Physical Therapy & An Interprofessional Approach to Falls & Balance Screening

Presenters:
Thomas Dillon PT, DPT
Teri Elliott-Burke PT, MHS, WCS, PRPC
Objectives

• Participants Will:
  ▪ Be Proficient in 3 tests to assess a patient’s risk for falling
  ▪ Be aware of the APTA Clinical Guidance Statement and the CDC Algorithm to assess and formulate recommendations to address falls risk
  ▪ Understand 5 tools utilized by an interprofessional team (Occupational Therapy, Pharmacy, Family Medicine, Behavioral Medicine, and Optometry) to screen for falls
I. Intro
   A. Stats
   B. Overview of Resources
      a. Clinical Guidance Statement
      b. CDC STEADI
II. The MWU Multifactorial Screen
   A. Family Med
   B. Behavioral Med
   C. Occupational Therapy
   D. Optometry
   E. Pharmacy
   F. Physical Therapy
III. Physical Therapy Interventions for Falls
IV. Case Studies
V. Final Thoughts
VI. Q&A
Falls are the leading cause of fatal & nonfatal injuries
2014 survey

• 29 million falls
  o 7 million injuries
  o 27,000 died
  o 2.8 million treated in ER
  o 800,000 hospitalized

• Annual Medicare cost – for non-fatal falls - $31.3 billion
OLDER ADULT FALLS
A Growing Burden

2014

TOTAL OLDER ADULTS: 46M
FALLS: 29M
INJURIES: 7M

2030

TOTAL OLDER ADULTS: 74M
FALLS: 49M
INJURIES: 12M

STEADI
Stopping Elderly Accidents, Deaths & Injuries

www.cdc.gov/steadi

Material presented at IPTA 2018 REVITALIZE Conference
Costs of Falls

2015

- Fatal Falls - $637.2 million
  - $282.2 million for men
  - $355.0 million for women
- Non-Fatal Falls – $31.3 billion
  - $9.0 billion men
  - $22.2 billion women
- Average cost of a medically treated fall = $9780
We Need to Ask

Over half of the older adults don’t discuss their fall with a health care provider.
Clinical Guidance Statement

• Management of Falls in Community-Dwelling Older Adults: A Clinical Guidance Statement from the Academy of Geriatric Physical Therapy of the American Physical Therapy Association (Alvin et al., 2015)

• Reviewed 3 CPGs
  ▪ NICE (National Institute for Health & Care Excellence) 2014, 2011
  ▪ Moreland et al., 2003
• Stopping Elderly Accidents, Deaths, & Injuries (STEADI)
• Tool Kit developed by the US Preventive Services Task Force
• https://www.cdc.gov/steadi/index.html
3 Questions to Ask Your Older Adult Patients

When you see patients 65 and older, make these three questions a routine part of your exam:

1. Have you fallen in the past year?
2. Do you feel unsteady when standing or walking?
3. Do you worry about falling?

If your patient answers “yes” to any of these key screening questions, they are considered at increased risk of falling. Further assessment is recommended.
### Check Your Risk for Falling

