Preventing Falls in Older Persons

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The American Geriatrics Society and British Geriatrics Society recommend that all adults older than 65 years be screened annually for a history of falls or balance impairment. The U.S. Preventive Services Task Force and American Academy of Family Physicians recommend exercise or physical therapy and vitamin D supplementation to prevent falls in community-dwelling older adults who are at increased risk of falls. Although the U.S. Preventive Services Task Force and American Academy of Family Physicians do not recommend routine multifactorial intervention to prevent falls in all community-dwelling older adults, they state that it may be appropriate in individual cases. The Centers for Disease Control and Prevention developed an algorithm to aid in the implementation of the American Geriatrics Society/British Geriatrics Society guideline. The algorithm suggests assessment and multifactorial intervention for those who have had two or more falls or one fall-related injury. Multifactorial interventions should include exercise, particularly balance, strength, and gait training; vitamin D supplementation with or without calcium; management of medications, especially psychoactive medications; home environment modification; and management of postural hypotension, vision problems, foot problems, and footwear. These interventions effectively decrease falls in the community, hospital, and nursing home settings. Fall prevention is reimbursed as part of the Medicare Annual Wellness Visit. (*Am Fam Physician*. 2017;96(4):240-247. Copyright © 2017 American Academy of Family Physicians.)

▶ **See related editorial on page 220.**

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▶ **Patient information**: A handout on this topic, written by the authors of this article, is available at http://www.aafp.org/afp/2017/0815/p240-s1.html.

Falls are the leading cause of fatal and nonfatal injuries in persons older than 65 years.[1] In a survey, 37.5% of fallers responded that they required medical treatment or activity restriction.[2] Fall injuries result in 2.8 million emergency department visits annually,[1] and 25% of falls cause serious injuries, such as fractures or traumatic brain injury.[3] The risk of falls and resulting serious injury increases with age. Injuries, such as hip fracture, and falls are risk factors for placement in a nursing home,[4] where the fall risk is nearly three times that of persons living in the community.[5] A history of falls is associated with a two- to sixfold increased risk of a future fall.[6] Noninjurious falls are a harbinger of potentially life-threatening events and are an opportunity for physicians to intervene.

Many of the recommendations in this article are based on the American Geriatrics Society/British Geriatrics Society (AGS/BGS) clinical practice guideline for the prevention of falls in older persons.[7] The Centers for Disease Control and Prevention (CDC) developed the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) toolkit for physicians based on the AGS/BGS guideline.[8] The toolkit includes resources such as an algorithm for fall risk assessment and interventions *(Figure 1[9])* and the Stages of Change Model *(Table 1[10])*. Fall prevention is reimbursed as part of the Medicare Annual Wellness Visit.

Risk Factors

There are many risk factors for falls, some of which are modifiable *(Table 2)*.[6,11-16] The strongest modifiable risk factors are balance impairment, gait impairment, muscle weakness, and medication use. Fear of falling can result in a downward cascade of events leading to social isolation and loss of function, as well as more falls.[17] Approximately 60% of falls are the result of multiple factors.[18]

Assessment

All persons older than 65 years should be asked annually about whether they have fallen, the number of falls they have had and if they caused injury, and whether they have difficulty with walking or balance.[7] The CDC STEADI initiative encourages physicians to screen for fall risk by asking these questions and about fear of falling, or by administering the Stay Independent self–risk assessment brochure.[8] It is important for physicians to elicit a falls history because, in one study, only 36% of men and 50% of women who fell in the previous year talked to their physician about falls.[19] A gait, strength, and balance evaluation should

