

Home Safety Assessments: Evidence Based Strategies to Decrease Falls and Improve Mobility

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HOME THERAPY SOLUTIONS, LLC

PROVIDING THERAPY SERVICES IN GRAND FORKS, ND; EAST GRAND FORKS, MN; AND SURROUNDING AREAS




Home Modifications | Certified Aging-in-Place Specialist

Home Safety | Senior Home Safety Specialist™

Objectives

1. Describe the impact of falls and the costs associated with falls.
2. Identify professional screening options for falls that address Medicare & CDC Guidelines.
3. Describe Medicare and CDC guideline recommendations for interventions.
4. Understand the evidence for OT Home Safety Evaluations and the process involved.



A photograph of a man in a light blue shirt and jeans falling backwards on a staircase. He is holding his head with both hands, and his legs are in the air. The staircase has a wooden handrail. The background is a plain wall.

Objective #1: Impact of falls and the costs associated with falls.

(01)



1 in 4 older adults
reported falling in
2018 = 36 million falls.

(CDC Older Adult Falls Fact Sheet)

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by 2030
expected to be 52
million falls.

(CDC Older Adult Falls Fact Sheet)

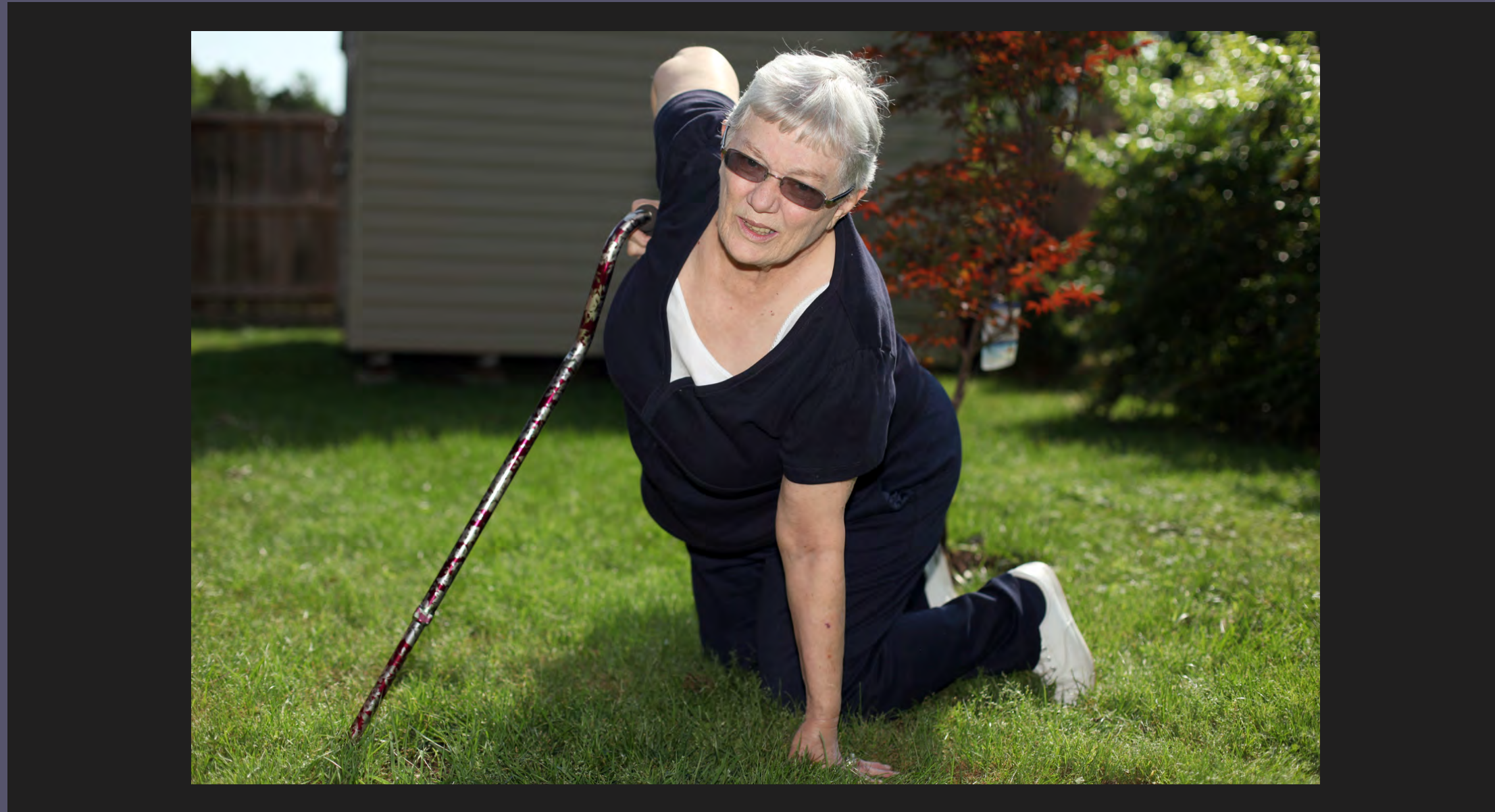
55% OF FALL INJURIES AMONG OLDER PEOPLE OCCUR INSIDE THE HOME.

