
Falls

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An Overview of the Problem

Falls in the elderly are a major problem, for individual older adults and for the public health. One in three adults 65 and older falls each year.¹ Approximately 20% - 30% of these falls result in serious injuries such as fractures and brain injuries, and the rates of fall-related deaths among older adults have risen significantly over the past decade.² In fact, falls are the most common causes of nonfatal injuries and hospital admissions for trauma, and the leading cause of injury deaths among older adults.^{2,3} Older adults are hospitalized for fall-related injuries five times more often than they are for injuries from all other causes.⁴ (See Figure A1: Non-fatal fall-related injury hospitalizations, US, 2008.)⁵

The impact of falling goes beyond the risk of injury. A fear of falling can cause older adults to limit their activities, reducing their physical fitness and ability to get around and actually increasing their risk of falling.² Older adults are right to fear falling. Falls often lead to a loss of independence, nursing home admissions, disability, and reduced quality of life for older adults.¹ About 90% of hip fractures are caused by falls.^{2,6} After a hip fracture, half of older adults can no longer care for themselves, and a quarter die within a year of the injury.⁷

Falls and fall-related injury have a large impact on health care utilization and costs. For every older adult who dies from a fall-related injury, there are 56 hospitalizations and 194 visits to emergency rooms and physicians' offices.⁸ Most fractures among older adults are caused by falls. In 2000, the total direct cost of all fall injuries for people 65 and older was over \$19 billion. The financial toll of falls will rise as the population ages, and may reach \$55 billion by 2020. The average health care cost of a fall injury among adults 72 years and older is \$19,440 (including hospital, nursing home, emergency room, and other health care, but not doctors' services).⁴

The increase in falls and fall-related injury reflects the welcomed increase in the number of older adults living in the community, a consequence of the aging of the baby-boomer generation and increased longevity. However, the risk of being seriously injured in a fall increases with age: nearly 85% of deaths from falls are among people 75 and older.²

What about Indian Country?

While the picture we have from data on older American Indians and Alaska Natives (AI/AN) is incomplete, what we know suggests that falls and fall-related injury are major

problems in Indian Country as well.

Between 1991 - 1993 and 2005 - 2007, unintentional fall death rates for AI/AN adults 65 and older rose 51%, from 18.3 per 100,000 to 27.6 per 100,000.⁵ Falls are the leading cause of unintentional injury deaths for older AI/AN adults, and accounted for one third of those deaths in 2005 - 2007.⁵ Outpatient visits for falls in this age group rose from 7,550 in 2005 to 9,099 in 2008, a 21% increase over 3 years.⁹ Among Alaska Natives age 60 and older (1991 - 2003), falls accounted for 77% of all injury hospitalizations.¹⁰

So while the data may be limited, it is clear that falls and fall-related injury are increasing among older American Indians and Alaska Natives and that these injuries cause extensive suffering and use scarce resources.

In early 2010 the IHS Injury Prevention Program and the IHS Elder Health Consultant formed a workgroup to address this issue. The aim of this work group was to develop a holistic approach to preventing falls and injury in older American Indians and Alaska Natives living in the community, based on the best available evidence for effective public health and clinical interventions. The Injury Prevention and Healthy Aging programs of the Centers for Disease Prevention and Control (CDC) were instrumental in this effort, providing both expertise and funding. The approach developed by that workgroup was sent for widespread review and discussion by stakeholders and program staff throughout Indian Country, and this article represents a summation of that work.

Unintentional fall prevention in elders 65 years of age and older is one of the priorities of the IHS Injury Prevention Program. Since 2010 the Indian Health Service Injury Prevention Program has provided funding to support fall prevention programs at 19 tribal sites (see Table 1). The tribal fall prevention programs include strength and balance exercises (tai chi); medication review; home assessments, and other key measures to prevent falls to elders. The IHS Injury Prevention Program uses the evidence-based guidelines derived from CDC and United States Prevention Services Task Force recommendations to support the fall prevention initiative.

Fall injury prevention requires a broad approach that truly integrates the clinic and the community, and the approach outlined below builds on the best available evidence for fall prevention in both the community and clinical settings.

Evidence-based Guidelines for the Prevention of Falls and Fall-Related Injuries in Older American Indians and Alaska Natives Living in the Community

The current falls literature is extensive and complex. Fortunately there are several authoritative sources for

evidence-based guidelines for effective interventions, based on extensive reviews of the scientific literature, and developed by leading national and international experts.

