

# Falls and Fall Prevention

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### Faculty

**Mary Franks, MSN, APRN, FNP-C**, is a board-certified Family Nurse Practitioner and NetCE Nurse Planner. She works as a Nurse Division Planner for NetCE and a per diem nurse practitioner in urgent care in Central Illinois. Mary graduated with her Associate's degree in nursing from Carl Sandburg College, her BSN from OSF Saint Francis Medical Center College of Nursing in 2013, and her MSN with a focus on nursing education from Chamberlain University in 2017. She received a second master's degree in nursing as a Family Nurse Practitioner from Chamberlain University in 2019. She is an adjunct faculty member for a local university in Central Illinois in the MSN FNP program. Her previous nursing experience includes emergency/trauma nursing, critical care nursing, surgery, pediatrics, and urgent care. As a nurse practitioner, she has practiced as a primary care provider for long-term care facilities and school-based health services. She enjoys caring for minor illnesses and injuries, prevention of disease processes, health, and wellness. In

her spare time, she stays busy with her two children and husband, coaching baseball, staying active with her own personal fitness journey, and cooking. She is a member of the American Association of Nurse Practitioners and the Illinois Society of Advanced Practice Nursing, for which she is a member of the bylaws committee.

**John M. Leonard, MD**, Professor of Medicine Emeritus, Vanderbilt University School of Medicine, completed his post-graduate clinical training at the Yale and Vanderbilt University Medical Centers before joining the Vanderbilt faculty in 1974. He is a clinician-educator and for many years served as director of residency training and student educational programs for the Vanderbilt University Department of Medicine. Over a career span of 40 years, Dr. Leonard conducted an active practice of general internal medicine and an inpatient consulting practice of infectious diseases.

### Faculty Disclosure

Contributing faculty, Mary Franks, MSN, APRN, FNP-C, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

Contributing faculty, John M. Leonard, MD, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

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The division planners and director have disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

### Audience

This course is designed for physicians, physician assistants, nurses, and allied professionals involved in the care of patients at risk for falls.

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### Disclosure Statement

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### Course Objective

The purpose of this course is to provide healthcare professionals with the knowledge and skills necessary to intervene to reduce fall risk in their patients.

### Learning Objectives

Upon completion of this course, you should be able to:

1. Discuss the epidemiology of falls and fall injuries.
2. Anticipate types and settings of fall injuries and associated cost reimbursement issues.
3. Assess community-dwelling older adults and hospital inpatients for fall risks, using office-based tools (techniques) to evaluate strength and balance.
4. Recognize the importance and lend support to health system efforts to implement an effective fall prevention program.



Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the course material for better application to your daily practice.

## INTRODUCTION

The ability to remain upright on the varied terrain of the physical world, whether at rest or in motion, depends on the interplay of multiple faculties: awareness, vision, memory, balance, coordination, strength, and agility. These faculties are acquired and honed during youth and undergo an inexorable erosion during old age. Simple maneuvers, once negotiated effortlessly and with little conscious attention, become unpredictable and less reliable as one grows older. Witness an older man hurrying up a flight of stairs. At first nothing appears amiss, when suddenly the toe of his right shoe fails to clear the ledge of the next step and he trips forward in disbelief—this has never happened before. Imperceptible quadriceps atrophy and gradual general deconditioning likely accounts for the failure lifting the advancing foot just far enough to clear the step. Consider an older woman descending the same staircase cautiously, less sure whether she can negotiate every step-down safely, unaware that her hesitancy arises from the subtle changes in vision imposed by cataracts. The strength and agility required to maintain an upright posture while carrying out the usual tasks of work and play dissipate with age. Other factors can also contribute to deficits in the skills necessary to maintain balance and gait, including disorders of the nervous system, infection, muscular weakness/wasting, and intoxication.

Injuries sustained by falling, especially falls among older adults, can lead to immediate and long-term sequelae, including death. Health professionals responsible for hospital and long-term facility care have increasingly worked to develop programs that reduce fall risk among inpatients. Given the growing expansion of the aging population, it is equally important that primary care providers pay close attention to risk assessment and fall prevention among community-dwelling older adults. This course will review the epidemiology and scope of falls and fall-related injuries, available clinical guidance for screening and fall risk assessment, and management strategies for fall prevention in community and healthcare settings, emphasizing the fall burden associated with aging.

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## EPIDEMIOLOGY

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Falls and fall-related injuries are common worldwide and have the heaviest impact in low-income communities and communal settings with a preponderance of older adults. Falls can cause severe injury such as hip fractures and head trauma. Among older adults, injurious falls may heighten the risk for further loss of mobility and early death. The World Health Organization estimates that 37.3 million falls severe enough to require medical attention occur each year and notes that falls are the second leading cause of unintentional injury deaths worldwide, after road traffic injuries [7]. Because the number of falls is so high, the resultant loss of disability-adjusted life years (DALYs) is significant—more lives lived with disability than results from transport injury, drowning, burns, and poisoning combined [7]. Not only is the individual economic burden related to falls and fall injuries increasing, healthcare system costs have skyrocketed. Approximately 40% of the total DALYs lost due to falls globally occurs in children [7].


