



## 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

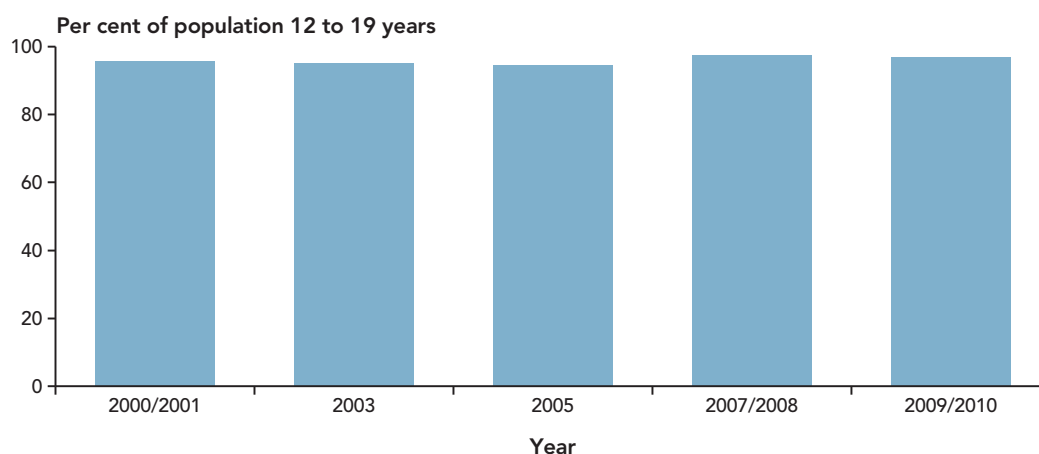
status, obesity, chronic health conditions and oral health.

### 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<sup>†</sup> among Youth, Peel, 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)
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<sup>†</sup> 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.<sup>83,94,95</sup> Close to one-third (32%) of Canadians five to 17 years old are overweight or obese.<sup>95</sup>

**?** 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.

$$\text{BMI} = \text{weight (kg)} / \text{height (m)}^2$$

BMI has been validated against measures of body density, and is a reliable and non-intrusive measure to assess adiposity in children and adolescents.<sup>58, 96</sup> 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.<sup>97</sup>



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.<sup>98</sup> Overweight and obesity can also affect mental health as these children often face social prejudices and biases, and are unsatisfied with their bodies.<sup>99</sup>

