaths; however, this proportion has been declining in recent decades from nearly 70% in the early 1980s (Statistics Canada, 2006).

The two major causes of mortality in Peterborough are diseases of the circulatory system and cancers, which accounted for 61.3% of all the deaths in Peterborough between 2000 and 2005 (see Table 3.1). Chronic obstructive pulmonary disease (COPD), which makes up approximately 53% of all deaths from diseases of the respiratory system (minimum 46% in 2001 to maximum 65% in 2000), accounts for roughly 4.5% of all deaths in Peterborough over the same time frame.

Table 3.1

Number and Proportion of Deaths by Primary Chapter Cause, Ranked by Annual Number of Deaths, PCCHU, 2000-2005

ICD10 Primary Chapter Cause	2000	2001	2002	2003	2004	2005	Total	AVG.
Diseases of the circulatory system	481	416	387	422	413	432	**2551 (33. 2%)**	426
Neoplasms (i. e. , cancers)	336	358	329	395	372	366	**2156 (28. 1%)**	360
Diseases of the respiratory system	89	103	117	141	132	107	**689 (9. 0%)**	115
Diseases of the nervous system	50	63	43	69	53	63	**341 (4. 4%)**	57
Endocrine, nutritional & metabolic diseases	58	31	52	50	70	65	**326 (4. 2%)**	55
All other causes	244	250	273	283	293	267	**1610 (21. 0%)**	269
Total	**1258**	**1221**	**1201**	**1360**	**1333**	**1300**	**7673**	**1279**
Crude Mortality Rate (per 100,000)	969	933	906	1014	985	950		

Note. From Death Summary, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

B. Cardiovascular Disease

Cardiovascular disease (CVD) is the leading cause of death in Canada and includes diseases and injuries of the heart, the blood vessels of the heart, and the system of vessels which supply the body and brain with blood and oxygen (Statistics Canada, 2006). In Ontario in 2005, there were 27,296 deaths as a result of all CVD, or approximately 218 deaths per 100,000 persons; in Peterborough, there were 432 deaths, or approximately 316 deaths per 100,000 persons living in the area. Ischaemic heart disease is a cardiovascular disease that occurs when there is a reduced supply of blood to the heart muscle. In 2005, there were 15,360 deaths in Ontario as a result of ischaemic heart disease (123 deaths per 100,000 persons); this includes 234 deaths in Peterborough (171 deaths per 100,000 population). The majority of deaths (approximately 90%) from CVD occur in individuals aged 65 and older and mortality rates for ischaemic heart disease are higher among men than women.

Diseases of the circulatory system also include cerebrovascular diseases (including stroke), a group of brain dysfunctions related to diseases of the blood vessels supplying the brain. In 2005, there were 5,424 deaths in Ontario due to cerebrovascular diseases (44 deaths per 100,000 population), including 103 deaths in Peterborough (76 deaths per 100,000 population). As with CVD, the majority of deaths (approximately 90%) due to cerebrovascular diseases occur in individuals 65 years and older, however, unlike CVD the mortality rate is higher among females.

Between 1995 and 2005, mortality rates decreased for all CVD combined, ischaemic heart disease and cerebrovascular diseases in both Ontario and Peterborough (see Figure 3.1).

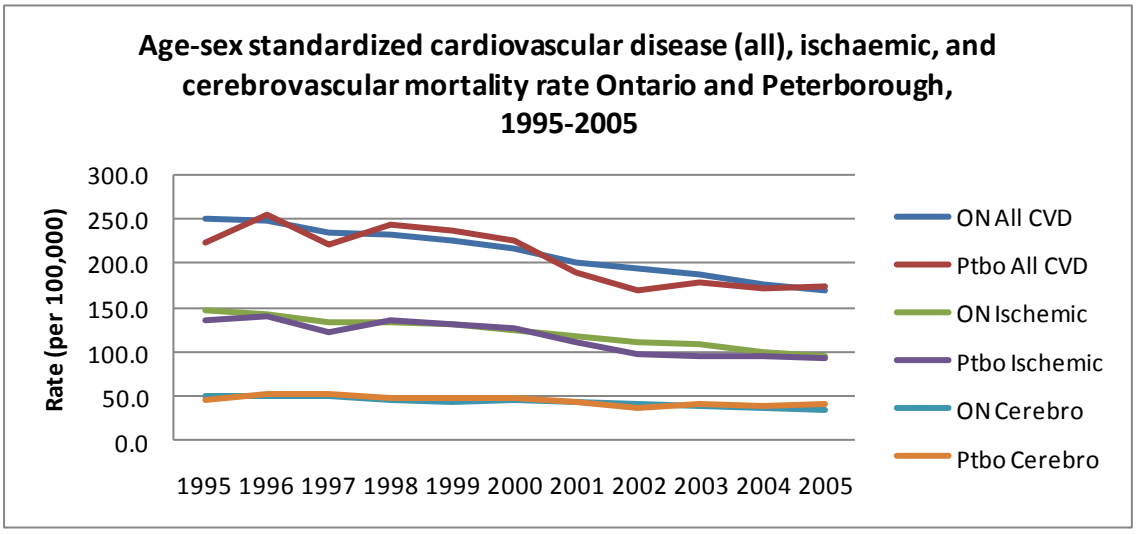


Figure 3.1. Age – sex standardized cardiovascular diseases, ischaemic, and cerebrovascular mortality rates. From Ontario Mortality Data 1995-2005, Ministry of Health and Long-Term Care, IntelliHEALTH.

Hospitalizations for the same diseases have also declined between 2003 and 2009 in Ontario and Peterborough. Hospitalization rates are higher in Peterborough for all CVD combined and ischaemic heart disease; hospitalization rates due to cerebrovascular diseases are slightly lower in Peterborough compared to the province (see Figure 3.2).

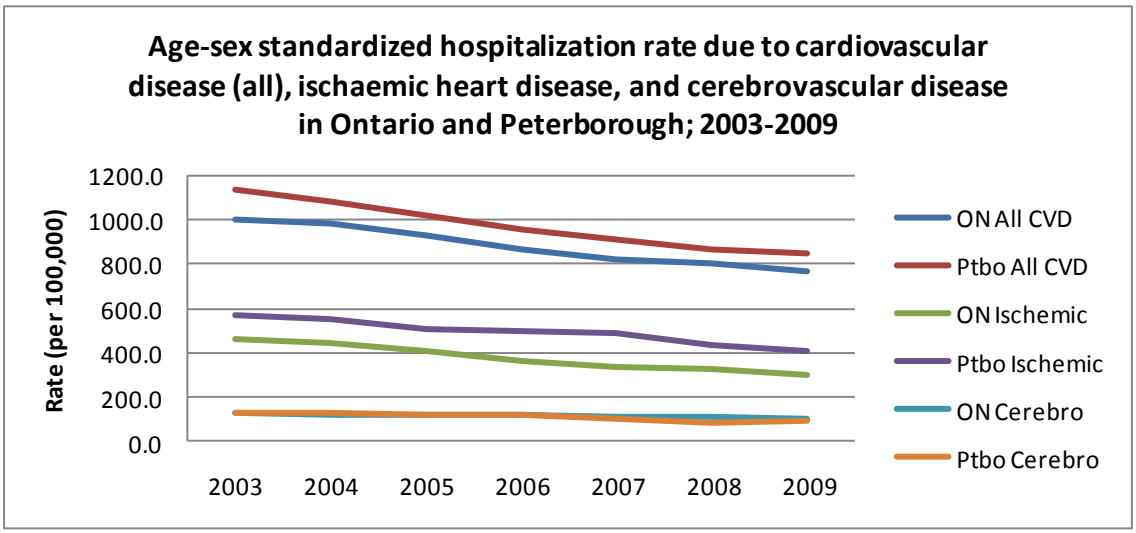


Figure 3.2. Age-sex standardized hospitization rates. From Inpatient Discharges 2003-2009, Ministry of Health and Long-Term Care, IntelliHEALTH

C. Cancer

Cancers are a class of diseases in which cells show uncontrolled growth or division, invade other tissues, and spread (metastasize) to other locations in the body; these characteristics distinguish cancerous tumours from benign tumours. Cancers affect a large number of people in Ontario each year. An estimated 64,000 new cases of cancer occurred in Ontario in 2008 (CCO, 2008a). Four types of cancer – prostate, colorectal, female breast, and lung – account for over half of cancer cases diagnosed in Ontario men and women (CCO, 2008a).

In Peterborough, 845 new cases (incidence) of cancer were diagnosed in 2005. Overall cancer incidence was higher among males than females (490.6 per 100,000 compared to 392.0 per 100,000, respectively). Even though overall cancer incidence is higher among males, the frequency of certain types of cancers differ between males and females. In Peterborough, the five most common cancers among men are prostate, lung and bronchus, colorectal, non-Hodgkin's lymphoma (NHL), and bladder (Figure 3.3). Among Peterborough females, the most commonly diagnosed cancers include breast, lung and bronchus, colorectal, uterine and corpus, and NHL (Figure 3.4).

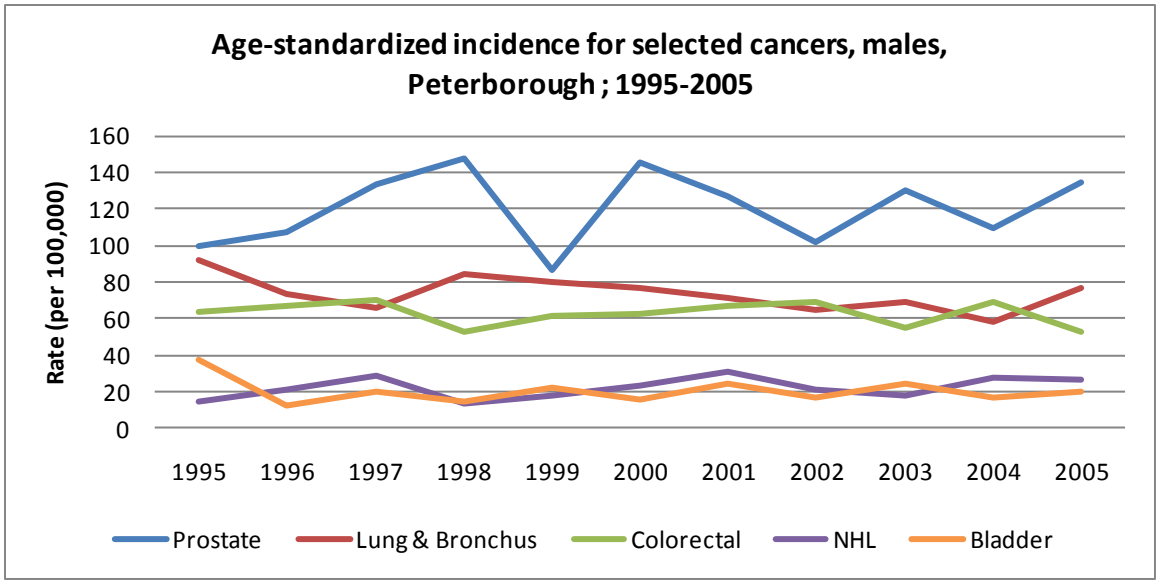


Figure 3.3. Cancer incidence for Peterborough males. From Cancer Care Ontario, Division of Preventive Oncology Surveillance Unit, Toronto, 2006

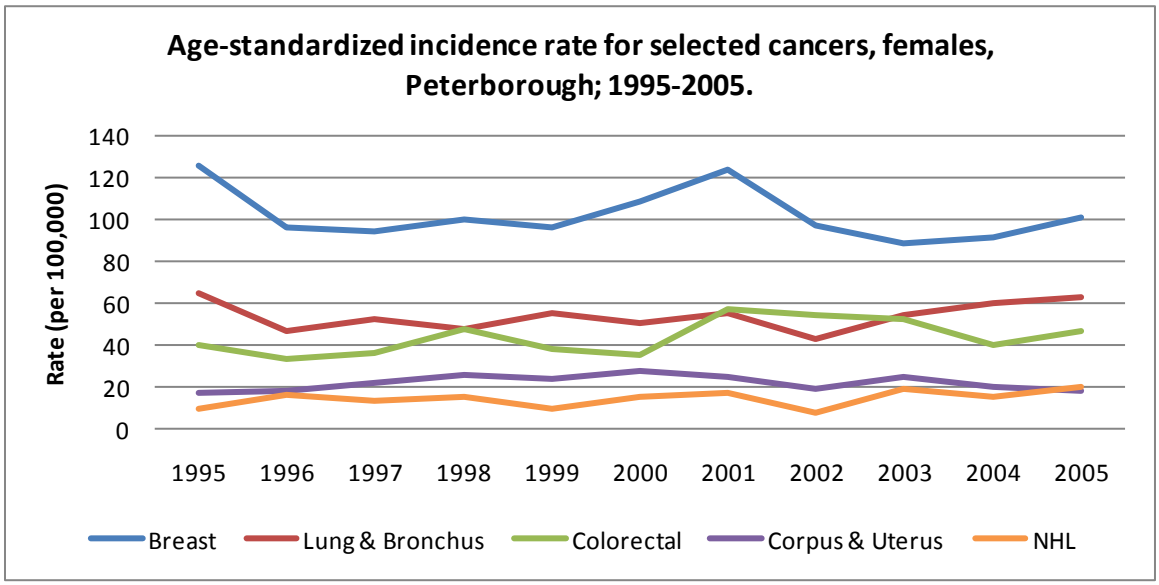


Figure 3.4. Cancer incidence for Peterborough females. From Cancer Care Ontario, Division of Preventive Oncology Surveillance Unit, Toronto, 2006

In males, the incidence of prostate cancer increased between 1995 and 2005 from 99.9 per 100,000 to 134.7 per 100,000; however, this may be due to increased awareness and screening for the disease. There has been a reduction in the incidence of lung cancer among males, paralleling the decline in men's smoking rates which have been steadily decreasing in Ontario (and Peterborough) since the 1960s. Women have lower rates of lung cancer than men (63.1 per 100,000 compared to 76.8 per 100,000 in 2005); however, lung cancer incidence among females has been increasing slowly, likely due to increases in female smoking rates. There appears to be a slight decrease in colorectal and bladder cancer

incidence rates in men since 1995; conversely, NHL incidence has increased. Breast cancer incidence has declined in Peterborough females since 1995, from 125.8 per 100,000 to 101.5 per 100,000 in 2005. Incidence rates of all other common cancers (lung and bronchus, colorectal, corpus and uterus, and NHL) have increased by varying degrees over the same time frame.

The proportion of Ontarians dying of cancer is lower now than it was 50 years ago, with death rates of 166 per 100,000 reported in 2005 compared to 178 per 100,000 in 1956 (CCO, 2008b). There were 360 cancer deaths in Peterborough in 2005. Similar to incidence, cancer mortality rates are higher among men than women (207.8 per 100,000 and 134.2 per 100,000 in 2005, respectively). While some cancers occur more frequently than others (for example, prostate cancer in men), some cancers are easier to detect and treat. Therefore, mortality patterns for cancers can differ from incidence patterns. In Peterborough males, lung and bronchus, colorectal, prostate, pancreatic, and NHL have the highest mortality rates (see Figure 3.5). In females, mortality rates are highest among lung and bronchus, breast, colorectal, ovarian, and pancreatic cancers (Figure 3.6).

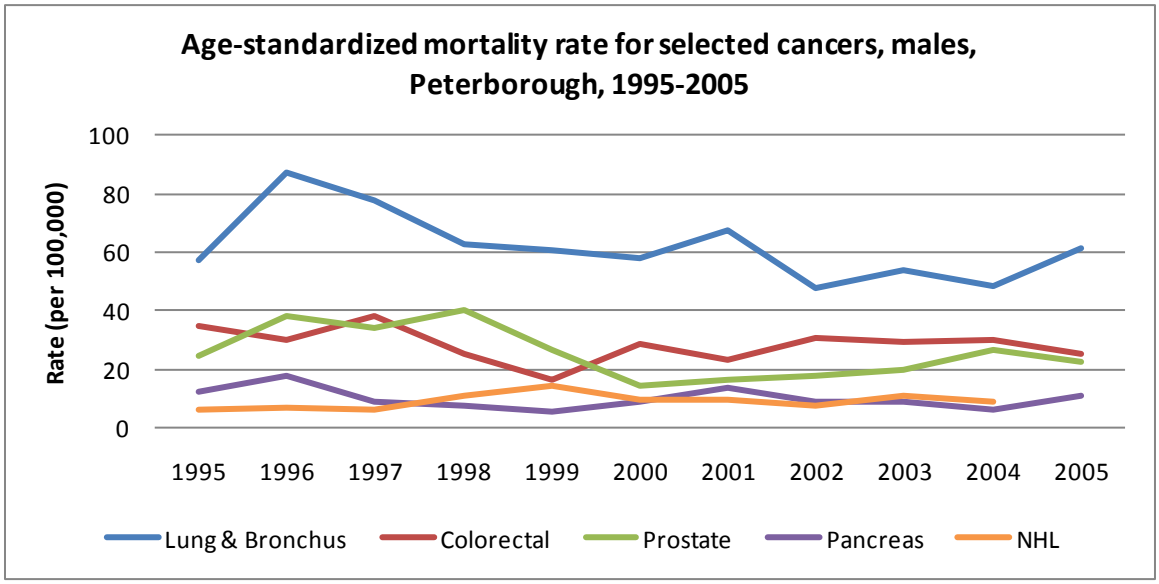


Figure 3.5. Mortality rates for select cancers in Peterborough males. Rates suppressed when there were <5 deaths. From Cancer Care Ontario, Division of Preventive Oncology Surveillance Unit, Toronto, 2006

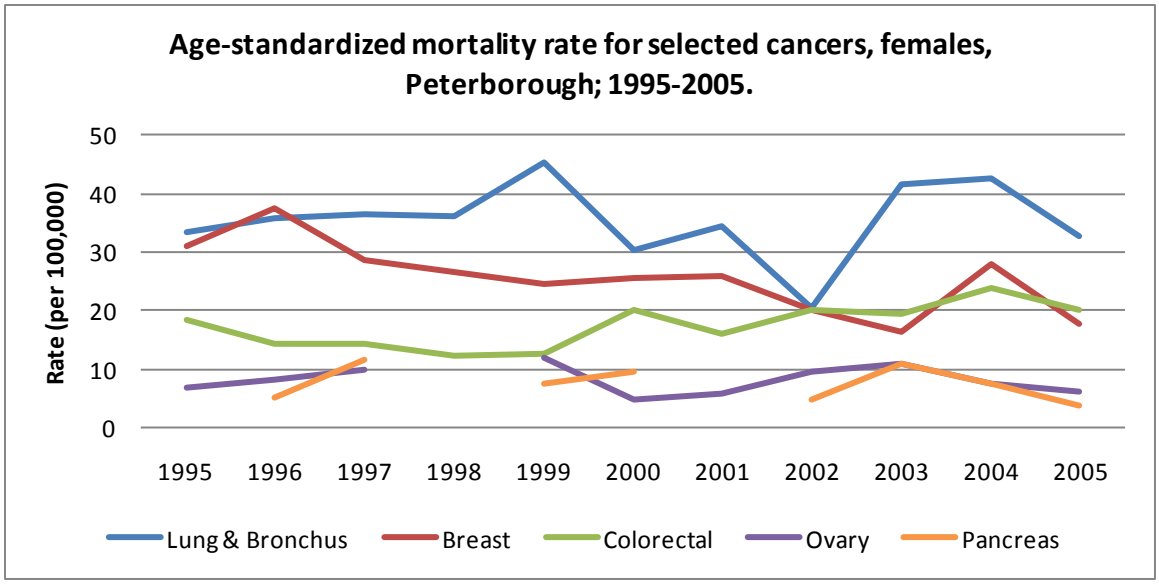


Figure 3.6. Mortality rates for select cancers in Peterborough females. Rates suppressed when there were <5 deaths. From Cancer Care Ontario, Division of Preventive Oncology Surveillance Unit, Toronto, 2006

Lung cancer mortality rates among men showed a decreasing trend between 1995 and 2005, though rates were generally stable in females. Females, however, have a much lower lung cancer mortality rate (32.8 per 100,000 in 2005) than men (61.2 per 100,000). Colorectal, prostate, and pancreatic cancer mortality rates among males also decreased somewhat over the same time frame. Breast cancer mortality rates have declined in Peterborough women, from 30.9 per 100,000 in 1995 to 17.7 per 100,000 in 2005. Conversely, in females colorectal cancer mortality has increased slightly over the same time frame, from 18.5 per 100,000 to 20.3 per 100,000.

D. Chronic Obstructive Pulmonary Disease

COPD refers to diseases of the lungs in which the airways become narrowed, causing shortness of breath due to limited flow of air to and from the lungs. In Ontario in 2005, there were 3,417 deaths due to COPD; in Peterborough, there were 52. Similar to diseases of the circulatory system, approximately 90% of COPD deaths occur in individuals aged 65 and older. Mortality rates are similar among both genders.

Between 1995 and 2005, COPD mortality rates in the province have declined; in Peterborough, due to the relatively small number of COPD deaths each year, mortality rates are highly variable. Though hospitalizations rates for COPD are higher in Peterborough than Ontario, both rates have been declining between 2003 and 2009 (See Figure 3.7).

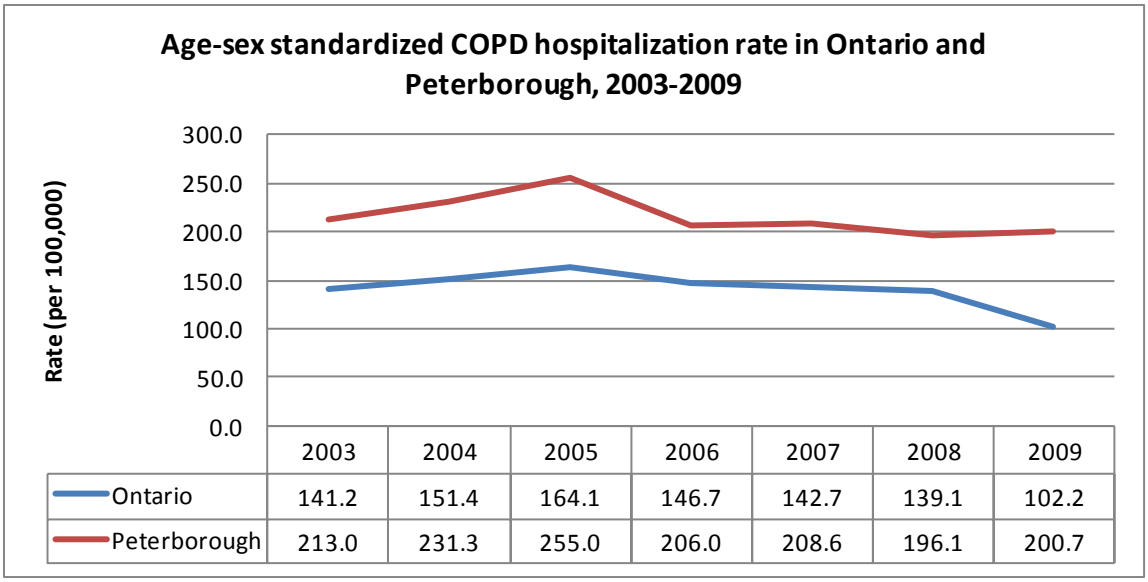


Figure 3.7. COPD hospitalization rates in Ontario and Peterborough. From Inpatient Discharges 2003-2009, Ministry of Health and Long-Term Care, IntelliHEALTH

In Peterborough, chronic diseases including major cardiovascular diseases, cancers, and chronic lower respiratory diseases continue to be the leading causes of death and hospitalization. It is important to remember that many chronic conditions share common modifiable risk factors (Chronic Disease Prevention Alliance of Canada [CDPAC], 2010). A number of these risk factors will be explored in-depth in Part 4.

Part 4

Health Behaviour Profile for Healthy Communities Priority Areas

As described in Part 1 of this report, the MHPS has developed a strategic framework to support healthy communities focused on six priority areas: Physical Activity, Sport and Recreation; Injury Prevention; Healthy Eating; Tobacco Use/Exposure; Substance and Alcohol Misuse; and Mental Health Promotion (MHP, 2010a). This section provides Peterborough-specific health behavior data, where available, for these six priority areas. However, it should be noted that sample sizes for Peterborough are small and as a result there is large degree of variability associated with some of the estimates provided. Estimates from the CCHS have been presented with 95% confidence intervals (depicted by the following symbol I in each figure).

Appendix A has been developed to provide further detail (e.g., definitions, calculations) regarding the figures and tables presented in this section.

A. Physical Activity, Sport and Recreation

Physical activity offers a range of benefits for all ages and abilities. Physical activity reduces the risk of chronic conditions such as coronary heart disease, stroke, hypertension, breast cancer, colon cancer, Type 2 Diabetes and osteoporosis. Regular physical activity is important for children's healthy growth and development (Public Health Agency of Canada [PHAC], 2010).

Canada's Physical Activity Guide to Healthy Active Living recommends that adults engage in 30 to 60 minutes of moderate physical activity (such as brisk walking) on most days of the week, accomplished in periods of ten minutes or more throughout the day (MPH, 2010b). The accessibility of physical activity programs and facilities, as well as, the presence of physical services and infrastructure that support physical activity illustrate how well a community enables residents to enjoy the benefits of physical activity.

Access to Physical Activity Programs and Facilities

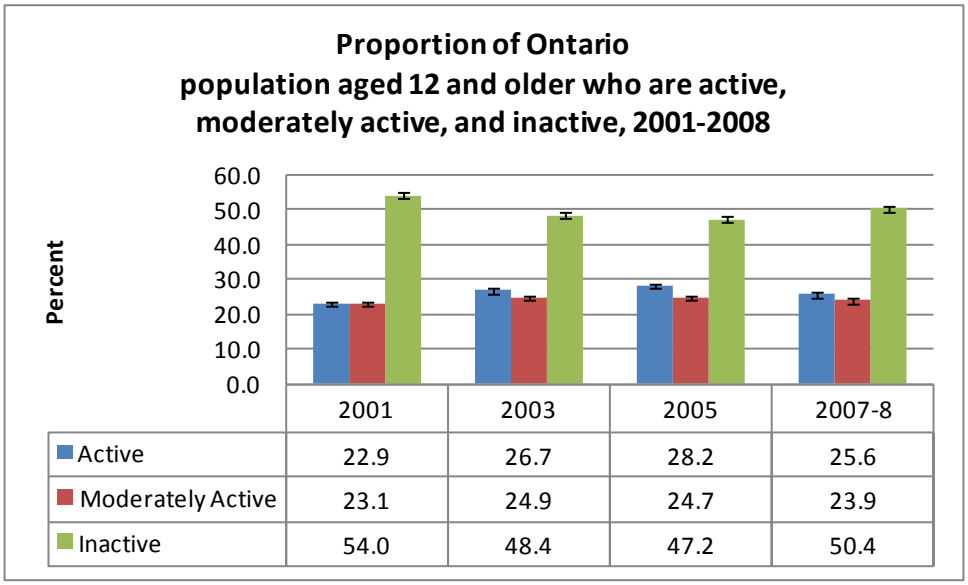
Research suggests that compared to those who are inactive, more active adults say that there are many safe places to walk and physical activity facilities in their community. In addition, more sedentary adults than active ones say there are no supports or facilities to be active in their community (Canadian Fitness and Lifestyle Research Institute [CFLRI], 2010). The literature also indicates that investing in community supports such as recreation for low-income families, including the school-hub model, mitigates the effects of poverty (Totten, 2007). The effects of poverty on physical activity rates is discussed further in Part 5 of this report.

The extent to which physical activity programs and facilities are accessible can be explored through an understanding of leisure time physical activity levels, the reach of existing physical activity programs and facilities, and the presence of policies that increase access to programs such as community use of schools.

Leisure Time Physical Activity

The physical activity index indicator is used to provide an estimate of the proportion of the population age 12 years and older by level of energy expenditure in the categories active and moderately active in their leisure time physical activity. It is important to note that this indicator, which appears in the figures below (Figures 4.1 and 4.2) does not measure the frequency of physical activity (Tomalty, et. al, 2007)

For both Ontario and Peterborough the proportion of population who are inactive decreased between 2001 and 2007-8 (Figure 4.1 and Figure 4.2). In 2007-8, the proportion of the Peterborough population who were active or moderately active was 60.1% (Figure 4.2) compared to the provincial rate of 49.5% (Figure 4.1).



	2001	2003	2005	2007-8
Active	22.9	26.7	28.2	25.6
Moderately Active	23.1	24.9	24.7	23.9
Inactive	54.0	48.4	47.2	50.4

Figure 4.1. Proportion of Ontario population who are active, moderately active, and inactive. Refer to Appendix A for in-depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care

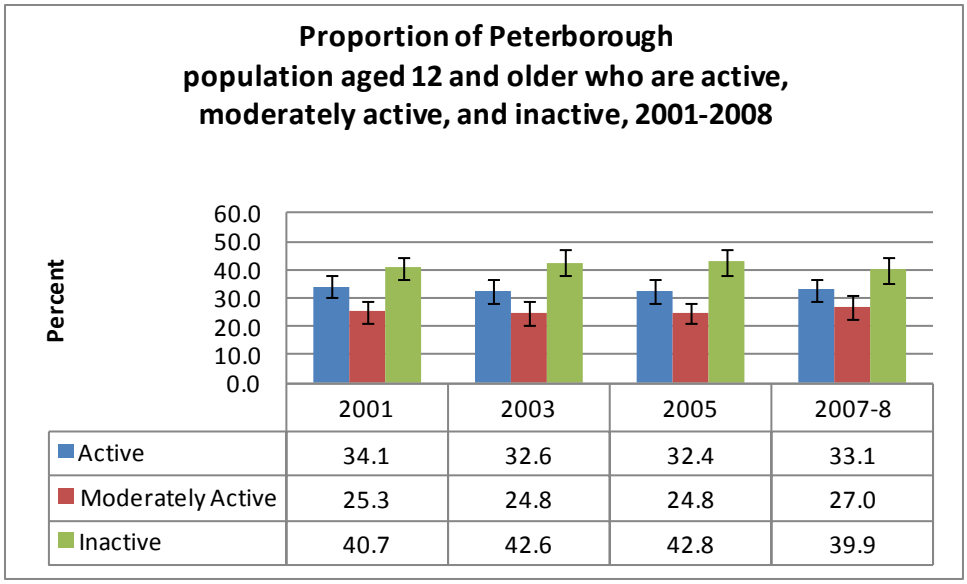


Figure 4.2. Peterborough population who are active, moderately active and inactive. Refer to Appendix A for in-depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care

A 2009 report based on 36 public health units in Ontario found that the Peterborough Health Unit region had 64% of people age 12 years and older who reported participating in physical activities in which they were active or moderately active (MOHLTC, 2009). This was the highest proportion in the province with the lowest being 43%.

Existing Physical Activity Programs and Facilities, Parks, Open Spaces, and Trails

There are six indoor recreation facilities in the City of Peterborough. There are 12 indoor recreation facilities in the County of Peterborough (operated by townships) (Association of Municipalities of Ontario [AMO], 2010). Some townships, however, have only one or no facilities. Those with no facilities also have no programs. Therefore, in comparison to the City, there are much fewer participant hours for recreation programs per 1,000 persons in townships (AMO, 2010). The amount of indoor recreation space available in Peterborough is the same as the median amount for similar communities in Ontario (Ministry of Municipal Affairs and Housing [MMAH], 2009). Due to the relationship between physical activity levels and the presence of facilities, using Geographic Information System (GIS) to gain a better understanding of how close residents throughout the region live to facilities could enhance program development.

Existing Access to Recreation and Community Use of Schools Policies

According to the Ontario Ministry of Education, schools in Ontario should be community hubs where all people can gather to learn, participate in community-based organizations and stay active. The Ontario government has committed to ensuring school space is accessible and affordable by providing $20 million annually to help school boards lower or eliminate

the fees they charge community groups to use school space after hours (Ministry of Education, 2010). If a school board develops a community use of schools policy, then that school board can access additional funding from the Ministry of Education under the Community Use of Schools program. Two schools boards in Peterborough have Community Use of Schools policies and many physical activity programs for the community take place in schools after hours. Benefits for having a community use of school policy include: promoting community well being, promoting community participation and volunteerism for all ages, promoting safer communities and crime prevention, and supporting and sustaining free or low-fee community programs to foster access and inclusion (SPACE Coalition, 2008).

Local municipalities do not have policies to ensure people living on low income have access to recreation programs, sport programs or open space (Bergeron, 2010). The City of Peterborough's *Vision 2010: A Strategic Plan Update for Recreation, Parks and Culture Peterborough and Area 2007* includes accessibility and inclusiveness as important principles (Berry Merriam, 2007). The City of Peterborough Community Services Department, through its Recreation Division, provides subsidies for children for various programs. In 2007, 445 children were subsidized for registration in recreational activities and summer camps. This included municipal programs and programs offered by other organizations if they were offered within the city limits (Mayor's Action Committee, 2008).

Studies indicate that reporting of no activity is more prevalent among those in lower income groups (Bryan and Katzmarzyk, 2009; Health for Life, 2008). Determining the impact of income on local levels of physical activity would be beneficial for demonstrating the need for access policies. This issue is further explored in Part 5 of this report.

Physical Services and Infrastructure that Support Physical Activity

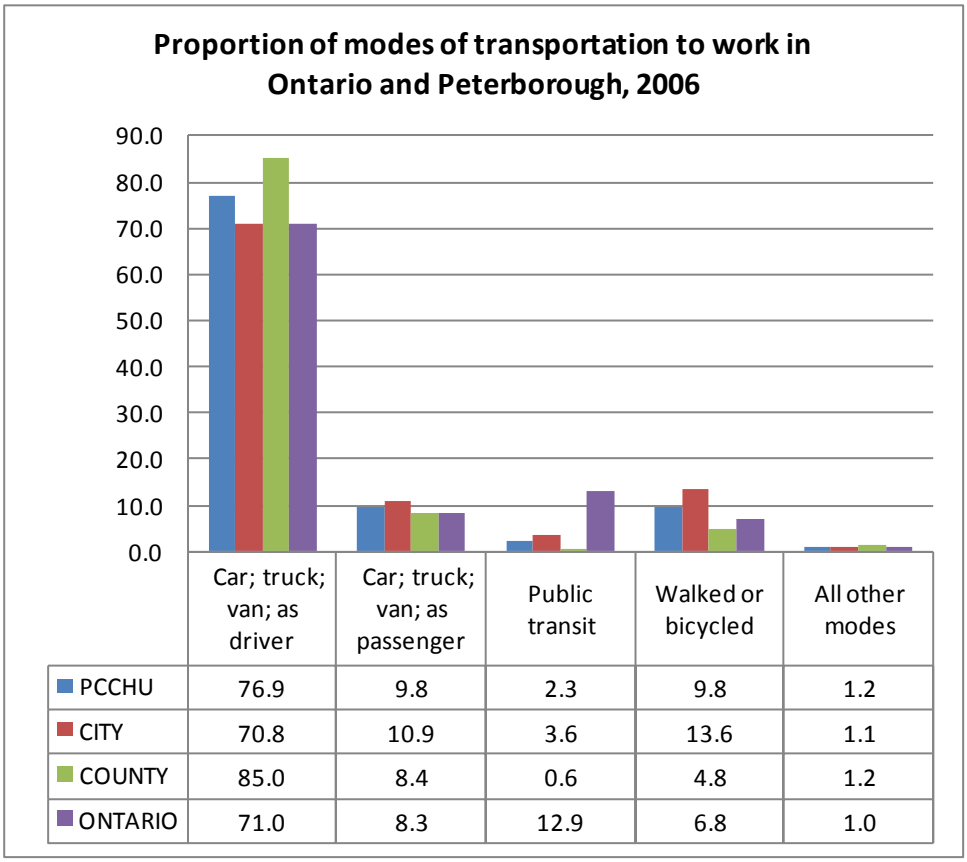
Research suggests that the characteristics of our communities such as proximity of facilities, street design, density of housing, availability of public transit and of pedestrian and bicycle facilities play a significant role in promoting or discouraging physical activity (Centers for Disease Control and Prevention, 2010). By working with planning and transportation officials, public health can engage in policy development that supports healthy community design (MHP, 2010b).