The Centers for Disease Control and Prevention (CDC) conducts surveillance of falls in the United States, including the incidence rate of reported falls by state. While there is variability in the fall rate per state, those with the highest recorded number of falls among older adults are California, Texas, and Florida [3]. CDC surveillance data indicate that about 30 million falls occur annually across the country, of which 37% require medical attention. Of those individuals needing medical treatment, many also need to restrict their activity for a minimum of one day. These data show that, on average, there are 8 million fall injuries per year in the United States [3].

Falling imposes an economic hardship not only for individual patients but also the healthcare system in general. Approximately 800,000 patients each year are hospitalized because of fall-related injuries. According to National Council on Aging estimates, the 2015 cost of nonfatal falls was documented at \$50 billion [4]. The cost related to fall treatment is expected to reach an estimated \$101 billion by 2030. Fatal falls incur nearly \$754 million in healthcare costs alone [4]. Individual groups at highest risk of falling are those 65 years of age and older, young children, and women; men are at higher risk of death associated with falls [7].

### FALLS AMONG OLDER ADULTS

As noted, falls are a common occurrence in the frail older adult population, causing injuries that may result in disability, institutionalization (e.g., long-term care facility admission), or even death. Older adults are particularly prone to falling because of age-associated, gradual onset of lower body muscle weakness, disturbances of gait, and balance deficits. More than 14 million, or 1 in 4, older adults in the United States report falling every year. About 30% of falls result in injury severe enough to require medical attention; of these, approximately 50% require treatment for bone fracture. The most common skeletal fracture sites are the hip, spine, forearm, leg, pelvis, arm, and hand. Hip fractures from falling occur at the rate of about 1 per 100 falls in older adults, a serious complication that requires hospitalization, surgery, and often results in long-term disability. Even in the absence of injury, many older people who fall then develop a fear of falling, which may prompt additional restriction of physical activity, leading to further loss of physical fitness and agility, thereby increasing the risk of falling.





According to the World Falls Guidelines Task Force, clinicians should routinely ask about falls in their interactions with older adults, as they often will not be spontaneously reported.

(<https://academic.oup.com/ageing/article/51/9/afac205/6730755>. Last accessed March 26, 2024.)

**Strength of Recommendation/Level of Evidence:**  
1A (Strong recommendation based on high-quality evidence)

## FALLS AMONG CHILDREN

Among those 19 years of age or younger, falls are the most common cause of nonfatal injuries each year. Children younger than 6 years of age have the highest proportion of visits for falls, with 1.2 million emergency department visits per year [13]. Falls threaten the safety of children, and they are fourth among causes of unintentional death in children and adolescents. There is concern that childhood falls are under-reported events in health institutions [27].

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## TYPES OF FALLS

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Falls are defined by the World Health Organization as “events that result in a person coming to rest inadvertently on the ground, floor, or other lower level” [7]. Falls can be categorized into three types: physiological anticipated, physiological unanticipated, and accidental. It is important that the types of falls and risks of falling, whether living at home or residing in healthcare facilities, are well understood so appropriate fall prevention measures can be undertaken [9]. Fall prevention strategies designed for community-dwelling persons and healthcare facility inpatients and residents will be discussed later in this course.

The category of physiologically anticipated falls includes individuals who are at risk because of age and/or health status, as for example those with altered mental status, high-risk medication (e.g., sedative, epidural post-delivery), and frequent toileting needs (e.g., diarrhea, frequent urination) due to medications or intercurrent illness. Healthcare providers in the ambulatory setting as well as hospital and nursing home staff should be cognizant of individual risk and vigilant for the possibility of falls in this category. At-risk patients should be identified and closely monitored to address risk factors and ensure that preventive measures are in place [9].

In 2020, emergency departments recorded 3 million visits for falls involving older adults; falls among adults older than 65 years of age caused more than 36,000 deaths, making it the leading cause of injury-related death in that age group [3]. Women are statistically more likely to report a fall injury compared with men of the same age. Most falls occur in the home (60%), followed by community public areas (30%) and healthcare settings (10%), such as hospitals and long-term care facilities [13]. Community-dwelling adults 65 years of age or older account for one-third of those who experience falls each year.

Fall risk increases gradually with aging, associated with onset of chronic diseases and eventually with the aging process itself. The most robust correlation with fall risk is found among those with comorbidities of the central nervous system, heart disease, rheumatoid disease, osteoporosis, and chronic pain [5]. Obesity is observed to convey an increased risk of falls, related to sarcopenia and coinciding with a more sedentary lifestyle as one ages [6]. A systematic review and meta-analysis confirmed that obesity increases the risk of falls and multiple falls in people 60 years of age and older; however, there was insufficient evidence of an association with fall-related injuries or fractures [8]. In fact, data collated from the subset of cohort studies suggested that obese older persons are actually less likely to experience a fall injury or hip fracture.