(Age Safe America: Home Safety for Seniors = Statistics and Solutions)



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23% of fall injuries happen outside but near the house.



(Age Safe America: Home Safety for Seniors = Statistics and Solutions)

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Adults 65+

Total Medical Costs for Non Fatal Falls in 2015 ??





\$50 Billion

<https://www.cdc.gov/homeandrecreationalafety/falls/data/fallcost.htm>

<https://www.cdc.gov/homeandrecreationalafety/falls/adultfalls.html>

Adults 65+

Amount Spent Related to Fatal Falls??



\$754 million

<https://www.cdc.gov/homeandrecreationalafety/falls/data/fallcost.htm>

<https://www.cdc.gov/homeandrecreationalafety/falls/adultfalls.html>



Other Costs of Falls?

800,000 patients hospitalized because of a fall.

1 out of 5 falls = Serious Injury

300,000 hospitalized for hip fractures

Falls most common cause of TBI

Increased Fear of Falls

Less Active

Increased Weakness

<https://www.cdc.gov/falls/facts.html>

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Decreased Social Participation

Increased Loneliness

Increased Isolation

Increased Depression

Increased Anxiety

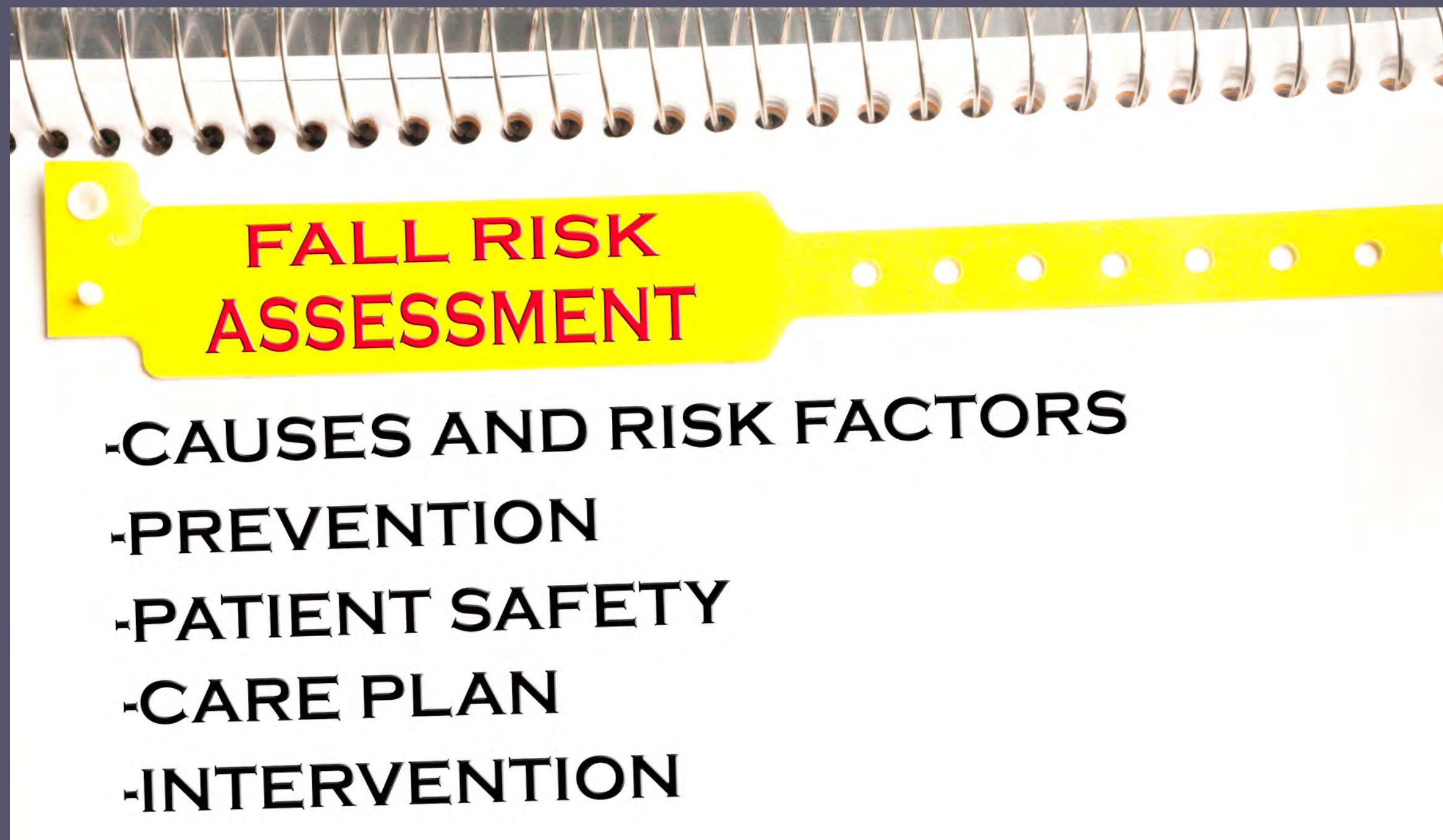
Decreased ability to complete daily occupations

Increased dependence on others

Decline in Independence = Change of living environment

Objective #2:

Identify professional screening options for falls that address Medicare & CDC Guidelines



Assessment and Management of Fall Risk in Primary Care Settings ~ 2015