Information on distance and mode of travel to work or school and a scan of existing municipal policies that support sustainable transportation provides insight into the level of support for active transportation present in a community. These indicators suggest the degree of motor vehicle dependency and the adequacy of infrastructure for alternative modes (Tomalty, et. al, 2007).

Distance and Mode of Travel to Work and School

Surveys from a sample of Peterborough schools found that approximately 67% of students who are ineligible for school bus transportation at those sample schools use active

transportation modes (e.g., biking, walking school bus) to travel to and from school (Active and Safe Routes to School – Peterborough, 2010). Most Peterborough residents commute to work as the driver of a motor vehicle (Figure 4.3). According to Statistics Canada, 49.5% of Peterborough residents commute less than 5 kilometers to work (Statistics Canada, 2008).



	Car; truck; van; as driver	Car; truck; van; as passenger	Public transit	Walked or bicycled	All other modes
PCCHU	76.9	9.8	2.3	9.8	1.2
CITY	70.8	10.9	3.6	13.6	1.1
COUNTY	85.0	8.4	0.6	4.8	1.2
ONTARIO	71.0	8.3	12.9	6.8	1.0

Figure 4.3. Modes of transportation to work. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

The Built Environment

The built environment refers to all buildings, spaces and products that have been made or modified by people and can be contrasted with the natural environment. It also incorporates how activities are arranged, how land is used within communities and how these things are all physically connected (Heart and Stroke Foundation, 2007). It includes homes, schools, workplaces, parks/recreation areas, greenways, business areas and transportation systems. It extends overhead in the form of electric transmission lines, underground in the form of waste disposal sites and subway trains and across the country in the form of highways. It includes land-use planning and policies that impact our communities in urban, rural and suburban areas (Ritchie, 2008).

Research suggests that there is a great need for programs, policies and practices that build environments in which routine physical activity is essentially a way of life (Fenton, 2005). This involves providing opportunities for incidental physical activity, easy access to recreation and reduced automobile dependency. This includes promoting sidewalks, bicycle lanes and multi-use trails and advocating for safe walking and cycling conditions (Dora, 1999).

There are five elements of the built infrastructure that influence the travel behavior of residents (Bergeron & Cragg, 2009):

1. *Density of the Development:* Refers to the number of housing units per acre, which includes different housing forms such as single, semi-detached, townhouses and high and low-rise buildings.
2. *Land Use Mix:* Includes placing residential with commercial (i.e., retail, office, employment or service).
3. *Street Connectivity:* Determines how directly one can travel between activities.
4. *Street Scale:* Refers to the design of space between the curb and the front of a building and also the ratio of street width to building height. It may include items such as shade trees, benches, wide sidewalks, lighting, awnings and building design elements.
5. *Aesthetic Qualities:* Includes elements of the natural environment such as trees, flowers and fixtures such as benches, lighting and signage that create a sensation or feeling of peace and safety for non-motorized users.

Infrastructure for Sustainable Modes

The City of Peterborough has over 350 kilometers of sidewalks and 18 kilometers of cycling lanes. In 2008, there were 36 kilometers of trails in the City of Peterborough and 20 kilometers of trails in the County of Peterborough (AMO, 2010). Recently, new trails have been created that are not yet captured in the municipal reporting system. There is a strategic plan in place to complete all significant gaps in the City of Peterborough sidewalk network.

The City of Peterborough operates a public transportation system that provides service within city limits. The system includes 12 regular transit routes which offer service every 40 minutes between 6:00 a.m. and 11:20 p.m. on Monday to Saturday and 8:00 a.m. to 7:30 p.m. on Sundays. A Trent Express bus route operates during the academic year and provides service every 20 minutes on weekdays only. Transportation funding or partially subsidized monthly city transit passes are available to Ontario Works adults living in the City or County (City of Peterborough, 2010a).

In 2007, the City of Peterborough spent $3.00 per passenger trip whereas the median cost per passenger trip for all municipalities in Ontario was $4.31 and the median for single-tier municipalities with a population between 10,000 and 99,000 was $3.78 (MMAH, 2009). In 2008, the City of Peterborough spent $3.73 per passenger trip.

While there is no public transportation service operating in the County of Peterborough, there are some private transportation options available for County residents. A private bus company provides limited bus service to a small number of local communities.

There are also two Social Service vans that offer one round trip from various parts of the County each weekday. This service is available to Ontario Works clients and select individuals living on low incomes who need transportation for specific health or employment related appointments (City of Peterborough, 2010b).

Existing Municipal Policies that Support Alternative Transportation

The City and County Official Plans support active transportation policies and infrastructure. Some townships, which fall under the County Plan, have included specific active transportation policies in their plans (Dawson, 2010). The City of Peterborough Transportation Master Plan is currently under review. Strengthening partnerships between public health, planning and transportation officials will lead to increased policy development that supports healthy community development (MHP, 2010b).

B. Injury Prevention

Injuries, both intentional and unintentional, are among the top ranking causes of morbidity and mortality among Canadians in most age groups. Injuries cause the most significant Potential Years of Life Lost (PYLL) and financial burdens on the health care system (Smartrisk, 2009). In 2004, "injuries cost Ontarians $6.8 billion and 4,643 lives" (Smartrisk, 2009, p. 83). This need not be the case however, if we consider that the majority of injuries are both predictable and preventable (MOHLTC, 2002). Injury-related information is presented below. However, the impact of income on injury rates is explored in Part 5 of this report.

Overall Causes of Injury

In 2005, injuries (unintentional and intentional) were the leading cause of death for individuals aged one to 34 years and were the second leading cause of hospitalization for individuals aged five to 34 years (PHAC, 2005). In Peterborough, injuries are a significant cause of hospitalizations. From 2004 to 2008, there were 5,405 injuries (intentional and unintentional) that required hospitalization in Peterborough (not including injuries caused by complications from medical and/or surgical care). On average, this results in 1,081 intentional and unintentional injury-related hospitalizations occurring to Peterborough residents each year (Table 4.1). Injuries requiring hospitalization results in many direct and indirect costs to the health care system, including: emergency room and ambulance time, medical professional time, and prolonged stays at the hospital (Smartrisk, 2009).

Table 4.1
Overall Causes of Injury Requiring Hospitalization: Peterborough, 2004-2008.

Cause of Injury	Year					Total
	2004 n (%)	**2005** n (%)	**2006** n (%)	**2007** n (%)	**2008** n (%)	
Unintentional injuries	945 *(82.8%)*	979 *(86.1%)*	943 *(85.8%)*	846 *(85.9%)*	898 *(86.1%)*	**4,611**
Intentional self-harm	120 *(10.5%)*	98 *(8.6%)*	113 *(10.3%)*	81 *(8.2%)*	91 *(8.7%)*	**503**
Assault	18 (1.6%)	23 *(2.0%)*	17 *(1.5%)*	22 *(2.2%)*	29 *(2.8%)*	**109**
Undetermined intent	23 *(2.0%)*	16 *(1.4%)*	10 *(0.9%)*	19 *(1.9%)*	10 *(1.0%)*	**78**
Other	35 *(3.1%)*	21 *(1.9%)*	16 *(1.5%)*	17 *(1.8%)*	15 *(1.4%)*	**104**
Total	**1,141**	**1,137**	**1,099**	**985**	**1,043**	**5,405**

Note. From Inpatient Discharge Main Table, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

Intentional Injury

Intentional injuries include those resulting from suicide, self-harm and violence (Smartrisk, 2009). According to Smartrisk (2005), 25% of all injury deaths can be attributed to suicides and 12% of all injury hospitalizations are caused by self-inflicted injuries. In Peterborough from 2000 to 2005, there were 66 suicide deaths reported among Peterborough residents with 80.3% being male and 19.7% being female. The majority of these deaths were in the City (74.2%) and approximately one-quarter in the County (25.8%). The three most common causes of suicide death in Peterborough are: self-poisoning (36.4%), hanging/strangulation/ suffocation (34.8%), and firearm (18.2%).

In Peterborough from 2004 to 2008, there were 503 hospitalizations due to intentional self-harm, which equates to approximately 10% of all Peterborough injury-related hospitalizations (Table 4.1). However, suicides and self-inflicted injuries resulting in hospitalization represent only a portion of the intentional injuries that actually occur. In fact, there are many more people who attempt suicide but only a small number of these people seek medical attention and a large part of the remainder go unnoticed (Smartrisk,

2005). Therefore, intentional injuries must be included in any injury prevention strategy, especially for the purpose of reducing injury-related costs, reducing harm, and preventing injury-related deaths.

Unintentional Injury

According to the PHAC (2006a), unintentional injuries are a serious public health concern in Canada as they account for the greatest majority of total injury costs and the most number of PYLL. In Ontario, unintentional injuries are the leading cause of death for children and youth and the leading cause of hospitalization for seniors aged 65 years and older. In Peterborough between 2000 and 2005, there were 252 deaths as a result of unintentional injuries. Approximately 50 deaths occurred each year, with 54.8% of the deaths happening to males and 45.2% of the deaths to females. The major causes for these deaths were falls, other/unknown causes, and motor vehicle traffic crashes (Figure 4.4). Over the same time frame there were 81 deaths among Peterborough seniors aged 65 years or older as a result of a fall, with the majority occurring among females (61.7%).

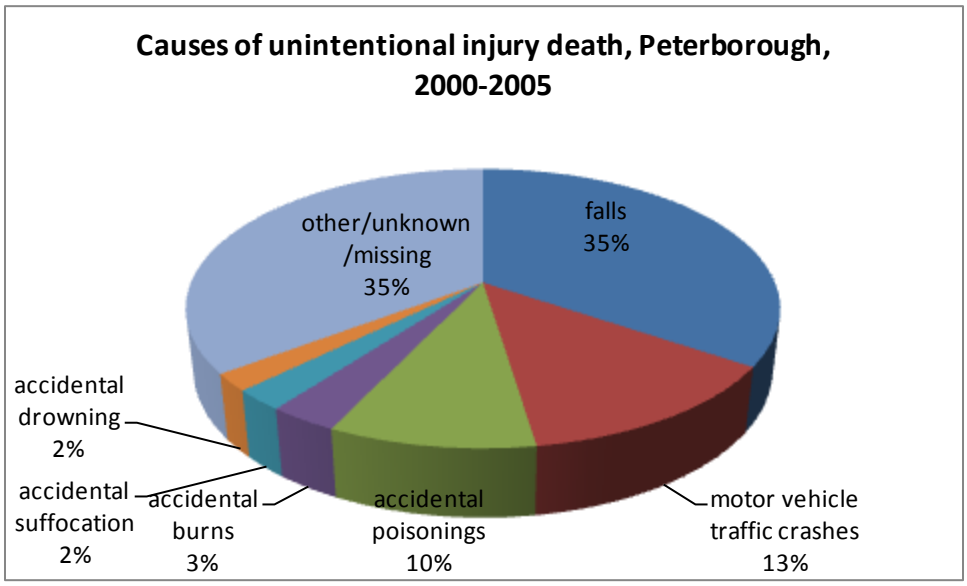


Figure 4.4. Unintentional injury death. From Death Summary, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

In Peterborough from 2004 to 2008, there were 4,611 unintentional injuries that resulted in hospitalization, with falls and traffic incidents as the top two causes (Table 4.2). On average, there are 922 unintentional injury-related hospitalizations occurring to Peterborough residents each year. The average length of stay for hospitalizations due to unintentional injury in Peterborough was 13.7 days.

When comparing Peterborough and Ontario age and sex standardized unintentional hospitalizations rates, Peterborough has more hospitalizations per 100,000 population

(468.0) than Ontario (431.7) (Figure 4.5). Although similar to Ontario (51.5% women, 48.5% men), there are slightly more women (55.5%) than men (44.5%) experiencing unintentional injuries.

Table 4.2
Unintentional Injury Hospitalizations: Peterborough, 2004-2008

Unintentional Injury	Year					Total	Yearly Average
	2004 n (%)	**2005** n (%)	**2006** n (%)	**2007** n (%)	**2008** n (%)		
Falls	637 *(67.4%)*	652 *(66.6%)*	621 *(65.9%)*	588 *(69.5%)*	636 *(70.8%)*	**3,134**	**627**
Traffic incidence	114 *(12.1%)*	108 *(11.0%)*	95 *(10.0%)*	67 *(7.9%)*	77 *(8.6%)*	**461**	**92**
Struck by/against or contact with an object	50 *(5.3%)*	48 *(4.9%)*	53 *(5.6%)*	38 *(4.5%)*	42 *(4.7%)*	**231**	**46**
Overexertion	42 *(4.4%)*	49 *(5.0%)*	53 *(5.6%)*	37 *(4.4%)*	42 *(4.7%)*	**223**	**45**
Unintentional poisoning	41 *(4.3%)*	29 *(3.0%)*	41 *(4.4%)*	27 *(3.2%)*	42 *(4.7%)*	**180**	**36**
Other vehicular incident (ATV, snowmobile, boating, etc.)	20 *(2.1%)*	37 *(3.8%)*	30 *(3.2%)*	34 *(4.0%)*	25 *(2.8%)*	**146**	**29**
Unintentional hit/struck/ bitten by animal/person	13 *(1.4%)*	25 *(2.6%)*	27 *(2.9%)*	21 *(2.5%)*	13 *(1.5%)*	**99**	**20**
Other	13 *(1.4%)*	20 *(2.0%)*	13 *(1.4%)*	18 *(2.1%)*	10 *(1.1%)*	**74**	**15**
Exposure to fire/flames/ hot substances	15 *(1.6%)*	11 *(1.1%)*	10 *(1.0%)*	16 *(1.9%)*	11 *(1.2%)*	**63**	**13**
Total	**945**	**979**	**943**	**846**	**898**	**4,611**	**922**

Note. From Hospital In-Patient Data, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

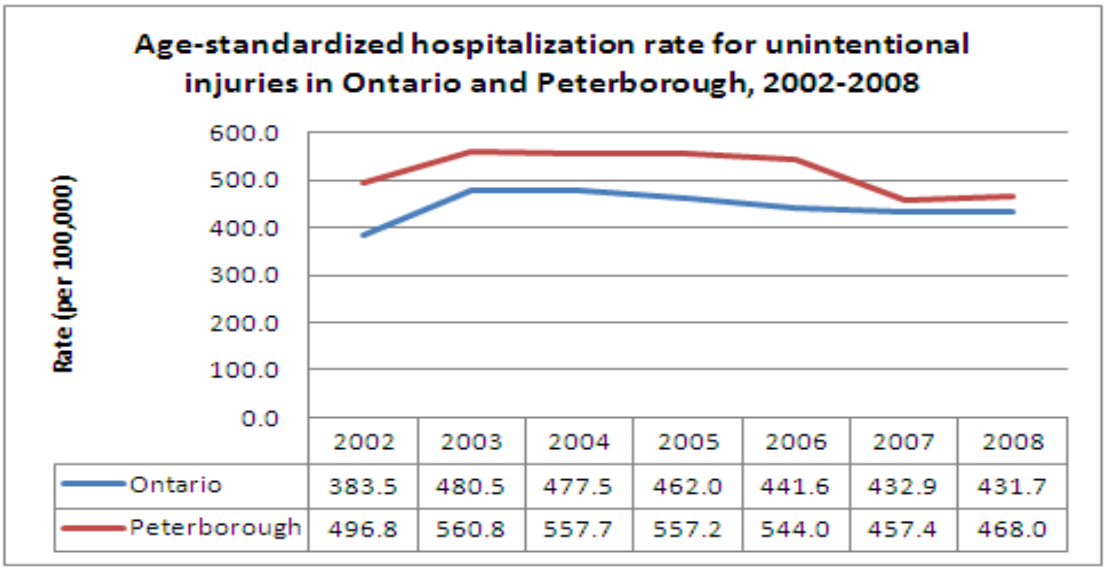


Figure 4.5. Hospitalization rate for unintentional injuries. From Hospital In-Patient Data, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

According to the MHP (2007), the home is the most common place for unintentional injuries to occur. This trend is similar for Peterborough. Between 2003 and 2007, approximately 328 unintentional injuries resulting in hospitalizations occurred in the home each year, making it the leading cause of unintentional hospitalization in Peterborough (Table 4.3).

Table 4.3
Unintentional Injury Resulting in Hospitalization, Place of Occurrence: Peterborough, 2004-2008

Place of Injury	Year					Total	Yearly Average
	2004	2005	2006	2007	2008		
Unspecified place of occurrence	335 (35.4%)	371 (37.9%)	351 (37.2%)	302 (35.7%)	311 (34.6%)	**1,670 (36.2%)**	**334**
Home	338 (35.8%)	339 (34.6%)	322 (34.1%)	289 (34.2%)	352 (32.9%)	**1,640 (35.6%)**	**328**
Residential Institution	118 (12.5%)	80 (8.2%)	106 (11.2%)	101 (11.9%)	114 (12.7%)	**519 (11.3%)**	**104**
School, other institution, public area	47 (5.0%)	47 (4.2%)	43 (4.6%)	47 (5.6%)	36 (4.0%)	**220 (4.8%)**	**44**
Sports and athletics area	35 (3.7%)	41 (4.2%)	35 (3.7%)	29 (3.4%)	18 (2.0%)	**158 (3.4%)**	**32**
Other specified place	25 (2.6%)	39 (4.0%)	37 (3.9%)	24 (2.8%)	23 (2.6%)	**148 (3.2%)**	**30**
Trade and Service Area	15 (1.6%)	36 (3.7%)	24 (2.5%)	16 (1.9%)	23 (2.6%)	**114 (2.5%)**	**23**
Street and Highway	19 (2.0%)	13 (1.3%)	10 (1.1%)	20 (2.4%)	12 (1.3%)	**74 (1.6%)**	**15**
Industrial and Construction Area	Counts per year were less than five					**43 (0.9%)**	
Farm	Counts per year were less than five					**25 (0.5%)**	
Total	**945**	**979**	**943**	**846**	**898**	**4,611**	

Note. From Hospital In-Patient Data, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

Unintentional Injury – Falls

According to Smartrisk (2009), falls are the leading cause of unintentional injury in Ontario. Falls account for 51% of all hospitalizations due to unintentional injury, 29% of all emergency room visits due to unintentional injury, and 31% of the total costs of injury in Ontario (Smartrisk, 2009). In Peterborough, falls account for 35% of all unintentional injury deaths and 68% of all unintentional injuries that required hospitalization. Falls have resulted in a total of 9,287 days in hospital for Peterborough residents in 2008 alone; and a total of 47,299 hospitalization days between 2004 and 2008.

Among Peterborough residents, hospitalizations as a result of a fall are more common among women (63.0 %) than men (37.0%); which is similar to what has been observed provincially (60.4% women, 39.6% men). In 2008, age-specific fall-related hospitalization rates were observed for each age group (Figure 4.6). A significant number of falls are occurring in children under the age of 10 years and in older adults over the age of 60 years. Similar to overall unintentional injuries, the home is the most common place for a fall to occur.

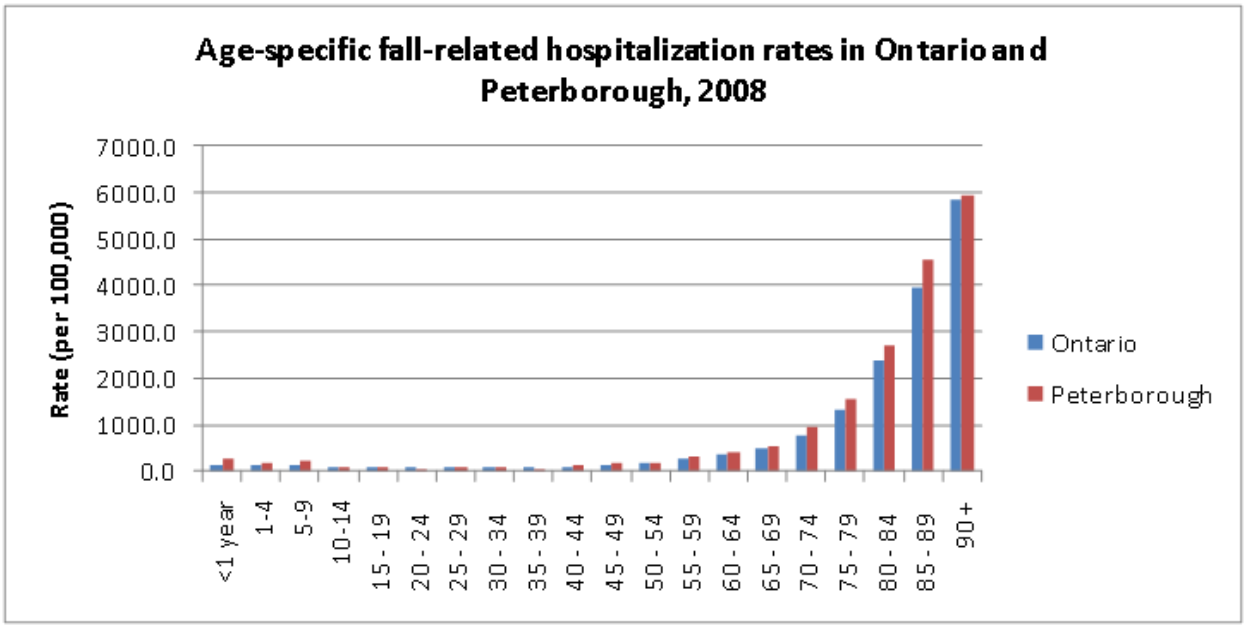


Figure 4.6. Crude fall-related hospitalization rates by age group. From Hospital In-Patient Data, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

According to PHAC (2009), falls account for 85% of all unintentional injuries to older adults aged 65 years and older. In Peterborough, over a five year period (2003-2007), there were 2,074 falls that required hospitalization to older adults aged 65 years of age and older. This results in 415 falls occurring each year. The majority of these falls occurred to females (70.9%), with a smaller percentage to males (29.1%). When age and sex are standardized, Peterborough older adults experience more fall-related hospitalizations (1357.0 per 100,000 population) than Ontario older adults (1278.1 per 100,000) (Figure 4.7).

Smartrisk (2006) states that falls among older adults are the most costly cause of injury with annual costs estimated at more than $962 million in Ontario (Smartrisk, 2006). These costs are so great because when an older adult falls, rehabilitation and recovery periods are typically longer and more cumbersome and can be up to twice as long for falls when compared to all other causes of hospitalization for older adults (PHAC, 2006b). In Peterborough, there are extensive costs being incurred to the local health care system as the average length of stay between 2003 and 2007 for an older adult fall-related hospitalization

was 15.38 days. The total hospitalization days for the same time period were 31,896 days or 6,379 days per year.

PHAC (2009) estimates that a 20% reduction in falls across Canada would translate to an estimated 7,500 fewer hospitalizations and 1,800 fewer permanently disabled seniors. The overall national savings to the health care system could amount to $138 million annually.

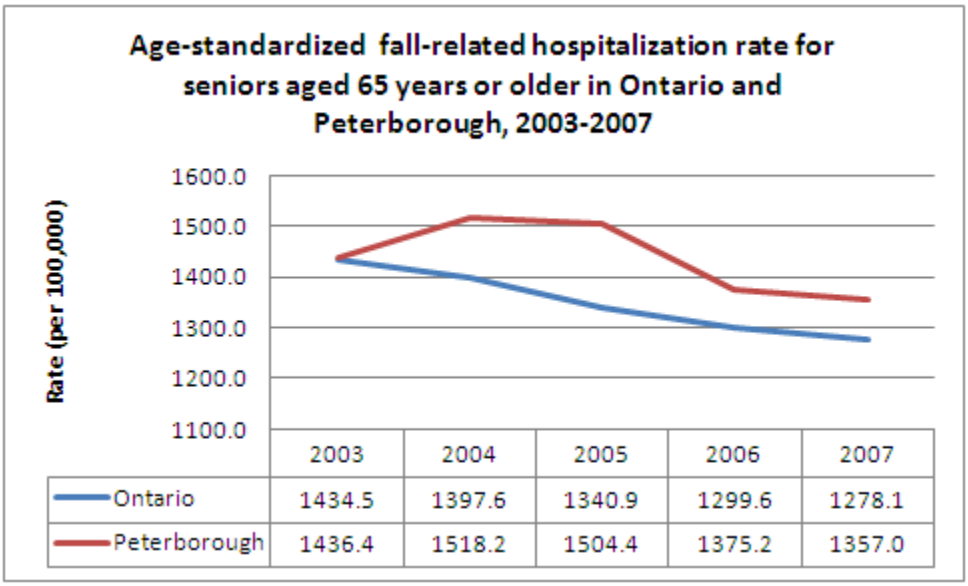


Figure 4.7. Fall hospitalization rate for seniors. From Hospital In-Patient Data, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

Unintentional falls are the most common external cause of childhood injury, representing 36% of emergency department visits and 42% of hospitalizations (Smartrisk, 2007). From 2003 to 2007 there were 173 hospitalizations to Peterborough youth aged 14 years or younger as a result of falls. Of these youth, 58.4% were males and 41.6% were females. When standardized for age, Peterborough has a consistently higher rate of falls (148.8 per 100,000 population) compared to Ontario (105.1 per 100,000 population) (Figure 4.8). The average length of stay between 2003-2007 for a youth hospitalized due to a fall was 2.09 days for the 2003-2007 period. Fall-related hospitalizations among Peterborough youth accounted for 363 hospital days for the same time period.

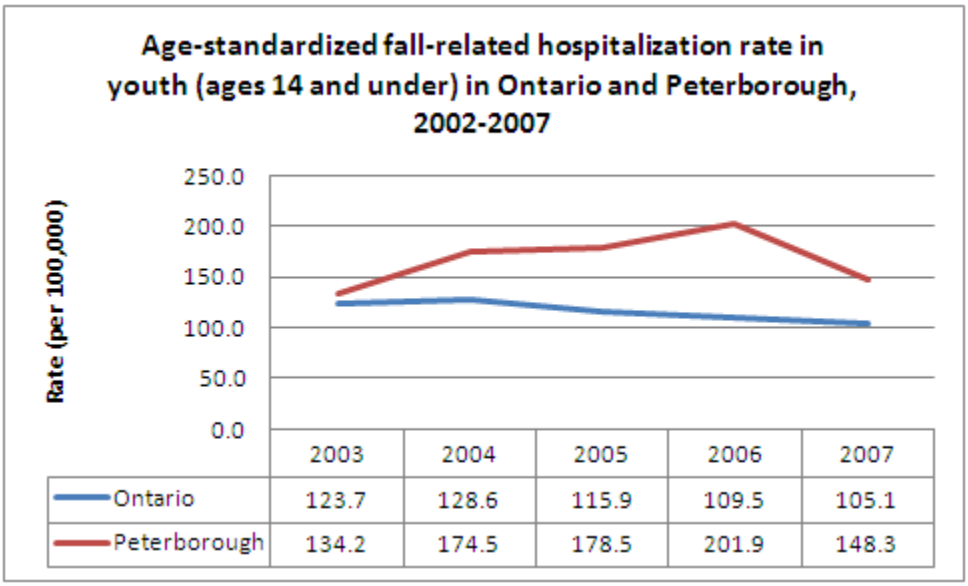


Figure 4.8. Fall-related hospitalization rate in youth. From Hospital In-Patient Data, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

Unintentional Injury – Traffic Incidents

As illustrated in Table 4.2, traffic incidents are a major cause of unintentional injury in Peterborough. Motor vehicle collisions and injuries are another indicator of auto-dependency and support the need for sustainable transportation options expressed in the earlier comments about physical activity and the built environment.

"The primary measure of road user safety in Ontario is the number of fatalities for every 10,000 licensed drivers" (MTO, 2007, p. 21). In 2007, there were 0.86 fatalities per 10,000 licensed drivers on Ontario. This rate was the lowest recorded fatality rate ever in Ontario (MTO, 2007). In Peterborough, the number of motor vehicle registrations in Peterborough continues to rise (Figure 4.9); however, the rate of collisions and injuries remains at approximately the same level (Figure 4.10) (MTO, 2006).

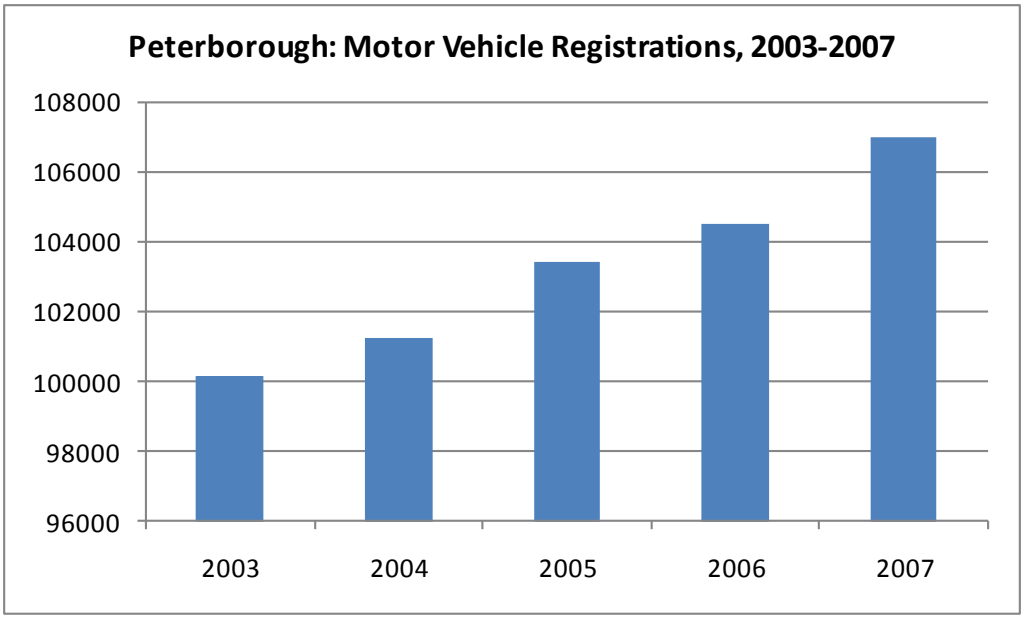


Figure 4.9. Motor vehicle registrations. From Ontario Road Safety Annual Report, 2003-2007. Retrieved from http://www.mto.gov.on.ca

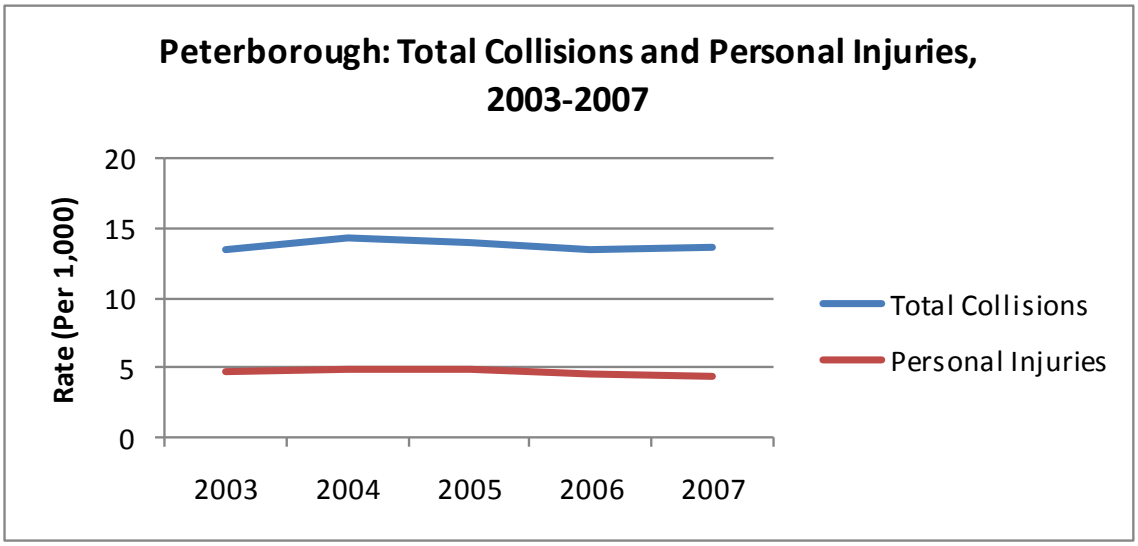


Figure 4.10. Total collisions and personal injuries. From Ontario Road Safety Annual Report, 2003-2007. Retrieved from http://www.mto.gov.on.ca

In 2006, there were 1,850 motor vehicle collisions resulting in 630 personal injuries in Peterborough. While collisions and injuries occurred throughout the region, collisions in the City of Peterborough are more likely to result in personal injury (Figure 4.11). Galway-Cavendish-Harvey Township (a rural setting), had the highest rate of collisions, though personal injury as a result of these collisions is lowest.

