Best Practices in Mobility Assessment to Decrease Fall Risk

July 9, 2013 10:00 – 11:00 a.m. CST

Dawn M. Venema, PT, PhD
Jill Hassel, DPT
This project is supported by grant number R18HS021429 from the Agency for Healthcare Research and Quality. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research and Quality.
Learning Objectives

- Review baseline data from 2011 hospital survey specific to physical therapy participation in fall risk reduction
- Explain the role of physical therapy in mitigating common fall risk factors in individual patients
- Explain the role of physical therapy as a member of a fall risk reduction team
- Describe performance based fall risk assessments appropriate for an acute care setting
Introduction: Review of Baseline Survey Data
2011 Falls Survey in NE Hospitals

- Examined structures-processes-outcomes related to fall risk reduction

- 70 of 83 general community hospitals in NE responded (84%)
  - 56 of 65 CAHs (86%)
  - 14 of 18 non-CAHs (78%)

Photo Credit: www.askingsmarerquestions.com
Who is accountable for implementing your fall risk reduction program?

Non-CAHs (46 – 689 Beds, n=14)
- 86% A Team
- 14% Nobody

CAHs (12 - 25 Beds, n=56)
- 48% A Team
- 27% Nobody
- 25% An Individual
If you have a team, who is on it?

QM/PSO/RM
Non-CAH (47-689 beds, n=14)
CAH (12-25 beds, n=56)
RN/DON
PT
Pharm
MD
Team

QM = Quality Manager; PSO = Patient Safety Officer; RM = Risk Manager; RN = Registered Nurse; DON = Director of Nursing; PT = Physical Therapist; Pharm = Pharmacist; MD = Physician or Medical Director; Team= Interprofessional Team
Does your fall risk reduction team integrate evidence from multiple disciplines to continually improve fall risk reduction efforts?

<table>
<thead>
<tr>
<th></th>
<th>Sometimes/Rarely/Never Integrate Multidisciplinary Evidence (n = 32)</th>
<th>Always/Frequently Integrate Multidisciplinary Evidence (n = 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Falls</strong></td>
<td>6.8</td>
<td>4.8</td>
</tr>
<tr>
<td><strong>Injurious Falls</strong></td>
<td>2.2</td>
<td>1.0</td>
</tr>
</tbody>
</table>

\( p = .030^* \)
\( p = .006^* \)

*Negative binomial model
## Fall Risk Reduction Strategies: Processes

### How commonly are PT and OT used?

<table>
<thead>
<tr>
<th>Targeted Interventions</th>
<th>% Non-CAH (n=14)</th>
<th>% CAH (n=56)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated Toilet Seat</td>
<td>79</td>
<td>70</td>
</tr>
<tr>
<td><strong>Physical Therapy Evaluation</strong></td>
<td>79</td>
<td>59</td>
</tr>
<tr>
<td>Sitter</td>
<td>86</td>
<td>54</td>
</tr>
<tr>
<td>Toileting Schedule</td>
<td>86</td>
<td>52</td>
</tr>
<tr>
<td>Medication Review</td>
<td>71</td>
<td>50</td>
</tr>
<tr>
<td><strong>Occupational Therapy Evaluation</strong></td>
<td><strong>57</strong></td>
<td><strong>41</strong></td>
</tr>
<tr>
<td>Hip Protectors</td>
<td>21</td>
<td>13</td>
</tr>
</tbody>
</table>
The Role of Physical Therapy in Fall Risk Reduction
Fall Risk Reduction Multi-Team System

**Patient & Family**
Teach-back if cognitively able

**Core Team**
- Physician
- Nursing performs fall risk assessment, implements interventions
- **PT consults re: mobility**
- Pharmacist reviews medications
- All educate patient & family

**Coordinating Team = Fall Risk Reduction Team**
Accountable for implementation and evaluation of fall risk reduction program; ideally includes RM/QI, RN, PT, Pharm

**Ancillary & Support**
- Radiology is informed of fall risk during handoff
- Housekeeping turns on alarms
- Laundry ensures clean gait belt
- Env. Services fixes equipment

