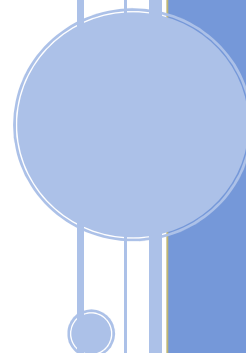


# **AN OVERVIEW OF THE LEADING CAUSES OF INJURY AMONG PEEL RESIDENTS 2018**

*A Region of Peel – Public Health Data Overview*

November 2018



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# INTRODUCTION

## Purpose of this Data Overview

The purpose of this data overview is to describe the leading causes of injury among Peel residents and their associated risk factors. Although certain injury topic areas had been explored in the past, a comprehensive look at injury across the Region of Peel had not been previously conducted. In addition, the data overview describes selected other causes of injury which impact the health and quality of life of Peel residents, along with the sociodemographic features of Peel's population. These data will be used in conjunction with existing mandates to inform the development of an Injury Prevention Strategy for the Chronic Disease and Injury Prevention (CDIP) Division.

## Peel Public Health Mandates

Peel Public Health is guided by the *Ontario Public Health Standards: Requirements for Programs, Services, and Accountability (2018)* to reduce the burden of preventable injuries and substance use by:

- collecting and analyzing relevant data to monitor trends over time and identifying priority populations and health inequities;
- developing and implementing a program of public health interventions using a comprehensive health promotion approach that addresses risk and protective factors;
- consulting and collaborating with local stakeholders in the health, education, municipal, and non-governmental sectors; and
- using evidence for effectiveness of interventions employed.<sup>1</sup>

This data overview supports both the first requirement above in the modernized standards, as well as the “Define the Problem” pillar within the *End-to-End-Public Health Practice Approach* and will provide direction to the Substance Misuse and Injury Prevention Team for their work in injury prevention.

## Region of Peel Mandates

This data overview supports the Region of Peel's 2015-2035 Strategic Plan in promoting healthy and age-friendly built environments (Figure 1).<sup>2</sup>

**Figure 1**  
**Imagine Peel – Strategic Plan,**  
**Peel, 2015-2035**



Data that are relevant, accessible, and current is vital in identifying the needs of the community, as well as in planning quality programs and services that influence health outcomes. The data are organized into several sections, as follows:

- Demographics
- Leading causes of injury - overview
- Falls
- Motor vehicle collisions
- Cycling collisions
- Pedestrian collisions
- Land transport accidents (other)
- Water transport accidents (excluding drowning)
- Exposure to inanimate and animate mechanical forces
- Overexertion, travel and privation
- Poisoning
- Burns
- Suffocation including choking
- Exposure to forces of nature, venomous animals and plants
- Drowning/Submersion
- Assault
- Deliberate self-harm and suicide
- Special Topics

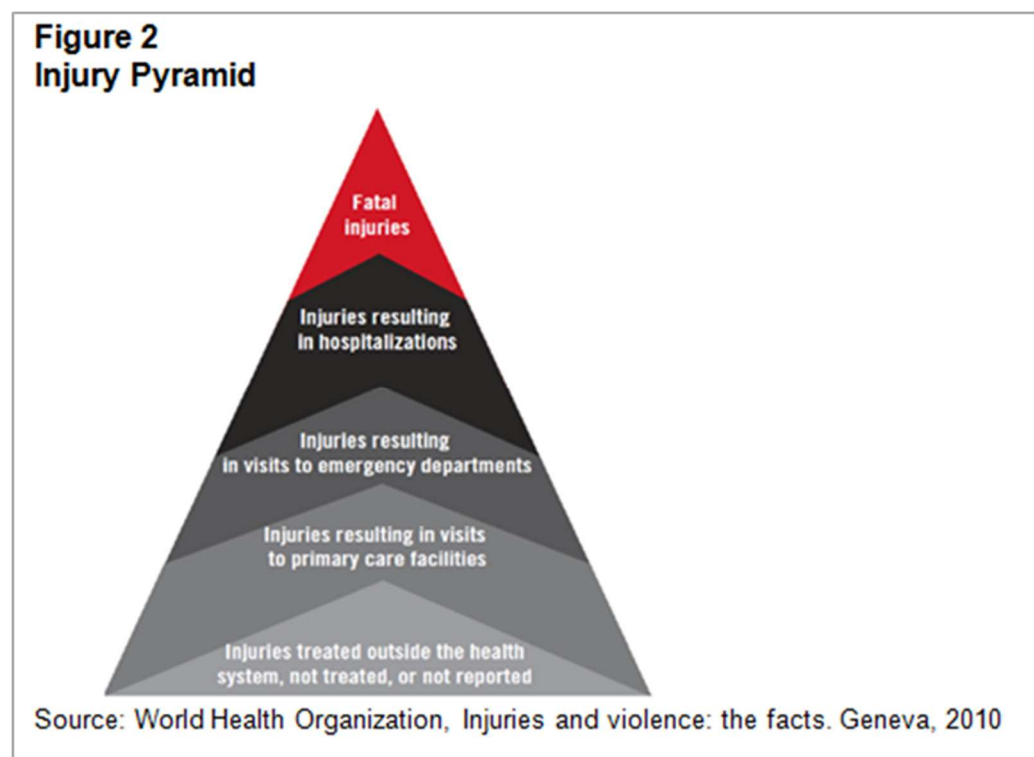
- Sports and Recreation
- Concussions and Head Injuries

The overview is not exhaustive of all data, but rather a comprehensive selection of variables that describe the injury landscape in Peel Region.

## HOW TO READ THIS DATA OVERVIEW

### About Injury Data: The Injury Pyramid

The Injury Pyramid illustrates the spectrum of injury that ranges from minor scrapes/cuts that can be treated at home, to more serious ones that may result in death (Figure 2). As the severity of injury increases towards the top of the Pyramid, the likelihood of the event being documented by an existing information system also increases. Existing information systems that collect injury-related data provide us with the least amount of information for the greatest number of people – those at the bottom of the Pyramid who sustain minor injuries that can be treated at home. In contrast, we know the most about the least number of people – those at the top of the Pyramid whose injuries result in death or who require admission to hospital for treatment and recovery. As a result, more severe injuries are better described than less severe ones.



This report first highlights the 15 leading causes of injury-related morbidity and mortality among Peel residents, and then describes each in more detail as follows:

- self-reported injuries (where data are available);
- injuries resulting in emergency department visits;
- injuries resulting in hospitalizations;
- injuries resulting in mortality; and
- risk factors associated with selected leading causes of injury (where data are available)

Although sport and recreation-related injuries is not a leading causes of injury category, and concussions is not a cause of injury but rather a diagnosis, they are also described here, as they are of interest to the program.

When interpreting information presented in this report, it is important to note that the data shown are based on the place of residence of injured persons. Therefore, Peel data describe injuries experienced by people who live in Peel regardless of where their injuries were sustained (i.e. they may have been injured inside or outside of Peel).

### **Interpreting Standardized Rates**

In several tables and graphs throughout this report, age-standardized rates are shown.

A standardized rate expresses the frequency of a disease or condition that would be observed if the population had the same distribution (e.g., age and/or sex) as the “standard population”. A standardized rate is a hypothetical summary rate which would be observed if the population had a specific structure. Standardized rates allow for comparison between two or more groups of populations.

### **Interpreting Confidence Intervals**

In some tables, ninety-five per cent confidence intervals (presented as “95% CI” in the report) are provided for many of the estimates (e.g., percentages). The confidence interval presents a lower and upper range of values, which we are confident, contains the true value of the estimate for the whole population 95% of the time, or 19 times out of 20.

For example, in Peel, 26% of students in Grades 7 to 12 wear a helmet while biking with a confidence interval for that estimate of 20% to 33%. This means that if we repeated the survey twenty times using different samples from the same population; on nineteen occasions the estimate would be somewhere between 20% and 33%, while on one occasion the estimate would be below 20% or above 33%. We could say that we are 95% sure the actual proportion of bike helmet use in the student population is between 20% and 33% and in this particular survey, the sample estimate is 26.

- In this data overview, 95% confidence intervals were used as a conservative method to determine statistical significance regarding differences between groups (e.g., age groups, immigrant status categories).
- When the 95% confidence interval of the estimate for one group does not overlap with that of the estimate for another group, the difference between the estimates is considered statistically significant (i.e., unlikely to be due to chance).
- If the confidence intervals of two estimates do overlap, the estimates may still be significantly different. However, an appropriate statistical test would be required to assess whether there is a statistical difference of the two estimates. We did not conduct additional tests to determine significance in this report and therefore we acknowledge that some differences between groups may have been missed. However, our intention was to provide general descriptive statistical analyses and not accept or reject specific hypotheses.

### **References**

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

- Text references refer to references from articles, books or other documents and are defined by a superscript number. For example, A higher risk of poor oral health was observed.<sup>1</sup>
- Data references refer to the data source for the statistic being presented in the text and are defined by a superscript letter. For example: Peel has a higher proportion of adults aged 35 to 44 years compared to Ontario.<sup>A1</sup>





## OVERALL KEY MESSAGES

- Peel's rates of injury-related emergency department visits, hospitalizations and deaths are generally lower than those of Ontario.
- Falls are the only top cause of injury-related emergency department visits that have increased in Peel, however rates of hospitalization and death due to falls have either fluctuated or are stable.
- Although rates of hospitalizations and death from motor vehicle collisions injuries have decreased over the past decade, motor vehicle collisions remain among the top causes of premature death from injuries.
- The place of occurrence of injuries among Peel residents is not well captured in the available health-related datasets. Data are needed to complement our understanding of the burden of injuries and an understanding of the place of occurrence can help to inform potential interventions.
- Death rates and the demand on health care resources vary with type of injury.

## DEMOGRAPHICS



### Key Messages

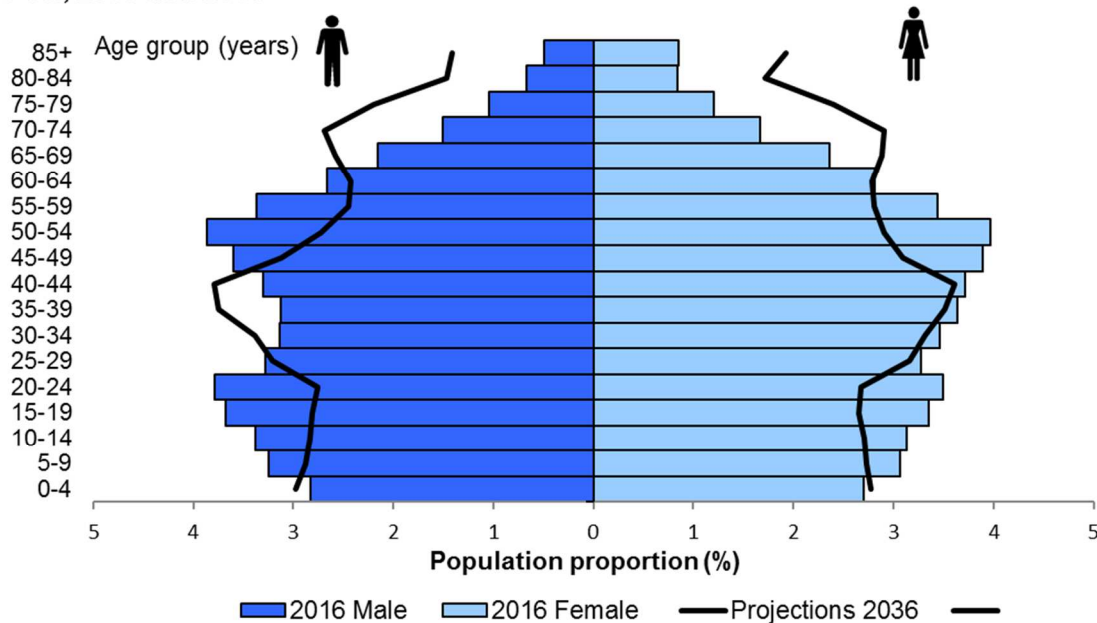
- Peel's population is aging and the proportion of Peel seniors is expected to grow to about 21% of the population by 2036.
- The proportion of immigrants in Peel is almost double that of Ontario. Seven per cent of Peel residents are recent immigrants.

### Peel's Population by Age Group and Sex

The distribution of Peel's population by age group and sex in 2016 is shown in Figure 3 as well as the projected distribution in 2036. Although not shown, Peel has a higher proportion of adults aged 35 to 44 years as well as children aged 0 to 19 years compared to Ontario.<sup>A</sup>

Peel's population is expected to age over the next 20 years. By 2036, 21% of Peel's population will consist of seniors compared to 13% in 2016 (Figure 3).<sup>B</sup>

**Figure 3**  
Population Distribution by Age Group and Sex,  
Peel, 2016 and 2036



Sources: Census 2016, Statistics Canada  
Hemson Consulting, Population Forecast 2036, Region of Peel

### Immigration Status

In 2016 the proportion of immigrants in Peel (52%) was 1.8 times higher than Ontario (29%). Seven per cent of Peel's population are recent immigrants, having immigrated between 2011 and 2016 (data not shown).<sup>A</sup>

## LEADING CAUSES OF INJURY



### Key Messages

- The leading causes of injury-related morbidity and mortality vary across the lifespan.
- Peel males generally have higher rates of injury resulting in ED visits, hospitalization and death compared to females.
- The top causes of injury resulting in premature death in Peel are suicide, poisonings, motor vehicle collisions, assault and falls.
- Peel males have considerably higher rates of injury-related premature death for nine of the top 10 causes, many of which the rate for males is 2 to 4 times that of females.
- The top five causes of ED visits, hospitalizations and death in Peel are:

#### Top Five Causes of Injury by Health Outcome

Emergency Department Visits	Hospitalizations	Deaths
Exposure to inanimate and animate mechanical forces	Falls	Falls
Falls	Complications of medical and surgical care	Suicide
Overexertion, travel and privation	Exposure to inanimate and animate mechanical forces	Poisoning
Motor vehicle collisions	Motor vehicle collisions	Motor vehicle collisions
Complications of medical and surgical care	Suicide	Land transport accidents (other)

### Leading Causes of Self-Reported Injuries

In 2013/2014, the most common cause of self-reported activity-limiting injuries in Peel were falls (47%), followed by overexertion or strenuous movements (17%\* - use estimate with caution) (Table 1).

**Table 1**  
**Per cent of Respondents Reporting the Cause of Their Most Serious Injury,**  
**Peel and Ontario, 2013/2014**

Cause of Injury	Peel			Ontario		
	Per cent	95% Confidence Interval	Population Estimate	Per cent	Confidence Interval	Population Estimate
Fall	46.5	38.4-54.7	70,800	39.2	37.0-41.4	654,100
Overexertion or strenuous movements	17.1	11.9-24.0	26,100	24.7	22.8-26.8	412,200
Accidentally bumped/pushed/bitten	8.5	4.8-14.6	12,900	6.8	5.7-8.1	112,900
Accidentally struck/crushed by object	7.7	4.7-12.4	11,700	6.6	5.6-7.7	110,000
Accidental contact with sharp object/tool/machinery	5.2	2.9-9.1	7,900	5.9	5.0-7.0	98,900
Transport accident	NR	NR	NR	3.5	2.7-4.5	58,800
Accidental contact with hot object, liquid or gas	NR	NR	NR	2.5	2.0-3.1	41,800
Physical Assault	NR	NR	NR	1.2	0.8-1.6	19,500
Smoke, fire, flames	NR	NR	NR	0.3	0.2-0.5	4,500
Extreme weather or natural disaster	NR	NR	NR	0.3	0.1-0.5	4,600
Poisoning	NR	NR	NR	NR	NR	NR
Other	NR	NR	NR	8.7	7.3-10.3	144,800
<b>TOTAL</b>	<b>100.0</b>	<b>100.0-100.0</b>	<b>152,400</b>	<b>100.0</b>	<b>100.0-100.0</b>	<b>1,668,300</b>

\* Use estimate with caution.

NR = Not releasable due to small numbers.

**Notes:** Reflects respondents 12 years and older who reported injuries that occurred in the past 12 months that were serious enough to limit normal activities. Survey participants who did not respond to this question (e.g., they did not know the response or they refused) were not included in the calculation of percentages for any of the categories in this table.

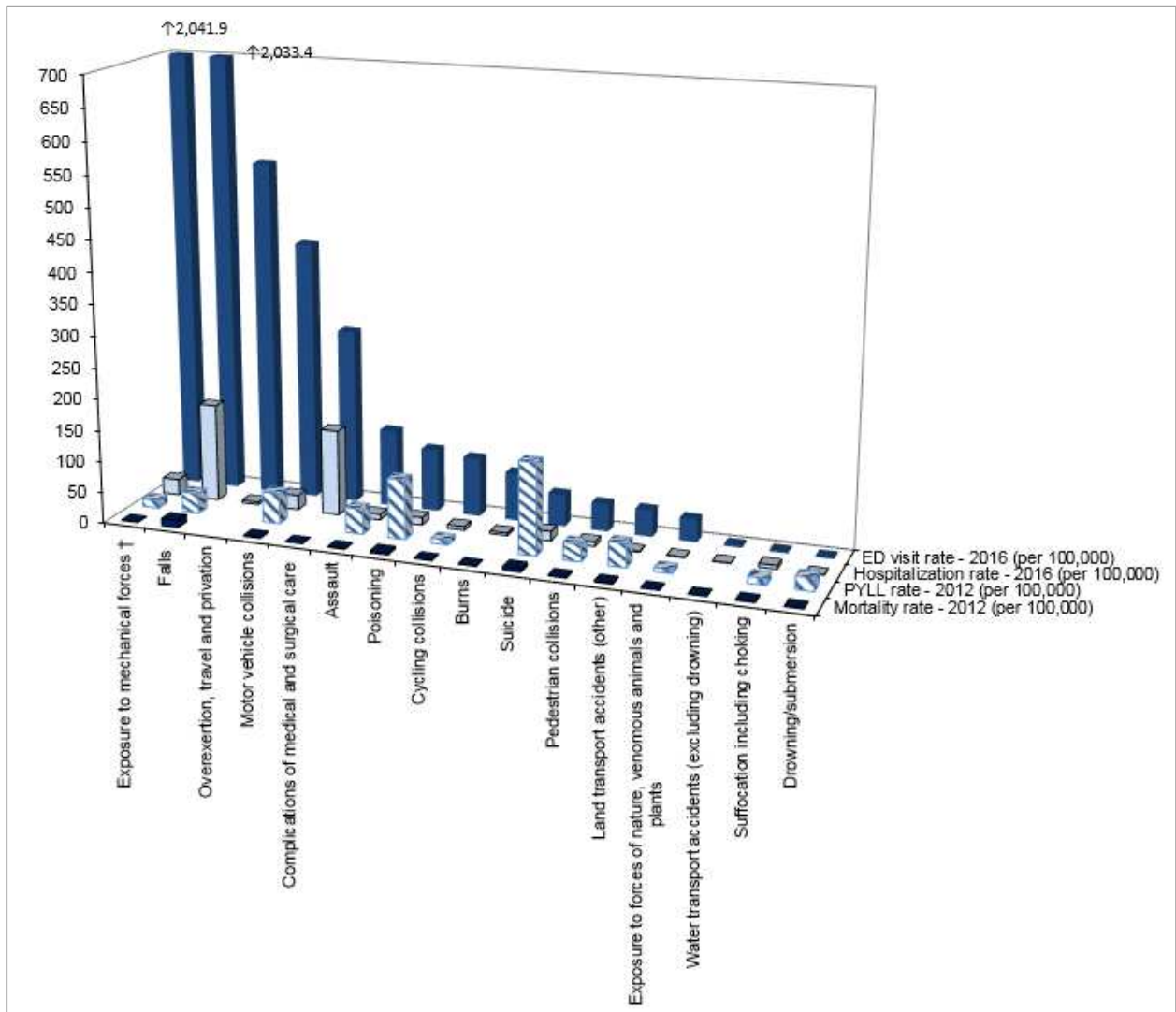
**Question:** What caused the injury?

**Source:** Canadian Community Health Survey Share File, 2013/2014, Statistics Canada. Ontario Ministry of Health and Long-Term Care.

## Comparative Burden of Selected Injuries

Death rates and the demand on health care resources vary according to injury type as shown in Figure 4.

**Figure 4**  
**Burden of Selected Injuries,**  
**Peel, 2012, 2016**



† Includes exposure inanimate and animate mechanical forces

Sources: National Ambulatory Care Reporting System, 2016, and Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Leading Causes of Injury-Related Emergency Department Visits

In 2016, the most common causes of injury-related ED visits in Peel were falls, exposure to inanimate and animate mechanical forces, and “overexertion, travel and privation” (Table 2). Top causes of injury-related ED visits vary by sex (Tables 3 and 4) and by age group (Table 5).

Examples of exposure to inanimate forces include:

- being struck by a thrown, projected or falling object;
- striking against or by sports equipment and other objects;
- being caught, crushed, jammed, or pinched between objects”; and
- having contact with sharp glass, powered lawnmower, agricultural machinery, non-powered hand tool, etc.

Examples of exposure to animate mechanical forces include:

- being hit, struck, kicked, twisted, bitten or scratched by another person;
- striking against or bumping into another person;
- being bitten by a rat, or bitten or struck by a dog or other mammals; and
- being bitten or stung by a nonvenomous insect and other nonvenomous arthropod.

A full list of ICD-10 codes that are included under “exposure to inanimate and animate mechanical forces” can be found in the Data Methods section of this report.

**Table 2**  
**Top Fifteen Leading Causes of Injury Resulting in Emergency Department Visits, Peel, 2016**

Causes of Injury Resulting in Emergency Department Visits	Number of Emergency Department Visits	Crude Rate per 100,000	Age-Standardized Rate per 100,000
Exposure to inanimate and animate mechanical forces	30,049	2,041.9	1,992.0
Falls	29,924	2,033.4	2,106.0
Overexertion, travel and privation	7,908	537.4	524.8
Motor vehicle collisions	6,083	413.4	409.7
Complications of medical and surgical care	4,098	278.5	294.2
Assault	1,814	123.3	118.9
Poisoning	1,466	99.6	97.4
Cycling collisions	1,387	94.3	90.9
Burns	1,095	74.4	73.3
Suicide	749	50.9	49.3
Pedestrian collisions	649	44.1	44.0
Land transport accidents (other)	627	42.6	42.1
Exposure to forces of nature, venomous animals and plants	533	36.2	36.5
Water transport accidents (excluding drowning)	52	3.5	3.4
Suffocation including choking	42	2.9	3.0
<b>All causes of injury</b>	<b>99,849</b>	<b>6,785.0</b>	<b>6,786.5</b>

**Notes:** Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 15 causes listed, it will not sum to the ‘All causes of injury resulting in emergency department visits’ total.

Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 3**  
**Top Fifteen Leading Causes of Injury Resulting in Emergency Department Visits among Males,**  
**Peel, 2016**

Causes of Injury Resulting in Emergency Department Visits	Number of Emergency Department Visits	Crude Rate per 100,000	Age-Standardized Rate per 100,000
Exposure to inanimate and animate mechanical forces	19,398	2,667.6	2,572.5
Falls	14,200	1,952.8	2,007.9
Overexertion, travel and privation	4,415	607.1	583.9
Motor vehicle collisions	2,987	410.8	405.3
Complications of medical and surgical care	2,014	277.0	309.0
Assault	1,313	180.6	171.7
Cycling collisions	1,026	141.1	133.4
Poisoning	761	104.7	102.1
Burns	538	74.0	72.3
Pedestrian collisions	334	45.9	46.2
Exposure to forces of nature, venomous animals and plants	307	42.2	42.6
Suicide	274	37.7	36.8
Land transport accidents (other)	255	35.1	34.7
Legal intervention and operations of war	38	5.2	5.0
Water transport accidents (excluding drowning)	32	4.4	4.3
<b>All causes of injury</b>	<b>54,909</b>	<b>7,551.0</b>	<b>7,475.0</b>

**Notes:** Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 15 causes listed, it will not sum to the 'All causes of injury resulting in emergency department visits' total.

Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 4**  
**Top Fifteen Leading Causes of Injury Resulting in Emergency Department Visits among Females,**  
**Peel, 2016**

Causes of Injury Resulting in Emergency Department Visits	Number of Emergency Department Visits	Crude Rate per 100,000	Age-Standardized Rate per 100,000
Falls	15,723	2,112.1	2,172.0
Exposure to inanimate and animate mechanical forces	10,650	1,430.6	1,414.5
Overexertion, travel and privation	3,493	469.2	465.8
Motor vehicle collisions	3,096	415.9	413.4
Complications of medical and surgical care	2,084	279.9	285.9
Poisoning	705	94.7	93.2
Burns	557	74.8	74.2
Assault	501	67.3	65.8
Suicide	475	63.8	62.6
Land transport accidents (other)	372	50.0	49.6
Cycling collisions	361	48.5	47.8
Pedestrian collisions	315	42.3	42.3
Exposure to forces of nature, venomous animals and plants	226	30.4	30.6
Suffocation including choking	21	2.8	2.9
Water transport accidents (excluding drowning)	20	2.7	2.7
<b>All causes of injury</b>	<b>44,938</b>	<b>6,036.5</b>	<b>6,073.8</b>

**Notes:** Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 15 causes listed, it will not sum to the 'All causes of injury resulting in emergency department visits' total.

Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 5**  
**Top Five Leading Causes of Injury Resulting in Emergency Department Visits by Age Group,**  
**Peel, 2016**

<b>Age Group (Years)</b>	<b>Causes of Injury Resulting in Emergency Department Visits</b>	<b>Number of Emergency Department Visits</b>	<b>Age-Specific Rate per 100,000</b>
<b>&lt;1</b>	Falls	444	2,687.7
	Exposure to inanimate and animate mechanical forces	152	920.1
	Complications of medical and surgical care	75	454.0
	Burns	27	163.4
	Poisoning	27	163.4
	<b>All causes of injury</b>	<b>947</b>	<b>5,732.4</b>
<b>1 - 9</b>	Falls	5,460	3,529.5
	Exposure to inanimate and animate mechanical forces	4,226	2,731.8
	Overexertion, travel and privation	579	374.3
	Poisoning	281	181.6
	Cycling collisions	221	142.9
	<b>All causes of injury</b>	<b>13,080</b>	<b>8,455.3</b>
<b>10 - 19</b>	Exposure to inanimate and animate mechanical forces	6,040	3,157.9
	Falls	4,278	2,236.7
	Overexertion, travel and privation	2,065	1,079.7
	Motor vehicle collisions	626	327.3
	Cycling collisions	461	241.0
	<b>All causes of injury</b>	<b>17,100</b>	<b>8,940.5</b>
<b>20 - 29</b>	Exposure to inanimate and animate mechanical forces	5,696	2,638.9
	Falls	2,621	1,214.3
	Motor vehicle collisions	1,566	725.5
	Overexertion, travel and privation	1,470	681.0
	Assault	709	328.5
	<b>All causes of injury</b>	<b>16,034</b>	<b>7,428.4</b>
<b>30 - 39</b>	Exposure to inanimate and animate mechanical forces	4,107	1,990.2
	Falls	2,175	1,054.0
	Overexertion, travel and privation	1,122	543.7
	Motor vehicle collisions	1,073	520.0
	Complications of medical and surgical care	418	202.6
	<b>All causes of injury</b>	<b>11,810</b>	<b>5,723.0</b>
<b>40 - 49</b>	Exposure to inanimate and animate mechanical forces	3,642	1,712.6
	Falls	2,570	1,208.5
	Overexertion, travel and privation	1,034	486.2
	Motor vehicle collisions	941	442.5
	Complications of medical and surgical care	507	238.4
	<b>All causes of injury</b>	<b>11,365</b>	<b>5,344.1</b>
<b>50 - 59</b>	Falls	3,439	1,637.1
	Exposure to inanimate and animate mechanical forces	3,422	1,629.0
	Overexertion, travel and privation	925	440.3
	Motor vehicle collisions	914	435.1
	Complications of medical and surgical care	724	344.7
	<b>All causes of injury</b>	<b>11,999</b>	<b>5,712.0</b>
<b>60 - 69</b>	Falls	3,024	2,092.1
	Exposure to inanimate and animate mechanical forces	1,743	1,205.9
	Complications of medical and surgical care	659	455.9
	Motor vehicle collisions	486	336.2
	Overexertion, travel and privation	424	293.3
	<b>All causes of injury</b>	<b>7,770</b>	<b>5,375.6</b>

Table 5 continues...



Table 5 continued

Age Group (Years)	Causes of Injury Resulting in Emergency Department Visits	Number of Emergency Department Visits	Age-Specific Rate per 100,000
70 - 79	Falls	2,493	3,160.8
	Exposure to inanimate and animate mechanical forces	658	834.3
	Complications of medical and surgical care	560	710.0
	Motor vehicle collisions	245	310.6
	Overexertion, travel and privation	166	210.5
	<b>All causes of injury</b>	<b>4,871</b>	<b>6,175.8</b>
80 - 89	Falls	2,444	7,221.8
	Complications of medical and surgical care	308	910.1
	Exposure to inanimate and animate mechanical forces	291	859.9
	Overexertion, travel and privation	78	230.5
	Motor vehicle collisions	71	209.8
	<b>All causes of injury</b>	<b>3,612</b>	<b>10,673.1</b>
90+	Falls	976	14,071.5
	Complications of medical and surgical care	75	1,081.3
	Exposure to inanimate and animate mechanical forces	72	1,038.1
	Overexertion, travel and privation	19	273.9
	Poisoning	7	100.9
	<b>All causes of injury</b>	<b>1,261</b>	<b>18,180.5</b>

**Note:** Since the table reflects the Top five causes listed, it will not sum to the 'All causes of injury' total.

Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Leading Causes of Injury-Related Hospitalizations

In 2016, the most common causes of injury-related hospitalizations in Peel were falls, complications of medical and surgical care, exposure to inanimate and animate mechanical forces (Table 6). The top causes of injury-related deaths vary by sex (Tables 7 and 8) and by age group (Table 9).

**Table 6**  
**Top Fifteen Leading Causes of Injury Resulting in Hospitalization,**  
**Peel, 2016**

<b>Causes of Injury Resulting in Hospitalizations</b>	<b>Number of Hospitalizations</b>	<b>Crude Rate per 100,000</b>	<b>Age-Standardized Rate per 100,000</b>
Falls	2,299	156.2	185.4
Complications of medical and surgical care	2,013	136.8	150.1
Exposure to inanimate and animate mechanical forces	372	25.3	25.5
Motor vehicle collisions	341	23.2	23.6
Suicide	223	15.2	14.9
Poisoning	173	11.8	11.8
Assault	130	8.8	8.7
Pedestrian collisions	106	7.2	7.5
Suffocation including choking	84	5.7	6.7
Cycling collisions	77	5.2	5.2
Overexertion, travel and privation	58	3.9	4.0
Burns	46	3.1	3.2
Land transport accidents (other)	16	1.1	1.1
Exposure to forces of nature, venomous animals and plants	12	0.8	0.9
Water transport accidents (excluding drowning)	8	0.5	0.5
<b>All causes of injury</b>	<b>5,689</b>	<b>386.6</b>	<b>425.4</b>

**Notes:** Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 15 causes listed, it will not sum to the 'All causes of injury resulting in hospitalizations' total.

Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 7**  
**Top Fifteen Leading Causes of Injury Resulting in Hospitalization among Males,**  
**Peel, 2016**

<b>Causes of Injury Resulting in Hospitalizations</b>	<b>Number of Hospitalizations</b>	<b>Crude Rate per 100,000</b>	<b>Age-Standardized Rate per 100,000</b>
Complications of medical and surgical care	1,010	138.9	157.4
Falls	919	126.4	157.1
Exposure to inanimate and animate mechanical forces	261	35.9	35.9
Motor vehicle collisions	233	32.0	32.7
Assault	108	14.9	14.4
Poisoning	93	12.8	13.0
Suicide	78	10.7	10.7
Pedestrian collisions	60	8.3	8.6
Suffocation including choking	59	8.1	10.2
Cycling collisions	59	8.1	8.0
Overexertion, travel and privation	37	5.1	5.2
Burns	23	3.2	3.4
Land transport accidents (other)	8	1.1	1.1
Exposure to forces of nature, venomous animals and plants	8	1.1	1.3
Water transport accidents (excluding drowning)	5	0.7	0.7
<b>All causes of injury</b>	<b>2,827</b>	<b>388.8</b>	<b>435.1</b>

**Notes:** Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 15 causes listed, it will not sum to the 'All causes of injury resulting in hospitalizations' total.

Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 8**  
**Top Fifteen Leading Causes of Injury Resulting in Hospitalization among Females,**  
**Peel, 2016**

Causes of Injury Resulting in Hospitalizations	Number of Hospitalizations	Crude Rate per 100,000	Age-Standardized Rate per 100,000
Falls	1,380	185.4	203.6
Complications of medical and surgical care	1,003	134.7	142.7
Suicide	145	19.5	19.2
Exposure to inanimate and animate mechanical forces	111	14.9	15.2
Motor vehicle collisions	108	14.5	14.9
Poisoning	80	10.7	10.7
Pedestrian collisions	46	6.2	6.3
Suffocation including choking	25	3.4	3.5
Burns	23	3.1	3.1
Assault	22	3.0	3.0
Overexertion, travel and privation	21	2.8	2.9
Cycling collisions	18	2.4	2.4
Land transport accidents (other)	8	1.1	1.1
Exposure to forces of nature, venomous animals and plants	4	0.5	0.5
Water transport accidents (excluding drowning)	3	0.4	0.4
<b>All causes of injury</b>	<b>2,862</b>	<b>384.5</b>	<b>408.1</b>

**Notes:** Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 15 causes listed, it will not sum to the 'All causes of injury resulting in hospitalizations' total.

Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 9**  
**Top Five Leading Causes of Injury Resulting in Hospitalization by Age Group,**  
**Peel, 2016**

<b>Age Group (Years)</b>	<b>Causes of Injury Resulting in Hospitalization</b>	<b>Number of Hospitalizations</b>	<b>Age-Specific Rate per 100,000</b>
<b>&lt;1</b>	Falls	27	163.4
	Complications of medical and surgical care	24	145.3
	Assault	2	12.1
	Exposure to inanimate and animate mechanical forces	1	6.1
	Burns	1	6.1
	Suffocation including choking	1	6.1
	<b>All causes of injury</b>	<b>67</b>	<b>405.6</b>
<b>1 - 9</b>	Falls	124	80.2
	Complications of medical and surgical care	59	38.1
	Exposure to inanimate and animate mechanical forces	52	33.6
	Poisoning	18	11.6
	Burns	17	11.0
		<b>All causes of injury</b>	<b>306</b>
<b>10 - 19</b>	Falls	71	37.1
	Complications of medical and surgical care	62	32.4
	Exposure to inanimate and animate mechanical forces	54	28.2
	Suicide	34	17.8
	Motor vehicle collisions	31	16.2
		<b>All causes of injury</b>	<b>321</b>
<b>20 - 29</b>	Complications of medical and surgical care	122	56.5
	Motor vehicle collisions	86	39.8
	Falls	70	32.4
	Suicide	66	30.6
	Exposure to inanimate and animate mechanical forces	49	22.7
		<b>All causes of injury</b>	<b>507</b>
<b>30 - 39</b>	Complications of medical and surgical care	124	60.1
	Falls	72	34.9
	Motor vehicle collisions	51	24.7
	Exposure to inanimate and animate mechanical forces	49	23.7
	Suicide	34	16.5
		<b>All causes of injury</b>	<b>415</b>
<b>40 - 49</b>	Complications of medical and surgical care	220	103.4
	Falls	101	47.5
	Motor vehicle collisions	44	20.7
	Exposure to inanimate and animate mechanical forces	39	18.3
	Suicide	29	13.6
		<b>All causes of injury</b>	<b>519</b>
<b>50 - 59</b>	Complications of medical and surgical care	327	155.7
	Falls	211	100.4
	Exposure to inanimate and animate mechanical forces	63	30.0
	Motor vehicle collisions	32	15.2
	Suicide	31	14.8
		<b>All causes of injury</b>	<b>745</b>
<b>60 - 69</b>	Complications of medical and surgical care	400	276.7
	Falls	270	186.8
	Motor vehicle collisions	40	27.7
	Exposure to inanimate and animate mechanical forces	25	17.3
	Suicide	19	13.1
		<b>All causes of injury</b>	<b>794</b>

Table 9 continues...

**Table 9 continued**  
**Top Five Leading Causes of Injury Resulting in Hospitalization by Age Group,**  
**Peel, 2016**

<b>Age Group (Years)</b>	<b>Causes of Injury Resulting in Hospitalization</b>	<b>Number of Hospitalizations</b>	<b>Age-Specific Rate per 100,000</b>
<b>70 - 79</b>	Falls	416	527.4
	Complications of medical and surgical care	345	437.4
	Motor vehicle collisions	36	45.6
	Exposure to inanimate and animate mechanical forces	19	24.1
	Pedestrian collisions	15	19.0
	<b>All causes of injury</b>	<b>820</b>	<b>1,039.6</b>
<b>80 - 89</b>	Falls	637	1,882.3
	Complications of medical and surgical care	251	741.7
	Suffocation including choking	19	56.1
	Exposure to inanimate and animate mechanical forces	17	50.2
	Motor vehicle collisions	15	44.3
	<b>All causes of injury</b>	<b>843</b>	<b>2,491.0</b>
<b>90+</b>	Falls	300	4,325.3
	Complications of medical and surgical care	79	1,139.0
	Suffocation including choking	13	187.4
	Exposure to inanimate and animate mechanical forces	4	57.7
	Motor vehicle collisions	2	28.8
	<b>All causes of injury</b>	<b>352</b>	<b>5,075.0</b>

**Note:** Since the table reflects the Top five causes listed, it will not sum to the 'All causes of injury' total.

Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Leading Causes of Injury-Related Deaths

In 2012, the most common causes of injury-related deaths in Peel were falls, suicide and poisonings (Table 10). Top causes of injury-related deaths vary by sex (Table 11 and Table 12) age group (Table 13).

**Table 10**  
**Top Ten Leading Causes of Injury Resulting in Death**  
**Peel, 2012**

Causes of Injury Resulting in Death	Number of Deaths	Crude Rate per 100,000	Age-Standardized Rate per 100,000
Falls	102	7.5	11.6
Suicide	71	5.2	5.6
Poisoning	45	3.3	3.5
Motor vehicle collisions	20	1.5	1.5
Land transport accidents (other)	15	1.1	1.2
Pedestrian collisions	14	1.0	1.2
Suffocation including choking	14	1.0	1.4
Assault	12	0.9	0.8
Drowning/submersion	11	0.8	0.9
Exposure to inanimate and animate mechanical forces	4	0.3	0.3
Cycling collisions	4	0.3	0.3
Complications of medical and surgical care	3	0.2	0.3
<b>All causes of injury resulting in death</b>	<b>335</b>	<b>24.5</b>	<b>30.8</b>

Notes: Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 10 causes listed, it will not sum to the 'All causes of injury resulting in death' total.

Sources: Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 11**  
**Leading Causes of Injury Resulting in Death among Males,**  
**Peel, 2012**

Causes of Injury Resulting in Death	Number of Deaths	Crude Rate per 100,000	Age-Standardized Rate per 100,000
Suicide	54	8.0	9.0
Falls	50	7.4	14.3
Poisoning	34	5.0	5.3
Motor vehicle collisions	15	2.2	2.2
Land transport accidents (other)	10	1.5	1.5
Suffocation including choking	9	1.3	2.0
Assault	8	1.2	1.1
Drowning/submersion	7	1.0	1.2
Pedestrian collisions	6	0.9	1.1
Exposure to inanimate and animate mechanical forces	3	0.4	0.4
Cycling collisions	3	0.4	0.6
<b>All causes of injury resulting in death</b>	<b>214</b>	<b>31.7</b>	<b>42.9</b>

Notes: Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top ten causes listed, it will not sum to the 'All causes of injury resulting death' total.

Sources: Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 12**  
**Leading Causes of Injury Resulting in Death among Females,**  
**Peel, 2012**

<b>Causes of Injury Resulting in Death</b>	<b>Number of Deaths</b>	<b>Crude Rate per 100,000</b>	<b>Age-Standardized Rate per 100,000</b>
Falls	52	7.5	9.8
Suicide	17	2.5	2.5
Poisoning	11	1.6	1.7
Pedestrian collisions	8	1.2	1.3
Land transport accidents (other)	5	0.7	0.8
Motor vehicle collisions	5	0.7	0.8
Suffocation including choking	5	0.7	0.9
Drowning/submersion	4	0.6	0.6
Assault	4	0.6	0.6
Burns	2	0.3	0.4
Exposure to inanimate and animate mechanical forces	1	0.1	0.1
Cycling collisions	1	0.1	0.1
Complications of medical and surgical care	1	0.1	0.2
Exposure to forces of nature, venomous animals and plants	0	0.0	0.0
<b>All causes of injury resulting in death</b>	<b>121</b>	<b>17.6</b>	<b>20.7</b>

Notes: Rates are age-standardized to the 2011 Canadian population.

Since the table reflects the Top 10 causes listed, it will not sum to the 'All causes of injury resulting in death' total.

Sources: Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 13**  
**Top Five Leading Causes of Injury Resulting in Death by Age Group,**  
**Peel, 2008-2012 Combined**

<b>Age Group (Years)</b>	<b>Causes of Injury Resulting in Death</b>	<b>Number of Deaths</b>	<b>Age-Specific Rate per 100,000</b>
<b>&lt;9</b>	Drowning/submersion	4	0.5
	Assault	2	0.2
	Suffocation including choking	2	0.2
	Complications of medical and surgical care	2	0.2
	Exposure to inanimate and animate mechanical forces	1	0.1
	Pedestrian collisions	1	0.1
	Exposure to forces of nature, venomous animals and Plants	1	0.1
	<b>All causes of injury</b>	<b>15</b>	<b>1.8</b>
<b>10 - 19</b>	Assault	18	2.1
	Suicide	15	1.9
	Motor vehicle collisions	10	1.6
	Land transport accidents (other)	8	0.7
	Poisoning	7	0.4
	<b>All causes of injury</b>	<b>73</b>	<b>7.7</b>
<b>20 - 29</b>	Suicide	59	6.4
	Poisoning	28	3.0
	Land transport accidents (other)	28	3.0
	Assault	24	2.6
	Motor vehicle collisions	13	1.4
	Drowning/submersion	7	0.8
	<b>All causes of injury</b>	<b>183</b>	<b>19.7</b>
<b>30 - 39</b>	Suicide	48	5.0
	Poisoning	48	5.0
	Motor vehicle collisions	16	1.7
	Assault	14	1.5
	Land transport accidents (other)	12	1.3
	Drowning/submersion	6	0.6
	<b>All causes of injury</b>	<b>157</b>	<b>16.4</b>
<b>40 - 49</b>	Suicide	93	8.6
	Poisoning	70	6.4
	Falls	21	1.9
	Land transport accidents (other)	16	1.5
	Motor vehicle collisions	15	1.4
	<b>All causes of injury</b>	<b>255</b>	<b>23.5</b>
<b>50 - 59</b>	Suicide	73	8.5
	Poisoning	35	4.1
	Falls	29	3.4
	Land transport accidents (other)	15	1.7
	Motor vehicle collisions	14	1.6
	<b>All causes of injury</b>	<b>206</b>	<b>23.9</b>

Table 13 continues...



Table 13 continued

Top Five Leading Causes of Injury Resulting in Death by Age Group,  
Peel, 2008-2012 Combined

Age Group (Years)	Causes of Injury Resulting in Death	Number of Peel Deaths	Age-Specific Rate per 100,000
60 - 69	Suicide	38	7.0
	Falls	31	5.7
	Poisoning	20	3.7
	Motor vehicle collisions	12	2.2
	Pedestrian collisions	9	1.7
	<b>All causes of injury</b>	<b>142</b>	<b>26.2</b>
70 - 79	Falls	77	27.3
	Suicide	21	7.4
	Poisoning	15	5.3
	Suffocation including choking	11	3.9
	Land transport accidents (other)	9	3.2
	<b>All causes of injury</b>	<b>172</b>	<b>60.9</b>
80 - 89	Falls	216	172.6
	Suffocation including choking	14	11.2
	Pedestrian collisions	11	8.8
	Suicide	10	8.0
	Land transport accidents (other)	7	5.6
	Poisoning	7	5.6
	<b>All causes of injury</b>	<b>313</b>	<b>250.1</b>
90+	Falls	136	674.0
	Suffocation including choking	8	39.6
	Land transport accidents (other)	2	9.9
	Pedestrian collisions	1	5.0
	Poisoning	1	5.0
	Motor vehicle collisions	1	5.0
	Suicide	1	5.0
	<b>All causes of injury</b>	<b>167</b>	<b>827.6</b>

Sources: Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Selected Leading Causes of Injury-Related Potential Years of Life Lost



### Definition

**Potential years of life lost**, or PYLL, is a measure of premature death. It is the sum of all the years not lived by all the individuals in a population who die prior to age 75 years. The calculation weights death at a young age more heavily than death at an old age.

In 2012, the most common causes of injury-related premature deaths in Peel, as measured by potential years of life lost, were suicide, poisoning and motor vehicle collisions (Table 14). The top causes of injury-related PYLL vary by sex (Table 15 and Table 16).

**Table 14**  
**Selected Top Causes of Injury Resulting in Potential Years of Life Lost,**  
**Peel, 2012**

<b>Causes of Injury Resulting in Potential Years of Life Lost</b>	<b>Number of Deaths</b>	<b>Number of Potential Years of Life Lost</b>	<b>Crude Rate of Potential Years of Life Lost per 100,000</b>
Suicide	64	1,913	146.4
Poisoning	38	1,242	95.1
Motor vehicle collisions	20	636	48.7
Assault	12	523	40.0
Land transport accidents (other)	12	488	37.4
Falls	21	420	32.2
Pedestrian collisions	12	361	27.6
Drowning/submersion	10	270	20.7
Exposure to inanimate and animate mechanical forces	4	165	12.6
Suffocation including choking	7	144	11.0
Cycling collisions	3	100	7.7
Exposure to forces of nature, venomous animals and plants	2	78	6.0

Sources: Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 15**  
**Selected Top Causes of Injury Resulting in Potential Years of Life Lost among Males,**  
**Peel, 2012**

<b>Causes of Injury Resulting in Potential Years of Life Lost</b>	<b>Number of Deaths</b>	<b>Number of Potential Years of Life Lost</b>	<b>Crude Rate of Potential Years of Life Lost per 100,000</b>
Suicide	49	1,425	218.9
Poisoning	29	1,005	154.3
Motor vehicle collisions	15	504	77.4
Assault	8	387	59.4
Land transport accidents (other)	9	385	59.1
Falls	14	351	53.9
Drowning/submersion	6	170	26.1
Pedestrian collisions	5	129	19.8
Suffocation including choking	5	102	15.7
Exposure to inanimate and animate mechanical forces	3	92	14.1
Exposure to forces of nature, venomous animals and plants	2	78	12.0
Cycling collisions	2	49	7.5

Sources: Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Table 16**  
**Selected Top Causes of Injury Resulting in Potential Years of Life Lost among Females,**  
**Peel, 2012**

<b>Causes of Injury Resulting in Potential Years of Life Lost</b>	<b>Number of Deaths</b>	<b>Number of Potential Years of Life Lost</b>	<b>Crude Rate of Potential Years of Life Lost per 100,000</b>
Suicide	15	488	74.5
Poisoning	9	237	36.2
Pedestrian collisions	7	232	35.4
Assault	4	136	20.8
Motor vehicle collisions	5	132	20.1
Land transport accidents (other)	3	103	15.7
Drowning/submersion	4	100	15.3
Exposure to inanimate and animate mechanical forces	1	73	11.1
Falls	7	69	10.5
Cycling collisions	1	51	7.8
Suffocation including choking	2	42	6.4
Exposure to forces of nature, venomous animals and plants	0	0	0.0

Sources: Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## FALLS-RELATED INJURIES



### Key Messages

- Almost half of Peel residents who have had a serious injury (46%) experienced it due to a fall.
- Falls are the leading cause of injury-related hospitalizations and death in Peel and the second leading cause of injury-related emergency department visits.
- Peel's rates of ED visits, hospitalization, mortality from falls are lower than Ontario
- There has been a subtle rise in the rate of emergency department visits due to falls however rates of hospitalization and death due to falls have either fluctuated or are stable.
- Across the lifespan, rates of fall-related ED visits are highest among 0 to 14 year-olds and those aged 80 years and older. Rates of hospitalization and death are higher in the older adult population (70 years and older for hospitalizations; 80 years and older for deaths).
- Peel females have slightly higher rates of emergency department visits and hospitalizations from falls than males, however falls mortality is higher among males.
- Falling on the same level from slipping, tripping and stumbling is the most common type of fall resulting in health care utilization in Peel (ie., ED visits & hospitalizations).

