

## Fall-Related Deaths and Injuries Among Older Adults in New Mexico

Falls are the leading cause of unintentional injury death, hospitalization and emergency department (ED) visits among older adults aged  $\geq 65$  years in New Mexico. In 2012, New Mexico had the sixth highest fall-related death rate in the nation, after Vermont, Wisconsin, Colorado, Minnesota and Oregon<sup>1</sup>. In 2013, NM older adults accounted for 85% of all fall-related deaths. Unintentional falls among older adults resulted in 234 deaths and 12,757 ED visits in 2013. There were 2,972 fall-related hospitalizations among older adults in 2012, the latest year available. The fall-related death rate among older adults in NM increased 117% from 1999 through 2007.

Fall-related injury seriously affects quality of life and can increase the risk of early death. Older adults are more likely to suffer severe injuries from falling than younger people, resulting in emergency department visits, hospitalizations and long-term rehabilitation. Fall-related injuries can make it difficult for older adults to move around and limit independent living. Many older adults who fall, even those who are not injured, develop a fear of falling. This fear may cause them to limit their activities, leading to reduced mobility and physical fitness and therefore increased risk of falling and declining health. Falls are a public health problem that is largely preventable. Effective ways to prevent falls among older adults include improving balance and vision, reducing hazards in the home and having older adult's medications reviewed by a physician or pharmacist<sup>2</sup>.

This report addresses fall-related deaths, hospitalizations and emergency department visits among New Mexico adults who are aged  $\geq 65$  years.

### Methods

The data on unintentional fall-related deaths were obtained from the NM Bureau of Vital Records and Health Statistics. All New Mexico residents aged  $\geq 65$  years at the time of their death with an ICD-10 under-

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lying cause of death code in the range W00 – W19 were included in the analysis. Hospital Inpatient Discharge Data (HIDD) that contained information from non-federal hospitals in NM and emergency department data were utilized. Fall-related hospitalizations and ED visits were selected based on external cause of injury codes (E-codes), which describe the cause and intent of the injury. HIDD records included in this analysis were limited to NM residents aged  $\geq 65$  years with a principal diagnosis of injury and an E-code of E880-E886 or E888, the codes for unintentional falls. About 94% of the injury-related hospitalizations in 2012 were E-coded. Emergency department visits included in this analysis were limited to NM residents aged  $\geq 65$  years who were treated and released from the hospital with either a principal diagnosis of injury and an E-code of E880-E886 or E888, or an E-code in the range of E880-E886 or E888 where the principal diagnosis was not an injury.

The number and rate of fall-related injury deaths, hospitalizations and ED visits among NM residents were calculated for this report.

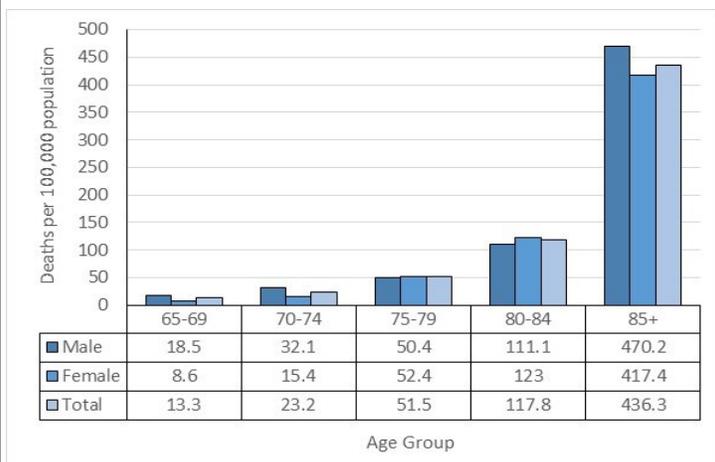
### Results

**Deaths.** Fall-related deaths among older adults in NM decreased 31% from 2007 through 2013 after increasing dramatically from 1999 through 2007 (Figure 1) The fall-related death rate in 2013 was nearly the same as the 2002 rate. The fall-related death rate for the U.S. has continued to increase since 2002. In 2012, the fall-related death rate among older adults in NM was 1.5 times higher than the U.S. rate. N.M. fall-related death rates increased dramatically beginning in 1999 for both males and females aged  $\geq 65$  years. The highest fall-related death rate was reached in 2007 for males (118.4/100,000) and 2008 for females

(120.4/100,000). The older adult male and female fall-related death rates decreased 28% and 27% respectively to a male rate of 85.1/100,000 and female rate of 88.2/100,000 in 2013.