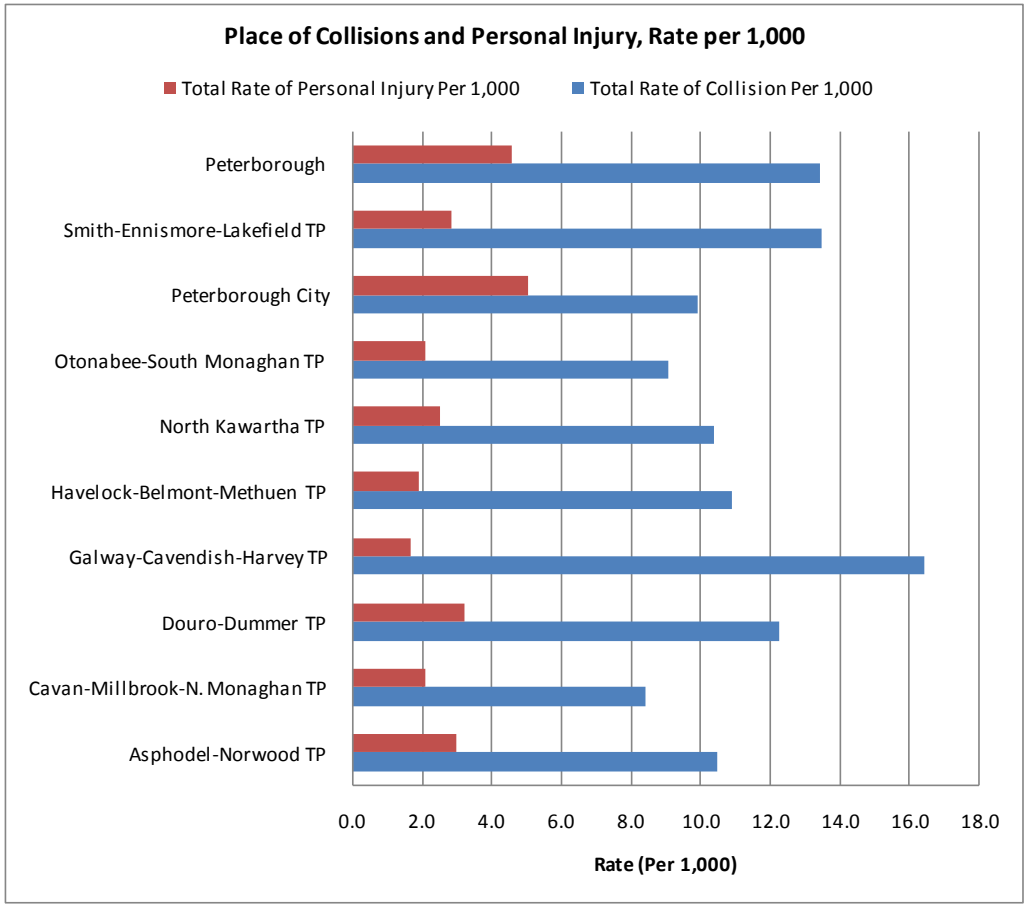


Figure 4.11. Place of collisions and personal injury. From Ontario Road Safety Annual Report. (2006). Retrieved from http://www.mto.gov.on.ca

Across Ontario (Figure 4.12), collisions among the most vulnerable road users continue to be a serious concern. In 2006, Ontario saw disturbing increases in the number of collision-related fatalities for pedestrians and cyclists. Pedestrian fatalities increased from 105 in 2005 to 126 in 2006, while fatalities among cyclists rose from 21 in 2005 to 32 in 2006 (MTO, 2005; 2006).

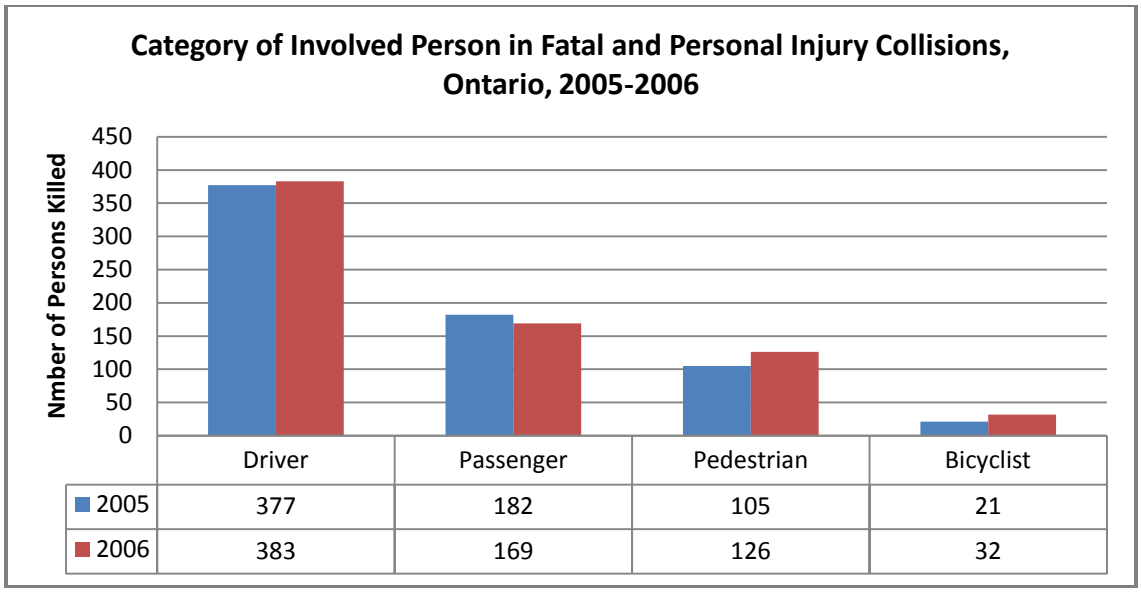


Figure 4.12. Category of involved persons in fatal collisions. From Ontario Road Safety Annual Report, 2005 and 2006. Retrieved from http://www.mto.gov.on.ca

In summary, intentional and unintentional injuries continue to burden the Peterborough population and place a significant financial strain on the local health care system. It is important to realize that injuries are not just accidents; they are largely predictable and preventable events. A concentrated effort is required by government, health professionals, as well as communities and individuals to reduce the incidence and severity of injuries in the Peterborough community (MOHLTC, 2002).

C. Healthy Eating

This section presents Canadian, Ontario and Peterborough data regarding unhealthy eating as a risk factor for the development of chronic disease. Upon interpretation of the data, it is evident that nutritional status of Canadians and Ontarians are comparable to Peterborough residents. It is well established that unhealthy eating and lower economic status contributes to the development of chronic disease such as hypertension, heart disease, stroke, certain types of cancer and type 2 diabetes and their co-morbidities (Ontario Chronic Disease Prevention Alliance [OCDPA], 2010a).

Nutrition

Recent research indicates that Canadians have significant room for improvement when it comes to healthy eating. At most ages, Canadians consume less than five servings of vegetables and fruit a day (Garriguet, 2006). In Peterborough, less than half of our adolescent and adult population (12 years of age and older) is consuming adequate amounts of vegetables and fruit daily (Figure 4.13). Vegetable and fruit consumption data for Peterborough adults points to a drop between 2005 and 2007/08. However, changes will need to be tracked to determine if this is an actual trend.

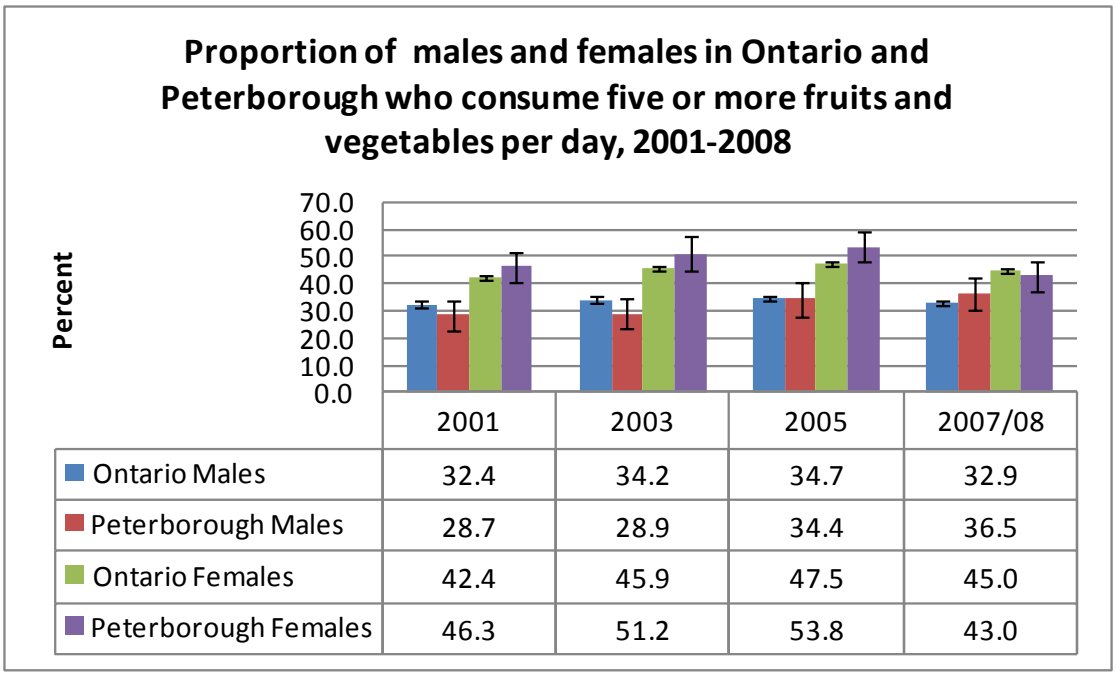


Figure 4.13. Fruit and vegetable consumption. Refer to Appendix A for in-depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

The CCHS found that children (12 years of age and older), adolescents and the majority of seniors do not consume the daily recommended servings of milk products from Canada's Food Guide. In general, Canadians are also not meeting recommendations for grain products from the Food Guide. They are consuming greater amounts of foods and beverages that are low in nutrients and higher in sugar, sodium or fat (OCDPA, 2010a).

In addition, most Canadian adults and children have usual sodium intakes above the Tolerable Upper Intake Levels as Figure 4.14 illustrates (Tarasuk, 2010). The Tolerable Upper Intake for sodium is set at 2,300 mg daily, for people aged 14 years and older, with lower values for younger than 14 years of age.

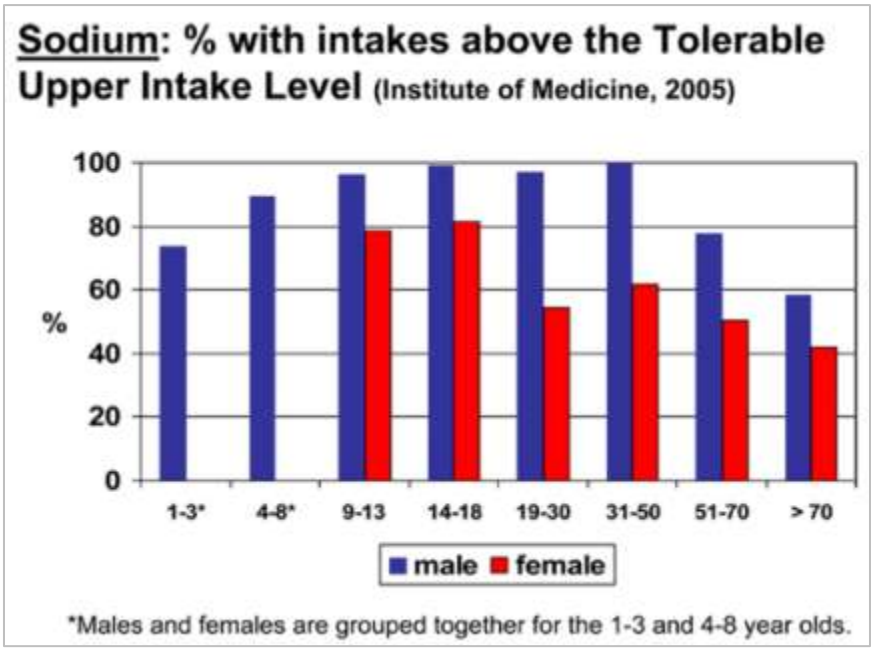


Figure 4.14. Sodium intake. From Vogt, J. & Tarasuk, V. (2004). Analysis of Ontario sample in Cycle 2.2 of the Canadian Community Health Survey.

In summary, the pattern of inadequacies identified among adults, and to a lesser extent, adolescents and children, speaks to the need for increased consumption of vegetables, fruit, whole grains, and milk and milk alternatives to ensure optimum health. In addition, the high intakes of sodium due to processed food consumption require immediate action by food industry so that consumers have the option to choose lower sodium products that will lead to a decrease in the amount of sodium being consumed by the population.

Food Security

The Community Food Network of the Peterborough Poverty Reduction Network defines food security in the following way (Community Food Network, 2010).

"A community enjoys food security when:

- all people, at all times, have physical & economic access to nutritious, safe, personally and culturally appropriate foods,
- food is produced in ways that are environmentally sound, socially just, and promote community self reliance,
- food is provided in a manner that promotes human dignity."

There is significant concern in Peterborough that many people in the community are not food secure. Community members living in poverty experience a range of food insecurity from *food insecure*, defined as worrying about running out of food, to *severe food insecurity* defined as children not eating for a whole day.

Table 4.4

Proportion of Ontario and Peterborough households with food insecurity issues, 2007/08

Income related food security status

	Food Secure	Food Insecure		
	All (%)	All (%)	Moderate (%)	Severe (%)
Ontario				
All Households	91.8	8.2	5.9	2.3
Households with Children	89.9	10.1	8.9	1.2
Households without Children	93.3	6.7	4.0	2.8
Peterborough				
All Households	92.7	7.3*	5.0*	2.4*
Households with Children	87.8	12.2*	10.2*	E
Households without Children	94.9	5.1*	2.8*	E

Note. *Estimates should be interpreted with caution due large sampling variability. E – conclusions based on these data will be unreliable and most likely invalid and are therefore not included. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

In Peterborough, 7.3% of households are food insecure with 2.4% categorized as severe. Households with children (12.2%) have a higher food insecurity rate than households without children (5.1%) (Table 4.5). This data was not collected from First Nations or homeless people, so it is possible that many more community members are likely affected. Valerie Tarasuk, a researcher specializing in household food insecurity, estimates the total number of Canadians affected by food insecurity is about 3 million people (Tarasuk, 2010).

Table 4.5 below shows a variety of incomes and basic expenses for families and individuals living in Peterborough. People living on low incomes find that after paying for rent and utility, there is not enough money to buy nourishing food. No matter how much people try to juggle, it is impossible to make ends meet, so people have to buy less and poor quality food. For example, a single person living on Ontario Works would find themselves spending $231 more than they have if they purchased nourishing food (-$231 per month). The reality is that they must pay rent and go without adequate food.

Table 4.5

What's Left After Shelter, Utility and Food Costs?

Monthly Income (after tax)/Costs	**Single Person** (Ontario Works)	**Single Person** (Ontario Disability Support Program)	**Single Person** (Old Age Security/ Guaranteed Income Security)	**Single Parent Family of 3** (Ontario Works)	**Family of 4** (Minimum Wage)	**Family of 4** (Median Income)
Monthly Income, including Benefits & Credits	$606	$1,071	$1,201	$1,757	$2,514	$5,775
Estimated Shelter & Utilities Cost	$589	$589	$853	$1,057	$1,314	$1,706
Cost of a Nutritious Diet	$248	$248	$184	$561	$742	$742
What's Left?	**-$231**	**$234**	**$164**	**$139**	**$458**	**$3,327**
% income required for shelter/utilities	97%	55%	71%	60%	52%	30%
% income required for nutritious food	41%	23%	15%	32%	30%	13%

Note. From Peterborough County-City Health Unit. (2010). *Limited incomes: A recipe for hunger.* Retrieved from http://pcchu.peterborough.on.ca/NP/NP-images/PDF/limited-incomes.pdf

Adults and children of all ages in food-insecure households consume less fruit, vegetables, and milk products when compared with those in food-secure households. Research also suggests that for women in particular, the lower the household income the less able they were to afford milk products and vegetables. Food-insecure individuals' dietary patterns are dictated by income, with social assistance recipients particularly vulnerable (Vogt & Tarasuk, 2004).

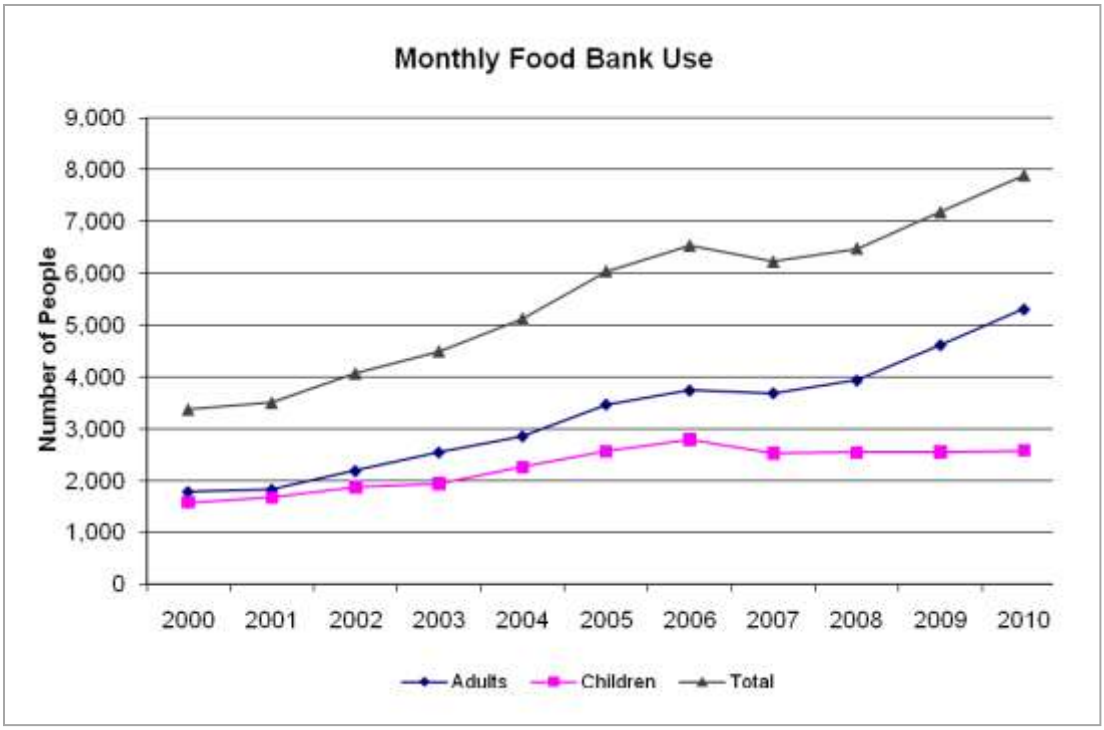


Figure 4.15. Food bank use. From Kawartha Food Share (2010)

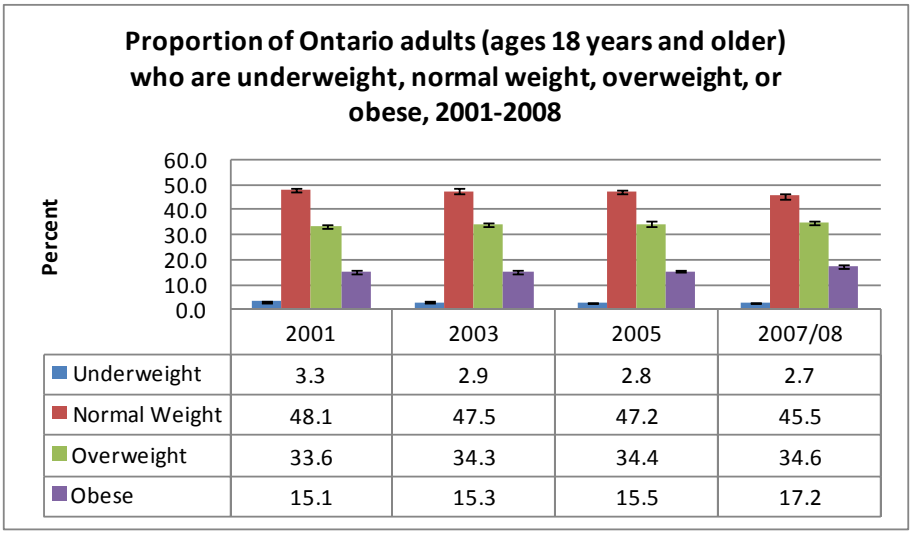
To address this issue, some people turn to food banks. In Peterborough, monthly food bank use has consistently increased since 2000 (Figure 4.15). About 7,900 people used Peterborough food banks in March 2010. Food bank use has increased by 10% over last year and 54% over the past seven years. Thirty-two percent of local food bank users are youth and children under the age of 18 (Kawartha Food Share, 2010).

In summary, insufficient income is the cause of household food-insecurity. Until income issues are addressed, people will continue to suffer the consequences of having to go without food. It is critical to support advocacy efforts at the municipal, provincial, federal level for improved social assistance and minimum wage rates, increased employment opportunities and access to affordable housing. These factors are further explored in Part 5 of this report.

To immediately address this issue local food action programs need to improve access to nourishing foods with an emphasis on vegetables, fruit, whole grains, milk and milk alternatives and lower sodium choices.

Body Mass Index

In Ontario, 45.5% of adults are in the normal weight range and 17.2 % are in the obese weight range (Figure 4.16). This is based on Body Mass Index data that is used to classify body size based on heights and weights. The trend for the past seven years indicates a slight increase in the percentage of adults who were categorized as obese. Ontario data is used since Peterborough specific data has low reliability and does not differ greatly from Ontario data. In another report (Figure 4.17), Vogt and Tarasuk found that 8% of children and adolescents, aged two to 17 years were obese (Vogt & Tarasuk, 2010).



	2001	2003	2005	2007/08
Underweight	3.3	2.9	2.8	2.7
Normal Weight	48.1	47.5	47.2	45.5
Overweight	33.6	34.3	34.4	34.6
Obese	15.1	15.3	15.5	17.2

Figure 4.16. Underweight, normal weight, overweight or obese adults. Refer to Appendix A for in depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

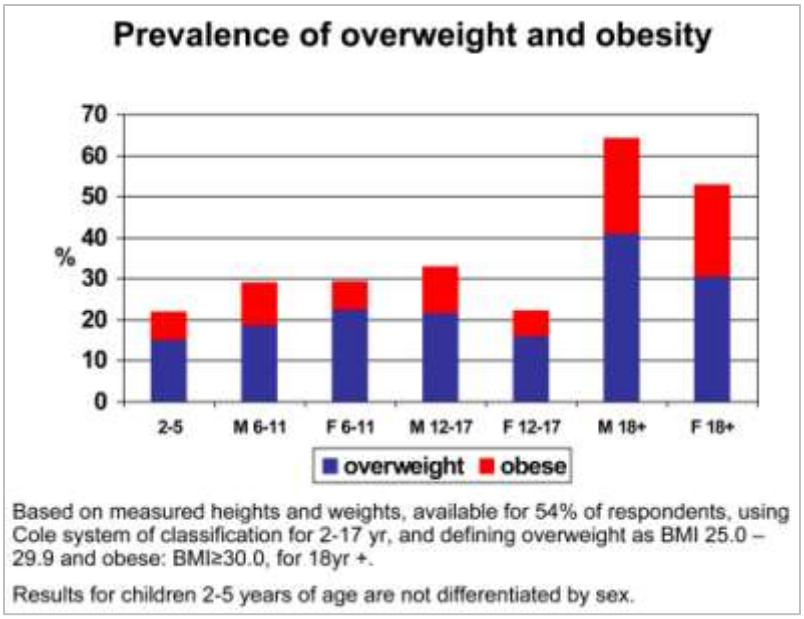


Figure 4.17. Overweight and obesity. From Vogt, J. and V. Tarasuk (2004). Analysis of Ontario sample in Cycle 2.2 of the Canadian Community Health Survey.

Many Canadian health organizations have chosen to make "obesity prevention" the focus of their health promotion programming. This approach comes with many challenges. For example, weight alone does not determine a person's health status. Obesity prevention programs also run the risk of increasing other health problems. Dieting and an obsession with achieving an ideal body shape, can lead to unhealthy and dangerous behaviours such as yo-yo dieting, weight cycling, restrictive eating, obsessive exercising, and a negative perception of body image. Dieting and extreme calorie restriction can leave people lacking in vitamins and minerals, and without enough energy to be physically active (MOHLTC, 2004).

Promotion of positive body image in children and youth is critical. Body dissatisfaction, particularly among teen girls has been associated with more health compromising behaviours such as unhealthy weight control behaviours, and fewer health-promoting activities such as physical activity. Body dissatisfaction is associated with weight gain over time and interventions aimed at obesity prevention and treatment should avoid messages that may inadvertently lead to body dissatisfaction (Van den Berg & Neumark-Stzainer, 2007).

To address this challenge, the Chronic Disease and Injury Prevention (CDIP) program at PCCHU has created a position statement with respect to weight and states that the CDIP program supports a health and wellness centred health promotion approach, rather than a weight and appearance centred approach (PCCHU, 2008; Van den Berg and Neumark-Stzainer, 2007).

Parents have a major role to play in promoting positive body image in their children. Role modeling has a great impact on children. Neumark-Sztainer (2005) focuses on the Four Cornerstones:

1. Model healthy behaviours for children.
2. Provide an environment that makes it easy for children to make healthy choices.
3. Focus less on weight, instead focus on behaviours and overall health.
4. Provide a supportive environment with lots of talking and even more listening.

Another example of putting this approach into practice is the promotion of family meals. Research indicates that families who eat meals together may be more committed to healthy eating than others (Dietitians of Canada, 2009). Eating family dinners may encourage children to eat healthier foods than they would choose on their own. Children and adolescents who frequently eat together with at least one other family member present have better food and nutrient intake, including drinking more milk and eating more vegetables and fruit. Increased frequency of eating together as a family appears to have a protective effect against eating disorders in adolescents. Additionally, other aspects such as making family meals a priority, having a more structured mealtime environment and creating a positive family meal atmosphere are also associated with a lower rate of disordered eating behaviours (Dietitians of Canada, 2009).

Non-nutritional benefits for children and adolescents who eat with their parents also include (Dietitians of Canada, 2007):

- Lower risk for substance abuse and have better social adjustment (e.g., fewer fights, decreased early sexual activity) compared to adolescents who eat together with their parents less often.
- Better school performance than adolescents who have less frequent family meals.
- As eating dinner together with all or most of the family increases in frequency, so do external assets such as family support, boundaries and expectations, as well as older children's and adolescents' internal assets such as having a positive view of personal future and being motivated and engaged in school.
- Mealtime conversations with preschool children are correlated with better vocabulary at age five compared to conversations during play or book reading.

The information presented here emphasizes that people from all income levels in Peterborough are not getting enough healthy foods, such as vegetables, fruit, whole grains, milk and milk alternates. This becomes even more challenging when someone is living on a low income. Although many organizations are focused on weight, caution must be applied when making obesity prevention programs the focal point of health promotion programming. Clearly, a more alarming trend that affects a greater proportion of our population is that many people are not meeting their basic nutritional requirements. The Peterborough community needs to address healthy eating by creating a supportive environment that makes the healthy eating choice the easy choice at home, in schools, workplaces and where we live and play.

D. Tobacco Use/Exposure

For many years, tobacco use has been the leading cause of death and preventable illnesses in Canada (Health Canada, 2010). Tobacco use also contributes to the development of many chronic health problems including, cancers, diabetes, respiratory conditions, and cardiovascular disease (Health Canada, 2010).

Both the federal and provincial governments take responsibility for tobacco control through the *Tobacco Control Act* and the *Smoke Free Ontario Act (SFOA)*. Public health units are mandated to enforce parts of the *SFOA*, and municipalities play a strong role in public policy enforcement related to limiting exposure to second-hand smoke in public areas (e.g., smoke-free sports fields and parks). It is internationally recognized that effective tobacco control must focus on helping people to quit, ensuring protection from second-hand smoke, and preventing people from starting to use commercial tobacco products (World Health Organization [WHO], 2003).

Indicators of Health Impact

It has been estimated that 22% of all deaths each year in Canada can be attributed to smoking (Makomaski-Illing & Kaiserman, 2000). Therefore in 2005, approximately 286 deaths in Peterborough were attributed to tobacco use. Ischaemic heart disease, which accounted for 234 deaths in Peterborough in 2005, is exacerbated by tobacco use (Health Canada, 2010). Ischaemic heart disease mortality rates among men 45 years and older decreased between 2000 and 2005 in both Peterborough and Ontario. In general, Peterborough rates were lower than the province, though a slight increase between 2004 and 2005 has narrowed the gap between the two geographies. Women aged 45 years and older also saw declines in ischaemic heart disease mortality rates in Peterborough (Figure 4.18).

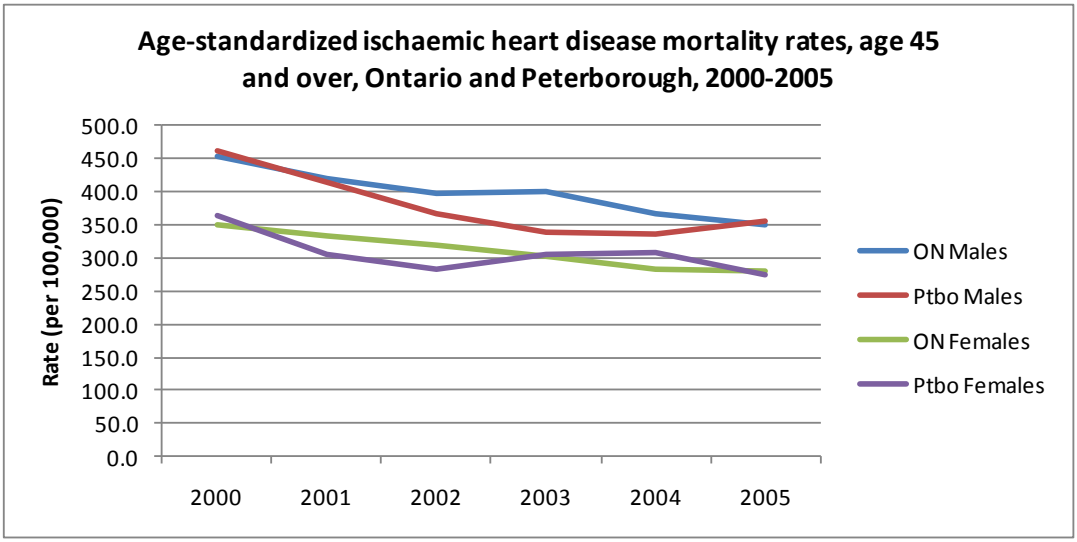


Figure 4.18. Age standardized mortality rates (per 100,000) for ischaemic heart disease. From Death Summary, intelliHEALTH, Health Planning Branch, Ministry of Health and Long-Term Care.

Lung cancer is the cancer that is responsible for the most cancer deaths and it has a particularly strong link to smoking (Health Canada, 2010); about 85% of lung cancers are caused by smoking. Lung cancer rates in Peterborough are above the provincial rates for both men and women (Figure 4.19).

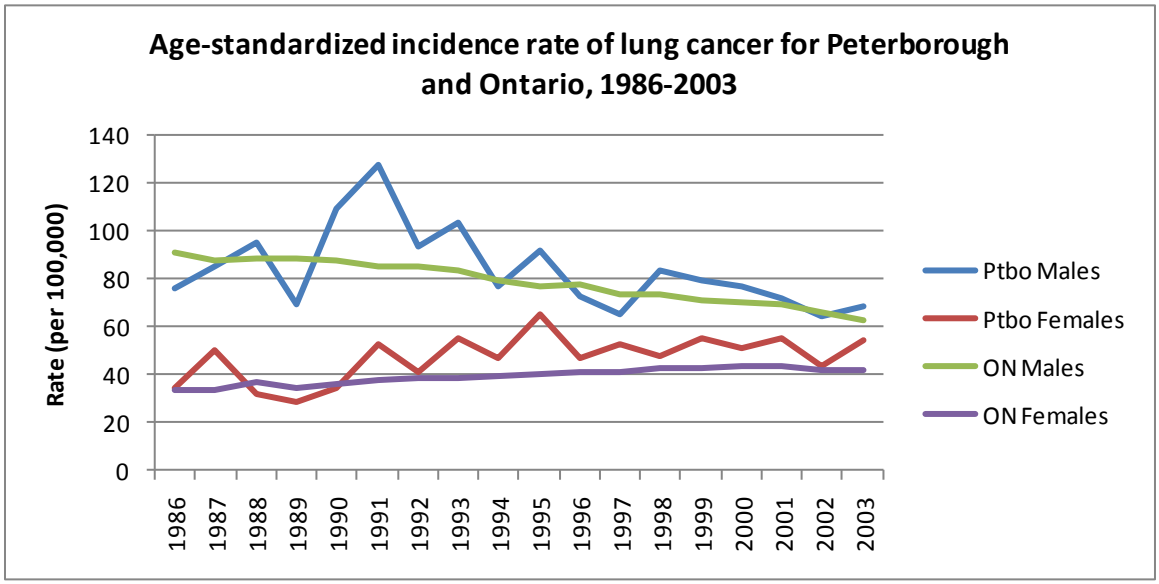
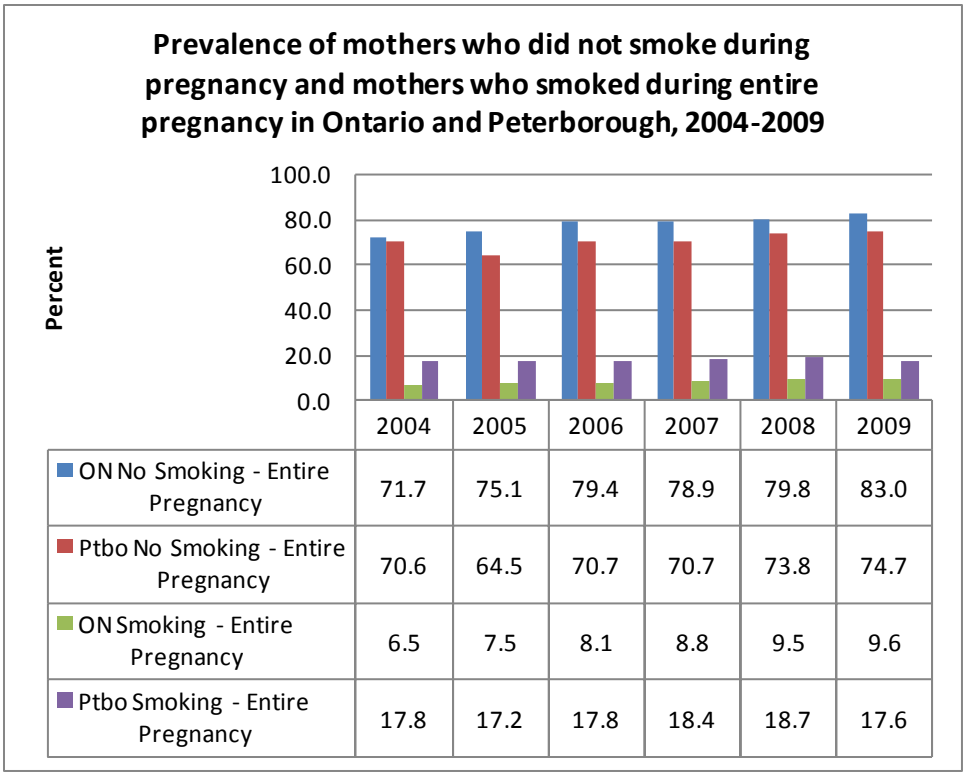


Figure 4.19. Age standardized incidence rates (per 100,000) of lung cancer. From Cancer Care Ontario, Division of Preventive Oncology Surveillance Unit, Toronto, 2006.

