



**Stop a Fall – Save a Life:
Integrating Fall Prevention
into Practice**

Learning objectives

- 1 Describe why medical providers should focus on fall prevention for older adults in their practice
- 2 Explain some reasons why older adults are at risk for falls
- 3 List some diagnostic options for fall screening and assessment
- 4 Identify some ways to effectively integrate fall screening and assessment into a medical practice workflow



Welcome from Blue Shield



Eddy Ang, MD
Medical Director
Blue Shield of California



Two “Stop a Fall – Save a Life” fall prevention resources for you and your staff

Click the links below or use the links provided in our follow up to this webinar.



Integrating fall prevention into practice eLearning module

An interactive eLearning module designed specifically for your front and back office staff. In about 10 minutes, your employees can get up-to-date on why fall prevention matters and how they can participate in decreasing fall risk in your patient population.

Fall prevention resource list

A “curated” list organized so you can quickly access fall assessment and prevention information. Some links are for you and your staff. Others you can share with your patients to take home in their care planning.



Introducing Dr. Homeier



Diana Homeier, MD

Associate Professor of Clinical Family Medicine
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Keck School of Medicine of USC

Medical Director,

LAC+USC Geriatric Clinic and Adult Protection Team



Stop a Fall – Save a Life: Integrating Fall Prevention into Practice

Diana Homeier, MD

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Director, Geriatric Fellowship Program, LAC+USC Medical Center



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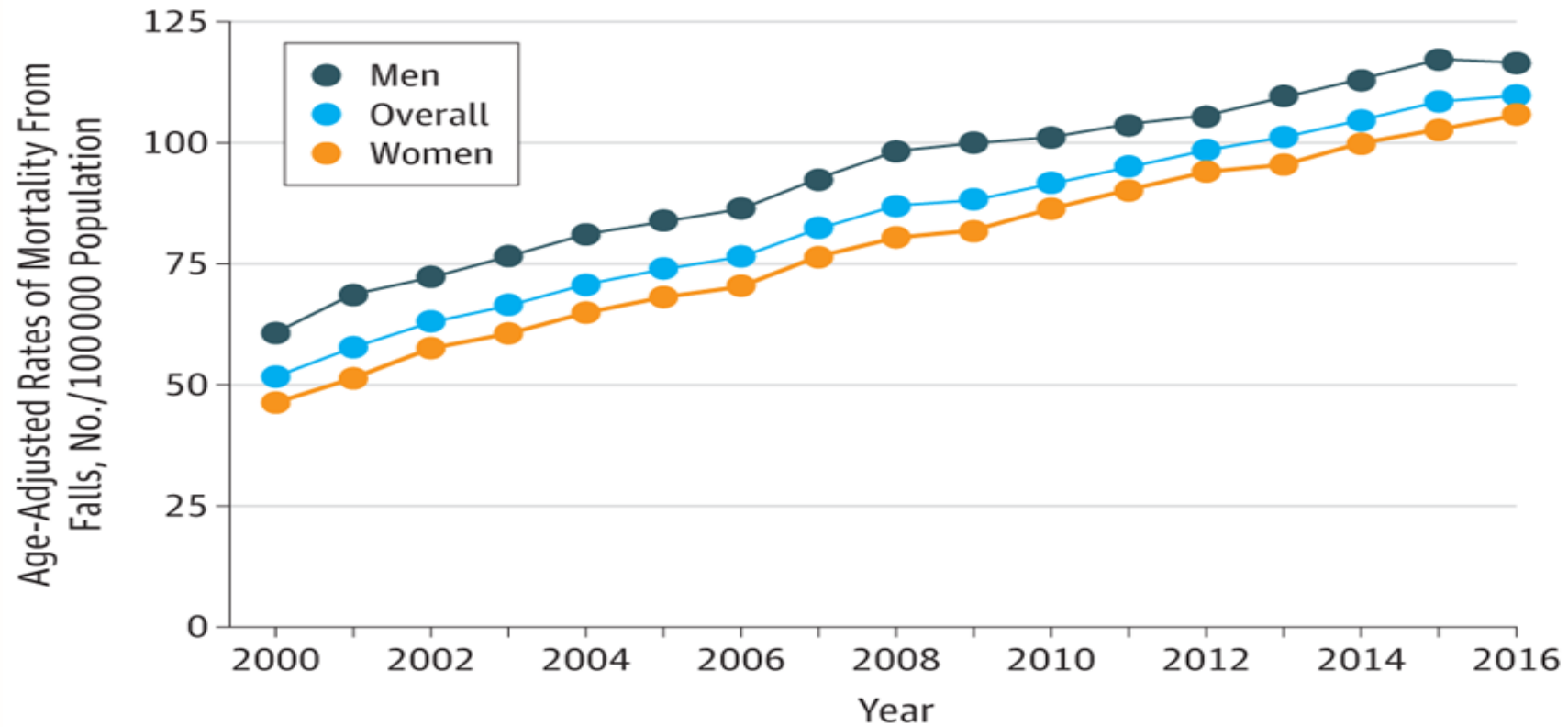
Case study – Mrs. M

- **82 year old woman**
- Congestive heart failure, macular degeneration and hearing impairment.
- Sees you after have a fall that resulted in an ER visit and fractured wrist.
- **What happened, in her words:**
 - Woke at 4:00 a.m.
 - Decided to take diphenhydramine (Benadryl) to help her fall back asleep.
 - Also took daily heart medications (metoprolol, lisinopril, furosemide and isosorbide) since she was awake.
 - Woke again at 5:30 a.m. to use the restroom. She felt dizzy when she stood up from the toilet, then fell, landing on an outstretched hand.



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Fall mortality is increasing



Mortality From Falls...2000-2016
JAMA June 4, 2019, Volume 321, Number 21



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A fall is defined as...

Unintentional change in position that would not occur in an otherwise fit individual.



Falls are common

- Every second of every day an older adult in the US will fall
- 30% of **community-dwelling** elderly (50% of those over 80) fall each year
- High morbidity, mortality, and service use
- Multiple causes and risk factors
- Potentially preventable



