Interprofessional Geriatrics Training Program

Preventing Falls Among Community-Dwelling Older Adults

Acknowledgements

Author: Elizabeth Peterson, PhD, OTR/L, FAOTA

Editors: Valerie Gruss, PhD, APN, CNP-BC

Memoona Hasnain, MD, MHPE, PhD

Expert Interviewees: Elizabeth Peterson, PhD, OTR/L, FAOTA

Michael Koronkowski, PharmD, CGP

Background

- Falls are the leading cause of injury related morbidity and mortality among older adults, with more than one in three older adults falling each year, resulting in direct medical costs of nearly $30 billion (Stevens et al., 2006)
- Some of the major consequences of falls among older adults are hip fractures, brain injuries, decline in functional abilities, and reduction in social and physical activities (Rubenstein & Josephson, 2006)

Background

- Approximately half of the community-living older population experiences fear of falling (Tinetti et al., 1990)
- Activity avoidance, due to fear of falling, can have negative effects on physical abilities (Delbaere et al., 2004)
- 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)

Learning Objectives

Upon completion of this module, learners will be able to:

1. Explain the significance of falls in terms of prevalence, cost, and associated morbidity and mortality and impact on quality of life
2. Describe strategies to assess for fall risk that reflect careful consideration of diverse and interacting fall risk factors
3. Differentiate among multiple, single, and multifactorial fall prevention interventions
4. Recognize that multiple, single, and multifactorial fall prevention interventions are often complementary

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Learning Objectives

5. Describe the purpose and components of the U.S. Centers for Disease Control and Prevention's (CDC) *Stopping Elderly Accidents, Death, and Injuries* (STEADI) Toolkit
6. Summarize key features of four evidence-based and community-based interventions: *Otago; Tai Ji Quan: Moving for Better Balance; Stepping On;* and *Matter of Balance*
7. Identify strategies and resources that health providers can use to reduce fall risk among community-dwelling older adults

Etiology of Falls

Etiology: Falls Among Community-Dwelling Older Adults

- 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 & Ganz, 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)

Assessment

Assessment: Overview

- Because falls are typically caused by diverse, interacting risk factors a fall risk assessment must be comprehensive
  - Requires expertise of an interprofessional health care team
  - A clinician (or clinicians) with appropriate skills and training should perform the multifactorial fall risk assessment
  - A multifactorial fall risk assessment includes:
    - Focused history
    - Physical examination
    - Functional assessment
    - Environmental assessment

(American Geriatrics Society and British Geriatrics Society, 2011)

Assessment: Approach To The Patient

When Taking a Focused Fall History, Remember That:

- The health care provider typically needs to initiate the conversation about falls

Assessment: Approach To The Patient

The Health Care Provider Should Explain That:

- Many falls can be prevented
- Identifying risk factors *that can be changed* is key: for instance, exercise habits or habits contributing to or reducing fall risk in the home
- While it may not be possible to eliminate or reduce all risk factors, even addressing some risk factors can reduce the likelihood of experiencing a fall
- An all-or-nothing approach to fall prevention does not apply
- Preventing falls is a collaborative effort between the patient and the health care team
- Fall prevention is also an ongoing effort because risk factors for falls change over time
- The *Medicare Annual Wellness Visit* is a great opportunity for a patient to discuss falls and fall risk factors with their health care provider

Focused History

History of Falls

- Detailed description of the circumstances of the fall(s), frequency, symptoms at time of fall, injuries sustained, and other consequences

Medication Review

- Review all prescribed and over-the-counter (OTC) medications with dosages
- Assess carefully for use of psychoactive medications, medications with anticholinergic side effects, and/or sedating OTCs

- *Referral Cue: Pharmacists are important contributors to this area of assessment*

History of Relevant Risk Factors

- Acute or chronic multiple medical problems (e.g., dementia, urinary tract infection, incontinence, and cardiovascular disease, osteoporosis [not in narration])

(American Geriatrics Society and British Geriatrics Society, 2011)

