Prevention of Falls in High Risk Nursing Home Residents

OBJECTIVE
To determine whether a new technology alarm system decreased the risk of falls in a group of nursing home residents who have a history of prior falls and impaired cognition.

METHOD

Design
- rectrospective study from November 2004 through November 2006.
- the control of the study is the subjects themselves. The incidence of falls was measured in each resident for an equal period preceding and following the intervention.
- The length of the study period for each patient varied for all of the subjects.

Defining a "Repeat Faller"
- A resident who fell unexpectedly at least twice in the month prior to initiating the study.
- A fall is defined as an "unintended change of position which results in the person coming inadvertently to the ground or other surface lower than the person had been previously."
- The study did not include assisted falls.
- Only observed and unobserved falls related to beds or wheelchairs were included.

Setting and Patients
- 22 subjects with an average age of 88 years (59 to 100). Seventeen residents were female.
- Ethnicity: White=14 , Hispanic =4 and African American=2
- 100% of the population on intervention had a FRAT Index score over 10 (high risk of falls)
- 20 residents had a Folstein Mini Mental Score below 23/30
- The musculoskeletal diagnosis gait instability (n=22), weakness (n=12), arthritis (n=7).
- 11(50%) were dependent functionally and the other 11 required assistance with their ADLs.
- The contributing factors were incontinence =19, indwelling catheter =6 , impaired hearing =9, impaired vision =17, benzodiazepine use =15.