Phelan, Mahoney, Voit, & Stevens

- Less than 50% of older adults who have fallen talk to their providers about it.
- Guidelines state that providers need to ask about falls at least annually.
- Three key risk factors: Balance, Medications, and Home Safety should be addressed in everyone at high risk.

CDC's STEADI Initiative: Stopping Elderly Accidents, Deaths, and Injuries

1. Screen:

- a. Stay Independent Brochure
- b. Three Questions
 - i. Have you fallen in the past year?
 - ii. Do you feel unsteady when standing or walking?
 - iii. Are you worried about falling?

2. Assess:

- a. Gait, strength, balance tests
- b. Identify medications taken that increase falls risk
- c. Ask about home hazards
- d. Measure orthostatic blood pressure
- e. Check visual acuity
- f. Assess feet and footwear
- g. Assess Vitamin D intake
- h. Identify comorbidities that increase falls

START HERE

1 SCREEN for fall risk yearly, or any time patient presents with an acute fall.

Available Fall Risk Screening Tools:

- **Stay Independent:** a 12-question tool [at risk if score ≥ 4]
- **Important:** If score < 4 , ask if patient fell in the past year (if YES \rightarrow patient is at risk)

- **Three key questions** for patients [at risk if YES to any question]
 - Feels unsteady when standing or walking?
 - Worries about falling?
 - Has fallen in past year?
 - If YES ask, "How many times?" "Were you injured?"

SCREENED NOT AT RISK

PREVENT future risk by recommending effective prevention strategies.

