Collaboration and Proactive Teamwork Used to Reduce (CAPTURE) Falls Part 3

Moving Beyond Direct Patient Care: An Expanded Role for Physical Therapy in Inpatient Fall Risk Reduction

COMPASS Hospital Improvement Innovation Network
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Acknowledgement: Hospitals in CAPTURE Falls

32 Rural Hospitals in Nebraska and their interprofessional fall risk reduction coordinating teams

- Registered Nurses and Assistants
- Physical Therapists and Assistants
- Occupational Therapists and Assistants
- Pharmacists
- Quality Improvement Coordinators
- Fall Risk Reduction Team
Objectives

1. Identify how the knowledge and skills of physical therapists can be integrated across components of the multiteam system to decrease inpatient fall risk in healthcare organizations.

2. Describe the relationship between fall type (assisted vs. unassisted) and fall injury as an opportunity for physical therapy to improve the quality of an organization-wide fall risk reduction program.

3. Evaluate your organization’s training program for safe transfers and mobility.
Objective 1

Identify how the knowledge and skills of physical therapists can be integrated across components of the multiteam system to decrease inpatient fall risk in healthcare organizations.
Evidence indicates that teams decrease inpatient fall risk.

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randomized Controlled Trials</td>
<td>• Reliable use of bundled targeted interventions may be effective (Ang et al., 2011; Barker et al., 2016); single interventions not likely to be effective (Sahota et al., 2014; Shorr et al., 2012)</td>
</tr>
<tr>
<td>Cohort pre-post designs</td>
<td>• Fall risk has been reduced in studies where interprofessional team members were actively engaged in fall risk reduction efforts (Gowdy et al., 2003; von Renteln-Kruse et al., 2007)</td>
</tr>
<tr>
<td>Systematic review</td>
<td>• Etiology of falls is multifactorial (Oliver et al., 2004), thus falls require a multifactorial/interprofessional approach for prevention</td>
</tr>
<tr>
<td>Systematic review</td>
<td>• Themes specific to successful implementation of fall risk reduction programs include multidisciplinary implementation and changing attitudes of nihilism (Miake-Lye et al., 2013)</td>
</tr>
</tbody>
</table>
Our Local Quality Problem

Association Between Hospital Type and Fall Rates

NE CAH 2010 (n=47)  NE PPS 2010 (n=13)  NDNQI 2011* (n=1,464)

- All Falls:
  - NE CAH 2010: 5.9
  - NE PPS 2010: 4.0
  - NDNQI 2011*: 3.4
  - $p = .01^{**}$

- Injurious Falls:
  - NE CAH 2010: 1.7
  - NE PPS 2010: 0.9
  - NDNQI 2011*: 0.82
  - $p = .04^{**}$

*Staggs et al., Jt Comm Jrnl. 2014;40: 358-364

**Negative binomial rate model

(Jones et. al, 2015)
Problem: Lack of Accountability

Event Rate/1000 patient days

- All Falls
- Injurious Falls

No One (n=13) | Individual (n=13) | Team (n=34) | NDNQI*(n=1,464)

All Falls:
- No One: 6.7
- Individual: 4.9
- Team: 5.2
- NDNQI: 3.4

Injurious Falls:
- No One: 2.6
- Individual: 1.1
- Team: 1.2
- NDNQI: 0.82

*p=.35**
*p=.02**

*Staggs et al., Jt Comm Jrnl. 2014;40: 358-364
**Negative binomial model

(Jones et. al, 2015)
Problem: Not Integrating Evidence

Does your fall risk reduction team integrate evidence from multiple disciplines to continually improve fall risk reduction efforts?

*Negative binomial model

(Jones et. al, 2015)
Problem: Team Membership

If you have a team, who is on it?

Non-CAH (47-689 beds, n=14) vs. CAH (12-25 beds, n=56)

| % of Hospitals | QM/PSO/RM | RN/DON | PT | Pharm | MD | "Dream Team"
|----------------|-----------|--------|-----|-------|----|----------------
| Non-CAH        | 100       | 93     | 50  | 43    | 14 | 36
| CAH            | 73        | 88     | 27  | 12    | 20 | 5

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; “Dream Team” = Interprofessional Team of at least QM/PSO/RM, RN, PT, and Pharm
Fall Risk Reduction
Multiteam System (MTS)

“Two or more component teams that interface directly and interdependently in response to environmental contingencies toward the accomplishment of collective goals.”