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

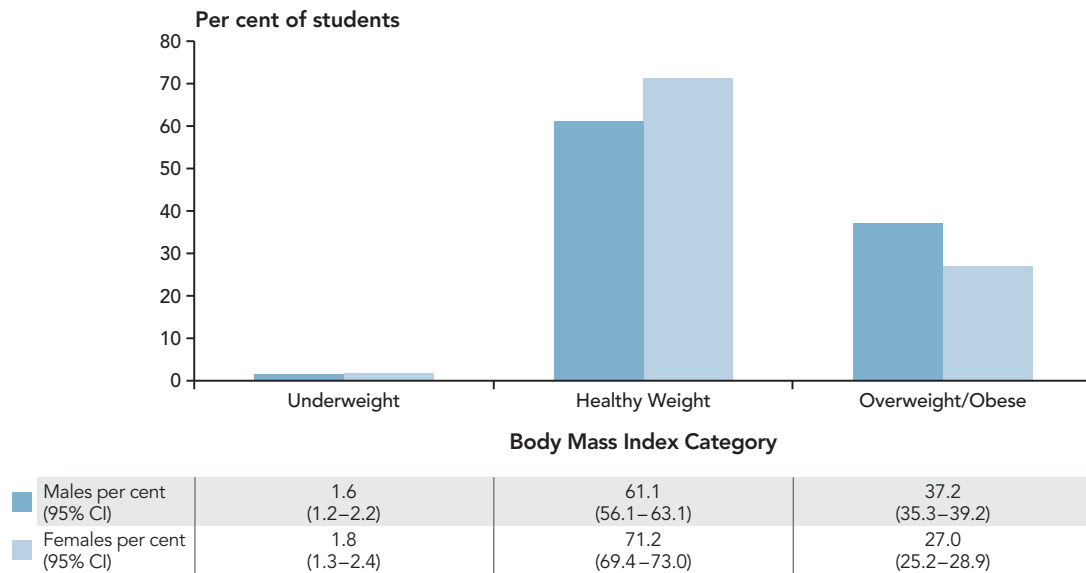
**?** Did You Know

**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.<sup>41</sup>

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



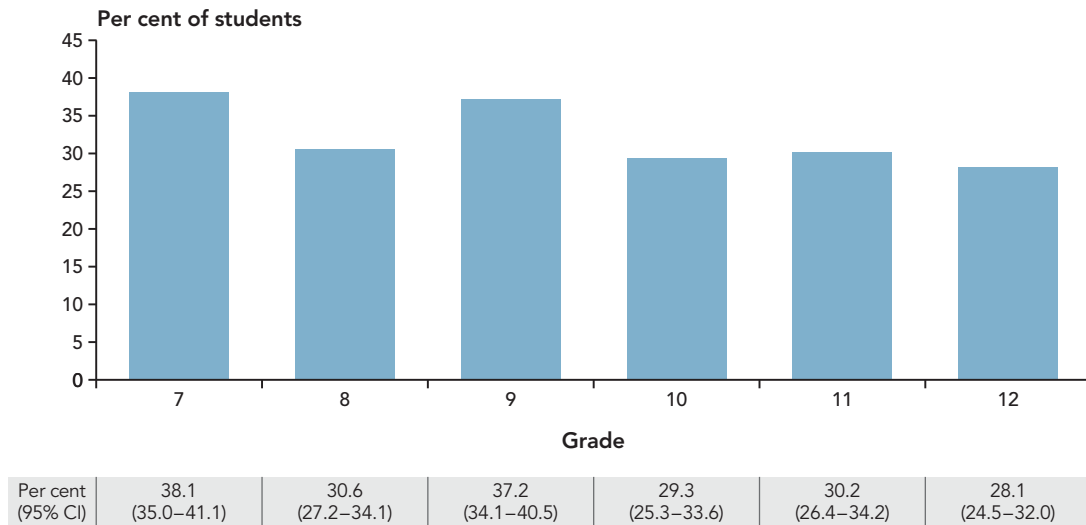
Note: 95% CI reflects the 95% confidence interval of the estimate.  
Source: Student Health Survey 2011, Peel Public Health.



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.<sup>41</sup>

**Figure 10.3**

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



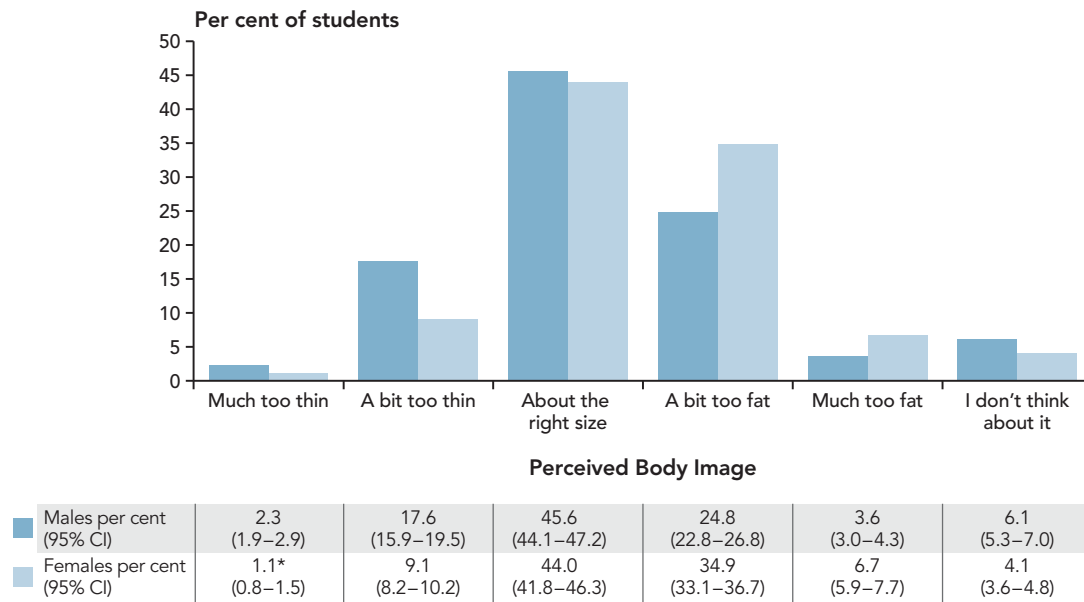
Note: 95% CI reflects the 95% confidence interval of the estimate.  
Source: Student Health Survey 2011, Peel Public Health.