- Educate patient on fall prevention
- Assess vitamin D intake
 - If deficient, recommend daily vitamin D supplement
- Refer to community exercise or fall prevention program
- Reassess yearly, or any time patient presents with an acute fall
- Suggest they talk to their healthcare provider today or by their next annual visit

SCREENED AT RISK

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

Common ways to assess fall risk factors are listed below:

Evaluate gait, strength, & balance

Common assessments:

- Timed Up & Go
- 4-Stage Balance Test
- 30-Second Chair Stand

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

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

Measure orthostatic blood pressure (Lying and standing positions)

Check visual acuity

Common assessment tool:

- Snellen eye test

Assess feet/footwear

Assess vitamin D intake

Identify comorbidities

(e.g., depression, osteoporosis)

3 INTERVENE to reduce identified risk factors using effective strategies.

Reduce identified fall risk

- Suggest they talk to their healthcare provider today if possible or within the next month
- Discuss patient and provider health goals
- Develop an individualized patient care plan (see below)

Below are common interventions used to reduce fall risk:

Poor gait, strength, & balance observed

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

Medication(s) likely to increase fall risk

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

Home hazards likely

- Refer to occupational therapist to evaluate home safety

Orthostatic hypotension observed

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

Visual impairment observed

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

Feet/footwear issues identified

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

Vitamin D deficiency observed or likely

- Recommend daily vitamin D supplement

Comorbidities documented

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

*Components of Quick STEADI are highlighted in yellow



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

FOLLOW UP with patient in 30-90 days.

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

Evaluating a Two-Level vs. Three-Level Fall Risk Screening Algorithm for Predicting Falls Among Older Adults ~ 2020

Mielenz, Kanno, Jia, Pullyblank, Sorensen, Estabrooks, Stevens and Strogatz

The Quick 2-Level Steadi is a suitable alternative. It may increase falls prevention programs and lead to decrease risk of falls for older adults.

Quick STEADI: Getting Started with Fall Risk Screening for Older Adults

- For patients 65+:
- Ask 3 key questions:
 1. Do you feel unsteady when standing or walking?
 2. Do you worry about falling?
 3. Did you fall in the past year?
 - Administer the TUG (Timed Up and Go) Test
 - Observe the patient for gait or balance problem

No to all key questions
AND
TUG < 12 seconds
AND
No observed gait or balance problem

**NOT
AT RISK**

Yes to any key question
AND/OR
TUG ≥ 12 seconds
AND/OR
Observed gait or balance problem

AT RISK

Objective #3: Describe Medicare and CDC guideline recommendations for interventions




CDC's STEADI Initiative: Stopping Elderly Accidents, Deaths, and Injuries

- Physical Therapy for gait and balance exercises.
- Community Falls Prevention Programs.
- Optimize Medications.
- **Home Safety Evaluations by Occupational Therapists.**
- Address Posture Hypotension.
- Assess and Manage chronic conditions.
- Talk about fall risk and engage client to develop a falls prevention plan .
- Ensure client has a plan to help with reducing falls.
- Referrals to specialists such as ophthalmologists, podiatrists.
- Recommend Vitamin D Supplements.

<https://www.cdc.gov/steady/pdf/Steady-Coordinated-Care-Plan.pdf>

Objective #4: Understand the evidence for OT Home Safety Evaluations and the process involved.



The background image shows a room in the process of renovation. The floor is covered with a red carpet, and yellow tape is used to mark off sections. The walls are white, and there are some construction materials and tools visible. A doorway is visible on the right side of the image.

Occupational Therapy Fall Prevention Interventions for Community-Dwelling Older Adults: A Systematic Review ~ 2018

Elliott & Leland

Home Assessment, Modification, or Hazard abatement were part of all of the positive studies that included multifactorial interventions.

Effect of Home Modification Interventions on the Participation of Community-Dwelling Adults With Health Conditions: A Systematic Review

Stark, Keglovits, Arbesman, Lieberman ~ 2017

36 articles reviewed

Strong Evidence supporting Single and Multicomponent interventions including home modification interventions.