<table>
<thead>
<tr>
<th>Please circle &quot;Yes&quot; or &quot;No&quot; for each statement below.</th>
<th>Why it matters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (2) No (0) I have fallen in the past year.</td>
<td>People who have fallen once are likely to fall again.</td>
</tr>
<tr>
<td>Yes (2) No (0) I use or have been advised to use a cane or walker to get around safely.</td>
<td>People who have been advised to use a cane or walker may already be more likely to fall.</td>
</tr>
<tr>
<td>Yes (1) No (0) Sometimes I feel unsteady when I am walking.</td>
<td>Unsteadiness or needing support while walking are signs of poor balance.</td>
</tr>
<tr>
<td>Yes (1) No (0) I steady myself by holding onto furniture when walking at home.</td>
<td>This is also a sign of poor balance.</td>
</tr>
<tr>
<td>Yes (1) No (0) I am worried about falling.</td>
<td>People who are worried about falling are more likely to fall.</td>
</tr>
<tr>
<td>Yes (1) No (0) I need to push with my hands to stand up from a chair.</td>
<td>This is a sign of weak leg muscles, a major reason for falling.</td>
</tr>
<tr>
<td>Yes (1) No (0) I have some trouble stepping up onto a curb.</td>
<td>This is also a sign of weak leg muscles.</td>
</tr>
<tr>
<td>Yes (1) No (0) I often have to rush to the toilet.</td>
<td>Rushing to the bathroom, especially at night, increases your chance of falling.</td>
</tr>
<tr>
<td>Yes (1) No (0) I have lost some feeling in my feet.</td>
<td>Numbness in your feet can cause stumbles and lead to falls.</td>
</tr>
<tr>
<td>Yes (1) No (0) I take medicine that sometimes makes me feel light-headed or more tired than usual.</td>
<td>Side effects from medicines can sometimes increase your chance of falling.</td>
</tr>
<tr>
<td>Yes (1) No (0) I take medicine to help me sleep or improve my mood.</td>
<td>These medicines can sometimes increase your chance of falling.</td>
</tr>
<tr>
<td>Yes (1) No (0) I often feel sad or depressed.</td>
<td>Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.</td>
</tr>
</tbody>
</table>

| **Total** | Add up the number of points for each “yes” answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor. |

This checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein et al. J Safety Res: 2011:42(6)493-499). Adapted with permission of the authors.
Other Considerations

- Falls are preventable
- Loss of independence
- American & British Geriatric Societies recommend a **multifactorial approach to prevent falls**
Other Considerations

• MACRA - The Medicare Access and CHIP Reauthorization Act of 2015
  ▪ MIPS - Merit-based Incentive Payment System
    • Quality Measures for Falls Risk and Falls Plan of Care

• How are the MDs, DOs, PA, NPs you work with measuring this?

• Currently PTs are not required to report

• Life changes in 2019
The MWU Multifactorial Screen

• Supported by a MWU Geriatric Education and Research Facilitation Grant
• Primary Investigator – Timothy Hanke, PT, PhD
• Based on the CDC STEADI Guidelines
• Subjects 65+
• Subjects received a summary to give to their PCP
  ▪ Highlighted areas to address to prevent falls
• Took place in Oct 2016 & July 2017
Interdisciplinary Team

- Family Medicine
- Behavioral Medicine
- Occupational Therapy
- Optometry
- Pharmacy
- Physical Therapy
• Focus: Cardiovascular Disease & Stroke
• Orthostatic Blood Pressure Protocol
  ▪ Postural Hypotension
  ▪ FAST test to evaluate educate on warning signs of stroke
With the exception of initial orthostatic hypotension, measures of impaired orthostatic BP recovery (delayed recovery OH or sustained ortho-static hypotension OH) are independent risk factors for future falls, unexplained falls, and injurious falls. (Funucane et al., 2017)

Grade A Recommendation by American Geriatric Society/British Geriatric Society CPG (Avin et al., 2015)
- Cardiovascular functions including postural hypotension

The presence of untreated & uncontrolled HTN is associated with orthostatic hypotension (Zia, Kamaruzzaman, & Tan, 2015)
Postural Hypotension

1. Have the patient lie down for 5 minutes.
2. Measure blood pressure and pulse rate.
3. Have the patient stand.
4. Repeat blood pressure and pulse rate measurements after standing 1 and 3 minutes.

Abnormal:
- A drop in systolic BP of ≥20 mm Hg, or in diastolic BP of ≥10 mm Hg
- Experiencing lightheadedness or dizziness is considered abnormal.
Implications for PTs

• Clinical Guidance Statement – HR, BP, and postural hypotension can be conducted by a PT

• When would each be appropriate?
Behavioral Medicine

• Focus: Cognitive impairment, depression & anxiety
• Mini-Cog
• Geriatric Depression Scale
• Geriatric Anxiety Inventory Short Form
Depression is:
  - an independent risk factor for falls
  - associated with cognitive deficits, affecting executive function and processing speed.
  - related to psychomotor slowing & gait disturbances

The interaction between depression & falls may be self-perpetuating.