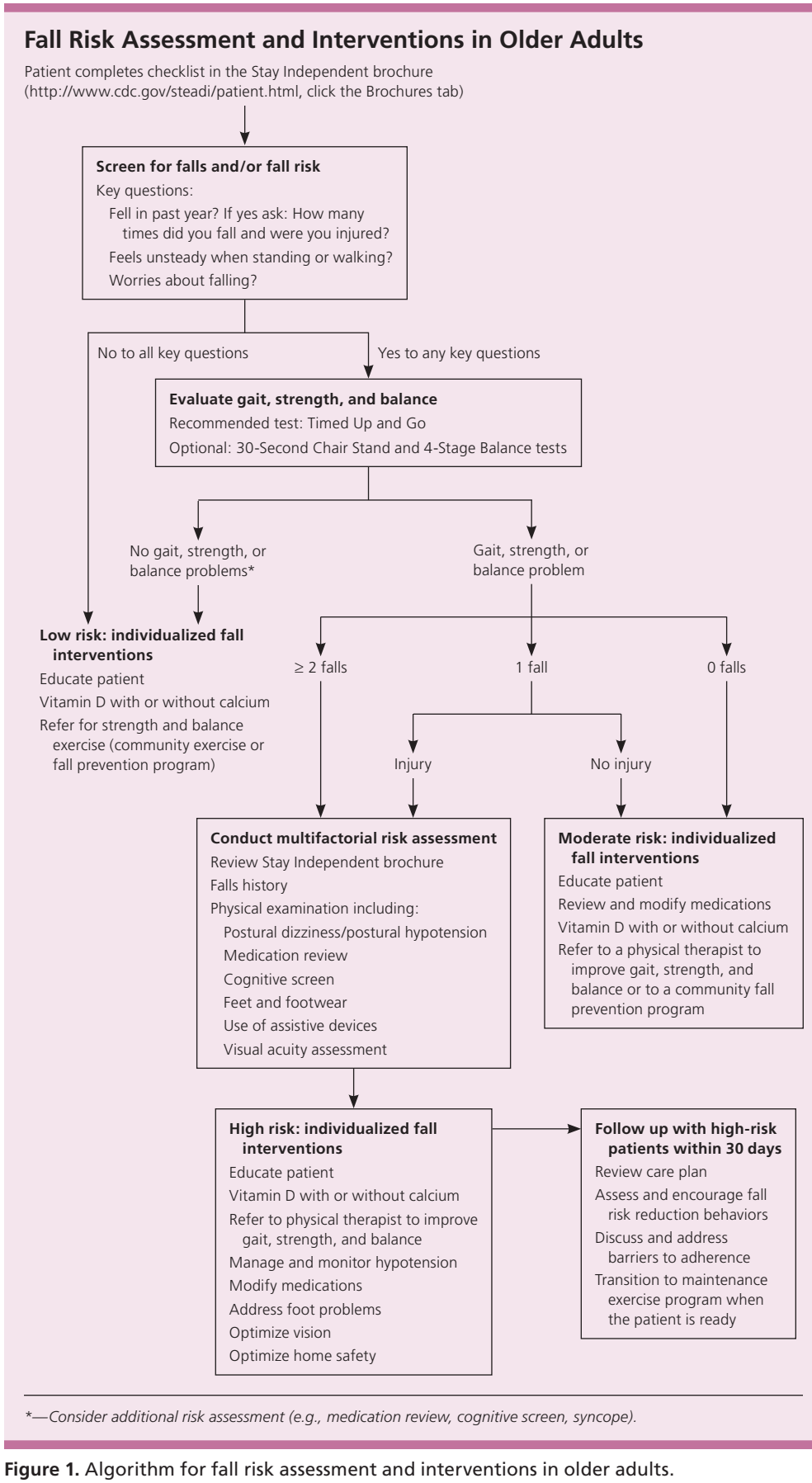

Figure 1. Algorithm for fall risk assessment and interventions in older adults.

Adapted from Centers for Disease Control and Prevention. Algorithm for fall risk assessment and interventions. http://www.cdc.gov/steadi/pdf/algorithm_2015-04-a.pdf. Accessed May 5, 2016.

Table 1. Stages of Change Model for Fall Prevention

Precontemplation stage: The patient is not thinking about change and does not feel that anything can be done to prevent falls.

Physician's response: Offer the patient education about the benefits of making a change.

Contemplation stage: The patient is weighing the benefits of a behavior change to prevent falls (e.g., home modification) vs. the cost.

Physician's response: Offer encouragement and specific suggestions for change. Involve family for support.

Preparation stage: The patient begins to consider making a change to prevent falls.

Physician's response: Help patient set specific goals and create action plan.

Action stage: The patient is ready to make a behavior change to prevent falls.

Physician's response: Make referrals and provide support with follow-up.

Maintenance stage: The patient continues the new behavior (e.g., exercise) for at least six months.

Physician's response: Offer praise and encouragement to continue.

