MedStar Health

# The Assessment and Prevention of Falls in Older People

Clinical Practice Guideline MedStar Health

*"These guidelines are provided to assist physicians and other clinicians in making decisions regarding the care of their patients. They are not a substitute for individual judgment brought to each clinical situation by the patient's primary care provider, in collaboration with the patient. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication but should be used with the clear understanding that continued research may result in new knowledge and recommendations".*

**Initial Screen:** Ask all older adults and/or their caregiver about the occurrence of falls during the past one year.

**Recommendations:**

**1. History of or propensity for falling:**

a. If the older adult and/or their caregiver reports A SINGLE FALL in the past year, assess their gait and balance using a standardized tool such as the "Get Up and Go Test" or "5 times Sit to Stand" described below.

b. A Comprehensive Falls Risk Assessment is recommended if the patient or their caregiver reports:

- FOLLOWING A RECENT FALL FOR EVALUATION.
- RECURRENT FALLS in the past one year.
- Was deemed a *falls risk* (e.g., required to don yellow socks) during a recent hospitalization; or,
- At any visit when the patient is noted to have a new onset unsteady gait or is using an assistive ambulatory device.

**2. Comprehensive Falls Risk Assessment**

a. A review of the circumstances surrounding the fall(s), including the location of fall (indoors or out), activity prior to fall, loss of consciousness or other premonitory symptoms, use of walking aids (e.g., cane, walker) and/or protective devices (e.g., hip protectors, helmet), environmental conditions (e.g., snow, ice), and injuries that resulted from the fall. Are these Accidental ("Could happen to anyone."), Anticipated ("It was just a matter of time…"), or related to a Condition ("Whenever I stand up too fast, I get dizzy.")?

b. Cardiovascular examination including postural changes in HR and BP

c. Medication optimization review with a focus on psychoactive medications and polypharmacy

d. Assessment of the patient's reported functional ability and fear related to falling

e. Assessment for cognitive impairment and a focused neurological examination

f. Assessment for urinary urgency or incontinence

g. Assessment for visual impairment, especially cataracts and peripheral vision

**3. Recommended Interventions**

a. Follow-up on clinical findings and optimize the therapeutic regimen

b. Appropriate referrals based on proposed specialty interventions

c. Physical Therapy /Occupational Therapy Evaluation, as appropriate, for strength and balance assessment, assessment of home hazards, and education and compensation techniques to improve safety in their environment.

**4. Patient Specific Considerations**

*a*. Consider osteoporosis screening and Vitamin D deficiency. Vitamin D supplements of at least 800 IU per day should be provided to older persons *with proven vitamin D deficiency.*

b. Identification of foot problems and appropriate treatment

c. Older people should be advised that walking with shoes of low heel height and high surface contact area may reduce the risk of falls

d. Appropriate use of walking aids

e. Improving physical mobility: exercise programs (e.g., Tai Chi, Yoga), balance, strength, and gait training,

f. Home evaluation and modification of environmental hazards

g. Continence promotion and toileting programs

h. Educating direct care givers, who assess fall risk and initiate individualized interventions, is an important component of fall reduction. Available MedStar resources to determine social needs are available within MedConnect under the Ad Hoc tab > Forms > Social Needs Screening Questionnaire or at: https://socialneeds.medstarhealth.org/

**TESTS and TOOLS To Assess Fall Risk:**

**1. 5 times sit to Stand(5XSTS)**

The Five Time Sit-to-Stand Test or 5XSTS is a geriatric standardized testing tool developed to assess specific sit-to-stand transfers and lower extremity strength. It has the potential to predict mobility and fall risk. During the 5XSTS, the patient is asked to start in a seated position with their arms crossed. Then the patient is asked to stand up and sit down five times in a row as fast as they can safely. The patient should ascend and descend from a chair that is approximately 16 inches tall. The test is scored on the patient's age and sex, and the time it takes the patient to perform the test. This test has been studied for several decades in relation to fall risk, so specific cut-off scores may depend on the source that is cited.

