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http://www.unmc.edu/patient-safety/capturefalls/
Objectives

1. Explain the background and motivation for the Collaboration and Proactive Teamwork Used to Reduce (CAPTURE) Falls project
2. Discuss the rationale for using a multi-team system to reduce inpatient fall risk
3. Describe key structures and processes that support inpatient fall risk reduction
4. Summarize outcomes of the CAPTURE Falls project
Objective 1

Explain the background and motivation for the **Collaboration and Proactive Teamwork Used to Reduce (CAPTURE) Falls Project**
Health Services Research vs. Clinical Research
What is Quality?

“The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”

“Between the health care we have and the care we could have lies not just a gap, but a chasm.”

(Institute of Medicine, 2001)
What is a Fall?

Definition of fall:
• A sudden, unintended, uncontrolled downward displacement of a patient’s body to the ground or other object
• Includes unassisted falls and assisted falls

Definition from the Agency for Healthcare Research and Quality
Falls: Quality and Safety Problem

• Prevalence
  – Over 1 million total in US hospitals
  – 30% to 51% result in injury (Oliver et al, 2010)

• National Benchmark for Rates
  – 3.4 falls/1000 pt. days
  – 0.8 injurious falls/1000 pt. days (Staggs et al, 2014)
Falls: Quality and Safety Problem

• Cost
  – $14,000 greater for the 2% of fallers with serious injury (Wong et al, 2001)
  – 1 of 11 Healthcare Acquired Conditions not reimbursed
  – Nursing home admissions, loss of mobility, fear of falling (Tinetti et al, 1988, 1994)
Rationale for CAPTURE (Collaboration And Proactive Teamwork Used to Reduce) Falls

• The etiology of falls is multifactorial,\(^{(AGS/BGS Clinical Practice Guideline, 2001, 2011; Oliver, 2004)}\) thus falls require a multifactorial approach for prevention.

• Fall risk has been reduced in studies where interprofessional team members were actively engaged in fall risk reduction efforts.\(^{(Gowdy and Godfrey, 2003; Szumlas et al, 2004; von Renteln-Kruse and Krause, 2007)}\)
Rationale for CAPTURE Falls

- An interprofessional team (vs. nursing only strategy) and use of benchmarks were associated with sustained improvement (Sulla and McMyler, 2007; Murphy et al, 2008; Krauss et al, 2008)
CAPTURE Falls

- Partner with 17 Nebraska Hospitals
  - Support development and implementation of a customized action plan
  - Evaluate implementation
  - Develop and disseminate an a toolkit

http://www.unmc.edu/patient-safety/capturefalls/
Figure 4: Persons 65+ as a Percentage of Total Population, 2011

(Source: 2011 Population Estimates from the U.S. Census Bureau)
Hypothesis: Rates higher in Critical Access Hospitals (CAHs) (Jones et al., 2014)

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
Key Finding: Fall Risk Greater in CAHs

<table>
<thead>
<tr>
<th>Event Rate/1000 patient days</th>
<th>CAH (n=47)</th>
<th>Non-CAH (n=13)</th>
<th>NDNQI*(n=1,464)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Falls</td>
<td>5.9</td>
<td>4.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Injurious Falls</td>
<td>1.7</td>
<td>0.9</td>
<td>0.82</td>
</tr>
</tbody>
</table>

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

(Jones et al, 2015)
Key Finding: CAHs were less likely than non-CAHs to:

- Have an interprofessional team that minimally includes nursing, PT, pharmacy, and QI
- Use a specific definition of a fall
- Conduct fall risk assessments on admission, every shift, when pt status changes, and after a fall

(Jones et al, 2015)
Key Finding: CAHs were less likely than non-CAHs to:

- Conduct fall risk reduction annual competency training and new employee orientation
- Integrate evidence from multiple disciplines to improve fall risk reduction
- Report and benchmark fall events to an external organization
- Reflect upon fall event data

(Jones et al, 2015)
Key Finding: Accountability Matters

Event Rate/1000 patient days

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

All Falls

6.7  5.2  3.4  0.82

Injurious Falls

4.9  2.6  1.2  1.1

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

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

**Negative binomial model

(Jones et al, 2015)
Key Finding: Team Process Matters

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

*Negative binomial model

\(p = 0.046^*\)

\(p = 0.01^*\)

(Jones et al, 2015)
Key Finding: Team Process Matters

Does your fall risk reduction team reflect on your fall risk reduction program?

