Preventing Patient Falls and Fall Related Injuries
State of the Science: Where is the Evidence?

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Goal and Objectives

Goal: To provide hospital healthcare and quality teams with tools and strategies to reduce preventable falls incidence, injury from falls and outline key components of measuring your success.

During this session you will be provided with an overview of current body of knowledge about reducing falls and fall injuries in hospitals. As a result, you will be able to:

• Outline a new framework for Fall Program Redesign.
• Advance use of Falls Typology to evaluate your program.
• Differentiate falls risk screening from assessment within nursing process.
New 2007 JCAHO Standard: Fall Prevention Program

- Establish a Fall Prevention Program
- Evaluation
- Interventions
- Educate Staff
- Educate Patients and Families
- Program Evaluation
Advancing Science in Patient Safety

4 Challenges of Patient Safety

- **Visibility**: magnitude is hidden
- **Ambiguity**: clear cause and effect is often inconclusive
- **Complexity**: practically everything can have an effect on pt safety
- **Autonomy**: reluctance to supersede orders


Challenges to improve the conduct and reporting of patient safety interventions are keys to evaluation

- **Describe the theory**: theory or logic why patient safety practice works
- **Describe the patient safety practices in detail**
- **Detail implementation process**
- **Assess outcomes and the influence of context** (external factors, organizational characteristics, teamwork and leadership, management tools)

Patient Falls and Injuries

State of the Science
Overview of current body of knowledge about reducing falls and fall injuries in hospitals
Preventing Falls: Call for Action

• Transform healthcare for frailty associated with old age.
• Prevent falls identified as an effective strategy.
• BUT, major area for improvement in routine practice.
• Multifaceted and individualized fall prevention programs used inside and outside hospital setting.
• Thorough review of the strategies revealed they lack strong empirical evidence.
Compelling Need

In the hospital setting, approximately 3%-20% of inpatients fall at least once during their stay. This translates into 4-12 falls per 1000 bed days of care. Clyburn, T.A., & Heydemann, J.A. (2011) in April, 2011, CMS reported that falls with harm were the top adverse event in hospitals.

In VA, Falls is the #1 RCA event. VA has no national repository for falls data: rates, ranges, age and comorbidity adjusted data. At present, the largest and only comparative databased is ANA’s NDNQI.
Falls Rates  (Oliver, et al., 2010)

• Acute Hospitals:
  – Range 1.3-8.9 falls per 1000 OBDs (single observational studies in hospitals)
  – Range 3-5 falls per 1000 OBDs (multihospital studies)

• Mental Health Units
  – Range 2 – 4 falls per 1000 OBDs
  – Psychogeriatric units 17-67 falls per 1000 OBDs

• Rates are the best way of facilitating comparisons between hospitals of different sizes
• Represent well over 1000 falls each year in a large acute hospital
• Perhaps as many as 1 million falls in hospitals per year
Injuries from Falls (Oliver, et al)

• 30% to 51% of falls result with some injury
• Proportion of falls resulting in any fracture range 1%-3%
• Hip Fractures are 1.1%-2%
• Proximal femoral fractures due to falls in hospitals result in poorer health outcomes than those that occur in the community

• Even soft tissue injuries or minor fractures cause significant functional impairment, pain and distress
• Minor or no injuries from falls can mark beginning of negative cycle – FOF, Debility
NQF’s Safe Practices (2010)

• Falls occur frequently in hospitalized patients and LTC residents and are the leading cause of injury-related death for individuals over 65 yoa (CDC, 2006)
• Patients in LTC and hospitals fall 3 times more than the community dwelling persons age 65 and older
• All ages of patients are admitted to oncology, critical care, and infectious disease units are at risk for falls
• In 2009, The Joint Commission reported falls at the 6th most commonly reported sentinel event
• Death occurs in 15% of elderly who fall in the hospital and 33% do not survive beyond one year of fall
Where is the evidence?

• Multifaceted and individualized programs have been created to prevent falls in the elderly.
• Many of these interventions are based on expert opinion and statistical trends.
• Their review of the literature revealed that the risk of fall is only slightly greater in the hospital environment than in the home.
• There is no medical evidence that evidence-based guidelines are effective in fall prevention.