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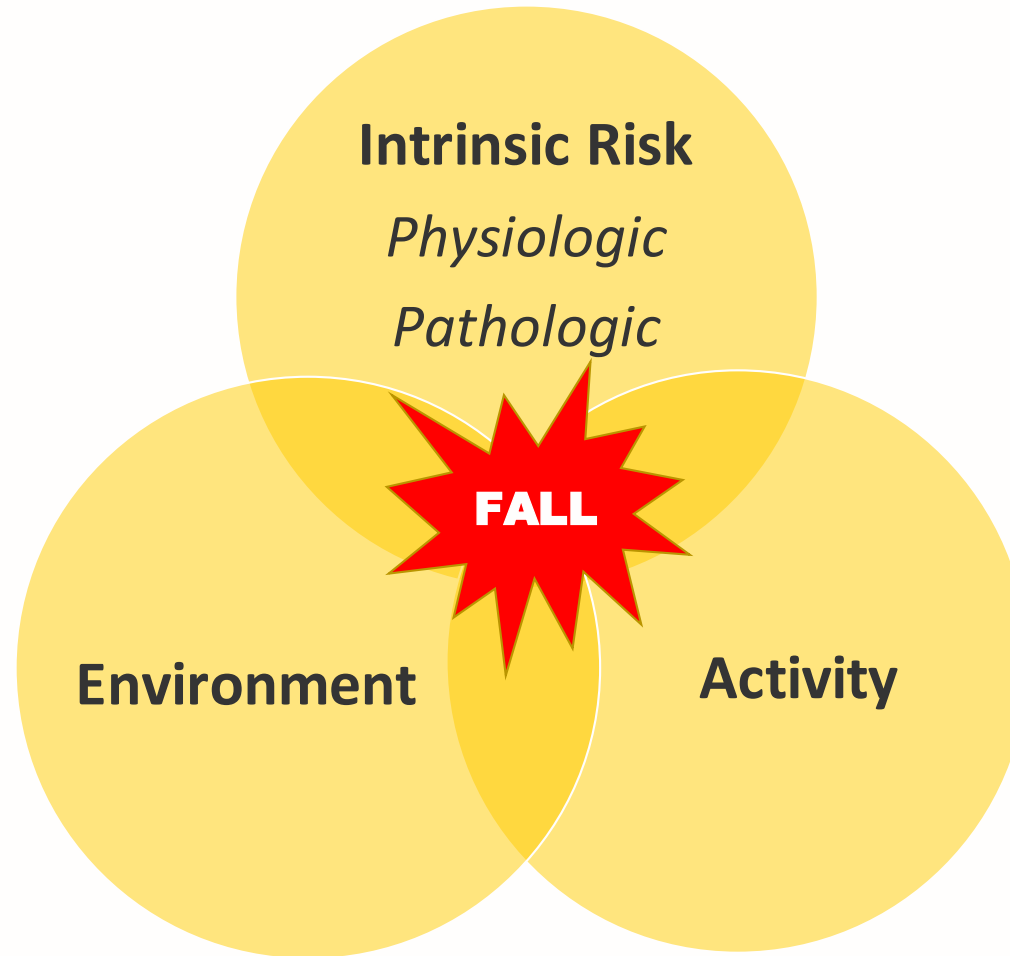
Falls are very dangerous for older adults

- Approximately 5% of elderly who fall need hospitalization.
- An estimated 5% of falls result in a fracture; less than 1% result in a hip fracture.
- Of those admitted to a hospital after a fall, only about half will be alive one year later.
- Women are more likely to suffer a serious injury:
Men are more likely to die after a fall.

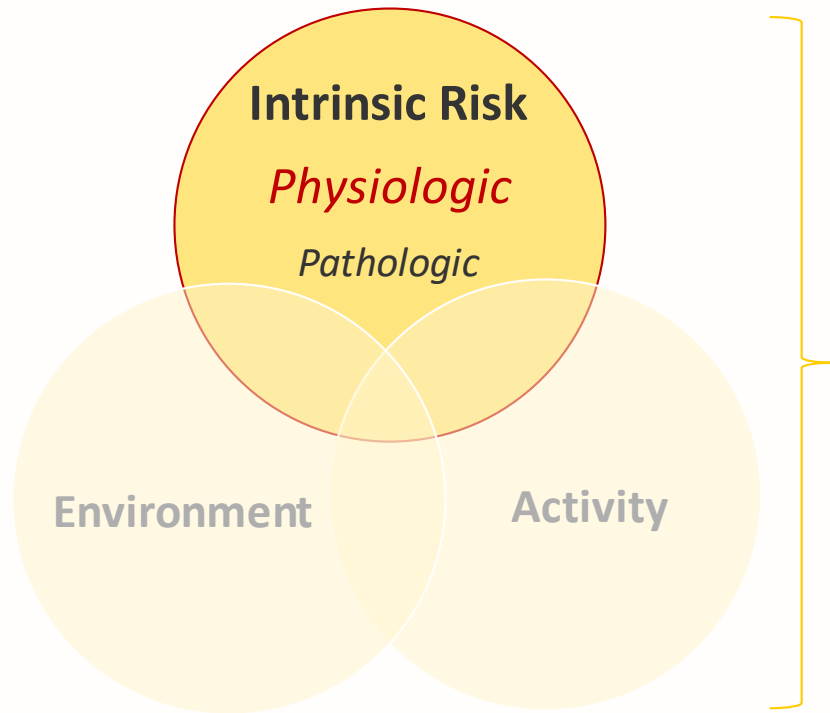


Mrs. M suffered a wrist fracture.

Causes of falls in elderly are multifactorial

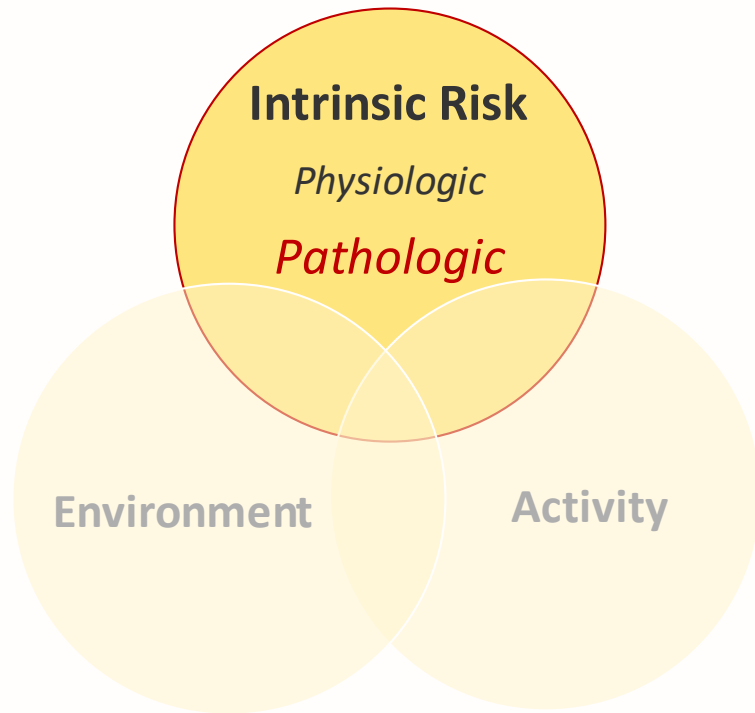


Physiologic risk factors



- Alterations in gait and balance
 - Muscle weakness
 - Sensory loss
 - Cerebral microvascular disease
 - Peripheral neuropathy
- Abnormalities in blood pressure (BP) regulation
 - Reduced baroreflex sensitivity
 - Decreased cerebral blood flow
 - Decreased diastolic filling
 - Vascular stiffness

