



Falls from ladders

On average, each month close to 100 people are hospitalized for a fall from a ladder. Adult males had the highest rate of injury.

Results

During the 2005/06 fiscal year, there were a total of 8,757 emergency department visits and 1,170 hospitalizations for falls from ladders (See Methods Section for Data Sources). These numbers translate into provincial rates of 66.2 per 100,000 population for emergency department visits and 8.4 per 100,000 for hospitalizations (Table 1).

Males represented over 80% of emergency department visits and over 85% of hospitalizations. For emergency department visits and hospitalizations, peaks in the number of falls from ladders were seen in adults 40 to 65 years of age (Figure 1).

Injuries to the lower and upper limbs were the most common type of injuries for emergency department visits accounting for 31% and 29% of emergency department visits respectively. Specifically, fracture of the ankle, foot, knee, and lower leg were the most commonly presented injuries for emergency departments, along with fracture of the forearm and open wound of the head.

Injuries to the lower limbs and mid-section were the most common type of injuries for hospitalization cases, accounting for 38% and 24% of hospitalization admissions respectively. Similar types of lower limb injuries presented in the emergency department were also the most common for hospitalizations. With respect to injuries to the mid-section, the most commonly presented injury which required hospitalizations were those to the abdomen, lower back, lumbar spine and pelvis. (Figure 2).

Injury rates varied by region, with the highest overall rates reported in the northern region of the province. The south west region had the second highest rates of emergency department visits and hospitalizations (Table 1).

For each region, adults 40 to 65 years of age represented the highest rates of emergency department visits and hospitalizations (Table 2).

Of the 8,757 individuals who visited an emergency department for a ladder injury, over 85% were discharged to their place of residence.

FIGURE 1. Emergency department visits for falls from ladders by age and sex (Ontario, 2005/2006)

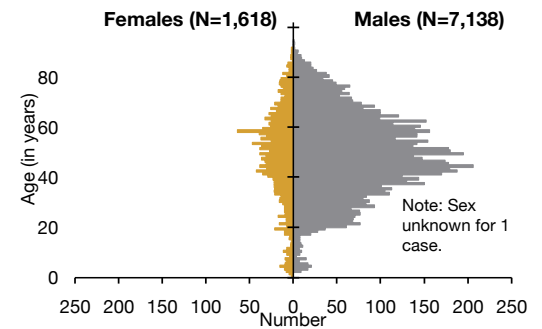
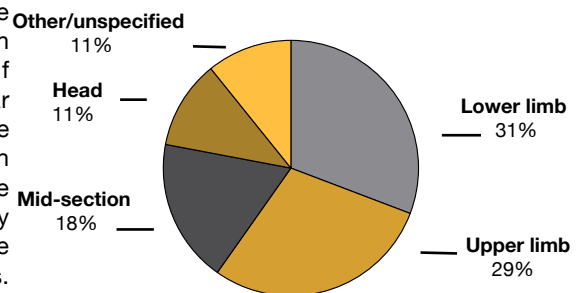


FIGURE 2. Nature of injuries due to fall from ladder (Most responsible diagnosis, Ontario, 2005/2006)

Emergency Department Visits



Hospitalizations

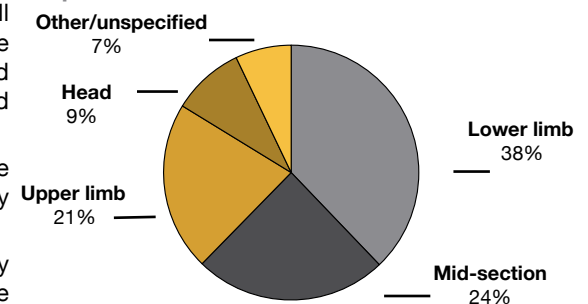


TABLE 1. Regional comparison of falls from ladders (Ontario, 2005/06)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits								
Number	1,442	962	1,277	1,654	1,145	1,263	894	8,757
Rate per 100,000 ^a	87.2	76.6	53.3	72.0	40.7	70.1	94.4	66.2
Average Age	48	47	46	47	48	48	49	48
% Male	81	81	82	83	82	78	82	82
Hospitalizations								
Number	193	140	190	207	155	155	123	1,170
Rate per 100,000 ^a	10.9	10.2	7.8	8.5	5.3	8.0	12.8	8.4
Average Age	55	52	52	57	54	55	53	54
% Male	88	84	88	92	92	78	89	87

a. Age-standardized rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 120 emergency department visits and 7 hospitalizations.

