2013 growing up in Peel

The Health of Our Children

Region of Peel
Working for you
Public Health

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introduction

The lifecourse, a path going from birth to death, marks an individual's progress through different life stages. It varies from person to person depending upon biological, behavioural and societal factors, and can result in different rates of progress and different health outcomes.[1] Influences at one part of the lifecourse can affect later development.[1] Effective interventions can help development move back towards the original course.

The relative importance of nature (i.e., genetics) versus nurture (i.e., the environment) in child development has been debated throughout the 20th century. Evidence now suggests that nature and nurture do not act independently, but instead interact during early life to set a child's trajectory for learning, health and behaviour.[2]

Infancy and early childhood are periods of rapid growth and development of all biological systems, including the brain and

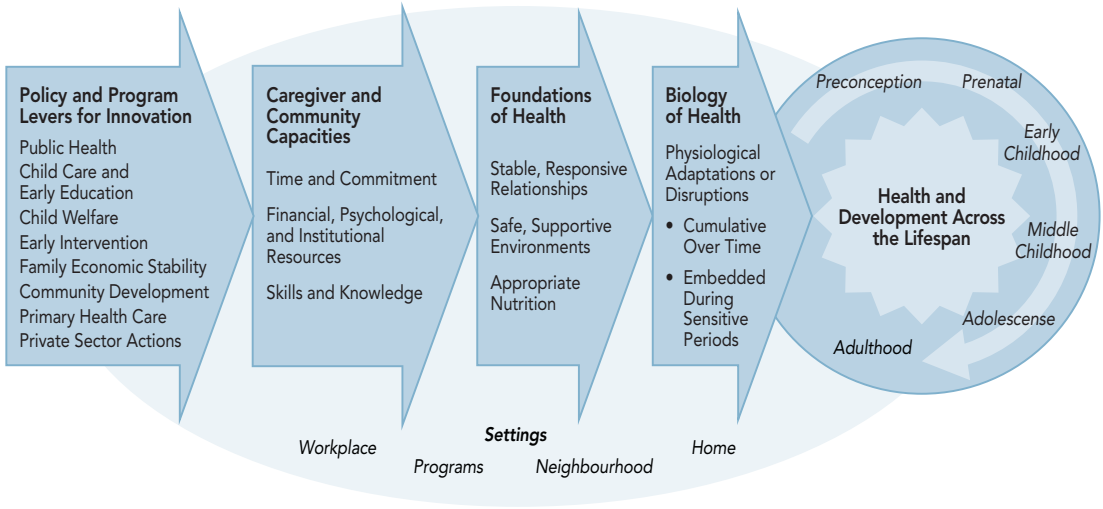
central nervous system. The environment in which a child develops – including aspects such as nutrition, pollutants, drugs, infections, and the health and well-being of their primary caregivers - influences this development with varied and lifelong effects.

Early experiences, from a child's relationship with their parents and the food they eat to violence experienced in the home and the safety of their neighbourhoods, influence health and well-being. These experiences can also impact a child's growth, coping abilities, competencies, and their health behaviours later in life.[2] Effective prevention programs, at various levels, aimed at decreasing negative experiences for children can reduce the social and economic burden of illness across their lifespan. They may also reduce the need for costly and potentially less effective interventions later in life.

Reports such as this provide a glimpse of how children are doing and can indicate how their health might be later in life. This will help to identify health promotion and disease prevention opportunities early in the lifespan and to plan for the future health needs of the population.

The Framework for Reconceptualizing Early Childhood Policies and Programs to Strengthen Lifelong Health (Figure 1) reflects current knowledge related to the interacting roles of genetics and the environment on child development. It has been chosen to underpin the work of the Family Health Division at Peel Public Health. The framework outlines the three foundations of healthy development, which are: a stable and responsive environment of relationships; safe and supportive physical, chemical and built environments; and sound and appropriate nutrition. It acknowledges that both caregivers and communities differ in their capacities to support healthy child development.

Figure 1
A Framework for Reconceptualizing Early Childhood Policies and Programs to Strengthen Lifelong Health



Source: The Foundations of Lifelong Health are Built in Early Childhood. Center on the Developing Child at Harvard University, 2010.

This report provides a snapshot of the current health status of children in Peel. The framework illustrated in Figure 1 has been used to provide the basic structure of the report and to identify the key topics covered within it. More detailed descriptions of each aspect of the framework are provided throughout the report to give context for why the data provided are relevant to child development. The information presented within each chapter reflects the data that are currently available. Data are not available for all aspects of child development resulting in an incomplete picture of the health of Peel children. Data gaps noted throughout the document represent opportunities to enhance reporting and surveillance in the future.

Purpose

Growing Up in Peel: The Health of Our Children is intended as a reference document to provide a description of the health status of children and youth in Peel aged one to 18 years. For readers interested in the health status of children less than one year of age, please see ***Born in Peel: Examining Maternal and Infant Health*** (2010) at peelregion.ca/health/reports.

This report will help inform strategic planning for two of Peel Public Health's 10-Year Strategic Plan program priorities: Nurturing the Next Generation and Supportive Environments for Healthy Living.

The intended audiences for this report include public health staff, Region of Peel councillors, community partners, educators, school board staff and students, health-care providers and the public.

How to Read this Report

For the purposes of this report, children are defined as individuals one to 18 years of age. Children may be categorized into a number of different age groups throughout this report for the purpose of comparison. Specific categories will be noted within the table or figure.

Peel data have been included in this report where possible. Where data for Peel are not available or the numbers are too small to be reliable, provincial or national data are provided. Occasionally, provincial or national data have also been included for comparison purposes.

The sources of data, data limitations and methods of analysis are described in the Data Sources and Limitations and Data Methods chapters at the end of this report.

This report, as well as a summary of the key findings, can be found at peelregion.ca/health/reports.

Ninety-five per cent confidence intervals (presented as "95% CI" in the report) are provided for many of the estimates (e.g., percentages, rates) calculated from survey data throughout this document. The confidence intervals represent a lower and upper range of values which we are confident contain the true value of the estimate for the whole population 95% of the time, or 19 times out of 20.

When the 95% confidence interval of one estimate does not overlap with that of another estimate, the difference between the estimates is considered to be statistically significant (i.e., very unlikely to be due to chance). If the confidence intervals of two estimates do overlap, the estimates may still be significantly different. An appropriate statistical test would be required to assess the statistical difference of the two estimates.

There are two types of references used in this report, text references and data references:

- Text references refer to journal articles, websites, and book sources for the relevant text and are defined by a superscript number (i.e., [1]).
- Data references refer to the data source for the statistic(s) being presented or described in the text and are defined by a superscript letter (i.e., [A]).

Key messages and facts are presented throughout this report and are indicated by various icons. The following box describes these icons and their meaning.

about the region of Peel

The region of Peel, located directly west of Toronto and York, includes the cities of Mississauga and Brampton and the town of Caledon. At the time of the 2011 Census, 1,296,814 people lived in Peel, making it one of the largest municipalities in Canada and the second largest in Ontario.[A1] Peel has experienced rapid growth, with the population increasing by 77%, or 564,014 people, between 1996 and 2011.[A1] Peel's population is expected to exceed 1.6 million people by 2031.[B]

Peel Facts

Facts about Peel's Population (2006)[A2]

- Mississauga has the largest population of the three municipalities.
- 15% of families were headed by a lone-parent.
- 35% of residents 25 to 64 years of age reported some post-secondary education.
- 39% of residents 25 to 64 years of age who had post-secondary qualifications received them outside of Canada.
- The median after-tax income among residents 15 years of age and older was $25,157 in 2005 (similar to the median in Ontario as a whole, $24,604).
- 11% of people in private households lived below the after-tax low income cut-off (LICO) in 2005 (same as Ontario).
- 49% cent of residents were immigrants.
- 10% of residents arrived in Canada in the past five years (recent immigrants).
- 18% of residents reported 'East Indian' as their ethnic origin (the most commonly reported ethnic origin).
- 50% of residents were a visible minority.
- 4% of residents had no knowledge of English or French.

chapter 1

PEEL CHILDREN AND THEIR PARENTS

Key Messages

- The life expectancy of children in Peel has improved dramatically over the past century.
- The majority of Peel parents are immigrants, most of whom immigrated to Canada as adults.
- One in five Peel children speaks a language other than English or French most often at home.
- Peel has a higher proportion of multiple-family households than Ontario.

Within this chapter are demographic data that provide the context needed to understand children in Peel. Additionally, since programs and services aimed at influencing the health status of children are typically provided to parents and not directly to the children themselves, data about Peel parents are also provided.

The data in this chapter do not present a complete picture of children and parents in Peel. Rather, they reflect data available from the Canadian census on some of the determinants of health for children and their parents. For more information about the determinants of health in Peel, see ***Health in Peel: Determinants and Disparities*** (2011) at peelregion.ca/health/reports.

Definition

Life expectancy is an estimate of the average age at death for a group or cohort at birth. Life expectancy is calculated based on the current mortality rates experienced by all age groups in the population.

Life Expectancy

Life expectancy at birth in Peel has increased by approximately 20 years for both males and females over the past eight decades. A significant reduction in infant mortality is responsible for the initial increase. The increase seen in recent years is due to an increase in life expectancy beyond 65 years of age as a result of improvements in medical treatment.[3,4]

Life expectancy in Peel is 84 years for females and 81 years for males.[C]

Age and Sex

There are 318,605 children and youth aged one to 18 years living in Peel (Table 1.1).

Table 1.1
Population by Age Group and Sex, Peel, 2011

Age Group (years)	Total		Male		Female	
	Number	Per cent	Number	Per cent	Number	Per cent
1 to 4	64,915	5.0	33,470	5.3	31,440	4.8
5 to 9	84,465	6.5	43,695	6.9	40,770	6.2
10 to 14	90,820	7.0	47,080	7.4	43,740	6.6
15 to 18	78,405	6.0	40,750	6.4	37,660	5.7
1 to 18	318,605	24.6	164,995	25.9	153,610	23.3
Total population	**1,296,815**	**100.0**	**637,175**	**100.0**	**659,640**	**100.0**

Source: 2011 Census, Statistics Canada.

There has been a noticeable shift in the age of parents in Peel over the past 20 years. This is consistent with trends seen in the rest of Canada and other parts of the world. Fertility rates have declined among younger women and increased in older age groups as more women focus their attention on education and career development and delay pregnancy and parenthood until later in life.

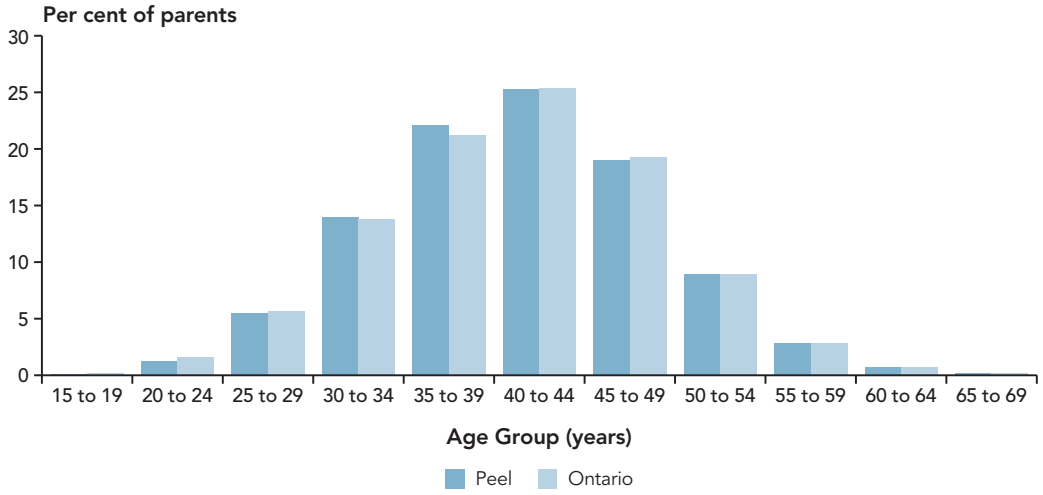
There were 308,480 parents in Peel in 2006 (Table 1.2). Peel parents tend to be younger than Ontario parents (Figure 1.1).

Table 1.2
Number of Parents by Age Group, Peel and Ontario, 2006

Age Group (years)	Peel Number	Ontario Number
15 to 19	410	5,190
20 to 24	3,725	43,240
25 to 29	16,825	157,630
30 to 34	43,330	377,185
35 to 39	68,090	581,150
40 to 44	78,070	696,990
45 to 49	58,610	529,425
50 to 54	27,495	244,455
55 to 59	8,635	76,560
60 to 64	2,035	19,630
65 to 69	670	6,405
Total	**308,480**	**2,743,040**

Note: Includes parents with a child one to 18 years of age.
Source: Custom Profile, 2006 Census, Statistics Canada.

Figure 1.1
Age Group of Parents, Peel and Ontario, 2006



Source: Custom Profile, 2006 Census, Statistics Canada.

Immigrant Status

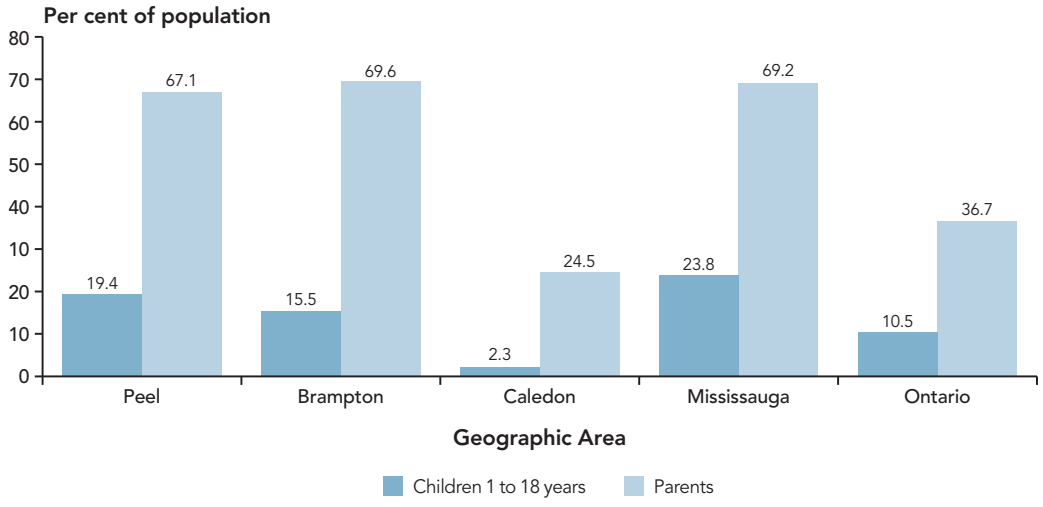
Definition

Immigrant **refers to those who have been granted the right to live in Canada permanently by immigration authorities.**

Recent immigrant **refers to those who immigrated to Canada between 2001 and 2006 (within five years of the 2006 Census).**

Most children in Peel were born in Canada (non-immigrants). However, the majority of their parents are immigrants (Figure 1.2). A higher proportion of parents are immigrants compared to the overall Peel population (67% vs. 49%).[A2]

Figure 1.2
Proportion of Children and Parents who are Immigrants, Peel, Brampton, Caledon, Mississauga and Ontario, 2006



Source: Custom Profile, 2006 Census, Statistics Canada.

Southern Asia, West Central Asia and the Middle East, and Southeast Asia were the regions of the world where the highest proportion of immigrant children were born (data not shown).[A2]

One in five immigrant parents in Peel is a recent immigrant.[A2] The majority of immigrant parents in Peel came to Canada as adults (Table 1.3), and may have been raised in a different context than that in which they are raising their own children.

Ethnic Origin and Language

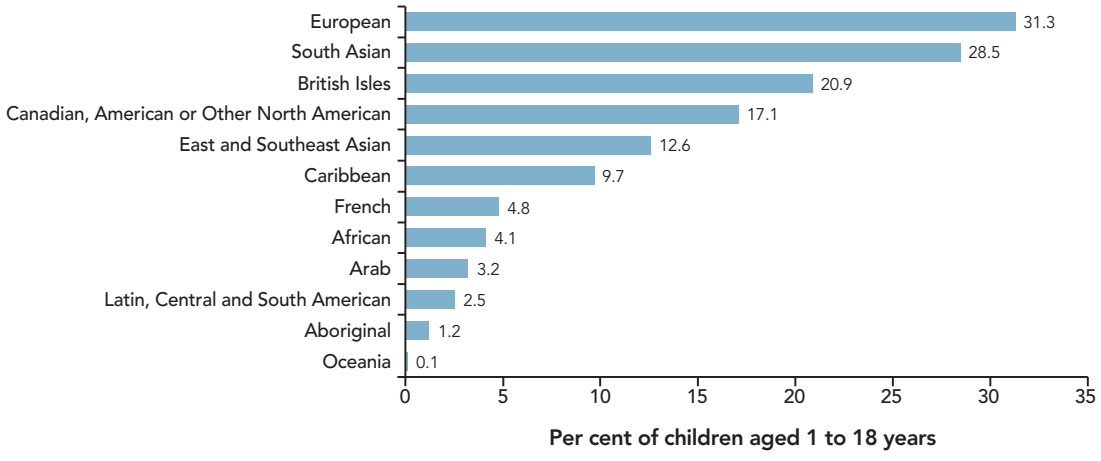
The most common ethnic origins among Peel children were European, South Asian and the British Isles (Figure 1.3). Peel has a very small proportion of children who identify as Aboriginal when compared to Ontario and Canada.

Table 1.3
Age at Immigration among Parents who are Immigrants, Peel and Ontario, 2006

Age at Immigration (years)	Peel (%)	Ontario (%)
Under 5	3.8	5.5
5 to 14	10.3	12.2
15 to 24	26.5	23.1
25 to 44	55.5	55.5
45 and over	3.9	3.7

Source: Custom Profile, 2006 Census, Statistics Canada.

Figure 1.3
Ethnic Origin of Children, Peel, 2006



Note: Percentages sum to more than 100% because individuals may have multiple responses (total responses used as denominator).
The categories used above reflect the categories used by Statistics Canada.
Source: Custom Profile, 2006 Census, Statistics Canada.

Definition

Home language refers to the language spoken most often or on a regular basis at home by the individual at the time of the census.

Mother tongue refers to the first language learned at home in childhood and still understood by the individual at the time of the census.

Non-official languages in Canada include any language other than English or French.

Most parents and children speak English most often at home.[A2] Over one-third of parents speak a non-official language most often at home (Figure 1.4). Punjabi (25,075), Urdu (11,070) and Polish (6,630) are the most common non-official languages spoken by Peel parents.[A2]

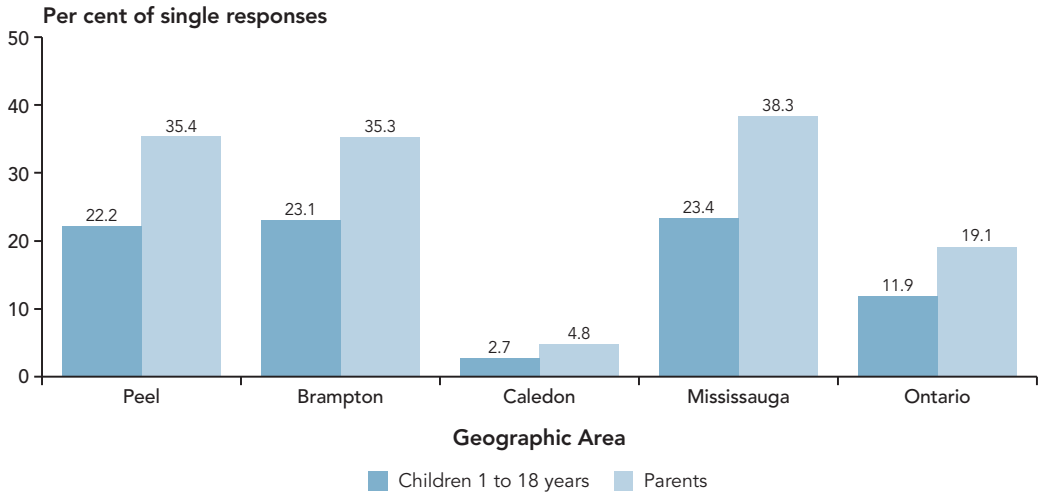
Not shown in Figure 1.4 are the 5% of children in Peel who speak more than one language most often at home – most commonly being English and a non-official language.[A2] For information on how languages spoken by children impacts school readiness, refer to the School Readiness section of Chapter 3.

Over 5,000 Peel parents have no knowledge of either English or French.

More than one in ten young children in Peel do not have knowledge of either English or French (Table 1.4). By the time children have entered school (age four to eight years), virtually all know either English or French.

A larger proportion of Peel parents have no knowledge of English or French compared to all Ontario parents. This has implications for those providing parents with information or services only in English or French.

Figure 1.4
Proportion of Children and Parents who Speak Non-Official Languages Most Often at Home, Peel, Brampton, Caledon, Mississauga and Ontario, 2006



Source: Custom Profile, 2006 Census, Statistics Canada.

Table 1.4
Proportion of Children and Parents with No Knowledge of Either English or French, Peel and Ontario, 2006

		Peel		Ontario	
	Age Group (years)	Number	Per cent	Number	Per cent
Children	1 to 3	5,710	12.4	25,705	6.4
	4 to 8	900	1.1	5,950	0.8
	9 to 11	140	0.3	1,315	0.3
	12 to 14	75	0.1	1,075	0.2
	15 to 18	130	0.2	1,585	0.2
Parents	All ages	5,155	1.7	39,715	1.4

Source: Custom Profile, 2006 Census, Statistics Canada.

Household Characteristics

The number of people within a household, as well as the relationship between those people, impacts the children and parents that live in that household. For example, having additional adults (e.g., grandparents) within a household may provide additional caregivers for children, but may also affect the level of autonomy parents have when making decisions about their children.

Definition

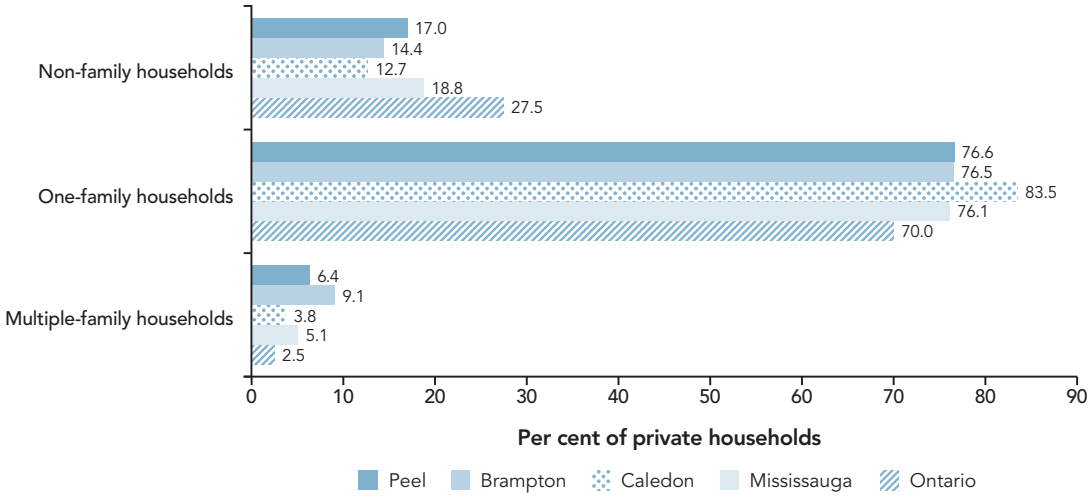
A ***non-family household*** consists either of one person living alone or two or more persons who share a dwelling, but do not constitute a family in terms of their relationship with the others in the dwelling.

A ***one-family household*** consists of a single family (e.g., a couple with or without children).

A ***multiple-family household*** is made up of two or more families occupying the same dwelling.

There is a higher proportion of multiple-family households in Peel compared to Ontario (Figure 1.5). The relationships between these multiple families, their household structure, and how the families function (e.g., who provides child care) is not known.

Figure 1.5
Household Type of Private Households, Peel, Brampton, Caledon, Mississauga and Ontario, 2006



Source: 2006 Census, Statistics Canada.

Definition

A ***census family*** is a couple living together, with or without children, or lone-parents living with their children (not including foster children).

A ***non-census family*** includes persons living with relatives (other than spouse, common-law partner or children), persons living with non-relatives only and persons living alone.

The majority of children in Peel and Ontario live in a census family (i.e., with at least one of their parents) (data not shown).[A2] Of those who do not, most live with relatives.

There were over 40,000 female lone-parent families in Peel in 2006.

The proportion of families led by female lone-parents in Peel has increased over the past 15 years – from 9% in 1991 to almost 13% in 2006 (Table 1.5).

Table 1.5
Male and Female Lone-Parent Families, Peel, 1991-2006

Year	Male Lone-Parent		Female Lone-Parent	
	Number	Per cent	Number	Per cent
1991	4,290	2.2	17,915	9.0
1996	5,095	2.2	25,155	10.8
2001	7,205	2.6	32,740	11.9
2006	8,985	2.8	40,615	12.5

Sources: 1991, 1996, 2001 and 2006 Censuses, Statistics Canada.

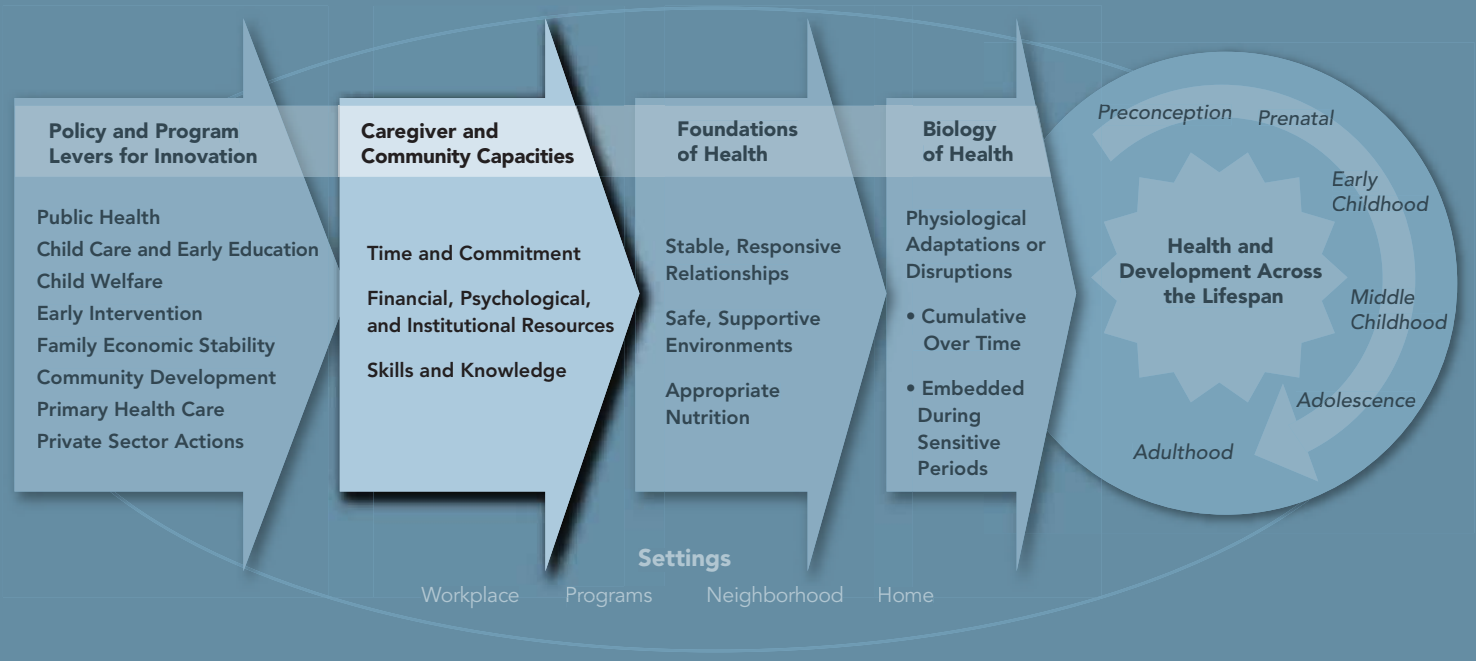
Did You Know

Living Arrangements of Canadian Children

After the separation or divorce of a child's parents, arrangements are usually made (formal or informal) regarding where the child will live and how much time they will spend with each parent. Fourteen per cent of recently divorced or separated Canadian parents have shared living arrangements for their children with their ex-partner (meaning an equal amount of the child's time is spent living with each parent).[5]

An additional 5% of parents had split living arrangements, where some children live with one parent and others live the other parent. When living arrangements were not shared or split, most children lived with their mother. Most parents who do not live with their child remain involved in their child's life through contact with the child and/or participating in recreational or regular care activities.[5]

Framework for Reconceptualizing Early Childhood Policies and Programs to Strengthen Lifelong Health



Source: The Foundations of Lifelong Health Are Built in Early Childhood. Center on the Developing Child at Harvard University, 2010.

section A

Caregiver and Community Capacities

The health of children is influenced both by the capacity of their caregivers and their community to support their development. The "community" encompasses multiple settings and contexts including neighbourhoods, parents' workplaces, early child care settings, health-care facilities, schools and the home. Nurturing communities are organized to support parent and child needs. When caregiver and community capacities reinforce each other in positive ways, the foundations of health benefit.[6]

chapter 2

CAREGIVER CAPACITY

Key Messages

- Despite the high level of education among parents, the prevalence of low income is higher in Peel than in Ontario.
- 15% of Peel children under six years of age live in a low income household.
- Parents in Peel self-report being physically healthy and having excellent or very good mental health. One-quarter of parents have high levels of stress.
- The majority of Peel parents are physically inactive.

Children develop in an environment of relationships. Caregivers, including parents and other adults, differ in their capacities to support this development.

The capacity of a parent to provide a positive environment for their child is directly impacted by the determinants of health (e.g., education, income, social support). These determinants affect a parent's risk behaviours and overall health status. Healthy parents have increased capacity to provide a positive environment for child development. Parents who are chronically ill or have mental health concerns may be less able to actively engage with their children and therefore less likely to achieve secure attachment with a young child.

Key determinants of a caregiver's capacity include their:

- time and commitment (i.e., the nature and quality of time spent with the child);
- resources (including financial, psychological, emotional, health and social resources); and
- skills and knowledge (through education and training, interactions with professionals, and personal experiences).

Determinants of Health Affecting Caregiver Capacities

Employment

Employment not only provides income, it also provides a sense of identity and purpose allowing opportunities for personal and professional growth and access to "social capital" (aspects of social organization such as civic participation and trust in others that support and encourage cooperation among community members).

However, with the number of families where both parents are employed outside the home increasing significantly, parents are spending less time with each other and their children than in the past.[7]

Definition

The ***unemployment rate*** is the number of unemployed individuals expressed as a percentage of the labour force.

The unemployment rate has declined since 2009 but has not reached 2008 pre-recession levels (Figure 2.1). Peel's unemployment rate was noticeably higher than the national and provincial rates in 2009, and continues to be higher in 2011.

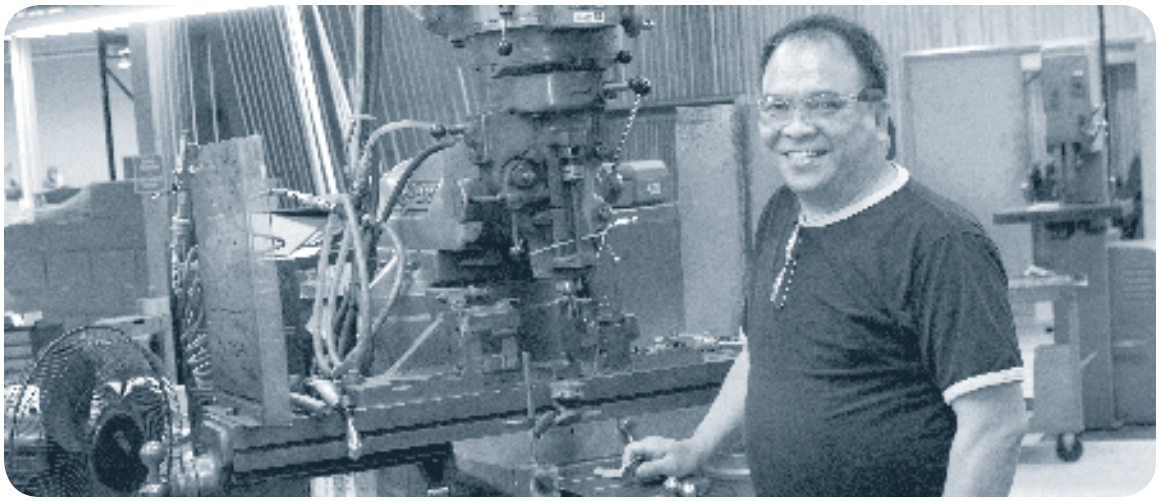
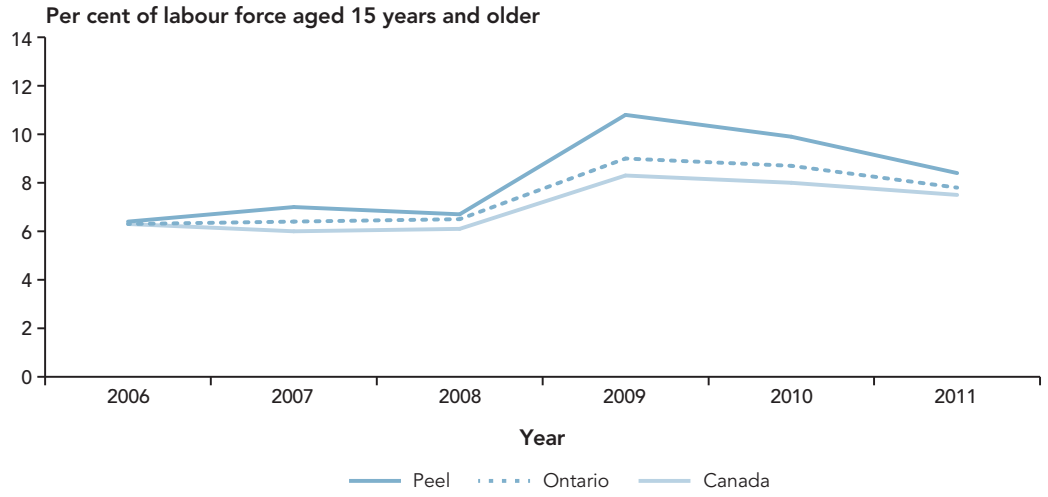


Figure 2.1
Unemployment Rates among those 15 Years and Older, Peel, Ontario and Canada, 2006-2011



Source: Labour Force Survey 2006-2011, CANSIM Table 109-5324, Statistics Canada.

Did You Know

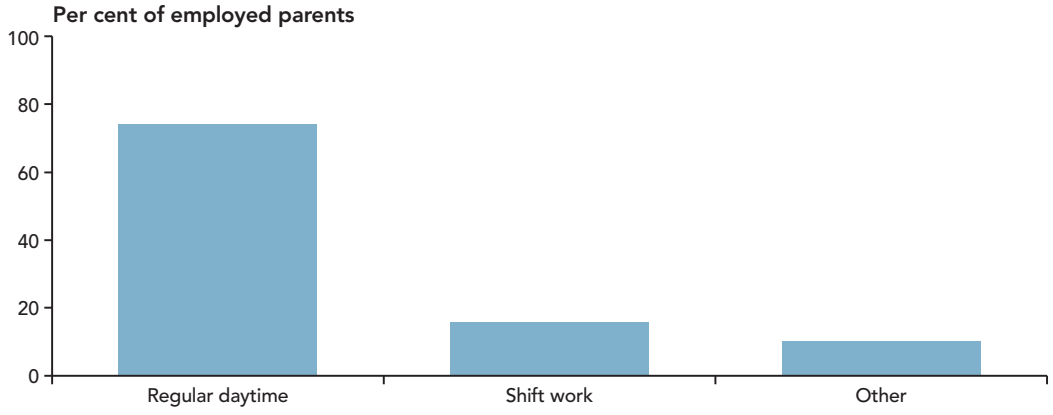
Work Hours among Couples

The proportion of couples with both spouses employed has increased in Canada from 40% in the mid-1970s to approximately 70% in 2008.[8]

Although the average number of work hours of dual-earner couples has remained stable over time, the average number of work hours of wives has increased while husbands' hours have decreased. This convergence in the number of hours worked by each spouse was considerable among couples with dependent children at home.[8]

Shift work has been associated with negative impacts on physical, social and psychological health.[9] For parents, shift work may reduce the need for child care and lessen work-life conflict.[10] Most Peel parents report regular daytime employment (Figure 2.2).

Figure 2.2
Type of Employment among Parents, Peel, 2009



	Regular daytime	Shift work	Other
Per cent (95% CI)	74.0 (69.7–78.4)	15.8 (12.2–19.4)	10.1 (7.1–13.1)

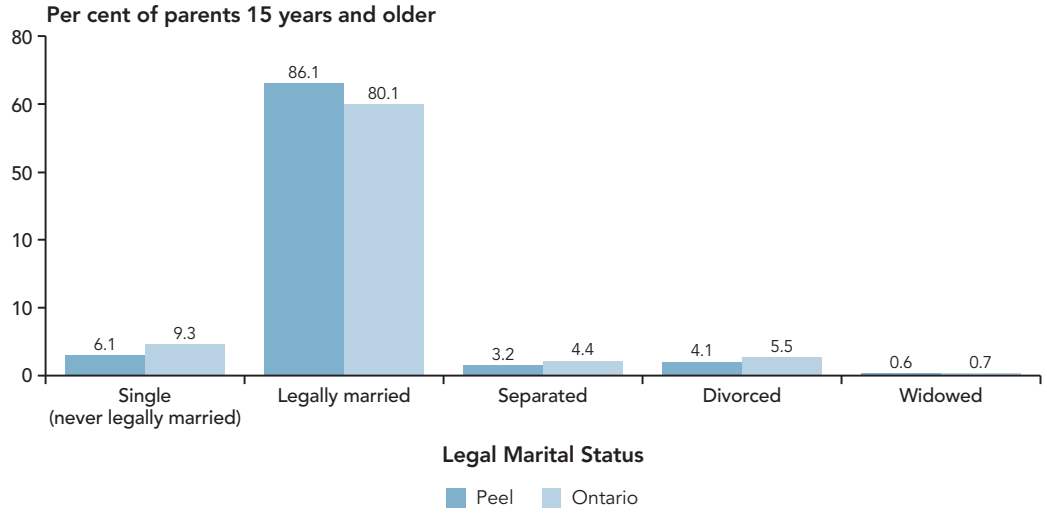
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Rapid Risk Factor Surveillance System, 2009, Peel Public Health.

