Fall Risk and Prevention
Chronic Condition Management

Presented by Dr. Valerie Gruss, PhD, CNP-BC
UIC-CON

Objectives

Upon completion of this session, learners will be better able to:

- Explain the significance of falls in terms of prevalence, cost and associated morbidity and mortality and impact on quality of life
- Describe strategies for assessment for fall risk that reflect careful consideration of diverse and interacting fall risk factors
- Describe the purpose and components of the U.S. Center for Disease Control and Prevention’s (CDC) Stopping Elderly Accidents, Death, and Injuries (STEADI) Toolkit for fall prevention
- Recognize multiple and single fall prevention interventions which are often complementary
- Identify strategies and resources to reduce fall risk among participants

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Background

- Approximately half of the community-living older population experiences fear of falling (Tinetti et al., 1990)

- Fear of falling leads to activity avoidance which can have negative effects on physical abilities (Dubas et al., 2007)
Incidence of falls and the severity of complications stemming from a fall increase with age, level of disability, and extent of functional impairment (Oakley et al., 1996; van Weel et al., 1995).

**Background**

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Morbidity (CDC, 2014):
- 28.7% of older adults reported falling at least once in the preceding 12 months
- 2.8 million older adults were treated in ED for fall-related injuries
  - 800,000 of these persons were subsequently hospitalized
- Of those who fell, 37.5% reported at least one fall that required medical treatment or restricted their activity for at least 1 day, resulting in an estimated 7.0 million fall injuries

Mortality (CDC, 2014):
- 27,000 older adults died in 2014 because of falls

Impact on quality of life

A fall can cause fear of falling, where anxiety, loss of self-confidence and activity avoidance result in self-imposed functional limitation and affect quality of life.

A fall may result in insecurity and activity avoidance with a further decline in the individual physical function and loss of independence.

**Background: Significance**

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ED Visits related to falls: 177

Hospital Admissions related to falls: 32

The risk of falling increases dramatically as the number of risk factors increases (Tinetti et al., 1988)

Falls are generally the result of multiple, diverse, and interacting etiologies (Chang & Long, 2007)

While previous falls, strength, gait, and balance impairments, and medications are the strongest risk factors for falling, a comprehensive assessment of fall risk factors includes consideration of additional physical, behavioral, environmental, and psychological/attitudinal risk factors, such as fear of falling (Tinetti & Kumar, 2010)
One of the strongest risk factors for falling is gait and balance impairments. **Family history of falls** is also a strong risk factor.

a) True  
b) False

Although falls are common, approximately half of older adults who fall **do not** discuss it with their health care provider.

Even though older adult falls are largely preventable

You can play an important role in fall prevention by screening participants for fall risk!
Pre-Transition assessment of Fall History:
check out the nursing home MDS document in the participant’s nursing home chart

The Minimum Data Set (MDS) is part of the U.S. federally mandated process for clinical assessment of all residents in certified nursing homes. The MDS process provides a comprehensive assessment of each resident’s functional capabilities and helps nursing home staff identify health problems.

Each nursing home resident undergoes serial MDS assessments at admission, quarterly and annually and upon a major change in status.
Assessment: MDS

- Section A: Personal Identification
- Section B: Hearing, Speech, Vision
- Section C: Cognitive Pattern
- Section D: Mood
- Section E: Behavior
- Section F: Preferences for Customary Routine and Activities
- Section G: Functional Pattern
Assessment: MDS

- Section H: Bowel and Bladder
- Section I: Active Diagnoses
- Section J: Health Conditions (Pain Management, SOB, tobacco use, and FALL HISTORY)

Assessment: MDS

- Section J: Health Conditions (FALL HISTORY)

Assessment: MDS

- Section K: Swallowing, Nutritional Status
- Section L: Oral, Dental Status
- Section M: Skin Conditions
- Section N: Medications
- Section O: Special treatment, Procedures, Programs
- Section P: Restraints
- Section Q: Participation in Assessment and Goal Setting
When asking the participant about a history of falls, typically you need to initiate the conversation about falls.

