Patient Falls In Healthcare: Ergonomic Interventions
Falls Demographics

- About 30% of people over 65 fall each year
  - 10 – 15% of these falls result in serious injuries
  - Fall death rate: Falls/100,000 persons
Benchmarking: Program Metrics

Fall Rate: Falls per 1000 Bed Days
- Acute Care: 2.2 – 7.0 falls
- Rehabilitation: 8.9 – 19.8 falls
- Long Term Acute Care: 11.9 – 24.9 falls

Injury Rates
- 29 – 48% of falls result in injury
- 4 – 7.5% of fall-related injuries are serious

Morse, J. (2002). Enhancing the safety of hospitalization by reducing patient falls. AJIC, 30(6), 376-380.
Consequences of Patient Falls

• Fear of falling and post-fall anxiety syndrome
  • Loss of self-confidence
  • Self-imposed functional limitations

• Largest single cause of restricted-activity days among older adults

• Leading precipitating cause of LTC admissions

• Only 50% of those who suffer a serious fall will be alive 1 year later
Economics of Falls

Strategic Drivers in Healthcare

• Quality of Care
  • JCAHO
  • ANA/NDNQI

• Cost Effectiveness
  • $15,000-$30,000
  • No injury fall--$998 (Rizzo et al., 1998)
  • Serious injury fall--$19,440

• Accountability/ Liability
  • Hospital
  • Staff

• Competition
Potential 2005 National Patient Safety Goals & Requirements

New Goal 9  Reduce the risk of patient harm resulting from falls.

New 9a  Assess and periodically reassess each patient's risk for falling, including the potential risk associated with the patient's medication regimen.

New 9b  Implement a fall reduction program, including a transfer protocol, and evaluate the effectiveness of the program.

New 9c  Evaluate and, as appropriate, modify the environment of care to minimize harm to patients if they fall.

New 9d  Install bed alarms for use with patients at high risk for falling.

New 9e  Use "low beds" for patients at high risk for falling.

New 9f  Do not use full-length bed rails.
Average Costs for Falls:
Rizzo et al, 1998

With Serious Injury requiring treatment beyond first aid measures
calculated at an average cost of $19,400

Without Serious Injury calculated at an average cost of $998

Repeat Fall Without Serious Injury calculated at an average cost of $4175
Frequently Cited Causes

After Steinweg, American Family Physician, 1997

Accidents (50%)

Others (20%)
(Lower extremity weakness, gait disorders, etc.)

Medication related (10-20%)

Premonitory (15-20%) Resulting from Acute Illness
Fall Classification System

Accidental Falls
- Patient falls unintentionally
- Patients cannot be identified before fall
- Targeted by most fall prevention strategies

Unanticipated Physiologic Falls
- Physical fall causes not reflected in identified risk factors

Anticipated Physiologic Falls
- Identified as at risk
Predicted Fallers

78% identified by Fall Scale
“Anticipated Physiological”

Accidents
(50%)

Medication
related
(10-20%)

Premonitory
(15-20%)
Resulting from
Acute Illness

Others
(20%)
(Lower extremity weakness, gait disorders, etc.)

14% “Accidental”

8% “Unanticipated Physiological”
“The majority of patient falls are the result of failures in the organizational processes, rather than the actions of individual nurses.”
- Dr. Janice Morse
Effective Fall Prevention Programs

Demonstrated to reduce patient falls >50%

Must be immediate and responsive to patient needs
  • Availability of strategies—greatest decrease in fall/injury rates

Need to be individualized and evidenced based
  • Assessment required to determine appropriate protective mechanisms
  • Hospital-wide policies
    • Dictate personalized assessment
    • Do not provide rigid rules for providing care

With Falls Protection Program

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Components of fall prevention

1. Develop a system to track incidence and type of falls institution wide
   • Recordkeeping
   • Definition of a fall/near miss incident
   • Definition of injury

2. Maintain a safe environment

3. Predict which patients are fall-prone

4. Develop and target interventions to those likely to fall
   • Prevention and protection strategies

5. Reduce fall-risk of those likely to fall

6. Constantly monitor patients who have fallen
   • Best predictor of future fall
   • 69% of repeat fallers—engaged in same activity