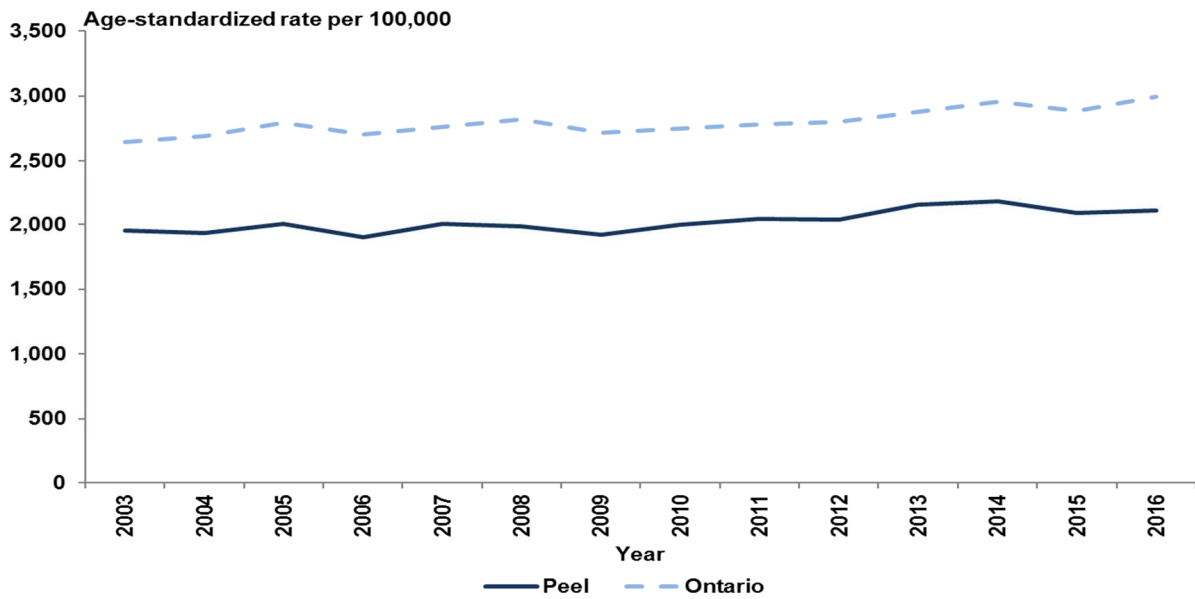
### Self-Reported Falls-Related Injuries

- In 2013/2014, approximately 46% of Peel residents aged 12 years and older, who reported having an injury serious enough to limit their normal activities, indicated that their injury was fall-related. This translates to 70,800 people.<sup>C1</sup>
- In 2013/2014, the most commonly reported causes of activity-limiting falls were:
  - slip, trip or stumble on any other surface (31%\*) (use estimate with caution);
  - while engaged in other sport or physical activity (including school activities or running) (22%\*) and while skating, skiing or snowboarding (13%\*) (\*use estimate with caution).<sup>C1</sup>

### ED Visits due to Falls

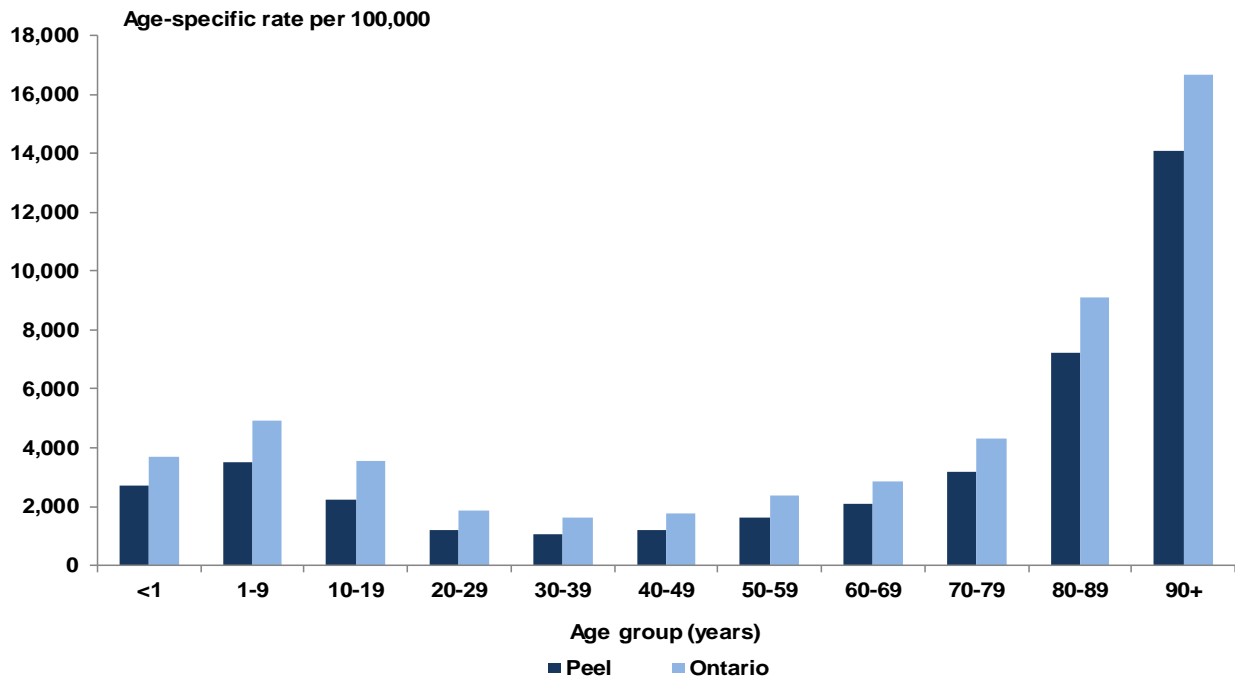
- In Peel, in 2016, there were 29,924 emergency department visits from falls.<sup>D</sup>
- Peel's rate of emergency department visits due to falls:
  - is lower than that of Ontario (2,106.1 per 100,000 versus 2,996.3 per 100,000);
  - increased between 2003 and 2014;
  - is slightly higher for females than males; and
  - are highest among those aged 80 years and older, followed by those aged 1 to 9 years.<sup>D,E</sup>
- The place of occurrence of the majority of accidental falls resulting in ED visits is not specified (61%).<sup>D</sup>

**Figure 5**  
**Emergency Department Visits due to Falls by Year,**  
**Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 6**  
**Emergency Department Visits due to Falls by Age Group,**  
**Peel and Ontario, 2016**



Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Rates of various types of falls resulting in emergency department visits are shown in Table 17 below.

**Table 17**  
**Types of Falls Resulting in Injury Emergency Department Visits by Sex,**  
**Peel, 2016**

Type of Fall	Females	Males	Total
	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000
Fall on same level from slipping, tripping and stumbling	717.6	597.5	662.9
Falls (Unspecified)	482.3	440.2	465.5
Other fall on same level	271.4	260.8	268.4
Fall on and from stairs and steps	285.0	183.2	235.8
Fall involving skates, skis, sport boards and in-line skates	67.3	105.8	86.9
Fall on same level involving ice and snow	83.5	84.2	83.7
Fall involving bed	69.3	57.7	64.5
Other fall from one level to another	36.9	66.7	51.6
Fall involving playground equipment	42.2	46.8	44.6
Fall involving chair	38.4	32.7	36.1
Fall on and from ladder	8.7	61.5	34.4
Fall involving wheelchair and other types of walking devices	30.2	19.9	26.3
Fall involving other furniture	22.1	20.1	21.3
Fall from, out of or through building or structure	3.8	9.7	6.7
Fall while being carried or supported by other persons	7.7	4.9	6.3
Other fall on same level due to collision with, or pushing by, another person	5.1	7.0	6.1
Diving or jumping into water causing injury other than drowning or submersion	1.8	3.8	2.8
Fall from tree	1.3	4.0	2.6
Fall on and from scaffolding		1.7	0.8
Falls undetermined intentional	0.1	0.9	0.5
Fall from cliff	0.1	1.0	0.6
<b>All causes of falls injuries</b>	<b>2,172.0</b>	<b>2,007.9</b>	<b>2,106.0</b>

Note: Rates are age-standardized to the 2011 Canadian population.

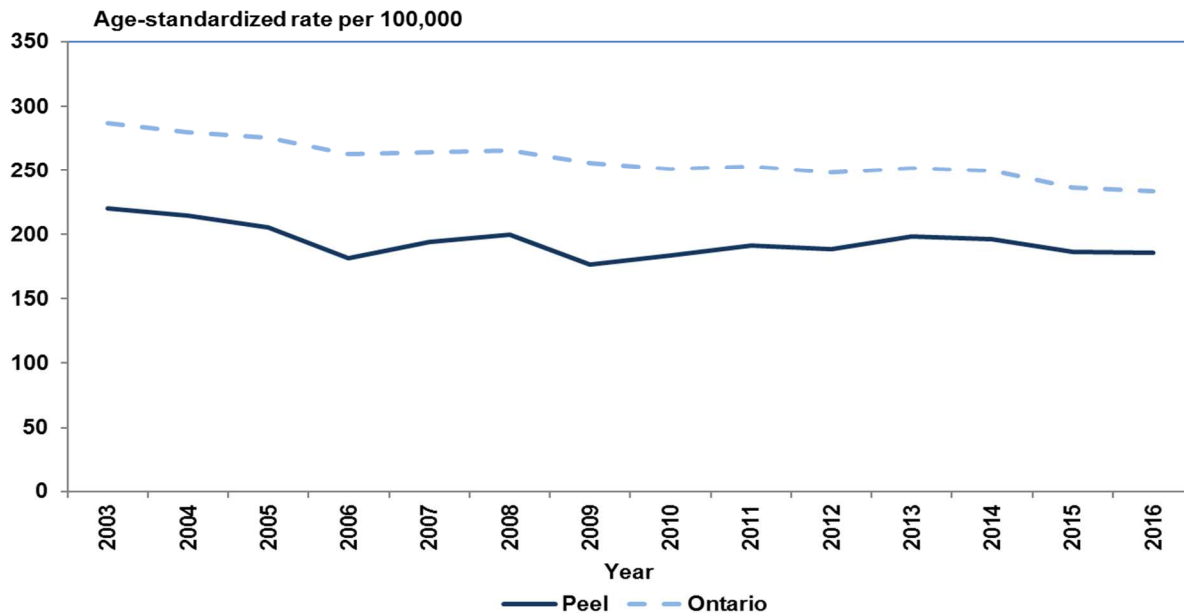
Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Falls-related Injuries

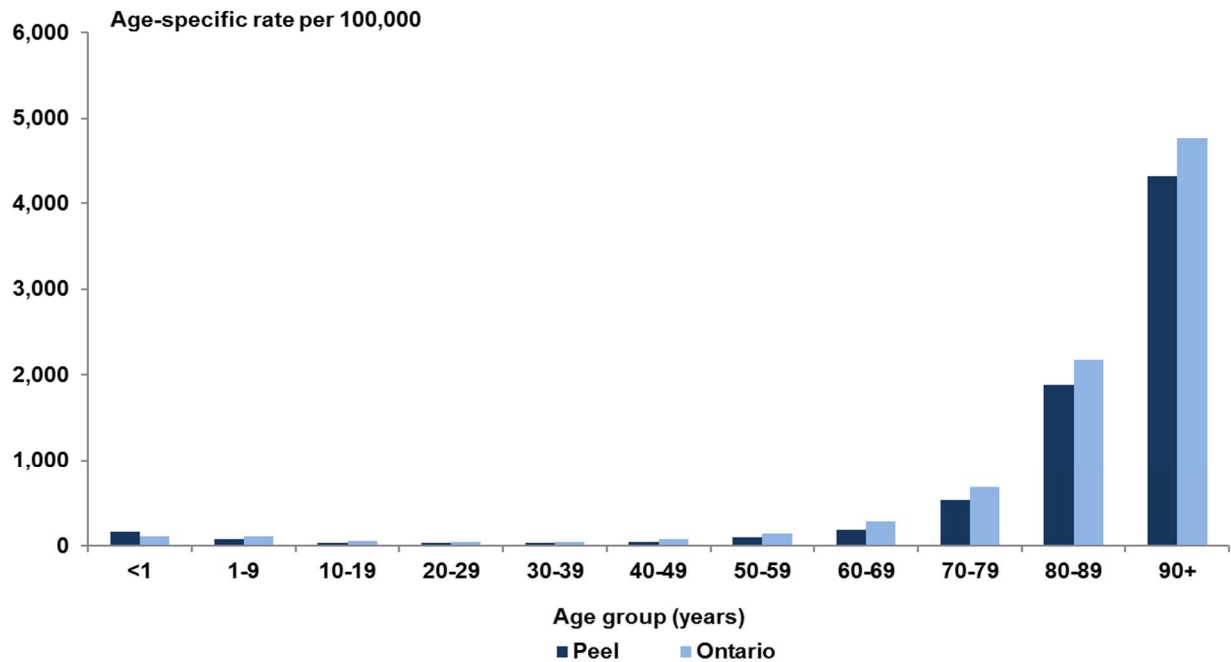
- In Peel, in 2016, there were 2,299 hospitalizations from falls.<sup>F</sup>
- Peel's rate of hospitalization due to falls:
  - is lower than that of Ontario (185.4 per 100,000 population versus 233.5 per 100,000 population);
  - is higher for females than males;<sup>F,E</sup> and
  - increases across age group in adulthood and is highest among those aged 80 years and older (Figure 8).

**Figure 7**  
**Hospitalizations due to Falls by Year,**  
**Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 8**  
**Hospitalizations due to Falls by Age Group,**  
**Peel and Ontario, 2016**



Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

- Falls resulting in hospitalizations most commonly occur at home (46%) (data not shown).<sup>F</sup>

Rates of various types of falls resulting in hospitalization are shown in Table 18 below.

**Table 18**  
**Leading Causes of Falls Resulting in Injury Hospitalizations by Sex,**  
**Peel, 2016**

Type of Fall	Females Age- standardized Rate per 100,000	Males Age- standardized Rate per 100,000	Total Age- standardized Rate per 100,000
Fall on same level from slipping, tripping and stumbling	60.1	38.0	50.8
Falls (Unspecified)	45.4	34.8	41.0
Other fall on same level	36.3	26.6	32.5
Fall on and from stairs and steps	26.7	18.7	23.2
Fall involving bed	8.1	5.8	7.0
Other fall from one level to another	4.9	4.9	5.1
Fall on same level involving ice and snow	3.8	5.7	4.7
Fall involving wheelchair and other types of walking devices	7.5	2.1	5.4
Fall involving playground equipment	3.0	3.2	3.1
Fall on and from ladder	0.4	6.5	3.4
Fall involving chair	4.2	1.8	3.1
Fall involving skates, skis, sport boards and in-line skates	1.6	3.1	2.3
Fall from, out of or through building or structure	0.5	2.3	1.4
Fall involving other furniture	1.1	1.2	1.2
Fall while being carried or supported by other persons	0.5	1.0	0.8
Fall on and from scaffolding		0.8	0.4
Fall from tree	0.1	0.7	0.4
Other fall on same level due to collision with, or pushing by, another person	0.4	0.3	0.4
Fall from cliff		0.4	0.2
Diving or jumping into water causing injury other than drowning or submersion		0.3	0.1
Falls undetermined intentional	0.1		0.1
<b>All causes of falls injuries</b>	<b>203.6</b>	<b>157.1</b>	<b>185.4</b>

Notes: Rates are age-standardized to the 2011 Canadian population.

Source: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.

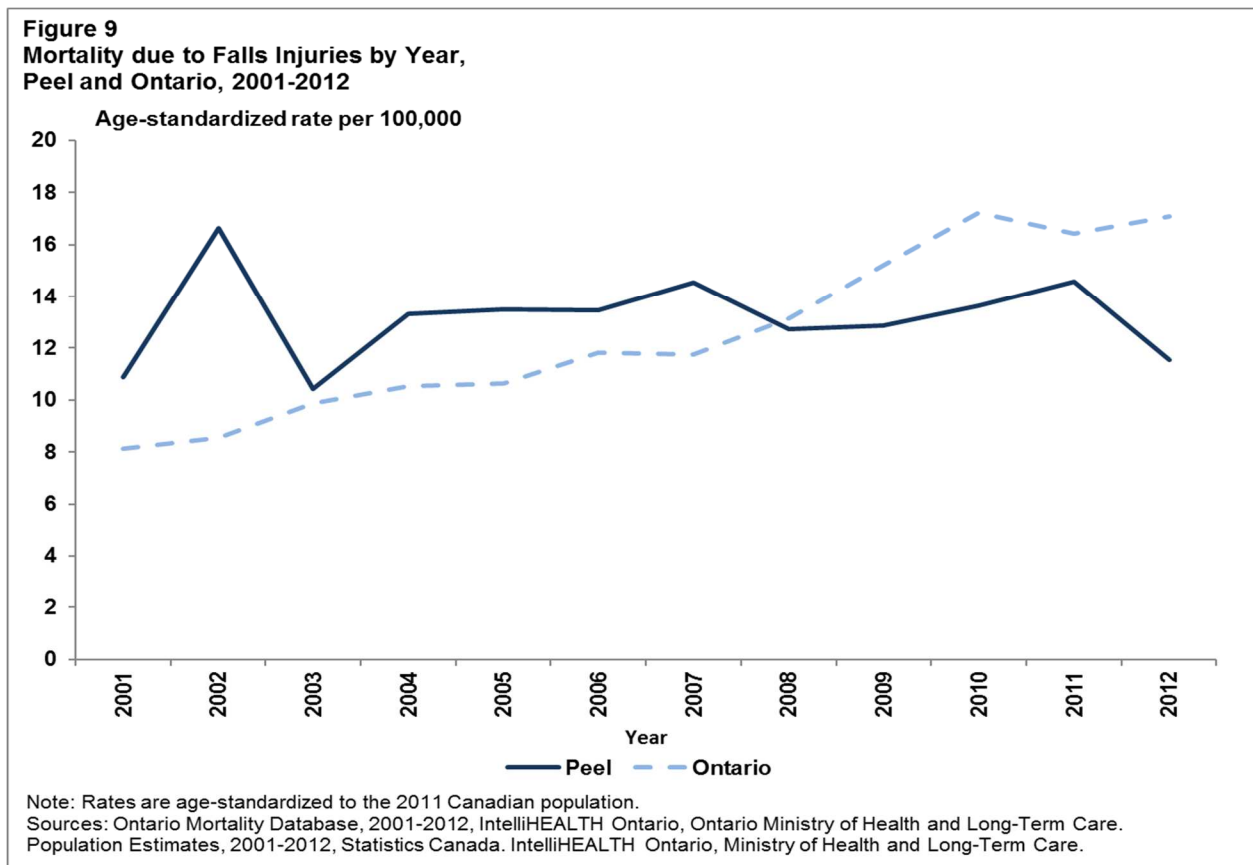
Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality from Falls

- In Peel, in 2012, there were 102 deaths due to accidental falls.<sup>G</sup>
- Peel's rate of death due to accidental falls:
  - is lower than that of Ontario (11.6 per 100,000 vs. 17.1 per 100,000 population respectively);<sup>G,E</sup>
  - has fluctuated for the past 25 years (data not shown), during which time they were higher than that of Ontario until 2008 and have since been lower than Ontario;<sup>G,E</sup>
  - is higher among males than females;<sup>G,E</sup> and
  - Increased among the older age groups, with the highest mortality rate observed in those aged 85 years and older (data not shown).<sup>G,E</sup>



- While Ontario's mortality rate from falls has increased over the past decade, Peel's has fluctuated.<sup>G,E</sup>



In Peel, the most common type of fall resulting in death is “Fall (unspecified)”, followed by “other fall on same level” and “fall on same level from slipping, tripping and stumbling” (data not shown).<sup>G</sup>

## MOTOR VEHICLE COLLISION INJURIES



### Key Messages

- Injuries due to motor vehicle collisions (MVCs) are among the top five causes of injury-related morbidity and mortality among Peel residents.
- In Peel, rates of hospitalizations and death from motor vehicle collisions are lower than that of Ontario and rates of hospitalizations and death have decreased over the past decade. However, MVCs is the third leading cause of premature death from injury in Peel.
- ED visits from motor vehicle collision injuries are highest among 20 to 29 year-olds and decrease with age.
- For the more severe MVC-related injuries (i.e., those resulting in hospitalization or death), rates are:
  - higher among males than females; and
  - higher in older adults (aged 70 years and older for hospitalizations; 80 years for deaths).
- **Males engage in more risky driving behaviours than females**
  - Speeding (23%) and hands-free cell phone use (22%) are the most commonly reported risk behaviours in which Peel drivers aged 16 years and older engage. Males are more likely than females to report speeding and hands-free cell phone use.
  - Ontario males are more likely to report a variety of distracted driving and dangerous driving practices than females.
- **Peel's young adults engage in more risky driving behaviours than most other age groups**
  - Peel's young adults aged 20 to 29 years are more likely to report selected dangerous driving behaviours (i.e., speeding and aggressive driving) compared to most other age groups and are less likely to wear their seat belt as a back seat passenger.
- **Seat belt use is high among Peel residents, although there is opportunity for improvement.**
  - While seat belt use among Peel drivers and front seat passengers is high, seat belt use as a back seat passenger and seat belt use in taxis are significantly lower among Peel residents.

### Contextual Information

#### Past Year Drivers

In 2013/2014, approximately 81% of Peel residents aged 16 years and older report having driven a motor vehicle in the past 12 months.<sup>C1</sup> The proportion of Peel residents who have driven in the past year has not changed significantly in recent years, however the estimated number of drivers has increased from 699,900 in 2005 to 880,900 in 2013/2014 (Table 19).

**Table 19**

**Proportion of the Population who Report Having Driven a Motor Vehicle in the Past 12 Months Peel and Ontario, 2003, 2009/2010, 2013/2014**

	Peel			Ontario		
	Per cent	95% Confidence Intervals	Population Estimate	Per cent	95% Confidence Intervals	Population Estimate
2003	84.7	82.7-86.5	699,900	84.3	83.7-84.9	7,730,100
2009/2010	78.0	74.8-80.9	790,100	81.7	80.9-82.4	8,327,600
2013/2014	81.2	78.4-83.8	880,900	81.8	81.0-82.6	8,728,400

**Notes:** Reflects respondents age 16 years and older.

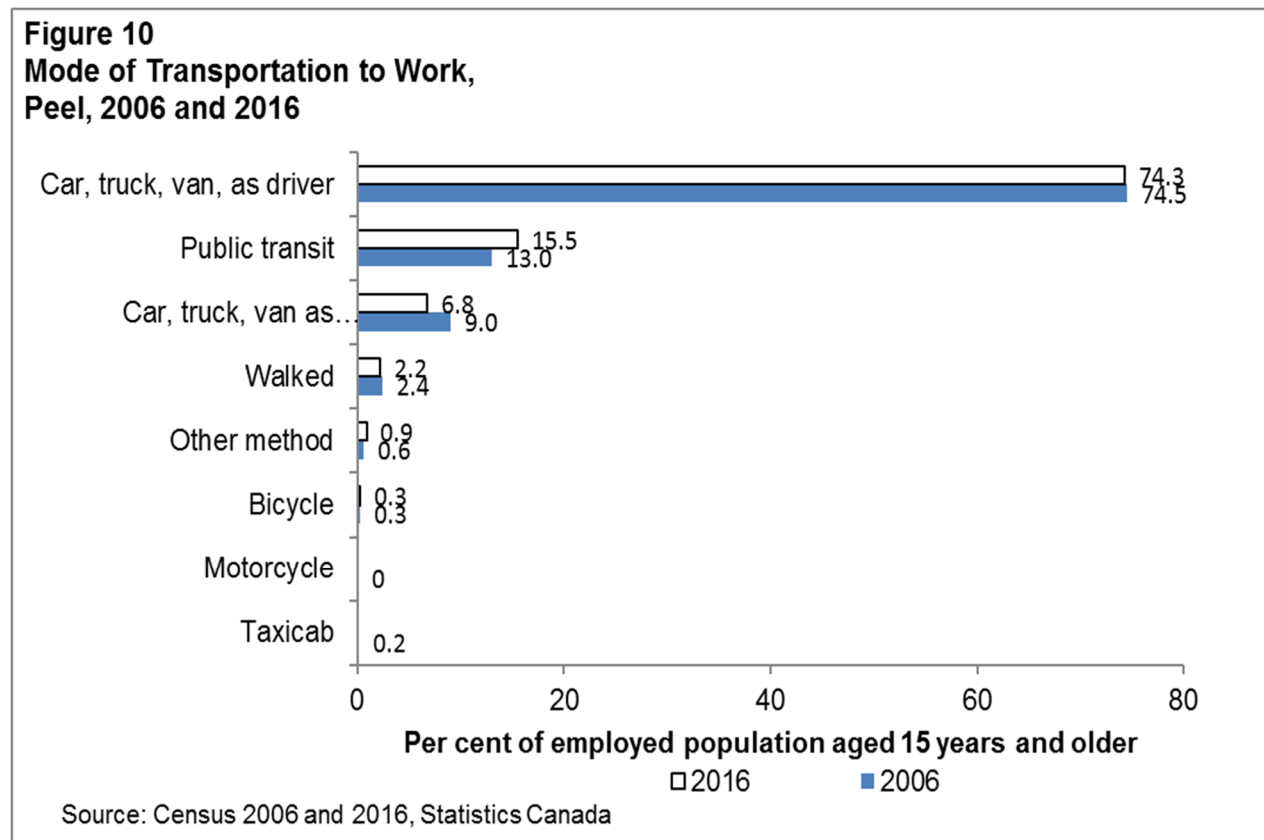
Survey participants who did not respond to this question (i.e., they did not know the response or they refused) were not included in the calculation of percentages for any of the categories in this table.

**Question:** In the past 12 months, have you driven a motor vehicle?

**Source:** Canadian Community Health Survey Share File, 2003, 2009/2010, 2013/2014, Statistics Canada. Ontario Ministry of Health and Long-Term Care.

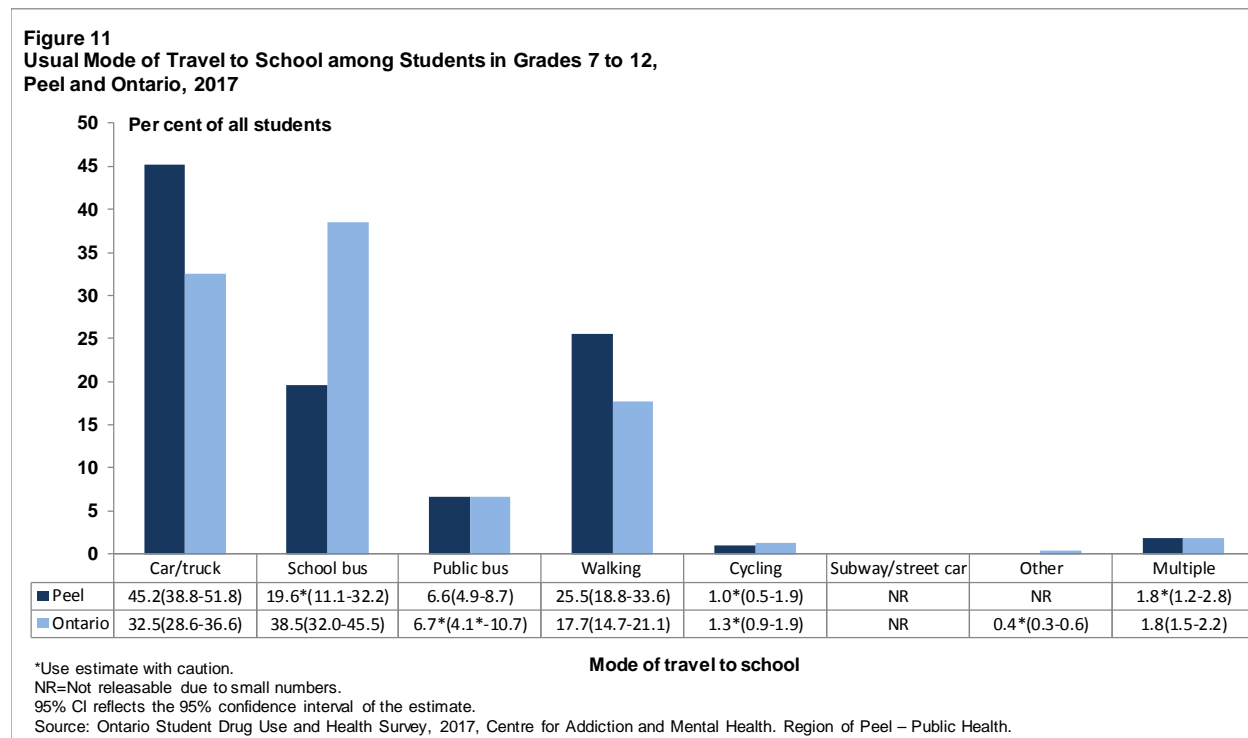
## Mode of Transportation to Work

In 2016, the vast majority of employed Peel residents, aged 15 years and older (81%), usually travelled to work by car, while approximately 16% used public transit (Figure 10).



## Mode of Transportation to School

In 2017, the most common mode of travel to school, for students in grades 7 to 12, was travelling by car/truck (45%), followed by walking (26%) and taking the school bus (20%\* - use estimate with caution). Peel students were more likely to report travelling to school by car/truck compared to Ontario students (33%) (Figure 11).



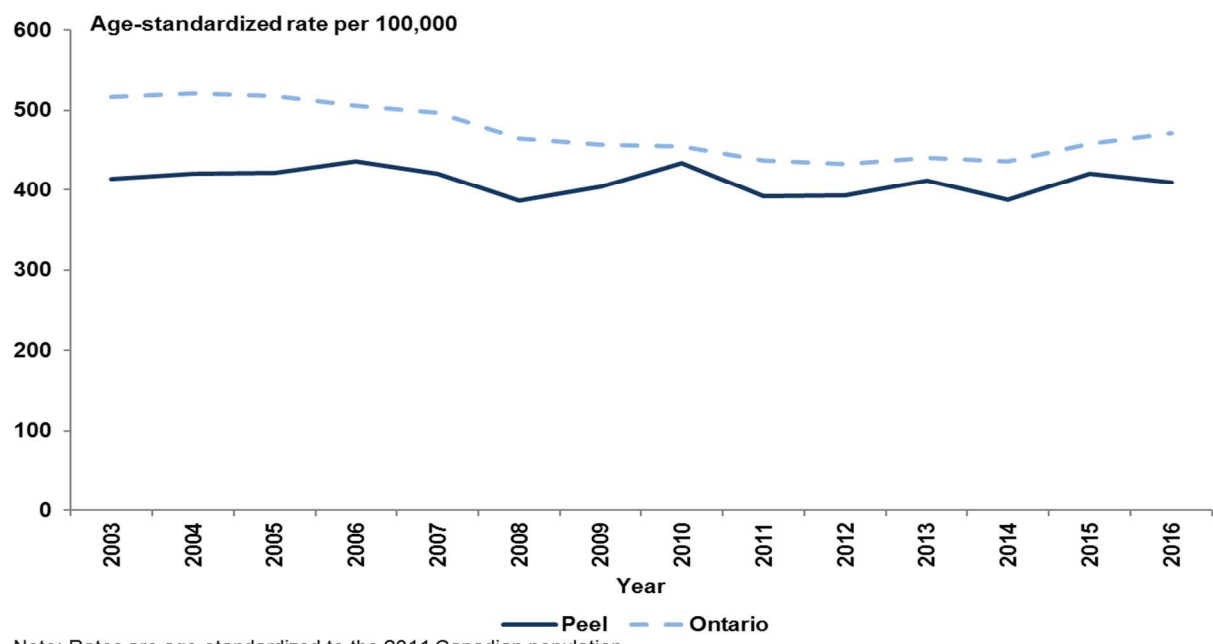
## Self-Reported Motor Vehicle-Related Injuries

In 2013/2014, 5% of Ontario residents aged 12 years and older who reported sustaining an activity-limiting injury in the past year, indicated that "they were a driver or passenger in a motor vehicle (either on-road or off-road) when their most serious injury occurred.<sup>C1</sup> A comparable estimate is not available for Peel due to small numbers.

## Emergency Department Visits due to Motor Vehicle Collision Injuries

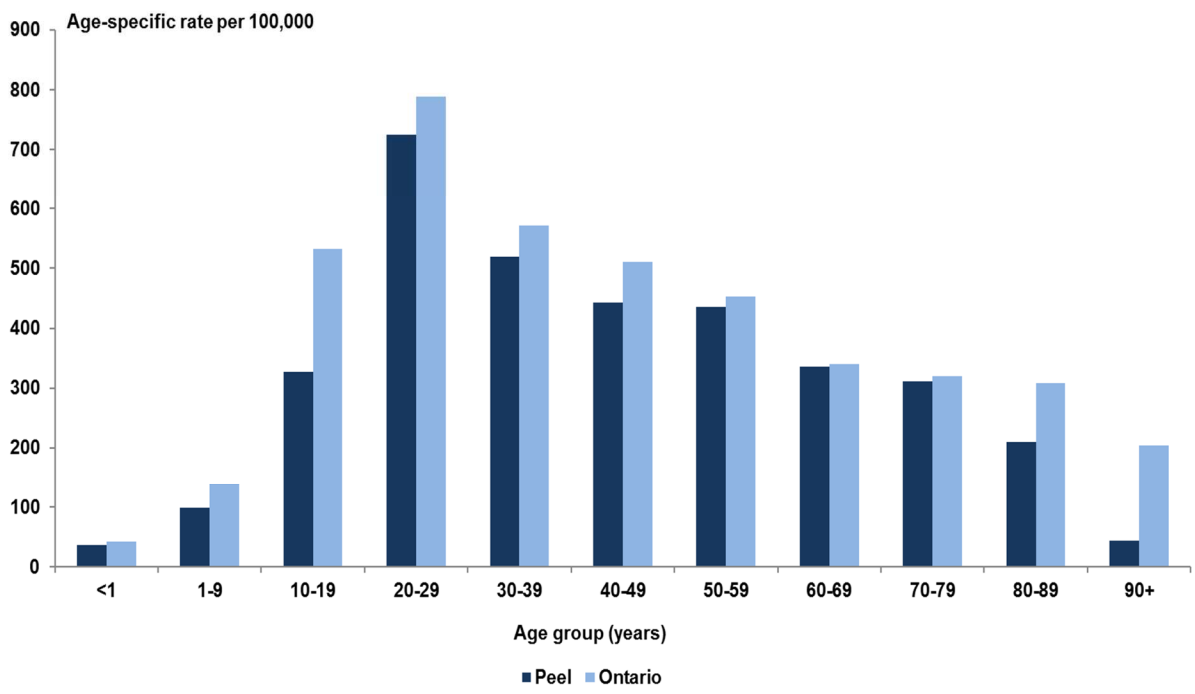
- In Peel, in 2016, there were 6,083 emergency department visits from motor vehicle collision injuries.<sup>D</sup>
- Peel's rate of emergency department visits due to motor vehicle collision injuries:
  - are lower than that of Ontario (409.7 per 100,000 vs. 472.1 per 100,000 population respectively in 2016);
  - have fluctuated over the past decade (Figure 12); and
  - are similar by sex (data not shown).<sup>D,E</sup>
- Rates of emergency department visits due motor vehicle collisions are highest in the 20 to 29 year age group (Figure 13).

**Figure 12**  
**Emergency Department Visits due to Motor Vehicle Collisions by Year,**  
**Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 13**  
**Emergency Department Visits due to Motor Vehicle Collisions by Age Group,**  
**Peel and Ontario, 2016**



Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The leading types of motor vehicle collisions resulting in injury-related emergency department visits are:

- motor vehicle collision with any motor vehicle;
- motor vehicle collision with other (e.g., pedestrian, animal, streetcar) or unspecified object; and
- motor vehicle collision with pedal cycle (Figure 20).

Rates of the top leading types of motor vehicle collisions resulting in ED visits among Peel residents are shown in Table 20 and vary by sex.

**Table 20**  
**Leading Causes of Motor Vehicle Collisions Resulting in Injury Emergency Department Visits by Sex,**  
**Peel, 2016**

Leading Causes of Motor Vehicle Collisions	Females	Males	Total
	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000
Motor vehicle collision with any motor vehicle	343.9	285.8	315.3
Motor vehicle collision with other (e.g., pedestrian, animal, streetcar) or unspecified object	68.9	119.2	94.0
Motor vehicle collision with pedal cycle	0.5	0.4	0.5
All causes of motor vehicle collisions injuries	413.4	405.3	409.7

Note: Rates are age-standardized to the 2011 Canadian population.

Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Motor Vehicle Collision Injuries

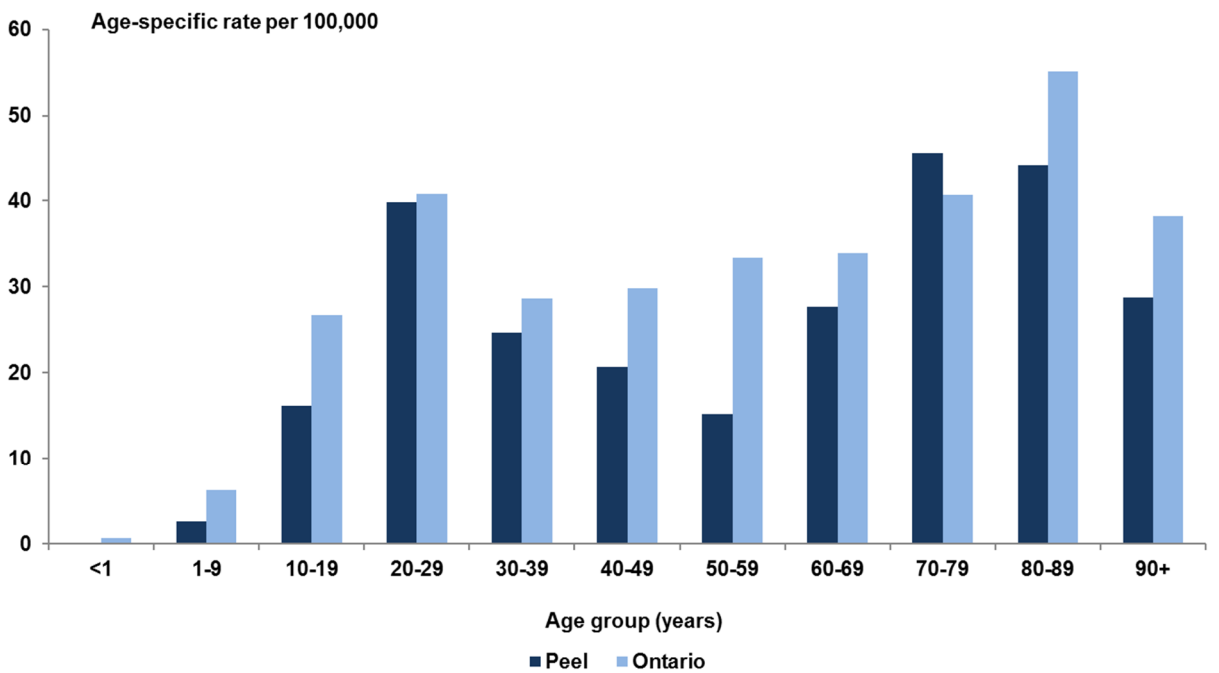
- In Peel, in 2016, there were 341 hospitalizations from motor vehicle collision injuries
- Peel's hospitalization rate from motor vehicle collision injuries:<sup>F</sup>
  - are lower than that of Ontario (23.6 per 100,000 population versus 30.7 per 100,000 population in 2016);<sup>F,E</sup>
  - have decreased over the past decade;<sup>F,E</sup>
  - are higher for males than females (Figure 14); and
  - are highest among older adults aged 70 to 80 years followed by 20 to 29 year-olds (Figure 15).

**Figure 14**  
**Hospitalizations due to Motor Vehicle Collision Injuries by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: Hospital In-Patient Discharges, 2003-2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 15**  
**Hospitalizations due to Motor Vehicle Collision Injuries by Age Group,**  
**Peel and Ontario, 2016**



Source: Hospital In-Patient Discharges, 2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Top Causes of MVC Injury Hospitalizations

The leading types of motor vehicle collisions resulting in injury-related hospitalizations are:

- motor vehicle collision with any motor vehicle (77%); and
- motor vehicle collision with other (e.g., pedestrian, animal, streetcar) or unspecified object (23%).

Rates of the leading types of MVCs resulting in hospitalizations among Peel residents vary by sex and are shown in Table 21.

**Table 21**  
**Leading Causes of Motor Vehicle Collisions Resulting in Injury Hospitalizations by Sex,**  
**Peel, 2016**

	Females	Males	Total
Leading Causes of Motor Vehicle Collisions	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000
Motor vehicle collision with any motor vehicle	10.6	16.2	13.4
Motor vehicle collision with other (e.g., pedestrian, animal, streetcar) or unspecified object	4.4	16.5	10.3
All causes of motor vehicle collisions injuries	14.9	32.8	23.6

Notes: Rates are age-standardized to the 2011 Canadian population.

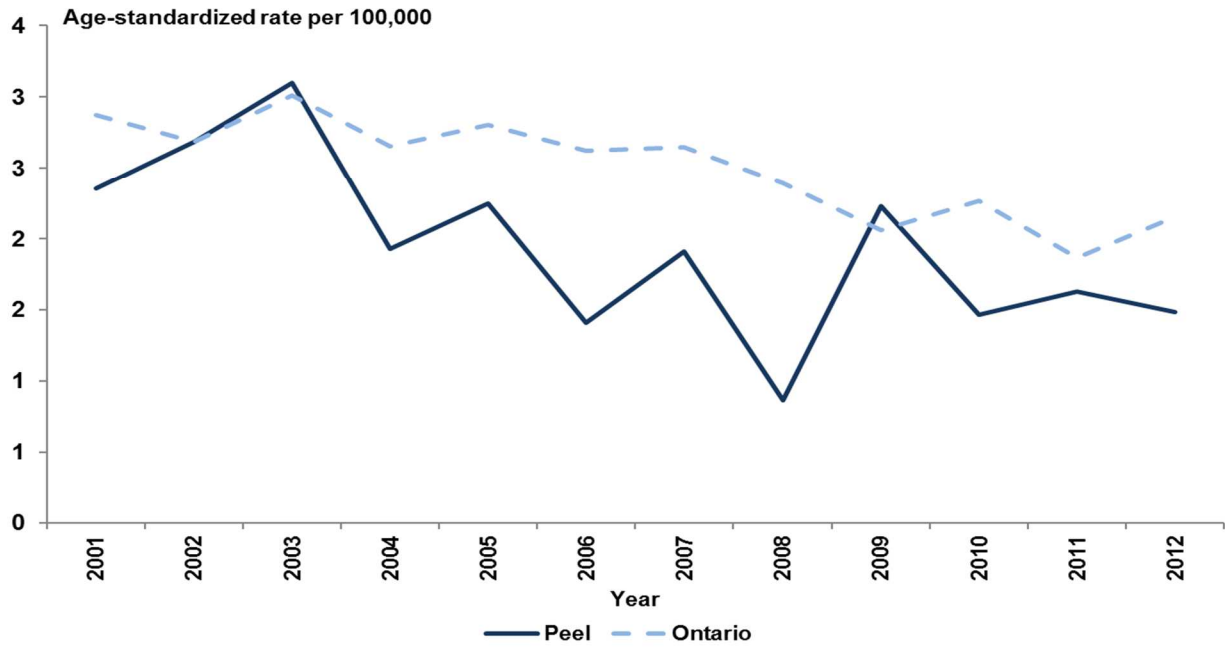
Source: Hospital In-Patient Discharges, 2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality from Motor Vehicle Collision Injuries

- Between 2003 and 2012, there were an average of 21 deaths per year, among Peel residents, from motor vehicle collision injuries.<sup>G</sup>
- Peel's mortality rates from motor vehicle collision injuries are:
  - lower than that of Ontario (1.5 per 100,000 vs. 2.2 per 100,000 population in 2012);<sup>G,E</sup>
  - decreasing over time (Figure 16); and
  - higher among males than females (Figure 17).
- Between 2008 and 2012 combined, mortality rates from motor vehicle collision injuries were highest among those aged 80 years and older (Figure 18).
- Deaths due to motor vehicle collision injuries were most commonly from accidents involving other or unspecified objects followed by motor vehicle accidents with any motor vehicle (data not shown).<sup>G</sup>

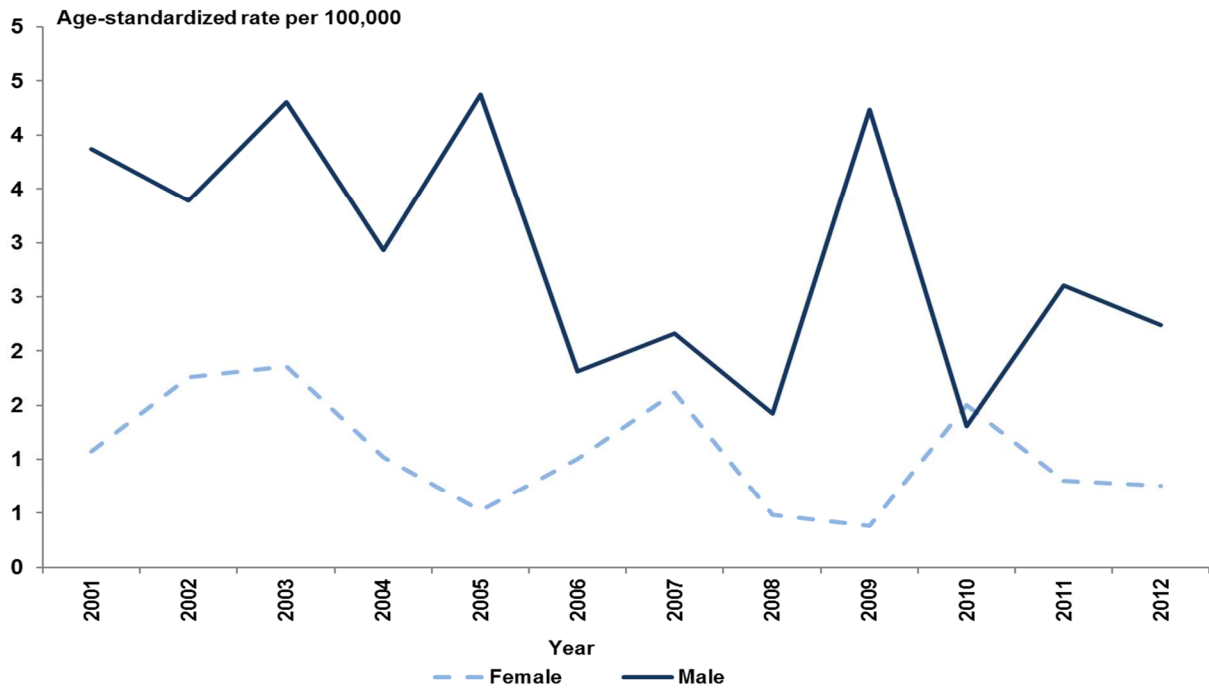


**Figure 16**  
**Mortality due to Motor Vehicle Collision Injuries by Year,**  
**Peel and Ontario, 2001-2012**



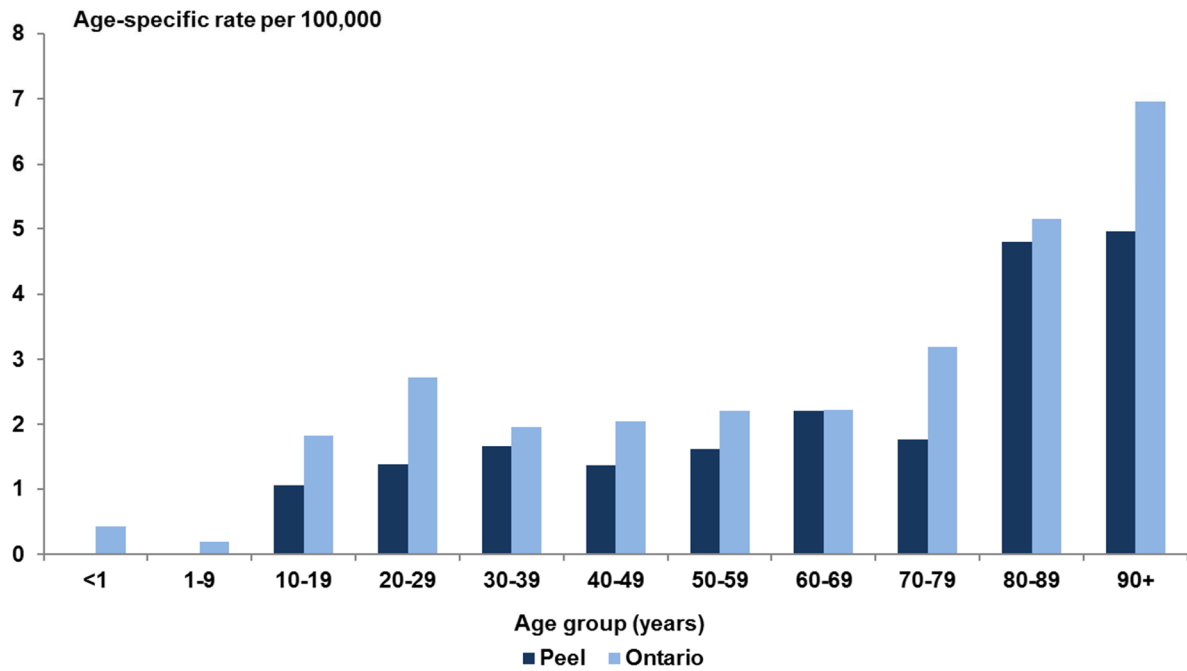
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: Ontario Mortality Database 2001-2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2001-2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 17**  
**Mortality due to Motor Vehicle Collision Injuries by Sex and Year,**  
**Peel, 2001-2012**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: Ontario Mortality Database, 2001-2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2001-2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 18**  
**Mortality due to Motor Vehicle Collision Injuries by Age Group,**  
**Peel and Ontario, 2008-2012 Combined**

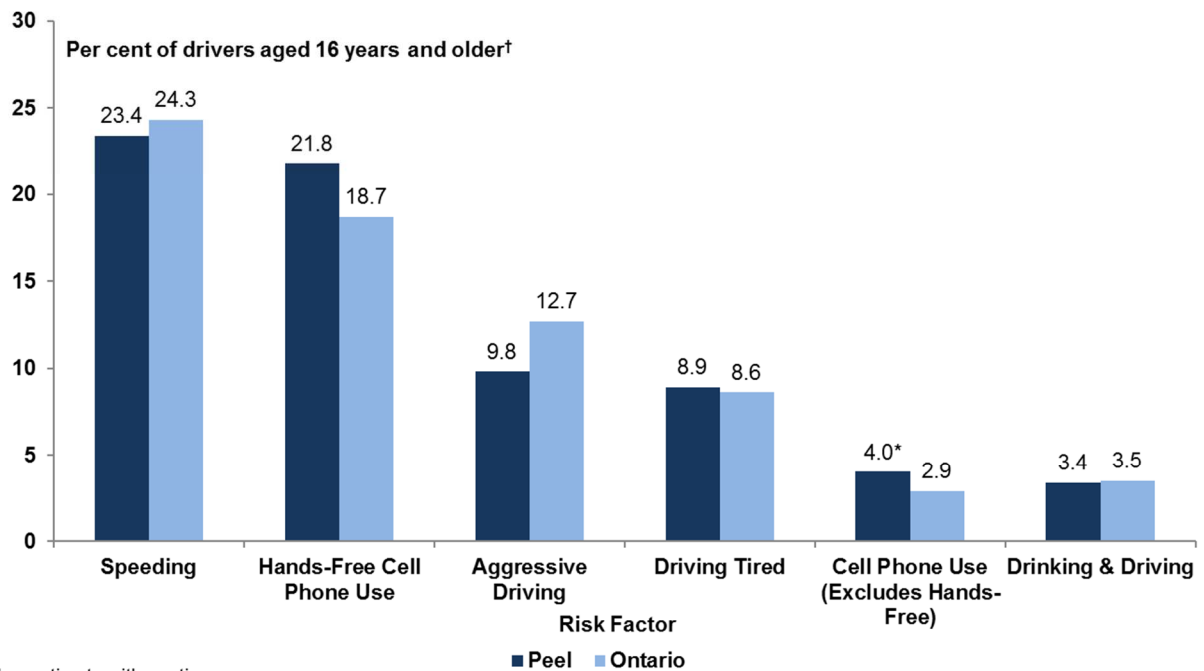


Sources: Ontario Mortality Database, 2008-2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2008-2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Risk Factors for Motor Vehicle Collisions among General Population

Figure 19 describes the proportion of Peel and Ontario drivers who engage in selected risk behaviours for motor vehicle collisions. There is no difference in the proportion of these risky driving behaviours for Peel compared to Ontario, however the proportion of Peel drivers who engage in each risk behaviour varies by sex as shown in Figure 20. Each risky behaviour is described in more detail in the pages that follow.