Interview with Expert:
Elizabeth Peterson, PhD, OTR/L, FAOTA

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Assessment: Approach to the Patient
Elizabeth Peterson, PhD, OTR/L, FAOTA

- Use a normative approach to asking about past falls and fear of falling

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?"*

Assessment: Approach to the Patient
Elizabeth Peterson, PhD, OTR/L, FAOTA

Instead Of:	Say/Ask:
• *"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"*

Assessment: Approach to the Patient
Elizabeth Peterson, PhD, OTR/L, FAOTA

Instead Of:	Say/Ask:
• *"Are you afraid of falling?"*	• *"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?"*

Assessment of Fear of Falling: Falls Self-Efficacy

- To conduct a thorough assessment of fear of falling, consider use of the *Falls Efficacy Scale-International (FES-I)*
- The FES-I is a valid and reliable instrument that can be used to assess for changes in falls self-efficacy (i.e., perceived self-efficacy or confidence at avoiding falls during essential, nonhazardous activities of daily living)
- It assesses the level of concern about falling when carrying out 16 activities on a four-point scale
  - 1 = *not at all concerned*, 4 = *very concerned*

(Kempen et al., 2008; Yardley et al., 2005)

Assessment of Fear of Falling: Falls Self-Efficacy

- Both easy and difficult physical activities and social activities are represented in the tool, and the FES-I is suitable for use in a range of languages and cultural contexts
- The tool is available in its original (16-item) form and in a short (7-item) form
- The FES-I can be accessed by joining the *Prevention of Falls Network Earth* (http://profane.co/), which offers news, articles, and support for all fall prevention professionals
- Cost: £12 per annum (US$16)

(Kempen et al., 2008; Yardley et al., 2005)

Assessment Question 1

Mr. Cubias experienced one fall in the past year. His physical therapist asked him if he was not at all afraid, somewhat afraid, fairly afraid, or very afraid of falling, and Mr. Cubias replied "fairly afraid." Should the physical therapist be concerned about Mr. Cubias' answer to that question?

Assessment Question 1

a) No, because among older adults, some level of fear of falling is useful and protective

b) No, because Mr. Cubias has had only one, non-injurious fall in the last year and is not at high risk for future falls, regardless of his apparent concern

c) No, because he describes himself as a socially active person, indicating normal activity levels despite his concern

d) Yes, because fear of falling could lead to Mr. Cubias cutting back on activities he is capable of performing safely and lead to deconditioning

e) Yes, because concerns about falling are never protective and always lead to undue activity curtailment

Assessment Question 1: Answer

a) No, because among older adults, some level of fear of falling is useful and protective

b) No, because Mr. Cubias has had only one, non-injurious fall in the last year and is not at high risk for future falls, regardless of his apparent concern

c) No, because he describes himself as a socially active person, indicating normal activity levels despite his concern

d) Yes, because fear of falling could lead to Mr. Cubias cutting back on activities he is capable of performing safely and lead to deconditioning (Correct Answer)

e) Yes, because concerns about falling are never protective and always lead to undue activity curtailment

Physical Examination

Physical Examination

Detailed Assessment Of:

- Gait, balance, mobility levels, and lower extremity joint function
  - Refer to 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/
- Muscle strength (lower extremities)
- *Referral Cue: Physical therapists are important contributors to this area of assessment*

(American Geriatrics Society and British Geriatrics Society, 2011)

Physical Examination

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

(American Geriatrics Society and British Geriatrics Society, 2011)

Interview with Expert:
Elizabeth Peterson, PhD, OTR/L, FAOTA

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Functional Assessment

- Assessment of activities of daily living (ADL) skills, including use of adaptive equipment and mobility aids as appropriate
- *Referral Cue: Occupational therapists have expertise in functional assessment*
- *Referral Cue: 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)

Comprehensive Environmental Assessment, Including Home Safety

A Comprehensive Environmental Assessment Involves:

- 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)

Comprehensive Environmental Assessment, Including Home Safety

A Comprehensive Environmental Assessment Involves:

- Judgements regarding existence 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 (Nikolaus et al., 1995; Peterson & Clemson, 2008)
- *Referral Cue: Occupational therapists are important contributors to this area of assessment*

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Assessment Resource

STEADI Stopping Elderly Accidents, Deaths & Injuries

- 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/

(CDC, 2015)

STEADI-Based Assessment Resources

Resource Description	Link
Algorithm for Fall Risk Assessment and Interventions	http://www.cdc.gov/steadi/pdf/algorithm_2015-04-a.pdf
The *Fall Risk Checklist*: A checklist that allows health care providers to summarize an older patient's fall risk	http://www.cdc.gov/steadi/pdf/fall_risk_checklist-a.pdf
The *Stay Independent* Brochure: Includes a 12-question self-assessment	http://www.cdc.gov/steadi/pdf/stay_independent_brochure-a.pdf

STEADI-Based Assessment Resources

Resource Description	Link
The *Provider Pocket Guide*: an easy-to-use tool that walks health care providers through key points of fall prevention	http://www.cdc.gov/steadi/pdf/preventing_falls_in_older_patients_provider_pocket_guide_2015-a.pdf
Simple, evidence-based balance and gait tests, as well as case studies	http://www.cdc.gov/steadi/materials.html

STEADI-Based Assessment Resources

Resource Description	Link
Provider training materials, including instructional videos	http://www.cdc.gov/steadi/pdf/case_study_1-a.pdf
Referral forms targeting both clinical specialists and community programs	http://www.cdc.gov/steadi/videos.html

Assessment Question 2

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 instructional 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

Assessment Question 2: Answer

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 instructional 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 (Correct Answer)

UIC ENGAGE - IL
Enhancement of Geriatric Care for All

Interventions

Interventions

- Over the past 25 years, an explosion of research across disciplines has deepened our understanding of effective fall prevention interventions specifically targeting community-dwelling older adults
- For older community residents, effective fall prevention has the potential to reduce serious fall-related injuries, emergency department visits, hospitalizations, nursing home placements, and functional decline

(American Geriatrics Society and British Geriatrics Society, 2011)

Interventions

Fall Prevention Interventions Can be Categorized As:

- Multifactorial
- Multiple
- Single

(Gillespie et al., 2012)

Interventions

Multifactorial

- Clients receive different combinations of interventions based on the risk factors identified through individualized assessment
- In other words, the “intervention package” is customized

(Gillespie et al., 2012)

Interventions

Multiple

- Consists of a fixed combination of two or more major categories of intervention (e.g., exercise, home safety) delivered to all participants

Single

- Consists of only one major category of intervention (e.g., exercise, vitamin D supplement)

(Gillespie et al., 2012)

Interventions

- Multifactorial, multiple, and single interventions can be complementary

General Strategies

Multifactorial Interventions: General Strategies

- The health professional or team conducting the fall risk assessment should directly implement the interventions or ensure that other qualified health care professionals conduct the interventions
- It is important to coordinate the management of care, including pharmacological interventions, behavioral interventions (e.g., promoting use of mobility devices or durable medical equipment such as shower chairs), and community resources across settings and providers

(American Geriatrics Society and British Geriatrics Society, 2011)

Multifactorial Interventions: Exercise Considerations

- Exercise is consistently recognized as an important component of multifactorial interventions for fall prevention in community-residing older persons
- Many community-based service providers (e.g., senior centers, Area Agencies on Aging) are providing exercise programming for older adults
- *Referral Cue: Remember that physical therapists are experts in exercise interventions*

(American Geriatrics Society and British Geriatrics Society, 2011; Gillespie et al., 2012)

Multifactorial Interventions: Exercise Considerations

- 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 ($\geq$ 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
- *Referral Cue: Exercise prescription should be created by a qualified health professional*

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

(Sherrington et al., 2011)

Interview with Expert: Michael Koronkowski, PharmD, CGP

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Multifactorial Interventions: Pharmacological Components

- 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 (e.g., new antidepressants or 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

(American Geriatrics Society and British Geriatrics Society, 2011)

