Falls are a major health problem for adults aged ≥65 years, resulting in fractures and head injuries, disability, loss of independence, and nursing home placement. Unintentional falls are the leading cause of injury-related death and hospitalization in this age group in New York City (NYC). Each year, NYC hospitals treat and release about 21,000 older adults in their emergency departments and admit another 16,000 for falls.

Older adults may fall because of changes that affect walking, coordination, and balance, medication side effects, poor vision, osteoporosis, environmental hazards, and diminished strength and reflexes (see Box). Risk for falls increases with the number of risk factors a patient has (see Box). Falls risk assessment and multifactorial prevention strategies are important in maintaining the independence and quality of life of older adults.

### Preventing Falls in Older Adults in the Community

- Be aware that falls are the leading cause of fatal and nonfatal injuries in adults aged ≥65 years.
- Routinely conduct falls risk screening and assessment of all patients aged ≥65 years.
- Recommend multifactorial falls-prevention strategies, including medication and environmental modification and increased physical activity.

### Independent Risk Factors for Falls in Older Adults

- Muscle weakness (upper or lower extremity)
- Previous falls
- Gait or balance impairment
- Medications
  - Use of ≥4 medications
  - Use of any psychoactive medications, eg, neuroleptics, benzodiazepines, antidepressants, sedative hypnotics, anxiolytics, antipsychotics
  - Class IA antiarrhythmics
  - Antiparkinson agents
  - Anticholinergics
  - Anticonvulsants
  - Muscle relaxants
  - Analgesics
- Strongest risk
  - Visual impairment
  - Depression
  - Dizziness or orthostasis
  - Functional limitations, activities of daily living disabilities
  - Age >80 years
  - Female
  - Low body mass index
  - Urinary incontinence
  - Cognitive impairment
  - Arthritis
  - Diabetes
  - Pain
  - Vestibular dysfunction
  - Osteoporosis
  - Parkinson’s disease
  - Cardiovascular conditions (eg, carotid sinus syndrome)
  - Home safety hazards
FALLS-RISK SCREENING AND ASSESSMENT

Assess all older patients’ risk for falls using history, physical examination, medication review, gait-balance screening, evaluation of functional limitations, and questions about home safety hazards (Figure). A complete evaluation may not be possible during one visit, so determine what assessments and interventions you can accomplish in the time you have with the patient.

Online training is available to help you improve your skills in assessing risk for falls and choosing the interventions most relevant to your patients. Familiarize yourself with community resources and specialists to whom you can refer patients who need further assessment and interventions (Resources).

Medication review. Polypharmacy and the use of psychoactive and certain other medications are a common risk factor for falls. Routinely conduct a “brown bag” review of all prescription and over-the-counter medicines including recent dosage changes, current dosages, and over-the-counter agents such as antihistamines, cough remedies, sleep aids (eg, Tylenol PM), supplements, and herbal remedies, since these can also increase risk for falls.

Gait-balance screening. Gait, balance, and mobility deficits also increase falls risk. Observe patients aged ≥65 years for signs of difficulty with walking or balance, and ask whether they have fallen in the past 12 months, how many times, and if they have difficulty with balance or walking. If no falls are reported and no problem with gait or balance is reported or seen, reassess periodically. If the patient reports either one fall or trouble with balance or walking, continue assessment using the brief Timed Get Up and Go Test. Patients who report 2 or more falls in a year or appear to be unsteady should be further assessed for orthostatic hypotension, vision deficits, and other risk factors, and referred to specialists and community resources that offer services for people with visual impairment and other needs (Resources).

Other functional deficits. Functional limitations can make older adults more prone to falls. Screen for muscle weakness of lower and upper extremities, hearing impairment, incontinence, and physical and instrumental activities of daily living (Resources—Age-Friendly Primary Care CHI).
Cognitive impairment and dementia. If you suspect cognitive impairment or dementia based on direct observation, patient report, or concerns of family or caregivers, screen with the Mini-Cog™ or Mini-Mental Status Exam (Resources). See “Age-Friendly Primary Care” CHI (Resources) for information on screening for cognitive impairment. A positive screen can be the result of mild cognitive impairment, Alzheimer’s disease, or other forms of dementia. Consider referring patients with positive dementia screens to a geriatrician, neurologist, psychologist, or psychiatrist for further evaluation.

Depression. Depression can also contribute to the risk for falls. Screen elderly patients annually with the 2-question Patient Health Questionnaire-2 (PHQ-2) or the Geriatric Depression Scale (www.stanford.edu/~yesavage/GDS.html).

