Older Adults and Falls

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Objectives

- **Introduce the epidemic of Older Adult Falls**
- **Discuss risk factors for falling**
- **Discuss interventions and resources available**

Falls are not a normal part of aging, they can be prevented

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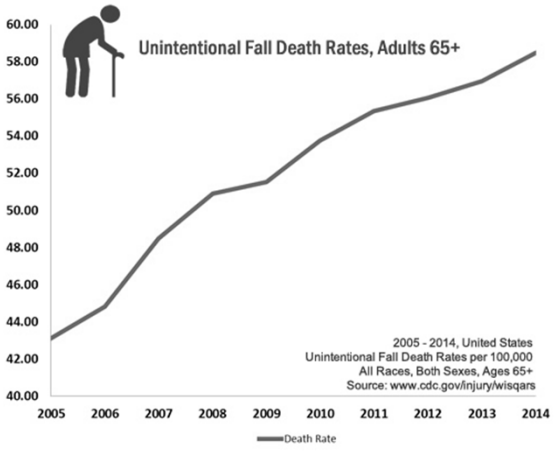
How bad is the Problem

- **One out of three older adults falls each year**
- **Each year, 2.5 million older people are treated in emergency departments for fall injuries.**
- **700,000+ patients a year are hospitalized because of a fall injury, most often because of a head injury or hip fracture (250,000 people).**



http://www.cdc.gov/injury/wisqars/
3/2016

Falls Are Serious and Cause Injuries

- **20% of falls cause a serious injury such as broken bones or a head injury.**
- **Almost all hip fractures are caused by falling.**
- **Falls are the most common cause of traumatic brain injuries (TBI).**

CDC website 3/2016

Falls are costly

- **Direct medical costs for fall injuries are $34 billion annually.**
- **Hospital costs account for two-thirds of the total.**
  - **The average hospital cost for a fall injury is $35,000.**
- **Fall injuries are among the 20 most expensive medical conditions.**
- **The costs of treating fall injuries goes up with age.**
- **Medicare pays for about 78% of the costs of falls**

CDC website 3/2016

Major Problem (Epidemic) in Ohio

Falls are the #1 cause of injuries leading to ER visits, hospitalizations and deaths for Ohioans age 65+:

- **An injury every 2.5 minutes**
- **An emergency room visit every 8 minutes**
- **Two hospitalizations each hour**
- **Three deaths each day**

Direct care costs alone = $646 million

Ohio Department of Health

Major Problem (Epidemic) in Ohio

- **Ohioans age 65+ make up approximately 14% of the population, but account for more than 83% of fatal falls.**
- **Fatal falls among older Ohioans increased 167% from since 2000.**
- **1 in 3 Ohioans age 65+ living in the community fall each year. 1 in 2 after age 79.**
- **More than half of older adults who live in a nursing home will fall this year.**

Ohio Department of Health

Why isn't more being done?

- **Clinical assessment and intervention by healthcare providers can significantly reduce falls.**
  - **The literature also supports screening and management of falls in primary care settings.**
  - **Guidelines have been developed by the American Geriatrics Society that suggest at least yearly screening for falls in older adults.**
- **Despite these recommendations, patients often will not speak with their healthcare providers about falling.**
  - **Less than half of older adults who fall discuss it with their healthcare provider.**

Why aren't falls discussed?

- **Reasons providers are not discussing with patients are many:**
  - **not recognizing the problem**
  - **not being aware of resources available to help**
  - **not having time to implement into practice**
- **Older adults may be hesitant to discuss falls with their providers:**
  - **fear of losing their independence**
  - **not knowing that steps can be done to reduce the risk of falling**

Risk Factors for Falling

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Risk Factors for Falling

- **Prior Falls**
- **Gait disturbance and impaired balance**
- **Inactivity and/or generalized weakness**
- **Polypharmacy and certain medication classes**
- **Chronic pain**
- **Impaired vision and hearing**
- **Impaired cognition**
- **Impaired sensation/proprioception**
- **Dizziness and vertigo**
- **Fear of falling**
- **Depression and other psychiatric disorders**
- **Environment**

Fear of Falling

- Fear of falling is highly associated with future falls
- Just asking a person if they are afraid of falling goes a long way to predicting future falls
  - Is it situational?
  - Has it caused lifestyle changes or decreased quality of life?