Fear of falling (anxiety) is also a factor.
(Iaboni & Flint, 2013)

Moreland CPG – depression as a risk factor, recommend Geriatric Depression Scale (Avin et al., 2015)
Mini-Cog

Instructions for Administration & Scoring

Step 1: Three Word Registration

ID: __________ Date: __________

Look directly at person and say, "please listen carefully. I am going to say three words that I want you to repeat back to me now and try to remember. The words are (select a list of words from the versions below). Please say them for me now." If the person is unable to repeat the words after three attempts, move on to Step 2 (clock drawing).

The following and other word lists have been used in one or more clinical studies. Use of an alternative word list is recommended.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunrise</td>
<td>Leader</td>
<td>Village</td>
<td>River</td>
<td>Captain</td>
<td>Daughter</td>
</tr>
<tr>
<td>Chair</td>
<td>Season</td>
<td>Kitchen</td>
<td>Nation</td>
<td>Garden</td>
<td>Heaven</td>
</tr>
<tr>
<td>Table</td>
<td>Table</td>
<td>Baby</td>
<td>Finger</td>
<td>Picture</td>
<td>Mountain</td>
</tr>
</tbody>
</table>

Step 2: Clock Drawing

Say, "Next, I want you to draw a clock for me. First, put in all of the numbers where they go." When that is completed, say, "Now, set the hands to 10 past 11."

Use preprinted circle (see next page) for this exercise. Repetition instructions as needed as this is not a memory test. Move to Step 3 if the clock is not complete within three minutes.

Step 3: Three Word Recall

Ask the person to recall the three words you stated in Step 1. Say, "What were the three words I asked you to remember?" Record the word list version number and the person's answers below.

Word List Version: _____ Person's Answers: ___________________________

Scoring

Word Recall: ______ (0-5 points) 1 point for each word spontaneously recalled without cueing.

Check Draw: ______ (0 or 2 points) Numerical clock (0 points): No numbers placed in the correct sequence and approximately correct position (e.g., 3, 6, and 9 are in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (0/40). Mixed length is not correct. Inability to refrain to draw a clock (shamna) + 0 points.

Total Score: ______ (0-5 points) Total score = Word Recall score + Clock Draw score.

A cut-off point of 1 on the Mini-Cog™ has been validated for dementia screening, but many individuals with clinically meaningful cognitive impairment will score higher. Further evaluation is recommended as it may indicate a need for further evaluation of cognitive status.

References


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Geriatric Depression Scale (Short Form)

Patient’s Name: ___________________________ Date: ____________

Instructions: Choose the best answer for how you felt over the past week.

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Are you basically satisfied with your life?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Have you dropped many of your activities and interests?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Do you feel that your life is empty?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Do you often get bored?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Are you in good spirits most of the time?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Are you afraid that something bad is going to happen to you?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Do you feel happy most of the time?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Do you often feel helpless?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Do you prefer to stay at home, rather than going out and doing new things?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Do you feel you have more problems with memory than most?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Do you think it is wonderful to be alive?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Do you feel pretty worthless the way you are now?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Do you feel full of energy?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Do you feel that your situation is hopeless?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Do you think that most people are better off than you are?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scoring:
Assign one point for each of these answers:
1. NO 4. YES 7. NO 10. YES 13. NO
2. YES 5. No 8. YES 11. No 14. YES

A score of 0 to 5 is normal. A score above 5 suggests depression.

Source:
Geriatric Anxiety Scale (Short Version)
Developed by Jeff Baker, Ph.D. - To be used for Teaching Purposes Only

Answers indicating anxiety are IN ALL CAPITALS (See OnLine Form. Each answer in all CAPS counts one point; scores greater than 5 indicates anxious symptoms, the higher the score the more indication of anxiety.