Procedure
- The data was collected from a review of the resident's nursing home records. medical records from patients with repeated falls, The study period for each resident was variable, the average study period was 5 months.
- All patients had equal observation period of study before and during the intervention alarm system.
- Report of falls at multidisciplinary meetings and management team were conducted to identify causes that contributed to falls.
- The ratio residents/staff in the units were constant.
- All residents received the facilities multifaceted care plan for falls both before and after the intervention.
- The alarm system consists of a control unit and a disposable pressure sensitive sensor mat that is used on a standard hospital bed or bed side chair. When the patient's weight is off the sensor mat for a pre-selected number of seconds, the control unit activates two alarms, a call signal at the nursing station and an audible alarm in the patient's room . The nurse having been alerted that a
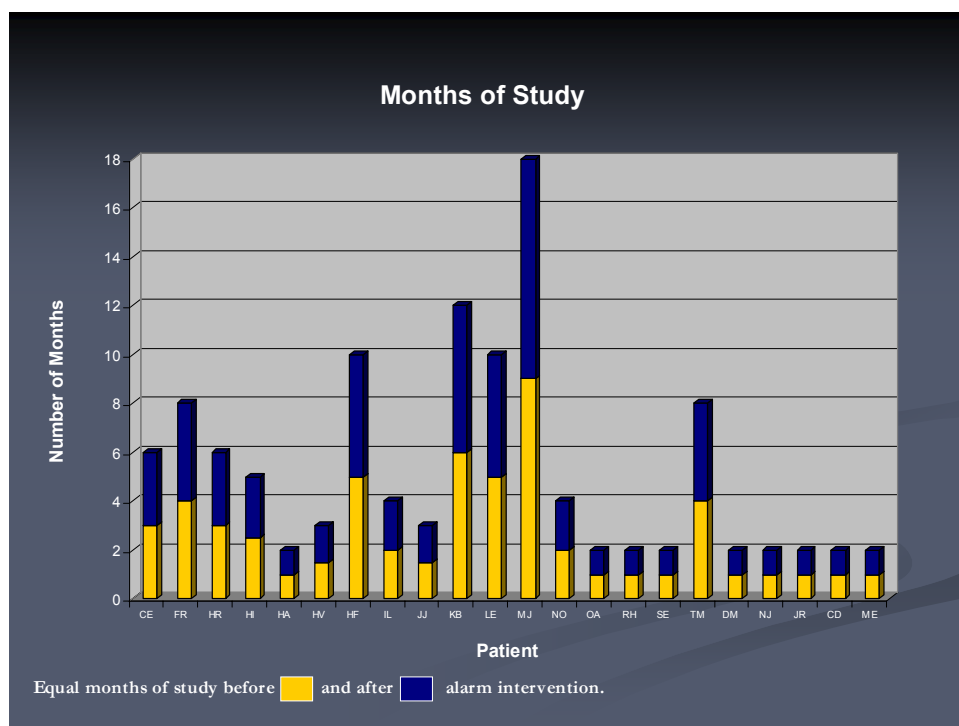
patient is attempting to exit the bed or chair immediately sends or renders assistance.
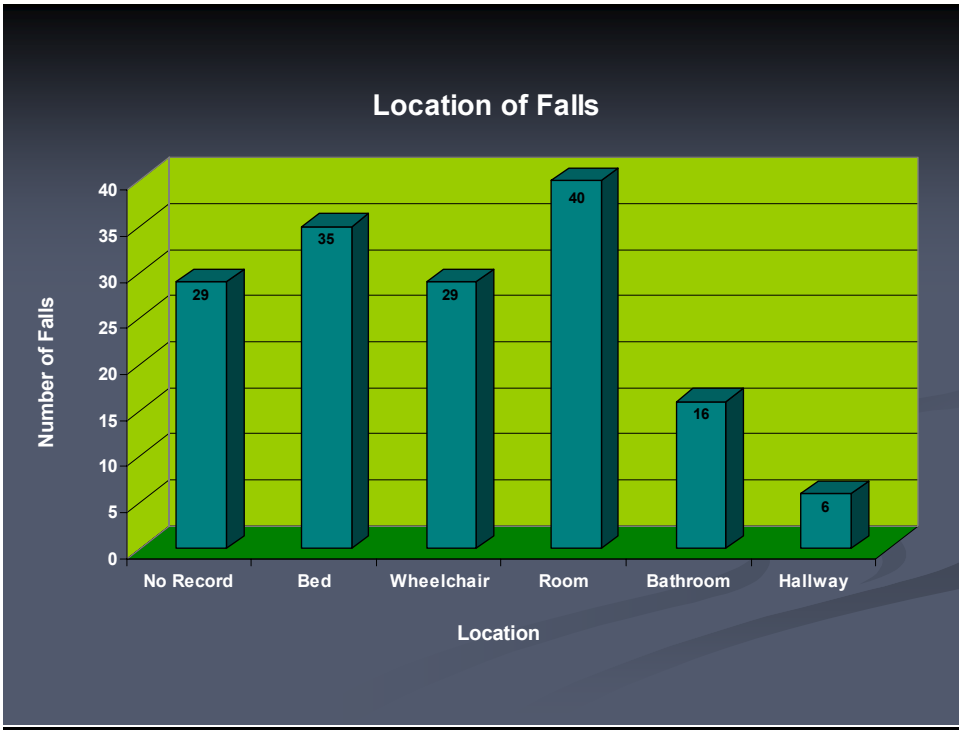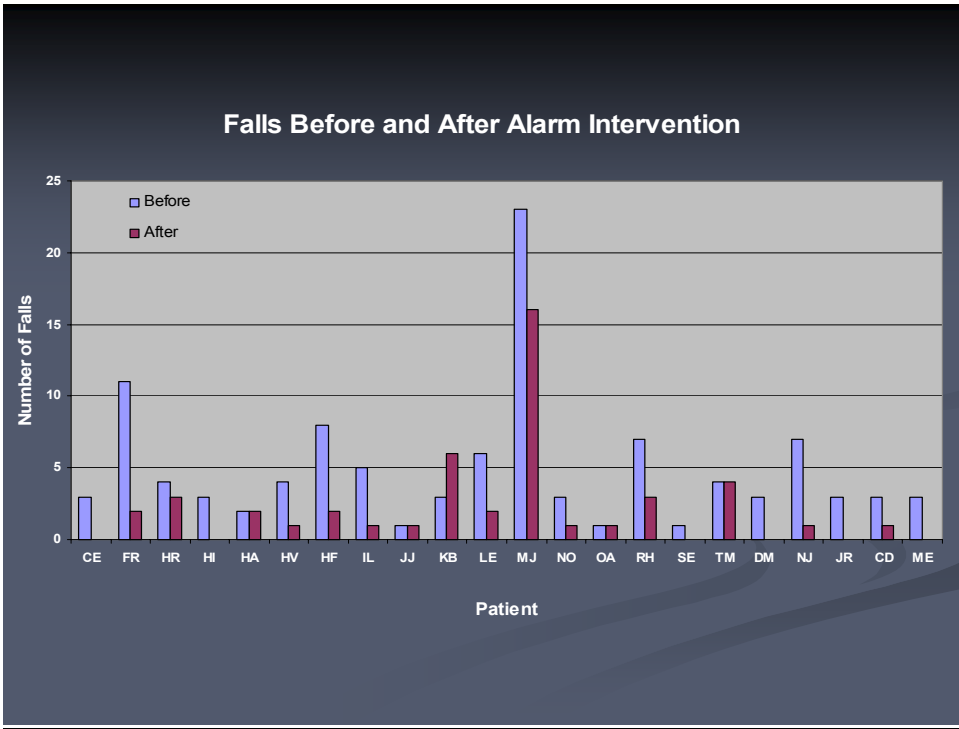
RESULTS

The total number of falls prior to the intervention was 108. Following the intervention the number decreased to 47 (a 56% reduction).

Fall-related fractures occurring during the study period:
- 3 patients with hip fracture – 2 prior to intervention and 1 during intervention
- 1 patient with tibia fracture, - during intervention
- 1 patient with distal femur fracture , – prior to intervention
- 1 patient with clavicle fracture, - prior to intervention
- 1 patient with a thoracic vertebrae fracture and wrist fracture, - prior to intervention

Months of Study

Equal months of study before [ ] and after [ ] alarm intervention.

Falls Before and After Alarm Intervention

Location of Falls

CONCLUSION

The facilities standard fall prevention care plan was more effective when the alarm system was implemented to reduce the total number of falls in this specific high-risk sample of the nursing home residents. The bed and wheelchair alarm system helps the nursing staff to priority focus on residents that

are at imminent risk of falling.

Because of the low prevalence of fall-related fractures, this study was not powered to detect a reduction in the occurrence of such serious injuries. Other strategies such as bed side mats, low beds and hip protectors may be beneficial in individual cases.

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