Fall Prevention Among Home Dwelling Elderly Veterans

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Gina Green OTD, MOT, OTR/L
Objectives

- Describe the connection between falls risk and completion of Activities of Daily Living (ADLs and IADLs)
- List three areas of fall risk in the home
- Identify five common diagnoses associated with fall risk
- Identify three common fall risk screening tools
- Identify three intervention strategies
Outline

- Case Introduction
- Case Study Evaluation and Intervention
- Vision Overview
- Interdisciplinary Team Approach
- Evidence Based Practice - resources
- References and Resources
Case Study - Mr. S

- Referred to Home Based Primary Care for “home safety evaluation and falls”.

- Primary Diagnoses
  - Heart Failure
  - COPD
  - Diabetes type II, Peripheral neuropathy
  - High blood pressure
  - Mild cognitive disorder
  - Hoarding
  - Impaired vision
  - Falls
History

- 89 y.o.
- African American
- Male
- WWII Veteran
- Minimal support system
  - 1 dtr - lives in California
History Continued

- Misses medications 1-2x every week
- Polypharmacy - takes 15 meds
  - 1 prescription has not been refilled - carvedilol
- 2 Hospitalizations in the past year
  - 1 r/t fall tripping over his cat
  - 1 r/t heart failure
External Home Environment

- Lived alone in a colonial style house with 2 entryways.

- Back stairs were cluttered and concrete steps did not meet evenly with porch.

- Back wooden porch was slanted.

- Therapist could not enter through the back door, the kitchen was blocked by clutter.

- Entrance to the front of the house had 5 steps with crumbling bricks and a single unstable handrail.

- Front entryway led into a covered porch that was filled with piles of objects.
Inside Home Environment

- Patient is a hoarder well known to home care services.
- Laundry facilities in basement, patient cannot access.
- Main living area had a “throw rug” which was not secure, pathways are cluttered with objects and cords.
- Patients hospital bed is on the first floor as he cannot safely climb the stairs.
- Therapist found 4 unidentifiable pills on the floor.
Bathroom

Adequate space
- Tub/shower
- No grab bars
- Shower chair and raised toilet seat had been delivered but were not in use.

Patient reported sponge bathing and using a bedside commode, urinal and depends.
Bathroom Access

- Patient did not access bathroom due to stairs.
- Cords were laying across stairs.
- Handrail was pulled out of the wall.
Therapy Examination

Subjective

- Reports 3 falls in past 2 months
  - 1: r/t “tripping”
  - 2: “I don’t know why”
- C/O intermittent low blood pressure
- Patient goal: Mr. S. responds that he would like to stay in his home but was unsure if he could continue to manage independently.
Examination Continued

Objective

- Deficits in hygiene
  - Lenses of glasses were filthy
  - Clothing appeared disheveled
- Timed Up and Go (TUG): 26 seconds
- Functional Independence Measure (FIM) - 97/128
- Range of motion: WFL throughout, limitation noted at end range of shoulder flexion and functional weakness noted with transfers
- Strength: Manual Muscle Testing - grossly 4-/5
Activities of Daily Living - ADL’s

When asked specifically about bathing Mr. S. stated “I do fine.” As I pressed further, Mr. S. revealed he is sponge bathing because he is afraid to go up to the bathroom.
Mr. S. is responsible for driving, shopping, prepping light meals, and caring for himself and his home.

Reports difficulty caring for himself and relies on fast food.

Mr. S. spends most of his waking hours sitting in a recliner listening to jazz.
Standardized Tests for Balance/Gait

Timed up and Go (TUG)

30-Second Chair Stand

4-Stage Balance Test
Why is Vision so Important?

We use vision for all aspects of our lives!!!!!!!!