<table>
<thead>
<tr>
<th>Student Last Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student First Name</td>
</tr>
<tr>
<td>Patient Initials</td>
</tr>
</tbody>
</table>

Date Administered: ____________

1. Do you feel nervous much of the time?
2. Have you worried about your future this week?
3. Do you feel that your life is too fast?
4. Do you often get anxious?
5. Have you felt relaxed most of today?
6. Are you feel afraid at different times during the day?
7. Do you feel stress free most of the time?
8. Does your stomach feel nervous much of the time?
9. Do you prefer to have someone with you most of the time?
10. Do you feel you have more anxiety than most?
11. Do you find it easy to sleep at night?
12. Do you feel pretty stressed now?
13. Do you feel you have more energy than yesterday?
14. Do you feel that you cannot remember things like you used to?
15. Do you think most people are less anxious than you?

Total ANXIETY Score: ____________
Implications for PTs

When would a PT administer these scales?
Implications for PTs

- Anti-depressants may also impair postural control & increase postural sway.
- Older adults are at highest risk of falls & fractures shortly after starting SSRI antidepressants but break bones at a higher rate throughout their treatment.
- Cognitive behavioral therapy should be implemented to address fear of falling and overall depression.

(Iaboni & Flint, 2013)
Focus: Home Environment

Home Safety Self Assessment Tool (HSSAT)

- 64 items, 9 areas of the home
- Offers solutions and advice for each area
- Risk is summed for each area and totaled
- Raises awareness of home hazards
The list identifies all the potential home hazards that may cause a fall. If the item applies to your home place a check in the box. Then add the total number of checks and enter it in the box below.

1. Presence of throw or scatter rug
2. Presence of clutter
3. Presence of electric cords across the floor
4. Poor lighting
5. Presence of unstable furniture
6. Presence of unstable chair
7. Difficult to access light switches
8. Not enough space to move around

Other: ____________________________

Total number of problems: ______

* The numbers correspond to the hazard in the picture and solutions on the following page.
Solutions for Problems in the LR

- Remove scatter rugs
- Eliminate clutter on floor surfaces by placing them on shelves or storage
- Consider donating or throwing out items no longer used
- Run your cords behind furniture
- Increase wattage to allowable limits
- Add lamps
- Add a pillow or cushion to raise the height of the chair
- Use the clapper
• 26% reduction in injury rate caused by falls to a home modification intervention. (3 yr period, 842 households) (Keall et al., 2015)

• AGS/BGS, Moreland and NICE CPGs recommend an assessment of the home for hazards, specifically loose rugs, mats, carpet folds and other trip hazards. (Avin et al., 2015)
Implications for PT

When Would You Use the HSSAT?
Optometry

• Focus: Vision
• Visual Acuity
  ▪ Distance Vision Right & Left
• Peripheral Vision
• Contrast Sensitivity
Optometry

VISION CONTRAST TEST SYSTEM

- LEFT
- RIGHT
- UP
- BLANK
• Vision
  ▪ Plays a role in stabilizing balance by providing the nervous system with information
  ▪ 20-70% increased postural sway with eyes closed
  ▪ Poor contrast sensitivity & depth perception increases postural sway

• Glasses
  ▪ Outdated prescriptions
  ▪ Multifocal glasses ↑ risk for falls
  (Lord, 2006)

• WHI – cataract surgery associated with reduced odds of 1-2 year fall frequency, especially in women 70-80 years old (Tseng et al., 2015)

• AGS/BGS recommends an assessment of visual acuity (Avin et al, 2015)
Implications for PT

What Would You Do With This Information?
Pharmacy

- Focus: Medications, Polypharmacy
- Reviewed list of medications

Material presented at IPTA 2018 REVITALIZE Conference
Beers Criteria

• Lists of potentially inappropriate medications to be avoided in older adults

• Lists of select drugs that should be avoided or have their dose adjusted based on the individual's kidney function and select drug–drug interactions documented to be associated with harms in older adults.

