

# Injuries from Falls on Stairs in Ontario

## Understanding the Issue

In 2015, there were more than 50,000 emergency visits for injuries from falls on stairs in Ontario.

Emergency department (ED) visits for fall injuries related to stairs made up 12% of all ED visits for fall-related injuries. As a cause of falls leading to ED visits, stairs were exceeded only by slips and trips on the same level.

This Ontario Injury Compass presents emergency visit data for injuries related to falls on stairs, as well as leading strategies to prevent these falls from occurring.

## 5-year Trend

Considering the counts and rates for ED visits over the 5 years from 2011 to 2015, the trend for stair-related fall injuries has remained consistent (Figure 1). ED visits for these injuries increased by 7% between 2011 and 2015, from 46,858 to 50,181 visits. Ontario's population increased by 4% in the same time period. The crude rate for ED visits ranged from 353.3 per 100,000 in 2011 to 363.8 per 100,000 in 2015.

## Risk Factors

### Age

Ontario's youngest and oldest residents are most vulnerable to injury from falls on stairs (Table 1). In 2015, Ontarians aged 75 and over had the highest rate of ED visits for these injuries (658.1 per 100,000), followed by 65-74 year olds (439.8) and 0-9 year olds (409.7).

### Sex

In 2015, 62% of ED visits related to falls on stairs were for females (Figure 2). Females had higher numbers of ED visits in every age group except for children under 10 years old.

FIGURE 1. ED visits for injuries from falls on stairs, counts and crude rates, NACRS, Ontario, 2011 - 2015

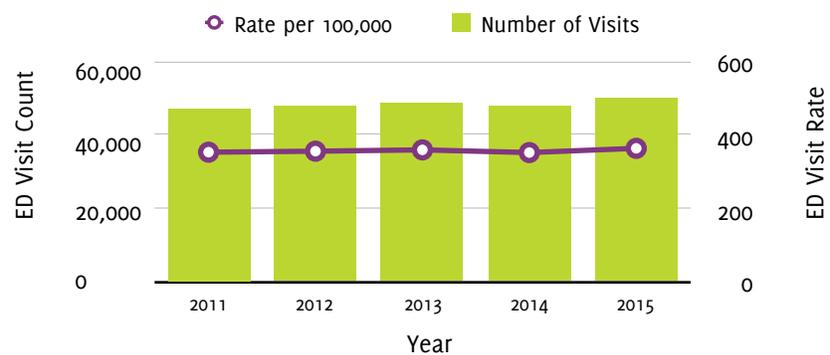
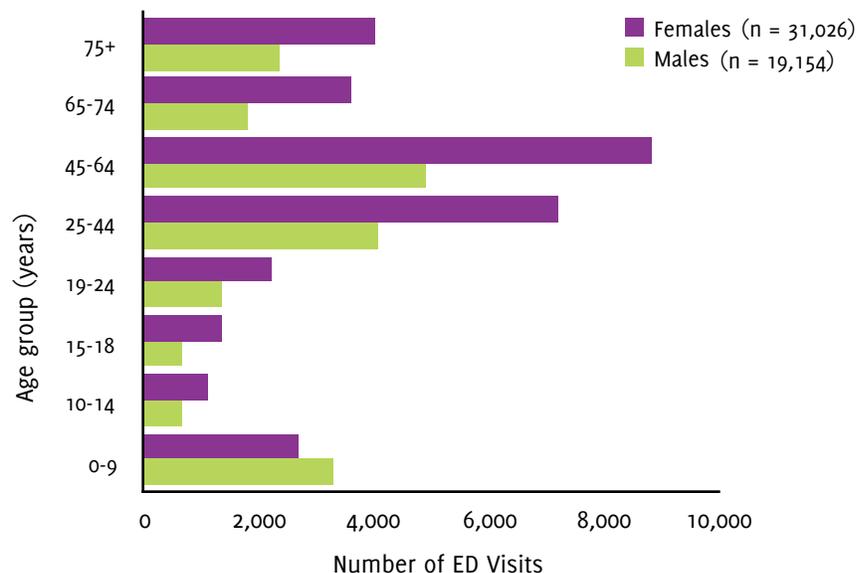


TABLE 1. ED visits for injuries from falls on stairs, age-specific rates, NACRS, Ontario, 2015

Age Group	0-9	10-14	15-18	19-24	25-44	45-64	65-74	75+
ED Visit Rate per 100,000	409.7	236.6	306.3	306.6	306.2	354.4	439.8	658.1

FIGURE 2. ED visits for injuries from falls on stairs, by age group and sex, NACRS, Ontario, 2015



## Injury Location

The most common injuries seen in Ontario EDs in 2015, related to falls on stairs, were to the head and to the ankle or foot (Figure 3). 44% of injuries were to these areas of the body. Knee and lower leg injuries were also common (14%), as well as injuries to the elbow and forearm (7%).