Multifactorial Interventions: Pharmacological Components

- 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 physician
- *Referral Cue: Remember that pharmacists have expertise that supports this area of intervention*

Home Safety Interventions

Multifactorial Interventions: Home Safety Considerations

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

Multifactorial Interventions: Home Safety Considerations

- Comprehensive 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)

Multifactorial Interventions: Home Safety Considerations

- To locate state or local Area Agencies on Aging, go to:
  - http://www.aoa.gov/AoA_programs/OAA/How_To_Find/Agencies/find_agencies.aspx
- *Referral Cue: Social workers are important contributors in this area of intervention*

Multifactorial Interventions: Home Safety Considerations

- Adequate follow-up is an important contributor to success
- *Referral Cue: Remember that occupational therapists have expertise that supports this area of intervention*

(American Geriatrics Society and British Geriatrics Society, 2011)

Multifactorial Interventions: Managing Postural Hypotension

Multifactorial Interventions: Managing Postural Hypotension

- For many people, postural hypotension can be effectively treated with diet and lifestyle changes
- Consult with the physician 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, 2015)

Multifactorial 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

  (American Geriatrics Society and British Geriatrics Society, 2011)

- *Referral Cue: Remember that podiatrists are experts in identification and treatment of foot problems*

Multifactorial Interventions: Managing Vision Impairment

Advise Older Adults:

- 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*

(American Geriatrics Society and British Geriatrics Society, 2011)

Multifactorial Interventions: Education-Related Considerations

Multifactorial Interventions: Education-Related Considerations

- 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)

Multifactorial Interventions: Education-Related Considerations: Resources Supporting Patient 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

(CDC, 2015)

Assessment Question 3

Which of the following statements should Mr. Cubias' health care provider make to provide accurate information about fall prevention assessment and intervention strategies to Mr. Cubias?

a) "Over-the-counter medications cannot contribute to fall risk"
b) "Diet and lifestyle changes alone are never enough to prevent your blood pressure from dropping when you move from lying down to standing"
c) "We can comprehensively assess for environmental fall hazards in a home without involving the patient"
d) "To improve balance, it will be important to engage in an exercise program that provides a low to moderate challenge to balance"
e) "While it may not be possible to eliminate or reduce all risk factors, even addressing some modifiable risk factors can reduce the likelihood of experiencing a fall"

UIC ENGAGE - IL
Enhancement of Geriatric Care for All

Assessment Question 3: Answer

Which of the following statements should Mr. Cubias' health care provider make to provide accurate information about fall prevention assessment and intervention strategies to Mr. Cubias?

a) "Over-the-counter medications cannot contribute to fall risk"
b) "Diet and lifestyle changes alone are never enough to prevent your blood pressure from dropping when you move from lying down to standing"
c) "We can comprehensively assess for environmental fall hazards in a home without involving the patient"
d) "To improve balance, it will be important to engage in an exercise program that provides a low to moderate challenge to balance"
e) "While it may not be possible to eliminate or reduce all risk factors, even addressing some modifiable risk factors can reduce the likelihood of experiencing a fall" (Correct Response)

UIC ENGAGE - IL
Enhancement of Geriatric Care for All

Multiple Interventions

Multiple Interventions: Two Examples

- Reminder: Multiple interventions consist of a fixed combination of two or more major categories of intervention (e.g., exercise, home safety) delivered to all participants
- In this section, *Stepping On* and *Matter of Balance* are highlighted as exemplary, evidence-based, multiple interventions

Multiple Interventions: *Stepping On*

- 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

(Clemson et al., 2004)

Multiple Interventions: *Stepping On*

- For information, visit the following websites:
  - https://wihealthyaging.org/stepping-on
  - https://www.ncoa.org/resources/program-summary-stepping-on

Interview with Expert: Elizabeth Peterson, PhD, OTR/L, FAOTA

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Multiple Interventions: *Matter of Balance*

- 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. 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. The program is delivered by master trainers who are themselves trained by lead trainers from MaineHealth, 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

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

Multiple Interventions: *Matter of Balance*

- For more information, visit the following websites:
  - http://www.mainehealth.org/mob
  - https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults/

Assessment Question 4

If Mr. Cubias completes the* Matter of Balance *program, would it be appropriate for his health care provider to refer him to an exercise-focused (i.e., "single") fall prevention intervention?

