Teaming Up for Inpatient Fall Risk Reduction

APTA NEXT Conference and Exposition; Nashville, TN; June 10, 2016

Dawn Venema, PT, PhD
Katherine J. Jones, PT, PhD
Errin Nelson, PT, DPT

University of Nebraska Medical Center
University of Nebraska Medical Center
Lexington Regional Health Center
Disclosure

This project is supported by:

- Grant number R18HS021429 from the Agency for Healthcare Research and Quality
- Nebraska Department of Health and Human Services, Division of Public Health and the Nebraska Office of Rural Hospital Flexibility Program
- University of Nebraska Medical Center College of Medicine Summer Research Scholarship

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.
Disclosure

• The results presented originate from an ongoing research project to improve patient safety in small rural hospitals.

• The primary intervention in this research was implementing an evidence-based team training program developed by the Department of Defense and the Agency for Healthcare Research and Quality.

*TeamSTEPPS is freely available from http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/instructor/index.html
Acknowledgement: Research Team

- University of Nebraska Medical Center
  - Katherine Jones, PT, PhD
  - Dawn Venema, PT, PhD
  - Victoria Kennel, PhD
  - Jane Potter, MD
  - Linda Sobeski, PharmD
  - Robin High, MBA, MA
  - Anne Skinner, RHIA, MS
  - Fran Higgins, MA, ADWR
  - Mary Wood
  - Kristen Topliff, SPT

- Nebraska Medicine
  - Regina Nailon, RN, PhD

- University of Nebraska-Omaha Center for Collaboration Science
  - Roni Reiter-Palmon, PhD
  - Joseph Allen, PhD

- Methodist Hospital
  - Deborah Conley, MSN, APRN-CNS, GCNS-BC, FNGNA
Acknowledgement: Hospitals in CAPTURE Falls

17 Small Rural Hospitals in Nebraska and their interprofessional fall risk reduction coordinating teams
Session Learning Objectives

After completing this session, you will be able to:

• Define “multiteam system” and its associated taxonomy

• Explain the rationale for the use of a multiteam system to decrease inpatient fall risk in healthcare organizations

• Integrate the knowledge and skills of PTs and PTAs across components of the multiteam system to decrease inpatient fall risk in healthcare organizations

• Conduct a gap analysis to compare your organization’s current fall risk reduction practices with best practice
Session Outline

1. Introduction
   – Relationship between inpatient (IP) fall risk reduction and APTA’s vision statement
   – Background regarding IP fall risk reduction

2. Definition of the multiteam system (MTS)

3. Role of physical therapists (PTs) in the MTS
   – Core, coordinating, and contingency teams
   – Unique and complementary knowledge and skills
   – Relationship between assisted falls and patient injury

4. Gap analysis
INTRODUCTION
Inpatient Falls: Quality and Safety Problem

• **Prevalence** (Oliver et al., 2010)
  – 2% - 3% of hospitalized patients fall each year
  – 30% - 51% of falls result in injury

• **Benchmarks from National Database of Nursing Quality Indicators** (Staggs et al., 2014)
  – 3.4 falls/1000 pt. days
  – 0.8 injurious falls/1000 pt. days

• **Outcomes**
  – Cost…$14,000 greater for the 2% of fallers with serious injury (Wong et al., 2011)
  – 1/11 Healthcare Acquired Conditions (HACs) PPS hospitals not reimbursed for
  – Falls contribute to 40% of nursing home admissions (Tinetti et al., 1988)
  – Fear of falling limits mobility (Tinetti et al., 1994)
Inpatient Fall Risk Reduction: Relationship to APTA’s Vision Statement

Coordination Across Interprofessional Multiteam Systems

Collaborative Skills

Complementary Skills Associated with Professional Identity

Quality
Value
Innovation
Advocacy
Consumer-centricity

http://www.apta.org/Vision/
Evidence indicates that teams decrease inpatient fall risk…but how?