- Improved function for people with a variety of conditions.
- Reduced risk and rate of falls
- Reduced demands on caregivers

Community Aging in Place, Advancing Better Living for Elders Capable Program

- Interdisciplinary:
 - Registered Nurse: 3-4 visits
 - Occupational Therapist: 4-6 visits.
 - Handyman: Up to \$1,300 in home repairs, modifications, and may purchase assistive devices.
- Evidence based, 5 month program
- Addresses Home Environment
- Designed to increase mobility, functional ability, and ability to age in place
- Low income older adults average improvement about 50% reduction in their degree of disability
- Increases function, lowers hospitalization and nursing home rates.
- Cost-Effect: Program cost on average \$2825 per person; \$22,000 in reduced Medicare costs over 2 years

RANDOMISED CONTROLLED TRIAL OF PREVENTION OF FALLS IN PEOPLE AGED \geq 75 WITH SEVERE VISUAL IMPAIRMENT: THE VIP TRIAL CAMPBELL, ET AL. (2005)

Home Safety Program

n=100

- Home Hazard Assessment by an OT
- Home Modifications
- Recommendations for behavior change

Otago Exercise Program and

Program and

Vitamin D

Supplementation

n=97

Combination of Home Safety and Exercise Program

n=98

Social Visits

n=96

RANDOMISED CONTROLLED TRIAL OF PREVENTION OF FALLS IN PEOPLE
AGED > OR =75 WITH SEVERE VISUAL IMPAIRMENT: THE VIP TRIAL
CAMPBELL, ET AL. (2005)

Outcome: Home Safety Program: More Cost Effective and Reduced Falls



Key Elements per CDC:

OT's advice rather than the environmental changes was key.

A trained and experienced OT is critical to the success of this intervention.

https://www.cdc.gov/homeandrecreationalafety/pdf/falls/CDC_Falls_Compendium-2015-a.pdf#nameddest=home-mod

Home visits by an occupational therapist for assessment and modification of environmental hazards: A randomized trial of falls prevention ~ 1999
Cumming, et al.

Intervention: 1 hour Home visit by an OT; Assessed for environmental hazards and facilitated necessary home modifications.

Results: Intervention was effective among subjects who reported having had one or more falls in the year prior to the study.

50% of the recommended home modifications were in place at 12 month follow-up.

Home Assessment and Modification Pighills, et al. (2011)

OT or Home Care Worker completed a Home Assessment
Intervention only effective when implemented by OTs.
Fall Rates reduced by 46% of those with assessments
completed by OTs.

Unmet Need for Equipment to Help With Bathing and Toileting Among Older US Adults

Lam, Shi, Boscardin ~2021

2614 community dwelling older adults

42% of individuals 65+ lacked grab bars or bath chairs to help them bathe and toilet.

Unmet Need for Equipment to Help With Bathing and Toileting Among Older US Adults

Lam, Shi, Boscardin ~ 2021

- If clients are having increased impairments or falls, providers should ask about their home set up.
- There are home safety assessment tools that can empower clients and caregivers to identify hazards and solutions.
- Have OT complete a Home Safety Assessment.
- Work with professionals on installation.

Unmet Need for Equipment to Help With Bathing and Toileting Among Older US Adults

Lam, Shi, Boscardin ~ 2021

- **Why older adults do not have the equipment they need?**
 - Do not know when or what equipment they need.
 - Do not know how to get the equipment and or how to install it.
 - People are not familiar with services available.
 - Adults do not get taught what they need as they grow old.
- **Few Physicians skilled at**
 - Identifying disability that warrants equipment.
 - Asking questions about the home environment.
 - Educating on available options and making recommendations.
 - Referring clients to the solutions they need.

Handicap-Accessible Homes May Improve Brain Function In Seniors With Disabilities ~ 2019

Farzan

- 70%+ older adults live in homes without any accessibility features.
- Those who live alone and have a disability have quicker decline in brain function.
- Less than 4% of housing have single floor living, no steps into house, and appropriate size hallways and doorways for wheelchairs.
- Researchers know that accessible spaces improve physical health and reduce falls.
- Older adults who had at least one accessible feature were less likely to have brain function decline or memory loss.
- Home environment has direct effect on mental health as well, not just physical health.

