N O R T H C A R O L I N A

THE BURDEN OF

Fall-related Injuries In North Carolina

North Carolina Injury and Violence Prevention Branch

NORTH CAROLINA DIVISION OF PUBLIC HEALTH

North Carolina Department of Health and Human Services
October 2013

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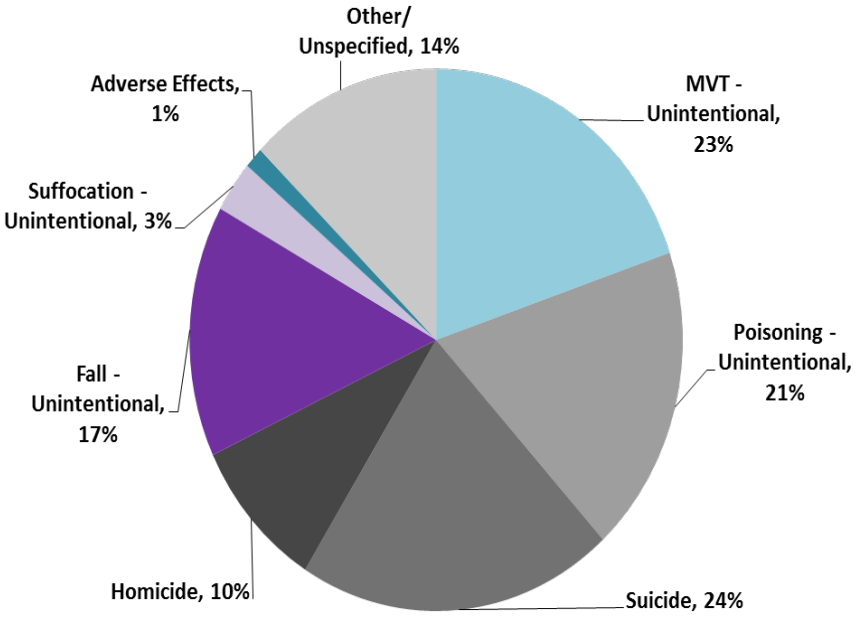
Section 1: Overview and Trends of Injuries due to Falls in North Carolina

Unintentional fall-related injuries and deaths are increasing in North Carolina. Falls are the number one reason for injury-related trips to the emergency department (ED).[1] Not only are fall injuries causing many visits to the ED, but 908 North Carolina residents lost their lives because of a fall in 2012 — almost three people every day.[2] Falls can result in serious injuries. For example, it is estimated that 28 percent of traumatic brain injuries occur because of a fall.[3]

This document outlines the burden of unintentional fall injuries and deaths among North Carolina residents as of 2012. As a mechanism of injury category, unintentional falls encompass many different types of events, including falls on stairs or steps; from ladders; out of buildings; into holes; from one level to another such as from playground equipment, cliffs or furniture; and falls on level ground as a result of slipping, tripping, or stumbling. Additionally, a sports injury involving falls due to slipping, tripping or pushing, and collisions due to pushing or shoving by another person are included. Falls while using recreational equipment such as scooters, in-line skates or skateboards are also included. Falls from bicycles or from riding animals are not included; these data are captured in other injury categories. Finally, this category does not include intentional fall injuries, which are the result of assault or other purposeful action against oneself or others.

Figure 1. Percent of Injury Deaths by Type: N.C. Residents, 2012

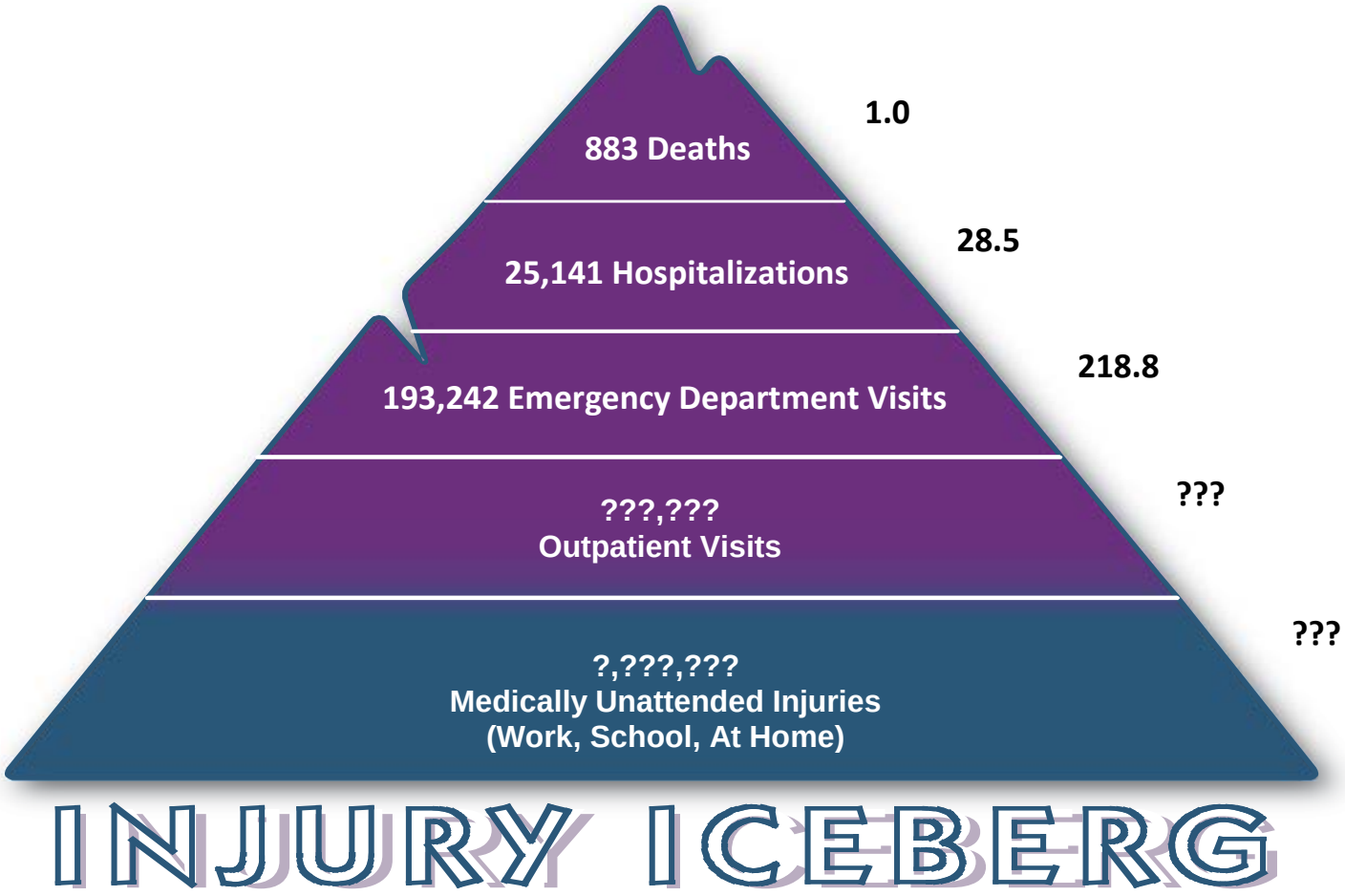


Data: N.C. Center for Health Statistics, 2012
Analysis: Injury Epidemiology & Surveillance Unit

Fatal Falls: Falls are the third leading cause of unintentional injury death for North Carolinians of all ages. In every year from 2003 to 2012, falls were the number one cause of unintentional injury death for individuals 65 and older. From 2003 to 2012, the death rate from falls increased 58.6% for all ages. In 2012, 900 unintentional fall deaths occurred in North Carolina.[2]