<table>
<thead>
<tr>
<th>Systematic review</th>
<th>• Etiology of falls is multifactorial (Oliver et al., 2004), thus falls require a multifactorial/interprofessional approach for prevention</th>
</tr>
</thead>
<tbody>
<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>
<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>Theory</td>
<td>• Effective teams are the fundamental structure for managing complexity/learning and implementing change in organizations (Edmondson, 2012; Higgins et al., 2012)</td>
</tr>
</tbody>
</table>
As compared to other healthcare acquired conditions (HACs), little progress has been made in decreasing falls since CMS ceased paying hospitals for conditions not present on admission.

Why?

(AHRQ Interim Update)
1. Care for higher proportion of older adults
2. Provide skilled rehabilitation
3. Limited QI resources
4. Lack valid fall rate benchmarks
5. Continue to receive payment for HACs

Legend
- Critical Access Hospital (1,331)
- Metropolitan County
- Nonmetropolitan County
- State Not Eligible or Not Participating

*Note: Core Based Statistical Areas are current as of the February 2013 update. Nonmetropolitan counties include micropolitan and counties outside of CBSAs.*

2011 cross-sectional survey of all 83 community hospitals
- No significant differences in prevalence of bedside interventions
- CAHs reported performing significantly fewer organizational level evidence-based processes than non-CAHs
- Risk of falls significantly greater in CAHs than non-CAHs
- After adjusting for volume, hospitals in which teams integrated evidence from multiple disciplines and reflected/learned from data had significantly lower fall rates

Conclusion: shift from nursing-centric to team-centric paradigm to decrease fall risk
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)

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

**Negative binomial rate model

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

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

**Event Rate/1000 patient days**

**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

<table>
<thead>
<tr>
<th></th>
<th>Sometimes/rarely/never (n=32)</th>
<th>Always/Frequently (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Falls</td>
<td>6.2</td>
<td>4.6</td>
</tr>
<tr>
<td>Injurious Falls</td>
<td>1.9</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*p=.046*  
*p=.01*

(Jones et. al, 2015)
Problem: Not Learning

Does your fall risk reduction team reflect by…

1. Collecting and analyzing data about fall risk reduction outcomes?
2. Modifying fall risk reduction policies and procedures based on outcome data?
3. Conducting root cause analyses of injurious falls?

*Negative binomial model (Jones et. al, 2015)
THE MULTITEAM SYSTEM (MTS)
What Defines a Team?

- Two or more people
- Complementary skills
- Interact dynamically toward a common and valued goal
- Includes patient and family

(Salas et al., 1992)
Teamwork as a Structure of Care...Donabedian’s Quality Assessment Framework

(Donabedian, 2003)

**Structure**
- How care is delivered, organized, financed
- People, equipment, policies/procedures
- Equivalent to system design, capacity for work

**Process**
- Tasks performed that are intended to produce an outcome
- Most closely related to outcomes
- Causal relationship between process & outcomes

**Outcome**
- “Ultimate Validator”
- Changes in individuals and populations due to health care
- Time to develop, multifactorial, random component
CAPTURE Falls Solution

Collaboration And Proactive Teamwork Used to Reduce Falls

• Improve structure and coordination of organizational processes
  – Standardize definitions for reporting & benchmarking
  – View fall risk reduction as an organizational goal that multiple teams coordinate to achieve

http://teamstepps.ahrq.gov/
Structure: 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)

http://teamstepps.ahrq.gov/
MTS Definition and Typology

• Component teams achieve proximal goals

• Coordination across the component teams achieves organizational goal (Zaccaro, Marks, & DeChurch, 2012)

<table>
<thead>
<tr>
<th>Nursing: Fall Risk Assessment with High +/- Predictive Value</th>
<th>PT/OT: Consistent, Safe Transfers &amp; Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>QI: Standardize reporting taxonomy</td>
<td>Pharmacy: Safe Medication Use/Debridement</td>
</tr>
</tbody>
</table>

Fall Risk
Definitions for Benchmarking

• Fall: for the purposes of patient safety, a fall is a sudden, unintended, uncontrolled downward displacement of a patient’s body to the ground or other object (e.g. bed, chair, or bedside mat). (AHRQ Common Formats)

• Assisted Fall: when a patient begins to fall and is assisted to the ground or other lower object by staff (not family or other visitor). (NDNQI)
Definitions for Benchmarking

• Extent of harm (*NDNQI*)
  
  – Death: Patient died as a result of injuries sustained from the fall.
  
