

CHIRPP INJURY BRIEF

Canadian Hospitals Injury Reporting and Prevention Program



Injuries associated with Railings and Bannisters

1990-2007, Ages 0-9 years

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

An August 2008 search of the CHIRPP database for injuries related to railings and bannisters was conducted (ages 9 years and younger; 907,472 records total). Records were selected if *i*) any of the six factor code fields contained the CHIRPP codes for handrails, railings or bannisters (code 1010) or *ii*) the CHIRPP narratives contained any of the following text strings: "RAILING", "BANNISTER", "BANISTER", "HANDRAIL", "HAND RAIL", "HAND-RAIL", "RAMPE". Due to the large number of records identified with this search, a 10% random sample (10%RS) was generated to manually code the circumstances of the injury event. The 10%RS was scanned for irrelevant cases (described in the exclusions below) and these cases (and case-types) were removed from the 10%RS dataset as well as from the overall dataset. The following case types were excluded: Crib railings, escalators, elevators, vehicle interiors, beds/bunk beds and playground equipment. The cases which remained were related to railings and bannisters (including the vertical spindles), with or without stairs, in public and private home locations.

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 railings and bannisters*: Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) database, 1990-2007, ages 9 years and younger, 4,441 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/>



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Overall Pattern

Overall, 4,441 cases were identified, which represents 0.5% of all cases among children under 10 years of age. Ten cases (0.2%) involved a baby gate.

There were an additional 61 cases (not analyzed) where the injury event narrative indicated a *lack of railing* as a contributing factor in the injury event.

Table 1 displays the overall distribution of location. Most (69.8%) of the incidents occurred in a private home; these 3,102 cases represent 0.6% of all injuries occurring in private homes among children under 10 years of age, over the same time period.

Table 2 shows the proportion of cases occurring by year for 1990-2007. The proportions have remained relatively stable over time.

Table 1. Injuries associated with railings and bannisters, location, CHIRPP database, 1990-2007, ages 9 years and younger

Location of incident	# cases (%)
Private home own other	3,102 (69.8) 2,631 471
School	405 (9.1)
Commercial area	207 (4.7)
Sports/recreation area	120 (2.7)
Other ¹	281 (6.3)
Unknown	326 (7.3)
Total	4,441(100.0)

¹ Includes: hospitals, hotels, public parks (non-playground equipment), nursing homes, office buildings

Table 2. Proportion of cases by year, injuries associated with railings and bannisters, 1990-2007, ages 9 years and younger

Year	# of cases	CHIRPP #/100K ¹
1990	136	517.8
1991	170	398.1
1992	187	489.6
1993	272	523.5
1994	311	543.1
1995	292	506.0
1996	282	492.5
1997	296	523.4
1998	271	493.9
1999	234	434.6
2000	272	505.9
2001	268	492.2
2002	306	558.3
2003	267	509.0
2004	238	439.5
2005	230	441.8
2006	239	464.9
2007 ²	170	450.5
Total	4,441	489.4

¹ The number of railing and bannister-related cases per 100,000 cases in the given year

² 2007 is not complete

Circumstances

A 10% random sample (n=443) was generated to code the specific circumstances. Table 3 details the results. Impact via a fall or otherwise, was the most frequent circumstance (55.8%). Of the impact cases, 2-4 year olds were most frequent at 41.7%. Of the children who fell off of the railing, 5-9 year olds were most frequent (58.8%) followed by 2-4 year-olds (31.6%). Children aged 2-4 years most frequently fell through the spindles (63%) followed by 1 year-olds (25%). Of those children sliding down the bannister, 87% were 5-9 years old.

Table 3. Circumstances of injuries associated with railings and bannisters, 1990-2007, ages 9 years and younger. (10% random sample, n=443)

Circumstance	# cases (%)
Impact with railing or bannister ¹	247 (55.8)
Fell off of railing/bannister ²	114 (25.7)
Sliding down bannister of staircase ³	37 (8.3)
Body part or clothing caught	18 (4.1)
Fell <i>through</i> ⁴	17 (3.8)
Other ⁵	10 (2.3)
Total	443 (100.0)

¹ As a result of a fall down stairs or running into

² Sitting, climbing or bumped/pushed - and fell

³ Includes falls and non-falls (splinters, friction burns)

⁴ Child was able to get through spindles and fall; includes 1 case where the spindle broke

⁵ Includes swinging on railing (no fall); put lips on frozen metal railing

Age and Sex Distribution

Table 4 details the age and sex distribution of the cases; children ages 5-9 years accounted for 46.4% of all patients (532.4/100,000 CHIRPP cases). The median age was 4.7 years (Interquartile range: 2.6 to 7.0 years).

Table 4. Injuries associated with railings and bannisters, age and sex distribution, CHIRPP database, 1990-2007, ages 9 years and younger

Age group (years)	# cases (%)	#/100,000 CHIRPP ¹	% male	% male CHIRPP ²
infants	148 (3.3)	216.3	56.1	53.7
1	600 (13.5)	432.2	60.7	55.8
2-4	1,633 (36.8)	521.6	59.8	57.4
5-9	2,059 (46.4)	532.4	60.8	58.5
Total	4,441 (100.0)	489.5	60.3	57.3

¹ 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.

² The proportion of males in the entire CHIRPP database, 1990-2007, for the given age group.

Injuries

Table 5 detail the injuries sustained by the patient. CHIRPP allows the recording of up to 3 injuries; table 5 includes only the first, most serious, injury; 14% of patients had multiple injuries.

Table 5. Injuries associated with railings and bannisters, CHIRPP database, 1990-2007, ages 9 years and younger

Injury	# cases (%)
Head, face and neck	2,833 (63.8)
facial laceration	1,162
closed head injuries ¹	740
scalp laceration	287
skull fractures	67
other minor	577
Upper extremity	929 (20.9)
fractures	501
traumatic amputations (fingers)	4
other minor	424
Lower extremity	347 (7.8)
fractures	107
other minor	240
Trunk and spine	177 (4.0)
perineal/genitalia lacerations	25
internal injury to abdominal organ	16
spinal fracture	5
pelvic fracture	3
rib fracture	1
other minor	127
Other (systemic, unknown, none detected)	155 (3.5)
Total	4,441 (100.0)

¹ includes minor closed head injuries (n=596), concussions (n=114) and intracranial injuries (n=30)

Treatment in Emergency

Table 6 shows the treatment the patient received in the emergency department for injuries related to railings and bannisters. Patients were admitted to hospital at a rate of 7.1%, compared to 5.5% for the CHIRPP database overall.

Table 6. Treatment received in the emergency department, injuries associated with railings and bannisters, CHIRPP database, 1990-2007, ages 9 years and younger

Disposition	# cases (%)	CHIRPP ¹
Left without being seen/unknown	57 (1.3)	1.4
Advice only	1,055 (23.7)	22.3
Treated, medical follow-up if necessary	1,490 (33.6)	37.8
Treated, medical follow-up required	1,419 (32.0)	31.2
Short stay, observed in ED	104 (2.3)	1.8
Admitted to hospital	316 (7.1)	5.5
Fatal	0 (0.0)	<0.1
Total	4,441 (100.0)	100.0

¹ The percentage of all CHIRPP cases with the given disposition, ages 0-9 years, 1990-2007