Avoiding Patient Falls: Prevention, Protection, Detection

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Overview

1. Differentiate Prevention vs. Protection vs. Surveillance
2. State of Science related to patient falls
3. Strategies to Reduce Preventable Falls
4. Innovations to Protect from Fall-related Injuries
5. Technologies to improve Surveillance
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

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.
  - 2003: IOM: Priority areas for national action: transforming health care quality

- Multifaceted and individualized fall prevention programs used inside and outside hospital setting.
- Thorough review of the strategies revealed they lack strong empirical evidence.
Prevention + Protection + Surveillance

Prevention
- The act of preventing, forestalling, or hindering

Plus Protection
- Shield from exposure, injury or destruction (death)
- Mitigate or make less severe the exposure, injury or destruction

Plus Surveillance
- Detection
Who dies if they fall?

- Very young and very old
Since 2001 report, a vast amount of new information on PSPs has emerged; more agreement is now evident on what constitutes evidence of effectiveness and the importance of implementation and context.
Chapt 19: Preventing In-Facility Falls

  - Isomi M. Miake-Lye, B.A.; Susanne Hempel, Ph.D.; David A. Ganz, M.D., Ph.D.; Paul G. Shekelle, M.D., Ph.D.

- **17 Multifactorial Trials between 1999-2009** were reviewed.

- **Supplemented by 3 more recent large scale studies**

- 30% to 51% of falls result with some injury
- 80% - 90% are unwitnessed
- 50%-70% occur from bed, bedside chair (*suboptimal height*) or transferring between the two; whereas in mental health units, falls occur while walking
- Risk Factors: Recent fall, muscle weakness, behavioral disturbance, agitation, confusion, urinary incontinence and frequency; prescription of “culprit drugs”; postural hypotension or syncope
Most effective, fall prevention interventions should be targeted at both point of care and strategic levels

- **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)
Risk factors

- Risk factors: All 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)
Where are we?

BEST PRACTICES:

PREVENTION
Ambulatory Care

AGS, BGS Clinical Practice Guidelines 2010:

- Assessment
- Interventions
- Evidence Grades
- Bibliography

www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2010
AGS Guidelines 2010

Assessment

1. Obtain relevant medical history, physical examination, cognitive and functional assessment
2. Determine multifactorial fall risk:
   a. History of falls
   b. Medications
   c. Gait, balance, and mobility
   d. Visual acuity
   e. Other neurological impairments
   f. Muscle strength
   g. Heart rate and rhythm
   h. Postural hypotension
   i. Feet and footwear
   j. Environmental hazards

Interventions

Initiate multifactorial/multicomponent intervention to address identified risk(s) and prevent falls:

1. Minimize medications
2. Provide individually tailored exercise program
3. Treat vision impairment (including cataract)
4. Manage postural hypotension
5. Manage heart rate and rhythm abnormalities
6. Supplement vitamin D
7. Manage foot and footwear problems
8. Modify the home environment
9. Provide education and information
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
Differentiate Screening from Assessment

- **Screening**
  - Disease Detection
  - Who should undergo diagnostic testing for confirmation- Cut off point to be negative or positive

- **Assessment**
  - Data for differential Diagnosis
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

Other risks (choose 1 or more)

- 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)
What About?

- The 85 yo who says No to a history of recent falls?
- The patient who gets admitted because of a fall?
- The patient who falls in our care?
- Rules? Screening intervals
Limits to Science

- Failure to Differentiate Type of Fall
  - Accidental
  - Anticipated Physiological
  - Unanticipated Physiological (Morse 1997)
  - Intentional Falls

- Failure to Link Assessment with Intervention
PROTECTION: Protect from Injury

Protecting Patients from Harm – Our Moral Imperative
Moderate to Serious Injury: A, B, C, S

- Those that limit function, independence, survival
- Age
- Bones (fractures)
- Bleeds / AntiCoagulation (hemorrhagic injury)
- Surgery (post operative)
## Fall Prevention and Injury Reduction Matrix
(Assumes Universal Falls Prevention Implemented)

<table>
<thead>
<tr>
<th>Risk of Fall</th>
<th>Risk of Injury from a Fall</th>
<th>Fall Prevention Interventions</th>
<th>Injury Prevention Interventions</th>
<th>Assess, Intervene and Communicate if Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>Implement fall reduction interventions</td>
<td>Implement injury prevention interventions</td>
<td>Assess, intervene and communicate if <em>injury risk</em> changes</td>
</tr>
<tr>
<td>+</td>
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*Fall prevention and injury reduction strategies should be implemented based on the risk levels indicated.*
Universal Injury Prevention

- Educates patients / families / staff
  - Remember 60% of falls happen at home, 30% in the community, and 10% as inpts.
  - Take opportunity to teach