Normative data: anyone that falls outside of this time is a risk for falls (Bohannon et al, 2010; Lusardi et al, 2003):

20-29 years - 6.0±1.4 sec
30-39 years - 6.1±1.4 sec
40-49 years - 7.6±1.8 sec
50-59 years - 7.7±2.6 sec
60-69 years - 8.4±0.0 sec (male), 12.7±1.8 sec (female)
70-79 years - 11.6±3.4 sec (male), 13.0±4.8 sec (female)
80-89 years - 16.7±4.5 sec (male), 17.2±5.5 sec (female)
90+ years - 19.5±2.3 sec (male), 22.9±9.6 sec (female)

**2. 'Get Up and Go' test or Timed Up and Go (TUG)**

The 'Get Up and Go' test is a composite measure of functional mobility. The test is performed by observing the patient rise from a seated position, walk 10 feet using usual assistive devices, turn, return to the chair, and sit back down. While the time it takes for a patient to perform this test can be measured, this information has not been found to be helpful in community dwelling elderly. A meta-analysis published in 2013 of 53 studies with 12,832 participants found that the mean difference between healthy independent living fallers vs non-fallers was 0.63 seconds but was 3.59 seconds for those living in an institutional setting. There was much overlap of "timed get up and go" test times between fallers and non-fallers within and between studies. The authors concluded that the diagnostic accuracy of the timed get up and go test was poor to moderate. Observing how a person performs the task rather than measuring the time it takes to perform the task may be more useful. In general, > 14 secs is an indication of falls risk

If the other screening tools are not able to be used or if a patient has very limited ambulation the FES-1–Falls Efficacy Scale: International is a quick screen questionnaire: https://www.physio-pedia.com/Falls_Efficacy_Scale-International(FES-I)

**General Principles:**
Falls are among the most serious health concerns facing older patients. From 30 to 40 percent of community dwelling adults older than 65 years fall each year, resulting in ~3M ED visits. Rates are higher in nursing home residents and hospitalized patients. The incidence of falls rises steadily from middle age and peaks in persons older than 80 years. Between 20 and 30 percent of older adults who fall, approximately 800,000 patients each year, suffer serious injuries such as hip fractures and head trauma. Recovery from falls often is complicated by poor quality of life caused by restricted mobility, functional decline, and is a predictor for nursing home placement. Fear of falling or "post fall anxiety syndrome" may affect 50% of people who sustain hip fractures and leads to activity restriction in up to three fourths of patients. Direct medical costs associated with falls are estimated to total $50 billion annually. This clinical practice guideline should assist primary care clinicians by providing an evidence-based analytical framework for the assessment and prevention of falls in community dwelling adult older than 65 years. It is not intended to substitute for clinical judgment or to establish a protocol for all patients.

**Risk factors for Falls:** Risk factors for falls can be considered as intrinsic to the individual (some of which are modifiable) or extrinsic (and therefore more easily modifiable).

| **Intrinsic and Extrinsic Risk Factors for Falls (Adapted from In the Clinic: Falls Prevention in Community-Dwelling Older Adults 2018)** |
|---|
| **Intrinsic** |
| Ocular (decreased visual acuity, macular degeneration, glaucoma, cataracts, retinopathy, reduced depth perception) |
| Cardiovascular (bradycardia, tachyarrhythmias, orthostatic hypotension, decompensated heart failure) |
| Neurologic (cognitive impairment and dementia, Parkinson's disease, or other movement disorders, CVA, peripheral neuropathy |
| Urologic (any type of incontinence, nocturia) |
| Psychological (insomnia, sleep deprivation, depression) |
| Musculoskeletal (OA or inflammatory arthritis, pain, leg weakness, reduced flexibility) |
| Vestibular (Vestibular dysfunction due to BPV, Meniere's Disease, barotrauma) |
| **Extrinsic** |
| Medications (anticholinergics, antidepressants, antipsychotics, sedative-hypnotics, benzodiazepines, opiates, anti-hypertensives, anti-arrhythmic, or the use of more than 4 medications). In general, medications that act on the central nervous system increase the risk of fall by about 50%. Anti-hypertensives increase falls risk by ~ 25%, especially following an increase in dose. |
| Footwear (backless shoes and slippers, high heels, shoes lacking dorsum, arch or heel supports; shoes with heavy soles or a narrow toe box |
| Environment (wet or slippery surfaces, lack of grab bars, uneven flooring, floor rugs, poor lighting, lack of handrails for steps, or cords or other walkway hazards |