**Figure 19**  
**Proportion of Drivers who Engage in Selected Risk Factors for Motor Vehicle Collisions, Peel and Ontario, 2013/2014**

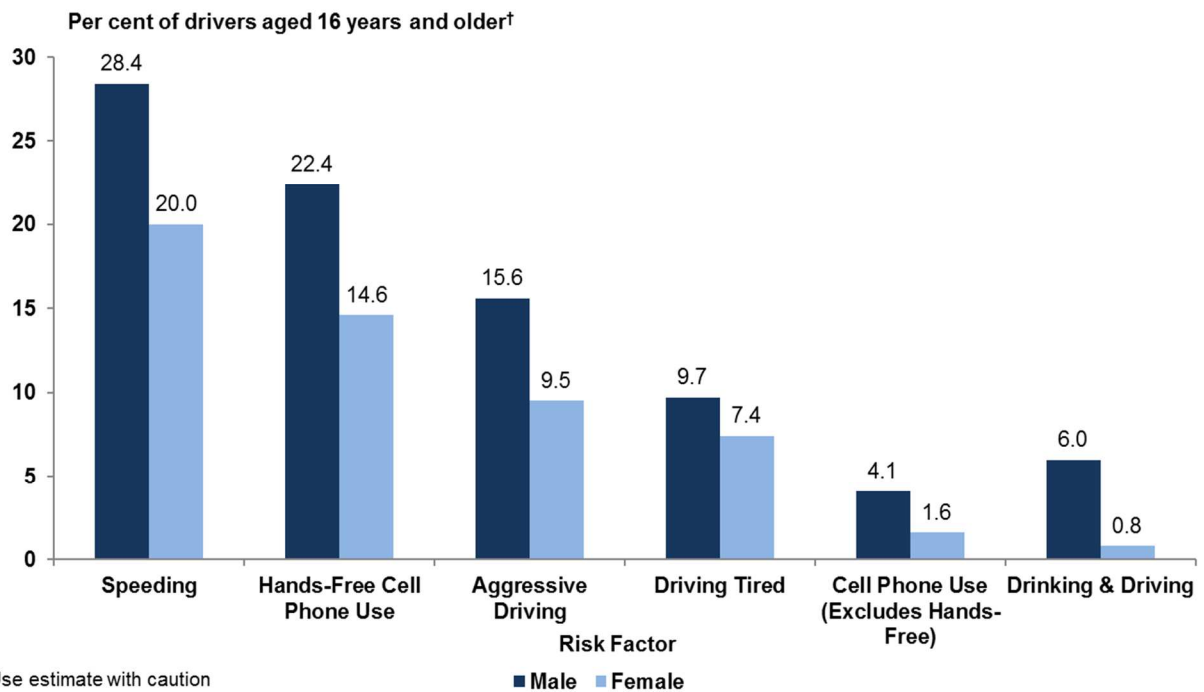


\*Use estimate with caution

† Reflects respondents aged 16 years and older who have driven a motor vehicle in the past 12 months

Source: Canadian Community Health Survey Share File, 20013/2014, Statistics Canada. Ontario Ministry of Health and Long-Term Care.

**Figure 20**  
**Proportion of Drivers who Engage in Selected Risk Factors for Motor Vehicle Collisions by Sex, Ontario, 2013/2014**



\*Use estimate with caution

NR=Not releasable due to small numbers

† Reflects respondents aged 16 years and older who have driven a motor vehicle in the past 12 months

Source: Canadian Community Health Survey Share File, 20013/2014, Statistics Canada. Ontario Ministry of Health and Long-Term Care.

## Distracted Driving

### *Cell Phone Use While Driving (Excluding Hands-Free)*

In 2013/2014, 4%\* (use estimate with caution) of Peel drivers aged 16 years and older who had driven in the past year reported often using a cell phone while driving (excluding hands-free).<sup>C1</sup> In Peel, the proportion of drivers who use a cell phone while driving:

- is similar to Ontario (3%);<sup>C1</sup>
- is significantly higher among males (6%\*) compared to females (1%\*) (\*use estimates with caution);<sup>C1</sup> and
- is similar to that observed in 2009/2010 (7%).<sup>C2</sup>

In Ontario, cell phone use while driving (excluding hands-free) is highest among 19 to 29 year-olds (6%) and 30 to 44 year-olds (4%). Data are not releasable, by age group, for Peel due to small numbers.<sup>C1</sup>

### *Hands-Free Cell Phone Use While Driving*



Did you know?  
Hands-free cell phone use while driving is a risk factor for motor vehicle collisions among the general population.<sup>3, 4</sup>

In 2013/2014, 22% of Peel drivers aged 16 years and older who had driven in the past year reported often using a hands-free cell phone while driving.<sup>C1</sup> In Peel, hands-free cell phone use while driving is similar to Ontario (19%)<sup>C1</sup> and is similar to the proportion observed in 2009/2010 (18%).<sup>C2</sup>

### *Driving Tired*

In 2013/2014, 9% of Peel drivers aged 16 years and older who had driven in the past year reported often driving when they were feeling tired.<sup>C1</sup> This is similar to Ontario (9%)<sup>C1</sup> and is also similar to the proportion of Peel drivers who reported driving while tired in 2003 (10%).<sup>C3</sup>

The proportion of Ontario drivers who reported often driving while feeling tired was significantly higher among those 19 to 29 years and 30 to 44 years of age compared to other age groups.<sup>C1</sup>

Table 22

**Proportion of Drivers who Engage in Risk Factors for Motor Vehicle Collisions involving Distracted Driving, Peel and Ontario, 2013/2014**

Sociodemographics	Cell Phone Use (Excluding Hands-Free)				Hands-Free Cell Phone Use				Driving Tired			
	Peel		Ontario		Peel		Ontario		Peel		Ontario	
	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI
<b>TOTAL</b>	<b>4.0*</b>	<b>2.5-6.4</b>	<b>2.9</b>	<b>2.5-3.3</b>	<b>21.8</b>	<b>18.8-25.1</b>	<b>18.7</b>	<b>17.8-19.6</b>	<b>8.9</b>	<b>6.9-11.4</b>	<b>8.6</b>	<b>7.9-9.2</b>
<b>SEX</b>												
Male	6.4*	3.6-11.0	4.1	3.4-4.8	25.6	21.0-30.8	22.4	21.1-23.8	9.8*	6.8-13.9	9.7	8.7-10.8
Female	1.4*	0.7-2.5	1.6	1.3-2.0	17.6	14.0-21.9	14.6	13.6-15.7	7.9*	5.6-11.1	7.4	6.6-8.2
<b>AGE GROUP</b>												
16-18	NR	NR	1.9*	1.1-3.2	NR	NR	9.0	7.0-11.5	NR	NR	3.7*	2.4-5.6
19-29	7.9*	4.3-14.2	6.0	4.9-7.4	26.4	19.8-34.1	22.4	20.4-24.6	15.4*	10.1-22.9	11.8	10.4-13.4
30-44	NR	NR	4.0	3.2-5.1	31.5	25.2-38.6	27.8	25.9-29.9	11.5*	7.6-16.9	13.4	11.8-15.2
45-64	NR	NR	1.8*	1.3-2.5	17.9	13.3-23.6	17.3	15.9-18.9	6.3*	3.7-10.5	7.2	6.3-8.3
65+	NR	NR	0.2*	0.1-0.3	NR	NR	4.3	3.6-5.1	NR	NR	1.0	0.7-1.3
<b>INCOME LEVEL</b>												
Low-middle	NR	NR	NR	NR	NR		8.0*	5.0-12.6	NR	NR	6.2*	3.5-10.8
Middle	NR	NR	1.8*	1.0-3.3	10.7*	6.0-18.3	9.6	7.6-12.1	NR	NR	6.1*	4.4-8.4
Upper-middle	NR	NR	1.9*	1.3-2.9	18.4*	13.1-25.2	12.4	11.0-13.9	8.2*	4.8-13.5	8.1	7.0-9.4
Highest	4.4*	2.8-7.1	3.6	3.1-4.2	27.1	22.9-31.9	24.0	22.8-25.3	10.4	7.6-14.0	9.4	8.6-10.3
<b>EDUCATION LEVEL</b>												
Less than high school	NR	NR	1.7*	0.9-3.1	NR	NR	7.7	5.9-10.1	NR	NR	4.7	3.5-6.2
High school graduate	NR	NR	2.3*	1.6-3.2	15.7*	11.0-21.9	14.3	12.6-16.1	8.2*	4.5-14.6	7.3	6.1-8.6
Some post-secondary	NR	NR	4.3*	2.7-6.9	19.9*	10.9-33.6	20.6	16.4-25.6	NR	NR	10.8*	7.7-14.9
Post-secondary graduate	5.1*	2.8-9.1	3.2	2.7-3.8	25.8	21.7-30.4	21.8	20.7-23.0	9.6	7.1-12.9	9.3	8.5-10.2
<b>IMMIGRANT STATUS</b>												
Recent immigrant	NR	NR	NR	NR	14.3*	8.8-22.4	13.5	10.4-17.3	NR	NR	11.5*	8.0-16.3
Long-term immigrant	NR	NR	2.1*	1.4-3.2	19.1	14.8-24.3	16.6	14.8-18.6	9.5*	6.3-14.0	6.8	5.5-8.4
Non-immigrant	4.7*	2.8-7.8	3.3	2.8-3.8	27.4	22.6-32.8	19.9	18.9-20.9	9.1*	6.4-12.9	9.0	8.3-9.7

\* Use estimate with caution.

NR – Not releasable due to small numbers

Notes: Reflects respondents aged 16 years and older who have driven a motor vehicle in the past 12 months.

95% CI reflects the 95% confidence interval of the estimate

Source: Canadian Community Health Survey Share File, 2013/2014, Statistics Canada. Ontario Ministry of Health and Long-Term Care.

## **Dangerous Driving**

### *Aggressive Driving*

In 2013/2014, 10% of Peel drivers aged 16 years and older who had driven in the past year reported driving a little more or much more aggressively compared to other drivers.<sup>C1</sup> This is similar to Ontario (13%)<sup>C1</sup> and is also similar to the proportion of Peel drivers who reported aggressive driving in 2003 (14%).<sup>C3</sup>

In 2013/2014, the proportion of Ontario drivers who reported driving a little more or much more aggressively compared to other drivers was significantly higher among:

- males compared to females;
- those aged 19 to 29 years compared to all other age groups;
- those in the highest income category compared to all other income categories;
- those with a post-secondary education compared to those with less than high school; and
- non-immigrants compared to recent immigrants and long-term immigrants.<sup>C1</sup>

Peel data for the majority of these subgroups are not releasable due to small numbers.

### *Driving Speed*

In 2013/2014, 23% of Peel drivers aged 16 years and older who had driven in the past year reported driving a little bit faster or much faster than other drivers. This is similar to Ontario (24%)<sup>C1</sup> and is also similar to the proportion of Peel drivers who reported driving faster than others in 2003 (25%).<sup>C3</sup>

In 2013/2014, the proportion of Ontario drivers who reported driving a little bit faster or much faster than other drivers was significantly higher among:

- males compared to females;
- those 19 to 29 years of age compared to all other age groups;
- those in the highest income category compared to all other income categories;
- those with a post-secondary education compared to those with less than high school; and
- non-immigrants compared to recent immigrants and long-term immigrants.<sup>C1</sup>

## **Impaired Driving**

### *Drinking and Driving*

In 2013/2014, 5% of Peel drivers aged 16 years and older who are current drinkers and had driven in the past year reported driving after having two or more drinks in the hour before they drove. This is similar to Ontario (4%\* - use estimate with caution)<sup>C1</sup> and is also similar to the proportion of Peel drivers (who are current drinkers) who reported drinking and driving in 2003 (6%).<sup>C3</sup>

The proportion of Ontario drivers who reported drinking and driving was significantly higher among males (7%) compared to females (1%).<sup>C1</sup>

### *Passenger – Drinking and Driving*

In 2013/2014, 6% of Peel residents reported being a passenger with a driver who had two or more drinks in the hour before they drove. This is similar to Ontario (7%). The proportion of Peel residents who were a passenger with a drunk driver was significantly lower in 2013/2014 (6%) compared to in 2003 (9%).<sup>C1, C3</sup>

In 2013/2014, the proportion of Ontario drivers who reported being a passenger with a driver who had two or more drinks in the hour before they drove was significantly higher among:

- males compared to females;
- 19 to 29 year-olds compared to all other age groups; and
- non-immigrants compared to recent immigrants and long-term immigrants.<sup>C1</sup>

Table 23

**Proportion of Drivers who Engage in Risk Factors for Motor Vehicle Collisions involving Dangerous Driving, Peel and Ontario, 2013/2014**

Sociodemographics	Aggressive Driving				Speeding				Drinking and Driving			
	Peel		Ontario		Peel		Ontario		Peel		Ontario	
	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI	Per cent	95% CI
<b>TOTAL</b>	<b>9.8</b>	<b>7.7-12.4</b>	<b>12.7</b>	<b>12.0-13.4</b>	<b>23.4</b>	<b>20.0-27.1</b>	<b>24.3</b>	<b>23.4-25.3</b>	<b>3.4*</b>	<b>2.2-5.3</b>	<b>3.5</b>	<b>3.2-4.0</b>
<b>SEX</b>												
Male	11.6	8.6-15.5	15.6	14.6-16.8	26.8	21.6-32.8	28.4	26.9-29.9	5.9*	3.7-9.4	6.0	5.3-6.9
Female	7.8*	5.2-11.6	9.5	8.7-10.4	19.6	15.8-24.1	20.0	18.9-21.1	NR	NR	0.8	0.6-1.1
<b>AGE GROUP</b>												
16-18	NR	NR	9.6	7.5-12.2	24.6*	13.4-40.7	24.1	20.5-28.1	NR	NR	NR	NR
19-29	17.7*	12.4-24.6	20.8	18.9-22.9	39.6	31.9-47.9	36.3	33.9-38.7	NR	NR	4.9	3.8-6.2
30-44	7.1*	4.5-10.9	13.7	12.4-15.1	19.6	14.5-25.9	25.9	24.1-27.7	NR	NR	3.7	2.9-4.7
45-64	8.1*	4.7-13.7	10.9	9.8-12.2	19.7*	13.8-27.2	21.8	20.0-23.6	NR	NR	3.6	3.0-4.5
65+	NR	NR	6.5	5.7-7.5	17.8*	11.3-26.8	14.1	12.8-15.4	NR	NR	1.8	1.8-2.9
<b>INCOME LEVEL</b>												
Low-middle	NR	NR	9.4*	6.5-13.4	NR	NR	18.5*	12.5-26.6	NR	NR	2.3*	1.4-3.7
Middle	NR	NR	8.8	7.1-10.8	21.5*	13.1-33.1	17.3	14.8-20.0	NR	NR	2.3*	1.6-3.4
Upper-middle	5.1*	2.9-8.7	9.9	8.8-11.1	14.2	10.4-19.1	19.2	17.7-20.7	NR	NR	2.5	2.0-3.1
Highest	13.4	10.1-17.5	15.0	14.0-16.0	29.2	24.3-34.6	28.5	27.2-29.8	5.0*	3.0-8.2	4.4	3.8-5.0
<b>EDUCATION LEVEL</b>												
Less than high school	NR	NR	9.0	7.4-10.8	NR	NR	16.8	14.7-19.2	NR	NR	2.4*	1.6-3.8
High school graduate	8.6*	4.7-15.0	11.6	10.2-13.2	21.8*	14.0-32.2	22.3	20.2-24.7	NR	NR	4.2	3.2-5.6
Some post-secondary	18.5*	9.8-32.2	14.8	11.5-18.8	23.8*	14.1-37.2	28.2	24.1-32.6	NR	NR	2.4*	1.4-4.3
Post-secondary graduate	9.3	6.9-12.6	13.5	12.6-14.4	24.4	20.4-28.8	25.9	24.7-27.1	3.0*	1.8*5.2	3.6	3.2-4.1
<b>IMMIGRANT STATUS</b>												
Recent immigrant	NR	NR	5.2*	3.5-7.7	17.3*	9.6-29.3	12.7	9.3-17.0	NR	NR	NR	NR
Long-term immigrant	6.2*	4.1-9.2	9.0	7.7-10.5	16.2	12.3-21.2	19.1	17.0-21.4	NR	NR	2.2*	1.6-3.1
Non-immigrant	16.8	12.6-22.1	14.8	13.9-15.6	33.0	27.3-39.3	27.4	26.3-28.5	5.6*	3.4-9.1	4.2	3.7-4.8

\* Use estimate with caution.

NR – Not releasable due to small numbers

Notes: Reflects respondents aged 16 years and older who have driven a motor vehicle in the past 12 months.

95% CI reflects the 95% confidence interval of the estimate

Source: Canadian Community Health Survey Share File, 2013/2014, Statistics Canada. Ontario Ministry of Health and Long-Term Care.



## Selected Risk Factors for Motor Vehicle Collisions among Students

### Texting While Driving among Students

In 2017, 24% of Peel students in grades 10 to 12 who have a G licence report texting while driving. This is similar to Ontario (33%).<sup>H1</sup>

### Driving a Vehicle After Using Prescription Medication (Students)

In 2013, 3%\* (use estimate with caution) of grade 10 to 12 students in Ontario with a licence report driving a vehicle after using prescription pain relief medication at least one time in the last 12 months. Prescription drugs include pain relief pills such as Percocet, Percodan, Tylenol 3, Demerol, OxyNeo or Codeine.<sup>H2</sup>

### Driving While Under the Influence of Marijuana

In 2017, 8%\* (use estimate with caution) of Peel students and 9% of Ontario students (in grades 10 to 12) with a licence reported driving within one hour of smoking cannabis.<sup>H1</sup>

### Passenger – Impaired Driver

In 2017, 16% of Peel students in grades 7 to 12 report riding in a vehicle with a driver who had consumed alcohol. This is similar to Ontario (16%).<sup>H1</sup>

In 2017, 11% of Peel students report riding in a car with a driver who was under the influence of drugs. This is similar to Ontario students (10%).<sup>H1</sup>

## Protective Factors for Injuries due to Motor Vehicle Collisions

### Driver Seat Belt Use

In Peel in 2013/2014, 97% of drivers always wore a seat belt when driving. This is similar to Ontario (96%).<sup>C1</sup>

### Passenger Seat Belt Use – Front Seat

In Peel in 2013/2014, 96% of the population age 12 years and older reported always wearing a seat belt when a passenger in the front seat of a vehicle. This is similar to Ontario (96%).<sup>C1</sup>

### Passenger Seat Belt Use – Back Seat

In Peel in 2013/2014, 80% of the population aged 12 years and older reported always wearing a seat belt when a passenger in the back seat of a vehicle. In Peel, always wearing a seat belt as a back-seat passenger is:

- significantly higher than it was in 2003 (71%);<sup>C3</sup>
- significantly lower compared to Ontario (85%);<sup>C1</sup>
- significantly lower among those age 19 to 29 years compared to all other age groups;<sup>C1</sup> and
- varies by ethnic origin.<sup>C1</sup>

## **Passenger Seat Belt Use in Taxi**

In Peel in 2013/2014, 68% of the population aged 12 years and older reported always wearing a seat belt when a passenger in a taxi. This is similar to Ontario (65%). The proportion of Peel residents who always wear a seatbelt as a passenger in a taxi is significantly higher than it was in 2003 (68% vs. 51%).<sup>C1, C3</sup>

In 2013/2014, the proportion of Peel's population who always wear a seat belt as a passenger in a taxi is significantly higher among recent immigrants (83%) compared to long-term immigrants (66%) and non-immigrants (64%).<sup>C1</sup>

## **Seat Belt Use among Students**

In Peel in 2017, 75% of students in grades 7 to 12 wore a seatbelt all of the time when travelling in a vehicle. This is similar to Ontario (76%).<sup>H1</sup>

Booster Seat Use and Care seat use data have not been collected for Peel since 2004.

## CYCLING-RELATED INJURIES



### Key Messages

- In Peel, cycling injuries are among the top ten causes of ED visits and hospitalizations, while deaths from cycling injuries are uncommon.
- Rates of ED visits and hospitalizations from cycling collision injuries are higher among males than females.
- Cycling-related ED visits are highest among those aged 10 to 19 years, followed by those aged 1 to 9 years.
- The leading type of cycling collision resulting in injury-related ED visits or hospitalizations involve a cycling collision with “other” (e.g., person, animal, stationary object or unspecified object).
- Bike helmet use is significantly lower for Peel residents (27%) compared to Ontario (38%). Just over one-quarter of Peel residents who cycle report always wearing a helmet with riding a bicycle.
- Rates of ED visits and hospitalizations due to cycling-related injuries are lower than Ontario, and death rates are similar.
- Rates of ED visits and hospitalizations due to cycling injuries have decreased slightly over time.

## Contextual Information

### Peel Cyclists

In 2013/2014, approximately 19% of Peel residents aged 12 years and older reported having bicycled in the past three months. This is similar to that of Ontario.<sup>C1</sup> The proportion of Peel resident who bicycle has not changed significantly, however the estimated number of bicyclists has increased from 140,000 in 2000/2001 to 223,800 in 2013/2014.<sup>C2,C1</sup> This increase suggests that there may be more bicycles on the roads and sidewalks than over a decade ago.

The proportion of Peel residents who bicycle is highest among 12 to 18 year-olds (44%) compared to all older age groups.

### Bicycling to Work or School

In 2013/2014, 3% of the Peel population reported bicycling to work or school in the last three months. This is similar to Ontario (4%).<sup>C1</sup>

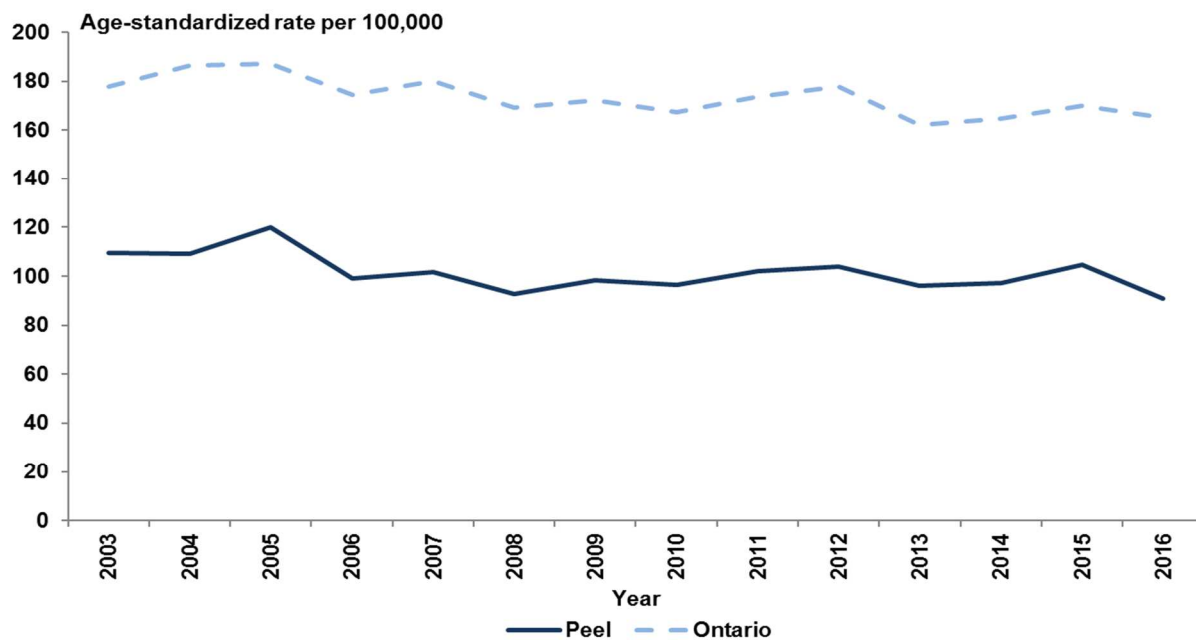
In 2013/2014, the proportion of the Ontario population who reported biking to work or school was significantly higher among:

- males compared to females;
- those age 12 to 29 years compared to all other age groups; and
- non-immigrants compared to long-term immigrants.<sup>C1</sup>

## Emergency Department Visits due to Cycling Collision Injuries

- In Peel, in 2016, there were 1,387 emergency department visits from cycling collision injuries.<sup>D</sup>
- Peel's rate of emergency department visits due to cycling collision injuries:
  - is lower than that of Ontario (90.9 per 100,000 vs. 165.0 per 100,000 population respectively);<sup>D,E</sup>
  - has decreased slightly between 2003 and 2016 (Figure 21);
  - is higher for males than females (Table 24); and
  - peaks among 10 to 19 year-olds, after which they generally decrease (Figure 22).
- The place of occurrence of the majority of cycling collision injuries resulting in ED visits is unknown.<sup>D</sup>

**Figure 21**  
Emergency Department Visits due to Cycling Collision Injuries by Year, Peel and Ontario, 2003-2016

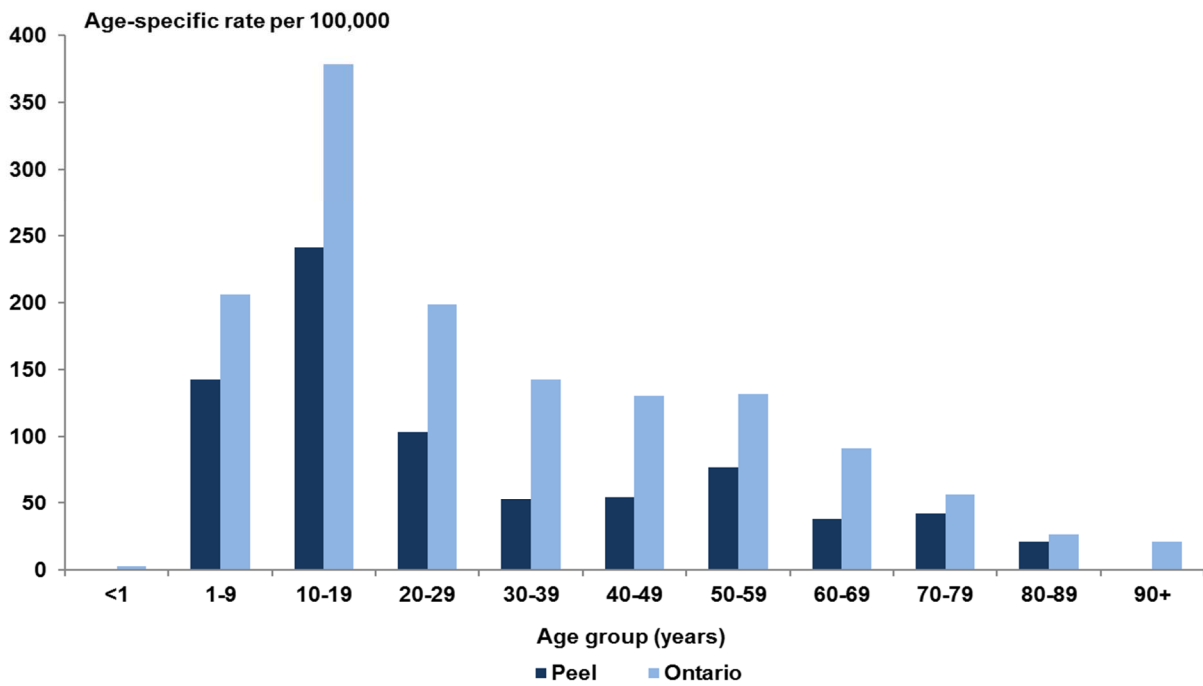


Note: Rates are age-standardized to the 2011 Canadian population.

Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 22**  
**Emergency Department Visits due to Cycling Collision Injuries by Age Group,**  
**Peel and Ontario, 2016**



Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The most common types of cycling collision injuries resulting in emergency department visits are those with other (e.g., person, animal, stationary object) or unspecified object” (Table 24).

**Table 24**  
**Leading Types of Cycling Collisions Resulting in Emergency Department Visits and Hospitalizations**  
**by Sex,**  
**Peel, 2016**

	<b>Females</b>	<b>Males</b>	<b>Total</b>
<b>Type of Cycling Collision</b>	<b>Age-standardized Rate per 100,000</b>	<b>Age-standardized Rate per 100,000</b>	<b>Age-standardized Rate per 100,000</b>
<b>Emergency Department Visits</b>			
Pedal cycle accident with other (e.g., person, animal, stationary object) or unspecified object	41.4	115.4	78.8
Pedal cycle accident with any motor vehicle	5.4	16.8	11.1
Pedal cycle accident with other pedal cycle	1.1	1.1	1.1
<b>All causes of cycling crash injury emergency department visits</b>	<b>47.8</b>	<b>133.4</b>	<b>90.9</b>
<b>Hospitalizations</b>			
Pedal cycle accident with other (e.g., person, animal, stationary object) or unspecified object	2.01	6.04	4.01
Pedal cycle accident with any motor vehicle	0.40	1.96	1.17
<b>All causes of cycling crash injury hospitalizations</b>	<b>2.4</b>	<b>8.0</b>	<b>5.2</b>

**Notes:** Rates age-standardized to the 2011 Canadian population.

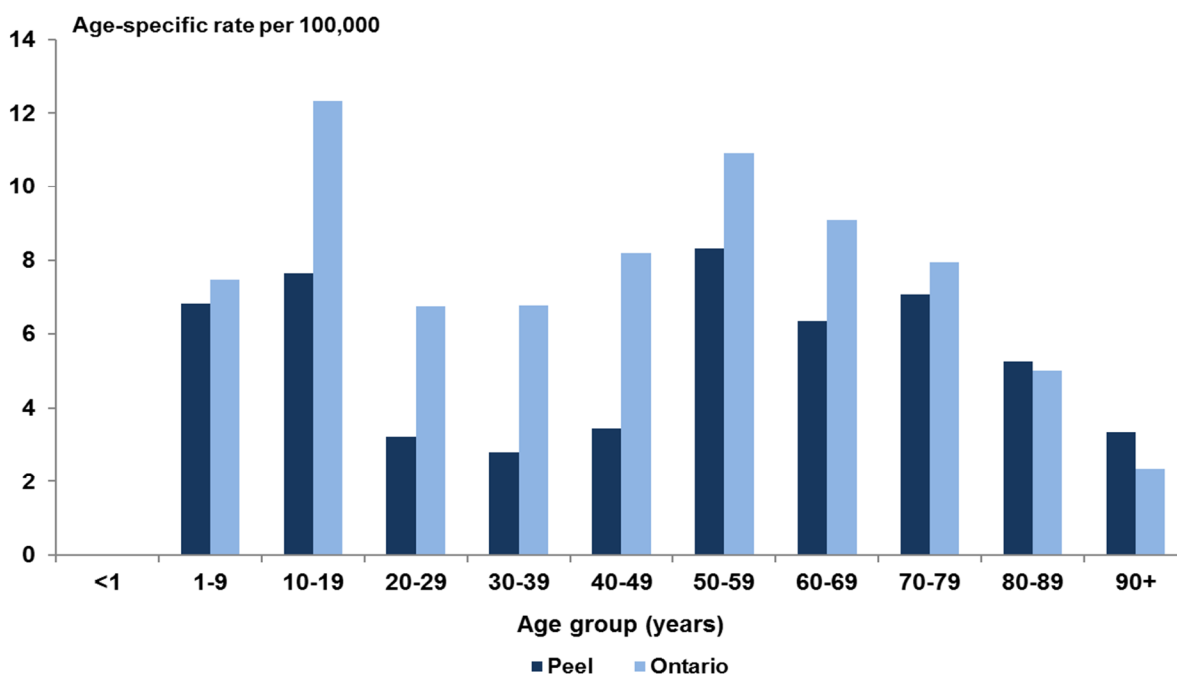
Sources: National Ambulatory Care Reporting System, 2016, and Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Cycling Collision Injuries

- In Peel, in 2016, there were 77 hospitalizations from cycling collision injuries.<sup>F</sup>
- Peel's rate of hospitalization from cycling collision injuries:
  - is lower than that of Ontario (5.2 per 100,000 population versus 8.2 per 100,000 population);<sup>F,E</sup>
  - has decreased since 2003 (data not shown);<sup>F,E</sup>
  - is higher among males than females (Table 24); and
  - is highest in the 50 to 59-year age group and fluctuates with age (Figure 23).

**Figure 23**  
**Hospitalizations due to Cycling Collision Injuries by Age Group,**  
**Peel and Ontario, 2012-2016 Combined**



Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The leading types of cycling collision injuries resulting in hospitalization include is “pedal cyclist injured in non-collision transport accident” (Table 24).

## Mortality from Cycling Collision Injuries

- In Peel, between 2003 and 2012, there were an average of 1.5 deaths due to cycling collision injuries per year.<sup>G</sup>
- In Peel and Ontario, in 2012, the rate of death due to cycling collisions was 0.3 per 100,000 population.<sup>G,E</sup>

## Bike Helmet Use

### Bike Helmet Use among General Population

In 2013/2014, 27% of Peel residents aged 12 years and older reported always wearing a helmet when riding a bicycle. This is significantly lower compared to Ontario (38%).<sup>C1</sup> The proportion of Peel residents who always wear a helmet when riding a bicycle has remained stable over time.<sup>C1</sup>

In Ontario, the proportion of residents who always wear a helmet when riding a bike:

- increased over time;
- is higher for females than males;
- is higher in older age groups;
- is higher for the highest income group compared to other income groups; and
- is higher for post-secondary graduates compared to those with less education.<sup>C1</sup>

Peel estimates are to be used with caution for many of these subgroups and may not show significant differences due to high sampling variability.

### **Bike Helmet Use among Students in Grades 7 to 12**

In Peel in 2015, 25% of students in grades 7 to 12 who had ridden a bike in the past 12 months "always" or "almost always" wore a helmet when biking.<sup>H3</sup> The proportion of Peel students who "always" or "almost always" wear a helmet when biking:

- is lower than that for Ontario students (39%); and
- decreases by grade from 51% of grade 7 students to 14% of students in grade 11.<sup>H3</sup>

In 2013, in Peel, helmet use while biking was lower in recent immigrant students (14%\* - use estimate with caution) compared to non-immigrant students (30%).<sup>H2</sup>



## PEDESTRIAN COLLISION INJURIES



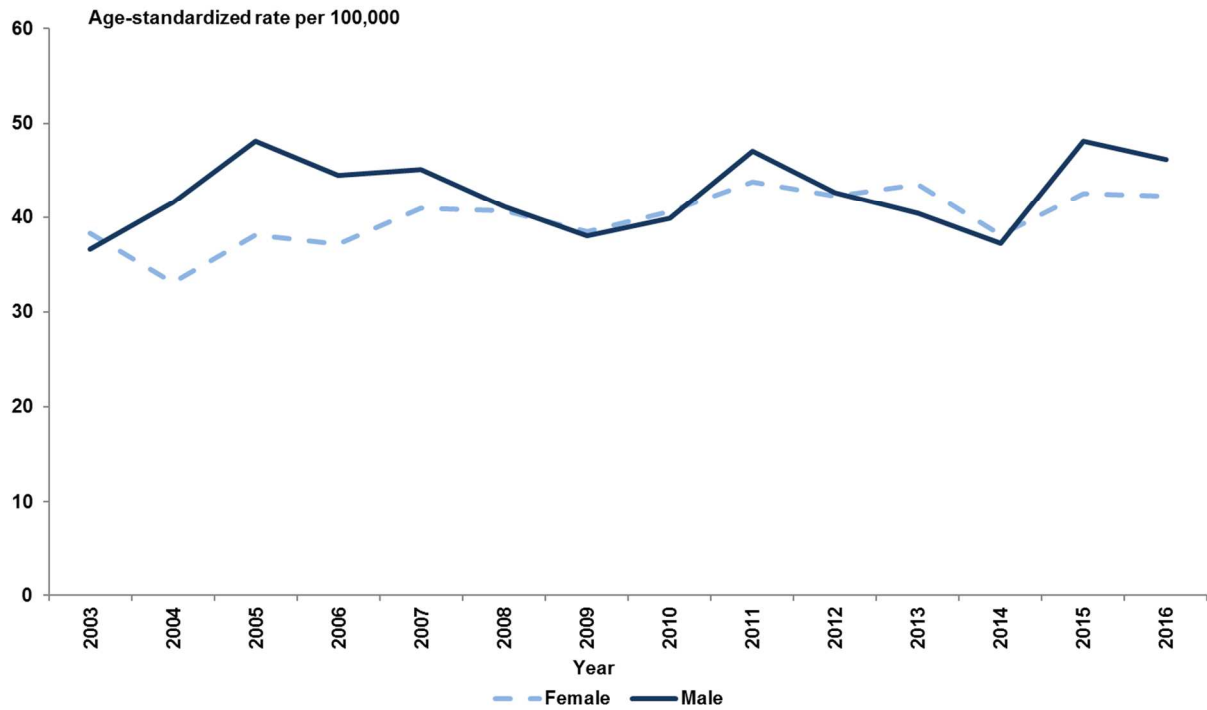
### Key Messages

- Peel's rates of pedestrian collisions resulting in an acute care visit or death have fluctuated since 2003.
- In Peel, rates of pedestrian collision injuries resulting in ED visits are highest in young people aged 10 to 29 years, while more severe pedestrian collisions injuries (i.e., those resulting in hospitalization or death) occur at a higher rate in older adults.
- Peel's rates of ED visits, hospitalizations and death among older adults are higher than that for older adults in Ontario. More information is needed to determine if factors such as the built environment or neighbourhood design features in Peel, may be contributing to the observed differences in rates.
- Pedestrian collisions with a motor vehicle are the leading type of pedestrian injury resulting in ED visits, hospitalizations and death.

### Emergency Department Visits due to Pedestrian Collisions

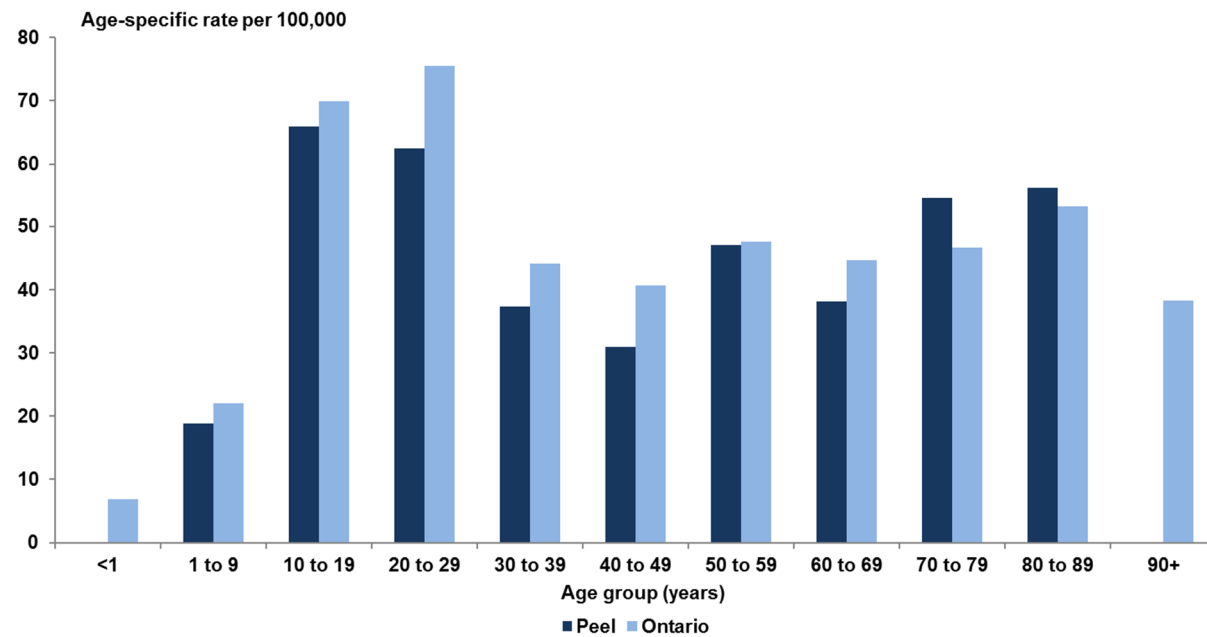
- In Peel, in 2016, there were 649 emergency department visits from injury-related pedestrian collisions.<sup>D</sup>
- Peel's rate of emergency department visits due to pedestrian collision injuries:
  - is lower than that of Ontario's (44.0 per 100,000 vs. 49.5 per 100,000 population);
  - has been stable between 2003 and 2016 (Figure 24);
  - is similar in males compared to females (i.e., the male-to-female rate ratio is 1.1) (data not shown);<sup>D,E</sup> and
  - is highest in the 10 to 29-year age group (Figure 25).
- The place of occurrence of pedestrian injuries resulting in emergency department visits is unknown (data not shown).<sup>D</sup>
- Emergency department visits due to pedestrian collision injuries are most commonly from "pedestrian collisions with any motor vehicle" (data not shown).<sup>D</sup>

**Figure 24**  
**Emergency Department Visits due to Pedestrian Collision Injuries by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 25**  
**Emergency Department Visits due to Pedestrian Collision Injuries by Age Group,**  
**Peel, 2016**

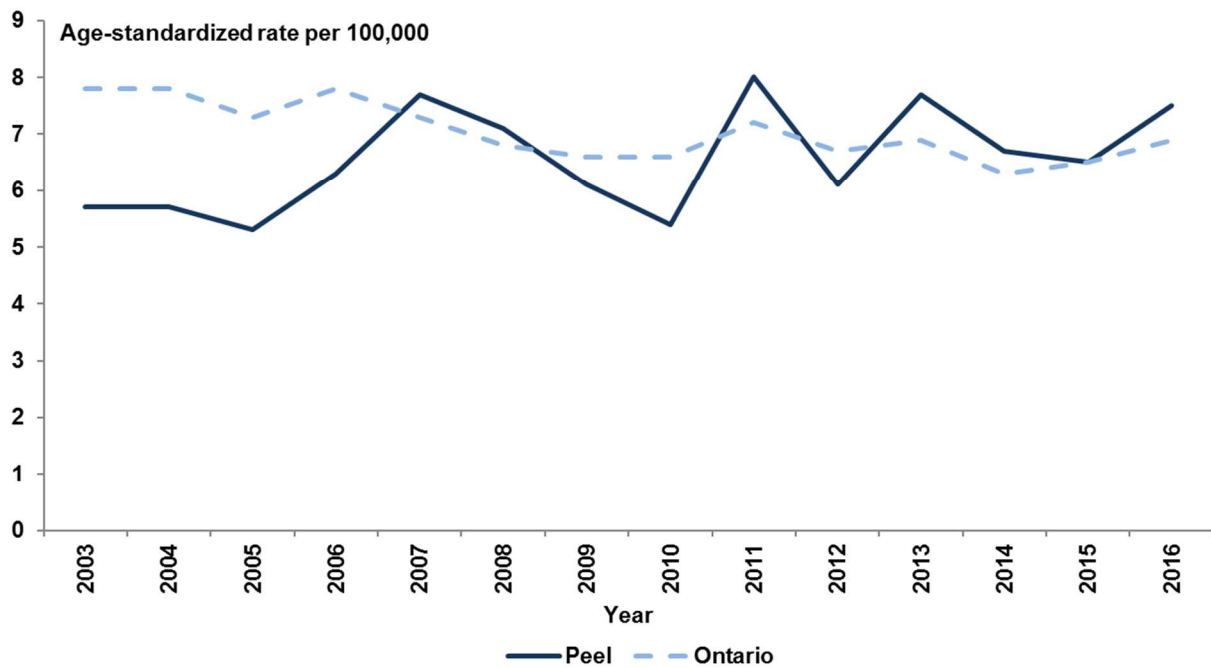


Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Pedestrian Collisions

- In Peel, in 2016, there were 106 hospitalizations from pedestrian collision injuries.<sup>F</sup>
- Peel's rate of hospitalization from pedestrian collision injuries:
  - is similar to that of Ontario (7.5 per 100,000 population versus 6.9 per 100,000 population) (Figure 26);
  - has fluctuated over time (Figure 26);
  - is higher among males than females;<sup>F,E</sup> and
  - is highest among older adults aged 70 to 89 years (Figure 27).
- The place of occurrence of pedestrian injuries resulting in hospitalizations is unknown (data not shown).<sup>F</sup>
- Hospitalizations due to pedestrian collision injuries are most commonly from accidents with a motor vehicle (data not shown).<sup>F</sup>

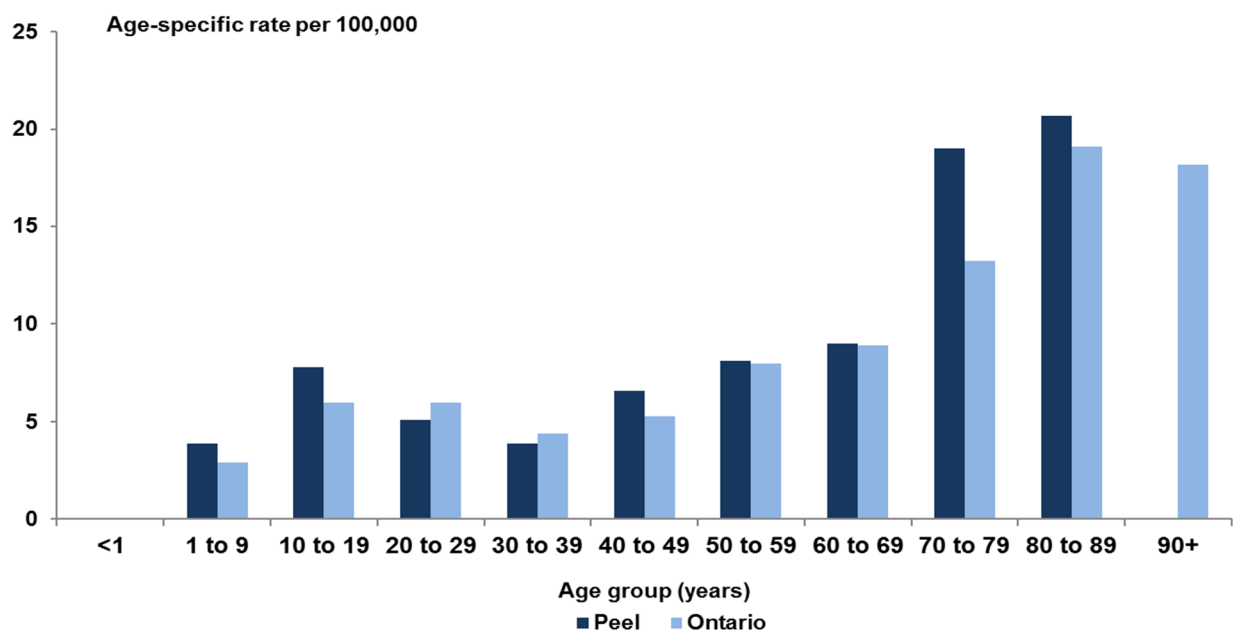
**Figure 26**  
Hospitalizations due to Pedestrian Collision Injuries by Year,  
Peel and Ontario, 2003-2016



Note: Rates are age-standardized to the 2011 Canadian population

Sources: Hospital In-Patient Discharges, 2003-2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 27**  
**Hospitalizations due to Pedestrian Collision Injuries by Age Group,**  
**Peel and Ontario, 2016**

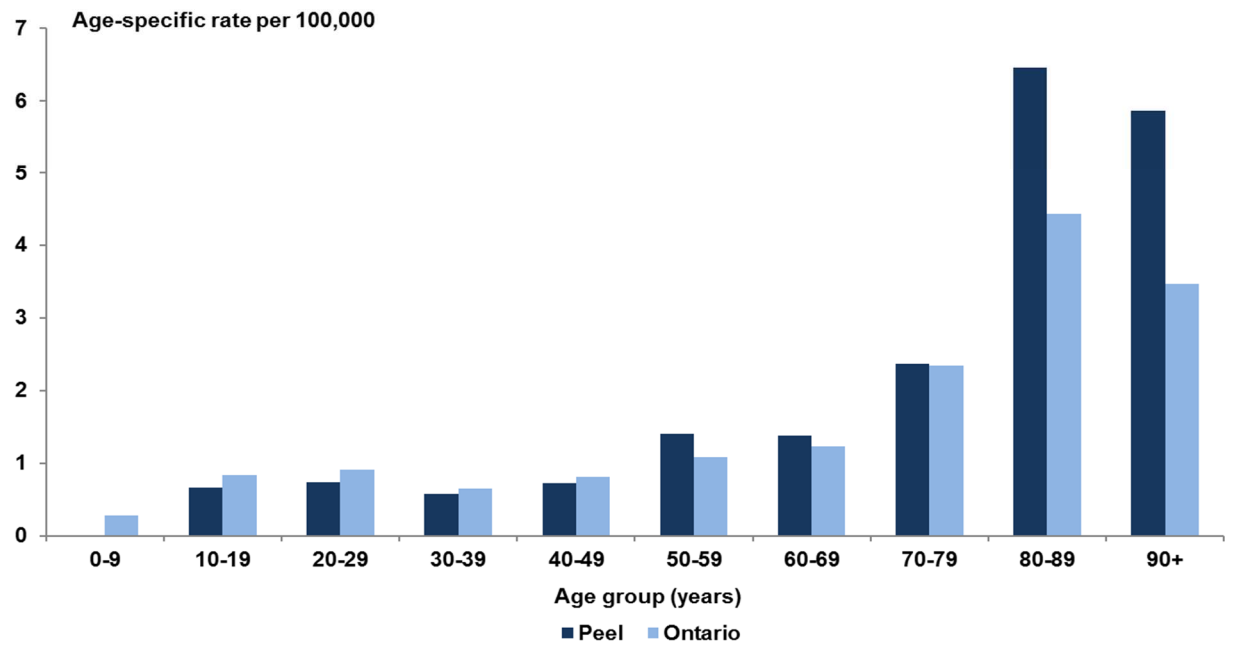


Source: Hospital In-Patient Discharges, 2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality due to Pedestrian Collisions

- In Peel, between 2003 and 2012, there was an average of 12 deaths per year from injury-related pedestrian collisions.<sup>G</sup>
- Peel's mortality rate from pedestrian collisions:
  - is similar to that of Ontario (1.2 per 100,000 population versus 1.1 per 100,000 population);<sup>G,E</sup>
  - has fluctuated over the past decade; <sup>G,E</sup>
  - is higher among females than males; <sup>G,E</sup> and
  - is highest among adults aged 80 years and older (Figure 28).
- During the past decade, the rate of pedestrian injury deaths among Peel adults aged 80 years and older has been considerably higher than that for Ontario (Figure 28). For example, rates for 80 to 89-year old Peel adults were 1.5 times higher than their Ontario counterparts during the ten-year period.