- ADL’s and IADL’s - reading, dressing, feeding, bathing, coordination, balance, work, leisure, etc. We use vision for EVERYTHING

- Functional vision → Functional performance
Signs of Visual Impairment

- Patient reports difficulties reading or no longer reads
- Frequent headaches
- Bumping into things
- Falling
- Missing Objects
- Clumsiness
- Social Isolation
- Medication Non-compliance
Vision Impairment Projections
Statistics

Estimated Number of Cases with Vision Problems, age ≥ 40 from NIH based on 2010 U.S. census:

- Cataracts: 24,409,978
- Glaucoma: 2,719,379
- Age-Related Macular Degeneration: 2,069,403
- Diabetic Retinopathy: 7,685,237
Acuity

- Refractive Disorders
  - Nearsighted/Myopia - clear at near
  - Farsighted/Hyperopia - clear at far
  - Astigmatism - eye is not round, causes blurriness
Contrast Sensitivity

- Measures your ability to distinguish between finer and finer increments of light versus dark (contrast).
- The difference in color and/or luminance in an object
- INCREASES FALL RISK
- Difficulty with driving (night, dusk, fog), reading, mobility (curbs), facial recognition (non-verbal cues), medication compliance and ADL’s (putting on clothes, cutting food)
Pelli-Robson Contrast Sensitivity Test
Visual Fields

- Loss of visual field
  - Bumping into things, turning the head to see, slower reading, missing details, appears like neglect
  - The patients compensate well
  - Driving rules vary state to state, in Ohio the visual field is $70^\circ$ in one eye and $45^\circ$ in the other
  - 8-25% of CVA patients have a field loss
Clinical Test for Visual Field Cut

- This is for field cuts NOT neglect
  - Confrontation Test
  - Test all fields
  - One stimulus at a time
  - Any indication is confirmation
  - Test at 2:00, 4:00, 8:00, 10:00
Mr. S. Vision Evaluation

- Krug Vision Disability Screening Card (VDSC)
  - Reading rate - Pass
  - Contrast Sensitivity - Fail
  - Acuity - Pass at 20/100
  - Central Scotoma - Pass

- Confrontation Test
  - Visual field test - Fail - right inferior quadrant
1

Much of the work will be completed at night to avoid traffic delays.

2

- The future belongs to those who prepare for it today.
  -Malcolm X

3

4

D N H O K

Vision Disability Screening Card

Produced by: PrecisionVision
precision-vision.com

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Confrontation Testing Videos

- Confrontation Field Testing
Therapy Evaluation of Findings

Problem List:
- Fall risk
- Strength/Balance
- Functional Ambulation

Home Medical Equipment Recommendations:
- Hospital bed
- Stair glide
- Rollator
- Grab bars
- Ramp
- Recommended Home Improvement Grant (HISA) for bathroom (patient refused)
Therapy Goals

- Patient/Caregiver will be independent with completion of home exercise program for balance in 2 treatment sessions.
- Patient/caregiver will be compliant with 50% fall reduction strategies on "Fall Reduction Plan" within 2 treatment sessions.
- Patient's timed score on Timed Up and Go test will decrease 3 seconds within 2 treatment sessions.
Mr. S. Intervention

Home Exercise Program
- Balance
- Endurance
- Strengthening

Education
- Collaboratively developed Fall Reduction Plan
- Improved hygiene, including cleaning glasses
- Issued an Amsler Grid

Provide large print educational materials
# Fall Reduction Plan For Mr. S

**Veteran’s Name:** Mr. S  
**Falls-a-lot Date Range:** 6/25/19 to 9/13/19

The following risk factors have been identified for me:

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weakness</td>
<td>X</td>
</tr>
<tr>
<td>Impaired vision</td>
<td>X</td>
</tr>
<tr>
<td>Dizziness</td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td></td>
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<tr>
<td>Fear of Falling</td>
<td></td>
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<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