Levels of Tobacco Use

The rate of decline in current smoking among Peterborough adults appears to have flattened and smoking rates have stabilized around 22%, while other areas of the province and country enjoy lower rates. Of particular concern are indications that smoking rates for Peterborough females are slightly higher than provincial rates. Furthermore, data that is collected by hospitals indicate that Peterborough's smoking during pregnancy rate is double the rate of the provincial average (Figure 4.20).



	2004	2005	2006	2007	2008	2009
ON No Smoking - Entire Pregnancy	71.7	75.1	79.4	78.9	79.8	83.0
Ptbo No Smoking - Entire Pregnancy	70.6	64.5	70.7	70.7	73.8	74.7
ON Smoking - Entire Pregnancy	6.5	7.5	8.1	8.8	9.5	9.6
Ptbo Smoking - Entire Pregnancy	17.8	17.2	17.8	18.4	18.7	17.6

Figure 4.20. Prevalence of maternal smoking status. From Niday Perintatal Database

Peterborough youth (ages 12-19) appear to be continuing to experiment with tobacco products. Figure 4.21 demonstrates that from 2001 to 2008 the provincial rate of youth who have "never smoked or tried a cigarette" is increasing, while in Peterborough the level is not changing.

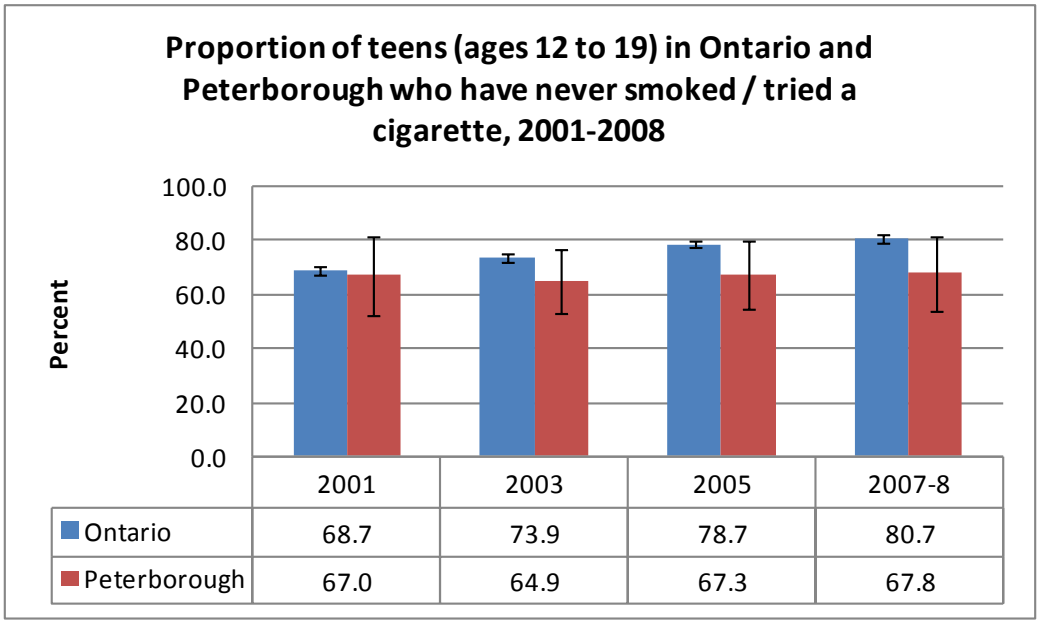


Figure 4.21. Levels of teen abstinence from cigarette use. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Public health strategies include motivating and supporting people to end their use of commercial tobacco products. In 2006, the results of a local household survey indicated that 44% of current smokers living within the City of Peterborough were planning to quit smoking within the next 6 months. By 2008, the number of smokers considering quitting smoking had grown to 54% (Figure 4.22).

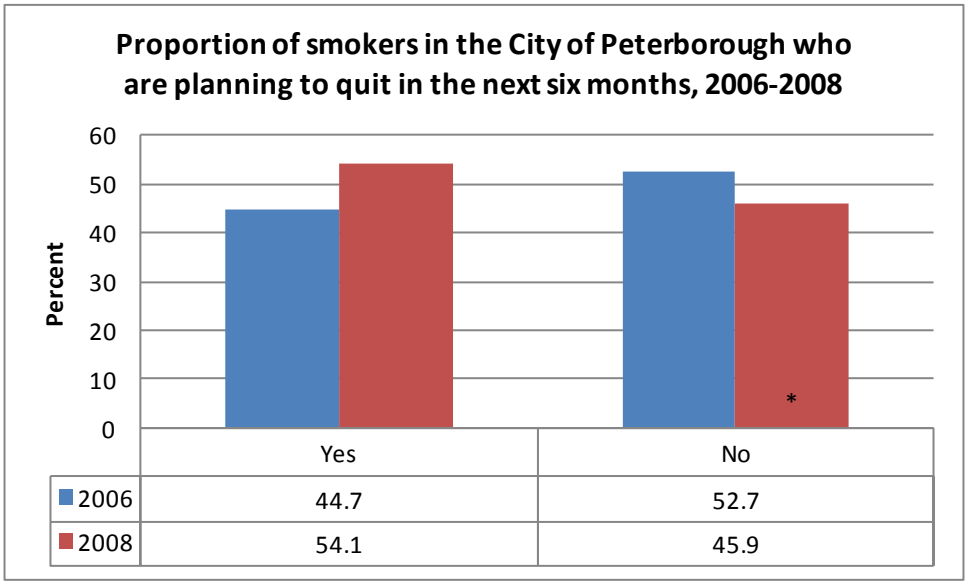


Figure 4.22. Intention to quit smoking. *Estimates should be interpreted with caution due to large sampling variability. From Statistic Canada Peterborough Health and Recreation Survey, 2006 and Statistics Canada Survey of Community Health Awareness in Peterborough, 2008

Second-hand Smoke

There is no known "safe" level of exposure to second-hand smoke (PCCHU, 2009). The number of households that have a ban on indoor smoking has increased from 2002 to 2008 (Figure 4.23). By 2008, 79.6% of households in Peterborough had a smoking restriction in their home. However, people who are reliant on rental housing (including social housing), which is primarily available as a multi-unit dwelling, cannot be guaranteed a smoke-free home unless the provider/owner implements a smoke-free policy.

According to the most recent CCHS data, exposure to second-hand smoke in cars is higher in Peterborough than the other health units in the Central Ontario region. This is also true for exposure in homes.

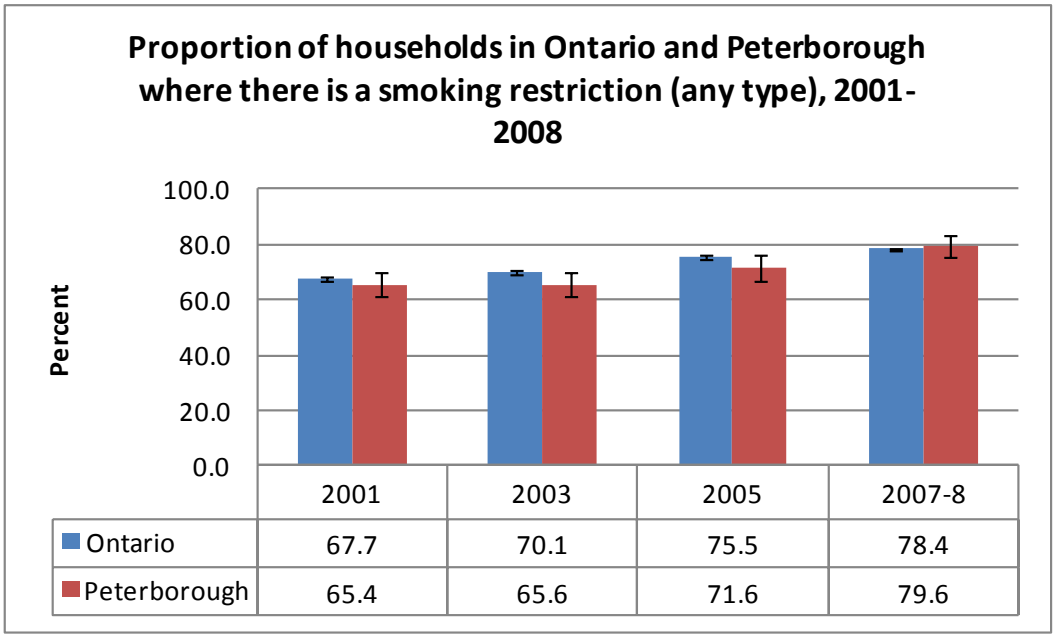


Figure 4.23. Environmental tobacco exposure (second-hand smoke) in households (any housing types). Refer to Appendix A for in-depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Highlights of Tobacco Data

National, provincial and local comprehensive tobacco control efforts have resulted in positive developments. Peterborough homes are becoming increasingly smoke-free. The proportion of Peterborough smokers with intentions to quit within six months has increased (PCCHU, 2009).

Commercial tobacco product use continues to be a concerning risk factor for Peterborough (PCCHU, 2009). However, issues surrounding access to commercial tobacco products, especially illegal products (reducing tobacco supply), access to cessation supports (reducing

tobacco demand) and protection from second-hand smoke need to be better understood in order to develop appropriate action. The information gap is especially notable for youth and people with low incomes (PCCHU, 2009).

As was expressed in Part 1 of this report, reliable Peterborough data is also missing for a range of important sub-populations that are identified in the public health literature with respect to tobacco use. This includes measures of youth tobacco use, youth access to tobacco and youth interest to quit. Also, current data is not collected within the two First Nation communities in Peterborough County. Finally, the health impact and level of tobacco use among other identifiable groups, such as those with low incomes, is not fully known although it is explored to some degree in Part 5 of this report.

In 2009, PCCHU released a Tobacco Use Report which identified additional indicators, opportunities, and barriers related to tobacco use and control (available: http://pcchu.peterborough.on.ca/Plans/Plans-home.html).

E. Substance and Alcohol Use

The misuse of alcohol and other substances has immense impacts on health and well being (Health Canada, 2006). However, there is little direct data available to provide a clear picture of substance misuse in Peterborough as has been expressed in Part 1 of this report.

Substance use has an impact on accidental injuries such as falls, drownings, motor vehicle collisions, and related disabilities. Other health risks include poisoning, respiratory damage, liver damage, increased rates of cancer, heart disease and stroke, contraction of HIV or Hepatitis C, and premature death (Alberta Health Services, 2010). These health risks are discussed below as they pertain to a particular risk or substance. Income as it relates to alcohol use is briefly explored in Part 5 of this report.

Alcohol Use

Alcohol is associated with a number of health problems, which include various cancers, hypertension, liver cirrhosis, congenital abnormalities, fetal alcohol spectrum disorders and depression (WHO, 2004).

There is a growing body of research that shows that drinking even small amounts of alcohol may increase the chance of developing various chronic health problems including: cancers of the breast, colon, rectum, liver, esophagus, head, mouth and throat; cardiovascular diseases such as heart disease and stroke; liver disease; inflammation of the pancreas; alcohol dependence; and mental health problems. For people who drink and smoke cigarettes, the risk of developing certain head and neck cancers is even greater (Centre for Addiction and Mental Health [CAMH], 2010a).

The way in which a person drinks can increase the risk of developing chronic health problems. The more a person drinks on average per week or the more a person drinks on one drinking occasion, the greater their risk for developing chronic health problems. Studies have shown that people who drank alcohol without eating had higher rates of cardiovascular problems such as high blood pressure and blood clotting (CAMH, 2010a).

Women develop medical problems related to alcohol use within a shorter period of time than men do. Women's bodies are generally smaller than men's, contain less water and metabolize alcohol at a slower rate than men's bodies. Because of this, it takes women's bodies longer to get rid of alcohol, and it takes less alcohol to affect women compared to men. For example, women who drink alcohol are at greater risk than men drinking the same amount of alcohol for developing certain cancers, such as oral, rectal and breast cancer (CAMH, 2010a).

These health risks associated with consuming alcohol can be minimized by not consuming alcohol or consuming within the Low Risk Drinking Guidelines (LRDG), which are (CAMH, 2010b):

0 : Zero drinks = lowest risk of an alcohol-related problem (recommended for pregnant women or drivers)
2 : No more than two standard drinks on any one day
9 : Women: up to nine standard drinks a week
14 : Men: up to 14 standard drinks a week

Between 2001 and 2008, the proportion of people who consumed alcohol and drank in excess of the LRDG increased in both Peterborough and Ontario across most age groups. Also evident is that as age increases the prevalence of drinking in excess of the LRDG decreases: 47.7% of people aged 20 to 34 in Peterborough drank in excess of the LRDG compared to approximately 16.4% of those aged 65 and older; the trend is similar in the province (36.2% of those aged 20 to 34 compared to 13.8% of those aged 65 and older). While it is difficult to say conclusively due to the large degree of variability in the local data, it appears that a greater proportion of persons living in Peterborough drink in excess of the LRDG compared to Ontario (Figure 4.24 and Figure 4.25).

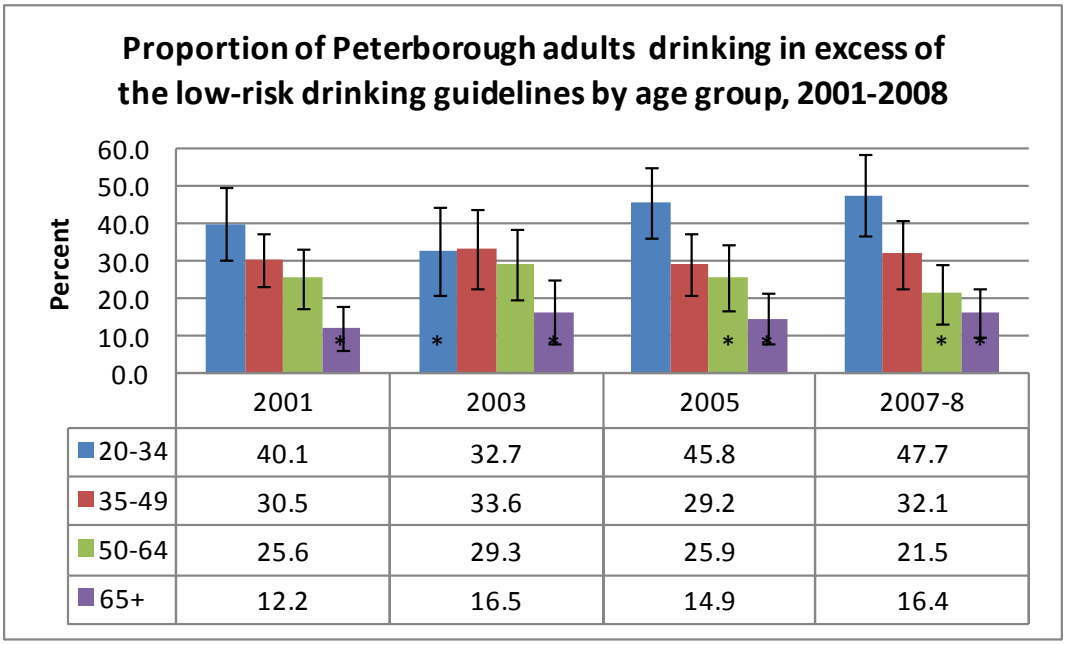


Figure 4.24. Drinking in excess of low-risk drinking guidelines. Refer to Appendix A for in-depth figure descriptions. *Estimates should be interpreted with caution due to large sampling variability. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

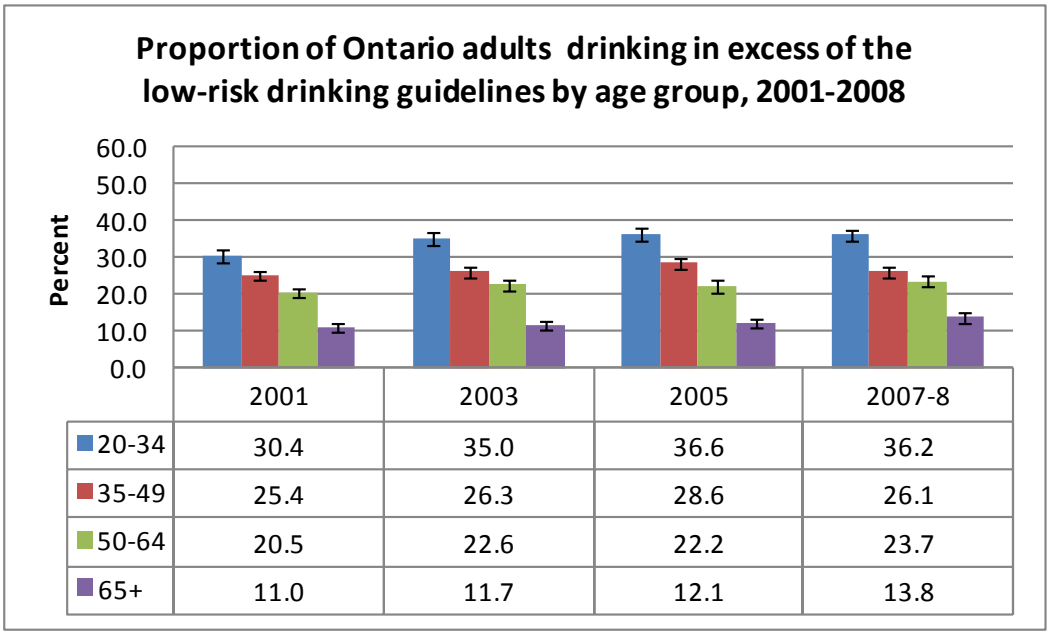
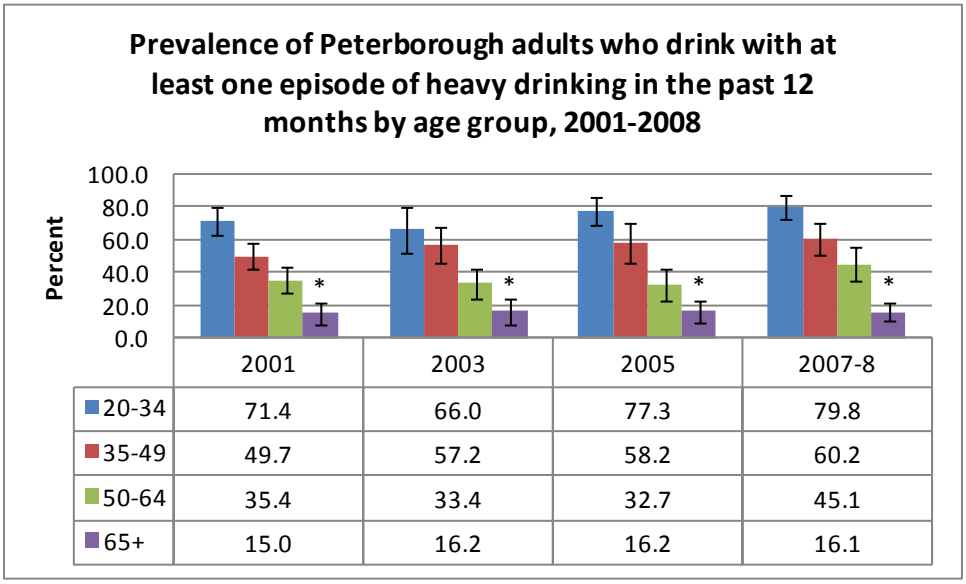


Figure 4.25. Drinking in excess of the low-risk drinking guidelines by age group. Refer to Appendix A for in-depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Binge Drinking

Binge drinking, also known as heavy drinking episodes, is classified as consuming five or more drinks on at least one occasion (McGary, Mitchell, Munger & Rogers, 2009). Heavy drinking episodes can increase the risk of coronary heart disease (CHD), sudden cardiac death and injury, particularly traffic injuries related to impaired driving (Murray, et. al, 2002). In addition, because many alcohol-related deaths involve relatively young individuals, alcohol use contributes to significant PYLL. Higher volume of alcohol consumption is also associated with increased symptoms of depression (Tjepkema, 2004).

The CCHS identifies that 52.9% of adult drinkers in Peterborough engaged in heavy drinking at least once in the past twelve months. That is 9.1% higher than the provincial average (males 11.4% higher; females 7.5% higher). When assessing monthly heavy drinking, 23.9% of adults in Peterborough engaged in this behaviour, which 2.5% higher than the provincial average. In fact, the PCCHU area has the ninth highest prevalence of heavy drinking among 36 health unit areas. The prevalence of heavy drinking among adults has been steadily increasing in Peterborough and Ontario since 2001 (Figure 4.26 and Figure 4.27).



	2001	2003	2005	2007-8
20-34	71.4	66.0	77.3	79.8
35-49	49.7	57.2	58.2	60.2
50-64	35.4	33.4	32.7	45.1
65+	15.0	16.2	16.2	16.1

Figure 4.26. Heavy drinking by Peterborough adults. Refer to Appendix A for in-depth figure descriptions. *Estimates should be interpreted with caution due large sampling variability. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

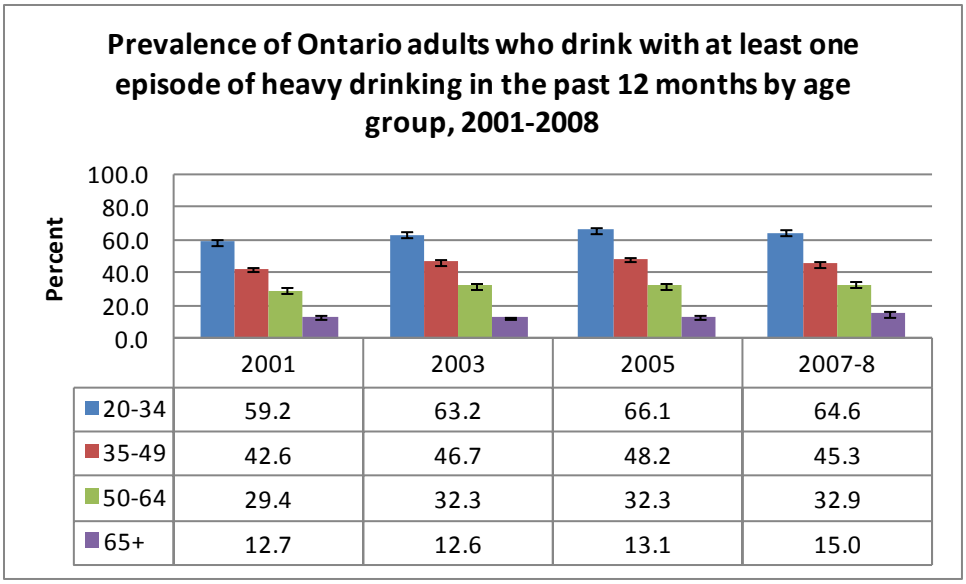


Figure 4.27. Heavy drinking by Ontario adults. Refer to Appendix A for in-depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

According to the CCHS, the prevalence of underage drinking is 41.5%. The OSDUHS is an anonymous in-class survey conducted in Ontario Grade 7-12 classes every two years. Data from the 2005 OSDUHS study was analyzed for different Local Health Integration Networks, with the populations of the Central East LHIN (CELHIN) of which Peterborough is a part and North Simcoe Muskoka LHIN merged to provide an adequate sample size (CAMH, 2006). The 2005 survey found that fewer students in the CELHIN & North Simcoe Muskoka LHIN reported alcohol use (66%) when compared to the rest of the province (73%) (CAMH, 2005). However, the prevalence of binge drinking was higher in the CELHIN and North Simcoe Muskoka LHIN (31%) compared to the province (29%).

There is research suggesting that the increasingly popular practice of mixing alcohol with "energy drinks" is related to increased rates of injury (McCoy, Rhodes, Wagoner and Wolfson, 2007). Other research has determined that the ingestion of an energy drink with alcohol reduced the drinker's perception of the influence of the alcohol, while the energy drink did not in fact significantly reduce the deficits caused by alcohol on objective motor coordination and visual reaction time (Ferreira, de Mello, Pompéia & de Souza-Formigoni, 2006).

Other Substance Use

It is a challenge to assess the usage of illicit drugs or the misuse of medications in Peterborough since there have been few surveys that ask this directly.

The CELHIN Addictions Scan, a telephone survey of 2,445 adults in Ontario, reports that the lifetime use of cannabis by adult residents in the CELHIN was 38.1% and not significantly different from 39.8% for Ontario (McGary, Mitchell, Munger & Rogers, 2009). Use of cannabis in the past 12 months was reported by 15.4% of CELHIN adults compared with 13.1% in Ontario.

The number of telephone calls to Ontario's central Drug and Alcohol Registry of Treatment (DART) is an indirect indicator of problematic use of illicit substances. DART tracks the number of contacts made by people with substance use problems and refers them to appropriate services for treatment. Most callers (52.4%), from the CELHIN identified alcohol as their problem substance, followed by cocaine (29.6%). DART refers Peterborough residents to treatment options with the Four County Addiction Services Team (Fourcast).

Individuals that accessed treatment services at Fourcast's Peterborough site most often reported alcohol as their problem substance, followed by cocaine, then cannabis (Table 4.6).

Table 4.6
Substances presented when accessing treatment in 2009 at Fourcast in Peterborough

	% of individuals
Alcohol	54%
Crack/cocaine	21%
Cannabis	26%
Opioids	18%
Other	7%

Percentages add up to more than 100 since often more than one problem substance is presented.

From Ag-05 Problem Substances by Age Group and Gender for Open Admissions: Site 01 Fourcast-Peterborough downloaded from Drug and Alcohol Treatment Information System (DATIS) database September 16, 2010

Some people struggling with addiction to opioids choose Methadone Maintenance Therapy (MMT) as a treatment option. Methadone is a long-acting opioid that helps manage cravings and alleviates withdrawal symptoms so people with opioid addictions can achieve stability and return to healthy and productive lives (CAMH, 2008).

In January 2009, there were 920 patients in Peterborough receiving MMT (W. Hillier, personal communication, January 2009). Representatives of three of the four MMT clinics report that the majority of patients were using prescription pain relievers (specifically OxyContin®). In 2005, there were 44 Peterborough residents who started MMT and 39 started in 2006. This number swelled in 2007 to 402 and in 2008 with, 374 new individuals registered for MMT (W. Hillier, personal communication, February 2009).

Ontario students' use of different substances from the 2007 OSDUHS data is presented in Figure 4.28. OSDUHS 2005 data that was analyzed by LHIN geographic boundaries found that illicit drug use by students in the CELHIN and North Simcoe Muskoka LHIN was not significantly different from the rest of Ontario. Misuse of prescription opioids was not asked during 2005.

Cannabis was consistently the most reported problem substance for youth under the age of 16 who accessed treatment services from Fourcast between 2005 to 2009. Youth aged 16-24 who accessed treatment from Fourcast, identified in almost equal measure alcohol or cannabis as their problem substance (Fourcast, 2010).

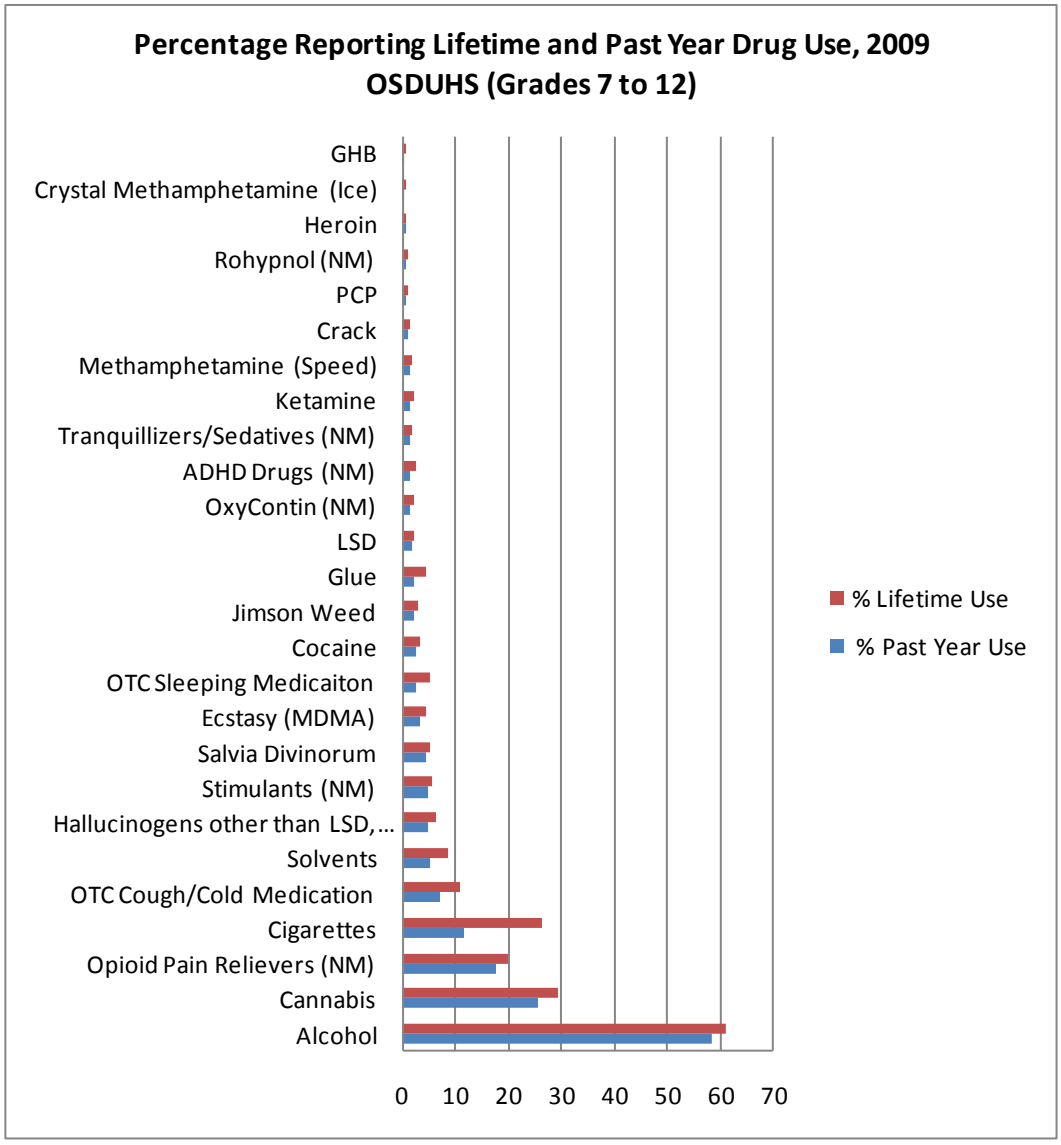


Figure 4.28. Student lifetime and past year drug use. From Paglia-Boak, A., Mann, R.E., Adlaf, E.M., & Rehm, J. (2009). Drug use among Ontario Students, 1977-2009: Detailed OSDUHS findings. (CAMH Research Document Series No. 27). Toronto, ON: Centre for Addiction and Mental Health.

Treatment

In 2009, 1,390 residents of Peterborough (or 1.3% of the population) sought treatment from at least one substance abuse program. When people access treatment (for their own problematic substance use or to cope with a family member's misuse), their situation is assessed through a provincial standardized form in order to assess the most appropriate treatment. The number of people seeking treatment and the type of treatment they access has remained fairly consistent between 2004 to 2010.

Most Peterborough residents receive community treatment which includes one on one and group counselling and the "Community Withdrawal Management " program to assist individuals to withdraw (or "detox") in the community.

As shown in Table 4.7, just 5% of Peterborough residents seeking treatment were eligible and attended a Residential Treatment Service (maximum 21 day stay at a facility with counselling provided). These provincial facilities are equally available to any Ontarian meeting the criteria for admission, on a first come, first served basis. The closest facilities are in Lindsay (females only), Toronto, and Belleville.

In addition, 11% of individuals seeking treatment were eligible and attended a Residential Withdrawal Management Service (Table 4.7). Such facilities are often referred to as a "Detox" and offer patients medical care (no counselling) for two to four days as they withdraw from a substance. The nearest facility is Pinewood in Oshawa.

Table 4.7
Residents of Peterborough City & County Admitted to Treatment Services 2005-2010

	2005-06	2006-07	2007-08	2008-09	2009-10
ALL services	1488	1566	1544	1455	1390
Residential Treatment	70	82	79	69	55
"Detox"	122	165	122	127	140

Note. From DATIS Substance Abuse Statistical Tables 2005-2010

Substance Related Injury

In 2000, 29% of hospitalizations in Ontario's lead trauma hospitals for major injuries were alcohol related. Of these, 54% were the result of vehicle collisions, 16% the result of falls, and 14% the result of interpersonal violence (Ontario Injury Prevention Resource Centre [OIPRC], 2008a).

In Ontario, alcohol was also associated with 39% of water related deaths (1997-2001) (OIPRC, 2008a). The rate of drowning and near-drowning incidents in the CELHIN were double that of the province in 2006 (OIPRC, 2009). In 2000, 40% of snowmobile deaths involved alcohol (OIPRC, 2008a). In the CELHIN, the rate of injuries from snowmobiling was 30% higher than the province in 2006 (OIPRC, 2008b).

According to the Ontario Trauma Registry, alcohol and other drugs were involved in 23% of vehicle collisions, 25% of homicides, 14% of suicides, and 7% of unintentional falls (CIHI, 2007).

Impaired Driving

Death, significant injuries, and damage to property result from driving vehicles (including ATVs and snowmobiles) under the influence of drugs and alcohol. Cumulative data from the Ontario Road Safety Report (2002-2006) indicate that 3.82% of vehicle collisions in Peterborough involved alcohol (Table 4.8) (MTO, 2010). In 2006, 3.88% of collisions in Peterborough County involved alcohol compared to just 2.04% in the province. The Canadian Centre on Substance Abuse recently reviewed three different studies indicating that drug use among drivers is as common as alcohol use and that a significant number of fatal car crashes involved the use of drugs by drivers (Canadian Centre on Substance Abuse, 2010).

Table 4.8

Drug or Alcohol Impaired Collisions, Peterborough County, 2002-2006

Condition of Driver	Class of Collision		
	Fatal	Personal Injury	Property Damage
Had Been Drinking	NR	102	122
Ability Impaired - Alcohol over .08	8	56	118
Ability Impaired Alcohol	NR	46	74
Ability Impaired Drugs	NR	10	7
Total Impaired	12	214	321
Total (all sources)	95	5,695	8,518

Had Been Drinking: *driver had consumed alcohol but his/her physical condition was not legally impaired*

Ability Impaired Alcohol: *driver had sufficient alcohol to warrant being charged with an offence*

Note. NR = cases for this time period were less than five. From Ontario Ministry of Transportation. (2010). Ontario Road Safety Report, Driver Condition by Class of Collision 2002-2006, Peterborough County-specific data supplied by Paul Allore, Ministry of Transportation.

