Fall-related Head Injuries in Adults 65 and over

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Analysis and discussion of injury issues in the province

Understanding the Issue

Falls are the leading cause of head injury hospitalizations in older adults.

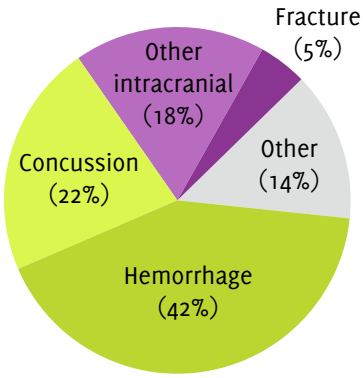
Head impact is common when a person falls, especially when they fall forward.[1] One Canadian study observed head impact in 37% of the falls that occurred in two long-term care facilities over a 3-year span.[2] A head injury diagnosis can significantly impact an individual's health, not only because of the immediate injury but also the related symptoms that may develop over time.[3]

In Ontario, there were 15,080 emergency department (ED) visits and 2,900 hospitalizations for fall-related head injuries among adults aged 65 and over in 2014/15. For this report, head injuries include internal damage to the brain and surrounding areas, as well as fractures to the skull. This Ontario Injury Compass highlights risk factors for these injuries and leading prevention strategies to address the issue.

Injury Diagnosis

For ED visits where the nature of the head injury was specified, the top three diagnoses in 2014/15 were traumatic hemorrhages (2,082), concussions (1,085) and other intracranial injuries (888) (Figure 1). These types of head injuries also accounted for the greatest number of hospitalizations.

FIGURE 1. ED visits for fall-related head injuries, ages 65+, by main problem diagnosis, NACRS, Ontario, 2014-15*



**Includes only cases where type of head injury was specified. These represent 33% of cases (4,975).*

Risk Factors

Age

In general, older adults experience a higher rate of fall-related injury than other ages.[3,4] Considering fall-related head injuries alone, the largest number of ED visits and hospitalizations among older adults in Ontario were for 80-84 year olds, followed by 85-89 and 75-79 year olds (Figures 2 & 3). The highest *rates* for ED visits and hospitalizations were among those aged 90-plus at 2,182.6 per 100,000 and 425.4 per 100,000 population, respectively.

Sex

Among those aged 65 and over, females were more likely to visit an ED for a fall-related head injury in 2014/15 (Figure 2). Females accounted for 9,331 ED visits (62%). The ED visit rate for females was 789.4 per 100,000, while for males the rate was 600.8 per 100,000.

Males were more likely to be admitted to hospital for a fall-related head injury (Figure 3). In 2014/15, there were 1,528 visits for injured males (53%). The hospitalization rate for males aged 65-plus was 159.7 per 100,000, versus 116.1 per 100,000 for females.

FIGURE 2. ED visits for fall-related head injuries, ages 65+, by age and sex, NACRS, Ontario, 2014-15

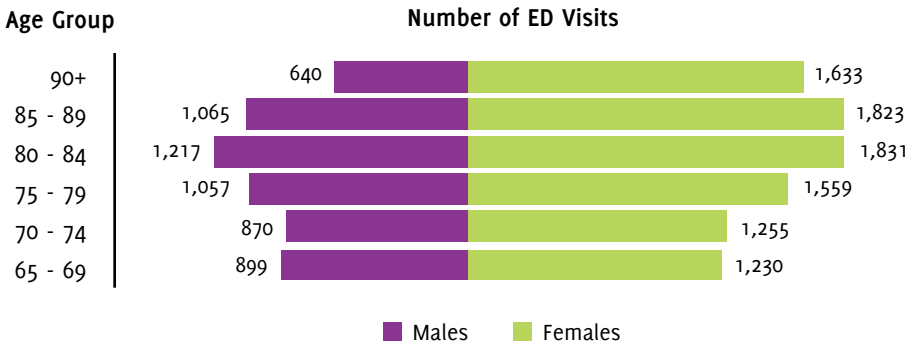
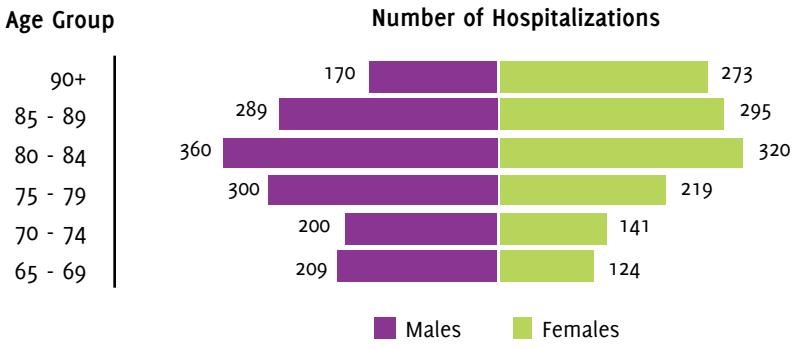