Non-fatal Falls and Economic Burden: Falls resulted in over 193,000 ED visits in N.C. in 2011.[1] For every unintentional fall death, there were approximately 219 visits to the ED, placing a significant burden on health-care services. In 2011, there were more than 25,000 residents admitted to the hospital due to falls. Provisional hospital discharge data from 2011 show that falls cost North Carolina residents more than $806 million in hospital charges with an average charge of $32,000 and a median cost of nearly $30,000.[4]

Figure 2. The Injury Iceberg—Injuries due to Falls: N.C. Residents, 2011

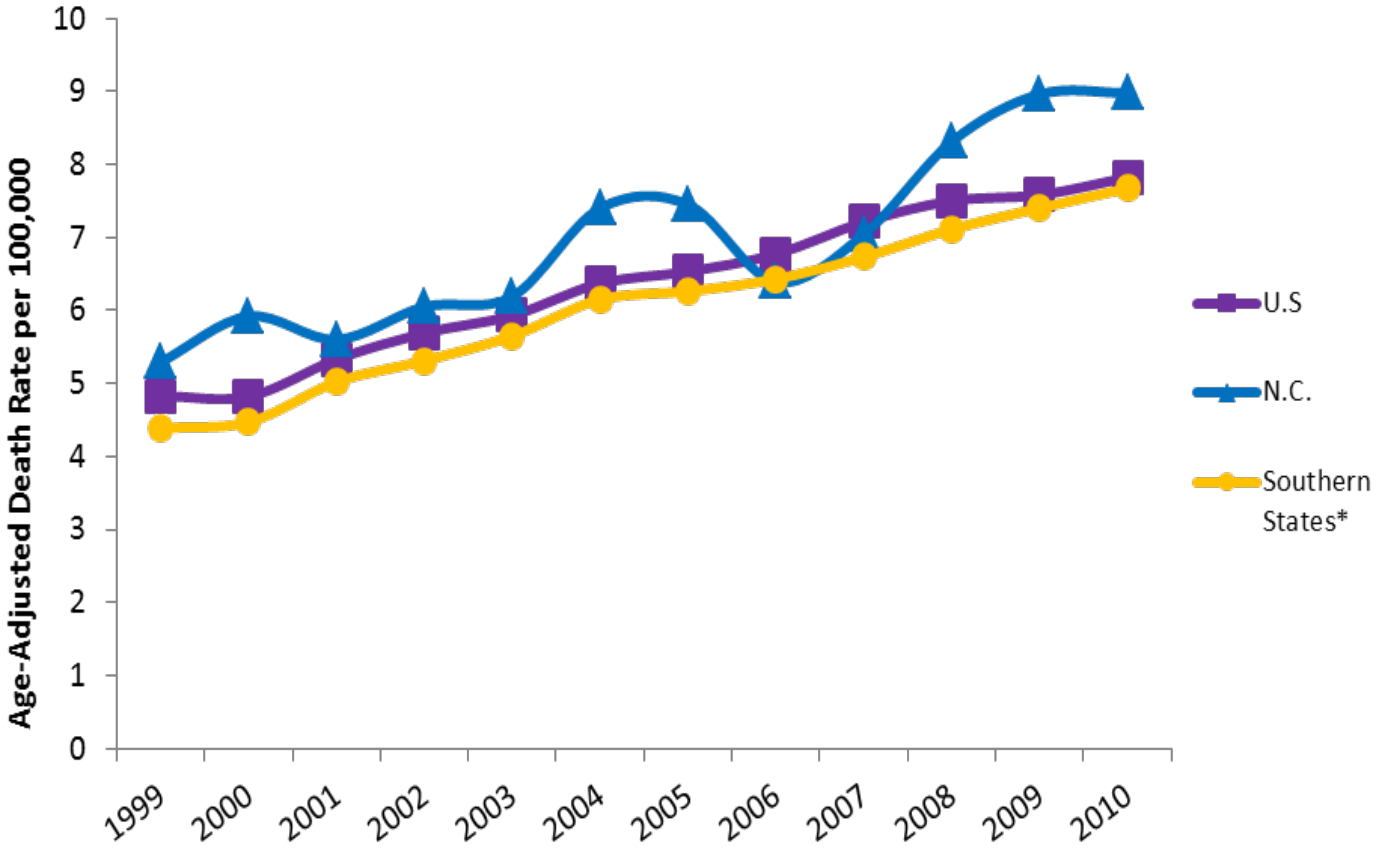


Data: Death, Hospital Discharge: N.C. Center for Health Statistics, 2011
Emergency Department: NC DETECT, 2011
Analysis: Injury Epidemiology & Surveillance Unit

The Injury Iceberg: The Injury Iceberg (Figure 2) shows that fatal falls are only a small part of the overall problem. The levels below fall deaths are wider because they show that more people are affected by non-fatal fall injuries. Just below deaths are fall injuries that result in being admitted to the hospital. The number jumps dramatically when fall injuries that cause a visit to the ED are counted. The question marks for outpatient visits indicate that estimates indicate that there are thousands of fall injuries that do not result in a trip to the ED but that are seen in a doctor's office. The largest numbers of people with injuries are those who do not go to see a doctor, receive no medical care or treat themselves.[5]

North Carolina: Figure 3 displays age-adjusted unintentional fall death rates per 100,000 residents from the Centers for Disease Control for the U. S., N.C., and Southern States (which includes N.C.) over time. Even though rates continue to climb across the board, N. C. has remained above the U. S. each year and in some cases spiked quite a bit above the U.S. rate.[6].

Figure 3. Comparison of Age-Adjusted Rates of Unintentional Fall Deaths between the U. S., Southern States,*and N.C.: 1999-2010



*Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

Data & Analysis: CDC WISQARS, 1999-2010

Section 2: Demographics of Unintentional Fall-Related Deaths and Injuries in N.C.

In 2012, 900 N.C. residents died from an unintentional fall-related injury. The age-adjusted rate for N.C. in 2012 was 9.2 deaths per 100,000 N.C. residents.[2] Table 1 provides demographic estimates of the N.C. population and Table 2 provides counts and crude rates of fall-related deaths for select populations. In N.C., certain populations are at a greater risk of dying after a fall than other populations:

- Males (9.2, 95% CI 8.3,10.1) had a similar crude rate of unintentional fall-related deaths compared to females (9.3, 95% CI 8.4, 10.1). However, the age-adjusted rate for males was higher (10.9 per 100,000 N.C. residents) than the age-adjusted rate for females (7.2 per 100,000 N.C. residents).
- The age-adjusted rate for Whites (9.9 per 100,000) was twice as high for unintentional fall fatalities than for Blacks (3.8 per 100,000).[2]
- There were only seven deaths among Hispanics.
- Eighty-four percent of the total number of fall-related fatalities occurred among residents over the age of 65.
- Fall-related deaths were very rare among those less than 44 years of age. After 44 years of age, the rate of death due to unintentional fall increased steadily, reaching a high of 248.9 deaths per 100,000 N.C. residents among those 85 years of age and older. Those 85 years of age and older are four times as likely to die as the result of an unintentional fall as those between the ages of 75 and 84 years.

