Collaboration and Proactive Teamwork Used to Reduce Falls Part 1: A systems approach to a complex patient safety problem

COMPASS Hospital Improvement Innovation Network
June 20, 2017

Victoria Kennel, PhD (victoria.kennel@unmc.edu)
Katherine J. Jones, PT, PhD (kjonesj@unmc.edu)
Disclosure

This project is supported by:

• Grants R18HS021429 and R03HS024630 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 Scholarships
## Research Team

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

### University of Nebraska-Omaha
- Roni Reiter-Palmon, PhD
- Joseph Allen, PhD
- John Crowe, MA

### Nebraska Medicine
- Regina Nailon, RN, PhD

### Methodist Hospital
- Deborah Conley, MSN, APRN-CNS, GCNS-BC, FNGNA
Objectives

1. Describe the multi-team system as a structure to manage the complexity of inpatient falls
2. Implement post-fall huddles as a process to decrease repeat falls and improve patient safety culture
3. Describe the resources available to implement post-fall huddles
4. Relate five fall risk reduction outcomes to the coordination and training processes conducted by a multi-team system
Objective 1

Describe the multi-team system as a structure to manage the complexity of inpatient falls
Three Sources of Fall Risk

- Environment
- Patient
- System

Individual General

CAPTURE Falls Gap Analysis

Fall Risk Assessment

Fall Risk
Technical-Biomechanical Frame

• Problem: Fall occurs because center of mass is outside base of support
  
  (O’Sullivan & Schmitz, 2007; p. 253)

• Solution to problem: Control the center of mass

https://www.unmc.edu/patient-safety/capturefalls/tool-inventory.html
Social-Organizational Frame

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

(Jones et al., 2015)
Solution to Complex Problems

Effective teams—fundamental structure for managing complexity/learning and implementing change in organizations (Edmondson, 2012; Higgins et al., 2012; Jones et al., 2015)

Teams as a Structure of Care...Donabedian’s Quality Assessment Framework

(Donabedian, 2003)

<table>
<thead>
<tr>
<th>Structure</th>
<th>Process</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>How care is delivered, organized, financed</td>
<td>Tasks performed that are intended to produce an outcome</td>
<td>“Ultimate Validator” Changes in individuals and populations due to health care</td>
</tr>
<tr>
<td>People, equipment, policies/procedures</td>
<td>Most closely related to outcomes</td>
<td>Time to develop, multifactorial, random component</td>
</tr>
<tr>
<td>Equivalent to system design, capacity for work</td>
<td>Causal relationship between process &amp; outcomes</td>
<td></td>
</tr>
</tbody>
</table>
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

“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
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)
Right Coordination

Plan

Adjust

Standardize

Accountability

Predictability

Shared Mental Model

(DeChurch et al., 2009; Okhuysen et al., 2009)
1. Integrate evidence from multiple disciplines
2. Policies/procedures
3. Interventions
4. Fall risk assessment tool
5. Link risk factors to interventions
6. Audit intervention implementation
7. Communicate audit results to staff
8. Develop reporting forms
9. Collect fall-related data
10. Analyze fall-related data
11. Modify policies/procedures based on data
12. Communicate to staff about actions taken as a result of reported falls
13. Conduct individual RCA
14. Conduct aggregate RCA
15. Education about fall risk reduction policies/procedures
16. Education about fall risk assessment tool
17. Education to choose appropriate interventions
18. Education to report assisted and unassisted falls
19. Education about fall risk reduction program outcomes
20. Communicate barriers and successes to CEO
21. Communicate barriers and successes to board
Plan Training

Training Topics
1. Fall risk reduction program (Max Score = 12)
2. Use of fall risk assessment tool (Max Score = 15)
3. Safe transfers & mobility (Max Score = 15)
4. Use of mechanical lifts (Max Score = 15)
5. Post-fall huddles (Max Score = 15)
Plan Training

Training Criteria

• Conduct regularly
• Include in new employee orientation
• Implement policy to sustain training
• Include appropriate staff
• Provide opportunity to practice skills
• Assess competency of skills
Structure: Fall Risk Reduction MTS

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…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
     (Reiter-Palmon et al., 2015)

Post-Fall Huddle Tools
http://www.unmc.edu/patient-safety/capturefalls/tool-inventory.html
Objectives 2 and 3

