chapter 12

INJURIES

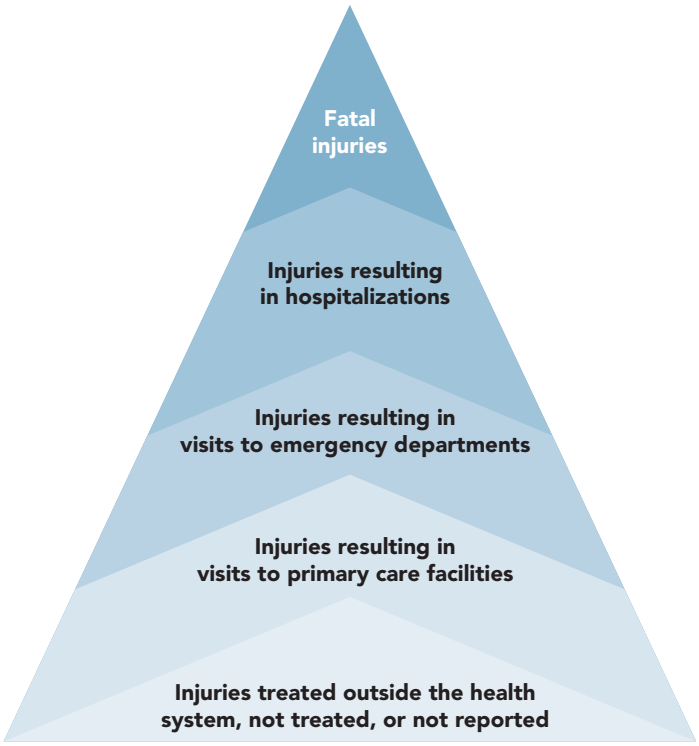
Key Messages

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

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

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

Figure 12.1
Severity of Injuries



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

Self-Reported Injuries

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

Injuries and Emergency Department Visits

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

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

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

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

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

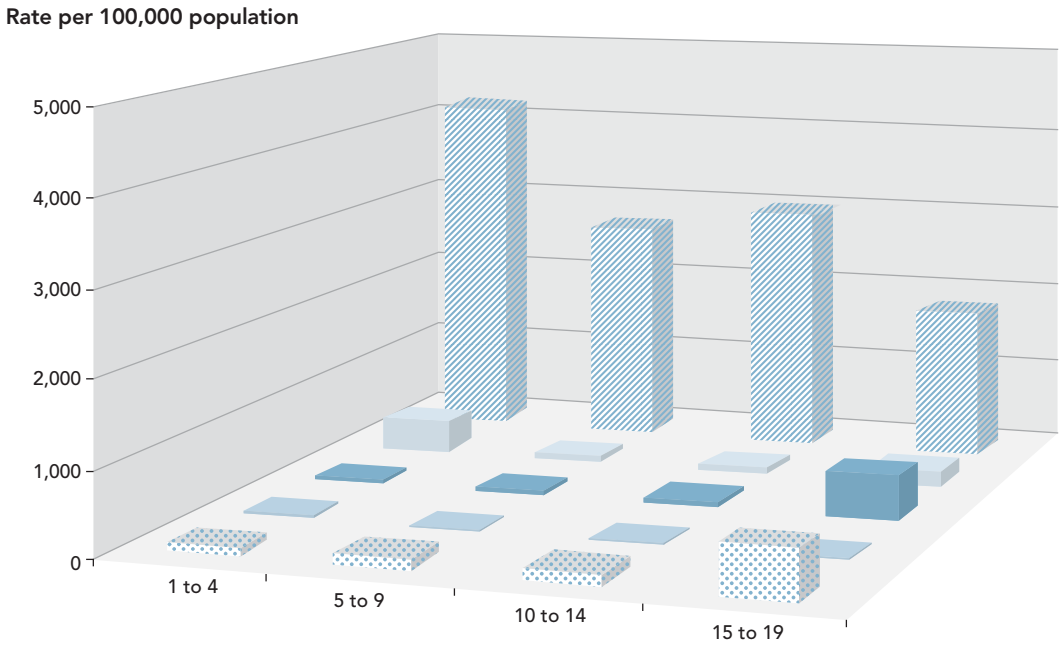
Sources: National Ambulatory Care Reporting System 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.
Population Estimates 2010, IntelliHEALTH Ontario, Ministry of Health and Long-Term Care.