Gait Disturbance

- Short shuffling steps
- Wide based support
- Improper use of cane or walker
  - Including not using

Balance Disturbance

- Easily perturbed
- Balance worsens if looking in a different direction or in the dark
- Feeling lightheaded or dizzy

Polypharmacy and Falls

- Being on multiple medications is associated with falls
  - Indicator of multiple disease processes that increase fall risk
  - Drug interactions, side effects of the medications
- No specific cutoff, but studies often use 5 or 6 and greater

Medication Drug Classes that Increase Fall Risk

- Benzodiazepine
- Narcotics
- Anti-depressants
- Diabetic medications
- Blood pressure medications
- Sleep aide medications

Dizziness/vertigo/postural hypotension

- Multiple etiologies, but not uncommon in elderly
- Inner ear problem
  - Menier's Disease
  - Vestibular neuritis
  - BPPV
- Vision changes
- Hypotension
- Medication side effect
- Near-syncope/syncope

Sensory Changes

- **Impaired vision**
- **Impaired hearing**
- **Decreased sensation/proprioception**

Cognition and Falls

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How prevalent is cognitive deficits in older adult fallers?

- Fallers with femoral neck fracture:
  - 49% had difficulties with orientation on MMSE
  - 70% had difficulties with at least some short term memory deficits as seen on MMSE

Tsur et al 2014

Cognitive Deficits, Aging, & Falls

- Falls are associated with cognitive deficits, even if criteria for Mild Cognitive Impairment or dementia are not met
  - Neuropsychological assessments have shown relationship between falls and cognitive deficits associated with normal aging.
    - Lower scores of processing speed and executive function associated with single falls and recurrent falls
- Studies have shown that all levels of cognitive impairment (aging to dementia) are associated with higher fall rates with dementia having highest fall risk.

Cognition Components That Pertain to Fall Risk

- **Executive Function: term used to describe brain's management of multiple cognitive processes**
  - **Planning**
  - **Judgment**
  - **Impulsivity**
- **Attention**
  - **Divided Attention and Dual-Task**
- **Processing Speed**
- **Memory**
  - **Working Memory: ability to take information and process it instantaneously (different than short term memory)**

What can be done?

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Resources/Guidelines

- Ohio Department of Health: Steady U
  - http://aging.ohio.gov/steadyu/
- CDC: STEADI
  - http://www.cdc.gov/homeandrecreationalsafety/falls/
- American Geriatrics Society
  - http://geriatricscareonline.org/toc

Non-Pharmacologic Interventions

- Ask about and screen for risk factors, including cognition
- Educate
- DME
  - Be mindful of dangerous situations with cog deficits using DME (i.e. scooters/power wheelchairs)
- Assistive technology
  - Bed alarms, door alarms, lights with motion sensors
- Therapy (PT, OT, ST)
- Daily exercise programs
- Refer to specialists and/or further testing if warranted (tilt table, EMG, etc)

Pharmacologic Management

- **Reduce cognitive slowing and sedating meds**
  - **benzodiazepines**
  - **pain medications**
  - **sleep medications**
  - **psychotropic**
- **Limited research on specific cognitive medications that reduce fall risk**
  - **Stimulants**
  - **Memory/Executive Function Enhancers**

Vitamin D Supplementation

- **Studies have shown that supplementation with Vitamin D (even if not deficient) can reduce fall rates**
  - **Typically 800 IU/day are recommended**

American Geriatrics Society Workshop 2014

Environmental Hazards

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Potential Hazards in home environment that can cause falls

- Throw rugs
- No grab bars
- Showers without anti-slip surfaces
- Lack of handrails
- Small animals
- Clutter
- Unlit areas
- Overhead lights that are not easily reached
- Damaged floors

Other Interventions

- **Proper footwear**
- **Yearly eye exams**
- **Screen for and treat hearing loss**

What Can be Done to Improve Safety?

- **Discussion between healthcare provider and patient**
- **Look for community resources**
- **Assess home environment for hazards and address**
  - **Consider Home Assessment by OT or other healthcare provider**
- **Encourage use cane or walker if they have been recommended**
- **Ensure medications are being taken appropriately, monitor for side effects, and review medication lists so that those no longer needed can be discontinued**
- **Encourage activity and exercise**

Refer to Therapy

- **Therapies (PT/OT) can help reduce risk of falls for those at risk**
  - **Improved strength and balance**
  - **Proper use of DME**
  - **Improved independence with ADLs**
  - **Home assessments**

Refer to Community Based Exercise Programs

- **Literature supports exercise programs that reduce falls**
- **Tai Chi**
- **Matter of Balance**
- **Otago exercise program**

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Prescribing walkers and canes

When to consult the physical medicine physician

Fall Prevention in Order Adults: Therapy Perspective

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Objectives

- Introduce evidenced based tests and screening measures to identify fall risk
- Identify treatment interventions to decrease fall risk
- Identify community resources to elderly fall prevention programs