Implement post-fall huddles as a process to decrease repeat falls and improve patient safety culture

Describe the resources available to implement post-fall huddles
The Post-Fall Huddle

A post-fall huddle* is a brief meeting immediately after a fall that includes staff caring for the patient and (ideally) the patient and family

Useful to multiple stakeholders:

– Patient and family
– Core team
  • Nursing
  • PT/OT
  • Pharmacy
  • Quality Improvement
  • Providers
– Administration/Management

*TeamSTEPPS definition of huddle—an ad hoc meeting to regain situation awareness, discuss critical issues, and emerging events
Purposes of a Post-Fall Huddle

- Root cause of fall
- Decrease patient’s future fall risk
- Improve bedside teamwork
- Improve coordination across system
- Apply lessons learned at system level
What makes for a successful post-fall huddle?

<table>
<thead>
<tr>
<th>Purpose is to facilitate sensemaking and action</th>
<th>Include staff providing care for patient, interprofessional team, patient/family</th>
<th>Conduct the huddle as soon as possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct the huddle where the fall occurred, or a similar space that accommodates huddle team</td>
<td>A well-formulated huddle guide</td>
<td>Must have a designated huddle facilitator</td>
</tr>
<tr>
<td>Facilitator engages in effective huddle leadership behavior</td>
<td>Facilitator manages huddle participant behavior</td>
<td></td>
</tr>
</tbody>
</table>
Post-Fall Huddle Guide

CAPTURE FALLS:
POST-FALL HUDDLE GUIDE

1. Establish facts... a) was this patient at risk, b) a previous fall, c) ABCs?
2. What was the patient doing when he/she fell? Why?
3. What were staff caring for this patient doing when the patient fell? Why?
4. What was different this time as compared to other times the patient was engaged in the same activity for the same reason? Why?
5. How could we have prevented this fall?
6. What changes will we make in this patient’s plan of care to decrease the risk of future falls?
7. What patient or system problems need to be communicated to other departments, units, or disciplines?
8. Complete documentation
   a. Who attended
   b. Type of fall
   c. Type of error

POST-FALL HUDDLE FACILITATOR TIPS

1. Create a safe, learning-focused environment (e.g., this is an opportunity for the front line to learn about why a patient fell – actively listen and be slow to judge)
2. Ask probing questions (e.g., ask “why?” until root causes are identified)
3. Encourage open and honest sharing of information from all huddle participants (e.g., encourage turn taking and recognize each person’s contribution)
4. Give praise and acknowledge good work (e.g., say “thank you” and “nice job” when appropriate)
5. Identify mistakes made and focus on how staff can improve in the future (e.g., acknowledge the mistake but specifically mention an action staff can take to address this issue in the future)

https://www.youtube.com/watch?v=ZIqAmNEL6Q4&feature=youtu.be
Effective Huddle Facilitator Behaviors

Engage in positive facilitator techniques

– Allow/encourage EVERYONE to speak
– Ensure concerns are voiced
– Discuss each attendee’s role during and in response to the fall
– Discuss what can be learned from the fall
– Agree on processes to be improved in the future
– Give praise/commend for good work
Managing Huddle Attendee Behavior

Engage in Positive Behavior

• Open and honest sharing
• Supportive discussion
• Acknowledge good work
• Praise successes
• Accept responsibility
• Identify things to work on

STOP Negative Behavior

• Blaming
• Finger pointing
• Overtly critical comments
A Two-Stage Huddle Option

Consider a two-stage huddle process to achieve the goal of interprofessional input:

Core Team (1): Bedside huddle that occurs immediately

Coordinating Team (2): Members of inter-professional team (e.g. pharmacist, PT, OT, QI) review fall event report and huddle form within 24 hours
  • Provide complementary input to nursing
  • Review the event in the context of the system and previous events

“[there is ] a couple different levels of huddle too, what can we do right now to stop it from happening again, and ... is there a process issue.”
From bedside discussion...