**Contingency Team**
= Post Fall Huddle about 1 patient

**Administration**
Holds Fall Risk Reduction Team accountable for implementation and evaluation of fall risk reduction program
Provides resources (time, money, equipment, personnel) for Fall Risk Reduction Team
Nursing completes fall risk assessment upon admission

Triage—depending on the patient’s specific risk factors, the nurse can make appropriate referrals
Common Fall Risk Factors\textsuperscript{1-3}

- History of Falls
- Muscle Weakness
- Gait Deficits
- Balance Deficits
- Use of Assistive Device
- Visual Deficit
- Arthritis
- Impaired ADL status
- Depression
- Cognitive Impairment
- Age > 80
- Polypharmacy
<table>
<thead>
<tr>
<th>Weakness</th>
<th>Gait Deficits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Example clinical presentation: difficulty rising from a seated position</td>
<td>• Example clinical presentations: shuffling gait, asymmetry in step length or stance time, alteration in step width, excessive trunk sway</td>
</tr>
<tr>
<td>• Inability of a muscle to generate sufficient force</td>
<td>• May be caused by weakness, pain, or impaired motor control</td>
</tr>
<tr>
<td>• Lower extremity weakness is a risk factor for falls and should be assessed and treated as part of a fall prevention strategy</td>
<td>• Common dx associated with gait impairment AND ↑ fall risk: Parkinson’s Disease, CVA, polyneuropathy, multiple sclerosis</td>
</tr>
</tbody>
</table>
Physical therapists are responsible for:

- Assessing strength, range of motion, posture, sensation, balance, transfers, gait, and need for an assistive device
- Developing interventions to address the above
Physical therapists are responsible for:

- Providing education to patient and family about safe mobility including transfers, gait, & environmental modification

- Assistive device prescription and instruction
  
  - Patients who use AD’s are at greater risk for falls\(^1,6\), but correct use of assistive devices may decrease fall risk\(^7\)
Physical therapists are responsible for:

- Providing an exercise program to mitigate strength and balance impairments

Group and home-based exercise programs supervised by a PT reduce the risk of falling in community dwelling adults\(^9,10\)

Exercise included as part of a multifactorial intervention reduces the risk of falling in frail or institutionalized older adults\(^{10}\)

50 hours of exercise achieved over 3-12 months is the minimal recommended dose of exercise to protect community dwelling older adults against falls\(^{11}\)
Physical therapists are responsible for:

- Providing education/consultation to hospital staff about the best way to assist individual patients with gait and transfers
Physical therapists are responsible for:

- Providing recommendations for discharge from acute care
  - Appropriate discharge setting given current mobility status
  - Home modifications
  - Referral for continued PT
When Should I Involve PT?

- Identification of any impairments in transferring or gait during the initial fall risk assessment\textsuperscript{12}

- Patient has a history of falls\textsuperscript{1,2}
  - Admittance to the hospital for a fall or if a fall occurs while hospitalized

- Uncertainty of how to safely assist the patient with transfers and gait
Examples of Commendable “Real-Life” PT Utilization

- PT screen automatically triggered for all patients identified at risk according to the fall risk assessment
- Moving beyond writing “1”, “2”, or “Hoyer” on the white board: posting photos of transfer techniques for individual patients; direct communication of mobility status during rounds
- Open communication b/t nursing and PT: frequent consultation for best transfer technique – even if pt isn’t officially on PT’s caseload
As a member of the Fall Risk Reduction Team, physical therapists can provide:

- Input on:
  - Development of fall risk policies and procedures
  - Patient education materials
  - Environmental modifications to hospital rooms
  - Interpretation of fall event data

- Staff competency training for safe transfers and gait
Examples of Commendable “Real-Life” PT Utilization

- Different mind-set when examining fall events – focus on patient’s ability (or inability) to move safely
- Providing input on most efficient process to initiate screening program
- Developing a documentation form to communicate a patient’s mobility status to other members of the core team
- Providing input on what fall risk assessments should be built into EMR
Part 3: Fall Risk Assessments

Performance Based Fall Risk Assessments: Those Common and Feasible for Acute Care
What Does “Performance Based” Mean?:

- Fall risk is assessed based on the patient’s ability to carry out the task in the assessment.

