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Geriatric Patients: Fall Prevention Strategies

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Goals

- Identify the factors that lead to falls in the geriatric patient
- Describe fall prevention strategies for geriatric patients in the home and hospital setting
- Discuss tools for assessing fall risk
- Identify community fall prevention programs
- Discuss ways of actively promoting fall reduction strategies in the geriatric patient

Facts About Falls

- More than one in four older adults fall each year
- About 30% of older people experience at least one fall each year in the United States
- Approximately 30-50% of people living in long-term care institutions fall each year, and 40% of them experience recurrent falls
- Falls are the cause of approximately 95% of all hip fractures among the elderly

- Each year, 3 million older people are treated in emergency departments for fall injuries
- Over 800,000 patients per year are hospitalized because of a fall injury – most often because of a head injury or hip fracture
- Each year, at least 300,000 older adults are hospitalized for hip fractures
- In 2015, the total medical costs for falls totaled more than \$50 billion Medicare and Medicaid shouldered 75% of these costs

Cost of Older Adult Falls

- Falls among adults, age 65 and older, cost ~\$50 billion for non-fatal falls and ~\$754 million for fatal falls
- Non-fatal falls

- Medicare: \$29 billion

private or out-of-pocket payer: \$12 billion

- Medicaid: \$9 billion

Cost of Older Adult Falls

- How are state costs calculated?
 - direct medical costs include fees for hospital and nursing home care, doctor's and other professional's services, rehabilitation, community-based services, use of medical equipment, prescription drugs, and insurance processing
 - direct costs do not account for the long-term effects of these injuries, such as disability, dependence on others, lost time from work and household duties, and decreased quality of life

Facts About Falls

- What can happen after a fall?
 - one in five falls causes a serious injury
 - fall injuries can make it hard for a person to get around, do everyday activities, or even live on their own
 - falls can cause broken bones (wrist, arm, ankle, hip)
 - falls can cause head injuries that can be serious
 - many who fall develop a fear of falling can cause a reduction in activities

- Falls reported by state
 - the percentage of older adults who fell in Texas: 33.9%
 - national average: 28%

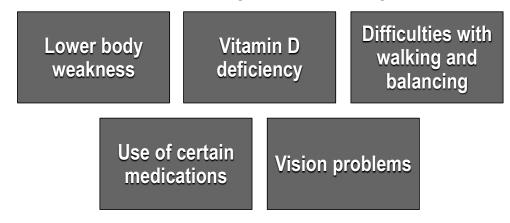
Facts About Falls

- Deaths from older adult falls
 - falls are the leading cause of injury-related deaths among adults age 65 and older
 - the age-adjusted fall death rate is increasing
 - the age-adjusted fall death rate is 64 deaths per 100,000 older adults
 - fall death rates among adults, age 65 and older, increased ~30% from 2009 to 2018
 - the fastest increasing rate was for ages 85 and older: ~4% per year

- Deaths from older adult falls
 - the rising number of deaths from falls among older adults can be addressed by screening for fall risk and intervening to address risk factors, such as use of medicines that may increase fall risk or poor strength and balance

Facts About Falls

What conditions make you more likely to fall?



- Other conditions that may make you more likely to fall
 - foot pain, loss of sensation to the feet, or poor footwear
 - home hazards (broken or uneven steps, rugs, clutter)

Falls: Major Threat for Your Patients

- One in four older adults fall each year
- Every 20 minutes an older adult dies from a fall
- One in five falls results in a serious injury, such as a head trauma or a fracture
- Less than half of the Medicare beneficiaries who fell in the previous year talked to their healthcare provider about it

Falls: Major Threat for Your Patients

- More than 3 million older adults are treated in emergency departments for non-fatal fall injuries each year
- Medicare costs for fall injuries total over \$31 billion annually – hospital costs account for 2/3 of the total

Falls are preventable!