Explain to the participant:
- Many falls can be prevented
- Identify risk factors that can be changed...exercise habits or habits contributing to or reducing fall risk in the home
- It is impossible to eliminate all risk factors, but even addressing some risk factors can reduce the number of falls
- Fall prevention is an ongoing effort because risk factors for falls change over time

Instead of: Say/Ask:
- "Have you had any falls in the past year?"
  - "Most people fall from time to time, especially as they get older..."
  - "How many falls have you had in the past year?"
- "Are you afraid of falling?"
  - "Concerns about falls can be protective when they keep us from doing activities that surpass our abilities, but sometimes worries about falls can keep us from doing activities we can do safely."
  - "Would you say that you are not at all afraid, somewhat afraid, fairly afraid, or very afraid of falling?" (Clemson et al., 2015)
  - (Follow-up) "Do you feel unsteady when you are standing or walking?"
Physical therapists are important contributors to this area of assessment.

Details of Physical Assessment include:

- Gait, balance, mobility levels, and lower extremity joint function
- Refer to [http://www.rehabmeasures.org/](http://www.rehabmeasures.org/) for information regarding assessment tool options
- The STEADI toolkit recommends the Timed up and Go (TUG) assessment [http://www.cdc.gov/steadi/](http://www.cdc.gov/steadi/)
- Muscle strength (lower extremities)

Detailed assessment of:

- Neurological Function: Cognitive evaluation, lower extremity peripheral nerves, proprioception, reflexes, tests of cortical, extrapyramidal, and cerebellar function
- Cardiovascular Status: Heart rate and rhythm, postural pulse, blood pressure, postural dizziness/postural hypotension, and, if appropriate, heart rate and blood pressure responses to carotid sinus stimulation
- Assessment of visual acuity
- Examination of the feet and footwear

Assessment of activities of daily living (ADL) skills, including use of adaptive equipment and mobility aids as appropriate

Referral Cues:

- Occupational therapists have expertise in functional assessment
- Physical therapists have expertise in assessing need for and use of mobility aids
- Assessment of the individual’s perceived functional ability and fear related to falling
- This involves assessing current activity levels with attention to the extent to which concerns about falling are protective or contributing to deconditioning and/or compromised quality of life (i.e., individual is curtailing involvement in activities he or she is safely able to perform due to fear of falling)

(American Geriatrics Society and British Geriatrics Society, 2011)
A Comprehensive Environmental Assessment (completed by O.T.) includes:

- Consideration of the full range of potential hazard; home safety audits with the older adult is a first step (Clemson, 1997; Clemson et al., 1999)
- The relationship between the person and the environment is an overarching consideration when determining the existence of an environmental hazard (Clemson et al., 2008)

A Comprehensive Environmental Assessment Involves:

Judgements regarding existance of environmental hazards are based on a number of factors, including:

- History of falls
- Patterns of usage in the home
- Protective and risk-taking behaviors
- Functional vision
- Physical and cognitive attributes that affect mobility and task performance
- Fall risk in specific situations that involve reaching, climbing, and transferring (Diklois et al., 1995; Peterson & Clemson, 2008)

Referral: Occupational therapists are important contributors to this area of assessment

The STEADI Toolkit was created by the CDC to "provide information and resources to help providers incorporate fall prevention into their clinical practice, and also provides tools for linking primary care with community fall prevention programs"  

STEADI is based on the AGS/BGS clinical guidelines  
[http://www.cdc.gov/steADI/](http://www.cdc.gov/steADI/)

(CDC, 2017)
The STEADI Toolkit:

a) Features the Stay Independent brochure, which is a 25-item self-assessment of fall risk that can be completed by older adults after they watch an instructor-led video.

b) Is intended for use by physicians and nurse practitioners only.

c) Includes tools to link primary care with community fall prevention programs.

d) Is based on the National Council on Aging’s Fall Prevention Guidelines.

e) Includes the Fall Risk Checklist, a checklist that allows health care providers to summarize an older patient’s fall risk factors.

Question:
The STEADI Toolkit includes the Fall Risk Checklist, that allows health care providers to summarize the participant’s fall risk factors.

a) True

b) False
The STEADI Toolkit includes the Fall Risk Checklist, that allows health care providers to summarize the participant’s fall risk factors.