Marital Status

Being married may have positive health impacts on parents[11] and their children. For example, two-parent families may provide more social support and have a higher total income.

The vast majority of Peel parents are legally married (Figure 2.3). At the time of the 2006 Census common-law relationships were not included in the definition of legal marital status. Five per cent of Peel parents reported being in a common-law relationship (vs. 9% of Ontario parents).[A2]

Figure 2.3
Legal Marital Status among Parents, Peel and Ontario, 2006



Note: Those who are currently in a common-law relationship may be included within any of the categories above. This is due to the fact that legal marital status and common-law status were two separate questions on the 2006 census form.
Source: Custom Profile, 2006 Census, Statistics Canada.

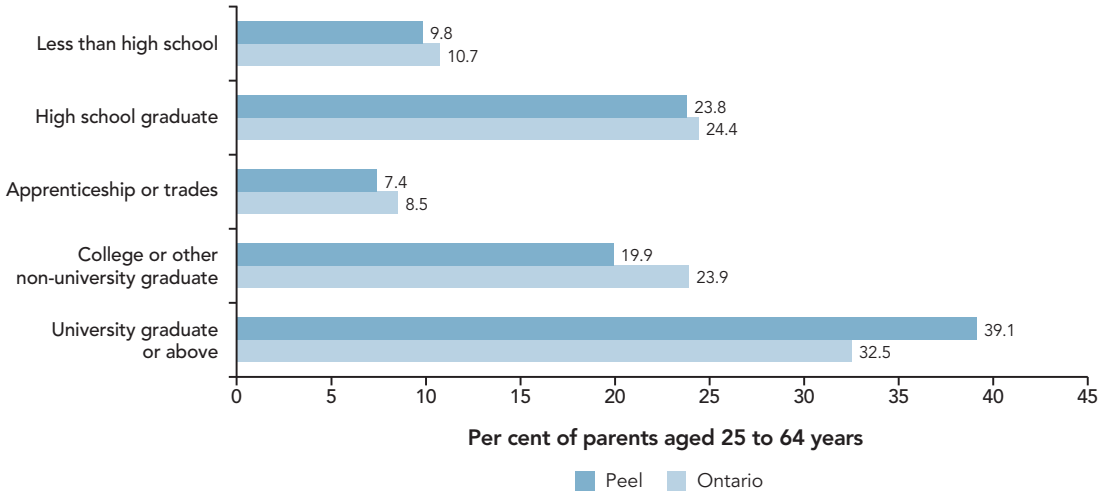
Education

Higher educational levels may lead to better employment, job security and economic stability. A mother's level of education has been shown to be of particular importance for child development.[12]

Almost 60% of Peel parents have a college or university degree or diploma.

Almost 60% of Peel parents have a college or university-level degree or diploma (Figure 2.4). In Peel, a greater proportion of recent immigrants (52%) have a university education compared to non-immigrants (22%).[A2]

Figure 2.4
Highest Level of Education Attained by Parents, Peel and Ontario, 2006



Source: Custom Profile, 2006 Census, Statistics Canada.

Peel parents 25 to 64 years of age were more likely to have received their post-secondary qualifications outside of Canada compared to Ontario parents (45% vs. 24%).[A2]

Income

Lower family income is associated with poorer outcomes for children. The longer a child lives in poverty, the more pronounced the impacts.[7]

Household median after-tax income in Peel is higher than households in Ontario (Table 2.1). This is a result of the larger average household size in Peel compared to Ontario. For a more detailed description of the income distribution in Peel, see ***Health in Peel: Determinants and Disparities*** (2011) at peelregion.ca/health/reports.

Definition

The ***median income*** of a population is the income level at which half of the population has a higher income and half the population has a lower income.

The ***mean income***, also referred to as the average income, is the total income divided by the number of people in the population. The average income measure can be skewed by very high and very low income values for a small number of individuals in the population.

Income measures may also be termed before-tax or after-tax to indicate whether the measure has been calculated with the income level prior to taxation and government transfer payments to which the individual/family may be entitled. This report includes after-tax income measures as they better reflect the usable income families have available.

Definition

Economic family refers to a group of two or more persons who live in the same dwelling and are related to each other by blood, marriage, common-law or adoption. A couple may be of opposite or same sex. For the 2006 Census, foster children are included.

Couple families are those in which a member of either a married or common-law couple is the economic family reference person.

Lone-parent families are those in which either a male or female lone-parent is the economic family reference person.

See **Data Methods** for a visual depiction of the terms used to describe families by Statistics Canada from the 2006 Census.

Female lone-parent families in Peel had the lowest median income of any family type.

Table 2.1
Median and Mean After-Tax Family Income by Type of Family, Peel and Ontario, 2005

Family Type	Peel		Ontario	
	Median	Mean	Median	Mean
All economic families	$ 67,841	$ 77,442	$ 62,288	$ 73,454
Couple economic families	$ 71,931	$ 81,824	$ 67,047	$ 78,696
Male lone-parent families	$ 55,736	$ 61,937	$ 49,000	$ 56,457
Female lone-parent families	$ 43,678	$ 49,748	$ 36,674	$ 43,041

Source: 2006 Census, Statistics Canada.

The prevalence of low income among all economic families was slightly higher in Peel than in Ontario (10% vs. 9%) (Table 2.2). This may be the result of the higher number of recent immigrants in Peel, who generally have lower income than non-immigrants or longer-term immigrants despite high levels of education.[D1]

Definition

Prevalence of Low Income

In the 2006 Census, the ***prevalence of low income*** was defined as the proportion of families or unattached individuals who spent 20% or more of their total income on food, shelter and clothing than did the average family or unattached individual.

The low income cut-off (LICO) is based on a matrix that includes both family size and size of the community of residence. For example, a family of four living in an area with a population of 100,000 to 499,999 people would be classified as low income if its income level for 2005 was $33,251 or less.

Female lone-parent families in Peel have the lowest median after-tax income compared to other family types. They were more than twice as likely to have low income compared to other types of families.

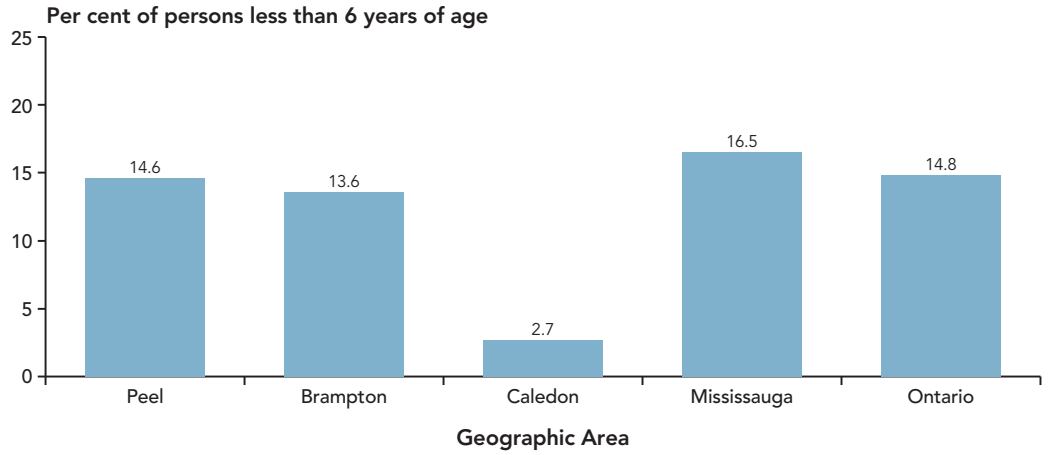
Fifteen per cent of Peel children under six years of age live in low income households.

Table 2.2
Prevalence of Low Income After-Tax by Type of Family, Peel, Brampton, Caledon, Mississauga and Ontario, 2005

Family Type	Peel (%)	Brampton (%)	Caledon (%)	Mississauga (%)	Ontario (%)
All economic families	9.7	9.2	3.0	10.7	8.6
Couple economic families	8.2	7.6	2.6	9.1	6.2
Male lone-parent families	11.9	11.5	2.8	12.9	12.2
Female lone-parent families	20.9	20.2	8.5	22.1	23.9

Source: 2006 Census, Statistics Canada.

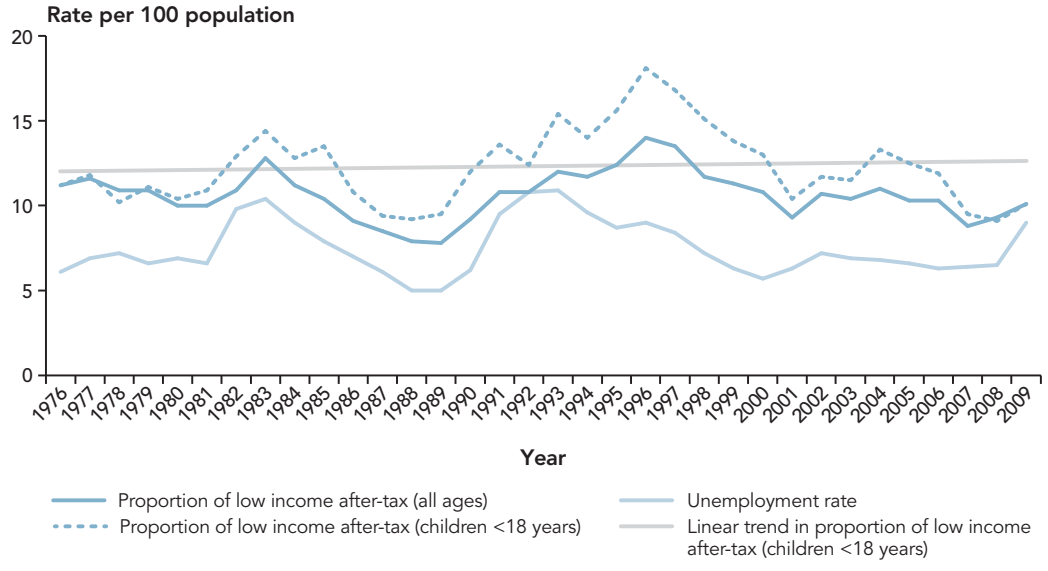
Figure 2.5
Prevalence of Low Income After-Tax among Children less than Six Years Old, Peel, Brampton, Caledon, Mississauga and Ontario, 2005



Source: 2006 Census, Statistics Canada.

Figure 2.6 shows how the provincial prevalence of low income has fluctuated over time along with the unemployment rate. The prevalence of low income among children and youth under 18 years of age has fluctuated over the past 30 years with a slight overall increase. Those under 18 years of age have a higher prevalence of low income compared to those of all ages.

Figure 2.6
Proportion of Low Income After-Tax and Unemployment Rate, Ontario, 1976-2009



Sources: Statistics Canada. Table 202-0802 - Persons in low income families, annual.
Statistics Canada. Table 282-0086 - Labour Force Survey estimates (LFS), supplementary unemployment rates by sex and age group, annual.
Accessed: June 05, 2012.

The prevalence of low income among children in Ontario has increased very slightly over the past 30 years.

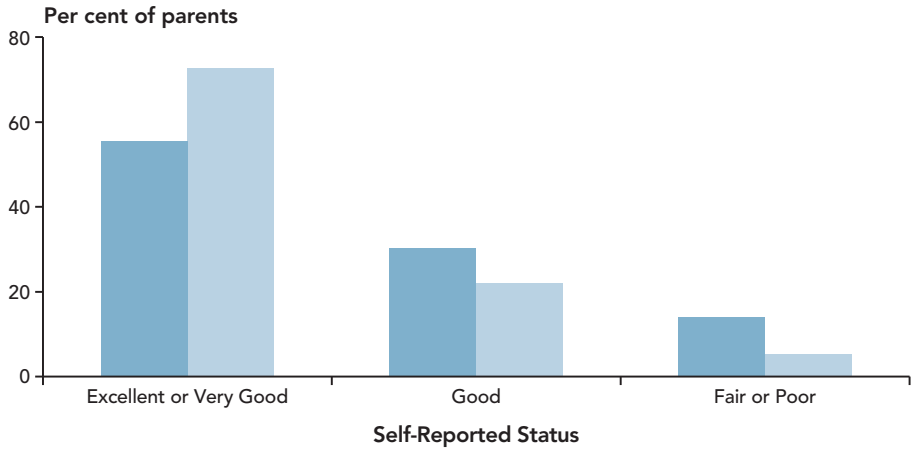
Health Status of Parents

Parents who are in good health and have a positive mental health status are more likely to provide a nurturing environment for their children and to have responsive relationships with them.

Over half of Peel parents rate their health as excellent or very good, while almost three-quarters rate their mental health status as excellent or very good (Figure 2.7). Five per cent of Peel parents reported fair or poor mental health (use estimate with caution). This figure may underestimate mental health concerns among parents due to possible under-reporting.

Most Peel parents report that their daily activities are never limited by a long-term

Figure 2.7
Self-Reported General Health Status and Mental Health Status among Parents, Peel, 2009/2010



	Excellent or Very Good	Good	Fair or Poor
General health status (95% CI)	55.6 (49.3 – 61.7)	30.3 (24.6 – 36.7)	14.1 (10.1 – 19.3)
Mental health status (95% CI)	72.6 (66.7 – 77.8)	22.1 (17.3 – 27.7)	5.3* (3.3 – 8.6)

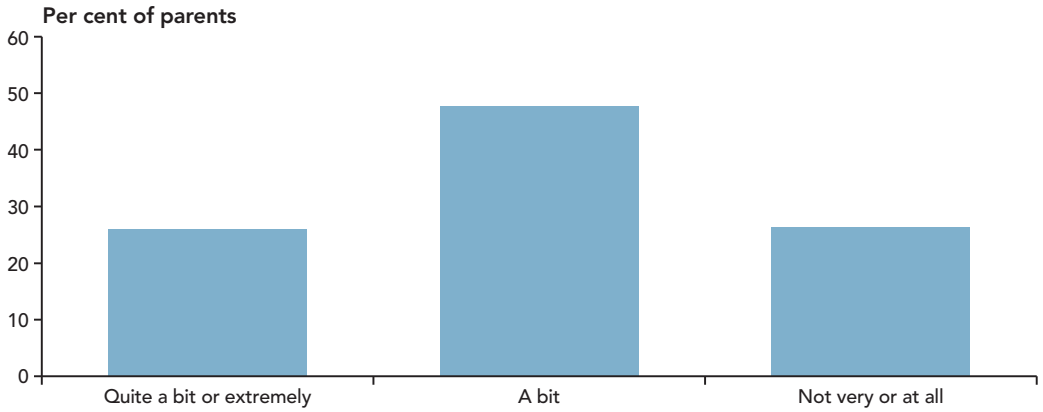
* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Canadian Community Health Survey 2009/2010, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

physical, mental or health condition or problem.[D1]

Twenty-six per cent of Peel parents report that their lives are 'quite a bit' or 'extremely' stressful (Figure 2.8).

Finances, discipline, school success and eating habits are the top issues which caused parents of young children stress (Figure 2.9). The causes of stress among parents of older children are unknown.

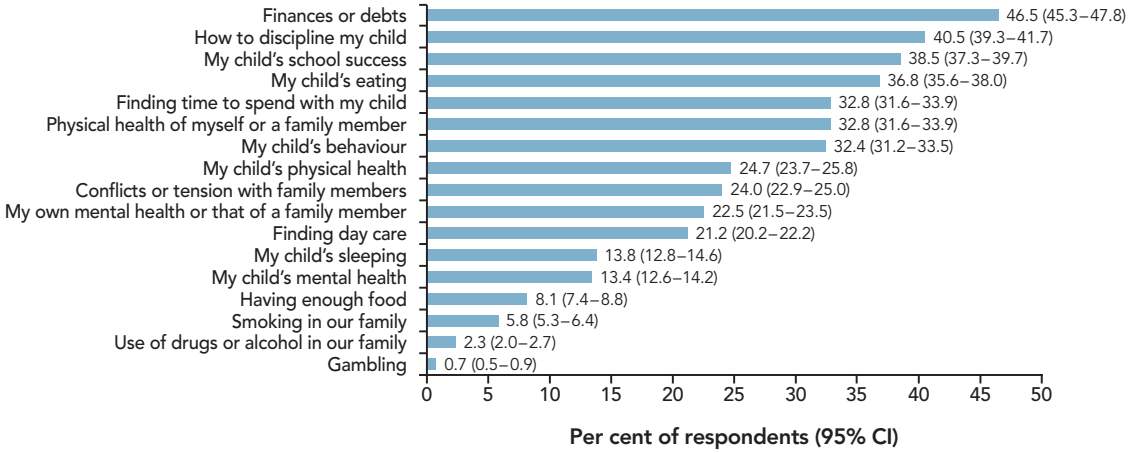
Figure 2.8
Self-Reported Level of Life Stress among Parents, Peel, 2009/2010



	Quite a bit or extremely	A bit	Not very or at all
Per cent (95% CI)	25.9 (21.0 – 31.4)	47.8 (41.78 – 54.0)	26.3 (21.4 – 31.8)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Canadian Community Health Survey 2009/2010, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

Figure 2.9
Issues that Cause Senior Kindergarten Parents Some or a lot of Stress or Worry, Peel, 2010



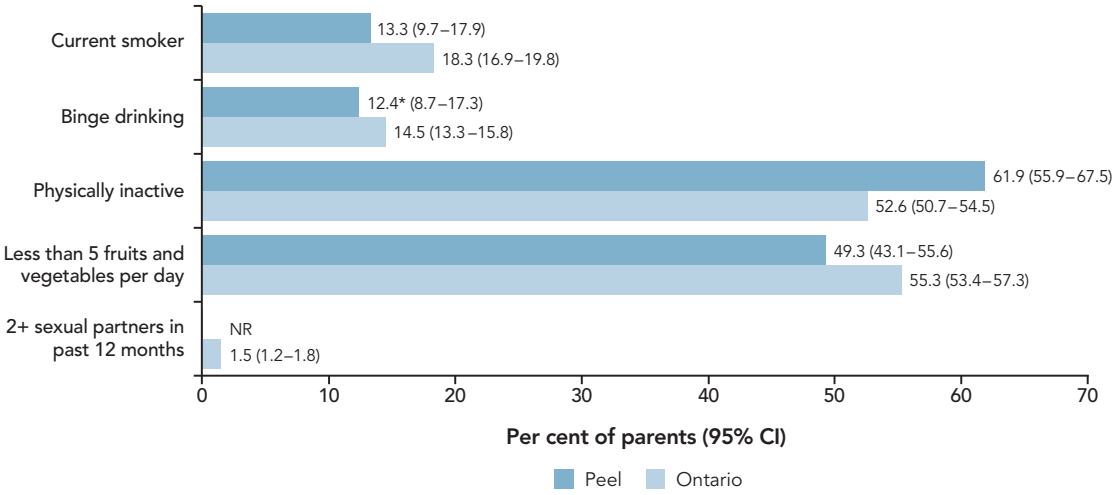
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Senior Kindergarten Census 2010, Region of Peel.

Risk Behaviour among Parents

Parental behaviour influences children by impacting a parent's ability to provide a safe and nurturing environment, and by influencing their children's behaviour through role modelling. Parents who model positive behaviours and who expose their children and youth to positive role models in the community are strengthening their children's protective factors related to alcohol and drug use.[13,14]

A minority of Peel parents are current smokers or report binge drinking in the past year. Parents in Peel are more likely to be physically inactive than Ontario parents (Figure 2.10). For information on these behaviours among youth, see Chapter 8, Risk Behaviour among Youth.

Figure 2.10
Selected Risk Behaviour among Parents, Peel and Ontario, 2009/2010



* Use estimate with caution.
NR – not releasable due to small numbers.
Notes: 95% CI reflects the 95% confidence interval of the estimate.
Binge drinking is defined as having five or more drinks on one occasion in the past 12 months. A current smoker is a person who currently smokes daily or occasionally, has smoked at least 100 cigarettes in their lifetime and has smoked in the past 30 days.
Physical inactivity is categorized based on the average daily energy expended during leisure time activities by the respondent in the past three months.
Source: Canadian Community Health Survey 2009/2010, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

chapter 3

COMMUNITY CAPACITY

Key Messages

- In the first year of life most children are cared for by their parents. After age one, the majority of children in non-parental care are in unlicensed child care.
- A segment of the population who could benefit from available early learning programs does not access them.
- A significant number of children with special needs are on a waiting list to receive help from a professional.
- 30% of Peel children are not developmentally ready on one or more EDI domains at the time of school entry. Children who speak English or French or those who are second language learners are more likely to not be ready than those who are bilingual.

Children develop in an environment of relationships, but they also develop within a physical and social environment/community. As is true for caregivers, communities differ in their capacities to support children and families. For example, a family's life experiences are fundamentally impacted by the community through legislation and regulations (i.e., commitment), available services and programs (i.e., resources) and the political and organizational capacity to accomplish goals that benefit children and their families (i.e., skills).[6]

This chapter focuses on the different ways a community supports children and their development, including through the provision of child care, school and early learning programs. Data are provided that focus on key time periods when a child's development is currently measured (e.g., 18-months of age, at entry into school).

Child Care

Options for child care can range from care provided informally by relatives or neighbours to that within a licensed centre. Licensed child care is available in child care centres and home settings. Licensed providers are regulated to ensure they meet the provincial health, safety and child care provider training standards set out in the Day Nurseries Act. Licensed care may be expensive and there are a limited number of spaces available. Caregivers in Ontario can care for up to five unrelated children under the age of ten without requiring a license.

Peel's licensed child care system offers families a range of options within a network of licensed non-profit and commercial child care centres and licensed home child care agencies. Peel had 25,000 licensed daycare spaces in 2011 for children from birth to 12 years of age, 23,000 of which were in child care centres and 2,000 in home care settings.

High quality child care environments are associated with positive child development outcomes including increased cooperation with adults, ability to have positive interactions with peers, and early competence in math and reading.[15,16] Features of high quality child care include a good child-provider relationship, reasonable provider behaviour, adequate provider training and education, and positive context of care factors such as low

Did You Know

Child Care Arrangements of Canadian Children

The demand for child care services has increased steadily in Canada since the mid-1970's. Fifty-four per cent of Canadian children and 50% of Ontario children aged six months to five years were in some form of non-parental care in 2002/2003. Children spent an average of 29 hours per week in child care in 2002/2003, with five-year-olds spending the least amount of time in child care, likely due to part of their day being spent at school.[18]

Twenty-seven per cent of Canadian children had more than one child care arrangement.[18] Children in the lowest income level were more likely to have more than one arrangement compared to all other income groups combined. Children who lived with a single employed parent were more likely to have more than one arrangement compared to those who lived with two employed parents. Children in multiple child care arrangements spent more time in child care per week than those with a single arrangement.[18]

child to provider ratio, small group size, and a safe, healthy environment.[16,17]

Eighty-two per cent of senior kindergarten students were cared for by their parents in the first year of life.[E] This is not unexpected given that Canadian mothers are eligible for maternity leaves up to one year in length. After the first year, approximately half of children were cared for by someone other than their parents (including licensed and unlicensed care).[E]

The majority of child care in Canada is provided in unregulated settings such as by relatives, babysitters and nannies.[20] In Peel, the majority of children (51%) one to five years of age who received non-parental care were in unlicensed child care. An additional 35% were in combined care, which includes those who had some parental care and some licensed/unlicensed care.[E]

Early Learning Programs

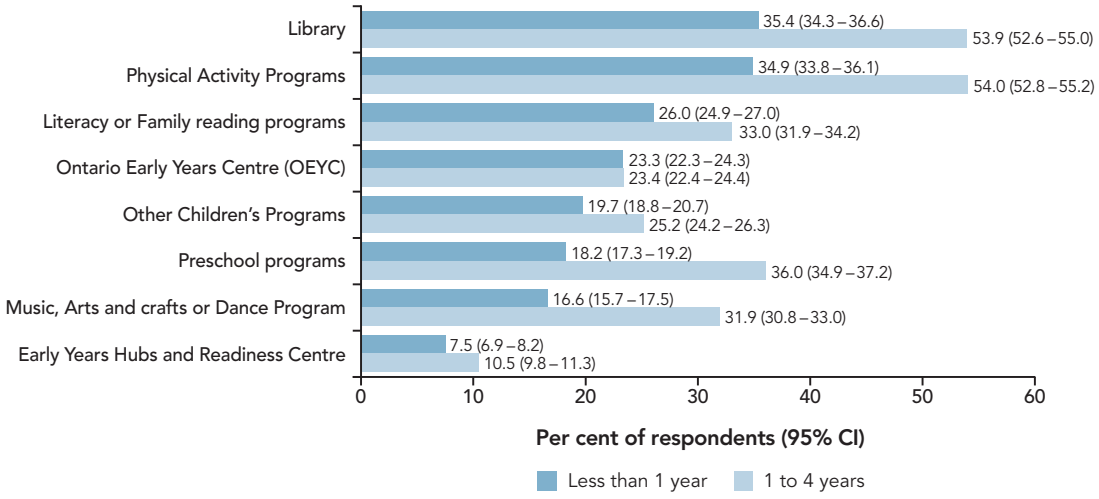
Effective early child development programs that involve parents can influence how parents relate to and care for children in the home, and can vastly improve outcomes for children's behaviour, learning and health in later life.[21]

Libraries and physical activity programs are the most frequently attended early learning programs in the first year of life with over one-third of parents attending with their infant "often" or "sometimes" (Figure 3.1).

There are a number of factors found to be associated with attendance at early learning programs during the first year of life:

- Mothers who completed college or university are more likely to have attended each type of early learning program compared to mothers with high school education or less.

Figure 3.1
Frequency† of Parents Attending Early Learning Programs and Services by Age Group of Child, Peel, 2010



† Proportion of respondents who attended programs and services either "often" or "sometimes".
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Senior Kindergarten Census 2010, Region of Peel.

- Mothers born in Canada are more likely to have attended most of the early learning programs compared to immigrant mothers.
- Mothers with a total annual household income of $80,000 and above are more likely to have attended most of the early learning programs compared to those with a household income less than $40,000.[E]

These figures show that attendance at early learning programs in Peel is not equal between groups. The data suggest that a segment of the population that may benefit from early learning programs does not currently access them.

School

Most children spend approximately six hours per day at school, five days per week, for nine to ten months of the year, from four through to 18 years of age. The primary role of the school was historically to focus on a child's learning and academic performance. Now, schools are increasingly being called upon to play a key role in fostering the safety, health and well-being of children, including the adoption of positive behaviours such as healthy eating, physical activity and those related to violence prevention, sex education and drug education.[22]

Policy

Creating Positive School Environments

The concept of a healthy school acknowledges that healthy children are better able to learn and that the school environment can directly influence a child's health. A healthy school is created through policies and practices that promote healthy behaviours, respect for self and others, and the development of important life skills.

The Ministries of Education and Health Promotion have been working together to support comprehensive health promotion since 2005. They jointly released the ***Foundations for a Healthy School framework*** in 2006 and encouraged its adoption by public health units as well as school boards and schools. The framework consists of four interrelated pillars in which policy is embedded: high-quality instruction and programs, healthy physical environments, supportive social environments, and community partnerships.

The Ministry of Health and Long-Term Care published the ***Ontario Public Health Standards*** in 2008 which further encourages the adoption of this framework. They mandated that all boards of health "use a comprehensive health promotion approach when working with school boards and schools to influence the development and implementation of healthy policies and to support the creation or enhancement of supportive environments."

Peel Public Health uses the healthy schools approach to work with schools, focusing on tobacco, physical activity, healthy eating and positive social environments. Although many schools have expressed the need to address health issues that differ from those mentioned above, it is important to realize that health issues are interrelated and can be addressed in a synergistic manner.

Sources: Healthy Schools: Foundations for a Healthy School. Accessed at: edu.gov.on.ca/eng/healthy schools/foundations.

Ontario Public Health Standards (2008). Accessed at: health.gov.on.ca/en/pro/programs/publichealth/oph-standards/default/aspx.

Community Capacity

Community Use of Schools

Schools in Ontario are promoted as hubs for community activities through funding provided to school boards. This encourages both free and paid use of school space, inside and outside, beyond regular school hours, for activities that are organized and implemented by various community organizations. Some schools have been designated to host parent and family literacy centres that promote the preparation of preschool children for school entry by connecting them to their local school.

Ontario's New Early Learning System

Dr. Charles Pascal released ***With Our Best Future in Mind: Implementing Early Learning in Ontario*** in 2009 in which he recommended the implementation of a seamless and integrated system to support children and their families in Ontario from the prenatal period to 12 years of age.[23] As a result, the Ontario government announced the delivery of full-day learning for four and five-year-olds. This new program is to be fully implemented by all school boards across the province by September 2014.

The new full-day early learning program, provided by teams of both teachers and early childhood educators, will integrate a "play-based" curriculum in which children explore, think, problem-solve and communicate through purposeful play. Before and after school fee-based care options will also be provided within the same school environment, with activities that complement regular school day activities. Families will be able to enrol their child in either before and after school care depending on their needs – reducing the need for multiple care settings throughout the day.

The Pascal report also recommends the provision of fee-based extended care programming for children six to 12 years of age within schools where at least 15 families have requested the program. These programs would be designed to complement the formal school curriculum and reflect the increasing maturity of older children. For example, children in these extended day programs may spend time completing homework, participating in recreational activities, or reading.

High School Graduation

Nationally, high school drop-out rates declined significantly during the last two decades. Drop-out rates continue to be higher for males. Young men who drop out tend not to feel engaged in school or want to work and earn money. Young women tend to drop out for family or personal reasons such as pregnancy.[24]

Community Capacity

High School Graduation Rate

The Ontario Ministry of Education derives a provincial cohort graduation rate for students who began Grade 9. For example, of students who began Grade 9 in September 2005, 81% fulfilled all the requirements of a secondary school diploma within five years.

Cohort Year	Graduation Rate (%)
1999–2000	68%
2000–2001	71%
2001–2002	73%
2002–2003	75%
2003–2004	77%
2004–2005	79%
2005–2006	81%

Source: Ontario Ministry of Education, Dissemination and Reporting Unit, Information Request Provided October 28, 2011.

Measures of Child Development

This section focuses on the measures of child development. While these measures do not provide a full picture of child development, they represent data which are currently available.

Enhanced 18-Month Well-Baby Visits

Developmental disorders interrupt normal progress in childhood. They can be specific (affecting a single area of development) or pervasive (affecting multiple areas of development). Early intervention is critical for developmental disorders, many of which respond to treatments combining speech, occupational, physical and play therapies, behaviour modification techniques and possibly medication.

Routine "well-baby" visits with physicians provide an opportunity to examine development to-date and ensure that any delays and disorders are addressed through follow-up screening, treatment and referral. For example, during the enhanced 18-month well-baby visit, physicians are recommended to use two specific tools to assess a child's development (the Rourke Baby Record and the Nipissing District Developmental Screen). When concerns are identified at this visit, proper follow-up and referrals are discussed.

In 2010, 6,582 enhanced well-baby visits were provided to Peel children.[F] This figure is substantially lower than the approximately 16,000 children who would have been eligible for the visit.[G] The outcome of these assessments is unknown.

Community Capacity

Prevention Early Identification Program (P.E.P.)-Start Clinics

The P.E.P.-Start Clinics in Peel offer developmental screening for children from birth to five years of age at no cost to the parent. The Nipissing District Developmental Screen is used to highlight possible indicators of developmental delay for the clinical team, which includes a public health nurse, infant-child development specialist, dental hygienist and speech-language pathologist. The screenings take place in multiple locations across the region such as Ontario Early Years Centres, Learning in our Neighbourhood (LION) or Readiness Centres.

For more information, please see: cdrcp.com/pep/pep-start-clinics

School Readiness

School readiness is a key measure of child development. A child's school readiness is impacted by individual factors but is also related to family, school and community supports. It reflects a child's readiness to deal with the expectations presented by the school learning environment, including listening to a teacher, getting along with other children, and holding a pencil.[25] These abilities allow children to benefit from the educational activities provided at school.[26] Children who are not ready for school have been shown to have lower performance in later grades.[27]

Measurement

Early Development Instrument

The Early Development Instrument (EDI) is a population-based measure used to assess children's skills on five developmental domains related to school readiness:

1) Physical health and well-being.
2) Social competence.
3) Emotional maturity.
4) Language and cognitive development.
5) Communication skills and general knowledge.

Examining results on these domains helps identify developmental strengths and needs within a population of senior kindergarten children.

The EDI was implemented in Peel in 2004, 2007 and 2010. It is completed by the teacher for every student in senior kindergarten classrooms in publicly funded schools.

Children are categorized as being vulnerable, or not ready to learn at school, if they score in the lowest 10th percentile for all children assessed in a particular year on one or more of the domains.[25] Children identified as not being ready on one domain may benefit from universal programs while targeted interventions may benefit children identified as being not ready on two or more domains.

For more information about the EDI please see: peelregion.ca/health/resources/early-years-data/edi/

Thirty per cent of Peel children assessed on the EDI in 2010 are not ready to learn at school on one or more of the domains, a reduction since 2007 (Table 3.1). Boys, those who did not attend junior kindergarten, and children whose first language is not the language of instruction in the classroom are less likely than their counterparts to be developmentally ready on all domains.

Table 3.1
Per Cent of Children Not Developmentally Ready for School on One or More EDI Domains by Selected Characteristics, Peel, 2007 and 2010

Not ready on one or more domains	2007 (%)	2010 (%)
Total	31.8	30.3
Sex		
Girls	24.6	23.2
Boys	38.6	37.0
Junior Kindergarten (JK) Attendance		
Attended JK	30.6	29.2
Did not attend JK	48.1	47.2
Child's First Language		
First language is the language of instruction†	26.6	26.8
First language is not the language of instruction†	45.7	45.8

† Language of instruction in the classroom would be English for students enrolled in the English school board and French for students enrolled in the French school board.
Note: Excludes children with special needs and those with a missing special needs designation.
Source: Early Development Instrument 2007 and 2010, Region of Peel.

Measurement

Distribution of EDI Scores

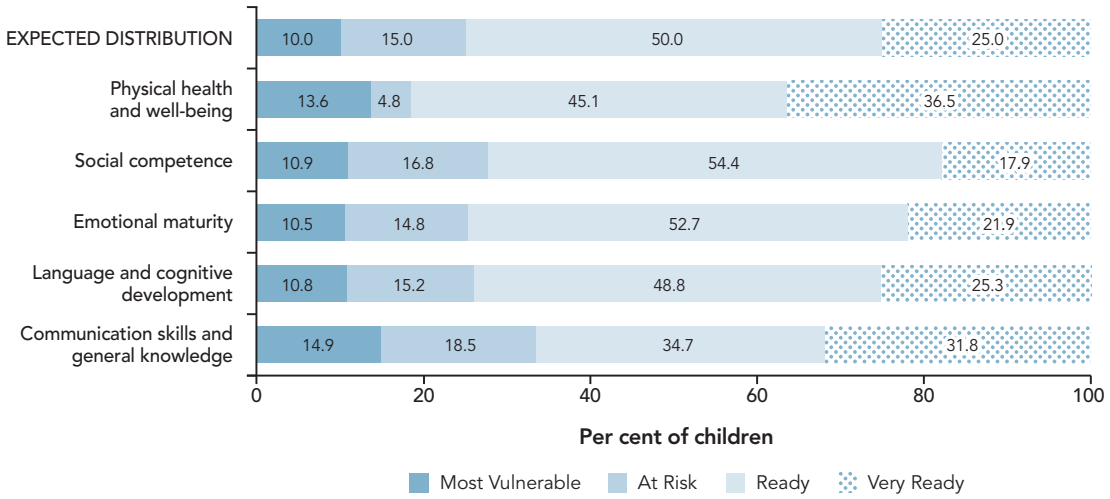
In any distribution of EDI scores, a community is expected to have:

- 10% of children scoring in the lowest 10th percentile (most vulnerable);
- 15% of children scoring in the 11th to 25th percentile (at risk);
- 50% of children scoring in the 26th to 74th percentile (ready); and
- 25% of children scoring at the 75th percentile and above (very ready).

When interpreting the distribution of EDI scores in Peel (Figure 3.2), readers should look for over- and under-representation of scores along the continuum when actual results are compared to the expected distribution.

Peel has a higher than expected percentage of children within the most vulnerable and at risk categories on the communication skills and general knowledge, social competence, and language and cognitive development domains (Figure 3.2). A higher percentage of Peel children scored in the very ready category for physical health and well-being.

Figure 3.2
Per Cent of Children by Percentile Range within Each EDI Domain, Peel, 2010



Source: Early Development Instrument 2010, Region of Peel.

Definition

English or French speakers are those children who speak only English in an English school board or only French in a French school board.

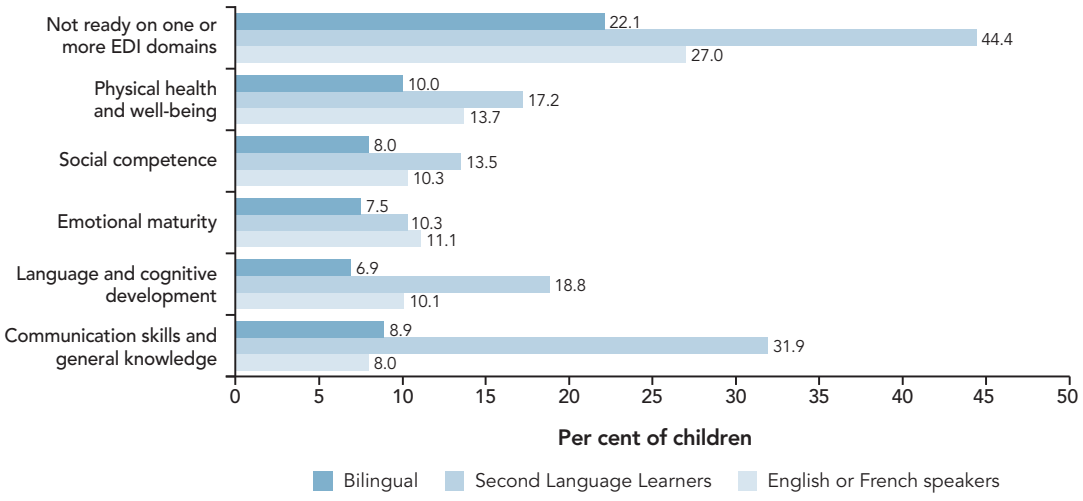
Second language learners are those who speak a language other than English and French and are identified by the teacher as having English as a second language (ESL) or French as a second language (FSL) needs.