NOTE: *The Stages of Change Model can be used to facilitate conversations with patients and assist with their acceptance of fall prevention strategies such as exercise, home modifications, and medication changes.*

Information from reference 10.

be performed if a patient answers positively to any of the screening questions. The Timed Up and Go (TUG) test, 30-Second Chair Stand test, and 4-Stage Balance test are quick and easy to administer. These tests are shown in online instructional videos at https://www.youtube.com/playlist?list=PLWqeMoseZ2MwwznjB-TFrq4dtHX8hPsSE. The TUG test is recommended as the primary measure of functional assessment. It involves timing the patient as he or she rises from a chair with armrests, walks 10 feet (with an assistive device if applicable), turns, walks back to the chair, and sits.[8]

A multifactorial fall risk assessment should be performed for all high-risk persons who require 12 or more seconds to complete the TUG test and report two or more falls or one fall-related injury.[8,9] The assessment should include circumstances and frequency of falls, associated symptoms, injuries, medications (prescription and over-the-counter),

Table 2. Risk Factors for Falls in Older Persons

Potentially modifiable	Potentially modifiable *(continued)*	Nonmodifiable
Cardiac	Neurologic	Age older than 80 years
Cardiac arrhythmias	Delirium	Arthritis
Congestive heart failure	Dizziness or vertigo	Cognitive impairment/dementia
Hypertension	Parkinson disease and other movement disorders	Female sex
Environmental hazards	Peripheral neuropathy	History of cerebrovascular accident/transient ischemic attack
Medication use (see Table 3; risk is higher when four or more medications are used simultaneously)	Psychological	History of falling
Metabolic	Depression	History of fractures
Diabetes mellitus	Fear of falling	Recently discharged from the hospital (within one month)
Low body mass index	Sensory impairment	White race
Vitamin D deficiency	Auditory impairment	
Musculoskeletal	Multifocal lens	
Balance impairment	Visual impairment	
Foot problems	Other	
Gait impairment	Acute illness	
Impaired activities of daily living	Anemia	
Limited activity	Cancer	
Lower extremity muscle weakness	Inappropriate footwear	
Musculoskeletal pain	Nocturia	
Use of an assistive device	Obstructive sleep apnea	
	Postural hypotension	
	Urinary incontinence	

Adapted with permission from Moncada LV. Management of falls in older persons: a prescription for prevention. Am Fam Physician. *2011;84(11):1267-1268, with additional information from references 6, and 11 through 15.*

other relevant acute or chronic medical problems, activities of daily living and use of assistive devices, and fear of falling.[7] The physical examination should include evaluation of muscle strength; cognitive examination; cardiovascular examination, including postural dizziness/postural hypotension; assessment of visual acuity; and examination of the feet and footwear.[7] An environmental assessment, including home safety, is also recommended.[7] Checklists for home safety and risk factors for falling (Stay Independent brochure) are available at http://www.cdc.gov/steadi/patient.html (click the Brochures tab). Any person seeking medical attention immediately after a fall should be evaluated for underlying acute illness.

BEST PRACTICES IN GERIATRIC MEDICINE: RECOMMENDATIONS FROM THE CHOOSING WISELY CAMPAIGN

Recommendation	*Sponsoring organization*
Do not let older adults lie in bed or only get up to a chair during their hospital stay.	American Academy of Nursing
Do not use physical restraints with an older hospitalized patient.	American Academy of Nursing
Do not use benzodiazepines or other sedative-hypnotics in older adults as a first choice for insomnia, agitation, or delirium.	American Geriatrics Society
Do not prescribe a medication without conducting a drug regimen review.	American Geriatrics Society
Do not prescribe under-dosed strength training programs for older adults. Instead, match the frequency, intensity, and duration of exercise to the individual's abilities and goals.	American Physical Therapy Association

Source: For more information on the Choosing Wisely Campaign, see http://www.choosingwisely.org. For supporting citations and to search Choosing Wisely recommendations relevant to primary care, see http://www.aafp.org/afp/recommendations/search.htm.

