

Addressing the Escalating Public Health Issue of Falls Among Older Adults

Ellen Caylor Schneider, Tiffany E. Shubert, Katherine J. Harmon

The rate of older adult falls has increased dramatically in North Carolina. With screening and intervention, many falls can be prevented. To improve best practices, the Carolina Geriatric Education Consortium and other members of the North Carolina Falls Prevention Coalition have committed resources to train health care professionals in screening and assessment and to develop infrastructure to disseminate evidence-based interventions.

Falls are not an inevitable part of getting older, and many falls are preventable. As the leading cause of both fatal and nonfatal injuries for older adults, falls are one of the most common and significant health issues facing people aged 65 years or older [1]. In the United States, more than 1 in 3 people in this age group fall each year. As people age, falling becomes more prevalent, with 50% of adults aged 80 years or more falling annually [2].

During the past decade, rates of fatal and nonfatal falls have increased considerably in both the United States and North Carolina. In North Carolina between 2000 and 2009, the age-adjusted mortality rate increased by nearly 60% for adults aged 65 years or older (Figure 1) (North Carolina State Center for Health Statistics [NC SCHS], unpublished data, 2010). Hospitalization and emergency department visits have also increased, although not to the same degree as fatalities (NC SCHS, unpublished data, 2010; North Carolina Disease Event Tracking and Epidemiologic Collection Tool [NC DETECT], unpublished data, 2010). In 2008 alone, there were 627 deaths, 18,588 hospitalizations, and 40,686 emergency department visits for North Carolinians aged 65 years or older in which a fall was the primary cause of injury. On average, there were 30 hospitalizations and 65 emergency department visits for each death; however, there were an untold number of injuries in which individuals used outpatient care or did not seek medical attention (NC SCHS, unpublished data, 2010; NC DETECT, unpublished data, 2010).

In 2006, more than 177,000 North Carolinians aged 65 years or older reported a fall, of which one-third sustained an injury [3]. Falls are the leading cause of emergency department visits due to injuries among older adults in the state and the nation and, in 2009, accounted for 27% of all injury-related emergency department visits in North Carolina in which a cause of injury was specified (NC DETECT, unpublished data, 2010) [4]. Although the majority of older adults who visit the emergency department for treatment of fall-related injuries are discharged home after treatment, of those who are admitted to the hospital because of fall-related injury, one-half die within 1 year (NC DETECT, unpublished data, 2010) [5]. Of older adults who are hospitalized, approximately 40% are released to a nursing facility (Figure 2) (NC DETECT, unpublished data, 2010). This finding is worrisome because adults in these institutions have higher rates of falls and tend to have falls that result in more-serious complications, compared with the general population [5].

Fall-related injuries create a significant financial burden for the nation's health care system, recently accounting for 6% of all medical expenditures for persons aged 65 years or older [6]. In 2000, the estimated direct medical care cost for fall-related injuries among older adults in the United States was \$19 billion [7]. As baby boomers eventually swell the older adult population and the overall life expectancy increases, these costs may exceed \$54 billion by 2020 (adjusted to 2007 dollars) [8]. In 2008, the North Carolina hospital discharge costs for falls among older adults were greater than \$461 million, with a median cost of \$20,000 per discharge, a 10% increase since 2004 (adjusted to 2008 dollars) (NC SCHS, unpublished data, 2010). Fall-related injuries are also costly in terms of quality of life issues, such as loss of independence, decreased mobility, and early admission to a nursing home. Fear of falling can cause people to limit their activities, which can increase the risk of falling, owing to reduced mobility and physical fitness [9].