Bilingual children are those who speak a language other than English and/or French but do not have an ESL or FSL need identified by the teacher.

Many children in Peel speak languages other than English or French (see Chapter 1, Peel Children and Their Parents). Children who are second language learners may face challenges in the classroom, especially on specific domains measured by the EDI (e.g., language and cognitive development, communication skills and general knowledge).

Children who are second language learners are more likely than English or French speaking children not to be ready on one or more of the EDI domains (44% vs. 27%), while those who are bilingual are more likely to be ready (Figure 3.3).

Figure 3.3
Proportion of Children Not Developmentally Ready for School by Language Group and EDI Domain, Peel, 2007 and 2010 Combined



Source: Early Development Instrument 2007 and 2010, Region of Peel.

What is unknown from these data is whether second language learners "catch-up" to their peers in terms of academic performance in later grades as their English proficiency increases.

The advantage in school readiness observed among bilingual children may be the result of parental factors and expectations, exposure to early learning environments, or socio-economic differences.[28]

Special Needs

One-quarter of parents indicate that their senior kindergarten child has a special need.[E] Dental needs are the most commonly reported special need, followed by speech and language needs and learning disabilities.[E] The nature and severity of these special needs is unknown, as a definition of each was not provided to parents completing the survey. Therefore, the data regarding special needs must be used with caution as they represent the self-reported perception of the parents only.

Many children reported to have special needs are receiving help from a professional (ranging from 34% to 82%) (Table 3.2). However, more than a quarter of children with mild intellectual disability, nutrition and feeding needs, mental health needs, a learning disability or behavioural needs are not receiving help.

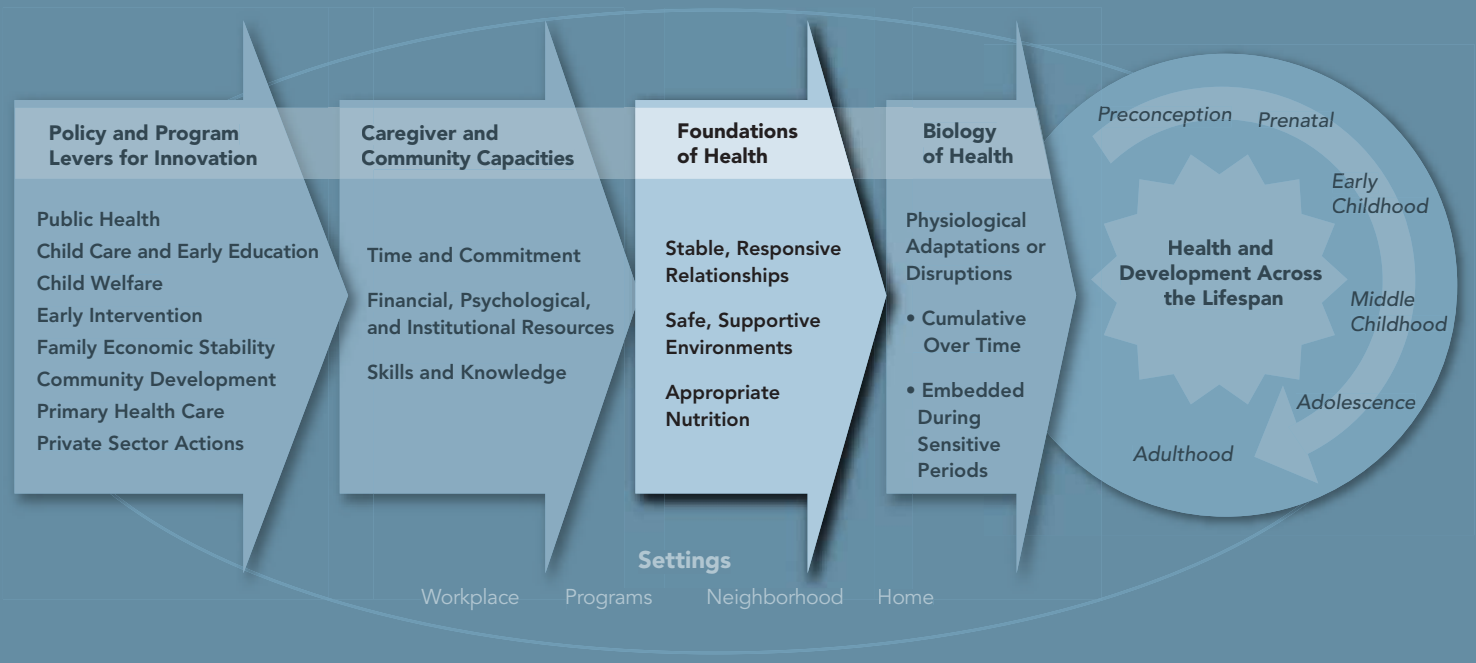
A significant number of children with special needs are waiting to receive help. For example, 17% of children with an Autism Spectrum Disorder are on a waiting list for professional help (Table 3.2).

Table 3.2
Proportion of Children Receiving or Awaiting Help from a Professional for their Special Need,
Peel, 2010

Special Need	Is child receiving help for the Special Need?			
	Yes	No	Not yet, child is on a wait list	Does not need help
Physical Needs				
Blind or low vision	82.0	4.9	2.5	4.9
Physical disability	68.3	2.4	17.1	2.4
Dental needs	66.8	21.3	9.6	2.2
Hearing needs	66.7	3.9	15.7	7.8
Developmental Needs				
Autism Spectrum Disorder	68.4	6.3	16.5	1.3
Developmental disability	80.0	4.4	0.0	2.2
Mild intellectual disability	53.5	25.4	5.6	5.6
Learning disability	42.4	40.4	7.6	2.6
Other Needs				
Nutrition and feeding needs	48.5	32.7	1.8	7.6
Mental health needs	47.1	31.4	13.7	7.8
Behavioural needs	34.2	44.0	9.3	12.5
Speech and language needs	59.3	16.3	16.7	1.9
Other special needs (unspecified)	54.5	17.8	9.9	3.0

Source: Senior Kindergarten Census 2010, Region of Peel.

Framework for Reconceptualizing Early Childhood Policies and Programs to Strengthen Lifelong Health



Source: The Foundations of Lifelong Health Are Built in Early Childhood. Center on the Developing Child at Harvard University, 2010.

section B

Foundations of Health

The foundations of health refer specifically to three domains of influence that are necessary for healthy child development: a stable and responsive environment of relationships; safe and supportive physical, chemical, and built environments; and sound and appropriate nutrition. These foundations can trigger adaptations or disruptions in the body that influence lifelong outcomes in health, learning and behaviour.[6] The framework acknowledges multiple levels of influence including family, community and government.

chapter 4

STABLE, RESPONSIVE RELATIONSHIPS

Key Messages

- There is very little information available about the nature of relationships between children and their parents or others in their lives.
- Levels of participation in daily active family activities are less than ideal.
- Most youth have someone with whom to share their private feelings and secrets. Only a minority share private feelings with immediate family members.

Children are exposed to a variety of relationships as they grow. These include relationships with immediate and extended family members, individuals in a child care environment and school setting, and with members of the community. A child's relationships can affect lifelong outcomes in emotional health, stress and immune responses, and health-related behaviours.[6]

There are key periods during early development when healthy emotional and cognitive development is shaped by responsive, dependable interaction with adults. These are also periods when chronic or extreme adversity can interrupt normal development.[6]

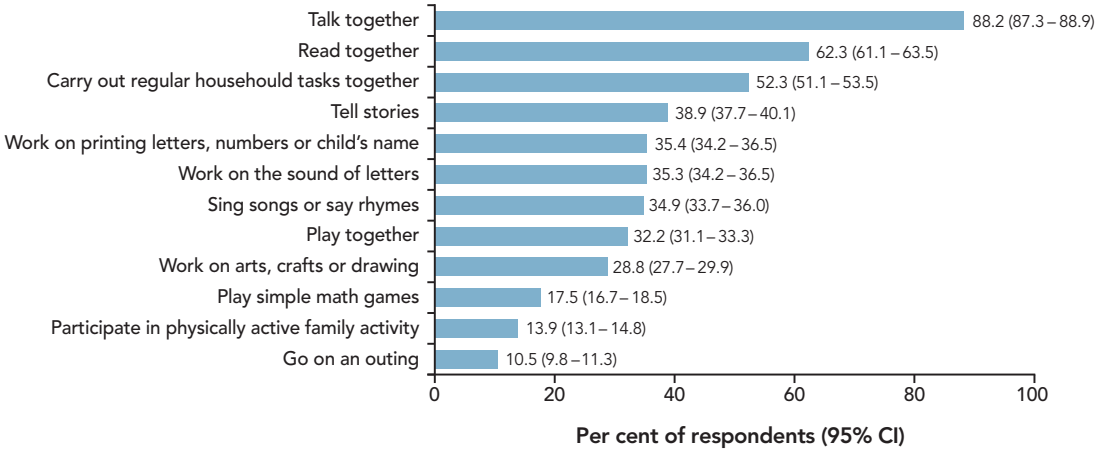
Despite the importance of relationships, there is very little information available about the quality of children's immediate and external relationships.

Parent-Child Activities

Healthy development is enhanced through language-rich environments and mutually responsive interactions with adults.[2] Positive relationships between children and parents can be demonstrated through engagement in frequent, positive activities throughout the day.

Most parents indicate that they talk with their senior kindergarten child (88%), read together (62%) and carry out regular household tasks together (52%), every day (Figure 4.1). Fewer than one in five parents reported participating in physically active family activities every day, which is consistent with the high level of physical inactivity among parents noted previously (see Chapter 2, Caregiver Capacity).

Figure 4.1
Proportion of Respondents who Participated in Selected Activities with their Child Every Day, Peel, 2010



Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Senior Kindergarten Census 2010, Region of Peel.

Fewer than one in five Peel parents reported participating in physically active family activities every day.

Sharing Private Feelings with Parents and Others

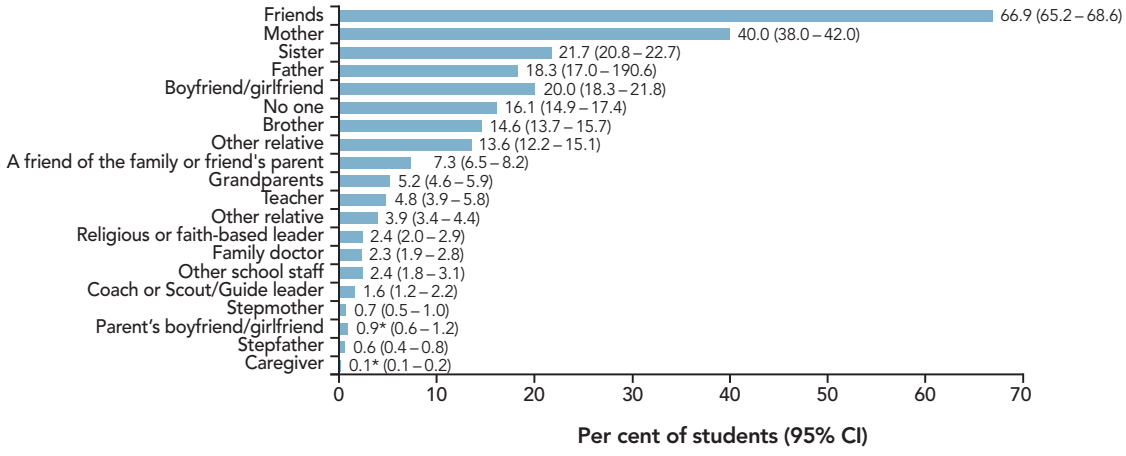
Open communication between teens and parents about private matters may be used as an indirect measure of the parent-child relationship. The majority of students in Peel have someone with whom they can talk about their feelings.[H] Peel students are most likely to report talking to their friends about their secrets and private feelings, while 40% reported talking to their mother, 22% their sister and 18% their father (Figure 4.2).

Peel Facts

Sixteen per cent of Peel students reported that they had no one to talk to about their secrets and private feelings.[H]

Figure 4.2

To Whom Grade 7 to 12 Students Talk About Their Secrets and Private Feelings, Peel, 2011



* Use estimate with caution.
Notes: 95% CI reflects the 95% confidence interval of the estimate.
Percentages sum to more than 100% due to multiple responses.
Source: Student Health Survey 2011, Peel Public Health.

chapter 5

SAFE, SUPPORTIVE ENVIRONMENTS

Key Messages

- Most Peel youth feel safe in their homes and communities.
- There is a lack of data regarding the prevalence of violence and exposure to violence for children.
- A minority of students report being bullied at school.
- A minority of Peel students use an active mode of transportation to school in the morning, while a higher proportion report walking home after school.
- Youth are most often exposed to second-hand smoke while in public. There are no data on second-hand smoke exposure among younger children.

There are multiple components of a child's physical environment that affect health. This section will describe the environment from the following perspectives: safety, the built environment, and environmental exposure to chemicals.

The manner in which a child's physical environment is designed, built and maintained can significantly affect the risk of disease, disability and injury.[6] The built environment offers multiple opportunities to influence health-related behaviours. For example, neighbourhoods designed with parks, green space, sidewalks, and playgrounds away from traffic offer children and their families an opportunity to play and socialize with friends and other caregivers. They also encourage greater physical activity and reduce child pedestrian injuries.[6]

Environmental toxins pose a significant threat to immature biological systems. Low-level exposures before or shortly after birth often produce more damaging and longer-lasting harm than exposures at higher levels in later childhood or adult life. Embryos, fetuses, and children absorb much larger doses of toxins at the same level of exposure relative to their body weight than adults.[6]

Safe Environments

The United Nations Convention on the Rights of the Child states that every child has the right to feel safe at home, at school and in their community. Safety concerns related to the presence of crime or gangs[29] or the degree of social cohesion observed in a neighbourhood can impact the mental and social well-being of youth.

Safety at Home

Most Peel students (93%) feel safe in their homes (Table 5.1). What remains unknown is how this question was interpreted by students and how they define safety.

Table 5.1
Perceived Safety at Home among Grade 7 to 12 Students, Peel, 2011

Feeling Safe at Home	Per cent of students (95% CI)
Never/rarely	1.1 (0.9–1.4)
Sometimes	3.2 (2.9–3.7)
Often/Always	92.9 (92.1–93.6)
Don't Know/Not stated	2.8 (2.2–3.4)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Child Maltreatment and Exposure to Family Violence

Adverse experiences during childhood, such as physical and sexual abuse and exposure to family violence, lead to an increased prevalence of risk behaviour later in life (e.g., smoking, physical inactivity, suicide attempts, alcoholism).[30] The risk of chronic conditions such as ischemic heart disease, cancer and liver disease is significantly higher among adults who had adverse experiences during childhood.[30]

The prevalence of child maltreatment and domestic violence is difficult to measure. Individuals may be reluctant to report abuse to authorities due to fear of the implications (e.g., further violence, involvement of police or the Children's Aid Society), perceived social stigma, or shame related to abuse. In Canada, for example, less than one-quarter of spousal violence victims said they reported the incident to police.[31] Among Canadians who had a current or former spouse in 2009, 6% reported being physically or sexually victimized by their partner in the preceding five years.[31] Almost two-thirds of spousal violence victims had been victimized more than once before they contacted the police.

Approximately 236,000 child-maltreatment investigations were conducted in Canada in 2008.[32] Among Canadian cases of reported maltreatment, 49% of investigations were substantiated, 10% were suspected (insufficient evidence to substantiate maltreatment but it remained suspected by a child welfare worker), and 41% were unfounded.[32]

Among substantiated investigations the categories of maltreatment were neglect (34%), exposure to intimate partner violence (34%), physical abuse (20%), emotional maltreatment (9%) and sexual abuse (3%).[32] Physical harm occurred in 8% of substantiated investigations while emotional harm was identified in 29%.[32]

There are few sources of information related to abuse and child maltreatment in Peel, each of which is believed to underreport the incidence of violence. The Peel Children's Aid Society investigated 11,264 calls between April 2010 and March 2011 from citizens, doctors, nurses, teachers and police about children who might need protection. They investigated 6,619 reports of child abuse and neglect.[33] It is unknown how many of these reports were substantiated.

Peel Facts

In 2010, 3,134 dependent children accessed an emergency or victims of family violence shelter in Peel.

Source: Communication from Community Programs Unit, Region of Peel, December 15, 2011

Peel Regional Police responded to a total of 14,113 incidents of domestic disputes or disturbances in 2010 in Brampton or Mississauga. This corresponds to a rate of 1,137.3 incidents per 100,000 population.[34] Some families may have been involved in more than one incident.

Safety in School

A child's safety while at school could include a number of issues, including safety from physical injury or assault as well as emotional or psychological safety. This section focuses on only one aspect of safety - bullying - as there is a lack of data related to the other aspects of school safety.

Definition

Bullying **is a form of aggression that occurs when a person is exposed, potentially repeatedly and over time, to negative actions on the part of one or more persons.[35] Bullying is an imbalance of power and can take many forms including physical or verbal, and direct (face-to-face) or indirect (gossip, exclusion).[36]**

Bullying can impact the physical, emotional and social well-being of the students involved. Victims of bullying are more likely to report a range of problems including sleep disturbances, abdominal pain, headaches, sadness and low self-esteem than children who are not bullied.[37,38] Bullying can also create problems with school adjustment, bonding, school performance and the desire to do well at school.[37,38] In addition, bullies and their victims are at increased risk for depressive symptoms and suicidal thoughts.[37,39] Victimization from bullying at school significantly increases the likelihood of depression in adulthood.[40]

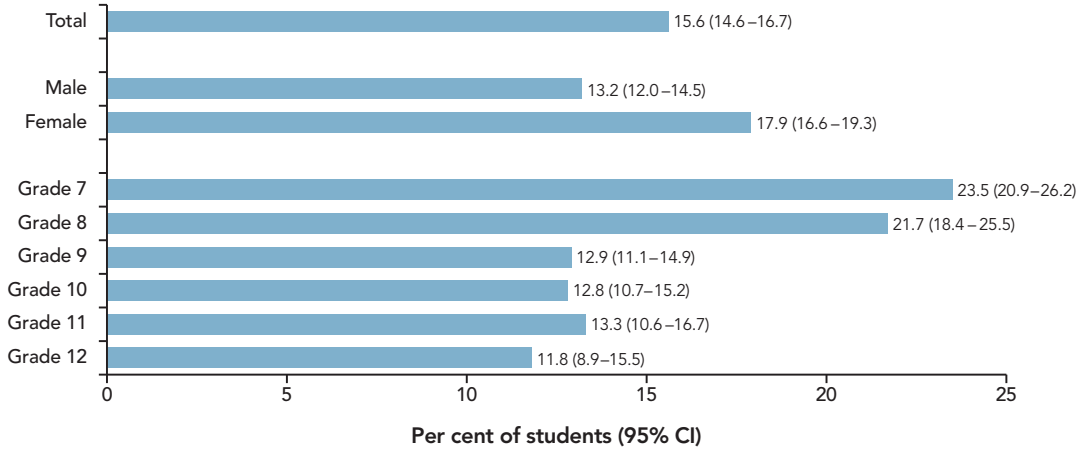
Definition

Internet bullying **can include bullying through computer postings (e.g., on social media sites), emails, digital photos and cell phones. Approximately one in five Canadian Grade 10 students reported being a victim of electronic bullying. Rates remained fairly consistent from Grade 6 to 10 for girls but increased slightly by grade for boys.[41]**

Sixteen per cent of Peel students have been bullied at school in the past year.

Sixteen per cent of students have been bullied one or more times during the school year (Figure 5.1). Younger students are more likely to report being bullied than older students. Female students are more likely to report being bullied than male students (18% vs. 13%).

Figure 5.1
Proportion of Students who have been Bullied at Least Once in School Year by Sex and Grade, Peel, 2011



Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Safety in the Community

There are a variety of ways to measure the safety of a community. Safety may be related to prevention of injuries, reduction in exposure to toxins, and crime-reduction strategies. This section includes two aspects of safety in the community: perceived community safety, and crime rates.

Ninety-two per cent of parents of senior kindergarten students agreed with the statement that "my neighbourhood is a safe place to raise children."[E]

Seventy-nine per cent of students in Grades 7 through 12 report feeling safe in the community (Table 5.2).

Table 5.2
Perceived Safety in the Community among Grade 7 to 12 Students, Peel, 2011

Feeling Safe in the Community	Per cent of students (95% CI)
Never/rarely	4.0 (3.6–4.5)
Sometimes	13.6 (12.4–15.0)
Often/Always	78.6 (77.0–80.2)
Don't Know/Not stated	3.7 (3.1–4.5)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Crime

It is difficult to determine the level of criminal activity to which children and youth are exposed. Police statistics represent crimes that have been reported and, given that multiple acts or offences may be committed at one time, may not reflect the actual number of criminal incidents which occur. In addition, the available police statistics do not report whether children were present at the time of the offence.

A total of 3,062 youth (aged 12 to 17 years) were charged with a criminal offence in 2010.[34] Young people (aged 15 to 29 years) accounted for 58% of all persons charged in 2010 in Brampton and Mississauga.[34]

Built Environment

Definition

The ***built environment*** refers to the human-made aspects of our physical environment.[42]

Virtually every aspect of a community – including roads, streets, sidewalks, parking lots, transit, stores, libraries, parks, green spaces, trails, workplaces, schools and homes – contributes to its urban form. Opportunities for exercise and recreation; access to healthy food; the quality of water, soil and air; availability of jobs; and the existence of social networks are all aspects of the environment that can have an impact on health.

The design of the physical environment also has a significant impact on children's health and development. Aspects of the built environment where children live, attend school and engage in recreational activities impact issues such as injuries, asthma and obesity.[43,44]

Almost all Peel parents feel that having parks, trails and open green spaces within walking distance from home would be important if they were deciding where to live (92%).[11] What is not known is whether these types of areas are available in the family's current neighbourhood and whether they use these areas with their children.

Neighbourhoods that have connected streets, close proximity to essential services and amenities, and that are aesthetically pleasing and safe inspire people to engage in active transportation.[45] In a society that is dependent on the automobile for even short distance travel due to separation of land uses, the opportunities for children to engage in physical activity such as walking or bicycling are significantly reduced.[44,46]

Neighbourhood attributes such as parks and sidewalks also influence social interactions whereby people can develop a sense of mutual trust and responsibility for the community. This neighbourhood-level phenomenon, called "collective efficacy" or "social capital," has been linked to lower rates of childhood obesity, better adult mental health, and reduced crime rates.[6]

For more information about the built environment in Peel, see ***A Picture of Health: A Comprehensive Report on Health in Peel*** (2008) at peelregion.ca/health/reports.

Active Transportation

Definition

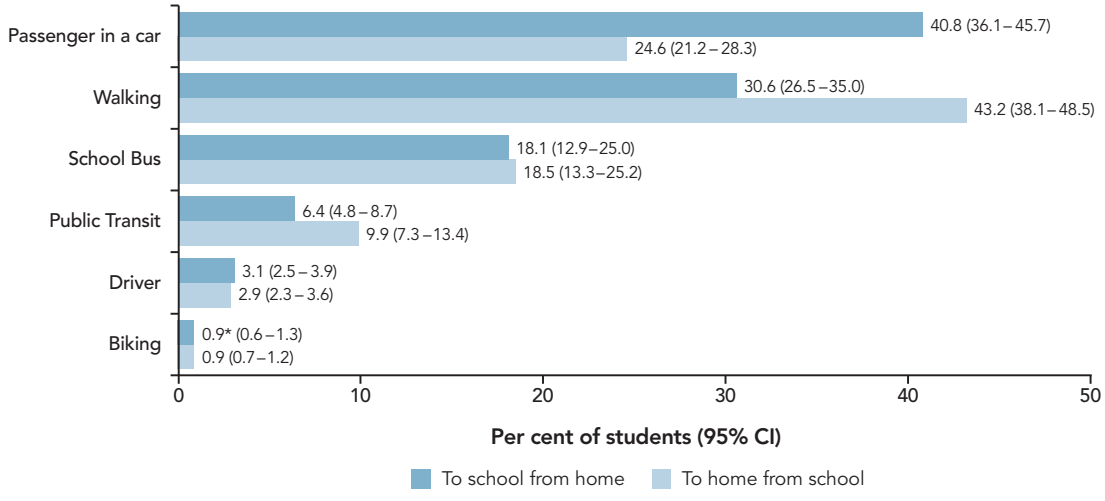
Active transportation **refers to the mode of transportation that is chosen for practical purposes such as going to and from school, parks, etc. Active modes of transportation include walking, cycling, roller-blading, skateboarding and other human-powered modes of transportation.[45]**

Actively travelling to and from school provides a substantial portion of daily physical activity for children and is associated with high levels of energy expenditure.[47] Over the past 20 years in Ontario, however, the proportion of school-aged children who actively travel to and from school has significantly decreased.[47]

For children and youth, the distance between school and place of residence has been cited as the top predictor of actively travelling to and from school.[48] Schools that are located within a short distance are much more likely to have students who engage in active transportation. The presence of sidewalks also increases the likelihood of children actively travelling to and from school.[46]

Children and youth who actively travel to and from school engage in more total physical activity than those who travel by other means.[49] A recent US study estimated that there would be a 22% reduction in obesity prevalence if all adolescents walked or biked to school at least four days per week.[50] However, only half of Ontario students engage in active transportation to and from school.[51] Reasons for this include those mentioned above as well as other factors such as age of the child, perceived safety and independent mobility. Since the 1960s, children have lost the majority of their independence to travel freely to school and to other public spaces, such as parks

Figure 5.2
Mode of Transportation to School and Home from School, Peel, 2011



* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

and playgrounds. These decreases in childhood mobility may affect their opportunity to engage in outdoor physical activity.

Definition

Independent mobility **is the freedom children have to be mobile within their neighbourhood or city without adult supervision.**[52]

Forty-one per cent of Peel students are driven to school.

The most common mode of transportation to school from home is as a passenger in a car (41%), whereas walking is the most common mode of travel from school to home in the afternoon (Figure 5.2). Very few students bike to school or bike home from school (Figure 5.2).

The most common reasons for not walking or riding a bike to school are:

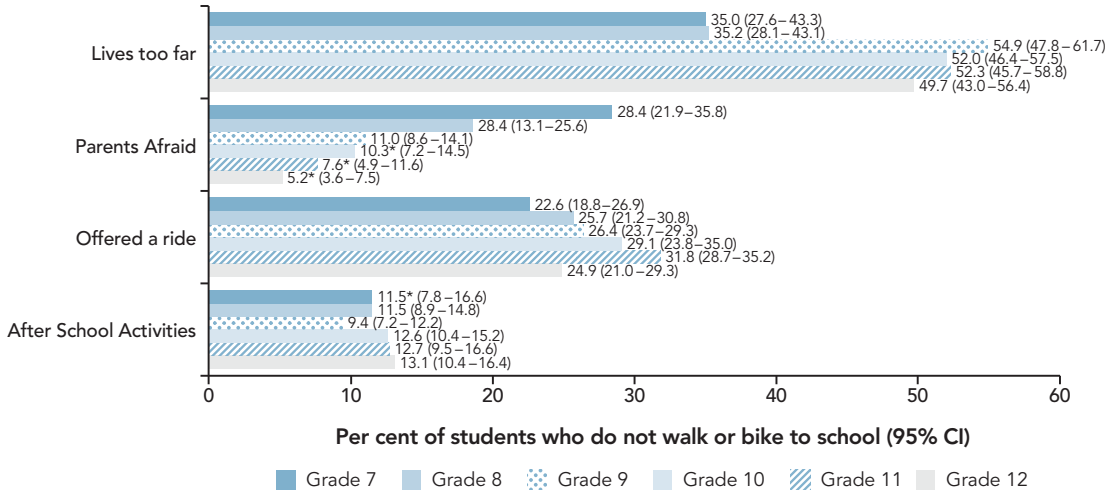
- live too far from the school;
- offered a ride by parents or friends;
- parents were afraid; and
- had after-school activities (Figure 5.3).

High school students are more likely to report that they live too far from the school to walk or ride their bike, compared to Grade 7 and 8 students (Figure 5.3).

Environmental Exposure to Chemicals

Children are exposed to a number of harmful substances through the physical environment (i.e., soil, water, air), as well as through their food and other products (e.g., toys, bottles or food containers). Some substances are naturally present in the environment, while others result from human activity. The impact of such exposures depends on the substance along with the frequency, duration and time of exposure.

Figure 5.3
Reasons Why Students† do not Walk or Bike to School by Grade, Peel, 2011



* Use estimate with caution.
† Excludes students who travel to school by bus.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

This section presents data regarding measured levels of a selected number of chemicals within the bodies of Canadians that are known to impact a child's development, as well as information about air quality and exposure to second-hand smoke. National data on the body burden of chemicals among children are presented as there is no current local source of these data. These data were collected for Canadians aged six years and older only.

Children are more vulnerable to exposure and adverse impacts of chemicals present in their environment because their bodies are immature and are still developing. They are also exposed to more chemicals per unit of body weight than adults. Their increased hand-to-mouth activity increases exposure to chemials as well.

Children are more vulnerable to the impact of chemicals in their environment.

Understanding the health risks caused by exposure to chemicals is a challenge. There is limited, and in some cases non-existent, information on exposures and the interactions between chemicals. Some key chemicals/pollutants have been studied more extensively than others. The impacts of some chemicals, such as lead and mercury, are well known. However, the impact of long-term exposure to low levels of certain chemicals throughout various stages of development is not well understood.

Lead

Lead can have harmful effects on health at low levels of exposure. Unborn babies and young children are particularly vulnerable as lead exposure can affect brain development and contribute to learning disabilities and behavioural problems. In fact, low levels of lead exposure have been shown to have a greater impact on average IQ scores compared to higher levels of exposure.[53]

Did You Know

Cadmium

Health Canada is warning Canadians that cadmium may be increasingly used instead of lead in some consumer products such as costume jewellery intended for use by children. Cadmium is more toxic than lead.

For both children and adults, the main sources of exposure to lead are through contact with contaminated air, soil and dust. For those who live in older homes, lead from old water pipes, solder or paint can be a significant source of exposure. The level of lead in the environment has been greatly reduced over time with the phase-out of lead in gasoline, reductions in some consumer products such as paint, as well as stricter regulations that limit lead releases into the environment. The use of lead in other products has continued (e.g., some toys and/or jewellery).

Levels of blood lead have been greatly reduced.

All Canadians tested in the Canadian Health Measures Survey had a detectable level of lead in their blood.[54] The average level of lead in the blood was lower in 2007-2009 compared to the average level found in 1978-1979.[54]

For children six to 11 years, the geometric mean blood lead level was 0.891 µg/dL, which is below the current blood lead intervention level of 10 µg/dL.[54] This current intervention level is under review and several other countries have already acted to lower the intervention level.

Mercury

Mercury, which is toxic to a child's developing central nervous system, can cross the placenta where it builds up in the fetal brain and other parts of the body. Mercury can also pass to an infant through breast milk.[55] Young children and unborn babies are especially susceptible to the effects of mercury.

Although it can be found naturally in the environment, in the past, the most common source of mercury was electricity generation, non-ferrous mining and smelting, and incineration. Consumption of fish is currently the main exposure source to mercury for humans, since mercury (in its most toxic form – methylmercury) can become concentrated in larger, older fish.

Children aged six to 11 and youth 12 to 19 years had lower levels of mercury in their blood compared to adults (20 to 79 years).[56]

Did You Know

Mercury in Fish

Most fish contain trace amounts of mercury. For most people, these small amounts do not pose a problem. Some fish, however, contain high amounts of mercury.

Certain vulnerable people must be careful about the amount and type of fish they eat. They include:

- **women of childbearing age;**
- **pregnant women;**
- **nursing mothers; and**
- **young children.**

Despite reports about the dangerous effects of mercury and other contaminants, the health benefits of eating fish are greater than the risks. Fish is an excellent source of high-quality protein and is one of the best sources of omega-3 fatty acids. Emphasis on choosing fish lower in mercury balances the benefits of fish consumption with the risks of mercury exposure.

See peelregion.ca/health/eatfish/choices/ for information on healthy fish choices.

Bisphenol A

Bisphenol A (BPA) is a widely used chemical which is found in many hard, shatterproof, clear plastics (of any colour), known as "polycarbonate plastic." It can also be found in the lining of metal food cans. BPA leaches from containers over time with greater amounts leaching when containers are exposed to heat (e.g., from boiling water).

Policy

Bisphenol A

Canada is the first country in the world to take action on bisphenol A (BPA). In general, most Canadians are exposed to levels of BPA that are below those that could cause health effects. However, due to the uncertainty raised in some studies relating to the potential affects of low levels of BPA, regulations were enacted to enhance the protection of infants and young children. The main sources of exposure for newborns and infants are from BPA migrating from the lining of cans into liquid infant formula and from polycarbonate baby bottles following the addition of boiling water. The regulations enable careful review of pre-market submissions of infant formula and ongoing work with the food packaging industry to reduce levels of BPA in infant formula to the lowest levels possible.

Most people are exposed to low levels of BPA. Newborns and young children could be exposed to higher levels through a variety of sources (e.g., bottles), close to the level at which health effects could occur. Experimental animal studies indicate that exposure to BPA may affect or interfere with hormonal systems and neurological, behavioural and reproductive development.

Children have higher BPA levels than adults.

Unlike lead and mercury, higher levels of BPA are seen in children. Children six to 11 years old had the highest levels of BPA in their blood (2.0 µg/g) compared to other age groups.[56]

Air Quality

Both indoor and outdoor air quality impact respiratory health. Outdoor contaminants of concern include: fine particulate matter ($PM_{2.5}$), ozone (O_3), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), and carbon monoxide (CO). Health effects associated with air pollution range from eye, nose and throat irritation to heart and lung problems and increased risk of early death. Infants and young children are more susceptible to the health effects of poor air quality because of its impact on lung development and growth. Obese children might be even more susceptible because they have higher breathing rates which increase the loading of air pollutants in the lungs.[57]

This report does not provide a comprehensive examination of the impact of poor air quality on children in Peel. It is however estimated that exposure to $PM_{2.5}$, O_3, NO_2, SO_2 and CO in Peel causes approximately 29 hospitalizations for asthma in children and 13 hospitalizations for asthma in adults in Peel per year.[J]

Exposure to Second-Hand Smoke

The adverse health outcomes for tobacco smokers are well-known. Second-hand smoke (SHS) exposure increases the risk of developing respiratory and cardiovascular

diseases and cancer. The numerous efforts to reduce exposure to SHS have resulted in reductions in exposure for older children at home, in vehicles and in public places.

Ontario youth aged 12 to 19 years were more likely to be exposed to SHS in a public place than in their homes or private vehicles (Figure 5.4). Although not shown on the graph below, Ontario youth were less likely to be exposed to SHS in 2009/2010 than they were in 2003, regardless of the setting.[D1]

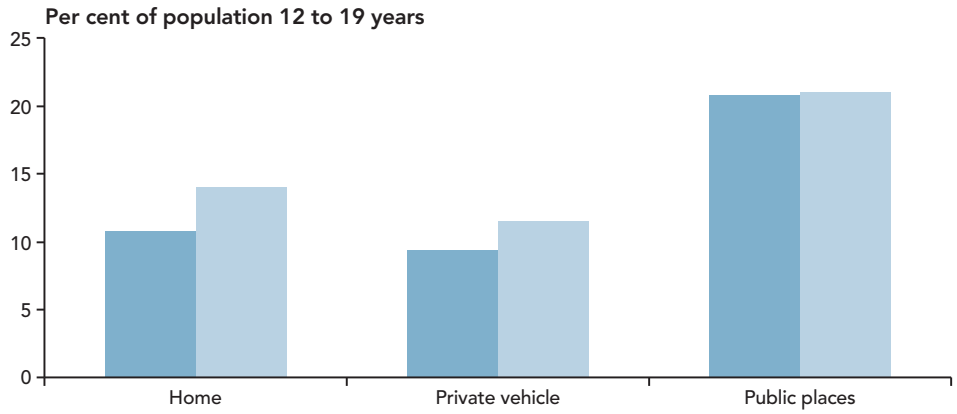
Policy

Smoke Free Ontario

The Smoke-Free Ontario Act prohibits smoking in workplaces and enclosed public spaces, as well as in motor vehicles when children under 16 years of age are present. It also bans the public display of tobacco products prior to purchase and prohibits youth-targeted tobacco products (such as flavoured cigarillos).

Source: mhp.gov.on.ca/en/smoke-free/legislation/default.asp accessed June 1, 2012.

Figure 5.4
Exposure to Second Hand Smoke in Various Settings among 12 to 19-Year-Olds, Peel and Ontario, 2009/2010



	Home	Private vehicle	Public places
Peel Per cent (95% CI)	10.8* (6.2–18.0)	9.4* (6.1–14.1)	20.8 (15.9–26.8)
Ontario Per cent (95% CI)	14.0 (12.6–15.5)	11.5 (10.2–12.9)	21.0 (19.2–22.9)

* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Canadian Community Health Survey 2009/2010, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

Policy

Outdoor Smoking Restrictions

In February 2013, Peel Regional Council unanimously passed a by-law prohibiting smoking outdoors within nine metres (30 feet) of municipally-owned building entrances and exits and within nine metres of the perimeter of playgrounds and outdoor recreational facilities. In doing so, Peel joins more than 70 other municipalities in Ontario, including the City of Toronto, Town of Oakville, City of Vaughan and City of Ottawa who have enacted legislation to create smoke-free municipal spaces.

