

Falls on same level involving ice and snow.

On average, each day, over 60 people visit an emergency department for injuries from a fall involving ice and snow. The highest rates are found among older adults.

Results

For the purposes of this report, all falls occurring on the same level involving ice or snow were included in this analysis. Fall incidents with mention of ice skates, skis, snowboards, as well as stairs and steps, were excluded from analysis.

During the 2005/06 fiscal year, there were a total of 21,213 emergency department visits and 2,038 hospitalizations for injuries from falls on the same level involving ice and snow. (See Methods Section for Data Sources). These numbers translate into provincial rates of 162.4 per 100,000 population for emergency department visits and 14.6 per 100,000 for hospitalizations (Table 1).

Overall, there was a relatively equal number of emergency department visits for males and females during the 2005/06 fiscal year; however, females had a slightly higher representation in terms of hospital admissions, accounting for close to 55% of all admissions. Further, in Ontario, males and females 75 to 79 years of age had the highest rates of emergency department visits. Males and females 85 to 89 years of age had the highest rates of hospitalizations. The average age for the number of both emergency department visits and hospitalizations was 44 and 55 respectively.

For emergency department visits, injuries to the lower and upper limbs were the most common, accounting for 62% of all visits combined. Injuries to the lower limb were the most common type of injury for those being hospitalized, accounting for 65% of all hospital admissions. Specifically, injuries to the knee and lower leg were the most frequently presented injury to the lower limb in both emergency department visits and hospitalizations; however, the next most common injury presented in the emergency department were those to the ankle and foot, whereas injuries to the hip and thigh were the next most commonly presented injury for hospital admittance (Figure 2).

FIGURE 1. Emergency department visits for falls involving ice and snow by age and sex (Ontario, 2005/2006)

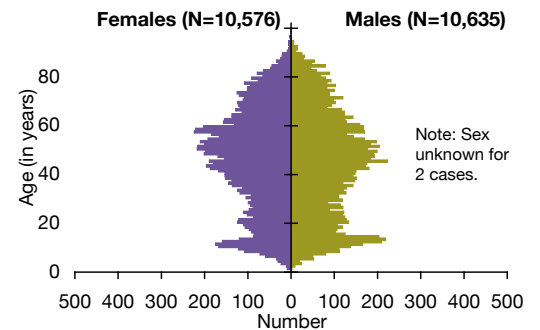
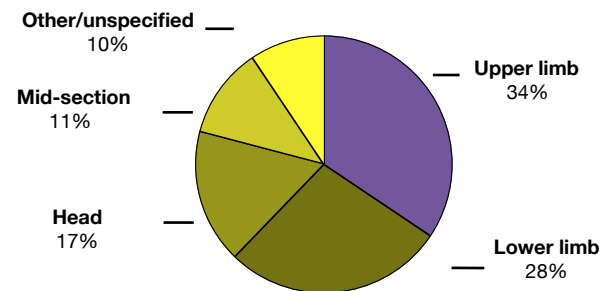


FIGURE 2. Nature of injuries due to falls involving ice and snow (Most responsible diagnosis, Ontario, 2005/2006)

Emergency Department Visits



Hospitalizations

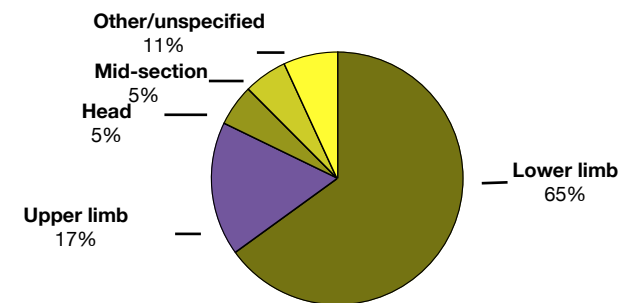


TABLE 1. Regional comparison of injuries from falls involving ice and snow (Ontario, 2005/06)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits								
Number	3,050	1,678	2,578	3,723	2,133	5,004	2,711	21,213
Rate per 100,000 ^a	184.9	130.4	108.3	164.7	77.3	284.8	297.3	162.4
Average Age	44	46	42	43	47	44	44	44
% Female	50	50	52	49	50	49	50	50
Hospitalizations								
Number	267	197	241	355	222	453	273	2,038
Rate per 100,000 ^a	14.1	13.2	10.2	15.0	7.4	23.9	26.7	14.6
Average Age	61	63	55	59	59	59	59	59
% Female	59	55	56	51	52	54	57	55

a. Age-standardized rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 336 emergency department visits and 30 hospitalizations.