- **True**
- **False**

### Interventions

- **Single**: Consists of only one major category of intervention (e.g., exercise or vitamin D supplement)
- **Multiple interventions**: Consist of a fixed combination of two or more categories of interventions (e.g., exercise, home safety) delivered to the participant.

### Interventions: Exercise

Exercise is consistently recognized as an important component of interventions for fall prevention.

- **Referral Cue**: Physical Therapists are experts in exercise interventions.
- Falls prevention exercise may be undertaken in a group or home-based setting.
- Offer an exercise program that provides a moderate or high challenge to balance.
- Exercise must be of a sufficient frequency to have an effect (>2 hrs/wk).
- Ongoing exercise is necessary.
- Walking training may be included in addition to balance training, but high-risk individuals should not be prescribed brisk walking programs.
- Strength training may be included in addition to balance training (Sherrington et al., 2012).
**Interventions: Medication Management**

Referral Cue: **Pharmacists** have expertise that supports this area of intervention.

- A reduction in the total number of medications or dose of individual medications should be pursued; all medications should be reviewed and minimized or withdrawn.
- Psychoactive medications (e.g., sedative hypnotics, anxiolytics, antidepressants, antipsychotics, and even pain medications should be minimized or withdrawn, with appropriate tapering if indicated.
- Keep in mind that non-pharmacologic strategies to reduce fall risk are paramount.
- Vitamin D supplementation continues to be controversial.
  - For patients at low fall risk: There is no indication for measuring or supplementing vitamin D concentrations.
  - For patients at high risk of falls or fall-related fractures: Consider discussing the role of vitamin D measurement and supplementation with their health care provider.

**(AGS, BSA, 2011)**

**Interventions: Home Safety**

Comprehensive home safety interventions not only remove or minimize hazards in the home but also promote the safe performance of daily activities.

HOME SAFETY INTERVENTIONS INCLUDE:
- Building older adults’ capacity to recognize existing or potential hazards in and around the home.
- Empowering older adults to take action to reduce falls in and around the home through problem solving and resource utilization.
- Increasing safety practices (e.g., using a walker prescribed by a physical therapist).
- Educating clients and their families/advocates about resources that support mitigation.

**(Clemson et al, 2008)**

**Interventions: Managing Postural Hypotension**

For many people, postural hypotension can be effectively treated with diet and lifestyle changes.

Referral Cue: **Consult with the PCP or NP** to determine the best intervention strategies; depending on the cause of the symptoms, simple changes may be recommended.

Examples:
- Rise from lying down or sitting with care.
- Sit upright on the edge of the bed for a few minutes before standing.
- When sitting on the side of the bed, pump feet/ankles before standing.
- Proceed slowly when moving from sitting to standing.
- Use elastic support (compression) stockings.

**(CDC, 2017)**
Interventions: Managing Foot Problems & Footwear

- Older people should be advised that walking shoes with low heels and high surface contact area may reduce the risk of falls
- **Referral Cue:** Remember *podiatrist are experts* in identification and treatment of foot problems

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Interventions: Managing Visual Impairment

Advise Participants:
- To have an eye exam annually
- Not to wear multifocal lenses while walking, particularly on stairs

Remember That:
- **Referral Cue:** *Ophthalmologists and opticians* are experts in identification and treatment of vision impairments (including cataracts)
- **Referral Cue:** *Occupational therapists* provide problem solving strategies to individuals living with low vision to increase participation in activities of daily living (ADLs), instrumental activities of daily living (IADLs), and other valued activities; some occupational therapists specialize in low vision

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Poll Question

Question: An appropriate intervention to reduce falls is use of restraints

a) True

b) False
Poll Question

Question:
An appropriate intervention to reduce falls is use of restraints

a) True
a) False

Interventions: Participant Education

- Provide an education component complementing and addressing issues specific to the intervention being provided, customized to individual cognitive function and language (American Geriatrics Society and British Geriatrics Society, 2011)
- Many fall prevention strategies involve behavior change for the older adult at risk; examples of behaviors that can reduce fall risk include communicating assertively, changing the way activities are done to make them less challenging, and exercising regularly
- Models, approaches, and techniques that support adaptive behavior change include:
  - Stages of Change Model (Prochaska & Velicer, 1997)
  - Self-Management and Self-Management Support (Barlow et al., 2002; Bodenheimer et al., 2005)
  - Motivational Interviewing (Miller & Rollnick, 2013)