Janice Morse, 2001
## Morse Fall Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. History of Falling</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>25</td>
</tr>
<tr>
<td><strong>2. Secondary Diagnosis</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
</tr>
<tr>
<td><strong>3. Ambulatory Aid</strong></td>
<td></td>
</tr>
<tr>
<td>None / bed rest / nurse assist</td>
<td>0</td>
</tr>
<tr>
<td>Crutches / cane / walker</td>
<td>15</td>
</tr>
<tr>
<td>Furniture</td>
<td>30</td>
</tr>
<tr>
<td><strong>4. Intravenous Therapy / Heparin Lock</strong></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>0</td>
</tr>
<tr>
<td>yes</td>
<td>20</td>
</tr>
<tr>
<td><strong>5. Gait</strong></td>
<td></td>
</tr>
<tr>
<td>Normal / bed rest / wheelchair</td>
<td>0</td>
</tr>
<tr>
<td>Weak</td>
<td>10</td>
</tr>
<tr>
<td>Impaired</td>
<td>20</td>
</tr>
<tr>
<td><strong>6. Mental Status</strong></td>
<td></td>
</tr>
<tr>
<td>Oriented to own ability</td>
<td>0</td>
</tr>
<tr>
<td>Overestimated / forgets limitations</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
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New Objectives
New Equipment
+ Old Processes
= Old Behaviors and Results

“Your (organization) is perfectly designed… to get the results it’s getting now”
- Stephen Covey
Opportunities for Program Enhancement

*Prevention Strategy Implementation*

At Risk identifiers not being used consistently

During the audit of the program it was noted that there are several armbands that are similar in color and style. This adds confusion to properly identify “At Risk” patients. One unit was in the process of implementing a separate armband that may be more helpful, but was not in compliance with current policy. This issue should be addressed immediately.
Opportunities for Program Enhancement

Prevention Strategy Implementation

“Spot the Dot” not being used consistently

According to the falls prevention protocol, “At Risk for Falls” patients should be identified with a dot on the door, chart and arm band. It was noted during the audit that this aspect of the policy was highly unreliable. None of the patients had arm band identifiers and only 1 had a dot on the chart. Dots on the door were also inconsistent. A room identifier is a helpful reminder to all caregivers, especially those that come from other units, but it must used correctly and consistently in order to be effective.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at Risk w/ dot</td>
<td>42%</td>
</tr>
<tr>
<td>At Risk w/o dot</td>
<td>33%</td>
</tr>
<tr>
<td>Dot Correct</td>
<td>25%</td>
</tr>
</tbody>
</table>
• Reduce/eliminate hallway and room clutter where possible. Items in hallways make it more difficult for patient to maneuver.
Other Opportunities for Enhancement

*Environmental Issues & Future Considerations*

**Door Widths**

The width of the bathroom doors restrict the use of mechanical assists when patients need assistance in the bathroom. Also, there are conflicts with some bathroom and room doors.
Other Opportunities for Enhancement

Environmental Issues & Future Considerations

Thresholds in Showers
Shower thresholds (8”) should be flush with the floor. This allows more frequent use of shower chairs as well as removes obstacles for higher dependant patient with weaker gaits. Eliminate all potential trip hazards.
Other Opportunities for Enhancement

Environmental Issues & Future Considerations

Handrails

- Place rails to maximize patient ability to assist self/caregiver and caregiver to assist patient
- Avoid placement of sink near toilet. A potentially wet sink will often become a default handrail
- Avoid placing towel rack near handrails
- Horizontal rails placed to the sides of the commode extending 6-8 inches above seat height facilitate patient mobility
- Consider placing rails at various heights, some located lower than sitting shoulder height
- Vertical rails to the front of the commode near shoulder height have been found to be beneficial
Falls Prevention

Falls Prevention Product Examples

Bed Exit / Position Alarms
Low Height Bed
Night Light
Communication Systems

Falls Prevention Program Examples

Educational Awareness
Procedural Development
Risk Assessment Tools
Intervention Aides
Program Assessment (CI)
Falls Prevention

Bed Exit/Position Alarm
Low Height Beds
Night Lights
Communications

**Alarm Setting** Based on Results of Patient Risk Assessment:
- High Risk use Exit or Position Mode
- Medium Risk use Out of Bed Mode
- Low Risk use no alarm

Alarm communicated directly to caregiver. **Response** directly to the patient.