According to the 2007 OSDUHS, 12 % of Ontario students use alcohol & drive, almost a quarter (23%) of students report being in a vehicle driven by someone who had been drinking; 17% of students use cannabis & drive; and a similar percentage (18%) report being in a vehicle driven by someone who had been using drugs (McGary, Mitchell, Munger and Rogers, 2009).

Injecting Drugs

It is a challenge to estimate rates of injection drug use since general population surveys capture relatively few persons who inject drugs and generally do not include questions regarding injection drug use. In 1997, an estimated 30,000 Ontario residents were using injection drugs (Remis, Millson, Major, et. al), or about 0.01% percent of the population. While this number is low, the health risks associated with this behaviour are high – particularly the risk of contracting HIV or Hepatitis C (Crofts, Jollie, Kaldor, van Beek, & Wodak, 1997). In 2008, people who use injection drugs accounted for 7% of all infected people in the province, and 6% of all new HIV infections in Ontario (MOHLTC, 2010). A recent study of intravenous drug users in four cities across Canada found that in Toronto, 54% of users were Hepatitis C positive and 5% were HIV positive (Health Canada, 2004). The study also reported high levels of physical illness and mental health concerns within this group.

Peterborough has the fourth highest rate of Hepatitis C of 36 health units (Lisa, 2007). Needle exchange services have been offered in Peterborough for over 10 years, based on evidence that distributing sterile injection equipment reduces the transmission of blood borne pathogens such as HIV and Hepatitis C. The rate of return of needles in 2009 for Peterborough was 95%, one of the highest in the province (Peterborough AIDS Resource Network (PARN), 2009).

The number of needles distributed by the local Four Counties Needle Exchange Program (FCNEP) has increased from 6,394 in 2000 to 154,994 in 2009. The demand for needles is influenced by the number of people injecting and how frequently they are injecting. Persons who inject cocaine may do so as often as 20 times a day (Health Canada, 2001). Some of the increased demand for needles in Peterborough can be attributed to an increase in cocaine use. In Peterborough this was first noticed in 2003 when the number of needles distributed jumped to over 100,000 from under 60,000 the year before. In 2007, a study of FCNEP users found that OxyContin®/oxycodone was injected most often by the greatest proportion of participants (22%) followed by cocaine (21%). Non-prescribed morphine, crack and Dilaudid® were all injected by 14% of the participants. Oxycodone was also used orally by 42% of respondents (Leonard, 2007).

Overdoses

Deaths due to overdose is a major risk associated with substance use. In Peterborough over the past four years, there have been 17 deaths per year on average directly related to drug overdoses (Table 4.9). Of the 17 overdoses in 2008, seven were attributed to alcohol alone and five were attributed to prescription opioids. These numbers do not include most suicides as drug testing is not done for obvious suicides. It can be expected that non-fatal overdoses are putting a burden on individuals' health and the health care system.

Table 4.9
Overdose deaths, Peterborough, 2005-2008

Year	Overdose Deaths
2005	17
2006	20
2007	13
2008	17

Note. From Dr. P. Clarke, Regional Coroner for the Central East Region (Personal Communication, September, 2010).

F. Mental Health

This section defines some key terms, provides statistics about mental illness, and discusses possible indicators of positive mental health. In addition, it makes the link to youth resiliency and mentally healthy communities concepts.

Terminology: Mental Illness and Mental Health

It is common to see terms like 'mental health problems,' 'mental illness,' 'serious mental illness,' and 'mental or psychological disorder' used to refer to mental health issues. Recently, the occupational health and safety field has begun to use the term 'psychological injury' to refer to any work-related mental health issue. The problem is that these terms do not mean the same thing. As a Government of Canada (2006) publication describes,

> The terms mental health problems, mental illness and mental disorder are often used interchangeably. Whereas the phrase mental health problem can refer to any departure from a state of mental or psychological well-being, the terms illness and disorder suggest a clinically recognized condition, and imply either significant distress, dysfunction, or a substantial risk of harmful or adverse outcomes. (p. 2)

Some people may see mental health and mental illness at two ends of one continuum where you are either mentally healthy or you are mentally ill. A survey commissioned by the Canadian Population Health Initiative (a project of the CIHI) found that "54% of Canadians thought mental health and mental illness meant 'about' or 'exactly' the same thing, while 40% saw the terms as representing two concepts with different meanings" (CIHI, 2009, p.8). This disconnect becomes problematic when people are asked to rate their mental health.

It is now an accepted belief among mental health professionals that mental health and mental illness are two separate concepts. It is asserted that someone experiencing a mental illness, with proper care, can enjoy good mental health. The two concepts are brought together in the Two Continuum Model (Figure 4.29) which shows how mental health and mental illness are two different aspects that intersect.

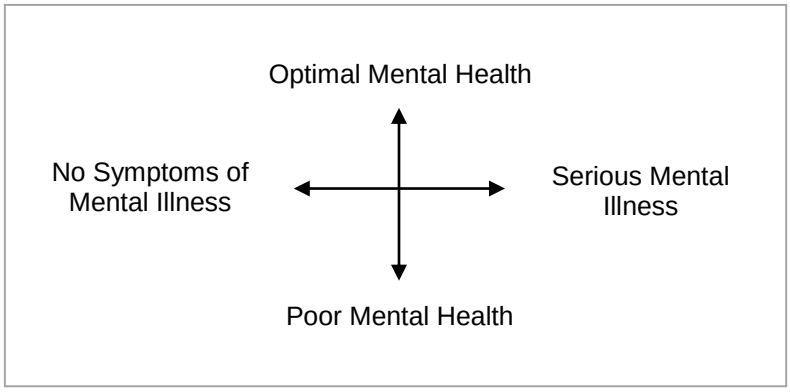


Figure 4.29. Two continuum model of mental health and mental illness. From Canadian Institute for Health Information. (2009). *Improving the health of Canadians 2009: Exploring positive mental health*. Retrieved from http://secure.cihi.ca/cihiweb/products/mh_report_13Feb2009_e.pdf

Mental Illness

According to a Government of Canada publication (Government of Canada, 2006), "[m]ental illnesses are characterized by alterations in thinking, mood or behaviour—or some combination thereof—associated with significant distress and impaired functioning…Mental illnesses take many forms, including mood disorders, schizophrenia, anxiety disorders, personality disorders, eating disorders and addictions such as substance dependence and gambling" (p. 2). In many cases, an individual living with a mental illness is experiencing a physiological effect of a chemical imbalance in the brain. Many of these disorders are best addressed through a combination of drugs and therapy.

According to the Canadian Mental Health Association (CMHA), one in five people will suffer a mental illness some time in their lifetime and 80% of people will be affected by someone else's mental illness (CMHA, 2010a). That means that in Peterborough, 26,616 residents will deal with some kind of mental illness in their lifetime. Table 4.10 provides an estimate of the prevalence of certain mental illnesses for Peterborough and area based on the prevalence in Canada. It is important to note that, 70% of mental health problems and illnesses have their onset during childhood or adolescence (CAMH, 2010c).

Table 4.10

Estimates of Peterborough Residents Living with a Mental Illness

Type of Mental Illness	Percentage of Canadians	Estimated number of Peterborough Residents (population: 133,080)	Percentage of youth (12 – 19 years of age)	Estimated number of Peterborough youth (10 – 19 years of age) (population: 17,670)
Any mental illness	20%[1]	26,616	10 – 20%[3]	1,767 – 3,534
Major depression	8%[1]	10,646	5% for males[3] 12% for females[3]	447 1,049
Bipolar Disorder (manic depression)	1%[1]	1,331		
Schizophrenia	1%[1]	1,331		
Anxiety	5%[1] 12%[2]	6,654 15,970		
Concurrent Disorders (both mental illness and addiction)	20% of people with a mental disorder[2]	20% of 26,616 = 5,323		
Gambling	3.8% of Ontarians[2]	5,057		

Note. From Centre for Addiction and Mental Health (2009). *Mental health and addiction statistics*. Retrieved from http://www.camh.net/News_events/Key_CAMH_facts_for_media/addictionmentalhealthstatistics.html
Except for 1, from Canadian Mental Health Association. (2010). *Fast facts: Mental health/mental illness.* Retrieved from: http://www.cmha.ca/bins/content_page.asp?cid=6-20-23-43
Except for 2, from Centre for Addiction and Mental Health. (2010). *Mental health and addiction statistics.* Retrieved from http://www.camh.net/News_events/Key_CAMH_facts_for_media/addictionmentalhealthstatistics.html
Except for 3, from Canadian Mental Health Association. (2010). *Fast facts about mental illness in youth.* Retrieved from http://www.cmha.ca/bins/content_page.asp?cid=6-20-23-44

As one can see in Table 4.10, almost half of the people, young and old, living with a mental illness are dealing with a major depression. This is not just a trend in Canada. "The World Health Organization (WHO) predicts by 2020, depression will be the second leading cause of disability worldwide, after heart disease" (Bradley, 2010) and by 2030, it will surpass heart disease as the leading disability in high income countries.

In 2001 the CCHS assessed the prevalence rates of depression and found that in Peterborough, depression was self-reported by 4.8% of residents which was lower than the provincial average of 7.1%. After 2001 the CCHS no longer assessed the prevalence rates of depression and therefore, rates for subsequent years are not available.

According to the Mental Health Commission of Canada, it is predicted that by 2030, 80% of disability in Canada will be related to mental illness and addictions (Bradley, 2010). Even with this prevalence, almost half (49%) of those who feel they have suffered from depression or anxiety have never gone to see a doctor about this problem (CMHA, 2010a). This means that the quality of life for many individuals is significantly diminished and, if left untreated, may contribute to the development of more serious mental illnesses and other chronic diseases.

In the latest issue of *Network* magazine, a publication of the CMHA, guest editor Betty Harvey writes,

> Serious mental illness (SMI) is a significant risk factor for the development of a number of chronic diseases. Compared with the general population, people with SMI have higher rates of chronic obstructive pulmonary disease, breast cancer, colon cancer, lung cancer, stroke and heart disease. Diabetes rates are two to four times higher. People with SMI are twice as likely to die from cardiovascular disease. Overall, their life expectancy is 25 years less than the general population (CMHA, 2010b, p.3).

Just as people living with a serious mental illness are more prone to suffer physical health issues, people living with chronic health issues are more prone to mental illnesses. According to the OCDPA (2009), people with chronic conditions are three times more likely to have a mental illness (which for many will be depression) and they perceive their overall health as low.

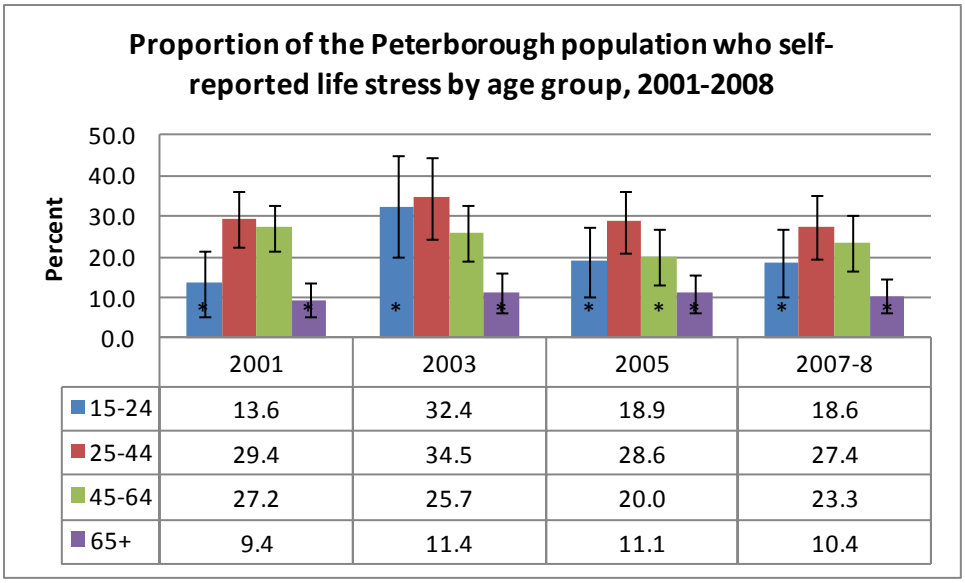
In 2003 it was estimated that the economic burden of mental illness was $51 billion in Canada (Bradley, 2010). This cost included addiction to substances (explored previously in the alcohol and substance use section) and gambling which is considered a mental illness. In addition, suicide rates have previously been discussed in the injury prevention section above. Also, an exploration of mental health by income can be found in Part 5 of this report.

Mental Distress

Although the availability of local data is sparse, there are data regarding self-reported life stress and work stress as well as the number of individuals who consulted a mental health professional in Peterborough. Although stress and consulting a mental health professional is not an indicator of mental illness, we could consider them indicators of mental 'distress.'

Over time, Peterborough residents experienced similar levels of life stress to the Ontario population. Comparing self-reported life stress from 2001 to 2007-8, a little more than one in five individuals in Peterborough reported life stress and women reported more life stress in 2007-8 (22.2%) than men (20%). When broken down by age group, half of working adults (25 – 64 year olds) in Peterborough in 2007-8 reported life stress whereas only 18.6% of 15 – 24 year olds and 10.4% of individuals over 65 years of age reported life stress (see Figure 4.30).

As with life stress, Peterborough residents experienced similar levels of work stress to the Ontario population. Overall, a little more than one-quarter of the Peterborough working population reported work stress. Again, women reported similar work stress (27.5%) than men (26.4%). When comparing over time, fewer people reported work stress in 2007-8 than in previous years (see Figure 4.31). Rates of life stress vary by income level, individuals in Peterborough in the higher income category reported more work stress (e.g., 31.7% in 2003) than those individuals in the lower income category (e.g., 18.3% in 2003).



	2001	2003	2005	2007-8
15-24	13.6	32.4	18.9	18.6
25-44	29.4	34.5	28.6	27.4
45-64	27.2	25.7	20.0	23.3
65+	9.4	11.4	11.1	10.4

Figure 4.30. Self-reported life stress. Refer to Appendix A for in-depth figure descriptions. *Estimates should be interpreted with caution due to large sampling variability. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

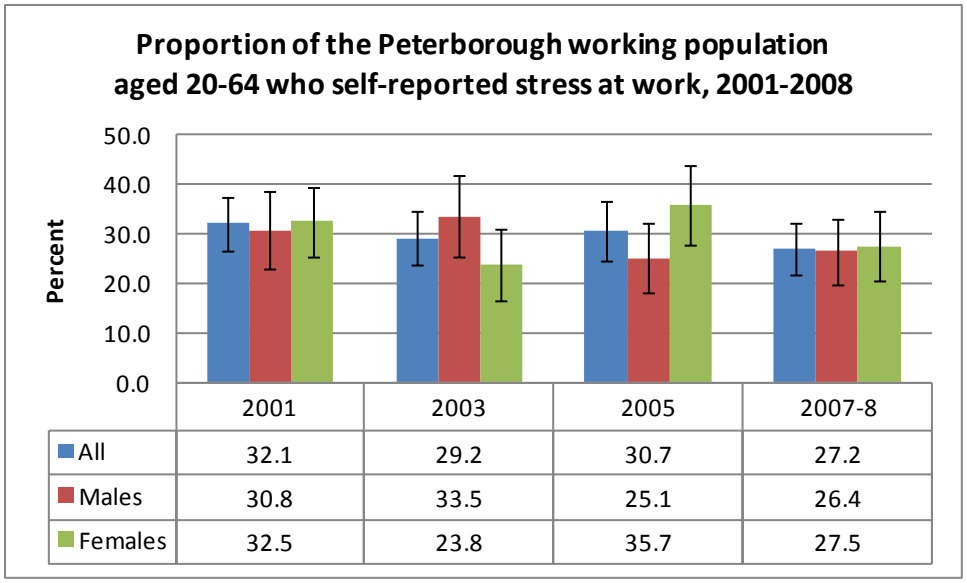


Figure 4.31. Self-reported stress at work. Refer to Appendix A for in-depth figure descriptions. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Finally, data from CCHS reveals that from 2001 to 2007-8 more than twice as many females in Ontario have consulted a mental health professional than males (Figure 4.32). What is unknown is the reason for the consultation.

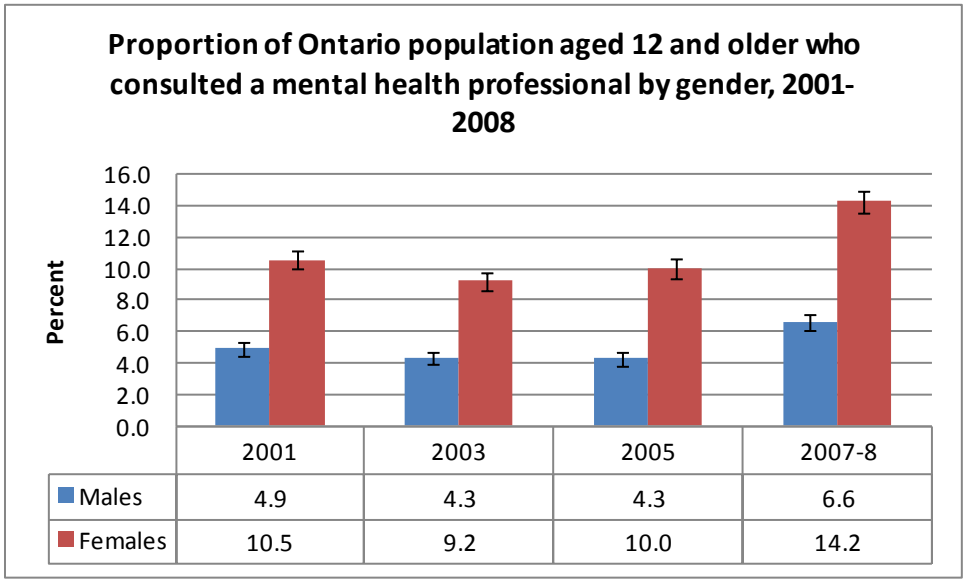


Figure 4.32. Proportion of population who consulted a mental health professional. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

According to self-reports in the OSDUHS 2009, "[a]bout 24% of students visited a professional (such as a doctor, nurse or counsellor) for mental health reasons at least once during the past 12 months. There is no significant difference between males and females" (CAMH, 2009, p. ii). However, "the percentage of students reporting a mental care visit significantly increased over the past decade (from 12% in 1999 to 24% in 2009)" (CAMH, 2009b, p. ii).

Positive Mental Health

When investigating positive mental health, the WHO states that, "mental health is more than the absence of mental illness" (2005, p. 6) and that the four major components that define mental health are:

- A "state of well-being in which the individual realizes his or her own abilities;
- Can cope with the normal stresses of life;
- Can work productively and fruitfully; and
- Is able to make a contribution to his/her community" (OCDPA, 2010b, slide 57).

The Government of Canada defines mental health as:

> …the capacity of each and all of us to feel, think, and act in ways that enhance our ability to enjoy life and deal with the challenges we face. It is a positive sense of emotional and spiritual well-being that respects the importance of culture, equity, social justice, interconnections and personal dignity (Government of Canada, 2006, p. 2).

With such broad definitions, finding quantifiable indicators of mental health is more challenging. According to the CIHI, "at present, positive mental health is not measured in a standardized way in international or pan-Canadian surveys" (CIHI, 2009, p. 19). The WHO has identified certain key indicators such as a sense of control, self-esteem, sense of coherence, optimism, stressful life events, social support and quality of life. However, since there is no standard survey that includes questions to address these indicators, it is difficult to locate data.

In 2007-8, 73% of Ontarians rated their mental health as "excellent" and "very good" compared to 68.9% of Peterborough residents (Figure 4.33 and Figure 4.34). However, as mentioned at the beginning of this section, many people think mental health and mental illness are the same. Therefore, these self-reports of mental health must be interpreted with care as it is uncertain how people defined their own personal mental health. If they reported excellent mental health simply because they did not have a mental illness, it is still not an accurate estimate of their mental well-being.

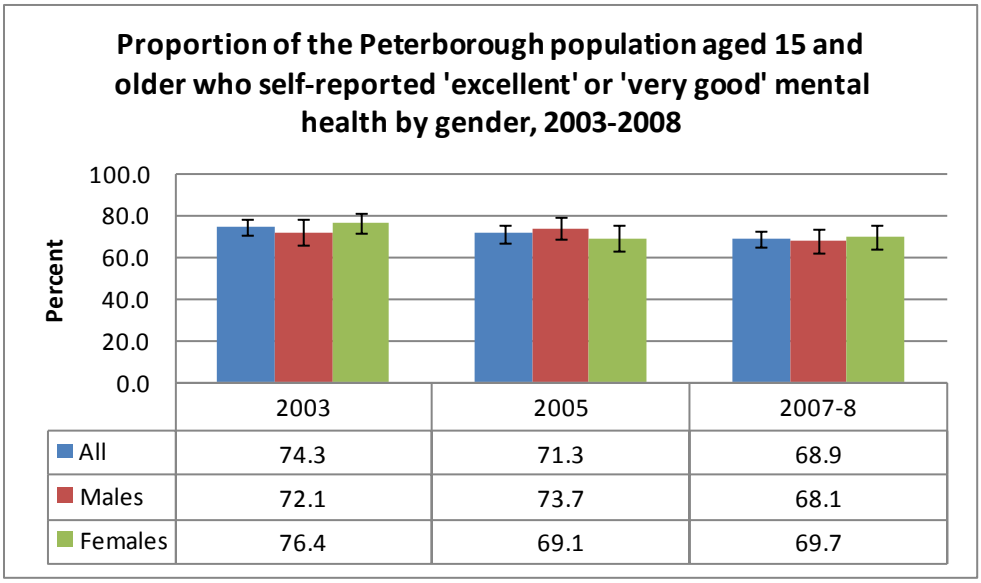


Figure 4.33. Peterborough self-reported mental health. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

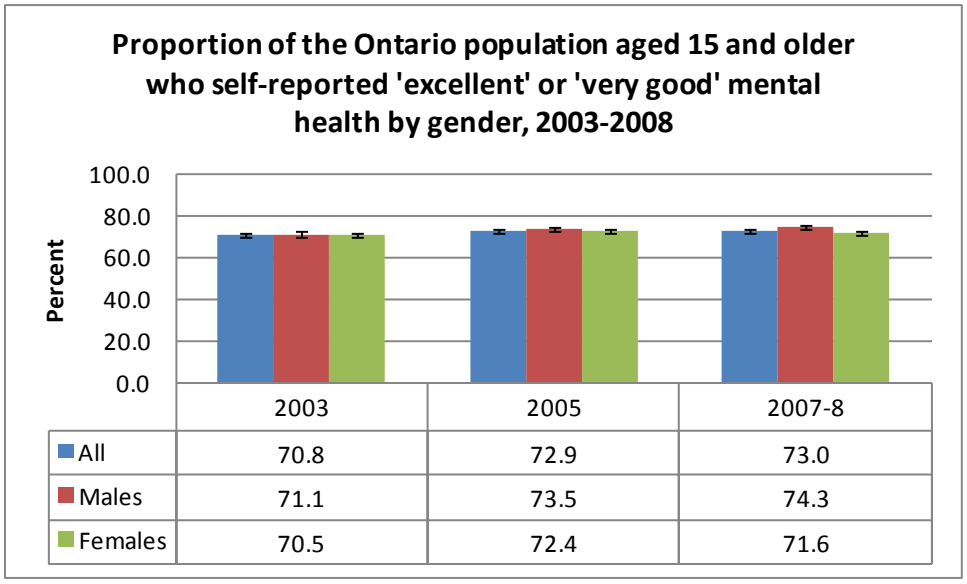


Figure 4.34. Ontario self-reported mental health. From Canadian Community Health Survey 2001-2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

The most promising work around measuring positive mental health was presented by the CIHI in their report entitled, *Improving the health of Canadians: Exploring positive mental* health (CIHI, 2009). In this report, the authors proposed developing indicators based on the Government of Canada (2009) definition mentioned above. These indicators are:

- Ability to enjoy life;
- Dealing with life events;
- Emotional well-being;
- Spiritual well-being; and
- Social connections and respect for culture, equity, social justice and personal dignity.

By selecting certain questions asked in the CCHS (Cycle 1.2, 2002) the five indicators above were measured. The questions used and the results from the 2002 survey of Canadians can be seen in Table 4.13.

In summarizing the results in the table, the report concludes that "…individuals with high levels of positive mental health [using the measures outlined in Table 4.11] report higher levels of physical and mental health, lower mental illness and fewer reduced activity days than people with low and moderate levels. Of the five measures, good coping ability is most linked to excellent physical and overall mental health" (CIHI, 2009, p. 56). The report also emphasizes the importance of social connectedness, having positive social supports and community belonging.

Unfortunately, these data are not specific to the Peterborough area. It would be valuable to conduct research using the same questions in a local study.

Table 4.11.
Positive Mental Health Variables, Population 15 Years and Older, 2002

Life Enjoyment: How often in the last month did respondents enjoy life, have good morale, find life exciting, smile easily?	**High (30%)**: "almost always" to all four questions. **Moderate (36%)**: responses of "frequently" or better to all four questions. **Low (33%)**: all other responses.
Coping Ability: Ability to handle day-to-day demands and unexpected problems (excellent, very good, good, fair, poor).	**High (24%)**: reported at least "very good" to both and said "excellent" to at least one. **Moderate (64%)**: "good" or better to both questions. **Low (12%)**: any other combination.
Emotional Well-Being: How often in the last month did respondents feel emotionally balanced, at peace with self, pride in self, self-confident?	**High (24%):** "almost always" to all four questions. **Moderate (37%)**: responses of "frequently" or better to all four questions. **Low (39%)**: all other responses.
Spiritual Values: Do spiritual values play an important role in your life (yes/no), and do spiritual values help find meaning in life (a lot, some, a little, none)?	**High (33%)**: responses of "yes" and "a lot" to the two questions, respectively. **Moderate (29%)**: responses of "yes" and "a little" or better to the two questions. **Low (37%)**: "no" and "not at all" responses.
Social Connectedness: How often in the last month did respondents say they got along well with others, listened to friends?	**High (45%)**: "almost always" to both questions. **Moderate (39%)**: "frequently" or better to both questions. **Low (16%)**: any other combination.

Note. Canadian Institute for Health Information. (2009). *Improving the health of Canadians 2009: Exploring positive mental health*. Retrieved from http://secure.cihi.ca/cihiweb/products/mh_report_13Feb2009_e.pdf

According to the analyses undertaken in the CIHI report, "people with a very strong sense of community belonging are more than twice as likely to report very good or excellent self-perceived mental health" (CIHI, 2009, p. 27).

Youth Resiliency

The best predictors of positive mental health are coping ability, social connectedness, and community belonging. These variables have also been identified in the resiliency field as key components to the healthy well-being of youth.

According to the CIHI report, *Improving the Health of Young Canadians,* youth successfully transition to adulthood when the following have been accomplished (CIHI, 2005, p.21):

- "Secure attachments (to parents);
- Readiness for personal relationships and family life;
- Movement from school to meaningful employment;
- Readiness for employment;
- Social connectedness (to peers and school);
- Engagement with and participation in the community;
- Sense of identity (psychological well-being and values);
- Social competence and citizenship;
- Realistic hope for the future;
- Empowerment to make healthy and responsible choices; and
- Good health."

The CIHI report took data from the National Longitudinal Survey of Children and Youth (NLSCY) (Cycle 4, 2000-2001) and the CCHS (Cycle 2.1, 2003) to derive the health status of youth. For those items that address mental health directly, here is what they found (CIHI, 2005):

- "71% of Canadian youth aged 12 to 15 years report high levels of self-worth; more males (76%) than females (66%)…"
- "Higher levels of self-worth among youth aged 12 to 15 are associated with less use of alcohol, tobacco and marijuana and fewer experiences with bullying."
- "92% of youth aged 12 to 15 years self-reported low levels of anxiety in 2000-2001."
- "…among Canadian youth aged 12 to 15 years, 68% of youth report high levels of pro-social behaviour defined as sympathy towards others, willingness to help those in need, willingness to include others in activities and attempts to resolve conflict."
- "In 2002, 21% and 25% of boys in Grade 6 and 10, respectively, reported that they felt low at least weekly in the previous six months; 23% and 36% of girls in Grade 6 and 10, respectively, reported feeling low at least weekly in the previous six months."

As mentioned before, social connectedness plays an important role in protecting the mental well-being of individuals. The research undertaken by CIHI (2005) reinforced this finding. Youth who felt connected to their parents, their school, their peers and their community, for the most part, reported higher levels of self-worth, higher levels of emotional well-being and lower levels of anxiety or emotional distress. While this report focuses on positive mental health, it is important to note that social connectedness was also a protective factor for risk behaviours such as substance use, risky sexual behaviour, and violence and bullying.

While the data shared above is national in scope, it is important to note that there is work being done at the local level to collect data on youth resiliency. In the fall of 2010, a youth resiliency survey will be conducted in Peterborough high schools. The questions to be asked have been generated by Resiliency Canada and cover five internal and five external strengths categories. Combined, these ten categories cover 31 developmental strengths. Appendix B

shows the Youth Resiliency Framework that will be used. The results of this survey are expected late 2011. Furthermore, a youth smoking survey will be conducted in five area high schools in the 2010-2011 school year. This survey explores social connectedness among youth which will also assist with the collect of local youth resiliency data.

Mentally Healthy Communities

While this report has focused on individuals, it is important to consider that if we truly want to succeed in mental health promotion, we will need to turn our attention to the community. In yet another report prepared by the CIHI, this one a collection of papers on the subject of mentally healthy communities (CIHI, 2010), one of the authors states that a mentally healthy community is more than the sum of the individuals that make up that community. It is asserted that a mentally healthy community is a civic community. A civic community means: a) individuals are "…engaged in issues of public importance; b) trust is widespread, with an emphasis on acting fairly and obeying the law; c) honesty among leaders is common; d) there is a strong belief in democratic government; e) equality is favoured by citizens and civic leaders; f) there are strong, horizontally organized social and political networks; and g) the community places a high value on solidarity, civic engagement, cooperation and honesty"(CIHI, 2010, p. 8). The author goes on to explain that communities with these characteristics boast individuals who rate life satisfaction more highly than communities without these characteristics.

Whether consideration is being given to the positive mental health of a youth or an adult, of an individual or the community, belongingness, connectedness and engagement are key indicators of mental well-being. It is also clear that if the goal is positive mental health for individuals the attention should be on creating a supportive environment for those individuals by way of a mentally healthy community.

Future programming may need to directly address youth resiliency, as dictated by the provincial framework, however, if work is focused on community engagement, coping abilities and the social determinants of health, everyone will benefit.

Placing emphasis on mental health promotion will help reduce the stigma related to mental illness. It is anticipated that reduced stigma will open doors to seeking help sooner and indirectly contribute to the prevention of serious mental illness or, at least, delay or slow down its progression. In return, reduced rates of other chronic health conditions and diseases may result.

Part 5

Social Determinants of Health and Health Inequities

A. An Introduction to the Social Determinants of Health

The health of individuals and communities is significantly influenced by social and economic status, the physical environment and the complex interactions between these factors. These influences are referred to collectively as the "social determinants of health", as distinct from individual characteristics such as genetic make-up or personal health and lifestyle practices which also affect health (Raphael, 2009a). This means that some people carry a larger burden and face greater barriers than others in the quest for good health. For example, we know that being poor, not being able to read, having an insecure low-paying job or being unemployed, living in substandard housing, living too far from a grocery store, experiencing high stress, or feeling isolated or unwelcome in our community are all bad for our health and well-being. These influences can be measured for a broad range of indicators such as:

- Income;
- Education and literacy;
- Conditions of early child development;
- Social support and connectedness;
- Employment and working conditions;
- Physical environment and housing;
- Access to health and social services; and
- Issues of gender, class, racism as social exclusion.

If we see a person's status for any of these variables like rungs on a ladder, it has been clearly demonstrated that for each step down, people who are worse off in any of these areas experience a lower health status in terms a lower life expectancy and higher mortality rates for diseases like cardiovascular disease, cancer, respiratory diseases and diabetes. Another way to visualize the influence of the social determinants of health is illustrated below (see Figure 5.1). Negative social determinants can be thought of as the underlying conditions creating a hill. The steeper the hill, the harder it is for an individual to battle various health hazards using their individual lifestyle behaviours and preventive actions.

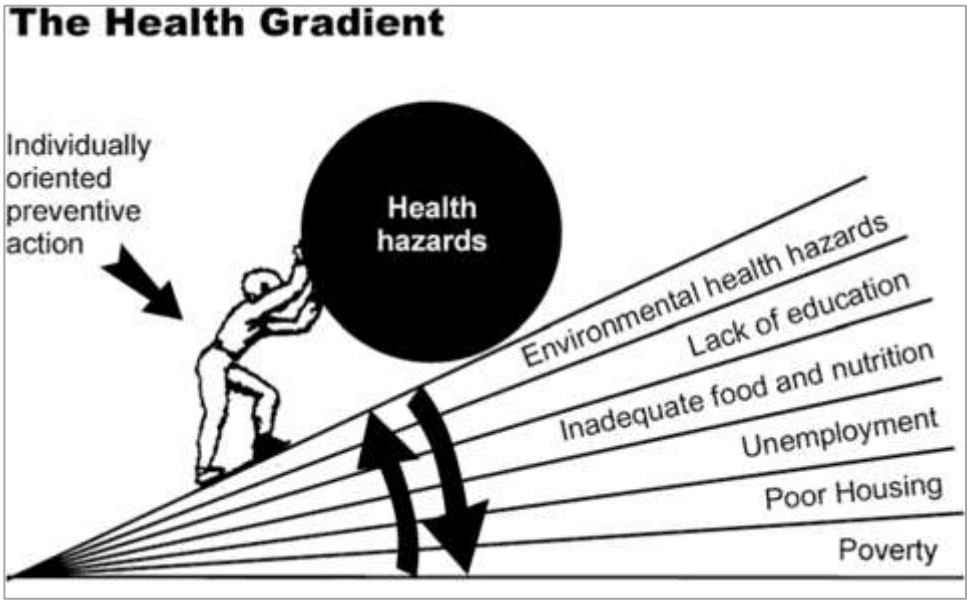


Figure 5.1. The health gradient. From World Health Organization Joint Working Group on Intersectoral Action for Health. (1988). *Making partners: Intersectoral action for* health. Netherlands: Author.