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).<sup>H</sup>



**Figure 10.4**  
Perceived Body Image by Sex,  
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.

## 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.<sup>100</sup>

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**

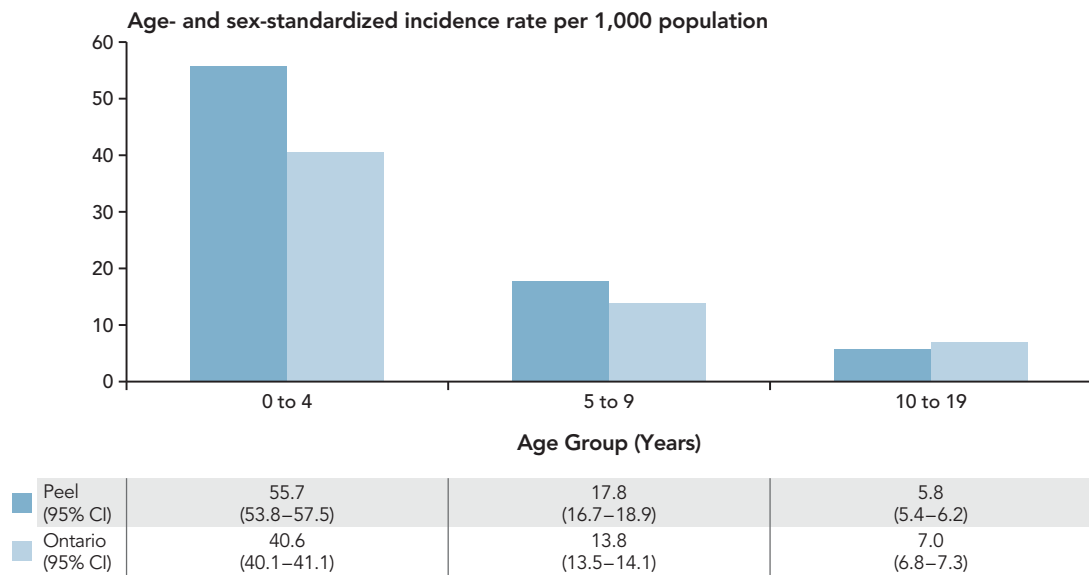
Children may be sensitive to a number of allergens, including specific foods, natural exposures (e.g., trees, grass, ragweed) or environmental exposures (e.g., scents, chemicals). Allergies may be transient and can range in severity, with the most severe reactions leading to anaphylaxis and potentially 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%).<sup>D3</sup>

**Figure 10.5**

Age- and Sex-Standardized Incidence Rate<sup>†</sup> of Asthma by Age Group, Peel and Ontario, 2006/2007



<sup>†</sup> 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.