Disease risk factors

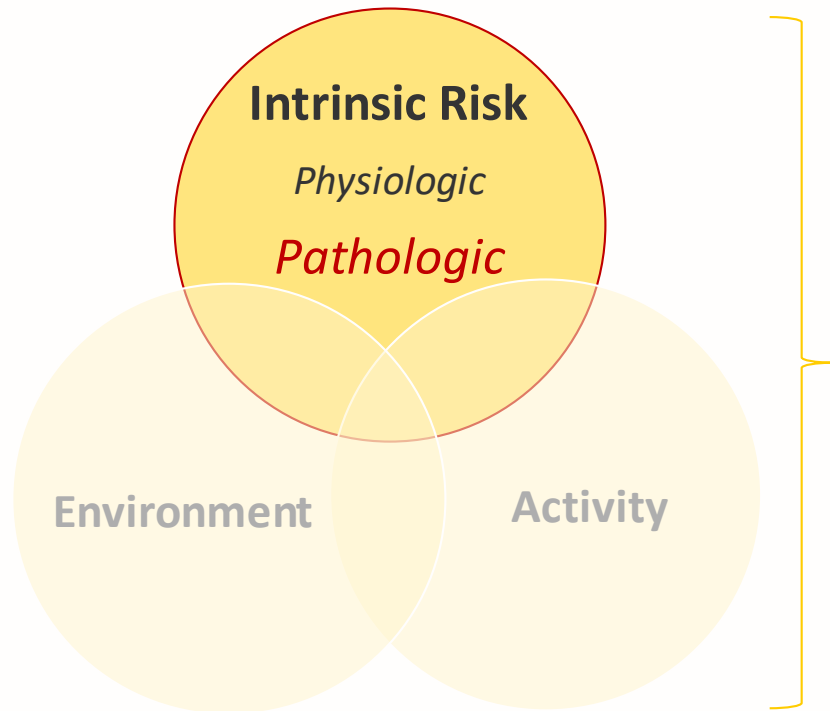


- Sensory deficits
 - Cataracts
 - Hearing loss
 - Peripheral neuropathy
- Orthopedic
 - Arthritis
 - Spinal stenosis
- Cardiovascular
 - Arrhythmia
 - Valvular disease
 - Hypotension-postprandial, postural
 - Carotid sinus syndrome
- Neuromotor
 - Stroke
 - Parkinson's Disease
 - Depression
 - Sciatica
 - Myopathy
 - NPH
- Foot problems



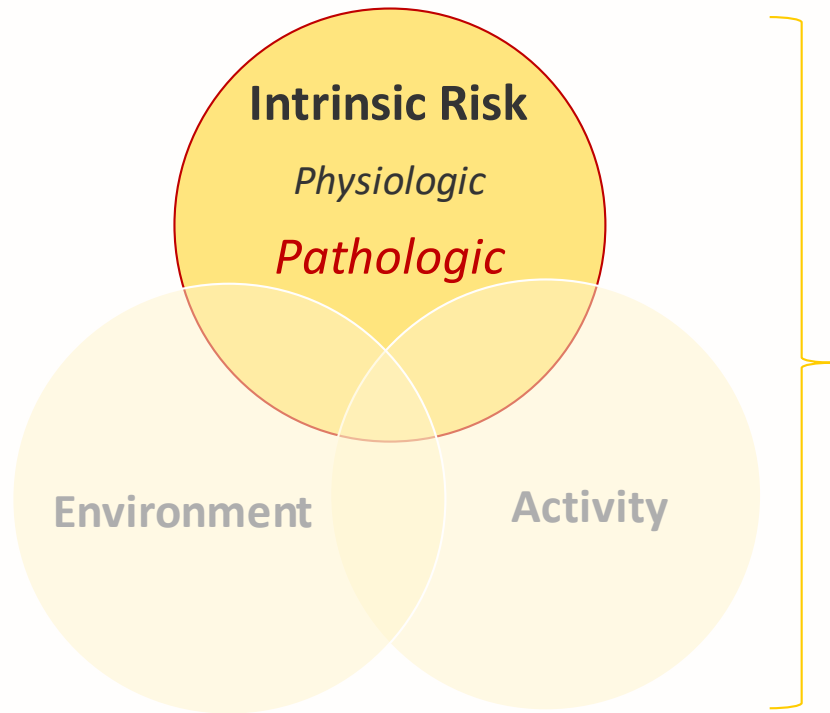
Mrs. M has CHF, macular degeneration and hearing loss.

Acute illness



- Non-specific presentation of disease is an important aspect of geriatric medicine.
- A fall may be the presenting feature of an acute illness in an elderly patient.

Medications and falls



- CNS active agents
 - Benzodiazepines, sedative-hypnotics and antipsychotics
 - Both tricyclic antidepressants and SSRIs
- Cardiovascular
 - Any drug which has the potential to cause hypotension or orthostasis
- Anticholinergics
 - Incontinence agents, antihistamines, muscle relaxants
- Polypharmacy
 - Risk increases with the number of medications



Leipzig et al JAGS 1999
Hartikainen et al J Geront 2007

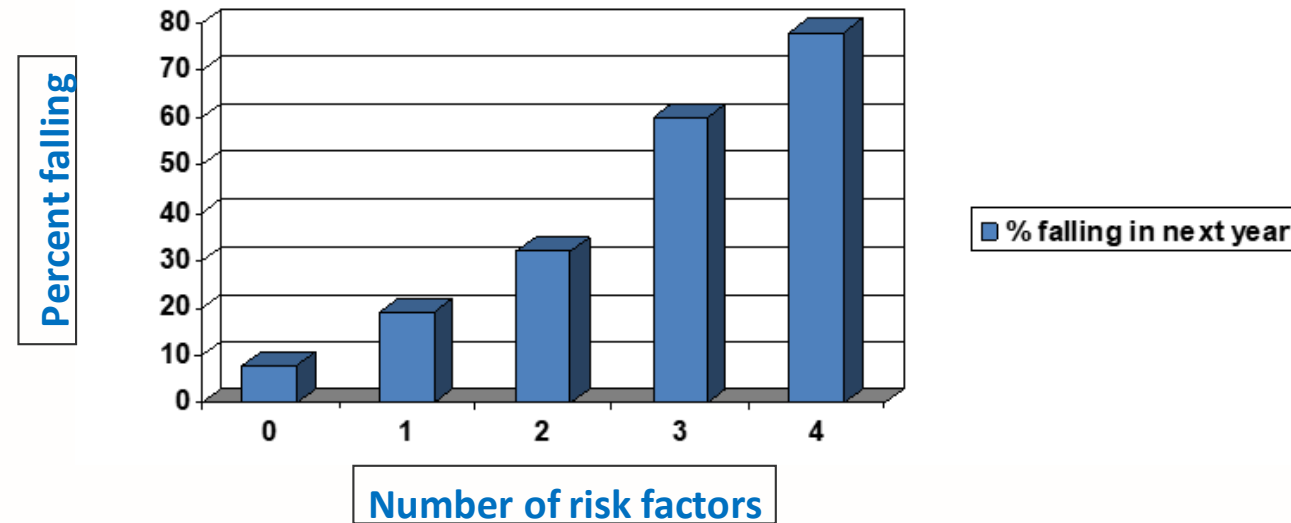


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Risk factors and falls

- Increased number of risk factors → increased risk of fall
- Common risk factors: Sedatives, cognitive impairment, lower extremity disability, abnormal balance/gait, foot problems