To system learning
Association Between Post-Fall Huddles and Repeat Falls per Patient (n=16 Hospitals)

rho = -0.47, p = 0.07

Proportion of Falls With a Post-Fall Huddle
### Post-Fall Huddle Participation and Perceptions of Safety Culture (n=570-589 individuals)

<table>
<thead>
<tr>
<th>Category</th>
<th>Participated in a Post-fall Huddle</th>
<th>Did Not Participate in a Post-fall Huddle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Learning</td>
<td>82%</td>
<td>79%</td>
</tr>
<tr>
<td>Nonpunitive Response to Error</td>
<td>83%</td>
<td>74%</td>
</tr>
<tr>
<td>Teamwork Across Hospital</td>
<td>70%</td>
<td>63%</td>
</tr>
<tr>
<td>Departments</td>
<td>69%</td>
<td>56%</td>
</tr>
<tr>
<td>Hospital Handoffs &amp; Transitions</td>
<td>68%</td>
<td>67%</td>
</tr>
<tr>
<td>Mistakes have led to positive changes here</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>After we make changes to improve patient safety, we evaluate their effectiveness</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>Staff feel like their mistakes are being held against them</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>When an event is reported, it feels like the person is being written up, not the problem</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>There is good cooperation among hospital departments that need to work together</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>Hospital departments work well together to provide the best care for patients</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>Hospital departments do not coordinate well with each other</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>It is often unpleasant to work with staff from other hospital departments</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>Things “fall between the cracks” when transferring patients from one department to another</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>Important patient care information is often lost during shift changes</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>Problems often occur in the exchange of information across hospital departments</td>
<td>False</td>
<td>False</td>
</tr>
</tbody>
</table>

### Post-Fall Huddle Participation and Perceptions of Teamwork Support For Fall Risk Reduction

<table>
<thead>
<tr>
<th>Category</th>
<th>Participated in a Post-fall Huddle</th>
<th>Did Not Participate in a Post-fall Huddle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Structure</td>
<td>95%</td>
<td>89%</td>
</tr>
<tr>
<td>My unit/department has clearly articulated goals for fall risk reduction.</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>My unit/department clearly communicates the need for fall risk reduction.</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>My supervisor/manager considers staff input when making decisions about fall risk reduction.</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>My supervisor/manager provides opportunities to discuss the unit/department’s performance after a fall.</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>Team Leadership</td>
<td>93%</td>
<td>86%</td>
</tr>
<tr>
<td>My supervisor/manager takes time to meet with staff to discuss the fall risk reduction program.</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>My supervisor/manager successfully resolves conflicts involving the fall risk reduction program.</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>Situation Monitoring</td>
<td>93%</td>
<td>85%</td>
</tr>
<tr>
<td>Staff meet to reevaluate a patient’s fall risk reduction plan of care when appropriate.</td>
<td>True</td>
<td>True</td>
</tr>
</tbody>
</table>
Resources to Support Post-Fall Huddle Implementation

- [https://www.unmc.edu/patient-safety/capturefalls/tool-inventory.html](https://www.unmc.edu/patient-safety/capturefalls/tool-inventory.html)
  - Training webinar – Effective Huddles and Debriefs: How to Facilitate Learning at the Frontline
  - Videos: Good and Bad Examples of a Post-Fall Huddle
  - Post-Fall Huddle Pocket Guide
  - Post-Fall Huddle Guide and Documentation Form
Objective 4

Relate five fall risk reduction outcomes to the coordination and training processes conducted by a multi-team system

(See the posted rubric to understand how team processes were scored to complete the analyses).
## Fall Risk Reduction System

(Donabedian, 2003)

<table>
<thead>
<tr>
<th>Structure</th>
<th>Process</th>
<th>Outcome (Fall Risk)</th>
</tr>
</thead>
</table>
| 1. Multi-Team System  
2. Valid risk assessment tools  
3. Reporting/learning system | 1. Reliably implement bedside processes  
2. Coordinate processes  
3. Conduct Training  
   1) Overall Program  
   2) Fall Risk Assessment  
   3) Safe Transfers/Mobility  
   4) Use of Mechanical Lifts  
   5) Post-fall Huddles  
4. Conduct Post-fall Huddles | 1. Total Fall Rate  
2. Unassisted Fall Rate  
3. Injurious Fall Rate  
4. Repeat Fall Rate  
5. Reporting Fall Outcomes |
Five Fall-Related Outcomes

1. Total Fall Rate = (Unassisted + Assisted Falls/Patient days) x 1000
2. Unassisted Fall Rate = Unassisted Falls/Patient days) x 1000
3. Injurious Fall Rate = Injurious Falls/Patient days) x 1000
4. Repeat Fall Rate = Total Falls/Unique Patients who Fell
## Five Fall-Related Outcomes