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TABLE 2. Regional comparison of ER visits and hospitalizations for falls from ladders in the adult population, by age group (Ontario, 2005/06)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits- Rate per 100,000^a								
40-44 years	145.6 (189)	114.2 (114)	82.8 (176)	119.5 (244)	59.2 (129)	96 (139)	122.7 (91)	101.1 (1095)
45-49 years	137.3 (166)	132.6 (123)	83.6 (151)	104.8 (188)	67.8 (129)	94.2 (124)	138.7 (99)	103.7 (1003)
50-54 years	129.1 (137)	124.3 (101)	82 (123)	103.8 (155)	65.3 (108)	146.2 (168)	161.7 (102)	108.5 (901)
55-59 years	157.9 (148)	134 (97)	86.3 (110)	151.6 (191)	75.5 (107)	151 (154)	212.2 (120)	129.2 (930)
60-64 years	181.8 (133)	128.4 (73)	129.3 (119)	134.1 (123)	82.5 (87)	137 (106)	160.3 (73)	133.2 (722)
Hospitalizations- Rate per 100,000^a								
40-44 years	18.5 (24)	12 (12)	10.3 (22)	12.2 (25)	5.5 (12)	6.2 (9)	16.2 (12)	10.8 (117)
45-49 years	16.5 (20)	25.9 (24)	11.6 (21)	12.8 (23)	11 (21)	12.9 (17)	16.8 (12)	14.4 (139)
50-54 years	20.7 (22)	23.4 (19)	17.3 (26)	18.1 (27)	6.7 (11)	21.8 (25)	12.7 (8)	16.7 (139)
55-59 years	21.3 (20)	24.9 (18)	16.5 (21)	17.5 (22)	18.3 (26)	18.6 (19)	33.6 (19)	20.3 (146)
60-64 years	31.4 (23)	10.6 (6)	22.8 (21)	25.1 (23)	16.1 (17)	23.3 (18)	28.5 (13)	22.5 (122)

a. Age-specific rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 120 emergency department visits and 7 hospitalizations.

Approximately 8% were admitted as an in-patient directly from the ambulatory care. For hospitalized cases, just over 70% were triaged, registered, and assessed by a service provider and treatment initiated, but then left against medical advice before the treatment was completed. Another 12% were triaged, registered and assessed by a service provider and left without treatment. Approximately 10% were discharged home. Less than 1% of individuals died after arrival in the emergency department and less than 1% died after hospital admission. The 1,170 hospitalized cases accounted for more than 6,161 days in acute care hospitals with an average length of stay of 5.27 days.

Discussion

From first glance, ladders may appear to be relatively harmless, but with improper use, these useful tools can lead to serious injury. In particular, falls from ladders can lead to permanent disability or death.

Several studies have found that, in comparison to other household consumer products, ladders are associated with some of the highest risks for injury and longest durations of incapacity.¹

Information on the type of event leading up to the fall from a ladder, the height of the fall, in addition to detailed data on the type or design of the ladder were not available. However, a fall from a small ladder, such as a step-ladder, may result in serious injury and people falling from a height of even a few feet shouldn't be dismissed as insignificant cases.¹

The home was noted as the place of injury occurrence for a large percentage of the cases, however we were unable to determine which settings were occupational. In addition, there were a large percentage of cases with an unspecified location. Studies have found that most of the leisure time falls occurred at home while performing tasks such as removing snow from the roof, retrieving objects from the attic, household repairs, and cleaning.¹

References

1. Cimek, Kelly. Ontario Injury Compass: Ladders and Injuries. Ontario Injury Prevention Resource Centre 2004.

Managing the risk

It is important to recognize the risk in using a ladder, and to make smart choices when doing so. Public health can work with the community to promote the following tips to help reduce the risk of falling:¹

- ❖ Select an appropriate, CSA approved, ladder for the task. Check for defective equipment.
- ❖ Before using a ladder outdoors, choose a location that is well away from all power lines. Coming in contact with live wires can be fatal.
- ❖ Place ladders where access is not obstructed. E.g., Stay clear of unlocked doors.
- ❖ Place the ladder on level ground, where they will be free from loose or slippery substances, and open it completely, making sure all locks are engaged.
- ❖ Always face the ladder when climbing and wear slip-resistant shoes.
- ❖ Make sure rungs are dry before using the ladder.
- ❖ Ensure hands and feet are free from oil, grease, or other substances before climbing a ladder.
- ❖ Stand at or below the highest safe standing level on a ladder. For a stepladder, the safe standing level is the second rung from the top, and for an extension ladder, it's the fourth rung from the top.
- ❖ Move the ladder as necessary to avoid overreaching. If your belt buckle crosses either side of the ladder you are reaching too far.
- ❖ The distance from the feet of an extension ladder to the wall should be no more than 1/4 to 1/3 of the height on the wall it is reaching.

For Further Information:

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Methods

Emergency department data were obtained from the National Ambulatory Care Reporting System and acute care hospitalization data were obtained from the Discharge Abstract Database at the Canadian Institute for Health Information for the 2005/06 fiscal year. ICD-10 coding (W11) was used to isolate all emergency department visits and hospitalizations for falls from ladders. 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. Deaths occurring outside of the hospital setting were not included in this analysis.