

Injury Epidemiology Brief

Injuries Due to Falls Among Older Adults

Coloradans, Age 65 and Older

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Sallie Thoreson, MS and Letoynia Coombs, Ed.D
Prevention Services Division

Falls Among Older Adults

Each year in the U.S., one of every three adults age 65 and older is injured in a fall, and falls are the leading cause of injury death in this age group. Falls are also the most common cause of nonfatal injuries and hospital admissions for older adults in the U.S. Falls often lead to a loss of independence and can increase the risk of early death. In 2000, the estimated cost of fall-related injuries nationally was \$19 billion.¹

The information in this brief addresses falls resulting in hospitalization or death among Coloradans age 65 and older for 2004 – 2006. The data used in this report come from the Colorado Trauma Registry, hospital discharge data from the Colorado Health and Hospital Association, death certificate data from the Colorado Department of Public Health and Environment, and the Colorado Traumatic Brain Injury Surveillance.

Highlights

For Coloradans of all ages, falls are the leading cause of injury hospitalization and the fourth leading cause of injury death. The majority of these deaths and hospitalizations involve adults age 65 and older.

- Seventy-seven percent of the fall-related deaths in Colorado involve older adults.
- An average of 297 Coloradans age 65 and older die from a fall-related injury each year; nearly 35 percent have a traumatic brain injury (skull fracture, concussion, or intracranial injury) and 35 percent have a hip fracture.
- Sixty-two percent of the fall-related hospitalizations in Colorado involve older adults.
- An average of 9,016 Coloradans age 65 and older are hospitalized for fall-related injuries each year, over one third (36 percent) have hip/femur fractures and twelve percent have traumatic brain injuries.
- The average length of stay for older Coloradans hospitalized for fall-related injuries is 4.8 days, with an average total hospitalization charge of \$25,976.²
- Of the older adults who were injured from a fall in a home, only 28 percent were discharged to home after their hospitalization. The majority required ongoing care in a skilled nursing facility (50 percent).
- The death rate from falls is higher for Hispanic and non-Hispanic Whites than for Blacks and Asian American/Pacific Islanders who have the lowest death rates from falls.

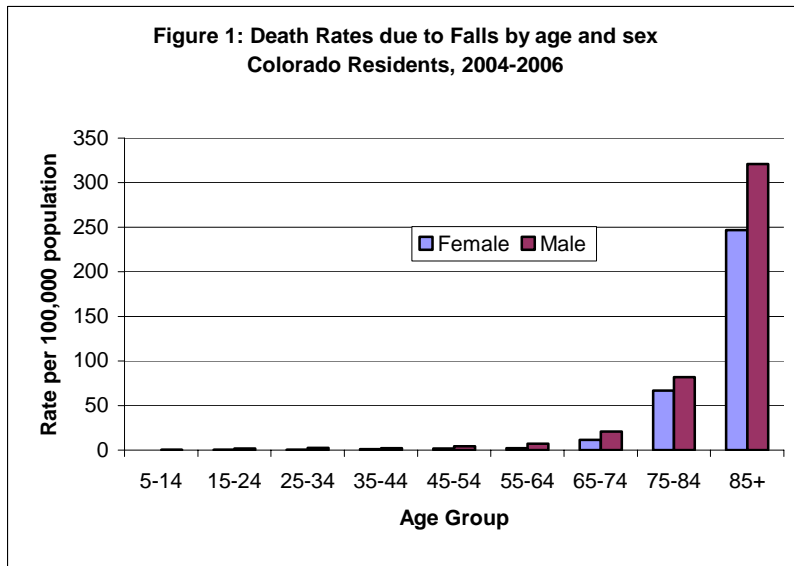
Older Adults in Colorado

- In 2006, one of every 10 Colorado residents (9.9%) is an older adult (age 65 and older). By 2025, an estimated 15% of the populations will be 65+.^a
- From 1990 to 2006, the number of Colorado residents age 65 and older increased 44 percent; the number of Colorado residents age 85 and older increased nearly 66 percent.^b
- Almost 57 percent of the Colorado population age 65 and older are women. Almost 70 percent of the population age 85 and older are women.^b
- Close to half (45 percent) of older Coloradans list their health as excellent or very good, and 75 percent engage in some form of physical activity.^c

- a. Demography Section of the Division of Local Governments, Colorado Department of Local Affairs. http://dola.colorado.gov/demog_webapps/population_age_gender
- b. Colorado Department of Public Health and Environment (2007). Colorado Health Information Dataset. Retrieved August 15, 2008 from <http://www.cdph.state.co.us/cohid>
- c. National Center for Chronic Disease Prevention and Health Promotion (2007). Prevalence Data: Colorado-2007, Health Status: "How is your general health?" and "During the past month, did you participate in any physical activities?" Retrieved August 15, 2008 from <http://www.cdc.gov/brfss/>

Fall-Related Deaths

Falls are the leading cause of injury death among Coloradans age 65 and older. Each year an average of 297 older Coloradans die from fall-related injuries. The number of deaths due to falls in this age group is nearly four times that of deaths due to motor vehicle crashes (annual average of 69 deaths) and three times that of deaths due to suicide (annual average of 94 deaths).