Examples of anticipated falls include a patient with Parkinson disease falling from a toilet, a patient with dementia who falls trying to get up from bed, or a patient with a large volume loss having a syncopal episode in the bathroom unattended.

Unanticipated physiologic falls are fall events wherein the individual has no inherent (physiological) risk or reason for anticipating a fall under usual circumstances. In the inpatient/in-residence setting with fall protocols in place, these patients should be documented as low risk for falling [9]. Examples of patients who might experience this category fall event would be a patient who develops stroke symptoms while sitting in a chair, or a patient who has a syncopal episode while straining for a bowel movement in the bathroom. Patients with new-onset seizures would also belong in this type of fall category.

Accidental falls are those caused mainly by slips and trips, but other incidents could occur [9]. As an example, a hospital inpatient trips over the IV tubing or IV pump power cable, or another patient trips over the footrest of a wheelchair. These types of falls are accidental; whether or not they are predictable, thus preventable, depends on considerations of the environment, age, strength, and clinical condition [9].

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## FALL INJURIES AND REIMBURSEMENT

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The Joint Commission (TJC) published a sentinel event alert to assist in preventing falls and fall-related injuries in healthcare settings. A sentinel event is “an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof” [10]. Falls resulting in serious injury or death are among the top 10 sentinel events reported to TJC. Of the 465 falls reported to TJC between 2009 and 2015, 63% resulted in death, while the remaining 37% resulted in injuries only [11].

## FALL INJURIES

Children between 0 and 5 years of age are learning new skills, such as walking and climbing, which can result in falls from ground level surfaces to several feet, such as off chairs or stairs. Many of these can result in serious injury, including open wounds, fractures, or even severe brain injury [13].

Fractures are a common injury in the older adult population, with approximately 20% sustaining major injuries (e.g., a head injury). Fractures of the hip occur in 1% of all falls in the older adult population [12]. While this is a small percentage, it significantly increases the risk of morbidity and mortality. After 65 years of age, the observed mortality rate within the first year after a hip fracture repair is 15% to 36%. A prospective cohort study of 728 patients who underwent surgery for hip fractures between 2013 and 2015 found that 121 died within one year post-fracture, a mortality rate of 17% [14]. One-year mortality risk following hip fracture was associated with the development of pressure ulcers, inability to recover pre-fracture ambulation, postoperative anemia, and the development of urosepsis [14].

As noted, other common fracture locations that result from falling are the proximal humerus, pelvis, distal radius, and vertebral bodies. Prosthetic fractures, which occur around joint replacement prostheses, have become more common in the older adult population as well [12]. Many require surgical intervention to repair. Femur fractures are common in the older adult population related to falls. The overall functional decline of older adults post-femur fracture is 50% within the first year [12].

Falls are also the leading cause of traumatic brain injury in patients 65 years of age or older. The extent of head injuries resulting from a fall may be inapparent initially; delayed onset of symptoms and altered mentation may emerge over a few days post-fall [12]. Head injuries involving elderly patients warrant a careful history, taking into account the possibility of secondary hemorrhagic complications

resulting from prior anticoagulant and antiplatelet drug usage. Subdural hematomas, subarachnoid hemorrhage, skull fractures, and diffuse axonal injury are all potential injuries. Management decisions for head injury should be based on a detailed history of the fall event itself, not just the patient's initial clinical presentation. Falls from different heights influence whether rapid assessment with head computed tomography (CT) imaging (within certain time frames) is advisable, especially if there are suspected open or depressed skull fractures, focal deficits, vomiting, or history of prior anticoagulants or antiplatelet medications [15]. The presence of any of these features warrants specialized care with neurosurgery consultation to ensure proper treatment and care is provided.

### FALL INJURY REIMBURSEMENT

Reimbursement to hospitals and long-term care facility for costs related to fall injuries is no longer covered by the Centers for Medicare and Medicaid Services (CMS) as of 2008 [16]. However, CMS does reimburse for fall risk assessments and fall prevention programs. Falls were not originally included in the CMS no-pay policy, and the addition of falls to the policy was originally questioned due to lack of supporting evidence of fall prevention efficacy. However, the decision was made to add falls to the no-pay policy in hopes of increasing research efforts to further prevent falls. The CMS has stated, "...we believe these types of injuries and trauma should not occur in the hospital, and we look forward to...identifying research...that will assist hospitals in following the appropriate steps to prevent these conditions from occurring after admission" [17].