Multifactorial vs. Single Interventions

In each setting (community, hospital, and nursing home), assessment with corresponding individualized multifactorial intervention involving a combination of components (e.g., exercise, medication reduction) reduces fall rates.[20-22] Studies vary widely on which components were used. Single interventions such as exercise alone are also effective (without a complete multifactorial assessment) in falls prevention.[20]

Community Setting

MULTIFACTORIAL INTERVENTIONS

The U.S. Preventive Services Task Force (USPSTF) and American Academy of Family Physicians do not recommend routine multifactorial intervention in all community-dwelling older adults at risk of falling, but they state that multifactorial assessment and management may be appropriate in individual cases.[23,24] The CDC advises that moderate-risk patients (those with gait, strength, or balance impairment and a history of zero or one noninjurious fall) receive vitamin D supplementation with or without calcium, a medication review, and a referral to physical therapy or a community fall prevention program.[9]

High-risk patients should receive a multifactorial intervention, including an exercise program with muscle strengthening and gait and balance training; vitamin D supplementation with or without calcium; management of medications; home environment modification; and management of postural hypotension, vision problems, foot problems, and footwear.[7] These patients should follow up within 30 days. A Cochrane review concluded that assessment and multifactorial interventions in community-dwelling older adults reduce the number of falls by 24%.[20] These strategies can also reduce hip and other fractures, head injuries, use of medical services related to falls,[25] and death.[26]

eTable A includes tips for implementing interventions for fall prevention in community-dwelling older adults. *eTable B* is a falls prevention electronic medical record template. All components on the template are based on the evidence discussed in this article.

SINGLE INTERVENTIONS

Exercise or Physical Therapy. The USPSTF and the American Academy of Family Physicians conclude that exercise or physical therapy alone has moderate net benefit in preventing falls.[23,24] All older adults who are at risk of falling should be offered physical therapy or an exercise program incorporating balance, gait, and strength training.[7] A Cochrane review found that the number of fallers was reduced by 15% to 29% with group exercise containing multiple components, individual home-based exercise, or tai chi.[20] In most studies, the exercise program was a minimum of 12 weeks with 30- to

90-minute sessions one to three times per week.[20] In a meta-analysis, fall prevention exercise programs reduced falls resulting in fracture by 61% and reduced falls resulting in the need for medical care by 43%.[27] Exercise interventions have also been effective in reducing the fall rate in cognitively impaired older adults.[28]

Vitamin D. The evidence supporting vitamin D supplementation to reduce the risk of falls in community-dwelling adults is mixed. Although the USPSTF, American Academy of Family Physicians, and AGS recommend vitamin D, a Cochrane review did not find benefit.[20,23,24,29] The USPSTF recommends vitamin D supplementation in older adults at increased fall risk.[23] The recommended dietary allowance of vitamin D is 800 IU per day[30]; however, the AGS recommends vitamin D_3 plus calcium supplements that include at least 1,000 IU of vitamin D per day for older persons to reduce fall risk.[29]

Medication Review. Patients and caregivers must be educated about increased fall risk with polypharmacy and certain medications, especially benzodiazepines, opioids, and sleep medications *(Table 3[11,31])*. In one study, withdrawal of psychotropics reduced the fall rate by 66%.[32] Another study showed that educating family physicians about their prescribing practices can reduce falls by 39%.[33] When possible, physicians should limit high-risk medications and the total number of medications used. Any medication that was initiated or increased shortly before a fall should be considered a possible cause.

Home Safety. The physician should monitor progress toward improving home safety,[7] which may be done with the assistance of a home health agency. Training patients about proper use of assistive devices for mobility is an important part of improving safety. Home safety modification interventions reduce falls and are most effective in patients who have a high risk of falls or who have severe visual impairment and when delivered by an occupational therapist.[20]

Vision Correction. Falls are reduced when regular wearers of multifocal glasses who routinely participate in outdoor activities are given single lens glasses.[34] Patients who use multifocal glasses may benefit from wearing single lens glasses for activities such as walking or climbing stairs. The risk of injurious falls increases after a first-eye cataract surgery. Second-eye cataract surgery decreases fall risk, although fall risk remains above baseline.[35] Delays in second-eye cataract surgery should be minimized.