*Reflect = Collect and analyze data; modify policies and procedures based on data; and conduct root cause analyses of injurious falls*

![Bar chart showing the event rate per 1000 patient days for all falls and injurious falls.](chart)

- **All Falls**
  - No, Team Does NOT Reflect (n=37): 6.0
  - Yes, Team Reflects (n=23): 4.6
  - **p = .07**

- **Injurious Falls**
  - No, Team Does NOT Reflect (n=37): 1.9
  - Yes, Team Reflects (n=23): 0.9
  - **p = .003**

*Negative binomial model

(Jones et al, 2015)
Objective 2

Discuss the rationale for using a multi-team system to reduce inpatient fall risk
What Defines a Team?

- Two or more people
- Interact toward a common and valued goal
- Have specific roles or functions
- Includes patient and family

(Salas et al., 1992)
“Dream Team” Membership

- Licensed Nurses
- Physical and Occupational Therapy
- Certified Nursing Assistants
- Pharmacists
- Fall Risk Reduction Team
- Quality Improvement
Multiple Teams Support Fall Risk Reduction

Multi-Team System supports a chain of accountability for reducing patient fall risk

http://www.teamstepps.ahrq.gov
Coordinating Team: “Owners” of the Fall Risk Reduction Program

**Develop Policy/Procedures**
- Choose risk assessment tools
- Choose interventions based on evidence from multiple disciplines
- Fall event reporting form
- Conduct audits to assess reliability of interventions
- Systems learning
  - Collect and analyze data
  - Conduct Root Cause Analysis
  - Modify policy/procedure based on data
Coordinating Team: “Owners” of the Fall Risk Reduction Program

Train/Educate

- Policy/procedures
- Use of risk assessment tools
- Match interventions to severity and cause of risk
- Report all falls
- Provide feedback to core team
- Annual competencies
- New employee orientation
Core Team: Providers of Patient Care

**Universal Interventions** (Currie, 2008)

- Assess & reassess risk
- Call light in reach
- Appropriate lighting
- Declutter environment
- Patient/Family education
- Communicate risk to patient/family/across shifts & departments
- Purposeful rounding
- Nonskid footwear
Core Team: Providers of Patient Care

Targeted Interventions (Institute for Clinical Systems Improvement)

- Signage
- Communicate level of assist for transfers and assistive devices
- Alarms
- Low beds, mats
- Gait belts for transfers/ambulation
- Medication Review
- OT/PT consults, evaluation
- Sitters
Contingency Team: On-the-Spot Problem Solvers

Immediate learning from fall events
• Conduct ad-hoc post-fall huddles
• Discover root cause of fall through group learning
• Change plan of care
• Share findings with coordinating team
Multi-team system supports a chain of accountability for reducing patient fall risk

Related Links:
- [TeamSTEPPS](http://www.teamstepps.ahrq.gov)
Multi-Team System (MTS) Definition (Mathieu, Marks, & Zaccaro, 2001, p. 290)

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

Component teams achieve proximal goals
MTS achieves overarching/organizational goal
Objective 3

Describe key structures and processes that support inpatient fall risk reduction
How to Assess Quality: Donabedian’s Framework

How care is delivered, organized, financed
People, equipment, policies/procedures
What tools are at our disposal?

Tasks performed that are intended to produce an outcome
What do we do with those tools?

Changes in individuals and populations due to health care
What is the end result?

(Donabedian, 2003)
## Structure: Assessment Tool

<table>
<thead>
<tr>
<th>Fall Risk Assessment Tool</th>
<th>Beginning of Project</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Judgment/No specific tool</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>FRASS</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Home Grown Tool</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Hendrich II</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Johns Hopkins</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Morse</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Schmid</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
Structure: Fall Kit

- Chair alarm & call light connector cord
- Chair alarm sensor pad
- Fall alert door magnets
- Fall alert wristband
- Non-skid chair mat
- Fall alert sign
Structure: Communication Tools

Call, Don’t Fall!

