

Will the Use of Fall Mats in a Medical/Surgical Unit Prevent Patient Injury Related to Falling?

Will the Nursing Staff be Satisfied with the Use of Fall Mats?

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Introduction

Purpose/background: The Fall Team updated the fall prevention protocol utilizing current evidence to change practice. Many fall prevention protocols found in the literature suggest the use of fall mats to prevent injury and is often included in lists of fall prevention strategies. Few studies evaluate the use of fall mats in adult inpatient medical surgical nursing units. The Fall Team expressed interest in utilizing the fall mats but had concerns related to the increased expense and possible dissatisfaction of nurses providing care when fall mats were at the bedside. Historically, fall mats were available in the Della Martin Center but were seldom used. The purpose of the study was to determine whether the use of a fall mats would reduce falls-related injuries on an adult medical surgical unit. A secondary purpose was to determine nursing staff satisfaction with fall mats in the patient room. The fall mat used in this study was a SmartCell mat made by SaTech, Inc. The mats weighed 30lbs and measured 3' x 5'. The mats are described as a cushioning pad designed with shock-absorbent properties to stay firm during normal transferring and walking activities but to soften under high impact to absorb the force of a patient falling. The mats are easy to maintain and are made of a nonporous rubber so spills are easily cleaned using standard clean-up procedures and will not penetrate through the pad. The mats are slip-resistant, do not hamper the mobility of wheeled walkers and wheelchairs or impede walking and stability in patients. The mats are low profile with beveled edges.

Figure 1: Mat at Bedside and compression cell



Methods

Method/approach: Framework: Prism of Evidence-Based Practice Model: Promote Research use/use of evidence In a Systematic Manner" (Iowa model). The study hypothesized the use of fall mats as an intervention will reduce injury and nursing will be satisfied with using fall mats. Four fall mats were utilized for this study. A patient admitted or transferred beginning 0900 on the start date was assessed using the Fall Risk Assessment tool in Meditech. The patients identified with a combination of risk factors related to mobility, mentation, and recent fall history per the initial assessment qualified for the mat during the duration of their admission on 4West. For each of the other three modules, a newly admitted patient was assessed to determine if fall risk factors would qualify them for a fall mat until there was a patient with a fall mat in each module. When the patient was discharged, the next patients admitted to that module was assessed for qualification for the fall mat. Fall mats were placed at the bedside or chair where the patient would most likely exit. Nurses who provided care for a patient with a fall mat in the room were asked to complete a fall mat satisfaction survey.

Who was involved: Primary Investigator: Susan D'Antuono, MS, RN; Clinical Nurse Specialist. Allison Connolly, RN on 4West, participated as sub-investigator. Medical Surgical Telemetry 4West. Questionnaire completed by nurses providing care for patient with a fall mat in the room.

Measurement used: The independent variable was the fall mat; the dependent variables included injuries, use of fall mat, nursing satisfaction. A purposive sample of all patients admitted to 4West during study dates identified as having all three of the following risk factors when assessed utilizing the Fall Risk Assessment tool in Meditech: Mobility risk, mentation risk, history of recent fall. Measurements used were a questionnaire, fall occurrence reports and observations.

Data Analysis: MiniTab 15 program.

Statistical Tests: Chi square and two proportion

Results

No patient fell with the fall mat in their room. Eighteen RNs cared for a patient with a fall mat and completed the questionnaire. Fourteen patients qualified and received a fall mat during July 22 to August 22, 2009. Two patients fell during the study time period who did not qualify for a fall mat. No injury was sustained.

ANALYSIS OF FALL MAT STUDY

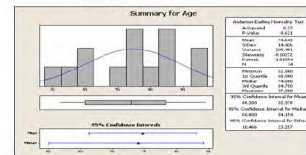
The patients selected for inclusion in the study were assessed for fall risk using the following criteria:

Fall Assessment Criteria	Number of patients with this criterion
Impaired balance	8
Use of assistive devices	4
Inability to bear weight	2
Need of additional equipment	4
Dizziness	2
Need for assistance to get out of bed	8
Sedation	1
Language barrier	1
Forgetful	9
Confused	4
Impulsive	2
Need toileting assistance	10
Frequency / incontinence	2
Recent Fall	12

ANALYSIS OF FALL MAT STUDY

- The fall mat was used in 14 patients
- None of the patients fell therefore the effectiveness in prevention or reduction in injury could not be evaluated.

- Characteristics of the study population are as follows:
 - Mean age of the population was 74.6 yrs
 - Median age is 74 yrs
 - Age Range is 52 to 97 yrs
 - STD is 14.4.



Chi sq and 2 proportion both used as the statistical tests

ANALYSIS OF FALL MAT STUDY

- The mean number of criteria applicable to an individual patient was five, with a range of as few as two and as many as nine criteria.
- On average each criterion was identified in five of the 14 patients.
- The criterion that was most frequently identified was "recent fall" (12) which is a statistically significant variance from the mean of five. (p value of .002) However, MiniTab cautions that the population is very small and this needs to be taken into consideration in further conclusions.

- Questionnaire Results
- Eighteen respondents completed the questionnaire
- Eight nurses had stated they cared for a patient who fell in the previous year
- Two of the nurses reported they had cared for patients who had injury related to a fall
- Twelve of the 18 respondents used the fall mat on at least one patient
- Seven of all 18 (39%) respondents would recommend the use of the fall mat
- Five of 12 or 41% who used the mats would recommend its future use

Conclusions

- Unable to draw conclusion regarding efficacy of fall mat in preventing injury on a medical surgical unit because no patient fell on the mat. The presence of a fall mat in the room may have reminded the patient to not get out of bed without help.
- Only 39 percent of the RNs would recommend the use of the fall mat. They reported tripping on the mat; "stopping shoe," "too heavy to move," "black color is not acceptable at night." Two patients asked that the mat be removed because they could not get their walkers over the beveled edge of the mat.
- Nursing staff on 4West had an opportunity to experience and participate in a research study.

Suggestions for future research:

- Obtain a power analysis to determine sample size.
- Replicate study using a fall mat for each patient that qualifies.