(Mathieu, Marks, & Zaccaro, 2001, p. 290)
Core Team—people who provide direct patient care
- Diagnose and treat using evidence-based care plan
- Conduct fall risk assessment
- Implement universal and targeted interventions that address risk factors
- Conduct medication review
- Evaluate mobility and function
- Report and learn from falls—participate in post-fall huddles
Fall Risk Reduction MTS

Coordinating Team—nurse champion, CNA, pharmacist, PT/OT, QI, senior leader

- Manage resources
- Coordinate fall risk reduction program and interventions
- Hold core team accountable for reliably implementing evidence-based interventions…
- Span location, status/hierarchy, and knowledge boundaries across disciplines (Edmondson, 2012)
Fall Risk Reduction MTS

Contingency Team—conduct post-fall huddle

• Meet immediately after a fall to determine what happened, why it happened, what will be done differently...ADJUST

• Goals:
  1. Decrease risk of future falls for an individual patient
  2. Apply what is learned to decrease risk across system
  3. Build trust and share knowledge

Post-Fall Huddle Tools
http://www.unmc.edu/patient-safety/capturefalls/tool-inventory.html
The Role of Physical Therapy in Fall Risk Reduction MTS

http://teamsteeps.ahrq.gov/
<table>
<thead>
<tr>
<th>Physical Therapy</th>
<th>Occupational Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expertise in mobility and movement dysfunction; understand physiological and</td>
<td>Expertise in physical, psychological, and cognitive aspects of engagement in activities</td>
</tr>
<tr>
<td>biomechanical basis of mobility</td>
<td>of daily living (occupations)</td>
</tr>
<tr>
<td></td>
<td>Both concerned with quality, efficiency, safety, and functionality of movement, not</td>
</tr>
<tr>
<td></td>
<td>just the ability to move;</td>
</tr>
</tbody>
</table>

(Jette et al, 2003)
Common Fall Risk Factors

- 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

(American Geriatrics Society et al., 2001; Tinetti et al., 1986)
Biomechanical Basis for Falls

Falls occur when the center of mass is outside the base of support.

How do we maintain our center of mass within our base of support?

- Sensory Input
- Motor Output
PT Shares Complementary Knowledge and Skills Throughout the MTS

PT Contribution to Decrease Fall Risk

Biomechanical Basis of Movement

Impact of Pathophysiology on Movement

Impact of Physical Impairments on Movement

Interaction of Environment and Ability to Move

Psychometric Properties of Measurement
PT Role on Core Team

- Assess patients and develop interventions to address strength, range of motion, posture, sensation, balance, transfers, and gait
- Recommend and instruct in use of assistive devices
  - Patients who use assistive devices at greater risk for falls, but correct use of assistive devices may decrease fall risk (American Geriatrics Society et al., 2001; Grundstrom et al., 2012.; Allman et al., 2009)
- Educate patient and family re: safe mobility including transfers, gait, & environmental modifications
## PT Role on Core Team

**Prescribe exercise 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 (Gillespie et al., 2012; Shubert, 2011) | Exercise included as part of a multifactorial intervention reduces the risk of falling in frail or institutionalized older adults (Shubert, 2011) | 50 hours of exercise achieved over 3-12 months is the minimal recommended dose of exercise to protect community dwelling older adults against falls (Sherrington et al., 2008) | Inconclusive results for exercise in care facilities and hospitals (Cameron et al., 2012) |
PT Role on Core Team

Provide recommendations for discharge (d/c) from acute care

- Appropriate d/c setting given current mobility status
  - Inpatient acute rehab
  - Skilled care
  - Home health
  - Home with out-patient PT
  - Home; no further services

- Home modifications
  - Home safety visit

- PT participation in d/c planning associated with decreased risk of readmission within 30 days (Smith, et al, 2010)
When should PTs be consulted for individual patients?