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

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

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

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



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

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

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

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

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

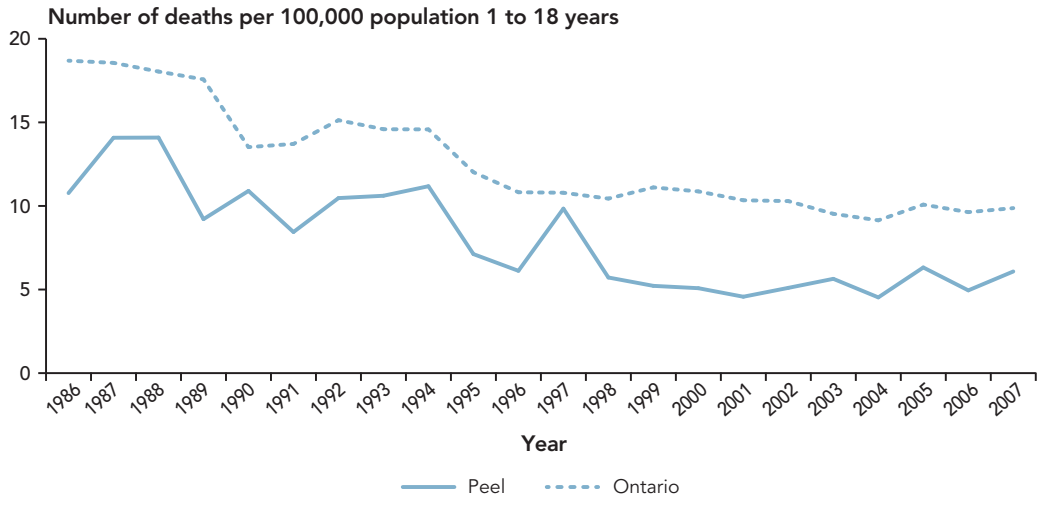
Deaths Due to Injury

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

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

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

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



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

Prevention of Injuries

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

Car Seats and Booster Seats

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

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

Policy

Car Seat and Booster Seat Legislation

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

Forward Facing Car Seat (one to four years)

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

Booster Seat (four to 8 years)

Your child must use a booster seat while they are:

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

For more information see peelregion.ca/health/carseat

Use of Protective Equipment

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

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

Policy

Bike Helmet Law

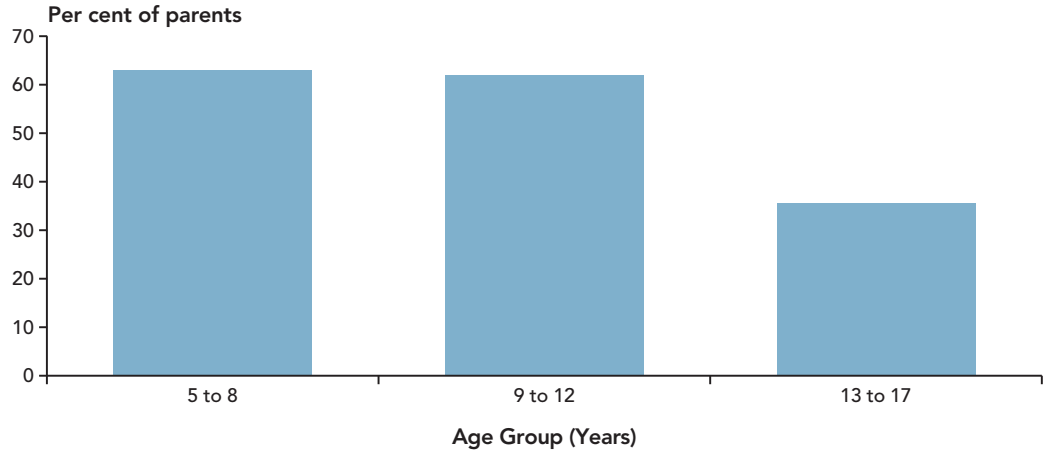
Ontario children age 18 years and under are mandated by law to wear a helmet when riding on public roads. Although this law has been in effect since 1995, adherence is still low.

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

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

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

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



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

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