As an example, the relationship between income and life expectancy in Canada clearly illustrates the importance of income as a determinant of health. The graph below depicts income levels in five categories across the bottom for both men and women (Figure 5.2). The scale on the side shows the percentage of Canadian men and women who are expected to survive to age 75. For both men and women, as income increases, so does the likelihood that they will live to age 75. In fact, men living in low income neighbourhoods in Canada have a life expectancy which is five years shorter than men in high income neighbourhoods; women in low income neighbourhoods have a life expectancy which is 1.6 years shorter than women in high income ones (Raphael, 2007).

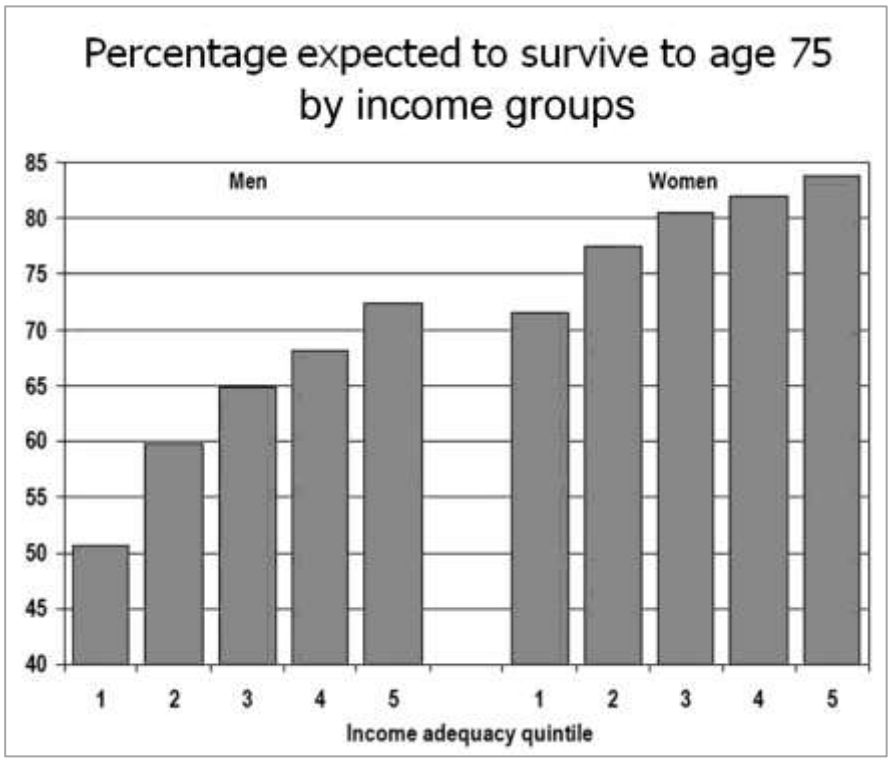


Figure 5.2. Influence of income on life expectancy. From Wilkins, R., Tjepkema, M., Mustard, C., & Choiniere, R. (2008). The Canadian census mortality follow-up study, 1991-2001. *Health Reports*, (3):25-43.

It has been shown that social determinants exert an influence right from the beginning of a lifetime (Seguin, Xu, Potvin, Zunaunegui, & Frohlich, 2003). Special concerns have been identified for children living in poverty in terms of health and other outcomes. Poor children have lower birth weights; poorer developmental outcomes in vision, hearing and speech; reduced school success as early as grade three; higher rates of injuries and hospital admissions; lower participation in organized recreation; and even if they escape poverty as adults, they have higher rates of cancer, heart disease and diabetes (Canadian Institute of Child Health, 2008).

Various research has also looked at the mechanisms of how social determinants act on health. It is believed there are at least three key pathways, including:

- Deprivation:
  Inadequate income means people lack adequate nutritious food and basic needs. Substandard housing leads to higher risks of injury and accidental death, or unhealthy exposure to extremes of heat, cold, toxins or moulds. On a neighbourhood level, lack of access to services, grocery stores, schools, employment or public recreation can also impact health (Jackson, 2004).

- Chronic and Acute Stress:
  A lack of income, job security, or stable housing creates considerable stress. This results in a physical process which weakens the cardiovascular and immune systems and can result in considerable health damage (Raphael, 2009b).
- Exclusion:
  Some disadvantaged groups (women, new immigrants, low income people, people with disabilities, racialized groups) experience systematic and structural unequal access to resources. This economic and social segregation, and political and cultural marginalization, limits their ability to fully participate in Canadian life. It creates a sense of isolation, vulnerability and powerlessness which leads to poorer health outcomes (Galabuzi, 2009).

Together these mechanisms lead to a lower health status for people who are worse off in terms of various social determinants of health.

B. Poverty and other Social Determinants of Health in Peterborough

The following section provides a picture of our community in terms of various social determinants that affect health. It looks at Peterborough in terms of income and population make-up, housing, basic needs, employment and education.

Income

There are a number of ways of looking at the income levels of people in our community. One measure is the median income for households, where an equal number of households have an income above the median and below the median. It represents the total income of all the members of the household. Another is to look at the median incomes of individuals, which makes it possible to see differences in income earned by males and females. The following table indicates the median income levels for Peterborough versus the Province of Ontario (Table 5.1).

Table 5.1
Income in 2005, Peterborough versus Ontario

	Peterborough			Ontario		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**
Median income for households after-tax	$45,335			$52,117		
Median income after tax for individual persons 15 years and over	$22,517	$27,926	$18,708	$24,604	$30,182	$20,201

Note. From Statistics Canada. (2006a). *2006 community profiles: Peterborough, Ontario (County)* (Catalogue no. 92-591-XWE).

The median income of Peterborough households is $45,335, or $6,782 below the Ontario median. The median income for just the City of Peterborough is a bit lower, at $42,349 (Statistics Canada, 2006b). While the local median household income has increased overall between 2000 and 2005, there are different trends among different groups of wage earners. The median earnings for those in the bottom fifth of earners dropped by 10.4 % to $15,005. Incomes for those in the top fifth increased by 6.7% to $81,863 over the five year period (Statistics Canada, 2006a).

What is most often used to measure poverty is Statistics Canada's Low Income Cut Off (LICO). The LICO is the income threshold below which a family will likely devote 20% more of its income to the necessities of food, shelter and clothing than the average family. Statistics Canada (2007) has determined that the average household spends about 43% of its income on these basic needs. Therefore, a family is considered "poor" if they spend 63% or more of their household income on these items (Statistics Canada, 2007). The LICO is defined by different family sizes and different populations.

Table 5.2 indicates the low income cut-offs after-tax in 2006 for rural areas and urban areas with populations 30,000 to 99,999, and is similar to the City of Peterborough.

Table 5.2
After-Tax Low Income Cut-Offs for Rural Areas and Urban Areas with Populations Similar to Peterborough (30,000 to 99,999)

Size of Family Unit	Rural Areas	Urban Area Size of Peterborough
1 person	$11,494	$14,674
2 persons	13,989	17,860
3 persons	17,420	22,239
4 persons	21,731	27,745
5 persons	24,746	31,594
6 persons	27,444	35,039

Note. From Statistics Canada. (2007). *Low income cut-offs for 2006 and low Income measures for 2005* (Catalogue no. 75F000MIE).

A person or family is considered to be living in poverty if their income falls below the LICO. Table 5.3 shows what percentage of all households live in poverty (below the LICO) in Peterborough and the City of Peterborough alone, after tax.

Table 5.3
Low Income Persons in Private Households

	Peterborough City and County			City of Peterborough			Ontario		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
% low income after tax – all persons	9.1	8.4	9.8	12.6	11.3	13.7	11.1	10.5	11.6
% low income after tax-persons less than 18 years of age	9.7	9.0	10.4	13.4	12.4	14.5	13.7	13.7	13.8

Note. From Statistics Canada. (2006a; 2006b). *2006 community profiles: Peterborough, Ontario (County) and (City)* (Catalogue no. 92-591-XWE).

Almost one in 10 people in Peterborough live in poverty. This level is somewhat higher in the City of Peterborough (12.6%) compared to the combined City and County (9.1%), while rates in the province are in between (11.1%) (Statistics Canada 2006a; 2006b). Females and children and youth under 18 have higher levels of poverty than the general population.

Poverty levels are much higher among some particular groups than the general population. Among lone parent families, 19.3% are low income after tax. For female lone parent families the number is even higher, at 21.5%. Among female lone parents with children under six years of age, a disturbing 62% are low income (Statistics Canada, 2006c). Among single adults, 28% in Peterborough are low income, and 32% are low income in the City alone (Statistics Canada, 2006d; 2006e).

It is also helpful to be aware of the variation among municipalities in the numbers of people living below the poverty line, and the percentage they represent of the total population. Table 5.4 shows that after the City of Peterborough, Smith-Ennismore-Lakefield has the highest number of low income people (620), but it is a small percentage of their total population (3.6%). Asphodel-Norwood (8.2%) and North Kawartha (9.1%) have the highest percentage of people in low income households after the City of Peterborough (12.6%) (Statistics Canada, 2006f).

Table 5.4
Prevalence of Low Income Households in Peterborough City and Rural Municipalities

	Total Population	Persons in Low-Income Households (after-tax) (LICO)	Percentage in Low Income Households (LICO)
Asphodel -Norwood	4,130	340	8.2
Cavan -Millbrook -North Monaghan	8,610	350	4.1
Douro - Dummer	6,895	335	4.9
Galway -Cavendish – and Harvey	5,230	240	4.6
Havelock -Belmont -Methuen	4,630	245	5.3
North Kawartha	2,320	205	9.1
Otonabee -South Monaghan	6,875	275	4.0
Smith – Ennismore -Lakefield	17,275	620	3.6
County Total	55,965	2,610	4.7
Peterborough City	72,750	9,140	12.6

Note. Total population in the city and county in 2006 was 133,080. 4,365 people are not accounted for in this table. From Statistics Canada. (2006f). *Income status after tax for census subdivisions* (Catalogue no. 97-563-XCB2006037).

Life on Social Assistance

In Peterborough, individuals and families receive social assistance income through two different programs – Ontario Works and the Ontario Disability Support Program (ODSP). Table 5.5 shows the breakdown of adults and children in 2008 in Peterborough who were receiving benefits from both programs. At the time of writing this report 2010 numbers were not yet available.

Table 5.5
Number of Individuals and Families Receiving Social Assistance

	City of Peterborough		County of Peterborough (not city)	
	Adults	**Children Under 18**	**Adults**	**Children Under 18**
Ontario Works (June, 2008)	2,658	1,140	594	306
Ontario Disability Support Program (Aug.'08)	3,083	493	770	124

Note. From Ontario Works and ODSP staff (personal communication, August 2008).

These programs represent 3.5% (Ontario Works) and 3.4% (ODSP) of the total population in the City and County.

Seniors

Nationally, seniors have made over-all progress on their income levels. In 1980, 21.3% of seniors lived in poverty after taxes, compared to only 6.8% in 2003 (Turcotte & Schellenberg, 2007). Single, unattached women however, are still overly vulnerable. In Peterborough, 18.6% of the population is over 65 years of age, which is higher than the provincial average (Statistics Canada 2006a). The median after-tax income of senior women in Peterborough was $19,304 in 2005, compared to $41,943 for senior couples. Almost 2% of men over 65 and 4% of women over 65 were low income after-tax in 2005 (Statistics Canada, 2006c). The changing age structure of the population will affect up-coming community needs (e.g., for housing, health care, transportation and other services), as well as the resources (e.g., municipal tax base) which are available to meet those needs.

Aboriginal Populations

In the 2006 census, 4,145 people in Peterborough reported an Aboriginal identity. Of these, 1,060 lived in Curve Lake First Nation, and 483 in Hiawatha First Nation (Statistics Canada 2006g; 2006h). The median income of all private households in 2005 for Curve Lake First Nation was $32,320 (Statistics Canada, 2006g), compared to $51,660 for Peterborough (Statistics Canada, 2006a). An Aboriginal needs assessment carried out in Peterborough in 2006 identified poverty, economic marginalization, affordable housing, education and training opportunities as key issues facing this population (Peterborough Social Planning Council [PSPC], 2006).

Racialized Poverty

Ethno-racial minority groups (i.e., communities of colour) in Ontario are two to four times more likely than Caucasians to fall below the LICO. They are also more likely to have related problems like poor health, lower education, and fewer job opportunities, and to face prejudice and discrimination (The Colour of Poverty Campaign, 2007). The percentage of visible minorities in Peterborough is 2.5%, for a total of 3,210 people (Statistics Canada, 2006a). This number is much lower than the provincial average (22.8%), but it is expected to increase over time. The most highly represented ethnic groups are Chinese, South Asian, Blacks, Latin Americans and Koreans (Statistics Canada, 2006a). The area received 950 new immigrants from all racial groups between 2001 and 2006. The median income of all immigrants was 3.5% higher than average Peterborough residents. Most of the 12,450 immigrants who live in the Peterborough area are from Europe and the United States and are not visible minorities (Statistics Canada, 2006a).

Housing

There are many challenges for low income residents in Peterborough. Finding and keeping affordable housing is near the top of the list. Access to housing is closely intertwined with poverty because it is the single largest regular expenditure most households face. Lack of access to affordable housing undermines all other household expenditures, including those for food, transportation, childcare and recreation.

A measure of affordability for average market rents is the hourly wage a person must earn in order to rent a unit without spending more than 30% of their total income. Table 5.6 below shows the hourly wages and annual wages that would be required for a person or household in Peterborough to afford various types of rental housing. Using this approach, it is apparent that

Housing Quick Facts

Of Peterborough's tenants households, 51.5% spent more than the benchmark 30% of income on housing (Tomalty et al., 2007).

52.8% of renter households have annual incomes below $30,000 (Statistics Canada, 2006i).

The 2007 before-tax Low Income Cut Off for a 2-person household is $23,084; the 30% housing cost for this household should be no more than $577/mth (Affordable Housing Action Committee [AHAC], 2008).

49% of lone parent households in the Peterborough Census Metropolitan Area have housing affordability issues; if the parent is under 25 years of age, the figure rises to 78% (Statistics Canada, 2006j).

In February, 2010, there were 1,501 applicants waiting for rent-geared-to-income (RGI or social) housing (Housing Access of Peterborough, 2010).

The Federal-Provincial Affordable Housing Program (AHP) has provided 416 housing units in the City of Peterborough and Lakefield since 2003; these units rent at 80% of market rates (City of Peterborough Housing Division, 2008).

The average sales price for all housing types in Peterborough in 2007 was $231,596, an increase of 55.1% in five years (AHAC,2008).

In 2006, 1,087 different individuals were housed in local shelters (Peterborough Social Services, 2006).

The average Ontario household spends 4.4% of their pre-tax income for utility costs. Households in the lowest income quintile spend 11.5% of their pre-tax income on utilities (Low-income Energy Network, 2008).

social assistance rates ($7,272/ year including benefits and credits for a single person) and minimum wage rates ($10.25/hr) are insufficient to afford even bachelor accommodation.

Table 5.6

Average Market Rents Peterborough: Minimum Hourly Wage and Gross Annual Income Required for Affordability

	Average Market Rents		
	Rent	**Wage/Hour**	**Annual**
Bachelor	$592	$11.38	$23,680
1 Bedroom	$749	$14.40	$29,960
2 Bedroom	$891	$17.13	$35,640
3 Bedroom	$1,060	$20.38	$42,400

Note. Markets rents may or may not include heat and hydro. From Affordable Housing Action Committee. (2010). *Housing is fundamental 2010.* Peterborough, ON: City of Peterborough

Basic Needs of Food, Health, Child Care and Recreation

Every year the PCCHU does an assessment of monthly incomes for a variety of family types and determines what would be left over after shelter, utilities and food costs. The results for 2010 are presented in Part 4, Section C of this report. The results clearly indicate that individuals and families who rely on social assistance or minimum wages have very little left over each month to pay for transportation, phone, clothing, school expenses, cleaning supplies, personal care items and all other costs (PCCHU, 2010). In order to cope with insufficient income, people are forced to cut into their food budget. People may skip meals or fill up on cheap foods. As a last resort, people are forced to use food banks. In March, 2010, Kawartha Food Share reported that they distributed food to over 7,900 individuals. Kawartha Food Share distributes food through its network of 40 food banks and community meal programs (PCCHU, 2010). Still, food banks can only offer about three days worth of food in a month.

Access to Health Care

Data from the 2005 CCHS for Peterborough shows that individuals living in a household with an income below $30,000 are significantly less likely to have regular access to a medical doctor, are more likely to report unmet health care needs and home care needs, are less likely to have ever had a Pap test, and are only half as likely to have insurance for eye glasses and dental expenses (PCCHU, 2008).

As income decreases, access to doctors also appears to decrease in the community. The CCHS shows 12.7% of people with household incomes greater than $30,000 did not have regular access to a doctor. For people with household incomes less than $30,000, 21.2% were without a doctor (PCCHU, 2008). In a 2007 survey of Ontario Works clients, over 30% of respondents reported that they did not have a family doctor (PSPC, 2008a). Among highly vulnerable clients of shelters and food programs a 2008 survey found 50% of respondents didn't have a family doctor (Archer, Milligan, Newey, Gounder & Jackson, 2008). For people without a doctor, there are many health care needs that cannot be met through other primary health care services such as the Peterborough Day Clinic or the Emergency Department at the hospital.

While clients of Ontario Works and the ODSP have access to very basic drug, dental and vision care benefits, these costs can be overwhelming to other low income people with no benefit programs through their employment.

Mental Health and Poverty

The relationship between poverty and mental health is complex. Poverty can be both a cause and consequence of poor mental health. Poverty in itself, and the material and social hardship associated with it, compromises mental health. Poverty can also be a consequence of serious mental illness, which can create barriers to education and employment and in turn affect a person's ability to have an adequate income. It is estimated that one in five people in Canada will experience a mental illness in their lifetime (Health Canada, 2006). An even higher prevalence of mental disorders has been documented among the homeless. In a recent survey of homeless people in Toronto, 35% had received a diagnosis for a mental health problem, and 66% reported that they had experienced serious depression in their lifetime (Khandor & Mason, 2007). These findings have been supported by observations of outreach workers in the Homelessness Partnering Strategy in Peterborough (CMHA, 2008).

People with Disabilities

Disabilities can be related to both physical and mental health. Nationally, 14.4% of people with disabilities are living in poverty, compared to an over-all poverty rate for Canadian adults of 10.5% in 2006 (Council of Canadians with Disabilities, 2010). Access to suitable and affordable housing, education, training and employment supports are all a challenge. The ODSP in Peterborough manages 3,305 adult cases. There are 268 children who receive benefits through a separate program, Assistance for Children with Severe Disabilities (P. Falls, personal communication, August 13, 2008).

Child Care

Research has clearly shown that high quality, affordable and accessible child care is of great benefit to low income children in terms of individual child development and readiness to learn. Furthermore, without these services, parents may not be able to access education, training and work for themselves (Friendly, 2009).

In 2007, 1,380 children in 1,065 families in Peterborough received a subsidy for either formal or informal child care. Parents, who are eligible based on an income test, as well as social assistance recipients, may be eligible for this fee subsidy for children under 10 year of age (or up to 12 years in some cases). Fee subsidies can be used to support full and part-time child care in licensed day nurseries and private-home day cares (City of Peterborough, Family Services Division, 2008).

Transportation

Transportation is a crucial issue for all Peterborough residents, but especially for those that live outside of the city, where access to affordable public transportation is very limited. Most people use personal vehicles as their primary mode of transportation. In the 2006 Census, 77% of the employed labour force reported that they travel to work in a car, truck or van, either as a driver or a passenger (Statistics Canada, 2006a). It is often difficult for low income individuals to afford the expense of a vehicle and they have to depend on public transportation. In the City, since 2008, clients of Ontario Works and the ODSP have been eligible for a subsidy of $34 per month for a transit pass. The remaining cost for the pass is $16 per month (J. Coreno, personal communication, November 14, 2008).

Recreation

There is an important need for low income children to participate in mainstream cultural and recreational programs of their choice (Totten, 2007).

The City of Peterborough Community Services Department, through its Recreation Division, provides subsidies for children for various programs. In 2007, 445 children were subsidized for registration in recreational activities and summer camps (PSPC, 2008b). The City subsidy does not apply to school-based programs or activities, but other programs are eligible if they are offered within the city limits, take place in a group setting (not private lessons) and do not have their own subsidy program in place. Organized recreational opportunities are more limited in rural areas.

Employment

The availability of employment opportunities and the type of jobs available to people are key factors related to individual and family poverty. Employment earnings make up 69% of total income in Peterborough, as compared to government transfers (14%) and other sources of income (17%) (Statistics Canada, 2006a). The unemployment rate in June, 2010 was 10.2% (Service Canada, 2008).

As in other communities across Ontario, manufacturing jobs are shifting out of the Peterborough area. In a base of 68,000 labour force employees, the Sales & Service sector currently employs the greatest proportion of the labour force (Table 5.7). It is also the lowest paid occupational group.

Table 5.7
Labour Force Characteristics, City and County of Peterborough

Labour Characteristics for Age 15 and Over	Total % of Labour Force	Average Wage for Sample Jobs
Sales and Services	26.87	
Food and Beverage Servers		$8.80
Retail Sales Clerks		$9.27
Trades, Transport & Equipment Operators	16.17	
Material Handlers		$15.13
Truck Drivers		$19.29
Business, Finance & Administration	14.94	
Secretaries (not medical or legal)		$18.50
Administrative Officers		$17.14
Management	9.00	
Administrative Services Manager		$21.41
Facility Operation and Maintenance Manager		$19.08
Processing, Manufacturing & Utilities	5.87	
Machining Tool Operators		$14.37
Mechanical Assemblers		$17.23
Health	6.61	
Registered Nurses		$30.83
Nurses Aides, Orderlies		$16.69
Social Sciences, Government, Religion, Education	9.67	
Elementary School Teachers		$27.66
Early Childhood Educators		$15.04
Natural & Applied Sciences	4.98	
Mechanical Engineers		$27.64
Primary Industries		
General Farm Workers	3.29	$11.46
Arts Culture Recreation & Sport		
Program leaders/instructors sport and recreation	2.58	$13.57

Note. From Statistics Canada. (2006a). *2006 community profiles: Peterborough, Ontario (County)* (Catalogue no. 92-591-XWE).

Education

There is a direct relationship between an individual's level of education and his or her employment prospects. Increasingly, a post-secondary education is becoming necessary for success. In 2002, 70% of new jobs in Canada required a post-secondary education (Human Resources Development Canada, 2000). Many working poor have a high school diploma or less. Illiteracy has been an issue for many people seeking and maintaining employment. A staggering 42% of adult Canadians are semi-literate according to the 2003 International Adult Literacy and Skills Survey (Rootman & Gordon-El-Bihbety, 2008).

While high school drop-out rates are not locally available, in 2003/2004 the rate was 32% among all high school students in the province (Social Planning Council of Sudbury, 2006).

Table 5.8
Educational Levels of 20 to 64 Year Olds: City and County of Peterborough & Ontario (2006)

	City and County of Peterborough			Ontario		
	20-34 year olds	35-44 year olds	45-64 year olds	20-34 year olds	35-44 year olds	45-64 year olds
Less than high school	11.1%	11.2%	17.8%	9.7%	10.5%	17.7%
High school/some post secondary	36.6%	26.9%	27.3%	32.1%	24.3%	26.0%
Trades Certificate	5.7%	9.9%	11.1%	5.2%	8.6%	10.1%
College Certificate	27%	31.5%	24.8%	22.2%	23.9%	19.8%
University	19.5%	20.5%	19.9%	30.8%	32.7%	26.3%

Note. From Statistics Canada. (2006k). *Highest certificate, diploma or* degree (Catalogue no. 97-560-XCB2006008).

According to the 2006 Census (Statistics Canada, 2006k) and illustrated in Table 5.8, 11.1 % of 20 – 34 year olds, and 11.2 % of adults between 35 and 44 in Peterborough had less than a high school education. This increased to 17.8% for those between 45 and 65 years of age. The percentage of residents in each category who have completed university is significantly lower for Peterborough than for the Province of Ontario (Statistics Canada, 2006a).

Young Mothers

Information from the Peterborough Regional Health Centre indicates that there are between 70 and 80 births to women in Peterborough under 20 years of age each year (A. Bell, personal communication, August 14, 2008). Many of these mothers have not completed high school when they give birth. The "School for Young Moms" enables women under the age of 21 to continue their high school education and increase their parenting skills, while receiving on-site care for their infants. Between 25 – 30 students attend each year. Over six years, 36 different young mothers in the program have completed their grade 12 diploma (A. Bell, personal communication, November 4, 2010).

Mapping the Social Determinants of Health

Some initial work has been done to map the distribution of the social determinants of health in the City of Peterborough and some of its surrounding municipalities (CIHI, 2010a). This has been done through the development of a "Deprivation Index" by the National Public Health Institute of Quebec (INSPQ). Figures 5.3 and 5.4 are maps of the components of the

INSPQ Deprivation Index for the Peterborough Census Metropolitan Area. These maps show a combination of material components (percent without high-school graduation, employment ratio, average income) and social components (percent of single-parent families, percent of persons living alone, and percent of persons separated, divorced or widowed). All components are extracted from the 2006 Census of Canada at Statistics Canada's dissemination area level. For further information on how these components were identified and calculated, please see Appendix C.

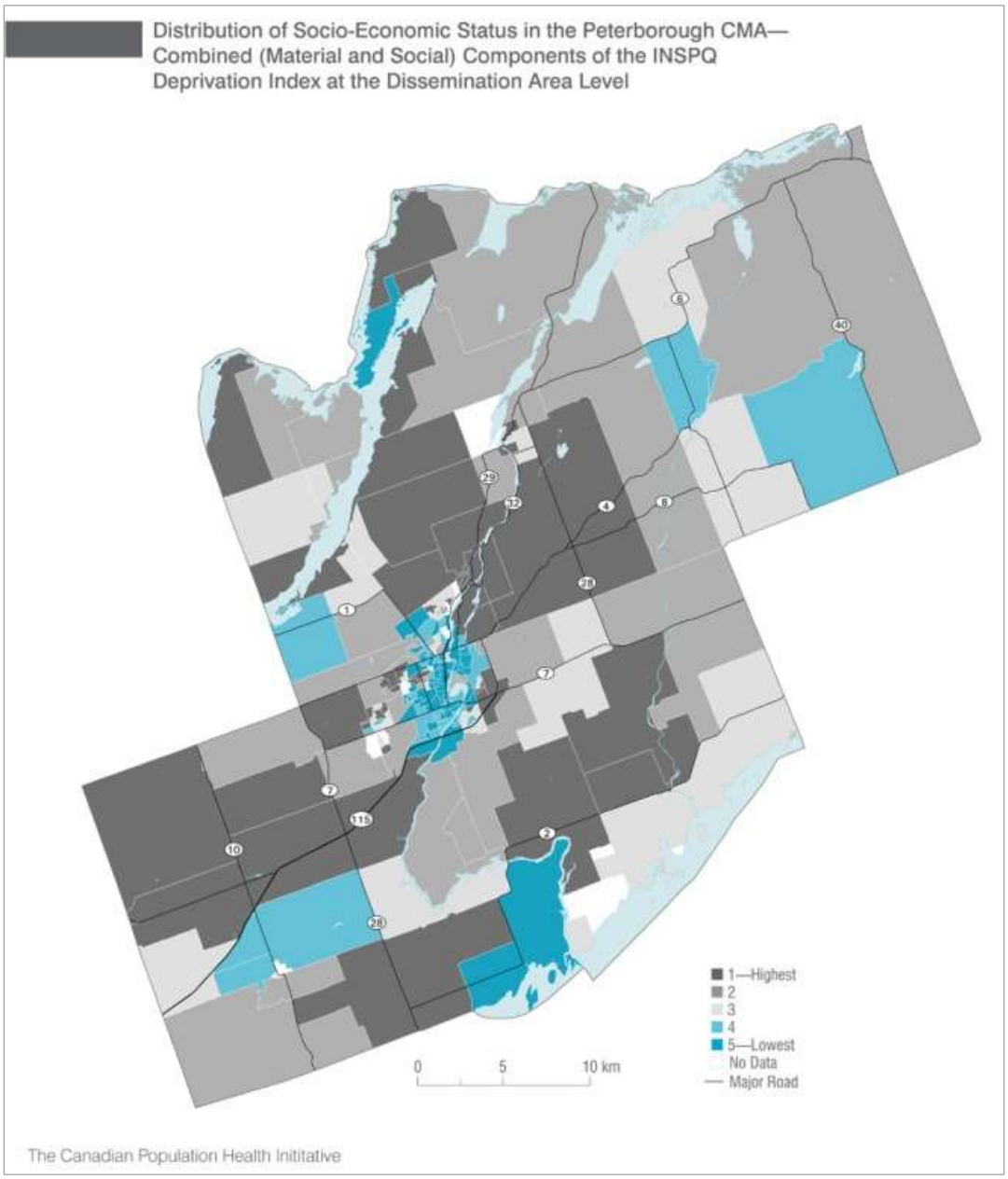


Figure 5.3. Distribution of socio-economic status in Peterborough CMA. From Canadian Institute for Health Information. (2010a). *Data brief: Exploring urban environments and inequalities in health for the Peterborough CMA.* Retrieved from http://secure.cihi.ca/cihiweb/en/downloads/DataBrief_Peterborough.pdf

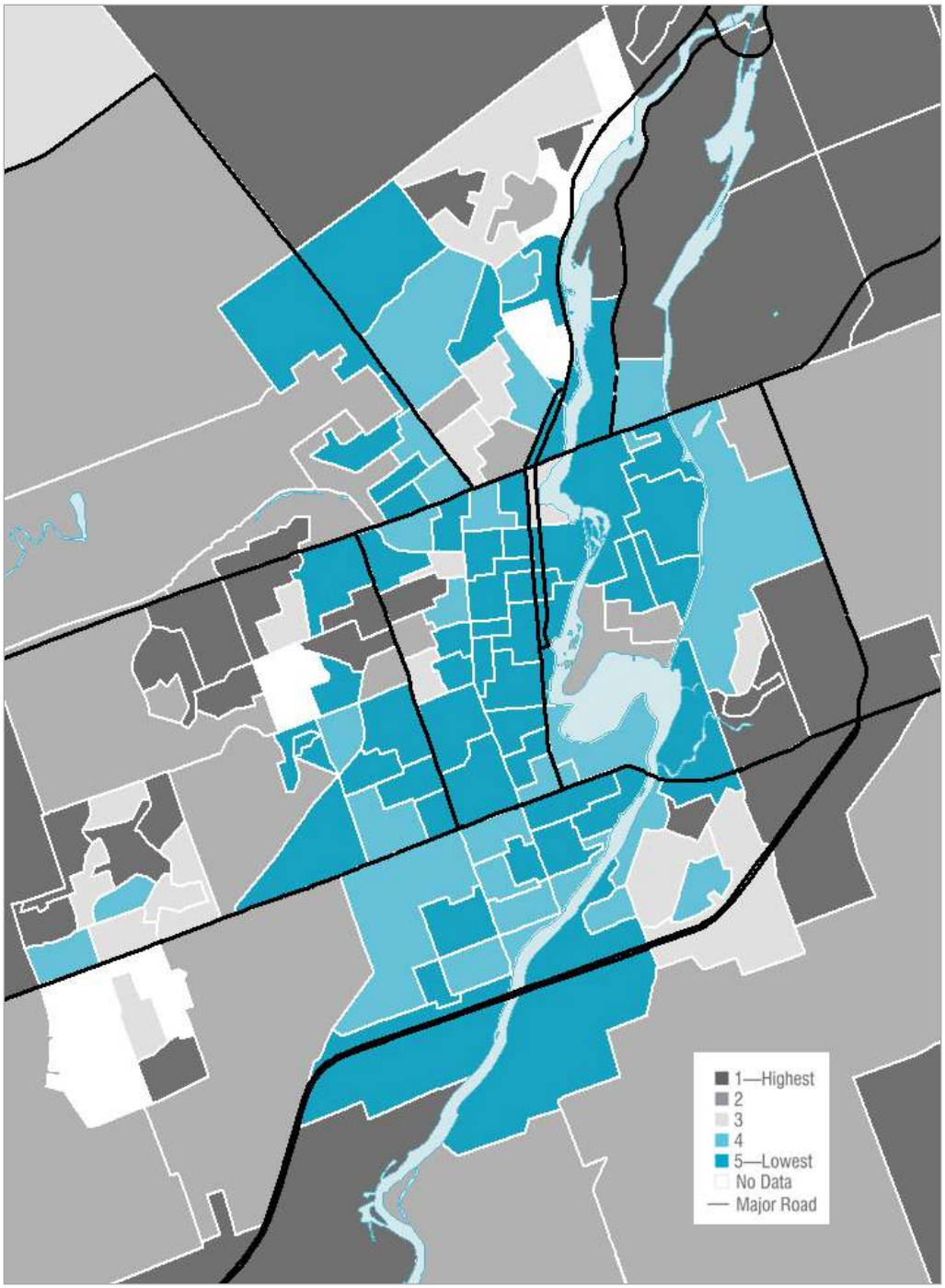


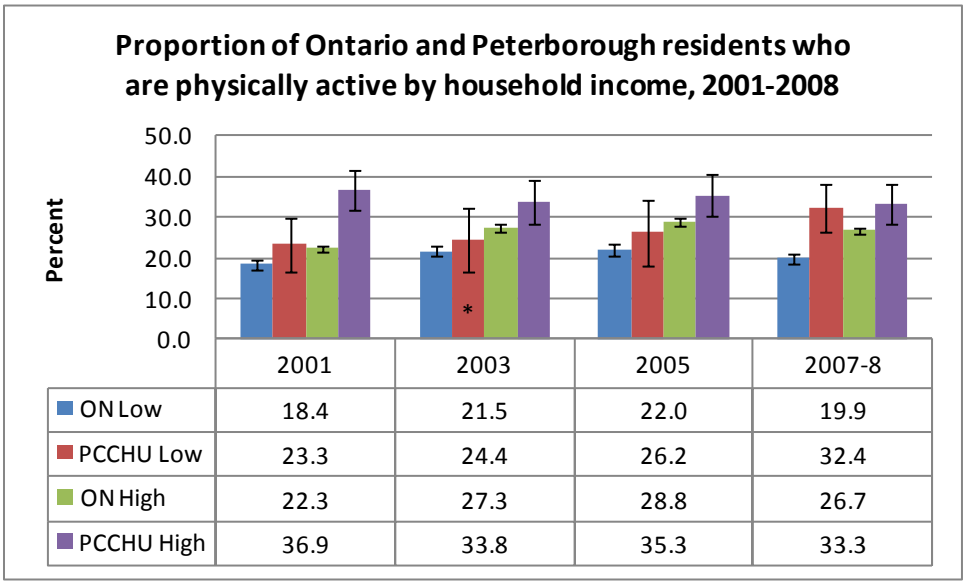
Figure 5.4. Distribution of socio-economic status in City of Peterborough. From Canadian Institute for Health Information. (2010a). *Data brief: Exploring urban environments and inequalities in health for the Peterborough CMA.* Retrieved from http://secure.cihi.ca/cihiweb/en/downloads/DataBrief_Peterborough.pdf

C. Health Inequities

The CCHS provides local data on the links between income and a number of health behaviours in Peterborough. The relationship between income and health is complex and several theoretical pathways have been proposed to explain the dynamic link between income inequalities and health disparities at the individual level (Raphael et. al., 2005). One proposed pathway is behavioural– that is, "health disparities may come about due to differences in health-related behaviours among socioeconomic groups (e.g., general lifestyle or likelihood of being involved in risky health behaviours such as smoking and drinking)" (as cited in Health Canada, 2007, p. 27). To illustrate this, health behaviours from each of the Healthy Communities priority areas will be broken down by income categories and compared between Ontario and Peterborough data (refer to Appendix A for figure definitions for this section). However, it should be noted that sample sizes for Peterborough are small and as a result there is large degree of variability associated with some of the estimates provided. Estimates from the CCHS have been presented with 95% confidence intervals (depicted by the following symbol I in each figure).

