

Firearm Injuries

Each year in Ontario, more than 600 people visit an emergency department with a firearm injury and more than 190 are hospitalized. Unintentional injury is the leading type of injury for emergency department visits and violence is the most common type of hospitalization for firearm-related injuries.

Results

During the 2004/05 fiscal year, there were a total of 624 visits to an emergency department and 199 hospitalizations due to a firearm injury in Ontario.

Unintentional injuries were the most common type of firearm incident for emergency department visits, accounting for 63% of all visits to the emergency department due to a firearm injury (Table 1). Injuries are classified as unintentional when the person firing the gun does not intend to harm anyone (e.g., while cleaning a firearm). In contrast, violence was the most frequent type of firearm-related injury hospitalization, followed by unintentional firearm injuries.

Males accounted for 90% of emergency department visits and 89% of hospitalizations with a firearm injury in Ontario. For emergency department visits, a large peak in the number of injuries was observed among those 17-23 years of age (Figure 1). For hospitalizations, a peak was seen among those 21-24 years of age. In some cases, detailed results for firearm injury hospitalizations are not presented due to small numbers.

For firearm-related emergency department visits, the head was the most common site of injury, followed closely by injuries to the upper limb (Figure 2). More specifically, open wounds of the head, face, or hand were most frequent. In contrast, for hospitalizations, the back, chest, abdomen, or pelvis was the most frequent site for injury, followed by injuries to the head.

FIGURE 1. Emergency department visits and hospitalizations for firearm injuries by age (Ontario, 2004/2005)

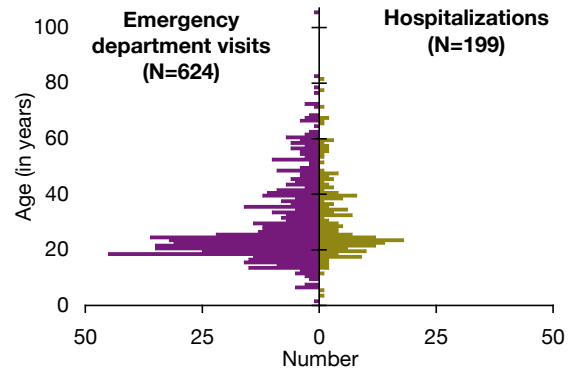


FIGURE 2. Site of injury for firearm injuries (Most responsible diagnosis, Ontario, 2004/05)

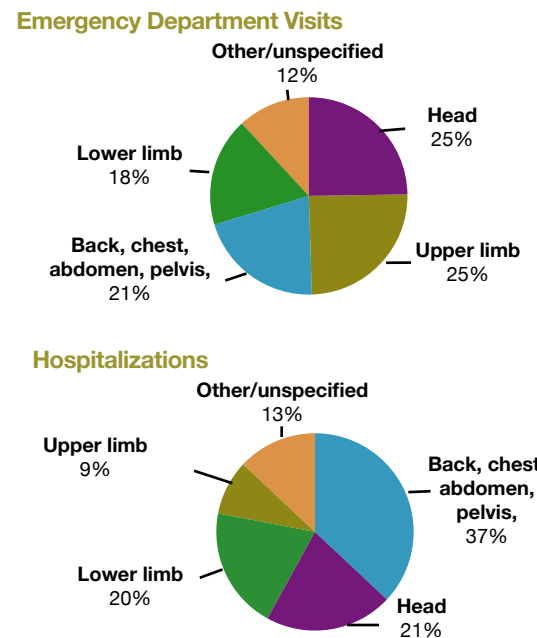


TABLE 1. Type of firearm injury (Ontario, 2004/05)

Type of firearm injury (intent)	Number (%)	
	Emergency department visits	Hospitalizations
Unintentional	395 (63%)	78 (39%)
Violence	152 (24%)	92 (46%)
Self-harm	31 (5%)	22 (11%)
Undetermined	46 (7%)	7 (4%)
Total	624 (100%)	199 (100%)

TABLE 2. Regional comparison of firearm injuries (Ontario, 2004/05)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits								
Number	57	76	75	85	169	75	75	624
Rate per 100,000 ^a	3.7	6.9	3.2	4.0	6.8	4.8	8.7	5.3
Average age (in years)	26	29	27	27	28	27	33	29
% male	93	86	89	91	94	91	83	90
Hospitalizations								
Number	10	20	23	17	87	6	29	199
Rate per 100,000 ^a	0.7	1.8	1.0	0.8	3.5	0.4	3.4	1.7
Average age (in years)	30	37	28	29	28	36	36	30
% male	90	90	83	88	95	83	79	89

a. Age-specific rate per 100,000 population.

Notes: Region of residence unknown/outside of Ontario for 12 emergency department visits and 7 hospitalizations.

Ontario Injury Compass

is produced by
SMARTRISK
with funding and
in collaboration with
**The Ontario Public
Health Association**
and

The Government of Ontario

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TABLE 3. Regional comparison of firearm injuries for select age groups (Ontario, 2004/05)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits - Rate per 100,000 population^a (Number)								
10-14 years	13.8 (15)	6.2 (5)	3.6 (6)	3.7 (6)	1.3 (<5)	6.4 (7)	10.2 (6)	5.9 (49)
15-19 years	9.9 (11)	19.5 (16)	13.0 (21)	14.6 (23)	14.3 (21)	18.3 (20)	34.0 (21)	16.2 (134)
20-24 years	2.7 (<5)	24.8 (20)	12.2 (20)	14.7 (21)	38.3 (69)	12.7 (14)	10.5 (6)	18.4 (156)
25-29 years	4.0 (<5)	9.7 (7)	1.9 (<5)	6.4 (8)	12.5 (28)	4.7 (5)	4.4 (<5)	7.0 (58)
30-34 years	4.9 (5)	6.6 (5)	2.2 (<5)	2.1 (<5)	7.2 (17)	0.9 (<5)	17.4 (9)	5.1 (46)

a. Age-specific rate per 100,000 population.