Limits to Science

• Research methodology Issues: design and conduct of studies
• Lack of control for effectiveness analysis
• Over generalizing fall as the outcome (fall vs. non-fall)
• Interventions based on category of risk (not specific risk factors)
• Fall prevention is usually a complex intervention
• Falls are rare outcome (affects sample size and power)
Inconclusive Evidence

- 2010 Cochrane Review on hospital fall prevention interventions: Inconclusive, provided no recommendations regarding fall prevention interventions in the hospital setting (Cameron, I., et al., 2010. Intervention for preventing falls in older people in nursing facilities and hospitals. Cochrane Database for Systematic Reviews 1, Art. No.: CD005465.)
Hospitals (Oliver, et al., 2010)

• Recommended appropriate approach to fall and injury prevention based on systematic reviews, recent research, and clinical and ethical decisions

• Patient-specific factors: intrinsic risk factors, the physical environment, and riskiness of a person’s own behavior

• Recent fall (fallers); muscle weakness; behavioral disturbance, agitation, or confusion; urinary incontinence or frequency; prescription “culprit” drugs; postural hypotension or syncope.

• Risk increases with advanced age, w/ the highest rates seen in the “oldest old”, older than 85 yoa
Ability to Predict Falls

• Risk screening vs. Risk assessment
• Type of Fall
• In-depth tool validity analysis by Oliver, et al., 2010, suggested need for Comprehensive Fall Risk Assessment to identify modifiable and non-modifiable risk factors
Hospital Environments

• Majority of hospital beds in developed nations are occupied by older people, many of whom are admitted because of mobility problems, falls or injury from falls (Oliver, et al., 2007)
• Unfamiliar environment
• Poor lighting
• Trip and slip hazards
• Suboptimal chair and bed heights
• Availability of mobility equipment
• Staff availability and attitude
Empiric Evidence for Fall and Injury Prevention in Hospitals

• **Multifactorial components with multiprofessional input** mostly seen in successful trials (note * no two trials bundle the same interventions)
  – Post fall review, patient education, staff education, footwear advice, toileting

• A couple of trials included medication review and prevention and detection of delirium

• Patients themselves favored multifactorial approach reviewed by a health professional
Multi-Professional Involvement is Essential

• No hospitals trials that focused solely on changing nursing practice succeeded in reducing falls or injuries, as is also the case in care home settings
Single Interventions in Hospitals

- Exercise or Additional PT (RCTs insufficiently powered to detect effect in reducing falls)
- Increased observation or assistance – intuitive sense but anecdotal
- Patient Education – multi-media education with trained health professional follow-up has promise to be beneficial in preventing falls
- Specialist Support to Manage Dementia – only 1 trial, no difference
- Cal / Vit D: effect determined after discharge
- Hip Protectors (no trials in acute care; adherence issues in hospitals)
- Flooring to reduce impact: promising
- Medication Review and Adjustment: requires specialist pharmacist
- Prevention and Management of Delirium
- Reducing sedative and hypnotic medications
Single Interventions without Empiric Evidence

- Continence management or promotion
- Education and training for staff or relatives
- Correction of visual impairment
- Recognition or management of dizziness, syncope, pre-syncope, or postural hypotension
- Attention to footwear
- Environmental modifications (including flooring materials) to prevent falls or injuries
What are the challenges for LTAC/Rehab facilities?
• Reducing the risk of falling can positively affect residents’ quality of life to a considerable extent

• Mean Fall rate 1.7 falls per person-year (range 0.6-3.6), considerably higher than community-based fall rate (mean 0.65; range, 0.3-1.6)

• In a facility with 100 beds, a fall can be expected about qod.
Epidemiology: Around the World

• More than three-fourths of all falls occur in rooms or bathrooms of residents
• Sit-to-stand or stand-to-sit transfers were associated with a higher percentage of falls (42%) than walking (35%)
• Nearly 25% of falls required MD or hospitalization
• Falls in LTC result in more serious complications: 10-25% resulting in fractures or lacerations; most serious – hip fractures
• Other injuries (fx pelvis, UE, Spine or skull) result in considerable suffering
Risk factors

• Risk factors: All residents are High Risk (unless immobile or in coma)

• Well-established risk factors:
  – muscular weakness, balance and gait deficits, poor vision, delirium, cognitive and functional impairment, orthostatic hypotension, urinary urge incontinence, and nocturia.
  – Comorbidities (dementia, depression, stroke, PD) may lead to attention deficits, executive dysfunction, or visual field loss – result in higher propensity to fall.
  – Side effects and interactions of drugs

  ▪ Risk of fractures lowest in residents with the most limited physical function

  ▪ Risk for fracture greatest in the immediate period after admission (1 mo)
Acute Rehab Units


- Determine the relationship between admission dx and admission score on Functional Independence Measure (FIM) to the likelihood that a patient will fall.