Hospitals and clinics also cannot bill the patient for any services related to a "never event," such as a fall. Any injury costs incurred from a never-event fall (e.g., a humeral fracture) would not be billed to the patient, and the hospital would not receive reim-

bursement from Medicare regarding these services. They would still, however, receive reimbursement for the treatment received related to the original hospitalizing event (e.g., myocardial infarction) [18].

The National Council on Aging (NCOA) notes that although defined fall risk-related services, such as fall risk assessments, in the clinical setting may be lacking, providers should counsel their patients on potential risks of falling [17]. All healthcare providers can boost reimbursement to the hospital by providing and documenting that approximately 50% of a given daily visit was dedicated to education and or counseling on fall risk. These reimbursements for patient education regarding fall risk also apply to Medicare Annual Wellness visits (initial and subsequent) and general offices for follow-ups or illnesses [17].

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### FALL RISKS

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Personal fall risks can be organized into two categories: those associated with environmental (extrinsic) hazards and those related to age, general health, and mobility (intrinsic factors). Extrinsic factors include poor lighting, lack of personal ambulation aids (if needed), loose carpets, slippery floors, low objects (e.g., low toilets), steps, cords, or improper footwear. Intrinsic factors are those associated with aging, intoxication, and/or chronic disease, such as weakness, disturbances of gait and balance, declining vision, and medication side effects. Examples of intrinsic factors that lead to an increased risk of falling are gait abnormalities associated with Parkinson or vestibular diseases; bradycardia from beta blockers; drowsiness associated with sedative medication; reduced visual acuity from retinopathy or cataracts; hypotension (postural, medication induced, or hypovolemic); delirium and orthostatic instability related to acute infection and febrile states; and general loss of functional capacity associated with aging [2; 12].

Fall risk assessment and prevention is a matter of increasing concern for hospitals, given that falls among inpatients occur often, particularly in acute care settings [24]. One study demonstrated that the highest incidence of falling was among patients admitted with neurologic diagnoses; the lowest incidence of falls was among those on the surgical service. Important risk factors identified by the study were advanced age, emergency arrival, hospital-to-hospital transfers, and prolonged hospital stay [24]. Fall prevention in hospitals and long-term care facilities has been more difficult following the onset of the COVID-19 pandemic. Since 2020, patient-nurse ratios have increased, along with high turnover rates in organizations. High turnover rates and frequent change of staff have been associated with an increased incidence of adverse events, including increased fall rates, especially in nursing home settings [2]. This scenario is concerning, because staff who are not able to be fully aware of a resident's functional abilities are less apt to intervene with preventive measures or timely assistance [2].

Situational factors (e.g., activities, habits) can also impact fall risk associated with any setting and type of fall [12]. The likelihood of falling is dependent on a person's strength, agility, and capacity to maintain mobility and an upright posture in response to sudden situational challenges. Unfamiliarity when traversing new terrain or visiting new locations may also increase the risk of falling. Distractions (e.g., walking and talking at the same time), missing a step or curb, or rushing to get from place to place (e.g., the telephone or restroom) increase risk [12]. Fear of repeated falls can cause situational anxiety that also increases risk of another fall. While falls are multifactorial, history of previous falls is the best predictor of the likelihood of future fall events.

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## FALL RISK SCREENING, ASSESSMENT, AND INTERVENTION

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Several approaches to fall prevention have been developed by specialty societies and public health agencies to assist care providers and healthcare systems reduce the likelihood of falls and fall-related injuries. Strategies differ somewhat in reference to the clinical context: those applicable to persons residing in the community and those applicable to patients residing in hospitals and long-term care facilities. However, certain interventions have been identified as useful in all residential settings, whether community or inpatient care facility [12]:

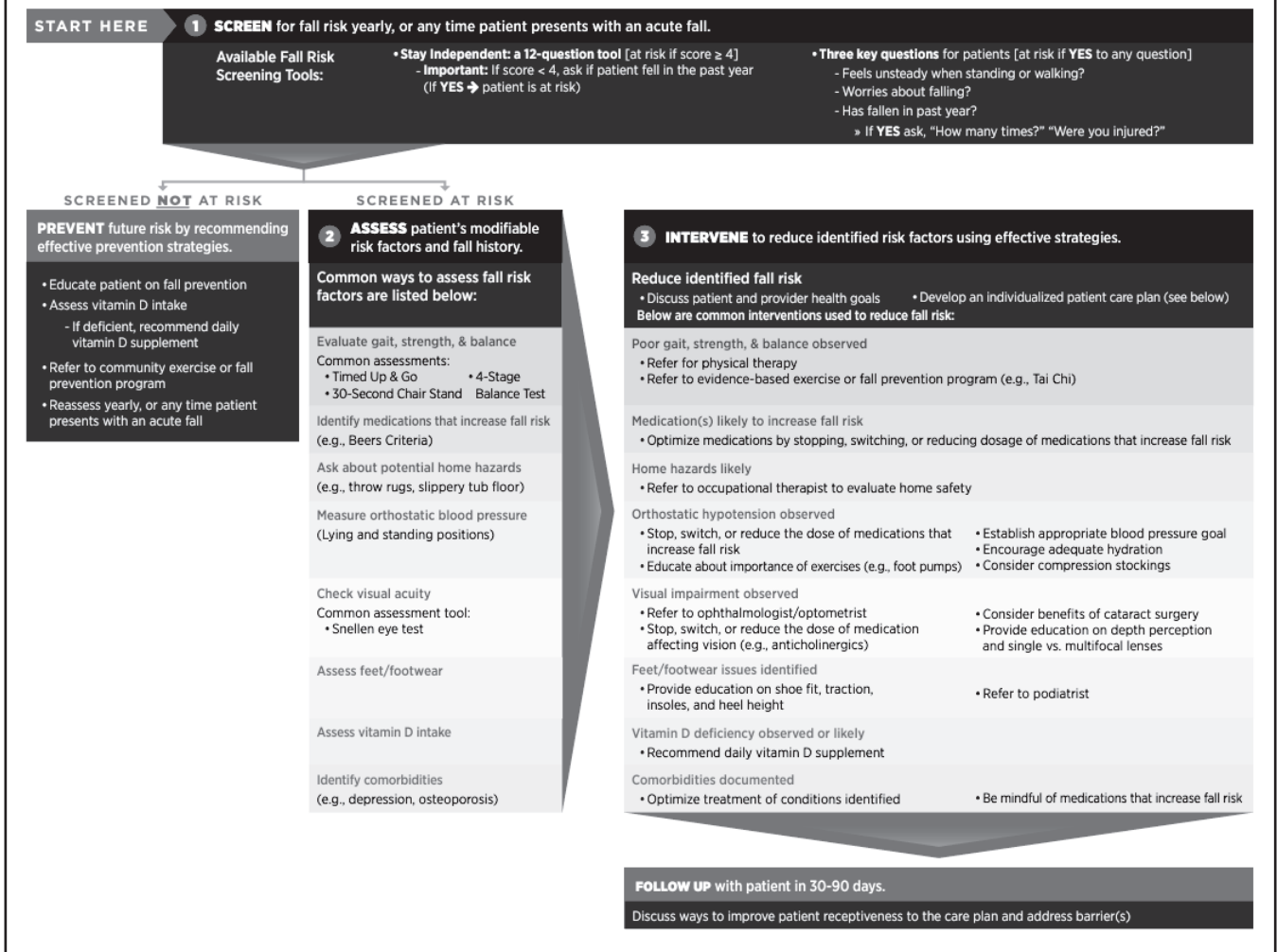
- Safety devices (e.g., grab handles, high friction floors, appropriate footwear)
- Regular exercise, leg muscle strengthening, gait training, and balance exercises
- Medication review and management
- Vitamin D supplementation to improve bone health and muscle strength
- Review of environmental issues, including evaluation of the current living conditions

## COMMUNITY FALL PREVENTION PRACTICES

The development of best practices for fall prevention in community-dwelling adults is the purview of primary care providers and centers on preventive care of the older adult patient. Reducing the risk of falls and fall injury in older adults is part of the CDC's Stopping Elderly Accidents, Deaths, & Injuries (SEADI) program [29]. The CDC SEADI program has developed clinical materials and a toolkit (assessment techniques) designed help care providers assess and manage risk in their older patients. Included is a streamlined algorithm for



SEADI ALGORITHM FOR FALL RISK SCREENING, ASSESSMENT, AND INTERVENTION AMONG COMMUNITY-DWELLING ADULTS 65 YEARS AND OLDER



Source: [29]

Figure 1

fall risk screening, assessment, and intervention (Figure 1). Office-based screening of older patients is recommended yearly, and a brief questionnaire is provided for this purpose. Patients identified as being at increased risk should receive an assessment for prior fall events and modifiable risk factors. SEADI has also developed an assessment protocol designed for evaluating functional strength and balance (e.g., Timed Up and Go Test; 4-Stage Balance

Test), reviewing medication side effects, asking about home hazards (e.g., throw rugs, slippery tub floor), measuring orthostatic blood pressure (lying and standing positions), and checking for visual acuity. Specific interventions to reduce fall risk are guided by the results of risk assessment, paying attention to other factors such as footwear (e.g., shoe fit, traction, heel height), likelihood of vitamin D deficiency, and potential impact of comorbidities.