Falls: Major Threat for Your Patients

- Step 1: Screen
 - Have you fallen in the last year?
 - Do you feel unsteady when standing or walking?
 - Do you worry about falling?
- Step 2: Review
- Step 3: Recommend

- Biological
 - vision changes/loss of vision
 - foot pain/loss of sensation in feet
 - muscle weakness
 - medication side effects

- Behavioral
 - inactivity
 - risky behaviors, such as standing on a chair instead of a step stool
 - alcohol use

- Environmental
 - clutter and tripping hazards
 - poor lighting
 - lack of stair railings
 - lack of grab bars inside or outside the tub/shower
 - poorly designed public spaces

- Many risk factors for falling are modifiable
- Most falls are caused by the interaction of multiple risk factors
- The more risk factors a person has, the greater chance they have of falling
- Healthcare providers can lower a person's risk by reducing or minimizing that individual's risk factors

- What can healthcare providers do to prevent falls?
 - talk to their patients about their health goals
 - determine which modifiable risk factors for falls can be addressed to help them reach their goals

- Effective clinical and community interventions exist for the following fall risk factors:
 - vestibular disorder or poor balance
 - vitamin D insufficiency
 - medications linked to falls
 - postural hypotension

- vision impairment
- foot or ankle disorder
- home hazards

- Intrinsic factors
 - advanced age
 - previous falls
 - muscle weakness
 - gait & balance problems
 - poor vision
 - postural hypotension
- chronic conditions including arthritis, stroke, incontinence, diabetes, Parkinson's, and dementia
- fear of falling

- Extrinsic factors
 - lack of stair handrails
 - poor stair design
 - lack of bathroom grab bars
 - dim lighting or glare
 - obstacles & tripping hazards

- slippery or uneven surfaces
- psychoactive medications
- improper use of assistive devices

Medications Linked to Falls

- It is important as a healthcare provider to review medication with all patients age 65 and older
- Medication management can reduce interactions and side effects that may lead to falls
- Stop medications when possible
- Switch to safer alternatives
- Reduce medications to the lowest effective dose

Medications Linked to Falls

- Check for psychoactive medications
 - anticonvulsants
 - antidepressants
 - antipsychotics
 - benzodiazepines
 - opioids
 - sedatives
 - hypnotics

Medications Linked to Falls

- Review prescription drugs, over-the-counter medications, and herbal supplements – some can cause dizziness, sedation, confusion, blurred vision, or orthostatic hypotension
 - anticholinergics
 - antihistamines
 - medications affecting blood pressure
 - muscle relaxants

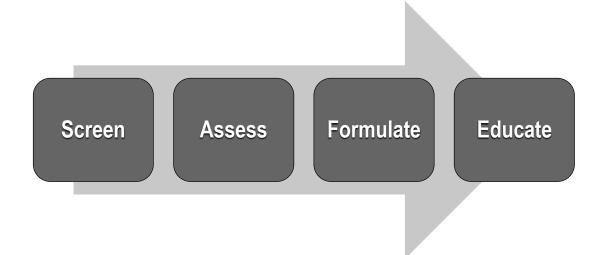
Medications Linked to Falls

- Develop a patient plan that includes medication changes and a monitoring plan for potential side effects
- Implement other strategies, including nonpharmacologic options to manage conditions, address patient barriers, and reduce fall risk

Falls in Nursing Homes

- Nursing home residents are 3x more likely to fall and 10x more likely to sustain a significant injury than their community-dwelling peers
- 40% of nursing home admissions are related to falls

SAFE Medication Review Framework



SAFE Medication Review Framework

- Screen for medications that may increase fall risk
 - obtain and reconcile the medication list
 - group medications based on medical conditions
 - identify medications that may increase fall risk or have potential interactions
 - consider adjusting medications based on age and kidney and liver function
 - use labs, health and prescription history, and prescription monitoring data

