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CHIRPP database, summary data for 1998, all ages

LIMITATIONS

This report is based on information from the database of the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). 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 the majority of CHIRPP 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.

SUMMARY (962 records)

Overall, 59.6% of the inline skating injuries were experienced by males and 10-14 year olds sustained the majority of injuries both overall (56.8%) and within the age stratum (2.0%). Almost half (46.1%) of the injuries occurred between 4:00 pm and 7:59 pm. Over one-third (36.1%) of the injuries took place on the weekend. Over half (52.4%) of the incidents happened in transport areas of which 39.3% were paved roads and 22% were sidewalks. Half (50.5%) of the injuries were the result of a loss of control (leading to a fall) with no specific cause. Fractures represented 47.6% of all injuries and of these 68% were of the forearm and wrist (45.2% and 22.8%, respectively). The proportion of forearm and wrist fractures relative to all other injuries for the inline skating group was 41.1% while the same proportion for the overall CHIRPP database was 7.1% for the same period (1998). In the cases where the status of safety equipment was known, helmets were used in 49.5% of the cases and sport padding in 34.8%. At the Emergency Department, 47.9% of the patients were treated with medical follow-up required while 7.8% were admitted to hospital.

SPECIFICATIONS OF THE SEARCH

In February 2000, a search of the CHIRPP database for the year 1998 (111,748 records) was

conducted for all ages. Records were selected if:

- i) they contained the factor code for inline skating (code 1163) or*
- ii) if the injury event description contained any of the following strings "IN-LINE SKAT", "IN LINE SKAT", "INLINE SKAT", "ROLLERBLAD", "ROLLER BLAD", "ROLLER HOCK", "PATIN A ROU", "PATIN ALIGN", "PATINS A ROU", "PATINS ALIGN".*

Selected records were then scanned and eliminated if the injury was not directly related to inline skating. The total number of records captured was 962.

MISSING (UNKNOWN) VALUES

In the following sections, at the bottom of each table or in the description, the number of missing values is indicated (if necessary). Missing values are those numbers for which the value of the variable in question is unknown (i.e. the information was not provided on the CHIRPP reporting form). In these cases the percentages are calculated on the total after the missing values are removed.

AGE AND SEX DISTRIBUTION OF THE INJURED PATIENTS

Age (Years)	Frequency	Percent of all injuries	Number /1,000 ¹	Percent male	Percent male CHIRPP ²
2-4	14	1.5	0.7	42.9	57.1
5-9	227	23.6	9.7	51.1	58.2
10-14	546	56.8	20.1	61.4	61.4
15-19	108	11.2	9.8	67.6	63.2
>=20	67	7.0	3.6	64.2	59.9
Total	962	100	8.6	59.6	59.5

¹ The number of injuries per 1,000 CHIRPP injuries of all types within the age group indicated. Because CHIRPP collects information from ten children's hospitals and only five general hospitals, there is a high number of young children in the database. Using the number per 1,000 within an age group (instead of overall percent by age group) adjusts for different age group distributions.

² The percentage of males in the CHIRPP database for all injuries for patients in the given age stratum in 1998.

OVERALL PATTERN OF OCCURRENCE

Year-to-year pattern

Year	Frequency	Number / 1,000 ¹
1994	756	6.1
1995	893	7.4
1996	1,096	9.2
1997	973	8.3
1998	962	8.6
Total	4,680	7.9

¹ Number of inline skating injuries per 1,000 CHIRPP injuries of all types for the given year.

Time at which the injury occurred

Time of day	Frequency	Percent of Injuries
Midnight to < 8:00 am	12	1.4
8:00 am to < Noon	70	8.3
Noon to < 4:00 pm	193	22.9
4:00 pm to < 8:00 pm	388	46.1
8:00 pm to < Midnight	178	21.2
Total	841	100
# of missing values = 121		

Day during which the injury occurred

Over a third (36.1%) of the injuries were sustained on Saturday and Sunday. The remainder were distributed fairly evenly over the other five days of the week.