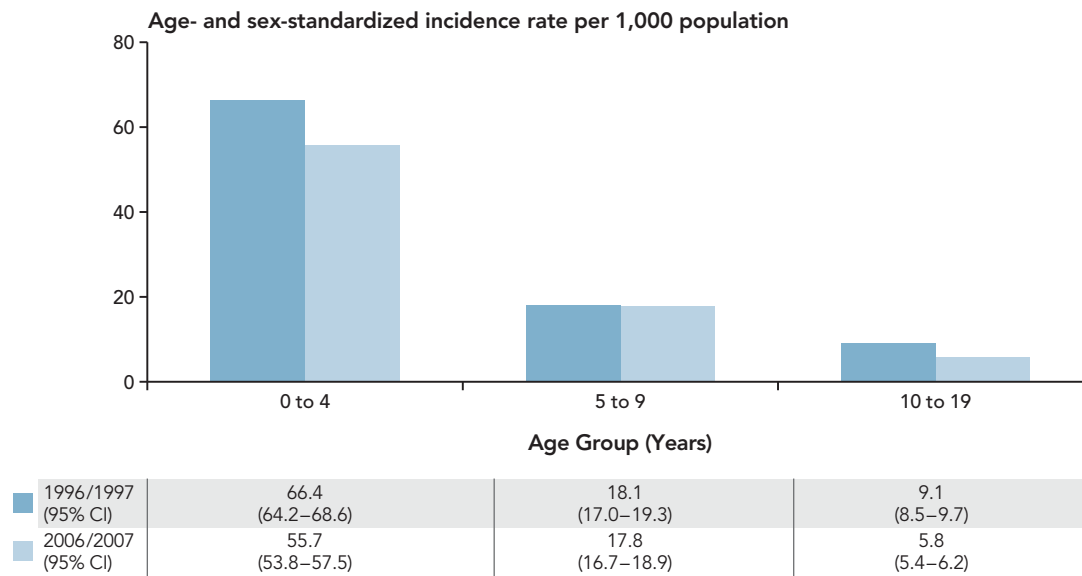
**Definition**

**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<sup>†</sup> of Asthma by Age Group, Peel, 1996/1997 and 2006/2007



<sup>†</sup> 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.<sup>101</sup> Changes in diagnostic practices

may also lead to reductions in the overall prevalence rate.<sup>101</sup>

## 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.<sup>98</sup>

**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.<sup>98</sup>



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.<sup>98</sup>

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.<sup>N</sup> 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.<sup>102</sup> 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.<sup>103</sup> Those who survive cancer may have long-term effects (such as cardiopulmonary, endocrine, renal or pulmonary dysfunction, neurocognitive impairments and secondary cancers).<sup>103</sup>

*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 con-

sumption, excess sun exposure, and some sexually transmitted infections).<sup>104</sup>

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.<sup>O</sup>

### **Melanoma and Sun Safety**

Melanoma is one of the five most common cancers among Ontario males and females 15 to 29 years of age.<sup>105</sup> 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.<sup>106, 107</sup>



#### 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.<sup>O</sup> 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.<sup>102</sup>

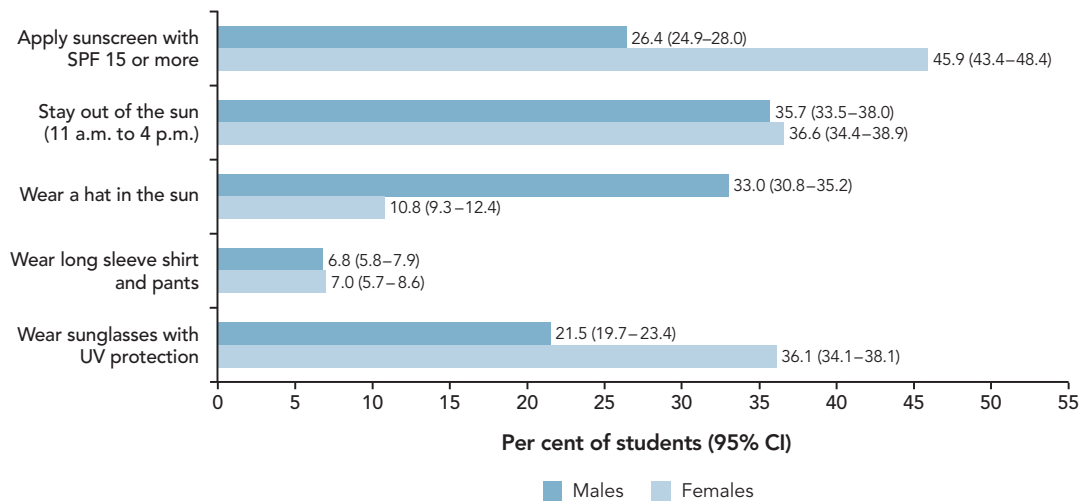
Approximately 43% of all Peel students have been sunburned in their lifetime.<sup>H</sup> What is unknown is the frequency and severity of these sunburns.