The fall-related death rate increased dramatically with age (Figure 2). Persons aged  $\geq 85$  years had a fall-related death rate 33 times higher than persons aged 65 to 69 years. Females (87.1/100,000) had a 10% higher fall-related death rate than men (79.6/100,000) for persons aged  $\geq 65$  years. Older adult men had a higher fall-related death rate than women for the 65 to 74 year age group and the  $\geq 85$  year age group.

**Figure 2. Fall-related Death Rates among Older Adults by Age Group and Sex, NM, 2011-2013**



During 2009-2013, White older adults had the highest fall-related death rate at 96.9/100,000, followed by Hispanic older adults at 73.9/100,000, American Indian older adults at 71.7/100,000, Black older adults at 41.1/100,000 and Asian older adults at 22.3/100,000. Black older adults had 8 fall-related deaths and Asian older adults had 3 fall-related deaths during this period so their rates were unstable.

During 2009-2013, the Metro Region which includes Bernalillo, Sandoval, Torrance and Valencia Counties had the highest fall-related death rate at 97.2/100,000, and the Southwest Region which includes Catron, Dona Ana, Grant, Hidalgo, Luna, Otero, Sierra and Socorro counties had the lowest fall-related death rate at 74.3/100,000.

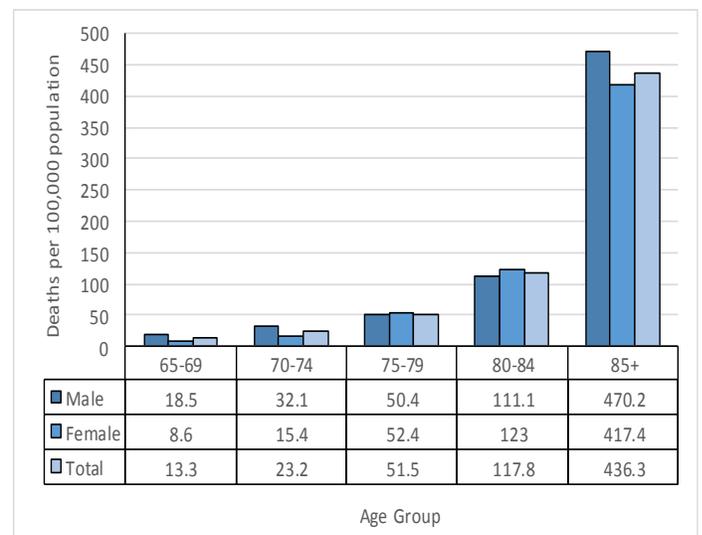
The most common type of fall-related injury among older adults in NM was a fall on the same level. Fractures and traumatic brain injuries (TBIs) were the most

common injuries sustained in a fall that was an underlying cause of death.

Injuries sustained in a fall among older adults that resulted in death during 2011-2013 included hip fractures (25.3%), other lower extremity fractures (26.4%), traumatic brain injuries (23.4%) and unknown injuries (18.5%). Several deaths had injuries in two different body regions.

*Hospitalizations.* The fall-related hospitalization rate increased with age (Figure 3) in 2012. Persons aged  $\geq 85$  years had a fall-related hospitalization rate 11 times higher than persons aged 65 to 69 years. Women aged  $\geq 65$  years had a higher fall-related hospitalization rate than men aged  $\geq 65$  years and women in each 5-year age group had a higher rate than men in each age group.