Link to the article discussed by Farzan: Park, S., Kim, B., Amano, T., & Chen, Q. (2021). Home Environment, Living Alone, and Trajectories of Cognitive Function Among Older Adults With Functional Limitations. *Environment and Behavior*, 53(3), 252–276.

<https://doi.org/10.1177/0013916519879772>

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"Occupational therapy practitioners have a long established proficiency in addressing the impact of the environment on occupational performance. As such, home modification recommendations and services fall well within the scope of occupational therapy and are recognized in most state practice acts" (AOTA, 2020)

<https://www.aota.org/Advocacy-Policy/Federal-Reg-Affairs/News/2020/Home-Modifications-Billing-Medicare.aspx>

When Home Modifications are part of a skilled plan of care, they can be a covered service under Medicare.

<https://www.aota.org/Advocacy-Policy/Federal-Reg-Affairs/News/2020/Home-Modifications-Billing-Medicare.aspx>

Home Evaluation Process

Why OT vs. another Professional?

- Skilled at evaluating how the environment affects participation and performance.
- Skilled at identifying barriers in the environment to occupational participation and performance.
- Skilled at identifying modifications that can improve participation and performance.
- Skilled at analyzing and evaluating how the person performs in the environment.
- Knows how to find the right fit to maximize independence and safety and minimize compensation which may promote further decline.
- Provides more than just modifications, also client and caregiver training, referrals to other providers, determine appropriate adaptive equipment (AE) and if AE is needed.
- Evaluating clients performance of daily activities in the home allows better determination on what the real needs are.
- Understanding the progression of the disease to make appropriate changes now that do not need to be modified in the future.
- Familiar with a variety methods and sources to obtain equipment, grants, funding, etc.

Home Evaluation Process

- Depending on the state and the funding source, a doctor's referral may or may not be required.
- Depending on the client's insurance and the client's situation it may or may not be covered by insurance.
- Occupational Therapist needs to be skilled in the home evaluation process, requirements, and available resources in the community and state.
- Occupational Therapist completes initial evaluation and will determine appropriate next steps.
- Important that occupational therapist works with the entire team, including the family during the process.