CHADRON COMMUNITY HOSPITAL

Day: __________________ Date: __________________

Nurse: __________________ Aide: __________________

Fall Risk: [ ] Yes [ ] No

SAFETY PRECAUTIONS:
- Assist X 2
- Use Gait Belt
- Use Walker
- Use Lift
- Side Rails
- Bed Alarms
- Activity Level Ordered

TODAY’S PLAN:
- RT: __________________
- Rehab: __________________
- Other: __________________

BATHING:
- Sponge
- Shower
- Chair Tub

PAIN:

PATIENT’S GOALS TODAY:

Questions for Doctor/Nurse:

Family Spokesperson:

CARE NEEDS:
- Turn Every 2 Hours
- Intake & Output
- Assist With Meals

BELONGINGS:
- Glasses
- Items In Safe
- Dentures [ ] Upper [ ] Lower
- Hearing Aids [ ] Left [ ] Right
- Discharge Plan:
Structure: Gait/Transfer Belts

Hook inside every bathroom door

Housekeeping places belts in every room
Structure: Fall Event Reporting Form


21. Prior to the fall, what was the patient doing or trying to do? CHECK ONE
- Ambulating
- Changing position (e.g. in bed, chair)
- Dressing or undressing
- Navigating bed rails
- Reaching for an item
- Showering or bathing
- Toileting

10. Was the fall unassisted or assisted?
- Assisted
- Unassisted
- Unknown

13. DESCRIBE THE FALL, how it occurred, where in detail it occurred,
Process: Core Team

Provision of universal and targeted fall risk reduction interventions to individual patients, per organizational policy
Process: Coordinating Team
Gap Analysis and Action Planning


<table>
<thead>
<tr>
<th>Fall Risk Audit Form</th>
<th>Observation # Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reviewer: _______________</td>
<td>Date: ____________</td>
</tr>
<tr>
<td></td>
<td>Time: ____________</td>
</tr>
<tr>
<td></td>
<td>Fall Risk Score = ____________</td>
</tr>
</tbody>
</table>

**FALL RISK REDUCTION ACTIONS**  
(Tailor to Hospital Policies)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls Risk sign posted near door.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow armband in place.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is patient aware of own fall risk?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is sitter or family companion aware of patient’s fall risk?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is call light within reach?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does bed alarm work?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is a bed alarm in use?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is a chair alarm in use?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Process: Coordinating Team: Annual Competency and New Employee Training

- General Policies/Procedures
- Fall risk assessment tool
  - Consider case study to assess reliability
- Event Reporting
  - Unassisted and Assisted
- Transfers and Mobility
- How to conduct post-fall huddles
Process: Coordinating Team: Transfers and Mobility Staff Training

Mobility Training Videos

Supine to Sit

Rolling

Sit to Supine

Gait Belt Usage

www.unmc.edu/patient-safety/capturefalls/tool-inventory.html - look under Safe Transfers/Mobility Tools
Training Video Example – Assisted Ambulation
Training Video Example – Assisted Fall
Process: Contingency Team: Post-fall huddles


Process: Coordinating Team:

Provide Feedback to Core Team
Objective 4
Summarize outcomes of the CAPTURE Falls project
How to Assess Quality: Donabedian’s Framework

<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>Changes in individuals and populations due to health care</td>
</tr>
<tr>
<td>People, equipment, policies/procedures</td>
<td>What do we do with those tools?</td>
<td>What is the end result?</td>
</tr>
<tr>
<td>What tools are at our disposal?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Donabedian, 2003)
Fall Rates as a Quality Outcome

Relatively rare, negative outcome with a random component (Reason, 1997)

All falls cannot be prevented (example: unanticipated physiological falls)

Goal is to minimize risk and harm to patients

• Success can be viewed as improvements in structure and processes; not just fall and fall injury rates
Key Finding: Decrease in Fall Risk

Trends in Fall Rates for 17 Small Rural Hospitals in Nebraska 2010 - 2014 Q2

*Since 8/12 injurious falls included mild harm. Prior to 8/12, injurious falls may not have included mild harm.

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014 Q1 - Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fall Rate</td>
<td>6.98</td>
<td>5.51</td>
<td>5.28</td>
<td>3.94</td>
<td>4.68</td>
</tr>
<tr>
<td>Injurious Fall Rate*</td>
<td>2.50</td>
<td>1.95</td>
<td>1.83</td>
<td>1.27</td>
<td>2.01</td>
</tr>
<tr>
<td>Total Fall Rate NE CAHs (n=47)</td>
<td>5.90</td>
<td>5.90</td>
<td>5.90</td>
<td>5.90</td>
<td>5.90</td>
</tr>
<tr>
<td>Injurious Fall Rate NE CAHs (n=47)</td>
<td>1.70</td>
<td>1.70</td>
<td>1.70</td>
<td>1.70</td>
<td>1.70</td>
</tr>
</tbody>
</table>
Changing Attitudes about Reporting