Season during which the injury occurred

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Season	Frequency	Percent of Injuries
Spring (March-May)	362	37.6
Summer (June-August)	357	37.1
Fall (September-November)	191	19.9
Winter (December-February)	52	5.4
Total	962	100

CIRCUMSTANCES OF THE INJURY

Where the injury occurred

Location/Area	Frequency	Percent of Injuries
Transport areas	504	52.4
paved road	198	
sidewalk	111	
road - unspecified	95	
driveway	44	
parking lot	28	
bicycle path	28	
Own home/other home	134	13.9
garden/yard	58	
indoors	26	
balcony/porch/garage	11	
other	2	
unspecified	37	
Sports and recreation areas	79	8.2
rink	38	
field or track	2	
gym	1	
other	2	
unspecified	36	
Public park	75	7.8
playground	22	

stairs	1	
unspecified	52	
School	43	4.5
gym	8	
yard	7	
sports areas	5	
playground	3	
stairs	1	
unspecified	19	
Other	15	1.6
Unspecified	112	11.6
Total	962	100

Circumstances surrounding the injury¹

Circumstances	Frequency	Percent of Injuries
Lost control or balance and fell with no specific cause	486	50.5
direction unknown	438	
fell backwards	29	
fell forwards	11	
fell laterally	8	
Playing roller hockey (organized and unorganized)	75	7.8
fell	51	
collision with other player	10	
other	14	
Insufficient toe clearance (i.e. tripped while skating, no obstacles)	56	5.8
Skating on a hill or incline/excessive speed	52	5.4
Stunts or difficult manoeuvre (incl. backward skating)	52	5.4
Roadway or floor obstacle (grates, speed bumps, pebbles)	46	4.8
Fell because of surface conditions (rocky, slippery, rough or a change in surface (e.g. pavement to grass))	43	4.5

Moving over stairs, steps or changes in level	23	2.4
Collision with a stationary object (wall, parked car)	22	2.3
Loss of control while cornering or braking	20	2.1
Incidents with motor vehicles collision avoiding a collision	16 14 2	1.7
Incidents with other inline skaters (non-roller hockey) collision avoiding a collision	12 11 1	1.2
Incident with a pedestrian (incl. animals) avoiding a collision collision	10 6 4	1.0
Walking dog	6	0.6
Malfunction of the inline skate (loose wheel, brake)	5	0.5
Novice	4	0.4
Clothing or item caught in the inline skate	3	0.3
Collisions with cyclists	2	0.2
Other circumstances	29	3.0
Total	962	100

¹Each patient was assigned to a single category that best describes the circumstances and percentages were based on the 962 persons injured. Category assignment was based on the level of detail available in the description of the injury.

NATURE OF INJURY/BODY PART¹

Nature of injury/Body part	Frequency	Percent of Injuries
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Fracture	456	47.6
forearm	206	
wrist	104	
finger	41	
hand	20	
lower leg	20	
elbow	19	
ankle	12	
upper arm	10	
clavicle	9	
face/head	6	
foot, toe	3	
hip, thigh, knee	3	
spine	2	
thorax	1	
Superficial	187	19.6
wrist	29	
face/head/neck	29	
elbow	21	
knee	21	
back/thorax	16	
forearm	14	
shoulder, upper arm	14	
hand	11	
finger	11	
lower leg, ankle, foot	11	
pelvis/perineum/external genitalia	6	
Strain/sprain	151	15.8
wrist	58	
ankle	25	
finger	14	
elbow	13	
knee	10	
forearm	9	
hand	5	
neck	5	
lower leg, foot	4	
back	3	
shoulder, upper arm	3	
hip	2	
Open wound	74	7.7
face		
lower extremity	36	
head	14	

upper extremity	10	
thorax	9	
	1	
Minor head injury	32	3.3
Dislocation	13	1.4
upper extremity	12	
elbow	9	
shoulder	1	
forearm	1	
wrist	1	
Dental	11	1.1
Nerve and muscle/tendon injury	9	1.0
Concussion	6	0.6
Intracranial	3	0.3
Internal injury	2	0.2
Crushing injury	1	0.1
Other injuries	5	0.5
No injury detected	7	0.7
Total	957	100
# missing values=5		
¹ up to three injuries and body parts can be entered per record; only the most severe injury is indicated in the above table; 90.2 % of the injured sustained only one injury; 7.1 % experienced two injuries and 2.2 % suffered three injuries.		

FOREARM AND WRIST FRACTURES - Comparison to CHIRPP database (1998)

Forearm and wrist fractures represented 66.8% (44.3% and 22.5%, respectively) of all fractures sustained during inline skating. For the overall CHIRPP database for 1998, forearm and wrist fractures represented 32.2% (22.1% and 10.1%, respectively) of all fractures sustained. The proportion of forearm and wrist fractures relative to all other injuries for the inline skating group was 41.1% while the same proportion for the overall 1998 CHIRPP data was 7.1%.

