

Playground Falls

Each year in Ontario, more than 8,000 children visit an emergency department and over 500 children are hospitalized due to a fall involving playground equipment. Arm fractures are the most common type of injury.

Results

During the 2004/05 fiscal year, there were a total of 8,752 visits to an emergency department and 553 hospitalizations due to a fall involving playground equipment. Males accounted for just over half (51%) of the emergency department visits and 54% of hospitalizations. For both emergency department visits and hospitalizations, peaks in the number of injuries were observed among Ontarians 2-13 years of age (Figure 1).

For emergency department visits, injuries to the upper limb or head were most common (Table 1). More specifically, forearm fractures were most frequent, accounting for 23% of emergency department visits related to playground falls. For hospitalizations, upper arm fractures were most common.

About 90% of persons who visited an emergency department due to a fall involving playground equipment were discharged to their place of residence and 5% were admitted to the reporting facility. For hospitalized cases, 98% were discharged home. No deaths were reported after admission to hospital. The 553 hospitalized cases accounted for more than 900 days in acute care hospitals with an average length of stay of 1.6 days.

The highest number of injuries occurred in June. This pattern was seen for both emergency department visits and hospitalizations.

The provincial injury rate for playground falls was 78.6 per 100,000 population for emergency department visits and 5.0 per 100,000 for hospitalizations. By region, the lowest injury rate for emergency department visits was observed in the Toronto region and the highest rates were seen in the South West, East, and North regions. For hospitalizations, the lowest rate was seen in the Central East region and the highest rate was observed in the Central South region.

FIGURE 1. Playground falls by age and sex (Ontario, 2004/2005)

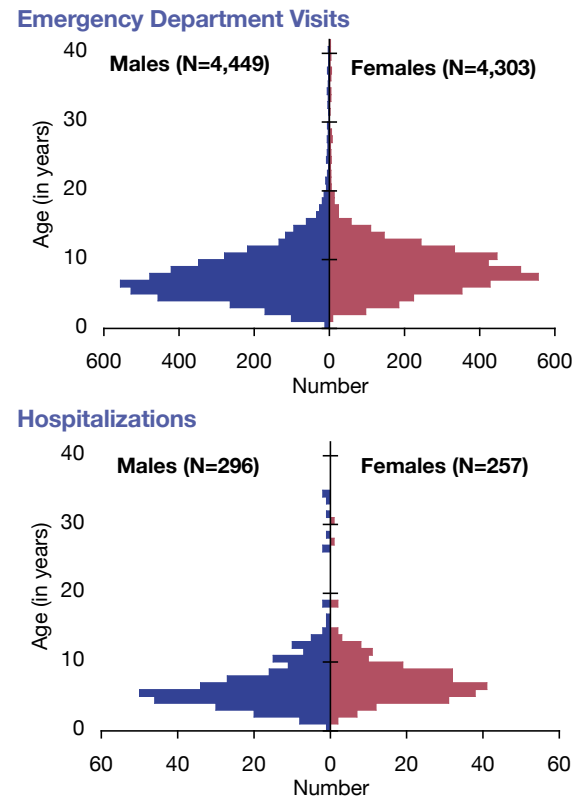


TABLE 1. Site of injury for playground falls (Most responsible diagnosis, Ontario, 2004/05)

Site of injury	Emergency department visits (%)	Hospitalizations (%)
Upper limb	49%	79%
Elbow, forearm	30%	31%
Shoulder, upper arm	12%	47%
Wrist, hand	7%	1%
Head	22%	5%
Lower limb	16%	10%
Other/unspecified	13%	6%

TABLE 2. Regional comparison of playground falls (Ontario, 2004/05)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits								
Number	1,583	879	1,136	1,604	1,053	1,522	797	8,752
Rate per 100,000 ^a	113.1	84.9	49.3	77.6	48.8	107.8	107.1	78.6
Average age (in years)	8	8	8	8	8	8	8	8
% male	52	48	53	49	54	52	47	51
Hospitalizations								
Number	74	66	99	83	96	75	45	553
Rate per 100,000 ^a	5.4	6.4	4.3	4.0	4.4	5.3	6.0	5.0
Average age (in years)	7	8	9	7	7	9	11	8
% male	59	56	51	48	60	55	47	54

a. Age-standardized rate per 100,000 population.

