

# CHIRPP INJURY BRIEF

Canadian Hospitals Injury Reporting and Prevention Program



## ***Injuries associated with opening and closing of garage doors***

1990-2005, all ages

### **SOURCE OF THE STATISTICS**

Injury data were obtained from the database of the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). CHIRPP is an injury surveillance system operating in the emergency departments of 10 pediatric and 4 general hospitals in Canada. Data collection began in April 1990 at the pediatric hospitals and between 1991 and 1995 in the general hospitals. CHIRPP is a program of the Injury and Child Maltreatment Section of the Health Surveillance and Epidemiology Division, Centre for Health Promotion, Public Health Agency of Canada.

Briefs and reports are updated when there is reason to believe the injuries or circumstances surrounding the injuries have changed. For example, the report of injuries associated with a specific product would be updated if the manufacturing regulations for the product are changed to include a new safety element. There is no need to update reports on a regular basis because frequent updates would simply increase the number of records included in the report but not necessarily result in any change in the patterns and distributions found.

### **LIMITATIONS**

It is important to note that the injuries described do not represent all injuries in Canada, but only those seen at the emergency departments of the 14 hospitals in the CHIRPP network. Since most of the data comes from the pediatric hospitals, which are in major cities, injuries suffered by the following people are under-represented in the CHIRPP database: older teenagers and adults, who are seen at general hospitals; First Nation and Inuit people; and other people who live in rural areas. Fatal injuries are also under-represented in the CHIRPP database because the emergency department data do not capture people who died before they could be taken to hospital or those who died after being admitted.

### **INCLUSION AND EXCLUSION CRITERIA**

A May 2006 search of the CHIRPP database (All ages, 1,548,649 records total, spanning 1990-2005) for injuries associated with the functionality, opening or closing, of garage doors, automatic or manual (CHIRPP codes 1062,1063), was conducted. Cases were then reviewed individually to exclude any where the description indicated that the garage door was referring to the door leading into the house or cases where the garage door was incidental to the injury (e.g. where patient fell against the garage door while biking).

### **RECOMMENDED CITATION**

Injury briefs and reports and data from them may be copied and circulated freely provided that the source is acknowledged. The following citation is recommended:

Health Surveillance and Epidemiology Division (Public Health Agency of Canada). *Injuries associated with opening and closing of garage doors*: Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) database, 1990-2005, all ages, 622 records.

### **FOR MORE INFORMATION**

Please contact the Injury and Child Maltreatment Section, Health Surveillance and Epidemiology Division, by PHONE at (613) 957-4689, by FAX at (613) 941-9927 or visit our website at:

<http://www.phac-aspc.gc.ca/inj-bles/>

## Background

An earlier CHIRPP study on injuries associated with garage doors found 183 cases between 1990 and 1995. These injuries were most frequent among children 10-14 years of age (28.4%). Males represented 71% of the cases. Most of the injuries happened in the patient's own home garage (77.6%), most commonly in the summer (37.7%) and many were due to a body part being caught in the door (36.6%). The majority of patients (56.8%) received advice only or minor treatment (treatment with follow-up if necessary), 37.7% required medical follow-up and 4.9% were admitted to hospital. Injuries to the fingers or hand accounted for 62.4% of all injuries. The most frequent type of injury were abrasions, bruises and inflammations (34.6% of all injuries). This current study extends the timeframe to include 2005 data; however, similar patterns were noted.

## Overview

Between 1990 and 2005, 622 cases of injuries associated with the opening or closing of garage doors were identified which accounts for 0.04% of all CHIRPP records in this time frame, with no apparent trend.

**Table 1.** Injuries associated with garage doors, as a proportion of all CHIRPP cases, all ages, both sexes, 1990-2005.