Assessment Question 4

a) Yes, because the *Matter of Balance* program is a group intervention that includes exercises as one component of a comprehensive intervention that emphasizes practical strategies to reduce fear of falling and increase activity levels
b) Yes, because the *Matter of Balance* program is an evidence-based program that primarily focuses on reducing fall risk by improving balance, and other types of exercises (e.g., lower extremity strengthening program) are also essential to reduce fall risk
c) Yes, because the *Matter of Balance* program is designed for older adults with moderate to severe balance impairment, and, following completion of the *Matter of Balance* program, Mr. Cubias may benefit from an exercise program targeting older adults with mild balance impairment

(Continued)

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Assessment Question 4

d) No, because there is a high level of redundancy between "multiple" and "single" fall prevention interventions

e) No, because the potential for overlap between the skills learned through the *Matter of Balance* program and the skills learned through an exercise program is great

Assessment Question 4: Answer

a) Yes, because the *Matter of Balance* program is a group intervention that includes exercises as one component of a comprehensive intervention that emphasizes practical strategies to reduce fear of falling and increase activity levels (Correct Answer)

b) Yes, because the *Matter of Balance* program is an evidence-based program that primarily focuses on reducing fall risk by improving balance, and other types of exercises (e.g., lower extremity strengthening program) are also essential to reduce fall risk

c) Yes, because the *Matter of Balance* program is designed for older adults with moderate to severe balance impairment, and following completion of the *Matter of Balance* program, Mr. Cubias may benefit from an exercise program targeting older adults with mild balance impairment

Assessment Question 4: Answer

d) No, because there is a high level of redundancy between “multiple” and “single” fall prevention interventions
e) No, because the potential for overlap between the skills learned through the *Matter of Balance* program and the skills learned through an exercise program is great

Single Interventions

Single Interventions: Two Examples

- Reminder: Single interventions consist of only one major category of intervention (e.g., exercise, Vitamin D supplement)
- In this section, the *Otago* Exercise Program and *Tai Ji Quan: Moving for Better Balance* are highlighted as exemplary, evidence-based, single interventions
  - Note: not all single interventions are exercise interventions

Single Interventions: *Otago*

- 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
  - https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults/

(Robertson et al., 2002; Thomas et al., 2010)

Single Interventions: *Tai Ji Quan: Moving For Better Balance*

- 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-moving-for-better-balance

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

Assessment Question 5

With respect to fall prevention programs, which of the following reflects the best referral option statement for Mr. Cubias, who routinely leaves his house to socialize?

a) Mr. Cubias should not be referred to a fall prevention program at this time because he has not yet attempted to address his fall risk factors on his own or without outside assistance

b) Mr. Cubias should not be referred to a fall prevention program at this time because he has not sustained an injurious fall in the past 6 months

c) Mr. Cubias should be referred to a fall prevention program if he initiates a conversation to explore the availability and usefulness of such programs

d) Mr. Cubias should be referred to the *Otago* Exercise Program because it is a home-based, individualized program and Mr. Cubias is homebound

e) Mr. Cubias should be referred to *Tai Ji Quan: Moving for Better Balance,* a group-based program that the potential to address his expressed desire to be more social and reduce his risk for falls

ENHANCE
Enhancement of Geriatric Care for All

Assessment Question 5: Answer

With respect to fall prevention programs, which of the following reflects the best referral option statement for Mr. Cubias, who routinely leaves his house to socialize?

a) Mr. Cubias should not be referred to a fall prevention program at this time because he has not yet attempted to address his fall risk factors on his own/without outside assistance

b) Mr. Cubias should not be referred to a fall prevention program at this time because he has not sustained an injurious fall in the past 6 months

c) Mr. Cubias should be referred to a fall prevention program if he initiates a conversation to explore the availability and usefulness of such programs