Case Studies

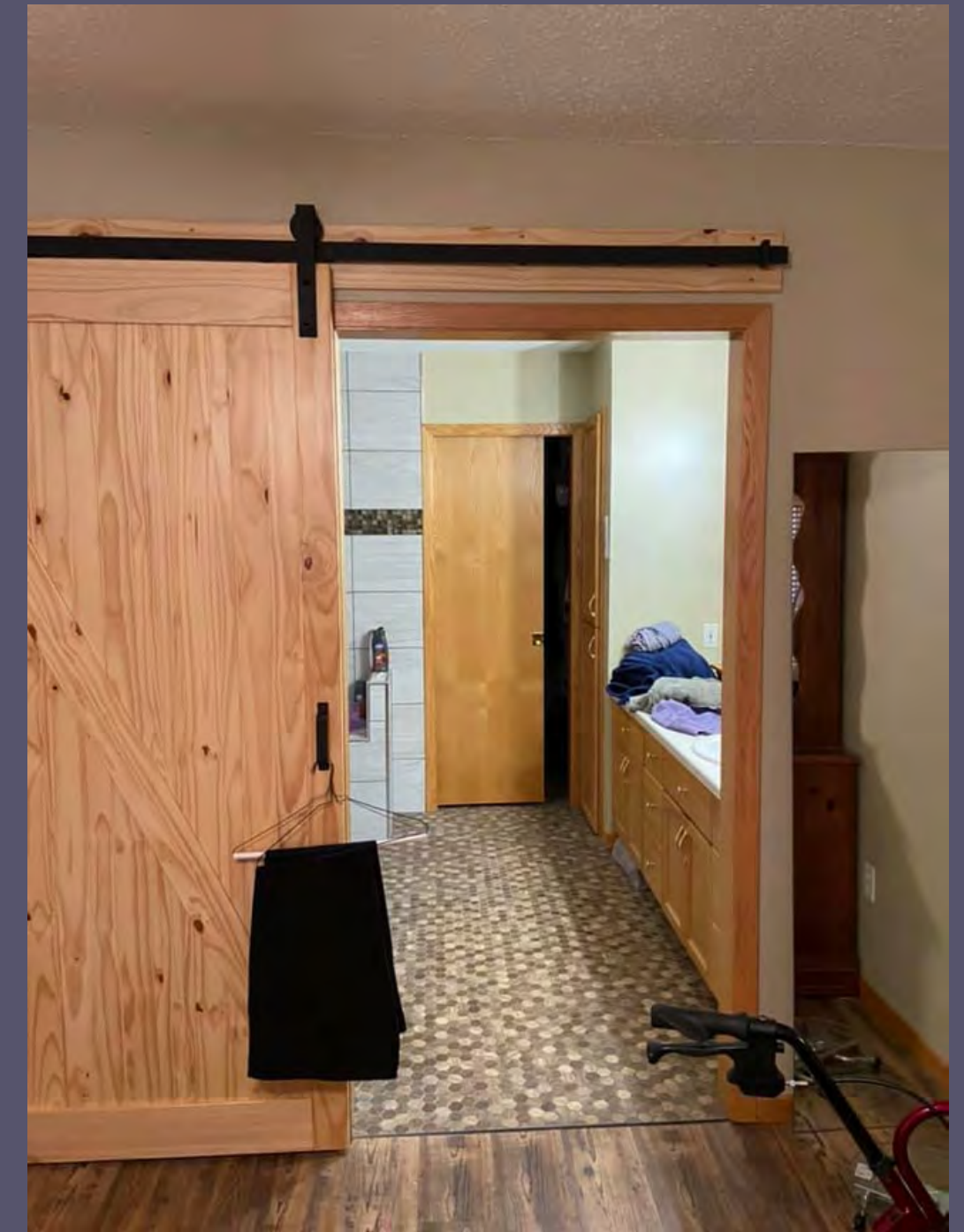
- Male
- DOB: 4-4-1927 ~ 94 years old
- Dx: CHF, UTI, Acute Kidney Failure, Anxiety Disorder, Acute Respiratory Failure, Previous CVA, Hx. of falls, Weakness, Dyspnea, GI Bleed, Descending Aortic Aneurysm, Cognitive impairment.
- Assist with medications, catheter management, shower.
- Routine: Gets up between 6 and 7 and spends majority of day in room watching tv.
- Lives with spouse who has dementia with significant behavioral concerns.
- Hospital, to nursing home, to home.

Identify Concerns or Positives in the Home Environment



- DOB: 9/27/1934 ~ 86
- Dx: CAD, HTN, Mitral Valve Disorder, Unstable Angina, Chronic Back Pain, Fibromyalgia, Lumbar disc disease, Anxiety Disorder, Depression, Insomnia, Tremors, Hx of falls, syncope episodes.
- Recent hospitalizations
- Was living in an independent living apartment, moved to condo with spouse.
- Assist for shower, can dress self, assist for all IADLs, 4WW
- She likes to be around people and be able to walk.
- Client likes to walk in the hallway at her apartment complex, read the bible and watch christian TV.

Identify Concerns or Positives in the Home Environment



- DOB: 11-12-1932 ~ 88
- Dx: Obstructive sleep apnea, Basal cell carcinoma, spinal stenosis of lumbar and cervical region, gait disturbance, cerebellar atrophy, cerebral atrophy, R pontine stroke, Hx. CVAs, Hx of falls
- Electric w/c for all mobility, transfers min-max assist depending on day, Max A for shower, stands for 1 minute with min-mod assist.

Identify Concerns or Positives in the Home Environment



- DOB: 3-12-1945 ~ 76
- Dx: Parkinsons, Hx. of falls, CVA, Lung Cancer, CAD, COPD, Prostate Cancer, HTN, Depression
- Assist levels vary day to day from I to Min-Mod
A. Spouse does assist with shower.
- CVA, in hospital in December.

Therapy Professionals Interested in Home Modifications

Home Modification & Safety Modules

&

Certified Home Accessibility & Safety Therapist (HAST)

www.nextlevelot.com



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218-230-2171

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