**Figure 28**  
**Mortality due to Pedestrian Collision Injuries by Age Group,**  
**Peel and Ontario, 2003-2012 Combined**



Source: Ontario Mortality Database 2003-2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2003-2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Between 2008 and 2012 combined, deaths due to pedestrian collisions most commonly involved pedestrian collisions with a motor vehicle (data not shown).<sup>6</sup>

## OTHER LAND TRANSPORT ACCIDENT INJURIES



### Key Messages

- ED visits and hospitalizations from other or unknown land transport accidents have decreased over time.
- Many of the external causes of injury captured as “other or unknown land transport accidents” include unknown or unspecified details about the nature of the cause and therefore this category has limited use.



### Definition

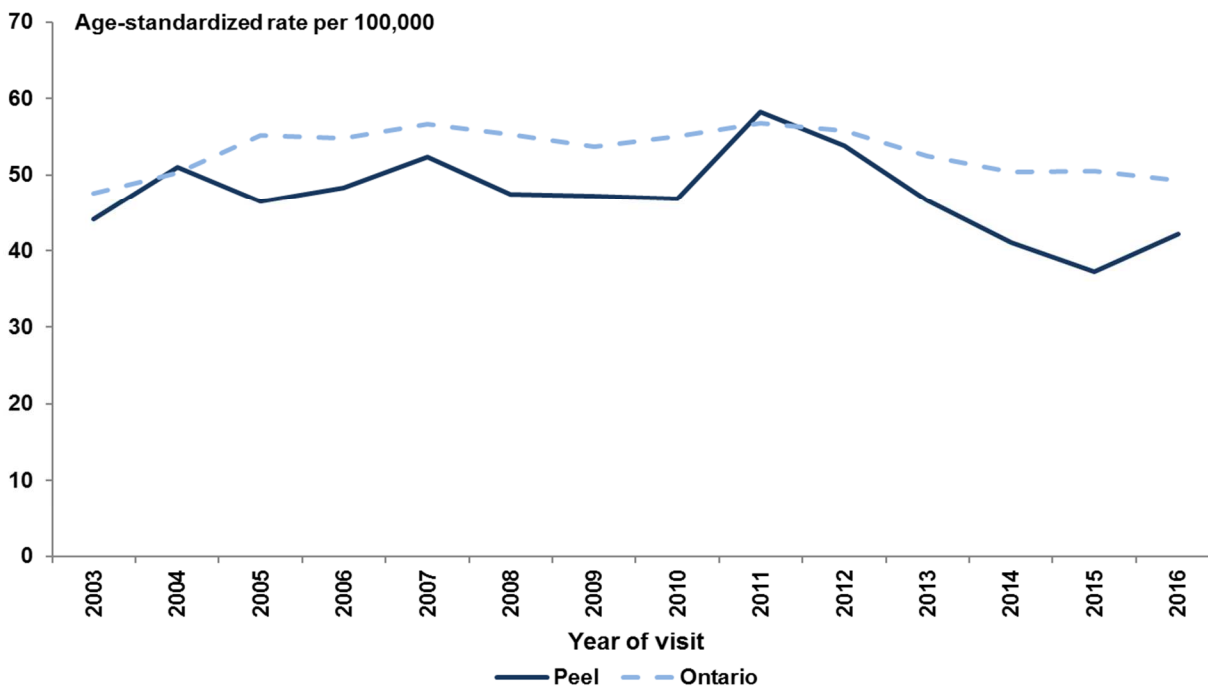
**Other (or unknown) types of land transport accidents** include:

- animal-rider or occupant of animal drawn vehicle injured in transport accident;
- occupant of railway train or railway vehicle injured in transport accident;
- occupant of streetcar injured in transport accident;
- traffic accident of specified type but victim’s mode of transport unknown;
- nontraffic accident of specified type but victim’s mode of transport unknown; and
- motor- or nonmotor-vehicle accident, type of vehicle unspecified.

## Emergency Department Visits due to Other Land Transport Accident Injuries

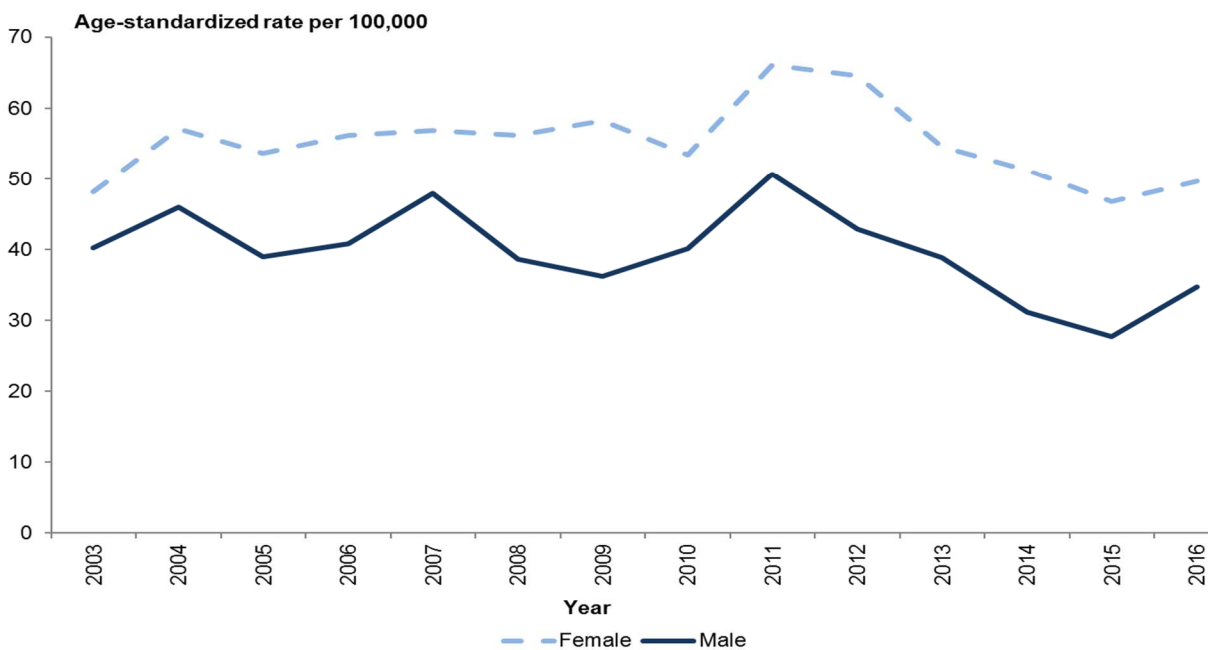
- In Peel, in 2016, there were 627 emergency department visits from “other or unknown types of land transport accidents”.<sup>D</sup>
- Peel’s rate of emergency department visits due to “other or unknown types of land transport accident” injuries:
  - is lower than that of Ontario (42.2 per 100,000 vs. 49.3 per 100,000 population respectively in 2016) (Figure 29);
  - has generally decreased since 2011 (Figure 29); and
  - is higher for females compared to males (Figure 30).
- Rates of emergency department visits due to “other or unknown types of land transport accident” injuries are highest among those aged 20 to 29 years of age (Figure 31).
- The place of occurrence of “other or unknown types of land transport accident” injuries is unknown.<sup>D</sup>

**Figure 29**  
**Emergency Department Visits due to Other or Unknown Land Transport Accidents by Year, Peel and Ontario, 2003-2016**



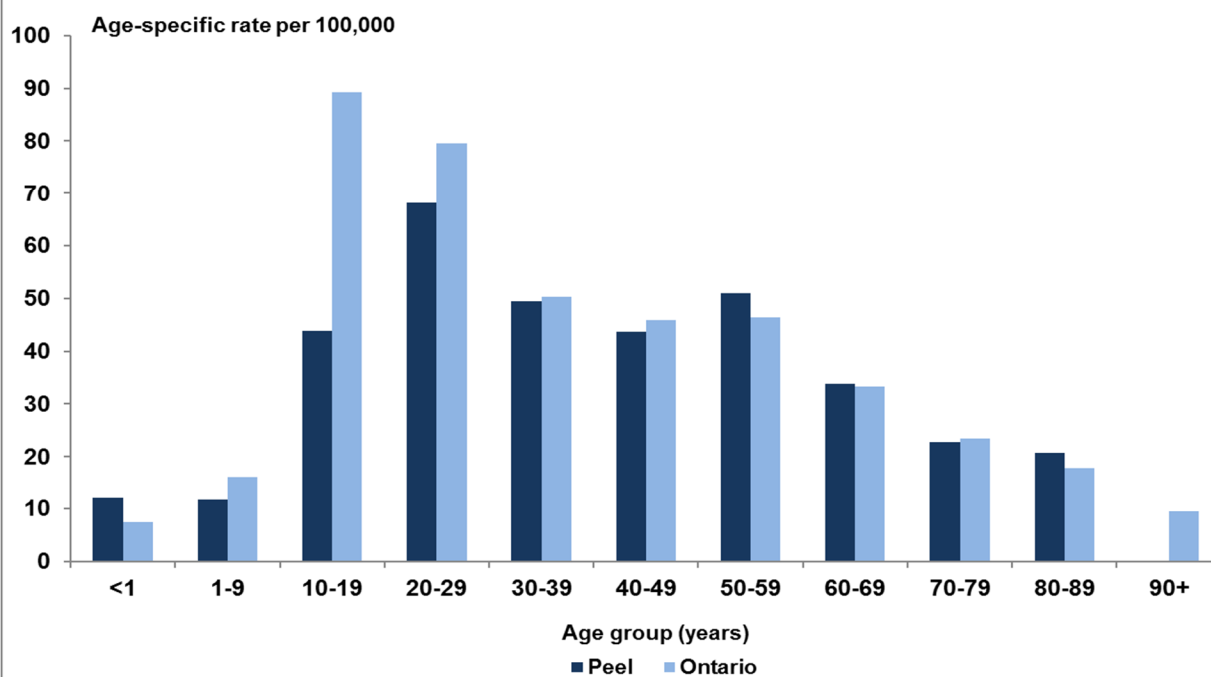
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 30**  
**Emergency Department Visits due to Other or Unknown Land Transport Accidents by Sex and Year, Peel, 2003-2016**



Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 31**  
**Emergency Department Visits due to Other or Unknown Land Transport Accidents by Age Group, Peel, 2016**



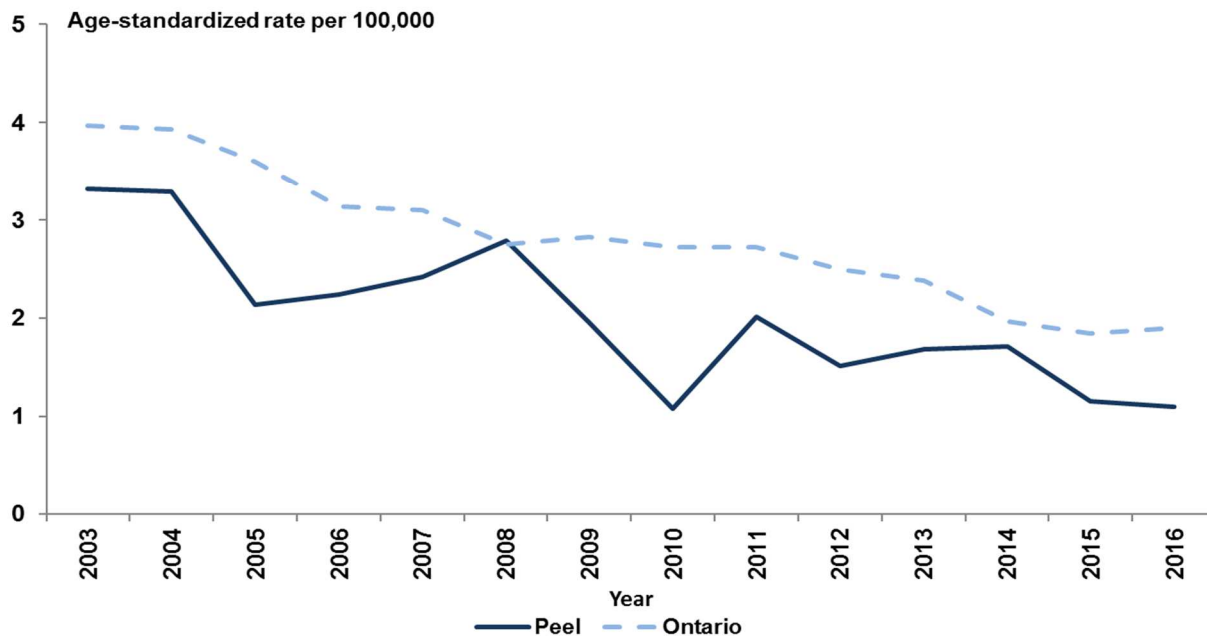
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Injuries from Other or Unknown Land Transport Accidents

- In Peel, in 2016, there were 16 hospitalizations from “other or unknown types of land transport accidents”.<sup>F</sup>
- Peel’s hospitalization rate from “other or unknown types of land transport accident” injuries:
  - is lower than that of Ontario (1.1 per 100,000 population versus 1.9 per 100,000 population in 2016);<sup>F,E</sup>
  - has decreased since 2003 (Figure 32);
  - is similar for males and females (Figure 33); and
  - is highest among older adults aged 80 to 89 years (Figure 34).
- The place of occurrence of “other or unknown types of land transport accident” injuries is unknown.<sup>F</sup>

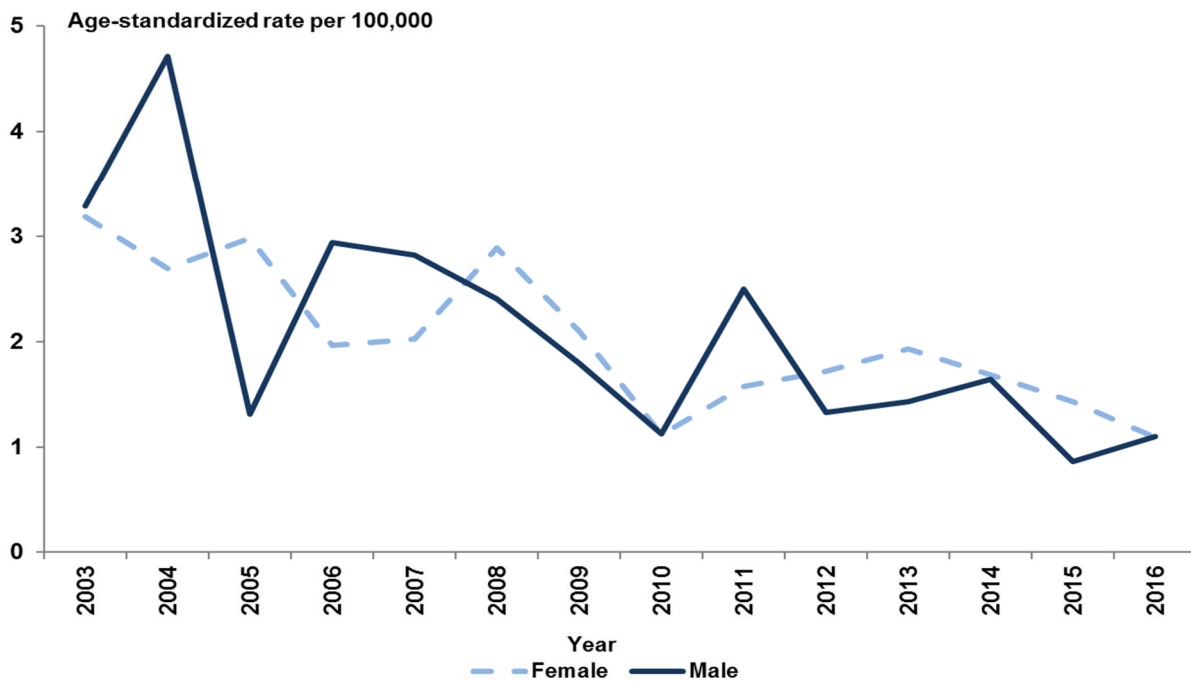


**Figure 32**  
**Hospitalizations due to Other or Unknown Land Transport Accidents by Year,**  
**Peel and Ontario, 2003-2016**



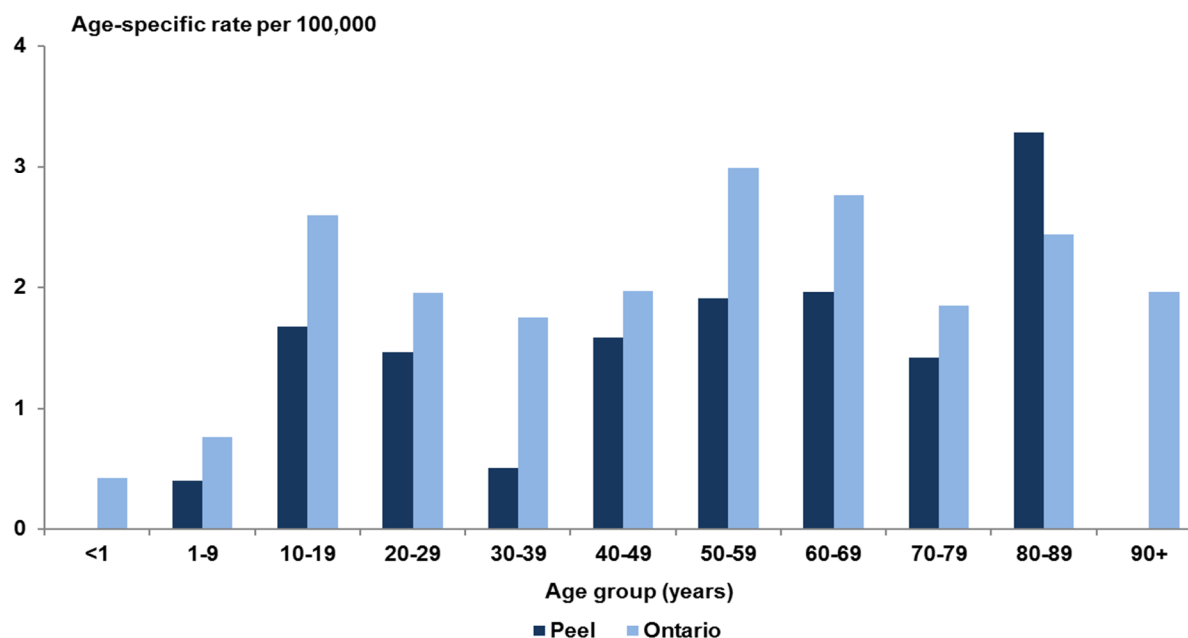
Note: Rates are age-standardized to the 2011 Canadian population  
 Source: Hospital In-Patient Discharges, 2003-2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 33**  
**Hospitalizations due to Other or Unknown Land Transport Accidents by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Source: Hospital In-Patient Discharges, 2003-2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 34**  
**Hospitalizations due to Other or Unknown Land Transport Accidents by Age Group,**  
**Peel and Ontario, 2012-2016 Combined**



**Source:** Hospital In-Patient Discharges, 2016, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality from Injuries due to Other or Unknown Types of Land Transport Accidents

- In Peel, between 2003 and 2012, there was an average of 21 deaths per year from injuries related to “Other or Unknown Land Transport Accidents”.<sup>G</sup>
- Peel’s mortality rate from other or unknown types of land transport accidents
  - is similar to that of Ontario (1.2 per 100,000 population versus 2.0 per 100,000 population);<sup>G,E</sup>
  - Has fluctuated over the past decade;<sup>E</sup>
  - Is higher among males than females;<sup>G,E</sup>and
  - Is highest among adults aged 80 years and older (data not shown).<sup>G,E</sup>

## WATER TRANSPORT ACCIDENT INJURIES (EXCLUDING DROWNING)



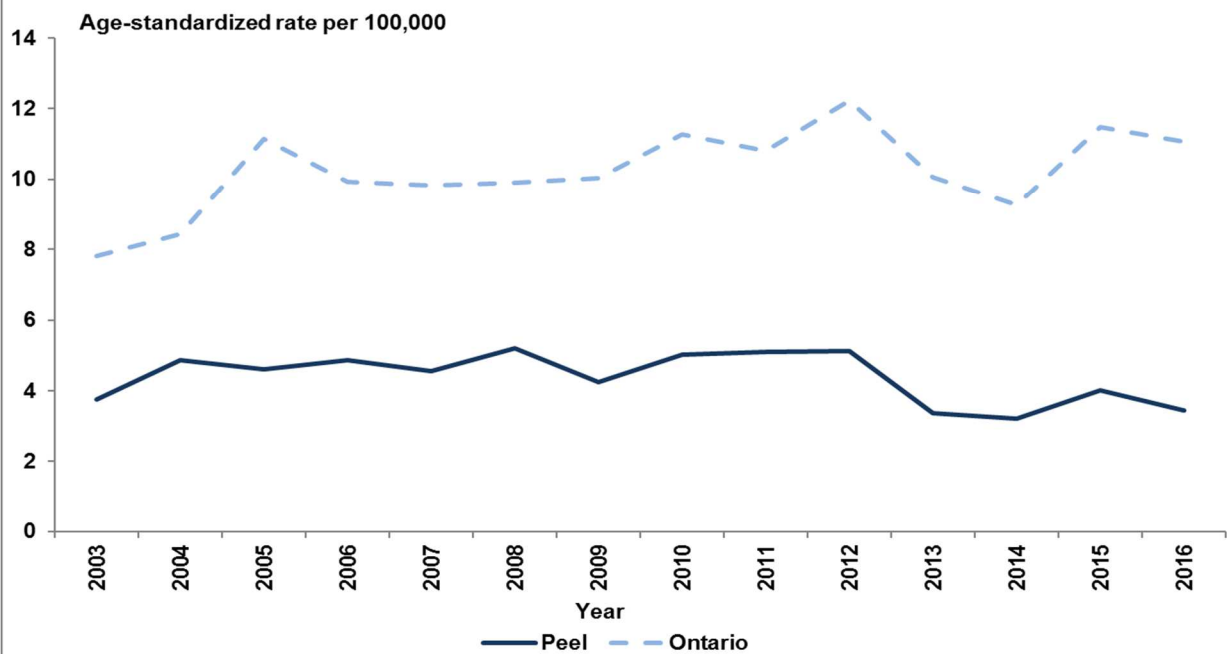
### Key Messages

- In Peel, water transport accidents rank low as a leading cause of injury resulting in emergency department visits (i.e., 14th) and hospitalizations (i.e., 15th) and is also an uncommon cause of injury-related death.
- Males have higher rates of ED visits due to water transport accidents compared to females and such injuries are highest among 10 to 19 year-olds in Peel.

### Emergency Department Visits due to Water Transport Accidents (Excluding Drowning) Injuries

- In Peel, in 2016, there were 52 emergency department visits from “water transport accidents (excluding drowning)”.<sup>D</sup>
- Peel’s rate of emergency department visits due to “water transport accident” injuries:<sup>G</sup>
  - is lower than that of Ontario (3.5 per 100,000 vs. 11.1 per 100,000 population respectively in 2016) (Figure 35);
  - was stable between 2004 and 2012 after which it decreased (Figure 35); and
  - is higher for males compared to females (Figure 36).
- Rates of emergency department visits due “water transport accident” injuries are highest among those aged 10 to 19 years, followed by 50 to 59 year-olds (Figure 37).

**Figure 35**  
**Emergency Department Visits due to Water Transport Accidents (Excluding Drowning) by Year, Peel and Ontario, 2003-2016**



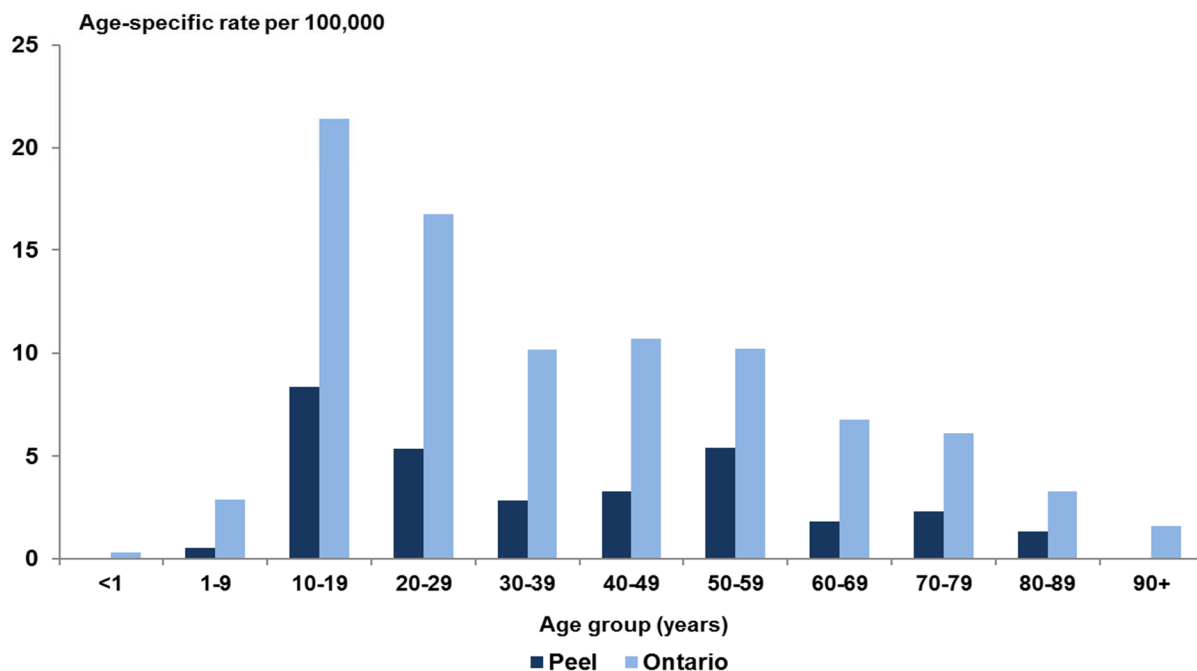
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 36**  
**Emergency Department Visits due to Water Transport Accidents (Excluding Drowning) by Sex and Year, Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 37**  
**Emergency Department Visits due to Water Transport Accidents Accidents (Excluding Drowning) by**  
**Age Group,**  
**Peel, 2012 to 2016 Combined**



Sources: National Ambulatory Care Reporting System, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Injuries from Water Transport Accidents (Excluding Drowning)

- In Peel, between 2011 and 2016, there were an average of six hospitalizations from “water transport accidents (excluding drowning)”.<sup>F</sup>
- Peel’s hospitalization rate from “water transport accidents injuries (excluding drowning)”:
  - is similar to that of Ontario (0.5 per 100,000 population versus 0.6 per 100,000 population in 2016);<sup>F,E</sup> and
  - has remained low over the past decade.<sup>F,E</sup>

## Mortality from Injuries due to Water Transport Accidents (Excluding Drowning)

- In Peel, between 2003 and 2012, there was an average of four deaths per year from injuries related to water transport accidents (excluding drowning).<sup>G</sup>

## EXPOSURE TO INANIMATE AND ANIMATE MECHANICAL FORCE INJURIES



### Key Messages

- “Exposure to inanimate and animate mechanical force” injuries include an assortment of external cause codes that may have enhanced usefulness when analyzed separately for specific purposes. For example, if there was a specific question about animal bites that might compliment the work of Health Protection, a more narrow-focussed, tailored analysis of relevant ICD-10 codes within this category could be more informative.
- Peel’s rates of acute healthcare utilization and death from exposure to inanimate and animate mechanical force injuries have been stable over time and are higher in males than females.
- Across the lifespan, rates of healthcare utilization due to exposure to inanimate and animate mechanical force injuries vary.
- The leading type of "exposure to inanimate and animate mechanical forces" resulting in ED visits, hospitalization and mortality is being "struck by against an object or person".



### Definition

Exposure to ***inanimate and animate mechanical forces*** consists of a group of external causes of injuries including, but not limited to the following:

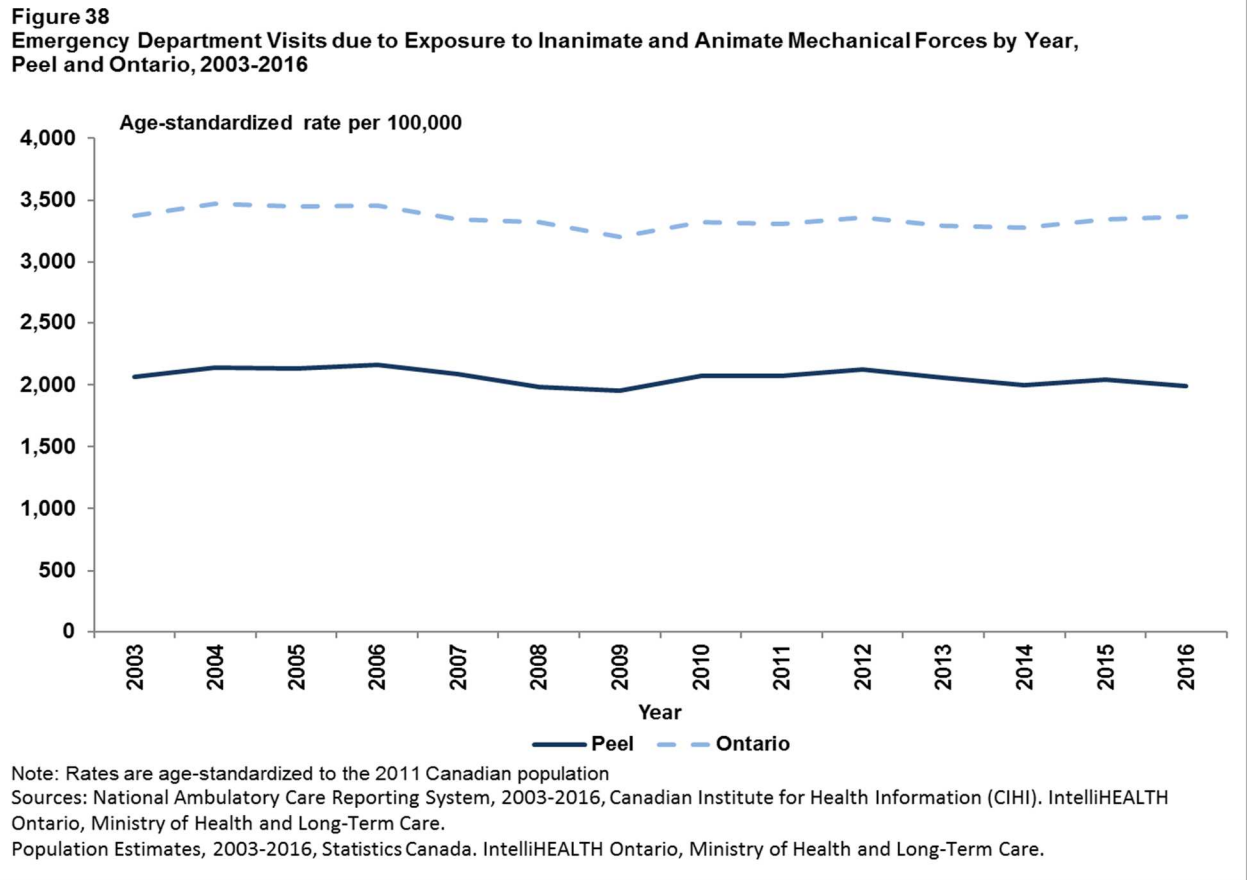
- struck by or against object or person;
- occupational and machine-related injuries;
- cut/pierced by object (including plants);
- firearm (includes undetermined intent);
- explosion;
- hit, struck, kicked, twisted, bitten or scratched by another person;
- striking against or bumped into by another person; and
- bitten, struck, stung by animal or insect.

See Table A2 in the appendices for a full list of the ICD-10 codes captured in this category and a description that corresponds.

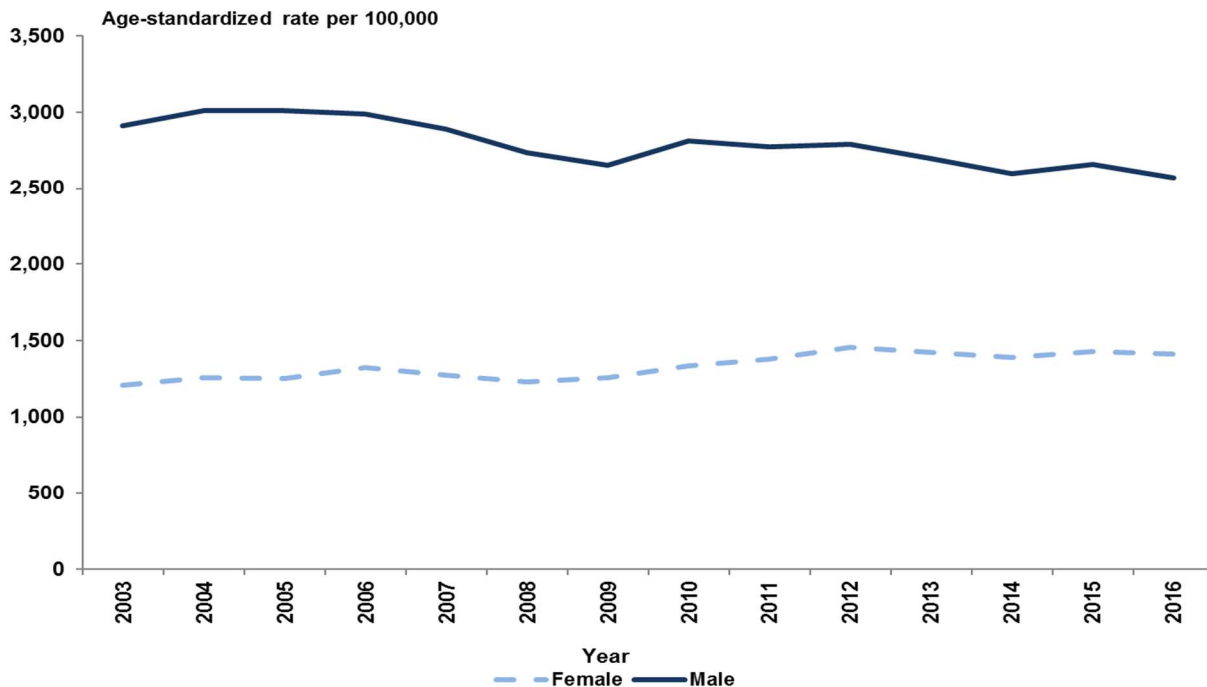
## Emergency Department Visits due to Exposure to Inanimate and Animate Force Injuries

- In Peel, in 2016, there were 30,049 emergency department visits from exposure to inanimate and animate mechanical forces.<sup>D</sup>
- Peel’s rate of emergency department visits due to exposure to inanimate and animate mechanical force injuries:<sup>D</sup>
  - is lower than that of Ontario (1,992.0 per 100,000 vs. 3,368.0 per 100,000 population respectively in 2016);<sup>D,E</sup>

- has decreased for males and increased for females (Figure 39); and
- is higher for males compared to females (Figure 39).
- Rates of emergency department visits due exposure to inanimate and animate mechanical forces are highest among younger Peel residents, peaking among those 10 to 19 years of age and generally decreasing across increasing age groups (Figure 40).

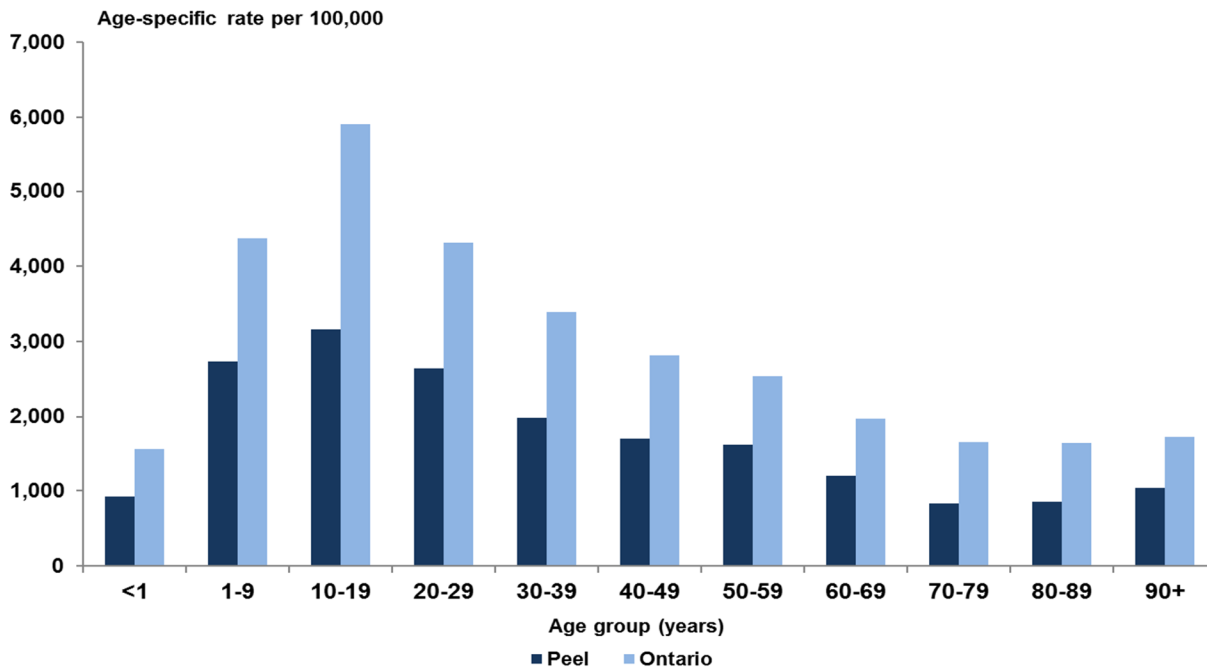


**Figure 39**  
**Emergency Department Visits due to Exposure to Inanimate and Animate Mechanical Forces by Sex and Year, Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 40**  
**Emergency Department Visits due to Exposure to Inanimate and Animate Mechanical Forces by Age Group and Sex, Peel and Ontario, 2016**



Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.



The leading types of exposure to mechanical forces resulting in injury-related emergency department visits are:

- struck by or against object or person;
- cut/pierced by object; and
- bitten, struck, stung by animal or insect.

**Table 25**

**Leading Types of Exposure to Inanimate and Animate Mechanical Forces Resulting in Injury Emergency Department Visits, Hospitalizations and Peel, 2016**

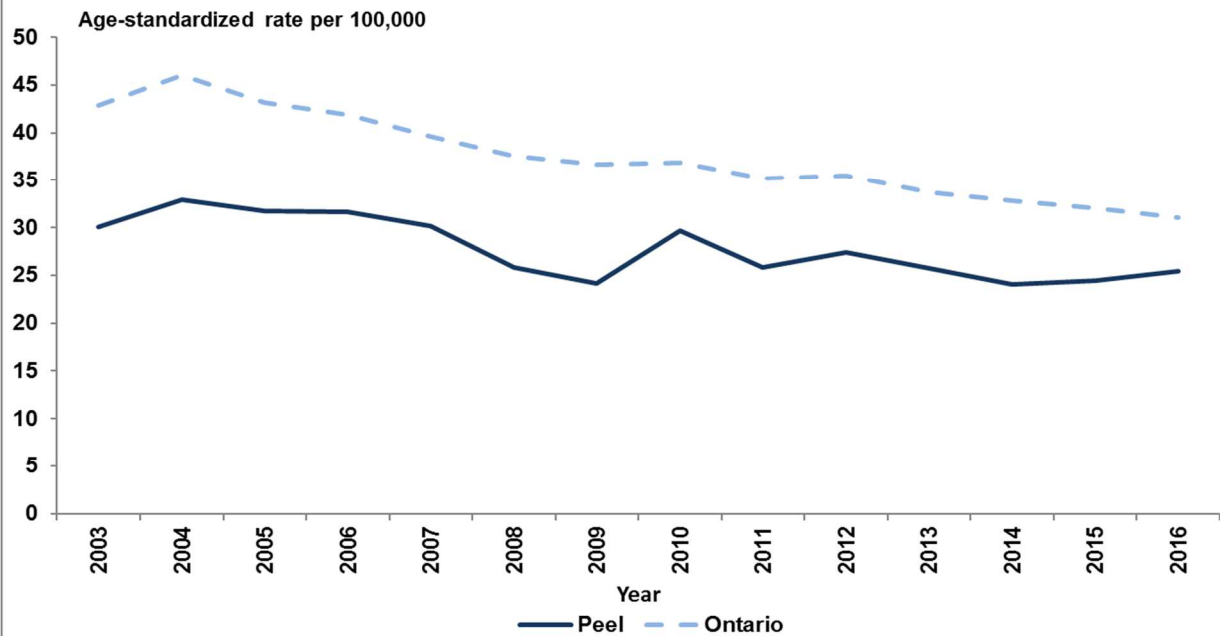
	<b>ED Visits</b>	<b>Hospitalization</b>	<b>Deaths</b>
<b>Type</b>	<b>Crude Rate per 100,000</b>	<b>Crude Rate per 100,000</b>	<b>Crude Rate per 100,000</b>
Struck by or against object or person	761.5	6.5	0.1
Cut/pierced by object	340.1	1.6	--
Bitten, struck, stung by animal or insect	111.0	0.8	--
Occupational and Machine-related injuries	76.8	3.3	0.1
Firearm (includes undetermined intent)	2.2	0.4	--
Explosion	1.4	0.5	--
<b>All causes of exposure to mechanical force injuries</b>	<b>2,041.9</b>	<b>25.3</b>	<b>0.3</b>

**Sources:** National Ambulatory Care Reporting System, 2016, and Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Injuries from Exposure to Inanimate and Animate Mechanical Forces

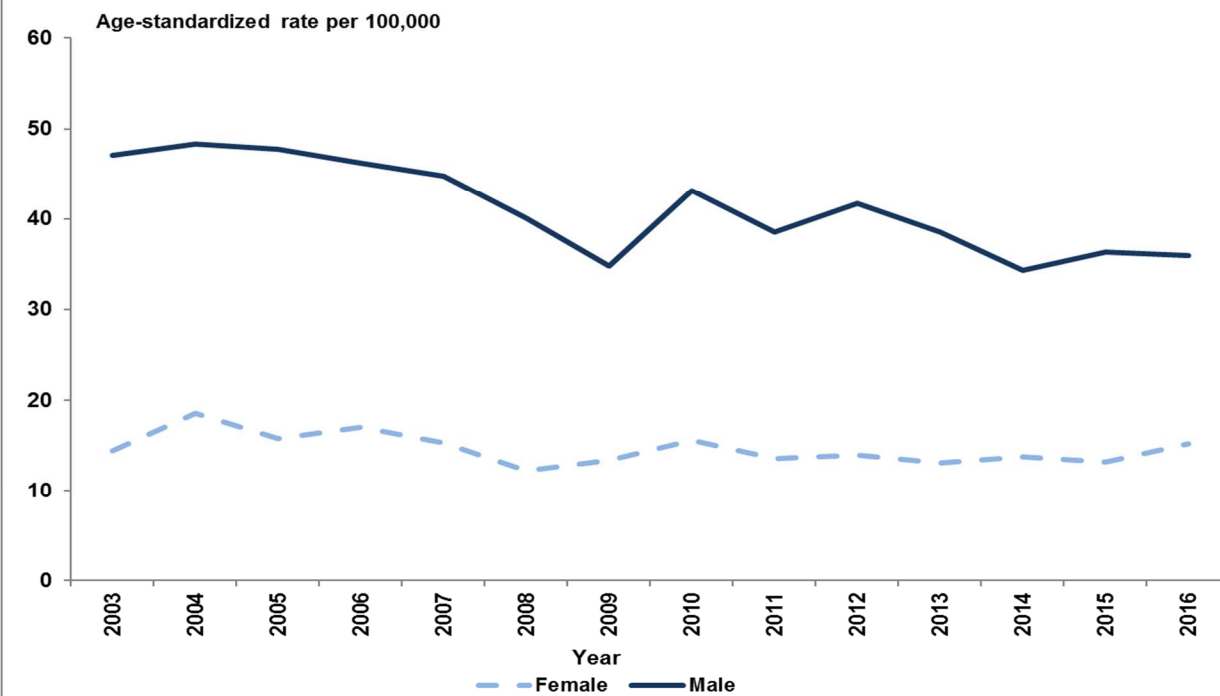
- In Peel, in 2016, there were 372 hospitalizations from exposure to inanimate and animate mechanical forces.
- Peel's hospitalization rate from exposure to inanimate and animate mechanical force injuries:<sup>F</sup>
  - is lower than that of Ontario (25.5 per 100,000 population versus 31.1 per 100,000 population in 2016);<sup>F,E</sup>
  - has been fairly stable over the past decade (Figure 41);
  - is more than two times higher for males than females (Figure 42); and
  - is highest among older adults (Figure 43).