Notes

The CDC defines a fall as:

"Injury received when a person descends abruptly due to the force of gravity and strikes a surface at the same or lower level."[7]

- **Falls are defined using ICD-10 codes W00-W19 (unintentional), X80 (self-inflicted), Y30 (undetermined) and Y01 (assault).**[8]
- **In 2010, the third leading cause of unintentional injury for the U. S. was falls.**
- **In 2011, the leading cause of non-fatal injuries for the U.S. (as measured by hospital emergency department visits) was unintentional falls.**
- **The N.C. BRFSS has included questions related to falls, though they are much broader and have not been captured every year. In addition, data collected from 2011 and beyond are not comparable to data in prior years.**

All fall-related deaths and injuries are classified using the World Health Organization's International Classification of Disease codes ICD-10 (deaths) and ICD-9-CM (nonfatal injuries). Supplemental information is provided in the Notes (page 28) and Glossary sections (page 29).[8,9]

Table 1: Selected Demographics of N.C. Residents, 2012		
	Number	**Percent**
Sex		
Male	4,752,898	48.7%
Female	4,999,175	51.3%
Hispanic Ethnicity		
Hispanic	850,853	8.7%
Non-Hispanic	8,901,220	91.3%
Race		
Asian	265,858	2.7%
American Indian	160,771	1.6%
Black	2,217,811	22.7%
White	7,107,633	72.9%
Age Group		
0-0.9	120,328	1.2%
1-4	499,612	5.1%
5-9	642,350	6.6%
10-14	648,512	6.6%
15-19	650,661	6.7%
20-24	697,227	7.1%
25-34	1,267,434	13.0%
35-44	1,312,404	13.5%
45-54	1,366,362	14.0%
55-64	1,199,314	12.3%
65-74	782,121	8.0%
75-84	405,876	4.2%
85+	159,872	1.6%
Total	**9,752,073**	**100.0%**

Data: National Center for Health Statistics, 2012
Analysis: Injury Epidemiology & Surveillance Unit

Table 2: Selected Demographics of Unintentional Fall-Related Deaths: N.C. Residents, 2012					
	Number	Percent	Rate†	95% Confidence Interval	
				Lower	Upper
Sex					
Male	437	48.6%	9.2	8.3	10.1
Female	463	51.4%	9.3	8.4	10.1
Hispanic Ethnicity					
Hispanic	7	0.7%	*	*	*
Non-Hispanic	893	99.3%	10.0	9.4	10.7
Race¥					
Asian	2	0.2%	*	*	*
American Indian	3	0.3%	*	*	*
Black	81	9.0%	3.8	2.9	4.6
Other	0	0.0%	*	*	*
White	813	90.3%	12.7	11.8	13.6
Age Group					
0-0.9	0	0.0%	*	*	*
1-4	1	0.1%	*	*	*
5-9	0	0.0%	*	*	*
10-14	1	0.1%	*	*	*
15-19	5	0.6%	*	*	*
20-24	5	0.5%	*	*	*
25-34	7	0.8%	*	*	*
35-44	9	1.0%	*	*	*
45-54	33	3.7%	2.4	2.2	2.6
55-64	83	9.2%	6.9	6.5	7.4
65-74	102	11.3%	13.0	12.1	13.9
75-84	256	28.4%	63.1	59.2	66.9
85+	398	44.2%	248.9	229.6	268.3
Total	**900**	**100.0%**	**9.2**	**9.2**	**9.3**

† Rates expressed as crude rate per 100,000 N.C. residents

Hospital discharge records and data from EDs provide additional insight into the extent of non-fatal fall injuries in N. C. Unfortunately, these numbers provide only a rough approximation of the full extent of non-fatal falls in N.C. Non-fatal fall injuries that are treated in outpatient clinics and in the home are not captured. Table 3 presents hospital discharge and ED data by age:

- As with fatal falls, the rate of non-fatal fall-related hospitalizations increased steadily with age.
- In general, the rate of non-fatal fall-related ED visits also increased with age. However, there was an increase in the visit rate among young children between the ages of 1 and 4 years. Children between the ages of 1 and 4 years had the third highest rate of ED visits for non-fatal fall-related injuries of all age groups (3,190.4, 95% CI 3,141.3, 3,239.5).
- The highest rate of fall-related hospitalizations and ED visits were among those over the age of 85. This age group had a hospitalization rate of 4,349.1 hospitalizations per 100,000 N.C. residents (95% CI 4,244.8, 4,453.3) and an ED visit rate of 11,403.5 visits per 100,000 N.C. residents (11,234.7, 11.562.3).

Table 3. Selected Demographics of Unintentional Fall-Related Hospitalizations and Emergency Department Visits: N.C. Residents, 2011*

	Hospital Discharges				Emergency Department Visits			
			95% CI				95% CI	
	Number	Rate†	Lower	Upper	Number	Rate†	Lower	Upper
Age Group								
0-0.9	87	71.3	56.3	86.3	2,106	1,726.5	1,652.7	1,800.2
1-4	213	41.9	36.3	47.6	16,201	3,190.4	3,141.3	3,239.5
5-9	216	33.9	29.4	38.4	12,152	1,907.7	1,873.8	1,941.6
10-14	183	28.5	24.4	32.6	11,463	1,783.9	1,751.3	1,816.6
15-19	182	27.8	23.8	31.9	8,786	1,344.2	1,316.1	1,372.3
20-24	212	31.3	27.0	35.5	9,921	1,462.5	1,433.7	1,491.2
25-34	504	39.9	36.4	43.4	19,459	1,541.1	1,519.5	1,562.8
35-44	826	62.7	58.5	67.0	19,025	1,445.2	1,424.6	1,465.7
45-54	1,806	131.9	125.8	137.9	21,364	1,559.8	1,538.8	1,580.7
55-64	3,010	253.5	244.4	262.5	18,703	1,575.0	1,552.5	1,597.6
65-74	4,349	598.5	580.7	616.3	16,940	2,331.2	2,296.1	2,366.4
75-84	6,867	1,723.6	1,682.9	1,764.4	20,153	5,058.4	4,988.6	5,128.3
85+	6,686	4,349.1	4,244.8	4,453.3	17,531	11,403.5	11,234.7	11,572.3
Total	***25,141***	***260.4***	***257.1***	***263.6***	***191,698***	***1,985.2***	***1,976.3***	***1,994.1***

†Rate expressed as crude number per 100,000 N.C. residents
*Hospital data is provisional

Data: N.C. Center for Health Statistics, 2011*
Analysis: Injury Epidemiology & Surveillance Unit

Section 3: County Rates of Unintentional Fall-Related Deaths

The rates of unintentional fall-related deaths are not distributed equally across the state of North Carolina. Figure Six displays the rates of unintentional fall-related deaths by county for the years 2004 through 2012. The rates should be interpreted with caution, however, and counties with fewer than 20 deaths may have statistically unreliable rates.[10] Additionally, differences in rates between counties may be due to an array of factors including differences in population, socioeconomic factors, infrastructure, and geography. Rate cut-offs are based on "natural breaks" occurring in the population between 2010 and 2012; these cut-offs were maintained for the other years in order to facilitate comparison.

- The state rate of unintentional fall–related deaths increased over time. The period of 2004-2006 had the lowest state rate of unintentional fall-related deaths (6.8, 95% CI 6.5, 7.1) while the period 2010-2012 had the highest state rate (9.1, 95% CI 8.8, 9.4).

- Over time, the number of counties with less than 20 deaths during the specified time period decreased. A total of 72 counties had less than 20 deaths between 2004 and 2006 while 64 counties had less than 20 deaths between 2010 and 2012.