Reasons cited for the various outdoor tobacco smoke by-laws in place across Ontario include:

- preventing exposure to second-hand tobacco smoke;
- reducing tobacco litter;
- de-normalizing smoking tobacco/ positive role modeling;
- promoting smoking cessation; and
- preventing fires.

chapter 6

SOUND AND APPROPRIATE NUTRITION

Key Messages

- Although most mothers in Peel initiate breastfeeding, only 23% exclusively breastfeed until six months as recommended.
- Young children frequently eat fruit and vegetables, but they also frequently consume restaurant food and sweetened drinks.
- Youth frequently consume unhealthy foods and drinks. Youth are less likely to participate in family meals and eat breakfast.
- The ***School Food and Beverage Policy*** limits the sale of foods in schools based on their level of nutritional value.

Health at every stage of life is influenced by nutrition. When women do not receive adequate calories during pregnancy, their fetuses develop in anticipation of making do with fewer calories. If the postnatal environment is one of sufficient nutrients, the baby's prior adaptation becomes a liability which predisposes them to obesity and other diseases such as cardiovascular disease and hypertension later in life.[6]

This chapter will present the limited data available about what types of food children eat and some other behaviours that can impact a child's eating habits, including participation in family meals and frequency of eating breakfast. The data provided are self-reported and therefore may not accurately reflect the true nutritional habits of children and youth.

Early Nutrition

Breast milk is an important start for healthy child nutrition. The Breastfeeding Committee for Canada, the Public Health Agency of Canada, Health Canada, Dietitians of Canada, Canadian Paediatric Society and the World Health Organization recommend exclusive breastfeeding for the first six months of life, with continued breastfeeding to age two years and beyond, with the addition of complementary foods at six months of age. Breastfeeding can be a protective factor against later obesity as it leads to improved satiation among babies and allows them to adapt more readily to new foods.[58] Ninety-seven per cent of Peel women reported initiating breastfeeding in 2009/2010 but only 23% continued to do so exclusively for at least six months.[K]

Early childhood may be a period of picky-eating habits. Thirty-seven per cent of parents reported that their senior kindergarten child's eating habits caused them stress.[E] Positive patterns established early will lead to a reduced risk of obesity, while ensuring adequate calories and nutrients for normal growth and development.

Policy

Marketing Food to Children

Marketing of food and beverages to children (via television, print, internet, cellular phone, games, contests, and in-store promotions) appears to have a strong influence on nutritional knowledge, food preferences and consumption. These advertisements are plentiful and typically promote highly-processed, energy-dense, unhealthy products.[59, 60]

Research into the extent and nature of food promotion shows that:

- Most of the advertising that is targeted at children promotes food products.
- Advertising targeting children is dominated by five product categories – soft drinks, pre-sugared cereals, confectionary, snacks and fast-food restaurants.
- The advertised diet contrasts dramatically with the recommended diet.
- Children engage with and enjoy "unhealthy" advertising.
- Food promotion influences children's nutritional knowledge, food preferences, purchasing and purchase-related behaviour, consumption, diet, and health status.
- Children make purchasing requests for energy-dense, low-nutrient foods and beverages.
- Food promotion affects both total category sales and brand switching.[60]

Food Consumption

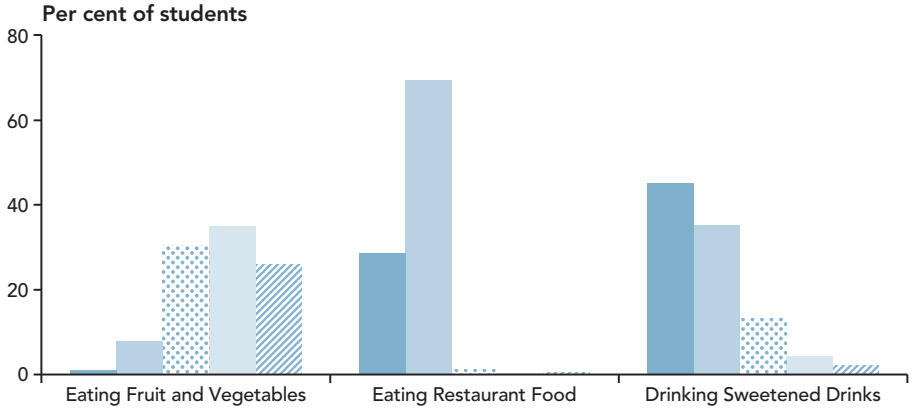
Vegetables and fruit are nutrient-dense, provide fibre and are typically low in fat and calories. Frequency of vegetable and fruit consumption is a proxy for overall dietary intake (i.e., there is a positive association between frequency of vegetable and fruit consumption and an index of dietary quality).[61] Children and youth who consume fewer than five servings of vegetables and fruit per day are significantly more likely to be overweight/obese compared to those who eat vegetables and fruit more frequently.[62]

Fruit drinks and regular soft drinks are often referred to, together, as sugar-sweetened beverages. Consumption of sugar-sweetened beverages has increased dramatically over the past few decades. They provide very little nutritional benefit and their consumption increases the risk of developing diabetes, bone fractures and dental caries.[63,64] Consumption of sugar-sweetened beverages also displaces consumption of other more nutritious beverages such as milk and water.[63, 64]

One in five senior kindergarten students in Peel consume sweetened drinks at least once per day.

The majority of senior kindergarten (SK) students eat fruit and vegetables at least once per day or more (Figure 6.1). Mothers who are recent immigrants, have a lower

Figure 6.1
Frequency of Eating Vegetables and Fruit, Restaurant Food and Drinking Sweetened Drinks, Peel, 2010



	Eating Fruit and Vegetables	Eating Restaurant Food	Drinking Sweetened Drinks
Never or almost never per cent (95% CI)	1.0 (0.8–1.3)	28.6 (6.1–14.1)	45.2 (44.0–46.4)
At least once a week per cent (95% CI)	7.8 (7.1–8.5)	69.3 (68.2–70.5)	35.2 (34.0–36.3)
Once a day per cent (95% CI)	30.3 (29.2–31.5)	1.2 (1.0–1.5)	13.2 (12.4–14.0)
Two times per day per cent (95% CI)	35.0 (33.9–36.2)	0.4 (0.2–0.5)	4.3 (3.8–4.8)
Three or more times per day per cent (95% CI)	25.9 (24.8–27.0)	0.5 (0.3–0.7)	2.2 (1.8–2.6)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Senior Kindergarten Census 2010, Region of Peel.

education level and lower income are less likely to report that their child eats fruit and vegetables at least once per day (data not shown).[E] One in five SK students consume sweetened drinks at least once per day (Figure 6.1).

Peel students in Grades 7 through 12 report frequent consumption of unhealthy foods such as hamburgers, hot dogs, french fries, deep-fried foods and salty snacks (e.g., potato chips, pretzels) (Figure 6.2).

Policy

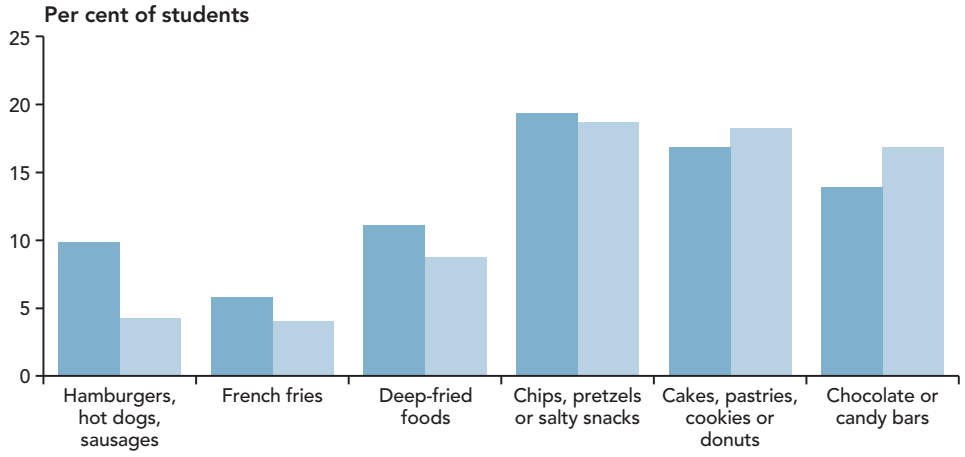
School Food and Beverage Policy (2011)

The ***School Food and Beverage Policy*** applies to all food and beverages offered for sale in publicly funded schools in Ontario. This policy includes a detailed set of minimum nutrition standards intended to improve the nutritional value of food and beverages sold to students. The policy applies to all food and beverages sold in all school venues (e.g., cafeterias, vending machines, tuck shops), through all programs (e.g., catered lunch programs), and at all events (e.g., bake sales, sports events). The nutrition standards categorize food and beverages, according to nutritional value as "sell most", "sell less" and "not permitted for sale." A minimum of 80% of items sold must be from the "sell most" category, while a maximum of 20% can be from the "sell less" category. Items such as deep-fried foods are categorized as "not permitted for sale."

Peel Public Health provided support to school boards and schools to prepare for and implement the School Food and Beverage Policy using various strategies and working with numerous stakeholders and sectors. Strategies included information and training on the policy, skill-building for stakeholders, a social marketing campaign, youth engagement, and partnership development. Peel Public Health continues to collaborate with local school boards to provide on-going support to the schools and school community by:

- providing access to resources;
- offering consultations;
- planning and delivering training opportunities; and
- embedding the policy into the Healthy Schools Approach.

Figure 6.2
Frequency of Eating Selected Food Items One or More Times per Day by Sex, Peel, 2011

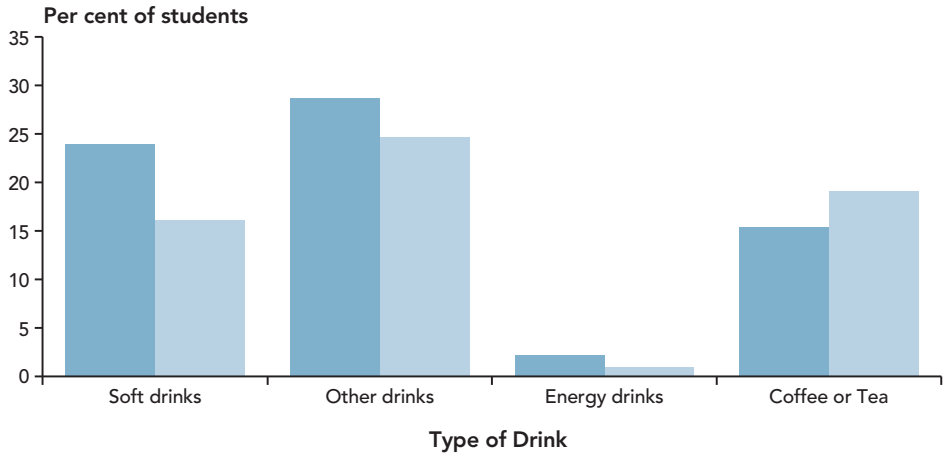


	Hamburgers, hot dogs, sausages	French fries	Deep-fried foods	Chips, pretzels or salty snacks	Cakes, pastries, cookies or donuts	Chocolate or candy bars
Male per cent (95% CI)	9.8 (8.1–11.7)	5.8 (4.8–7.1)	11.1 (9.6–12.7)	19.3 (17.9–20.8)	16.8 (15.4–18.2)	13.9 (12.6–15.3)
Female per cent (95% CI)	4.2 (3.5–5.1)	4.0 (3.5–4.7)	8.7 (17.3–20.1)	18.7 (3.5–5.1)	18.2 (17.1–119.4)	16.8 (14.8–18.9)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Almost all students drink water every day (93%, not shown in Figure 6.3), while one-quarter report drinking 'other drinks' (such as sports drinks, fruit juice or vitamin water) which may have little or no nutritional value (Figure 6.3). Male students are more likely to consume soft drinks every day compared to female students.

Figure 6.3
Frequency of Drinking Selected Drinks One or More Times per Day by Sex, Peel, 2011



	Soft drinks	Other drinks	Energy drinks	Coffee or Tea
Males per cent (95% CI)	24.0 (22.5–25.6)	28.7 (27.0–30.5)	2.2 (1.6–2.9)	15.4 (13.8–17.2)
Females per cent (95% CI)	16.1 (13.8–18.6)	24.7 (22.6–26.9)	1.0* (0.7–1.4)	19.1 (17.5–20.8)

* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

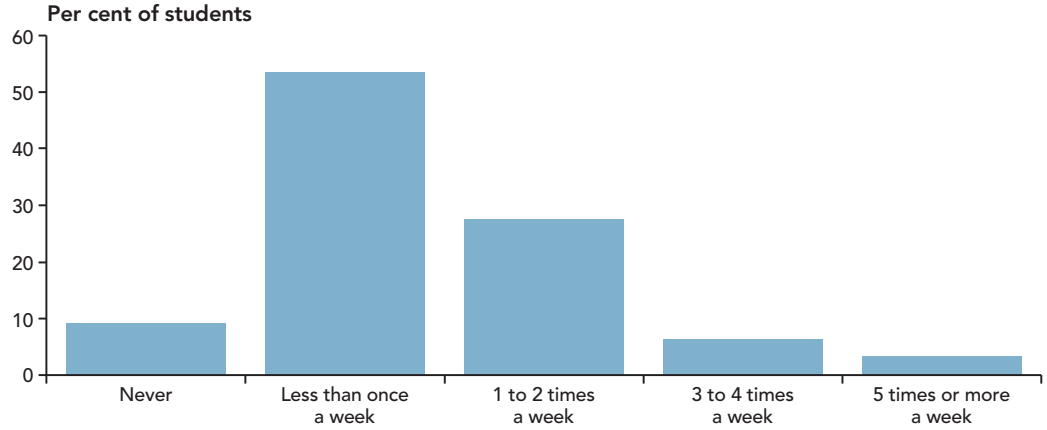
Eating Behaviours

Fast Food Consumption

Consumption of food and drinks outside of the home has increased over the past decade.[65] Eating outside of the home is associated with an increased intake of fat and lower intakes of some micronutrients (i.e., vitamin C, iron and calcium) among all age groups.[65]

Many students eat restaurant or fast food at least once per week. Sixty-nine per cent of senior kindergarten students eat restaurant food at least once per week (Figure 6.1). Approximately 37% of Grade 7 to 12 students report eating meals prepared/purchased at a fast food restaurant once per week or more (Figure 6.4).

Figure 6.4
Frequency of Eating Fast Food, Peel, 2011



	Never	Less than once a week	1 to 2 times a week	3 to 4 times a week	5 times or more a week
Per cent (95% CI)	9.2 (8.2–10.4)	53.5 (52.2–54.9)	27.6 (26.2–29.0)	6.3 (5.5–7.3)	3.3 (2.7–3.9)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Family Meals

Shared family meals offer nutritional benefits to children and youth.[66] Children and youth who share three or more family meals per week are more likely to be within a normal weight range, eat healthier foods, and have less disordered eating behaviours compared to children and youth from families who share less than three family meals per week.[66]

Did You Know

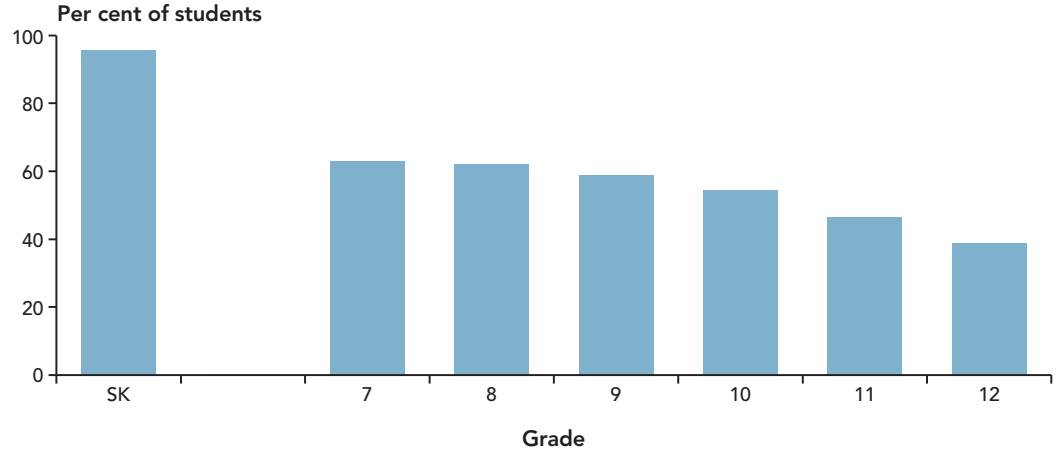
Family Meals and Mental Health

Students who ate dinner with their family more often were less likely to have emotional problems and were more likely to report emotional well-being and positive prosocial behaviours than those who had family dinners less often.[41]

Less than 40% of Grade 12 students in Peel eat meals with their family daily.

Younger students are more likely to report eating meals with their family every day (Figure 6.5).

Figure 6.5
Proportion of Students who ate Meals with their Family Every Day, Peel, 2010 and 2011



	SK	7	8	9	10	11	12
Per cent (95% CI)	95.5 (94.9–96.0)	62.8 (60.4–65.1)	62.1 (59.0–65.1)	58.7 (55.7–61.6)	54.3 (50.5–58.0)	46.5 (43.3–49.8)	38.9 (36.0–41.9)

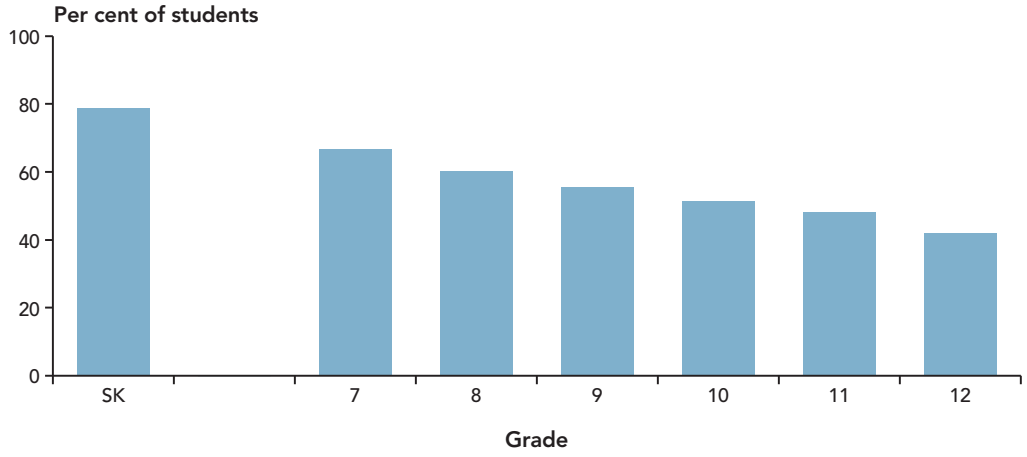
SK - senior kindergarten.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Sources: Senior Kindergarten Census 2010, Region of Peel.
Student Health Survey 2011, Peel Public Health.

Frequency of Eating Breakfast

Breakfast consumption is associated with overall health and well-being, and dietary adequacy in children and youth.[67,68] Eating breakfast is also associated with a reduced risk of becoming overweight or obese and with having a lower BMI.[67-69] Breakfast consumption may also improve cognitive function related to memory, test grades and school attendance.[67]

Students in Grades 7 through 12 are less likely to eat breakfast everyday compared to senior kindergarten students (Figure 6.6).

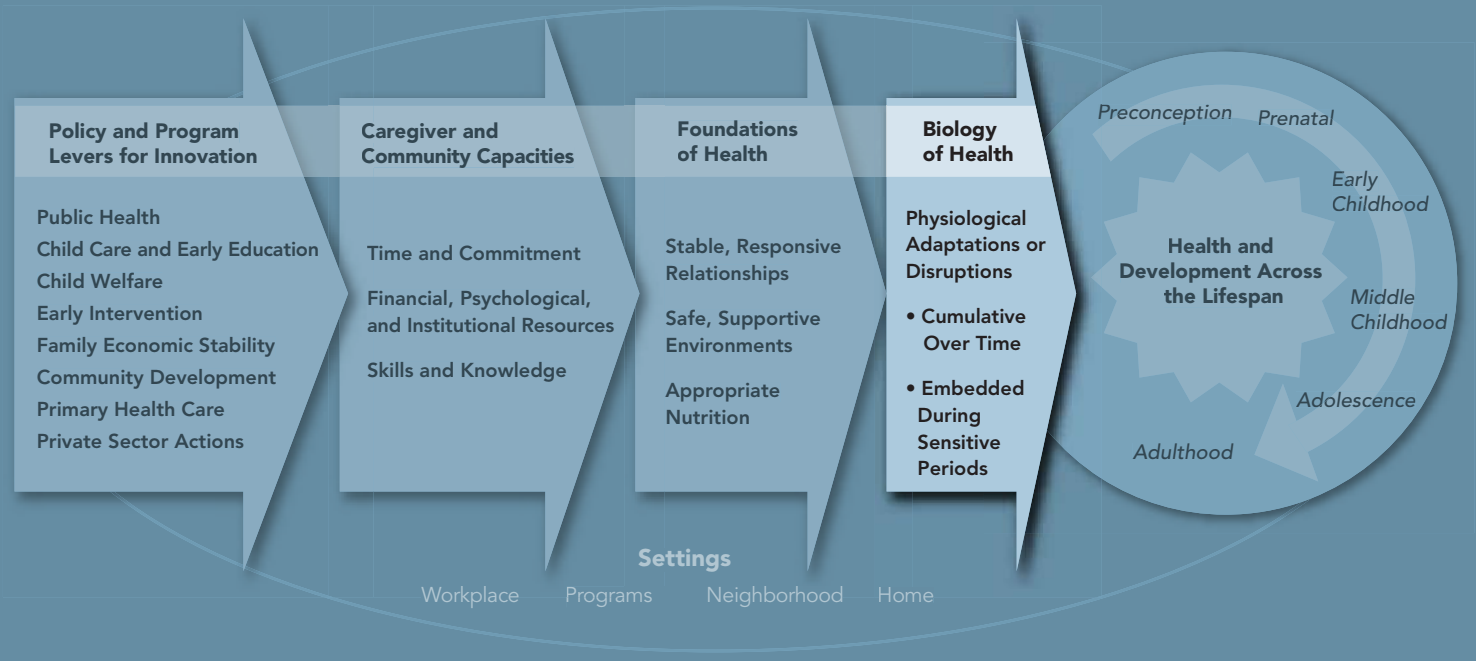
Figure 6.6
Proportion of Students who ate Breakfast Daily, Peel, 2010 and 2011



	SK	7	8	9	10	11	12
Per cent (95% CI)	78.8 (77.8–79.8)	66.8 (63.4–70.1)	60.3 (56.7–63.8)	55.6 (52.6–58.6)	51.4 (47.7–55.1)	48.1 (450–51.2)	42.0 (38.9–45.2)

SK - senior kindergarten.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Sources: Senior Kindergarten Census 2010, Region of Peel.
Student Health Survey 2011, Peel Public Health.

Framework for Reconceptualizing Early Childhood Policies and Programs to Strengthen Lifelong Health



Source: The Foundations of Lifelong Health Are Built in Early Childhood. Center on the Developing Child at Harvard University, 2010.

section C

Biology of Health

Early childhood is a time of rapid growth and development for the brain and other biological systems. Many chronic health conditions (e.g., hypertension, cardiovascular disease, diabetes) experienced in adulthood are linked to processes and experiences early in life (in some cases the prenatal period). There can be a lag of many years and even decades before early harm is expressed in the form of overt disease.[6]

The following chapters present the current health status of Peel children and youth, including their mental and physical health, use of health-care services, injuries and mortality. Data are presented regarding risk behaviours among youth, including physical inactivity, smoking and alcohol consumption – behaviours that may begin in adolescence but lead to chronic disease and ill-health later in life.

chapter 7

MENTAL HEALTH OF CHILDREN

Key Messages

- Females have significantly poorer self-reported mental health compared to males.
- High school students report high levels of stress.
- 8% of students have seriously considered suicide in the past year.

Mental health is more than merely the absence of mental illness. Positive mental health includes having a sense of satisfaction and control over life; having stable, responsive and secure relationships with others; and living within safe and supportive environments.[6,70] Positive mental health is shaped by individual, family, social, cultural, environmental, political and economic environments.[6,70,71]

It is difficult to assess the prevalence of mental health issues among children and youth for a number of reasons:

- Children may not have yet been diagnosed with a mental health condition.
- Individuals may be hesitant to self-report a mental health condition due to perceived stigma.
- Health-care utilization data only capture conditions severe enough to require hospitalization or emergency department visits.

Definition

Mental illnesses or mental health issues include changes in thinking, mood, or behaviour that lead to distress and impaired functioning, including: mood disorders, schizophrenia, anxiety disorders, personality disorders, eating disorders, suicidal behaviour, and addictions such as substance dependence and gambling.[71]

A number of factors are used to assess positive mental health including: the ability to enjoy life and deal with life's challenges; emotional and spiritual well-being; social connections; and respect for culture, equity, social justice, and personal dignity.

Childhood and adolescence are critical periods of development during which lifelong health behaviours, beliefs, and attitudes are established.[72] Transitions such as starting school and puberty can lead to stress, and feelings of isolation, loneliness and emotional distress. Responsive relationships between parents and young children influence the development of mental health and coping strategies later in life. Dealing with change and developing coping strategies earlier in life may protect children and youth from mental illness in adulthood.[71]

Measurement

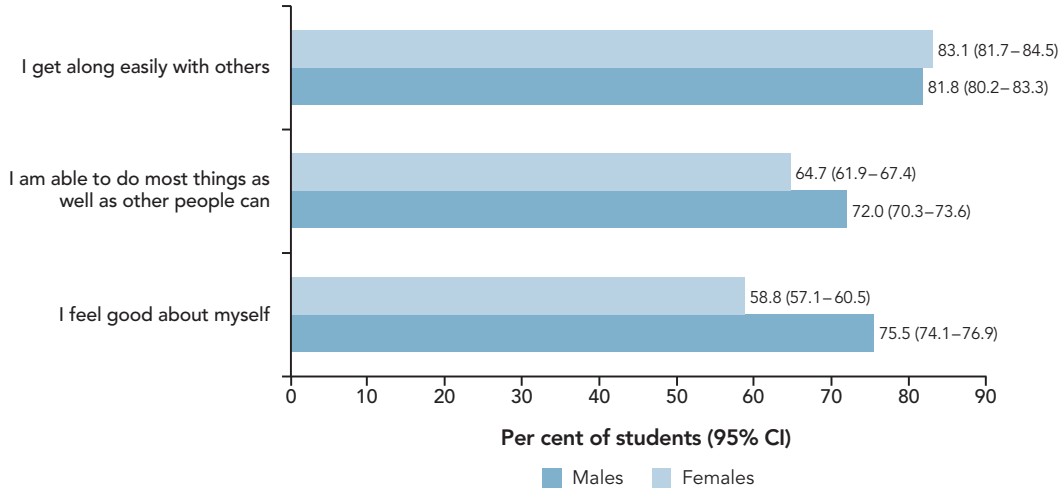
Measuring Mental Health

A person's mental health may have both positive and negative aspects, both of which are important to understand the impact of mental health on health status. Optimal mental health is not simply the absence of negative mental health issues but also the presence of positive attributes. Mental health may be measured using behavioural aspects (externalized) or emotional aspects (internalized).[41]

Positive Mental Health

The majority of Peel youth report having excellent, very good or good mental health (97%).[D1] Female students are less likely to report feeling good about themselves or feeling that they can do most things as well as others, when compared to male students (Figure 7.1).

Figure 7.1
Proportion of Students who Believed Self-Esteem Statements were Always or Often True for Them by Sex, Peel, 2011

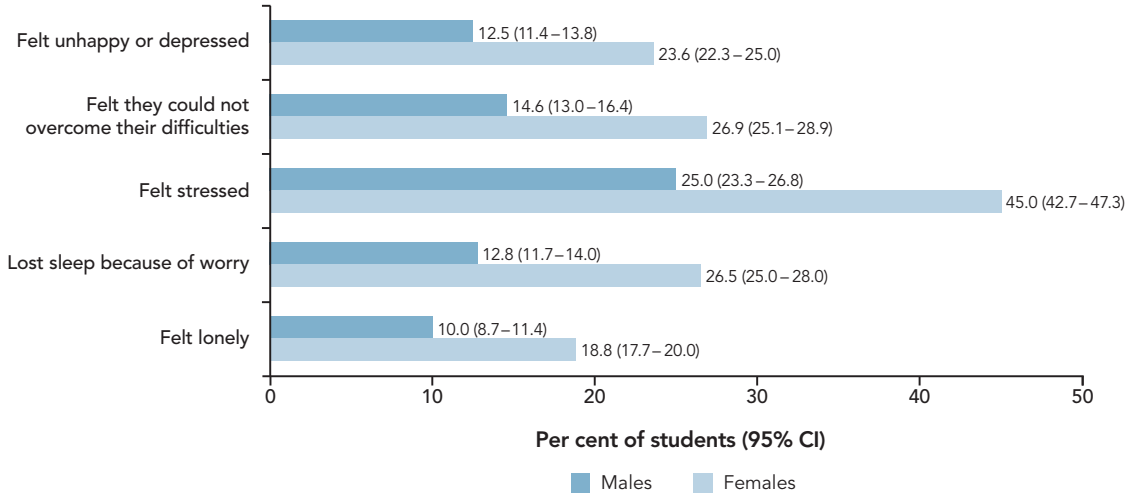


Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Negative Aspects of Mental Health

A substantial proportion of students in Peel report feelings of emotional distress within the past few weeks (Figure 7.2). Female students are significantly more likely to report frequent emotional distress compared to males.

Figure 7.2
Proportion of Students Who Reported Feelings of Emotional Distress Always or Often by Sex, Peel, 2011

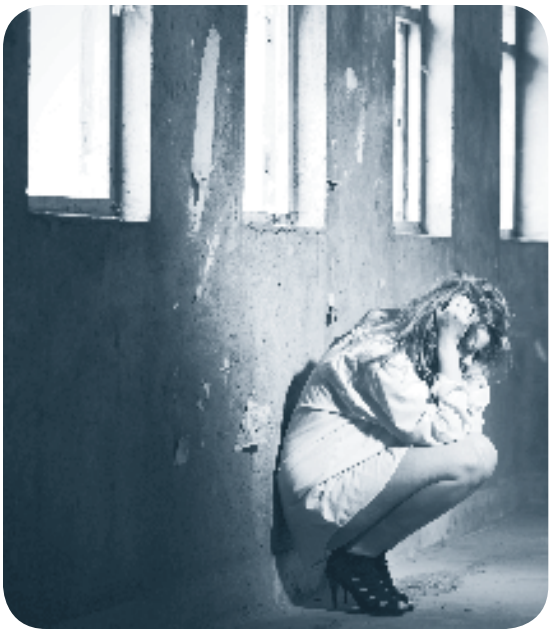


Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Did You Know

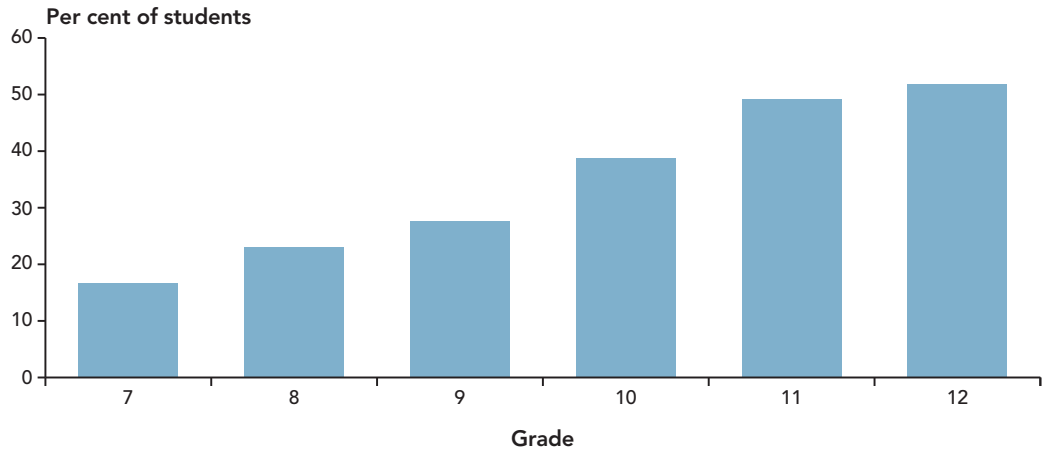
Sex Differences in Mental Health

Girls have more negative mental health outcomes than boys regardless of the mental health measure examined. This includes higher levels of emotional problems, lower levels of emotional well-being, lower life satisfaction, a higher likelihood to wish that they were someone else, lower self-confidence, higher number of backaches (psychosomatic symptom), feeling depressed or low more often, and higher rates of feeling bad tempered or irritable more often.[41] In addition, although the mental health scores of boys remained relatively consistent across grades, scores for girls declined as they aged – with positive indicators decreasing and negative indicators increasing.[41]



The proportion of high school students who always or often feel stressed significantly increases with each grade. By Grade 12, half of students feel a significant level of stress (Figure 7.3).

Figure 7.3
Proportion of Students Who Always or Often Felt Stressed† by Grade, Peel, 2011



	7	8	9	10	11	12
Per cent (95% CI)	16.7 (14.3–19.3)	23.0 (20.2–26.1)	27.7 (25.1–30.4)	38.8 (36.1–41.7)	49.2 (43.9–54.6)	51.8 (47.5–56.1)

† Over the past few weeks.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Talking About Mental Health

Four per cent of Peel students have discussed mental health issues with a professional in the past 12 months.[H] Females are more likely to have spoken to a professional than males (6% vs. 3%).[H]

Community Capacity

Peel Children's Centre

Peel Children's Centre is one of the largest children's mental health treatment agencies in Canada. They provide no-cost treatment for young people under the age of 18 who live in the Region of Peel. Services are available for children, teenagers, and families who are having serious issues with relationships, feelings, or behaviour. They provide services to more than 3,600 children and teenagers, and their families every year.

For more information, see peelcc.org.

Eating Disorders

Definition

Eating disorders encompass a number of different clinical conditions, where there is a definite disturbance in eating habits or weight-control behaviour. There are three diagnostic categories of eating disorders: anorexia nervosa, bulimia nervosa and atypical eating disorders.

One specific aspect of mental health that is often discussed with respect to youth is eating disorders. The impacts on young people, women especially, that result from media portrayals of western society's perception that a thin body is considered to be desirable, have received increased attention in recent years. The causes of eating disorders are difficult to determine and therefore prevention and treatment are also difficult. Among patients with anorexia nervosa, for example, low weight tends to be viewed as an accomplishment rather than an affliction and therefore patients may have limited motivation to accept treatment and change their behaviour.[73]

The incidence and prevalence rates of eating disorders are difficult to measure because they are an extreme outcome of potentially common behaviours among youth (e.g., dieting, exercising, weight control) and many of those who have eating disorders do not receive treatment. For the period 2003 through 2005, the estimated incidence of eating disorders among Canadian children aged five to 12 years seen by pediatricians was 2.6 per 100,000 person-years.[74]

Thirty-one per cent of 10-year-old girls recruited from schools across southern Ontario reported that they were currently "trying to lose weight," a figure which increased to 44% by age 14 years.[75] Forty-seven per cent of Canadian girls reported being "a bit" or "very" unhappy about their weight, with 5% reporting currently engaging in binge eating or purging (or both) at a frequency of twice a week or more.[76]

With the increase in obesity rates among Canadian youth, there is a growing disparity between what is considered the "ideal" body weight and type and the reality for most young women. This difference likely contributes to the high prevalence of dieting and disordered eating. Among Peel students who had tried to change their weight in the past six months, females are more likely than males to restrict food intake as a method to lose weight.[H]

Mental Health Hospitalizations

There were over 5,000 hospitalizations for children and youth in Peel as a result of mental health issues between 2006 and 2010 (Table 7.1). This means that, on average, approximately 1,050 hospitalizations per year or three hospitalizations per day result from mental health issues among children and youth. The rate of mental health hospitalizations was lower for males and females in Peel compared to the provincial rate.

Table 7.1

Rate of Hospitalization due to Mental Health Conditions among Children† by Sex, Peel and Ontario, 2006 to 2010 Combined

Mental and Behavioural Disorders	Peel				Ontario			
	Female		Male		Female		Male	
	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000
Anxiety, Adjustment, Obsessive/Compulsive, Phobia, and Somatoform disorders	963	126.9	683	84.3	11,770	173.0	6,337	88.8
Mood disorders	1,123	147.9	478	59.0	16,073	236.3	7,695	107.8
Schizophrenia, Schizotypal and Delusional disorders	149	19.6	340	41.9	1,922	28.3	3,619	50.7
Disorders due to Psychoactive substance use	78	10.3	238	29.4	2,139	31.4	2,637	36.9
Eating disorders	244	32.1	16	2.0	4,534	66.6	430	6.0
All other disorders	342	45.1	591	72.9	6,157	90.5	9,554	133.8
Total	2,899	381.9	2,346	289.5	42,595	626.1	30,272	424.1

† Children aged 1 to 18 years.
Sources: Hospital In-Patient Discharge Database 2006-2010, IntelliHealth Ontario, Ministry of Health and Long-Term Care.
Inpatient Discharge Adult Mental Health Assessment, Treatment, Diagnosis 2006-2010, IntelliHealth Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2006-2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Suicide

Suicidal behaviour is a sign of extreme distress in children and youth. Thoughts of suicide can be related to challenges children may face with identity formation, gaining acceptance from peers and family, perceived loss of valued relationships, and interpersonal conflict.[71]

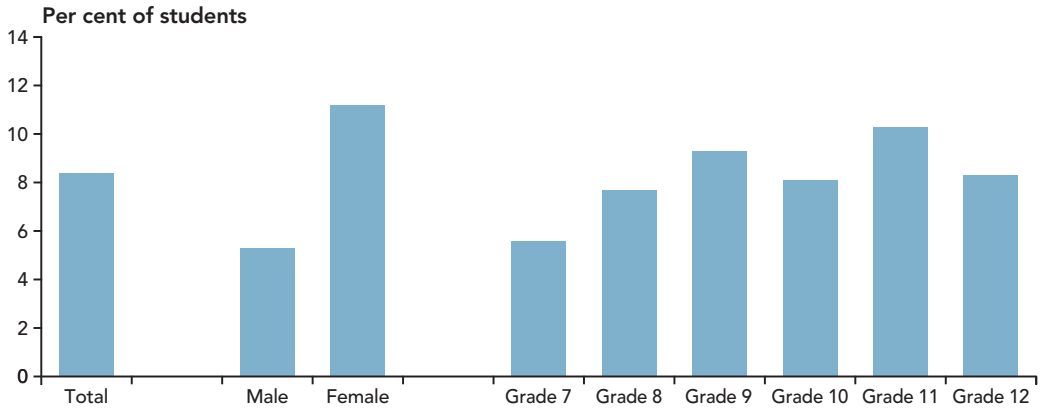
Suicide was the third most common cause of death among youth 10 to 19 years of age in Peel between 2003 and 2007, and the most common cause among those 20 to 29 years.[C] Between 2003 and 2007, Peel youth (aged 10 to 19 years) had a lower mortality rate (1.4 deaths per

100,000) due to suicide than Ontario youth (3.4 per 100,000).[C] Males had a higher rate of death due to suicide than females (all ages combined), whereas females had a higher rate of hospitalization due to attempted suicide.[L]

Eight per cent of Peel students considered suicide in the past year.