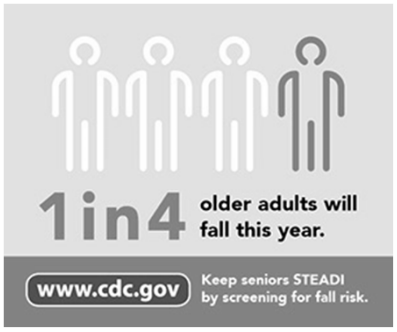
Evidenced Based Tests and Screening Methods to Assess Fall Risk

- 30 second sit to stand
- 4 Stage Balance Test
- Timed up and Go (TUG)
- Functional Reach Test
- 5 times sit to stand
- Functional Gait Assessment
- 4 Square Step Test

STEADI

STEADI – Stopping Elderly Accidents, Deaths & Injuries

- **Center for Disease Control and Prevention (CDC) - a tool kit for physician offices to assess risk**
- **30 Second Chair Stand Test**
- **4 Stage Balance Test**
- **Timed Up and Go (TUG)**



http://www.cdc.gov/steadi

Fall Risk Assessment

30-Second Chair Stand Test

Assesses leg strength and endurance

Fall Risk Assessment

30 Second Chair Stand Test Results

30 Second Chair Stand (# Stands)							
Men				Women			
Age	• Below Average	Average	Above Average	Age	Below Average	Average	Above Average
60-64	<14	14-19	>19	60-64	<12	12-17	>17
65-69	<12	12-18	>18	65-69	<11	11-16	>16
70-74	<12	12-17	>17	70-74	<10	10-15	>15
75-79	<11	11-17	>17	75-79	<10	10-15	>15
80-84	<10	10-15	>15	80-84	<9	9-14	>14
85-89	<8	8-14	>14	85-89	<8	8-13	>13
90-94	<7	7-12	>12	90-94	<4	4-11	>11

4-Stage Balance Test

Timed Up and Go (TUG)

- **Assess Mobility**
- **Assess Postural Stability, Gait, Stride length, Sway**
- **Without a device greater than 12.0 sec fall risk**
- **With a device greater than 20 seconds fall risk**

Functional Gait Assessment

- **Assesses postural stability during various**
  walking tasks for 20 feet
- **10 item task**
- **Score 0-3 with a total of 30 points**
- **< 22/30 Predicts Falls**
- **< 21/30 Falls in next 6 months**

5 Times Sit to Stand

- Assesses lower limb functional strength
- 15 second cut off for fallers

- 11.4 Norms for 60s
- 12.6 Norms for 70s
- 14.8 Norms for 80s

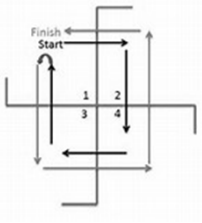
Functional Reach Test

- Assesses stability with maximum reach from a standing fixed position

- Less than 6 inches Hi Risk of Falls
- 6-10 inches Mod Risk of Falls
- Greater than 10 inches Low risk of Falls

4 Square Step Test

- **Assesses dynamic balance forward, backwards, and lateral movements stepping over crossed canes**
- **Greater than 15 seconds at risk for Multiple falls**
- **10-14 seconds moderate Fall Risk**
- **Less than 10 seconds no fall risk**

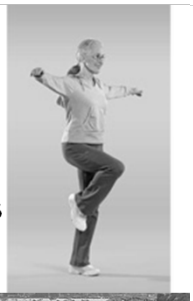


Interventions

Otago Exercise Program

Flexibility

Balance Exercises



Strengthening

Walking

Source: Some images courtesy of NIA

Community Resources

www.cdc.gov/steadi

Stopping Elderly Accidents, Deaths & Injuries

- **Information for health care providers for fall risk assessments**

- **Education materials to assist patients**

Community Resources

Matter of Balance

8-week structured group intervention

Strategies to reduce fear of falling

Increase activity levels

Change their environment to reduce fall risk

Exercise to increase strength and balance

Community Resources

Tai Chi for Arthritis

Tai Chi one of the most effective exercises for preventing falls.

Improve all muscular strength, flexibility, balance, stamina, and more.

Community Resources

Stepping On

- **strategies, and exercises to reduce falls**
- **increase self-confidence in situations that they are at risk of falling**

Community Resources

Stay Active and Independent for Life (SAIL)

A strength, balance and fitness program 3 times a week in a one hour class, in sitting or standing.
Community-dwelling older adults (65+) and people with a history of falls.

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