- Remove sources of potential laceration
  - Sharp edges (furniture)

- Reduce potential trauma impact
  - Use protective barriers (hip protectors, floor mats)

- Use multifactorial approach: COMBINE Interventions

- Hourly Patient Rounds (comfort, safety, pain)
- Examine Environment (safe exit side)
Age: > 85 years old

- Education: Teach Back Strategies
- Assistive Devices within reach
- Hip Protectors
- Floor Mats
- Height Adjustable Beds (low when resting only, raise up bed for transfer)
- Safe Exit Side
- Medication Review
Bones

- Hip Protectors
- Height Adjustable Beds (low when resting only, raise up bed for transfer)
- Floor Mats
- Evaluation of Osteoporosis
Bleeds/AntiCoagulation

- Evaluate Use of Anticoagulation: Risk for DVT/Embolic Stroke or Fall-related Hemorrhage
- Patient Education
- TBI and Anticoagulation: Helmets
- Wheelchair Users: Anti-tippers
Surgical Patients

- Pre-op Education:
  - Call, Don’t Fall
  - Call Lights

- Post-op Education

- Pain Medication:
  - Offer elimination prior to pain medication

- Increase Frequency of Rounds
Post Fall Safety Huddles

- Post Fall Analysis
  - What was different this time?
  - When
  - How
  - Why
  - Prevention: Protective Action Steps to Redesign the Plan of Care
Biomechanics of Fall-Related Injuries

Understanding the “rate of splat” and its impact on injury
Falls from High Bed: Head First
Falls from High Bed: Foot First
Bedside Mats – Fall Cushions

- CARE Pad bedside fall cushion
- NOA Floor Mat
- Posey Floor Cushion
- Tri-fold bedside mat
- Roll-on bedside mat
- Soft Fall bedside mat
Summary of Results

Feet First Fall from Bed

No Floor Mat fall over top of bedrails: ~40% chance of severe head injury

No Floor Mat, low bed (No Bedrails): ~25% chance of severe head injury

Low bed with a Floor Mat: ~ 1% chance of severe head injury
Technology Resource Guide: Bedside Floor Mats

- Bedside floor mats protect patients from injuries associated with bed-related falls.
- Targeted for VA providers, this web-based guidebook will include: searchable inventory, evaluation of selected features, and cost.
Hip Protectors
Hip Protector Toolkit

- This web-based toolkit will include:
  - prescribing guidelines
  - standardized CPRS orders
  - selection of brands and models
  - sizing guidelines
  - protocol for replacement
  - policy template
  - laundering procedure
  - stocking procedure
  - monitoring tools
  - patient education materials
  - provider education materials
Detection Methods

Rounding
Purposeful Rounding
Camera Surveillance
Alarms
Camera Surveillance

- Care View
- AvaSys
Using cutting edge technology, invisible motion sensitive borders are ‘drawn’ on either side of the patient’s bed on the nurse monitor. When any defined movement crosses over the border, it triggers an on-screen visual and audible alarm at the nurse’s station of a potential fall and resulting injury **BEFORE** it occurs, significantly reducing falls and saving lives in support of a hospital’s **Fall Management Program.**
Sitter Management Program

Unobtrusive camera provides constant video-based safety

Patented technology prevents falls

...And:

- 50% Reduction in 1:1 Sitter Costs
- Manage staffing more efficiently
- No FTE required to watch a video monitor in order to reduce falls
- VBR allow for passive monitoring of patient movement and higher ratio of monitored beds
Infrared light for low light viewing
Digital 2-way audio speaker, LED light, microphone
Pan, tilt, zoom camera
Wireless- omni-directional antenna (802.11b,g)
Wired – data jack for Ethernet cable
10’ power cord
LED light and courtesy chime

AvaSys Mobile Cart- Wireless or Wired
AvaSys In-Ceiling Room System

Digital, 2-way audio speaker, microphone, LED light and chime

Infrared light for low-light viewing

Pan, tilt, zoom camera
Avasys – An Effective/Observation and Communication Solution!

GSA: GS35F0834R

Adoption Assurance
Assistive technology for safe mobility-Bed & Chair Monitors

- AirPro Alarm
- Locator Alarm
- Bed & Chair Alarm
- Chair Sentry
- Economy Pad Alarm
- Floor Mat Monitor
- Keep Safe
- QualCare Alarm
- Safe-T Mate Alarmed Seatbelt
Wheelchair-Related Falls

- Current Fall-Risk Assessment tools not effective
- Features of Wheelchairs contribute to risk
- Most common site of injury is NOT hip, but rather fractures of extremities
- Head injury/mortality
- W/c safety and Dementia
What to do When you Fall...

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I Fall A lot!  Why?
Pat And Her Mom

Getting ready to dance