(Continued)

Assessment Question 5: Answer

With respect to fall prevention programs, which of the following reflects the best referral option statement for Mr. Cubias, who routinely leaves his house to socialize?

d) Mr. Cubias should be referred to the *Otago* Exercise Program because it is a home-based, individualized program and Mr. Cubias is homebound

e) Mr. Cubias should be referred to *Tai Ji Quan: Moving for Better Balance*, a group-based program that has the potential to address his expressed desire to be more social and reduce his risk for falls (Correct Answer)

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 and long-term goals
  - 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 patient) is essential

Resources

http://www.aoa.gov/AoA_programs/OAA/How_To_Find/Agencies/find_agencies.aspx Accessed October 9, 2016
http://www.aota.org/consumers/aging Accessed October 9, 2016
http://www.aota.org/-/media/corporate/files/practice/aging/rebuilding-together/rt-aging-in-place-safe-at-home-checklist.pdf Accessed October 9, 2016
http://www.apta.org/BalanceFalls/ Accessed October 9, 2016
http://www.cdc.gov/homeandrecreationalsafety/falls/index.html Accessed October 9, 2016
http://www.cdc.gov/steadi/ Accessed October 9, 2016
https://www.cdc.gov/steadi/pdf/algorithm_2015-04-a.pdf Accessed October 9, 2016
http://www.cdc.gov/steadi/pdf/fall_risk_checklist-a.pdf Accessed October 9, 2016
http://www.cdc.gov/steadi/materials.html Accessed October 9, 2016
http://www.cdc.gov/steadi/pdf/case_study_1-a.pdf Accessed October 9, 2016
http://www.cdc.gov/steadi/pdf/preventing_falls_in_older_patients_provider_pocket_guide_2015-a.pdf Accessed October 9, 2016
http://www.cdc.gov/steadi/pdf/stay_independent_brochure-a.pdf Accessed October 9, 2016
http://www.cdc.gov/steadi/videos.html Accessed October 9, 2016 Accessed October 9, 2016
http://www.eldercare.gov/Eldercare.NET/Public/Index.aspx
https://go4life.nia.nih.gov/ Accessed October 9, 2016
http://www.homemods.org Accessed October 9, 2016
http://www.mainehealth.org/mob Accessed October 9, 2016
http://www.med.unc.edu/aging/cgec/exercise-program Accessed October 9, 2016
https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults/
https://www.ncoa.org/healthy-aging/falls-prevention/falls-free-initiative/ Accessed October 9, 2016
https://www.ncoa.org/resources/program-summary-tai-ji-quan-moving-for-better-balance https://www.ncoa.org/resources/program-summary-stepping-on
Accessed October 9, 2016
http://newcart.niapublications.org Accessed October 9, 2016
http://profane.co/ Accessed October 9, 2016
http://www.rebuildingtogether.org Accessed October 9, 2016
http://www.rehabmeasures.org/ Accessed October 9, 2016
http://www.stopfalls.org/ Accessed October 9, 2016
http://tjqmbb.org/ Accessed October 9, 2016

Resources

https://wihealthyaging.org/stepping-on Accessed October 9, 2016
https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults/ Accessed October 9, 2016
https://www.ncoa.org/healthy-aging/falls-prevention/falls-free-initiative/ Accessed October 9, 2016
https://www.ncoa.org/resources/program-summary-tai-ji-quan-moving-for-better-balance Accessed October 9, 2016
https://www.ncoa.org/resources/program-summary-stepping-on Accessed October 9, 2016
http://newcart.niapublications.org Accessed October 9, 2016
http://profane.co/ Accessed October 9, 2016
http://www.rebuildingtogether.org Accessed October 9, 2016
http://www.rehabmeasures.org/ Accessed October 9, 2016
http://www.stopfalls.org/ Accessed October 9, 2016
http://tjqmbb.org/ Accessed October 9, 2016
https://wihealthyaging.org/stepping-on Accessed October 9, 2016

References

American Geriatrics Society (AGS) and British Geriatrics (BGS) Society, Panel on Prevention of Falls in Older Persons. (2011). Summary of the Updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. *J Am Geriatr Soc, 59*(1), 148-157. doi:10.1111/j.1532-5415.2010.03234.x (also available at http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/prevention_of_falls_summary_of_recommendations. Accessed July 6, 2016).