See “Detecting and Treating Depression in Adults” CHI (Resources) for information on screening for and treating depression.

Home safety review. The home environment often needs to be modified to reduce the risk for falls and injury. Review potential home safety hazards with older patients who have fallen or have risk factors for falling (see Box at right). A nurse, trained medical assistant, or social worker can also review the home safety questionnaire with patients. When cognitive impairment is an issue, ask another informant to corroborate the information. Common hazards that should be addressed include clutter on floor, inadequate lighting, absence of bathtub grab bars or handrails on stairs, and loose rugs. Online training in recognition and modification of patients’ home hazards is available (Resources—Cornell-Weill).

FALLS-PREVENTION STRATEGIES

Strategies that address multiple risk factors are more effective in preventing falls in community-dwelling older adults than any single intervention. Depending on the patient’s risk factors, the strategy may include medication modification, exercise to improve strength and balance, assistive devices, and safety advice to modify home hazards. Following up to see that the interventions were implemented is critical to the strategy’s effectiveness.

Medication modification. Pay particular attention to medication reduction for patients taking psychoactive or 4 or more medications. After the “brown bag” review, withdraw unnecessary medications and, if possible, modify dosages of psychoactive and other classes of medications known to increase falls risk in the elderly (see Box on page 25). Alcohol and over-the-counter preparations for insomnia, colds, or allergies that contain diphenhydramine or doxylamine can also increase the risk for falls. Some herbs, such as kava kava and valerian, have additive sedative effects when combined with central nervous system depressants (eg, alcohol, benzodiazepines, opiates, barbiturates) or levodopa. Risk evaluation is more of an art than a science, and it can be challenging to weigh the benefits and harms of medications to reduce falls risk without compromising health conditions. Recommend a vitamin D supplement of at least 800 IU/day to patients with vitamin D deficiency and consider vitamin D supplementation for patients with suspected vitamin D deficiency or who are otherwise at increased risk for falls.

Gait-balance interventions. Refer older patients who have not fallen and are not homebound to community-based programs
for exercises that improve gait, balance, and muscle strength (Resources). Caution patients against walking barefoot or in socks, loose-fitting shoes, or slippers with worn soles, and examine feet for toe and foot deformities.

Even if the patient has not fallen, under Medicare and Medicaid you can prescribe assistive devices and refer for physical therapy if medically necessary. See Boxes above and on page 29 for information on selecting and ordering assistive devices, and at right for patient instructions in the proper use of a cane. Consider referring ambulatory patients to an office-based physical or occupational therapist for proper fitting and training in use of the device, and for individually tailored strength/gait/balance training. Medicare and Medicaid will cover these for homebound patients when the services are provided by a certified home health agency (CHHA).

**Home safety modification.** Frail elderly adults who received home safety assessment and modification and training in the use of assistive devices had 31% fewer falls than a comparable group that did not receive these interventions. Recommend home safety modifications for patients based on results of the home safety questionnaire, or refer high-risk patients to a physical or occupational therapist for home safety assessment and modification (Resources). Medicare and Medicaid cover home safety assessments by a CHHA for patients who are receiving additional nursing or physical therapy services such as therapy for gait abnormalities and medication reconciliation or management.

NYC landlords must install grab bars in disabled adults’ bathtubs upon request, but do not have to pay for them. Financial assistance may be available from private organizations and the Veterans Administration. The NYC Housing Authority will install free grab bars for physician-
designated disabled seniors in public housing. Seniors living in private housing may be eligible for free grab bars from the Metropolitan Council (Resources).

**Referrals.** Consider referring patients who have comorbidities that increase falls risk, such as vision deficits, orthostatic hypotension, and neurologic and cardiovascular disorders, or who experience unexplained recurrent falls, to specialists. When necessary, refer patients to CHHAs for support services to help them age in place at home (Resources—Medicare Home Health Agencies).

**SUMMARY**

Multifactorial falls risk assessment and interventions offer the best chance of reducing older patients’ risk for falls, helping to prevent injury, disability, and nursing home placement. Given time constraints and conflicting priorities, primary care providers must decide which risk factors they can reasonably target for assessment and intervention over several routine office visits, referring patients to community-based groups and specialists where necessary. ◆

---

**ORDERING ASSISTIVE DEVICES**

Indications for assistive devices include loss of balance; history of falls; gait abnormalities such as asymmetry; decreased foot clearance, gait velocity, and step length; and increased or decreased step width.