The fall-related death rate increases with age (see Table 1 and Figure 1), from 9.2 per 100,000 for Coloradans age 65-74, to 48.4 per 100,000 for Coloradans age 75-84, to 172.0 per 100,000 for Coloradans age 85 and older. The age adjusted fall-related death rate is statistically higher for older men than women (79.2 per 100,000 and 59.8 per 100,000 respectively).

Older adults who die from fall-related injuries most often are injured from falls in a residence. Based on information from the death certificate, for those deaths where location of injury is known, 55 percent occurred in a home; 28 percent occurred in a nursing home; four percent occurred in a street or public building; and two percent occurred in a hospital.

Among older adults who die from fall-related injuries, nearly 36 percent sustained a traumatic brain injury and more than one-third (35 percent) sustained a hip fracture.

The death rate for falls among older adults has almost doubled over the last eight years, (Figure 2) while the death rate for all unintentional injuries in the older adult population has increased only slightly.

Table 1: Fall-related deaths among Coloradans age 65 and older 2004-2006

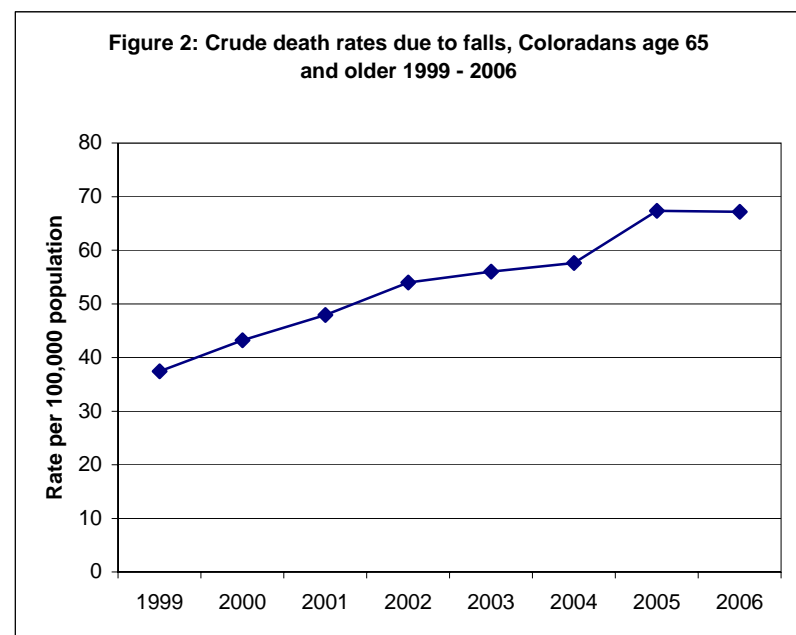
	Annual Average	Rate ^{a,b}
Age 65-74	40	9.1
Age 75-84	114	48.4
Age 85+	143	172.0
Male	127	72.5 ^{b,c}
Female	169	62.3 ^b
White, Non-Hispanic	269	69.2 ^b
White, Hispanic	21	62.9 ^{b,c}
Black	5	27.1 ^{b,c}
Asian American/Pacific Islander	3	30.1 ^{b,d}
American Indian	<3	
Total	297	66.6^b

a. Number of deaths per 100,000 population

b. Age-adjusted to year 2000 US population age 65+

c. The age-adjusted rate for Whites is statistically higher than the rate for Blacks.

d. The age-adjusted rate for Hispanics is statistically higher than the rate for Asian American/Pacific Islanders



Fall-Related Hospitalizations

Falls are the leading cause of injury hospitalization for Coloradans age 65 and older. Each year, nearly 9,016 older adults are hospitalized for injuries due to falls. As with fall-related deaths, the fall-related hospitalization rate increases with age (see Table 2). Based on these rates, one of every 15 Coloradans age 85 and older is hospitalized each year for a fall-related injury.

The rate of hospitalization for fall-related injuries differs for men and women. The age-adjusted rate of hospitalization for fall-related injuries for women age 65 and older (2275.7 per 100,000) is significantly higher than the rate for men age 65 and older (1604.4 per 100,000).

Based on information from the hospital discharge data, 37 percent of the older adults who were hospitalized for fall-related injuries were injured as a result of slipping, tripping, or stumbling on the same level, eight percent fell from stairs or steps, and five percent fell from beds or chairs. However, information on the circumstances of the fall was not available for 46 percent of the hospitalizations.

As with fall-related deaths, the majority of falls leading to hospitalizations in older adults in Colorado occurred in a residence (55 percent), while 16 percent of falls occurred in a nursing home, and four percent occurred in a public building.

Costs of Falls

The average length of hospital stay for Coloradans age 65 and older who are hospitalized for fall-related injuries is 4.8 days with an average total hospital charge of \$25,976.² Each year, the hospitalization charges for older adults hospitalized for fall-related injuries in Colorado total more than \$263 million. These charges relate to the hospital admission only and do not include such additional expenses as pre-hospital care, physician's fees, home health care, rehabilitation, or other charges.