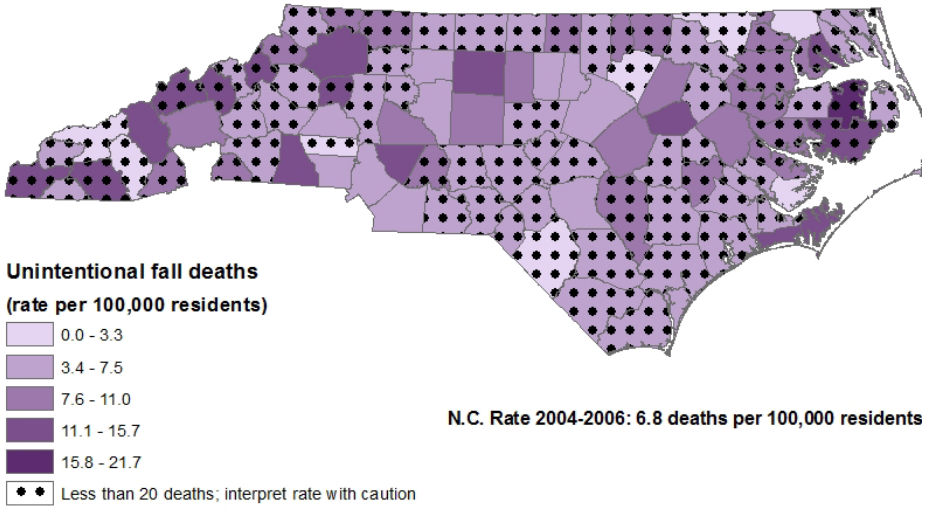
- For all time periods, counties in the western region of the state had the highest rates of unintentional fall-related deaths. Between 2010 and 2012, the Western counties had an overall unintentional fall-related death rate of 15.6 deaths per 100,000 N.C. residents. In comparison, the eastern counties had a rate of 8.5 deaths per 100,000 N.C. residents, and the central counties had a rate of 10.7 deaths per 100,000 N.C. residents. Table Four outlines the counties included in the western, eastern, and central regions.

Table 4. Counties in the Central, Eastern, and Western Regions of North Carolina

Region	Counties
Central	Alamance, Alexander, Anson, Cabarrus, Caswell, Catawba, Chatham, Cleveland, Davidson, Davie, Durham, Forsyth, Franklin, Gaston, Granville, Guilford, Iredell, Lee, Lincoln, Mecklenburg, Montgomery, Moore, Orange, Person, Randolph, Richmond, Rockingham, Rowan, Stanly, Stokes, Union, Vance, Wake, Warren, Yadkin
Eastern	Beaufort, Bertie, Bladen, Brunswick, Camden, Carteret, Chowan, Columbus, Craven, Cumberland, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Harnett, Hertford, Hoke, Hyde, Johnston, Jones, Lenoir, Martin, Nash, New Hanover, Northhampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Robeson, Sampson, Scotland, Tyrrell, Washington, Wayne, Wilson
Western	Alleghany, Ashe, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay Graham, Haywood, Henderson, Jackson, McDowell ,Macon, Madison, Mitchell, Polk, Rutherford, Surry, Swain, Transylvania, Watauga, Wilkes, Yancey

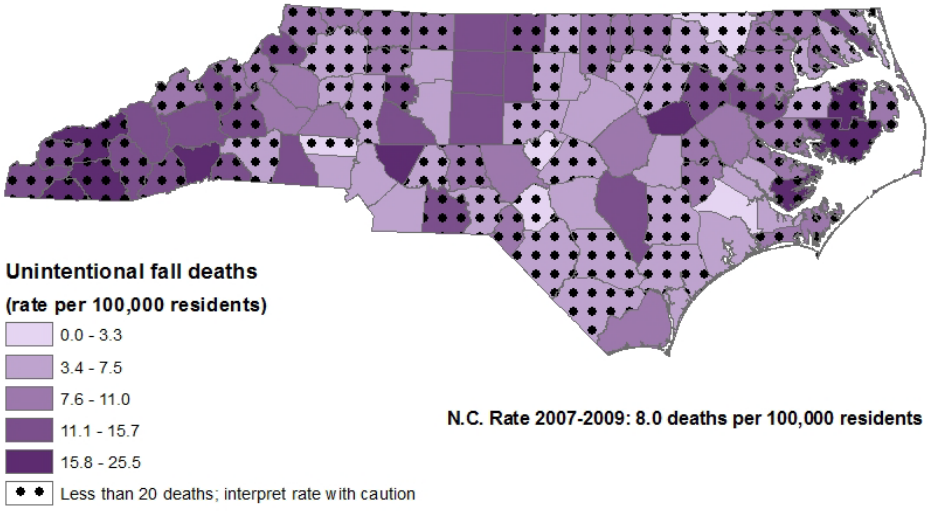
Figure 6. Unintentional Fall-related Death Rates by County: N.C. Residents, 2004-2012

2004-2006



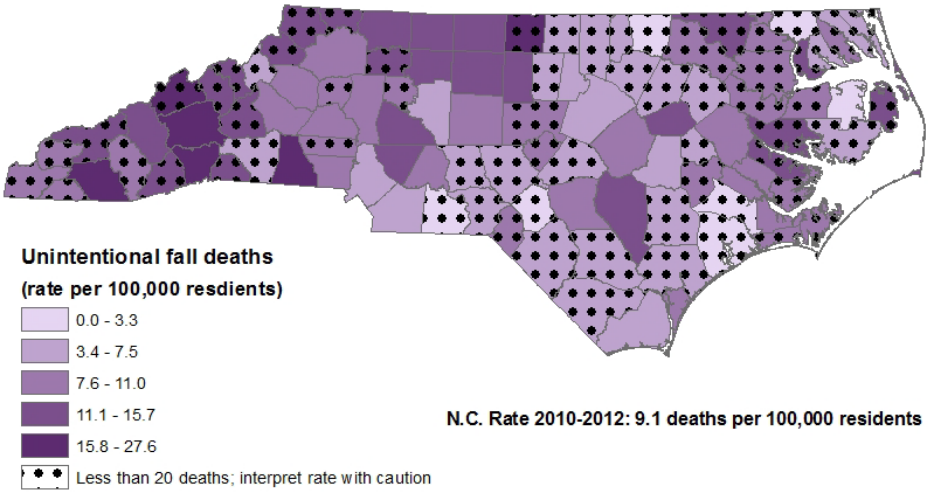
N.C. Rate 2004-2006: 6.8 deaths per 100,000 residents

2007-2009



N.C. Rate 2007-2009: 8.0 deaths per 100,000 residents

2010-2012



N.C. Rate 2010-2012: 9.1 deaths per 100,000 residents

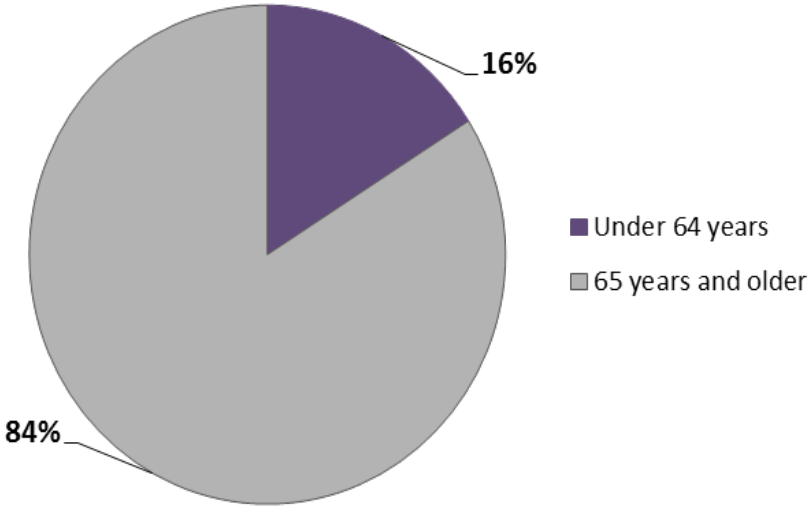
Data: N.C. Center for Health Statistics, 2000-2012
Analysis: Injury Epidemiology & Surveillance Unit