## Interventions

Exercise interventions are the cornerstone for fall risk reduction and prevention of fall-related injury in community-dwelling older adults. According to the U.S. Preventive Services Task Force (USPSTF), both supervised individual and group classes are effective when functional training is included [31]. Older adults should set a weekly goal of 150 minutes of moderate-intensity exercise (or 75 minutes of vigorous physical activity) combined with muscle-strengthening activities twice each week. A meta-analysis of 59 randomized trials found that fall prevention exercise programs are beneficial for adults at average or high risk of falls [32]. The rate of falls in this study was 23% lower among participants in an exercise program compared with those in control groups. Exercise programs effective in reducing falls are those that include functional exercises, balance training, and resistance exercises.

Other interventions for reducing fall risk are guided by the patient's individual fall risk assessment. Important considerations include prescription and over-the-counter medications that may result in side effects such as drowsiness, dizziness, and orthostatic hypotension; regular visual acuity testing at 1- to 2-year intervals, in order to update eyeglasses when needed and manage cataracts in a timely fashion; and improving home safety by eliminating tripping hazards, improving lighting, and adding grab bars in the tub or shower. Routine vitamin D and calcium supplementations have not been found effective, nor are they recommended by the USPSTF, for reducing fall risk in older adults without evidence of deficiency [30]. However, in select older women at risk for hip fracture, it may be prudent to consider calcium and vitamin D supplementation, screening for osteoporosis (recommended for all women older than 65 years of age), and weight-bearing exercises.



The World Falls Guidelines Task Force recommends providing advice on how to maintain safe mobility and optimize physical functioning to older adults at low risk of falls from a clinician trained to do so. Such advice should consider the circumstances, priorities, preferences and resources of the older adult. This advice should reinforce health promotion/prevention messaging relevant to falls and fracture risks such as those on physical activity, lifestyle habits and nutrition including vitamin D intake.

(<https://academic.oup.com/ageing/article/51/9/afac205/6730755>. Last accessed March 26, 2024.)

**Strength of Recommendation/Level of Evidence:**  
E (Expert opinion)

## INPATIENT AND RESIDENT FALL PREVENTION PRACTICES

The Agency for Healthcare Research and Quality (AHRQ) estimates that each year between 700,000 and 1 million people in the United States fall in the hospital [21]. Many of these falls cause fractures, lacerations, or internal bleeding, leading to increased healthcare utilization. Fall prevention involves managing a patient's underlying fall risk factors and optimizing the facility's physical design and environment [21]. The AHRQ has developed hospital training programs, a fall prevention toolkit, and other materials to help inpatient facilities overcome the challenges associated with developing, implementing, and sustaining a fall prevention program [21].

Fall risk assessment and preventive interventions should start at initial admission to the hospital or long-term care facility. Within hospitals, bed alarms, sitters, and physical restraint orders have been used in the past to reduce the likelihood of patients falling [17]. However, restraints have been noted to pose an increased risk for severe injury (and aspiration) and are used only very rarely. Restraints must have 1:1 observation and a physician order [28]. While employing a bedside sitter seems a reasonable precaution, one study found that evidence is inconclusive whether the presence of a sitter decreases the number of falls [16].

While many precautions are of benefit to all patients in preventing falls, the AHRQ recommends fall prevention measures should be individualized, considering the patient's age, fall history, and risk factors. The goal is to assure patient safety from falls, preventing additional harm during the period of hospitalization. Outpatient clinic administrators and staff can use similar prevention measures to ensure patient safety against falls in the home [21]. Although the following precautions were developed for reducing risk of inpatient falls, they may be applicable to the ambulatory clinic and home environment as well [21]:

- A call light within reach and instruction to the patient on proper use
- Sturdy handrails in restrooms, patient rooms, and hallways
- Hospital or exam tables in the lowest position, with brakes locked
- Wheelchair locks used when inactive
- Appropriate footwear (e.g., nonskid soles, avoiding slippers with open backs or open-toed sandals)
- Appropriate supplemental lighting
- Clean and dry flooring
- Safe handling practices of patients, including assistance with transferring and ambulation

### Fall Prevention Programs

Inpatient or resident fall prevention programs have been implemented broadly, often in association with regular exercise routines for residents of long-term care facilities. Hospital interventions have been demonstrated as effective for decreasing fall rates [20]. The AHRQ Fall Prevention in Hospitals training program supports staff in the development and implementation of their own fall prevention programs with standardized tools to prevent falls [21]. The training consists of five modules with various practices, including information on why change is needed and how to manage change, best practices in fall prevention, how to implement the program, and how to measure fall rates [21]. The AHRQ training

program also addresses discharge planning, including strategies for fall prevention after discharge of at-risk patients back into the community.

In addition, the CDC STEADI initiative includes a fall prevention toolkit specifically designed for inpatient use. This was developed to help inpatient organizations integrate fall prevention programs into their current practices. The STEADI initiative includes 10 practical steps identified by research findings and provider practices to [22]:

- Reduce patient falls during and after hospital stays
- Foster better partnership with outside providers for post-hospital discharge care
- Upgrade hospital practices and records
- Recognize and appropriately manage medications that place patients at an increased fall risk

The STEADI initiative also outlines suggested tasks for all members of the interprofessional team in support of safe mobility and fall prevention (*Table 1*).