**Figure 3. Fall-related Hospitalizations among Older Adults by Age Group and Sex, NM, 2012**

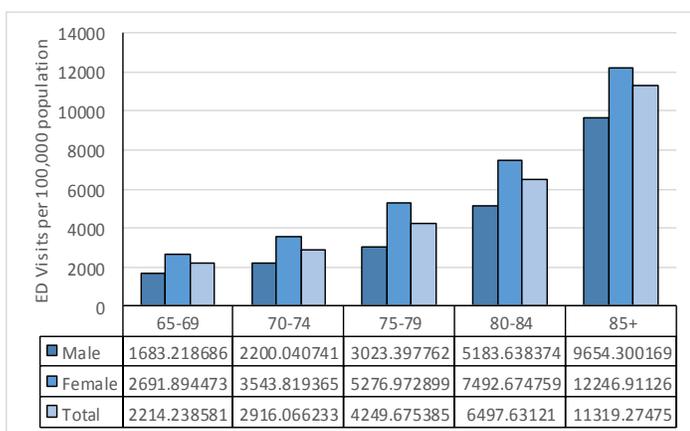


During 2010-2012, the counties with the highest fall-related hospitalization rates included Eddy, Luna, Chaves, Los Alamos, San Juan, San Miguel, Union, Rio Arriba and Bernalillo counties. The majority (66%) of older adults hospitalized due to a fall-related injury required additional care in a long-term care facility or a rehabilitation center. The most common injuries sustained from a fall requiring hospitalization among older adults in NM were hip fractures, other lower extremity fractures, upper extremity fractures and TBIs. Among injuries sustained in a fall among older adults that resulted in hospitalization during 2012, 49% were hip fractures, 10% were TBIs, 12% were other lower ex-

tremity fractures, and 11% were upper extremity fractures. Injuries in two or more body regions occurred in 8% of fall-related hospitalizations among older adults. Fall-related injury accounted for 75% of TBI hospitalizations among adults aged  $\geq 65$  years and 81% of TBI hospitalizations among adults aged  $\geq 85$  years in 2012.

**Emergency Department Visits.** The fall-related ED visit rate increased with age (Figure 4). Persons aged  $\geq 85$  years had a fall-related ED visit rate 5 times higher than persons aged 65 to 69 years. Females (5,265.5/100,000) had a fall-related death rate that was

**Figure 4. Fall-related ED Visits among Older Adults by Age Group and Sex, NM, 2013**



1.6 times higher than the male rate (3,211.9/100,000) among persons aged  $\geq 65$  years. During 2013, Luna, McKinley, Grant, Guadalupe, De Baca, Rio Arriba, Torrance and Roosevelt counties had the highest fall-related ED visit rates. The most common injuries sustained from a fall requiring a visit to the emergency department were contusions/superficial injuries, fractures, and open wounds. Among injuries sustained in a fall among older adults that resulted in an ED visit based on nature of injury during 2013, 39% were contusions/superficial injuries, 35% were fractures, 18% were open wounds, 11% were sprains and strains, and 16% were unspecified injuries. Two or more injuries due to a fall accounted for the majority of the fall-related injuries so the percent added up to more than 100%.

TBIs accounted for 14% of the fall-related injuries resulting in an ED visit and hip fractures accounted for 9% of the fall-related injuries resulting in an ED visit.

## Discussion

Falls are not an inevitable consequence of aging. Even though the fall-related death rate among older adults in NM decreased from 2008 through 2013, the rate is still substantially higher than the U.S. rate. In response to the increase in fall-related deaths during the past decade, the NMDOH made falls prevention one of its prevention priorities. The Office of Injury Prevention coordinates the statewide New Mexico Adult Falls Prevention Coalition. The Coalition has prioritized the following prevention strategies: home safety, physical activity, medication safety, and environmental safety in the community. The NMDOH has sponsored instructor training on the Tai-Chi: Moving for Better Balance evidence-based exercise program to reduce the risk of falling among older adults. The primary goal of the instructor training is to increase the number of individuals teaching Tai Chi and increase the geographic accessibility of this training for seniors throughout New Mexico. There have been several such trainings, beginning in 2010. During this time approximately 90 people were trained to be *Tai Chi: Moving for Better Balance* instructors. Each person completed a 2-day training that included learning the eight Tai Chi forms, reviewing training materials and class materials, and how to implement the program at the prospective trainers' sites.

Recommendations for health care providers to reduce the risk of falling among older adults include conducting a fall risk assessment at every primary care visit, promoting regular eye exams for older adults, and conducting medication reviews for potential dangerous drug interactions.