<table>
<thead>
<tr>
<th>Project Quarter</th>
<th>Assisted Fall</th>
<th>Unassisted Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Aug-Oct 2012 (n=44)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2 Nov 2012 - Jan 2013 (n=41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3 Feb - Apr 2013 (N=40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4 May - Jul 2013 (n=41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q5 Aug-Oct 2013 (n=46)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Key Finding: Harm Significantly Associated with Assistance

Association Between Assistance and Harm for 330 Adult Patient Falls Reported by 17 Small Rural Hospitals 8/12 – 7/14 \( p = .001 \)

<table>
<thead>
<tr>
<th></th>
<th>Assisted (n=80)</th>
<th>Unassisted (n=250)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mod-Severe Harm</td>
<td>17.5%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Mild Harm</td>
<td>82.5%</td>
<td>36.4%</td>
</tr>
<tr>
<td>No Harm</td>
<td>0.0%</td>
<td>60.8%</td>
</tr>
</tbody>
</table>

*Pearson Chi –Square Test
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)

Staff assists patient to bathroom using walker and gait belt every two hours

Patient 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 to review hypertension medications

PT trains and assesses competency of all direct care staff in safe transfers and mobility on hire and annually
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

![Hospital A Fall Assistance by Injury (n=41)](chart1.png)
- Assisted Falls - No Injury, 46.3%
- Unassisted Falls - Injuries, 19.5%

![Hospital B Fall Assistance by Injury (n=24)](chart2.png)
- Assisted Falls - No Injury, 16.7%
- Unassisted Falls - Injuries, 16.70%
- Unassisted Falls - No Injury, 41.70%
Relationship Between Process and Outcome

Association Between Coordinating Team Activities and 2014 Total Fall Rates

Spearman
rho = -0.53
Relationship Between Process and Outcome

Association Between Coordinating Team Activities and 2014 Injurious Fall Rates

Spearman
rho = -0.42
Changes in Process

Proportion of Falls with a Post Fall Huddle by Project Quarter (Aug. 2012 - April 2014)

Q1 (n=44) Q2 (n=41) Q3 (n=42) Q4 (n=39) Q5 (n=48) Q6 (n=35) Q7 (n=15)
Success within organizations also = changes in structures and processes

• Audits – What % of policy/procedure items that should be followed actually are?

• Examples:
  – Risk assessment tool completed
  – Gait/transfer belt available in every room
  – Bed/chair alarm in use for appropriate patients
  – Patient/family education completed
Qualitative Outcomes - Structure

“I see how important it is to do the interdisciplinary team and what a positive effect it has had on our outcomes…..How important that was that we chose an interdisciplinary team and got the right team members on…..And making sure that we get front line staff involvement – make sure it’s more of a process that we’re doing with them and not to them.”
Qualitative Outcomes - Structure

“It’s not just nursing…yes, we implement [the fall risk reduction program] but there are many people in the hospital that can be of value to your culture of safety.”
Qualitative Outcomes - Process

“…Our processes cannot just be reacting to a fall. It has to begin with audits so we know if we are creating an environment that decreases task errors, reports assisted falls and decreases injury.”
Qualitative Outcomes - Process

“Post-fall huddles showed us the value of different perspectives—from nursing, the patient, and other disciplines to understand the factors that led to a fall.”

“Post-fall huddles are teachable moments.”
Qualitative Outcomes - Changing Attitudes

Nurse: “What did we learn about falls? I remember being a student nurse years ago, and one of my patients ... had fallen at home. I kind of giggled—so she fell. And the nurse working with me said, ‘Oh, no! In the elderly falls can be lethal, but that’s just part of getting old.’ And we’ve learned that’s not just what happens– we can put things out there to prevent that.”
Qualitative Outcomes - Changing Attitudes

Physical Therapist: “Teams hold you accountable and build you up.”

Pharmacist: “I might look at something differently than a nurse or QI, so we can kind of talk about it together [in the huddle] and then identify why we think the fall happened and what we can do to improve.”
Summary

- Falls are a multifactorial problem that deserve a multifactorial solution.
- Various professions on an interdisciplinary team have complementary knowledge and skills to address an overarching goal of reducing fall and fall injury risk.
- Various teams in a multi-team system have complementary goals to address the overarching goal of reducing fall and fall injury risk.
- Quality improvement can be measured across elements of care: structure, process, and outcome.
Contact Information

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Inpatient Fall Risk Reduction is a Team Sport: A Review of the CAPTURE Falls Project

Nevada Geriatric Education Consortium – Falls Prevention and Management: Best Practices for Community and Inpatient Care Settings

Dawn Venema, PT, PhD

References