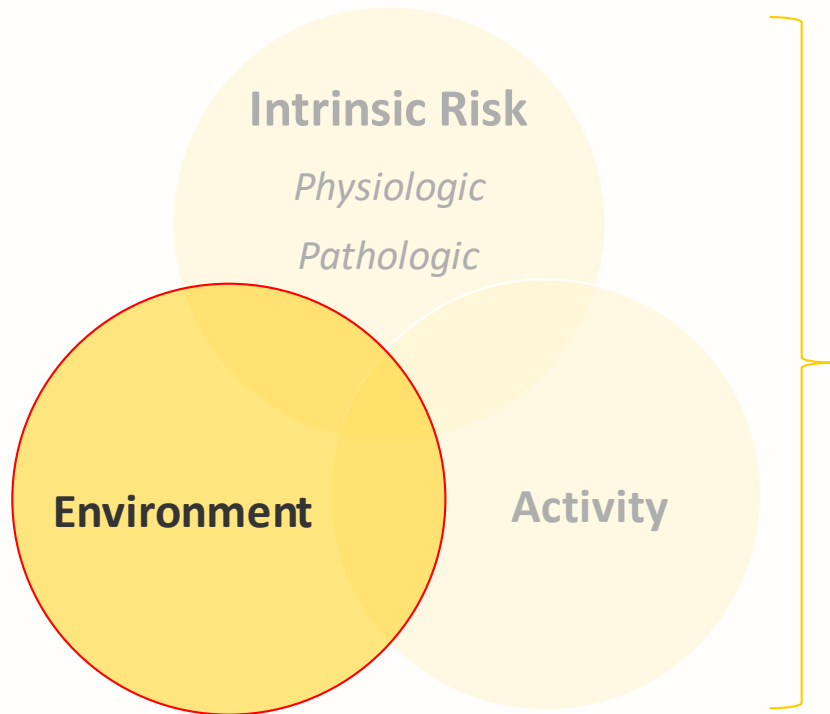
Tinetti NEJM, 1988; Prospective study 332 subjects 75 and older



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Environmental factors



- Poor lighting
- Low or elevated bed heights
- Low toilet seats
- Upended carpet or rug edges or loose rugs
- Uneven sidewalks or curb edges
- Highly polished or wet floors, and icy walkways
- Stairs
- Poor fitting shoes



Screening for falls

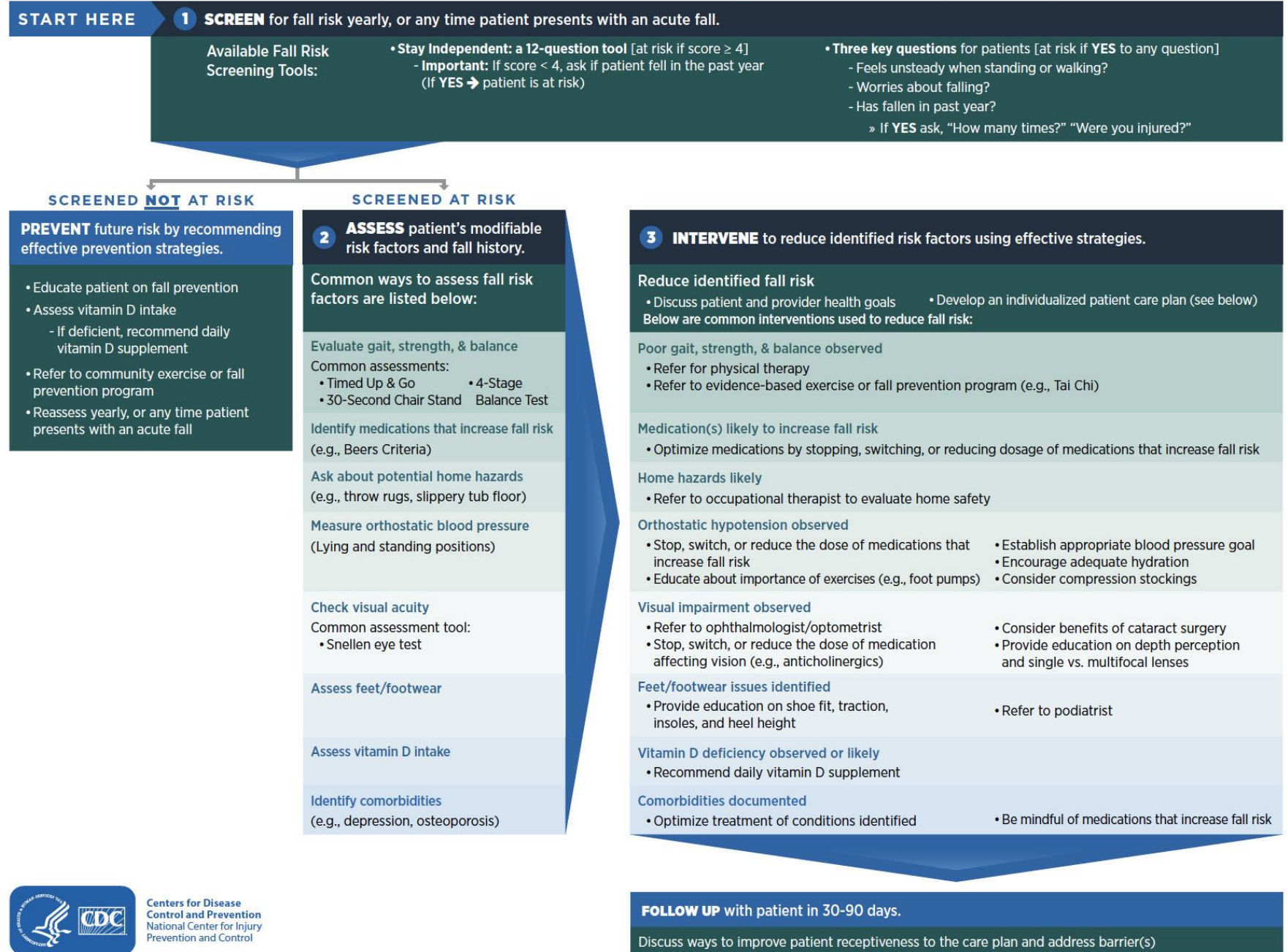
- Falls are a commonly underreported problem in the elderly.
- Clinicians should include asking about falls yearly (AGS, AAOS).
- Elderly persons may be reluctant to disclose a fall because they want to:
 - Avoid an image of frailty
 - Preserve their autonomy
 - Avert testing or institutionalization