Note: Region of residence unknown/outside of Ontario for 178 emergency department visits and 15 hospitalizations.



Ontario Injury Prevention Resource Centre

Produced by SMARTRISK



www.smartrisk.ca

in collaboration with



Ontario Injury Compass

is produced by

SMARTRISK

with funding and
in collaboration with

The Ontario Public

Health Association

and

The Government of Ontario

Edited by

Philip Groff, PhD

Director,

Research and Evaluation

SMARTRISK

(416) 596-2718

pgroff@smartrisk.ca

Principal Analyst

Kelly Simpson, MSc

Research Associate

SMARTRISK

(416) 596-2720

ksimpson@smartrisk.ca

To subscribe to

Ontario Injury Compass

please email your request to:

compass@smartrisk.ca

SMARTRISK

790 Bay St.

Suite 401

Toronto, Ontario

M5G 1N8

(416) 977-7350

info@smartrisk.ca

www.smartrisk.ca

TABLE 3. Regional comparison of playground falls for select age groups (Ontario, 2004/05)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits - Rate per 100,000 population^a (Number)								
<5 years	459.0 (383)	301.4 (183)	180.0 (261)	281.3 (338)	148.9 (214)	377.8 (319)	322.8 (136)	275.5 (1,872)
5-9 years	801.8 (796)	642.6 (470)	376.1 (614)	569.9 (832)	429.3 (640)	832.7 (819)	830.4 (427)	601.3 (4,693)
10-14 years	290.7 (315)	196.7 (159)	117.9 (198)	219.1 (351)	110.3 (164)	306.6 (336)	293.1 (173)	207.8 (1,734)
Hospitalizations - Rate per 100,000 population^a (Number)								
<5 years	26.4 (22)	16.5 (10)	15.2 (22)	13.3 (16)	9.7 (14)	18.9 (16)	14.2 (6)	16.3 (111)
5-9 years	38.3 (38)	52.0 (38)	36.1 (59)	37.7 (55)	47.6 (71)	41.7 (41)	46.7 (24)	42.9 (335)
10-14 years	8.3 (9)	16.1 (13)	7.1 (12)	6.9 (11)	6.1 (9)	13.7 (15)	20.3 (12)	9.8 (82)

a. Age-specific rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 171 emergency department visits and 15 hospitalizations among those <15 years of age.

Regional differences were also seen in the highest numbers and rates by age group (Table 3). In all regions the highest injury rates were observed among those 5-9 years of age.

Discussion

This Compass highlights patterns of emergency department visits and hospitalizations for playground-related falls in Ontario. Several Canadian studies have examined injury patterns related to playground equipment.¹⁻⁸ Additional research studies have identified playgrounds as one of the leading types of injury among children.⁹⁻¹¹

In this analysis, no deaths were reported after admission to hospital. Deaths are rare and almost always occur as a result of strangulation.⁸ For example, cases of asphyxiation have occurred when a drawstring on the children's clothing became entangled at the top of the slide.^{6,8}

Several factors have been associated with playground-related injuries, such as design, installation, and maintenance of equipment, age of the child, location of equipment, number of children in the playground, and child supervision.^{1-8,12}