FIGURE 3. Hospitalizations for fall-related head injuries, ages 65+, by age and sex, HMDB, Ontario, 2014-15



Location

Ontario adults aged 65 and older were more likely to suffer a fall-related head injury in their home than any other location in 2014/15 (Tables 1 & 2). In 27% of ED visit cases and 50% of hospitalizations for fall-related head injuries, the fall occurred at home. Other common locations for falls resulting in head injuries included residential institutions, streets or highways (including sidewalks), and trade or service areas, such as stores, restaurants, and banks.

Injuries tended to be from slips, trips or stumbles on the same level, falls on stairs, and falls involving furniture (beds in particular).

TABLE 1. ED visits for fall-related head injuries, ages 65+, by place of occurrence, NACRS, Ontario, 2014-15

Location	Count	%
Home	4,128	27%
Residential Institution	2,371	16%
Street/Highway*	594	4%
Other location	7,987	53%
TOTALS	15,080	100%

**Streets and highways include curbs and sidewalks.*

TABLE 2. Hospitalizations for fall-related head injuries, ages 65+, by place of occurrence, HMDB, Ontario, 2014-15

Location	Count	%
Home	1,448	50%
Residential Institution	375	13%
Trade & Service Area*	95	3%
Other location	982	34%
TOTALS	2,900	100%

**Trade and service areas include places such as stores, restaurants, airports, etc.*

Leading Prevention Strategies

A great deal is known about fall prevention for older adults. Selected examples of evidence-based prevention strategies are identified below. For more detail, please refer to the OIPRC's *Evidence-Informed Practice Recommendations*.

Assess the Risk

The overarching recommendation for fall prevention in older adults is to assess individuals for fall risk and tailor prevention efforts to their individual risk profile.[5]

Take a Multifactorial Approach

In general, approaches that target multiple risk factors are more effective than addressing a single factor.[4] The BEEEACH model is an example of how to apply this approach.

Reduce Environmental Hazards

In the home and in residential settings, fall risk can be reduced by identifying hazards and taking steps to remove them. This is particularly effective for individuals at high risk of falling.[4] This can include removing loose rugs and creating clear pathways for movement through the home. Examples in residential institutions might include adequate lighting and non-glare, non-slip flooring. Energy-absorbing flooring may reduce the risk of injury - hip or head injury in particular - should a fall occur.[2,4]

Build Strength and Balance

Appropriate exercise can reduce fall risk. An effective training program (for groups or individuals) should:

- be affordable, accessible, enjoyable
- be tailored to individual capacity
- focus on training two or more of the following: balance, gait, muscle strength, flexibility, endurance or coordination
- motivate individuals to continue participating over time[4]

Methodology

ED visit data were obtained from the National Ambulatory Care Reporting System (NACRS) and hospitalization data from the Hospital Morbidity Database (HMDB) at CIHI. All data are from fiscal year (April 1 - March 31) 2014/15, and were accessed using IntelliHealth through the Ministry of Health and Long-Term Care. ICD-10 coding was used to isolate falls with a head injury main problem diagnosis. Rates were calculated based on 2014 population projections from the Ontario Ministry of Finance.

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