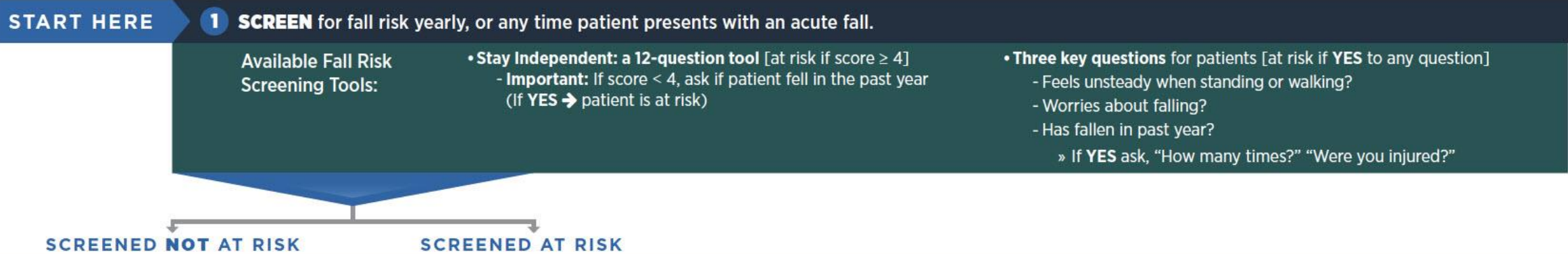
STEADI Algorithm

for fall screening, assessment, and intervention among community-dwelling adults 65 years and older

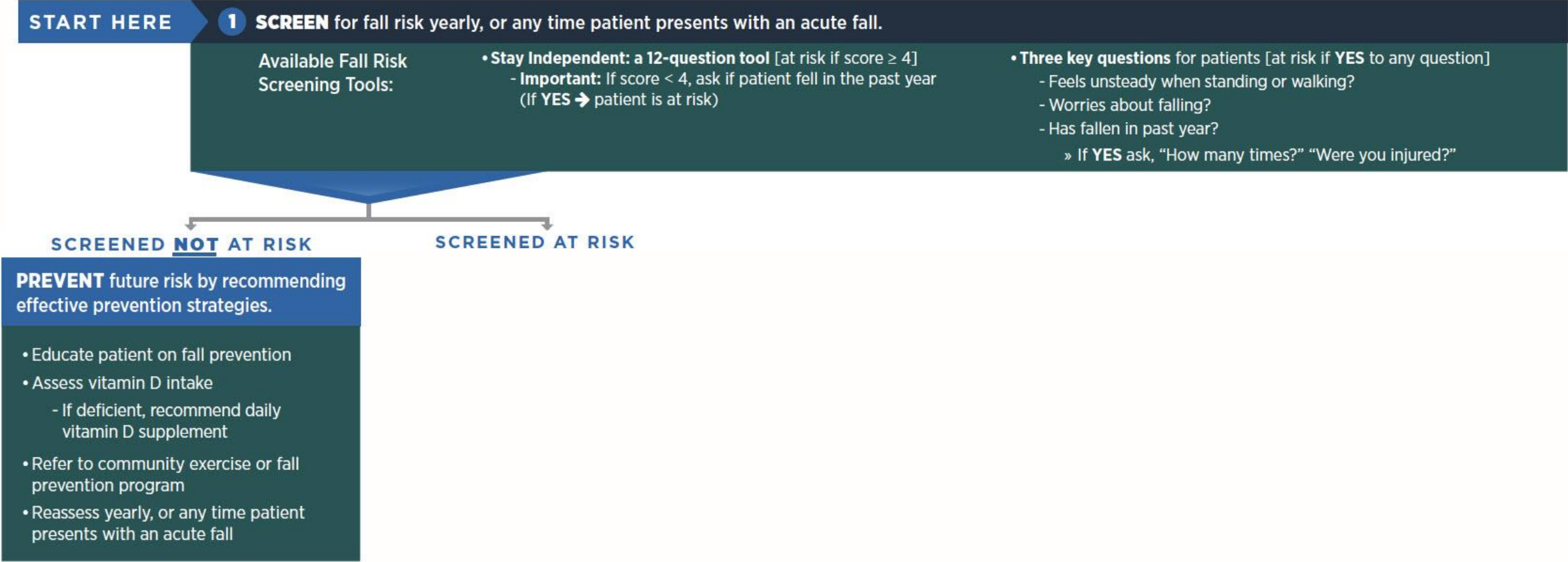
[STEADI Algorithm document](#)



STEADI Algorithm: Step 1 – SCREEN for risk of falls



STEADI Algorithm: If not at risk for falls – PREVENT

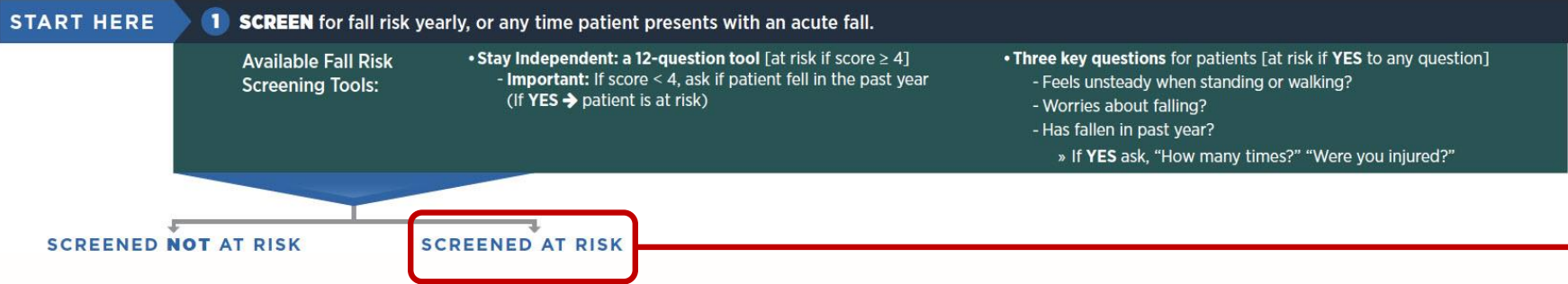


What kind of exercise prevents falls?



- Supervised individual and group classes
- Physical therapy (outpatient or home PT)
- Gait, balance, and functional training
 - Resistance for muscle strengthening
 - Frequency of three sessions a week x 12 months
- Tai Chi Chuan

STEADI Algorithm: At risk – ASSESS risk factors and fall history



- 2 ASSESS** patient's modifiable risk factors and fall history.
- Common ways to assess fall risk factors are listed below:
- Evaluate gait, strength, & balance
 - Common assessments:
 - Timed Up & Go
 - 30-Second Chair Stand
 - 4-Stage Balance Test
 - Identify medications that increase fall risk (e.g., Beers Criteria)
 - Ask about potential home hazards (e.g., throw rugs, slippery tub floor)
 - Measure orthostatic blood pressure (Lying and standing positions)
 - Check visual acuity
 - Common assessment tool:
 - Snellen eye test
 - Assess feet/footwear
 - Assess vitamin D intake
 - Identify comorbidities (e.g., depression, osteoporosis)



Mrs. M: Review and assess...