Eight per cent of Peel students had seriously considered suicide in the past year – with female students being more likely to report considering suicide than male students (Figure 7.4). Three per cent of Peel students reported that they had attempted suicide in the past 12 months.[H]

Figure 7.4
Proportion of Students who Seriously Considered Suicide in the Past 12 Months by Sex and Grade, Peel, 2011



	Total	Male	Female	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Per cent (95% CI)	8.4 (7.7–9.1)	5.3 (4.4–6.4)	11.2 (10.2–12.2)	5.6 (4.2–7.4)	7.7 (6.2–9.5)	9.3 (7.9–11.0)	8.1 (6.1–10.6)	10.3 (8.3–12.8)	8.3 (7.1–9.7)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

chapter 8

RISK BEHAVIOUR AMONG YOUTH

Key Messages

- Over one-third of males and almost half of females fail to meet current standards of acceptable cardiorespiratory fitness. Approximately three-quarters of all Grade 9 students' musculoskeletal fitness scores fall within a range that is associated with considerable health risks.
- The majority of youth spend more than two hours each weekday watching television, on their cell phones or playing video games.
- Over one-third of Grade 12 students have ever smoked.
- 20% of students have consumed alcohol, with one-quarter of Grade 12 students reporting binge drinking.
- By Grade 12, almost half of students have tried marijuana at least once.
- A substantial portion of sexually active students report not using birth control or report using unreliable forms of birth control.
- The rate of infection with chlamydia increased among female youth in Peel between 2006 and 2010.

Adolescence is a critical period of biological, intellectual and social development.[72] It can also be a period of experimentation with smoking, alcohol and other drugs.[77] Frequent use of alcohol or other drugs can lead to significant threats to health and well-being.

Both individual and social characteristics affect the likelihood that youth will engage in substance use and risky behaviour. Substance use generally increases with age during adolescence, peaking during the early to late 20s and then typically decreasing with life changes such as marriage, parenthood and full-time employment.[78] Other individual-level risk factors for substance use include genetic susceptibility, attitudes and beliefs about risks, impulsivity, and sensation seeking behaviours.[78]

Characteristics of the social environment are also associated with substance use. These include: family (e.g., poor parenting and supervision in the home, high levels of conflict); school (e.g., academic underachievement, poor attendance); peers (e.g., peer rejection, selecting peers who use substances); and community (e.g., availability of substances).[78] Strong family bonds, school commitment, positive adult role models, and self-efficacy are considered to be important deterrents to substance use.[79]

Did You Know

Peer Influences on Behaviour

A youth's behaviour can be positively or negatively influenced by their peers. Having friends/peers who engage in negative risk behaviours (e.g., smoking, drinking, illicit drug use) is associated with increased risk for emotional and behavioural problems and a reduction in emotional well-being.[41] Alternatively, students who have friends who engage in positive behaviours are more likely to display prosocial behaviour and have higher levels of emotional well-being.[41]

This chapter includes information on a number of behaviours in which youth may engage; some that promote health, such as physical activity, and some that do not, such as smoking.

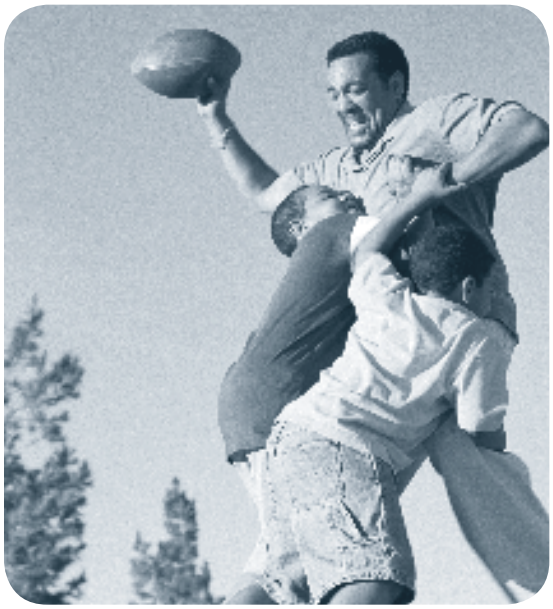
Physical Activity

Regular physical activity leads to improved fitness and the development of healthy and strong bones. It also helps regulate body weight and lower the risk of chronic disease such as cardiovascular disease and stroke. Physical activity improves self-efficacy and self-image, and decreases depressive symptoms.[80] Physical activity among children and youth may be associated with improved mental activity and academic performance.[81]

Peel Facts

Family Physical Activity

Less than one in five parents of senior kindergarten students reported participating in a physically active family activity every day with their child.[E]



Only 7% of children and youth in Ontario meet the physical activity recommendations.

New physical activity and sedentary behaviour guidelines for healthy children and youth were released in 2011 by the Canadian Society for Exercise Physiology.[82] These guidelines recommend that children and youth accumulate at least 60 minutes of moderate-to-vigorous physical activity every day in order to receive health benefits. Only 7% of children and youth in Ontario meet these new physical activity recommendations.[83] Children and youth aged six to 19 years spend, on average, 8.6 hours or 62% of their waking hours in sedentary pursuits.[83]

Fitness levels among Canadian children and youth have declined significantly since 1981.[84] In particular, muscular strength and flexibility have decreased, while all measures of adiposity (body fat distribution) have increased. Children today are taller, heavier, fatter and weaker than those in 1981.[84]

Measurement

Fitness Assessment of Peel Students

Measuring physical activity is difficult, with self-reported measures being shown to over-estimate physical activity. Direct measurements of physical activity or fitness have been shown to more accurately reflect an individual's actual level of physical activity.[85]

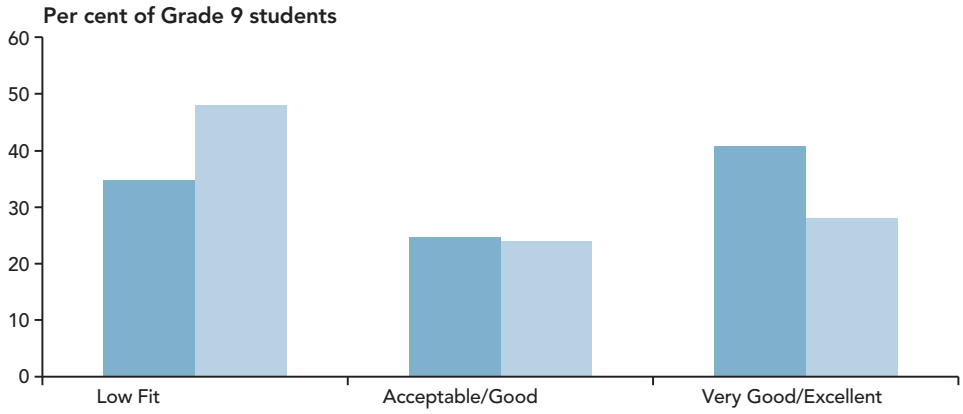
In Peel Public Health's 2011 Student Health Survey, cardiorespiratory and musculoskeletal fitness measures (strength, flexibility and endurance) were assessed for Grade 9 students from 23 randomly selected secondary schools. These estimates provide the first comprehensive assessment of the fitness of Grade 9 students in Peel.[H]

Eligible students were instructed to perform four physical fitness tests: Leger 20 meter shuttle run (cardiorespiratory), hand grip strength test (muscular strength), sit and reach test (flexibility) and partial curl-up test (muscular endurance). Students were assigned health benefit ratings based on these four measures. These ratings were derived from Canadian normative data that account for age and sex specific cut-offs.[86] The results are presented in percentage distributions.

Thirty-five per cent of Grade 9 boys and 49% of Grade 9 girls in Peel have low cardiorespiratory fitness.

Thirty-five per cent of Grade 9 boys and 48% of Grade 9 girls in Peel had cardiorespiratory fitness scores that placed them in the "low fit" category for cardiorespiratory fitness levels (Figure 8.1). Girls are significantly more likely to have a "low fit" cardiorespiratory fitness level compared to boys.

Figure 8.1
Cardiorespiratory Fitness Level among Grade 9 Students by Sex, Peel, 2011



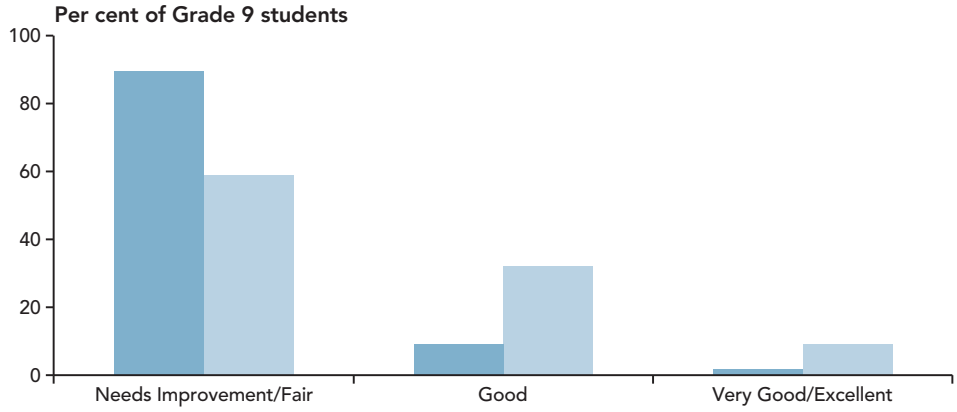
	Low Fit	Acceptable/Good	Very Good/Excellent
Male per cent (95% CI)	34.7 (29.4–40.4)	24.6 (21.5–28.0)	40.7 (35.7–45.9)
Female per cent (95% CI)	48.0 (40.9–55.1)	24.0 (20.0–28.5)	28.0 (20.0–37.8)

Note: 95% CI represents the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Over three-quarters of Grade 9 students in Peel scored "needs improvement/fair" on assessments of musculoskeletal fitness.

Musculoskeletal fitness was measured by assessing muscular strength and endurance, as well as flexibility. Over three-quarters of Grade 9 students scored in the need improvement/fair category (Figure 8.2). Boys' ratings are not as favourable as those of girls.

Figure 8.2
Overall Musculoskeletal Fitness Level among Grade 9 Students by Sex, Peel, 2011



	Needs Improvement/Fair	Good	Very Good/Excellent
Males per cent (95% CI)	89.4 (85.6–92.3)	9.0 (6.2–12.7)	1.7* (1.1–2.5)
Females per cent (95% CI)	58.8 (51.2–66.0)	32.0 (26.1–38.6)	9.2 (7.2–11.7)

* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

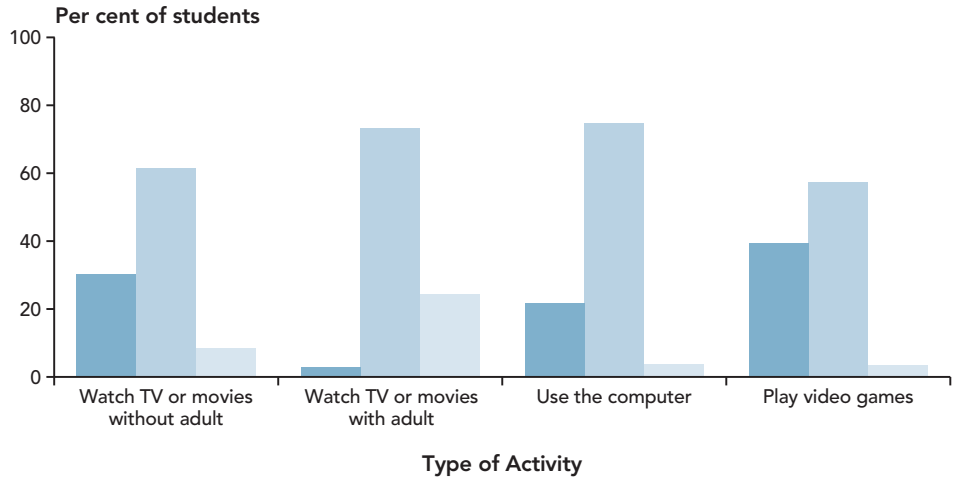
Sedentary Activity

Sedentary behaviours include activities in which there is little movement or energy expenditure such as watching television, playing video games, using the computer, doing homework, reading, and motorized travel.[87] Increased time spent engaging in sedentary behaviour, especially screen-time activities, has been linked to several negative health outcomes. For example, excessive screen time has been associated

with unfavourable body composition, lowered scores for self-esteem, and decreased academic achievement.[87,88] For children and youth under the age of 18 years, the Canadian Sedentary Guidelines recommend that individuals limit their recreational screen time to no more than two hours per day.[89]

Most senior kindergarten students do spend some time each day watching television, playing video games and using a computer (Figure 8.3).

Figure 8.3
Time Spent on Various Activities in an Average Day at Home, Peel, 2010

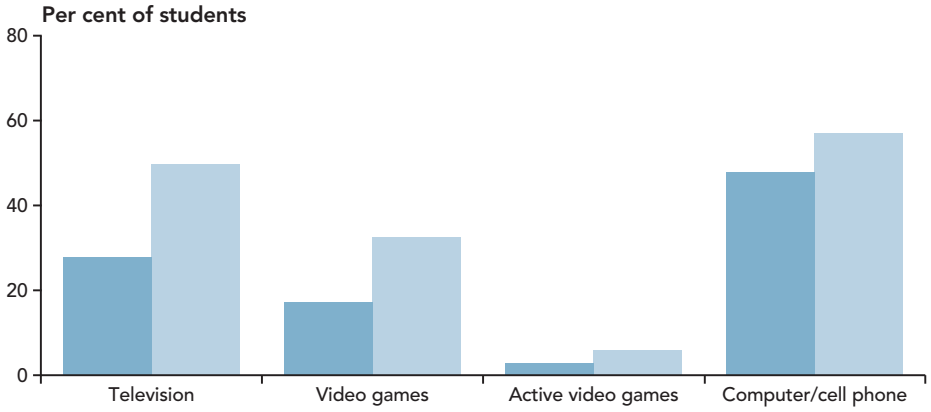


	Watch TV or movies without adult	Watch TV or movies with adult	Use the computer	Play video games
Never per cent (95% CI)	30.1 (29.0–31.3)	2.7 (2.3–3.2)	21.7 (20.7–22.7)	39.3 (38.1–40.5)
Less than 2 hours per cent (95% CI)	61.4 (60.2–62.5)	73.1 (72.0–74.1)	74.7 (73.6–75.7)	57.4 (56.2–28.6)
2 hours or more per cent (95% CI)	8.5 (7.8–9.2)	24.2 (23.2–25.3)	3.6 (3.2–4.1)	3.3 (2.8–3.7)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Senior Kindergarten Census 2010, Region of Peel.

A higher proportion of Peel students spend time watching television, playing video games and using a computer or cell phone on the weekend compared to during the week (Figure 8.4). Almost double the number of children reported watching television or playing video games for two hours or more on the weekend compared to during weekdays.

Figure 8.4
Proportion of Students Who Watch Two or More Hours of Various Screen Media by Weekday and Weekend, Peel, 2011



	Television	Video games	Active video games	Computer/cell phone
Weekday per cent (95% CI)	27.9 (26.0–29.9)	17.3 (16.1–18.5)	2.7 (2.4–3.1)	47.8 (45.3–50.2)
Weekend per cent (95% CI)	49.6 (48.1–51.3)	32.5 (30.8–34.2)	5.9 (5.2–6.7)	57.0 (54.7–58.3)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Did You Know

Daily Video Game Use

Twenty per cent of Ontario students in Grades 7 through 12 played video games every day during the past year. Males (32%) were more likely to play daily than females (6%).[90]

Those who played video games daily were significantly more likely to report poorer school marks, either not doing homework or spending less than one hour per week on homework, poor physical health, being physically inactive during the past week, and being sedentary.[90]

Did You Know

Role of Schools

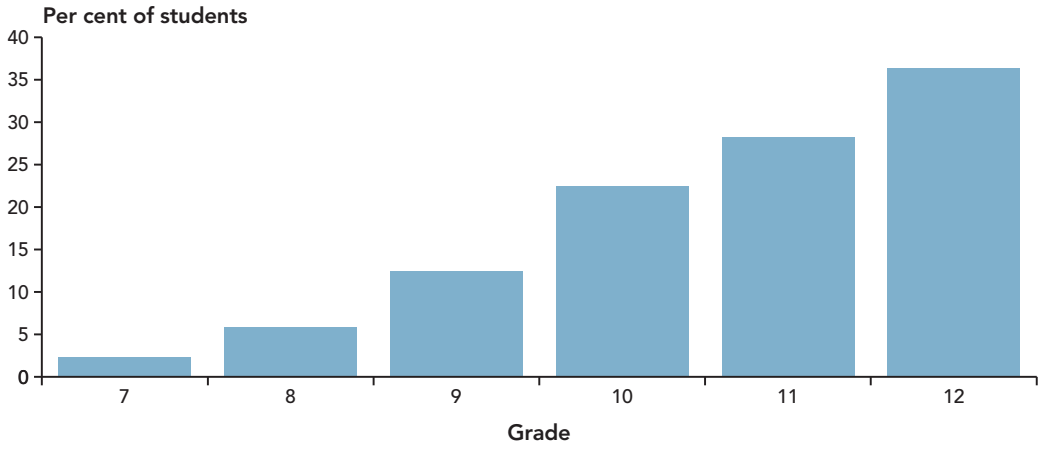
Schools with facilities and equipment that support physical activity have students who are more physically active.[91] Participation in physical education classes is not mandatory for students beyond Grade 9, and as such, participation rates decreased from 98% in Grade 9 to 36% in Grade 12.[92]

After school is an opportune time for children and youth to engage in physical activity. Five to 19 year olds who play outdoors during this time take roughly 2,000 more steps per day, which equates to an additional two kilometres of movement compared to those who do not play outdoors after school.[93] However, Canadian children and youth are engaging in only about 14 minutes of moderate-to-vigorous physical activity during this time period. The remainder of the time is devoted to light activity or sedentary pursuits.[83]

Smoking Status among Youth

Tobacco use causes significant morbidity, disability and death both directly (to those who use tobacco), and indirectly (to those who do not smoke) through exposure to second-hand smoke. Youth begin to experiment with tobacco as early as Grade 4. By the time they reach Grade 12, over one-third of Peel students have tried smoking a cigarette (Figure 8.5).

Figure 8.5
Proportion of Students who Ever Smoked a Cigarette by Grade, Peel, 2011



	7	8	9	10	11	12
Per cent (95% CI)	2.3* (1.5–3.4)	5.8 (4.6–7.3)	12.4 (11.0–13.9)	22.4 (19.3–25.8)	28.2 (24.9–31.7)	36.3 (32.0–40.8)

* Use estimate with caution.
Notes: 95% CI reflects the 95% confidence interval of the estimate.
Ever smoked defined as ever tried a cigarette (even just a few puffs).
Source: Student Health Survey 2011, Peel Public Health.

The frequency of daily smoking increases as youth get older. Less than 1% of Grade 9 students in Peel smoke cigarettes every day, a figure that increases to 6% by Grade 12. The top three reasons that youth try smoking are: curiosity (60%), encouraged by friends (20%), and stress (14%).[H]

On average, Peel smokers tried their first whole cigarette by age 17.

Males tend to try smoking at a younger age than females (Table 8.1). On average, people become daily smokers at 20 years of age. Males become daily smokers at a younger age and are also heavier smokers than females.

Table 8.1
Age of Smoking Initiation, Quantity and Duration of Smoking by Sex†, Peel, 2009/2010

Population	Behaviour	Male (mean)	Female (mean)	Total (mean)
All Smokers	Age of First Whole Cigarette	16.9	18.2	17.5
Daily Smokers	Age First Smoked Daily	19.1	21.3	20.0
	Number of Cigarettes Smoked Daily	14.1	10.0	12.5
	Number of Years Smoked Daily	22.4	24.8	23.4
Occasional Smokers	Number of Cigarettes Smoked on Smoking Days	2.8	2.7	2.8
	Number of Days Smoked One + Cigarettes Per Month	10.6	8.6*	10.0

* Use estimate with caution.
† Reflects population aged 12 years and older who ever smoked a cigarette.
Source: Canadian Community Health Survey 2009/2010, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

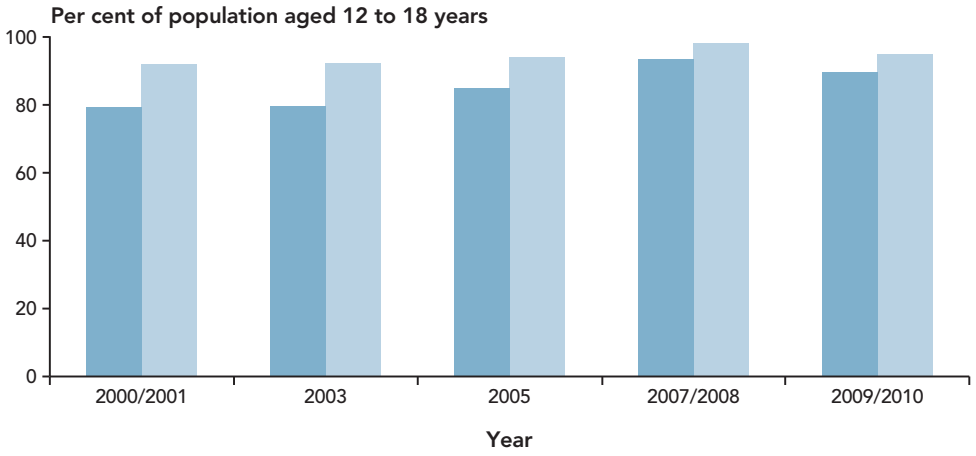
Definition

A ***never smoker*** is someone who has never smoked a whole cigarette.

A ***non-smoker*** does not currently smoke, and has not smoked 100 or more cigarettes in their lifetime.

Ninety per cent of youth in Peel have never smoked a whole cigarette (Figure 8.6). This is a measure of smoking experimentation or risk taking. The rate of non-smoking – which reflects those who have tried smoking maybe just once or several times, but who have not moved on to become current smokers – was 95% among youth.

Figure 8.6
Proportion of Youth who were Never Smokers and Non-Smokers, Peel, 2000/2001, 2003, 2005, 2007/2008, 2009/2010

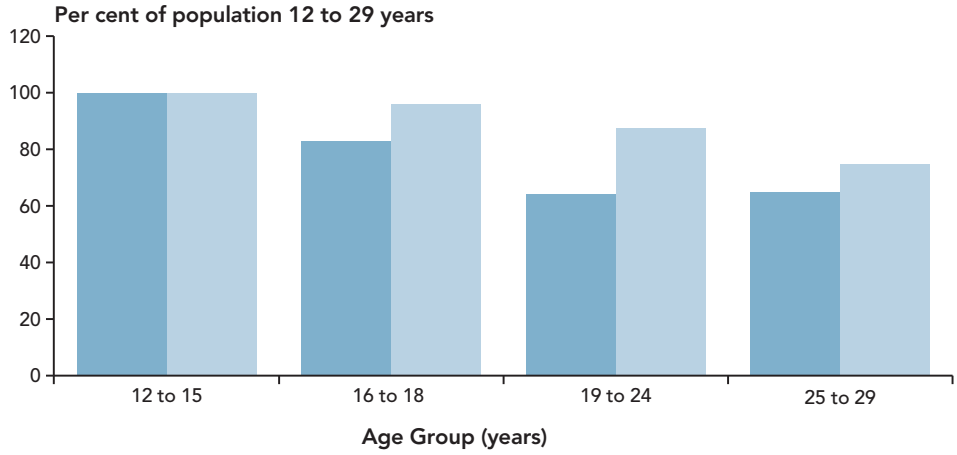


	2000/2001	2003	2005	2007/2008	2009/2010
Never smoker per cent (95% CI)	79.5 (73.3–85.1)	79.8 (73.5–84.9)	84.9 (78.8–89.4)	93.6 (89.6–95.8)	89.6 (84.8–93.0)
Non-smoker per cent (95% CI)	91.9 (87.2–94.9)	92.3 (88.4–95.0)	94.2 (89.5–96.9)	98.2 (96.0–99.2)	95.1 (91.1–97.4)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Canadian Community Health Survey 2000/2001, 2003, 2005, 2007/2008, 2009/2010, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

Youth between the ages of 12 to 15 years are unlikely to be established smokers. The proportion of non-smoking declines as age increases and is much higher for females compared to males (Figure 8.7).

Figure 8.7
Prevalence of Non-Smoking among Youth and Young Adults by Age Group and Sex, Peel, 2009/2010



	12 to 15	16 to 18	19 to 24	25 to 29
Males per cent (95% CI)	100.0 (100.0–100.0)	83.0 (69.1–91.8)	64.3 (51.5–76.0)	64.9 (52.5–75.5)
Females per cent (95% CI)	100.0 (100.0–100.0	95.8 (86.3–98.8)	87.5 (80.2–92.3)	74.8 (61.2–84.8)

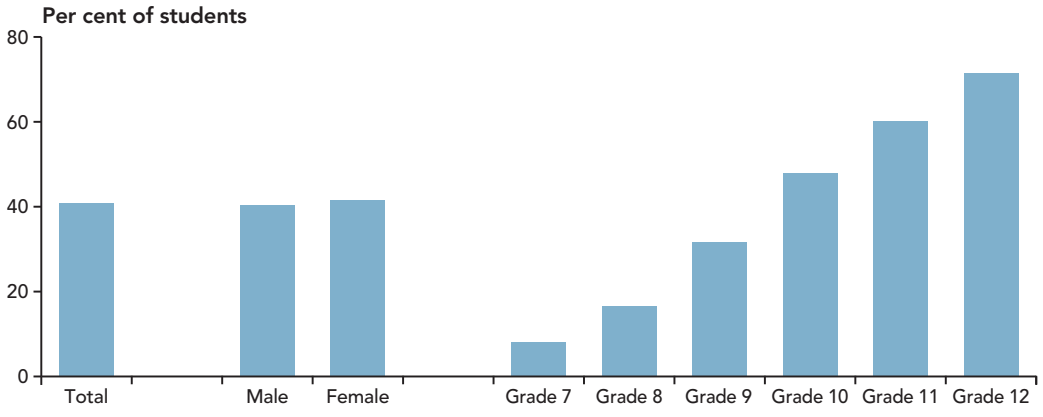
Notes: 95% CI reflects the 95% confidence interval of the estimate.
Source: Canadian Community Health Survey 2009/2010, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care.

Alcohol and Drug Use

The excessive use of alcohol and drugs by youth is associated with negative behaviours and health outcomes, including: risk for self injury (e.g., self-harm, suicidal behaviour), rates of violence, risk taking (e.g., unprotected sexual activity), impaired driving and/or being a passenger with an impaired driver, and other negative behaviours (e.g., criminal activity). Alcohol and drug use by youth can result in lifelong patterns of alcohol and drug misuse.

Forty-one per cent of students have consumed alcohol in their lifetime (Figure 8.8). By the time students are in Grade 12, almost three-quarters have consumed alcohol.

Figure 8.8
Proportion of Students who Consumed Alcohol† by Sex and Grade, Peel, 2011



	Total	Male	Female	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Per cent (95% CI)	40.9 (36.9–45.1)	40.4 (52.2–54.9)	41.6 (52.2–54.9)	8.1 (6.5–10.1)	16.7 (14.0–19.7)	31.6 (27.6–36.0)	47.9 (42.9–52.9)	60.1 (54.4–65.5)	71.6 (63.3–78.6)

† Consumed more than a sip.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Half of Peel students had their first alcoholic drink prior to Grade 9.[H] Approximately 20% of students who had tried alcohol drink at least once per week (Table 8.2).

Peel Facts

Approximately 21% of sexually active Peel students have had sexual intercourse when they were intoxicated three times or more in their lifetime.[H]

Table 8.2
Frequency of Alcohol Consumption† in the Past Four Weeks among Students who ever Consumed Alcohol, Peel, 2011

Frequency	Per cent of students who ever consumed alcohol (95% CI)
Did not drink alcohol in last 4 weeks	44.7 (40.8-48.7)
Once or twice over last 4 weeks	35.3 (32.4-38.2)
1 or 2 times a week	13.4 (11.8-15.1)
3 or 4 times a week	4.0 (3.3-4.9)
5 or 6 times a week	1.0* (0.6-1.6)
Once a day	NR
More than once a day	1.3* (0.9-2.1)

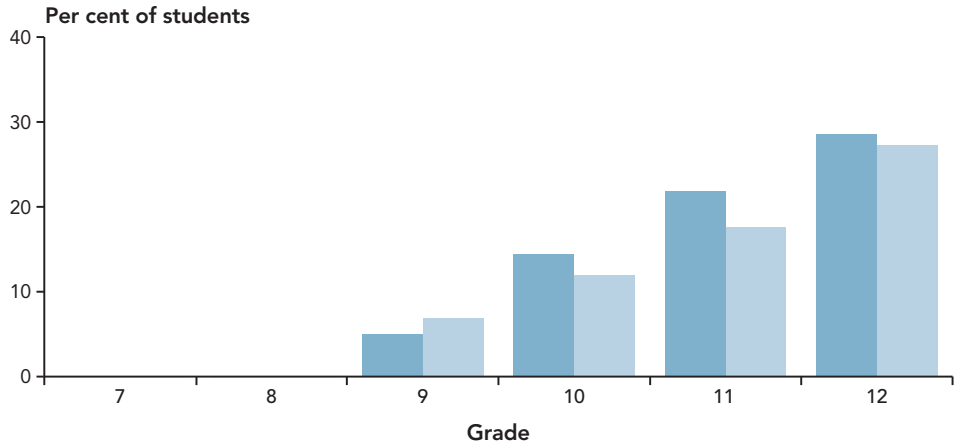
* Use estimate with caution.
† Excludes students who "only had a sip of alcohol to see what it was like".
NR - not releasable due to small numbers.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Definition

Binge drinking refers to the consumption of five or more alcoholic drinks on one occasion.

Over one-quarter of students in Grade 12 report binge drinking at least once per month or more (Figure 8.9).

Figure 8.9
Binge Drinking† Once per Month or More by Sex and Grade, Peel, 2011

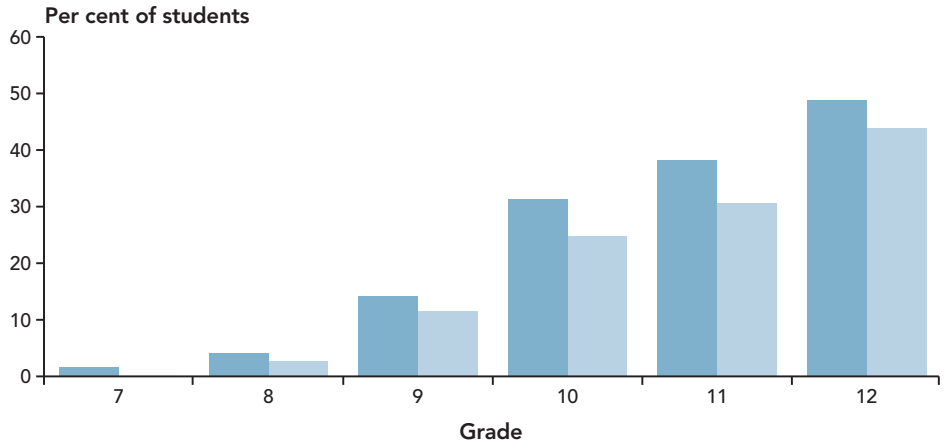


	7	8	9	10	11	12
Males per cent (95% CI)	NR	NR	5.0 (3.5–7.2)	14.4 (11.2–18.4)	21.8 (17.1–27.3)	28.6 (23.6–34.3)
Females per cent (95% CI)	NR	NR	6.9 (5.2–9.1)	11.9 (8.5–16.4)	17.6 (13.3–22.9)	27.3 (20.1–36.0)

† Binge drinking refers to consuming 5 or more alcohol drinks on one occasion.
NR – not releasable due to small numbers.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Twenty-two per cent of Peel students have used marijuana.[H] By Grade 12, almost half of students have used marijuana (Figure 8.10). Curiosity is the most common reason reported for trying marijuana the first time.[H]

Figure 8.10
Prevalence of Marijuana Use by Sex and Grade, Peel, 2011



	7	8	9	10	11	12
Males per cent (95% CI)	1.6* (1.0–2.8)	4.2* (2.6–6.5)	14.2 (11.7–17.1)	31.3 (26.1–37.1)	38.3 (33.0–43.8)	48.9 (42.4–55.4)
Females per cent (95% CI)	NR	2.7* (1.7–4.1)	11.5* (7.9–16.4)	24.8 (20.0–30.2)	30.6 (25.1–36.8)	43.8 (37.6–50.1)

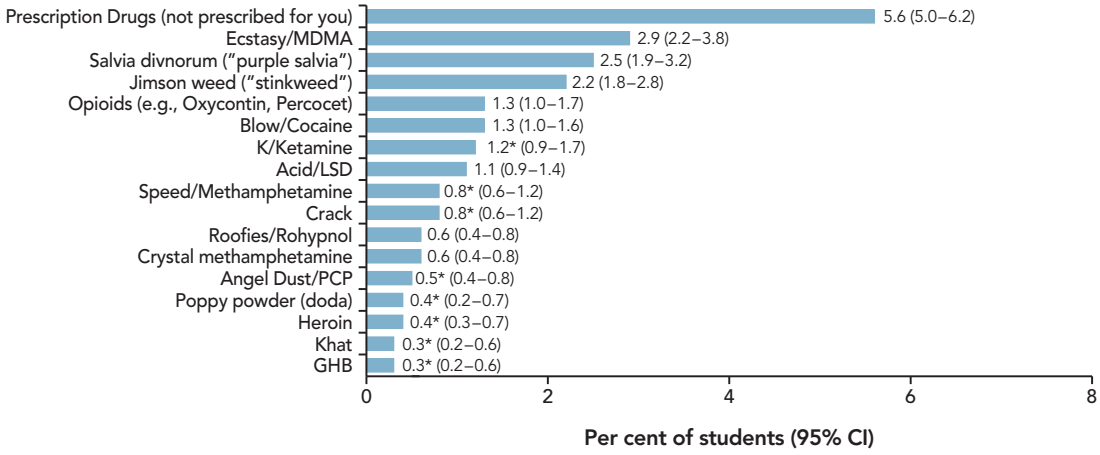
* Use estimate with caution.
NR - not releasable due to small numbers.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

A minority of Peel students use drugs other than marijuana (Figure 8.11). Prescription drugs that were not prescribed to the student are the most common, followed by ecstasy (MDMA), salvia divnorum and jimson weed.

Immigrant students in Peel are less likely to use any type of drug.

Immigrant students are less likely to use any type of drug (including marijuana) than non-immigrant students (16% vs. 28%).[H]

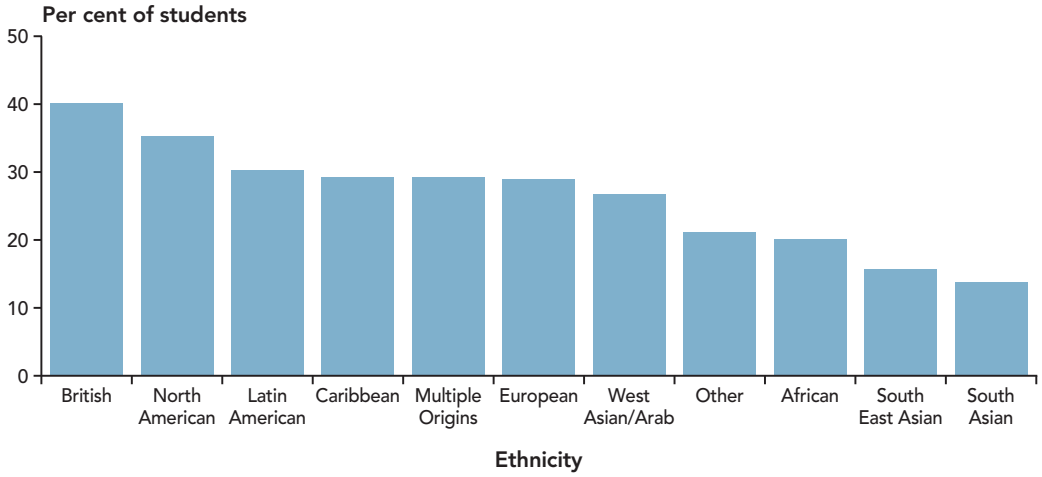
Figure 8.11
Proportion of Students who Reported Ever Using Illicit Drugs, Peel, 2011



* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Students of South Asian, African and South East Asian background are less likely to use drugs (including marijuana) compared to students of North American background (Figure 8.12).