**Figure 41**  
**Hospitalizations due to Exposure to Inanimate and Animate Mechanical Force Injuries by Year, Peel and Ontario, 2003-2016**



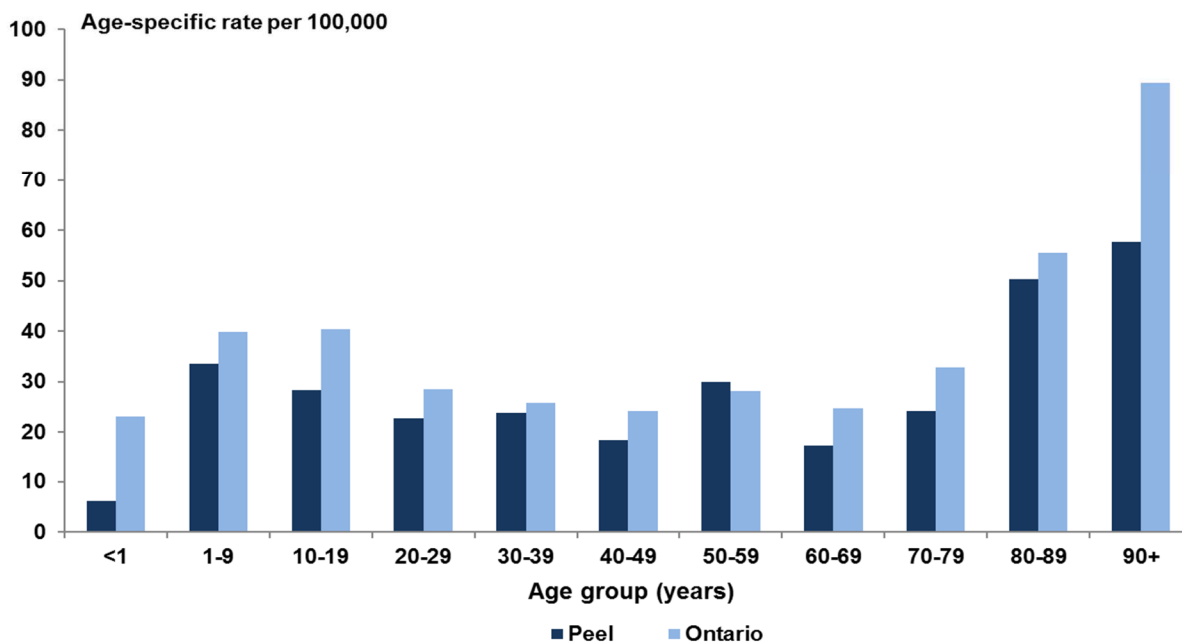
Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 42**  
**Hospitalizations due to Exposure to Inanimate and Animate Mechanical Force Injuries by Sex and Year, Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 43**  
**Hospitalizations due to Exposure to Inanimate and Animate Mechanical Force Injuries by Age Group, Peel and Ontario, 2016**



Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

### *Top Causes of Hospitalizations from Exposure to Inanimate and Animate Mechanical Force Injuries*

- The most common causes of injuries from exposure to inanimate and animate mechanical forces resulting in hospitalizations are:
  - “struck by or against object or person”; and
  - “occupation and machine-related injuries” (Table 25).

### **Mortality from Injuries due to Exposure to Inanimate and Animate Mechanical Forces**

- In Peel, between 2003 and 2012, there were an average of four deaths per year from injuries related to exposure to inanimate and animate mechanical forces.<sup>G</sup>
- Peel’s mortality rates from exposure to inanimate and animate mechanical force injuries:
  - is lower than that of Ontario (0.4 per 100,000 vs. 0.8 per 100,000 population in 2012);<sup>G,E</sup>
  - has been stable over time;<sup>G,E</sup> and
  - is higher among males than females.<sup>G,E</sup>

## OVEREXERTION, TRAVEL AND PRIVATION INJURIES



### Key Messages

- Overexertion, travel and privation injuries resulting in healthcare use and death are more common in males than females.
- Peel's rates of emergency department visits due to overexertion, travel and privation injuries are highest among 10 to 19 year-olds, while hospitalizations are highest among those aged 75 years and older.
- While Peel's rates of hospitalization from overexertion, travel and privation injuries have decreased over time, rates of emergency department visits and death have been stable.



### Definition

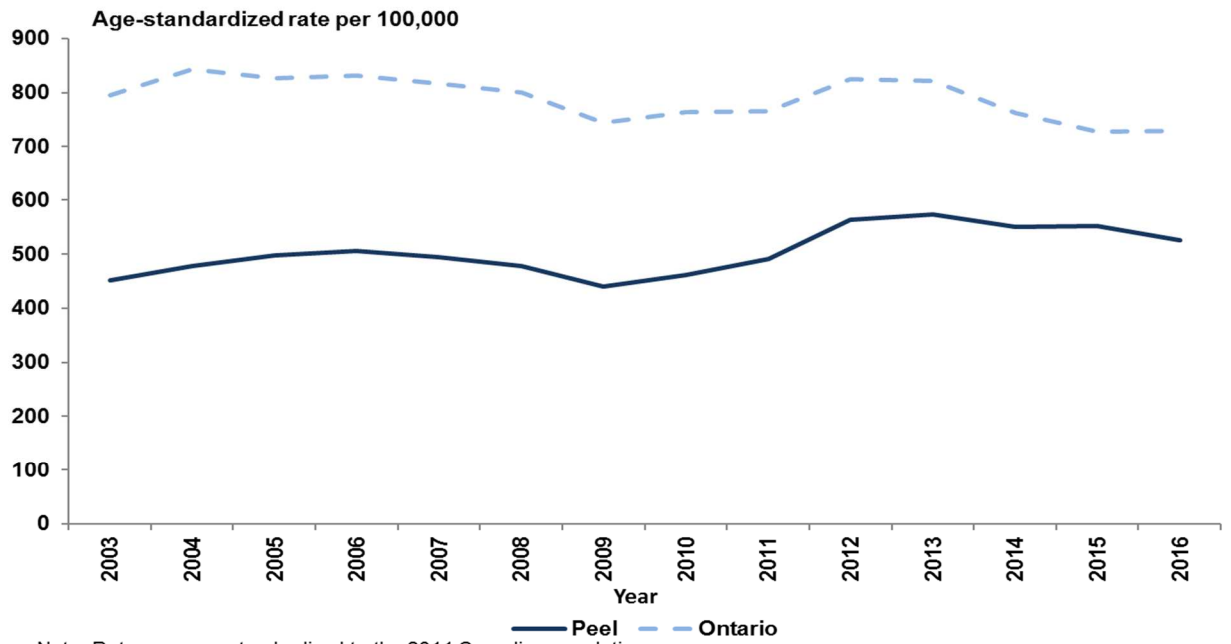
**Overexertion, Travel and Privation** includes injuries related to:

- overexertion and strenuous or repetitive movements;
- travel and motion;
- prolonged stay in weightless environment;
- lack of food;
- lack of water; and
- unspecified privation.

### Emergency Department Visits due to Overexertion, Travel and Privation Injuries:

- In Peel, in 2016, there were 7,908 emergency department visits from overexertion, travel and privation.<sup>D</sup>
- Peel's rate of emergency department visits due to overexertion, travel and privation injuries:<sup>G</sup>
  - is lower than that of Ontario (524.8 per 100,000 vs. 729.4 per 100,000 population respectively in 2016);<sup>D,E</sup>
  - has been relatively stable over the past decade (Figure 44); and
  - is higher for males compared to females (Figure 45).
- Rates of emergency department visits due overexertion, travel and privation injuries are highest among those aged 10 to 19 years of age and generally decreasing across increasing age groups (Figure 46).
- The place of occurrence of "overexertion, travel and privation"-related injuries are not well documented – almost two-thirds of such ED visits have an unspecified or unknown place of occurrence (71%).<sup>D</sup>

**Figure 44**  
**Emergency Department Visits due to Overexertion, Travel and Privation by Year,**  
**Peel and Ontario, 2003-2016**



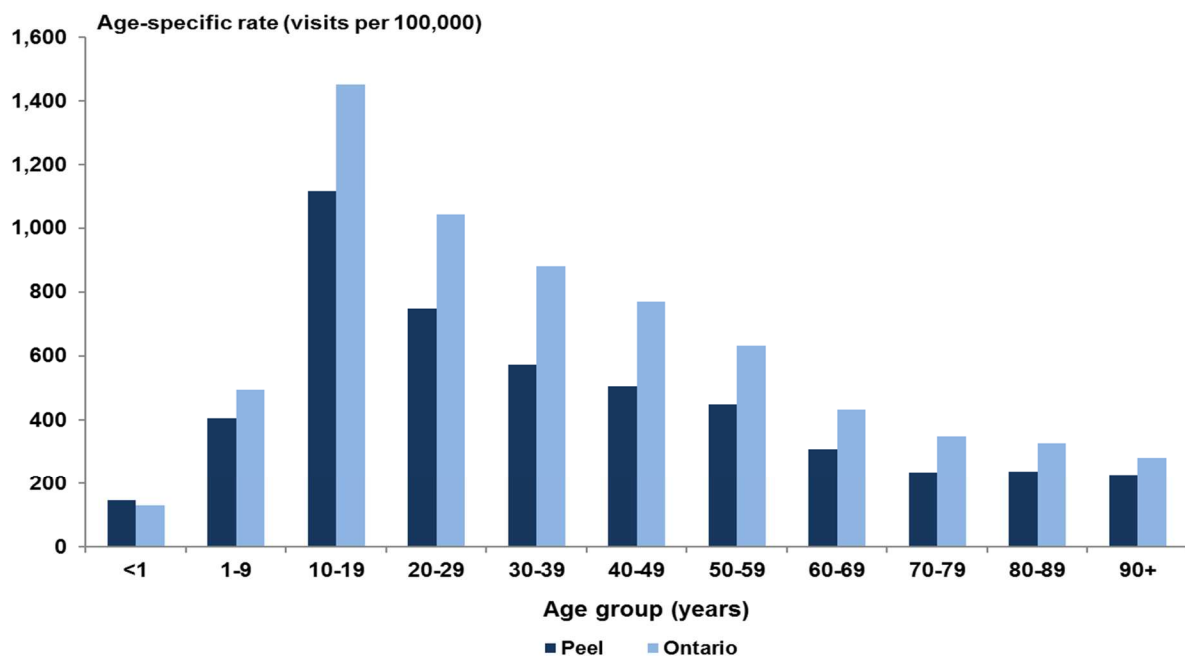
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 45**  
**Emergency Department Visits due to Overexertion, Travel and Privation by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 46**  
**Emergency Department Visits due to Overexertion, Travel and Privation by Age Group and Sex, Peel, 2016**

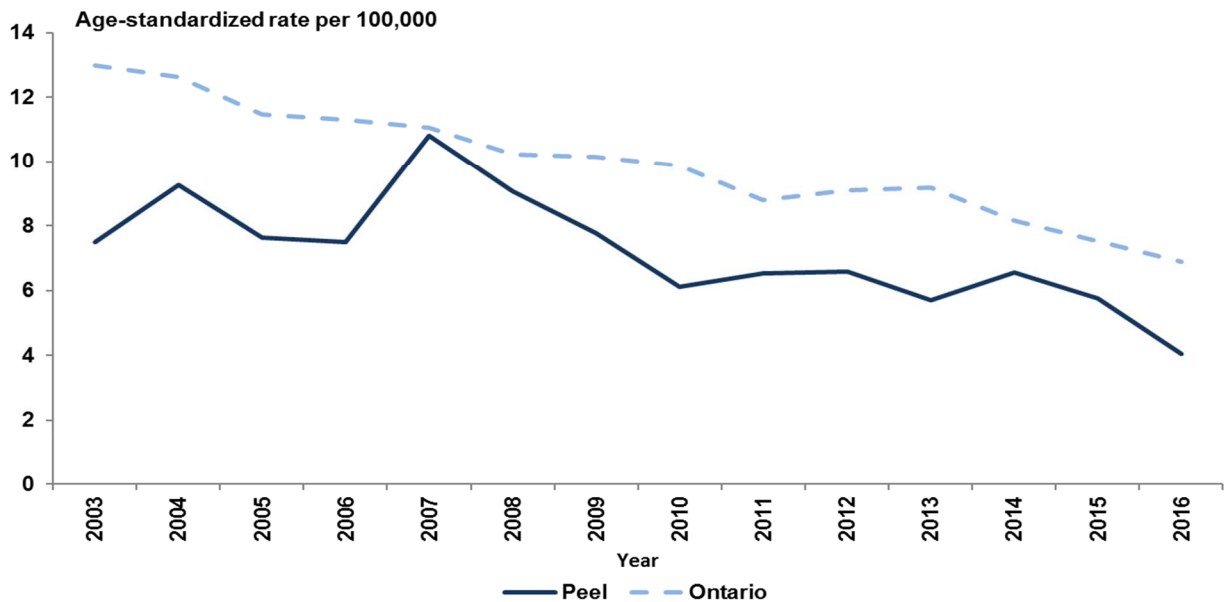


Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Injuries from Overexertion, Travel and Privation

- In Peel, in 2016, there were 58 hospitalizations from overexertion, travel and privation
- Peel’s hospitalization rate from overexertion, travel and privation injuries:
  - is lower than that of Ontario (4.1 per 100,000 population versus 6.9 per 100,000 population in 2016);<sup>F,E</sup>
  - has decreased over the past decade (Figure 47);
  - is higher for males than females (Figure 48); and
  - is highest among older adults (Figure 49).
- The most commonly reported place of occurrence of “overexertion, travel and privation injuries resulting in hospitalization is unspecified or unknown (38%), followed by sports and athletics area (34%) and home (17%).<sup>F</sup>

**Figure 47**  
**Hospitalizations due to Overexertion, Travel and Privation by Year,**  
**Peel and Ontario, 2003-2016**



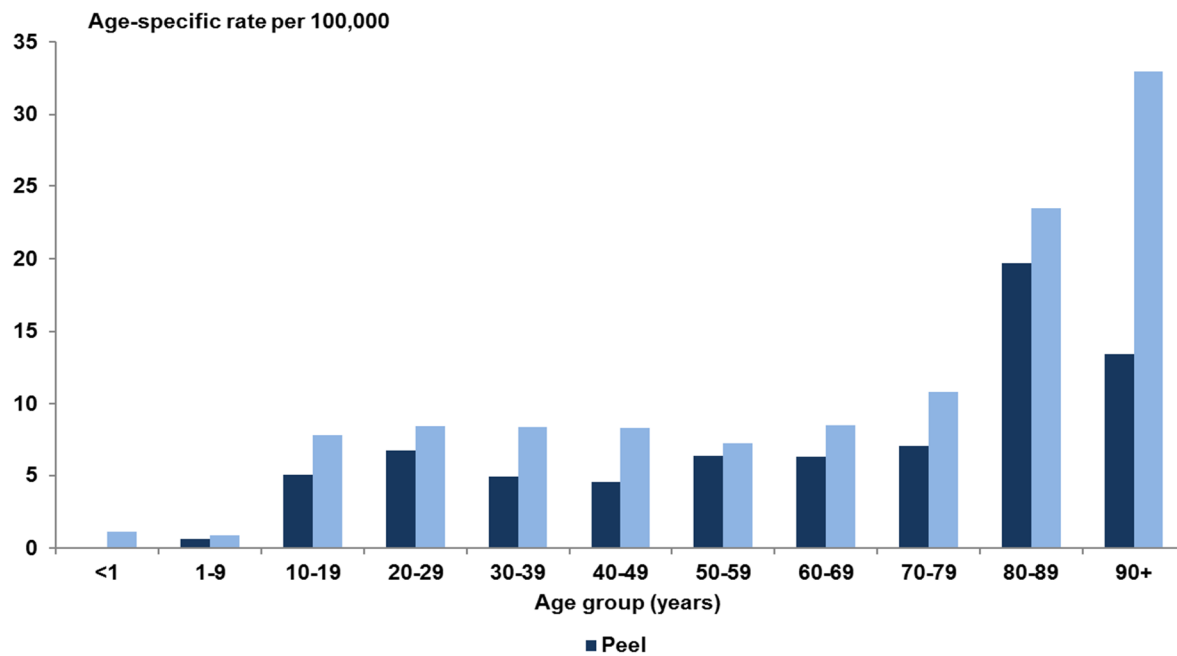
Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 48**  
**Hospitalizations due to Overexertion, Travel and Privation by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 49**  
**Hospitalizations due to Overexertion, Travel and Privation by Age Group,**  
**Peel and Ontario, 2012-2016**



Sources: Hospital In-Patient Discharges, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality from Injuries due to Overexertion, Travel and Privation

- In Peel, between 2003 and 2012, there was an average of less than one death per year from injuries related to overexertion, travel and privation.
- Peel's mortality rate from overexertion, travel and privation injuries:
  - is similar to that of Ontario (0.0 per 100,000 vs. 0.0 per 100,000 population in 2012);<sup>G</sup> and
  - has been relatively stable over time.<sup>G,E</sup>



## POISONING



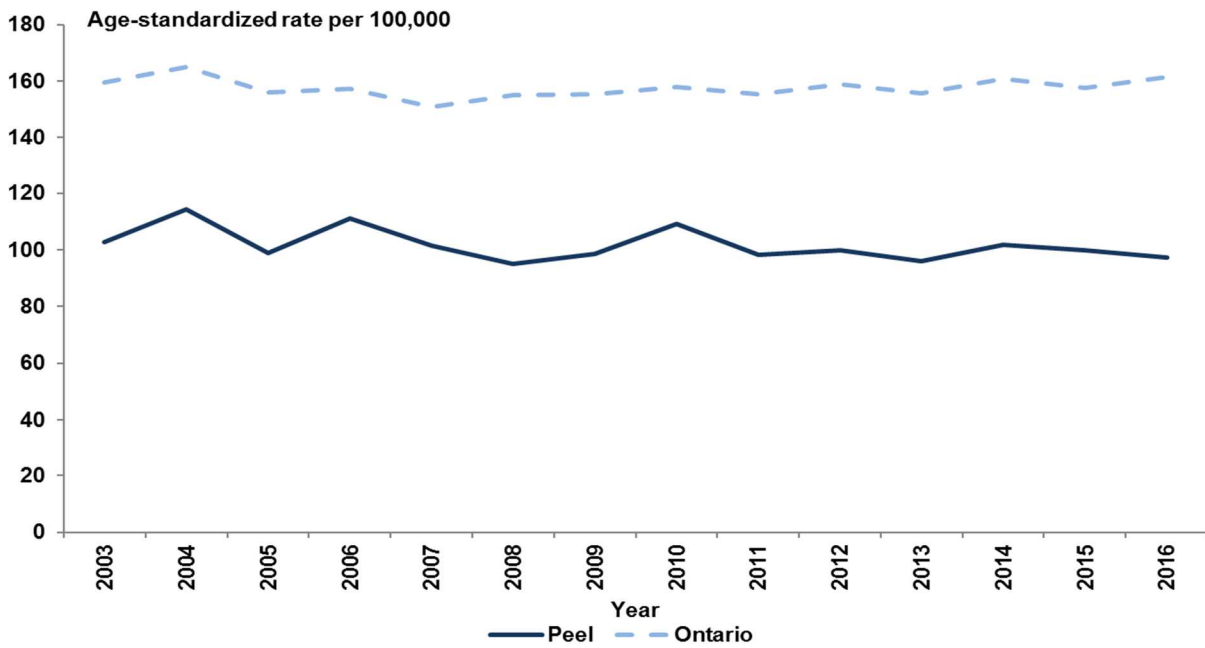
### Key Messages

- Poisoning is the second leading cause of injury-related premature death in Peel.
- The rate of emergency department visits due to poisoning is highest among Peel children aged nine years and under, while hospitalizations are highest among adults aged 70 to 79 years. Deaths affect those aged 80 to 89 years at a higher rate (followed by 40 to 49 year-olds).
- Males have higher rates of ED visits and hospitalizations due to poisoning, and their rates of death from poisoning are three times higher than that of females.
- Peel's rates of emergency department visits, hospitalizations and deaths due to poisoning are lower than those of Ontario.

### Emergency Department Visits due to Poisoning

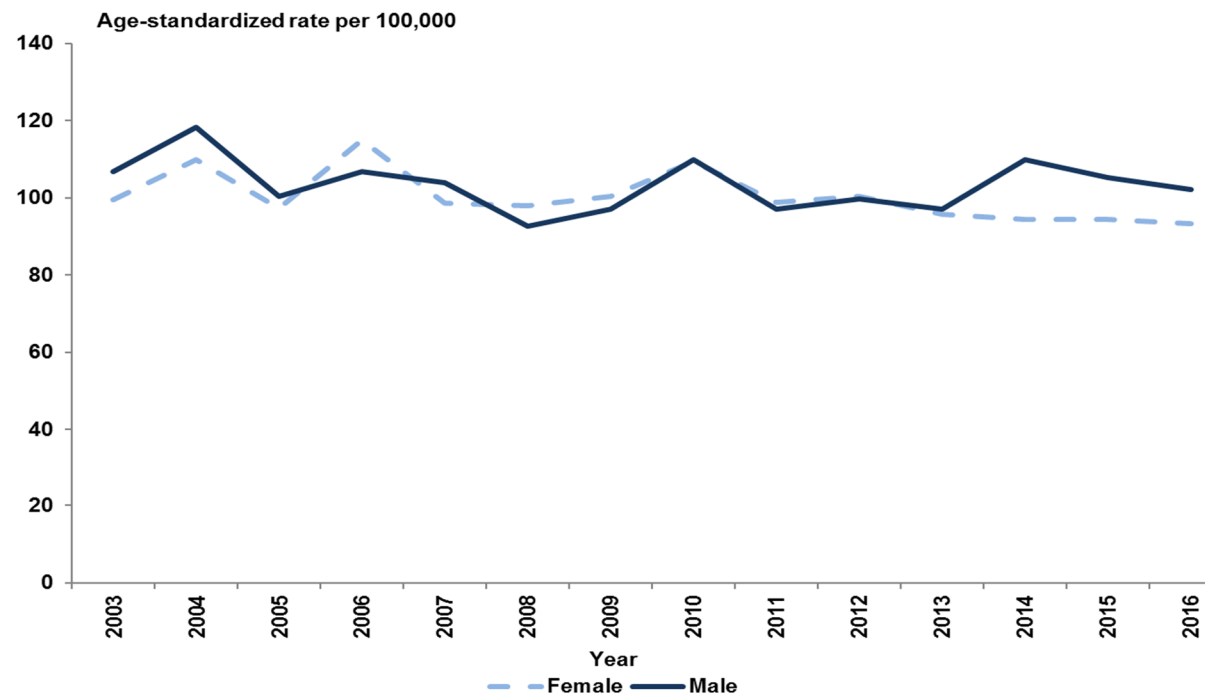
- In Peel, in 2016, there were 1,466 emergency department visits from poisoning.<sup>D</sup>
- Peel's rate of emergency department visits due to poisoning:
  - is lower than that of Ontario (97.4 per 100,000 vs. 161.4 per 100,000 population respectively in 2016);<sup>D,E</sup>
  - fluctuated between 2003 and 2016 (Figure 50); and
  - is higher for males compared to females (in 2016) (Figure 51).
- Rates of emergency department visits due to poisoning are highest among Peel children aged nine years and under (Figure 52).

**Figure 50**  
**Emergency Department Visits due to Poisoning by Year,**  
**Peel and Ontario, 2003-2016**



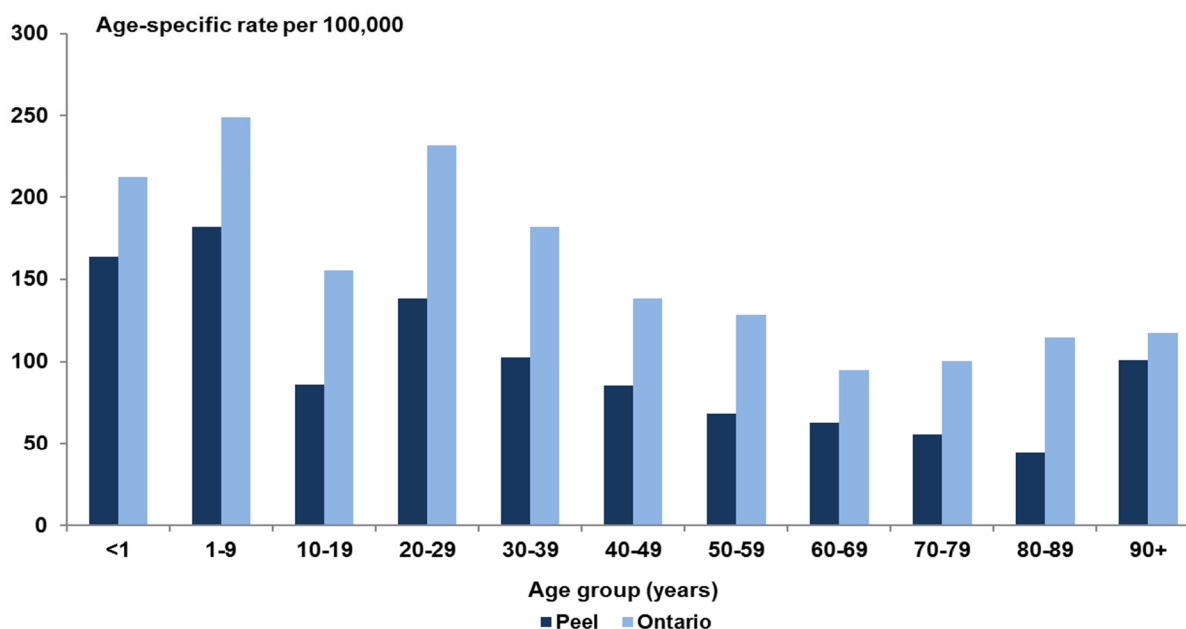
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 51**  
**Emergency Department Visits due to Poisoning by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 52**  
**Emergency Department Visits due to Poisoning by Age Group,**  
**Peel, 2016**



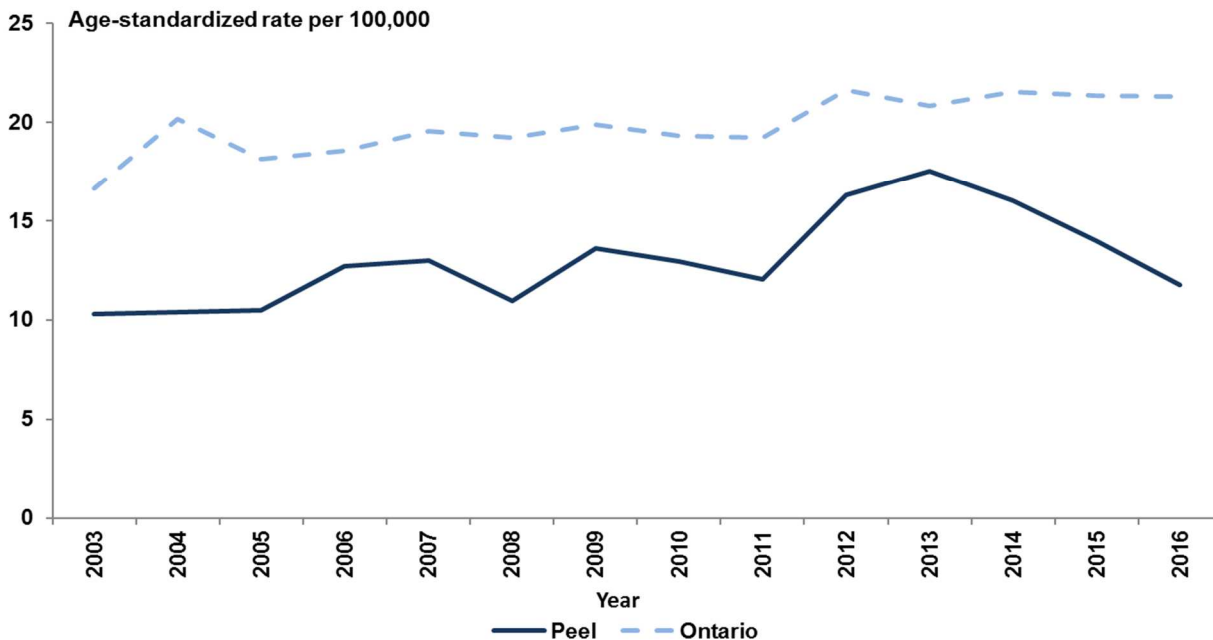
Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The majority of emergency department visits due to poisoning in Peel are from accidental poisoning (85%) and the remainder are of undetermined intent.

## Hospitalizations due to Poisoning

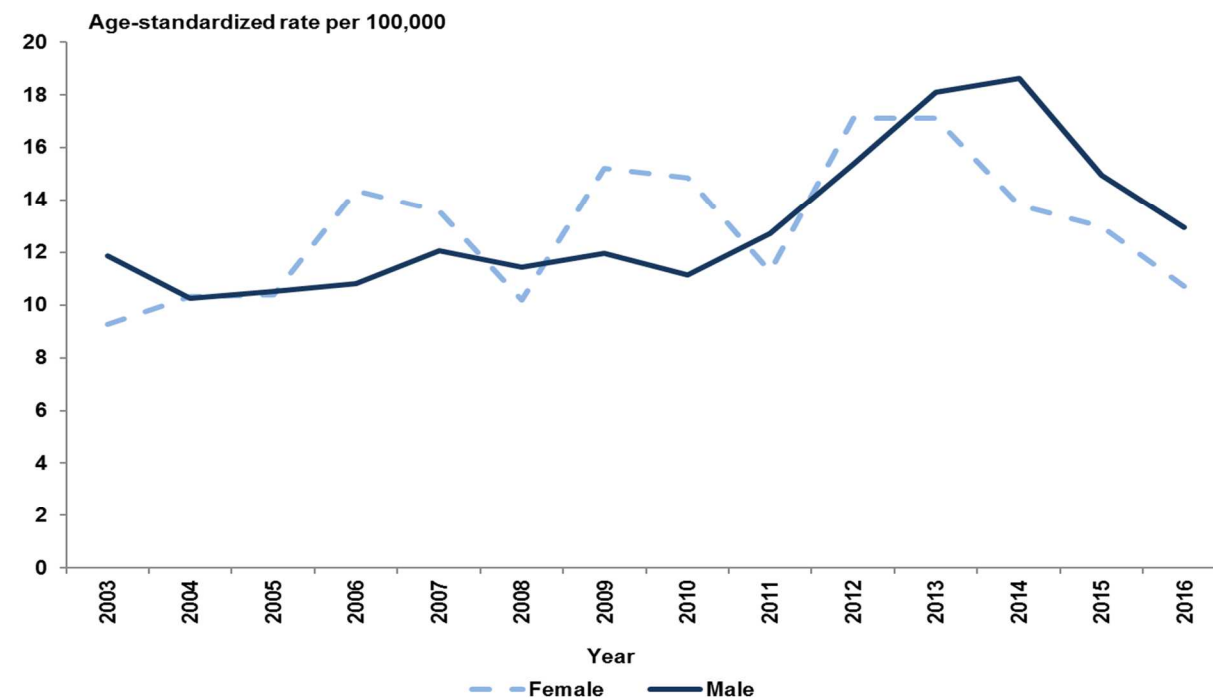
- In Peel, in 2016, there were 173 hospitalizations from poisoning.
- Peel's hospitalization rate from poisoning:
  - is lower than that of Ontario (11.8 per 100,000 population versus 21.3 per 100,000 population in 2016);<sup>F,E</sup>
  - was relatively stable from 2003 to 2011 after which it increased until 2013 and subsequently decreased (Figure 53);
  - is higher for males than females (in 2016) (Figure 54); and
  - differs by age group and is highest among adults aged 70 to 79 years (Figure 55).

**Figure 53**  
**Hospitalizations due to Poisoning by Year,**  
**Peel and Ontario, 2003-2016**



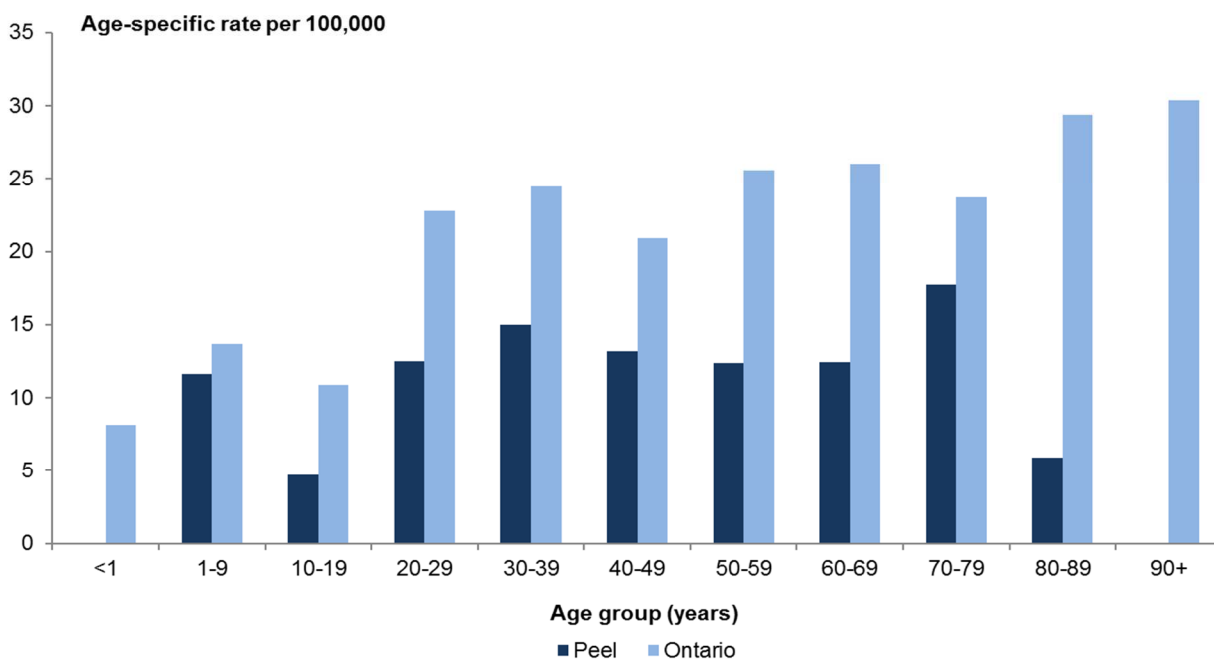
Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 54**  
**Hospitalizations due to Poisoning by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 55**  
**Hospitalizations due to Poisoning by Age Group,**  
**Peel and Ontario, 2016**



Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

- In 2016, the majority of hospitalizations from poisoning were accidental (83%) while 17% were of undetermined intent.

## Mortality from Injuries due to Poisoning

- In Peel, in 2012, there were 45 deaths due to poisoning.<sup>G</sup>
- The rate of death from poisoning in Peel:
  - is lower than that for Ontario (3.5 per 100,000 versus 6.5 per 100,000 respectively);<sup>G,E</sup>
  - has been relatively stable since the mid 2000's;<sup>G,E</sup>
  - is three times higher in males than females;<sup>G,E</sup> and
  - is highest among those aged 80 to 89 year-olds followed by 40 to 49 year-olds.<sup>G,E</sup>

## BURNS



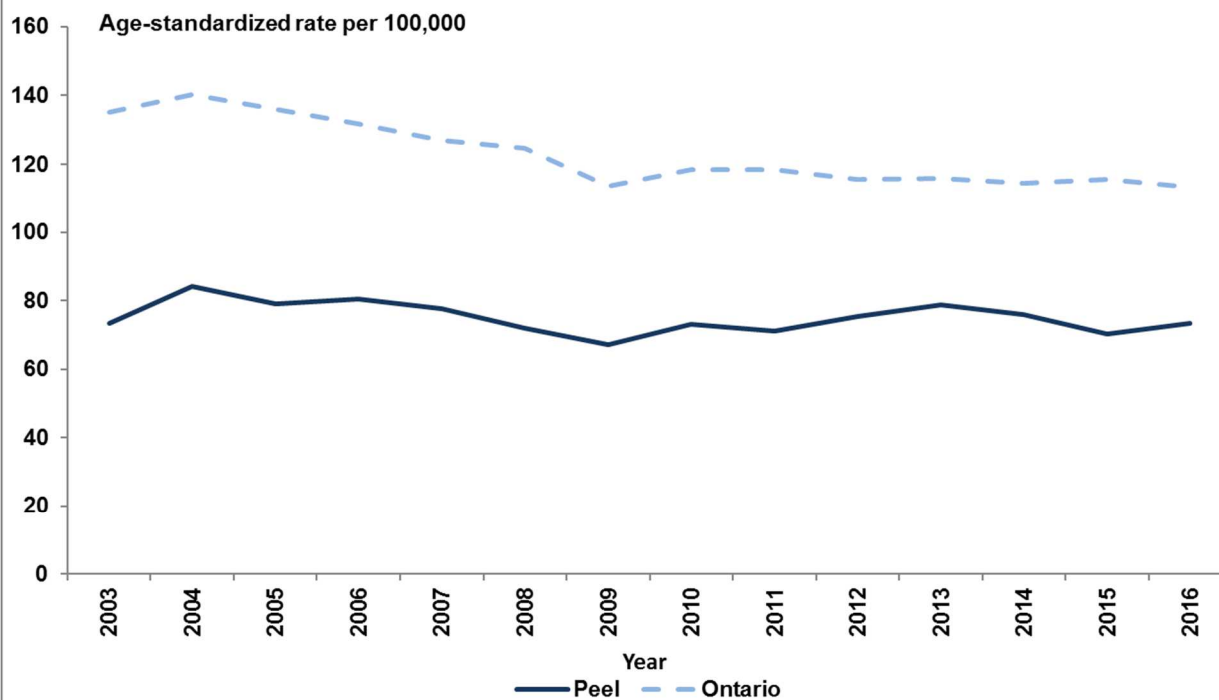
### Key Messages

- Burns are among the top ten leading causes of injury-related emergency department visits in Peel.
- In Peel, rates of ED visits and hospitalizations due to burns are highest among children under 10 years of age, particularly amongst infants under one year.

### Emergency Department Visits due to Burns

- In Peel, in 2016, there were 1,095 emergency department visits from burns.<sup>D</sup>
- Peel's rate of emergency department visits due to burn injuries:
  - is lower than that of Ontario (74.4 per 100,000 vs. 113.2 per 100,000 population respectively in 2016) (Figure 56);<sup>D,E</sup>
  - has fluctuated over time (Figure 56); and
  - is similar for males compared to females (in 2016) (Figure 57).
- Rates of emergency department visits due to burn injuries are highest among Peel residents under one year of age, followed by 1 to 9 year-olds (Figure 58).

**Figure 56**  
Emergency Department Visits due to Burns by Year,  
Peel and Ontario, 2003-2016

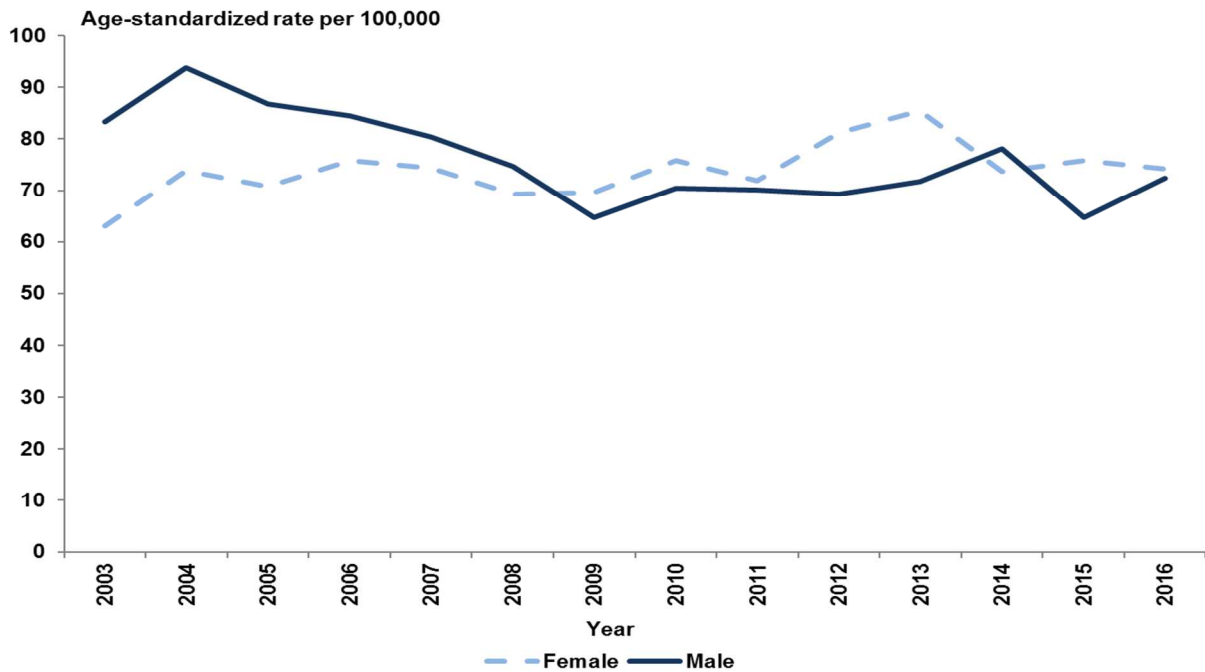


Note: Rates are age-standardized to the 2011 Canadian population.

Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

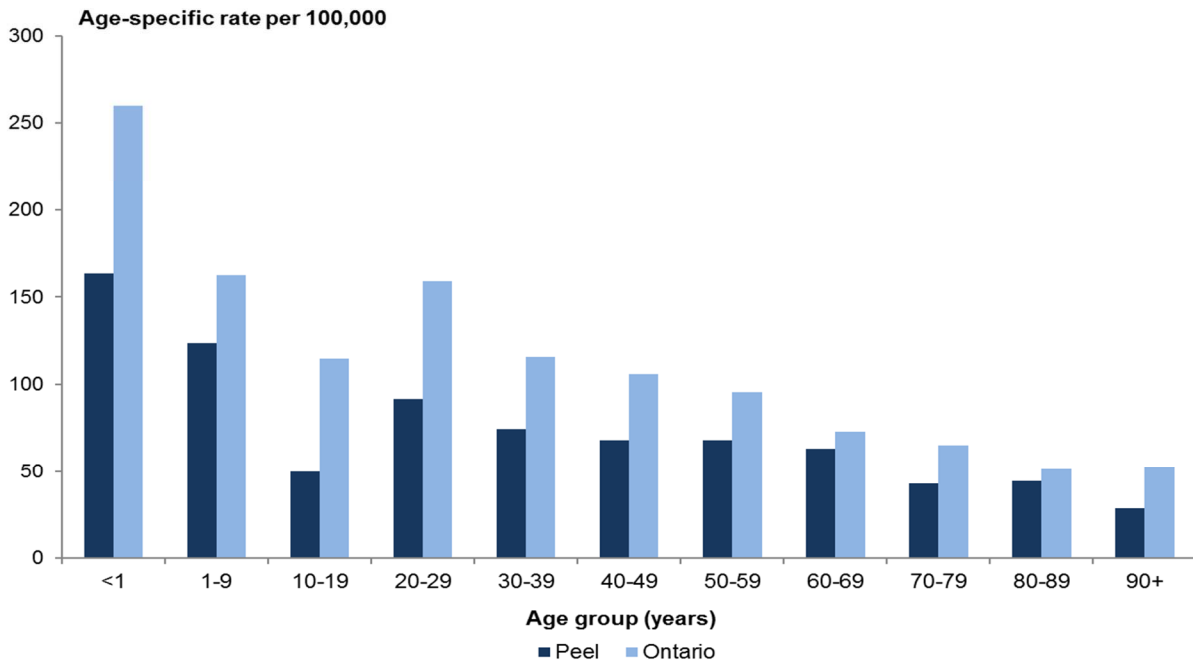
Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 57**  
**Emergency Department Visits due to Burns by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 58**  
**Emergency Department Visits due to Burns by Age Group,**  
**Peel, 2016**



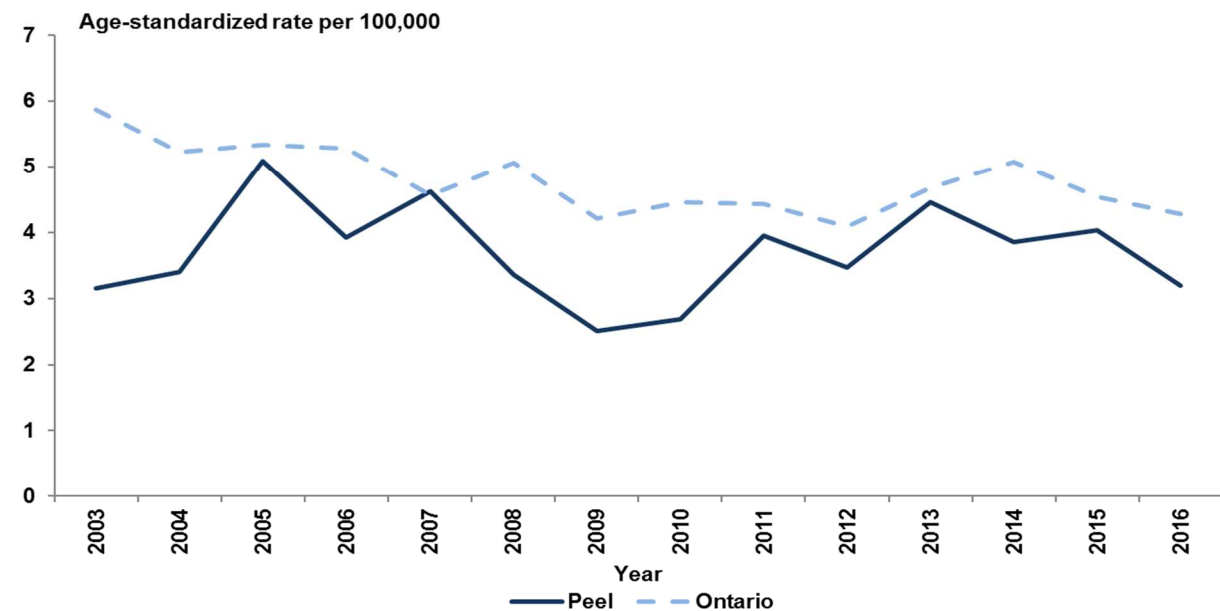
Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The vast majority of emergency department visits due to burns are from accidental burns (>99%).<sup>D</sup>

## Hospitalizations due to Burns

- In Peel, in 2016, there were 46 hospitalizations from burns.<sup>F</sup>
- Peel's hospitalization rate from burn injuries:
  - is lower than that of Ontario (3.2 per 100,000 population versus 4.3 per 100,000 population in 2016);<sup>F,E</sup>
  - has fluctuated over the past decade (Figure 59);
  - is higher for males than females (Figure 60); and
  - is highest among children less than five years of age (Figure 61).

**Figure 59**  
**Hospitalizations due to Burns by Year,**  
**Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.

Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.

Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

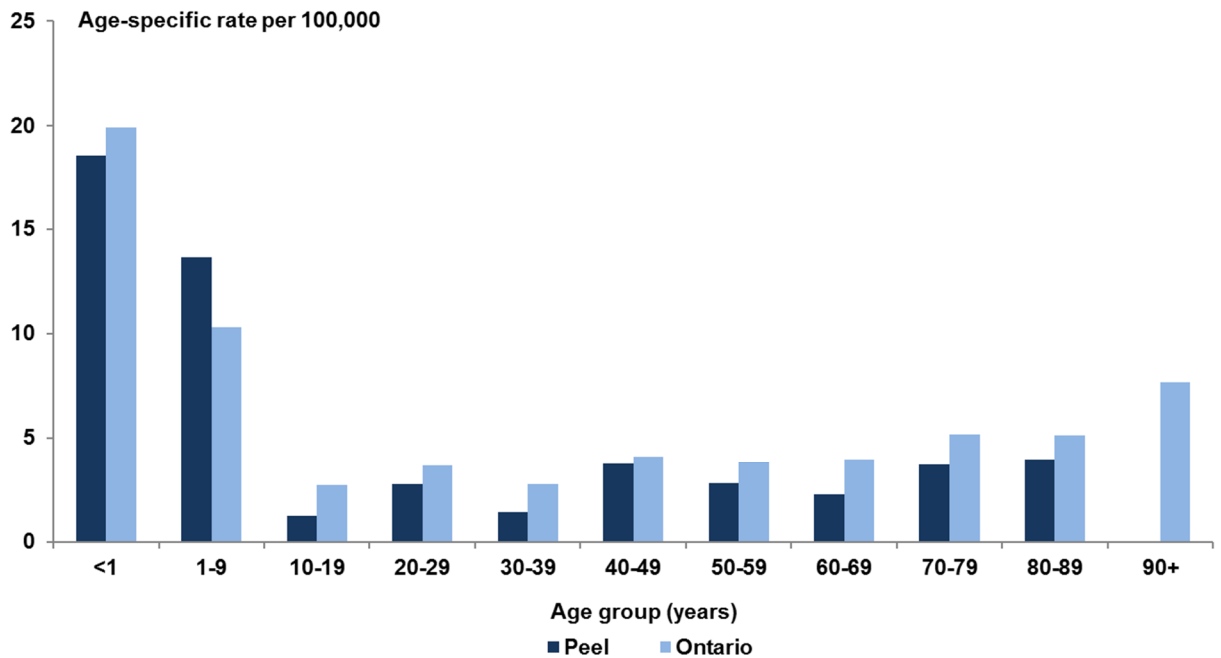


**Figure 60**  
Hospitalizations due to Burns by Sex and Year,  
Peel, 2003-2016



Note: Rates are age-standardized to the 2011 Canadian population.  
Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 61**  
Hospitalizations due to Burns by Age Group,  
Peel and Ontario, 2012-2016 Combined



Sources: Hospital In-Patient Discharges, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

### *Top Causes of Burns*

- In 2016, hospitalizations from burns during were all accidental.<sup>F</sup>

### **Mortality from Injuries due to Burns**

- In Peel, between 2003 and 2012, there were an average of two deaths per year from injuries related to burns.<sup>E1</sup>

## SUFFOCATION (INCLUDING CHOKING)



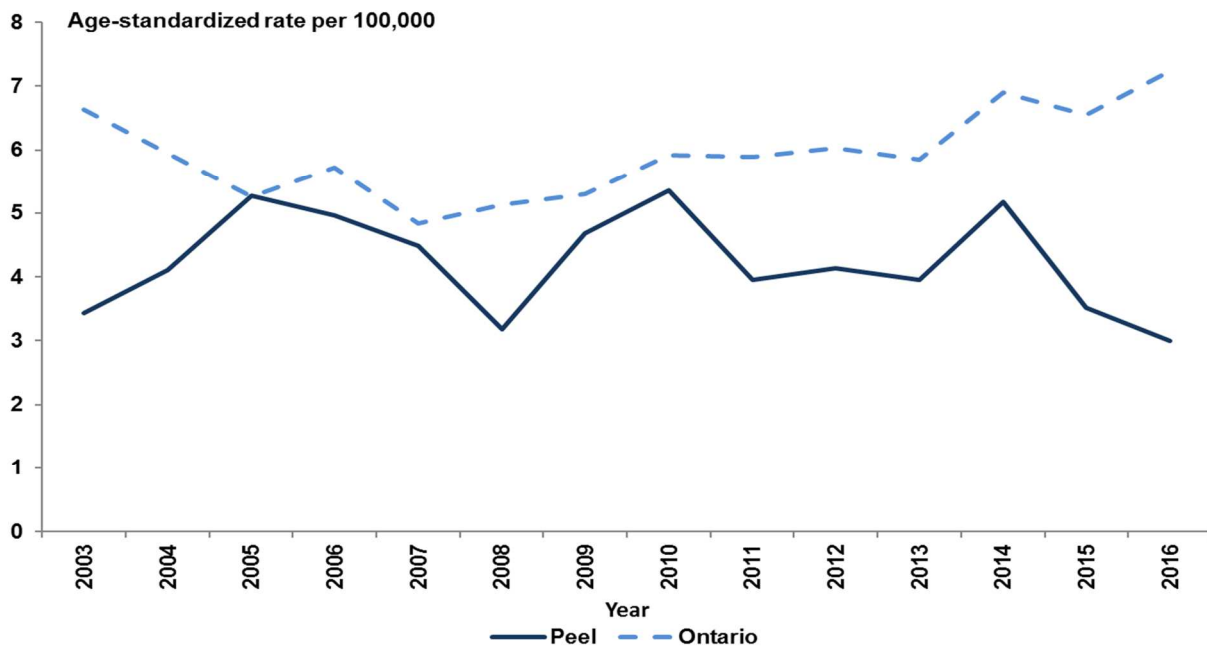
### Key Messages

- Suffocation (including choking) is among the top 10 causes of injury-related hospitalization and death in Peel.
- Peel's rate of death from suffocation (including choking) is twice as high among males compared to females.
- Rates of both ED visits and hospitalizations from suffocation increase with age during older adulthood. Infants, less than one year of age, also have high rates of ED visits from suffocation (including choking).

### Emergency Department Visits due to Suffocation (Including Choking)

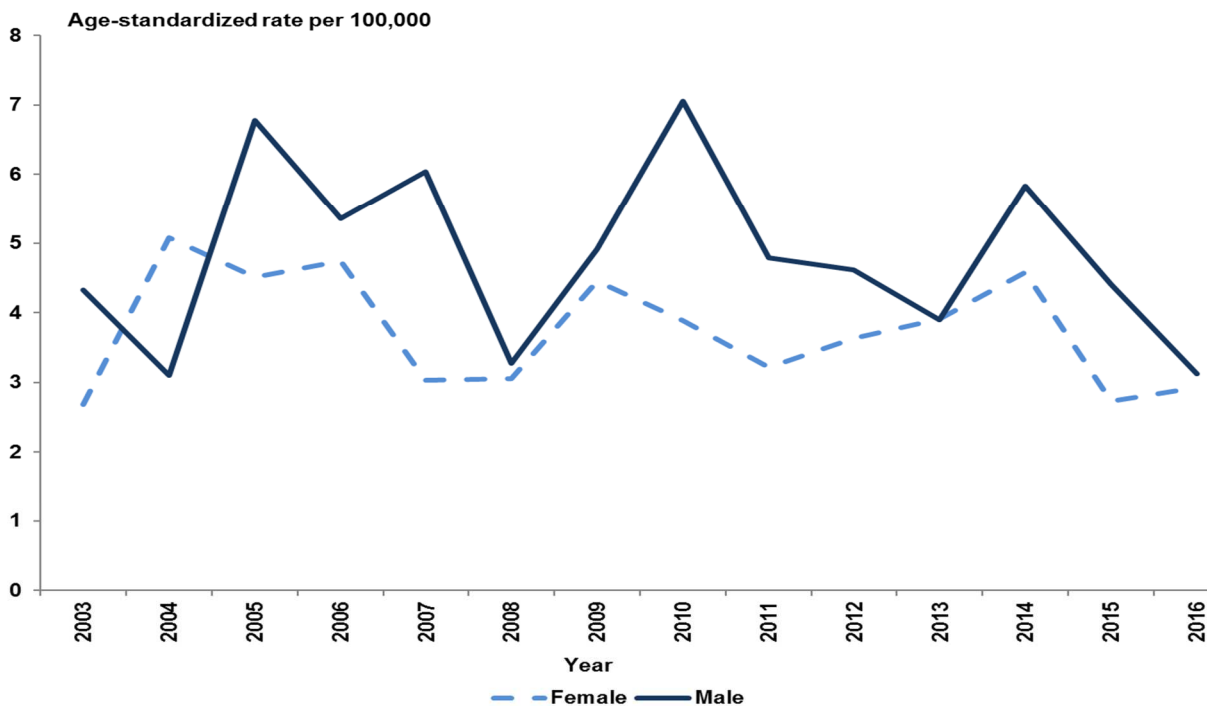
- In Peel, in 2016, there were 42 emergency department visits from suffocation.
- Peel's rate of emergency department visits due to suffocation:
  - is lower than that of Ontario (3.0 per 100,000 vs. 7.2 per 100,000 population respectively in 2016) (Figure 62);<sup>D</sup>
  - was relatively stable between 2003 and 2014 after which it increased (Figure 62); and
  - is similar by sex (in 2016) (Figure 63).
- Rates of emergency department visits due to suffocation are high among Peel children less than one year of age. Among adults, ED visit rates from suffocation increase in older age groups and are highest among those 90 years and older (Figure 64).

**Figure 62**  
**Emergency Department Visits due to Suffocation (Including Choking) by Year,**  
**Peel and Ontario, 2003-2016**



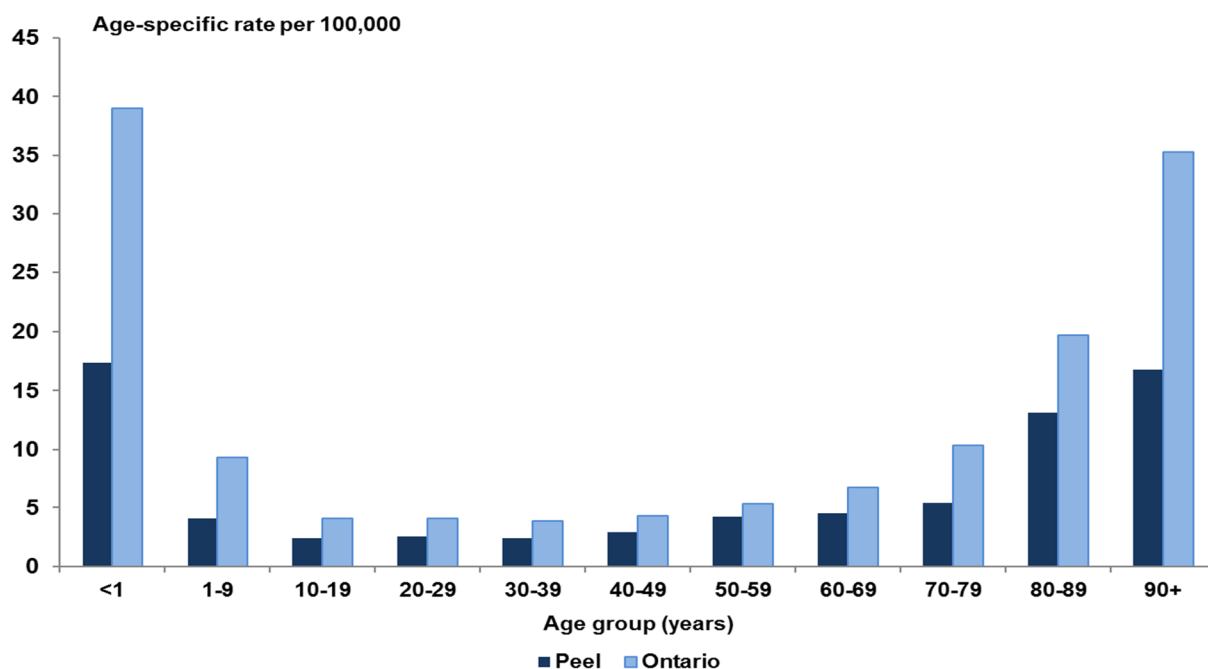
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 63**  
**Emergency Department Visits due to Suffocation (Including Choking) by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 64**  
**Emergency Department Visits due to Suffocation (Including Choking) by Age Group,**  
**Peel, 2012-2016 Combined**



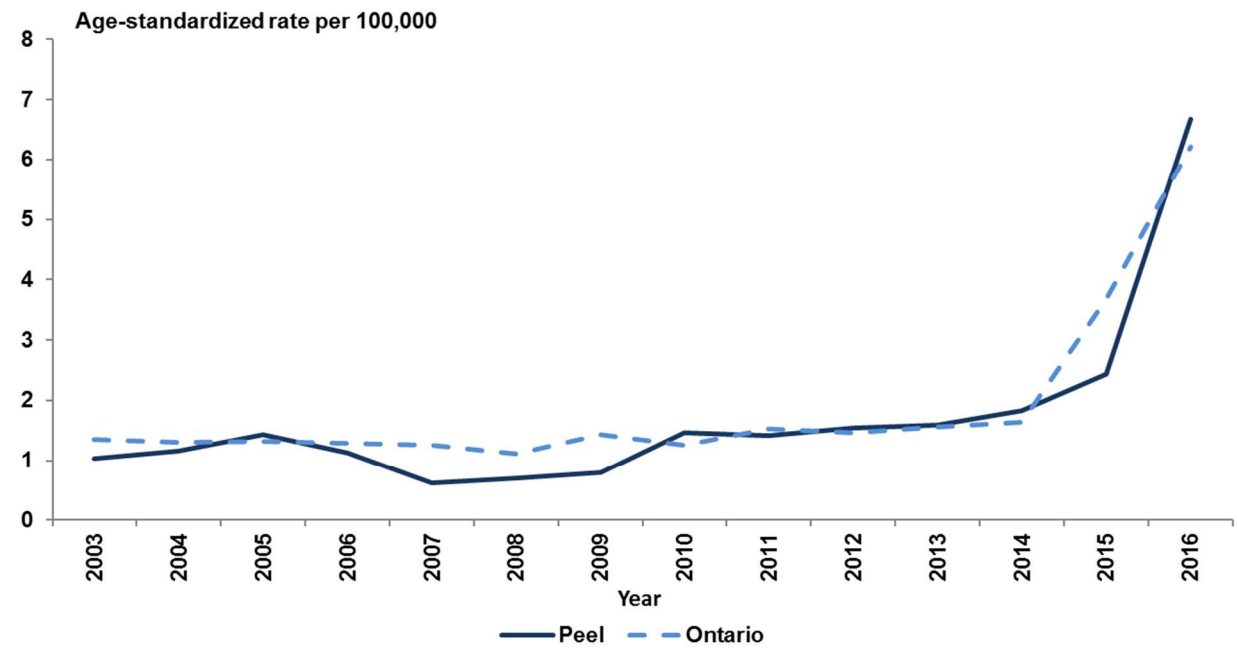
Sources: National Ambulatory Care Reporting System, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The vast majority of emergency department visits due to suffocation are from accidental suffocation (93%) while the remaining are of undetermined intent.<sup>D</sup>

### Hospitalizations due to Suffocation (Including Choking)

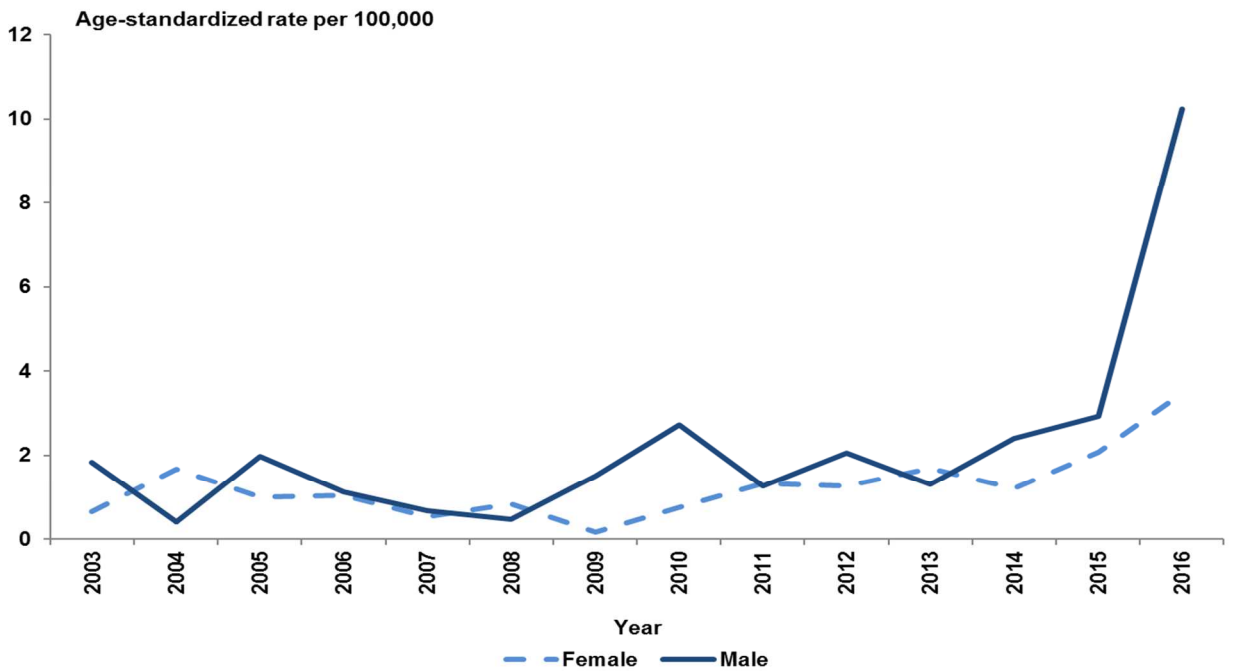
- In Peel, in 2016, there were 84 hospitalizations from suffocation.<sup>F</sup>
- Peel's hospitalization rate from suffocation:
  - is similar to that of Ontario (6.7 per 100,000 population versus 6.2 per 100,000 population in 2016);<sup>F</sup>
  - was stable from 2003 to 2014 after which it increased dramatically (Figure 65);
  - was similar for males and females between 2003 and 2014, after which the rate has been higher for males (Figure 66); and
  - increases in older adulthood and is highest among those aged 90 years and older (Figure 67).
- The dramatic increase in the rate of hospitalizations due to suffocation after 2014, is likely due to a change in direction for the mandatory coding of an additional ICD-10 code that is captured under "suffocation". Further analysis of data is required to determine if the change of direction lead to the impact on the observed rates for 2015 and 2016.

**Figure 65**  
**Hospitalizations due to Suffocation (Including Choking) by Year,**  
**Peel and Ontario, 2003-2016**



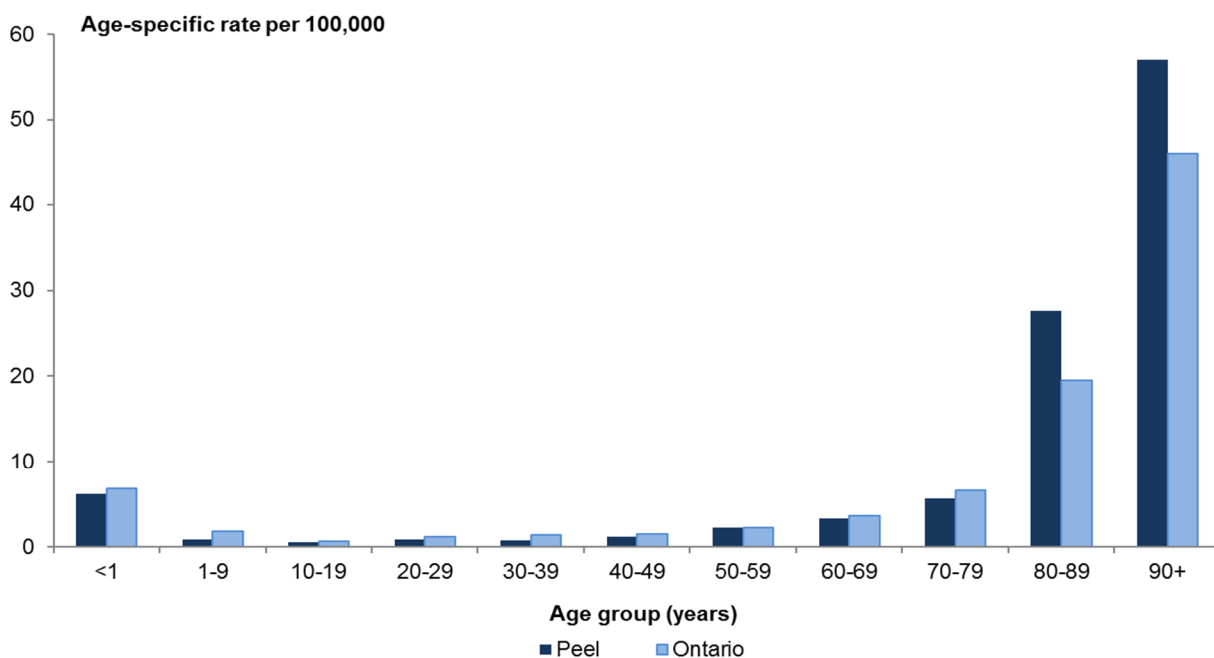
Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 66**  
**Hospitalizations due to Suffocation (Including Choking) by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 67**  
**Hospitalizations due to Suffocation (Including choking) by Age Group,**  
**Peel and Ontario, 2012-2016 Combined**



Sources: Hospital In-Patient Discharges, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

- In 2016, hospitalizations from suffocation (including choking) during were all accidental.

## Mortality from Injuries due to Suffocation (Including Choking)

- In Peel, between 2003 and 2012, there was an average of 10 deaths per year from suffocation (including choking).<sup>G</sup>
- The rate of death from suffocation (including choking) in Peel:
  - is similar to that for Ontario (1.4 per 100,000 versus 1.2 per 100,000);<sup>G,E</sup>
  - has been low since 2001; and
  - is approximately twice as high for males compared to females.<sup>G,E</sup>

## EXPOSURE TO FORCES OF NATURE, VENOMOUS ANIMALS AND PLANT INJURIES



### Key Messages

- Peel's rates of ED visits, hospitalizations and mortality due to exposure to forces of nature, venomous animals and plants are lower than Ontario.
- Rates of ED visits due to exposure to forces of nature, venomous animals and plant injuries, are higher among males compared to females.
- While rates of ED visits due to exposure to forces of nature, venomous animals and plant injuries are highest among infants less than one year of age, rates of hospitalizations are highest amongst older adults.



### Definition

***Exposure to forces of nature, venomous animals and plants*** include:

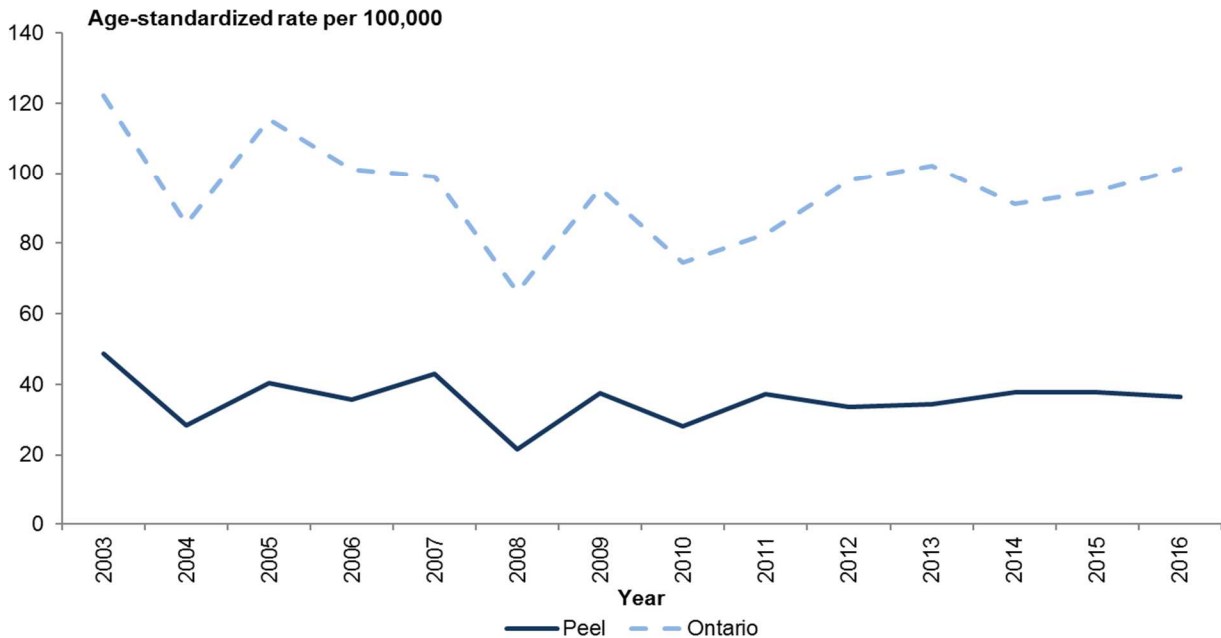
- contact with venomous animals and plants; and
- exposure to forces of nature (e.g., excessive natural heat; excessive natural cold, victim of lightning).

## Emergency Department Visits due to Injuries from Exposure to Forces of Nature, Venomous Animals and Plants

- In Peel, in 2016, there were 533 emergency department visits from exposure to forces of nature, venomous animals and plants.
- Peel's rate of emergency department visits due to exposure to forces of nature, venomous animals and plants injuries:<sup>D</sup>
  - is lower than that of Ontario (36.5 per 100,000 vs. 101.5 per 100,000 population respectively in 2016);<sup>D,E</sup>
  - has been relatively stable for the past six years (Figure 68);
  - is higher for males compared to females;<sup>D,E</sup> and
  - vary by age group and is highest among children less than one year of age (Figure 69).

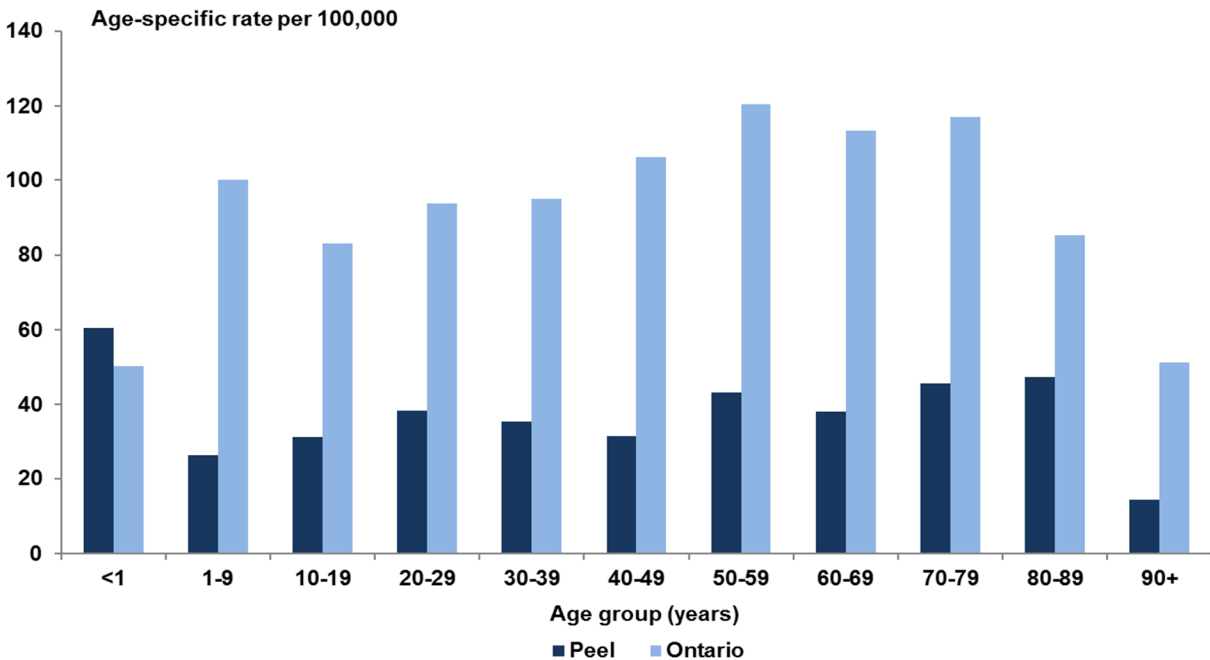


**Figure 68**  
**Emergency Department Visits due to Exposure to Forces of Nature, Venomous Animals and Plants by Year, Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 69**  
**Emergency Department Visits due to Exposure to Forces of Nature, Venomous Animals and Plants by Age Group, Peel, 2016**



Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The leading types of injury-related emergency department visits in this category are:

- contact with venomous animals and plants; and
- exposure to forces of nature.

**Table 26**

**Leading Types of Exposure to Forces of Nature, Venomous Animals and Plants Resulting in Injury Emergency Department Visits and Hospitalizations, Peel, 2016**

	Emergency Department Visits	Hospitalizations
Type	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000
Contact with venomous animals and plants	28.0	0.5
Exposure to forces of nature	8.5	0.4
<b>All causes of exposure to forces of nature, venomous animals and plant injuries</b>	<b>524.8</b>	<b>4.0</b>

Note: Rates are age-standardized to the 2011 Canadian population.

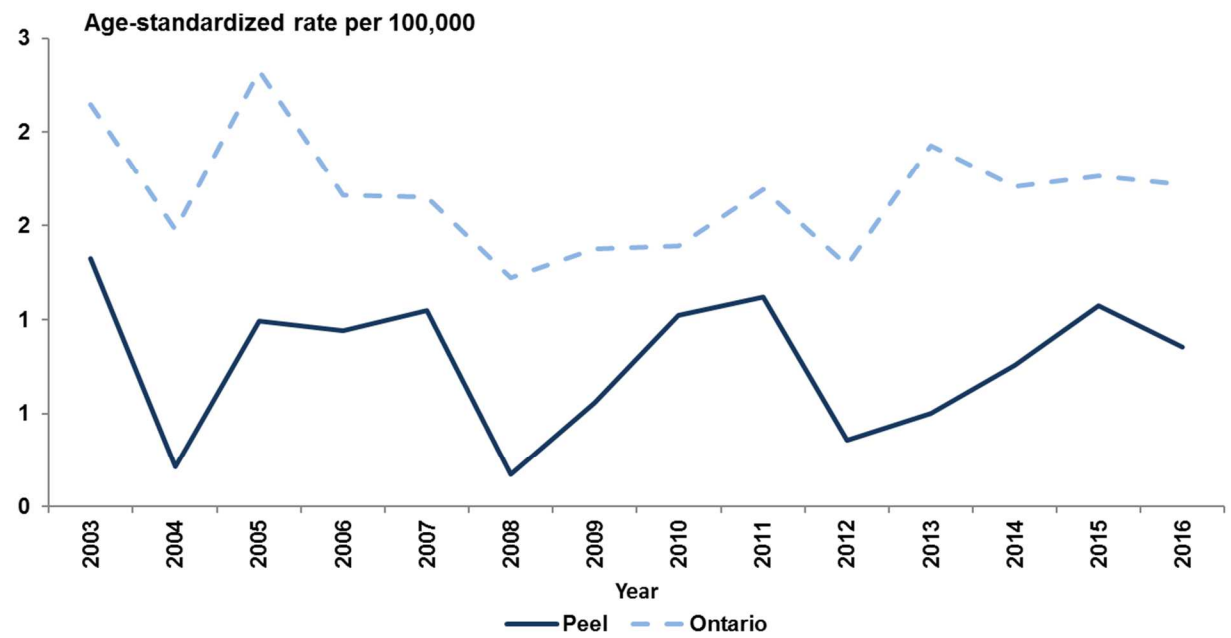
Sources: National Ambulatory Care Reporting System, 2016, and Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Injuries from Exposure to Forces of Nature, Venomous Animals and Plants

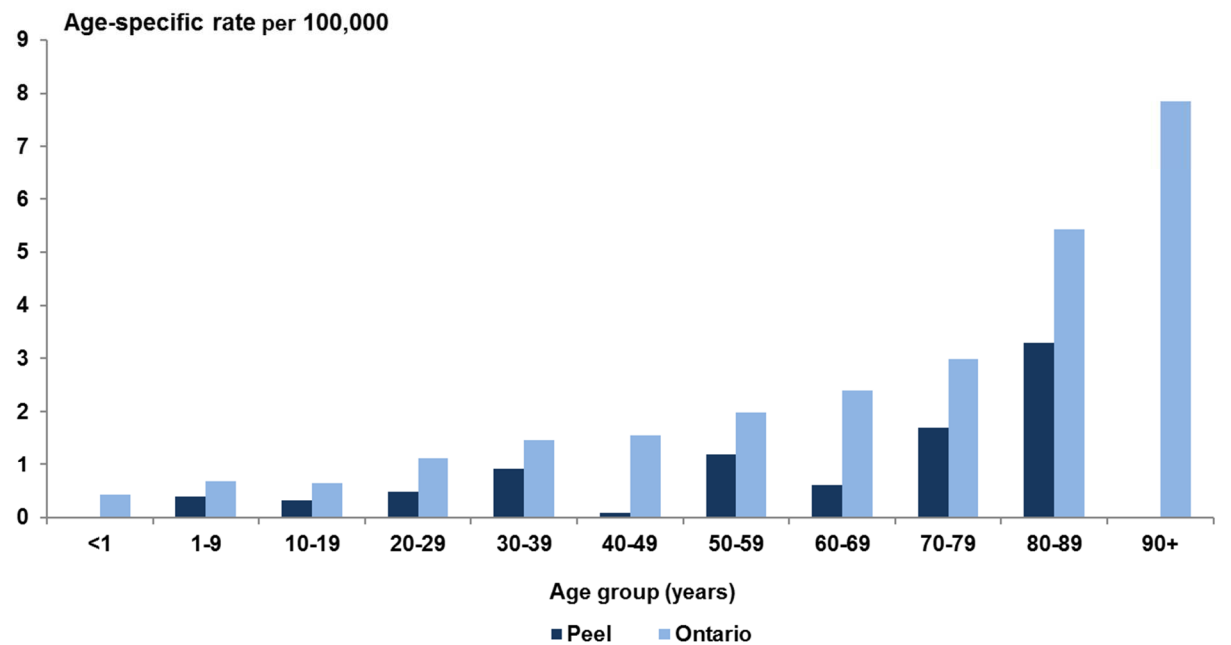
- In Peel, in 2016, there were 12 hospitalizations from exposure to forces of nature, venomous animals and plants.
- Peel's hospitalization rate from exposure to forces of nature, venomous animals and plant injuries:
  - is lower than that of Ontario (0.9 per 100,000 population versus 1.7 per 100,000 population in 2016);<sup>F,E</sup>
  - has fluctuated over the past decade (Figure 70);
  - is higher for males than females;<sup>F,E</sup>and
  - is highest among older adults (Figure 71).

**Figure 70**  
**Hospitalizations due to Exposure to Forces of Nature, Venomous Animals and Plants by Year, Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 71**  
**Hospitalizations due to Exposure to Forces of Nature, Venomous Animals and Plants by Age Group, Peel and Ontario, 2012-2016 Combined**



Sources: Hospital In-Patient Discharges, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality from Injuries due to Exposure to Forces of Nature, Venomous Animals and Plants

- In Peel, between 2003 and 2012, there was an average of one death per year from injuries related to exposure to forces of nature, venomous animals and plants.<sup>E1</sup>
- Peel's mortality rates from exposure to forces of nature, venomous animals and plant injuries:
  - is lower than that of Ontario (0.1 per 100,000 vs. 0.3 per 100,000 population in 2003 to 2012 combined).<sup>E1</sup>

## DROWNING AND SUBMERSION



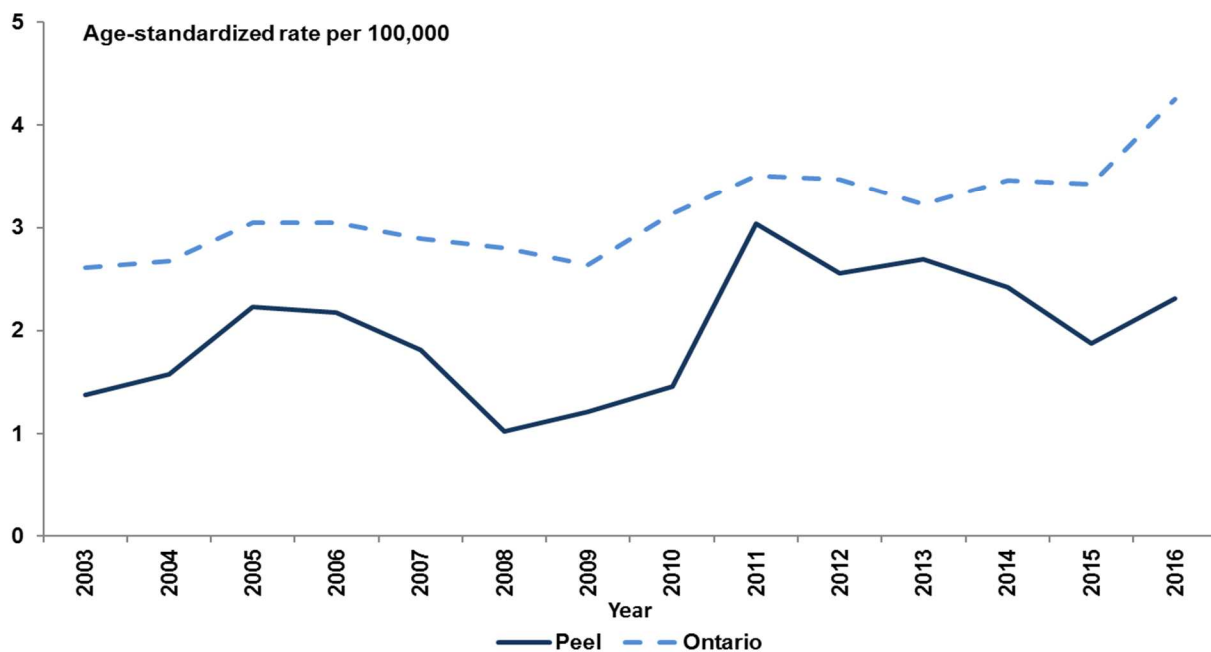
### Key Messages

- Although Peel's rate of drowning deaths is low, it is the leading cause of injury-related deaths in children under the age of 10 years.
- Children aged 1 to 9-years have the highest rate of ED visits and hospitalizations from drowning and submersion.
- Almost half of drowning-related deaths in Peel involve natural water (46 %), although the location of occurrence is relatively "unknown" or not well documented.

### Emergency Department Visits from Drowning

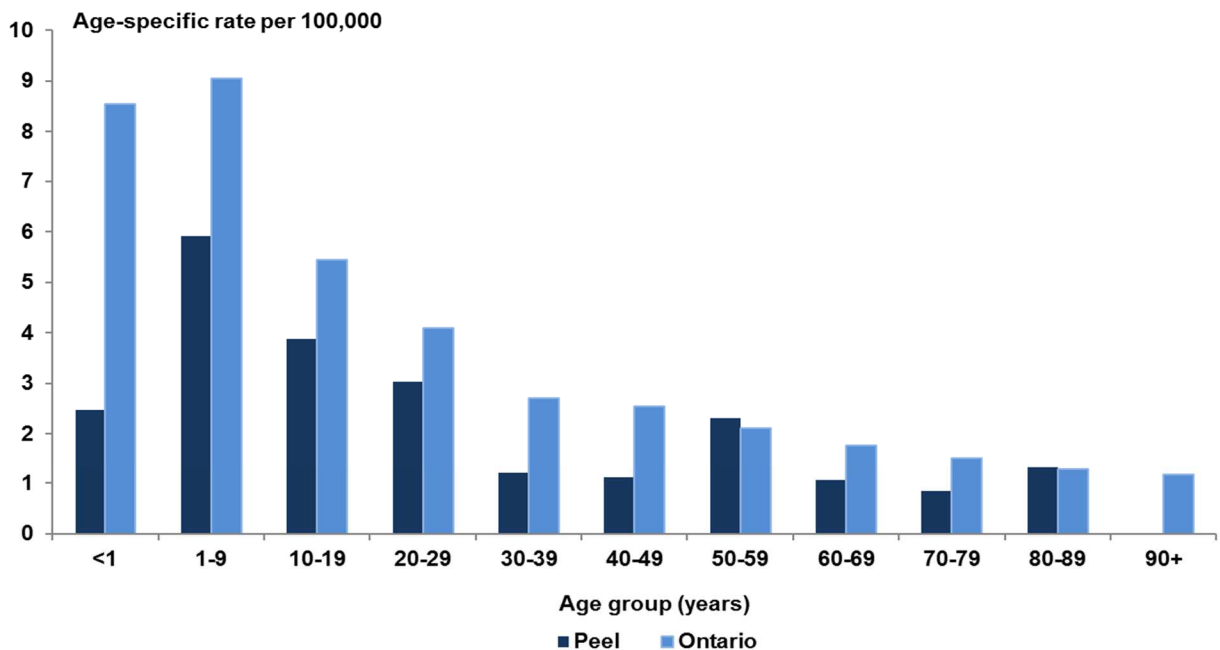
- In Peel, in 2016, there were 36 emergency department visits due to drowning/submersion.<sup>D</sup>
- Peel's rate of emergency department visits due to drowning and submersion:
  - is lower than that of Ontario (2.3 per 100,000 versus 4.3 per 100,000 respectively in 2016);<sup>D,E</sup>
  - has fluctuated over the past decade, while Ontario's rate has increased (Figure 72);and
  - is higher for males compared to females (3.2 per 100,000 vs. 1.4 per 100,000).<sup>D,E</sup>
- In Peel, in 2012 to 2016 combined, the rate of ED visits due to drowning and submersion peaked amongst 1 to 9 years-olds after which it generally declined across age groups.

**Figure 72**  
**Emergency Department Visits due to Drowning and Submersion by Year,**  
**Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 73**  
**Emergency Department Visits due to Drowning and Submersion by Age Group,**  
**Peel, 2012-2016 Combined**



Sources: National Ambulatory Care Reporting System, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

In Peel, in 2016, the most type of drownings and submersions resulting in ED visits was accidental drowning in a swimming pool (data not shown).<sup>D</sup>

The place of occurrence of drownings/submersions resulting in ED visits are not well documented.<sup>D</sup>

**Table 27**  
**Leading Types of Drownings and Submersions Resulting in Injury Emergency Department Visits**  
**Peel, 2012, 2016**

	<b>Emergency Department Visits</b>	<b>Hospitalizations</b>	<b>Deaths</b>
<b>Type of Event</b>	<b>Age-standardized Rate per 100,000</b>	<b>Age-standardized Rate per 100,000</b>	<b>Age-standardized Rate per 100,000</b>
Accidental drowning - swimming pool	0.8	0.3	--
All other accidental drowning	0.6	--	--
Accidental drowning - watercraft	0.5	0.1	--
Accidental drowning - natural water	0.3	--	0.5
Accidental drowning - bathtub	0.1	--	0.1
<b>All causes of drowning and submersion emergency department</b>	<b>2.3</b>	<b>0.4</b>	<b>0.9</b>

**Notes:** Rates age-standardized to the 2011 Canadian population.

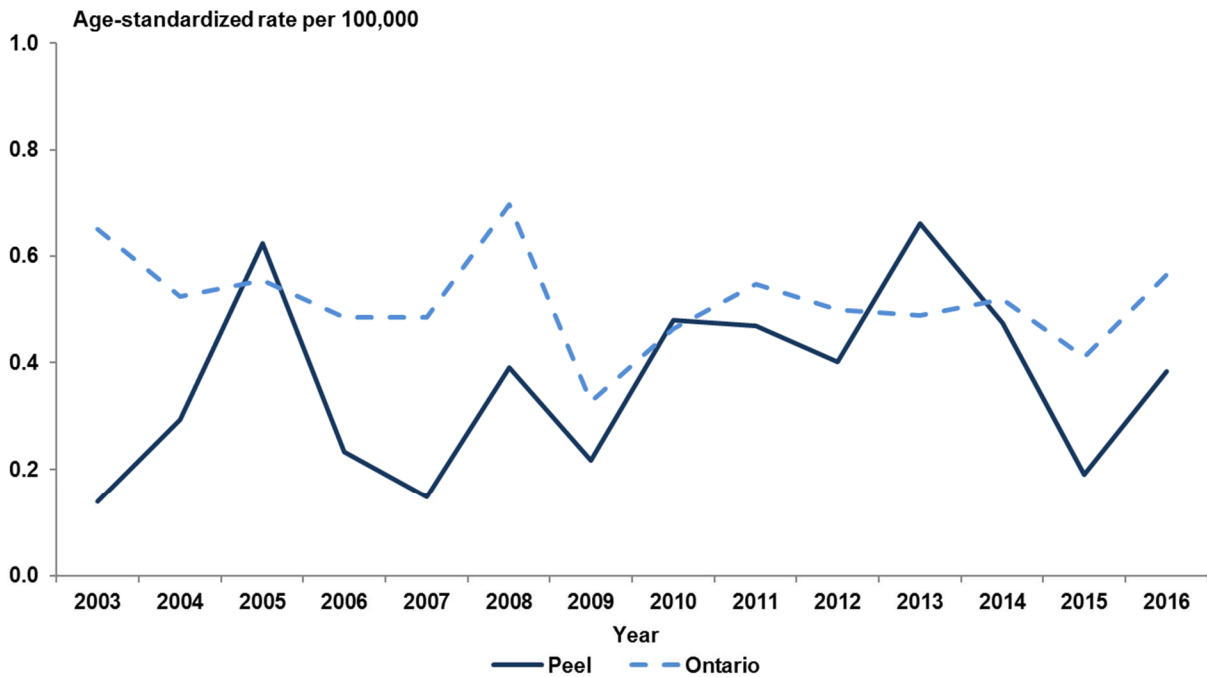
**Sources:** National Ambulatory Care Reporting System, 2016, and Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Ontario Mortality Database, 2012, Ontario Registrar General. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalization from Drownings and Submersions

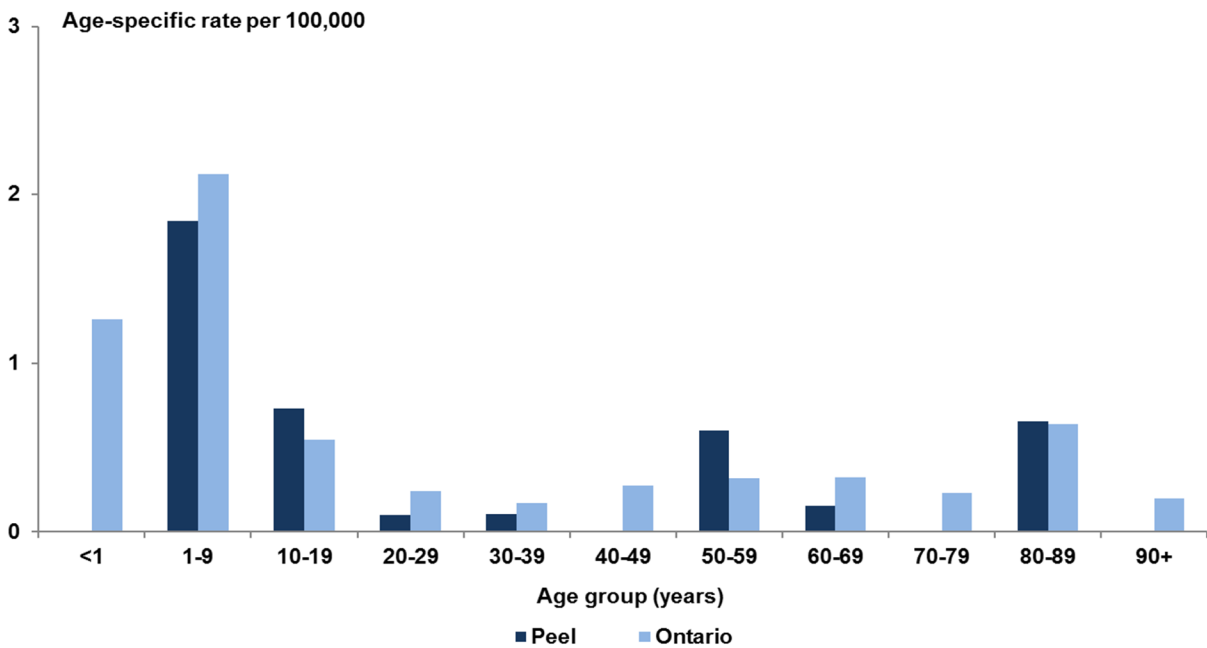
- In Peel, between 2012 and 2016, there were an average of six hospitalizations per year from drowning/submersions.<sup>F</sup>
- Peel's rate of hospitalization due to drownings and submersions:
  - has remained low since 2003 (<1.0 per 100,000) (Figure 74);
  - is lower than that of Ontario (0.4 per 100,000 versus 0.6 per 100,000 respectively in 2016);<sup>F,E</sup>
  - is higher in males than females;<sup>F,E</sup> and
  - is highest among those aged 1 to 9 years (Figure 75).

**Figure 74**  
**Hospitalizations due to Drowning and Submersion by Year,**  
**Peel and Ontario, 2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 75**  
**Hospitalizations due to Drowning and Submersion by Age Group,**  
**Peel and Ontario, 2012-2016 Combined**



Sources: Hospital In-Patient Discharges, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.



In 2016, the most common type of drownings/submersion resulting in an injury hospitalization was from “accidental drowning – swimming pool”.

### **Mortality from Drowning**

- In Peel, between 2008 and 2012, there was an average of eight deaths per year from drowning/submersion.
- In 2008 to 2012 combined, Peel's mortality rate from drowning was similar to that for Ontario (0.9 per 100,000 versus 1.0 per 100,000 population) and the leading types of drowning resulting in Peel deaths were:
  - accidental drowning – natural water (46%);
  - accidental drowning – swimming pool (15%);
  - accidental drowning – bathtub (13%); and
  - accidental drowning – watercraft (8%).
- The remaining 18% of Peel's drowning deaths were drowning and submersion of undetermined intent and unspecified.

The location of the majority of Peel drowning deaths is not well described or captured by the standard “location” categories for which we can report death data. However, 39% of drowning-deaths between 2008 and 2012 are reported to have occurred in or at a home.

## ASSAULT INJURIES



### Key Messages

- Peel's rates of assault-related ED visits, hospitalization and mortality are lower than those of Ontario.
- Rates of assault-related injuries, resulting in ED visits, hospitalizations and deaths are higher for males than females and are generally higher among 20 to 29 year-olds.