**Suggested Strategies**

- Use assistive device for walking: Walker (front-wheeled)
- Do home exercises
- Move slowly
- Use durable medical equipment as prescribed
- Wear sturdy shoes & slippers with rubber soles
- Take medication as prescribed
- Wear glasses/reading glasses regularly
- Do not walk when dizzy or unsteady
- Use the bathroom before it is an emergency
- Wear oxygen as prescribed
- Use a night light or keep other lights on
- Remove cords/clutter and rugs in walking path
- Keep frequently used items in easy reach
- Have someone with me when walking or transferring
- Pause between position changes
- Safe transfer techniques
- Pets and/or toys
- Pets and/or toys
- **Schedule eye exam or Date of last eye exam:**
- **Other:** Replace rails on front steps

If I should fall to the ground, I need to:

1. Relax, don’t panic and determine if I am hurt.
2. Roll over slowly and sit up.
3. Slide, crawl or scoot towards a couch, bed, or chair.
4. Kneel, getting up one knee at a time.
5. Stand up, using the couch, bed or chair for support.
6. Turn and sit down.
7. If I cannot get up, I should call for help (use Guardian alert or Call 911)

Kaylin - VA PT - 216-701-7643
Mr. S. Intervention - Vision

- Mr. S. is at high risk for recurrent falls and had not been to see the eye doctor in 10 years.
- Current glasses are old and in poor condition.
- Based on the results of vision screening, Mr. S. failed contrast sensitivity and visual field test. Recommendation was referral to an optometrist.
Mr. S. Intervention - Home Modification

Home Environment

- Removal of clutter/objects
- Removal or tack rugs down
- Stair glide - to bathroom
- Bathroom DME installation and instruction on transfers
- Replace shower doors with curtain
- Additional grab bars in bathroom and stairwell
- Improved lighting in hallways and added nightlights
Interdisciplinary Team (IDT)

- Literature supports the need for Multidisciplinary teams in Home Care for Best Practice
- All team members are responsible for general assessment for safety and well-being of the patient
- Adult Protective Services is a resource to be used when appropriate (We are ALL mandated reporters)

- Physician
- RN Case Manager and LPN
- Social Worker - LISW
- Dietitian
- Therapist - OT or PT
- Pharmacist
- Psychologist
- Advanced Practitioner - NP or PA
- Medical Support Assistant
IDT- RN/LPN

- Complete MAHC-10 Fall Risk Assessment Tool
- Medication management
  - Medication reconciliation
  - Pill card
  - Reminder watch
- Wound management
- Foot exam
## Missouri Alliance for Home Care Fall Risk Assessment Tool (MAHC-10)

### Required Core Elements

<table>
<thead>
<tr>
<th>Required Core Element</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 65+</td>
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<tr>
<td>Diagnosis (3 or more co-existing) includes only documented medical diagnosis</td>
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<tr>
<td>Prior history of falls within 3 months</td>
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<tr>
<td>An unexplained change in position resulting in coming to rest on the ground or at a lower level</td>
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<tr>
<td>Incontinence</td>
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<tr>
<td>Inability to make it to the bathroom or commode in timely manner includes frequency, urgency, and nocturia.</td>
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<tr>
<td>Visual impairment</td>
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<tr>
<td>Includes but not limited to, macular degeneration, diabetic retinopathy, visual field loss, age related changes in visual acuity, accommodation, glare tolerance, depth perception, and night vision or not wearing prescribed glasses or having the correct prescription.</td>
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</tr>
<tr>
<td>Impaired functional mobility</td>
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<tr>
<td>May include patients who need help with IADLs or ADLs or have gait or transfer problems, arthritis, pain, fear of falling, foot problems, impaired sensation, impaired coordination or improper use of assistive devices.</td>
<td></td>
</tr>
<tr>
<td>Environmental hazards</td>
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<tr>
<td>May include but not limited to, poor illumination, equipment tubing, inappropriate footwear, pets, hard to reach items, floor surfaces that are uneven or cluttered, or outdoor entry and exits.</td>
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<tr>
<td>Poly Pharmacy (4 or more prescriptions – any type)</td>
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<tr>
<td>All PRESCRIPTIONS including prescriptions for OTC meds. Drugs highly associated with fall risk include but not limited to, sedatives, antidepresants, tranquilizers, narcotics, antihypertensives, cardiac meds, corticosteroids, anti-anxiety drugs, anticholinergic drugs, and hypoglycemic drugs.</td>
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<tr>
<td>Pain affecting level of function</td>
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<tr>
<td>Pain often affects an individual’s desire or ability to move or pain can be a factor in depression or compliance with safety recommendations.</td>
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<tr>
<td>Cognitive Impairment</td>
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<tr>
<td>Could include patients with dementia, Alzheimer’s or stroke patients or patients who are confused, use poor judgment, have decreased comprehension, impulsivity, memory deficits.</td>
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<tr>
<td>Consider patients ability to adhere to the plan of care.</td>
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<tr>
<td>A score of 4 or more is considered at risk for falling</td>
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<tr>
<td>Total</td>
<td></td>
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</tbody>
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Clinician’s signature