Interventions: Participant Education

STEADI Resources

Brochures
- Stay Independent
- What YOU Can Do To Prevent Falls
- Check For Safety: A Home Fall Prevention Checklist

Forms
- Recommended Programs

Handouts
- Talking About Fall Prevention With Your Patients
  - Emphasizes Prochaska’s Stages of Change Model
- Chair Rise Exercise
- Postural Hypotension: What It Is and How To Manage It
Interventions: Fall Prevention Programs

- Program Details: Stepping On is a multifaceted, group-based, fall prevention program that offers older adults information, strategies, and exercises to break the cycle of inactivity, social isolation, deconditioning and falls, and engage people in a range of relevant fall prevention strategies; the 7-session program is delivered by a professional who works with older adults and who has been trained by a Faculty Trainer from the Wisconsin Institute for Healthy Aging.

- Target Audience: Community-based older adults who are at risk of falling, have a fear of falling, or have fallen one or more times.

- Key Outcomes: Increased knowledge of factors that can contribute to falls; increased engagement in fall prevention behaviors; reduced falls.

- https://wihealthyaging.org/stepping-on

(Chesner et al., 2006)

Interventions: Fall Prevention Programs

- Program Details: A Matter of Balance is an 8-week structured group intervention that emphasizes practical strategies to reduce fear of falling and increase activity levels.

  o Participants learn to view falls and fear of falling as controllable, set realistic goals to increase activity, change their environment to reduce fall risk factors, and exercise to increase strength and balance.

  o The program is delivered by master trainers who are themselves trained by lead trainers from Maine Health, or by coaches trained by licensed master trainers.

- Target Audience: Community-based older adults who curtail activity due to fear of falling.

- Key Outcomes: Reduced fear of falling and increased falls self-efficacy; increased activity levels.

- http://www.mainehealth.org/mob

(Healy et al., 2008; Tennstedt et al., 1998; Zijlstra et al., 2009)

Interventions: Fall Prevention Programs

- Program Details: The Otago Exercise Program is a home-based, individualized, strength- and balance-focused exercise program. The program is delivered by physical therapists and consists of home visits occurring over the course of 6 months to a year, telephone calls to maintain motivation, and a booster session.

- Target Audience: People who do not want to attend or cannot reach a group exercise program or recreation facility.

- Key Outcomes: Reduced falls and fall-related injuries.

- For more information, visit the following websites:

  - http://www.med.unc.edu/aging/cgec/exercise-program

(Roberts et al., 2003; Thomas et al., 2003)
Interventions: Fall Prevention Programs

- Program Details: *Tai Ji Quan: Moving for Better Balance* is delivered in two one-hour sessions each week for 24 weeks to groups of older adults; it uses 8 tai chi forms that emphasize weight shifting, postural alignment, and coordinated movements with synchronized breathing
- Target Audience: Older adults with low to moderate risk of falls
- Key Outcomes: Functional balance, strength, and flexibility; reduced fear of falling and risk of falls
- For more information, visit the following websites:
  - http://tjqmbb.org/
  - https://www.ncoa.org/resources/program-summary-tai-ji-quan-movingfor-better-balance

(Lo et al., 2005; Li et al., 2008)

Poll Question

Question:
An important resource that health care providers can use to reduce fall risk is *The STEADI Toolkit*

a) True

a) False
Care Planning Goals

- Remember: These are the patient’s goals, not ours
- Appropriate goals are measurable in both degree and time e.g., 50% reduction in falls in 4 weeks
- Sample short-term (STG) and long-term goals (LTG)
  - STG: The client will independently recognize and address at least 3 potential fall risks while showering within 1 week
  - LTG: The client will shower independently with use of a shower chair within 2 weeks
- Agreement on goals among interdisciplinary team members (including the participant) is essential

Poll Question

Question:

The incidence of falls and the severity of complications stemming from a fall increase with age, level of disability, and extent of functional impairment

a) True

a) False