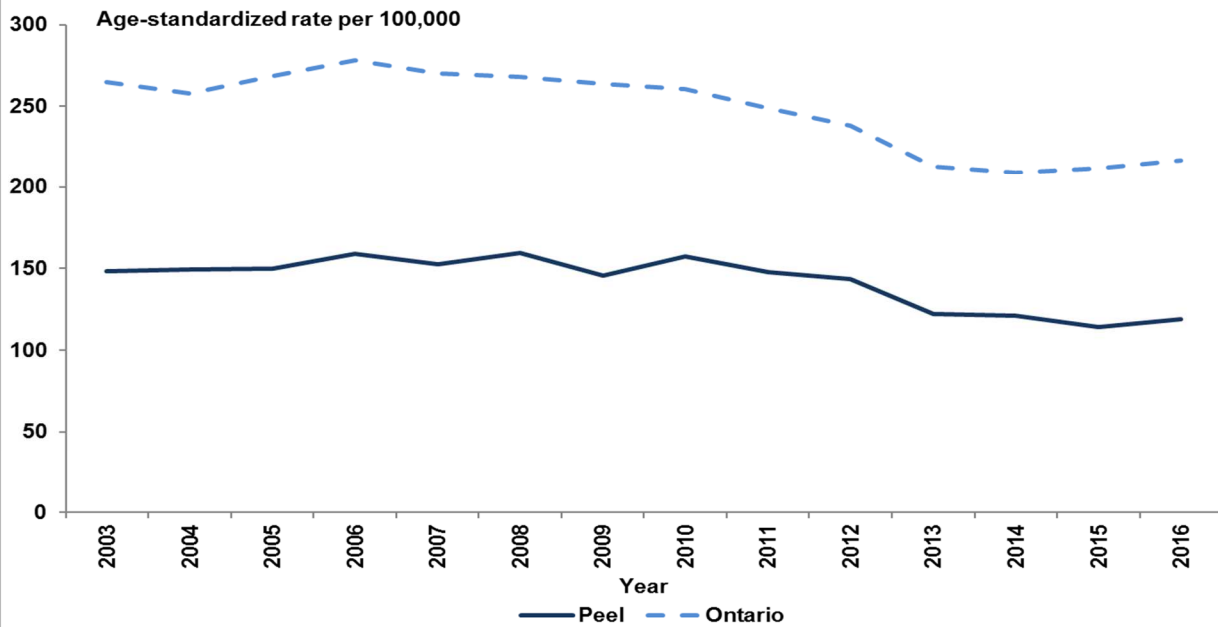
### Self-Reported Assault-Related Injuries

In 2013/2014, 1%\* (use estimate with caution) of Ontario residents aged 12 years and older reported sustaining an injury serious enough to limit their normal activity that was caused by a physical assault.<sup>C1</sup>

### Emergency Department Visits due to Assault Injuries

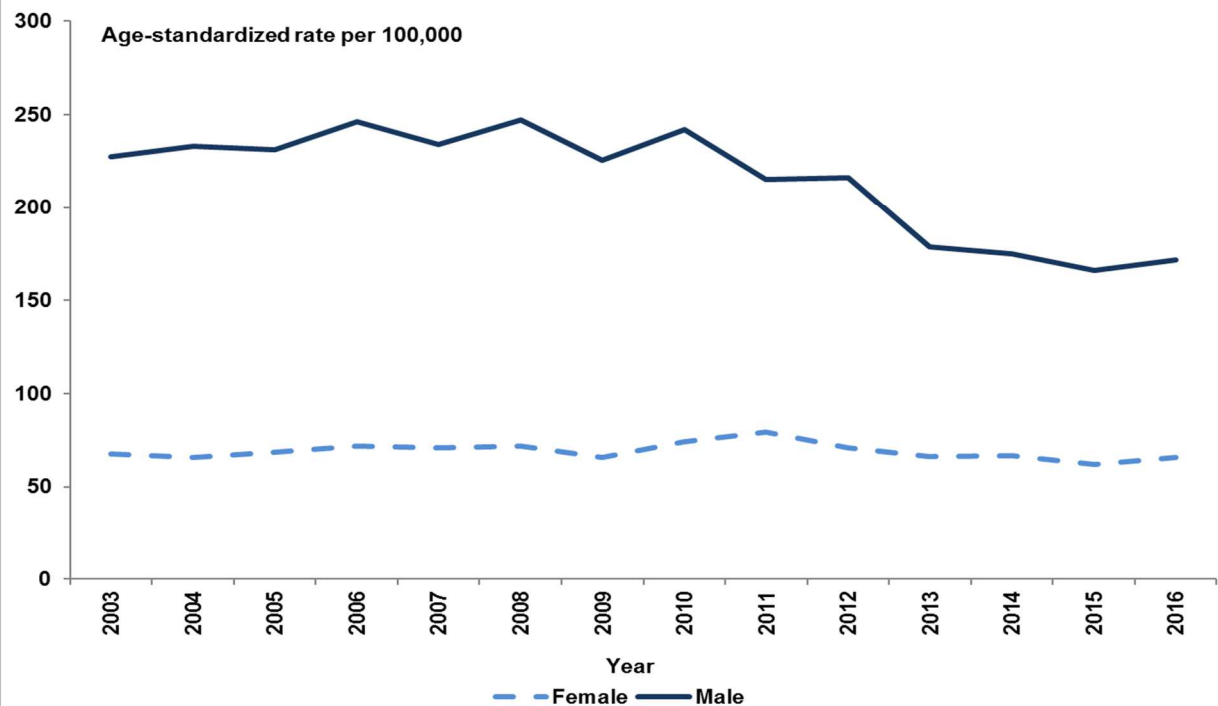
- In Peel, in 2016, there were 1,814 emergency department visits from assault-related injuries.<sup>D</sup>
- Peel's rate of emergency department visits due to assault injuries:<sup>G</sup>
  - is lower than that of Ontario (118.9 per 100,000 vs. 216.9 per 100,000 population respectively in 2016);<sup>D,E</sup>
  - decreased between 2003 and 2016 (Figure 76); and
  - are higher for males than females (Figure 77).
- Rates of emergency department visits due to assault-related injuries peak among 20 to 29 year-olds (Figure 78).

**Figure 76**  
**Emergency Department Visits due to Assault Injuries by Year,**  
**Peel and Ontario, 2003-2016**



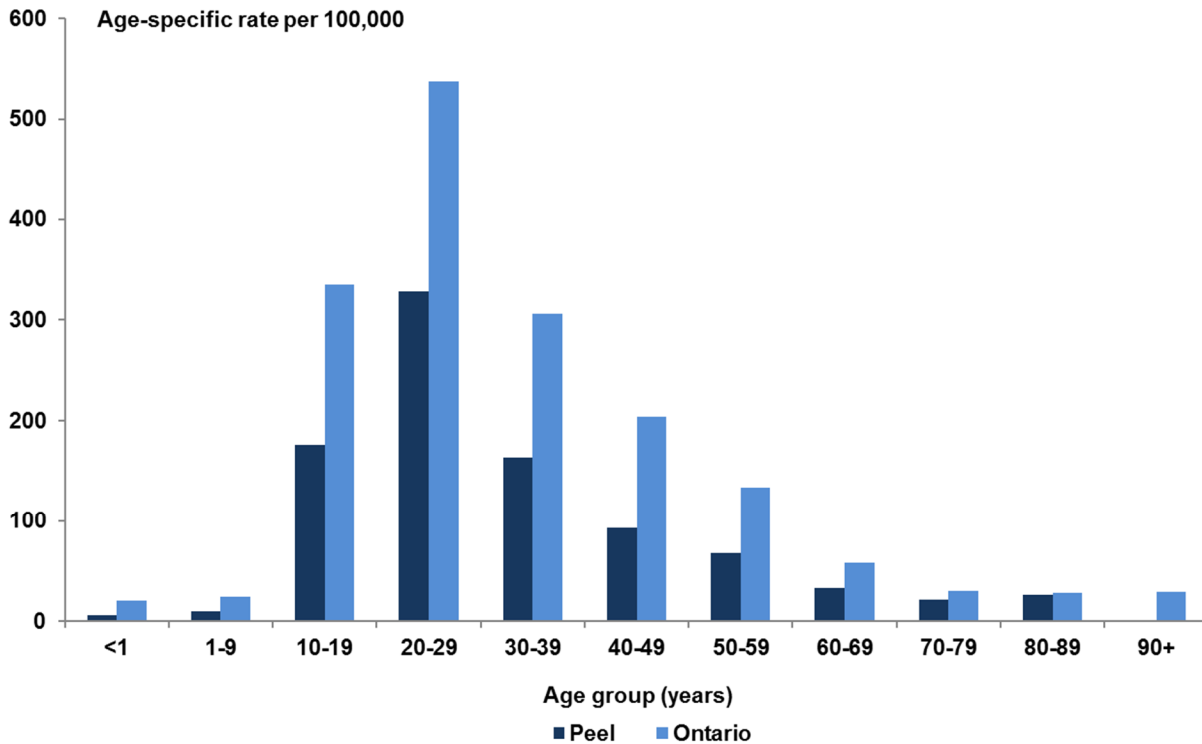
Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 77**  
**Emergency Department Visits due to Assault Injuries by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 78**  
**Emergency Department Visits due to Assault Injuries by Age Group,**  
**Peel, 2016**

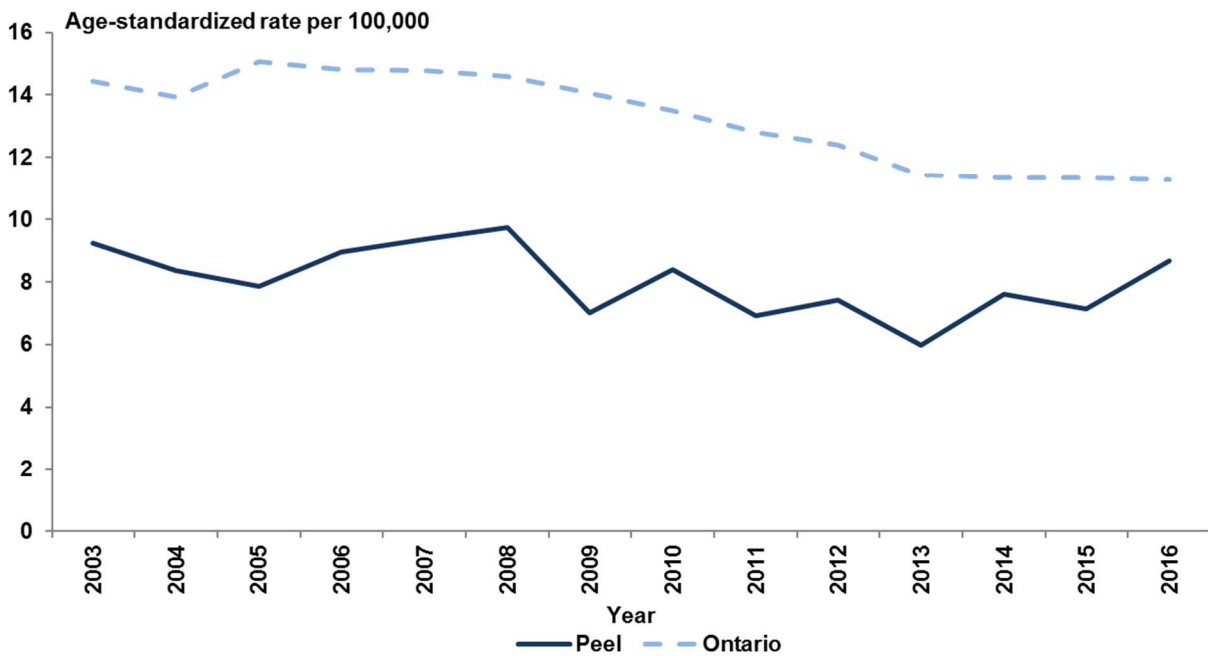


Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Assault Injuries

- In Peel, in 2016, there were 130 hospitalizations from assault injuries.<sup>F</sup>
- Peel's hospitalization rate from assault injuries:
  - are lower than that of Ontario (8.7 per 100,000 population versus 11.3 per 100,000 population in 2016);<sup>F,E</sup>
  - have fluctuated over the past decade (Figure 79);
  - are higher for males than females (Figure 80); and
  - are highest among 20 to 29 year-olds (Figure 81).

**Figure 79**  
**Hospitalizations due to Assault Injuries by Year,**  
**Peel and Ontario, 2003-2016**



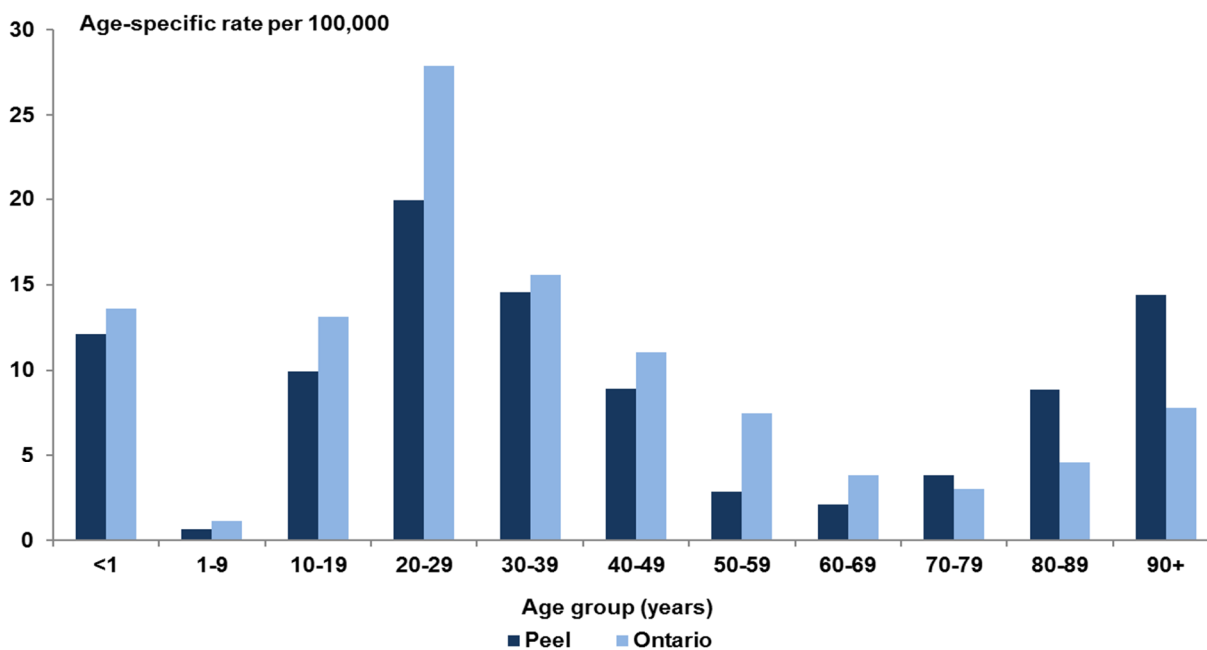
Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 80**  
**Hospitalizations due to Assault Injuries by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 81**  
**Hospitalizations due to Assault Injuries by Age Group,**  
**Peel and Ontario, 2016 Combined**

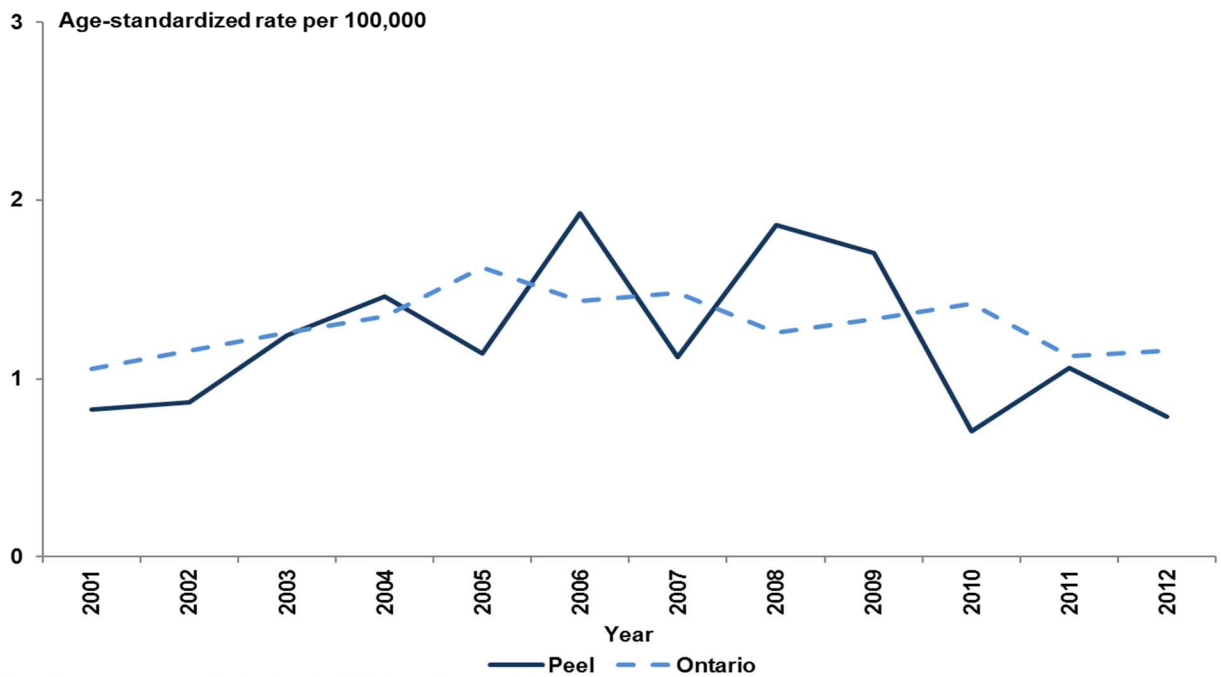


Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality from Assault Injuries

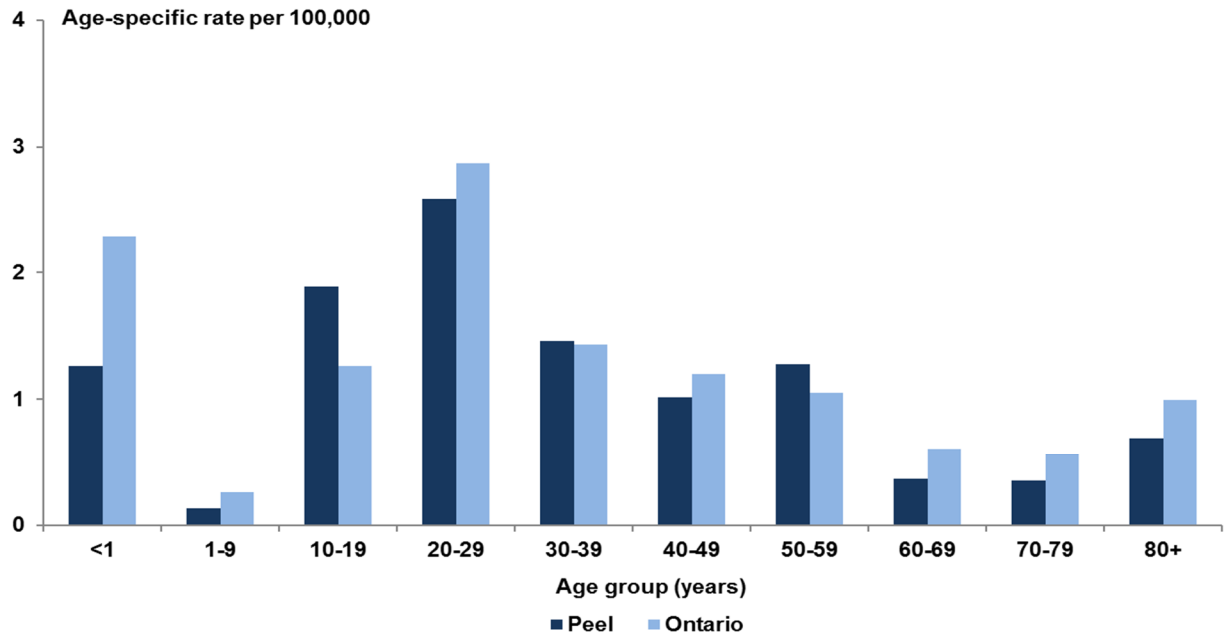
- In Peel, between 2003 and 2012, there were an average of 17 deaths per year from assault injuries.<sup>G</sup>
- Peel's mortality rates from assault injuries are:
  - similar to that of Ontario (0.8 per 100,000 vs. 1.2 per 100,000 population in 2012);<sup>G,E</sup>
  - fluctuating over time (Figure 82); and
  - higher among males than females.<sup>G,E</sup>
- Between 2008 and 2012 combined, mortality rates from assault injuries were highest among those aged 20 to 29 years, followed by 10 to 19 years.<sup>G,E</sup>

**Figure 82**  
**Mortality due to Assault Injuries by Year,**  
**Peel and Ontario, 2001-2012**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: Ontario Mortality Database, 2001-2012, Ontario Registrar General, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2001-2012, Statistics Canada, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 83**  
**Mortality due to Assault Injuries by Age Group,**  
**Peel and Ontario, 2008-2012 Combined**



Sources: Ontario Mortality Database, 2008-2012, Ontario Registrar General, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2008-2012, Statistics Canada, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## DELIBERATE SELF-HARM AND SUICIDE



### Key Messages

- Suicide is the second leading cause of injury-related death in Peel and is the top cause among Peel residents aged 20 to 69 years.
- Suicide rates for males are more than three times as high as that for females, while females have higher rates of hospitalizations (i.e., attempts).
- About 5% of Peel resident report having seriously considered committing suicide at some point in their lifetime. Past year suicidal thoughts are common among students in grades 7 to 12 (14%).

## Self-reported Suicidal Thoughts and Attempts

### Lifetime Suicidal Ideation among General Population

- In 2007/2008, 5% of Peel residents (or ~49,000 people) aged 15 years and older reported that they had ever seriously considered committing suicide. This is significantly lower than Ontario (8%).<sup>C5</sup>

### Past Year Suicidal Thoughts and Attempts among Students

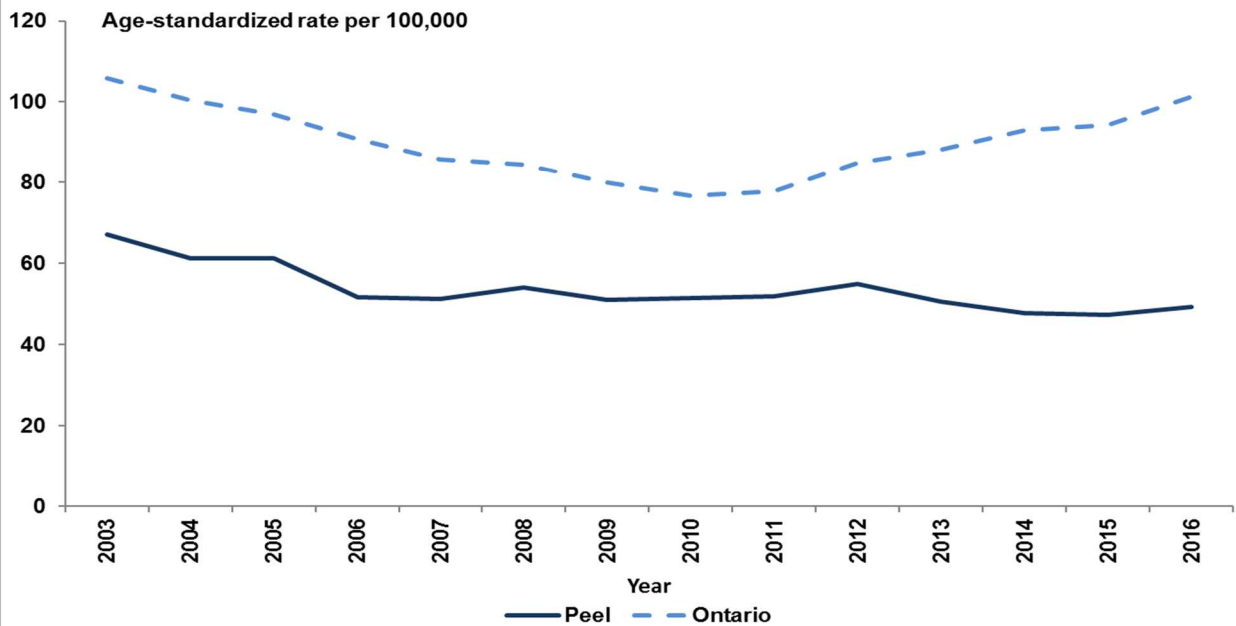
- In 2015, 14% of Peel students in grades 7 to 12 reported that they seriously considered suicide in the last 12 months. This is similar to Ontario (12%) and this translates to 16,000 Peel students.
- In 2013, 2%\* (use estimate with caution) of Peel students (or ~2,800 people) had attempted suicide.

## Emergency Department Visits due to Deliberate Self-Harm

- In Peel, in 2016, there were 749 emergency department visits from deliberate self-harm.<sup>D</sup>
- Peel's rate of emergency department visits due to deliberate self-harm
  - is lower than that of Ontario (49.3 per 100,000 vs. 101.2 per 100,000 population respectively in 2016);<sup>D,E</sup>
  - decreased from 2003 and 2016 (Figure 84); and
  - is higher for females compared to males (Figure 85).
- Rates of emergency department visits due to deliberate self-harm are highest among 20 to 29 year-olds, followed by 10 to 19 year-olds (Figure 86).
- The place of occurrence of deliberate self-harm resulting in ED visits is not well-documented and is largely unspecified or unknown (57%).



**Figure 84**  
**Emergency Department Visits due to Deliberate Self-Harm and Suicide by Year,**  
**Peel and Ontario, 2003-2016**

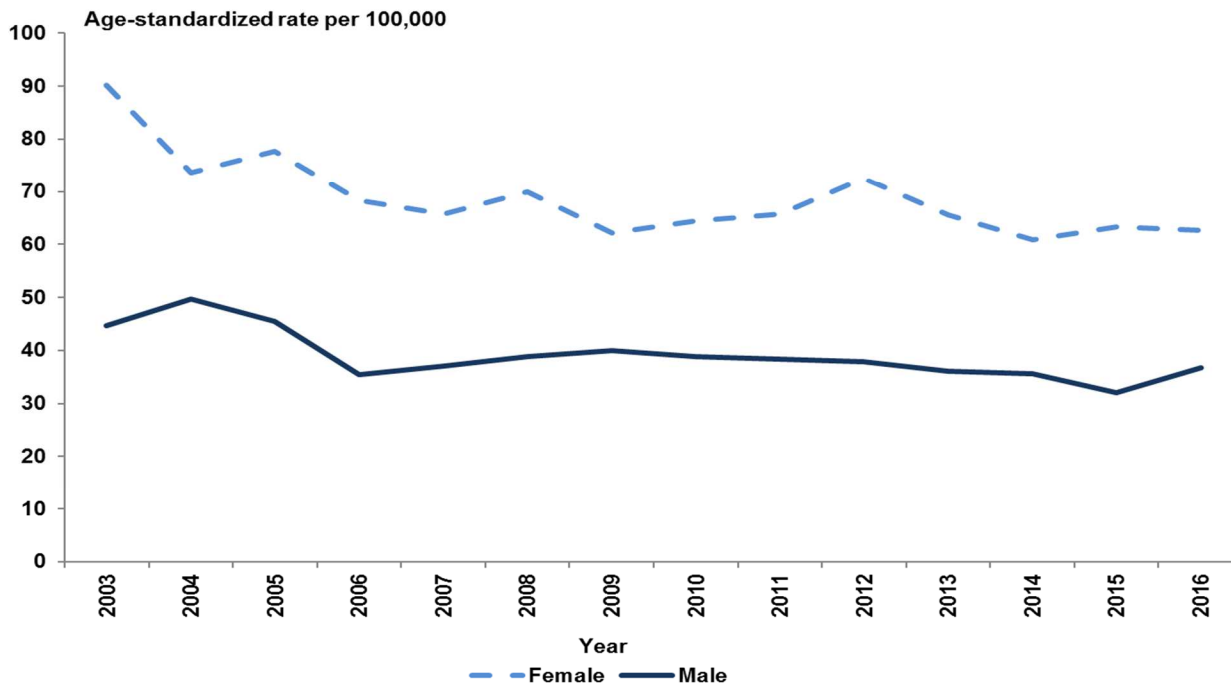


Note: Rates are age-standardized to the 2011 Canadian population

Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 85**  
**Emergency Department Visits due to Deliberate Self-Harm and Suicide by Sex and Year,**  
**Peel, 2003-2016**



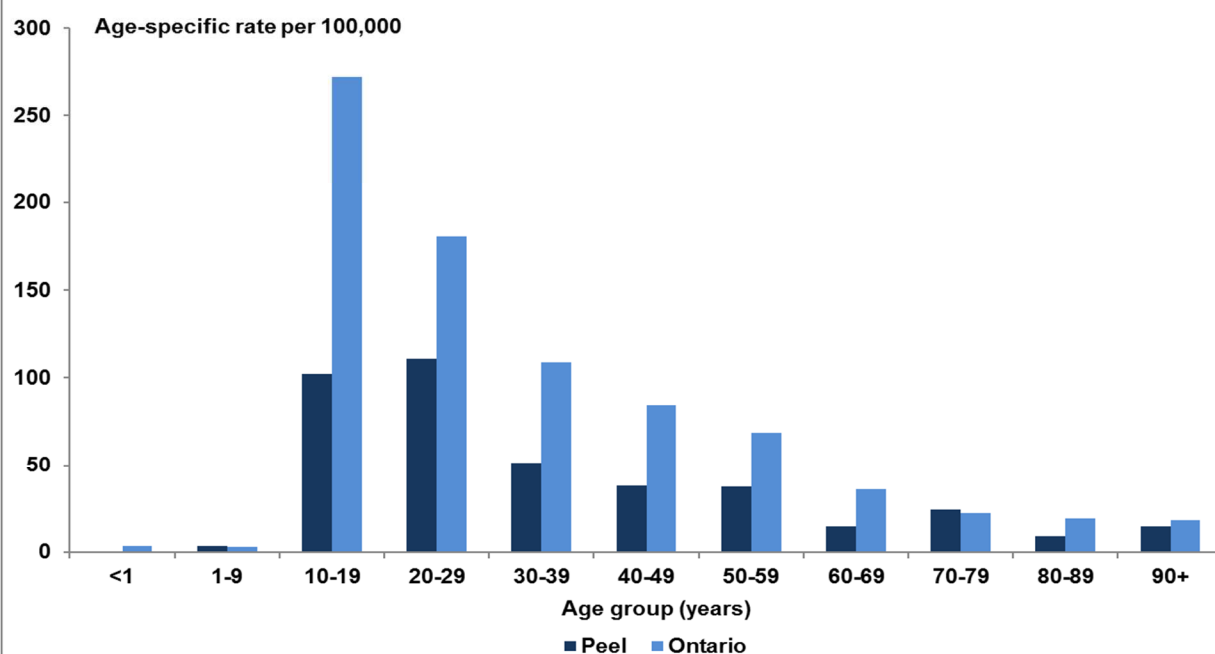
Note: Rates are age-standardized to the 2011 Canadian population

Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

The majority of emergency department visits due to deliberate self-harm in Peel are from self-poisoning (87%) and the remainder are from self-harm (13%) (data not shown).<sup>D</sup>

**Figure 86**  
Emergency Department Visits due to Deliberate Self-Harm and Suicide by Age Group, Peel, 2016

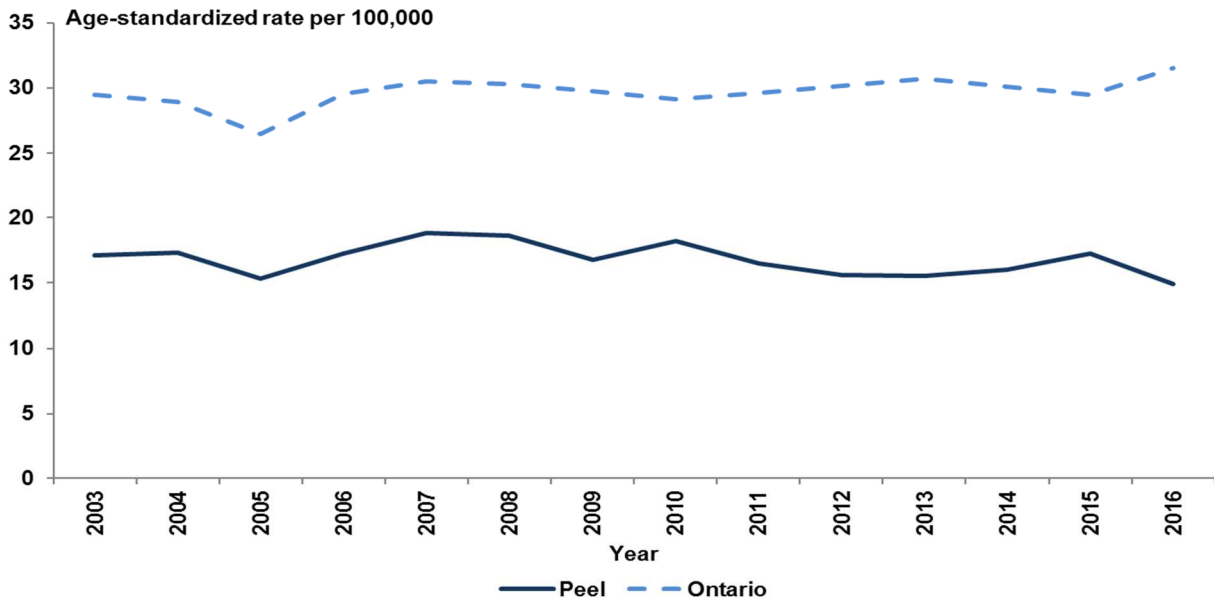


Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Hospitalizations due to Deliberate Self-Harm

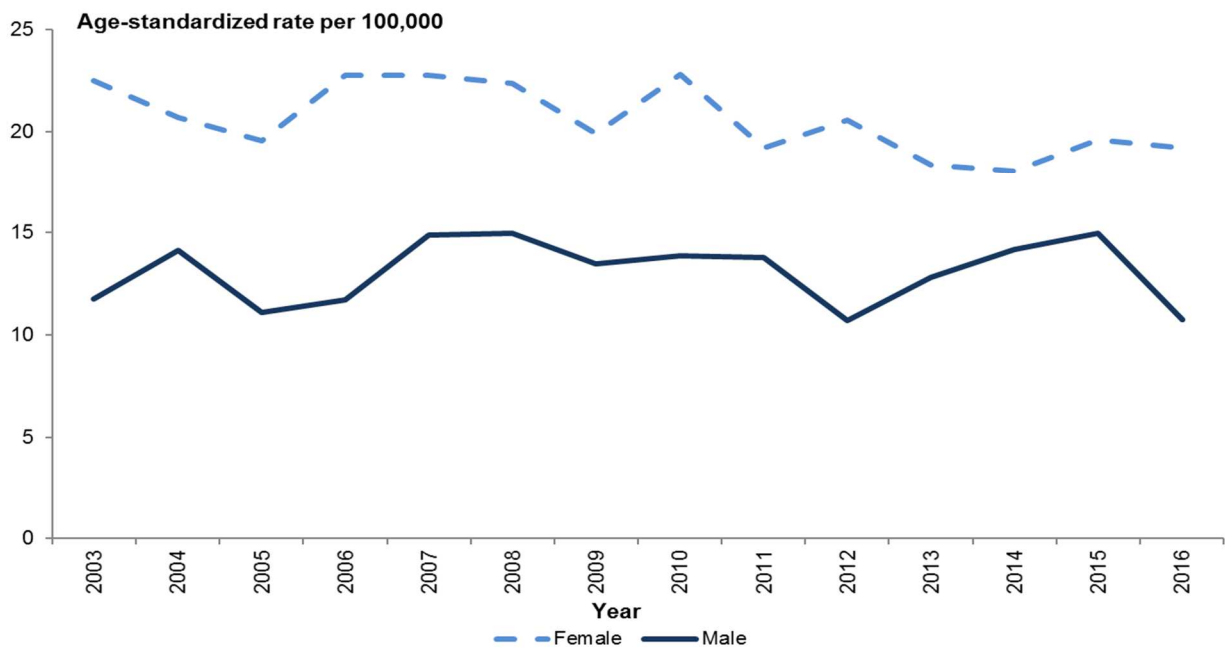
- In Peel, in 2016, there were 223 hospitalizations from deliberate self-harm.<sup>F</sup>
- Peel's hospitalization rate from deliberate self-harm:
  - is lower than that of Ontario (14.9 per 100,000 population versus 31.5 per 100,000 population in 2016);<sup>F,E</sup>
  - was stable between 2003 and 2016 (Figure 87);
  - higher for females than males (in 2016) (Figure 88); and
  - differs by age group and is highest among younger adults aged 20 to 29 years (Figure 89).
- The place of occurrence of deliberate self-harm resulting in hospitalizations is not well-documented and almost half are unspecified or unknown (47%). Forty-eight per cent (48%) of deliberate self-harm resulting in hospitalization are reported to have occurred at home.

**Figure 87**  
**Hospitalizations due to Deliberate Self-Harm and Suicide by Year,**  
**Peel and Ontario, 2003-2016**



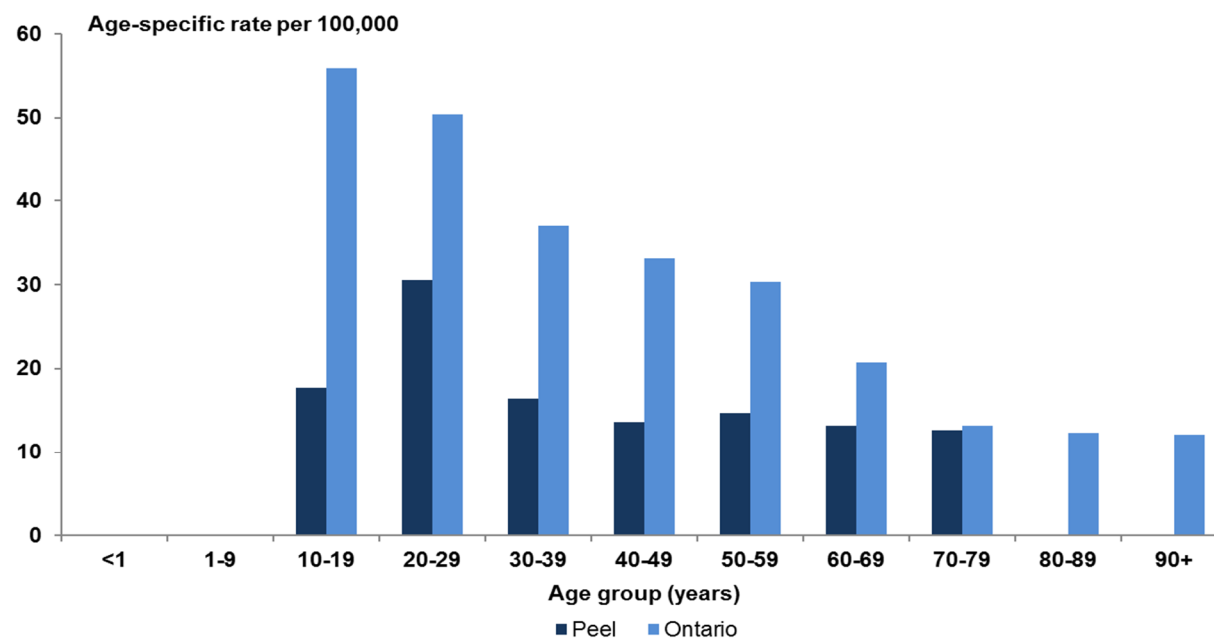
Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 88**  
**Hospitalizations due to Deliberate Self-Harm and Suicide by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 89**  
**Hospitalizations due to Deliberate Self-Harm and Suicide by Age Group,**  
**Peel and Ontario, 2016**



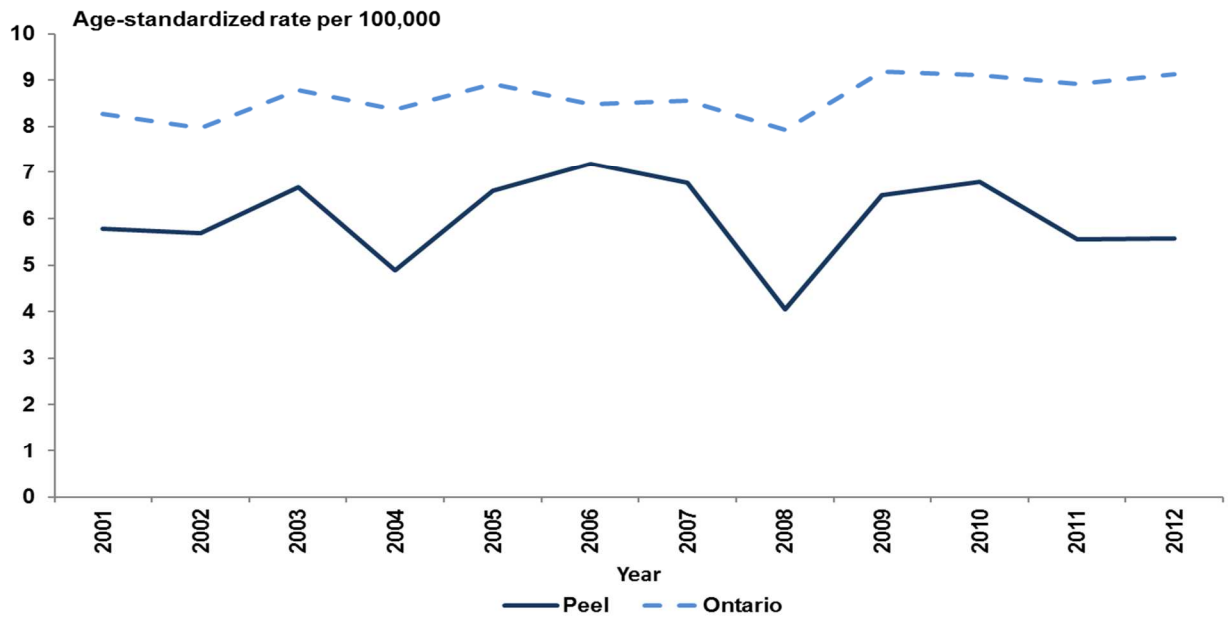
Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

- In 2016, the vast majority of hospitalizations from suicide/self-harm/suicide attempts were from self-poisoning (88%) (data not shown).<sup>F</sup>

### Mortality from Suicide

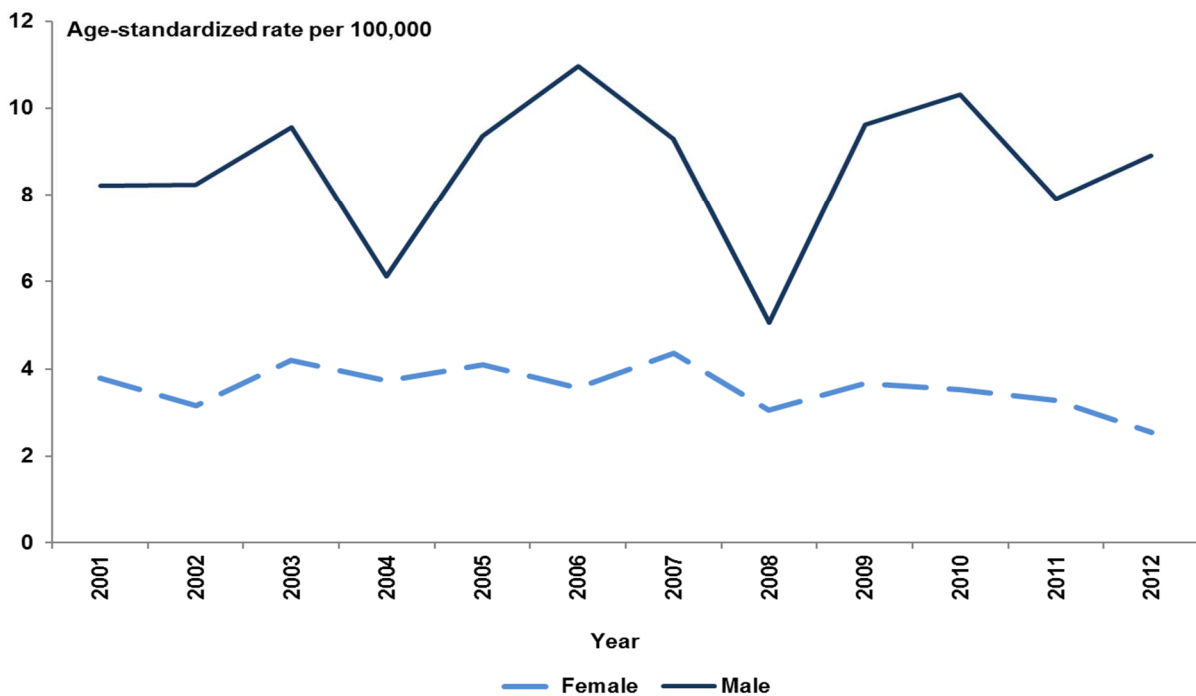
- In Peel, between 2003 and 2012, there was an average of 71 deaths per year from suicide (self-harm).<sup>G</sup>
- The rate of death from suicide (self-harm) in Peel:
  - is lower than that for Ontario (5.6 per 100,000 versus 9.1 per 100,000 respectively) (Figure 90);
  - has fluctuated over time (Figure 90);
  - is more than three-times higher among Peel males than females (Figure 91); and
  - is highest among adults aged 90 years and older (Figure 92).

**Figure 90**  
**Mortality due to Suicide by Year,**  
**Peel and Ontario, 2001-2012**



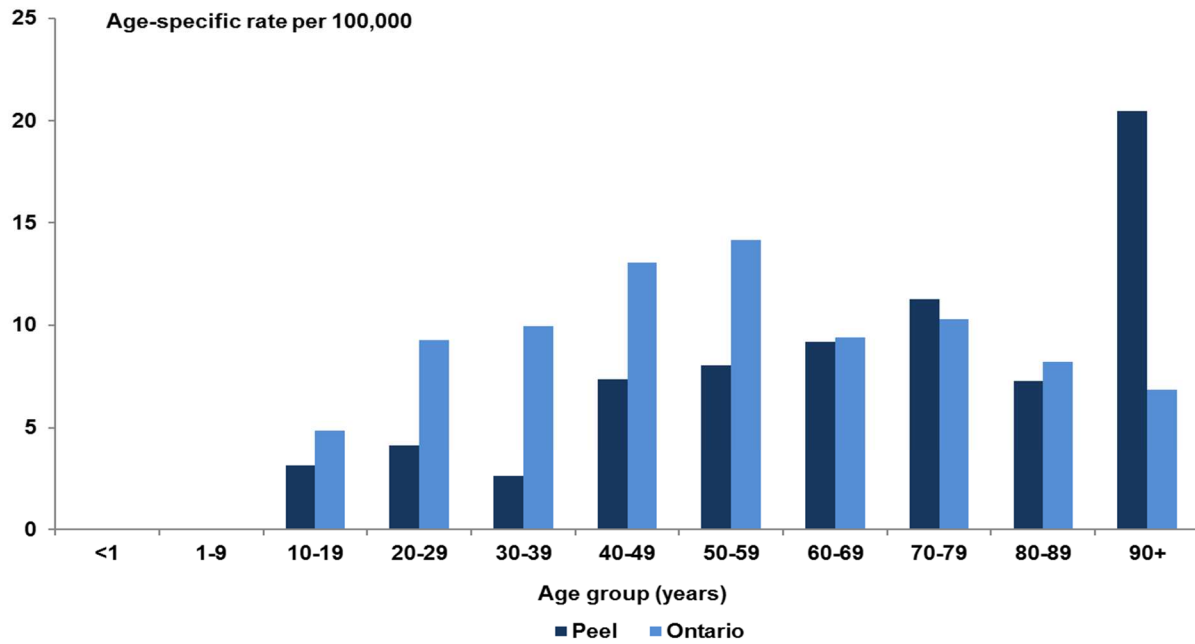
Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Ontario Mortality Database, 2001-2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2001-2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 91**  
**Mortality due to Suicide by Sex and Year,**  
**Peel, 2001-2012**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Ontario Mortality Database, 2001-2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2001-2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 92**  
**Mortality due to Suicide by Age Group,**  
**Peel and Ontario, 2012**



Sources: Ontario Mortality Database, 2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## SPECIAL TOPIC: SPORTS AND RECREATIONAL INJURIES



### Key Messages

- “Sports and physical exercise” is a commonly reported activity leading to self-reported injury in Peel.
- Rates of ED visits, hospitalizations and deaths from sports and recreation injuries are higher among males than females.
- While rates of ED visits and hospitalizations from sports and recreation-related injuries peak among children and youth (i.e., aged 10 to 19 years for ED visits; aged 1 to 9 for hospitalizations), adults aged 70 to 79 years have a higher rate of death.
- The leading type of sports and recreation-related injuries resulting in ED visits and hospitalizations vary, however cycling, playground equipment, hockey and soccer are among the top five types leading of both.
- The use of protective equipment when cycling and in-line skating is low.