SAFE Medication Review Framework

- <u>Assess</u> the patient to best manage health conditions. Discuss the following:
 - treatment goals
 - current medication regimen
 - side effects experienced
 - non-pharmacologic options
 - patient values and preferences
 - barriers to care

SAFE Medication Review Framework

- Formulate the patient's medication action plan
 - STOP medications when possible
 - SWITCH to safer alternatives
 - REDUCE medications to the lowest effective dose
 - simplify the dosing regimen
 - develop a monitoring plan for medication side effects
 - explore non-pharmacologic options to manage medical conditions
 - incorporate patient preferences and solutions to identified barriers

SAFE Medication Review Framework

- Educate the patient and caregiver about medication changes and fall prevention strategies. Discuss the following:
 - steps for implementing an action plan
 - reasons for medication changes
 - importance of referrals to specialists
 - other approaches to reduce fall risk

Why is Fall Prevention Important?

- Falls are a major threat to the health and independence of older adults
- More than one in three people age 65 years or older fall each year
- People who fall once are 2-3x more likely to fall again

Why is Fall Prevention Important?

- Falls can be devastating
 - falls are the leading cause of non-fatal injury among older adults
 - one in 10 falls causes a serious injury, such as a hip fracture or head injury which requires hospitalization
 - in addition to the physical and emotional pain, many who fall need to spend at least a year recovering in a long-term care facility – some are never able to live independently again

Why is Fall Prevention Important?

- Falls can be deadly
 - falls are the leading cause of fatal injury among older adults (~25,000 per year)
 - rate of fall-related death is rising

Why is Fall Prevention Important?

- Falls are preventable!
 - there are effective fall prevention programs that can be used in community settings
 - by offering these programs in our communities, we can reduce falls and help older adults maintain their health and independence

Public Education About Fall Prevention

 Talk with the general public and inform older adults how to maintain a healthy lifestyle that reduces their risk of falling

Public Education About Fall Prevention

- Choose your words carefully
 - messages to older adults should stress maintaining independence, safety, wellbeing, and improved balance
 - messages that stress fall prevention or fall injuries are not well received
 - older adults prefer the terms 'physical activity' and 'movement' to the word 'exercise'

Public Education About Fall Prevention

- Education for older adults and their caregivers should be delivered by trained professionals in group settings or individually
 - individual education sessions may work better for people who are hearing or vision impaired or have special needs
 - group sessions provide the benefits of social interactions

Public Education About Fall Prevention

- Education for older adults and their caregivers should be delivered by trained professionals in group settings or individually
 - informed group discussions that include sharing personal experiences can reduce anxiety and increase motivation to adopt new behaviors
 - group teaching saves time and helps to spread the information more quickly to more people

Public Education About Fall Prevention

- Sessions should be tailored to the attention span and cognitive ability of older adults
- Visual aids, such as brochures, fact sheets, and checklists, that take into account older adults' culture, language, and literacy level will help facilitate the educational session

STEADI

- STEADI Stopping Elderly Accidents, Deaths, and Injuries
- STEADI provides screening tools, educational materials and resources, and online trainings for healthcare providers

STEADI

- STEADI's tools and educational materials enable the healthcare provider to:
 - identify patients at low, moderate, and high risk for falling
 - identify modifiable risk factors
 - offer effective interventions

STEADI

 The STEADI Initiative offers a coordinated approach to implementing the American and British Geriatrics Societies' Clinical Practice Guidelines for fall prevention

STEADI

| Screen | Access | Intervene | Use effective clinical and community strategies |

STEADI

- STEADI includes a suite of tools and resources.