• Presence of impairments in transfers or gait during initial fall risk assessment (Sennour et al., 2009)

• Patient has a history of falls (AGS et al, 2001)
  – Admitted to hospital for a fall or fell while hospitalized

• Uncertainty regarding best strategy/equipment for safe transfers, mobility, gait
PT Role on Core Team: Fall Risk Reduction Examples

• Automatic referral for PT screen for all patients identified at high fall risk or admitted bc of a fall

• Move beyond writing “1”, “2”, or “Hoyer” on the white board: post photos of transfer techniques for individual patients; directly communicate about mobility impairments during rounds

• Create a culture of open communication b/t nursing and PT regarding consultation for best transfer strategies – even if pt. not formally referred for PT
Collaborate with others to:

- Develop fall risk policies and procedures
- Develop or select patient/family education materials
- Select fall risk screening tools with strong predictive validity

<table>
<thead>
<tr>
<th>Screening Test Result</th>
<th>True Fall Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ for Fall Risk</td>
<td>True +</td>
</tr>
<tr>
<td>- for Fall Risk</td>
<td>False -</td>
</tr>
</tbody>
</table>

**True Fall Status**

- Faller
- Non-Faller
PT Role on Coordinating Team

Collaborate with others to:

• Develop forms/strategies to document and communicate mobility and transfer status

• Design environmental modifications to rooms and public areas

• Interpret fall event data through our “lens”
PT Role on Coordinating Team

Collaborate with others to:

• Participate in audits of reliability of bedside interventions and provide feedback to staff

• Provide annual education and competency assessment for safe transfers and mobility
PT Role on Contingency Team

Provide our unique and complementary perspective of a fall event and future prevention strategies during post-fall huddles.
Impact of PT Participation on Coordinating Team … Boundary Spanning

Role on coordinating team enhanced their ability to span boundaries between nursing and PT members of core teams.

“...one of the things that we’ve tried really hard to do is to improve the communication with the nursing staff so that they understand that we have the skill set to help solve some of those problems that they run into when they have patients that are difficult to transfer....They rely on us a little more now to give them advice as to how to manage a patient better or what is safe for them and the patient.”
“...the hospital’s perception of us is that we’re not just somebody that goes in and does exercise and walks patients....our job is much more than that”

“...people know you as somebody in the hospital that helps to get policies in place.”

“Now that we’re a part of the [coordinating] team ... we are working with nurse supervisors and directors from across the hospital ... they can help communicate to their nurses the benefit of conversing with therapy, you know, on individual patients every day.”
Objective 2

Describe the relationship between fall type (assisted vs. unassisted) and fall injury as an opportunity for physical therapy to improve the quality of an organization-wide fall risk reduction program.
Predictors of Fall-Related Injury – Krauss et al, 2007

Based on 3,962 falls from 8 Midwestern Hospitals from 2001-2003

- Increased Age (OR 1.01)
- Being in the bathroom (Odds Ratio (OR) 1.46)
- NOT doing this: assisting a fall (OR 1.83)

“Even if fall rates remain the same, increasing the proportion of falls that are assisted by a staff member could help decrease injury rates.”
Predictors of Fall-Related Injury – Staggs et al, 2014

Based on 154,324 falls reported to the NDNQI in 2011

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unassisted Fall</td>
<td>1.59</td>
</tr>
<tr>
<td>Male Gender</td>
<td>1.12</td>
</tr>
<tr>
<td>Assessed for Risk</td>
<td>1.22</td>
</tr>
<tr>
<td>Medical Unit (vs. Surgical)</td>
<td>1.08</td>
</tr>
<tr>
<td>Nonteaching Hospital</td>
<td>1.17</td>
</tr>
<tr>
<td>Small Hospital (&lt;300 beds)</td>
<td>1.08</td>
</tr>
</tbody>
</table>
Predictors of Falling Unassisted – Staggs et al, 2014

Based on 154,324 falls reported to the NDNQI in 2011

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Gender</td>
<td>1.39</td>
</tr>
<tr>
<td>No Fall Prevention Protocol in Place</td>
<td>1.39</td>
</tr>
<tr>
<td>Medical Unit (vs. Surgical)</td>
<td>1.49</td>
</tr>
<tr>
<td>Medical-Surgical Unit (vs Surgical)</td>
<td>1.35</td>
</tr>
<tr>
<td>Assessed for Risk</td>
<td>1.14</td>
</tr>
<tr>
<td>“When falls tend to occur with assistance, it suggests that staff have identified at-risk patients and are in attendance during mobilization activities....”</td>
<td>“...a more appropriate patient safety goal is reducing unassisted falls, which pose the greatest preventable risk of injury.”</td>
</tr>
</tbody>
</table>
“Unassisted falls...uniquely reflect quality of care in that they occur when staff members are absent, unaware that the patient needs assistance, or unable to help for some other reason.”