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Want resources to reduce your falls rate & compare yourself with other home care agencies? Join MAHC’s Falls Reduction Benchmark Project – contact us today for more information!
How did HBPC nurses Help Mr. S?

- Fall prevention
  - Assessed for falls each visit
  - Educated Veteran/Caregiver on measures to reduce falls related to environmental hazards
  - Educated Veteran/Caregiver on fall risks related to medications (Beer’s List) and measures to reduce risk
  - Educated Veteran/Caregiver to call 911 for falls if they cannot get up on their own. Always carry phone or Guardian Alert to call for help.

- Diabetes management
  - Medication management
  - 15/15 rule
  - Educated on proper foot care
IDT- Pharmacy

- PharmD
  - Review medication list
  - Make recommendations to PCP
  - Educate patients/providers on medications that may be contributing to falls

- How did the PharmD help Mr. S?
  - Made medication recommendations to providers.
Interdisciplinary Team - MD, NP, PA

- Physician/Team Preceptor
  - Available for monitoring and additional needs
  - Present for weekly IDTP meetings

- Advanced Practitioner
  - Provide home visits
  - Chronic disease management

- How did they help Mr. S?
  - Participated in IDTP meeting
  - Remained available to team members for consultation
  - NP assisted with diabetic medication adjustments for better control
IDT - SW and Psychology

Social Work
- guardian alert button
- community resources
- Transportation
- Home Health Aide
- Depression and alcohol screening
- Zarit caregiver burden scale

Psychologist
- Coping
- Sleep hygiene
IDT - Dietitian

- Provide education on meal planning, carb counting
- Food drug interactions
- Weight monitoring
- Meals on wheels options
- Prescribe ensure when needed
How did SW, Psychology and RD help Mr. S?

- **SW**
  - Guardian alert plus
  - Home Health Aide

- **Psychologist**
  - Assisted with establishing longer term mental health for hoarding behaviors

- **RD**
  - Diabetes education
  - Weight management
Home Interventions - General

- **Lighting** - high intensity, adjustable lamps
  - Outdoors, stairways, work areas, kitchen, bathroom, garage, basement
- **Contrast with flooring** - high contrast, reflective tape
- **Contrasting and/or light up light switch plate covers**
- **Keep pathways clear of clutter, toys, cords, rugs**
- **Issues with glare** - adjustments to lighting, window coverings, adjustable blinds
- **Caregiver Education**
- **Have water tank set at 120°F or less to prevent burns**
- **STAY ORGANIZED**
Interventions - Bathroom

- Bathmat contrasts with flooring
- Grab bars - toilet and shower
- Shower/Tub mat or adhesive strips
- Solid dark colored towels that contrast with walls/counters
- Pump soap dispensers
- Code bottles with tactile dots or rubber bands
- High contrast toilet seat, motion sensing light, bidet
- Walk-in showers or tub cut out
Therapy Interventions to reduce Fall Risk in HBPC