 These resources include basic information about:
 - falls
 - screening options
 - information on medications linked to falls
 - standardized gait and balance assessment tests
 - online trainings that offer continuing education

Preventing Falls: Hospital-based Settings

- Putting STEADI into action through screening all older adults for falls and identifying modifiable risk factors
 - evaluate gait, strength, and balance
 - conduct a focused physical exam on the patient and address modifiable risk factors
 - assess and manage postural hypotension or dizzy spells

Preventing Falls: Hospital-based Settings

- Putting STEADI into action through screening all older adults for falls and identifying modifiable risk factors
 - review and manage medications
 - assess vitamin D intake
 - assess visual alertness and improve vision

Preventing Falls: Hospital-based Settings

- Putting STEADI into action through screening all older adults for falls and identifying modifiable risk factors
 - address home safety and provide information on how to prevent falls
 - identify community exercise and fall prevention programs

Preventing Falls: Hospital-based Settings

 Using STEADI's evidence-based approach in hospital-based settings can significantly improve injury prevention programs, improve patient outcomes, and prevent falls among older adults

Preventing Falls at Home

- Remove things you can trip over from stairs and places where you walk
- Remove small rugs or use double-sided tape to keep rugs from slipping
- Add grab bars in the bathroom inside the bathtub and next to the toilet
- Use non-slip mats in the bathtub and on shower floors
- Have handrails and lights installed on all staircases
- Make sure your home has lots of lights

As An Older Adult, What Can You Do?

- Speak up!
 - talk openly with your doctor about fall risk and prevention
 - tell your doctor if you have fallen, if you are afraid you might fall, or if you feel unsteady
 - review all of your medications with your doctor or pharmacist and discuss any side effects, like feeling dizzy or sleepy

As An Older Adult, What Can You Do?

- Speak up!
 - have your eyes checked annually, and update your glasses as needed
 - have your feet checked discuss proper footwear with your doctor and ask if seeing a podiatrist is advised
- Make your home safe!

Check for Safety Brochure

- STAIRS & STEPS: Look at the stairs you use both inside and outside your home.
 Q Are there papers, shoes, books, or other objects on
 - the stairs?

 □ Pick up things on the stairs. Always keep objects off stairs.
 - Q Are some steps broken or uneven?
 - □ Fix loose or uneven steps.
 - Q Has the stairway light bulb burned out?
 - □ Have a friend or family member change the light bulb.

Check for Safety Brochure

- FLOORS: Look at the floor in each room.
 - Q When you walk through a room, do you have to walk around furniture?
 - □ Ask someone to move the furniture so your path is clear.
 - Q 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.

Check for Safety Brochure

- FLOORS: Look at the floor in each room.
 - Q 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.

Check for Safety Brochure

- BEDROOMS: Look at all your bedrooms.
 - Q Is the light near the bed hard to reach?
 - □ Place a lamp close to the bed where it's easy to reach.
 - Q Is the path from your bed to the bathroom dark?
 - □ Put in a night-light so you can see where you're walking. Some night-lights go on by themselves after dark.

Check for Safety Brochure

- KITCHEN: Look at your kitchen and eating area.
 - Q Are the things you use often on high shelves?
 - Move items in your cabinets. Keep things you use often on the lower shelves (about waist level).

Check for Safety Brochure

- BATHROOMS: Look at all your bathrooms.
 - Q 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.
 - Q 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.

- Timed Up & Go (TUG)
 - purpose: to assess mobility
 - equipment: 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 on the floor, three meters (10 feet) away

- Timed Up & Go (TUG)
 - 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

- Timed Up & Go (TUG)
 - 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

- Timed Up & Go (TUG)
 - 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 test is at risk for falling

- Tinetti Test
 - used for gait and balance assessment
 - has two parts
 - part 1: evaluates balance and consists of nine motor functions; each item scores 0-1 or 0-2 with a maximum score of 16
 - part 2: assesses gait and includes seven types of movement; each item scores 0-1 or 0-2 with a maximum score of 12

- Tinetti Test
 - total scores
 - below 18 = high risk of falling
 - between 19 and 23 = medium risk of falling
 - higher than 24 = low risk of falling