- PTs should communicate a patient’s scores on these assessments (and the relevance of these scores) to other staff caring for the patient.
Review: Sensitivity and Specificity

- Sensitivity is the ability of a fall risk assessment tool to correctly identify a patient who IS at risk for falling
  - In a highly sensitive test, a person who tests negative is rarely a faller (SnNout)

- Specificity is the ability of a fall risk assessment tool to correctly identify a patient who IS NOT at risk for falling
  - In a highly specific test, a person who tests positive is rarely a non-faller. (SpPin)
Reliability

- **Inter-Rater Reliability:**
  - Tells you the degree of agreement among raters.
  - Important if more than one person will be completing the assessment over time

- **Intra-Rater Reliability:**
  - Tells you the degree of agreement among multiple trials of a test performed by the same rater (PT).

- **Test-Retest Reliability:**
  - Tells you the degree of consistency for a test (not necessarily a rater)
# PT Fall Risk Assessments

## Timed Up and Go (TUG)

<table>
<thead>
<tr>
<th>Description:</th>
<th>Patient starts sitting in a chair. The patient stands up from the chair, walks 3 meters at their comfortable walking pace, turns around, walks back to the chair and sits down. The time it takes to perform this task is recorded.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability:</td>
<td>Interrater Reliability: 0.98&lt;sup&gt;13&lt;/sup&gt;</td>
</tr>
<tr>
<td>Validity:</td>
<td>Sensitivity and Specificity: 0.87&lt;sup&gt;13&lt;/sup&gt;</td>
</tr>
<tr>
<td>Fall Cut Off Score:</td>
<td>A score of &gt;14 seconds indicates that community-dwelling older adults are at increased risk for falls.&lt;sup&gt;13&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
### Performance-Oriented Mobility Assessment (POMA)

<table>
<thead>
<tr>
<th>Description:</th>
<th>A 16 item assessment that is score out of 28 points. Items on the assessment were designed to measure sitting and standing balance and gait function.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability:</td>
<td>Interrater Reliability: 0.91-0.93&lt;sup&gt;14&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
| Validity:    | Sensitivity: 0.64<sup>14</sup>  
Specificity: 0.66<sup>14</sup>                                                                                                                                                    |
<p>| Fall Cut Off Score: | A score of <strong>19/28 or less</strong> indicates that the patient is at increased risk for falls. &lt;sup&gt;14&lt;/sup&gt;                                                                                   |</p>
<table>
<thead>
<tr>
<th>Description:</th>
<th>A 14 item assessment that is scored out of 56 points. Items on the assessment were designed to measure static and dynamic balance abilities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability:</td>
<td>Interrater Reliability: 0.98&lt;sup&gt;15&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
| Validity:   | Sensitivity: 0.53<sup>16</sup>  
Specificity: 0.96<sup>16</sup>                                                                                                                                                    |
| Fall Cut Off Score: | A score of **45/56 or less** indicates an increased risk for falls.<sup>16</sup>                                                                                                    |
PT Fall Risk Assessments

Berg Balance Scale (Cont)

- As BBS score decreases, probability of falling increases\(^\text{17}\)
- Combing the BBS and history of falls may be a better predictor of falls than the BBS alone\(^\text{17}\)
## 5 Times Sit To Stand (5x STS)