Figure 8.12
Prevalence of Drug Use (Including Marijuana) by Ethnicity, Peel, 2011



	British	North American	Latin American	Caribbean	Multiple Origins	European	West Asian/Arab	Other	African	South East Asian	South Asian
Per cent (95% CI)	40.2 (33.1–47.6)	35.2 (28.3–42.7)	30.3 (21.1–41.3)	29.3 (24.7–34.3)	29.3 (25.7–33.2)	29.0 (24.6–33.8)	26.7 (18.8–36.4)	21.1 (12.4–33.5)	20.1 (15.4–25.8)	15.7* (10.8–22.1)	13.8 (10.8–17.5)

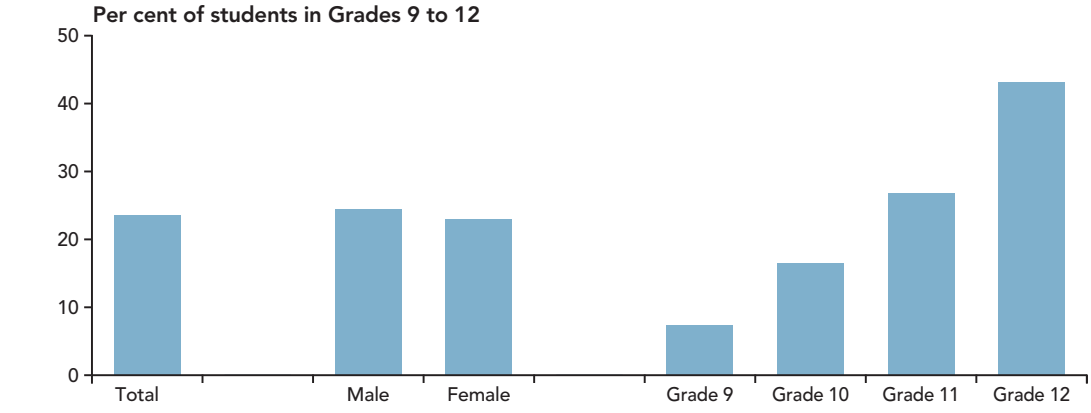
* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey, Peel Public Health.

Sexual Activity

Sexual activity can impact the physical health of youth (e.g., acquisition of a sexually-transmitted infection), but can also impact the psychological and emotional health of youth (e.g., self-esteem, self-worth).

One-quarter of students in Grades 9 through 12 have had sexual intercourse, with the proportion increasing from 7% in Grade 9 to 43% in Grade 12 (Figure 8.13).

Figure 8.13
Proportion of Students who Report Having had Sexual Intercourse† by Sex and Grade, Peel, 2011



	Total	Male	Female	Grade 9	Grade 10	Grade 11	Grade 12
Per cent (95% CI)	23.5 (20.5–26.9)	24.5 (20.5–27.9)	22.9 (19.6–9.3)	7.4 (5.9–26.9)	16.5 (13.2–20.4)	26.8 (23.0–30.9)	43.2 (37.3–49.2)

† Sexual intercourse defined as oral, vaginal or anal intercourse.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

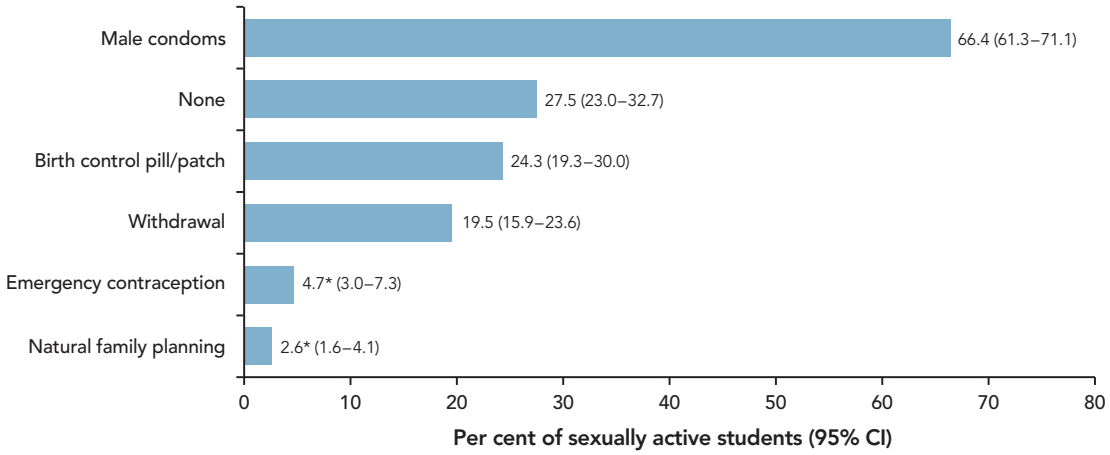
Among sexually active Grade 12 students, 44% have had one sexual partner, 17% had two, 13% had three and 25% had four or more partners.[H]

Unprotected sexual activity can result in pregnancy and/or a sexually transmitted infection. Teens may be both physically and psychologically unprepared for pregnancy and parenthood, leading to poor outcomes for themselves and their child. Young mothers are at higher risk for stillbirth, preterm delivery and fetal growth restriction. They are also more likely to report negative health behaviours (e.g., smoking during pregnancy) which can lead to negative fetal outcomes (see ***Born in Peel: Examining Maternal and Infant Health***). Sexually transmitted infections result in negative health consequences and can lead to increased risk for pelvic inflammatory disease and infertility later in life.

Twenty-eight per cent of sexually active Grade 9 to 12 students in Peel have had sex without birth control.

Condoms are the most common form of birth control used by sexually active Peel students (Figure 8.14). Of concern are the 28% of students who use no birth control and the 20% who use 'withdrawal' as a method of birth control.

Figure 8.14
Type of Birth Control Used by Students who are Sexually Active, Peel, 2011



* Use estimate with caution.
Notes: 95% CI reflects the 95% confidence interval of the estimate.
Percentages do not add up to 100% due to multiple responses.
Source: Student Health Survey 2011, Peel Public Health.

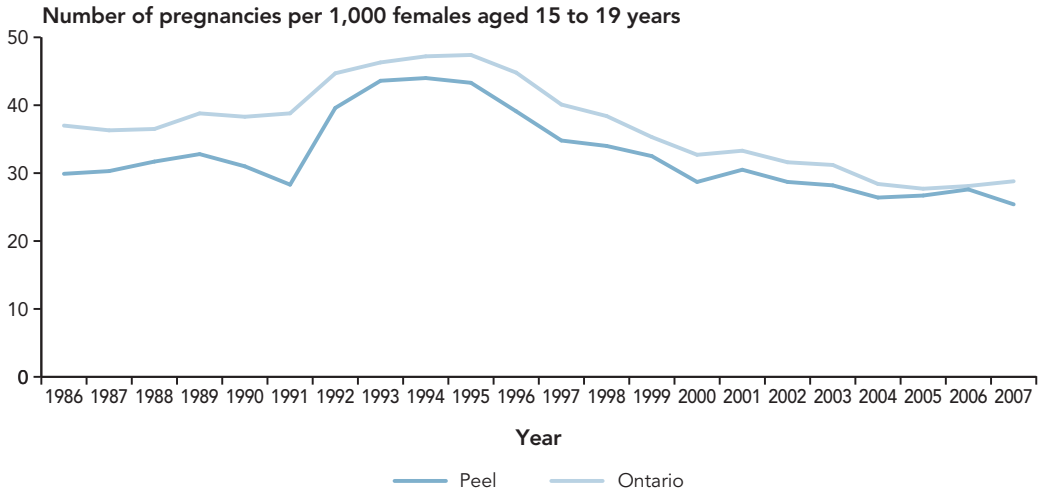
Peel Facts

Talking to Teens about Sex

The majority (76%) of Peel parents felt very or somewhat comfortable discussing sexual health information with their teen aged 12 to 17 years.[12] Sixty-seven per cent of parents have discussed the appropriate age for sexual debut with them.[12] Less than half of parents had discussed contraception beyond abstinence to avoid unwanted pregnancy with their children (47%) or talked about using condoms to prevent sexually transmitted infections (48%).[12]

The teen pregnancy rate in Peel has consistently been lower than the provincial rate (Figure 8.15). Teen pregnancy rates in both Peel and Ontario have been declining over the past 20 years. Over time, the data source used to collect abortion data has captured a higher number of settings where abortions occur. This has an impact on the pregnancy rate, especially for teens (see Data Sources and Limitations for more information).

Figure 8.15
Teen Pregnancy Rate, Peel and Ontario, 1986-2007



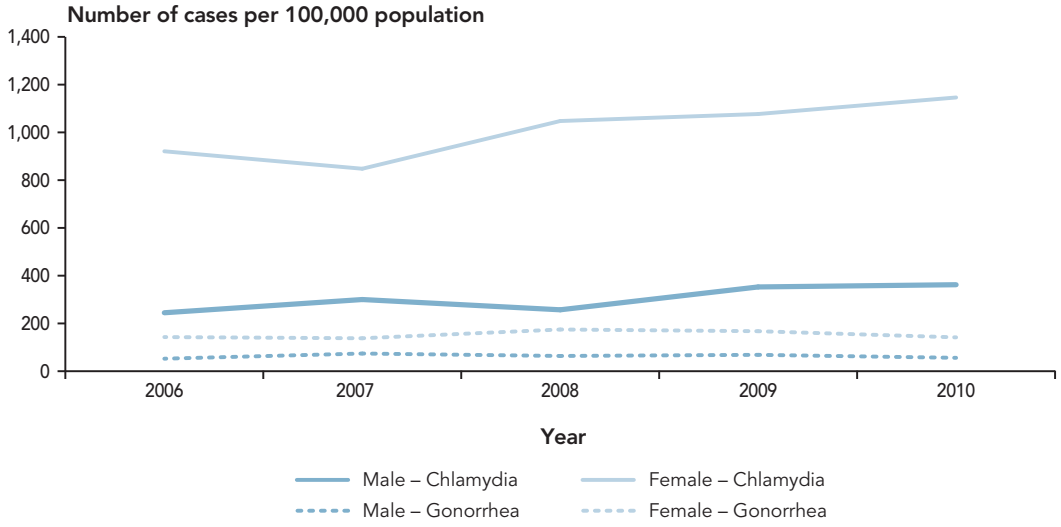
Note: There have been changes in the manner of counting therapeutic abortions over time, which has an impact on the total number of pregnancies per year.
Sources: Ontario Live Birth and Stillbirth Databases 1986-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
1986-2000 Abortion Data, Health Planning System (HELPS), Ministry of Health Promotion.
2001-2007 Abortion Data, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 1986-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Definition

Chlamydia and gonorrhea **are both bacterial infections that cause urinary pain and genital discharge. If left untreated, they can result in long-term complications such as infertility and pelvic inflammatory disease.**

The rate of chlamydia among teens increased between 2006 and 2010, especially among females (Figure 8.16). The difference observed between males and females may be due to differences in testing rates, as females are more likely to be tested for sexually transmitted infections than males through regular Pap smear testing.

Figure 8.16
Incidence of Chlamydia and Gonorrhea among Teens 15 to 19 Years Old, Peel, 2006-2010



Sources: Integrated Public Health Information System (iPHIS) 2006-2010, Peel Public Health.
Population Estimates 2006-2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

chapter 9

HEALTH-CARE UTILIZATION

Key Messages

- Young children have the highest rates of hospitalization and emergency department visits.
- Common causes of hospitalization and emergency department visits are respiratory conditions, injuries and infectious diseases.
- Utilization-based data sources only capture information on conditions severe enough to require care outside of a physician's office.

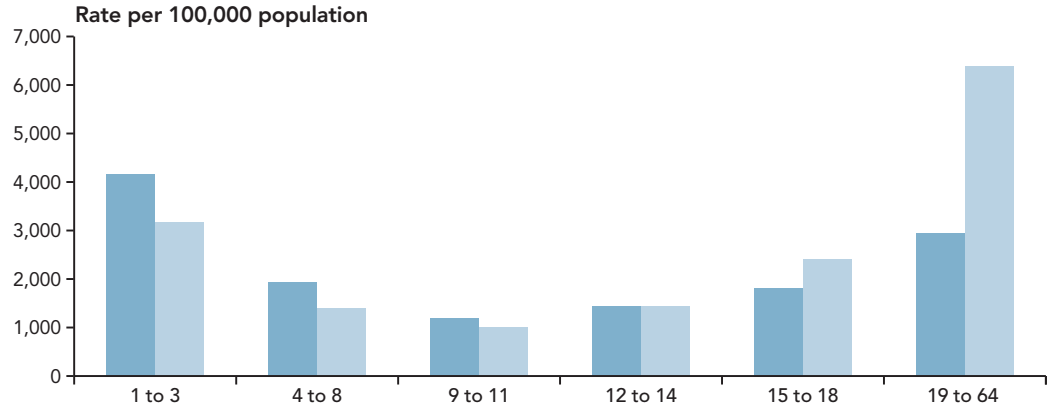
This chapter provides an overview of health-care use by children and youth. More detailed information regarding specific causes of emergency department visits, hospitalizations and deaths can be found in the Injuries and Mortality chapters.

Hospitalization

Over the past 15 years there has been a decline in the rate of hospitalizations among children, a result of the shift towards outpatient care for illness and injuries (data not shown).[L] Young children (aged one to three years) have higher hospitalization rates than older children (Figure 9.1). Males have higher rates of hospitalization than females within the earliest age groups.

Respiratory conditions, injuries and infectious diseases are the most common causes of hospitalization among young children while pregnancy and injuries are the most common causes among youth (Table 9.1).

Figure 9.1
All-Cause Hospitalization Rate by Sex and Age Group, Peel, 2010



	1 to 3	4 to 8	9 to 11	12 to 14	15 to 18	19 to 64
Males	4,145.5	1,931.9	1,185.6	1,434.3	1,799.1	2,941.4
Females	3,168.1	1,397.4	1,003.9	1,434.4	2,400.7	6,389.0

Sources: Hospital In-Patient Discharges 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Table 9.1
Leading Causes of Hospitalization among Children by Age Group, Peel, 2010

Age Group (years)	Top 5 Leading Causes of Hospitalization	Number of Hospitalizations	Age-specific Rate per 100,000 population
1 to 4	Asthma	289	426.1
	Influenza and pneumonia	272	401.0
	Intestinal infectious diseases	255	375.9
	Acute respiratory infections other than flu or pneumonia	201	296.3
	Injury, poisoning and certain other consequences of external causes	163	240.3
	All causes	**2,235**	**3,295.0**
5 to 9	Asthma	144	169.8
	Injury, poisoning and certain other consequences of external causes	132	155.6
	Intestinal infectious diseases	114	134.4
	Diseases of the appendix	92	108.5
	Influenza and pneumonia	86	101.4
	All causes	**1,233**	**1,453.8**
10 to 14	Injury, poisoning and certain other consequences of external causes	164	181.8
	Diseases of the appendix	163	180.7
	Diabetes	46	51.0
	Asthma	42	46.6
	Congenital malformations, deformations and chromosomal abnormalities	32	35.5
	All causes	**1,186**	**1,314.7**
15 to 19	Other conditions associated with pregnancy, childbirth and the puerperium	305	317.0
	Injury, poisoning and certain other consequences of external causes	259	269.2
	Diseases of the appendix	136	141.3
	Mood (affective disorders)	71	73.8
	Arthritis/Rheumatism	37	38.5
	All causes	**1,963**	**2,040.0**

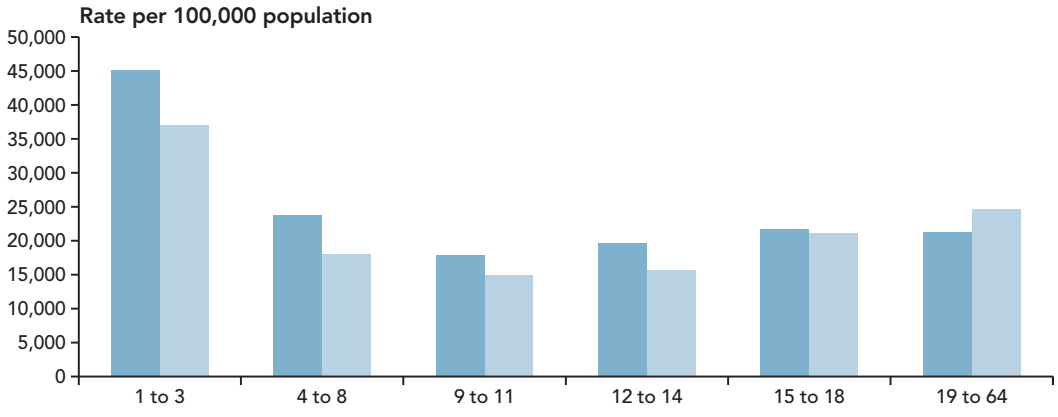
Sources: Hospital In-Patient Discharges 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Emergency Department Visits

Children in Peel had a significantly lower rate of emergency department visits in 2010 than Ontario children (data not shown) – a pattern which may be explained by a higher availability and use of urgent care centres and walk-in clinics in Peel.[M]

Young children have the highest rate of emergency department visits in Peel compared to any other age group (Figure 9.2). Younger boys have higher rates of emergency department visits than girls, likely as a result of injuries.

Figure 9.2
All-Cause Emergency Department Visit Rate by Sex and Age Group, Peel, 2010



	1 to 3	4 to 8	9 to 11	12 to 14	15 to 18	19 to 64
Males	45,183.8	23,753.7	17,820.2	19,681.4	21,674.6	21,352.6
Females	37,004.4	18,029.0	14,886.8	15,670.5	21,079.6	24,773.9

Sources: National Ambulatory Care Reporting System 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Injuries, respiratory conditions and infectious diseases are the leading causes of emergency department visits among children (Table 9.2).

Some visits to the emergency department are for non-urgent or less urgent conditions, such as ear infections, cystitis, conjunctivitis and upper respiratory infections, that could be adequately addressed in a primary care setting (e.g., doctor's office, walk-in clinic).

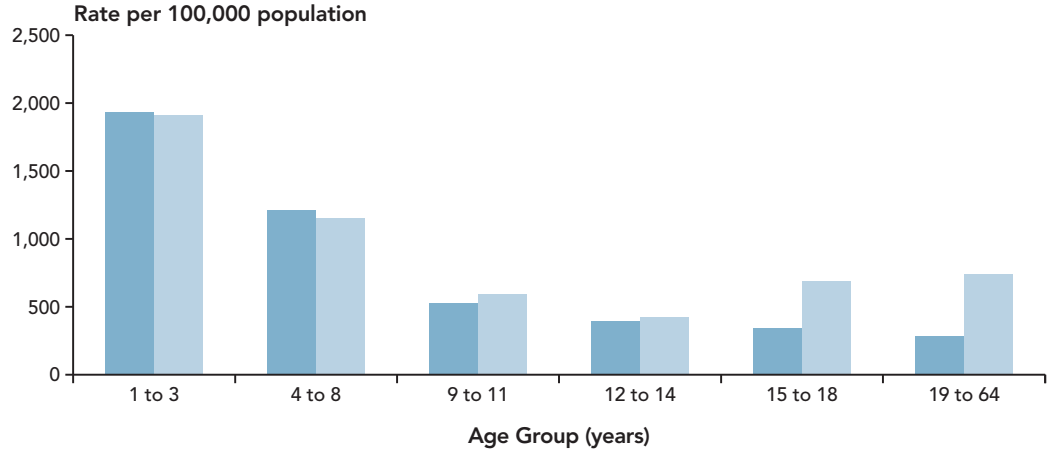
Table 9.2
Leading Causes of Emergency Department Visits among Children by Age Group, Peel, 2010

Age Group (years)	Top 5 Leading Causes of Emergency Department Visits	Number of Visits	Age-specific Rate per 100,000 population
1 to 4	Injury, poisoning and certain other consequences of external causes	6,600	9,730.2
	Acute respiratory infections other than flu or pneumonia	4,322	6,371.8
	Intestinal infectious diseases	2,014	2,969.2
	Diseases of the ear and mastoid process	1,375	2,027.1
	Influenza and pneumonia	1,135	1,673.3
	All causes	**25,714**	**37,909.5**
5 to 9	Injury, poisoning and certain other consequences of external causes	5,552	6,546.2
	Acute respiratory infections other than flu or pneumonia	1,411	1,663.7
	Intestinal infectious diseases	944	1,113.0
	Diseases of the ear and mastoid process	693	817.1
	Asthma	642	757.0
	All causes	**15,789**	**18,616.2**
10 to 14	Injury, poisoning and certain other consequences of external causes	8,053	8,926.6
	Acute respiratory infections other than flu or pneumonia	617	683.9
	Intestinal infectious diseases	414	458.9
	Diseases of the skin and subcutaneous tissue	404	447.8
	Arthritis/Rheumatism	335	371.3
	All causes	**15,616**	**17,310.0**
15 to 19	Injury, poisoning and certain other consequences of external causes	8,734	9,076.7
	Acute respiratory infections other than flu or pneumonia	712	739.9
	Diseases of the skin and subcutaneous tissue	611	635.0
	Intestinal infectious diseases	528	548.7
	Arthritis/Rheumatism	456	473.9
	All causes	**21,133**	**21,962.3**

Sources: National Ambulatory Care Reporting System 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Approximately 2,900 emergency department visits for children and youth aged one to 18 years in 2010 were for conditions which could have been cared for within another setting (rates presented in Figure 9.3). This is equivalent to approximately eight emergency department visits per day. The reason for these children being seen within an emergency department and not in primary care is unknown (e.g., lack of access to a physician, occurrence or condition deteriorating outside of regular office hours).

Figure 9.3
Rate of Emergency Department Visits Best Managed Elsewhere by Sex and Age Group, Peel, 2010



	1 to 3	4 to 8	9 to 11	12 to 14	15 to 18	19 to 64
Males	1,936.3	1,208.0	528.1	394.7	345.2	282.6
Females	1,911.4	1,152.7	592.0	422.1	686.3	740.7

Sources: National Ambulatory Care Reporting System 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Health-Care Use

Regular health-care use is important for early detection of health concerns. Data regarding the use of health-care services by children less than 12 years of age are limited. It is not possible to determine whether younger children are regularly being seen by a physician or whether they have access to a regular family doctor.

For children and youth, prevention services can include immunization and developmental screening, as well as provision of advice regarding weight control, exercise and healthy eating. Although health care in Ontario is available for all residents, it is widely acknowledged that not everyone has access to a regular family doctor or receives all of the preventive services they should.

Almost all youth in Peel aged 12 to 19 years had a regular medical doctor (94%) in 2007/2008.[D2] Peel youth were as likely to have a regular medical doctor as youth in all of Ontario (data not shown).[D2]

Peel Facts

Vision and Hearing Screening

Forty-nine per cent of senior kindergarten students in 2010 had their vision checked by an optometrist and 47% had their hearing checked by an audiologist.[E]

chapter 10

HEALTH STATUS AND CHRONIC CONDITIONS

Key Messages

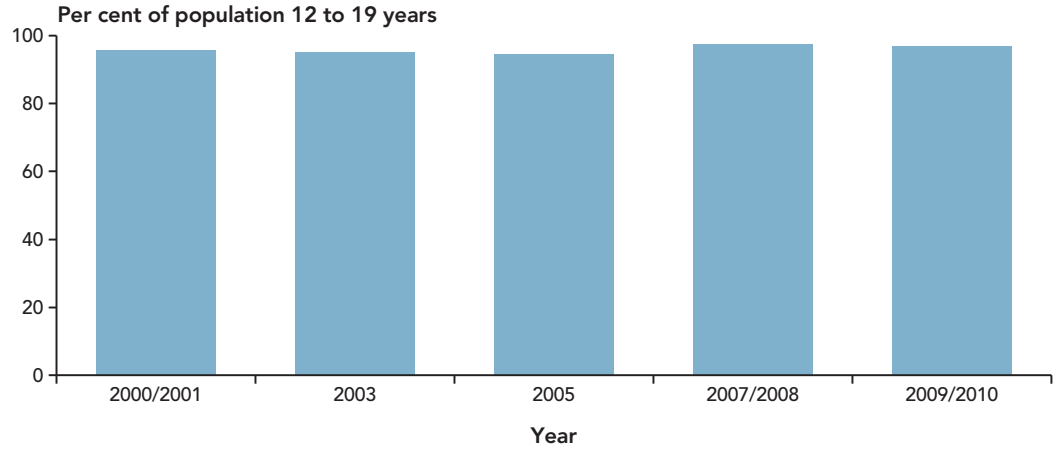
- One-third of Peel students are overweight or obese. The prevalence of obesity among young children is unknown.
- The prevalence of diabetes among children in Peel is unknown.
- The incidence of cancer has remained stable among children and youth over time but mortality rates have declined due to advances in cancer treatment.
- Peel students engage in sun protection behaviours to varying degrees, and the use of artificial tanning equipment is rare among youth.
- 52% of Peel students in Grades 10 and 12 have experienced dental caries (treated and untreated).

Chapter 9 (Health-Care Utilization) focuses on overall health-care utilization information for children and youth. Utilization-based data do not give the complete picture of the health status of children because they only capture instances where a child has been sufficiently ill or injured to seek health care outside of a doctor's office. The topics covered within this chapter include self-reported information on general health status, obesity, chronic health conditions and oral health.

General Health Status

Almost all youth in Peel report excellent, very good or good health (Figure 10.1). Peel youth do not differ from Ontario youth in terms of self-rated general health (data not shown).

Figure 10.1
Self-Reported General Health† among Youth, Peel, 2000/2001, 2003, 2005, 2007/2008, 2009/2010



	2000/2001	2003	2005	2007/2008	2009/2010
Per cent (95% CI)	95.7 (91.6–97.9)	95.2 (91.9–97.1)	94.4 (90.9–96.6)	97.6 (94.7–98.9)	96.9 (94.2–98.4)

† Includes those who reported excellent, very good or good general health status.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Canadian Community Health Survey 2000/2001, 2003, 2005, 2007/2008, 2009/2010, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Overweight and Obesity

The relationship between physical activity, nutrition, and overweight and obesity has become a major public health priority. Unhealthy weight at a young age may continue into adulthood and increases the risk of developing illness later in life including respiratory problems, cardiovascular disease, certain types of cancer, and Type 2 diabetes.[83,94,95] Close to one-third (32%) of Canadians five to 17 years old are overweight or obese.[95]

Did You Know

Measuring Obesity

Obesity is commonly estimated based on Body Mass Index (BMI), a measure of weight in relation to height.

BMI is an anthropometric measure of weight and height, and is defined as weight in kilograms divided by height in meters squared.

BMI = weight (kg)/height (m)^2

BMI has been validated against measures of body density, and is a reliable and non-intrusive measure to assess adiposity in children and adolescents.[58, 96] The recommended cut-off criteria for determining overweight and obesity status for children and youth 5 to 19 years of age are:

Underweight
<3rd percentile

Healthy weight
≥3rd percentile to <85th percentile

Overweight
≥85th percentile to <97th percentile

Obese
≥97th percentile

A child's BMI has been shown to be most accurate when height and weight measures are collected as opposed to those reported by parents. Parents often overestimate height and underestimate weight, which skews BMI estimates and results and leads to an underestimation of the prevalence of overweight and obesity.[97]

Limited physical activity, unsupportive built environments, too much time spent in sedentary behaviours and overconsumption of foods high in sugars and fat, are all factors that have contributed to the rise in obesity among children and youth. Each is a cause for concern due to the negative impact on future health outcomes.

An unhealthy body weight affects a child's current health status. Ninety-five per cent of Canadian children newly diagnosed with Type 2 diabetes are obese.[98] Overweight and obesity can also affect mental health as these children often face social prejudices and biases, and are unsatisfied with their bodies.[99]

Nineteen per cent of Peel students are overweight and 13% are obese.

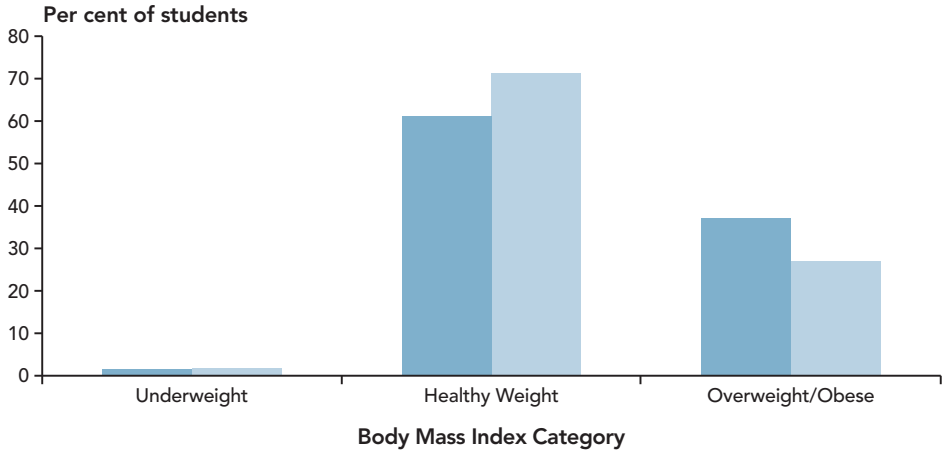
Did You Know

Obesity and Mental Health

Overweight and obese students were more likely to have high emotional distress and less likely to have high emotional well-being measures than students with a healthy weight. These relationships were found to be stronger in girls than in boys.[41]

Approximately 66% of Peel students are a healthy weight and 32% are overweight or obese (Figure 10.2). Female students are less likely to be overweight or obese compared to male students.

Figure 10.2
Proportion of Students by Body Mass Index Category and Sex, Peel, 2011

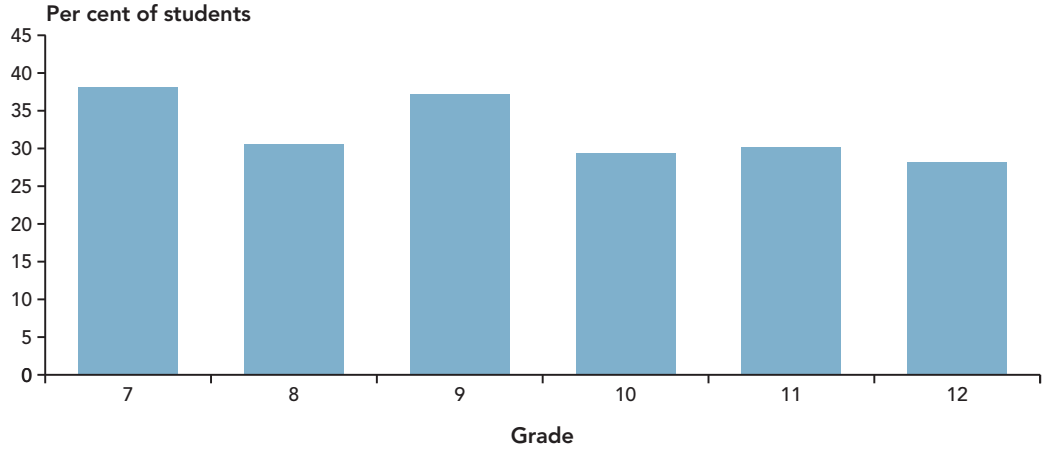


	Underweight	Healthy Weight	Overweight/Obese
Males per cent (95% CI)	1.6 (1.2–2.2)	61.1 (56.1–63.1)	37.2 (35.3–39.2)
Females per cent (95% CI)	1.8 (1.3–2.4)	71.2 (69.4–73.0)	27.0 (25.2–28.9)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

An individual's image of their own body is an important factor in self-esteem, physical health and mental health. Having a poor body image can lead to poor self-esteem, eating disorders, extreme weight control methods and poor mental health.[41]

Figure 10.3
Proportion of Students who are Overweight or Obese by Grade, Peel, 2011



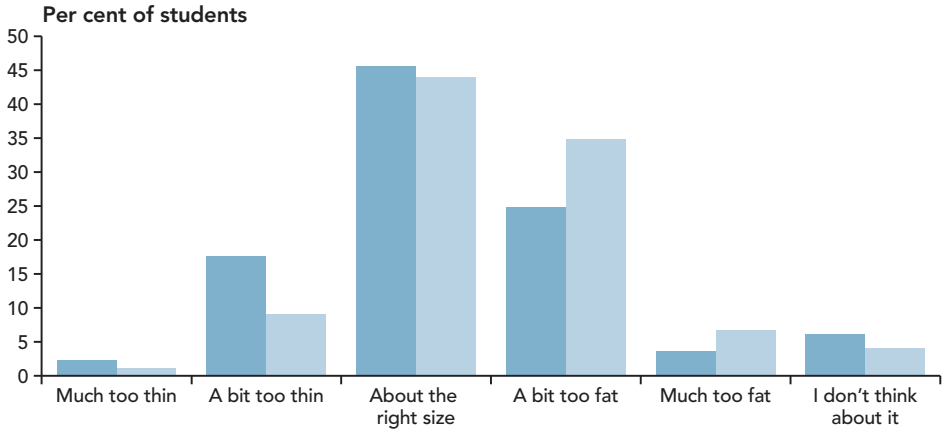
	7	8	9	10	11	12
Per cent (95% CI)	38.1 (35.0–41.1)	30.6 (27.2–34.1)	37.2 (34.1–40.5)	29.3 (25.3–33.6)	30.2 (26.4–34.2)	28.1 (24.5–32.0)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Less than half of students reported that they felt that their body is "about the right size" (Figure 10.4). Female students are more likely to report being "a bit too fat" or "much too fat" compared to male students.

Among students who have a BMI within the healthy range, 27% of females and 9% of males think that they are too fat (either a bit too fat or much too fat).[H]

Figure 10.4
Perceived Body Image by Sex, Peel, 2011



	Much too thin	A bit too thin	About the right size	A bit too fat	Much too fat	I don't think about it
Males per cent (95% CI)	2.3 (1.9–2.9)	17.6 (15.9–19.5)	45.6 (44.1–47.2)	24.8 (22.8–26.8)	3.6 (3.0–4.3)	6.1 (5.3–7.0)
Females per cent (95% CI)	1.1* (0.8–1.5)	9.1 (8.2–10.2)	44.0 (41.8–46.3)	34.9 (33.1–36.7)	6.7 (5.9–7.7)	4.1 (3.6–4.8)

* Use estimate with caution.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

CHRONIC HEALTH CONDITIONS

Chronic diseases develop over time and do not typically appear among children and youth. This section will outline several conditions which do occur in childhood (i.e., asthma, diabetes and cancer). Risk behaviours, such as smoking, physical inactivity and alcohol consumption, established during adolescence increase the risk of chronic disease in adulthood.

Asthma

Measuring the prevalence of asthma is difficult because it is a chronic disease that fluctuates in severity over time. Most people with asthma have not been clinically diagnosed (e.g., by using a spirometer) with the condition.[100]

The highest incidence rates of childhood asthma are seen in the youngest age group, with the Peel rate being significantly higher among this age group compared to Ontario (Figure 10.5).

Did You Know

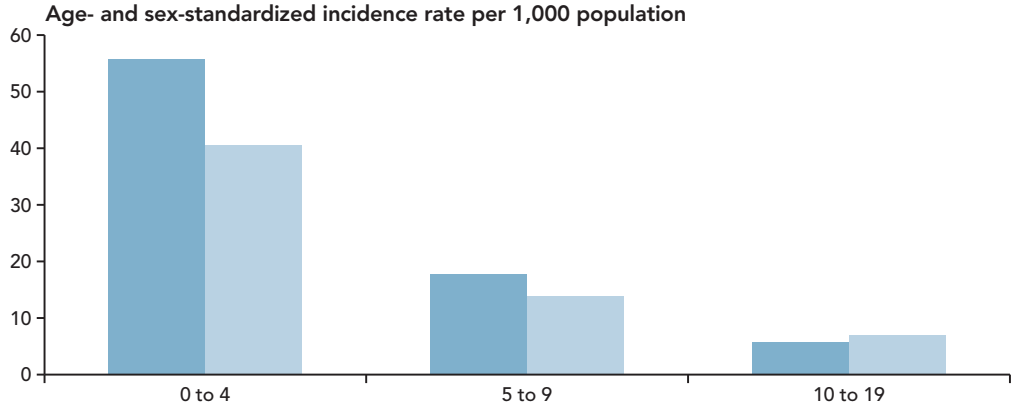
Allergies Among Children

Children may be sensitive to a number of allergens, including specific foods, natural exposures (e.g., trees, grass, ragweed) or environmental exposures (e.g., scents, chemicals). Allergies may be transient and can range in severity, with the most severe reactions leading to anaphylaxis and potentially death. Children with life-threatening allergies typically carry an injectable dose of epinephrine in case of accidental exposure.

Due to the high prevalence and severity of nut allergies (including peanuts and tree nuts), some schools in Ontario have placed restrictions on nuts and products containing nuts entering the school environment.

In 2005, 34,800 youth in Peel aged 12 to 18 years self-reported having an allergy (29%).[D3]

Figure 10.5
Age- and Sex-Standardized Incidence Rate† of Asthma by Age Group, Peel and Ontario, 2006/2007



	0 to 4	5 to 9	10 to 19
Peel (95% CI)	55.7 (53.8–57.5)	17.8 (16.7–18.9)	5.8 (5.4–6.2)
Ontario (95% CI)	40.6 (40.1–41.1)	13.8 (13.5–14.1)	7.0 (6.8–7.3)

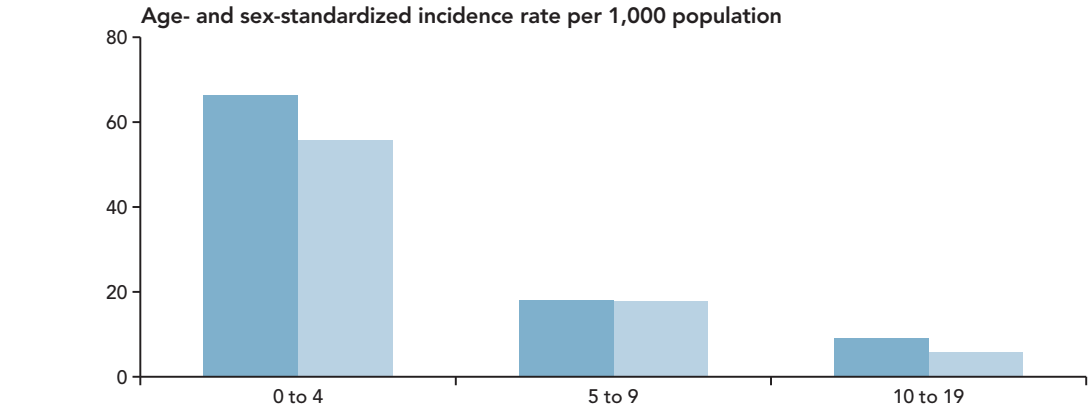
† Age- and sex-standardized to the 2001 Ontario census population.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Institute for Clinical Evaluative Sciences, in-Tool.

Definition

Asthma **is a respiratory disease caused by inflammation in the lungs which results in wheezing and difficulty breathing.**

Amongst young children (four years of age and younger) and youth (10 to 19 years) there has been a significant reduction in asthma incidence rates over the past decade (Figure 10.6).

