Decreasing Fall Risk: A Team Sport

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17 small rural hospitals (16 CAHs)
1 PPS hospital
Learning Objectives

- Explain the rationale behind the use of a multiteam system to decrease fall risk
- Use assisted falls as an organization quality measure
- Describe how rehabilitation therapists and nursing staff can work together to safely mobilize and transfer residents/clients
- Develop an action plan for improving training in safe transfers and mobility within your organization
Etiology of falls is multifactorial (AGS et al., 2001, 2011)

An interprofessional team (vs. nursing only strategy) and use of benchmarks are associated with sustained improvement (Sulla et al., 2007; Murphy et al., 2008; Krauss et al., 2008; Jones et al., 2014)

Teams are the fundamental structure for learning in organizations (Edmondson, 2012)
Common Fall Risk Factors—Multifactorial

- Gait Deficits
- Muscle Weakness
- Urinary Incontinence
- History of Falls
- Balance Deficits
- Cognitive Impairment
- Age > 80
- Use of Assistive Device
- Arthritis
- Impaired ADL status
- Depression
- Polypharmacy (centrally acting sedative/hypnotics)

(AGS et al., 2001, 2011; Oliver et al., 2004)
Falls in Long Term Care

- 42% while transferring
- 35% while walking
- 10% - 25% result in fractures or lacerations

  - Risk of fx greatest immediately after admission

- Contributions to risk
  - Common comorbidities
  - Medication side effects and interactions

(Becker & Rapp, 2010; Rapp, 2009; Luukinen, 1994)
Relationship Between Fall Risk and Mobility in Long Term Care
Relationship Between Fracture Risk and Months after Admission

(Rapp, 2009)
Location, Activity, and Consequences of Falls in Nursing Homes

Falls (n = 17,792) recorded in 535 NHs in Bavaria, Germany between January 1, 2008 and December 31, 2008 and stratified by location, activity, and consequences.

(Becker & Rapp, 2010)
Two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal, have specific roles or functions, and have a time-limited membership.

(Salas et al., 1992)
Contributions of Disciplines

Disciplines with complementary knowledge and skills to address multifactorial risk factors

- Licensed nurses screen for fall risk and initiate assessments and interventions based on risk factors
- CNAs perform majority of transfers and mobility assistance
- PTs/OTs assess fall risk based on performance of functional tasks, understand physiological/biomechanical basis of mobility
- Pharmacists review medications for appropriateness and side effects including sedation, impaired balance/coordination, and orthostatic hypotension (Beers Criteria)
- Quality improvement coordinators manage collection and analysis of fall event data and facilitate team learning

(Ganz, 2013; Jones et al., 2014)
Multi-Team System supports a chain of accountability to achieve goal of NO HARM

(AHRQ TeamSTEPPS)
Evidence—Teams Work (Jones et al., 2014)

Team Integrates Evidence from Multiple Disciplines* (n=27)
Team Does Not Integrate Evidence (n=32)

*Medicine, nursing, physical therapy, pharmacy
**Negative binomial model by integration of evidence
Evidence—Teams Work (Jones et al., 2014; De Dreu, 2002)

*Collect and analyze data, modify policies/procedures based on data, and conduct root cause analyses of injurious falls

**Negative binomial model for differences in fall rates by team reflexivity
Total Reported Falls in CAPTURE Falls through June 2014 = 341

- **Un-assisted**: 76%
- **Assisted**: 24%
- **Mild Harm**: 32%
- **No Harm**: 66%
- **Mod-Severe Harm**: 2%

(Staggs et al., 2014)
**Relationship Between Assistance and Harm**

- **Assisted Falls**
  - n = 82
  - No Harm: 81%
  - Mild Harm: 18%
  - Mod-Severe Harm: 1%

- **Unassisted Falls**
  - N = 259
  - No Harm: 61%
  - Mild Harm: 36%
  - Mod-Severe Harm: 3%
Tracking Fall Assistance Reveals System

Nurse screening identifies fall risk factors (e.g. weakness, frequency, gait impairment)

Nursing team implements targeted interventions (e.g. transfer/amb with assist of 1, toileting schedule)

CNA assists resident to bathroom using walker and gait belt every two hours

Resident experiences orthostatic hypotension and is lowered to floor by CNA

Assisted fall results in no harm to resident or staff

Post-fall huddle reveals need for review of hypertension medications

PT trains and assesses competency of all nursing personnel in safe transfers and mobility on hire and annually
Data to Reflect About (Becker & Rapp, 2010)

• **Type of fall**
  1. Anticipated physiological, unanticipated physiological, environmental/accidental (Morse, 1987)
  2. Assisted vs. unassisted (Staggs et al., 2014)
  3. Level of harm (none, mild, moderate, severe, death)

• **Time of fall** (shift change, rounding, meals?)

