



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 gangs²⁹ 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 under-report 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

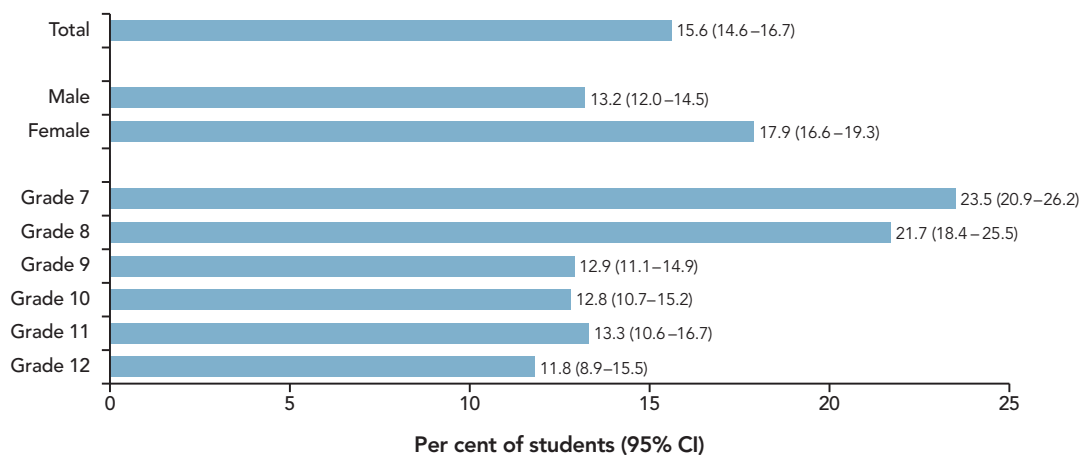
Internet bullying can include bullying through computer postings (e.g., on social media sites), emails, digital photos and cell phones. Approximately one in five Canadian Grade 10 students reported being a victim of electronic bullying. Rates remained fairly consistent from Grade 6 to 10 for girls but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

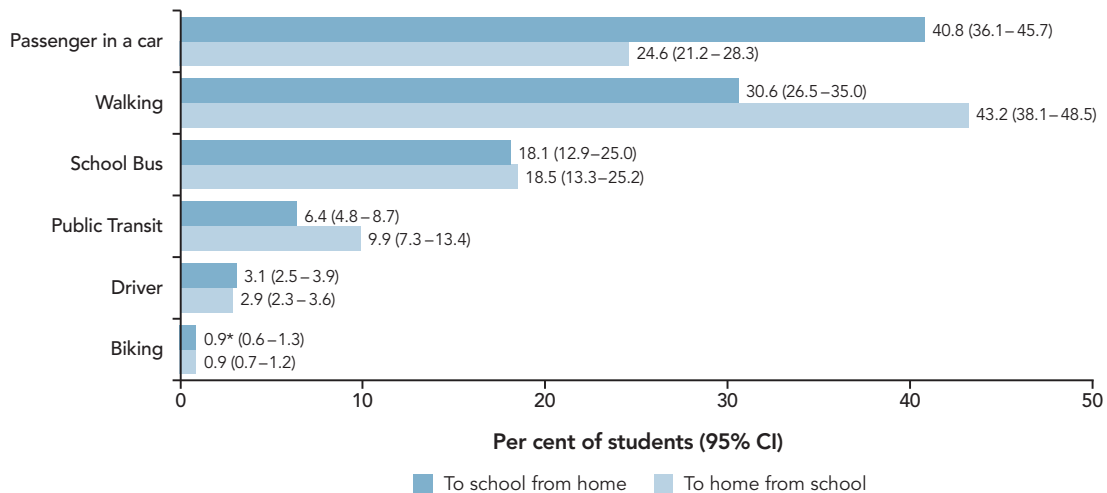
For children and youth, the distance between school and place of residence has

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:

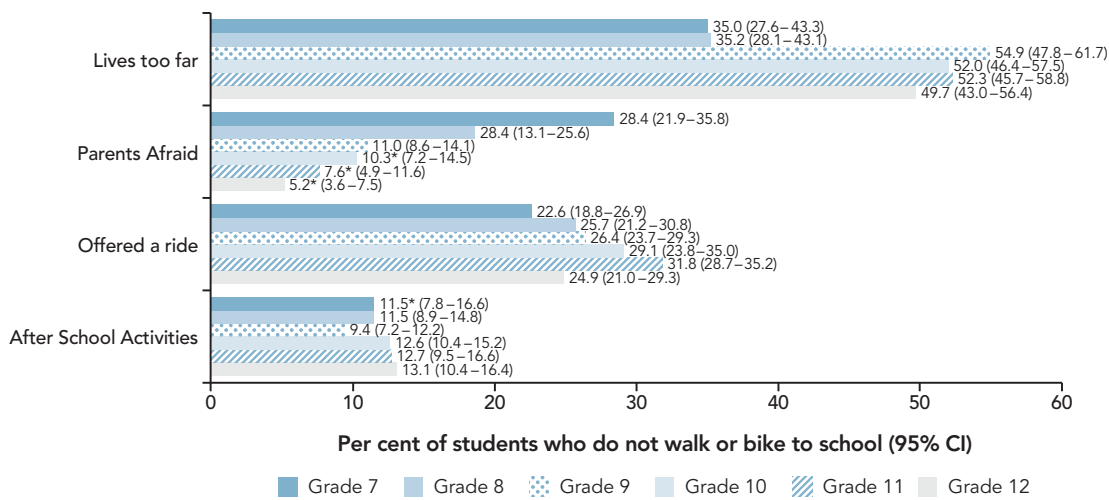
- live too far from the school;
- offered a ride by parents or friends;
- parents were afraid; and
- had after-school activities (Figure 5.3).

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 chemicals 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 effects 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 (O₃), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), 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}, O₃, NO₂, SO₂ and CO in Peel causes approximately 29 hospitalizations for asthma in children and 13 hospitalizations for asthma in adults in Peel per year.¹

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}



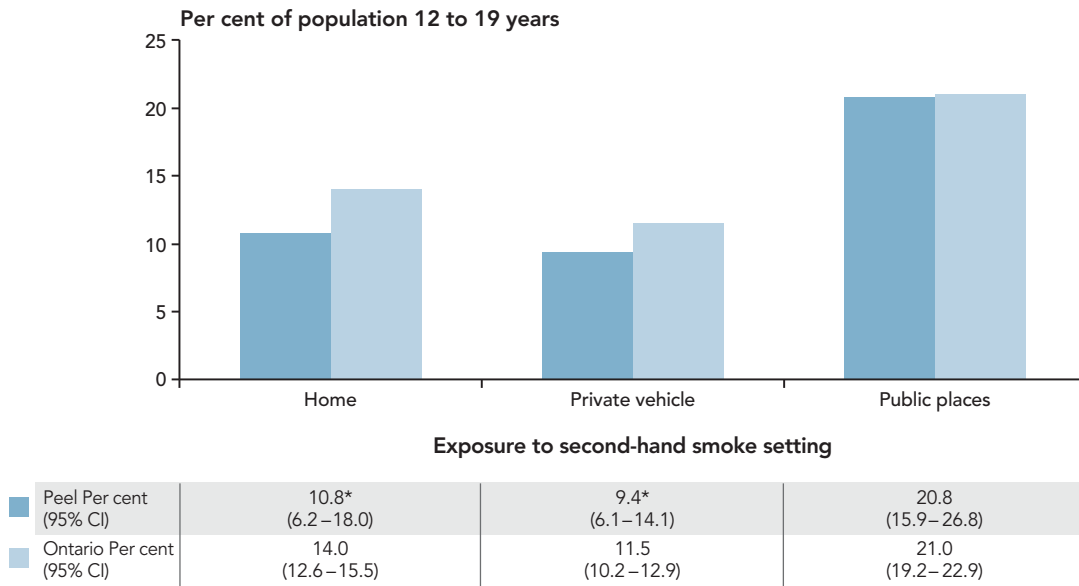
Policy

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



* 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.