

CHIRPP INJURY BRIEF

Canadian Hospitals Injury Reporting and Prevention Program



Injuries associated with LAWNMOWERS

1990-2006, 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 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; 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 April 2008 search of the CHIRPP database for injuries associated with lawnmowers was conducted (all ages; 1,850,948 records total). The records were retained if i) the narrative contained one of the following text strings: "LAWNMOWER", "MOWER", "MOWING", "MOW", "CUTTING GRASS", "CUTTING LAWN", "TONDEUSES A GAZON", "TOND", "TRACTEUR", "RIDING MOWER", "RIDING LAWNMOWER", "COUPAIT GAZON" and ii) the injury occurred between 1990 and 2006. This final dataset was then reviewed manually to confirm the cases were associated with lawnmowers.

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 lawnmowers: Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) database, 1990-2006, all ages, 1161 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/>

Overall Pattern

There were 1161 cases identified where the injury was associated with lawnmowers, all ages, between 1990 and 2006 (63 cases per 100 000 CHIRPP records). Overall, 23% of all cases were admitted to hospital for treatment, this compared to a 6.5% admittance rate for CHIRPP during the same timeframe (all injuries, all age groups). The leading injuries reported were lacerations (32%), amputations (16%), fractures(13%) and burns (13%). The proportion of injuries occurring in the patient's own yard was almost 70%, for all ages combined. Table 1 summarizes the age and sex distribution.

Table 1. Injuries associated with lawnmowers, age and sex distribution, CHIRPP, all ages, 1990-2006.

Age Group (Years)	# cases overall (%)	#/100,000 CHIRPP ¹	% male	% male CHIRPP ²
1 year and under	74 (6.4)	36.8	80	55
2-4 years	194 (16.7)	63.7	76.8	57.4
5-9 years	145 (12.5)	38.5	69	58.5
10-14 years	148 (12.8)	31.6	74.3	61.4
15-19 years	75 (6.5)	38.2	85.3	63.2
20 years and older	525 (45.2)	172.0	82.7	60.1
Total	1161 (100.0)	63.0	79	59.4

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 for the given age group.

Circumstances

The remaining analysis will be divided into cases involving **children** (less than 15 years of age) (74% males) and **youth/adults** (15 years and up) (83.0% males) as the patterns vary widely between these two groups.

Table 2 describes the circumstances at the time of injury. For children less than 15 years of age, nearly a quarter of the cases (23%) occurred when the child was playing in the yard and either slipped and fell into the path of the mower or was inadvertently backed over. Children also were injured when touching the hot motor/muffler (21%) or touching the blades (10%). The adults, who were assumed to be of an appropriate age to be operating a lawnmower, experienced the majority of injuries in the process of mowing the lawn, slips/trips and falls with the mower subsequently running over them or a body part coming in contact with the blades (19%).

Table 2. Circumstances, injuries associated with lawnmowers, CHIRPP, by age group, 1990-2006.

Circumstance	Less than 15 yrs	15 years and older
	# cases (%)	# cases (%)
Bystander, run over by mower	129 (23.0)	5 (0.8)
Burned on motor/muffler	120 (21.4)	18 (3.0)
Hit by projectile from mower	58 (10.3)	69 (11.5)
Passenger on riding lawnmower, fell over and run over	51 (9.1)	0 (0.0)
Cut/caught hand in mower	48 (8.6)	61 (10.2)
Operator, fell/slipped/tripped and run over by mower	41(7.3) [†]	112 (18.7)
Tripped or bumped by mower	35 (6.2)	16 (2.7)
Cut/caught by parts other than mower blades	20 (3.6)	35 (5.8)
Playing on stationary mower	12 (2.1)	0 (0.0)
Cut by blade, not further specified	8 (1.4)	47 (7.8)
Riding mower overturned	7 (1.3)	19 (3.2)
Repair/maintaining mower while not in operation	1 (0.2)	90 (15.0)
Hit obstacle while mowing (e.g. branch)	1 (0.2)	31 (5.2)
Slipped and tripped while cutting lawn	1 (0.2)	18 (3.2)
Sprain/strain while mowing lawn	4 (0.7)	52 (8.7)
Other or unknown	25 (4.4)	27 (4.5)
Total	561 (100.0)	600 (100.0)

[†]Operator does not imply that patient was allowed to be using the mower, just that they were injured while doing so. Of these cases, 34 involved patients aged 10-14 years.

