

Case Study

Nursing Home Alarm Elimination Program: It's Possible to Reduce Falls by Eliminating Resident Alarms



I. Case Study Objective

This case study summarizes the elimination of resident pressure alarms and the relationship to fall prevention. The intervention occurred within a Massachusetts nursing home's 45-bed unit.

II. Facility Overview

Jewish Rehabilitation Center for the North Shore (Jewish Rehab) is a Massachusetts-based 180 bed, Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accredited, freestanding, not-for-profit facility providing sub-acute, long-term, and dementia care. For years, it has been an active participant in Masspro's quality improvement initiatives, and is currently part of the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services, 8th Scope of Work Nursing Home Identified Participant Group (IPG).

Jewish Rehab's leadership team is experienced, and the results of their resident and staff satisfaction surveys, and certified nursing assistant (CNA) turnover rate rank them in the top tier of their IPG peers. The average score of their Resident Satisfaction Survey was 2% higher than the average score of all the participating IPG's. In particular, the residents felt that the staff cared about them, made them feel safe, and allowed them to participate in decision making. The average score of their Staff Satisfaction Survey was 10% higher than the average score of all participating IPG's. In particular, staff felt that there was good communication, they understood the goals of the facility, and felt pride being a member of the team. Not surprisingly, their CNA turnover rate was less than approximately 58% of the other participating IPG's turnover rate.

Their Falls Committee consists of an interdisciplinary team of department heads, staff nurses, and CNAs, that meets every one-to-two weeks to review falls and evaluate intervention successes. In addition to the weekly Falls Committee meeting, a separate Falls Review Committee meets every morning for 15 minutes to discuss falls that have occurred in the prior 24-hour period, and identifies the root causes and the appropriateness of any related intervention(s). This Committee is composed of department heads and nursing management.

Of note: The unit on which this case study is based has CNAs and nursing team leaders with consistent assignments.

III. Problem Statement

The Assistant Director of Nursing (ADON) who was the chairperson of the Falls Committee was concerned that resident falls remained high, despite the work of two committees and multiple individualized interventions.

IV. Steps to Problem Identification

Although the facility held a facility-wide "Falls Fair" to educate staff about the common causes of resident falls and appropriate interventions, and demonstrate the facility's pressure alarms, the fall rates for three subsequent months remained high.

Consequently, the ADON presented to the Falls Committee, the idea of eliminating resident pressure alarms to actually prevent falls. Her rationale focused on one 45-bed unit where over half of the residents had either a bed or chair pressure alarm or both, yet the number of falls continued to be high. She observed the following:

- Alarms were reactive rather than proactive because they only indicated to staff that the resident had moved or had already fallen.
- The noise produced by the alarms agitated residents so much that residents fitted with alarms did not move at all to avoid activating the alarm. This put them at risk for ADL decline.
- Residents not fitted with alarms were often heard calling to staff to turn off the alarms and telling residents fitted with alarms to remain still.
- Residents with dementia experienced increased agitation.
- CNAs were often distracted from other important duties, including ADL care and communication with residents.

V. The Pilot Test

Alarms were removed from several residents who had not had any falls for a significant period of time because the causative factor for their previous falls had resolved (e.g., urinary tract infection). Surprisingly, the residents remained fall free upon removal of the alarms.

Drawing from this success, the ADON and the Falls Committee selected additional residents for alarm removal. The criteria for resident selection remained the same as for the previous group of residents: the root cause of previous falls had been determined to be episodic and the acute condition had resolved. Again, the effort was successful.

VI. Implementation Plan

Based upon the success of the two prior interventions, the team developed a plan to progressively eliminate all 25 alarms on the unit over a four-week period. Prior to implementation, all staff received education on the falls prevention strategies to be used once the alarms were removed. The Falls Committee made it clear that the success of the intervention depended on the involvement of staff throughout the facility.

Alarm removal began on the unit where residents tended to have mild-to-moderate dementia and poor safety insight, but, were still relatively mobile. The choice of this unit was based on the fact that it had an excellent chance to be successful due to its consistent staff and consistent assignments. Additionally, a success on this type of unit would support the ADON's position that alarm elimination was an appropriate goal, as this unit had a high fall rate.

CNAs were very receptive to the program. Licensed nurses were initially a bit hesitant. The basis for this hesitancy was because they understood their responsibility as licensed staff to maintain resident safety and felt that the alarms assisted them in accomplishing this. However, they recognized the success of the pilot and came to support the plan, actively participating in its implementation by talking to families about the program and the resident specific intervention that would be utilized in place of the alarms.