### Definitions

Sports and recreational injuries described in this section include the following external causes of injury:

- baseball
- hit by ball
- hit by bat
- cycling
- fall involving rollerblade/scooter/skateboard
- football/rugby
- hockey
- ice skates
- playground equipment
- pool and natural water swimming/diving/drowning
- ski/snowboard
- soccer
- tobogganing
- recreational boating
- ATV/Snowmobile
- ATV (all-terrain or off-road vehicles); and
- snowmobile only

### Self-Reported Sports and Recreation-Related Injuries

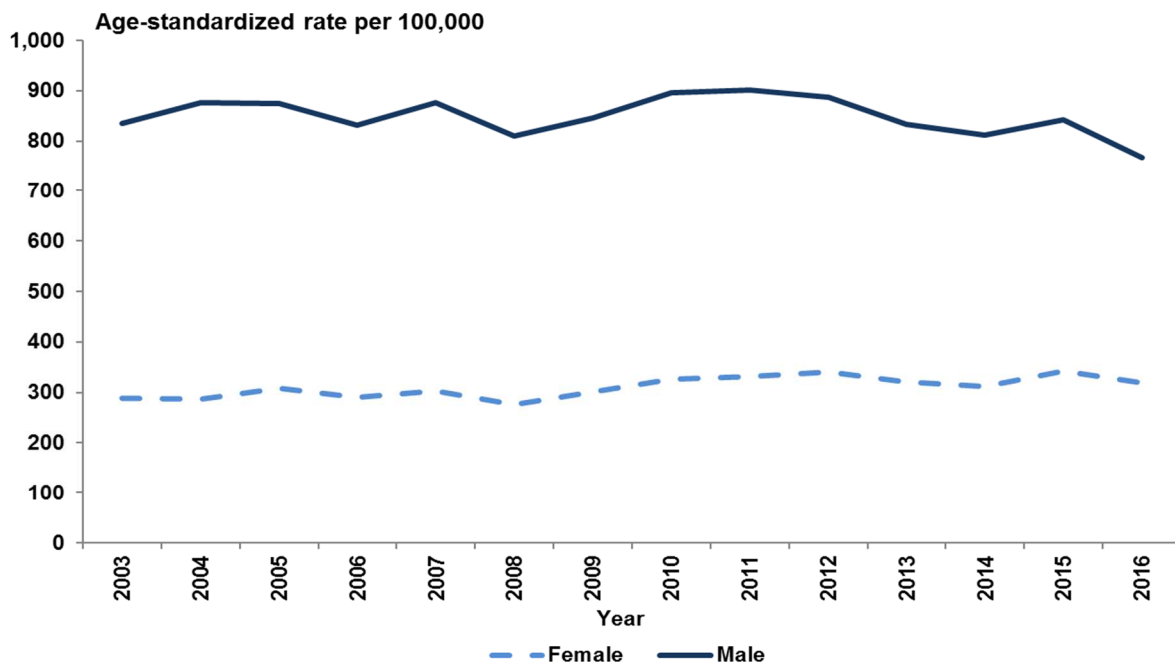
- In 2013/2014, approximately 154,000 Peel’s residents aged 12 years and older reported an injury serious enough to limit their normal activities in the past year.<sup>C1</sup>

- Eighteen per cent (or 28,300\* people) reported that their most serious injury occurred in “other sport or athletic areas” while 12% (or 18,500\* people) reported their injury to have occurred at “sport/athletic areas of school”. (\*use estimate with caution).<sup>C1</sup>
- 38% (or 58,200 people) reported that they were doing sports/physical exercise when they sustained their most serious injury.<sup>C1</sup>

## ED Visits due to Sports and Recreation-Related Injuries

- In Peel, in 2016, there were 8,532 emergency department visits from sports and recreation-related injuries.<sup>D</sup>
- Peel’s rate of emergency department visits due to sports and recreation-related injuries:
  - is lower than that of Ontario (545.8 per 100,000 population vs. 1,016.5 per 100,000 population);<sup>D,E</sup>
  - has been relatively stable over the past decade (Figure 93);
  - is over twice as high for males than females (Figure 93); and
  - peaks among 10 to 19 year-olds after which rates decrease with increasing age (Figure 94).

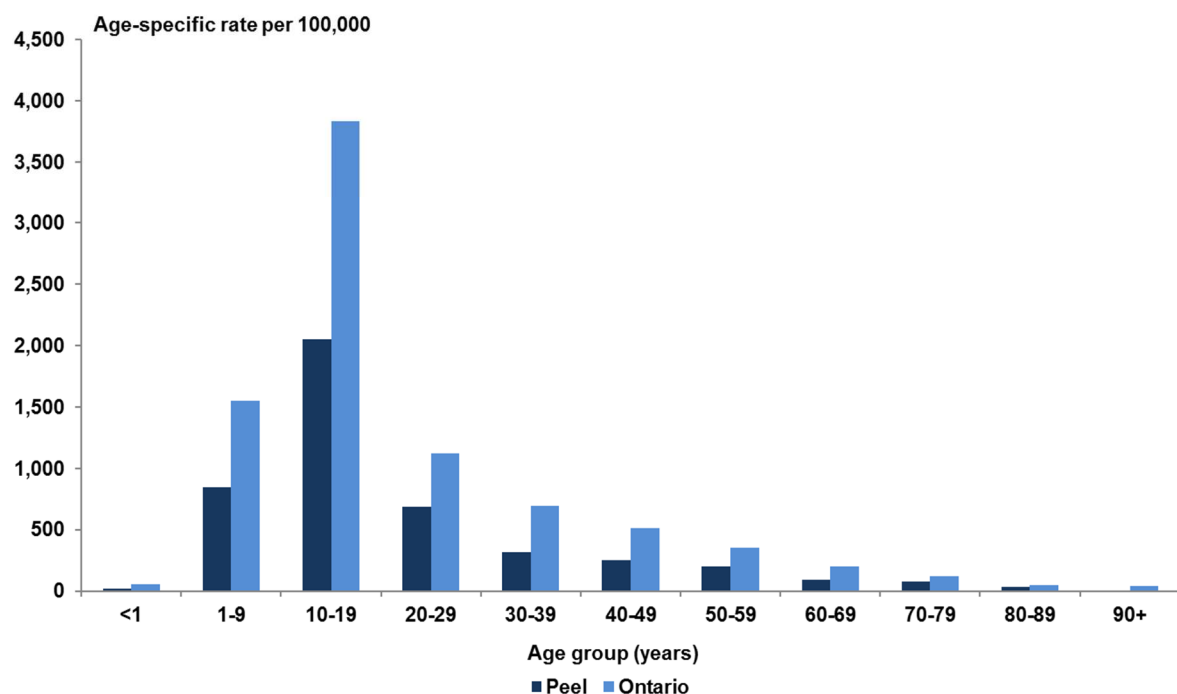
**Figure 93**  
Emergency Department Visits due to Sports and Recreation Injuries by Sex and Year, Peel, 2003-2016



Note: Rates are age-standardized to the 2011 Canadian population  
Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.



**Figure 94**  
**Emergency Department Visits due to Sports and Recreation Injuries by Age Group, Peel and Ontario, 2016**



Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI), IntelliHEALTH Ontario, Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

- ED visits due to sports and recreation-related injuries amongst Peel residents were most commonly from accidents involving:
  - cycling (16%);
  - hit by ball (16%);
  - hockey (12%);
  - soccer (10%); and
  - playground equipment (8%).
- The place of occurrence of sports and recreation-related injuries for more than half of these injuries (56%) is unknown or unspecified. Approximately 32% are known to occur in sports and athletic areas.

## Hospitalizations due to Sports and Recreation-related Injuries

- In Peel, in 2015, there were 235 hospitalizations from sports and recreation injuries.<sup>F</sup>
- Peel’s rate of hospitalizations due to sports and recreation injuries:
  - is lower than that of Ontario (15.4 per 100,000 population vs. 31.2 per 100,000 population),<sup>F,E</sup>
  - decreased over the past decade,<sup>F,E</sup>
  - is more than twice as high for males than females (Figure 95); and
  - is highest among 1 to 9 year-olds (Figure 96).

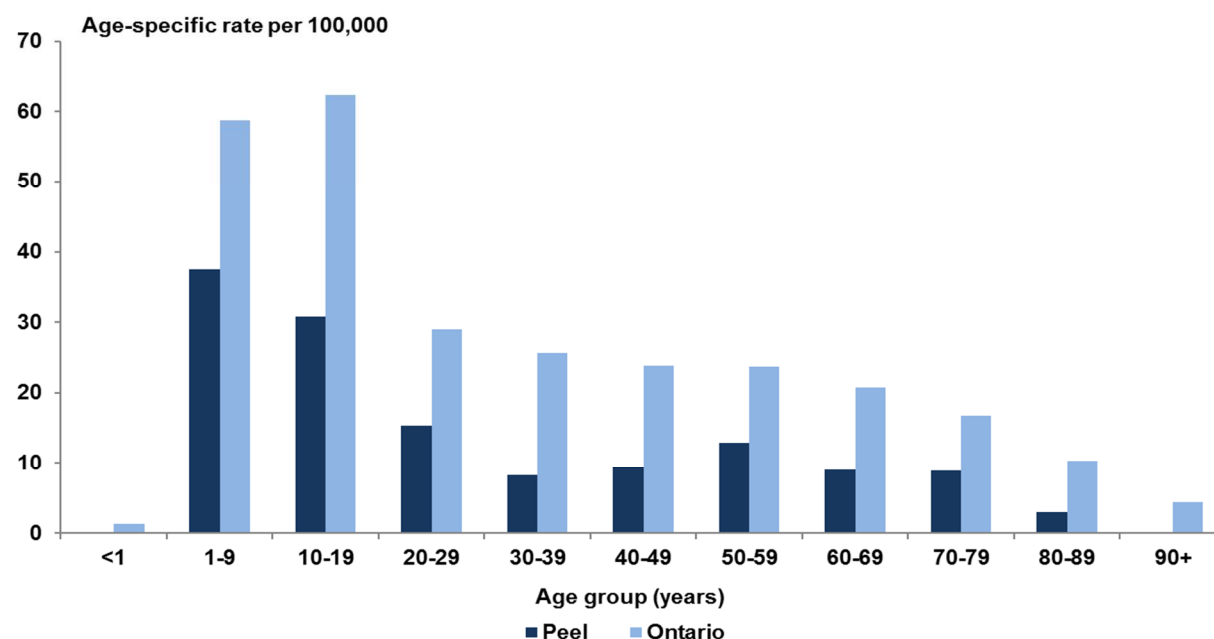
- Hospitalizations due to sports and recreation related injuries were most commonly from accidents involving:
  - cycling (33%);
  - playground equipment (21%); and
  - fall involving rollerblade/scooter/skateboard (6%).
- The place of occurrence of sports and recreation-related injuries for the majority of these injuries is unknown or unspecified (58%).

**Figure 95**  
**Hospitalizations due to Sports and Recreation Injuries by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 96**  
**Hospitalizations due to Sports and Recreation Injuries by Age Group,**  
**Peel and Ontario, 2016**

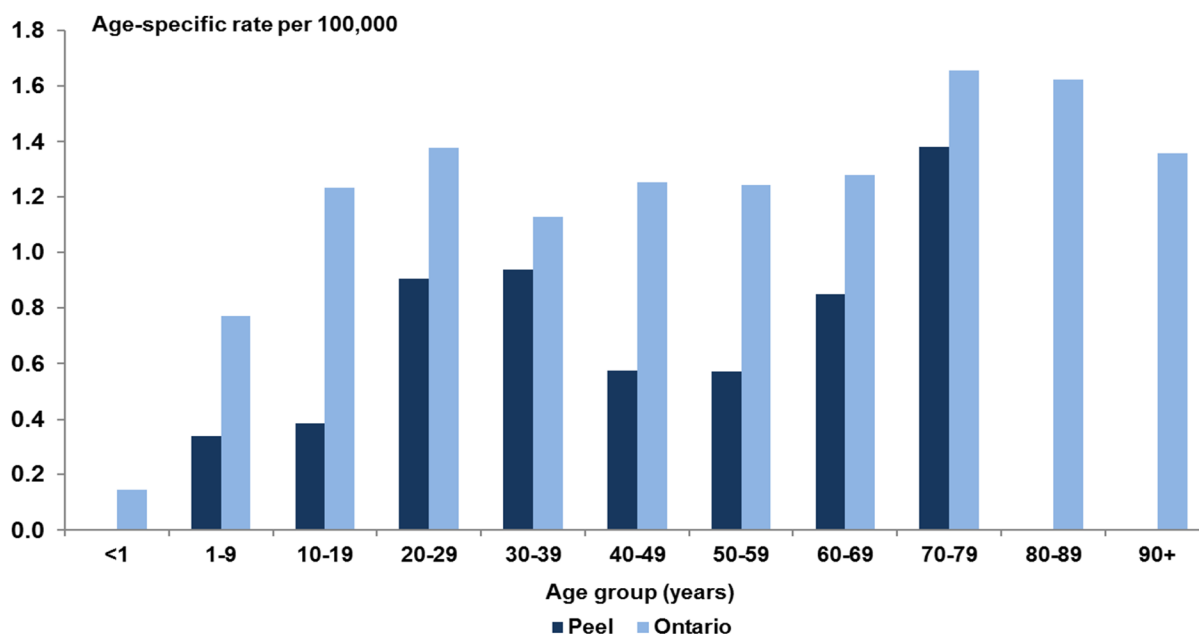


Sources: Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care. Population Estimates, 2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Mortality from Sports and Recreation-related Injuries

- In Peel, between 2003 and 2012, there were an average of eight deaths per year from sports and recreation-related injuries.<sup>G</sup>
- In Peel, in 2012, the rate of death due to sports and recreation injuries was:
  - similar to that of Ontario (0.9 per 100,000 vs. 1.2 per 100,000 population); and
  - higher among males than females.<sup>G,E</sup>
- Between 2003 and 2012 combined, mortality rates from sports and recreation injuries were highest among those 70 to 79 years of age (Figure 97).
- Deaths due to sports and recreation related injuries were most commonly from accidents involving:
  - pool and natural water swimming/diving/drowning (58%)
  - cycling (33%)
  - all-terrain or off-road vehicle (8%).<sup>G</sup>
- In Peel, the place of deaths for sports and recreation-related injuries is mostly unknown (52%).<sup>G</sup>

**Figure 97**  
**Mortality due to Sports and Recreation Injuries by Age Group,**  
**Peel and Ontario, 2003-2012 Combined**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Ontario Mortality Database, 2003-2012, IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2012, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

## Use of Protective Equipment

### Use of Protective Equipment among General Population – In-Line Skating

In 2013/2014, the proportion of Peel residents who always used protective equipment when in-line skating was as follows:

- helmet (27%);
- wrist guards (12%); and
- elbow pads (8%)<sup>C1</sup>

In 2011/2012, 19% of Peel residents stated they always use knee pads when in-line skating. This was similar to Ontario.<sup>C6</sup>

### Use of Protective Equipment among General Population - *Skate Boarding*

In 2013/2014, the proportion of Peel residents who always wear a helmet, wrist guards or elbow pads when skateboarding is not reportable.

In Ontario in 2013/2014, the following proportion of residents always used protective equipment when skateboarding:

- helmet (18%);
- wrist guards (3%); and
- elbow pads (4%)<sup>C1</sup>

Bike Helmet Use is described in the Cycling Crashes section (see page 53).

## CONCUSSIONS



### Key Messages

- Despite the increase in Peel's rates of emergency department visits involving concussions since 2013, hospitalization rates have been stable.
- In Peel, ED visits due to concussions are higher in males compared to females and peak among 10 to 19 year-olds.
- The top external causes of injury resulting in ED visits and hospitalizations where a concussion is present includes: "exposure to inanimate and animate mechanical forces" and falls. Motor vehicle accidents is the third most common cause of injury-related ED visits where concussion is present, while pedestrian injuries are the third most common for hospitalizations.
- Sports is the leading cause of self-reported head injuries among Peel (37%) and Ontario (41%) students.

## Self-Reported Head Injuries

### Self-Reported Head Injuries in General Population

In Peel, in 2009/2010 and 2013/2014 combined, approximately 0.6%\* (use estimate with caution) of residents aged 12-years and older who had an activity-limiting injury in the past year, reported that their most serious injury was a concussion or other brain injury. This translates to an estimated 6,700 people.<sup>C1, C2</sup>

### Self-Reported Head Injuries among Students in Grades 7 to 12

In 2015, 18% of Peel students in grades 7 to 12 reported ever sustaining a head injury which resulted in either the student going unconscious or staying overnight in a hospital. This is similar to Ontario (21%).<sup>H2</sup> In 2015, 4%\* (use estimate with caution) of Peel students reported sustaining such an injury in the last 12 months.<sup>H2</sup>

### Causes of Self-Reported Health Injuries in Students

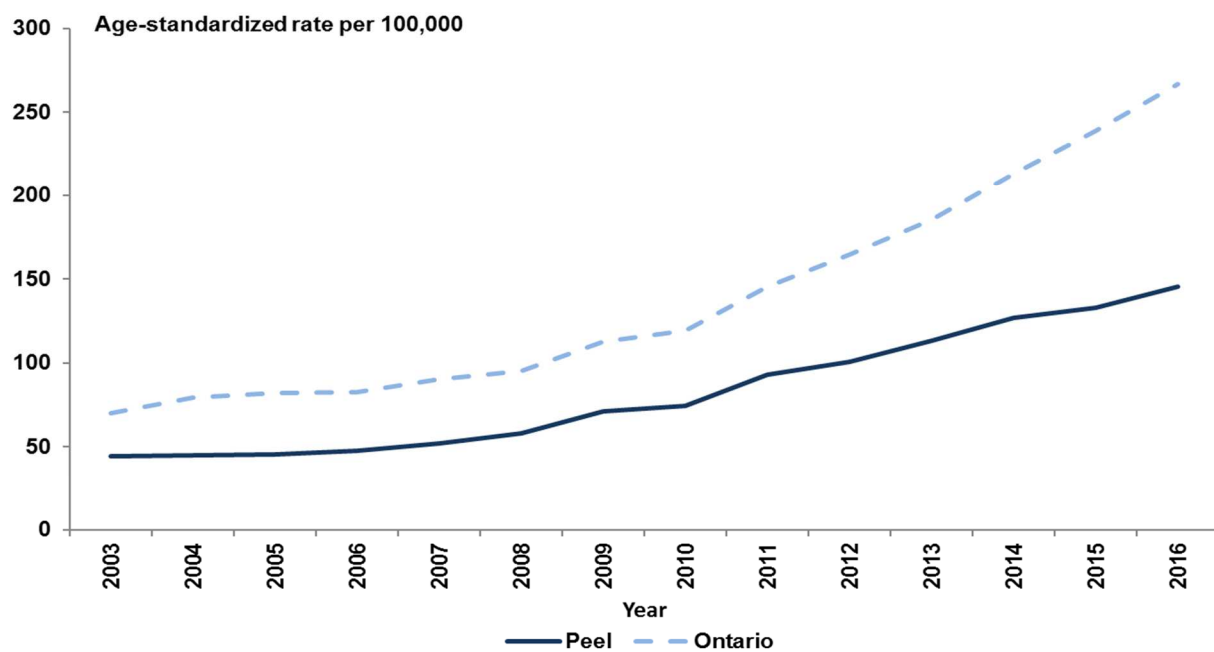
Sports were the leading cause of head injuries among Peel (37%) and Ontario students (41%). There was variation by sex.

- Among Peel male students, the most common cause of head injuries were due to sports (48%), while the leading cause in females was falling down by accident (37%), or other unspecified causes (34%).
- Approximately one-third (36%) of Peel students missed at least one school day after their most recent head injury.<sup>H2</sup>

## Emergency Department Visits due to Concussions

- In Peel, in 2016, there were 2,217 emergency department visits involving concussions.
- Peel's rate of emergency department visits due to concussions:<sup>G</sup>
  - are lower than that of Ontario (145.3 per 100,000 vs. 267.0 per 100,000 population respectively in 2016);<sup>G</sup>
  - have increased between 2003 and 2016 (Figure 98); and
  - are similar for males and females, although in previous years it was higher for males (Figure 99).
- Rates of emergency department visits due to concussions peak among 10 to 19 year-olds (Figure 100).

**Figure 98**  
**Emergency Department Visits due Concussions by Year,**  
**Peel and Ontario, 2003-2016**

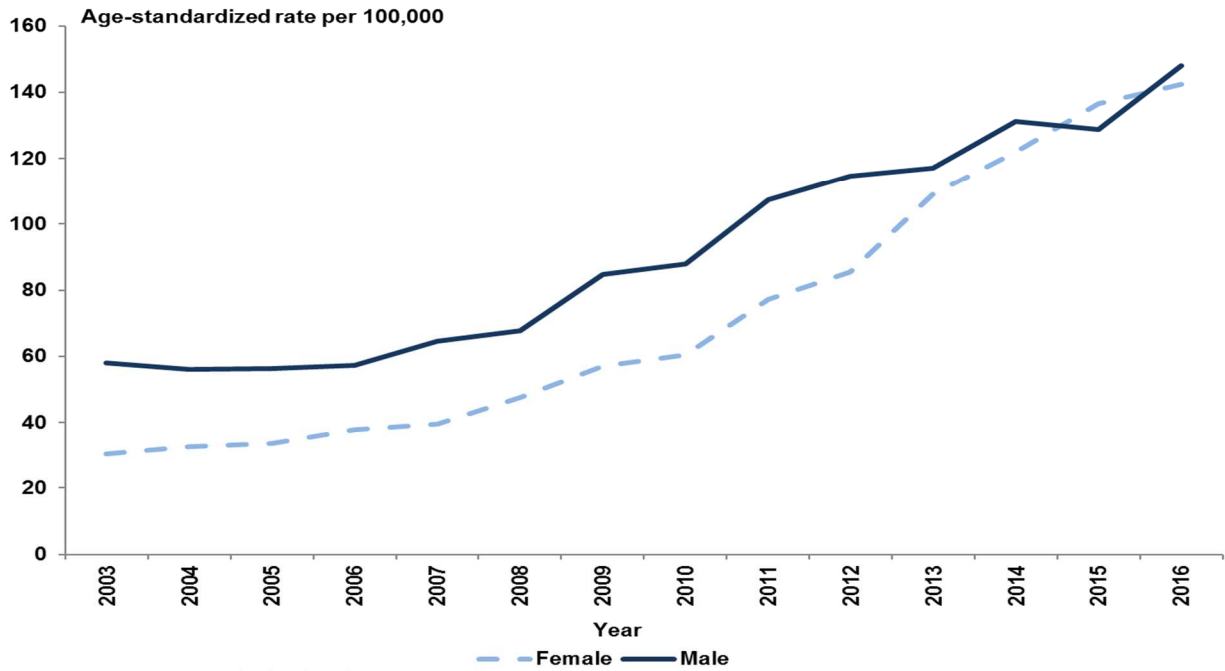


Note: Rates are age-standardized to the 2011 Canadian population

Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

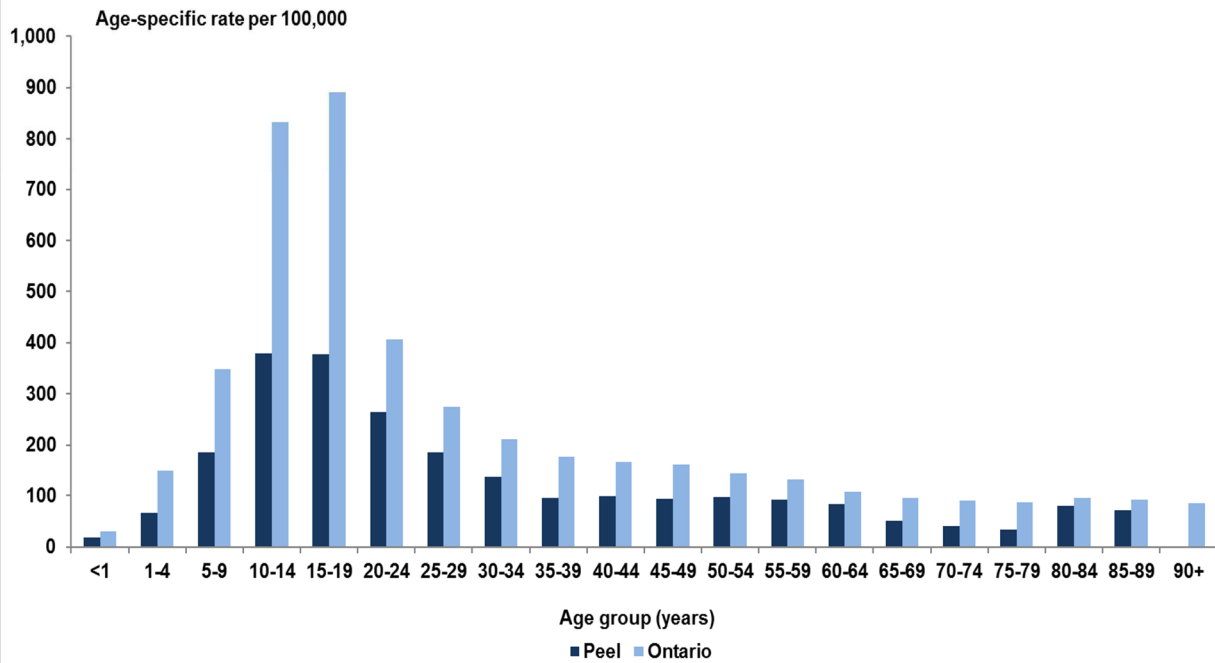
Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 99**  
**Emergency Department Visits due to Concussions by Sex and Year,**  
**Peel, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population  
 Sources: National Ambulatory Care Reporting System, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 100**  
**Emergency Department Visits due to Concussions by Age Group,**  
**Peel, 2016**



Sources: National Ambulatory Care Reporting System, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

In 2016, the top external causes of injury resulting in ED visits where a concussion is present in Peel residents included:

- exposure to inanimate and animate mechanical forces”
- falls, and
- motor vehicle collisions (Table 28).

**Table 28**  
**Leading Causes of Concussion-Related Emergency Department Visits and Hospitalizations by Peel, 2016**

Type	Females	Males	Total
	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000	Age-standardized Rate per 100,000
<b>Emergency Department Visits</b>			
Exposure to inanimate and animate mechanical forces	50.6	52.9	51.5
Falls	49.8	44.2	47.4
Motor vehicle collisions	15.9	15.8	15.9
Assault	3.0	8.9	6.1
All other causes of diseases of the external causes of morbidity and mortality not classified under "leading causes".	4.5	4.5	4.5
Cycling collisions	0.7	4.0	2.3
Other or unknown types of land transport accidents	2.9	1.4	2.2
Pedestrian collisions	1.4	0.9	1.2
Water transport accidents (excluding drowning)	0.1	0.6	0.4
Overexertion, travel and privation	0.2	0.5	0.3
Legal intervention and operations of war	0.1	0.1	0.1
Most responsible diagnosis (MRD) is an injury, but not concussions and concussions present in addition to MRD	8.9	10.8	9.9
<b>Hospitalizations</b>			
Falls	0.97	2.20	1.59
Exposure to inanimate and animate mechanical forces	0.51	0.60	0.56
Pedestrian collisions	0.29	0.39	0.35
Cycling collisions	0.14	0.35	0.25
Motor vehicle collisions		0.26	0.13
Assault	0.14		0.07
Injury, poisoning and certain other consequences of external causes	0.44	1.94	1.16

Notes: Rates age-standardized to the 2011 Canadian population.

Sources: National Ambulatory Care Reporting System, 2016, and Hospital In-Patient Discharges, 2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

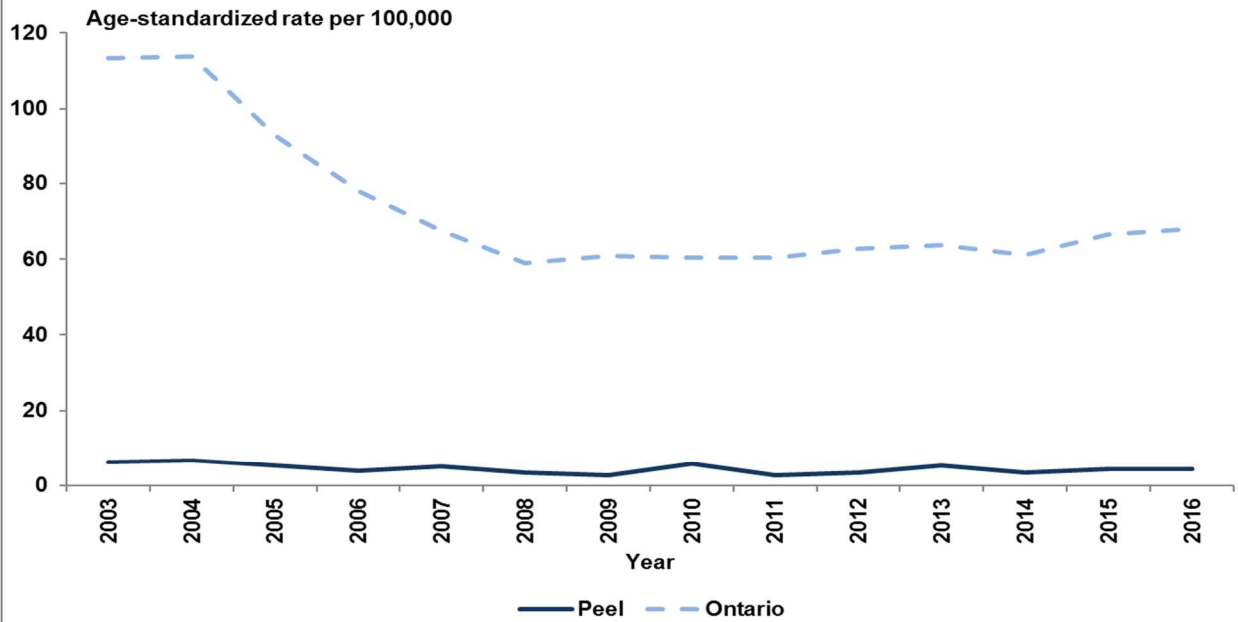
## Hospitalizations due to Concussions

- In Peel, in 2016, there were 64 hospitalizations involving concussions
- Peel’s hospitalization rate from concussions:<sup>F</sup>
  - are lower than that of Ontario (4.3 per 100,000 population versus 68.1 per 100,000 population in 2016);
  - have been relatively stable over the past decade;<sup>F</sup>
  - are higher for males than females; and



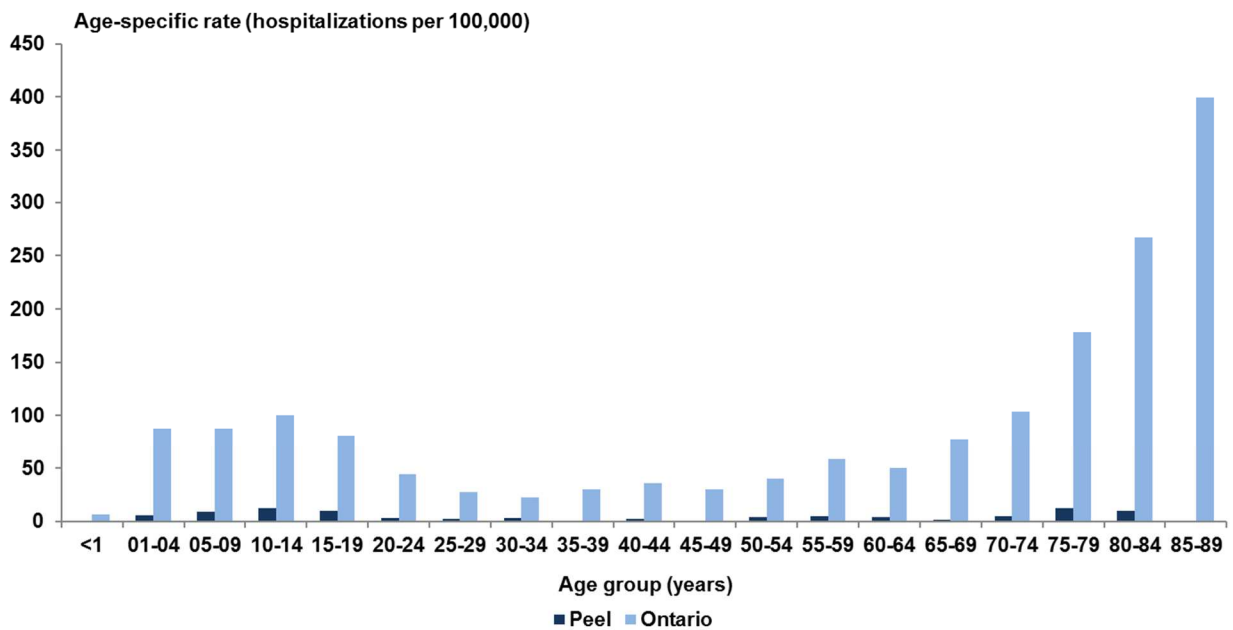
- are highest among adults aged 75 to 79 years, followed by 10 to 14 year-olds (data not shown).<sup>F,E</sup>

**Figure 101**  
**Hospitalizations due to Concussions by Year,**  
**Peel and Ontario, 2003-2016**



Note: Rates are age-standardized to the 2011 Canadian population.  
 Sources: Hospital In-Patient Discharges, 2003-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2003-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

**Figure 102**  
**Hospitalizations due to Concussions by Age Group,**  
**Peel and Ontario, 2012-2016 Combined**



Sources: Hospital In-Patient Discharges, 2012-2016, Canadian Institute for Health Information (CIHI). IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care.  
 Population Estimates, 2012-2016, Statistics Canada. IntelliHEALTH Ontario, Ministry of Health and Long-Term Care

In 2016, the top external causes of injury resulting in hospitalizations where a concussion is present in Peel residents included:

- falls;
- exposure to inanimate and animate mechanical forces”; and
- pedestrian collisions (Table 28).

## DATA SOURCES AND LIMITATIONS

### Population Data

#### Census

Since 1956, the Census has been administered by Statistics Canada every five years to all Canadian residents.

For the censuses administered in 1971, 1976, 1981, 1986, 1991, 2006 and 2016; two forms were used to collect information from residents: the short-form and the long-form. The short-form collects information about basic population and housing questions. The long-form collects the same information as the short-form, with more housing questions and additional socio-demographic questions. As of 1996, 80% of households complete the short-form census and 20% complete the long-form census.

In 2011, the long-form census was replaced by a voluntary National Household Survey (NHS). The content of the NHS varies slightly from the previous long-form census and therefore comparisons should be made with caution. The national response rate was 68.6%, varying by province and census subdivision.

Data are available for the following years: 1971, 1976, 1981, 1986, 1991, 2006, 2011, 2016.

#### Limitations

- Prior to 1991, the Census did not enumerate non-permanent residents.
- The Census undercounts some groups, such as the homeless, young adults and aboriginal people on reserves.
- In censuses, some people are not counted while others are counted more than once. These two types of errors result in net under-enumeration. Adjustments for this under-enumeration and for non-permanent residents have increased the Canadian population by 1.6% to 3.8%, depending on the census, province and age group.
- Comparisons between censuses are affected by changes in question wording and in the definition of the population concerned.
- Data from Statistics Canada are transformed using a random rounding process to maintain confidentiality. Values, including totals, are randomly rounded either up or down to a multiple of '5' or '10'. The result is that, when these data are summed or grouped, the total value may not match the sum of the individual values, since the total and subtotals are independently rounded. Similarly, percentages calculated on rounded data may not necessarily add up to 100%. Note also that the same value in the same table may be rounded up in one analysis and rounded down in the next.
- Pooling of on-reserve aboriginal data into one division in the north makes interpretation difficult for areas with high aboriginal populations.

## **Population Estimates**

The population estimates used to calculate rates are produced by the Demography Division, Statistics Canada, and are based on the 1986, 1991, 1996, 2001, 2006 and 2011 census counts adjusted for net under-coverage. Population estimates for 1986 to 2000 are final inter-censal estimates that were interpolated using the adjusted census counts from the 2006 census; population estimates for 2001 to 2012 use the 2011 census. Population estimates for 2012 onwards are extrapolated by applying the growth rates by age and sex of each Census Division (CD) to the Census Subdivisions that comprise that CD.

Statistics Canada estimates what the population is on July 1<sup>st</sup> each year. Post-censal estimates are based on the most recent census counts adjusted for net under-coverage and changes in the population between Census Day and July 1<sup>st</sup>. These estimates consider data on births, deaths, international migration and internal migration when these data are available (component method). Preliminary estimates using a regression model are released for current years and then revised using the component method. When the population estimates for a new census year are ready, post-censal estimates for the years between the last two censuses are revised as inter-censal estimates. Population estimates are available at the Census Subdivision (CSD) level.

Data are available for the following years: 1986 to 1997.

Limitations:

Because of the delay in updating population estimates following a census, estimates may differ from the census counts.

### **Hemson Consulting Ltd.**

Hemson Consulting Ltd. is contracted to produce population forecasts for the Region of Peel, three municipalities (Brampton, Mississauga and Caledon), Ward and Census Tract (CT). This includes an age structure forecast by single year of age for all census years from 2016 to 2041.

The population forecasts of growth for Peel Region as a whole are based on total populations at 2031 and 2041 contained in Schedule 3 of the Growth Plan for the Greater Golden Horseshoe (Growth Plan) completed in 2013. In addition to births, deaths, and migration (used by the Ministry of Finance projections), Hemson projections consider the Region's Growth Management Regional Official Plan Amendment (ROPA), which includes planned housing development and growth. These estimates are determined using Small Geographic Units (SGU) which are then used to determine the projections for each CT, Ward, Municipality, and the Region.

The forecast age structure for each Census year and each five year age group from 0–4 to 95–99 and 100+ is based on the application of a standard cohort survival model,

which accounts for the death rate, fertility rate, and migration. To obtain a population age structure by single year of age, the populations within the 5-year age groups are interpolated based on the single-year pattern.

Data are available for the following years: 2016 to 2041.

Limitations:

- The population projections are founded in demographic assumptions about recent trends in births, deaths and migration over the projection period. Therefore, there is a degree of uncertainty, which can range from low- to high-growth scenarios. The population projections provided by the Ministry of Finance represent the medium-growth scenario.
- The Hemson population forecasts are available for geographies within Peel only and cannot be compared with projections from other locations.
- The methodology used for the Hemson population forecasts is different than those used by the Ministry of Finance and therefore the population projections and population forecasts are not directly comparable.

## Administrative Data

### Emergency Department Visits (NACRS)

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, or may visit several times for the same disease or injury event, or may visit more than one hospital for the same disease or injury event.

The first areas or visit functional centres (VFCs) to report to NACRS were the hospital Emergency Rooms in fiscal year 2002/2003. In fiscal year 2003/2004 other major ambulatory VFCs within the hospital such as Day Surgery, Medical Day/Night Care and specified high-cost clinics such as renal dialysis and cancer clinics etc. were also included.

The main diagnostic code used for emergency department visits is based on the patients 'main problem or diagnosis as determined by the emergency department.' The main problem variable is coded using International Statistical Classification of Diseases and Related Health Problems, Canada, Version 10, 2007 (ICD-10-CA) codes starting with A through U. A second set of codes for external causes (those starting with V, W, X or Y) are used in the case of an injury to classify the environmental events, circumstances and conditions that caused the injury (e.g., a motor vehicle traffic injury). External cause codes are the principal means of classifying injury deaths, but are not used as a main problem for emergency department visits, so they need to be examined separately.

Data are available for the following years: 2003 to 2016.

#### 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.
- Ontario residents visiting hospitals outside of the province are excluded. Areas bordering other provinces may be more affected.

## Hospitalizations

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

Prior to April 1, 2001, the International Classification of Diseases Ninth Revision (ICD-9) was used to classify hospitalization records. After this date, the International Statistical Classification of Diseases and Related Health Problems, Canada, Version 10, 2007 (ICD-10-CA) was used. The “most responsible diagnosis” code gives the primary reason for the hospital stay and is coded using the ICD-10-CA (codes starting with the letters A through U). A second set of codes for external causes (those starting with the letters V through Y) are used in the case of an injury to classify the environmental events, circumstances and conditions that caused the injury (e.g., motor vehicle traffic injury). External cause codes are the principal means for classifying injury deaths, but they are not used as a most responsible diagnosis for hospitalizations, so they need to be examined separately.

Data are available for the following years: 2003 to 2016.

#### Limitations:

- Co-morbidity contributes uncertainty to classifying the most responsible diagnosis.
- 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.
- Ontario residents treated outside of the province are excluded. Although less than 0.5% of all procedures performed for Ontario residents are out-of-province, areas bordering other provinces may be more affected.
- Effective April 1, 2006 hospitalizations for adult patients with mental health codes are now being collected in the Ontario Mental Health Reporting System (OHMRS) when an adult requires a stay in a designated bed in a hospital. This change 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).

## Mortality

The Office of the Registrar General obtains information about mortality from death certificates which are completed by physicians. All deaths within Ontario are registered in the Divisional Registrar office within which the death occurs. A Statement of Death (Form 15) and a Medical Certificate of Death (Form 16) must be filed with a division registrar before a Burial Permit can be issued.

The Death Certificate records the underlying cause of death, as well as any immediate or antecedent causes of death or other significant conditions contributing to the death. However, the mortality files available to Public Health include only the underlying cause of death. The underlying cause of death is:

- the disease or injury which initiated the train of events leading directly to death, or
- the circumstances of the accident or violence which produced the fatal injury.

Prior to December 31, 1999, all deaths and external causes of death were coded using the Ninth Revision of the International Classification of Diseases (ICD-9). Since January 1, 2000, deaths were coded using the Tenth Revision of the International Classification of Diseases Canada (ICD-10). Comparison of trends for specific causes of mortality from 2000 onward with earlier rates must therefore be interpreted with caution.

A second set of codes, external cause or 'e-codes' are used to classify the environmental events, circumstances and conditions that cause an injury (e.g., motor vehicle traffic injury). The cause of death variable is coded using ICD-10 codes starting with A through R, but not S and T codes, then continuing with external cause codes starting with V, W, X or Y.

Data are available for the following years: 1986 to 2012.

Limitations:

- Co-morbidity contributes to uncertainty to 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).
- Ontario residents who died outside of the province are excluded. This may affect areas bordering Quebec and Manitoba.
- Variation in data collection procedures over time and/or geography may reduce the validity of time- and/or place-specific comparisons.
- There are possible errors in the mortality data file related to assignment of municipality of residence/census subdivision of deceased.

## Survey Data

### Canadian Community Health Survey

The Canadian Community Health Survey (CCHS) is a national cross-sectional survey aimed at providing health information at the regional and provincial levels. This survey collects information related to health status, health care utilization and health determinants for the Canadian population. About 130,000 Canadians aged 12 years and older are surveyed per survey cycle, with one resident per household being asked to complete the survey. Data collection is done on the telephone or in person, using computer assisted personal or computer assisted telephone interviewing techniques. The interview lasts approximately 45 minutes: 30 minutes of common content to be asked of all participants, 10 minutes of optional content determined by each province from a predefined list of questionnaire modules, and 5 minutes of socio-economic and demographic content.

This type of survey draws a sample from the population of interest (in this case, the population of Canada aged 12 years and older), and collects responses from people in the sample. By applying population weights, measures such as percentages and totals (referred to as number in the tables on this website) are therefore estimates of the total population.

Data are available for the following years: 2000/2001, 2003, 2005, 2007/2008, 2009/2010, 2011/2012, 2013/2014.

#### Limitations:

- Depending upon the question, self-reported data may be subject to a number of survey biases, including social desirability bias (when asked questions of a sensitive nature, respondents may give an answer that they believe to be socially acceptable), response bias (differences between those who respond to the survey and those who don't) or recall bias (being unable to recall the information to accurately answer the question)
- Errors may occur from proxy reporting (when another member of the household completes the survey for the randomly selected household member).
- Individuals and/or households without a telephone would be excluded from the sampling frame.
- Some analyses are limited by sample size.
- Modules change from one cycle to another. Question response categories may also change. Both of these can make comparisons of data by year difficult.

### Ontario Student Drug Use and Health Survey (OSDUHS)

The Ontario Student Drug Use and Health Survey (OSDUHS) is a survey of over 10,000 grade 7 to 12 students in Ontario, run by the Centre for Addiction and Mental Health (CAMH). The survey collects information about health and substance use, including physical and mental well-being, and perceptions, awareness and use of alcohol,



tobacco and drugs. Student respondents complete a self-administered paper-and-pencil questionnaire during a regularly-scheduled classroom period.

The survey is conducted every two years and has been running since 1977. The OSDUHS offers the opportunity for Ontario public health units to purchase an additional student sample in their region (includes approximately 1,500 additional students). This allows partnering health units to provide more precise regional estimates on key health measures of interest. Peel Public Health purchased an additional regional sample starting in 2013.

This type of survey draws a sample from the population of interest (in this case, Ontario students in Grades 7 to 12), and collects responses from students in the sample. By applying population weights provided by CAMH, measures such as percentages and totals (referred to as population estimate in the tables on this website) are therefore estimates of the total population.

Data are available for the following years: 2013, 2015, 2016.

#### Limitations:

- The sampling frame excludes students not enrolled in Ontario's four publically funded school systems. This represents approximately 8% of students between grades 7 to 12.
- The list of schools used to select the sampling frame would not include any schools built after the date that the most current list was produced. For example, schools selected for the 2013 OSDUHS cycle would not include schools built after 2009/2010. This would have the largest impact on high growth areas.
- Response rates have decreased since the OSDUHS inception in 1977 and are due to both non-consent and absenteeism. Students who did not have consent to complete the survey, or who were absent from class on the day of the survey may be different than students who complete the survey.
- Student responses may be subject to social desirability bias, especially for questions addressing sensitive topic areas, including alcohol and drug use.

## DATA METHODS

The following tables identify the ICD-10 codes categorized for the external cause of injury diagnosis groups in this data overview:

**Table A1**  
**ICD-10 Codes for Selected Leading External Causes of Injury**

External Cause of Injury Description	ICD-10 Codes
Assault	X85-X99, Y00-Y09, Y87.1
Complications of medical and surgical care (including sequelae)	Y40-Y66, Y69-Y84, Y88
Exposure to inanimate and animate mechanical forces	W20-W46, W49-W60, W64, Y22-Y25, Y28-Y29
Falls (all)	W00-W19, Y30
Motor vehicle collisions	V20-V79, V83-V86, Y85.0
Other or unknown types of land transport accidents	V80-V82, V87-V89
Overexertion, travel and privation	X50-X54, X57
Pedestrian collisions	V01-V06, V09
Cycling collisions	V10-V19
Water transport accidents (excluding drowning)	V91, V93-V94
Suffocation including choking	W75-W81, W83-W84, Y20
Burns	X00-X06, X08-X19, Y26-Y27
All drowning/submersion	W65-W70, W73-W74, V90, V92, Y21
Exposure to forces of nature, venomous animals and plants	X20-X39
All poisoning	X40-X49, Y10-Y19
Suicide (self-harm)	X60-X84, Y87.0

**Table A2**  
**Exposure to Inanimate and Animate Mechanical Forces - ICD-10 Codes and**  
**Corresponding Description**

ICD-10 Code	Description
<b>Exposure to inanimate objects (W20-W49)</b>	
W20	Struck by thrown, projected or falling object
W21	Striking against or struck by sports equipment
W22	Striking against or struck by other objects
W23	Caught, crushed, jammed or pinched in or between objects
W24	Contact with lifting and transmission devices, not elsewhere classified
W25	Contact with sharp glass
W26	Contact with other sharp object(s)
W27	Contact with nonpowered hand tool
W28	Contact with powered lawnmower
W29	Contact with other powered hand tools and household machinery
W30	Contact with agricultural machinery
W31	Contact with other and unspecified machinery
W32	Handgun discharge
W33	Rifle, shotgun and larger firearm discharge
W34	Discharge from other and unspecified firearms
W35	Explosion and rupture of boiler
W36	Explosion and rupture of gas cylinder
W37	Explosion and rupture of pressurized tyre, pipe or hose
W38	Explosion and rupture of other specified pressurized devices
W39	Discharge of firework
W40	Explosion of other materials
W41	Exposure to high-pressure jet
W42	Exposure to noise
W43	Exposure to vibration
W44	Foreign body entering into or through eye or natural orifice
W45	Foreign body or object entering through skin
W46	Contact with hypodermic needle
W49	Exposure to other and unspecified inanimate mechanical forces
<b>Exposure to animate mechanical forces (W50-W64)</b>	
W50	Hit, struck, kicked, twisted, bitten or scratched by another person
W51	Striking against or bumped into by another person
W52	Crushed, pushed or stepped on by crowd or human stampede
W53	Bitten by rat
W54	Bitten or struck by dog
W55	Bitten or struck by other mammals
W56	Contact with marine animal
W57	Bitten or stung by nonvenomous insect and other nonvenomous arthropods
W58	Bitten or struck by crocodile or alligator
W59	Bitten or crushed by other reptiles
W60	Contact with plant thorns and spines and sharp leaves
W64	Exposure to other and unspecified animate mechanical forces

**Table A3**  
**Sports and Receptions ICD10-CA codes**

Description	ICD10-CA code**
Baseball	W22.05, W51.05
Hit by ball	W21.00
Hit by bat	W21.01
Cycling	V10-V19
Fall involving rollerblade/scooter/skateboard	W02.02, W02.03, W02.08
Football/rugby	W22.03, W51.03
Hockey	W21.02, W21.03, W22.02, W51.02
Ice Skates	W02.00
Playground Equipment	Prior to year 2009: the ICD10 code is W09.
	From 2009 and onwards: subcategories were introduced and the ICD10 codes are now W09.00-W09.09
Pool and natural water swimming/diving/drowning	W16, W67-W74
Ski/snowboard	W02.01, W02.04, W22.00, W51.00
Soccer	W22.04, W51.04
Tobogganing	W22.01, W51.01
Recreational* boating	V90-V94, only (0.2-0.8)
ATV/Snowmobile	V86
ATV (all-terrain or off-road vehicle)	V86.08, V86.19, V86.2, V86.4, V86.5, V86.6, V86.7, V86.9, V86.38, V86.58, V86.68, V86.98
Snowmobile only	V86.00, V86.10, V86.30, V86.50, V86.51, V86.60, V86.90, V86.91
Other sports related injuries	W02.08, W21.08, W21.09, W22.07, W51.07

Source: Association of Public Health Epidemiologists in Ontario. Recommended ICD-10-CA Codes for Injury Core Indicators. 2013. Available at: <http://core.apheo.ca/index.php?pid=306#Table 5>

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- C4 Canadian Community Health Survey, 2000/2001, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care
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- G Ontario Mortality Database, 1986-2012, Ontario Registrar general. IntelliHEALTH Ontario, Ontario Ministry of Health and Long-Term Care
- H1 Ontario Student Health and Drug Use Survey, 2017, Centre for Addiction and Mental Health, Peel Public Health
- H2 Ontario Student Health and Drug Use Survey, 2013, Centre for Addiction and Mental Health, Peel Public Health
- H3 Ontario Student Health and Drug Use Survey, 2015, Centre for Addiction and Mental Health, Peel Public Health