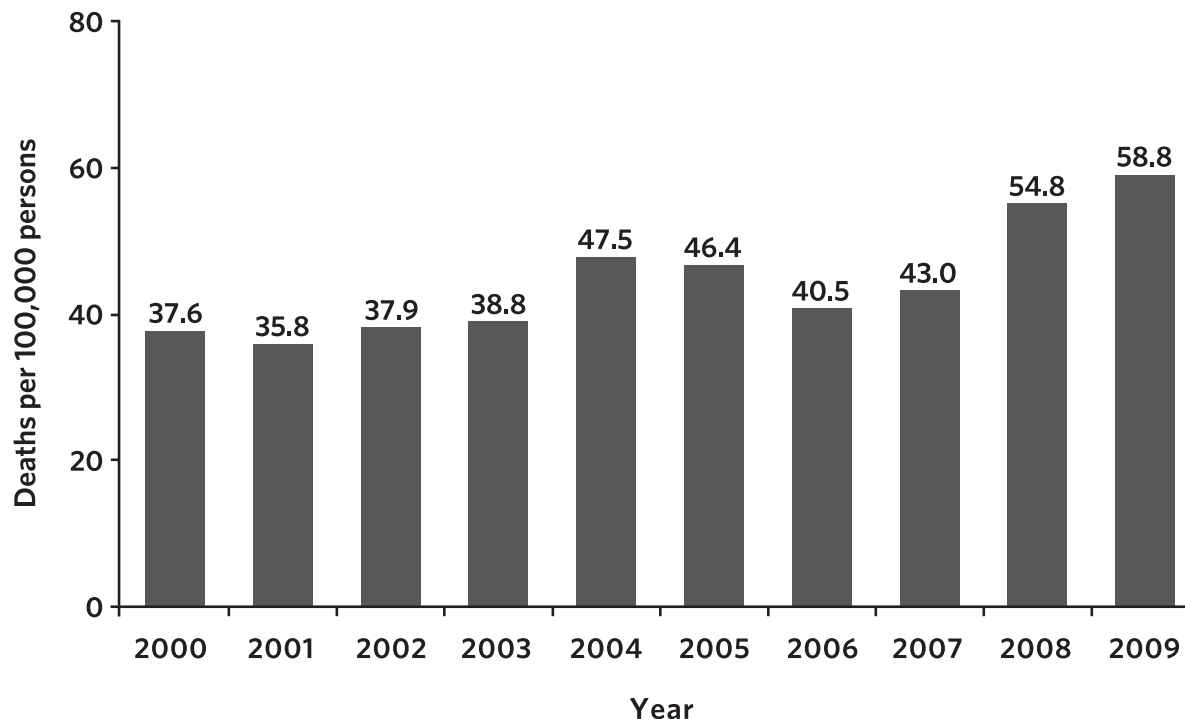
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Figure 1.

Age-Adjusted Prevalence of Falls-Associated Deaths Among North Carolina Residents, 2000-2009



Note. Data are from the North Carolina State Center for Health Statistics (unpublished, 2010). Analysis was performed by the North Carolina Injury and Violence Epidemiology and Surveillance Unit.

