

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

DEFINITION	<ul style="list-style-type: none">▪ Coming to rest inadvertently on the ground or at a lower level▪ Falls literature usually excludes falls associated with loss of consciousness (syncope).																		
BACKGROUND	<ul style="list-style-type: none">▪ 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:<ul style="list-style-type: none">▪ Increased use of medical services▪ Decline in functional status▪ Nursing home placement																		
SCREENING	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ Circumstances of fall<ul style="list-style-type: none">▪ 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	<p>Presence of conditions associated with falls or fall-related injuries:</p> <table border="0"><tr><td>▪ Osteoarthritis</td><td>▪ Delirium</td><td>▪ Neurologic disorders (neuropathy, Parkinson disease, normal-pressure hydrocephalus)</td></tr><tr><td>▪ Osteoporosis</td><td>▪ Urinary incontinence</td><td>▪ Vertigo</td></tr><tr><td>▪ Vision loss</td><td>▪ Cardiovascular disease</td><td>▪ Hypovitaminosis D</td></tr><tr><td>▪ Motor weakness</td><td>▪ Cerebrovascular disease</td><td></td></tr><tr><td>▪ Cognitive impairment</td><td>▪ Diabetes mellitus</td><td></td></tr><tr><td></td><td>▪ Seizure disorder</td><td></td></tr></table>	▪ Osteoarthritis	▪ Delirium	▪ Neurologic disorders (neuropathy, Parkinson disease, normal-pressure hydrocephalus)	▪ Osteoporosis	▪ Urinary incontinence	▪ Vertigo	▪ Vision loss	▪ Cardiovascular disease	▪ Hypovitaminosis D	▪ Motor weakness	▪ Cerebrovascular disease		▪ Cognitive impairment	▪ Diabetes mellitus			▪ Seizure disorder	
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SOCIAL HISTORY	<ul style="list-style-type: none">▪ Alcohol intake▪ Social support and supervision																		
MEDICATIONS	<p>Thorough evaluation of medications that can contribute to falls (including over-the-counter medications):</p> <table border="0"><tr><td>▪ Anticholinergics</td><td>▪ Antihypertensives</td><td>▪ Insulin and oral hypoglycemics</td></tr><tr><td>▪ Anticonvulsants</td><td>▪ Antipsychotics</td><td>▪ Narcotics</td></tr><tr><td>▪ Antidepressants</td><td>▪ Benzodiazepines</td><td>▪ Sedative hypnotics</td></tr><tr><td>▪ Antihistamines</td><td>▪ Diuretics</td><td>▪ Systemic glucocorticoids</td></tr></table>	▪ Anticholinergics	▪ Antihypertensives	▪ Insulin and oral hypoglycemics	▪ Anticonvulsants	▪ Antipsychotics	▪ Narcotics	▪ Antidepressants	▪ Benzodiazepines	▪ Sedative hypnotics	▪ Antihistamines	▪ Diuretics	▪ Systemic glucocorticoids						
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PHYSICAL EXAMINATION	<p>Comprehensive physical examination with focus on:</p> <ul style="list-style-type: none">▪ Orthostatic vitals (orthostatic hypotension = drop in systolic blood pressure ≥ 20 mmHg [or $\geq 20\%$] 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:<ul style="list-style-type: none">▪ 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
 - Secure bathmats
 - Minimize clutter
 - Rearrange furniture
 - 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.