Year	# of cases (%)	Total/100,000 <sup>‡</sup>
1990	15 (2.4)	35.16
1991	34 (5.5)	45.13
1992	30 (4.8)	41.92
1993	39 (6.3)	38.42
1994	49 (7.9)	39.64
1995	59 (9.5)	48.16
1996	46 (7.4)	38.46
1997	54 (8.7)	46.25
1998	56 (9.0)	50.04
1999	36 (5.8)	31.18
2000	46 (7.4)	39.97
2001	36 (5.8)	31.18
2002	45 (7.2)	38.23
2003	46 (7.4)	39.62
2004 <sup>**</sup>	12 (1.9)	-
2005 <sup>**</sup>	19 (3.1)	-

<sup>‡</sup>Number of cases per 100,000 CHIRPP cases of all types, all ages, for the given year.

<sup>\*\*</sup>2004 and 2005 were not complete years; without full year, unable to calculate total/100,000 due to seasonal variations.

## Age and sex distribution

Table 2 shows the age distribution with just over 40% of cases occurring in patients aged 5-14 years of age. Males represented 68.8% of incidents. The median age was 12.8 years (range: 3 months to 86.9 years). The interquartile range (25<sup>th</sup> to 75<sup>th</sup> percentiles) was 7.6 years to 36.0 years.

**Table 2.** Age and sex distribution of patients who experienced injuries associated with garage doors, CHIRPP, all ages, both sexes, 1990-2005.

Age (months)	# cases (% of cases)	#cases/100,000 CHIRPP †	% male
< 1	3 (0.5)	5.4	33.3
1	9 (1.5)	7.9	77.8
2-4	83 (13.3)	32.0	72.3
5-9	132 (21.2)	41.2	68.9
10-14	128 (20.6)	32.8	57.0
15-19	44 (7.1)	27.6	68.2
>=20	223(35.8)	89.7	74.4
<b>Total</b>	<b>622 (100.0)</b>	<b>40.2</b>	<b>68.8</b>

†Because CHIRPP collects information from ten children's hospitals and only four general hospitals, there is a high number of young children in the database. Using cases per 100,000 within an age group (instead of percentage by age group) adjusts for this uneven distribution.

## Location

Table 3 displays the location where injuries associated with garage doors occurred, with a combined total of 79.1% occurring in and around private homes. There were 47 cases (7.6%) which occurred while patient was working for income; of these, there was only one case involving a patient in the 10-14 age group and 4 cases in the 15-19 age group.

**Table 3.** Location of injuries associated with garage doors, CHIRPP, all ages, both sexes, 1990-2005.

Location	# cases (% of cases)	# which occurred while working for income (% of location)
Own home or other home garage	492 (79.1)	6 (1.2)
Trade, construction or industrial area	40 (6.4)	29 (72.5)
Public area (park, arena, school etc.)	5 (0.8)	1(20.0)
Other or unspecified	85 (13.7)	11 (12.9)
<b>Total</b>	<b>622 (100.0)</b>	<b>47 (7.6)</b>

## Season

Table 4 lists the distribution of injuries by season, with close to two-thirds of injuries occurring during the spring or summer months.

**Table 4.** Season, injuries associated with garage doors, CHIRPP, all ages, both sexes, 1990-2005.

Season	# cases (% of cases)
Fall (September-November)	134(21.6)
Winter (December-February)	92 (14.8)
Spring (March-May)	170 (27.3)
Summer (June-August)	226 (36.3)
Total	622 (100.0)

## Circumstances

Table 5 describes what the patient's activity was at time of injury. Automatic garage doors were clearly identified in 12% of the cases, 75% were classified as either manual or automatic, and the remaining records did not specify.