### 5. Reporting Fall Outcomes

<table>
<thead>
<tr>
<th>Fall Events</th>
<th>Frequency Reported (Max Score = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
</tr>
<tr>
<td>Unassisted Falls that result in injury</td>
<td>0</td>
</tr>
<tr>
<td>Unassisted Falls that DO NOT result in injury</td>
<td>0</td>
</tr>
<tr>
<td>Assisted Falls that result in injury</td>
<td>0</td>
</tr>
<tr>
<td>Assisted falls that DO NOT result in injury</td>
<td>0</td>
</tr>
</tbody>
</table>
Unassisted and Assisted Falls as Outcomes

- Unassisted falls represent system failure.
- Assisted falls that do not result in harm to patients or staff will occur as hospitals prioritize early mobilization to prevent secondary deconditioning and pressure ulcers.
System Failure—Unassisted Falls

Unassisted falls significantly more likely to result in harm than assisted falls

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

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

- Moderate-Major: 64.3%
- Minor: 31.2%
- None: 4.6%

*p=.021 Chi-Square Test

Assisted (n=90)

Unassisted (n=263)
## It Takes a Multi-Team System!

<table>
<thead>
<tr>
<th>Core Team Processes</th>
<th>Total Fall Rate</th>
<th>Injurious Fall Rate</th>
<th>Unassisted Fall Rate</th>
<th>Repeat Fall Rate</th>
<th>Reporting Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted Bedside Interventions</td>
<td>-.205</td>
<td>-.309</td>
<td>-.344</td>
<td>-.414</td>
<td>.049</td>
</tr>
<tr>
<td>Universal Bedside Interventions</td>
<td>.167</td>
<td>-.039</td>
<td>-.064</td>
<td>-.541&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.173</td>
</tr>
</tbody>
</table>

### Coordinating Team Processes

| Effectiveness of 21 Coordinating Team Processes | -.443<sup>b</sup> | -.383 | -.586<sup>a</sup> | -.129 | .004 |

| Training: Fall Risk Reduction Program | -.253 | -.441<sup>b</sup> | -.418 | -.235 | .648<sup>a</sup> |

| Training: Fall Risk Reduction Tool | -.198 | -.521<sup>a</sup> | -.384 | -.075 | .125 |

| Training: Safe Transfers and Mobility | -.003 | -.277 | -.200 | -.414 | .602<sup>a</sup> |

| Training: Mechanical Lifts | .350 | .176 | .214 | -.590<sup>a</sup> | .344 |

| Training: Post Fall Huddle | .317 | -.174 | -.009 | -.586<sup>a</sup> | .330 |

### Contingency Team Processes

| Proportion of Falls with a Post-Fall Huddle | .097 | -.392 | -.109 | -.465<sup>b</sup> | .391 |

<sup>a</sup>Statistically Significant Correlation p<.05; <sup>b</sup>Practically Significant Correlation p<.10
Summary—Leaders must know that:

- Teams are better able to manage complex patient safety problems because diverse individuals consider problems from multiple perspectives.

- Developing and sustaining interprofessional coordinating teams is essential for managing complex, “wicked” problems because coordinating interactions between processes may be more important than any individual process in determining system outcomes (Mingers & White, 2010).

  - Unassisted and repeat falls are system failures.
  - Assisted falls are system successes.
  - Fall risk reduction processes are NOT significantly associated with total fall rate.
  - The more effective the coordinating team, the lower the unassisted fall rate.
  - The more consistently post-fall huddles are conducted, the lower the repeat fall rate.
  - The better nurses are trained to use the fall risk assessment tool, the lower the injurious fall rate.
Thank you! And Questions
CAPTURE Falls Toolkit

Publicly Available at:  
http://www.unmc.edu/patient-safety/capturefalls/

• Gap Analysis Scorecard for Coordination and Training
• Fall Risk Assessments
• Worksheet to Compare Predictive Values of Risk Assessments
• Fall Risk Reduction Interventions
• Learning Forms
• Teamwork and Multiteam System
• Effective Meetings
• Post-Fall Huddles and Post-Fall Huddle Guide
• Using Data
• Mobility Assessment
• Safe Transfers & Mobility (16 videos)
• Medication Review
• Health Literacy
• Frailty & Geriatric Syndromes
References


References