The NCOA has initiatives for fall prevention programs that are geared toward the home settings. This Falls Free Initiative is led by the National Falls Prevention Resource Center. The Falls Free Initiative works with more than 70 organizations nationwide to develop strategies to prevent falls, fall-related injuries, and fall-related deaths. The Falls Free Initiative can be accessed online at <https://www.ncoa.org/article/get-the-facts-on-falls-prevention> [23].

### PEDIATRIC FALL PREVENTION

The Humpty Dumpty Falls Scale (HDFS) serves as an international tool to help assess pediatric fall risk. Developed in Brazil, this tool is used within the inpatient setting with patients birth to 21 years of age. The parameters include age, gender, diagnosis, impairments, environmental factors, response to surgery/anesthesia (if applicable), and medication usage responses are scored on a 1–4 scale. Scores less than 12 indicate low risk, while scores of 12 or greater are considered at high risk for falls. The HDFS is used at admission, daily, and with any changes in level of care [27].

**SUGGESTED TASKS FOR SAFE MOBILITY AND FALL PREVENTION  
PROGRAM TEAM MEMBERS**

Team Member	Suggested Tasks
STEADI safe mobility champion (from any profession)	<ul style="list-style-type: none"> <li>• Proactively encourage early mobilization of patients to reduce fall risks during hospitalization</li> <li>• Work with team to incorporate the safe mobility and fall prevention program into the patient care workflow</li> <li>• Work with available unit-based or hospital educators to establish a training program for current and future employees</li> <li>• Be available to troubleshoot issues during implementation</li> <li>• Provide feedback to team members</li> <li>• Monitor and report results of program implementation</li> <li>• Communicate with hospital leadership about the program</li> <li>• Assign and train staff to discuss fall prevention strategies with patients and caregivers</li> </ul>
Nurse and/or certified nursing assistant	<ul style="list-style-type: none"> <li>• Screen patients for fall risk using a screening tool (e.g., Stay Independent checklist, three key questions, STRATIFY Risk Assessment Tool)</li> <li>• Perform gait testing (e.g., Timed Up and Go Test, 30-Second Chair Stand Test, or 4-Stage Balance Test)</li> <li>• Check orthostatic blood pressure</li> <li>• Educate patients about orthostatic hypotension and related fall risk</li> <li>• Discuss fall prevention strategies with patients and caregivers</li> <li>• Perform vision assessment (e.g., Snellen eye chart)</li> <li>• Counsel about using single distance lenses when walking outside (e.g. avoid bifocals)</li> <li>• Assess feet and footwear</li> <li>• Conduct cognitive assessment (e.g., Mini-Cog)</li> <li>• Ensure each patient has optimal independence in instrumental activities of daily living (IADLs) and activities of daily living (ADLs) during hospital stay</li> <li>• Mobilize patient at least three times a day as tolerated</li> <li>• Give patient appropriate STEADI patient educational materials</li> <li>• Follow up during their hospital stay to ensure patients are making progress as part of fall prevention care plan</li> </ul>
Physician, nurse practitioner, physician assistant, clinical nurse specialist	<ul style="list-style-type: none"> <li>• Take a fall history, including circumstances of previous falls</li> <li>• During physical exam include an observation of gait to identify medical issues that could increase fall risk (e.g., cardiac or neurologic disease)</li> <li>• Review results of fall risk assessments performed by other team members</li> <li>• Avoid prescribing and manage medications that increase fall risk (collaborate with pharmacists)</li> <li>• Order appropriate labs and imaging specific to fall risk</li> <li>• Recommend and provide referrals specific to fall risk</li> <li>• Discuss fall prevention strategies with patients and caregivers</li> <li>• Engage patients and caregivers in developing and implementing individual fall prevention care plans</li> <li>• Avoid issuing bed rest orders or discontinue them as soon as not clinically indicated</li> <li>• Discontinue tethers (IV lines, urinary catheters, etc.) as soon as not clinically indicated</li> <li>• Recommend community exercise or fall prevention programs</li> </ul>
Pharmacist	<ul style="list-style-type: none"> <li>• Review medications to identify those that increase fall risk</li> <li>• Notify safe mobility and fall prevention program team of any medications that might increase fall risk and set up alerts to providers for those medications</li> <li>• Make recommendations for dose reduction or safer alternatives for medications that increase fall risk</li> <li>• Raise awareness about medication-related fall risks</li> <li>• Discuss fall prevention strategies with patients and caregivers</li> </ul>