Section 4: Older Adult Unintentional Fall-Related Injuries (Ages 65+)

The increases in unintentional fall-related injury rates among the general population have been driven by increases in rates among those ages 65 and older. Unintentional falls among those 65 and older are of great concern because they occur more frequently and have more severe consequences. National data show that people 75 years of age and older have the highest rates of traumatic brain injury-related hospitalizations and death from falls.[11] Falls are the leading cause of fatal injuries[2] and the 2nd leading cause of nonfatal injury hospitalizations[4] for people 65 and older in North Carolina. The crude mortality rate due to unintentional falls for people 65 and older (56.1 per 100,000 residents) was 33 times the rate for those 64 and younger (1.7 per 100,000 residents) in 2012.[2]

Eighty-four percent of unintentional fall injury deaths occur among residents over the age of 65 (Figure 5). Not only is the problem in older adults currently a major concern, but projections show a "Silver Tsunami" coming to North Carolina in the next decades. In 2000, fewer than 25 of North Carolina's 100 counties had more people over the age of 65 than under the age of 18. Population projections based on July 2006 data show that in 2030, more than 75 counties will have more people 65 and older than 18 and younger.[12]

Figure 5. Percentage of Unintentional Fall-Related Deaths, by Age Group, N.C. Residents, 2012



Data: N.C. DETECT, 2012
Analysis: Injury Epidemiology & Surveillance Unit

Table 5. Projections for Deaths, Hospitalizations, and ED Visit Due to Unintentional Fall Injuries N.C. Residents

	2006/2007*	Year 2030
Deaths	480	947
Hospitalizations	17,579	35,569
ED Visits	44,541	87,921

*Projections based on fixed 2007 rates

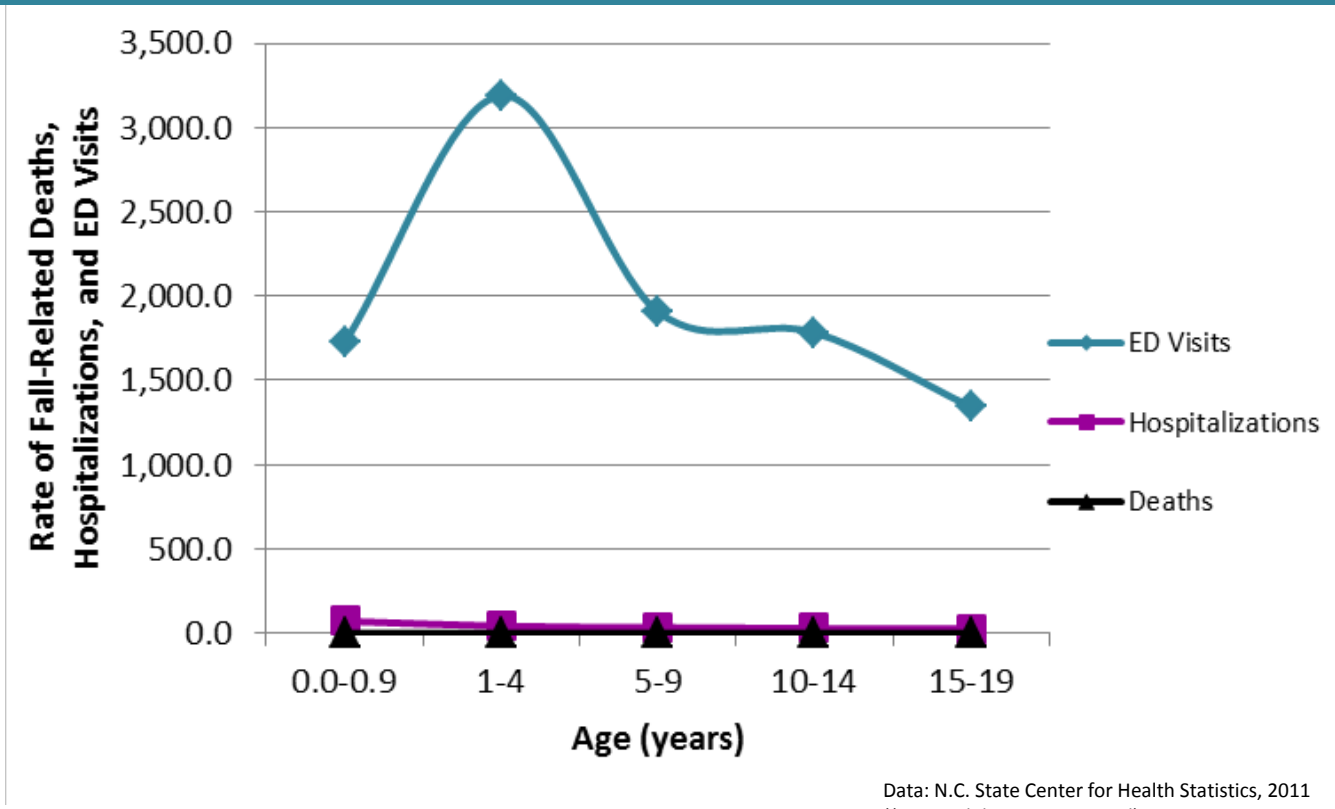
Table 5[1,2,4] shows the effect that this older adult population shift will have on unintentional falls by the year 2030. These projections are based on fixed 2007 rates for fall injuries. It is expected that this rate will increase as it has done for past years. Current trends suggest that these are likely conservative estimates since there were 900 deaths in 2012. The true numbers will probably be much larger.

Section 5: Youth Unintentional Fall-Related Injuries (Ages 0-19)

Figure 6 provides a closer look at the increase in the rate of ED visits due to falls in residents ages 19 and younger.[1] Fall-related ED visit rates are much higher than death or hospital discharge rates for this group, as demonstrated by the spike in Figure Six. ED visit rates are particularly high among those between the ages of 1 and 4 years. An injury that requires a visit to the ED is costly, and though severity of injury is not captured in the data, it is possible some of these falls caused major injuries.

A report compiled by the Harborview Injury Prevention and Research Center at the University of Washington outlines what types of falls occur among youth ages 17 and younger. National hospital discharge data reveal that the most common type of fall leading to hospitalization in youth ages 17 and younger is a fall from one level to another, such as from playground equipment, beds, tables and chairs. In 2005, there were 407 hospital discharges for falls from one level to another among youth ages 17 and younger, which comprised 44 percent of fall-related hospital discharges in this age group. Though youth fall-related deaths are very rare, those that do result in severe or fatal injuries are usually due to falls from second story or higher windows. The mean height for a fatal injury is five to six stories. Window screens are made to pop out for fire safety reasons, and do not serve as a barrier to prevent children from falling out of windows.[13]

Figure 6. Unintentional Fall-Related Death, Hospitalization*, and Emergency Department Visit Rates: N.C. Residents Ages 0-19, 2011



Data: N.C. State Center for Health Statistics, 2011
(*Hospital data is provisional);
N.C. DETECT, 2011
Analysis: Injury Epidemiology & Surveillance Unit

Section 6: N.C. BRFSS Fall-Related Data

Figure 7 and 8 illustrate self-reported data on falls for North Carolina for the survey year 2012.[14] Behavioral Risk Factor Surveillance System (BRFSS) data differs from death certificate, hospital discharge, and emergency department data in that it is self-reported and can include many different types of falls. A self-report of a fall could mean there was no injury from the fall, the fall resulted in only a minor injury and no medical attention was needed, or the fall was severe and caused hospitalization. Severity of fall is not captured in this data.