- To measure the effectiveness of a multifactorial program to reduce falls.
Methods

• The QIT put in place a multifactorial program to reduce the incidence of falls on an inpatient rehabilitation unit.

• The authors reviewed the records of all patients admitted to the rehabilitation unit between January 2006 and December 2009 to determine if the program resulted in a reduced rate of falls.
Findings

• FIM score is inversely related to the rate of falls.

• Patients w adm dX of stroke, brain injury, amputation, neurologic disorders (Parkinson's disease, multiple sclerosis, Guillain-Barre, myopathy, peripheral neuropathy), and spinal cord injury are at higher risk for fall than patients whose admission diagnosis related to orthopedic, cardiac, pulmonary disorders, prolonged stay on medical or surgical units, or trauma without spinal cord injury or head injury.

• There was a significant reduction in the rate of falls from 14.9% to 7.3% of patients admitted to the IRF.

• Patients with low FIM scores, disorders of the central and peripheral nervous system, and amputations are at high risk of fall. Compliance with recommended guidelines can reduce the rate of fall and improve patient safety.
What are we doing? Why?

- Risk Screening vs. Assessment
  - Over reliance on screening tools
- Differential Diagnosis
- Individualized Care Planning
- Identify fallers from non-fallers
- Identify those with injury hx or at risk for injury
- Protecting Patients
- Implementing:
  - Bed Alarms
  - Sitters
  - Intentional / Purposeful Rounding
What are we doing?

• Is your fall and injury prevention plan of care different for a Lt vs. Rt CVA patient?
• Is your fall and injury prevention plan of care interdisciplinary?
• Is your fall and injury prevention plan of care interventions specific to each risk factor?
Most effective, fall prevention interventions should be targeted at both point of care and strategic levels

In nursing homes, focus on modifiable individual and institutional risk factors
• Assessment performed within 1st days of admission and after a fall (Becker & Rapp)

In hospitals, Best Practice Approach in Hospitals:
– Implementation of safer environment of care for the whole patient cohort (flooring, lighting, observation, threats to mobilizing, signposting, personal aids and possessions, furniture, footwear
– Identification of specific modifiable fall risk factors
– Implementation of interventions targeting those risk factors so as to prevent falls
– Interventions to reduce risk of injury to those people who do fall (Oliver, et al., 2010, p. 685)
Clinical Judgment

• Evidence-based Practice
  – Vs
• Results of Scientific Inquiry
Most effective, fall prevention interventions should be targeted at both point of care and strategic levels

• Best Practice Approach in Hospitals:
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(Oliver, et al., 2010, p. 685)
Moving from Screening for Risk to Assessment

• Let’s work this out, starting with Fall history.
• Is a screening question on adult scales: Morse Fall Scale, Hendrich I, Schmid, and Johns Hopkins Hospital; pediatric scales: Cummings, Humpty Dumpty, and CHAMPS

• What happens when you ask the question?
  – Time interval for hx of fall(s)?
  – What happens with Yes response
  – What happens with No response from a patient over 85 yoa?
Morse Fall Scale  (Morse, 1997, *Preventing patient falls.*)

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Screening to Assessment

• History of Falls
  – Screen: yes or no
  – Assessment: based on positive or negative screen response

• Assessment must be comprehensive

• Required for rest of nursing process
**Other Risk Factors**

- History of falling (if 'yes' response to Morse Fall Scale Q1)
  - Answer both questions
    1. Obtain additional fall history:
       - contributing factors to falls
       - frequency of falls in the last three months
       - any other pertinent history
       - Fall History:

    2. Did patient/resident have a history of injury with prior falls?
       - No
       - Yes - Injury with Fracture
       - Yes - Injury without Fracture
       - Unknown history of injury or injuries

- Secondary Diagnosis (if 'yes' response to Morse Fall Scale Q2)
- Neither of the above (no history of falling and no secondary diagnosis)
Clinical Practice

Let’s try another known fall risk factor: Dizziness vs Vertigo (Hendrich II; MFS Secondary Dx)

– Screen: yes or no
– Assessment: based on positive response
– If yes, how do you differentiate which problem: Dizziness OR Vertigo – They are Different!!!
Assessment To Interventions

• Interventions should NOT be based on Level of Risk (low, moderate or high)
• Interventions need to be specific to the assessed fall risk factor
  – Examples:
    – Orthostasis vs Vertigo
    – Balance or Gait
• Your interventions MUST be different for the known faller (a patient admitted because of a fall or who falls in your care)
• What about risk for injury if the patient falls?
SNAPSHOTS by Jason Love

Tiger had reached that age when you just never know.