- 4-Stage Balance Test
 - purpose: to assess static balance
 - equipment: stopwatch
 - directions
 - there are four standing positions that get progressively harder to maintain; you should describe and demonstrate each position to the patient
 - then, stand next to the patient, hold their arm, and help them to assume the correct position

- 4-Stage Balance Test
 - purpose: to assess static balance
 - equipment: stopwatch
 - directions
 - when the patient is steady, let go and time how long they can maintain the position, but remain ready to assist the patient if they should lose their balance

- 4-Stage Balance Test
 - if the patient can hold a position for 10 seconds without moving their feet or needing support, go on to the next position; if not, STOP the test
 - patients should not use an assistive device (cane or walker) and they should keep their eyes open

- 4-Stage Balance Test
 - an older adult who cannot hold the tandem stand for at least 10 seconds is at increased risk of falling – to reduce their risk of falling, you might consider referring them to physical therapy for gait and balance exercises, or refer them to an evidencebased fall prevention program, such as Tai Chi

- 30-Second Chair Stand Test
 - purpose: to test leg strength and endurance
 - equipment: a chair with a straight back without arm rests (seat 17" high), and a stopwatch

Functional Assessments

30-Second Chair Stand Test

- 1. Instruct the patient:
 - 1) sit in the middle of the chair
 - 2) place your hands on the opposite shoulder crossed, at the wrists
 - 3) keep your feet flat on the floor
 - 4) keep your back straight, and your arms against your chest
 - 5) on "Go," rise to a full standing position, then sit back down again
 - 6) repeat this for 30 seconds

Functional Assessments

- 30-Second Chair Stand Test
 - 2. On the word "Go," begin timing
 - If the patient must use his/her arms to stand, stop the test.
 Record "0" for the number and score.
 - 3. Count the number of times the patient comes to a full standing position in 30 seconds
 - If the patient is over halfway to a standing position when 30 seconds have elapsed, count it as a stand.
 - 4. Record the number of times the patient stands in 30 seconds

Functional Assessments

- 30-Second Chair Stand Test
 - A below average score indicates a risk for falls.

Chair Stand Below Average Scores		
Age	Men	Women
60-64	<14	<12
65-69	<12	<11
70-74	<12	<10
75-79	<11	<10
80-84	<10	<9
85-59	<8	<8
90-94	<7	<4

Functional Assessments

- Measuring orthostatic hypotension
 - 1) have the patient lie down for five minutes
 - 2) measure blood pressure and pulse rate
 - 3) have the patient stand
 - 4) repeat blood pressure and pulse rate measurements after standing one and three minutes
 - a drop in blood pressure of ≥20 mmHg, or in diastolic blood pressure of ≥10 mmHg, or experiencing lightheadedness or dizziness is considered abnormal

Community Fall Prevention Programs

- An evidence-based fall prevention intervention is one that has been tested using rigorous research design and is shown to reduce falls in older adults
- The intervention is then translated into a program before it is implemented into a community setting

Community Fall Prevention Programs

Stepping On

- a group program that helps older adults reduce their fall risk and improve their quality of life
- participants attend two-hour workshops facilitated by two trained leaders, once a week, for seven weeks
- older adults at moderate risk of falling can benefit from this program – people who have fallen in the past, are worried about falling, or feel unsteady when walking
- the fall rate among participants was 30% lower than for people who did not attend the program

Community Fall Prevention Programs

Otago Exercise Program

- in-home exercise program delivered by physical therapists
- incorporates an individually-tailored balance and strength program of progressive exercises along with a walking plan
- includes at least seven home visits and seven phone calls over a 12-month period

Community Fall Prevention Programs

- Otago Exercise Program
 - is suited to somewhat frail adults, older adults, and is especially beneficial to people aged 80 and older
 - the fall rate among participants was 35% lower than among people who did not take part in this program

Tai Chi Chuan

What is it?