Figure 10.6
Age- and Sex-Standardized Incidence Rate† of Asthma by Age Group, Peel, 1996/1997 and 2006/2007



	0 to 4	5 to 9	10 to 19
1996/1997 (95% CI)	66.4 (64.2–68.6)	18.1 (17.0–19.3)	9.1 (8.5–9.7)
2006/2007 (95% CI)	55.7 (53.8–57.5)	17.8 (16.7–18.9)	5.8 (5.4–6.2)

† Age- and sex-standardized to the 2001 Ontario census population.
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Institute for Clinical Evaluative Sciences, in-Tool.

A recent decline in the national prevalence of asthma has been attributed to several factors including improved air quality, decreased prevalence of respiratory allergies, changes in hygiene practices (especially in child care settings), and reductions in exposure to second-hand smoke.[101] Changes in diagnostic practices may also lead to reductions in the overall prevalence rate.[101]

Diabetes

Diabetes (Type 1 and Type 2) leads to chronically high blood sugar levels (hyperglycemia) which, over time, causes dam-

Definition

Type 1 diabetes is an auto-immune disorder in which a person's immune system attacks and destroys the insulin-producing cells of the pancreas. Type 1 diabetes is the most severe form of diabetes and children affected are dependent on insulin to regulate their blood sugar levels for their whole life. Type 1 diabetes is not preventable.[98]

Type 2 diabetes is the result of insufficient insulin production or poor response to insulin that is produced. Type 2 diabetes is strongly related to excess body weight, or genetic factors. Typically older adults are diagnosed with Type 2 diabetes, although the prevalence is increasing among children and adolescents. This form of diabetes can be prevented (or delayed) with proper diet, healthy body weight and physical activity.[98]

age to blood vessels, nerves and organs (such as the eye, kidney and heart). The majority of diabetes cases among children are Type 1 (approximately 90%) although the prevalence of Type 2 diabetes in this age group is increasing.[98]

Diabetes prevalence information is not available specifically for Peel. Nationally, 0.2% of children aged one to nine years and 0.5% of children aged 10 to 19 years have been diagnosed with diabetes.[N] What is unknown is how the prevalence of diabetes among children in Peel compares to the national rate.

Cancer

Childhood cancer is a rare occurrence. Almost 850 Canadian children from birth to 14 years of age are diagnosed with cancer every year and approximately 135 die as a result.[102] Over the past two decades the incidence rates for the most common childhood cancers have remained stable, while the mortality rate for childhood cancers has declined. Improvements in survival rates are the result of treatment improvements.[103] Those who survive cancer may have long-term effects (such as cardiopulmonary, endocrine, renal or pulmonary dysfunction, neurocognitive impairments and secondary cancers).[103]

Although childhood cancer incidence has remained stable, mortality rates have declined due to improvements in treatment.

The types of cancer which occur among youth and young adults (15 to 29 years old) are a mix of those most common in younger children and those more common amongst adults. Cancer prevention efforts among adolescents should focus on encouraging youth to avoid modifiable risk factors (e.g., tobacco use, alcohol consumption, excess sun exposure, and some sexually transmitted infections).[104]

Over the past two decades there have been 722 incident cases of cancer among children birth to 14 years in Peel and 323 incident cases of cancer among youth 15 to 19 years of age.[O]

Melanoma and Sun Safety

Melanoma is one of the five most common cancers among Ontario males and females 15 to 29 years of age.[105] Melanoma is caused by overexposure to the ultraviolet rays (UV) of the sun. Children are more vulnerable than adults to damage from UV ray exposure from the sun because their skin is thinner and more sensitive, allowing the UV rays to penetrate more easily. Severe and/or frequent sunburns during childhood increase the risk of developing skin cancer later in life.[106, 107]

Definition

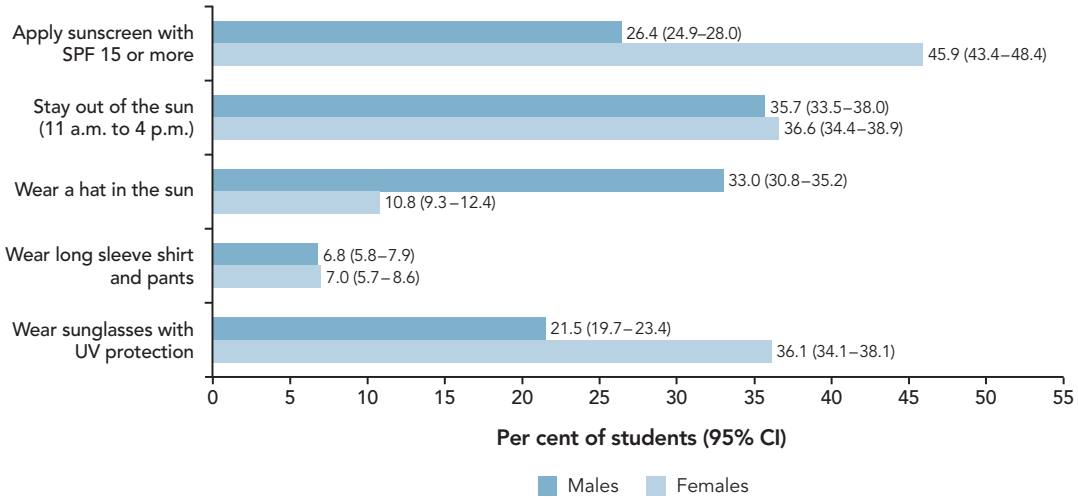
There are three main types of skin cancer: basal cell carcinomas, squamous cell carcinomas and malignant melanoma. Malignant melanoma is the type of skin cancer most likely to be fatal.

The incidence rate of melanoma has increased among adults in Ontario over the past 24 years. Among youth 15 to 29 years of age, the rate has remained relatively stable.[O] The increase among adults can be attributed to an increase in the amount of unprotected sun exposure they have experienced and to improvements in cancer detection.[102]

Approximately 43% of all Peel students have been sunburned in their lifetime.[H] What is unknown is the frequency and severity of these sunburns.

Students engage in sun-protecting behaviours to varying degrees. Female students are more likely to report using sunscreen and wearing sunglasses (Figure 10.7). Male students are more likely to wear a hat.

Figure 10.7
Proportion of Students who Engage in Sun Protecting Behaviour† During Summer Months by Sex, Peel, 2011



† Includes those who engage in behaviour "always" or "most of the time".
Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Student Health Survey 2011, Peel Public Health.

Artificial Tanning

Similar to excessive exposure to sunlight, tanning beds can cause acute sunburn and have long-term health effects including skin-aging, effects on the eyes, and carcinogenesis.[107,108] Several international health organizations, including the World Health Organization, the American Medical Association and the Canadian Cancer Society, support legislation to ban the use of artificial tanning devices by youth under the age of 18 years.[107]

Policy

Peel By-law Banning Tanning Bed Use

As of January 1, 2013, those under the age of 18 years will not be able to access tanning beds in Peel Region.

Ninety-six per cent of Peel students never use tanning beds.

Ninety-six per cent of Peel students have never used tanning beds.[H] Female students (3%) are more likely to report using tanning beds less than once a month compared to male students (1%).[H] What is unknown is the prevalence of outdoor tanning among Peel youth.

Oral Health

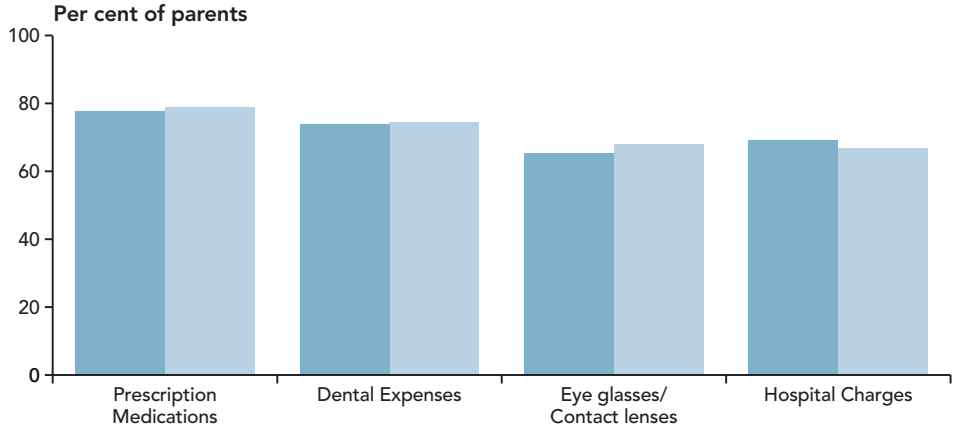
Oral health contributes to overall health and quality of life. It is becoming increasingly evident that some oral conditions such as periodontal diseases have links with systemic conditions like diabetes and cardiovascular health.[109,110] Although access to medical care is universal in Canada, access to oral health care is mostly private. It is either paid for through employer-subsidized dental plans, individually paid out of pocket with after-tax dollars, or minimally supported through government funded programs.[111,112]

Access to Dental Care

Regular visits to dental care providers allow for early identification and intervention to prevent the consequences of untreated conditions. Access to dental care is influenced by the ability to pay for dental services.[112,113] Seventy-four per cent of Peel parents have insurance to cover dental expenses (Figure 10.8).

Eighty-one per cent of Peel students in Grades 7 through 12 visit the dentist at least once a year.[H]

Figure 10.8
Proportion of Parents by Type of Health Insurance Coverage, Peel and Ontario, 2008



	Prescription Medications	Dental Expenses	Eye glasses/ Contact lenses	Hospital Charges
Peel per cent (95% CI)	77.6 (69.0–84.3)	73.9 (65.1–81.1)	65.3 (56.4–73.3)	69.0 (59.9–76.8)
Ontario per cent (95% CI)	78.7 (76.2–80.9)	74.4 (71.9–76.7)	67.8 (65.1–70.4)	66.7 (63.9–69.3)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Canadian Community Health Survey 2008, Statistics Canada, Share File, Ministry of Health and Long-Term Care.

Peel Facts

Oral Health and Self-Esteem

Poor oral health may affect self-esteem and may result in social isolation. Twelve per cent of Peel students in Grades 7 to 12 avoid laughing or smiling because of a condition of the teeth or mouth.[H]

Dental diseases are progressive and not self-limiting. When left untreated, they may lead to severe pain, dental abscesses and facial swelling. Untreated dental diseases indicate a delay in seeking treatment and barriers to accessing dental care.

Thirteen per cent of children five to 13 years of age were identified with urgent dental conditions in 2006-2008. Almost 7% of children (age five to 13 years) had untreated caries.[P]

Peel Facts

Dental Health Needs

Twelve per cent of Peel parents reported in 2010 that their senior kindergarten student had dental health needs.[E] What is unknown is the nature and severity of these dental needs.

Twelve per cent of Grade 10 and Grade 12 students in 2011 have urgent conditions and 12% have untreated dental caries.[H]

Oral Diseases in Children

The common oral diseases among children include dental caries (cavities), periodontal diseases (gum infections), and traumatic dental injuries. Dental caries is the most common childhood chronic disease,[110] yet it is entirely preventable.

Definition

***Dental caries*, also referred to as tooth decay or cavities, is caused by bacteria in the mouth which produce acids. These acids break down hard tooth surfaces. Dental caries is traditionally described by the sum of teeth decayed, missing and filled due to decay (as indicated by the acronym DMFT) in an individual. This measure summarizes the total experience of dental caries up to the time of assessment.**

Dental caries can be influenced by many factors such as: oral hygiene, diet and access to dental care.

Generally, caries starts early in life and increases with age. The prevalence of dental caries is lower among five-year-old children, highest at ages seven and nine, and declines at age 13 (Table 10.1). This is due to the replacement of decayed primary teeth with adult teeth. By Grade 10, almost half of students have experienced dental caries (Table 10.2).

Table 10.1
Prevalence of Dental Caries among Children by Age, Peel, 2006-2008

Age (years)	Per cent of Children Affected by Dental Caries
5	21.4
7	43.4
9	33.4
13	28.1
Total	**31.4**

Source: Dental Indices Survey 2006-2008, Peel Public Health.

Table 10.2
Prevalence of Dental Caries among Youth by Grade, Peel, 2011

Grade	Per cent of Youth Affected by Dental Caries
10	49.0
12	55.0
Total	**52.3**

Source: Student Health Survey 2011, Peel Public Health.

Peel Facts

Oral Hygiene Practices in Peel

The most common dental diseases are infections resulting from bacterial build up (plaque) on the tooth surfaces and gums. In the absence of regular brushing and flossing these bacteria cause decay and gingivitis. Plaque may eventually harden into tartar requiring professional assistance to remove in order to prevent further damage to the gums.

Sixty-eight per cent of Peel Grade 7 to 12 students brush their teeth at least twice a day but only 8% floss daily.[H]

chapter 11

COMMUNICABLE DISEASES

Key Messages

- Immunization has resulted in a dramatic decline in the incidence of communicable diseases among children.
- Resurgence of some communicable diseases has been attributed to reductions in immunization rates.
- Vaccine coverage rates in Peel are high but below the goal of 100%.
- The most common communicable diseases among children are enteric diseases and influenza. This is due to poorer hand hygiene among children and increased hand-to-mouth activity.

Both the incidence of many communicable diseases and the deaths which result from them have declined dramatically in the past 50 years. Worldwide eradication of smallpox in 1979 and the dramatic decrease in Haemophilus influenzae type B (HiB) infections are both examples of successful immunization initiatives. Incidence of HiB, once the most common cause of bacterial meningitis, has fallen by about 97% since the introduction of HiB vaccines in Canada in 1988.[114]

Did You Know

The perils of success

Many new communicable diseases have emerged in the past 30 years and others, such as polio, once thought to be almost eradicated, have resurfaced. It is believed that complacency caused by the successful reduction of some communicable diseases may be to blame.

Increasing concerns among parents regarding safety and efficacy of vaccines may also lead to lower immunization levels and the resurgence of certain diseases.[115]

Under the Health Protection and Promotion Act, all health professionals, hospitals, laboratories, schools and child care centres in Ontario are required to report specified communicable diseases to the local Medical Officer of Health. See peelregion.ca/health/pdfs/reportable-diseases.pdf for a listing of all reportable diseases.

Measurement

Unreported Communicable Diseases

Most reported cases of communicable diseases are based on laboratory diagnosis; however, many milder cases are not diagnosed by physicians. The true number of infections in the community is likely to be much greater than the number reported.

Immunization

The Publicly Funded Immunization Program provides a series of selected vaccines to eligible Ontario residents to protect a large proportion of the population and reduce the spread of infection and incidence of disease.

Measurement

Immunization Records among School Children in Peel

During the 2008/2009 school year, Peel Public Health reviewed the immunization status of all students who are required by the Immunization of School Pupils Act to be vaccinated against measles, mumps, rubella, diphtheria, tetanus and polio, or have a record of medical exemption or statement of conscience or religious belief on file with the local Medical Officer of Health. Since then, an annual maintenance screening has been conducted to ensure that school pupils and children in licensed day care centres are appropriately immunized.

Immunization against the following communicable diseases is currently provided free of charge to Ontario children: diphtheria, tetanus, polio, measles, mumps, rubella, pertussis, Haemophilus influenzae type B, rotavirus, hepatitis B, meningococcal disease type C disease and ACYW-135, pneumococcal disease, varicella, human papillomavirus and influenza.

The ***Publicly Funded Immunization Schedule for Ontario*** (Figure 11.1) specifies the number of required doses of each vaccine by the age of the child. For children and adults who are unimmunized (or have missed doses of vaccine) there are alternative schedules to ensure adequate levels of protection.

Peel Facts

Exemptions

Parents must provide proof of all immunizations in order for their child to attend school or a licensed child care centre. Parents may obtain an exemption for their child for medical, conscience or religious reasons. Medical exemptions are granted by a physician where there is evidence of natural immunity to the disease or there are medical contraindications to immunization.

Four hundred and twenty exemptions for conscience/religious reasons and 85 for medical reasons were provided in 2010.[Q]

Figure 11.1
Publicly Funded Routine Immunization Schedule

Age	Diphtheria	Tetanus	Pertussis	Polio	Haemophilus Influenzae Type B (Hib)	Pneumococcal	Rotavirus	Measles	Mumps	Rubella	Varicella	Meningococcal C	Meningococcal ACYW-135	Hepatitis B	Human Papillomavirus (HPV)	Influenza
2 months	✓	✓	✓	✓	✓	*	*									
4 months	✓	✓	✓	✓	✓	*	*									
6 months	✓	✓	✓	✓	✓											
1 year						*		✓	✓	✓		*				
15 months											*					
18 months	✓	✓	✓	✓	✓											
4–6 years	✓	✓	✓	✓				✓	✓	✓	*					
Gr. 7 students													*	*		
Gr. 8 females															*	
14–16 years	✓	✓	*													
Every 10 years	*	*														
Every year starting at 6 months of age																*

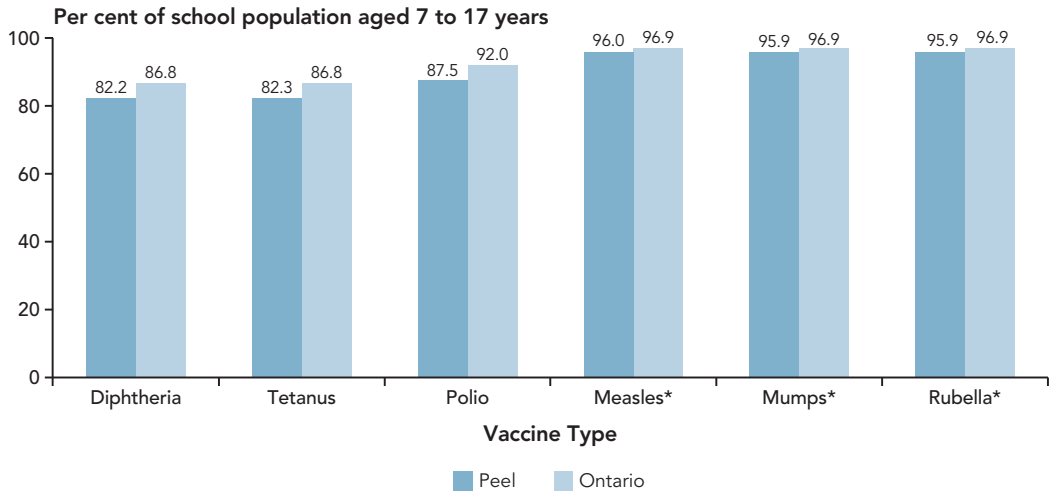
Outlined boxes indicate vaccinations given in one dose.

✓ Required * Recommended

Two new publicly funded vaccines were added to the recommended schedule of routine childhood immunizations in August, 2011: an oral vaccine for rotavirus, and a combined measles-mumps-rubella-varicella (MMRV) vaccine. In addition, the availability of two others, varicella and pertussis, were expanded to include a second dose of varicella vaccine for children and a pertussis booster for adults.

Immunization coverage is lower in Peel than Ontario for all of the immunizations included in Figure 11.2. The coverage rate for measles, mumps and rubella is high because the figure reflects the number of children who are reported to have received at least one dose. Children are required to receive two doses of measles, mumps and rubella (MMR) vaccine, therefore the coverage rates of MMR using only those children who have received two valid doses of MMR would be lower.

Figure 11.2
Immunization Coverage of Children 7 to 17 Years by Vaccine Type, Peel and Ontario, 2008/2009



* Received at least one dose.
Source: Immunization Coverage Report for School Pupils: School Years 2007/2008 and 2008/2009. Public Health Division, Ministry of Health and Long-Term Care. June 2011.

Definition

Immunization coverage refers to the percentage of the population that has been immunized against a disease. It is determined by comparing the number of children whose immunization status is known to be up-to-date for their age with the number of children enrolled in schools or licensed child care centres.

Herd immunity is achieved with high vaccine coverage rates. This results in reduced circulation of the infective organism and more effective protection of the small proportion of individuals who are unable to receive vaccination due to medical, religious or philosophical reasons.

Peel Program

Immunization Records among Immigrants

Many newcomers to Canada are unable to provide immunization records from infancy or early childhood for a variety of reasons. As a result, many newcomers require re-immunization with a catch-up schedule in order to register for school.

Peel Public Health clinics offer free immunization for newcomers without health insurance who require immunizations to register for school or a licensed daycare.

Did You Know

MMR VACCINE AND AUTISM: There is no link!

The MMR vaccine is safe and effective in the prevention of measles, mumps and rubella diseases and there is no increased risk of autism or other disorders with the vaccine.

The controversy around a possible link between the measles, mumps, rubella vaccine and autism first appeared in 1998, when a reputable medical journal, The Lancet, published an article that linked the MMR vaccine to autism. The article has been retracted and the study discredited for several reasons, including the fact that the methods used were flawed and the main author had a significant undeclared conflict of interest.

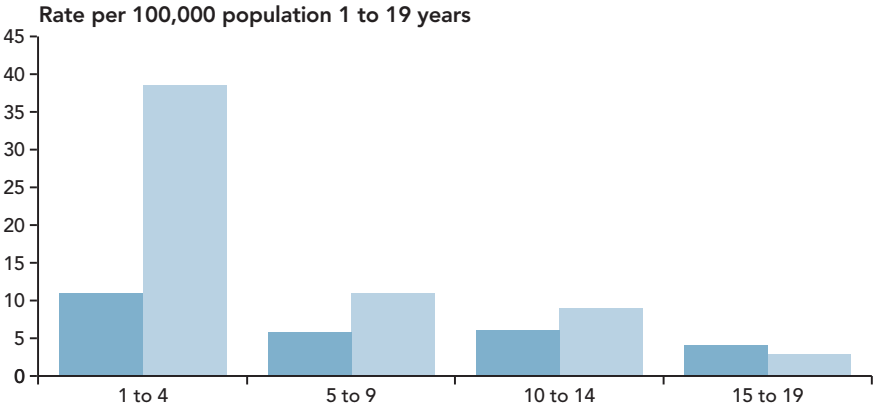
Source: Immunization Communication Tool for Immunizers (ImmunizeBC 2008) accessed on March 6, 2012 from immunizebc.ca/sites/default/files/docs/ImmunizationCommunicationToolFINAL.pdf

Vaccine Preventable Diseases (VPD)

With the widespread introduction of immunization, the incidence of vaccine preventable diseases and their effects have declined substantially. However, cases of some diseases are still reported in Ontario and in Peel. In the past five years (2006 – 2010), the most common vaccine preventable disease in Peel has been pertussis, followed by mumps and Haemophilus influenzae type B (HiB).[R] Ontario has also experienced cases of measles and rubella, neither of which were seen in Peel.

There were less than five cases of any of the following diseases in Peel for the five-year period of 2006 to 2010 among children one to 19 years of age: diphtheria, HiB, measles, mumps, and rubella (data not shown).[R] There were more than 100 confirmed cases of pertussis in Peel between 2006 and 2010 among children one to 19 years of age. The Peel pertussis incidence rate was lower than the provincial rate (Figure 11.3).

Figure 11.3
Incidence Rate of Pertussis among Children by Age Group, Peel and Ontario, 2006-2010 Combined



	1 to 4	5 to 9	10 to 14	15 to 19
Peel rate	11.0	5.7	6.0	4.1
Peel number of cases	36	24	27	19
Ontario rate	38.5	11.0	8.9	2.8
Ontario number of cases	1,083	397	355	124

Sources: Integrated Public Health Information System (iPHIS) 2006-2010, Peel Public Health.
Population Estimates 2006-2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Influenza

The influenza vaccine is provided free to all Ontario residents aged six months and older. Influenza-related hospitalizations and deaths have decreased since the introduction of the vaccination program in comparison to other Canadian regions without a universal program.[116]

An influenza pandemic can occur when a new strain of influenza virus spreads quickly worldwide, infecting a large proportion of the population. During the 2008/2009 flu season, all age groups experienced an increased rate of influenza, attributable to the H1N1 pandemic which occurred in April and October, 2009.

Definition

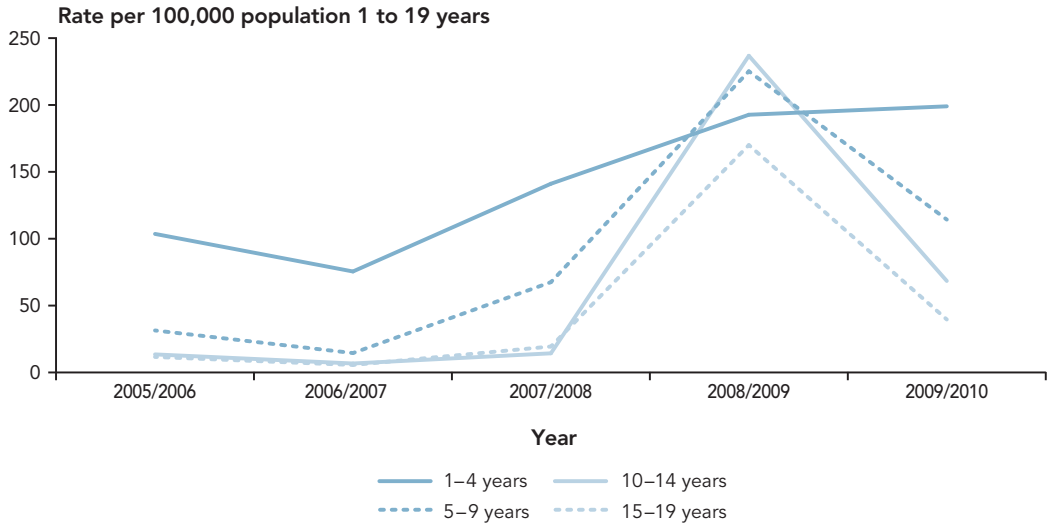
Influenza, or "the flu", is a highly infectious respiratory disease, much more severe than the common cold. The flu causes mild to severe illness and can lead to life-threatening illnesses such as pneumonia. The influenza virus spreads mainly from person to person through coughing or sneezing. People can also become infected by touching objects or surfaces with flu viruses on them and then touching their eyes, mouth or nose.

It is important to note that influenza cases are under-reported because many people do not go to the doctor or get tested for flu when they are sick.

Influenza is not the same as the "stomach flu", whose proper medical term is gastroenteritis.

Young children have the highest rates of influenza compared to older children and youth (Figure 11.4).

Figure 11.4
Influenza Incidence Rate among Children by Age Group, Peel, 2005/2006-2009/2010



Note: Wave 1 of H1N1 pandemic began April 2009, Wave 2 of H1N1 pandemic began October 2009.
Sources: Integrated Public Health Information System (iPHIS) 2006-2010, Peel Public Health.
Population Estimates 2006-2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Enteric Diseases

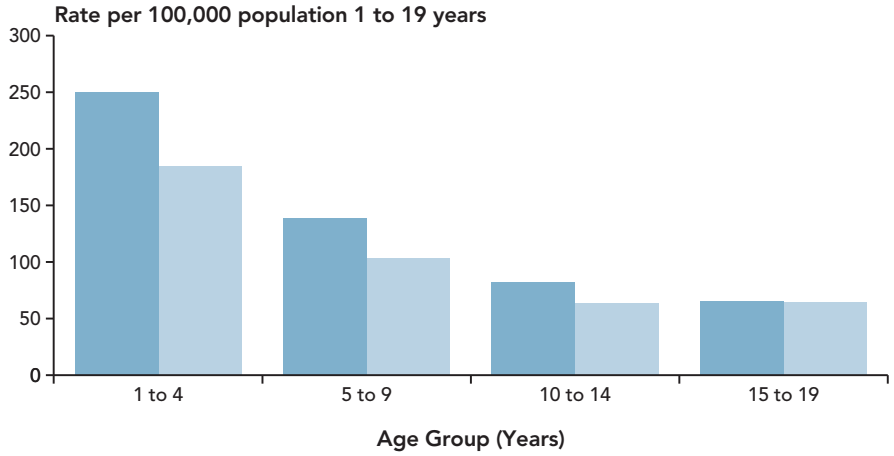
The most common communicable diseases among children which are reportable to Peel Public Health include enteric illnesses, in which infected individuals frequently have symptoms such as diarrhea, vomiting, fever and abdominal pain. Causes of enteric illness include consumption of contaminated food or water and contact with animals or people who are infected.

There were more than 2,000 cases of enteric diseases reported in Peel for children aged one to 19 years of age between 2006 and 2010 (Figure 11.5).

The most common enteric diseases were: campylobacter enteritis, salmonellosis, giardiasis, yersiniosis and cryptosporiasis. Younger children had higher rates of enteric illness than older children, as a result of poorer hygiene practices and increased hand-to-mouth activity.

The incidence rate of enteric illnesses was higher in Peel for this time period in comparison to the Ontario rate due to illnesses acquired during travel (Figure 11.5).

Figure 11.5
Incidence Rate of Enteric Diseases† among Children by Age Group, Peel and Ontario, 2006-2010 Combined



	1 to 4	5 to 9	10 to 14	15 to 19
Peel rate	250.1	139.0	82.1	65.2
Peel number of cases	820	561	371	304
Ontario rate	184.1	103.6	63.2	64.4
Ontario number of cases	5,184	3,743	2,534	2,839

† Diseases included amebiasis, brucellosis, campylobacter enteritis, cryptosporiasis, E. coli, food poisoning, giardiasis, Hepatitis A, listeriosis, paratyphoid fever, salmonellosis, shigellosis, typhoid fever, yersiniosis.
Sources: Integrated Public Health Information System (iPHIS) 2006-2010, Peel Public Health.
Population Estimates 2006-2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Did You Know

Travel Health Clinics

There are 12 travel clinics in the region of Peel which provide immunization and travel advice. The Public Health Agency of Canada recommends travellers visit a health-care provider or travel clinic for an individual health assessment at least six weeks before departure. This visit can provide information regarding immunizations, preventive medications and general precautions while travelling.

For information see: phac-aspc.gc.ca/tmp-pmv/yf-fj/index-eng.php.

Peel Program

Student Absenteeism Surveillance

Peel Public Health and the Peel District School Board have worked together since September 2009 to collect student absenteeism information (due to all causes and due to specific illnesses) for the purpose of monitoring communicable disease activity in Peel region. Nine sentinel schools provide Peel Public Health with absenteeism data to give a picture of respiratory and gastrointestinal illness in the community. This type of sentinel surveillance is real-time.

chapter 12

INJURIES

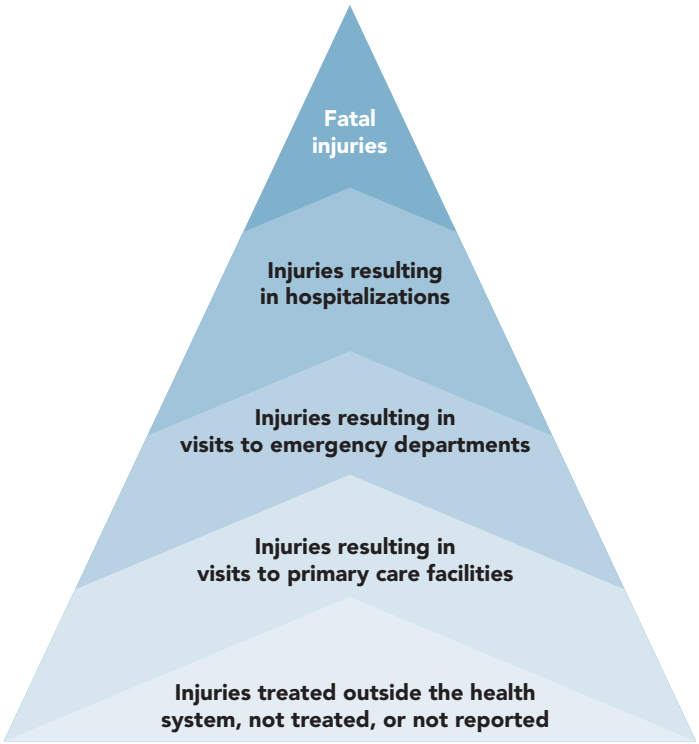
Key Messages

- Injuries are the leading cause of emergency department visits among children. Males have higher rates of injuries than females likely as a result of increased risk-taking behaviour.
- Mortality due to injuries has declined over time, in part as a result of safety legislation (e.g., seat belts, car seats).
- Falls are the most common cause of injuries among young children. Poisoning and drowning are rare among children.
- Motor vehicle collisions are a common cause of injury for youth.
- Only 22% of Grade 7 to 12 students in Peel wear a helmet while riding their bike.

Injuries include all of the ways that people can be physically hurt, impaired or killed, involving unintentional or intentional damage to the body. Examples of unintentional injuries include motor vehicle collisions, falls, and poisonings; whereas intentional injuries include homicide, assault and suicide.

Data related to deaths, hospitalizations and emergency department visits resulting from injuries reflect only the most serious injuries. Many injuries are seen by physicians outside of hospitals or emergency departments or are not seen by a health professional at all (Figure 12.1). This makes it difficult to assess the incidence of injuries in the population.

Figure 12.1
Severity of Injuries



Source: Adapted from The Injury Pyramid found at http://www.who.int/violence_injury_prevention/key_facts/VIP_key_fact_5.pdf. Accessed September 24, 2012.

Self-Reported Injuries

Almost one-quarter of Grade 7 to 12 students in Peel reported having an injury serious enough to require treatment by a doctor, nurse or dentist in the past 12 months.[H]

Injuries and Emergency Department Visits

Injuries are the leading cause of emergency department visits in Peel among children age one to 19 years.[M] There were almost 29,000 emergency department visits in Peel in 2010 related to injuries among children (see Table 9.2).

Males have higher rates of emergency department visits for unintentional injuries than females likely as a result of more risk-taking behaviour among young men.[M] The rate of emergency department visits in 2010 for unintentional injuries among children in Peel was lower than the provincial rate (data not shown).[M]

Among children one to nine years old, accidental falls are the most common injury that results in an emergency department visit (Table 12.1). Among older children, being struck by or against an object or person is the most common cause of injury.

Table 12.1
Leading Causes of Injuries Resulting in Emergency Department Visits among Children by Age Group, Peel, 2010

Age Group (years)	Top 5 Leading Causes of Injuries	Number of Visits	Age-specific Rate per 100,000 population
1 to 9	Accidental falls	5,076	3,325.4
	Other unintentional injury	2,781	1,821.9
	Struck by or against object or person	2,216	1,451.8
	Overexertion	535	350.5
	Cut/pierced by object	408	267.3
	All causes of injury	**12,815**	**8,395.4**
10 to 19	Struck by or against object or person	4,605	2,470.0
	Accidental falls	4,363	2,340.2
	Other unintentional injury	2,892	1,551.2
	Overexertion	1,593	854.4
	Cut/pierced by object	873	468.3
	All causes of injury	**17,680**	**9,483.0**

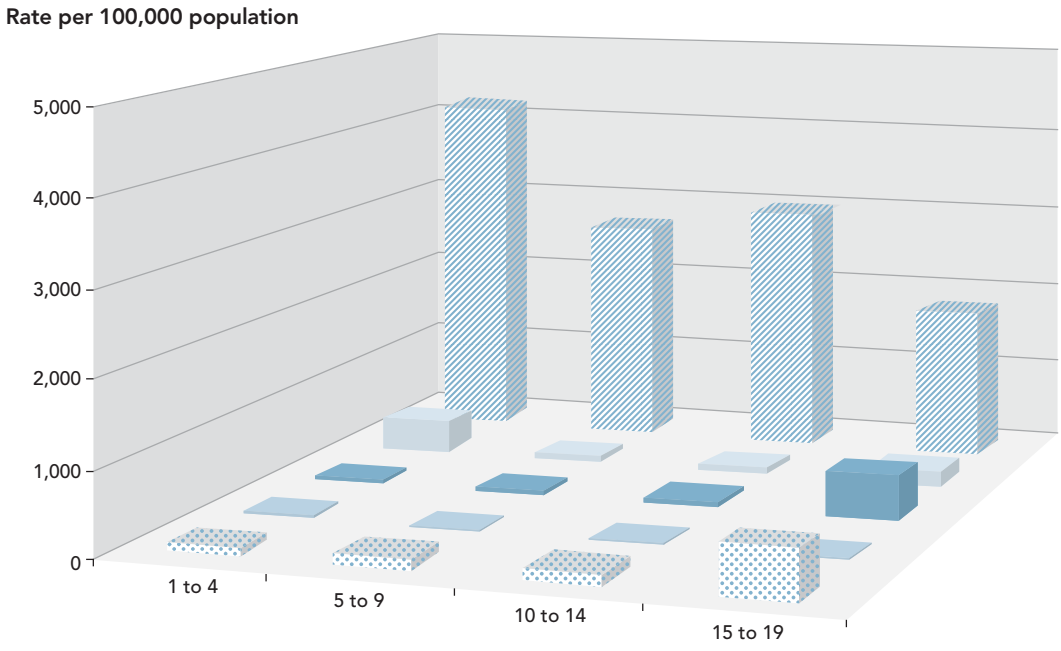
Sources: National Ambulatory Care Reporting System 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The leading causes of injury-related emergency department visits in Table 12.1 do not provide a complete picture of injuries among children. Figure 12.2 presents the rate of emergency department visits for selected types of injuries among children to illustrate how the types of injuries that occur change depending on the age group.

Accidental falls result in the highest rate of emergency department visits for children of all ages (Figure 12.2). These falls may be further categorized based on the type of fall that occurred. Among children one to nine years of age, the most common types of emergency department visits for falls are:

- falls (unspecified);
- falls on the same level (slipping, tripping or stumbling);
- falls on stairs or steps;
- other falls on the same level; and
- falls involving playground equipment.[M]

Figure 12.2
Rate of Emergency Department Visits due to Selected Types of Injuries among Children by Age Group, Peel, 2010



	1 to 4	5 to 9	10 to 14	15 to 19
Motor vehicle collisions	81.1	135.6	158.5	565.3
Accidental drowning	10.3	1.2	2.2	5.2
Assault	16.2	27.1	83.1	517.5
Accidental poisoning	352.4	69.6	63.2	173.6
Accidental falls	4,170.7	2,649.4	2,947.4	1,770.9

Sources: National Ambulatory Care Reporting System 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Among youth 10 to 19 years, the most common falls are:

- falls on the same level (slipping, tripping or stumbling);
- falls (unspecified);
- falls involving skates/skis/sports boards/ in-line skates;
- other falls on the same level; and
- falls on stairs or steps.[M]

Children in the youngest age group have higher emergency department rates for accidental poisonings. Older children have higher rates of emergency department visits resulting from assault or motor vehicle collisions (Figure 12.2). Accidental drowning is an infrequent cause of emergency department visits among children.