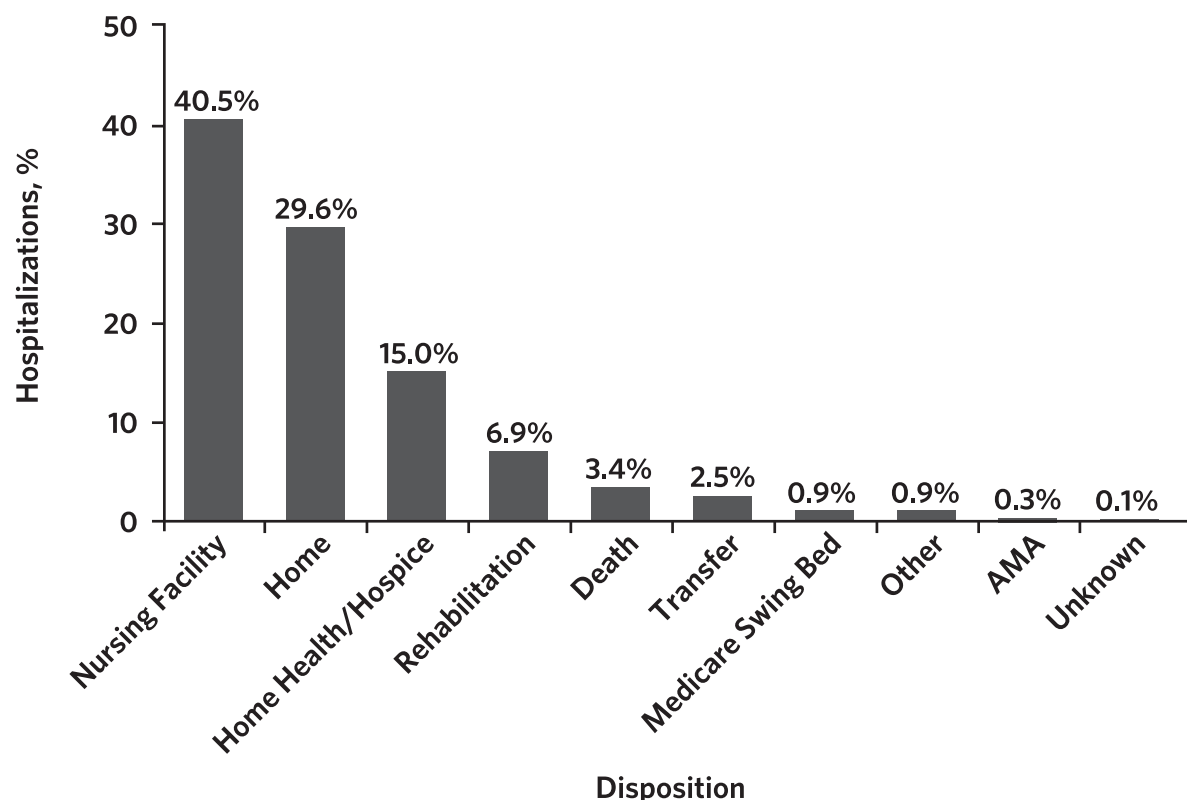
Falls occur for complex reasons and typically result from multiple, interacting risk factors that differ from case to case. The primary risk factors that can lead to a fall, along with their associated risk ratios, are shown in Table 1. Several risk factors can be addressed with appropriate interventions. Modifiable risk factors for falls include muscle weakness, walking and balance problems, poor vision, use of 4 or more medications or any inappropriate or psychoactive medications, orthostatic hypotension, use of an assistive device, and home and environmental hazards [3]. Risk factors that cannot be modified but can be managed to an extent include an age of more than 80 years, female sex, a past history of falls, cognitive impairment, depression, arthritis, and difficulties or inability to perform activities of daily living (eg, bathing, dressing, transferring, eating, toileting, and maintaining continence) [2]. The more risk factors that are present, the greater the risk a person has of falling and sustaining an injury from a fall [1, 4, 6].

The American Geriatrics Society (AGS) developed clinical practice guidelines in 2010 to help health care professionals identify people most at risk for falls [10]. The recommended guidelines state that all people aged 65 years or older should be screened for falls risk. If the screening results indicate that the patient is at risk for falls, the clinician should perform a comprehensive falls-risk assessment. The screening

includes 3 questions. First, has the patient fallen in the past year? Patients who state that they have experienced 2 or more falls or have sustained an injury from a fall are considered to be at high risk for another fall. Second, has the patient visited because of an acute fall? Patients who come to the visit because of a fall are considered to be at high risk for another fall. Third, does the patient demonstrate difficulty with walking or balance? Difficulties with walking indicate an increased risk of falling. To assess balance and walking, the clinician must observe the patient performing simple balance assessments. The AGS guidelines recommend use of the "Up and Go" test [11]. This requires the patient to rise from a standard-height chair, walk 10 feet, turn and walk back to the chair, and sit. Patients who have difficulty with any part of this task or appear to complete the task significantly more slowly than their peers are considered to be at risk of falling [11].

The falls-risk screen does not need to be administered by a physician. Any licensed health care professional or trained personnel, including technicians or aides, can administer the screen and identify an older adult at risk of falling. Currently, Lori Schrodtt at Western Carolina University (Cullowhee) and Kathie Garbe at the University of North Carolina (UNC)-Asheville (Asheville) are conducting pilot studies in the western part of the state to determine whether

Figure 2.
Disposition of Hospitalizations for Treatment of Falls Among North Carolina Residents, 2008



Note. Data are from the North Carolina State Center for Health Statistics (unpublished, 2010). Analysis was performed by the North Carolina Injury and Violence Epidemiology and Surveillance Unit. "Nursing facility" is defined as skilled nursing facilities, intermediate care facilities, long-term care facilities, and nursing homes. "Other" is defined as discharge to specialized department, psychiatric department, or another institution. AMA, against medical advice.

lay personnel can administer this screen at senior centers, churches, senior housing facilities, and YMCAs. A training manual and presentation resulting from this work will be posted on the North Carolina Falls Prevention Coalition Web site (available at: <http://www.ncfallsprevention.org>) in early 2011. Organizations interested in training personnel to conduct falls-risk screens can access the training materials and will have the opportunity to consult with the falls coalition speakers panel for free.