Fall-related injuries can lead to a change in functional independence. Of the older adults in Colorado who were injured from a fall in a home, only 28 percent were discharged to home after their hospitalization. Half required ongoing care in a skilled nursing facility (50 percent).

In the US, direct medical costs totaled \$179 million for fatal falls and \$19 billion for nonfatal fall injuries in 2000. By 2020, the annual cost of fall injuries may reach over \$43 billion. Traumatic brain injuries accounted for close to half of fatal falls and fractures were the most frequent and most costly of the non-fatal fall injuries. These medical costs do not account for long-term costs such as disabilities, disruption of families, loss of independence, and reduced quality of life. The fear of falling alone can lead to reduced mobility and physical fitness, and increased risk of subsequent falls.³

Falls Resulting in Traumatic Brain Injuries

Over one third (36 percent) of Coloradans age 65 and older who die from a fall related injury have a traumatic brain injury (TBI). Among older adults who are hospitalized each year for falls, twelve percent have a traumatic brain injury. The rates for fall-related TBI hospitalizations were similar among men and women and the rates were highest for those older adults over age 85.

Nationally, TBIs account for 50 percent of the fall deaths among older adults and eight percent of nonfatal fall-related hospitalizations. Death rates for fall-related TBIs were higher among men than women, with TBI hospitalization rates similar for men and women. TBIs often lead to long-term physical and cognitive impairments.⁴

Table 2: Fall-related hospitalizations among Coloradans age 65 and older 2004-2006

	Annual Average	Rate ^a
Age 65-74	1892	749.4
Age 75-84	3658	2328.5
Age 85+	3466	6529.3
Male	2704	1506.5 ^b
Female	6312	2336.1 ^b
Total	9016	2010.1 ^b

a. Number of deaths per 100,000 population

b. Age-adjusted to year 2000 US population age 65+

Falls Resulting in Hip Fractures

Over one third (36 percent) of Coloradans age 65 and older who are hospitalized for fall related injuries have hip/femur fractures. Of the approximately 3,405 older adults hospitalized each year in Colorado for hip/femur fractures sustained in a fall, nearly 73 percent are women.

Nationally women sustain about 76 percent of all hip fractures, probably due to the increased risk of osteoporosis for women. Among both sexes, hip fracture rates increase greatly with age. Studies have shown as many as 20 percent of patients with hip fractures die within a year of their injury. After a fall-related hospitalization, as many as 25 percent of adults who lived independently have to stay in a nursing home for at least a year.⁵

Preventing Injuries Due to Falls in Older Adults

Older Coloradans can take action to prevent falls⁶:

- Begin a regular exercise program. Exercises that improve balance and gait are especially helpful.
- Have your health care provider review your medicines. Review medications and medical conditions with your health care provider and/or pharmacist.
- Have your vision checked at least once a year.
- Make your home safer. Use a home safety checklist to examine your home environment and make the necessary home modifications. Good checklists are available at <http://www.cdc.gov/ncipc/duip/fallsmaterial.htm>, and http://www.homesafetycouncil.org/newpdfs/sg_fallsNEW_p001.pdf

Fall prevention programs have been evaluated by a number of sources, and effective programs have been identified. For individuals at high risk, clinical assessment combined with individualized risk reduction and patient follow-up is effective. For community programs, the most effective single strategy is exercise, with balance and gait training and strength building being identified as the most effective for fall reduction. Multifaceted community programs to prevent falls should combine exercise with other intervention strategies including risk factor screening, community education, medication assessment and management, vision exams and correction, and home safety assessment and modification.⁷ Resources on the prevention of falls in older adults are available at <http://www.cdc.gov/ncipc/duip/preventadultfalls.htm>.

References

1. Centers for Disease Control and Prevention (2007). Falls among older adults: an overview. Retrieved July 9., 2007 from <http://www.cdc.gov/ncipc/factsheets/adultfalls.htm>
2. The average hospital charge is the average of the 90 percent interval costs. In this calculation, the highest five percent and the lowest five percent of charges are subtracted prior to calculating the average. This is a method used to deal with "outliers" (i.e., hospitalizations with extremely high or extremely low charges).
3. Stevens JA, Corso PS, Finkelstein EA, Miller TR. (2006). The costs of fatal and nonfatal falls among older adults. *Injury Prevention* 12:290-5.
4. Thomas KE, Stevens JA, Sarmiento K, Wald MM. (2008). Fall-related traumatic brain injury deaths and hospitalizations among older adults – United States, 2005. *Journal of Safety Research* 39:269-272.
5. Centers for Disease Control and Prevention (2008). Hip fractures among older adults. Retrieved August 20, 2008 from <http://www.cdc.gov/ncipc/factsheets/adulthipfx.htm>
6. Centers for Disease Control and Prevention (2007). Falls among older adults: an overview. Retrieved July 9., 2007 from <http://www.cdc.gov/ncipc/factsheets/adultfalls.htm>
7. Centers for Disease Control and Prevention (2008). Preventing Falls: How to Develop Community-based Fall Prevention Programs for Older Adults. Available at http://www.cdc.gov/ncipc/preventingfalls/CDC_Guide.pdf