A central part of the intervention was that nursing staff would need to anticipate the needs of the residents, rather than respond to an alarm. In other words, they would need to change their mindset from being reactive to being proactive. Due to the facility's workflow style of consistent staff assignments, the CNAs and licensed nurses knew the residents well and were able to develop individualized care plans to anticipate needs. Alarm assessments had typically been completed on a quarterly basis and were used to document the continued appropriateness of alarm use. Now it became a tool to document the resident's participation in the alarm elimination program.

VII. Program Design

A hall monitoring system, comprised of an interdisciplinary team including department heads, therapists, and the administrator, was initiated. Hall monitors were educated about patient safety, falls, and resident specific safety risks. Three times per week, each hall monitor took a 15-minute block, during which they would be in the unit monitoring for resident safety and taking direct action when necessary.

This monitoring program was in place from 7:45am – 3:15pm, five days per week. Monitors shared their observations and actions at daily review meetings designed for plan modification. In addition, on the 6:45am – 2:45pm shift, a non-clinical unit aid monitored the

unit for resident safety. The monitoring program remained in effect for two months. Alarm use was reduced during the first month, with the second month serving as an extra period of resident supervision while the system was evaluated and modified as needed.

The 2:45pm – 10:45pm shift developed its own monitoring program using a resource aide whose function was to focus on agitated residents and those who were at high risk for falls. The 10:45pm – 6:45am shift developed its own plan as well, increasing level of surveillance, adjusting book times, and increasing rounds.

Staff used activities to help reduce falls. The rationale was to decrease the amount of resident agitation experienced by providing additional activities, and thus decreasing the risk of falls.

On weekends, the nursing staff implemented a hall-monitoring program, including increased visibility of the weekend supervisor on the target unit, and heightened awareness by the housekeeping staff to be hyper-vigilant about resident safety. Since the same CNA staff worked both on the weekend and during the week, they had a good understanding of the safety needs of the residents. The weekend plan worked well, with falls that had already been low remaining low.

VIII. Program Implementation

During Week One, the 6:45am – 2:45pm shift disengaged the resident alarms on the target unit. These interventions were implemented as part of their reorganized thinking of proactive approaches. At 2:45pm (the end of shift), staff turned the alarms on again.

During Week Two, the alarms were turned off at 7:00am and remained off until the end of the 2:45pm – 10:45pm shift.

During Week Three, the alarms were turned off at 7:00am, and remained off for all three shifts.


During Week Four, the alarms remained off during all three shifts and residents continued to be monitored for safety.

The Falls Committee evaluated the plan both daily and weekly during the first and second months of implementation, making modifications as needed.

IX. The Results

Impact on quality of life was evidenced by less agitation of residents due to decreased noise of alarms. Staff also experienced less anxiety and a better workplace environment within the unit.

As a result of the implementation of this program, the proactive approaches outlined above were identified as successful fall preventive strategies.



Using real-time information provided by falls incident reports the ADON tracked and trended data on a monthly, quarterly, and annual basis. During the final quarter of 2005, that encompassed the months of alarm reduction and increased resident monitoring on the target unit, there was a 32% reduction in the quarterly average of falls for this unit, when compared to the average number of falls for the first three quarters of 2005.

Incidentally, this unit also experienced a reduction in the number of pressure ulcers identified for the final quarter 2005, as compared with the first three quarters of 2005. This could be the result of residents' toileting in advance of need, and more frequent ambulation and positioning, which were a part of residents' individualized fall prevention plans.

In addition, there was a 21% decrease in the CMS "Prevalence of Falls" quality measure when comparing July 2005 – December 2005 to October 2005 through March 2006. Both six-month periods shared the two-month intervention interval and subsequent evaluation. Additionally, the Director of Nursing has reported that the increase in activities on the unit has had an impact on the "depression" quality measure.

X. Moving Forward

In late 2005, the ADON assumed the role of Director of Nursing, after having been with the facility for nine years. She is continuing to lead the facility in its progressive implementation of the alarm elimination program on each of the facility's three other units. The basic implementation plan has remained the same with some modification to accommodate for the varying resident population and characteristics that exist on each of the three units, including:

- Sub-acute
- Long-term care
- End-stage dementia

As the facility has continued its work, it has identified the need to change the starting time of Falls Committee meetings in order to allow for greater and more consistent participation by CNAs, who are recognized as a valuable and integral part of the process.

XI. In Summary

As the alarm elimination program continues to be implemented throughout the facility, the Director of Nursing will utilize quality measure reports to correlate alarm elimination with changes in quality measures other than just the prevalence of falls, including:

- Depression
- Behaviors
- Incontinence
- Pain
- ADL decline
- Little or no activity
- Pressure ulcers

Preliminary anecdotal data suggests that a relationship does exist. However, with the increase of MDS data available over time, the Director of Nursing hopes to be able to make a direct correlation between the intervention and positive outcomes.