  – Major: Fall resulted in surgery, casting, traction, consultation for neurological (e.g. skull fracture, subdural hematoma) or internal injury (e.g. rib fracture, liver laceration) or need for blood products.
  
  – Moderate: Fall resulted in suturing, application of steri-strips/skin glue, splinting or muscle/joint strain.
  
  – Minor: Fall resulted in application of dressing, ice, cleaning of wound, limb elevation, topical medication, bruise or abrasion.
  
  – None: Patient had no injuries (no signs or symptoms resulting from the fall); x-ray, CT scan or other post fall evaluation resulted in finding of no injury.
  
  – Unknown
Structure: 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)
Structure: Fall Risk Reduction MTS

Core Team—people who provide direct patient care

- Diagnose and treat using evidence-based care plan
- Conduct fall risk assessment
- Implement targeted risk reduction interventions that address risk factors
- Conduct medication review
- Evaluate mobility and function
- Report and learn from falls—participate in post-fall huddles
Boundaries—divisions between identity groups—exist between disciplines that make up the core team.

(Edmondson, 2012)
Contingency Team—members from various teams conduct post-fall huddle
- Meet immediately after a fall to determine what happened, why it happened, what will be done differently
- 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
Ancillary and Support Services—provide direct task-specific patient care (e.g. radiology, laboratory, dietary) and create a clean, safe environment (e.g. laundry, env. services, maintenance, IT)

- Know their role in fall risk reduction
- Know who is at risk (signage)
- Know what to do if see/hear someone at risk getting up
- Know who to tell

Should housekeeping stock gait belts and be empowered to turn on a bed alarm for a patient at high risk?

Should a phlebotomist respond to a bed alarm?
Structure: Fall Risk Reduction MTS

Administration—
• Create/support culture of safety
• Communicate goal of decreasing fall risk
• Awareness—be aware of gaps between current practice and best evidence
• Ability—make sure staff have the knowledge, skills, and time to make improvement (resources)
• Accountability—hold the coordinating team accountable for the structure, process, and outcomes of fall risk reduction program
• Action—hold the coordinating team accountable for taking action...educating, auditing, motivating

(National Quality Forum, 2010)
What is Coordination?

Plan

Standardize

Adjust

Accountability

Predictability

Shared Mental Model

(DeChurch et al., 2009; Okhuysen et al., 2009)
Effectiveness of Fall Risk Reduction Coordinating Teams

- Low (N=6, Mean=37)
- Moderate (N=5, Mean=43.6)
- High (N=5, Mean=51.6)

(0=Not Done, 1=Not Effective to 4=Highly Effective)

- Select fall risk assessment tools
- Integrate evidence from multiple disciplines
- Select interventions to reduce fall risk
- Link targeted interventions to risk factors
- Educate staff to use fall risk assessment tools
- Educate staff to report all falls
- Provide frontline staff with information about actions taken
- Create policies and procedures
- Conduct audits to monitor adherence
- Select/develop/revise Fall Reporting Form
- Educate staff about policies and procedures
- Educate staff to choose appropriate interventions
- Educate staff about outcomes of program
- Communicate program barriers and successes to leaders
- Communicate results of audits to staff
- Share program outcomes with hospital board members
What Difference do Effective Coordinating Teams Make?

![Graph showing the relationship between Total Falls Per 1000 Patient Days and Effectiveness Score - Fall Risk Reduction Team Activities. The graph indicates a negative correlation (Spearman rho=-.51, P=.04).]
THE ROLE OF PHYSICAL THERAPY IN INPATIENT FALL RISK REDUCTION
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)
Role of Physical Therapy in Fall Risk Reduction MTS

http://teamstepps.ahrq.gov/
PT Role on Core Team

• Assess and develop interventions to address strength, range of motion, posture, sensation, balance, transfers, gait, and need for an assistive device

• Prescribe 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
**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 PT's be consulted?

