Falls Prevention: Best Practices, Evidence-Based

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1. Differentiate Prevention vs. Protection
2. Apply use of scientific hierarchy and evidence rating scales.
3. State of science related to patient falls
4. Translate actionable elements of a Fall Prevention Program based on evidence.
The act of preventing, forstalling, or hindering
- 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

Clinical trial to test interventions

Does evidence support clinical trials?

Yes

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

No

Equipment design or redesign

Technology Transfer

Is equipment ready for Market?

Yes
Grading Systems

Apply use of scientific hierarchy and evidence rating scales.
<table>
<thead>
<tr>
<th>Level</th>
<th>Type of Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>Meta-Analysis (Combination of data from many studies)</td>
</tr>
<tr>
<td>Level II</td>
<td>Experimental Designs (Randomized Control Trials)</td>
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<tr>
<td>Level III</td>
<td>Well designed Quasi Experimental Designs (Not randomized or no control group)</td>
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<tr>
<td>Level IV</td>
<td>Well designed Non-Experimental Designs (Descriptive-can include qualitative)</td>
</tr>
<tr>
<td>Level V</td>
<td>Case reports/clinical expertise</td>
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</tbody>
</table>
Strength of Evidence: Suggestions for Practice
(www.uspreventiveservicestaskforce.org/uspstf/grades.htm)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Strongly recommended; Good evidence</td>
</tr>
<tr>
<td>B</td>
<td>Recommended; At least fair evidence</td>
</tr>
<tr>
<td>C</td>
<td>No recommendation; Balance of benefits and harms too close to justify a recommendation</td>
</tr>
<tr>
<td>D</td>
<td>Recommend against; Fair evidence is ineffective or harm outweighs the benefit</td>
</tr>
<tr>
<td>I</td>
<td>Insufficient evidence; Evidence is lacking or of poor quality, benefit and harms cannot be determined</td>
</tr>
</tbody>
</table>
Role of RCTs

- Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials
- Gordon C S Smith, Jill P Pell
- *BMJ* 2003;327
Would you or not?
Who dies if they fall?

- Very young and very old
State of science related to Patient Falls
• Failure to Differentiate Type of Fall
  ◦ Accidental
  ◦ Anticipated Physiological
  ◦ Unanticipated Physiological (Morse 1997)
  ◦ Intentional Falls

• Failure to Link Assessment with Intervention
• Focus on falls as the primary outcome measure, rather than fall-related injuries
  ◦ Link between falls and quality
  ◦ Link between falls and therapeutic risk: personal freedom and activity level

• Lack of standardized definition of fall
Clinics in Geriatric Medicine, Nov. 2010.


Assessment

Interventions

Evidence Grades

Bibliography

www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/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
• 30% to 51% of falls result with some injury
• 80% - 90% are unwitnessed
• 50%-70% occur from bed, bedside chair (suboptimal chair 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)
Clinical Judgment

- Evidence-based Practice
  - Vs
- Results of Scientific Inquiry
Differentiate Screening from Assessment

- Screening
  - Disease Detection
  - Who should undergo diagnostic testing for confirmation- Cut off point to be negative or positive
  - Over-reliance on screening tools
  - What tool are you using?

- Assessment
  - Data for differential Diagnosis
Pat And Her Mom

Getting ready to dance
Doris Heap
My Mom

What are her fall risks?
Protect from Injury

Protecting Patients from Harm – Our Moral Imperative

Work of Innovation: Emerging Evidence; Using Clinical Judgment
Risk for Fall AND Risk for Injurious Fall

- Fall Risk Assessment Tools
  - Valid Reliable Risk Tools
  - Serve as Screens
  - Positive Response Necessitates Further Assessment
  - Home-grown Tools
- Risk for Injurious Falls
  - Risk Modeling
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
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

**Interventions**
• 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>
<th>--RISK FALL/+RISK OF INJURY</th>
<th>+ RISK FALL/+ RISK INJURY</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ RISK FALL/</td>
<td>Implement fall reduction interventions</td>
<td>Assess, intervene and communicate if <em>injury risk</em> changes</td>
<td>Implement injury prevention interventions</td>
<td>Implement fall reduction interventions</td>
</tr>
<tr>
<td>-- RISK FALL</td>
<td>Assess, intervene and communicate if <em>fall risk or injury risk</em> changes</td>
<td>Implement injury prevention interventions</td>
<td>Assess, intervene and communicate if <em>fall risk</em> changes</td>
<td>+ RISK FALL/+ RISK INJURY</td>
</tr>
<tr>
<td>- RISK OF INJURY FROM A FALL</td>
<td>+</td>
<td></td>
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*Note: *RISK FALL and RISK INJURY are qualitative assessments of the likelihood of a fall or injury.*
• 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)
• 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

Age: > 85 years old
- Hip Protectors
- Low Beds
- Floor Mats
- Evaluation of Osteoporosis
• 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 Analysis

- What was different this time?
- When
- How
- Why
- Prevention: Protective Action Steps to Redesign the Plan of Care
Accident Theory
Health Literacy

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” 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. Focus on cognitive and psychomotor skills of learning.
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
- NOA Floor Mat
- Posey Floor Cushion
- Tri-fold bedside mat
- Roll-on bedside mat
- Soft Fall bedside mat
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 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
Four Entrapment Zones
Bed & Chair Monitors – Examples

- 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
- Patients with Dementia
Keep Thinking *Out of the Box!*

- Leadership: Culture of Safety
- Fall Rounds
- Signage
- Measurements of Effectiveness
• 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
Thank You, Questions?