Home Modification
- Walk-in shower
- Widen doorways
- Lighting
- Flooring
- Contrast
- Grab bars

Education
- Patient
- Caregivers
- Staff

Community Resources
- Meals on wheels
- Transportation
- Support Groups
- Books on Tape

Optometry Referral
- Prescription
- Medication

DME
- Alarms
- Gait Devices
- Ramps
- Stairglide
- Shower Chair
- Bedrail

Environmental Modifications
- Throw Rugs
- Pets
- Hoarding
- Clutter

Home Exercise Program
- Balance and gait training

ADL/IADL
- Transfer training
- Dressing safety

Prevention
- Amsler grid
- Routine Eye Visits

Home Modification
- Floor
- Lighting
- Contrast
- Grab bars
My doctor told me, now that I’m getting older, I need to install a bar in my shower. What do y’all think?
Mr. S Outcomes

- TUG: 17 seconds (initial 26 seconds)
- A1C: 7.5 (initial 10.4)
- Vit D: 25 (initial 11)
- Home medical equipment in place
- Medication compliance - now only missing 1-2x per month (initial 1-2x/week)
- Lost 12 lbs.
- ZERO falls during HBPC care
- Independent with home exercise program
- Daughter refills his medications online since she lives out of state
- HHA 10 hours per week
- Consistently wearing Guardian Alert Plus
- Now has paratransit bus pass
- Established with outpatient MH services
“The systematic review of the literature found strong evidence to support the efficacy of multicomponent interventions that include home modification components to prevent falls in older adults. Similarly, strong evidence was found for the effectiveness of single-component home modifications in reducing falls. Specifically, we found that intensive home modification interventions, when provided by occupational therapists, resulted in decreased falls for older adults at risk for falls.” AOTA Critically Appraised Topic

Bottom Line - How Does HBPC Impact Falls?
Algorithm for Fall Reduction Plan

Each patient will be screened for falls and/or fall risk by undergoing the following screen by an HBPC therapist.

- **Questions:**
  1. Has the patient fallen in the last 12 months?
     - If yes ask:
       a. how many times?
       b. when was your most recent fall?
       c. were you injured?
       d. circumstances of fall
     2. Does the patient feel unsteady when walking?
     3. Does the patient have a fear of falling?

- Does the patient have environmental obstacles that warrant fall education?

- Physical assessment including gait and strength.

- One of the following objective balance tests
  1. Tinetti
  2. Timed Up and Go
  3. 30 Second Chair Stand Test
Positive screen on any of the above areas

YES

1. Implement fall reduction plan
2. Review fall reduction strategies
3. Leave fall reduction handout with patient
4. For future falls: instruct patient/caregiver to fill back of fall reduction handout with the date of the fall, time and circumstances of fall

NO

Determine if patient is interested in a home exercise program

Exceptions:

1. Patient only had one fall and corrected behavior or circumstances that led to fall
2. Fall plan was reviewed and patient is correctly practicing all things that therapist suggested.


https://www.cdc.gov/homeandrecreationalsafety/falls/index.html

HBPC Fall reduction plan

HBPC Fall Policy

References


Resources

- http://amslergrid.org/AmslerGrid.pdf
- Vision Disability Screening Card
- www.Maxiaids.com
- www.performancehealth.com
- www.rehabmart.com
- CDC - Fall resources
  - https://www.cdc.gov/homeandrecreationalsafety/falls/index.html
- Vision impairment and blindness fact sheet
- ICD 10 codes and definitions
  - https://www.icd10monitor.com/looking-at-new-icd-10-cm-codes-for-blindness
- WHO fact sheet
  - http://www.who.int/blindness/Change%20the%20Definition%20of%20Blindness.pdf
- MAHC-10
Thank you!!! 😊

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- Gina.green@va.gov