Foot Care. Podiatry intervention involving routine podiatry care, home-based foot and ankle exercises, foot orthoses, and advice about footwear reduces the fall rate in community-dwelling older adults with disabling foot pain.[36] Older persons should be advised that walking in shoes with low heels and a high surface contact area may reduce the risk of falls.[7]

Pacemakers. Carotid sinus hypersensitivity should be considered when a patient has unexplained recurrent falls. Pacemakers reduce falls and syncope in patients with this syndrome.[20,37]

Table 3. Medications Associated with Falls

Anticonvulsants*	Digoxin
Antidepressants (tricyclic antidepressants and selective serotonin reuptake inhibitors)*	Diuretics
Antihypertensives	Laxatives
Antiparkinsonian drugs	Opioids*
Antipsychotics (typical and atypical)*	Nonbenzodiazepine, benzodiazepine receptor agonist hypnotics*
Benzodiazepines (short- and long-acting)*	Nonsteroidal anti-inflammatory drugs
	Sedatives and hypnotics*

**—These medications are on the 2015 Beers Criteria list for potentially inappropriate medication use in older adults who have a history of falls or fractures.[31]*

Information from references 11 and 31.

Hospital Setting

MULTIFACTORIAL INTERVENTIONS

Multifactorial interventions have been effective in the extended-care and rehabilitation hospital settings.[21] A systematic review suggested that multicomponent interventions may also reduce fall rates in U.S. acute care hospitals, but the pooled risk reduction was not statistically significant.[38] This review included several successful individual trials in which fall risk was reduced by up to 30%. Components included a standardized

assessment to identify risk factors, such as delirium, for which patient-specific care plans could be developed; patient and staff education; alert signs; safety and toileting rounds; bed and chair alarms; footwear advice; and medication review.[38,39] There is little evidence that low beds and bed alarms reduce falls.[40] Improved bed alarms and wearable movement sensors are currently being developed, but the evidence for their ability to prevent falls is inconsistent.[41]

The Agency for Healthcare Research and Quality has developed a toolkit to assist in the implementation of interdisciplinary best practices for fall prevention in hospitals (available at http://www.ahrq.gov/sites/default/files/publications/files/fallpxtoolkit_0.pdf).[42] The Centers for Medicare and Medicaid Services has designated falls occurring during hospitalization as preventable; therefore, any additional cost of care or increased length of stay because of resulting fracture or brain injury is the hospital's responsibility. Physicians must be diligent about avoiding restraints whenever possible because they increase the risk of injurious falls.[43]

SINGLE INTERVENTIONS

Although data are limited, supervised exercise in the extended-care hospital setting has been shown to decrease fall risk.[21]

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	*Evidence rating*	*References*
Community-dwelling older persons at low to moderate risk of falls should participate in an exercise program or physical therapy and take vitamin D supplements.	B	7, 8, 20, 23, 29
Community-dwelling older persons at high risk of falls should receive a multifactorial risk assessment and intervention tailored to their needs.	C	8, 20, 23
Older persons at risk of falls who are hospitalized in an acute setting or for an extended time in a subacute setting should receive a multifactorial risk assessment and intervention tailored to their needs.	B	21, 38, 39, 42
Nursing home residents at risk of falls should receive a multifactorial risk assessment and intervention tailored to their needs that are administered by a multidisciplinary team.	B	22
The following components should be included in multifactorial interventions for falls in older persons:		
Exercise, particularly balance, strength, and gait training	A	7, 8, 22
Vitamin D_3 supplementation of at least 800 IU daily	B	7, 8, 29
Withdrawal or minimization of psychoactive and other medications	B	7, 8, 22, 39
Adaptation or modification of the home environment for those who have fallen or have visual impairment	B	7, 8, 22
Management of foot problems and footwear	B	7, 8, 22, 39
Management of postural hypotension	B	7, 8, 22
Dual chamber cardiac pacing should be considered in patients with carotid sinus hypersensitivity who experience unexplained recurrent falls.	B	6, 20, 37

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to http://www.aafp.org/afpsort.

Nursing Home Setting

MULTIFACTORIAL INTERVENTIONS

Multidisciplinary team administration of multifactorial assessment and intervention in nursing homes reduces falls by 33% and the number of recurrent fallers by 21%.[22] The individualized interventions contained many similar components to the interventions provided for community-dwelling persons but also included staff education. Falls and fall-related injuries were not increased when nursing homes implemented interventions to reduce the use of restraints such as belts and full-enclosure bed rails.[44]

SINGLE INTERVENTIONS

Exercise. The effectiveness of exercise programs in long-term care is controversial.[21,22] A meta-analysis concluded that exercise intervention to prevent falls is most effective if balance exercise is combined with other types of exercise, usually resistance training, and performed two to three times per week for more than six months.[45] Exercise interventions have demonstrated effectiveness in preventing falls in cognitively impaired older adults who are in the nursing home settings.[28]