Note: Region of residence unknown/outside of Ontario for 9 emergency department visits among persons 10-34 years of age.

About 57% of persons who visited an emergency department with a firearm injury were discharged home, 29% were admitted to the reporting facility, and 3% died after arrival in the emergency department. For hospitalized cases, about 80% were discharged home, 10% were discharged to another facility providing inpatient care (e.g., rehabilitation centre), and approximately 7% died after admission to an acute care hospital. The 199 hospitalized cases accounted for more than 1,800 days in acute care hospitalizations with an average length of stay of 9.1 days.

For emergency department visits in Ontario, the rate of firearm injuries was 5.3 per 100,000 population and the hospitalization rate was 1.7 per 100,000 population (Table 2). By region, the rate of emergency department visits varied from a low of 3.2 per 100,000 population in the Central West region to a high of 8.7 per 100,000 in the North. In contrast, hospitalization rates ranged from a low of 0.4 per 100,000 in the East to a high of 3.5 per 100,000 in the Toronto region. Regional differences were observed in the highest numbers and rates of firearm injuries by age group (Table 3).

Discussion

This Compass highlights patterns of emergency department visits and hospitalizations for firearm injuries in Ontario. Injuries were most common among young males. Some diverse patterns of injury were observed for emergency department visits compared to hospitalizations. For example, unintentional injuries were the most common type of injury for emergency department visits whereas violence was the most frequent type of injury for hospitalizations. Other Ontario analyses have also studied patterns of firearm injuries.¹⁻⁵

It is important to note that the data presented in this Compass do not represent the entire spectrum of injuries. Deaths that occur outside of the hospital setting were not included. In 2003, there were 183 deaths associated with firearms in the province of Ontario. Of these deaths, 72% were categorized as suicides and 27% were violence-related.⁵

References

1. Hackam DJ, Mazzioti MV, Pearl RH, et al. Mechanisms of pediatric trauma deaths in Canada and the United States: the role of firearms. *J Trauma* 2004;56:1286-90.
2. Carrington PJ, Moyer S. Gun control and suicide in Ontario. *Am J Psychiatry* 1994;151:606-8.
3. Shanon A, Feldman W. Childhood gunshot injuries in the Ottawa area. *Can J Public Health* 1993;84:159-62.
4. Shanon A, Feldman W. Serious childhood injuries caused by air guns. *CMAJ* 1991;144:723-5.
5. Statistics Canada. Mortality, *Summary List of Causes-2003*. Table 1-7 Deaths by selected grouped causes, sex and geography-Ontario. Cat. No.: 84F0209.

Managing the risk

Here are some safety tips that can be used to help reduce the risks for a firearm injury:

- ❖ Learn the characteristics of your firearm and ensure you have proper training and certification (Firearms Safety Education and Awareness (FSEA) program).
- ❖ If you have a firearm, ensure it is stored according to the Canadian Firearms Act—unloaded, locked away, and separate from its ammunition.
- ❖ Treat every firearm as if it is loaded. Always control the muzzle of your firearm.
- ❖ Keep firearms unloaded and action open until you are ready to shoot. Keep your finger off the trigger. Be sure of your target and what is beyond it.
- ❖ Keep your firearm well maintained. Avoid modifying your firearm. Use only the correct ammunition for your firearm.
- ❖ Wear protective ear and eye equipment.
- ❖ Alcohol, drugs, and fatigue do not mix with firearms.
- ❖ Nonpowder firearms (air guns and BB guns) are dangerous and should not be considered as toys for children or adolescents.

For Further Information

Canada Firearms Centre

www.cfc-ccaf.gc.ca

Canadian Paediatric Society-Youth and firearms in Canada

www.cps.ca/english/statements/AM/AH05-02.htm

Statistics Canada (By subject: Justice)

www.statcan.ca

SMARTRISK

www.smartrisk.ca

World Health Organization-Violence

www.who.int/violence_injury_prevention/violence/en/

Published Articles

Bridges FS. Gun control law (Bill C-17), suicide, and homicide in Canada. *Psychol Rep* 2004;94:819-26.

Cukier W. Firearms regulation: Canada in the international context. *Chronic Dis Can* 1998;19:25-34.

Wilkins K. Deaths involving firearms. *Health Rep* 2005;16:37-43.

Methods

Emergency department data were obtained from the National Ambulatory Care Reporting System and data for acute care hospitalizations were obtained from the Discharge Abstract Database at the Canadian Institute for Health Information for the 2004/05 fiscal year. Firearm-related injuries were classified according to the International Classification of Diseases, 10th revision (ICD-10) using codes X32-X34, X72-X74, X93-X95, and Y22-Y24. Firearm injuries of unintentional, self-harm, violence, and undetermined intent were included. Note that some persons were seen in an emergency department and then admitted to hospital; however, persons can be admitted to hospital without visiting an emergency department. Percentages may not total 100% due to rounding. Regions were defined according to place of residence using the Ontario Ministry of Health Region Codes.