

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 most often multifactorial. Falls are associated with: <ul style="list-style-type: none"> Increased use of medical services Decline in functional status Nursing home placement Increased mortality 			
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> <ul style="list-style-type: none"> Osteoarthritis Osteoporosis Vision loss Motor weakness Cognitive impairment Depression </td> <td> <ul style="list-style-type: none"> Delirium Urinary incontinence Cardiovascular disease Cerebrovascular disease Diabetes mellitus Widespread pain </td> <td> <ul style="list-style-type: none"> Neurologic disorders (neuropathy, Parkinson disease, normal-pressure hydrocephalus) Vertigo Hypovitaminosis D </td> </tr> </table>	<ul style="list-style-type: none"> Osteoarthritis Osteoporosis Vision loss Motor weakness Cognitive impairment Depression 	<ul style="list-style-type: none"> Delirium Urinary incontinence Cardiovascular disease Cerebrovascular disease Diabetes mellitus Widespread pain 	<ul style="list-style-type: none"> Neurologic disorders (neuropathy, Parkinson disease, normal-pressure hydrocephalus) Vertigo Hypovitaminosis D
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SOCIAL HISTORY	<ul style="list-style-type: none"> Alcohol intake Consider possibility of abuse 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> <ul style="list-style-type: none"> Acetylcholinesterase inhibitors Antiarrhythmics Anticholinergics Anticonvulsants Antidepressants </td> <td> <ul style="list-style-type: none"> Antihistamines Antihypertensives Antipsychotics Benzodiazepines Diuretics </td> <td> <ul style="list-style-type: none"> Insulin and oral hypoglycemics Narcotics NSAIDs Sedative hypnotics Systemic glucocorticoids </td> </tr> </table>	<ul style="list-style-type: none"> Acetylcholinesterase inhibitors Antiarrhythmics Anticholinergics Anticonvulsants Antidepressants 	<ul style="list-style-type: none"> Antihistamines Antihypertensives Antipsychotics Benzodiazepines Diuretics 	<ul style="list-style-type: none"> Insulin and oral hypoglycemics Narcotics NSAIDs Sedative hypnotics 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); normal is < 12 seconds Neurologic evaluation, including reflexes, focal deficits, neuropathy, tremor, rigidity Feet and footwear examination 			

DIAGNOSTIC TESTS

- Based on results of history and physical, may consider:
 - Basic metabolic profile (dehydration, hypoglycemia)
 - Complete blood count (infection, anemia)
 - Vitamins D and B₁₂ levels
 - 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
 - Bone densitometry (see AGS Geriatrics Evaluation & Management: Osteoporosis)

MANAGEMENT STRATEGIES (COMMUNITY-DWELLING OLDER ADULTS)

- Resources to integrate fall reduction into clinical practice are available at <https://www.cdc.gov/steady/materials.html>.
- 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.
- 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 and additional traction on boots when walking on icy surfaces).
- 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.