Vitamin D. Vitamin D supplementation decreases the number of falls in long-term care residents.[21] The Institute of Medicine recommends that persons older than 70 years (including those who are institutionalized) receive 800 IU of vitamin D_3 daily,[30] and the AGS recommends at least 1,000 IU of vitamin D_3 daily.[29]

Interventions to Reduce Fall-Related Injuries

Bisphosphonates are recommended for patients with osteoporosis to reduce fractures from falls.[46] A Cochrane review found that vitamin D plus calcium supplementation resulted in nine fewer hip fractures per 1,000 institutionalized older adults per year,[47] but the USPSTF concludes that the evidence is insufficient for the use of vitamin D for the primary prevention of fractures in noninstitutionalized adults.[48] Hip protectors may reduce hip fractures but may also slightly increase the risk of pelvic fractures.[49]

New sensors, such as wristwatches, cameras, microphones, and floor sensors, are being developed to detect falls quickly in various settings, but trials have been small and inconclusive.[50] Personal emergency response systems decrease hospitalization and may be considered for community-dwelling older adults.[51]

This article updates previous articles on this topic by Van Voast Moncada,[16] Rao,[52] and Fuller.[53]

Data Sources: An Ovid Medline search was completed using the term accidental falls. The search included meta-analyses, randomized controlled trials, clinical trials, and reviews. Also searched were the Agency for Healthcare Research and Quality evidence reports, the Cochrane database, the National Guideline Clearinghouse database, the U.S. Preventive Services Task Force website, and Essential Evidence Plus. Search dates: March 30, 2016, and December 6, 2016.

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eTable A. Tips for Implementing Fall Prevention Interventions for Community-Dwelling Older Adults

1. Screen all persons older than 65 years annually for history of falls, frequency of falls, and difficulty with gait and balance as recommended by the American Geriatrics Society and British Geriatrics Society.[A1] Also, solicit any history of fear of falling.[A2] Consider screening at the same time every year, such as during the season of fall or at the Medicare Annual Wellness Visit.
2. Train medical assistants or nursing staff to automatically document postural blood pressure and pulse, Timed Up and Go (and possibly 30-Second Chair Stand and 4-Stage Balance) test results, visual acuity, functional history, and activities-of-daily-living findings, as well as conduct a cognitive screen, such as a three-item recall, for any patient with a recent fall or history of falls.
3. Assign office staff to identify group exercise programs and/or tai chi programs with strength, gait, and balance components.
   The local Council on Aging, hospitals, YMCAs, and senior centers may offer these programs.
   The Tai Ji Quan: Moving for Better Balance tai chi program* (http://tjqmbb.org) reduces the risk of recurrent falls by 55%.[A3]
   The Stepping On program* (https://wihealthyaging.org/national-stepping-on_1), which teaches fall prevention strategies, decreases the risk of falls by 30%.[A3]
4. Assign office staff to identify outpatient programs that specialize in physical therapy for falls or balance impairment.
   The Otago Exercise Program* (https://www.med.unc.edu/aging/cgec/exercise-program) is an individually tailored home exercise program administered by a trained physical therapist that reduces the risk of falls by 35%.[A3]
5. Assign office staff to identify home health companies that provide home safety evaluations and follow up for adherence to recommendations.
6. Assign office staff to identify companies that provide home safety modification, such as installation of grab bars in the bathroom.
   Find National Association of Homebuilders–certified aging-in-place specialists at http://www.nahb.org/en/find/directory-designee.aspx.
   Contact the local Council on Aging for resources.
7. Input resources from numbers 4 to 6 into the fall prevention EMR template (eTable B) for high-risk fallers.
8. Input patient education materials into the fall prevention EMR template (eTable B) for high-risk fallers.
   Examples: http://www.cdc.gov/steadi/patient.html and http://health.gov/dietaryguidelines/2015/guidelines/appendix-11/
9. Recommend vitamin D_3 supplementation (minimum of 800 IU daily) with or without calcium to all older adults at risk of falling.
10. Refer older adults who are at low risk of falling to a community exercise or fall prevention program (see number 3). Refer older adults who are at moderate risk of falling to a community fall prevention exercise program or physical therapy for fall prevention (see number 4) and review or modify their medications.
11. Complete the fall prevention EMR template (eTable B) for high-risk older adults who have impairment on gait or balance evaluation and report two or more falls or one fall causing injury.