Barlow J, Wright C, Sheasby J, Turner A, & Hainsworth J. (2002). Self-management approaches for people with chronic conditions: a review. *Patient Educ Couns*, 48(2), 177-187.

Bodenheimer T, MacGregor K, & Sharifi C. (2005). *Helping patients manage their chronic conditions*. Retrieved from http://www.chcf.org/publications/2005/06/helping-patients-manage-their-chronic-conditions. Accessed July 6, 2016

Centers for Disease Control and Prevention. (2015). *STEADI: Stopping Elderly Accidents, Deaths & Injuries*. Retrieved from http://www.cdc.gov/steadi/. Accessed July 6, 2016

Chang JT & Ganz DA. (2007). Quality indicators for falls and mobility problems in vulnerable elders. *J Am Geriatr Soc*, 55 Suppl 2, S327-334. doi:10.1111/j.1532-5415.2007.01339.x

Clemson, L. (1997). *Home fall hazards. A guide to identifying fall hazards in the homes of elderly people and an accompaniment to the assessment tool, the Westmead Home Safety Assessment*. West Brunswick, Australia: Coordinates Publications.

Clemson L, Cumming RG, Kendig H, Swann M, Heard R, & Taylor K. (2004). The effectiveness of a community-based program for reducing the incidence of falls in the elderly: a randomized trial. *J Am Geriatr Soc*, 52(9), 1487-1494. doi:10.1111/j.1532-5415.2004.52411.x

Clemson L, Fitzgerald MH, & Heard R. (1999). Content validity of an assessment tool to identify home fall hazards: The Westmead Home Safety Assessment. *Brit J Occup Ther*, 62(4), 171-179. doi:10.1177/030802269906200407

Clemson L, Mackenzie L, Ballinger C, Close JC, & Cumming RG. (2008). Environmental interventions to prevent falls in community-dwelling older people: a meta-analysis of randomized trials. *J Aging Health*, 20(8), 954-971. doi:10.1177/0898264308324672

References

Delbaere K, Crombez G, Vanderstraeten G, Willems T, & Cambier D. (2004). Fear-related avoidance of activities, falls and physical frailty. A prospective community-based cohort study. *Age Ageing*, 33(4), 368-373. doi:10.1093/ageing/afh106

Gillespie LD, Robertson MC, Gillespie WJ, Sherrington C, Gates S, Clemson LM, & Lamb SE. (2012). Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev*(9), Cd007146. doi:10.1002/14651858.CD007146.pub3

Healy TC, Peng C, Haynes MS, McMahon EM, Botler JL, & Gross L. (2008). The feasibility and effectiveness of translating a Matter of Balance into a volunteer lay leader model. *J Appl Gerontol*, 27(1), 34-51. doi:10.1177/0733464807308620

Kempen GI, Yardley L, van Haastregt JC, Zijlstra GA, Beyer N, Hauer K, & Todd C. (2008). The Short FES-I: a shortened version of the falls efficacy scale-international to assess fear of falling. *Age Ageing*, 37(1), 45-50. doi:10.1093/ageing/afm157

Li F, Harmer P, Fisher KJ, McAuley E, Chaumeton N, Eckstrom E, & Wilson NL. (2005). Tai Chi and fall reductions in older adults: a randomized controlled trial. *J Gerontol A Biol Sci Med Sci*, 60(2), 187-194.

Li F, Harmer P, Glasgow R, Mack KA, Sleet D, Fisher KJ, Kohn MA, Millet LM, Mead J, Xu J, Lin ML, Yang T, Sutton B, & Tompkins Y. (2008). Translation of an effective tai chi intervention into a community-based falls-prevention program. *Am J Public Health*, 98(7), 1195-1198. doi:10.2105/ajph.2007.120402

Miller WR, & Rollnick S. (2013). *Motivational interviewing: Helping people change* (3rd ed.) New York, NY: Guilford Press.