Physical Activity, Sport and Recreation

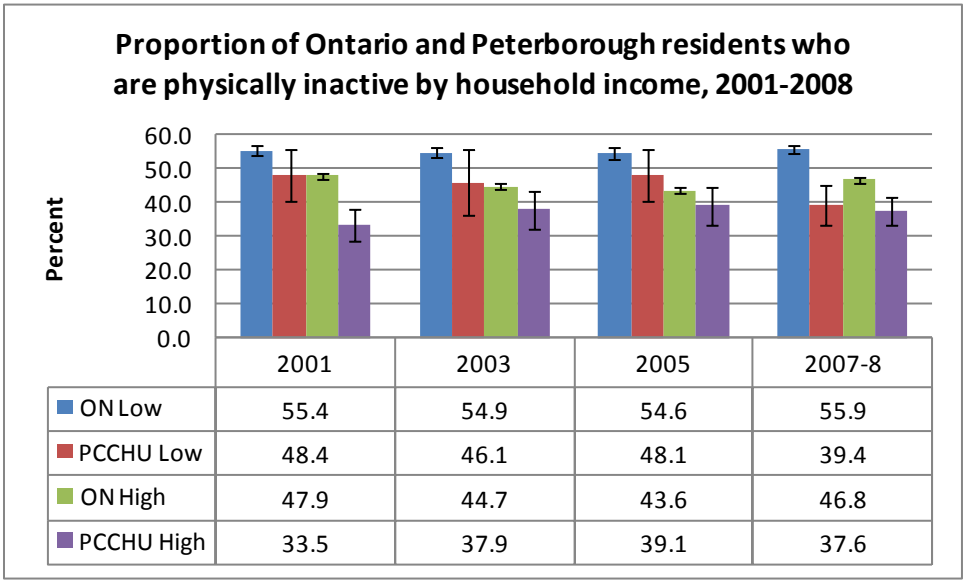
When compared to Ontario data, Peterborough has consistently had higher rates of people who are physically active for both the low and high income groups (Figure 5.5). In fact, when comparing the data for Peterborough as shown in Figure 5.5, since 2001 the number of low income persons engaging in physical activity has increased and by 2007-8 it was almost the same as the high income group (32.4% and 33.3%, respectively).



	2001	2003	2005	2007-8
ON Low	18.4	21.5	22.0	19.9
PCCHU Low	23.3	24.4	26.2	32.4
ON High	22.3	27.3	28.8	26.7
PCCHU High	36.9	33.8	35.3	33.3

Figure 5.5. Physically active residents in Ontario and Peterborough by household income. *Estimates should be interpreted with caution due to large sampling variability. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Another way to interpret this trend is to analyze physical inactivity data. The proportion of residents both in Ontario and Peterborough who are physically inactive is greater among low income than high income individuals. In Peterborough, the proportion of residents who are physical inactive is only slightly more than those who are physically active (Figure 5.5). Conversely, the proportion of Ontario residents who are physical inactive is significantly higher than those who are physically active; for low income individuals the rate is 55.9% compared to 19.9%, respectively (Figure 5.6).



	2001	2003	2005	2007-8
ON Low	55.4	54.9	54.6	55.9
PCCHU Low	48.4	46.1	48.1	39.4
ON High	47.9	44.7	43.6	46.8
PCCHU High	33.5	37.9	39.1	37.6

Figure 5.6. Physically inactive residents in Ontario and Peterborough by household income. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Injury Prevention

Injuries, like many other health issues, are greatly affected by the social determinants of health. There is a gap in local data to support this; however according to the CIHI (2010b), it can be inferred based on national data that residents living in least affluent neighbourhoods are 18% more likely to be hospitalized due to an unintentional injury than their counterparts in high income neighbourhoods. Hospitalization rates are higher in the least affluent neighbourhoods for all types of injuries except sports-related injuries, which are slightly higher in the most affluent neighbourhoods. This trend is likely similar in Peterborough, however local level data have yet to be examined. As shown in Figure 5.7, the highest rates of hospitalizations from injuries were seen in the least affluent neighbourhoods with 634 per 100,000 population. This rate was approximately 1.3 times higher than the rate for the most affluent neighbourhoods with 501 per 100,000.

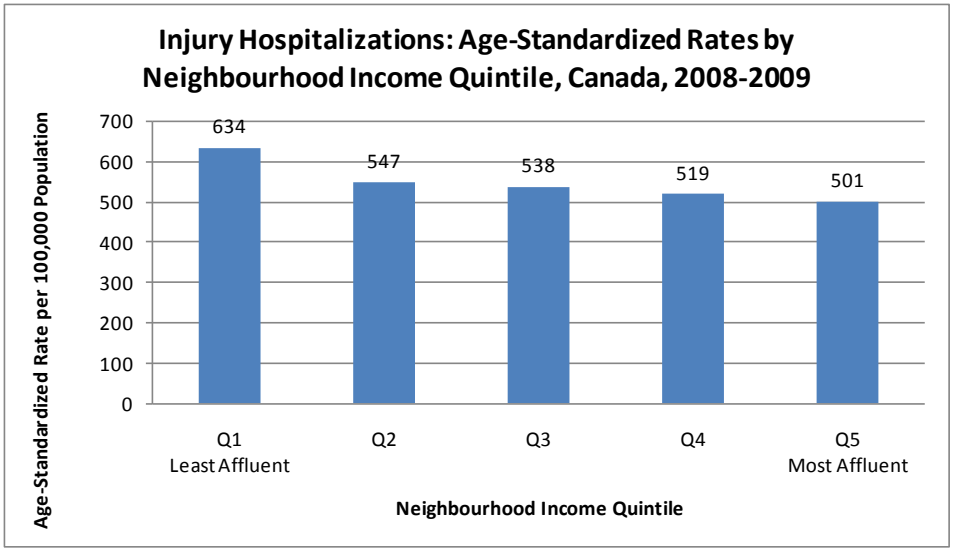
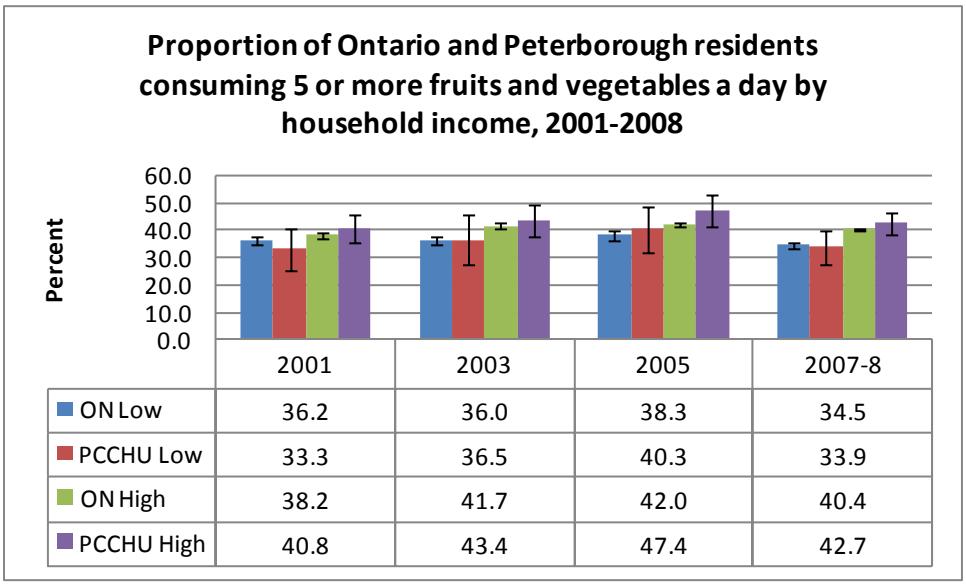


Figure 5.7. Injury hospitalizations by neighbourhood quintile. Population by income quintile for 2008-2009 was projected using 2001 and 2006 Canadian census data. Adapted from *National Trauma Registry Minimum Data Set,* CIHI, 2006; *Fichier des hospitalisations MED- ÉCHO*, ministère de la Santé et des Services sociaux du Québec; *2006 Census,* Statistics Canada.

Healthy Eating

For those individuals who consume five or more fruits and vegetables a day, the rates are very similar in Peterborough as they are for the rest of the province for both low and high household income levels. For 2007-8, Ontario data indicates that 34.5% of low income individuals consume five or more fruits and vegetables a day compared to 40.4% for high income households (Figure 5.8). Similarly, in Peterborough the rates are 33.9% and 42.7% for low income and high income households respectively (Figure 5.8).

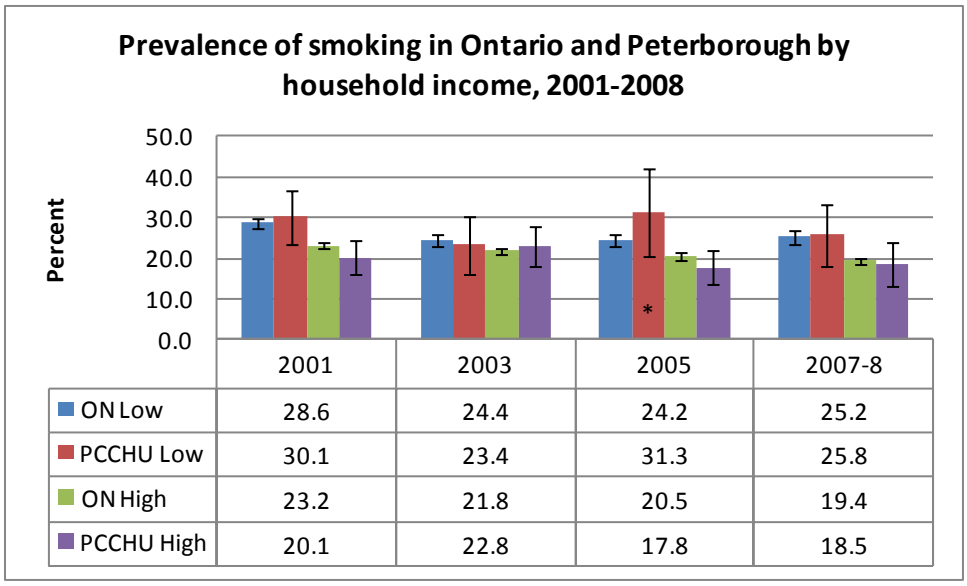


	2001	2003	2005	2007-8
ON Low	36.2	36.0	38.3	34.5
PCCHU Low	33.3	36.5	40.3	33.9
ON High	38.2	41.7	42.0	40.4
PCCHU High	40.8	43.4	47.4	42.7

Figure 5.8. Ontario and Peterborough residents who consume 5 or more fruits and vegetables a day by household income. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Tobacco Use and Exposure

Smoking prevalence among low income households is consistently higher than among high income households for both Ontario and local data. Also, data indicates that smoking rates between Peterborough and Ontario are quite similar when comparing household income; low income (Ontario=25.2%; Peterborough =25.8%) and high income (Ontario = 19.4%; Peterborough =18.5%) for 2008-07 as shown in Figure 5.9.

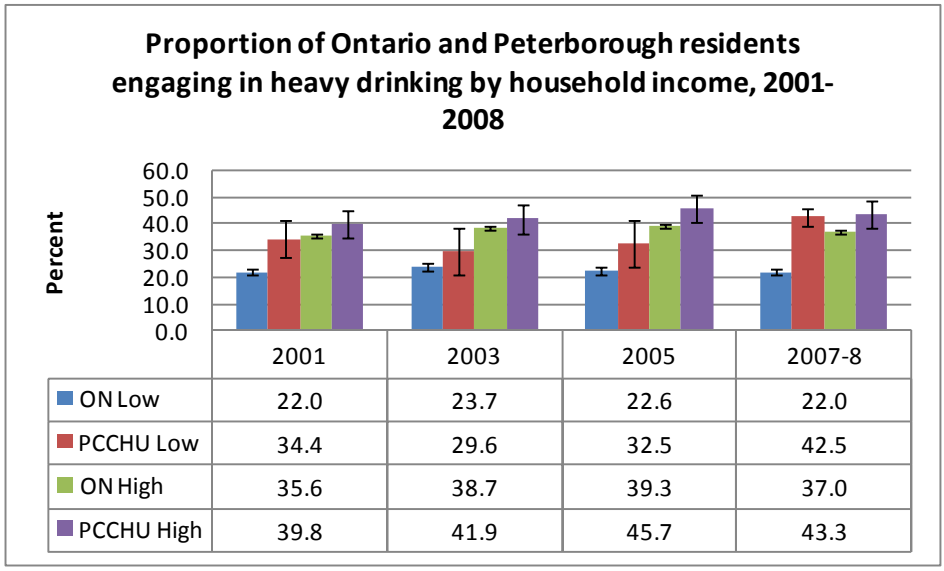


	2001	2003	2005	2007-8
ON Low	28.6	24.4	24.2	25.2
PCCHU Low	30.1	23.4	31.3	25.8
ON High	23.2	21.8	20.5	19.4
PCCHU High	20.1	22.8	17.8	18.5

Figure 5.9. Ontario and Peterborough smoking prevalence by household income. Current smoker = daily smoker (smoking at least one cigarette per day) + occasional smoker (does not have at least one cigarette per day). *Estimates should be interpreted with caution due to large sampling variability. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Substance and Alcohol Use

According to both Ontario and Peterborough data, high income individuals appear to engage in heavier drinking (having five or more drinks on at least one occasion in the past 12 months) than low income individuals. As shown in Figure 5.10, in 2007-08, 37% of high income individuals self reported hazardous drinking compared to 22% of low income individuals. Over the past decade, Peterborough rates of hazardous drinking were consistently higher for all income groups than the provincial rates; in fact, low income rates for hazardous drinking in Peterborough (42.5%) were almost double that of Ontario's (22%). Still, Peterborough's high income population tends to engage in more hazardous drinking than low income individuals; however, as shown in Figure 5.10, the gap between the two is narrowing and in 2007-08 the rates were very similar– low income (42.5%) and high income (43.3%).

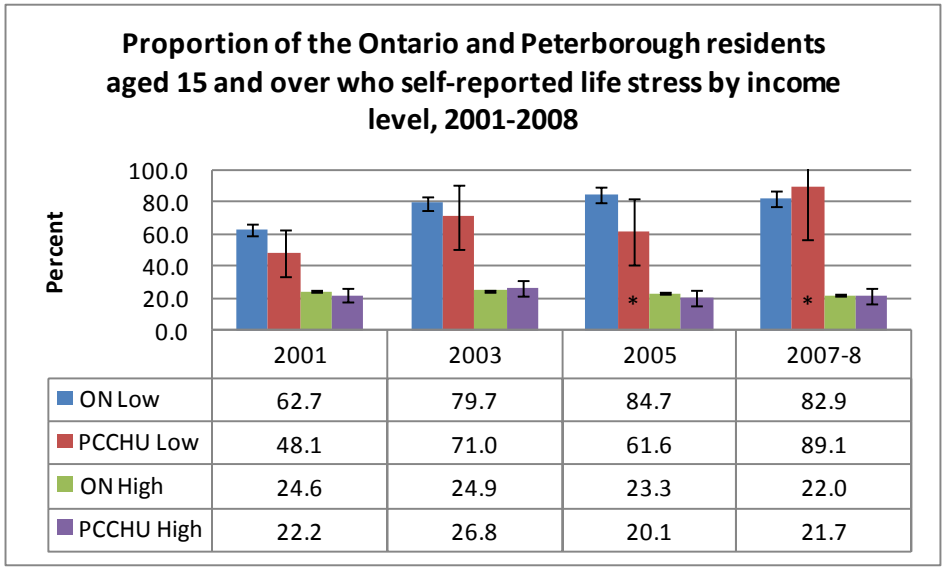


	2001	2003	2005	2007-8
ON Low	22.0	23.7	22.6	22.0
PCCHU Low	34.4	29.6	32.5	42.5
ON High	35.6	38.7	39.3	37.0
PCCHU High	39.8	41.9	45.7	43.3

Figure 5.10. Ontario and Peterborough hazardous drinking by household income. *Estimates should be interpreted with caution due to large sampling variability. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Mental Health

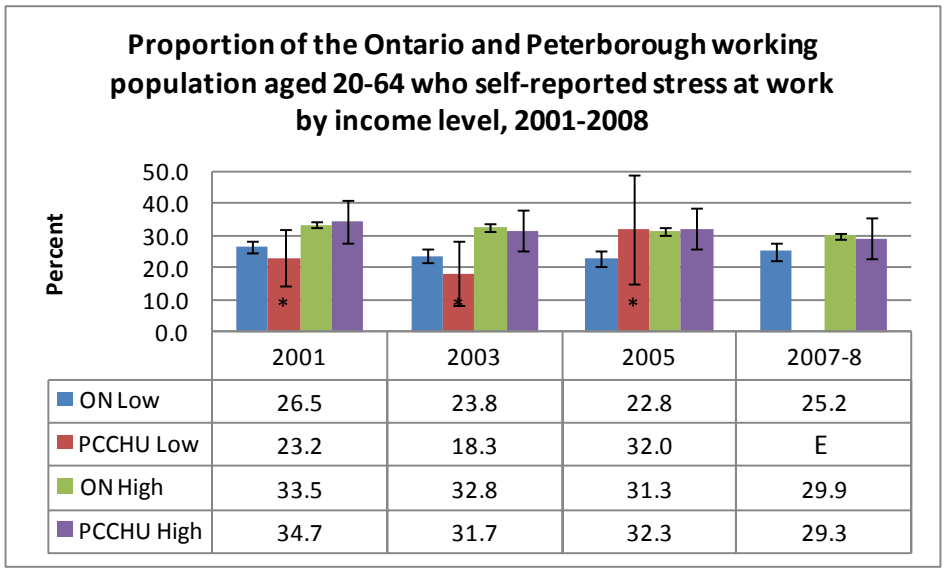
Individuals living in low income situations report experiencing greater life stress than those with higher income; in fact, for Ontario the disparity between the groups is almost four-fold with 82.9% experiencing life stress compared to 22%. Peterborough mirrors this trend, with 89.1% of low income individuals experiencing stress compared to 21.7% in high income situations (Figure 5.11).



	2001	2003	2005	2007-8
ON Low	62.7	79.7	84.7	82.9
PCCHU Low	48.1	71.0	61.6	89.1
ON High	24.6	24.9	23.3	22.0
PCCHU High	22.2	26.8	20.1	21.7

Figure 5.11. Self-reported life stress by income level in Ontario and Peterborough. *Estimates should be interpreted with caution due to large sampling variability. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Opposite to the general life stress rates, when looking at the working population, the high income group reported that they experienced more stress at work than those in low income situations for both Ontario and Peterborough data (Figure 5.12).



	2001	2003	2005	2007-8
ON Low	26.5	23.8	22.8	25.2
PCCHU Low	23.2	18.3	32.0	E
ON High	33.5	32.8	31.3	29.9
PCCHU High	34.7	31.7	32.3	29.3

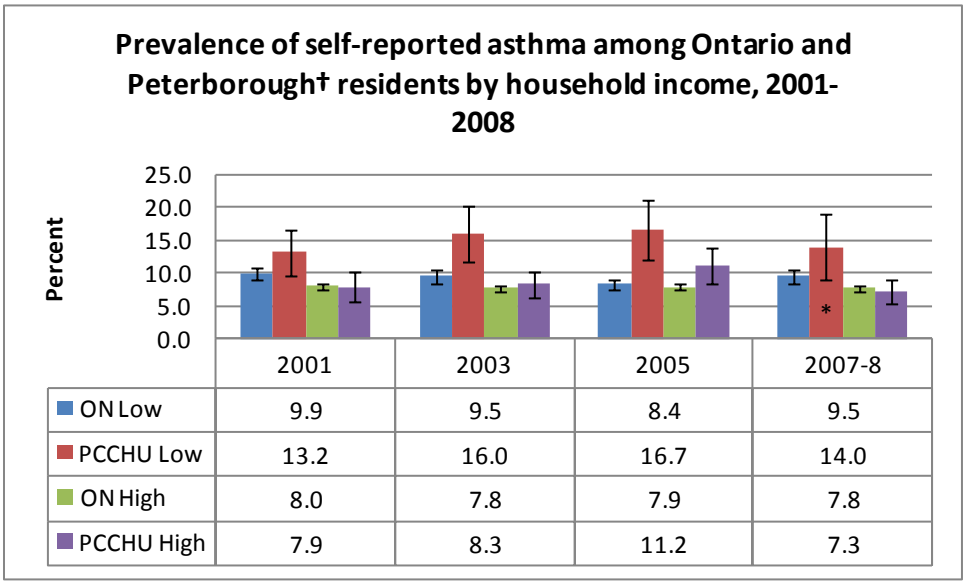
Figure 5.12. Self-reported work stress by income level in Ontario and Peterborough. Note. *Estimates should be interpreted with caution due large sampling variability. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

As the data above indicates, for both Ontario and Peterborough, when compared to those with high income levels, individuals with lower incomes were more likely to be physically inactive, have more hospitalizations due to injuries, consume less than the recommended five fruits and vegetables a day, have higher smoking rates, and report greater life stress. Interestingly, high income individuals tended to engage in more hazardous drinking than low income individuals, although over the years the rates in Peterborough between the two groups have become quite similar. The only unexpected result was the high levels of work stress reported by those with higher incomes compared to lower income groups. This may be due to a number of factors which were not explored at the time of writing this report.

Health Outcomes

It is well recognized that income levels impact health outcomes and that individuals with lower incomes are more likely to have poorer health than those with higher incomes (CIHI, 2003). To illustrate the clear link between income and health outcomes on a local level, the prevalence of self-reported health conditions (asthma, high blood pressure, diabetes, heart disease, and cancers) were analyzed by household income. To allow for comparison, Ontario data was extrapolated for each health condition.

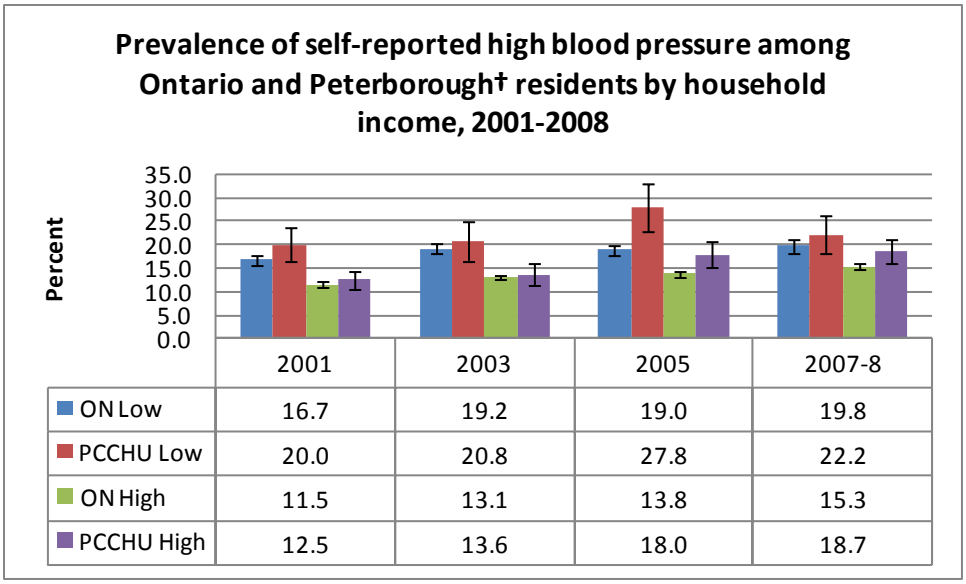
The most recent data (2007-8) shows that in Ontario, 9.5% of individuals living in low income situations and 7.8% living on high incomes, had asthma (Figure 5.13). In Peterborough, the rate of asthma for those with higher incomes was very similar to the provincial average at 7.3%; however, the rate of asthma for low income individuals was much greater at 14% (Figure 5.13).



	2001	2003	2005	2007-8
ON Low	9.9	9.5	8.4	9.5
PCCHU Low	13.2	16.0	16.7	14.0
ON High	8.0	7.8	7.9	7.8
PCCHU High	7.9	8.3	11.2	7.3

Figure 5.13. Asthma prevalence among Ontario and Peterborough residents by household income. Note. †Due to the small sample size of PCCHU (particularly in low income individuals self-reporting a chronic illness), residents from the Hastings and Prince Edward Counties Health Unit were also included in the analysis. *Estimates should be interpreted with caution due to large sampling variability. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

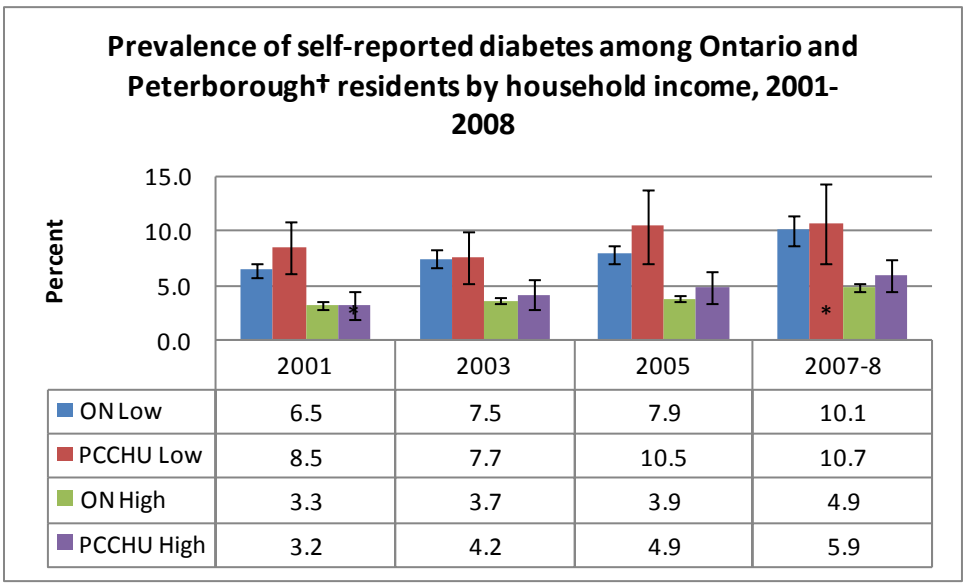
The prevalence of high blood pressure rates between Ontario and Peterborough residents were more similar than asthma rates. As illustrated in Figure 5.14, in 2007-8, 19.8% of low income individuals in Ontario and 22.2% in Peterborough had high blood pressure; compared to 15.3% and 18.7% of high income individuals in Ontario and Peterborough respectively.



	2001	2003	2005	2007-8
ON Low	16.7	19.2	19.0	19.8
PCCHU Low	20.0	20.8	27.8	22.2
ON High	11.5	13.1	13.8	15.3
PCCHU High	12.5	13.6	18.0	18.7

Figure 5.14. High blood pressure prevalence among Ontario and Peterborough residents by household income. Note. †Due to the small sample size of PCCHU (particularly in low income individuals self-reporting a chronic illness), residents from the Hastings and Prince Edward Counties Health Unit were also included in the analysis. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care

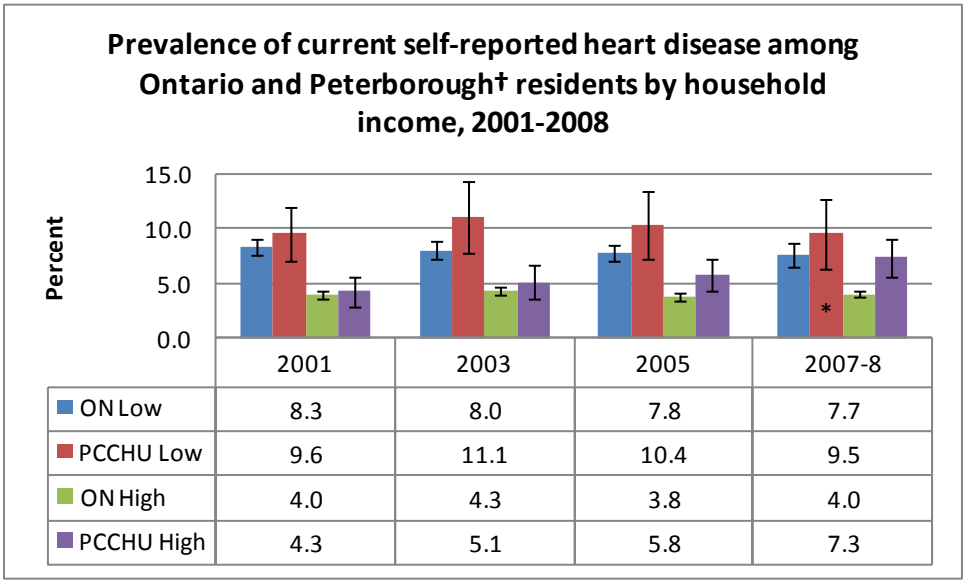
The prevalence of diabetes, for 2007-8 data, was very similar for Ontario and Peterborough. As shown in Figure 5.15, prevalence of diabetes was almost identical between low income individuals in Ontario and Peterborough, 10.1% and 10.7%, respectively. In high income groups, the prevalence of diabetes was 4.9% in Ontario and 5.9% in Peterborough.



	2001	2003	2005	2007-8
ON Low	6.5	7.5	7.9	10.1
PCCHU Low	8.5	7.7	10.5	10.7
ON High	3.3	3.7	3.9	4.9
PCCHU High	3.2	4.2	4.9	5.9

Figure 5.15. Diabetes prevalence among Peterborough residents by household income. Note. †Due to the small sample size of PCCHU (particularly in low income individuals self-reporting a chronic illness), residents from the Hastings and Prince Edward Counties Health Unit were also included in the analysis. *Estimates should be interpreted with caution due to large sampling variability. From *CCHS 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

As shown in Figure 5.16, in Ontario just 4% of individuals with high incomes had a current heart disease; those rates almost double (7.7%) for individuals with low incomes, for 2007-8 data. Although not as drastic, the same is true for Peterborough, there were less cases of current heart disease among those with high incomes than low incomes (7.3% and 9.5%, respectively) (Figure 5.16). It is interesting to note that for Ontario the rates of heart disease for individuals in high income situations, excluding minor fluctuations, remained the same from 2001 (4%) to 2007-8 (4%); however, for Peterborough, heart disease among high income residents almost doubled between the same time period, going from 4.3% in 2001, to 7.3% in 2007-08 (Figure 5.16).



	2001	2003	2005	2007-8
ON Low	8.3	8.0	7.8	7.7
PCCHU Low	9.6	11.1	10.4	9.5
ON High	4.0	4.3	3.8	4.0
PCCHU High	4.3	5.1	5.8	7.3

Figure 5.16. Current heart disease prevalence among Ontario and Peterborough residents by household income. Note. †Due to the small sample size of PCCHU (particularly in low income individuals self-reporting a chronic illness), residents from the Hastings and Prince Edward Counties Health Unit were also included in the analysis. From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

When the prevalence of 'ever had cancer' rates were compared between Ontario and Peterborough residents, the income-health inequities are also apparent. As shown in Figure 5.17, in 2007-8, cancer rates for high income individuals in Peterborough (5.8%) and Ontario (3.8%) were less than cancer rates for low income individuals in Peterborough and Ontario (8.1% and 4.5%, respectively).

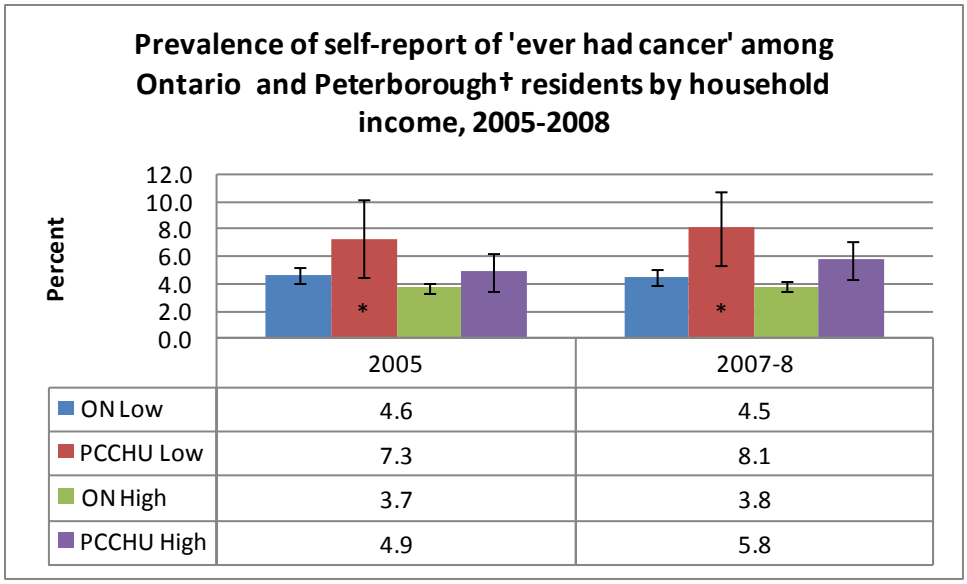


Figure 5.17. Cancer prevalence among Peterborough and Ontario residents by household income. Note. †Due to the small sample size of PCCHU (particularly in low income individuals self-reporting a chronic illness), residents from the Hastings and Prince Edward Counties Health Unit were also included in the analysis. *Estimates should be interpreted with caution due to large sampling variability. 'Ever had caner' was assessed by the question, "have you ever been diagnosed with cancer?" From *Canadian Community Health Survey 2001-2008*, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

As the data above indicates, for both Ontario and Peterborough, individuals with lower incomes were more likely to suffer from all of the health consequences discussed - asthma, high blood pressure, diabetes, heart disease, and cancers - than those individuals with higher incomes. In fact, for almost all of the health outcomes, Peterborough rates were higher than provincial rates at both the low and high income cut-offs.