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<sup>†</sup> During Summer Months by Sex, Peel, 2011**



<sup>†</sup> 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.<sup>107,108</sup> 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.<sup>107</sup>



#### 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.<sup>H</sup> Female students (3%) are more likely to report using tanning beds less than once a month compared to male students (1%).<sup>H</sup> 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.<sup>109,110</sup> 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.<sup>111,112</sup>

### Access to Dental Care

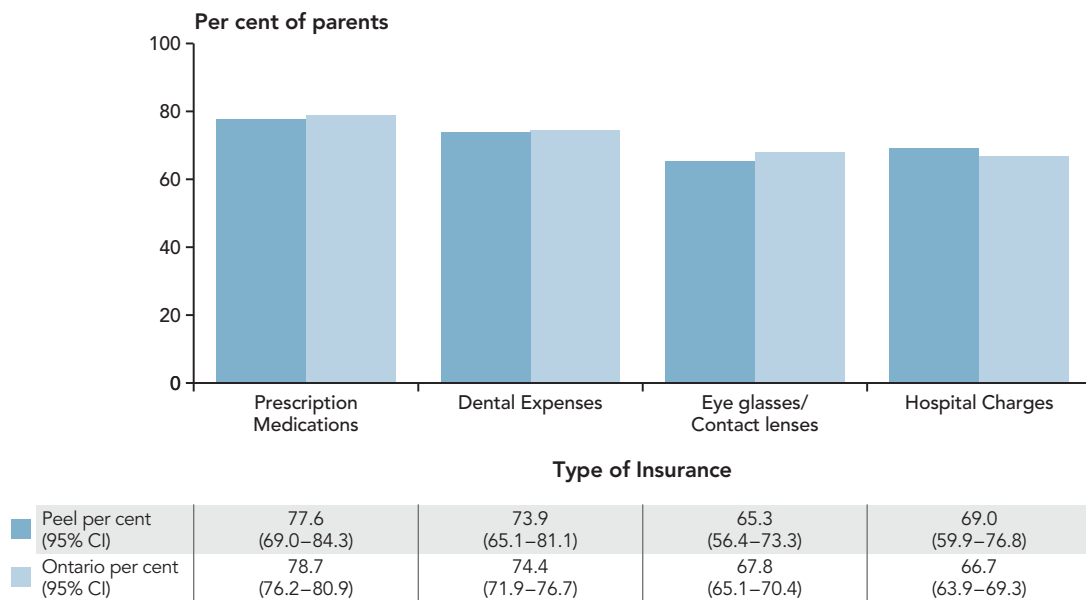
Regular visits to dental care providers allow for early identification and intervention to prevent the consequences of untreated conditions. Access to dental care is influenced by the ability to pay for dental services.<sup>112,113</sup> Seventy-four per cent of Peel parents have insurance to cover dental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

Eighty-one per cent of Peel students in Grades 7 through 12 visit the dentist at least once a year.<sup>H</sup>



**Figure 10.8**

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



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.<sup>H</sup>

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.<sup>P</sup>



## Peel Facts

**Dental Health Needs**

Twelve per cent of Peel parents reported in 2010 that their senior kindergarten student had dental health needs.<sup>E</sup> 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.<sup>H</sup>

**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,<sup>110</sup> 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
<b>Total</b>	<b>31.4</b>

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
<b>Total</b>	<b>52.3</b>

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.<sup>11</sup>