Nikolaus T, Detterbeck H, Gartner U, Gnielka M, Lempp-Gast I, Renk C, Suckrohrig U, Oster P, & Schlierf G. (1995). Der diagnostische hausbesuch im rahmen des stationaren geriatrischen assessments [The diagnostic home visit in the context of hospital-based geriatric assessment]. *Zeitschrift fur Gerontologie und Geriatrie*, 28, 14-18.

Oakley A, Dawson MF, Holland J, Arnold S, Cryer C, Doyle Y, Rice J, Hodgson CR, Sowden A, Sheldon T, Fullerton D, Glenny AM, & Eastwood A. (1996). Preventing falls and subsequent injury in older people. *Qual Health Care*, 5(4), 243-249.

Peterson EW, & Clemson L. (2008). Understanding the role of occupational therapy in fall prevention for community-dwelling older adults. *OT Practice*, 13(3), CE1–CE8.

Prochaska JO & Velicer WF. (1997). The transtheoretical model of health behavior change. *Am J Health Promot*, 12(1), 38-48.

Robertson MC, Campbell AJ, Gardner MM, & Devlin N. (2002). Preventing injuries in older people by preventing falls: a meta-analysis of individual-level data. *J Am Geriatr Soc*, 50(5), 905-911.

References

Rubenstein LZ, & Josephson KR. (2006). Falls and their prevention in elderly people: what does the evidence show? *Med Clin North Am*, 90(5), 807-824. doi:10.1016/j.mcna.2006.05.013

Sherrington C, Tiedemann A, Fairhall N, Close JC, & Lord SR. (2011). Exercise to prevent falls in older adults: an updated meta-analysis and best practice recommendations. *N S W Public Health Bull*, 22(3-4), 78-83. doi:10.1071/nb10056

Stevens JA, Corso PS, Finkelstein EA, & Miller TR. (2006). The costs of fatal and non-fatal falls among older adults. *Inj Prev*, 12(5), 290-295. doi:10.1136/ip.2005.011015

Tennstedt S, Howland J, Lachman M, Peterson E, Kasten L, & Jette A. (1998). A randomized, controlled trial of a group intervention to reduce fear of falling and associated activity restriction in older adults. *J Gerontol B Psychol Sci Soc Sci*, 53(6), P384-392.

Thomas S, Mackintosh S, & Halbert J. (2010). Does the 'Otago exercise programme' reduce mortality and falls in older adults?: a systematic review and meta-analysis. *Age Ageing*, 39(6), 681-687. doi:10.1093/ageing/afq102

Tinetti ME, & Kumar C. (2010). The patient who falls: "It's always a trade-off". *JAMA*, 303(3), 258-266. doi:10.1001/jama.2009.2024

Tinetti ME, Speechley M, & Ginter SF. (1988). Risk factors for falls among elderly persons living in the community. *N Engl J Med*, 319(26), 1701-1707. doi:10.1056/nejm198812293192604

van Weel C, Vermeulen H & van den Bosch W. (1995). Falls, a community care perspective. *Lancet*, 345(8964), 1549-1551.

Yardley L, Beyer N, Hauer K, Kempen G, Piot-Ziegler C, & Todd C. (2005). Development and initial validation of the Falls Efficacy Scale-International (FES-I). *Age Ageing*, 34(6), 614-619. doi:10.1093/ageing/afi196

Zijlstra GA, van Haastregt JC, Ambergen T, van Rossum E, van Eijk JT, Tennstedt SL, & Kempen GI. (2009). Effects of a multicomponent cognitive behavioral group intervention on fear of falling and activity avoidance in community-dwelling older adults: results of a randomized controlled trial. *J Am Geriatr Soc*, 57(11), 2020-2028. doi:10.1111/j.1532-5415.2009.02489.x