

# CHIRPP INJURY BRIEF

Canadian Hospitals Injury Reporting and Prevention Program



## Injuries associated with ... Non-Fatal Dog Bites

1990-2003, 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, 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 the data collection sites are not a representative sample of all Canadian hospitals. 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 15 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; native people; and 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 January 2005 search of the CHIRPP database for injuries related to dog contact was conducted (all ages; 1,432,841 records total). Bite-related cases were identified using the CHIRPP mechanism code for bite (code 17) and bilingual (English and French) text string searches. A random sample was reviewed record-by-record to code for circumstances. The search identified a total of 13,921 records.

### 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 Non-Fatal Dog Bites: Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) database, 1990-2003 (cumulative to January 2005), All ages, 13,921 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/>

### APPENDIX

The appendix details dog bite fatalities in Canada (1980-2002) and dog contact (i.e. bites, scratches, tackles, etc.) hospitalizations for the 2002-03 fiscal year (April-March). Death data are from Statistics Canada and hospitalizations are from the Canadian Institute for Health Information (CIHI) - analysed by the Health Surveillance and Epidemiology Division, PHAC.



## Overall Pattern

Over the time period, 17,747 injuries associated with dog contact were identified, of which 13,921 (78.4%) were bites. The following analysis deals with these bite-related cases.

## Age and Sex Distribution

Table 1 details the age and sex distribution. Children 5-9 years were most frequent at 1,449.9 cases per 100,000 CHIRPP cases of all types. However 1-4 year-olds (1,069.4/100,000) and 50-74 years (1,024.3/100,000) were also frequent. The median age was 8.4 years (range: 4 days to 90 years). Males represented 56% of incidents.

**Table 1.** Age and sex distribution of dog bite, CHIRPP database as of January 2005 (1990-2003)

Age Group	# cases (%)	#/100,000 CHIRPP <sup>1</sup>	% male	% male CHIRPP <sup>2</sup>
0-3 months	11 (< 0.1)	117.2	54.5	53.3
4-5	5 (< 0.1)	70.5	20.0	52.0
6-7	12 (< 0.1)	131.0	33.3	52.8
8-9	54 (0.4)	450.9	68.5	54.7
10-11	61 (0.4)	459.0	42.6	55.4
1-4 years	3,727 (26.8)	1,069.4	52.6	57.0
5-9	4,333 (31.1)	1,449.9	56.4	58.6
10-14	3,172 (22.8)	885.2	60.8	61.2
15-19	787 (5.7)	539.9	55.0	63.2
20-29	475 (3.4)	637.0	58.7	66.5
30-39	412 (3.0)	702.4	52.4	65.8
40-49	371 (2.7)	897.6	55.0	61.6
50-64	317 (2.3)	1,015.7	55.5	55.5
65-74	124 (0.9)	1,046.9	46.8	44.8
75-84	48 (0.3)	547.3	39.6	34.6
85+	12 (< 0.1)	295.3	41.7	24.2
<b>Total</b>	<b>100.0</b>	<b>971.6</b>	<b>56.0</b>	<b>59.5</b>

<sup>1</sup> Because CHIRPP collects information from ten children's hospitals and only five of the 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.

<sup>2</sup> The proportion of males in the entire CHIRPP database for the given age group.

## Circumstances

A random sample of 933 cases was selected for detailed coding of circumstances. Table 2 provides details. Playing with the dog was the most frequent circumstance (16.8%).

**Table 2.** Circumstances involved in dog bite cases, CHIRPP, 1990-2003 (random sample, n=933)

Circumstance	# cases (%)
Playing with dog, NFS	157 (16.8)
Patient provoked, hurt or disturbed dog <sup>1</sup>	141 (15.1)
Riding, walking or running by dog (no direct interaction)	139 (14.9)
Ordinary, non-playing, interaction with dog (petting, feeding)	135 (14.5)
Playing in proximity to dog, NFS	85 (9.1)
No interaction with dog, NFS	50 (5.4)
Breaking up dog-animal fight	34 (3.6)
Disciplining, controlling or moving dog	18 (1.9)
Other	40 (4.3)
Unspecified or insufficient information to classify	134 (14.4)
<b>Total</b>	<b>933 (100.0)</b>

<sup>1</sup> Includes: Teased, abused, assaulted, unintentionally hurt dog, trespassing (incl. delivery persons), other animal in proximity, owner attacked, proximity to babies, dog disturbed while eating or sleeping, involving toy or bone.