Public health and community-based interventions are evaluated, and effective strategies are summarized in two CDC publications:

- Preventing Falls: How to Develop Community-based Fall Prevention Program for Older Adults (2008)
- Preventing Falls: What Works: A CDC Compendium of Effective Community-based Interventions from Around the World, 2nd Ed (2010)

Both resources are found at: <http://www.cdc.gov/HomeandRecreationalSafety/Falls/pubs.html>

Clinical Guidelines and Recommendations have been developed by the United States Preventive Services Task Force (USPSTF) and the American and British Geriatrics Societies. The USPSTF released recommendations in May 2012 for the

Prevention of Falls in Community-Dwelling Older Adults, which can be found at: <http://www.uspreventiveservicestaskforce.org/uspstf/uspstfalls.htm>

The American Geriatrics Society and British Geriatrics Society published evidence-based clinical guidelines for the prevention of falls in the elderly, the *2010 AGS/BGS Clinical Practice Guideline: Prevention of Falls in Older Person*, which is available at: www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2010/.

The recommendations in the following tables are based on these resources.¹¹⁻¹⁴

Additional resources are available from the CDC at their STEADI (Stopping Elderly Accidents, Deaths, & Injuries) website at <http://www.cdc.gov/homeandrecreationalafety/Falls/steady/index.html>

Guidelines for the Prevention of Fall-related Injury in Older American Indians and Alaska Natives Living in the Community	
<i>Community-Based</i>	<i>Clinical Settings</i>
<p>The 5 main building blocks of an effective community-based prevention program are:</p> <ol style="list-style-type: none"> 1. Education about falls and fall risk factors. 2. Exercises that improve mobility, strength, and balance, and that are taught by trained, nationally certified exercise instructors or physical therapists. 3. Medication review to identify side effects or drug interactions that may contribute to falls. The reviews should be conducted by pharmacists or qualified health care providers. 4. Vision exams by trained health care professionals with vision correction by an optometrist or ophthalmologist. 5. Home safety assessment and home modification by occupational therapists or other health care professionals with specialized training, to identify and modify home hazards that can increase older adults risk of falling. 	<p>There is evidence to support the following interventions to prevent falls in adults age 65 and older at increased risk for falls:</p> <ol style="list-style-type: none"> 1. Exercise or physical therapy 2. Vitamin D supplementation 3. Multifactorial risk assessment with comprehensive management of identified risks, while not universally recommended, should be available and offered to certain individuals based on the circumstances of prior falls, medical comorbidities, and patient values. The multifactorial fall risk assessment should be performed by a clinician (or clinicians) with appropriate skills and training. The multifactorial fall risk assessment should include <ol style="list-style-type: none"> 1. Focused History including history of falls, medication review, and history of relevant risk factors. 2. Physical Exam including assessment of gait, balance, mobility, and lower extremity function, examination of neurologic function, muscle strength, cardiovascular status, feet and footwear, and assessment of visual acuity. 3. Functional Assessment including activities of daily living, use of assistive devices or mobility aids (e.g. reachers, canes, walkers), and perceived functional ability and fear related to falling. 4. Environmental Assessment including home safety. <p>The multi-factorial fall risk assessment should be followed by direct interventions tailored to the identified risk factors, coupled with an appropriate exercise program.</p>

Screening	
Community-Based	Clinical
<p><i>Community-based recommendations provide guidelines for evidence-based practices that can be implemented for generally healthy older adults aged 65 or older without regard for specific risk factors.</i></p> <p>In general, community-based interventions can be provided without pre-screening.</p> <p>Community-based programs do provide valuable opportunities for screening and identification of older adults at increased risk for fall.</p> <p>The screening process outlined in the Clinical Guidelines can be initiated by or through community-based programs, with referral of those identified as at increased risk for fall.</p>	<p>Clinical guidelines are based on an individual <i>determination of increased risk for falls in persons aged 65 and older.</i></p> <p>All older individuals should be asked whether they have fallen (in the past year).</p> <p>Older persons presenting with a single fall should be evaluated for gait and balance.</p> <p>Older individuals should be asked if they experience difficulties with walking or balance.</p> <p>An older person who reports a fall should be asked about the frequency and circumstances of the fall(s).</p> <p>Older persons who have difficulty or demonstrate unsteadiness during the evaluation of gait and balance require a multifactorial fall risk assessment.</p> <p>Older persons who present for medical attention because of a fall, report recurrent falls in the past year, or report difficulties in walking or balance (with or without activity curtailment) should have a multifactorial fall risk assessment.</p> <p>Older persons reporting only a single fall and reporting or demonstrating no difficulty or unsteadiness during the evaluation of gait and balance do not require a fall risk assessment.</p>