**Through Medicare:**
- Medicare will pay for assistive devices every 3 years.
- Physicians/nurse practitioners/physician assistants must write prescriptions that include:
  - Diagnosis and specified equipment on prescription
  - Medical necessity documented in chart
  - For walkers, primary use must be inside the home
- The patient chooses which medical supply store, certified home health agency, or pharmacy will fill the prescription for the durable medical equipment and picks it up from the equipment provider, who will fit the device and teach proper use.
- Physicians/nurse practitioners/physician assistants review fittings and instructions for use during the patient’s next office visit (see Box, page 28). Refer patients to physical or occupational therapists for proper fitting and usage if needed.

**Through Medicaid:**
- Prior approval for Medicaid-only patients is required.
- Provider writes prescription and signs fiscal order.
- No copay for durable medical equipment (eg, walkers); small copay for supplies (eg, canes).

---

**RESOURCES**

**For Providers**

**Falls-Prevention Guidelines**

**Falls-Prevention Training Programs**
- Consortium of New York Geriatrics Education Centers programs, all of which include sections on falls prevention: www.nygec.org/index.cfm?section_id+10. 718-584-9000, x3850 or 3836
- Mount Sinai School of Medicine, Physician Mini-Fellowships: Geriatrics for the Non-Geriatrician: www.mssm.edu/geriatrics/education/mini-fellowship/index.shtml. 212-241-3624

**Falls-Prevention Tools**
- Cornell University-Weill Medical College. Environmental geriatrics (online home safety program): www.environmentalgeriatrics.org
- National Institute on Aging. AgePage. Free print brochures for waiting room on fall and fracture prevention and physical activity and exercise can be ordered at www.nia.nih.gov/HealthInformation/Publications/falls.htm. 800-222-2225
RESOURCES (CONTINUED)

- The Portal of Geriatric Online Education: www.pogoe.org
- US Department of Health & Human Services. Home Health Compare (list of certified Medicare home health agencies in New York City):
  www.medicare.gov/HHCompare/Home.asp. Call 1-800-MEDICARE (1-800-633-4227) for assistance 24 hours a day, 7 days a week. English and Spanish-speaking customer service representatives can answer questions about the Original Medicare Plan and provide up-to-date information regarding health plans available in your area.

Mental Status Assessments

- Mini-Cog™ assessment instrument for dementia: www.hospitalmedicine.org/geriresource/toolbox/mini_cog.htm
- Mini-Mental Status Examination (MMSE), available for purchase at www.minimental.com

For Patients

Community Centers for Exercise/Gait/Balance/Strength Training:

- Mount Sinai-Martha Stewart Center for Living at Mount Sinai Medical Center: www.mountsinai.org/patient-care/service-areas/geriatrics-and-aging/areas-of-care/martha-stewart-center-for-living. 212-659-8552
- NYC Parks Indoor Recreation Centers: www.nycgovparks.org/facilities/recreationcenters or call 311
- NYC Parks Events Calendar (includes walking programs): www.nycgovparks.org/events/all or call 311
- NYC YMCA Active Older Adults Program: www.ymcanyc.org/ymca-of-greater-new-york/adults/healthy-lifestyles/active-older-adults-aoa. 212-912-2317
- NYC Department for the Aging community senior centers, including center programs at NYC Housing Authority sites: www.nyc.gov/html/dfta/html/senior/senior.shtml to find a conveniently located senior center or call 311. To find whether an NYC Housing Authority building has a senior center: www.nyc.gov/html/nycha/html/ccschtml/senior-centers.shtml

Services for People With Visual Impairment

- The Jewish Guild for the Blind: www.jgb.org/programs.asp. 212-769-6200
- Lighthouse International: www.lighthouse.org. 212-821-9470
- VISIONS/Service for the Blind and Visually Impaired: www.visionsvcb.org

Preventing Falls

- Centers for Disease Control and Prevention. 800-232-4636
- Metropolitan Council Project Metropair (free grab bars and minor repair services for low-income seniors aged ≥60 years and/or disabled): homeservices@metcouncil.org. 212-453-9525

Post-Falls

- NYC Medicare/Medicaid-Certified Home Care Agencies: www.medicare.gov. 1-800-MEDICARE
- American Society on Aging: Exercise for life: www.asaging.org/CDC/module6/home.cfm. 800-537-9728 x635
REFERENCES