**Table 5.** Activity at time of injury associated with garage doors, CHIRPP, all ages, both sexes, 1990-2005.

Patient activity at time of injury	# cases (% of cases)
Underside of garage door closed or fell onto patient	248 (39.9)
Body part caught in panel of door while opening/closing	208 (33.4)
Injured by a mechanism of garage door <sup>†</sup>	52 (8.4)
Injured while repairing garage door	31 (5.0)
Cut on garage door window	14 (2.3)
Injured by garage door, not further specified (NFS)	14 (2.3)
Cut by piece of garage door while opening/closing	12 (1.9)
Garage door opened and hit patient	11 (1.8)
Slipped while opening/closing garage door	10 (1.6)
Patient lifted by door while opening, then fell to ground	9 (1.5)
Strain while opening/closing garage door	7 (1.1)
Garage door fell off hinge/tracks onto patient (malfunction)	6 (1.0)
<b>Total</b>	<b>622 (100.0)</b>

<sup>†</sup>Mechanism includes roller, track or spring.

## Injuries associated with garage doors

In this dataset, there were 622 patients with 711 injuries. Table 6 details the body region and the nature of injury. Overall, 30% of injuries were lacerations, 25% were bruise/abrasions and 16% fractures. Nearly 70% of all injuries occurred to the upper extremities (e.g. hand, arm, fingers). Of these cases, 57% were bruise/abrasions or lacerations. There were 2 patients who suffered internal injuries; one of these experienced internal injuries to both the thorax and abdomen. Both cases were to children between the ages of 6 and 10, who were caught underneath the garage door as they tried to “dive” below it as it was closing. There were 15 cases of amputations to upper extremities; one case involved a hand and the other 14 were to the finger or thumb.

**Table 6.** Body part and nature of injury, injuries associated with garage doors, CHIRPP, all ages, both sexes, 1990-2005.

<b>Body part †</b> nature of injury	<b># of cases</b> <b>(% of cases)</b>
<b>Head, Face, Neck</b>	<b>91 (12.8)</b>
laceration	34
minor head injury	22
bruise/abrasion	17
sprain/strain	6
concussion	5
soft tissue	3
facial fracture	2
neck fracture	1
eye injury	1
<b>Upper Extremity</b>	<b>489 (68.8)</b>
laceration	165
bruise/abrasion	123
fractures	78
crush	68
soft tissue	18
amputation	15
sprain/strain	12
nerve/muscle	6
dislocation	4
<b>Trunk</b>	<b>35 (4.9)</b>
bruise/abrasion	16
sprain/strain	7
soft tissue	6
internal	3
laceration	2
fractures	1
<b>Lower Extremity</b>	<b>79 (11.1)</b>
bruise/abrasion	35
fractures	23
laceration	9
sprain/strain	6
soft tissue	4
crush	2
Other/unknown	<b>17 (2.4)</b>
<b>Total‡</b>	<b>711 (100.0)</b>

†CHIRPP allows the reporting of up to 3 injuries per patient. This table reports all injuries.

## Disposition

Table 7 describes the treatment received in the emergency department (ED). The majority of patients received advice only, or treatment with follow-up if necessary (56.3%), just over a third of patients required treatment, with follow-up required, and 6% were admitted to hospital.

**Table 7.** Treatment in the ED, injuries associated with garage doors, CHIRPP, all ages, both sexes, 1990-2005.

<b>Disposition</b>	<b># cases (%)</b>	<b>% cases CHIRPP<sup>†</sup></b>
Left without being seen	6 (1.0)	1.1
Advice only	77 (12.4)	18.2
Treated, medical follow-up if necessary	273 (43.9)	39.1
Treated, medical follow-up required	226 (36.3)	33.6
Short stay, observed in ED	3 (0.5)	1.6
Admitted to hospital or transferred	37(5.9)	6.4
Fatal <sup>††</sup>	0.0	<0.1
<b>Total</b>	<b>622 (100.0)</b>	<b>100.0</b>

<sup>†</sup>The distribution of all cases in the entire CHIRPP database for the given disposition over the same time period.

<sup>††</sup>Note that fatalities counted by CHIRPP include only those patients who were dead on arrival at the ED or who died in the ED. They do not include people who died before they could be taken to hospital or those who died after hospital admission.