Ontario Injury Prevention Resource Centre



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Ontario Injury Compass

is produced by

SMARTRISK

with support from

The Ontario Public

Health Association

and

The Government of Ontario



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TABLE 2. Regional comparison of injuries from falls involving ice and snow (Ontario, 2005/06)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits- Rate per 100,000^a (Number)								
70-74 years	256 (140)	215.8 (96)	183.6 (109)	258.1 (172)	146.3 (127)	480.6 (263)	361.6 (122)	260.7 (1044)
75-79 years	292.3 (136)	211.1 (83)	182.5 (86)	294.6 (151)	146.6 (108)	470.3 (211)	420.7 (113)	271.8 (896)
80-84 years	235 (80)	212.4 (61)	180.1 (58)	282.7 (98)	152.6 (82)	437.9 (146)	462.7 (82)	262.3 (615)
85-89 years	388.6 (64)	206.9 (27)	123.6 (18)	249.8 (41)	189.6 (47)	334.3 (55)	289.1 (24)	251.7 (277)
90+ years	138.5 (12)	102.6 (7)	111.9 (8)	162.7 (13)	55.5 (8)	252.2 (21)	181.2 (7)	132.8 (76)
Hospitalizations- Rate per 100,000^a (Number)								
70-74 years	56.7 (31)	38.2 (17)	32 (19)	61.5 (41)	13.8 (12)	80.4 (44)	83 (28)	48.2 (193)
75-79 years	55.9 (26)	68.7 (27)	31.8 (15)	56.6 (29)	23.1 (17)	109.2 (49)	100.5 (27)	57.9 (191)
80-84 years	79.3 (27)	87.1 (25)	46.6 (15)	95.2 (33)	39.1 (21)	87 (29)	152.4 (27)	76.4 (179)
85-89 years	109.3 (18)	107.3 (14)	54.9 (8)	79.2 (13)	52.4 (13)	85.1 (14)	60.2 (5)	77.2 (85)
90+ years	92.3 (8)	/(<5)	/(<5)	75.1 (6)	34.7 (5)	144.1 (12)	/(<5)	62.9 (36)

a. Age-specific rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 336 emergency department visits and 30 hospitalizations.

Injury rates varied by region, with the highest rate of both emergency department visits and hospitalizations for injuries due to falls involving ice and snow, reported in the Northern region of Ontario (Table 1).

Close to 90% of individuals who visited an emergency department for injuries from falls involving ice and snow were discharged to their place of residence. Approximately 6% were admitted as an inpatient to another unit directly from ambulatory care. For hospitalized cases, approximately 15% were transferred to another facility providing inpatient hospital care, which includes acute, sub acute, and rehabilitation care. Just over 60% were discharged home and another 15% were discharged home with support services. Fewer than 1% of individuals died after arrival in the emergency department and just over 1% died after hospital admission. The 2,038 hospitalized cases accounted for more than 10,390 days in acute care hospitals with an average length of stay of 5.1 days.

Discussion

It is important for individuals to maintain regular physical activity throughout the year; however, during the winter season, activities such as walking in the outdoors can be difficult, especially for older adults. This age group may already possess one of the many risk factors for falling, such as muscle weakness, impairments in gait, balance, or vision, and may need walking assistive devices.¹ The presence of ice and snow only compounds the risk. The consequences of falling for an older adult can be devastating, as it can lead to death, severe or long term injury, and/or subsequent placement into a long term care facility.¹ The most serious fall injury is fracture of the hip, as half of all older adults who are hospitalized for this type of injury never fully recover.² As well, older adults stay in the hospital the longest after suffering an injury due to a fall on the ice.³ And finally, after a fall, many older adults become fearful of venturing out into the world, which can lead to loss of independence⁴ and a potential reduction in quality of life.

References

1. Rao SS. Prevention of falls in older patients. *Am Fam Physician* 2005; 72(1):81-8.
2. Thacker SB, Branche C, Stevens JA, Olson S. Reducing falls and resulting hip fractures among older women. *MMWR* 49(RR02): 1-12.
3. Canadian Institute for Health Information. *Falling on Ice*. 2002/03.
4. Berg WP, Alessio HM, Mills EM, Tong C. Circumstances and consequences of falls in independent community-dwelling older adults. *Age and Ageing* 1997; 26:261-268.

Managing the risk

- ❖ The most effective interventions are those which are multifaceted and focus on environmental and behavioural components.^{1,2}
- ❖ Interventions should target:
 - the risk factors specific to falling
 - muscle strengthening and balancing exercises
 - medication assessment to minimize potential side effects which pose a risk for falling.^{1,2}
- ❖ Intervention strategies should also include education to increase knowledge on the risk factors for falling.²
- ❖ Individuals, especially older adults, can reduce their risk in the environment by:
 - keeping entranceways and sidewalks clear of ice and snow.
 - using salt regularly on icy areas.
 - carrying a small amount of sand or kitty litter while on walks to use on icy areas, when needed.
- ❖ When venturing outside in the winter season:
 - wear light-weight boots with a thick, non-slip tread sole and a wide, low heel.
 - use a properly fitted cane or walker with an ice pick attached to the end to help with balance. (Be sure to flip the pick back when indoors or on hard, iceless surfaces, as the pick can slip, increasing the risk of falling).
 - wear hip protectors to protect from fractures.
 - if ice is present on the sidewalk, for example, slow down, keep body loose, bend knees, and spread feet out to ensure a wide base. Walk slowly by placing your whole foot onto the ice surface at once.

For Further Information

Canadian Institute for Health Information www.cihi.ca

Public Health Agency of Canada www.phac-aspc.gc.ca

National Center for Injury Prevention and Control www.cdc.gov

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 (W00) was used to isolate all emergency department visits and hospitalizations for injuries from falls involving ice and snow. 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.