NFS: Not Further Specified

## Relationship of the dog to the patient

Table 3 shows the relationship of the dog to the patient for the random sample of 933 incidents. In cases where the relationship was reported (n=423), 94.6% of the patients knew the dog that bit them.

**Table 3.** Relationship of the dog to patient, dog bite, CHIRPP, 1990-2003 (random sample, n=933)

Relationship	# cases (%)
Owner	285 (30.5)
Other dog, known to the patient	115 (12.3)
Other dog, unknown to the patient	23 (2.5)
Unspecified	510 (54.7)
<b>Total</b>	<b>933 (100.0)</b>

## Temporal factors

Overall, over one-third (36.7%) of the biting incidents occurred in the summer and 27.3% in the spring. Over one-third (37.6%) occurred on the weekend. Biting incidents begin to increase in the late afternoon, peaking in the early evening. On weekends the peak occurred somewhat earlier - between 4:00 and 5:59 pm compared to 6:00-7:59 pm on weekdays.

## Injuries

Table 4 shows the distribution of primary injuries. Overall, the face was the most frequently injured body region (40.4%, but this varied with age, see Table 6). Of the facial injuries, 95.5% were bite punctures and lacerations and 1.7% (96 cases) were injuries to the eye (globe). There were 11 cases of partial tissue amputation of the ears, nose and fingers. There were 2 skull fractures and 1 intracranial injury. The skull fractures were to children under two years-old and the intracranial injury was to a newborn, where the teeth penetrated the soft skull.

Table 5 shows the secondary and associated injuries. These were mainly other bites and scratches or injuries due to subsequent events not directly related to the bite (e.g. “Dog bit arm, child fell back and struck head on curb” - skull fracture).

Table 6 shows how the proportion of bites to the head/face/neck decreases rapidly with increasing age.

**Table 4.** Primary dog bite-related injuries, CHIRPP 1990-2003, all ages

<b>Body part nature of injury</b>	<b># cases (%)</b>
<b>Head/Face/Neck</b>	<b>5,981 (43.0)</b>
Face (incl. ears)	5,621 (40.4)
<i>punctures and lacerations</i>	5,368
<i>abrasions and soft tissue injury</i>	147
<i>eye (globe) injuries</i>	96
<i>ear/nose partial amputations</i>	6
<i>other</i>	4
Scalp, Skull	283 (2.0)
<i>punctures and lacerations</i>	268
<i>abrasions and soft tissue injury</i>	12
<i>skull fracture</i>	2
<i>intracranial</i>	1
Neck	77 (0.6)
<i>punctures and lacerations</i>	72
<i>abrasions and soft tissue injury</i>	4
<i>tracheal injury</i>	1
<b>Upper Extremity</b>	<b>4,727 (34.0)</b>
<i>punctures and lacerations</i>	4,548
<i>abrasions and soft tissue injury</i>	150
<i>fractures</i>	17
<i>finger amputations</i>	5
<i>other</i>	7
<b>Lower Extremity</b>	<b>2,519 (18.1)</b>
<i>punctures and lacerations</i>	2,367
<i>abrasions and soft tissue injury</i>	148
<i>fractures</i>	3
<i>musculotendinous</i>	1
<b>Trunk (incl. Spine and Cord)</b>	<b>561 (4.0)</b>
Back	246 (1.8)
<i>punctures and lacerations</i>	225
<i>abrasions and soft tissue injury</i>	20
<i>musculotendinous</i>	1
Abdomen	110 (0.8)
<i>punctures and lacerations</i>	102
<i>abrasions and soft tissue injury</i>	7
<i>injury to internal organ</i>	1
Thorax	108 (0.7)
<i>punctures and lacerations</i>	98
<i>abrasions and soft tissue injury</i>	8
<i>rib fracture</i>	2
Pelvis/perineum	58 (0.4)
Other	39 (0.3)
<b>Other and Unknown <sup>1</sup></b>	<b>133 (0.9)</b>
<b>Total</b>	<b>13,921 (100.0)</b>