Figure 7 asks the question, "*In the past three months, how many times have you fallen?*" The responses presented are those from residents who reported falling at least once in the past three months among those ages 45 years or older. Sixteen percent of respondents 75 years or older reported at least one fall, whereas 13 percent of respondents between the ages of 45 and 54 reported at least one fall. Generally, a greater percentage of individuals in older age groups reported a fall than did the lower age groups.

Figure 8 asks the question, *"How many of these falls have caused an injury?"* The results show those respondents ages 45 years or older that reported having one or more falls resulting in an injury, but the results are also stratified by income level. Forty-six percent of respondents with a reported annual income of less than $15,000 had one or more falls resulting in injury, whereas a lower percentage of respondents with higher annual incomes (31%) reported one or more falls resulting in injury.

Behavioral Risk Factor Surveillance System (BRFSS) Information[14]

BRFSS methodology has changed since 2011 and results from 2010 and prior years are no longer comparable to results from 2011 and beyond.

- **BRFSS staff began to call cell phones in addition to land line phones in 2011.**
- **Calling cell phones for a subset of their sample:**
  - **Ensures representativeness of population and makes results more valid.**
  - **Often means making more attempts.**

There have been two questions on the N.C. BRFSS about fall-related injuries. These questions were part of the CDC-core and were included in years before 2011 and after.

The specific questions about falls were included in 2003, 2006 and every even-numbered years after.

In 2012, the questions read as follows:

In the past 3 months, how many times have you fallen?

How many of these falls caused an injury?
By an injury, we mean the fall caused you to limit your regular activities for at least a day or to go see a doctor.

Percentages are weighted to population characteristics and therefore cannot be calculated exactly from the raw numbers that are displayed in BRFSS tables.

Figure 7. Respondents Reporting One Fall (Adults Ages 45+), by Age Group: N.C. BRFSS, 2012

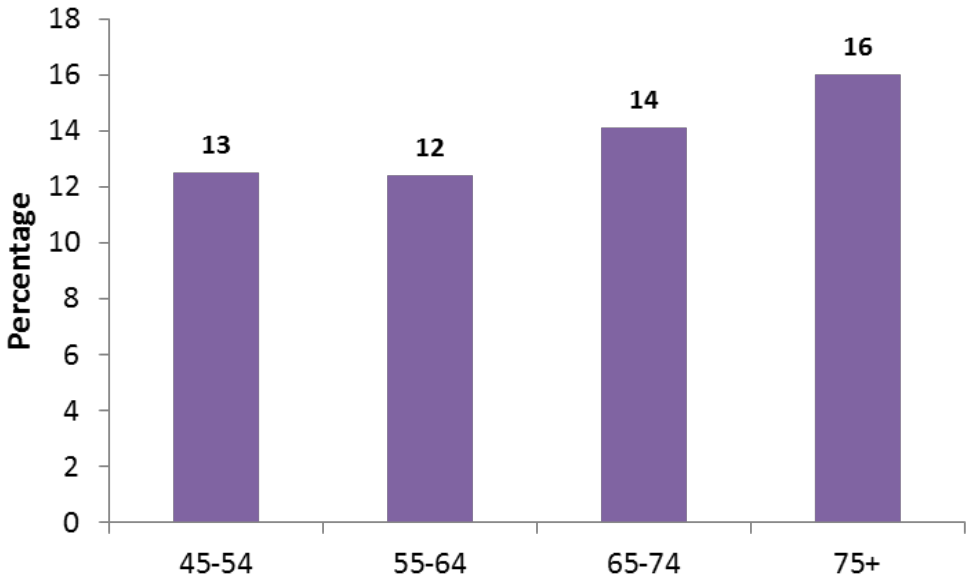
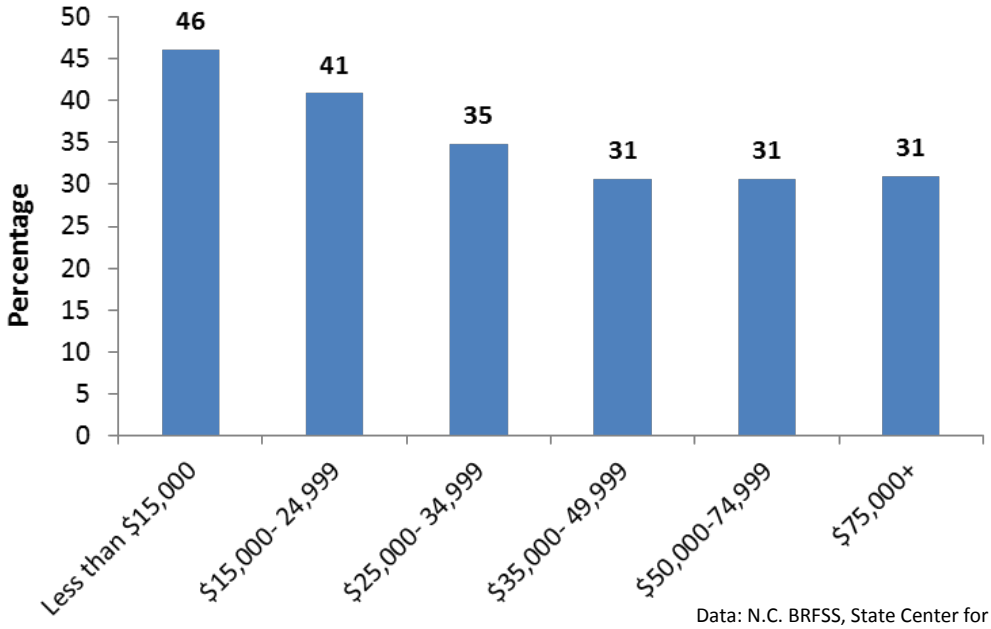


Figure 8. Respondents Reporting One Fall or More Falls that Resulted in an Injury (Adults Ages 45+), by Income Level: N.C. BRFSS 2012