EMR = electronic medical record.

**—Evidence based and recommended by the Centers for Disease Control and Prevention.*

Adapted with permission from Moncada LV. Management of falls in older persons: a prescription for prevention. Am Fam Physician. *2011;84(11):1274, with additional information from:*

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A2. Centers for Disease Control and Prevention. STEADI materials for healthcare providers. http://www.cdc.gov/steadi/materials.html. Accessed May 5, 2016.

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eTable B. Falls Prevention Electronic Medical Record Template: Multifactorial Assessment and Intervention for Community-Dwelling High-Risk Fallers

Chief problem
History of a fall

History
Number of falls in the past year
Feeling of unsteadiness when standing or walking
Fear of falling
Injuries due to a fall
Environmental hazards
Dizziness
Syncope
Assistive devices needed
Assistive device used at the time of the fall
Assistance needed with transferring, bathing, dressing, or toileting

Review of systems
Vision problems
Date of the most recent eye examination by an ophthalmologist or optometrist
Urinary or fecal incontinence
Acute or chronic musculoskeletal problems
History of osteoporosis
Foot pain
Footwear worn at the time of the fall
Acute or chronic neurologic problems
History of acute or chronic cognitive impairment

Medications
Current medications, including over-the-counter, herbal, and psychoactive medications
New medications or recent dosage changes

Social history
History of alcohol use

Physical examination
Visual acuity
- Left eye with glasses
- Right eye with glasses
- Bilateral eyes with glasses
- Use of multifocal glasses

Postural blood pressure and pulse
Cardiovascular examination
Musculoskeletal strength
Gait and use of assistive device
- Number of seconds for Timed Up and Go test with assistive device (12 or more seconds indicates a high risk of falling)
- 4-Stage Balance test (inability to hold first three stages for 10 seconds or more without assistive device indicates increased risk of falling)
  - Number of seconds with feet side by side
  - Number of seconds in semitandem stance
  - Number of seconds in tandem stance
  - Number of seconds standing on one foot
- Number of stands in 30-Second Chair Stand test
  - Below-average scores (number of stands) by age and sex:
    - 60 to 64 years: < 14 men, < 12 women
    - 65 to 69 years: < 12 men, < 11 women
    - 70 to 74 years: < 12 men, < 10 women
    - 75 to 79 years: < 11 men, < 10 women
    - 80 to 84 years: < 10 men, < 9 women
    - 85 to 89 years: < 8 men and women

Feet examination
Footwear
Neurologic examination
Cognitive examination (number of items recalled at three minutes)

Assessment
ICD-10 codes
- R26.2 for difficulty in walking, not elsewhere classified
- R26.81 for unsteadiness on feet
- R29.6 for repeated falls
- Z91.81 for history of falling

Plan for those at high risk of falling
Referral to a physical therapist for gait, strength, and balance training
Vitamin D_3 supplementation (minimum of 800 IU daily) with or without calcium
List of how medications were reviewed and modified
Referral to occupational therapist for home safety evaluation
Postural hypotension treatment
Referral to ophthalmologist or optometrist
Advice to wear single lens glasses for outdoor activities, walking, or climbing stairs
Referral to a podiatrist
Recommendation to wear footwear with a low heel and high surface contact area
Bone density scan (dual energy x-ray absorptiometry)
25-hydroxyvitamin D measurement
Osteoporosis treatment
Personal emergency response system
Complete blood count, chemistry panel, urinalysis, or chest radiography (if patient may have underlying acute or subacute illness)
List of patient education materials distributed (e.g., http://www.cdc.gov/steadi/patient.html, http://health.gov/dietaryguidelines/2015/guidelines/appendix-11/)
Follow-up visit scheduled for one month to encourage fall risk reduction behaviors, assess adherence, and address any barriers to the care plan

ICD-10 = International Classification of Diseases, *10th ed.*

Information from:

Centers for Disease Control and Prevention. STEADI materials for healthcare providers. http://www.cdc.gov/steadi/materials.html. Accessed May 5, 2016.

Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society. Summary of the updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. J Am Geriatr Soc. *2011;59(1):148-157.*