Exercise	
<i>Community-Based</i>	<i>Clinical</i>
<p>Progressive exercise programs improve mobility, strength, and balance. Among older adults, strength and balance exercises, such as Tai Chi, can reduce falls by improving mobility, strength, and balance. These programs focus on exercises that are specifically designed or adapted for older adults.</p> <p>Exercise programs can be offered in a community setting, at home with supervision, or in a program that combines group classes or one-on-one training with home-based exercise. Appropriate types of exercises that effectively reduce falls in older adults include Tai Chi and strengthening exercises combined with balance training</p>	<p>As a single intervention, all older adults who are at risk of falling should be offered an exercise program incorporating balance, gait, and strength training. Flexibility and endurance training should also be offered, but not as sole components of the program.</p> <p>Exercise should be included as a component of multifactorial interventions for fall prevention in community-residing older persons.</p> <p>An exercise program that targets strength, gait, and balance, such as Tai Chi or physical therapy, is recommended as an effective intervention to reduce falls.</p> <p>Exercise may be performed in groups or as individual (home) exercises, as both are effective in preventing falls.</p> <p>Exercise programs should take into account the physical capabilities and health profile of the older person, (i.e., be tailored) and be prescribed by qualified health professionals or fitness instructors.</p> <p>The exercise program should include regular review, progression, and adjustment of the exercise prescription as appropriate.</p>

Education	
<i>Community-Based</i>	<i>Clinical</i>
<p>While education alone has not proven to effectively reduce falls among older adults, it is typically combined with one of the other building blocks. Education includes older adult fall risk factors and prevention strategies for older adults, families, and caregivers. Information can be communicated on an individual, one-on-one basis, or in a group setting.</p>	<p>Multifactorial/multicomponent intervention should include an education component complementing and addressing issues specific to the intervention being provided, tailored to individual cognitive function and language.</p> <p>Education should not be provided as a single intervention to reduce falls in older persons living in the community.</p>

Medications	
<i>Community-Based</i>	<i>Clinical</i>
<p>Medication review should be conducted by a pharmacist or qualified health care professional, with medication adjusted or modified by their primary care provider or team or specialty providers</p>	<p>The multifactorial fall risk assessment should include a medication review, addressing all prescribed and over-the-counter medications with dosages</p> <p>Psychoactive medications (including sedative hypnotics, anxiolytics, antidepressants) and antipsychotics (including new antidepressants or antipsychotics) should be minimized or withdrawn, with appropriate tapering if indicated.</p> <p>A reduction in the total number of medications or dose of individual medications should be pursued. All medications should be reviewed, and minimized or withdrawn.</p> <p>As a single intervention or as part of a multifactorial intervention, Vitamin D supplements of at least 800 IU per day should be considered for people with suspected vitamin D deficiency or who are otherwise at increased risk for falls.</p>

Vision	
<i>Community-Based</i>	<i>Clinical</i>
<p>Vision exams by trained health care professionals with vision correction by an optometrist or ophthalmologist The multifactorial fall risk assessment should include assessment of visual acuity</p>	<p>As part of a multifactorial intervention, in older women in whom cataract surgery is indicated, surgery should be expedited as it reduces the risk of falling.</p> <p>There is insufficient evidence to recommend for or against the inclusion of other vision interventions within multifactorial fall prevention interventions.</p> <p>There is insufficient evidence to recommend vision assessment and intervention as a single intervention for the purpose of reducing falls.</p> <p>An older person should be advised not to wear multifocal lenses while walking, particularly on stairs.</p>

Home Safety Assessment and Modifications	
Community-Based	Clinical
Home safety assessment and home modification by occupational therapists or other health care professionals with specialized training, to identify and modify home hazards that can increase older adults risk of falling.	Environmental assessment including home safety is part of the multifactorial risk assessment for older persons who are at increased risk of falls. A multifactorial intervention should include mitigation of identified hazards in the home, and evaluation and interventions to promote the safe performance of daily activities.

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