<sup>1</sup> Includes multiple injuries to multiple body parts, unknown, no injury detected and systemic injury (including asphyxia)

**Table 5.** Secondary and associated dog bite-related injuries, CHIRPP 1990-2003, all ages

<b>Body part nature of injury</b>	<b># cases (%)</b>
<b>Head/Face/Neck</b>	<b>1,011 (44.2)</b>
<b>Face (incl. external ear)</b>	<b>842 (36.8)</b>
<i>punctures and lacerations</i>	614
<i>abrasions and soft tissue injury</i>	179
<i>eye (globe) injuries</i>	30
<i>dental</i>	11
<i>facial fractures</i>	4
<i>ear/nose partial amputations</i>	3
<i>injury to facial nerve</i>	1
<b>Scalp, Skull</b>	<b>122 (5.3)</b>
<i>punctures and lacerations</i>	96
<i>abrasions and soft tissue injury</i>	18
<i>minor closed head injury</i>	6
<i>skull fracture</i>	1
<i>crushing injury</i>	1
<b>Neck</b>	<b>47 (2.1)</b>
<i>punctures and lacerations</i>	37
<i>abrasions and soft tissue injury</i>	8
<i>blood vessel injury</i>	1
<i>sprain/strain</i>	1
<b>Upper Extremity</b>	<b>741 (32.4)</b>
<i>punctures and lacerations</i>	504
<i>abrasions and soft tissue injury</i>	181
<i>fractures</i>	37
<i>finger amputations</i>	4
<i>other</i>	15
<b>Lower Extremity</b>	<b>372 (16.3)</b>
<i>punctures and lacerations</i>	239
<i>abrasions and soft tissue injury</i>	127
<i>other</i>	6
<b>Trunk (incl. Spine and Cord)</b>	<b>162 (7.1)</b>
<b>Back</b>	<b>67 (2.9)</b>
<i>punctures and lacerations</i>	39
<i>abrasions and soft tissue injury</i>	27
<i>sprain/strain</i>	1
<b>Thorax</b>	<b>44 (1.9)</b>
<i>punctures and lacerations</i>	29
<i>abrasions and soft tissue injury</i>	14
<i>lung injury</i>	1
<b>Abdomen</b>	<b>29 (1.3)</b>
<i>punctures and lacerations</i>	18
<i>abrasions and soft tissue injury</i>	11
<b>Pelvis/perineum</b>	<b>13 (0.6)</b>
<b>Other</b>	<b>9 (0.4)</b>
<b>Multiple injuries to multiple body parts</b>	<b>2 (&lt;0.1)</b>
<b>Total</b>	<b>2,288 (100.0)</b>

**Table 6.** Proportion of dog bite-related injuries which

were to the head, face and neck by age group,  
CHIRPP 1990-2003

Age group	Proportion of cases involving the head/face/neck region (%)
0-11 months	76.5
1-4 years	67.1
5-9	46.9
10-14	29.7
15-19	23.1
20-29	18.1
30-39	14.6
40-49	8.6
50-64	6.6
65-74	9.7
75-84	4.2
85+	16.7
<b>Total</b>	<b>43.0</b>

### Treatment in Emergency

Table 7 shows the treatment received by the patients in the emergency room. Overall, 4.9% were admitted to hospital but this varied by age with over 8% of 0-4 and 85<sup>+</sup> year-olds being admitted.