*Table 1 continues on next page.*



**SUGGESTED TASKS FOR SAFE MOBILITY AND FALL PREVENTION  
PROGRAM TEAM MEMBERS (Continued)**

Team Member	Suggested Tasks
Physical therapist	<ul style="list-style-type: none"> <li>• Assess or inquire about baseline functional status</li> <li>• Discuss fall prevention strategies with patients and caregivers</li> <li>• Perform detailed gait and balance testing</li> <li>• Design a rehabilitation care plan or exercise program to improve mobility and balance during hospitalization</li> <li>• Educate patients about community-based fall prevention programs, such as tai chi classes or Stepping On</li> </ul>
Occupational therapist	<ul style="list-style-type: none"> <li>• Discuss fall prevention strategies with patients and caregivers</li> <li>• Educate patients about home trip hazards (e.g. throw rugs, stairs)</li> <li>• Recommend fall prevention safety features (e.g., grab bars, lighting, railings)</li> <li>• Educate patients and caregivers about behavioral and functional changes that impact fall risk</li> </ul>

Source: [22]

Table 1

## CONCLUSION

Falling is among life's earliest and most common experiences. Is there anyone who has not fallen while learning to walk, or not stumbled when in too much of a hurry? When we are young, like "Jack and Jill (who) went up the hill to fetch a pail of water," falling can be painful but is often of little consequence to life and limb; moreover, falling down teaches resilience and the importance of being careful. Jack and Jill likely jumped up no worse for the wear and later went right back up the hill again. It is worth noting here that these two were out and about, active at play or doing chores. The tale of Jack and Jill connotes youth, energy, exuberance, companionship; their danger of falling came from being too much in a hurry.

Humpty Dumpty, on the other hand, tells a more somber tale. He was not out and about at all, just simply sitting on the wall; and when he fell it was a "great fall" (of serious consequence). All the king's horses and all the king's men couldn't put Humpty together again! Perhaps Humpty Dumpty is a nursery rhyme for the aging, a cautionary tale on the importance of staying active and the hidden danger in simply sitting still. Humpty Dumpty can connote age, inactivity, weight gain, solitude, and

fragility. Sedentary life has the appearance of safety but the place where one sits is not always safe, and the consequences of falling can be dire.

Falls are common in older adults, and the risk of falling increases with aging. While this course has focused on the older adult population, persons of all ages can be at risk for falls for a variety of reasons. Preventive measures can be used for any adult and all patients with limited mobility. Strategies for effective prevention of falls begin with proper assessment of predisposing factors and comorbidities, focusing on managing extrinsic and intrinsic factors that increase risk. Timely education of patients and families is recommended in the primary and secondary prevention of falls. By striving for the goal of zero falls, healthcare facilities and providers can achieve a significant reduction in number of injuries and loss of life. A given patient's fall risk can be reduced significantly in a single healthcare contact, using a prepared strategy (e.g., STEADI algorithm) to address potential medication side effects and need for vitamin D; home safety review, visual acuity testing, and lower body strength and balance testing; and education and advice regarding regular exercise for maintaining strength and mobility. Select patients benefit from referral to physical and/or occupational therapy for training to improve balance.

## RESOURCES

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### **CDC STEADI Initiative**

This site provides links to office-based clinical tools and functional assessment instruction, including video demonstration.

<https://www.cdc.gov/steady/materials.html>

### **Algorithm for Fall Risk Screening, Assessment, and Intervention**

<https://www.cdc.gov/steady/pdf/STEADI-Algorithm-508.pdf>

### **Timed Up and Go (TUG) Test**

<https://www.cdc.gov/steady/pdf/STEADI-Assessment-TUG-508.pdf>

### **4-Stage Balance Test**

<https://www.cdc.gov/steady/pdf/STEADI-Assessment-4Stage-508.pdf>

### **National Institute on Aging**

This site provides educational and instructive articles for aging adults, including exercises with video instruction for enhancing strength and balance.

<https://www.nia.nih.gov/health/exercise-and-physical-activity>

### **Implicit Bias in Health Care**

The role of implicit biases on healthcare outcomes has become a concern, as there is some evidence that implicit biases contribute to health disparities, professionals' attitudes toward and interactions with patients, quality of care, diagnoses, and treatment decisions. This may produce differences in help-seeking, diagnoses, and ultimately treatments and interventions. Implicit biases may also unwittingly produce professional behaviors, attitudes, and interactions that reduce patients' trust and comfort with their provider, leading to earlier termination of visits and/or reduced adherence and follow-up. Disadvantaged groups are marginalized in the healthcare system and vulnerable on multiple levels; health professionals' implicit biases can further exacerbate these existing disadvantages.

Interventions or strategies designed to reduce implicit bias may be categorized as change-based or control-based. Change-based interventions focus on reducing or changing cognitive associations underlying implicit biases. These interventions might include challenging stereotypes. Conversely, control-based interventions involve reducing the effects of the implicit bias on the individual's behaviors. These strategies include increasing awareness of biased thoughts and responses. The two types of interventions are not mutually exclusive and may be used synergistically.

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