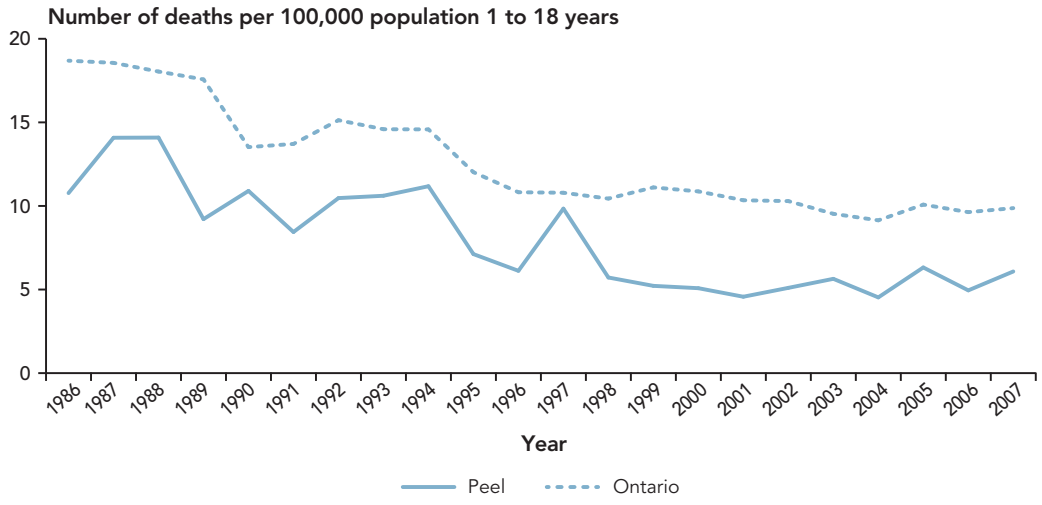
Deaths Due to Injury

Ninety-five children in Peel died as the result of an injury between 2003 and 2007.[C] Motor vehicle collisions are the most common cause of injury-related deaths among children in Peel under 19 years of age (see Chapter 13, Mortality).[C]

Mortality due to injuries has declined substantially over the past 20 years (Figure 12.3). Some of this decrease can be attributed to the introduction and enforcement of legislation related to the use of safety equipment. For example:

- Car seats became mandatory in Ontario in 1982.
- Graduated Driver Licensing System was introduced in 1994.
- The use of bike helmets became mandatory for youth in Ontario in 1995.
- The sale of both new and second-hand baby walkers was banned in Canada in 2008.

Figure 12.3
Mortality Rate due to Injuries among Children, Peel and Ontario, 1986-2007



Sources: Ontario Mortality Database 1986-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 1986-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Prevention of Injuries

Most unintentional injuries are predictable and preventable as they result from unsafe environments, conditions and/or behaviours. By recognizing, changing and controlling these factors most of these injuries can be prevented.

Car Seats and Booster Seats

Children are more vulnerable to the impact of a motor vehicle collision than adults, putting them at higher risk for injury to the neck, spinal cord and brain. When used properly, approved car seats and booster seats reduce the risk of serious injury or death in the event of a collision.[117]

Eighty-seven per cent of Peel parents reported in 2007 that their four to seven-year-olds are placed in a car seat/booster seat in the back when travelling in a vehicle.[I3]

Policy

Car Seat and Booster Seat Legislation

Ontario car seat/booster seat legislation states that children must be harnessed in an appropriate car seat/booster seat according to the following requirements.

Forward Facing Car Seat (one to four years)

A child must weigh 22 lbs, be at least one year of age and be able to walk unassisted in order to use a forward-facing car seat. The car seat must be secured by a tether strap until the child weighs 40 lbs (18kg).

Booster Seat (four to 8 years)

Your child must use a booster seat while they are:

- up to the age of 8 and
- weighing between 40 and 80 lbs (18–36 kg) and
- a standing height of less than 4 feet, 9 inches (145cm)

For more information see peelregion.ca/health/carseat

Use of Protective Equipment

The use of helmets to prevent brain and spinal cord injuries in activities such as biking, skiing and skateboarding is critical and well documented. Head injuries are a serious consequence accounting for between 35 to 40% of paediatric hospitalizations and deaths resulting from bicycle-related trauma.[118]

Youth 13 to 17 years of age were significantly less likely to always wear a helmet while riding a bike compared to younger children (Figure 12.4).

Policy

Bike Helmet Law

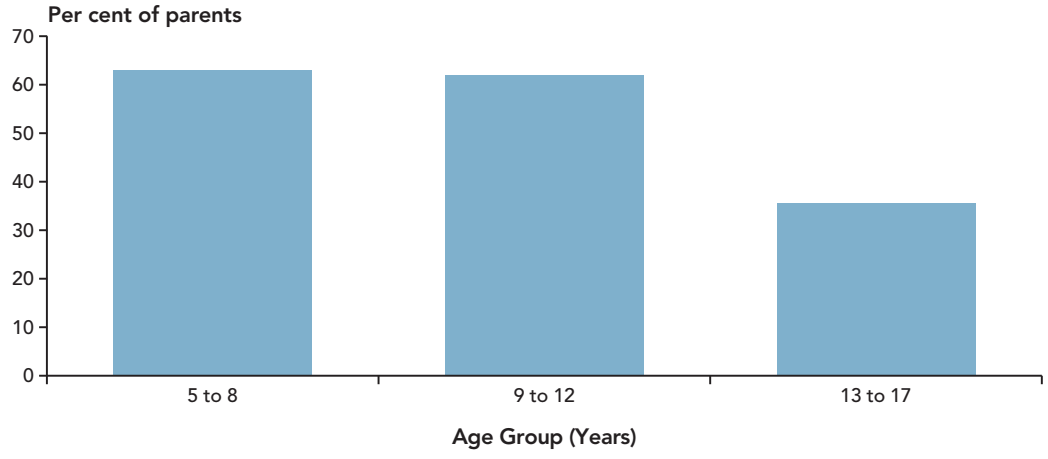
Ontario children age 18 years and under are mandated by law to wear a helmet when riding on public roads. Although this law has been in effect since 1995, adherence is still low.

Twenty-two per cent of Grade 7 to 12 students in Peel reported always wearing a bike helmet.

Only 22% of Grade 7 to 12 students in Peel reported always wearing a helmet when riding a bike.[H] Students report many reasons for not wearing a helmet, including: the belief that it's not needed, helmets are uncomfortable, it doesn't look cool, and it messes up their hair.[H]

Peel students are most likely to wear protective equipment (always or most of the time) when downhill skiing or snowboarding (data not shown).[H]

Figure 12.4
Per cent of Parents Who Reported their Child Aged 5 to 17 Years Always Wears a Bicycle Helmet by Age Group, Peel, 2006



	5 to 8	9 to 12	13 to 17
Per cent (95% CI)	63.0 (54.8–71.1)	61.9 (53.0–70.9)	35.5 (27.5–43.4)

Note: 95% CI reflects the 95% confidence interval of the estimate.
Source: Rapid Risk Factor Surveillance System, 2006, Peel Public Health.

chapter 13

MORTALITY

Key Messages

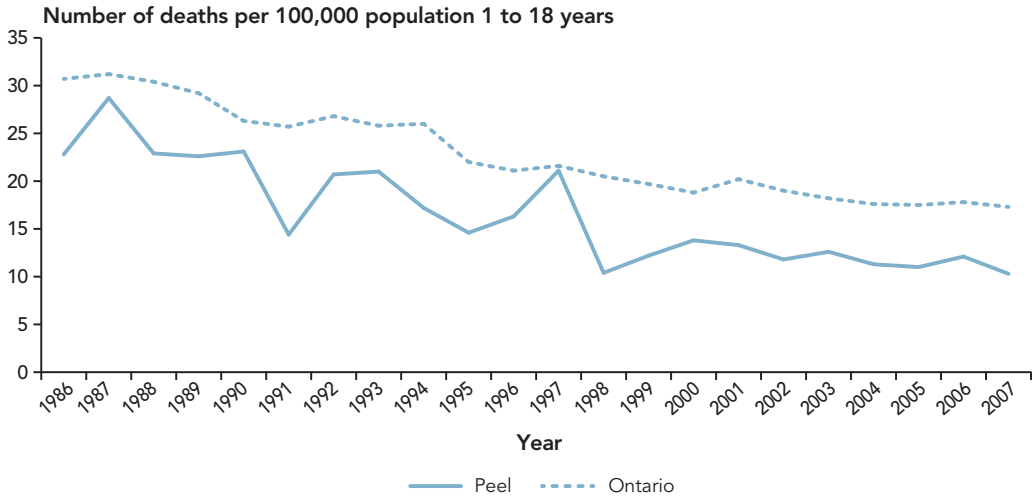
- Childhood mortality is rare.
- Most deaths that occur within the first year of life are the result of conditions that are present at birth.
- Childhood mortality has declined over time.
- Most childhood deaths after the first year of life are due to injuries.

Fortunately, mortality is now a very rare occurrence during childhood. Rates of infant and child mortality have dramatically declined in Canada over the past 100 years due to improvements in prenatal and postnatal health care, the health status of mothers, living conditions, medical treatment and the determinants of health (e.g., income, education), as well as declines in injuries and incidence of infectious diseases.

The first year of life is the time when most deaths occur among children, usually as a result of conditions which are present at birth or develop during the prenatal period. Infant mortality accounted for 76% of all deaths among children 18 years of age and younger in 2007.[C] For more information about infant mortality, see ***Born in Peel: Examining Maternal and Infant Health*** (2010).

As seen nationally, over the past two decades there has been a decline in the mortality rate for children and youth in Peel and Ontario (Figure 13.1).

Figure 13.1
All-Cause Mortality Rate among Children, Peel and Ontario, 1986-2007



Sources: Ontario Mortality Database 1986-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 1986-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Perinatal and congenital factors are the most common cause of death among children aged one to nine years (Table 13.1). Deaths among youth are most commonly the result of motor vehicle collisions and intentional injuries (e.g., suicide, assault).

Table 13.1
Leading Causes of Death among Children by Age Group, Peel, 2003-2007 Combined

Age Group (years)	Leading Causes of Death	Number of Deaths	Age-specific Rate per 100,000 population
1 to 9	Congenital malformations, deformations and chromosomal abnormalities	7	1.0
	Cancer of the meninges, brain and other parts of the central nervous system	6	0.8
	Remaining leading causes not releasable due to small numbers	NR	NR
	All causes 1 to 9 years	**64**	**8.9**
10 to 19	Motor vehicle collisions	32	3.7
	Assault	13	1.5
	Suicide	12	1.4
	Cancer of the lymphoid, haematophoietic and related tissues	9	1.0
	Congenital malformations, deformations and chromosomal abnormalities	7	0.8
	All causes 10 to 19 years	**137**	**15.9**

NR- not releasable due to small numbers.
Sources: Ontario Mortality Database 2003-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2003-2007, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

chapter 14

DISCUSSION AND NEXT STEPS

A child's lifelong trajectory for learning, health and behaviour is determined in early life. Their early environment interacts with their genetic composition during the development of the brain and other biological systems. Although later experiences can influence outcomes, early life experiences are built into a child's biology and affect the rest of their lives.[2] Effective prevention programs aimed at reducing negative experiences for children can reduce the social and economic burden of illness across the lifespan. This may reduce the need for costly and potentially less effective interventions later in life.

This report has provided a picture of the health status of children in Peel. For some topics data are available to understand health status, but for others they are not. This is not meant to imply that the topic is unimportant, rather that there are no national, provincial or local data available.

This report will be used as one source of information on the health of children in Peel for the purposes of program planning and evaluation. The data gaps identified in the report lead to an incomplete picture, and therefore Peel Public Health will advocate for surveillance efforts within these areas to help provide a more complete picture of child development.

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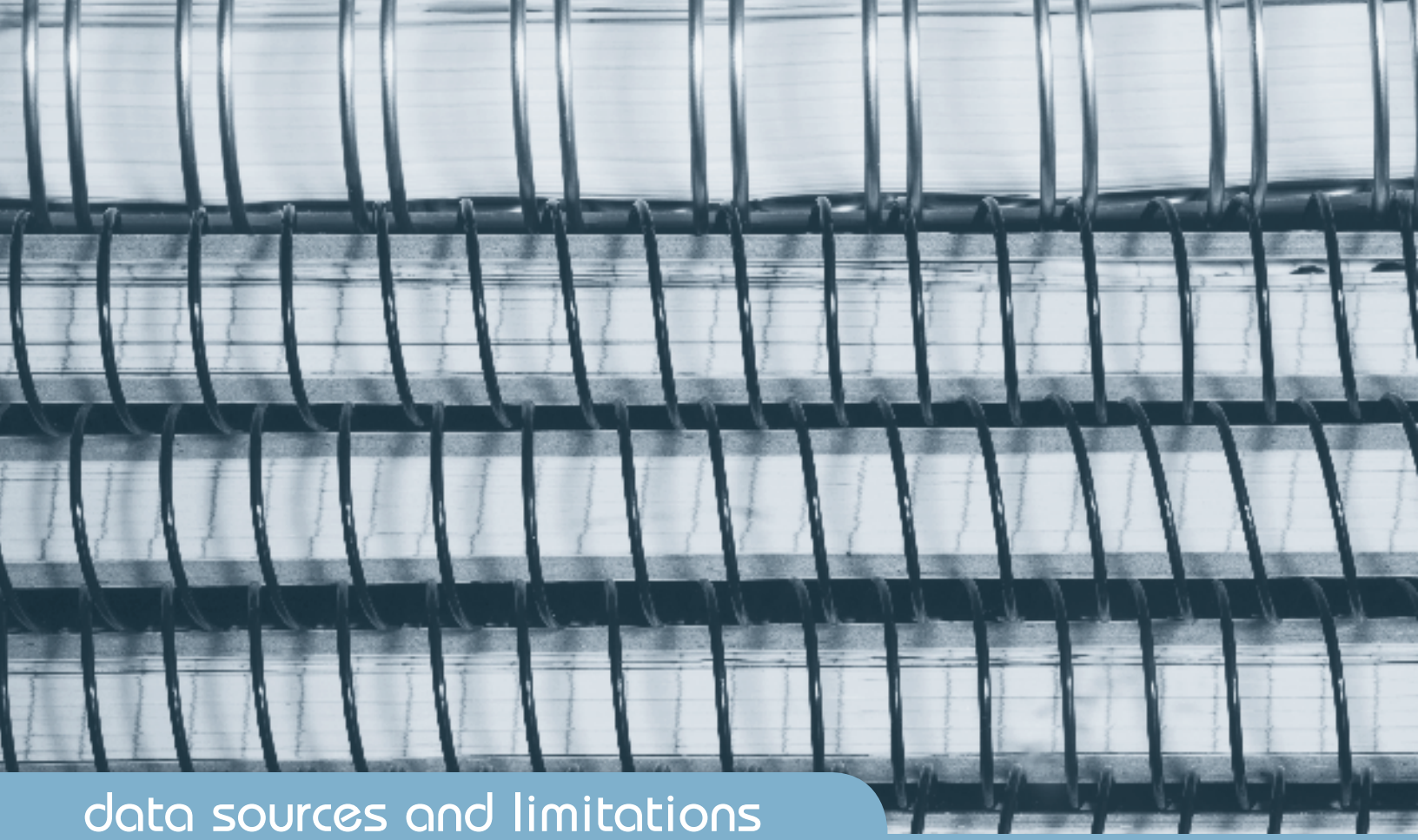


data sources and limitations

Numerous data sources were used in this report including but not limited to:

- Statistics Canada for Census and Labour Force Survey data
- IntelliHEALTH of the Ontario Ministry of Health and Long-Term Care (MOHLTC) for population estimates, mortality, hospitalizations, emergency department visits, and medical services data.
- The Canadian Community Health Survey and the Rapid Risk Factor Surveillance System for health behaviour data.

For additional details about the methods of analysis used in each of the chapters of this report, please refer to Chapter 17, Data Methods.

Census Data

The census is conducted every five years and data are provided by Statistics Canada. The most recent census was conducted on May 10, 2011. The 2011 Census questionnaire consisted of the same eight questions that appeared on the 2006 Census short-form questionnaire, with the addition of two questions on language.

Limitations:

- The census undercounts some groups, such as the homeless, young adults and Aboriginal people on reserves.
- Comparison between censuses is affected by changes in question wording and in the definition of the population concerned.

Vital Statistics Birth Registration (Live Births and Stillbirths)

The Office of the Registrar General (ORG) provides data on all live births and stillbirths registered in Ontario. The information within the birth registration dataset is provided by both the parents (birth registration form) and the birth attendant (Notice of Live Birth or Stillbirth form). Both forms must be received by the ORG for the birth to be registered.

Limitations:

- Known data quality issues exist within the live birth and stillbirth registration data.
- Although live birth registration is required by law, changes in registration practices and the institution of registration fees have decreased the proportion of births which are registered.
- The most current year of data available at the time of this report was 2007.

Abortion Data

The Ministry of Health and Long-Term Care provides information on therapeutic abortions that occur in Ontario. The current data available use three separate data sources to count therapeutic abortions: OHIP paid claims, hospital discharges and ambulatory care visits. These aggregated data are available from 2001 onward by public health unit of residence, age group, and location of the procedure.

Limitations:

- There have been changes in the number of health care settings captured in the abortion data over time. Only abortions which occurred in hospitals were captured prior to 1992. From 1992 to 2000, abortions in hospitals and designated clinics were captured (although the location of the abortion could not be differentiated). Starting in April 2011, data from 2001 onward include abortions which occurred in hospitals, designated clinics and private physicians' offices (PPOs).

Mortality Data

The Office of the Registrar General obtains information about mortality from death certificates which are completed by physicians. All deaths in Ontario are registered with the office of the division registrar where the death occurs. A Statement of Death must be filed with a division registrar before a Burial Permit can be issued.

Limitations:

- Comorbidity contributes to uncertainty in classifying the underlying cause of death.
- Determining the true cause of death may be influenced by the social or legal conditions surrounding the death and by the level of medical investigation (e.g., AIDS, suicide).

Inpatient Hospital Separation Data

A hospital separation may be due to death, discharge home, or transfer to another facility. Since a person may be hospitalized several times for the same disease or injury event, be discharged from more than one hospital (when transferred) for the same injury event, or not seek care at a hospital, hospitalization data provide only a crude measure of the condition being quantified.

The most responsible diagnosis code gives the primary reason for a hospital stay. A second set of codes, external cause or 'e-codes' are used to classify the environmental events, circumstances and conditions that cause an injury, for example, motor vehicle traffic injury. While the external codes – e-codes – are the principal means for classifying injury deaths, they are not used as a most responsible diagnosis for hospitalizations, so they need to be examined separately. Ontario residents treated outside of the province are excluded.

Limitations:

- Data are influenced by factors that are unrelated to health status such as availability and accessibility of care and administrative policies and procedures. This may influence comparisons between areas and over time.

Adult Mental Health Inpatient Hospital Separation Data

Effective April 1, 2006, hospitalizations for adult patients with mental health codes are being collected in the Ontario Mental Health Reporting System (OHMRS) when an adult requires a stay in a designated bed in a hospital. Children hospitalized for mental health conditions may be included if they were admitted to an adult mental health bed within the hospital.

Limitations:

- The capture of adult mental health hospitalizations within this database will result in a reduction of hospitalizations captured in the hospital separation data, under the Mental Health ICD-10, Chapter V – Mental and Behavioural Disorders (F00-F99). This could impact historical trends over time.

Emergency Department Visit Data

Hospital emergency departments report patient visit information into the National Ambulatory Care Reporting System (NACRS), which began in July 2000. Data are not considered to be reliable until the fiscal year 2002/2003. Ambulatory visit data provide only a crude measure of the condition being quantified since a person may not seek care at an emergency department, visit several times for the same disease or injury event, or visit more than one hospital for the same disease or injury event.

Limitations:

- Data are influenced by factors that are unrelated to health status such as availability and accessibility of care and administrative policies and procedures. This may influence comparisons between areas and over time.

Canadian Community Health Survey

The Canadian Community Health Survey (CCHS) is conducted by Statistics Canada and is aimed at providing health information at the provincial, regional and health unit levels. The target population for the CCHS includes household residents 12 years of age or older in all provinces and territories, with the principal exclusion of populations on Indian Reserves, Canadian Forces Bases, and those living in institutions or more remote areas. There is one randomly selected respondent per household, with an over-sampling of youths resulting in a second member of certain households being interviewed. The CCHS sample is primarily a selection of dwellings drawn from the Labour Force Survey area sampling frame. For the regional-level survey, the sample is supplemented with a random digit-dialling sample in some health regions.

The interview for the health region-level survey includes common content to be asked of all sample units, optional content determined by each health region from a predefined list of questionnaire modules, and socioeconomic and demographic content. A focused provincial-level survey consists of some general health content and one focus content topic per cycle. Focus content is intended to be an in-depth treatment of topical issues.

Prior to 2007, data were collected every two years. Data presented for 2000/2001, 2003 and 2005 reflect this data collection method. Starting in 2007, major changes were made to the survey design in order to improve its effectiveness and flexibility through data collection on an ongoing basis. As a result, data collection now

occurs every year, but for Peel a 'cycle' is still considered to be a 2-year period (e.g., 2007/2008, 2009/2010).

Data collection for the CCHS is done by either computer-assisted personal or telephone interviewing for the area sample or telephone interviewing for the random digit-dialling sample.

Limitations:

- Depending on the question, data may be subject to recall bias, social desirability bias, non-response bias and errors from proxy reporting.
- Individuals and/or households without a telephone (household or cell) would be excluded from the sampling frame.
- Some analyses are limited by sample size.

Rapid Risk Factor Surveillance System

The Rapid Risk Factor Surveillance System (RRFSS) is an on-going telephone survey occurring in various public health units across Ontario. Each month, a random sample of 100 adults aged 18 years and older is interviewed regarding awareness, knowledge, attitudes and risk behaviours important to public health. Topics include smoking, sun safety, use of bike helmets, and water testing in private wells, for example. The Institute for Social Research (ISR) at York University conducts the survey on behalf of all RRFSS-participating health units.

Limitations:

- Depending on the question, data may be subject to recall bias, social desirability bias and errors from proxy reporting.
- Individuals and/or households without a telephone (household or cell) would be excluded from the sampling frame.
- In Peel, the survey is administered in English only.
- Some analyses are limited by sample size.

Early Development Instrument (EDI)

The Early Development Instrument (EDI) is a tool that helps communities understand how well they are preparing children for Grade 1. Results can show community strengths and weaknesses in supporting their children and can be useful in assessing community gaps and assets.

The EDI was developed by the Offord Centre for Child Studies at McMaster University. It is a teacher-completed, community-based population measure. The EDI is completed in Peel on a three-year cycle in the second half of the kindergarten year. This timing allows teachers to get to know the children and children to adjust to their new school environment.

The EDI is comprised of five developmental domains that represent critical components of child development: communication and general knowledge; emotional maturity; language and cognitive development; physical health and well-being; and social competence. Each domain is scored on a scale of one to ten, with a higher score indicating greater developmental readiness. EDI scores are presented in this report as percentiles, with those scoring below the 10th percentile on one or more domains being considered 'vulnerable' and those scoring above the 75th percentile on one or more domains being considered 'ready'.

Limitations:

- The EDI can be used for service planning purposes but should be used in conjunction with other data such as census, and family, health and community indicators.
- The EDI is meant to be used at the population level, not at the level of the individual.
- As students who do not live in Peel but attend Peel schools are excluded from the analysis, the results presented are not

reflective of all students attending Peel schools.

- Children identified as having special needs by the teacher are not included in the EDI results.

Senior Kindergarten Census

The Senior Kindergarten Census (SKC) was designed to be administered in English and French to all parents of children attending senior kindergarten in publicly-funded school boards in Peel. Packages were sent home in the backpack of each senior kindergarten child for all parents to complete. Participation in the survey was voluntary. A total of 14,493 surveys were sent home to parents. Of these, 6,743 completed surveys were returned (47%).

During the survey period, translation services were provided by CCI Research Inc. to respondents who preferred to complete the survey in a language other than English or French. Six surveys were completed in a language other than English or French.

Most questions on the SKC were derived from other surveys including the National Longitudinal Survey of Children and Youth and the Kindergarten Parent Surveys from The Offord Centre and other communities in Ontario including Halton, Waterloo, Hamilton and Timiskaming.

Limitations:

- The response rate was less than ideal (47%).
- Limitations were identified associated with parent-reported height and weight, the need for an alternate format for capturing ethnic origins, and additional information that would be required to fully explore child care.

Peel School Health Survey

The 2011 Peel Public Health School Health Survey was administered to students in Grades 7 to 12 in the Dufferin-Peel Catholic School Board and the Peel District School Board from February to April 2011. The final sample included approximately 8,500 students from 37 elementary schools and 23 secondary schools in Peel.

Data collection included the following four components:

- a self-completed questionnaire;
- height and weight measurements;
- oral health assessment (Grades 10 and 12 only); and
- physical fitness assessment (Grade 9 only).

The survey aimed to collect Peel-specific data related to key issues facing youth. Information was captured on a variety of topics including eating habits, physical activity, substance use, mental health, bullying, injuries and sun safety. Height and weight measurements for each participating student were taken by a Public Health Nurse.

Eligible grade 9 students were instructed to perform four physical fitness tests: Leger 20 meter shuttle run (cardiorespiratory), hand grip strength test (muscular strength), sit and reach test (flexibility), and partial curl-up test (muscular endurance). Students were assigned health benefit ratings based on these four measures. These ratings were derived from Canadian normative data that account for age and gender specific cut-offs.[86] The results are presented in percentage distributions.

In addition, an oral health assessment was completed by public health dental hygienists (Grades 10 and 12 only), in accordance with the Ontario Public Health Standards protocols. Dental caries status was scored and recorded for each individual tooth rather than tooth surfaces in order to reduce the amount of time required for assessment.

Limitations:

- Survey results are not generalizable to all Grade 7 to 12 students in the Peel region as the survey was administered to a sample of students in only two participating school boards. Excluded by design are student dropouts and students enrolled in French schools and private schools.
- Self-reported survey data have the potential for recall error and providing socially desirable answers.
- Due to the cross-sectional nature of the data, causal relationships cannot be inferred.

Integrated Public Health Information System (iPHIS)

The communicable diseases data contained in this report are based on the list of diseases which are reportable to the local Medical Officer of Health under the authority of the Health Protection and Promotion Act (HPPA).

Limitations:

- The data include only those persons who were tested and/or diagnosed with a communicable disease by a health-care professional.
- There may be a delay in the time between when a person is infected and the time they are diagnosed and reported. The length of this delay may vary between different communicable diseases.

Dental Indices Survey

The Peel Dental Health Indices Survey collected data pertaining to the oral health status of children aged 5, 7, 9 and 13 years for the period 2006 through 2008. Oral health status was assessed by a dental hygienist for Peel Public Health in accordance with the Ministry of Health and Long-Term Care (2001) Dental Indices Survey protocol. Only cases of obvious health conditions were recorded. If there was any doubt as to the presence of a disease it was not scored.

Limitations:

- There is an inability to make comparisons across health units or provincially due to differences in sampling methodology.

Medical Services Data

The Medical Services database captures information on approved claims by physicians to the Ontario Health Insurance Plan (OHIP) for services provided. Almost 95% of Ontario physicians are paid on a fee-for-service basis and submit claims to OHIP. Each record within the database represents a discrete service provided to a specific person.

Limitations:

- The accuracy of the patient's residential information (e.g., postal code, public health unit of residence) may be limited. Changes to residential information may not be updated within the database, especially for patients with older health cards (i.e., red and white health cards).
- There may be inconsistencies, either over time or between providers, in the manner in which providers bill for particular types of services rendered.

data methods

GENERAL DATA METHODS

Within the tables and figures of this report, values are presented to one decimal of precision while values in the text of the report are rounded to the nearest whole number. Due to rounding, some values may sum to more or less than 100%.

To ensure confidentiality and to meet reporting requirements, data are presented as follows:

- Canadian Community Health Survey (CCHS), Rapid Risk Factor Surveillance System (RRFSS) and Peel Public Health's Student Health Survey:
  - "NR – not releasable due to small numbers" when the coefficient of variation is greater than 33.3, the unweighted numerator was less than 10 individuals or the unweighted denominator was less than 30 individuals.
  - "Use estimate with caution" when the coefficient of variation is between 16.6 and 33.3.
- Vital statistics, hospitalizations and emergency department visit data are suppressed when cell counts are comprised of fewer than five individuals.
- Early Development Instrument (EDI) data with denominators less than 15 individuals are suppressed.

For analyses using the Canadian Community Health Survey or the Rapid Risk Factor Surveillance System, outcomes of interest where the sum of missing, do not know or refused responses was greater than five per cent resulted in these records being included in the denominator. This may be a different approach to previous Peel Public Health reports and may result in numerical differences between reports.

All data presented from the CCHS and RRFSS have been weighted to account for the sampling method used.

In this report 95% confidence intervals are included for survey data. Complex sampling methods have been used to calculate the 95% confidence intervals for both CCHS and Peel Public Health's School Health Survey data, to address the sampling methods used.

The following terms have been used to imply statistical significance between groups: "significantly", "more likely", and "less likely." Ninety-five per cent confidence intervals were used to determine the significance of differences between groups.

International Classification of Diseases (ICD) Codes

Causes of death, illness or injury are coded using a standard system called the International Statistical Classification of Diseases and Related Health Problems Tenth Revision (ICD-10). The Ninth Revision of the International Classification of Diseases (ICD-9) was used to code cause of death between 1979 and 1999, and hospital separations between 1986 and 2002. The ICD-10 system was used to code mortality data from 2000 forward. Hospitalization data from 2003 forward were coded using the Canadian version of the ICD-10 system (ICD-10-CA), with codes provided by the Canadian Institute for Health Information. As changes in the coding system may cause artificial changes in the number of cases of a particular illness, trends in specific causes of mortality or morbidity must be interpreted with caution.

CHAPTER-SPECIFIC METHODS

Chapter 1 – Peel Children and Their Parents

Custom data profiles from the 2006 Canadian census were purchased for this report for children in specific age groups (1 to 3 years, 4 to 8 years, 9 to 11 years, 12 to 14 years, and 15 to 18 years) and parents of children aged one to 18 years.

Parents were defined by Statistics Canada for this purpose as persons who are lone-parents or are either spouses or common-law partners, of same or opposite sex, with children aged one to 18 years of age. This definition uses spouses, common-law partners and children as defined by census family status. Children refer to blood, step- or adopted sons and daughters (regardless of age or marital status) who are living in the same dwelling as their parent(s), as well as grandchildren in households where there are no parents present.

Using survey data, the definition of parents also differed based on the data source:

- Canadian Community Health Survey (CCHS): parents are defined as either a respondent living with their spouse/partner and one or more children, or a single parent living with one or more children.
- Rapid Risk Factor Surveillance System (RRFSS): parents are defined as those who have at least one child 17 years of age or younger living in their household.

Some tables and figures present census data for parents only (as defined above), whereas some present data for the whole

Peel population (e.g., income). The distinction can be made between these two using the table or figure title (e.g., Highest Level of Education Attained by Parents, Median and Mean After-tax Family Income by Type of Family).

Figure 17.1 below is a visual depiction of the definitions used by Statistics Canada to describe family categories within the 2006 Canadian census.

Chapter 2 – Caregiver Capacity

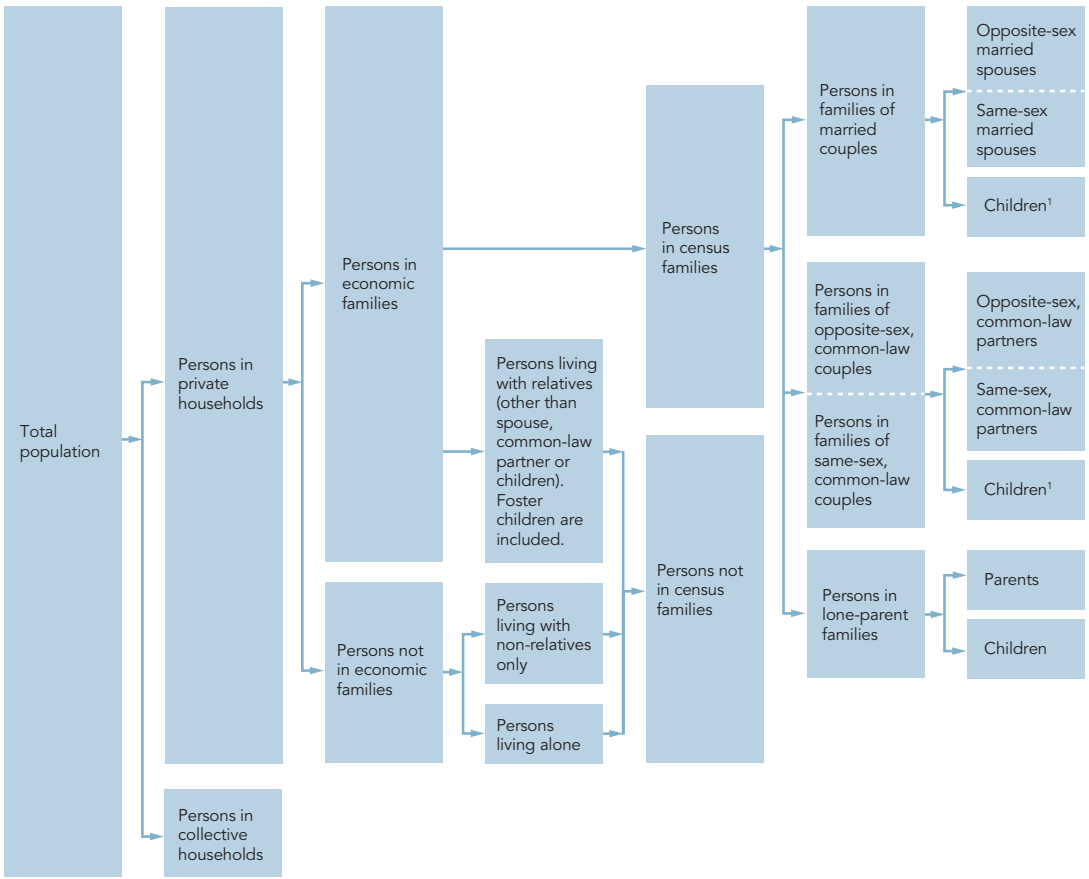
The data presented in Figure 2.4 have been restricted to parents 25 to 64 years of age.

Chapter 3 – Community Capacity

High School Graduation Rates

The high school graduation rate provided by the Ministry of Education indicates the number of students who have successfully completed all requirements to earn a secondary school diploma expressed as a proportion of a population group. The

Figure 17.1
Economic and Census Family Membership and Family Status



1. May or may not be present
Source: Statistics Canada, 2006 Census Dictionary. January 2010. Minister of Industry.

method for calculating the graduation rate is based on a cohort approach which measures the percentage of students who graduated within five years of starting Grade 9. The cohort graduation rate is the number of graduates of a cohort divided by the number of students of the same cohort, multiplied by 100. The Ministry of Education does not publish this information by gender, board or region.

Well Baby Visits

The number of enhanced 18-month well baby visits in 2010 was determined by summing the number of visits for fee schedule codes equal to A002 or A268 for children less than two years of age whose public health unit of residence was Peel.

EDI analysis methods

The distribution of EDI scores across the five domains represents the proportion of children at various levels of readiness for school. Areas of concern can be identified by comparing the distribution of Peel children to the expected distribution.

To examine how language impacts school readiness in Peel, children were defined as being either:

- English or French speakers (English language only children in English school board or French language only children in French school board);
- second language learners (non-English/French language listed and ESL/FSL identified by teacher); or
- bilingual (non-English/French language listed and no ESL/FSL identified by teacher).

Peel children who were bilingual were more likely to have attended junior kindergarten (93%) compared to second language learners (92%) or the language control group (92%).

Chapter 5 – Safe, Supportive Environments

The Peel Regional Police serve the municipalities of Brampton and Mississauga but not Caledon. Data from the annual reports from Peel Regional Police therefore represent incidents in Brampton and Mississauga only. However, incidents may involve individuals who live inside or outside of Peel Region.

The estimated number of hospitalizations among children and adults due to asthma that are related to exposure to outdoor contaminants is presented from a computer model called the Illness Cost of Air Pollution (ICAP). This model considers local health statistics, regional air quality and population data to estimate the health and economic damages of poor air quality in populations. The estimates are likely conservative as they are based on centrally located air monitoring sites which may not capture information for higher risk areas in Peel that are heavily impacted by traffic.

Chapter 7 – Mental Health Status of Children

Table 7.1 presents the rate of hospitalizations among children due to selected mental health conditions. Children hospitalized for mental health conditions may be captured either within the inpatient hospitalization database or within the adult mental health database, depending on the situation (i.e., whether they were admitted to an adult mental health bed within the hospital or not). Therefore, the data in Table 7.1 are the sum of hospitalizations for these conditions among children one to 18 years of age captured within both databases. The conditions listed were categorized by ICD-10 code as follows: anxiety, adjustment, obsessive/compulsive, phobia, and somatoform disorders (F40-F45; F48; F93); mood disorders (F30-F39); schizophre-

nia, schizotypal and delusional disorders (F20-F29); disorders due to psychoactive substance use (F10-F19); eating disorders (F50); and all other disorders (F01-F09; F51-F92; F94-F99).

Chapter 9 – Health-Care Utilization

The age- and sex-specific rates of hospitalization and emergency department visits for all causes are calculated by dividing the total number of hospital discharges or emergency department visits for a particular age and sex group by the total population in that same age and sex group. The rates are expressed per 100,000 population.

Within this chapter, the "leading causes" of hospitalization and emergency department visits are presented, which reflect groupings of ICD codes for specific causes of hospitalizations or emergency department visits. These groupings are based on knowledge of the specific medical conditions. The specific ICD-10 groupings may differ slightly between similar leading causes of hospitalization and emergency department visit data due to the specific codes used in each situation.

Chapter 12 – Injuries

The types of injuries presented in Figure 12.2 were selected to illustrate how the types of injuries change between children of different age groups. These are not necessarily the leading causes of injuries among this age group.

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