Best Practices in Reducing Falls and Fall Related Injury

Pat Quigley, PhD, MPH, ARNP, CRRN, FAAN, FAANP
Associate Director, VISN 8 Patient Safety Center
Associate Chief for Nursing Service/Research
E-Mail: patricia.quigley@med.va.gov
Overview

1. Differentiate Prevention vs. Protection
2. State of Science related to patient falls
3. Why we have not “cracked the code” for preventing patient falls
4. Innovations to reduce serious fall-related injuries
Prevention

• The act of preventing, forstalling, or hindering
Protection

• Shield from exposure, injury or destruction (death)
• Mitigate or make less severe the exposure, injury or destruction
Review Research, Clinical and Laboratory Information

Is evidence strong enough to warrant practice change?

- Yes → Implement evidence-based practice

- No

  Does evidence support clinical trials?

  - Yes → Clinical trial to test interventions

  - No

    Epidemiological study to identify modifiable risk factors for adverse events or descriptive studies to understand process and outcomes

  OR

    Equipment design or redesign

  Is equipment ready for Market?

  - Yes

  - No → Technology Transfer
Limits to Science

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

• Failure to Link Assessment with Intervention
Where are we?

BEST PRACTICES:

LEVEL OF EVIDENCE
What is Known: Tried and True

The BEST (most effective) fall prevention programs are multifactorial and interdisciplinary (AHRQ I-II, USPSTF A): LTC

Ambulatory Care – AGS Guidelines, 2010

Source of Policy for JCAHO Fall Program Guidance 2007
Ambulatory Care

• AGS, BGS Clinical Practice Guidelines 2010:
  • Assessment
  • Interventions
  • Evidence Grades
  • Bibliography
  • http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2010
AGS Guidelines 2010

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

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
**Must Reads:**


- 30% to 51% of falls result with some injury
- 80% - 90% are unwitnessed
- 50%-70% occur from bed, bedside chair 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)
Who is not at risk for falls and harm?

- Risk Screening
- Risk Assessment
- Differential Diagnosis
- Range of Severity
Accident Theory
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
Morse Fall Scale Properties

<table>
<thead>
<tr>
<th>Exposure/Outcome</th>
<th>Fall +</th>
<th>Fall − (no fall)</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>E+</td>
<td>Sensitivity TP</td>
<td>FP</td>
<td>PPV ( \frac{a}{a+b} )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E−</td>
<td>FN</td>
<td>Specificity TN</td>
<td>NPV ( \frac{d}{c+d} )</td>
</tr>
<tr>
<td>a/a+c</td>
<td>d/b+d</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

Sensitivity: 78% \( \frac{a}{a+c} \) (proportion of those who fall and identified at risk by test)
Specificity: 83% \( \frac{d}{b+d} \) (proportion of those who are free of fall and identified not at risk by test)
PPV 10.3% (proportion of those with risk who fall)
NPV 99.2% (proportion of those with no risk who are free of fall)

100 falls, 4,000 control (due to fall rate X 1,000 pt days of care); 82.9% of cases classified correctly
In-Patient Settings: Prevent Falls and Protect from Injury

• What is Risk Assessment?
• Universal Fall Precautions
• Segment Populations by Risk
• Patient Centered Care: Health Literacy Actions
• Intervene on Modifiable Intrinsic Risk Factors
• Intervene on Modifiable Extrinsic Risk Factors
• Multi-disciplinary Care Planning
• Rapid Response Team (Nursing or Multidisciplinary)
• Special Emphasis Populations (Cognitively Impaired, >75 yoa, Radiation Treatment, Newly Disabled, who else?)
• Risk for Injury
Interventions

1. Basic preventive and universal falls precautions for *all patients*
2. Assessment of *all patients* for risk of falling *and* sustaining injuries from a fall in the hospital
3. Cultural infrastructure
4. Hospital protocols for those identified at risk of falling
5. Enhanced *communication* of risk of injury from a fall
6. Customized interventions for those identified at risk of injury from a fall
Protect from Injury

Protecting Patients from Harm – Our Moral Imperative
Moderate to Serious Injury

- Those that limit function, independence, survival
- Age
- Bones (fractures)
- Bleeds (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 FALL/-- RISK INJURY</th>
<th>--RISK FALL/--RISK INJURY</th>
</tr>
</thead>
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<td>+</td>
<td>Implement fall reduction interventions</td>
<td>Assess, intervene and communicate if <em>injury risk</em> changes</td>
</tr>
<tr>
<td></td>
<td>+ RISK FALL/+ RISK INJURY</td>
<td>--RISK FALL/+RISK OF INJURY</td>
</tr>
<tr>
<td></td>
<td>Implement fall reduction interventions</td>
<td>Implement injury prevention interventions</td>
</tr>
<tr>
<td></td>
<td>Assess, intervene and communicate if <em>fall risk or injury risk</em> changes</td>
<td>Assess, intervene and communicate if <em>fall risk</em> changes</td>
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- RISK OF INJURY FROM A FALL
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
• Low Beds
• Floor Mats
• Evaluation of Osteoporosis
Bleeds

• 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
Safety Huddles

• Post Fall Analysis
  – What was different this time?
  – When
  – How
  – Why
  – Prevention: Protective Action Steps to Redesign the Plan of Care
How many patients understand what we tell them or give them to read? According to the research, about 52%

Health Literacy Definition: The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

(Ratzan and Parker, 2000)

IOM Report: Health Literacy: A Prescription to End Confusion 2004
healthliteracy@ama-assn.org
“Teach Back”

• “Teach Back” Testing: what are the trends in patients’ difficulty to understand what is taught?

Ask the patient to describe or repeat back in his or her own words what has just been told or taught. Use return demonstration.
Biomechanics of Fall-Related Injuries

Understanding the “rate of splat” and its impact on injury
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
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
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 – Examples

Safehip

KPH

CuraMedica

HipGuard

HIPS
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
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
Evaluations Methods

• Prevalence Studies
• Formative and Summative Evaluation Methods
  – Type of Falls
  – Severity of Injury
  – Repeat Falls
  – Survival Analysis
  – Annotated Run Charts
What to do When you Fall...

VISN 8
Patient Safety Center
Tampa, FL
Testing on a *Small Scale*

- Remember to actually try out new ideas before implementing them.
- Break-down New Changes into a series of small tests - that you will study and modify if needed.
- **No** important change will “fit” your system perfectly.
- You want to “work out the bugs” in the new change before you implement it.
Pat And Her Mom

Getting ready to dance
Questions?