(Radcliff et al., 2015)
Evidence for Pharmacy

- Medications that impact falls:
  - Sedatives & Hypnotics
  - Antidepressants – tricyclic antidepressants, selective serotonin reuptake inhibitors & serotonin norepinephrine reuptake inhibitors
  - Polypharmacy (6 of 14 studies positive)
  - Anithypertensives – calcium channel blockers, beta-blockers, angiotensin system blockers (mixed results)

(Park, Satoh, Miki, Urushihara, Sawada, 2015)
What Do We Do With This Information?

Implications for PT
• Focus: Balance, Mobility, Strength & Urinary Incontinence
• Timed Up & Go Test
• 30-Second Chair Stand
• Tandem Stance
• Urinary Incontinence Questionnaire
Physical Therapy

- Mobility: All 3 CPGs recommend muscle weakness as risk factors, with AGS/BGS and Moreland CPGs suggesting specifically LE strength:
  - CDC recommends 30-Sec Chair Stand test
- Balance: All 3 CPGs recommend a balance assessment, however not specifically which ones.
  - CDC recommends: Tandem Stance Test
- Gait: All 3 CPGs state gait deficits increase risk for falls and recommend assessment
  - CDC recommends: TUG Test
- Urinary Incontinence: All 3 CPGs recommend assessment, with NICE recommending specifically identifying urge and stress incontinence.
  - CDC recommends: Urinary incontinence questionnaire
Timed Up and Go Test

• CDC Materials: [https://www.cdc.gov/steadi/materials.html](https://www.cdc.gov/steadi/materials.html)
• Combines transfers, gait, dynamic balance, and LE strength.
• Inter- and intratester reliability is high.
• Supported construct validity when compared to gait speed tests, postural sway, Barthel Index, functional stair test, and step frequency.
• Sensitivity and Specificity found to be high: about 87% for both
• General Consensus: Utilize TUG with cluster of exams.
30-Second Chair Test

• CDC Materials: [https://www.cdc.gov/steadi/materials.html](https://www.cdc.gov/steadi/materials.html)
• Related to Five-Times-Sit-to-Stand Test
• Assesses deficits in LE strength, postural control, balance.
• Excellent criterion validity of the chair stand compared to weight adjusted leg press performance
• Consider chair height: many studies use between 42 and 47cm height
• Floor effect?
### SCORING OF CHAIR STAND TEST

<table>
<thead>
<tr>
<th>Age</th>
<th>Men’s Result</th>
<th>Women’s Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below Average</td>
<td>Below Average</td>
</tr>
<tr>
<td>60-64</td>
<td>&lt; 14</td>
<td>&lt;12</td>
</tr>
<tr>
<td></td>
<td>14 to 19</td>
<td>12 to 17</td>
</tr>
<tr>
<td></td>
<td>&gt; 19</td>
<td>&gt; 17</td>
</tr>
<tr>
<td>65-69</td>
<td>&lt; 12</td>
<td>&lt; 11</td>
</tr>
<tr>
<td></td>
<td>12 to 18</td>
<td>11 to 16</td>
</tr>
<tr>
<td></td>
<td>&gt; 18</td>
<td>&gt; 16</td>
</tr>
<tr>
<td>70-74</td>
<td>&lt; 12</td>
<td>&lt; 10</td>
</tr>
<tr>
<td></td>
<td>12 to 17</td>
<td>10 to 15</td>
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<td></td>
<td>&gt; 17</td>
<td>&gt; 15</td>
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<tr>
<td>75-79</td>
<td>&lt; 11</td>
<td>&lt; 10</td>
</tr>
<tr>
<td></td>
<td>11 to 17</td>
<td>10 to 15</td>
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<td></td>
<td>&gt; 17</td>
<td>&gt; 15</td>
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<td>80-84</td>
<td>&lt; 10</td>
<td>&lt; 9</td>
</tr>
<tr>
<td></td>
<td>10 to 15</td>
<td>9 to 14</td>
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<tr>
<td></td>
<td>&gt; 15</td>
<td>&gt; 14</td>
</tr>
<tr>
<td>85-89</td>
<td>&lt; 8</td>
<td>&lt; 8</td>
</tr>
<tr>
<td></td>
<td>8 to 14</td>
<td>8 to 13</td>
</tr>
<tr>
<td></td>
<td>&gt; 14</td>
<td>&gt; 13</td>
</tr>
</tbody>
</table>
Tandem Stance