## Leading Prevention Strategies

### Safety Gates

To prevent falls on stairs for small children (up to approximately 2 years of age), safety gates should be installed at the top and bottom of stairways. Wall-mounted gates should be installed at the top of the stairs and pressure-mounted gates at the bottom. In order to be effective, gates must be properly secured every time they are closed.<sup>1</sup>

Parental knowledge and stair gate availability, accessibility, cost, and ease of use will impact uptake.<sup>2</sup>

Once a child's chin is in line with the top of the gate, or the child can climb over or open the gate, gates will no longer be effective and should be removed. Children should be taught to go up and down stairs safely, using the handrail.<sup>3,4</sup>

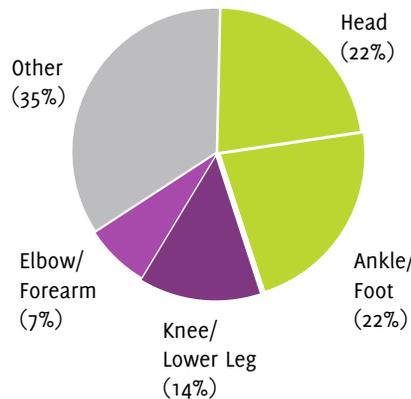
Gates can also be considered for other vulnerable stair users, such as adults with dementia.

### Stairway Design & Maintenance

Various elements of stair design impact fall risk, particularly by affecting a person's balance. The following are priority considerations:

- Step dimensions - a shorter riser and longer run make it easier to ascend and descend stairs safely.<sup>5</sup>
- Steps should be uniform throughout (same shape, material, and dimensions).<sup>6</sup>
- Handrails should be on both sides, with at least one handrail continuing 1 foot beyond the top and bottom of the stairs.<sup>6</sup>

FIGURE 3. ED visits for injuries from falls on stairs, by injury location, NACRS, Ontario, 2015



- Visibility - good lighting and a contrasting colour on the edge of all steps are recommended.<sup>6</sup>
- Repair of damaged steps and handrails is important and should be dealt with promptly.

Minimum standards for stairs in public and residential spaces can be established with policy, through building codes.

### Behaviour Changes

There are additional things individuals can do to reduce their risk of falls on stairs, including:

- Avoiding placing loose rugs at the top or bottom of stairways.
- Wearing properly fitting, non-slip shoes or slippers.
- Taking time going up and down, especially on steep and/or curved staircases.
- Being aware that certain medications, as well as alcohol, can affect balance and that extra caution may be needed on and around stairs.

## Methodology

ED visit data were obtained from the National Ambulatory Care Reporting System (NACRS) at CIHI. Data are from calendar year 2015 (January 1, 2015 - December 31, 2015). These data, as well as population estimates for calculating rates, were accessed using IntelliHEALTH ONTARIO through the Ministry of Health and Long-Term Care. ICD-10-CA coding was used to isolate falls on steps and stairs (W10).

## References

1. Health Canada. (2012). *Is Your Child Safe?* Retrieved from: <http://www.hc-sc.gc.ca/cps-spc/pubs/cons/child-enfant/safe-secure-eng.php#a410>.
2. Parachute. (2011). *Child Safety Good Practice Guide: Good investments in unintentional child injury prevention and safety promotion - Canadian Edition*. Toronto: Parachute.
3. Ontario Child Injury Prevention Committee. *Prevent Child Injury: Key Messages for Preventing Child Injuries among Children 0-36 Months of Age*. Retrieved from: [http://www.preventchildinjury.ca/uploads/Resources/resource\\_What\\_So\\_What\\_Now\\_What\\_Parents.pdf](http://www.preventchildinjury.ca/uploads/Resources/resource_What_So_What_Now_What_Parents.pdf)
4. Parachute. (n.d.). *Home Safety: Around the House*. Retrieved from: <http://www.parachutecanada.org/injury-topics/item/home-safety-around-the-house>
5. Joint Task Group on Step Dimensions in Dwelling Units. (2013). *Report on Step Dimensions in Dwelling Units*. (n.p.): Joint Task Group on Step Dimensions in Dwelling Units.
6. Scott, V. (2012). *Fall Prevention Programming: Designing, Implementing and Evaluating Fall Prevention Programs for Older Adults*. Raleigh, North Carolina: Lulu Publishing.

Suggested citation: Cowle, S. (2016). Injuries from Falls on Stairs in Ontario. *Ontario Injury Compass, Issue 14, December 2016*. Toronto: Parachute.



Ontario Injury Prevention  
Resource Centre

[www.oninjuryresources.ca](http://www.oninjuryresources.ca)

Produced by the  
Ontario Injury Prevention Resource Centre

Operated by Parachute  
150 Eglinton Ave. E., Suite 300  
Toronto, ON M4P 1E8  
P: 647-776-5100 TF: 1-888-537-7777  
[info@parachutecanada.org](mailto:info@parachutecanada.org)



Parachute  
PREVENTING INJURIES. SAVING LIVES.

[www.parachutecanada.org](http://www.parachutecanada.org)

The Ontario Injury Prevention Resource Centre is supported by Public Health Ontario, the Ministry of Health and Long-Term Care and the Province of Ontario. The views expressed in this publication do not necessarily reflect the views of Public Health Ontario, the Ministry of Health and Long-Term Care or the Province of Ontario.