“...attempts to prevent all falls could discourage appropriate patient mobilization.”
Results from CAPTURE Falls

Unassisted falls significantly more likely to result in injury

Association Between Assistance and Injury for 353 Adult Patient Falls Reported by 17 Small Rural Hospitals 8/12 - 7/14

- **Assisted (n=90)**
  - None: 80.0%
  - Minor: 17.8%
  - Moderate-Major: 2.2%

- **Unassisted (n=263)**
  - None: 64.3%
  - Minor: 31.2%
  - Moderate-Major: 4.6%

$p = 0.021$ Chi-Square Test
Results from CAPTURE Falls: Predictors of Fall-Related Injury

All other factors being equal, falls resulting in injury are associated with...

Patient Characteristics

- Age > 65 (OR 2.55)

System Characteristics

- Being in the bathroom (OR 2.48)
- NOT doing this: assisting a fall with a gait belt (OR 3.65)
Results from CAPTURE Falls: Predictors of Falling Unassisted

All other factors being equal, falling UNassisted is associated with…

**Patient Characteristics**

- Age $\geq$ 65 (OR 2.55)
- Cognitive impairment (OR 3.70)

**System Characteristics**

- Being in the bathroom (OR 1.70)
- Gait belt NOT identified as an intervention (OR 6.97)
Recommendation: Keep a gait belt in a specific place in each patient room to make it easy to find and use.
Objective 3

Evaluate your organization’s training program for safe transfers and mobility.
Prevention of ALL falls may lead to unintended consequences

Should Fall Prevention Teams = Mobility Teams?

Growden et al, 2017
Perceived Barriers to Patient Mobility – Hoyer et al, 2016

- Not enough time to mobilize patients given other job duties
- Inadequate training on how to safely mobilize patients
- Less confidence in ability to safely mobilize patients
- Patient’s physical functioning is not regularly discussed by care providers
- Rehab therapists should be the primary providers to mobilize patients
- Patients are resistant to being mobilized

- Strong correlation between training in mobilization and confidence in mobilizing patients
- More work experience was associated with lower barriers
- Nurses perceive greater barriers than rehab therapists
Key Components of Safe Transfers and Mobility Training Conducted by PT/OT

When?
- Annually
- New employee orientation

Who?
- Nursing and CNA staff (at a minimum)
- Consider other staff (radiography housekeeping, maintenance, clerical, etc.)