If an older adult has positive results of a falls-risk screen, a physician should perform a comprehensive risk assessment for falls. The assessment includes a focused falls history, a medication review, and detailed assessments of mobility and balance, visual acuity, neurologic health, muscle strength, heart rate and rhythm, postural hypotension, feet and footwear, and environmental hazards. For each risk factor identified, the appropriate intervention should be prescribed and followed up by the physician to ensure compliance by the patient.

There are several gaps in the availability of appropriate interventions. Exercise is one of the most effective interven-

tions for community-dwelling older adults, decreasing the rate of falls by 35%-40% [12]. For individuals with a greater number of medical risk factors and lower levels of function, exercise may not be the appropriate intervention and may actually increase the risk of falls [13]. These people will benefit from a treatment program that addresses the medical risk factors first; after they are more stable on their feet, such patients can begin an appropriate exercise program.

Health care professionals are necessary members of the multidisciplinary team required to manage falls risk. Physical therapists play a key role in establishing appropriate exercise programs to improve balance, with the ultimate goal of discharging a patient to an evidence-based falls prevention program in the community. Occupational therapists can evaluate a home environment, teach individuals with poor vision appropriate strategies, and assist with depression management. Pharmacists are key in managing medication. Social workers can assist with providing services for patients who are no longer safe to ambulate in the community, and audiologists, ophthalmologists, and others all play important roles, depending on the patient's needs.

The North Carolina Falls Prevention Coalition

Sharon Baker Rhyne, Ellen Caylor Schneider

Early 2007 found the North Carolina Division of Public Health (DPH) and the North Carolina Division of Aging and Adult Services working closely together on a number of chronic disease and aging-related grants. As a next step in acknowledgment of this successful partnership, the 2 divisions entered into a written memorandum of agreement, formalizing their respective commitments to each other, as well as their intent to work together on future projects. At the time, both were also working with the University of North Carolina (UNC)–Chapel Hill Institute on Aging.

As a result of ensuing dialogue between all 3 agencies, they quickly recognized their shared concerns over the high morbidity and mortality associated with falls in the older adult population that would likely, without significant intervention, continue at an alarming rate as baby boomers, a notably large generation, aged into their 60s. All 3 agencies took interest in falls prevention awareness generated on the national level, because falls were then, and still are, the leading cause of fatal injuries and the second leading cause of nonfatal injuries for people aged 65 years or older in North Carolina.

The agencies enhanced their efforts by gaining the support of the Carolina Geriatric Education Center, which provided a strong core group with diverse strengths, funding sources, and networks that combined into a successful steering committee for the first North Carolina Falls Prevention Coalition meeting that convened in April 2008. The coalition brought together major leaders and stakeholders who represented researchers,

planners, health care professionals, housing specialists, aging-services professionals, and many others focused on the need to reduce the number of falls and fall-related injuries occurring among North Carolinians.

Objectives, desired outcomes, and multiple strategies to reach various goals were identified by the coalition in the ensuing months. Six workgroups evolved to address the following issues: infrastructure development and maintenance, community awareness and education, health care professional education, risk assessment and behavioral intervention, surveillance and evaluation, and advocacy for supportive policies and environments.

Despite minimal funding, coalition growth has remained steady since that time, and falls prevention activities have increased, with the state coalition currently consisting of approximately 65 member organizations and 7 regional coalitions. Much of this work has already resulted in increased attention to falls. In 2008, the North Carolina Institute of Medicine, in collaboration with the DPH, convened a task force to develop a prevention action plan for the state. Falls prevention was a key topic addressed by the plan, because unintentional injuries and intentional injuries are, when considered together, among the top 10 preventable risk factors contributing to the leading causes of death and disability in the state. The DPH Injury and Violence Prevention Branch also identified falls as one of its 3 unintentional-injury priorities for 2009-2014 [1].