- CDC Materials: [https://www.cdc.gov/steadi/materials.html](https://www.cdc.gov/steadi/materials.html)
- Related to 4-Stage Balance Test
- Assesses narrow base of support balance, static test.
Urinary Incontinence Questionnaire

1. During the past three months, have you leaked urine (even a small amount)?
   - Yes
   - No (questionnaire completed)

2. During the past three months, did you leak urine: (check all that apply)
   - A. When you were performing some physical activity, such as coughing, sneezing, lifting, or exercising?
   - B. When you had the urge or the feeling that you needed to empty your bladder, but you could not get to the toilet fast enough?
   - C. Without physical activity and without a sense of urgency?

3. During the past three months, did you leak urine most often: (check only one)
   - A. When you were performing some physical activity, such as coughing, sneezing, lifting, or exercising?
   - B. When you had the urge or feeling that you needed to empty your bladder, but you could not get to the toilet fast enough?
   - C. Without physical activity and without a sense of urgency?
   - D. About equally as often with physical activity as with a sense of urgency?

Definitions of type of urinary incontinence are based on responses to question 3:

<table>
<thead>
<tr>
<th>Response to question 3</th>
<th>Type of incontinence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Most often with physical activity</td>
<td>Stress only or stress predominant</td>
</tr>
<tr>
<td>B. Most often with the urge to empty the bladder</td>
<td>Urge only or urge predominant</td>
</tr>
<tr>
<td>C. Without physical activity or sense of urgency</td>
<td>Other cause only or other cause predominant</td>
</tr>
<tr>
<td>D. About equally with physical activity and sense of urgency</td>
<td>Mixed</td>
</tr>
</tbody>
</table>
Urinary Incontinence

- Urge incontinence may increase the risk of falls and fractures by necessitating multiple urgent trips to the bathroom, especially during the night.
- Brown et al. (2000):
  - "weekly or more frequent urge incontinence independently increased the risk of falls by 26% and the risk of fractures 34%.")
  - Stress incontinence was not significantly associated with risk of falls or fractures.
- Pahwa et al (2016)
  - Increased fall risk was associated with increasing frequency of nocturnal enuresis worse lower limb function, worse upper limb function and worse performance on a composite physical performance test of strength, gait and balance.
  - Women with nocturnal enuresis had significantly lower physical performance test scores than women without nocturnal enuresis.
Summary of Findings to Primary Care Physician
## Summary of Findings for Falls Screening