- Medications/PMHx
- Gait/balance
- Home fall hazards checklist
- Orthostatic vitals
- Visual acuity
- Feet/footwear
- Vitamin D intake

Timed Up & Go (TUG) Test

[CDC Timed Up & Go \(TUG\) Test demonstration](#)

ASSESSMENT

Timed Up & Go (TUG)

Patient _____

Date _____

Time _____ AM PM

Purpose: To assess mobility

Equipment: A stopwatch

Directions: Patients wear their regular footwear and can use a walking aid, if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters, or 10 feet away, on the floor.

NOTE: Always stay by the patient for safety.

① **Instruct the patient:**

When I say "Go," I want you to:

1. Stand up from the chair.
2. Walk to the line on the floor at your normal pace.
3. Turn.
4. Walk back to the chair at your normal pace.
5. Sit down again.

② **On the word "Go," begin timing.**

③ **Stop timing after patient sits back down.**

④ **Record time.**

Time in Seconds: _____

An older adult who takes ≥ 12 seconds to complete the TUG is at risk for falling.

CDC's STEADI tools and resources can help you screen, assess, and intervene to reduce your patient's fall risk. For more information, visit www.cdc.gov/steadi


OBSERVATIONS

Observe the patient's postural stability, gait, stride length, and sway.


Check all that apply:

- Slow tentative pace
- Loss of balance
- Short strides
- Little or no arm swing
- Steadying self on walls
- Shuffling
- En bloc turning
- Not using assistive device properly

These changes may signify neurological problems that require further evaluation.

 Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

2017

 **STEADI** Stopping Elderly Accidents, Deaths & Injuries



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CDC's Home Hazard Checklist

[Check for Safety: A Home Fall Prevention Checklist for Older Adults](#)

Use this checklist to find and fix hazards in your home.

STAIRS & STEPS (INDOORS & OUTDOORS)

Are there papers, shoes, books, or other objects on the stairs?

- Always keep objects off the stairs.

Are some steps broken or uneven?

- Fix loose or uneven steps.

Is there a light and light switch at the top and bottom of the stairs?

- Have an electrician put in an overhead light and light switch at the top and bottom of the stairs. You can get light switches that glow.

Has a stairway light bulb burned out?

- Have a friend or family member change the light bulb.

Is the carpet on the steps loose or torn?

- Make sure the carpet is firmly attached to every step, or remove the carpet and attach non-slip rubber treads to the stairs.

Are the handrails loose or broken? Is there a handrail on only one side of the stairs?

- Fix loose handrails, or put in new ones. Make sure handrails are on both sides of the stairs, and are as long as the stairs.

FLOORS

When you walk through a room, do you have to walk around furniture?

- Ask someone to move the furniture so your path is clear.

Do you have throw rugs on the floor?

- Remove the rugs, or use double-sided tape or a non-slip backing so the rugs won't slip.

Are there papers, shoes, books, or other objects on the floor?

- Pick up things that are on the floor. Always keep objects off the floor.

Do you have to walk over or around wires or cords (like lamp, telephone, or extension cords)?

- Coil or tape cords and wires next to the wall so you can't trip over them. If needed, have an electrician put in another outlet.

KITCHEN

Are the things you use often on high shelves?

- Keep things you use often on the lower shelves (about waist high).

Is your step stool sturdy?

- If you must use a step stool, get one with a bar to hold on to. Never use a chair as a step stool.

BEDROOMS

Is the light near the bed hard to reach?

- Place a lamp close to the bed where it's easy to reach.

Is the path from your bed to the bathroom dark?

- Put in a nightlight so you can see where you're walking. Some nightlights go on by themselves after dark.

BATHROOMS

Is the tub or shower floor slippery?

- Put a non-slip rubber mat or self-stick strips on the floor of the tub or shower.

Do you need some support when you get in and out of the tub, or up from the toilet?

- Have grab bars put in next to and inside the tub, and next to the toilet.



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Orthostatic vital signs

- Orthostatic hypotension: Dizziness—fall
- Measure BP lying, seated and standing
 - Orthostasis: A decrease of ≥ 20 in systolic BP or ≥ 10 in diastolic BP within three minutes of standing



Mrs. M:
Sitting: 135/80
Standing: 105/60

Fall history: If patient does have a fall

- Acute illness or syncope?
- Injury?
- Previous falls and near falls
- Psychological/functional consequences of the fall
- Drug use (new or change in prescription meds, polypharmacy, CNS active, hypotensive, alcohol/illicit)
- Gait assist device (prescribed and properly fitted?)
- Information from family, caregivers, observers



Physical examination

- Postural vital signs
- Special emphasis given to skin, cardiac, neurologic, musculoskeletal, and cognitive
- Carotid bruits and upstroke
- Murmurs of AS, MR, HCM*
- Stool hemocult
- Neurologic exam: Motor, cerebellar, sensory, reflexes

*Aortic stenosis (AS)

Mitral regurgitation (MR)

Hypertrophic cardiomyopathy (HCM)



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Lab/diagnostic studies for falls

- CBC, electrolytes, glucose, BUN/Creatinine
- Consider TSH, B12
- Drug levels/tox screen may be indicated
- Syncope/cardiac: EKG
- Arrhythmia: Event monitor, CSM, EPS
- Neuro: MRI, CT, EEG, nerve conduction
- Murmurs: Echo
- Possible: Tilt test, autonomic testing