Evidence-based falls management programs in the community should be considered when referring older persons

Table 1.
Risk Factors Commonly Associated With Falls

Risk factor	RR or OR
Muscle weakness	4.4
History of falls	3.0
Gait deficit	2.9
Balance deficit	2.9
Use of an assistive device	2.6
Visual impairment	2.5
Arthritis	2.4
Impaired activity of daily living	2.3
Depression	2.2
Orthostatic hypotension	1.9
Cognitive impairment	1.8
Age >80 years	1.7

Note. Data are from [5, 6, 10]. OR, odds ratio; RR, relative risk.

to appropriate programs and resources. Unfortunately, few programs are available at this time for widespread dissemination. The Centers for Disease Control and Prevention is currently conducting several dissemination projects for 3 programs, including Stepping On, a behavioral change program; Tai Chi, Moving for Better Balance, a class-based exercise program for community-dwelling older adults; and The Otago Exercise Program, a home-based exercise program for community-dwelling older adults who have lower levels of function. These programs should become more prevalent in the community during the next few years. One evidence-based program for behavior change, A Matter of Balance: Managing Concerns About Falls, is widely available throughout North Carolina. This program is designed to improve an individual's confidence in his or her balance and minimize fear of falling. It is delivered through a peer-led model and has demonstrated significantly improved self-management and self-efficacy outcomes. Persons interested in learning where the program is offered can visit the North Carolina Healthy Aging Roadmap Web site (available at: <http://ncroadmap.org/bin/view>), or they can contact their local Area Agency on Aging office. Tiffany Shubert is the leader of this project to develop and support falls prevention efforts throughout the state.

Governor Beverly Perdue, in both 2009 and 2010, issued proclamations to officially designate observance of a Falls Prevention Awareness Week, with communities holding a number of events to call attention to the potential for falls and related falls prevention strategies. A Matter of Balance: Managing Concerns About Falls, an evidence-based program to address fear of falling, is being disseminated in all 17 of the state's Area Agencies on Aging.

Coalition work during the past year also included 4 workshops in the spring of 2010 that were held across the state to raise awareness of the growing falls problem, educate targeted audiences on falls prevention strategies, develop partnerships with key stakeholders in falls prevention, and build capacity to address prevention of falls among older adults. The workshops generated a groundswell of new community involvement in Greensboro, Winston-Salem, the northwest and southwest quadrants of the state, and the greater Charlotte area, while strengthening and increasing participation in falls prevention coalitions already present in Asheville and Greenville. Follow-up workshops on falls policy were held in the autumn of 2010. In addition, the coalition sponsored a capstone project for graduate students from UNC-Chapel Hill, who conducted 5

focus groups with diverse groups of older persons to explore core beliefs about falling and to understand and influence behaviors related to falls and falls prevention. The students used this input to create social marketing materials for falls prevention. Finally, falls prevention is one of the injury priorities in the recently published Healthy People 2020 objectives, which are aimed at improving the health of North Carolina residents over the next 10 years [2].

Interested readers can visit the state coalition's Web site (available at: <http://www.med.unc.edu/aging/ncfp/welcome.htm>) to learn about several ways to prevent falls, including increasing awareness, increasing education and training, providing tools and resources, and fostering linkages between programs and organizations working to reduce falls. NCMJ

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As the populations of the United States and North Carolina age, the impact of fall-related injuries will increase dramatically unless steps are taken now to address the issue. The Center for Aging and Health at UNC-Chapel Hill was recently awarded a 5-year grant to develop a Falls Practice Improvement Network (FPIN). The purpose of the FPIN is to develop and support falls prevention efforts throughout the state. Multidisciplinary education content will be developed for both real-time and online courses. All real-time falls prevention courses will be open to health care and community-based professionals to begin to build bridges in the continuum of care. Representatives from local and regional falls prevention coalitions will be invited to attend as well. All online content will be free of charge during the grant period, and individuals can access content through the Web sites of the North Carolina Falls

Prevention Coalition (available at: <http://www.injuryfree.nc.ncdhhs.gov/ForHealthProfessionals/FallsCoalition.htm>) or North Carolina AHEConnect (available at: <http://www.aheconnect.com/>). Potential outcomes of this grant include greater numbers of clinicians and primary care professionals skilled in falls risk assessment and interventions, greater numbers of evidence-based interventions available in the community, and better links between health care and community-based professionals. NCMJ

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