| Description: | The patient sits in a chair with their arms folded over their chest. From sitting, the patient comes to a fully erect standing position 5 times. The time taken to perform 5 sit to stand transfers is recorded. |
| Reliability: | Test-Retest Reliability: 0.89<sup>18</sup> |
| Validity: | Sensitivity: 0.66<sup>18</sup>  
Specificity: 0.55<sup>18</sup> |
<p>| Fall Cut Off Score: | A score of <strong>12 seconds or more</strong> indicates an increased risk for falls. &lt;sup&gt;18&lt;/sup&gt; |</p>
<table>
<thead>
<tr>
<th>Description:</th>
<th>Gait speed is most commonly assessed through the 10 meter walk test. With this test the patient ambulates 10 meters while time is recorded. Gait speed is then calculated in a rate of meters/sec(^{19})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability:</td>
<td>Test-Retest Reliability: (0.97^{20})</td>
</tr>
</tbody>
</table>
| Validity:    | Sensitivity: \(0.72^{21}\)  
Specificity: \(0.74^{21}\) |
| Fall Cut Off Score: | Gait speed of \(0.56\) m/s is the cut-off to identify risk of recurrent falls for the sensitivity/specificity values noted above.\(^{21}\) |
|              | Persons who walked at a speed of < \(0.7\) m/s were \(1.5\) times more likely to fall than person who walked at least \(1.0\) m/s.\(^{22}\) |
|              | Persons who walked at a speed of < \(0.7\) m/s were \(5.4\) times more likely to fall, \(5.9\) times more likely to be hospitalized, \(9.5\) times more likely to need a caregiver, and \(2.7\) times more likely to experience a new fracture than persons who walked >\(1.1\) m/s.\(^{23}\) |
What Can I Do If a Physical Therapist is Not Available For These Performance-Based Assessments...?
Simple Mobility Assessments

Mobilization Test in ICU:

- **Description:**
  
  A series of mobilization tests that can help determine whether the patient has the motor control and adequate oxygen delivery to support activity.
Simple Mobility Assessments

Mobilization Test in ICU:

1. Can the patient raise each leg against gravity in supine?

2. Can the patient sit on the side of the bed with minimal support?

3. With the walker and assistance, can the patient stand?

4. With the walker and assistance, can the patient shift weight laterally?

5. With the walker and assistance, can the patient take steps in place?

6. Progressive walking with walker and assistance if appropriate
Egress Test\textsuperscript{25}:

\section*{Description:}
- A series of 3 tests that can be completed at the bedside prior to the patient transferring or ambulating

\section*{The 3 Tests:}
- 3 Reps of Sit to Stand
- 3 Steps of Marching in Place
- Advance Step and Return Each Leg
Case Study and Summary
86 y/o female, admitted with CHF exacerbation

Identified as high fall risk per nursing-based fall risk screen

Fall interventions in place: use of walker, gait belt, bed alarm, low bed

PT not currently ordered
Case Study Example

• On day 3 of admission, pt was amb to bathroom with walker, 2 assist, and gait belt

• Legs “gave out” as patient was turning to sit on toilet; lowered to floor; no injury

• Possible action to prevent further falls: Use bedside commode rather than ambulate to the bathroom
Questions:

- Is the patient experiencing deconditioning associated with decreased activity levels due to hospitalization?
- Did the patient’s cardiovascular meds contribute to the fall?
- Is it possible that the Egress Test or ICU Mobilization Test would have forecasted the fall?
- Should PT be initiated now? If so, what would PT contribute to lowering this patient’s fall risk?
Summary

- Nursing often triages for the team and makes the necessary referrals to other team members based on fall risk factors.

- Physical therapists help manage mobility of individual patients at risk for falls and provide unique input related to their expertise when they are members of Fall Risk Reduction Teams.

- Physical therapists use performance based assessments to add to the picture of fall risk for an individual patient.

- Simple mobility assessments can be completed at the bedside by nursing.
Dawn Venema, PT, PhD
dvenema@unmc.edu
References


For more information on performance based and simple fall risk assessments you can visit:

- [www.rehabmeasures.org](http://www.rehabmeasures.org)
- **BBS**: [http://www.aadep.org/documents/filelibrary/presentations/pmd_evaluationmartin_and_pilley_aafp/BERG_B2_4FD2998A0AB77.PDF](http://www.aadep.org/documents/filelibrary/presentations/pmd_evaluationmartin_and_pilley_aafp/BERG_B2_4FD2998A0AB77.PDF)
Please complete the webinar evaluation by clicking on the link below:

https://www.research.net/s/capturefalls-eval7

We value your input!
CAPTURE Falls
Collaboration and Proactive Teamwork Used to Reduce

http://unmc.edu/patient-safety/capture_falls.htm