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAMILY MEDICINE</strong></td>
<td></td>
</tr>
<tr>
<td>Orthostatic Vitals</td>
<td></td>
</tr>
<tr>
<td>- Lying</td>
<td>Orthostatic Hypotension</td>
</tr>
<tr>
<td>- Sitting</td>
<td>Yes</td>
</tr>
<tr>
<td>- Standing</td>
<td>No</td>
</tr>
<tr>
<td>If yes, follow up with primary care physician</td>
<td></td>
</tr>
<tr>
<td>No action required</td>
<td></td>
</tr>
<tr>
<td><strong>BEHAVIORAL MEDICINE</strong></td>
<td></td>
</tr>
<tr>
<td>Measure</td>
<td>Score</td>
</tr>
<tr>
<td>Geriatric Anxiety Inventory</td>
<td></td>
</tr>
<tr>
<td>Short Form</td>
<td></td>
</tr>
<tr>
<td>Geriatric Depression Scale-5 item</td>
<td></td>
</tr>
<tr>
<td>Mini-Cog</td>
<td></td>
</tr>
<tr>
<td>Discuss findings with your primary care provider</td>
<td>need for further evaluation of symptoms of: Anxiety</td>
</tr>
<tr>
<td></td>
<td>Depression</td>
</tr>
<tr>
<td></td>
<td>Cognition</td>
</tr>
<tr>
<td></td>
<td>Review Psychoeducational Handout</td>
</tr>
<tr>
<td></td>
<td>Other</td>
</tr>
<tr>
<td></td>
<td>No action required</td>
</tr>
<tr>
<td><strong>OCCUPATIONAL THERAPY</strong></td>
<td></td>
</tr>
<tr>
<td>____# of identified items on the Home Safety</td>
<td>Please consider:</td>
</tr>
<tr>
<td>Self-Assessment Tool (HSSAT)</td>
<td></td>
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<tr>
<td></td>
<td>Please continue to:</td>
</tr>
<tr>
<td></td>
<td>No action required</td>
</tr>
<tr>
<td>OPTOMETRY</td>
<td>Distance vision (right eye)</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------</td>
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<tr>
<td></td>
<td>Distance vision (left eye)</td>
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<td></td>
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<tr>
<td></td>
<td>Peripheral vision:</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Contrast sensitivity:</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Impaired</td>
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<td></td>
</tr>
<tr>
<td>PHARMACY</td>
<td>____ (#) out of your total</td>
</tr>
<tr>
<td></td>
<td>medications were found on</td>
</tr>
<tr>
<td></td>
<td>your medication list which</td>
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<tr>
<td></td>
<td>may increase your potential</td>
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<tr>
<td></td>
<td>fall risk</td>
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</tr>
</tbody>
</table>
Results

- Screened 24 participants in Oct 2016
- 71% Female
- 88% Caucasian
- 83% completed education beyond HS
- All independent living
- 83% with history of falls
- 58% married, 16% single, 13% divorced, 13% widowed
Results

- Knowledge of falls improved
  - 8.5/10
- Confidence to prevent falls
  - 8.46/10
- Decreased fear of falling
  - 7.09/10
- Implement recommendations
  - 8.67/10
Results

• 87.5% found the event either very or extremely valuable
• 12.5% found the event moderately valuable
• 100% found the event very or extremely enjoyable
• 100% found the screeners made them feel very comfortable
Algorithm for Fall Risk Assessment & Interventions

Patient completes Stay Independent brochure

Assess fall risk
Patient scores ≥ 4 on the Stay Independent brochure or
Clinician asks key questions:
• Fell in past year?
  - If YES ask, How many times? Were you injured?
• Feels unsteady when standing or walking?
• Worries about falling?

Score < 4 or NO to all questions

Evaluate gait, strength & balance
• Timed Up & Go (recommended)
• 30 Second Chair Stand (optional)
• 4 Stage Balance Test (optional)

Gait, strength or balance problem

Conduct multifactorial risk assessment
• Review Stay Independent brochure
• Falls history
• Physical exam including:
  - Postural dizziness/
    postural hypotension
  - Medication review
  - Cognitive screening
  - Feet & footwear
  - Use of mobility aids
  - Visual acuity check

Recommend LOW RISK fall interventions
• Educate patient
• Vitamin D +/- calcium
• Refer for strength & balance exercise (community exercise or fall prevention program)

Recommend MODERATE RISK fall interventions
• Educate patient
• Vitamin D +/- calcium
• Refer to PT to improve gait, strength & balance or refer to a community fall prevention program

Recommend HIGH RISK fall interventions
• Educate patient
• Vitamin D +/- calcium
• Refer to PT to enhance functional mobility & improve strength & balance
• Manage & monitor hypotension
• Manage medications
• Address foot problems
• Optimize vision
• Optimize home safety

Follow up with patient within 30 days
• Review care plan
• Assess & encourage fall risk reduction behaviors
• Discuss & address barriers to adherence
  Transition to maintenance exercise program when patient is ready