• **Location** (room, bathroom, common area)

• **What was the resident doing at the time of the fall?** (transferring, toileting, ambulating)

• **How was the resident found?** (found on floor, alarm sounding, with staff)
Coordinating Team Processes (Jones et al., 2014)

Develop policy/procedures
- Risk assessment tools
- Choose interventions based on evidence from multiple disciplines
- Fall event reporting form
- Conduct audits to assess reliability of interventions
- Collect and analyze data
- Conduct RCAs
- Modify policy/procedure based on data

Train/Educate
- Policy/procedures
- Use of risk assessment tools (reliability?)
- Match interventions to severity and cause of risk
- REPORT ALL FALLS
- Provide feedback to core team
- Annual training and new employee orientation in safe transfers and mobility
**Does Transfer/Mobility Training Matter?**

**Hospital A**
Annual training program for safe transfers and mobility conducted by PT emphasizing use of gait belts

**Hospital B**
No training program for safe transfers and mobility conducted by PT; infrequent use of gait belts
<table>
<thead>
<tr>
<th>Physical Therapy</th>
<th>Occupational Therapy</th>
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<tbody>
<tr>
<td>Expertise in mobility and movement dysfunction; understand physiological and biomechanical basis of mobility</td>
<td>Expertise in physical, psychological, and cognitive aspects of engagement in activities of daily living (occupations)</td>
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<tr>
<td>Both concerned with quality, efficiency, safety, and functionality of movement, not just the ability to move;</td>
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(Jette et al, 2003)
The Role of Rehabilitation Therapies

Resident & Family
Teach-back if cognitively able

Core Team
Physician
Nursing performs fall risk assessment, implements interventions
PT/OT consults re: mobility and ADLs
Pharmacist reviews medications
All educate resident & family

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

Ancillary & Support
Housekeeping empowered to check alarms
Laundry ensures clean gait belt
Env. Services fixes equipment

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

Contingency Team = Post Fall Huddle about 1 Resident
1. Assess:

- Strength
- Flexibility
- Posture
- Sensation
- Balance
- Transfers
- Gait
- Need for Assistive Device
- Physiologic Response to Activity
- Environmental Barriers
- Cognition
- Vision
- ADLs/IADLs
- Need for Adaptive Equipment

2. Develop interventions to address issues for individual residents
PT/OT Core Team Roles

- Provide education/consultation to facility staff about the best way to assist individual residents with gait, transfers, and ADLs
When Should I Involve PT and/or OT in the Care of an Individual Resident?

- Identification of impairments in transferring or gait (Sennour et al, 2009)
- Identification of impairments in ADLs (Roberts and Robinson, 2014)
- Resident has a history of falls
- Uncertainty of how to safely assist the resident with transfers and gait
As members of the Fall Risk Reduction Team, PTs and OTs can provide:

— Input on:
  • Development of fall risk policies and procedures
  • Resident education materials
  • Environmental modifications to rooms and common areas
  • Interpretation of fall event data

— Staff competency training for safe transfers and gait
Current evidence is inconclusive, but systematic reviews and practice guidelines suggest multifactorial interventions are most appropriate. (Neyens et al, 2011; Cameron et al, 2012; AGS & BGS 2011)

In one systematic review, common elements of 4 RCTs with positive results included assessment of transfers and ambulation, exercise/physical therapy, and staff education (Neyens, et al, 2011)
Key Components of Transfer/Mobility Training

- Basic Principles of Balance
- Gait Belt Use
- Body Mechanics
- Wheelchair Management
- Specific Techniques
Base of Support (BOS)