**Intervention Evidence Ratings:** The relative effectiveness of interventions varies, with exercise having the strongest evidence of benefit in reducing falls as well as fall-related injuries. In addition, there is disagreement about the effectiveness of some interventions (particularly vitamin D supplementation in patients without known vitamin D deficiency or osteoporosis) between different guideline writing organizations. Two recent pragmatic cluster-randomized trials published in 2020 evaluating multifactorial strategies to prevent fall injuries did not demonstrate benefit compared to enhanced usual care or advice given by mail.

**Interventions for Falls Prevention and Their Evidence Ratings (Adapted from: In the Clinic: Falls Prevention in Community-Dwelling Older Adults 2018)**

| Intervention | USPSTF (2018) | AGS/BGS (2011) | Cochrane Collaboration (2012) |
|---|---|---|---|
| Strength and balance exercise | B | A | Effective (16 trials) |
| Tai Chi | B | A | Reduced risk for falling (7 trials) |
| Home modification | I* | A | Effective (6 trials) |
| Medication—Reduction in psychoactive medications | I* | B | 2 positive trials |
| Medication—Reduction in number or dose | Not addressed | B | Not addressed |
| Postural hypotension management | Not addressed | C | Not addressed |
| Vitamin D supplementation for fall prevention | D | B | Not effective overall (13 trials) |
| Vision screening and management | Not addressed | I | Harmful effect in 1 trial |
| Hearing screening and management | Not addressed | Not addressed | Not addressed |
| Foot/shoe screening and management | Not addressed | C | Reduced rate of falls in 2 trials |
| Education alone | Not addressed | D | 1 negative trial |
| Cardiac pacing for carotid sinus hypersensitivity | Not addressed | B | Reduced rate of falls in 3 trials |
| First eye cataract surgery | Not addressed | B | 1 positive trial |
| Multifactorial interventions | C | A | Effective in reducing rate of but not risk for falling (19 trials) |

USPSTF (United States Preventive Services Task Force) recommendations: A=recommended with high certainty of benefit; B=recommended with moderate certainty of benefit; C=selectively offer based on professional judgment and patient preferences; D=recommended against based on moderate or high certainty of no benefit or that harms outweigh the benefit; I=insufficient evidence; I*=evidence report finding of insufficient evidence/not part of summary recommendation. AGS/BGS (American Geriatrics Society/British Geriatrics Society): A= strongly recommended; B=recommended; C=no recommendation; D=recommended against; I-insufficient evidence

**Educational Resources for Patients**

Stay Independent: Prevent Falls (Brochure – CDC)
https://www.cdc.gov/steadi/pdf/steadi_olderadultfactsheet-a.pdf

What YOU Can Do to Prevent Falls (Brochure- CDC)
https://www.cdc.gov/steadi/pdf/STEADI-Brochure-WhatYouCanDo-508.pdf

Check For Safety: A Home Fall Prevention Checklist for Older Adults (Brochure- CDC)
https://www.cdc.gov/steadi/pdf/STEADI-Brochure-CheckForSafety-508.pdf

Hypotension brochure (Brochure – CDC) https://www.cdc.gov/steadi/pdf/STEADI-Brochure-Postural-Hypotension-508.pdf

Falls Prevention Center of Excellence, (online resources). Stop Falls.org
http://stopfalls.org/

Chair Rise Exercise (Brochure CDC) https://www.cdc.gov/steadi/pdf/STEADI-Brochure-ChairRiseEx-508.pdf

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