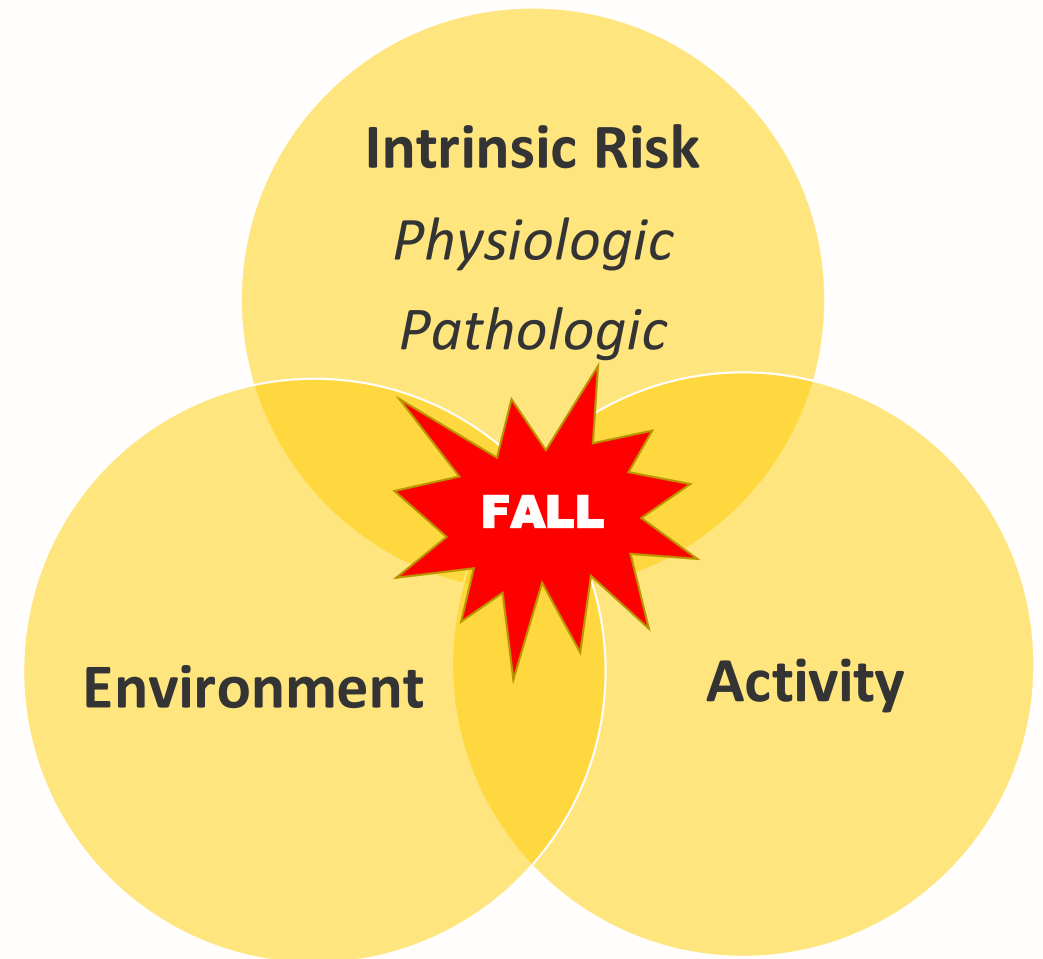


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Interventions for those with falls or at risk of falls

- Falls are usually multifactorial; management approach must be individualized and multifactorial.
 - There is no magic pill to stop falls.
- Reduce modifiable risk factors!
- The goal of treatment is to minimize fall risk and maximize functional independence.



STEADI Algorithm: INTERVENE to reduce risk factors

2 ASSESS patient's modifiable risk factors and fall history.

Common ways to assess fall risk factors are listed below:

Evaluate gait, strength, & balance
Common assessments:
 • Timed Up & Go • 4-Stage
 • 30-Second Chair Stand Balance Test

Identify medications that increase fall risk (e.g., Beers Criteria)

Ask about potential home hazards (e.g., throw rugs, slippery tub floor)

Measure orthostatic blood pressure (Lying and standing positions)

Check visual acuity
Common assessment tool:
 • Snellen eye test

Assess feet/footwear

Assess vitamin D intake

Identify comorbidities (e.g., depression, osteoporosis)

3 INTERVENE to reduce identified risk factors using effective strategies.

Reduce identified fall risk

- Discuss patient and provider health goals
- Develop an individualized patient care plan (see below)

Below are common interventions used to reduce fall risk:

Poor gait, strength, & balance observed

- Refer for physical therapy
- Refer to evidence-based exercise or fall prevention program (e.g., Tai Chi)

Medication(s) likely to increase fall risk

- Optimize medications by stopping, switching, or reducing dosage of medications that increase fall risk

Home hazards likely

- Refer to occupational therapist to evaluate home safety

Orthostatic hypotension observed

- Stop, switch, or reduce the dose of medications that increase fall risk
- Educate about importance of exercises (e.g., foot pumps)
- Establish appropriate blood pressure goal
- Encourage adequate hydration
- Consider compression stockings

Visual impairment observed

- Refer to ophthalmologist/optometrist
- Stop, switch, or reduce the dose of medication affecting vision (e.g., anticholinergics)
- Consider benefits of cataract surgery
- Provide education on depth perception and single vs. multifocal lenses

Feet/footwear issues identified

- Provide education on shoe fit, traction, insoles, and heel height
- Refer to podiatrist

Vitamin D deficiency observed or likely

- Recommend daily vitamin D supplement

Comorbidities documented

- Optimize treatment of conditions identified
- Be mindful of medications that increase fall risk

FOLLOW UP with patient in 30-90 days.

Discuss ways to improve patient receptiveness to the care plan and address barrier(s)



Mrs. M: Interventions to reduce risk factors



- No diphenhydramine
- Decrease medications
- OT: Light in bathroom, raised toilet seat
- Ophthalmologist
- Treat Vitamin D deficiency
- Physical therapy: Gait and balance

Managing hypotension

- Presents with:
 - Orthostasis
 - Postprandial hypotension
- Management
 - Drug reduction: Drug/meal separation
 - Exercises-foot pumps
 - Fluids/salt
 - Compression stockings
 - Caffeine
 - Fludrocortisone
 - Midodrine



Footwear for older adults

- Low heel
- Slip resistant sole
- Wide base and toe box
- Beveled heel; supported heel collar



Vitamin D

- Current recommendation for community-dwelling older adults
 - Treat if Vitamin D deficiency
 - (Not everyone)
 - Strategy: Consider screening 25-OH Vitamin D level in patient with osteoporosis or low Vitamin D intake/sunlight
- High-dose Vitamin D (60,000 units per month) has been associated with increased risk of falls



Other management options

- Manage and treat new diagnoses
 - Acute illness
 - Parkinson's disease
- Audiology evaluation if hearing loss
- Consider assist device
 - Cane
 - Walker
 - Physical therapy (PT) can assist



Mrs. M:
PT
recommended a
walker.

Prevention of injury

- Screen for osteoporosis
 - Osteoporosis treatment
- Bleeding risk
 - Patients on warfarin, DOAC
 - Weigh benefits vs. risks



Mrs. M: Has osteoporosis – agreed to treatment with bisphosphonate.



Geriatric clinic: Environment matters



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Fall risk prevention in a busy clinic: Nursing/clinical staff can identify risk

- Nursing/clinical staff can screen
 - Fallen in past year?
 - Feel unsteady when standing or walking?
 - Worried about falling?
- Medication reconciliation: Nursing and doctor
- Visual acuity assessment: Snellen chart
- Patient handouts
 - Fall information
 - Home hazard assessment





Identify your
patients at risk for
falls



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Fall risk prevention in busy clinic:

What you can do to prevent falls and injuries

- Don't prescribe dangerous drugs for older adults
 - Conduct a medication reconciliation
 - Reduce unnecessary medications
- Watch older patients walk; consider administering a Timed Up & Go (TUG) test
 - Look at feet and foot ware
- Assess orthostatic vital signs
- Ask about their vision: Refer to ophthalmologist
- Screen for and treat osteoporosis
- Recommend:
 - Physical therapy and exercise
 - Gait training and assist devices
 - Minimize environmental risk factors
 - Vitamin D: 800-1000 units daily if deficient

Reminder to share with your staff!