- initially developed as a martial art in China and has been frequently used as an exercise to improve mental or physical health in young and old adult populations
- includes a set of strength and balance training exercises found to be effective at preventing falls

Tai Chi Chuan

- What is it?
 - consists of a series of dance-like, slow continuous movements
 - emphasizes trunk rotation, weight shifting, coordination, and a gradual narrowing of the lower extremity stance

Tai Chi Chuan to Reduce Falls

- A study was conducted in which the aim was to evaluate the effect of Tai Chi Chuan on balance and fear of falling in community-dwelling older adults
- Single-blind randomized control trial
- 60 older adults randomly allocated into two groups
- Participants of the intervention group were trained in Tai Chi Chuan for eight weeks, twice a week, in 55-minute sessions

Tai Chi Chuan to Reduce Falls

- Balance and fear of falling where assessed by Timed Up & Go, the Tinetti test, and the Falls Efficacy Scale International at baseline and after eight weeks
- After eight weeks, the mean scores of the TUG and Tinetti tests were improved significantly compared to baseline and the control group

Tai Chi Chuan to Reduce Falls

- Moreover, the intervention group showed a significant reduction in fear of falling scores, while those in the control remained unchanged
- Tia Chi Chuan effectively improves balance and fear of falling and could be considered as a practical and useful method for fall prevention in communitydwelling older adults
- The Tinetti test was used to assess gait and balance

Tai Chi Chuan to Reduce Falls

- Fear of falling was assessed by the Falls Efficacy Scale International (FES-I) – similar to a Likert-type scale and includes 16 questions
 - participants were asked to determine the level of their concern about falling while performing 16 different activities on a fourpoint Likert scale including "I never worry about falling," "I sometimes worry about falling," "most of the time I worry about falling," and "I always worry about falling"
 - the total score is between 16 and 64 and lower scores indicate less fear of falling

- In 2018, one in four older Americans reported a fall, resulting in about 36 million falls
- Falls are preventable!
- Falls and the injuries and deaths they cause are increasing – death rates from falls have increased about 30% in the last decade

Older Adult Falls

- All adults age 65 and over are at risk for a fall
- Older adults more likely to fall:
 - females
 - those 85 and older
 - American Indian and Alaskan Natives
- Falls vary with where you live

- Falls are not a normal part of aging
- Older adults, caregivers, and healthcare providers can work together to reduce the risk of falling and prevent devastating injuries

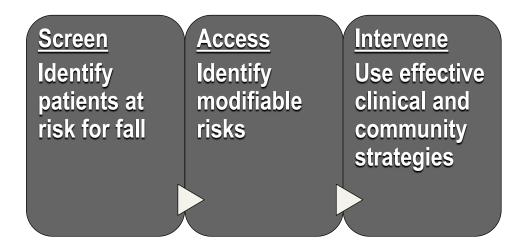
Older Adult Falls

- As caregivers, you can encourage your loved one to take action to reduce their fall risk
 - have conversations with your loved one and their healthcare provider about fall risk and prevention
 - encourage your loved one to participate in exercise programs that can help them improve their strength and balance

- Older adults who strive to stay independent longer and avoid falling can do simple things like talking to their healthcare provider, staying active, and making their home safer
- Healthcare providers have a very important role in caring for older adults and helping them prevent falls

Older Adult Falls

- STEADI offers a coordinated approach to implementing an evidence-based practice in fall prevention
- As healthcare providers, we should continue to use STEADI in our practice when trying to prevent falls in older adults



Older Adult Falls

 Using STEADI has led to positive practice changes, such as screening more older adults for fall risk, and meaningful outcomes, such as lower hospitalizations due to falls

Conclusion

- Falls are the leading cause of fatal and non-fatal injuries among adults 65 and older
- Falls are preventable!
- Falls are NOT part of the normal aging process
- Encourage older adults to talk to their doctor and make their homes safe
- Help older adults find community fall prevention programs
- Our goal is to help these geriatric patients decrease their risk of falling

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Geriatric Patients: Fall Prevention Strategies

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