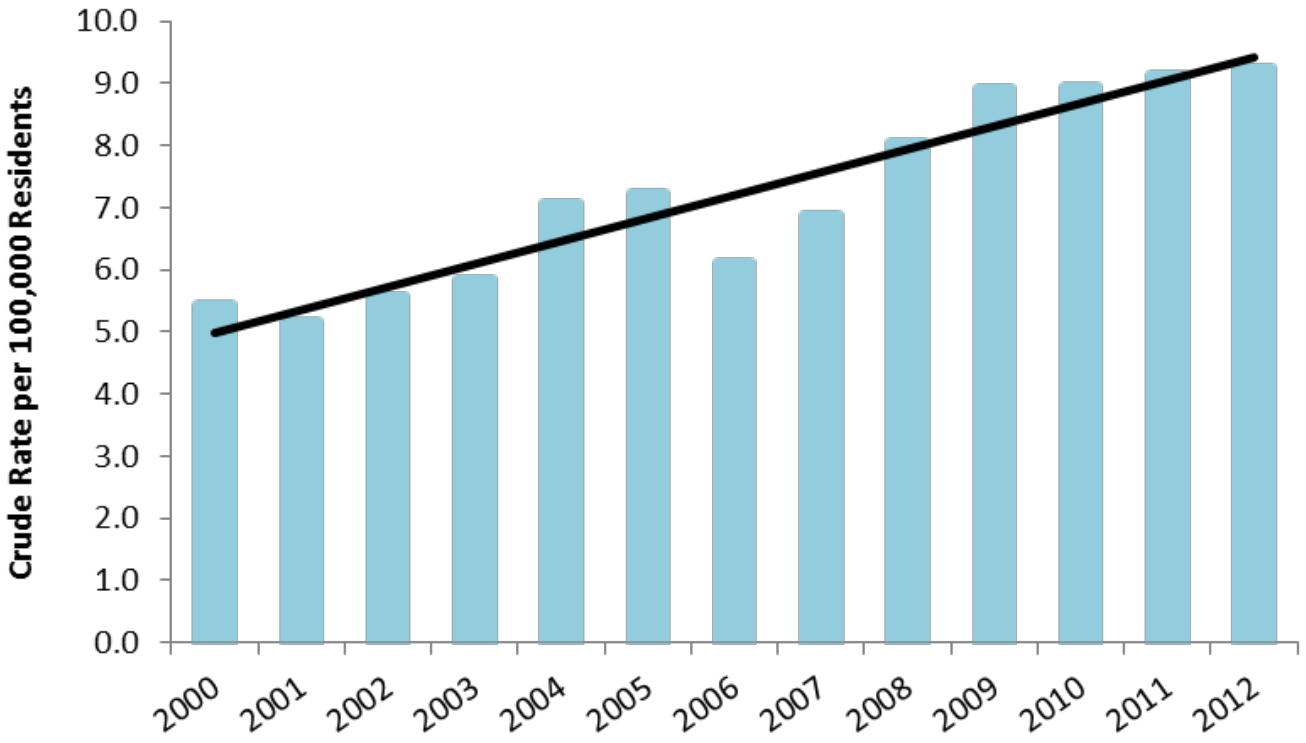
Data: N.C. BRFSS, State Center for Health Statistics, 2012
Analysis: Injury Epidemiology & Surveillance Unit

Section 7: Trends over Time in Fatalities due to Unintentional Falls in N.C.

For the field of injury and violence prevention, unintentional fall injuries have clearly come into view as a top priority for prevention initiatives.

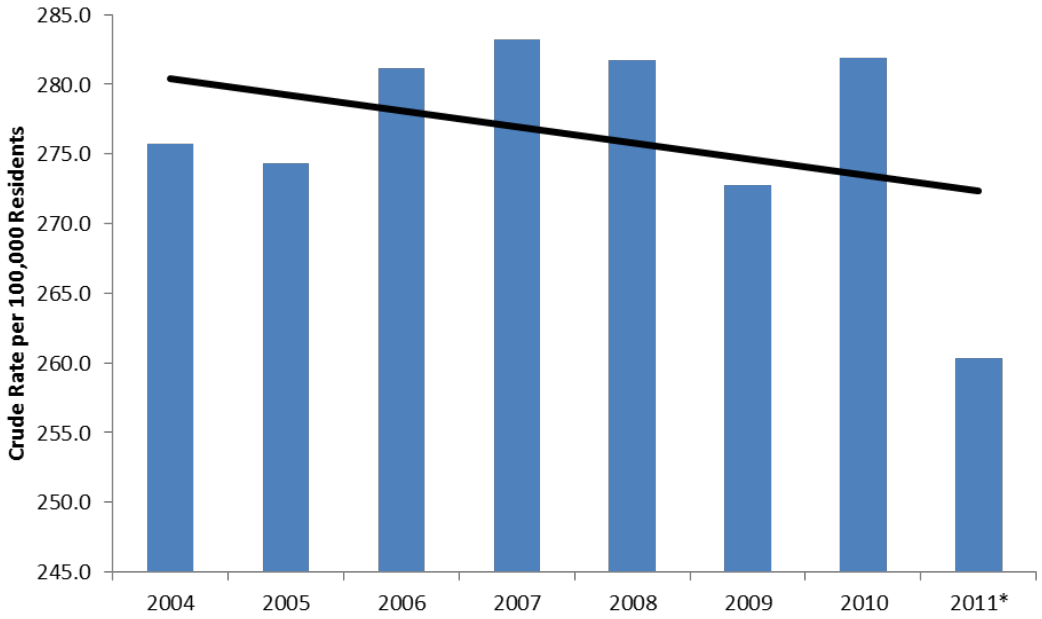
Figure 8 shows an upward trend over time in death rates, and Figure 10 shows a relatively stable trend in the crude rate of emergency department visits. The hospital discharge data for 2011 is provisional; the data shown is not based on a completed, final file, so the downward trend line must be viewed with caution. From 2004 to 2010, the trend appeared relatively stable. However, rates in earlier reports for hospital data were less than 250 per 100,000 residents[15], so rates have continued to climb over time. Death rates (Figure 8) are lower than hospital discharge and ED rates seen in figures 9 and 10, pointing out that non-fatal fall injuries are of significant concern and a major burden on the healthcare system.[2,4]

Figure 8. Unintentional Fall-Related Death Rates, N.C. Residents, 2000-2012



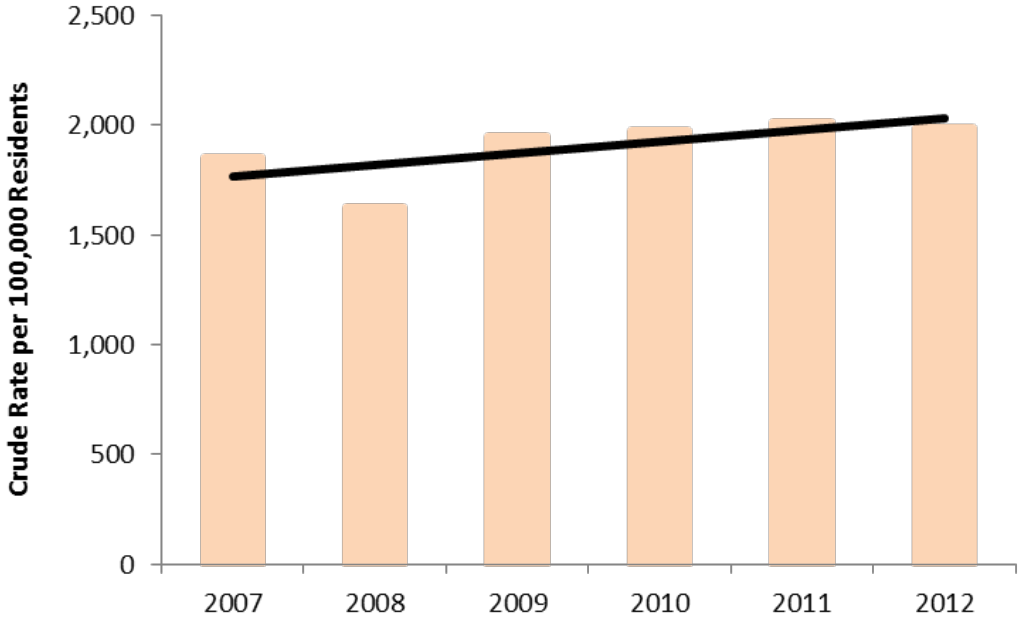
Data: Death, N.C. State Center for Health Statistics, 2000-2012
Population, N.C. State Center for Health Statistics, 2000-2012
Analysis: Injury Epidemiology & Surveillance Unit

Figure 9. Unintentional Fall-Related Hospital Discharge Rates, N.C. Residents, 2004-2011



Hospital and population, N.C. State Center for Health Statistics, 2004-2011
Analysis: Injury Epidemiology & Surveillance Unit
*Hospital data is provisional for 2011 and calculations are not final.