Centers for Disease Control and Prevention
Prevention and Control

STEADI Stopping Elderly Accidents, Deaths & Injuries

Material presented at IPTA 2018 REVITALIZE Conference
• Additional PT Balance Evaluation Tools
  ▪ Berg Balance Scale
    • Assess functional mobility and non-vestibular balance
    • Consider ceiling effects
    • MDC: 8 points
    • <45/56 = high fall risk, < 40/56 is 100% risk for falls.
  ▪ Tinetti
    • Assess functional mobility, static balance, and gait
    • Consider ceiling effects
    • MDC: 4 points.
    • < 18/28 is high fall risk
• Additional PT Balance Evaluation Tools

  ▪ Dynamic Gait Index
    • Assess functional mobility, vestibular/non-vestibular balance, and gait.
    • Consider ceiling effect, especially with vestibular function
    • MDC: 3 points
    • <19/24 fall risk
  
  ▪ Self-report fall questionnaire: Activities-Specific Balance Confidence Scale (ABC scale).
  
  ▪ Footwear assessment: CPGs do not provide specifics.
• Utilize clinical judgement when deciding to screen individual in your clinic.
• Utilize framework of this interprofessional screen for individualized screens at your clinic
  ▪ Many assessment tools available to tailor your fall risk screen
• Utilize information gathered from individual screening to justify initial or continued care.
• Develop close network of healthcare professionals that can be referral sources or targets for fall risk factors outside scope of PT.
  ▪ Marketing?
Parameters for balance training/fall prevention not well established (2011 meta-analysis by Sherrington et al)

- "moderate to high challenge"
- Reduce base of support
- Reduce need for UE support
- Longer time period (minimum 3 months) or equivalent of 50 hours

Utilizing rubber balance pad (uneven surface) with older adults effective to improve balance 2 months earlier than with stable surface exercise (Hirase et al).

- Example of exercise routine.
• Group balance training can reduce direct medical cost for individuals with possible added benefit of convenience, peer support, and social interaction.
  ▪ Group balance training more effective in decreasing fall freq compared to no treatment.
  ▪ No significant difference between group balance training and PT-prescribed HEP.
Mrs. W: 81 yo female lives alone with son nearby. Recent fall in shower and visit to ER due to mild head contusion.

- “Too many falls to count” within the past 1-2 years
  - Shower, trip on carpet, “lose balance when turning”, dizziness, etc.
- “Old people fall, that’s just how it is”
- Med hx: hypertension, hyperlipidemia, DM, coronary artery disease, depression, OA of hips and knees, osteopenia, incontinence, urinary frequency, and macular degeneration

Med List:
- 12 total daily medication: Novolog, Lantus, Lisinopril, Metoprolol, Spironolactone, Furosemide, Potassium Chloride, Digoxin, Fluoxetine, Atovastatin, Aspirin

What additional questions would you ask?
What screening tools would you utilize with this patient?
Mr. D is a 60 yo male who presents to PT with primary complaint of wrist pain from fall 5 days ago.

- He reports tripping on shoes when going to bathroom at night, falling onto outstretched arm.
- No other reported falls
- Medication history: metformin and daily vitamin
- Medical hx: Type II DM, otherwise unremarkable

Would you screen for balance deficit/fall risk?

What screening tools would you utilize/questions you would ask?
SEPTMBER 22

FALLS PREVENTION AWARENESS DAY

#FPAD2017
What will you implement?

- 1.
- 2.
- 3.
Questions


Bergen G, Stevens M, Burns, E. Falls and fall injury among adults aged ≥65 — united states, Centers for Disease Control & Prevention. Retrieved from: https://www.cdc.gov/mmwr/volumes/65/wr/mm6537a2.htm?s_cid=mm6537a2_w


References - Materials

• HSSAT:  https://sphhp.buffalo.edu/rehabilitation-science/research-and-facilities/funded-research/aging/home-safety-self-assessment-tool.html#title_1996957003
• CDC STEADI  https://www.cdc.gov/steadi/index.html
• Rehabilitation Measures Database https://www.sralab.org/rehabilitation-measures
References – Evidence for Components


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