**Table 7.** Treatment received in the emergency department, Dog bite, CHIRPP 1990-2003

<b>Disposition</b>	<b># cases (%)</b>	<b>% cases CHIRPP <sup>1</sup></b>
Left without being seen	125 (0.9)	1.0
Advice only	1,158 (8.3)	18.4
Treated, medical follow-up if necessary	6,535 (46.9)	38.9
Treated, medical follow-up required	5,367 (38.6)	33.7
Short stay, observed in ED	46 (0.3)	1.6
Admitted to hospital	687 (4.9)	6.4
Fatal	0 (0.0)	<0.1
Unknown	3 (<0.1)	<0.1
<b>Total</b>	<b>13,921 (100.0)</b>	<b>100.0</b>

<sup>1</sup> The proportion of cases in the entire CHIRPP database for the given disposition, over the same time period.

## Comparison to Other Injury Types

Tables 8-14 detail the ranking of dog bites with respect to other injury contexts by age group.

**Table 8.** Dog bites in relation to other injury types. CHIRPP, 1990-2003, ages 0-4 years

<b>Injury Type</b>	<b># cases</b>
Nursery products	14,850
Playground equipment	13,705
Poisoning	13,484
Toy-related	13,390
Bicycle	3,939
<b>Dog bites</b>	<b>3,870</b>
Motor vehicle - pedestrian	1,671

**Table 9.** Dog bites in relation to other injury types. CHIRPP, 1990-2003, ages 5-9 years

Injury Type	# cases
Playground equipment	24,323
Bicycle	20,205
Soccer	5,839
Toy-related	5,450
<b>Dog bites</b>	<b>4,333</b>
Ice hockey	3,198
Motor vehicle - pedestrian	3,211

**Table 10.** Dog bites in relation to other injury types. CHIRPP, 1990-2003, ages 10-14 years

Injury Type	# cases
Bicycle	21,639
Ice hockey	19,651
Snowboarding	5,693
Inline skating	5,458
Skateboarding	4,623
<b>Dog bites</b>	<b>3,172</b>
Trampoline	2,323

**Table 11.** Dog bites in relation to other injury types. CHIRPP, 1990-2003, ages 15-19 years

<b>Injury Type</b>	<b># cases</b>
Ice hockey	10,947
Bicycle	4,870
Snowboarding	2,787
Skateboarding	1,959
Inline skating	1,264
<b>Dog bites</b>	<b>787</b>
Alpine skiing	742

**Table 12.** Dog bites in relation to other injury types. CHIRPP, 1990-2003, ages 20-49 years

<b>Injury Type</b>	<b># cases</b>
Home maintenance	6,697
Ice hockey	5,439
Bicycle	3,121
Gardening	2,051
Basketball	1,551
<b>Dog bites</b>	<b>1,258</b>
Inline skating	533

**Table 13.** Dog bites in relation to other injury types. CHIRPP, 1990-2003, ages 50-64 years

<b>Injury Type</b>	<b># cases</b>
Home maintenance	1,922
Gardening	926
Bicycle	484
<b>Dog bites</b>	<b>317</b>
Motor vehicle - pedestrian	274
Ice hockey	211
Alpine skiing	117

**Table 14.** Dog bites in relation to other injury types. CHIRPP, 1990-2003, ages 65+ years

<b>Injury Type</b>	<b># cases</b>
Home maintenance	909
Gardening	594
Motor vehicle - pedestrian	349
Bicycle	189
<b>Dog bites</b>	<b>184</b>
Poisoning	79
Ice hockey	23

## Appendix

## **Deaths**

In Canada, between 1980 and 2002, there were 43 deaths related to dog bites of which 63% involved children less than 10 years old. Overall, the adjusted rate for dog bite was 0.01 per 100,000 population and, for children 1-4 years of age, 0.05/100,000.

## **Hospitalizations**

In Canada, in the fiscal year 2002-03, there were 487 dog contact-related hospitalizations of which 42% involved children under 15 years of age. Overall, the adjusted rate for dog bite hospitalizations was 1.57 per 100,000 population and, for children 1-4 years of age, 5.87/100,000.