References

1. Fiissel D, Pattison G, Howard A. Severity of playground fractures: play equipment versus standing height falls. *Inj Prev* 2005;11:337-9.
2. Howard AW, MacArthur C, Willan A, Rothman L, Moses-McKeag A, MacPherson AK. The effect of safer play equipment on playground injury rates among school children. *CMAJ* 2005;172:1443-6.
3. Laforest S, Robitaille Y, Lesage D, Dorval D. Surface characteristics, equipment height, and the occurrence and severity of playground injuries. *Inj Prev* 2001;7:35-40.
4. Lillis KA, Jaffe DM. Playground injuries in children. *Pediatr Emerg Care* 1997;13:149-53.
5. Mowat DL, Wang F, Pickett W, Brison RJ. A case-control study of risk factors for playground injuries among children in Kingston and area. *Inj Prev* 1998;4:39-43.
6. Petruk J, Shields E, Cummings GE, Francescutti LH. Fatal asphyxiations in children involving drawstrings on clothing. *CMAJ* 1996;155:1417-9.
7. Pickett W, Carr PA, Mowat DL, Chui A. Playground equipment hazards and associated injuries in Kingston and area. *Can J Public Health* 1996;87:237-9.
8. Safe Kids Canada. *Child & Youth Unintentional Injury: 10 Years in Review 1994-2003*. Toronto: Safe Kids Canada, 2006.
9. Bienefeld M, Pickett W, Carr PA. A descriptive study of childhood injuries in Kingston, Ontario, using data from a computerized injury surveillance system. *Chronic Dis Can* 1996;17:21-7.
10. Mo F, Choi BC, Clotney C, LeBrun B, Robbins G. Characteristics and risk factors for accident injury in Canada from 1986 to 1996: an analysis of the Canadian Accident Injury Reporting and Evaluation (CAIRE) database. *Inj Control Saf Promot* 2002;9:73-81.
11. Sheps SB, Evans GD. Epidemiology of school injuries: a 2-year experience in a municipal health department. *Pediatrics* 1987;79:69-75.
12. Lesage D, Robitaille Y, Dorval D, Beaulne G. Does play equipment conform to the Canadian standard? *Can J Public Health* 1995;86:279-83.

Managing the risk

Playgrounds can offer opportunities for fun, healthy exercise, and imaginative play. Here are some tips that can be used to help reduce the risks for injury:

- ❖ Actively supervise children while they are on the playground. Teach children about playground rules and appropriate use of equipment.
- ❖ Ensure equipment is suitable for your child's age. For example, children under 5 years should play on equipment under 1.5 metres high.
- ❖ Check for broken equipment, broken glass, garbage, sharp corners, and rusted or protruding bolts.
- ❖ Look to see what is under and around play equipment. Choose a playground with a deep, soft surface or a rubber surface.
- ❖ Notify the playground owner/operator if you have concerns about the equipment. The Canadian Standards Association (CSA) has developed the only nationally recognized standard on children's playspaces and equipment, CAN/CSA-Z614-03.
- ❖ Remove drawstrings and scarves from children's clothing, take off bike helmets, and put aside skipping ropes before playing on the playground, as these items can become caught in playground equipment.

For Further Information

Safe Kids Canada

www.safekidscanada.ca

Canadian Paediatric Society-Preventing Playground Injuries

www.cps.ca/english/statements/IP/IP02-01.htm

Health Canada-Consumer Product Safety, Playground Equipment

www.hc-sc.gc.ca/cps-spc/sport/equip-play-jeu/index_e.html

Canadian Standards Association

www.csa.ca

Canadian Health Network

www.canadian-health-network.ca

SMARTRISK

www.smartrisk.ca

Methods

Emergency department data were obtained from the National Ambulatory Care Reporting System and data for acute care hospitalizations were obtained from the Discharge Abstract Database at the Canadian Institute for Health Information for the 2004/05 fiscal year. Injuries due to a fall involving playground equipment were classified according to the International Classification of Diseases, 10th revision (ICD-10) using code W09. Note that some persons were seen in an emergency department and then admitted to hospital; however, persons can be admitted to hospital without visiting an emergency department. Regions were defined according to place of residence using the Ontario Ministry of Health Region Codes.