Figure 10. Unintentional Fall-Related Emergency Department Visits Rates, N.C. Residents, 2007-2012



Population, N.C. State Center for Health Statistics, 2007-2012
Emergency Department data, NCDETECT, 2007-2012
Analysis: Injury Epidemiology & Surveillance Unit

Section 8: Conclusions

Unintentional falls are a major source of injury-related morbidity and mortality for North Carolina residents and will continue to exact a heavy toll on the life, health, and economic security of the individual, family unit, community, and state. Falls will be a concern as N.C.'s population ages, and certain populations are clearly at a greater risk for injury and death from falls. Older adults in particular have a greater risk, but active youth and very young children also arrive in emergency departments as a result of fall-related injuries. In order to fully address this public health issue, disparate organizations with backgrounds in health, advocacy, research, education, aging, and policy must form partnerships to alleviate the burden that fall-related injuries place on N.C. Additionally, continuing population-based surveillance is necessary to provide data on changing trends regarding fall vehicle-related injuries. Hopefully, the data provided in this document and upcoming publications will be used to aid in prevention and to spur future research priorities.

Section 9: Resources for Preventing Falls

The guide, *Preventing Falls: What Works. A CDC Compendium of Effective Community-based Interventions from Around the World*, is a compendium of interventions designed for public health practitioners and community-based organizations, to help them address the problem of falls among older adults. It describes 14 scientifically tested and proven interventions, and provides relevant details about these interventions for organizations who want to implement fall prevention programs.

Further Information on the Web:

The Centers for Disease Control: Preventing Falls in Older Adults – The CDC's Injury Prevention Research Center web resource including fact sheets, downloadable posters and brochures and data on falls in older adults.

Preventing Falls Among Older Adults in the United States: Literature Update 2005 from the University of North Carolina at Chapel Hill's Injury Prevention Research Center gives an update on research regarding risk factors and prevention activities for older adult falls.

American Association of Retired Persons (AARP) - The nation's leading organization for people 50 and older. AARP provides information and education, advocacy, and community services through a national network of local chapters and experienced volunteers.

National Institute on Aging (NIA) - One of the National Institutes of Health and the principal biomedical research agency of the United States Government. The NIA promotes healthy aging by conducting and supporting biomedical, social, and behavioral research and public education.

U.S. Administration on Aging (AoA) - The agency which works to heighten awareness among other federal agencies, organizations, groups, and the public about the contributions that older Americans make to the nation and to educate them about the needs of older people. The AoA also seeks to educate older people and their caregivers about the benefits and services available to help them.

Section 10: Additional Sources of Information

North Carolina:

North Carolina Division of Public Health, Injury and Violence Prevention Branch
Phone: (919) 707-5425
Email: beinjuryfreenc@dhhs.nc.gov
Website: www.injuryfreenc.ncdhhs.gov

North Carolina Division of Aging and Adult Services
Phone: (919) 855-3400
Email: linda.owens@dhhs.nc.gov
Website: http://www.ncdhhs.gov/aging/index.htm

University of North Carolina Institute on Aging
Phone (919) 966-9444
Email: ioa@unc.edu
Website: http://www.aging.unc.edu/

National:

Centers for Disease Control and Prevention, National Center for Injury Prevention and Control
Phone: (800) 232-4636
Email: cdcinfo@cdc.gov
Website: www.cdc.gov/motorvehiclesafety/

Centers for Disease Control, National Center for Injury Prevention and Control,
Home and Recreational Safety, Falls - Children
Phone: (888) 327-4236
Email: cdcinfo@cdc.gov
Website: http://www.cdc.gov/HomeandRecreationalSafety/Falls/children.html

Section 11: Notes

Rates: All rates (unless documented otherwise) are per 100,000 North Carolina residents. Rates are not age-adjusted, unless labeled as such.

95 Percent Confidence Intervals: Data are frequently reported as point estimates with an associated 95 percent confidence interval. A confidence interval is the range of values within which the expected "true" value falls 95 percent of the time. In general, a rate with a large numerator will have a narrower 95 percent confidence interval than a rate with a small numerator.[10]

Population Estimates: The North Carolina State Center for Health Statistics provided population data for the years 2000-2012. These estimates originate from the National Center of Health Statistics' Bridged Population Files.[16]

Death Data: The North Carolina State Center for Health Statistics provided death certificate data for every death in North Carolina. Only North Carolina residents with a North Carolina county address were considered in our analyses. Deaths were limited to events in which the primary cause of death was identified as an injury. Primary cause of death was assigned with the International Classification, 10th Revision (ICD-10) codes. The coding used to classify deaths due to falls were: W00–W19, X80, Y01, and Y30.[8]

Hospital Discharge Data: The North Carolina Center for Health Statistics provided hospital discharge data for every hospital discharge of North Carolina residents. A hospital discharge occurs after a patient leaves a hospital following admission. This data does not represent number of patients, but number of discharges (multiple discharges per patient are possible). Cause of injury was assigned with International Classification, 9th Revision, Clinical Modification (ICD-9-CM) External Causes of Injury codes (E Codes).[9]

Emergency Department Data: The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) is a state system that collects and monitors emergency department (ED) for public health purposes. NC DETECT receives data on at least a daily basis from hospital emergency departments statewide to provide early detection and timely public health surveillance. The ED data and the hospital discharge data are not mutually exclusive. Cause of injury was assigned with International Classification, 9th Revision, Clinical Modification (ICD-9-CM) External Causes of Injury codes (E Codes). The coding used to classify ED visits due to unintentional falls was: E880-E886 and E888.[9]

Section 12: Glossary[9]

Adult: Person 18 years of age or older at date of death/injury.

Adverse effects: An injury caused by complications following the administration of a medication or medical procedure.

Assault: Injury resulting from an act of violence where physical force by one or more persons is used with the intent of causing harm, injury, or death to another person.

Child: Person less than 18 years of age at date of death/injury.

Fall: An injury caused by descending rapidly and striking a surface.

Firearm: An injury caused by a projectile shot by a powder-charged gun. Firearm-related injuries include hand-guns, shotguns, and rifles. Firearm-related injuries do not include paint, nail, or air guns.

Intent of injury: Whether or not an act that caused an injury was committed on purpose.

Intentional injury: An injury caused by a purposeful act by oneself (self-inflicted) or another individual (assault).

Mechanism (cause) of death: The reason or event that precipitates the death/injury.

Motor vehicle-traffic (MVT): A crash involving a motor vehicle on a public highway, street, or road.

North Carolina resident: A resident of North Carolina with a verifiable county of residence. All deaths and injuries reported in this report are to North Carolina residents.

Other-not classifiable: An injury by a known cause that does not fit into an established category.

Rate: Calculated as count x 100,000/population.

Self-inflicted injury: An injury caused by an act to deliberately harm oneself.

Undetermined Intent: An injury in which the medical examiner/hospital/emergency department did not have enough information to describe the intent of injury.

Unintentional injury: An injury that is not caused by an act with intent to harm oneself or another individual.

Unspecified injury: An injury in which the medical examiner/hospital/emergency department did not have enough information to describe the cause of injury.

References:

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13. "Falls, Best Practices." Harborview Injury Prevention and Research Center. http://depts.washington.edu/hiprc/practices/topic/falls/index.html. April 2009.

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