[Integrating fall prevention into practice eLearning module](#)



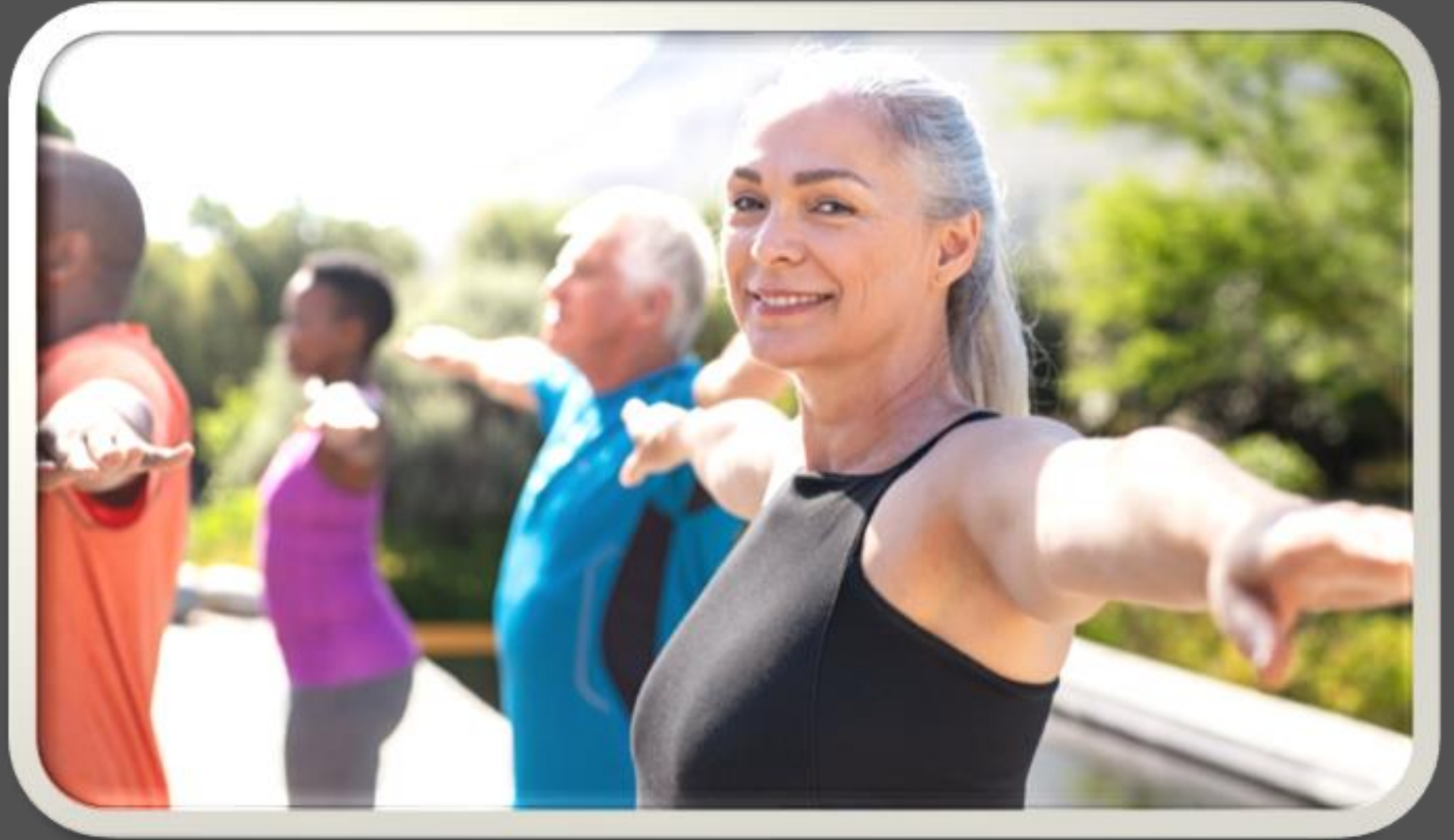
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What can older people do?

**Make a plan today.
Stay independent tomorrow.**

- “MyMobility” plan
 - Give them control to preserve and enhance mobility and function
 - My Health, My Home, My Neighborhood
- Coaching
 - Image! Healthy, functional aging
 - Mobility
 - Exercise- safe, evidence-based

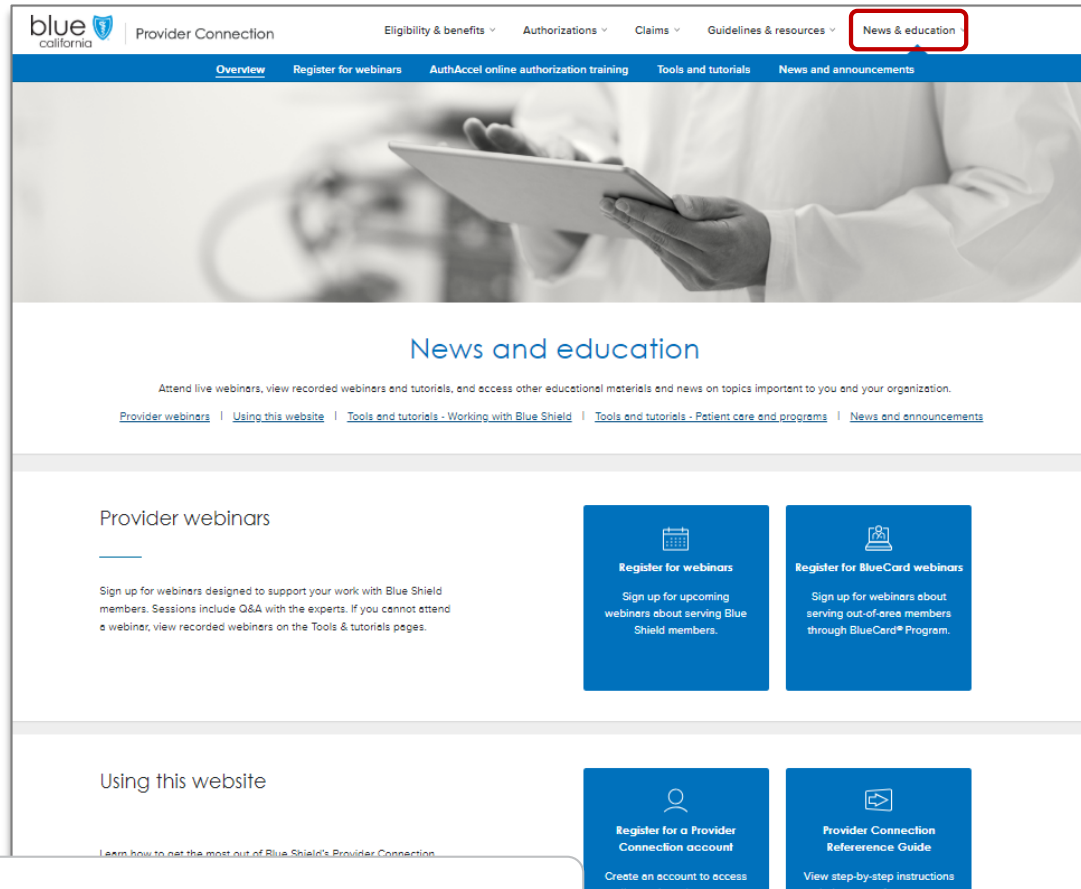


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