- 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 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

• Move beyond writing “1”, “2”, or “Hoyer” on the white board: post photos of transfer techniques for individual patients; directly communicate about functional/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 (no pass zone)
Collaborate with others and span boundaries to

- Develop forms/strategies to document mobility/transfer status
- Develop patient/family education materials
- Design environmental modifications to rooms and public areas
- Interpret fall event data
- Audit reliability of unit level interventions
- Select screening tools with strong predictive validity
PT Role on Coordinating Team

Collaborate and span boundaries to

• Provide annual education and competency assessment for safe transfers and mobility

• Participate in audits of bedside interventions and feedback to staff

• 16 mobility and transfer training videos available

http://www.unmc.edu/patient-safety/capturefalls/tool-inventory.html
Impact of PT Participation on Coordinating Team … Boundary Spanning

Role on coordinating team enhanced their ability to span boundaries between nursing and PT 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.”
“...people know you as somebody in the hospital that helps to get policies in place.”

“...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”

“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.”
PT Role on Contingency Team

Provide our unique and complementary perspective of a fall event and future prevention strategies during post-fall huddles.
PT Shares Complementary Knowledge and Skills Throughout the MTS

- Impact of Pathophysiology on Movement
- Impact of Physical Impairments on Movement
- Biomechanical Basis of Movement
- Psychometric Properties of Measurement

PT Contribution to Decrease Fall Risk
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

- 80.0% Moderate-Major
- 17.8% Minor
- 2.2% None

Assisted (n=90)

- *p=.021 Chi-Square Test
- 64.3% None
- 31.2% Minor
- 4.6% Moderate-Major

Unassisted (n=263)
Lesson Learned: Focus on Making it Easier to Assist Mobility

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

Patient Characteristics

Age ≥ 65 (OR 2.55)
Cognitive impairment (OR 3.70)

System Characteristics

In the bathroom (OR 1.70)

Gait belt NOT identified as an intervention (OR 6.97)
Lesson Learned: Assist with a Gait Belt to Control Center of Mass

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

**Patient Characteristics**

- Age $\geq 65$ (OR 2.55)

**System Characteristics**

- Being in the bathroom (OR 2.48)
- NOT Doing this (OR 3.65)
Questions
SMALL GROUP DISCUSSION
SAFE TRANSFERS/MOBILITY GAP ANALYSIS
Gap Analysis Drives Innovation

Rogers’ Organization Innovation Process

- **INITIATION**
  - Agenda Setting/Need

- **DECISION**
  - Matching
  - Redefining

- **IMPLEMENTATION**
  - Clarifying
  - Routinizing

**Needs:**
- Definitions
- Team
- Documentation
- Postural Control
- Transfers
- Gait
- Specific Diagnoses

**Design**
- Training and audits to address needs

**Restructure**
- Organization to fit innovation

**Make roles and tasks clear**
- (Housekeeping stocks/monitors gait belts)

**Hard-wire:**
- Audits, policies, procedures, job descriptions, performance appraisals

(Rogers, 2003)
Resources

- Toolkit freely available at: http://www.unmc.edu/patient-safety/capturefalls/
  - Learning modules on various IP fall-related topics
  - Transfer and mobility training videos
  - Fall event learning/benchmarking forms
  - Post-fall huddle form
  - Gap analysis form
  - And more!
Summary

**Coordinating Team Role**
- Trained staff in safe transfers and mobility
- Role-modeled use of evidence-based practice
- Used specialized knowledge to assess etiology of falls
- Assisted team to determine best fall risk assessment tool

**Core Team Role**
- Collaborated with team to provide safe, patient care
- Improved individual patient safety using therapeutic exercise, balance and gait training

**Training**
- Teamwork
- Outcomes
- Patient-Centered
- Patient Safety
- Communication

**Most Important Contribution**
- Learning-Knowledge Retention

**Participate in QI**
- Provide Leadership
- Establish Goal
- Create Team Structure
- Clarify Roles/Responsibilities
Teaming Up for Inpatient Fall Risk Reduction

Thank You!

Contact Information:

Dawn Venema, PT, PhD  
kjonesj@unmc.edu  
enelson@lexrhc.org

Katherine Jones, PT, PhD

Errin Nelson, PT, DPT