## References

1. CDC WISQARS produced by Office of Statistics and Programming, National Center for Injury Prevention and Control, CDC; Data Source: NCHS Vital Statistics System for numbers of deaths. Bureau of Census for population estimates.
2. <http://www.cdc.gov/homeandrecreationalafety/falls/adultfalls.html>

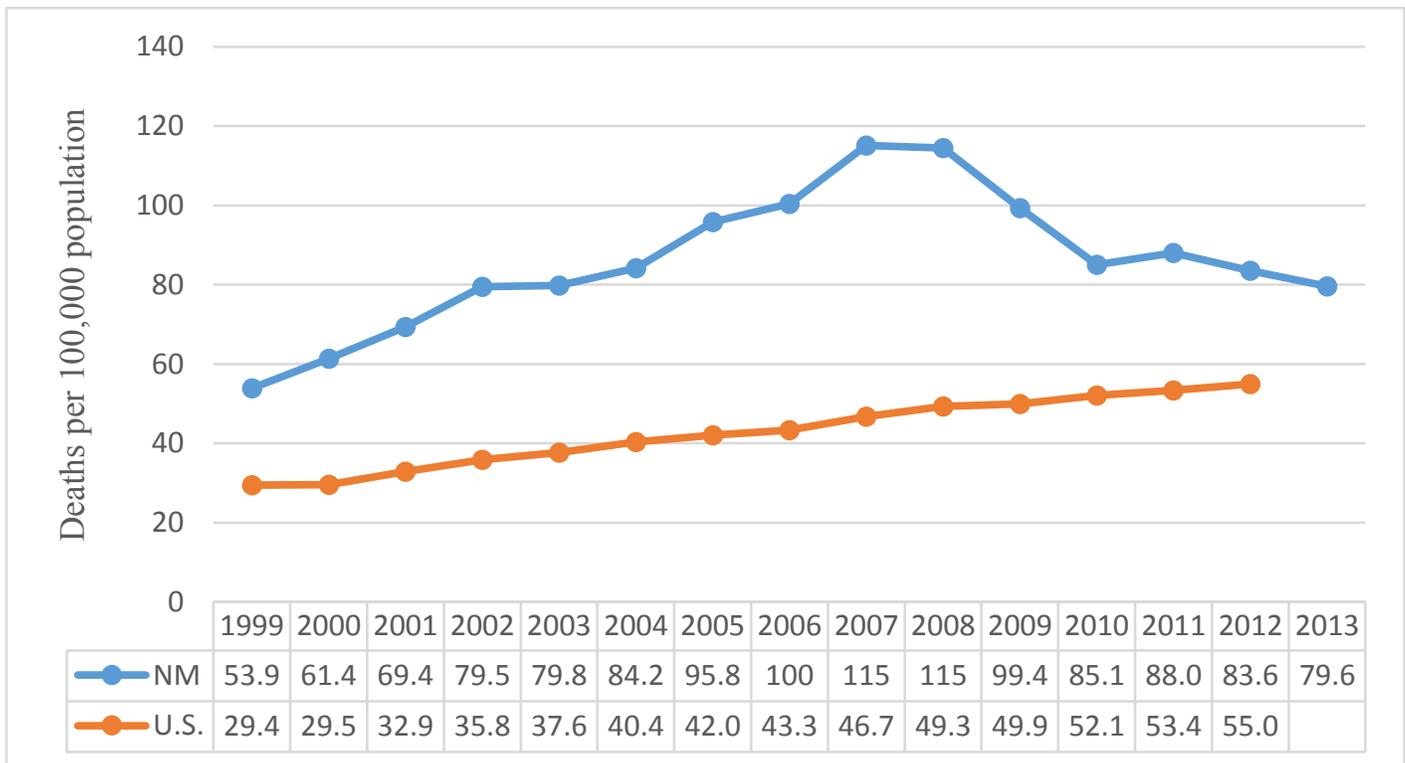
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**Figure 1. Fall-related Death Rates Among Older Adults, NM and U.S., 1999-2013**



Note: Rates were age-adjusted to the 2000 Standard US Population