In conclusion, Part 5 of this report has provided an overview of the social determinants of health and the mechanisms by which they influence individual and community health. It has also provided a broad range of data concerning various social determinants which affect health in Peterborough. Clearly some people are experiencing hardships in terms of lower incomes, lack of secure employment, limited education, and reduced access to housing, food, health care, transportation and other basic needs. While most people in Peterborough have adequate incomes to meet their basic needs, many do not. It is possible to identify particularly vulnerable groups – for example recipients of Ontario Works and ODSP benefits, single adults, single parents, especially women, and their children. Even individuals who work full-time at minimum wage often cannot meet the costs of their housing and basic needs and have no access to extended health or dental benefits. As a result, they become the "working poor".

Finally, this section has also illustrated the relationship between income and a variety of health behaviours and outcomes. It is clearly demonstrated that people with lower incomes are less likely to practice behaviours which support health, and more likely to experience

negative health outcomes for a wide range of diseases and conditions. Other social determinants of health such as education have not been examined at the local level in order to determine their relationship and impact on health. In addition, neighbourhood-level analyses have not yet been explored. By examining local data in this way, a more robust understanding of the distribution and determinants of health and health behaviours in the Peterborough area can be gleaned.

Part 6

Priority Populations for the purpose of Healthy Communities Consultations

Priority populations are defined as "those populations that are at risk and for whom public health interventions may be reasonably considered to have a substantial impact at the population level" (MOHLTC, 2008, p.2). One component of the Healthy Communities guidelines is to create a local Community Picture that includes, among other things, a summary of socio-demographic information. Through the collection and analysis of Peterborough's socio-demographic data, four priority populations emerged: First Nations, youth, seniors, and people living with low-income. Due to the unique characteristics of each of these groups, and the potential to benefit from public health interventions, it was decided that they should be the primary target populations during the community engagement sessions, the second component of the community picture. The rational to focus on each of these groups will be delineated in the following sections.

A. First Nations

There are two First Nation communities within Peterborough County. It is important to note that PCCHU's Board of Health has signed agreements with both First Nation communities to make Health Unit programs and services available to their residents. Currently, these are the only two agreements of their kind in Ontario, making PCCHU's Curve Lake and Hiawatha First Nations partnerships truly unique.

The population growth rates for both First Nations have increased substantially over the years. Curve Lake First Nation had a 12.2% increase from 2001 to 2006. More strikingly, between the same time period, Hiawatha First Nation had a 62.6% growth rate increase. Both of which are significantly higher than the growth rates for City and County of Peterborough and Ontario at 5.7% and 6.6% respectively (PSPC, 2008). In fact the population of Aboriginal people living on reserves is growing at a rate that is three times the overall rate for Canadians (PSPC, 2008). With 160 persons/km^2, Curve Lake First Nation also has the highest population density in Peterborough County compared to the 15.53 persons/km^2 for the County of Peterborough as a whole (PSPC, 2008).

Although people living with a low income has been identified as one of our four priority populations, and will be discussed in detail later, it is worth noting that the median income of all private households in 2005 for Curve Lake First Nation was $32,320, compared to $51,660 for Peterborough City and County (PSPC, 2008). It is well known that socioeconomic status is a strong determinant of health and people living with lower incomes are at a greater risk for several negative health outcomes. It is for these reasons that the First Nation communities were identified as a priority population.

B. Youth

According to 2006 Census data, 15.4% of the population in Peterborough is under the age of 15; slightly lower than the provincial average of 18.2%. Overall, the percentage of youth and young adults in Peterborough has decreased from 2001 to 2006. As shown in Table 6.1, in the zero to four age range there was a decrease of 4.53% in Peterborough compared to a minimal decrease in Ontario of 0.07% between 2001 and 2006. Similarly, in the 5-14 age range there was a large decrease of 9.91% in Peterborough compared to a smaller decrease of 1.37% in Ontario between 2001 and 2006. This data may suggest that not only is the birth rate lower in Peterborough, but that families with young children may be leaving the area (PSPC, 2008). Interestingly, between 2001 and 2006, Peterborough (23.78%) had a greater percentage increase in the 20-24 age range than the Province (10.97%). These changes in youth composition in Peterborough indicate that there may be a need to focus health programs to this audience and encourage young families to remain in the area.

Table 6.1
Age Distribution in Peterborough City, County (includes City), & Ontario Youth, 2001 & 2006

Age (years)	Peterborough City			Peterborough County (includes City)			Ontario		
	2001	2006	Change 2001-2006	2001	2006	Change 2001-2006	2001	2006	Change 2001-2006
0-4	3,635	3,345	-7.98%	5,960	5,690	-4.53%	671,250	670,770	-0.07%
5-14	9,075	8,140	-10.30%	16,500	14,865	-9.91%	1,561,500	1,540,035	-1.37%
15-19	4,855	5,240	7.93%	8,975	9,375	4.46%	769,420	833,115	8.28%
20-24	5,130	6,375	24.27%	7.610	9,420	23.78%	718,420	797,255	10.97%

Note. From *2001 data: 2001 Census – Statistics Canada 95F0486XCB01001, 2006 data: 2006 Census – Statistics Canada as cited in Peterborough Social Planning Council, 2008.*

Another factor facing Peterborough youth, and other small rural communities in Ontario, is youth out-migration. The decreases in the youth population in Peterborough, coupled with the notable decrease of the 25-29 age group, illustrates the general trend towards youth out-migration in Peterborough (WDB, 2006). Many factors may affect youth out-migration including, lack of employment, post secondary education, and the relationship between the youth and their community (WDB, 2006). Interestingly, it was found that generally there were a number of services available to youth that were being underutilized, indicating the need to more effectively tailor strategies to this population. Smaller communities, such as Peterborough, can more successfully retain youth and promote local economic development

by offering services and programs which result in improved quality of life, transportation systems, medical systems and educational systems (WDB, 2006).

Many organizations and agencies in Peterborough recognize the importance of involving youth in the community and are currently engaging youth in many ways, making youth an obvious priority population during the engagement sessions.

C. Seniors

According to 2006 Census data, 18.6% of the population in Peterborough is over the age of 65; higher than the provincial average of 13.6%. It is expected that by the year 2030, 28.6% of population in Peterborough will be 65 years or older, compared to only 21.9% in Ontario. In fact, the proportion of seniors in the Canadian population as a whole is expected to double by 2025 (Health Canada, 2010). The increase in this cohort over the coming years will undoubtedly increase the demand for health services in Peterborough. Due to this, seniors have been identified as a priority population for Peterborough and involving them in our Healthy Communities engagement sessions is critical. Hopefully, we will be able to better understand the specific needs of our local senior population and take proactive measures to ensure that public health programs and services respond to the current and anticipated aging demographic.

D. Individuals and Families Living in Low-Income Situations

It has been well documented that one of the strongest determinants of health is poverty, and local data supports this conclusion. There is strong and growing evidence that individuals living in lower social and economic situations experience poorer health outcomes. Analysis of the 2005 CCHS data for Peterborough shows that individuals categorized in the lowest to lower-middle incomes[1] are more likely to have a chronic condition such as diabetes, high blood pressure, heart disease, cancer or chronic bronchitis, than individuals categorized as living in upper-middle and high income[2] households.

Without exception, CCHS data between 2001 and 2008, indicate that individuals with lower household incomes compared to those with higher household incomes were more likely to be current smokers, be physically inactive, and less likely to consume five or more fruit or vegetable servings per day, in both Peterborough and Ontario.

[1] Income categories are based on combination of total household income from all sources and the number of people residing in the household: For 3 or 4 people, Lowest income = <$20,000 ; low-middle incomes =$20,000-$39,999

[2] Income categories are based on combination of total household income from all sources and the number of people residing in the household. For 3 or 4 people, upper-middle income = $40,000 - $79,999; highest income for 3+ people =>$80,000.

As indicated by Lessard in a paper presented at The Social Determinants of Health Across the Life-Span Conference in 2002, “no amount of money or reform within the health care system will effectively reduce inequalities in health status until geographically-based income and social disparities are addressed. This requires partnerships with other sectors including municipal governments, the education sector, labour, the private sector and community organizations” (PHAC, 2004, p.2). This illustrates the importance of engaging people living on low incomes and the need to address income disparities in Peterborough.

Part 7

Scan of Community Assets

To assist with the development of the Healthy Communities Partnership in Peterborough, a scan of community assets was conducted. This included an environmental scan of agencies whose focus is at least one of the Healthy Communities priority areas, and a scan of policies relating to healthy eating, physical activity, tobacco, and alcohol at the municipal, school board, and hospital as a worksite level. The environmental scan was conducted in order to gauge the number of agencies that may be interested in assisting with the development of the local Healthy Communities Partnership. The policy scan was conducted to provide a baseline measure of policies that exist in Peterborough as well as to assist the Partnership with the development of their workplan. The results of both scans are provided below.

A. Environmental Scan

In preparation for the development of the Community Picture portion of the Partnership Stream, an environmental scan was conducted to determine what community assets and existing networks were present in Peterborough. The purpose of this scan was to learn more about local organizations/agencies which may address any of the six Healthy Communities priority areas, directly or indirectly, with the goal of facilitating the development of a local Healthy Communities Partnership. Of the 120 organizations/agencies identified as meeting the above criteria, a total of 109 participants agreed to complete the survey, representing a 90.8% response rate. Of those who agreed to participate in the survey, 18 were screened out because they indicated that they did not focus on any of the priority areas [healthy eating, physical activity & recreation, tobacco use/exposure, substance/alcohol misuse, injury prevention, and mental health]. Each interview was conducted via telephone, and data was simultaneously entered into an online survey. To ensure consistency, only one person conducted the interviews. Calls were made during the months of May and June, 2010 and it took, on average, two call attempts to complete each survey.

Summary of Community Assets from Environmental Scan Findings

Each respondent was asked to identify which of the six Healthy Communities priority areas their programs or services addressed. As indicated in Figure 7.1, the risk factor most commonly identified was healthy eating/food security. In descending order, the number of organizations/agencies who self identified addressing each risk factor is as follows:

- Healthy Eating; Food Security = 61
- Mental Health = 57
- Injury Prevention = 56
- Physical Activity & Recreation ; Active Transportation/Built Environment = 55
- Prevention of Substance and/or Alcohol Misuse = 43
- Prevention of Tobacco Use or Exposure = 30

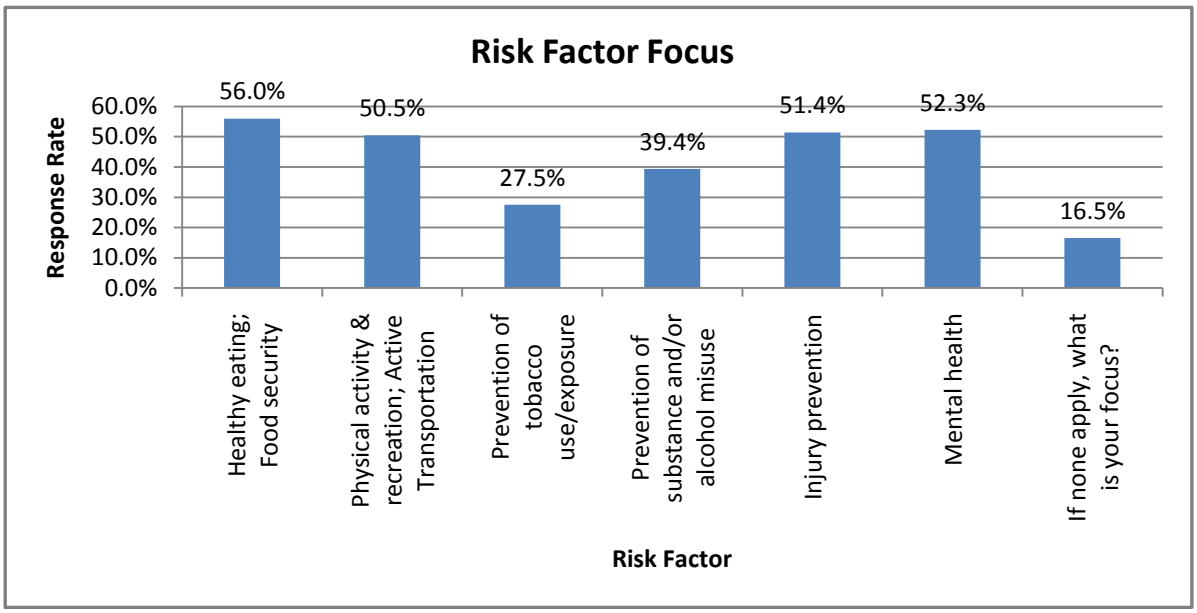


Figure 7.1. Risk factor focus. Totals will exceed the number of completed surveys, as the majority of respondents indicated focusing on multiple risk factors. From Blanchette, C. (2010). *Scan of community organizations: summary report* [internal]. Prepared for Peterborough County- City Health Unit's Healthy Communities Fund: Partnership Stream.

Of those who completed the survey, a large majority (89.0%) indicated that they did have other areas of focus above and beyond the six Healthy Communities priority areas. Undoubtedly, due to variations in terminology, some of these could be classified under one of the six priority areas. Other areas of focus included crime prevention, social inclusion, support for persons living with physical disabilities, parenting education, income and employment security, and law enforcement, to name a few.

As shown in Figure 7.2, when asked about their target audience, the majority (40.7%) of respondents indicated that their programs or services did not have a specific target group, but instead focused on the general community. This was followed by youth (10-19 years) and adults (20-64 years) both with 33.0%, and then by people living with disabilities or chronic conditions (27.5%).

The majority (68.1%) of respondents indicated that their organization/agency was classified as either charity or not-for-profit. As well, it appears that just over half (52.7%) of the organizations/agencies provide programs or services which reach individuals in and beyond the Peterborough County and City geographic area.

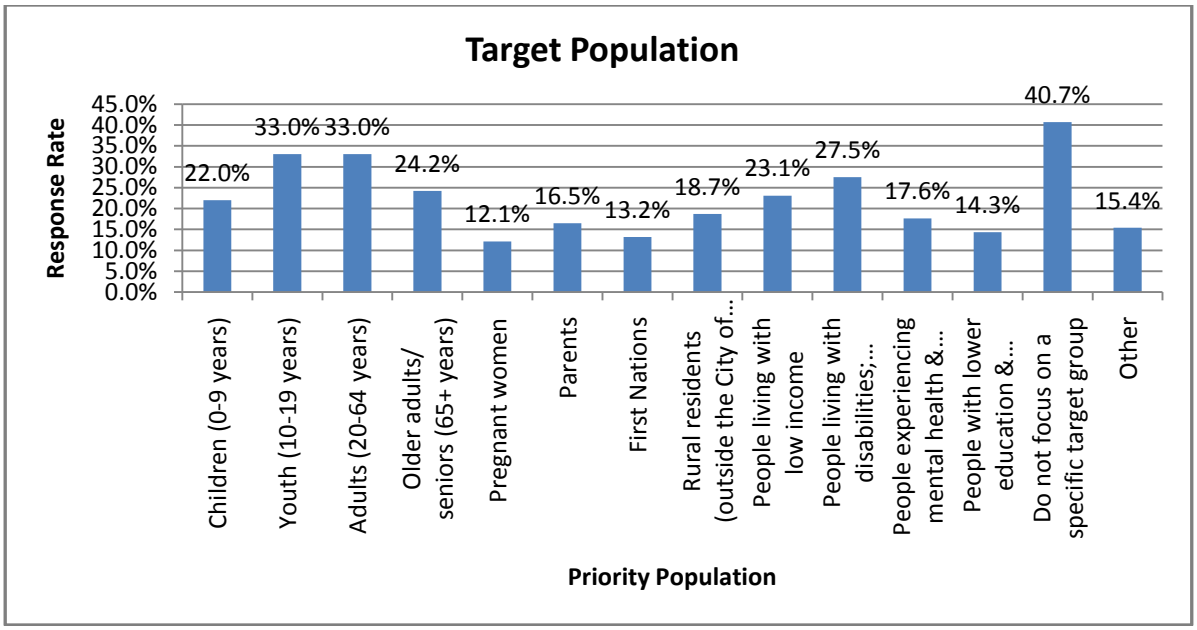


Figure 7.2. Target population. From Blanchette, C. (2010). *Scan of community organizations: summary report* [internal]. Prepared for Peterborough County- City Health Unit's Healthy Communities Fund: Partnership Stream.

When asked what level of health promotion activities their programs or services addressed, the majority of participants indicated that they provide awareness type activities, followed by skill building activities and environmental support; policy work was the least stated. However, a large number of organizations indicated an intention to focus on policy/advocacy work within the next two years. Knowing this information will be invaluable as the Partnership evolves, as one goal of the Partnership is to make it easier for Ontarians to be healthy by, "mobilizing community leaders, decision-makers and organizations to work together to build healthy public policy" (MHPS, 2010).

In order to determine to what extent organizations were connected in the community, people were asked to list any coalitions, networks, and planning groups in which their organization plays an active role. Prior to conducting the survey a preliminary list of 50 committees and coalitions was generated; the top responses are shown in Figure 7.3. The Peterborough Domestic Abuse Network (PDAN) was most commonly stated (20.2%) followed by Kawartha Food Share Member Agencies/ Advisory Committee (16.7%), Affordable Housing Action Committee (13.1%), and the Peterborough Poverty Reduction Network (11.9%). In addition, 72.6% of respondents indicated involvement in one or more committees which were not on the preliminary list. Due to the nature of data collection, this is not an exhaustive list. The list may not be fully representative as it is largely dependent on respondents' knowledge of their colleagues' community involvement.

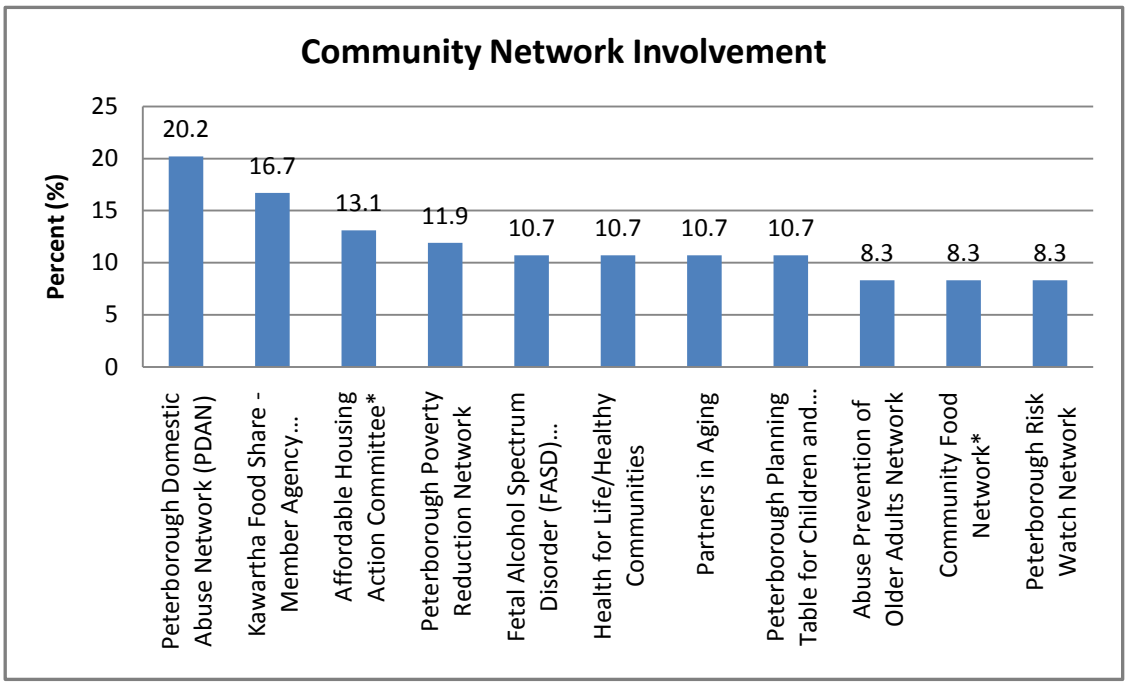


Figure 7.3. Community network involvement. *denotes subcommittee of Peterborough Poverty Reduction Network. From Blanchette, C. (2010). *Scan of community organizations: summary report* [internal]. Prepared for Peterborough County- City Health Unit's Healthy Communities Fund: Partnership Stream.

Health Nexus, one of four health promotion organizations that make up the Healthy Communities Resource Centre, is generating a network map which will visually display the connections between these organizations. This network map will be useful in the creation of a new Healthy Communities Partnership.

To gain a better understanding of what kind of local data was being collected by others, participants were asked if their organization had any recent data, reports, resources or publications relating to the six priority areas that they would be willing, in the future, to share with Peterborough's Healthy Communities Partnership. Results indicate that there was almost an even split between those who identified having data (47.3%) and those who did not have any data (49.5%). Only 3.3% of respondents indicated that they did not know if their organization/agency collected any data. It is important to note that when asked to expand on what type of data/resources they would be willing to share, the responses were quite varied, ranging from local quantitative data to monthly newsletters and annual reports.

In order to sustain a good working relationship and most effectively utilize all community assets, participants were asked if they would be interested in being contacted in the future as the Healthy Communities Partnership initiative develops; all but two (97.8%) were receptive to the idea of being contacted in the future.

B. OHHN Collaborative Policy Scan

In 2009, the OHHN initiated a policy scan project to scan for policies across 37 Ontario communities in five areas 1) access to nutritious foods; 2) access to recreation and physical activity; 3) active transportation and the built environment; 4) prevention of alcohol misuse and 5) prevention of tobacco use and exposure. Policies for these five areas were scanned across three sectors a) Government (district/region; county; municipality; township); b) Education (school boards) and c) Health Care (hospitals as a worksite).

Eleven consultants were hired on behalf of the OHHN to scan for policies. Data was collected between October 26, 2009 and December 13, 2009 by scanning publicly available websites and/or contacting representatives via telephone or email using information provided by OHHN members. Data was collected for 425 regions/counties/municipalities/townships and villages; 80 school boards and 105 hospitals. Specific to Peterborough, 10 municipalities, 2 school boards, and 1 hospital were scanned (Bergeron, 2010).

This report lists the results for the Peterborough portion of the policy scan compared to the eastern region and the provincial results. The results show (see Table 7.1) that Peterborough municipalities, school boards, and hospital are ahead of the provincial and eastern averages with respect to some policy areas, but are also trailing behind the provincial and eastern averages in other areas[3].

[3] This statement is made with caution as some errors were found in the data the consultant listed for Peterborough – ***which were corrected for the purpose of this report***. However, if there were errors with the Peterborough results, there may be errors with the eastern region or Ontario results – ***which were not checked or corrected for the purpose of this report.***

Table 7.1
Quick Snapshot of Peterborough Policy Scan Results

Types of Policies	Municipal Government	School Boards	Hospital as a Worksite
Access to nutritious foods	None	Some	None
Access to recreation and physical activity	None	Some	None
Active transportation and the built environment	Few	None	None
Prevention of alcohol misuse	Some	None	Has all policies that were scanned
Prevention of tobacco use and exposure	Few	None	Has all policies that were scanned

Note. A white block in the table depicts that no policies were present when that sector was scanned. From Bergeron, K. (2010) *Ontario Heart Health Network: Collaborative policy scan project final report.* Ontario Heart Health Network: Toronto, Ontario.

The findings from this study have created a baseline inventory of policies that exist in Peterborough that will assist the local OHHP – Taking Action for Healthy Living Community Partnerships (which is Health for Life Peterborough) to transition to a Healthy Communities Partnership under the MHPS's new Healthy Communities structure.

The information contained in this report will help shape the Partnership and will subsequently guide their work plan for the next three to five years. Furthermore, a rescan of policies in five years will also provide an evaluation mechanism for the Partnership to gauge whether they have had any influence on the development of new policies in Peterborough.

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Appendix A

Definitions

Figure 4.1 and Figure 4.2
The CCHS has a Physical Activities module that consists of a series of questions about participation in various types of leisure physical activities in the previous three months, as well as the frequency and duration of each activity. The interviewer enters the reporting unit (per day, week, month, year, or never) and the number of times per reporting unit. Respondents were categorized into three physical activity levels according to energy expenditure (EE): active (EE of 3.0 kcal/kg/day or more); moderately active (EE 1.5-2.9 kcal/kg/day); inactive (EE less than 1.5 kcal/kg/day).

Figure 4.13
The CCHS has a Fruit and Vegetable Consumption module that consists of a series of questions that ask about the foods the respondent usually eats or drinks, including meals and snacks eaten at home and away from home. For each food grouping, the respondent is asked how often they usually eat or drink the food (for example, once a day, three times a week, twice a month). The interviewer enters the reporting unit (per day, week, month or year, or never) and the number of times per reporting unit. The following food and drinks are included in the module: 1) fruit juices such as orange, grapefruit or tomato; 2) fruit; 3) green salad; 4) potatoes, not including French fries, fried potatoes, or potato chips; 5) carrots; 6) other vegetables. Responses to these questions are combined to give the number of times per day that a respondent eats vegetables and fruits.

Figure 4.16
The Height and Weight module of the CCHS collects self-reported height and weight measures which are used to derive BMI and BMI classification categories. Note: this indicator excludes pregnant women, lactating women, and persons less than three feet tall or greater than six feet 11 inches.

Figure 4.23
Smoking restrictions include: smokers are asked to refrain from smoking in the house; smoking is allowed in certain rooms only; smoking is restricted in the presence of young children; other smoking restrictions.

Figure 4.24 and Figure 4.25
Proportion of people aged 19 and over who exceeded the low-risk drinking guideline, i.e. males who drank more than 14 drinks per week, females who drank more than nine drinks per week or people who drank more than two drinks on any day of the previous week. Note: This indicator excludes breastfeeding women and pregnant women.

Figure 4.26 and Figure 4.27
Hazardous drinking defined as the proportion of the population, aged 12 and over, who reported drinking five or more drinks on at least one occasion per month in the past 12 months.

Figure 4.30
Proportion of the population aged 15 and over who self-reported life stress in the past 12 months. High Stress defined as respondents answering "Thinking about the amount of stress in your life, would you say that most days are: 1) not at all stressful, 2) not very stressful, 3) a bit stressful, 4) quite a bit stressful, 5) extremely stressful" with options 4 or 5.

Figure 4.31
Proportion of the working population aged 20-64 who self-reported that most days at work were “quite a bit stressful” or “extremely stressful” in the past 12 months.

Figure 5.5, 5.6, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15, 5.16 and 5.17
Low and high Income categories are based on income categories set by CCHS. The CCHS income categories are a combination of total household income from all sources and the number of people residing in the household. For this report, the “low income” category includes the CCHS “lowest income” category (< $15,000 if 1 or 2 people; < $20,000 if 3 or 4 people; < $30,000 if 5+ people) and the CCHS “lower middle income” category ($15,000 to $29,999 if 1 or 2; $20,000 to $39,999 if 3 or 4; $30,000 to $59,999 if 5+). For this report, the “high income” category includes the CCHS “upper middle income” category (30,000 to $59,999 if 1 or 2; $40,000 to $79,999 if 3 or 4; $60,000 to $79,999 if 5+) and the CCHS “highest income” category (> $60,000 if 1 or 2; > $80,000 if 3+).

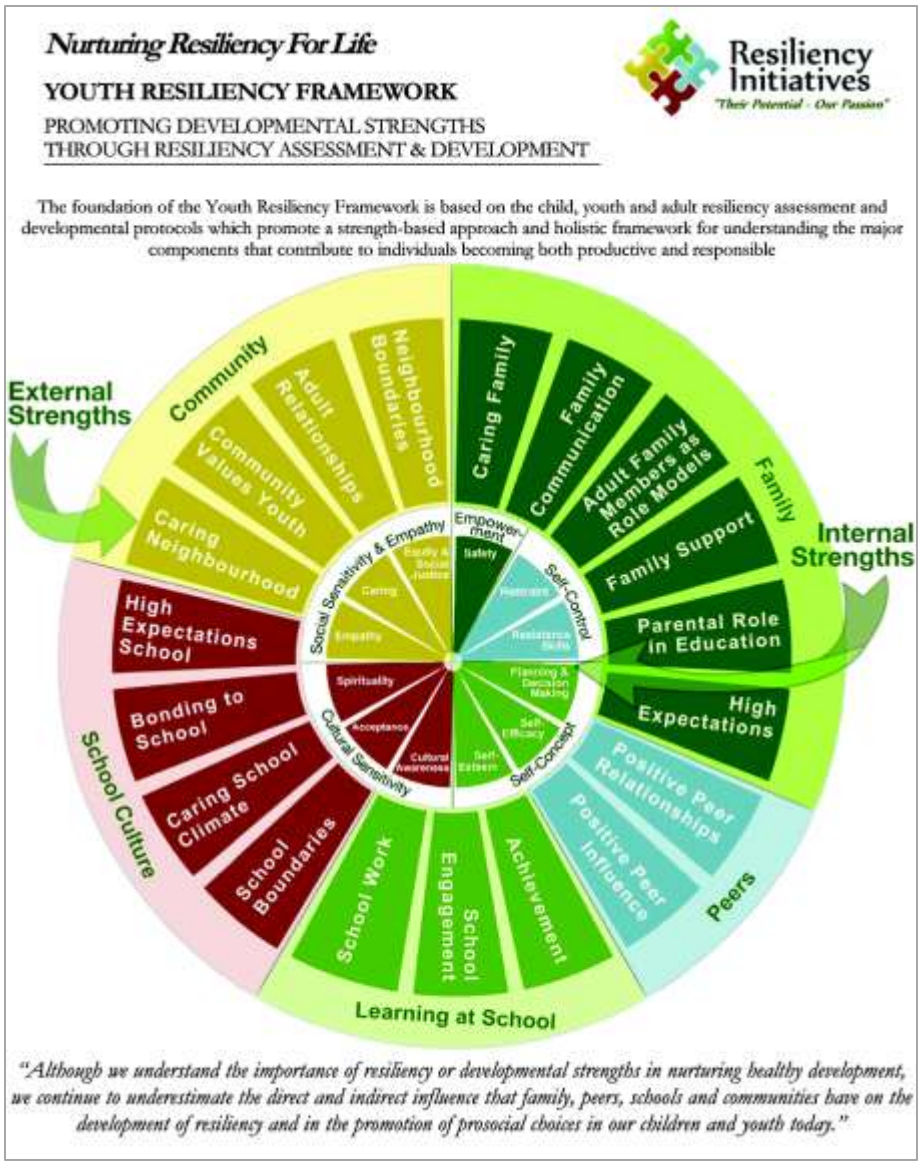
† Due to the small sample size of PCCHU, particularly in low income individuals self-reporting a chronic illness, residents from the Hastings and Prince Edward Counties Health Unit were also included in the analysis. HPEC was chosen because of geographic proximity as well as being among a group of Health Regions known as a "Peer Group" to which PCCHU belongs. Peer Groups are similar in terms of size, employment, Aboriginal population, and other socio-demographic variables.

Figures 5.13, 5.14, 5.15, 5.16 and 5.17
Disease Prevalence: Prevalence based on self-reported affirmation of illness (e.g.: Do you have high blood pressure?).

Appendix B

Youth Resiliency Framework

http://www.resiliencyinitiatives.ca/downloads/youth_framework.pdf



Appendix C

Deprivation Index

Pampalon, R., Hamel, D., Gamache, P & Raymond, G. (2009). A deprivation index for health planning in Canada. *Chronic Diseases in Canada 29* (4), 178–191. Retrieved from http://www.phac-aspc.gc.ca/publicat/cdic-mcc/29-4/pdf/CDIC_MCC_Vol29_4-eng.pdf

A deprivation index for health planning in Canada

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Abstract

Administrative databases in the Canadian health sector do not contain socio-economic information. To facilitate the monitoring of social inequalities for health planning, this study proposes a material and social deprivation index for Canada. After explaining the concept of deprivation, we describe the methodological aspects of the index and apply it to the example of premature mortality (i.e. death before the age of 75). We illustrate variations in deprivation and the links between deprivation and mortality nationwide and in different geographic areas including the census metropolitan areas (CMAs) of Toronto, Montréal and Vancouver; other CMAs; average-size cities, referred to as census agglomerations (CAs); small towns and rural communities; and five regions of Canada, namely Atlantic, Quebec, Ontario, the Prairies and British Columbia. Material and social deprivation and their links to mortality vary considerably by geographic area. We comment on the results as well as the limitations of the index and its advantages for health planning.

Key words: Social inequalities, deprivation, health, health planning, premature mortality, Canada, geographical areas, metropolitan areas, urban areas, regions

Introduction

At a recent Canadian conference on health indicators, the participants proposed a list of 150 indicators as a means of giving the public, care providers and health authorities reliable and comparable data on health and the health system.[1] The participants also pointed out the need to report on inequalities in health, especially those resulting from socio-economic status and urban or rural location of residence.

Since the late 1970s, the production of health surveys such as the Canada Health Survey,[2] the National Population Health Survey (NPHS)[3] and the Canadian Community Health Survey (CCHS)[4] have addressed this need. They contain general measures of health and health service use, as well as information on income, education, family structure and other socio-economic characteristics of respondents which can easily be cross-tabulated. The same cannot be said of the administrative databases created by provincial authorities to track the progression of vital statistics, such as mortality, or the use of health services, such as hospital admissions and primary care; these databases contain no socio-economic data on the individuals concerned.

To make up for this shortcoming, researchers generally use geographic proxies. These pieces of socio-economic information relate to small areas that can be introduced into administrative databases by linking these areas to the data available in the databases. This approach was initiated in Great Britain[5] and then introduced to other countries,[6-8] including Canada.[9-11]

All the Canadian studies that have used geographic proxies tracked social inequalities in health, generally using mortality as a health indicator, although some also considered measures of morbidity and use of health services. These analyses have also largely focused on urban areas and have tended to use only one indicator of social disparity—neighbourhood income.

The contribution made by these studies is undeniable. However, while income is a powerful indicator of health and has ramifications for other determinants of health, it cannot take the place of all those other determinants.[12,13] This is why more complex measures, namely deprivation indexes, have been developed in Great Britain[14-23] and elsewhere in Europe (Sweden,[24] Italy,[25] Spain,[26] France[27]), as well as in the United States,[7,28,29] Japan[30] and New Zealand.[31] Such indexes cover a wide range of domains, from material deprivation alone[27,28,32] to seven separate domains, including income, employment, health, education, crime, housing and living environment.[22] Such indexes have already been proposed in Canada, namely in Manitoba and Quebec, and in the metropolitan area of Vancouver.[32-35] They vary substantially in content and design and none covers Canada as a whole.

The deprivation index developed in Quebec has been widely used in the health sector. Since 2000, it has been introduced into a

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