How?
- Ideally include demonstration, hands-on practice, and return demonstration for competency assessment
5. Indicate which aspects of training in safe transfers and mobility are conducted for staff on an annual basis and for new employees who provide direct patient care.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Annual Competency</th>
<th>New Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to the Basics</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Principles of postural control (e.g. fall occurs when center of mass is outside base of support)</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Application of gait belts</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Hand placement on gait belt (e.g. underhand vs. overhand grip)</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Purpose of gait belt (e.g. means to control patient’s center of mass)</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Controlling descent during a fall with a gait belt</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Transfers</td>
<td></td>
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<td>-------------------------------------------------------------------------</td>
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<tr>
<td>Bed Mobility: (e.g. rolling, scooting, supine to sit transfers)</td>
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<tr>
<td>Use of draw sheet during bed mobility</td>
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<tr>
<td>Caregiver body mechanics during transfers (e.g. lift with the legs,</td>
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<tr>
<td>position caregiver center of mass close to patient)</td>
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<tr>
<td>Transfer preparation: screening assessments to estimate ability to</td>
<td></td>
<td></td>
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<tr>
<td>stand and shift weight</td>
<td></td>
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<tr>
<td>Transfer preparation: have all equipment (e.g. chair, commode, gait</td>
<td></td>
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<tr>
<td>belt, assistive device) within reach before beginning transfer</td>
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<tr>
<td>Transfer preparation: patient positioning (e.g. buttocks to edge of</td>
<td></td>
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<tr>
<td>seat, knees flexed, feet flat and shoulder width apart)</td>
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<tr>
<td>Transfer preparation: transfer toward the patient’s stronger side</td>
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<tr>
<td>Wheelchair management during transfers (e.g. lock wheels, move leg</td>
<td></td>
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<tr>
<td>rests)</td>
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<tr>
<td>Instructing patient during transfers (e.g. nose over toes, push with</td>
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<tr>
<td>your arms)</td>
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<tr>
<td>Knee blocking techniques during transfers</td>
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<tr>
<td>Strategies for two person assist transfers (e.g. positioning of</td>
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<tr>
<td>caregivers, designating a leader)</td>
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<tr>
<td>Use of mechanical lift device (e.g. Hoyer Lift, ceiling lift)</td>
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<tr>
<td>Assisting Gait</td>
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<tr>
<td>-------------------------------------------------------------------------------</td>
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<tr>
<td>Screening for correct fit of assistive device (including adjustment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequencing of steps during gait with assistive device</td>
<td></td>
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<tr>
<td>Assistance during gait (e.g. using a gait belt, guarding on the patient’s</td>
<td></td>
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<tr>
<td>weaker side)</td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe gait and transfer techniques for specific diagnoses:</td>
<td></td>
<td></td>
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<tr>
<td>Total Hip Precautions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hemiplegia</td>
<td></td>
<td></td>
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<tr>
<td>Parkinson’s Disease</td>
<td></td>
<td></td>
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<tr>
<td>Other (specify): ___________________________________________________________</td>
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<td></td>
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<tr>
<td>Any other topics relevant to safe gait and transfers:</td>
<td></td>
<td></td>
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<tr>
<td>(specify): ________________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(specify): ________________</td>
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</tbody>
</table>
6. Indicate in which format the training was presented. Please mark ALL that apply.

<table>
<thead>
<tr>
<th>Training format</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Videos that illustrate specific techniques and skills</td>
<td>□</td>
</tr>
<tr>
<td>Online modules (specify):</td>
<td>□</td>
</tr>
<tr>
<td>Lecture</td>
<td>□</td>
</tr>
<tr>
<td>Written competency assessment (e.g. quiz)</td>
<td>□</td>
</tr>
<tr>
<td>Demonstration by training provider</td>
<td>□</td>
</tr>
<tr>
<td>Practice with return demonstration by learner</td>
<td>□</td>
</tr>
<tr>
<td>Demonstration competency assessment (repetition required until competency achieved; strongest method of learning and competency assessment)</td>
<td>□</td>
</tr>
<tr>
<td>Other training method (specify):</td>
<td>□</td>
</tr>
</tbody>
</table>
Retention Across Teaching Methods

- Lecture
- Reading
- Audiovisual
- Demonstration
- Discussion
- Practice
- Teaching Others
Additional Resources

Toolkit freely available at:
http://www.unmc.edu/patient-safety/capturefalls/

- Learning modules on various inpatient fall-related topics
- 16 mobility and transfer training videos
- Fall event learning/benchmarking forms
- Post-fall huddle form
- Gap analysis forms
- And more!
Summary

Impact of Physical Impairments on Movement
Impact of Pathophysiology on Movement
Interaction of Environment and Ability to Move
Psychometric Properties of Measurement

Biomechanical Basis of Movement
PT Contribution to Decrease Fall Risk

Contingency Team

Patient/Family
Core Team
Coord. Team
Ancillary & Support
Administration
Board

http://teamstepps.ahrq.gov/
Questions?

and

Thank You!

Contact Information:

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References

AHRQ. TeamSTEPPS 2.0.  


References


References


Oliver D, Daly F, Martin FC, McMurdoo ME. Risk factors and risk assessment tools for falls in hospital in-patients: A systematic review. Age Ageing. 2004;33:122-130


References


Smith BA, Fields CJ, Fernandez N. Physical therapists make accurate and appropriate discharge recommendations for patients who are acutely ill. Phys Ther. 2010;90(5):693-703.