- The area on which the body rests;
- The area that provides support for the body
  - Larger BOS = More Stability
Center of Mass (COM)*

*also known as center of gravity (COG)

- The point at which the mass of the body is centered
- In an erect standing posture, the COM is located at the sacrum
- COM position moves with changes in body position
The maximum distance an individual is able or willing to move their center of mass in any direction without loss of balance or changing the base of support.
Basic Principles of Balance

Balance

Balance is the condition in which all the forces acting on the body are balanced in such a way that the center of mass (COM) stays within the limits of stability (LOS), which is dependent upon the base of support (BOS)
Basic Principles of Balance

Balance Simplified
How Do We Maintain our Center of Mass within our Limits of Stability?

Sensory Input

Motor Output
Basic Body Mechanics Principles:
The safer you are, the safer your resident will be.

- Adjust the height of the bed as needed
- Use a wide base of support
- Maintain the natural curves of your back - Bend at your hips and knees instead
- Get your center of mass close to the resident’s center of mass
Basic Body Mechanics Principles:
The safer you are, the safer your resident will be.

- Move or pivot your feet to turn; do not twist at your back
- Always let the resident assist as much as possible
- Perform transfer in a smooth motion
- If more than 1 person is assisting, communicate
Gait Belt Use
Gait Belt Use

Gait Belt Helpful Hints

- Purpose is to control resident’s center of mass during mobility, control descent if a fall occurs, and reduce chance of grabbing resident's upper extremities
- Place the belt low and snug
- Thread the end through both sides of the buckle – teeth side first.
- May need to adjust tightness once in standing
- Hold from bottom edge of the belt
Gait Belt Use

Gait Belt Helpful Hints

A good way to ensure a gait belt is used with every transfer is to have it in a specific place in every room so it is easy to find.

These gait belts are ready for use!
Wheelchair Management: Safety

• Lock the brakes
• Swing away/remove leg rests to position chair in close proximity to surface resident is transferring to/from
• If leg rests can’t be removed, elevate the footplates for the transfer
• Remove armrest if needed
Chair To Bed Transfer: With Device
Bed ↔ Chair Transfer: Safety

• Minimize distance between chair and bed
• Resident should wear non-slip socks or shoes
• Use a gait belt
• Resident should initiate stand with wide base of support, feet underneath their center of mass
• Transfer towards the resident’s stronger side
• Resident should make contact with surface before sitting
Assisted Ambulation
Ambulation: Assisted Fall to the Floor
Ambulation and Assisted Falls: Safety

- Guard on weaker side (if there is asymmetry of strength)
- Maintain a wide base of support yourself
- Use the gait belt to control movement of resident’s center of mass in the event of a fall
  - Use the gait belt to direct the resident’s center of mass back over their base of support
  - Pull resident towards you or another stable object, and/or retard descent
Complete Video Library Available on CAPTURE Falls website

Supine to Sit
Rolling
Sit to Supine
Gait Belt Usage
Wheelchair Management For Transfers
Stand Pivot Bed to Chair - No Assistive Device
Stand Pivot Chair to Bed - No Assistive Device
Stand Pivot Bed to Chair – With Assistive Device
Stand Pivot Chair to Bed – With Assistive Device

Squat Pivot Bed to Wheelchair - Two Person Assist
Squat Pivot Wheelchair to Bed - Two Person Assist
Assisted Ambulation
Fall With Assistance to Floor
Guarding a Forward Fall
Forward Fall with Assistance to Chair
Sideways Fall with Assistance to Chair

http://www.unmc.edu/patient-safety/capturefalls/tool-inventory.html
Key Components of Transfer/Mobility Training

When?
- Annually
- New employee orientation

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

How?
- Include demonstration, hands-on practice, and return demonstration/competency assessment
Small Group Work: Gap Analysis and Action Plan Development
Summary

- Falling is a multifactorial problem that requires multidisciplinary solutions.
- Assisted falls are less harmful. Falls will be more likely to be assisted when staff are properly trained.
- PTs and OTs are well-suited to provide training for your staff and therefore contribute to overall organizational quality, not just direct patient care.
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CAPTURE Falls
Collaboration and Proactive Teamwork Used to Reduce

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