SAFETY DEVICE USE

Safety Device ¹	Safety device status known ²		
	Safety device	No safety device	Percent use
Helmet	235	240	49.5
Sport padding	128	240	34.8

¹ In 97 cases the patient was wearing both a helmet and sport padding (i.e. 138 with helmet only and 31 with sport padding only); 1 patient was wearing a safety device classified as 'other'.

² In 455 cases the status of the safety device was unreported.

TREATMENT PROVIDED IN THE EMERGENCY DEPARTMENT

Disposition	Frequency	Percent of Injuries
Left without being seen	7	0.7
Advice only	119	12.4
Treated, follow-up if necessary	279	29
Treated, medical follow-up required	461	47.9
Short stay, observation in emergency	21	2.2
Admitted to hospital ¹	75	7.8
Fatal injury ²	0	0
Total	962	100

¹ The percentage of admitted cases for all injuries amongst patients 1 year and older in the entire CHIRPP database for 1998 was 6.9%

² Fatalities counted by CHIRPP include only those patients who were dead on arrival at the emergency department or who died in the emergency department. They do not include people who

died before they could be taken to hospital or those who died after hospital admission.

SUMMARY OF PERSONS ADMITTED TO HOSPITAL

Age and sex distribution of injured (admitted cases)

Age (Years)	Frequency	Percent of all injuries	Percent of injuries in age group	Percent male	Percent male CHIRPP ¹
5-9	17	22.7	7.5	41.2	59.7
10-14	39	52	7.1	71.8	65.9
15-19	7	9.3	6.5	85.7	64.0
>=20	12	16	17.9	41.7	57.9
Total	75	100	7.9	61.3	60.4

¹ The percentage of males amongst admitted patients in the entire CHIRPP database for the given age stratum.

Circumstances of the injury (admitted cases)

Where the injury occurred

Location/Area	Frequency	Percent of Injuries
Transport areas	41	54.7
paved road	18	
road - unspecified	15	
sidewalk	4	
bicycle path	2	
driveway	1	
parking lot	1	
Unspecified	21	28
Public park	6	8
playground	1	
unspecified	5	

Circumstances surrounding the injury (admitted cases) ¹

Circumstances	Frequency	Percent of Injuries
Lost control or balance and fell with no specific cause direction unknown fell backwards fell forwards	51 47 2 2	68
Collision with a motor vehicle	5	6.7
Fell while playing roller hockey (organized and unorganized)	4	5.3
Skating on a hill or incline/excessive speed	4	5.3
Fell because of surface conditions (rocky, slippery, rough or a change in surface (e.g. pavement to grass))	3	4
Insufficient toe clearance (i.e. tripped while skating, no obstacles)	3	4
Stunts or difficult manoeuvre (incl. backward skating)	2	2.7
Roadway or floor obstacle (grates, speed bumps, pebbles)	1	1.3
Collision with a stationary object (wall, parked car)	1	1.3
Avoiding a collision with a pedestrian	1	1.3
Total	75	100

¹Each patient was assigned to a single category and percentages were based on the 75 persons injured. Category assignment was based on the level of detail available in the description of the injury.

Body part and nature of injury ¹ (admitted cases)

Nature of injury/Body part	Frequency	Percent of Injuries
Fracture forearm	56	74.7

lower leg		36
wrist		6
elbow		5
ankle		2
face/head		2
spine		2
upper arm		1
finger		1
		1
Concussion	4	5.3
Intracranial	3	4.0
Minor head injury	3	4.0
Dental	2	2.7
Internal (abdominal)	2	2.7
Other injuries	5	6.7
Total	75	100

¹ up to three injuries and body parts can be entered per record; only the most severe injury is indicated in the above table; 84% of the injured sustained only one injury; 5.3% experienced two injuries and 10.7 % suffered three injuries.

Safety device use (admitted cases)

Safety Device¹	Safety device status known²		
	Safety device	No safety device	Percent use
Helmet	13	16	44.8
Sport padding	3	16	15.8

¹ In 3 cases the patient was wearing both a helmet and sport padding (i.e. 10 with helmet only and no cases with sport padding only).

² In 46 cases the status of the safety device was unreported.

SUGGESTED REFERENCE AND REPORTING INFORMATION

This report and data from it may be copied and circulated freely provided that the source is acknowledged. The following citation is recommended:

Injury data were obtained from the database of the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP), Public Health Agency of Canada.

If data from this report are included in any other document or publication, it should be noted, where appropriate, that the information comes from 15 hospitals (10 pediatric and 5 general) across Canada.

For additional information on the CHIRPP program, please contact the Child Injury Section, Public Health Agency of Canada by phone at (613) 941-9918, by FAX at (613) 941-9927 or visit our web site.

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