### FALLS

**AGS Geriatrics Evaluation and Management Tools (Geriatrics E&M Tools)** support clinicians and systems that are caring for older adults with common geriatric conditions.

From the AMERICAN GERIATRICS SOCIETY

Geriatrics Evaluation & Management Tools

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### DEFINITION
- Coming to rest inadvertently on the ground or at a lower level
- Falls literature usually excludes falls associated with loss of consciousness (syncope).

### BACKGROUND
- One of the most common geriatric syndromes
- Complications resulting from falls are the leading cause of death from injury in adults ≥65 years old.
- 5%–10% of falls in older adults result in fracture or serious injury.
- Causes are multifactorial.
- Falls are associated with:
  - Increased use of medical services
  - Decline in functional status
  - Nursing home placement

### SCREENING
- All older adults should be asked annually about falls in the past year (previous falls are a strong risk factor for future falls).
- Older adults with a single fall in the past 12 months should be evaluated for gait and balance problems.
- Older adults with two or more falls in the past 12 months or with gait or balance abnormalities should undergo a multifactorial falls risk assessment (ie, thorough fall history and physical examination).

### HISTORY OF PRESENT ILLNESS
- Circumstances of fall
  - Symptoms at the time of the fall (lightheadedness, imbalance, dizziness)
  - Frequency of falls
  - Injuries
  - Activity at the time of the fall
  - Location of the fall
  - Potential contributing environmental factors (lighting, floor coverings, thresholds, furniture, etc)
- Mobility difficulties
- Use of assistive devices
- Ability to perform activities of daily living
- Exclude syncope or seizure

### PAST MEDICAL HISTORY/REVIEW OF SYSTEMS
- Presence of conditions associated with falls or fall-related injuries:
  - Osteoarthritis
  - Osteoporosis
  - Vision loss
  - Motor weakness
  - Cognitive impairment
  - Delirium
  - Urinary incontinence
  - Cardiovascular disease
  - Cerebrovascular disease
  - Diabetes mellitus
  - Seizure disorder
  - Neurologic disorders (neuropathy, Parkinson disease, normal-pressure hydrocephalus)
  - Vertigo
  - Hypovitaminosis D

### SOCIAL HISTORY
- Alcohol intake
- Social support and supervision

### MEDICATIONS
- Thorough evaluation of medications that can contribute to falls (including over-the-counter medications):
  - Anticholinergics
  - Anticonvulsants
  - Antidepressants
  - Antihistamines
  - Antihypertensives
  - Antipsychotics
  - Benzodiazepines
  - Diuretics
  - Insulin and oral hypoglycemics
  - Narcotics
  - Sedative hypnotics
  - Systemic glucocorticoids

### PHYSICAL EXAMINATION
- Comprehensive physical examination with focus on:
  - Orthostatic vitals (orthostatic hypotension = drop in systolic blood pressure ≥20 mmHg [or ≥20%] with or without symptoms, either immediately or within 3 min of rising from lying to standing)
  - Cognitive assessment
  - Eye examination if visual complaints
  - Cardiovascular examination, including heart rate and rhythm
  - Integrated musculoskeletal function test such as:
    - Timed Up and Go test (can be performed with or without timing)
    - Functional Reach test
  - Neurologic evaluation, including reflexes, focal deficits, neuropathy, tremor, rigidity
  - Feet and footwear examination
**DIAGNOSTIC TESTS**

- Not every test is required; a thorough history and physical examination should be used to determine appropriate testing.
- Basic metabolic profile (dehydration, hypoglycemia)
- Complete blood count (infection, anemia)
- Vitamins D and B₁₂ levels
- Bone densitometry if indicated (see AGS Geriatrics Evaluation & Management: Osteoporosis)
- Based on results of history and physical, may consider:
  - Electrocardiography and echocardiography (for those with cardiac conditions believed to contribute to the maintenance of blood flow to the brain)
  - Neuroimaging (if head injury, new focal neurologic finding on exam, CNS process suspected)
  - Spinal imaging (in patients with abnormal gait, neuralgia examination, or lower-extremity spasticity or hyperreflexia) to exclude cervical spondylosis or lumbar stenosis

**MANAGEMENT STRATEGIES (COMMUNITY-DWELLING OLDER ADULTS)**

- Minimize medications.
  - Review medication profile and reduce number and dosage of all medications, as possible.
  - Monitor response to medications and to dosage changes.
- Optimize treatment of underlying medical conditions that can contribute to falls.
- Supplement vitamin D.
  - Ensure patient receives recommended dosage of vitamin D through sunlight, diet, or supplementation.
  - Age 51–70: vitamin D 600 IU/day
  - Age >70: vitamin D 800 IU/day
  - Exact mechanism is unknown; it is believed that vitamin D may reduce falls by increasing muscle strength and decreasing body sway; vitamin D supplementation also improves bone mineral density and reduces the risk of vertebral and nonvertebral fractures.
- Treat vision impairment.
  - Insufficient evidence to recommend for or against inclusion of visual interventions
  - Initial cataract surgery decreases the rate of falls (subsequent surgeries have no effect on falls)
  - Avoid wearing multifocal lenses while walking, particularly up stairs
- Manage postural hypotension.
  - Educate patient to sit for 2–3 minutes before transferring from lying to standing.
  - Educate patient to clench hands or pump ankles before standing or when feeling lightheaded.
  - Prescribe pressure stockings.
  - If appropriate, liberalize salt intake and optimize hydration.
  - If appropriate, add 1 cup of caffeinated coffee for postprandial hypotension (may interfere with sleep and potentially worsen incontinence).
  - Consider medications to increase blood pressure (contraindicated in severe hypertension, congestive heart failure, hypokalemia)
    - Midodrine 2.5–10 mg 3 times daily (4 hours apart)
    - Fludrocortisone 0.1 mg every 8–24 hours
- Initiate an individually tailored exercise program.
  - Exercise programs incorporating more than one type of exercise (eg, gait training, balance, strengthening) are effective in reducing the rate of falls.
  - Tai Chi, which combines strengthening and balance measures, is effective in reducing the risk of falls.
- Manage foot and footwear problems.
  - Recommend proper footwear (good fit, non-slip, low heel height, large surface contact area).
- Manage heart rate and rhythm abnormalities.
  - Studies are inconclusive regarding reduction of fall rate among older adults with carotid sinus hypersensitivity treated with a pacemaker.
- Refer to physical therapy for:
  - Comprehensive evaluation and rehabilitation of impaired gait, balance, or transfer skills
  - Evaluation for and training in use of assistive devices
  - Assistive device review for patients who have fallen while using devices
- Recommend a home safety evaluation (often done by home health agency).
  - Potential environmental modifications
    - Improve home lighting
    - Remove or secure rugs and floor mats
    - Place electrical cords against the wall
    - Lower bed
  - Potential medical equipment (may need to be purchased by patient): toilet riser, bedside commode, urinal, shower chair, grab bars, railings, fall alert buttons (call bell, bed alarm)
  - Consider need for increased assistance/supervision from caregivers.