Injuries

There are up to 3 injuries recorded for each patient. For injuries associated with lawnmowers, there were a total of 1451 injuries associated with 1161 patients. Table 3 lists the nature of injuries by body part for only the first and most serious injury. Children experienced lacerations (27.8%) and amputations (21.6%) most frequently due to falling under the mower, followed by burns (21.6%) associated with touching the engine or muffler of the mower. Youth and adults suffered more lacerations (35.8%) and fewer amputations (10.7%) and burns (3.8).

Table 3. Nature of injury, associated with lawnmowers, CHIRPP, by age group, 1990-2006.

Nature of injury Body part	Less than 15 yrs	15 years and older
	# cases (%)	# cases (%)
Laceration	156 (27.8)	215 (35.8)
head/face/neck	29	18
hand/finger/thumb	41	133
leg/foot	71	54
other body part/unknown	15	10
Burn	124 (22.1)	23 (3.8)
hand/finger/thumb	98	19
leg/foot	13	0
other body part/unknown	13	4
Amputation*	121 (21.5)	64 (10.7)
toe	50	34
finger/thumb	33	28
foot	29	1
lower leg	4	0
hand	3	1
ankle	2	0
Fracture	57 (10.1)	89 (14.8)
ankle/foot/toe	19	38
shoulder/arm	15	9
leg	11	9
hand/finger/thumb	7	27
spine	0	3
other body part/unknown	5	3
Abrasions	36 (6.4)	65 (10.8)
Eye injuries	20 (3.6)	34 (5.7)
Sprain/strain	9 (1.6)	30 (5.0)
Soft tissue	0 (0.0)	21 (3.5)
Foreign body in eye	1 (0.2)	16 (2.7)
Intracranial	2 (0.4)	0 (0.0)
Internal injuries	1 (0.2)	0 (0.0)
Other or unknown	34 (6.1)	43 (7.2)
Total	561 (100.0)	600 (100.0)

*There were 14 cases involving multiple amputations; of these cases 13 occurred in the less than 15 age group.

Treatment in emergency department

Table 4 reports what treatment the patient received in the emergency department (ED). Patients in the less than 15 years age group were admitted to hospital 35.7% of the time, well above the CHIRPP rate of 5.4% for the same age group and timeframe. Patients in the 15 years and older group were admitted 11.5% of the time, compared with the CHIRPP rate of 9.4%.

Table 4. Treatment received in emergency departments, injuries associated with lawnmowers, CHIRPP, by age group, 1990-2006.

Treatment in Emergency Department	Less than 15 yrs	15 years and older
	# cases (%)	# cases (%)
Left without being seen	2 (0.4)	11 (1.8)
Advice	26 (4.6)	29 (4.8)
Treated with medical follow-up if necessary	96 (17.1)	183 (30.5)
Treated, medical follow-up required	235 (41.8)	303 (50.5)
Short stay, observed in ED	2 (0.4)	5 (0.8)
Admitted to hospital	200 (35.7)	69 (11.5)
Total	561 (100.0)	600 (100.0)

Type of lawnmower involved

Table 5 lists the type of lawnmower associated with the injury, where noted on the record. In cases where a child was reported to have been injured by a riding lawnmower (n=174), 64% of these cases required admittance to hospital. In adult cases on a riding lawnmower (n=95), 20% were admitted.

Table 5. Type of lawnmower, injuries associated with lawnmowers, CHIRPP, by age group, 1990-2006.

Treatment in Emergency Department	Less than 15 yrs	15 years and older
	# cases (%)	# cases (%)
Push lawnmower	60 (10.7)	124 (20.7)
Riding lawnmower	174 (31.0)	95 (15.8)
Rotary push lawnmower	2 (0.4)	0 (0.0)
Not specified or unknown	325 (57.9)	381 (63.5)
Total	561 (100.0)	600 (100.0)