

**THE UTILIZATION OF AN ALARM ELIMINATION FALL PREVENTION
PROGRAM**

by

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Abstract

A typical nursing home with 100 beds reports 100-200 falls each year (CDC, 2015). It is common to see the utilization of personal alarms in nursing homes to prevent falls, although there is no evidence to support the idea that personal alarms reduce falls. The project aimed to address the question: In long-term care patients, what is the impact of an alarm elimination program versus current practice of utilizing alarms, on fall rates over a 2-month time frame? The project used a multipronged, alarm elimination program. Limitations of the project were an overall low compliance rate amongst staff, a short time frame, and isolation to a single facility. The results of the project found that no statistical significance was determined in the decrease in fall rates ($p=0.29$), however, fall rates decreased in frequent fallers (-3.49% , $p=0.31$), fall rates that excluded frequent fallers (-0.18% , $p=0.47$), and overall fall rates (-3.66% , $p=0.29$).

The Utilization of an Alarm Elimination Fall Prevention Program

Patient falls continue to be a significant concern for long-term care facilities. According to the Center for Disease Control (CDC) (2015) “about 5% of adults 65 and older live in nursing homes, but nursing home resident’s account for about 20% of deaths from falls in this age group.” It is estimated that in an average nursing home that consists of 100 beds, 100 to 200 falls are reported each year, and that does not include the falls that never get reported. Unfortunately, this will be a clinical problem that will never disappear, but evidence-based interventions such as those in Alarm Elimination Falls Prevention Programs can mitigate their occurrence. At the given facility for the project, during a six-month time frame before implementation, there was a total of 121 falls. The average daily census was at 79.54 patients per day. If one were to take and come up with a monthly rate of falls using the above information, for a 100-bed nursing home, this would average 8.3 to 16.7 falls a month. To translate this information into a rate consistent with a 100-bed nursing home, utilizing the average 79.54 patients per day, the monthly rate should be between 6.6 to 13.25 falls a month. Data reveals a fall rate that is 1.5 times higher than the national average. This project was an implementation of an Alarm Elimination Fall Prevention Program in efforts to decrease the rate of falls and improve the quality of life for the residents at a long-term care facility.

Over history, much has changed regarding care in Skilled Nursing Facilities. Prior to the Omnibus Budget Reconciliation Act (OBRA) of 1987, the use of physical and chemical restraints ran rampant in long-term care facilities. After the OBRA of 1987, there was a diminishing use of restraints, but the use of bed and chair alarms became the new norm (Horowitz, 2014). The thought process behind bed and chair alarms, was that this would alert staff to a potential fall. Over time, research has shown that this is not the case. In fact, what

personal alarms do is alert staff when someone is already falling, not warning them of a potential fall. This reactive approach has not been found to decrease the rate of falls; in fact, this is being researched as a method that has increased the rate of falls. Evidence suggests that personal alarms create confusion, anxiety and adversely affect the quality of life of residents (Horowitz, 2014).

Literature Review

Published research literature was searched using electronic databases (Academic Search Premier, CINAHL, PsycINFO). Keywords used were: *Personal Alarms, falls in nursing homes, fall prevention, Long term care, immobility, and complications*. The literature review considered evidence related to falls in nursing homes, the use of personal alarms and the elimination of personal alarms in fall prevention, complications related to the use of personal alarms, and effective fall prevention programs. Criteria placed on the search included full text, scholarly peer-reviewed articles within the years of 2005 through 2015. Among electronic databases, governmental sources from the Center for Disease Control and Prevention and World Health Organization was also utilized regarding falls in nursing homes, complications of physical immobility and falls in nursing homes. All available literature surrounding the key variables was organized, synthesized, critiqued, and summarized to analyze the available research on the given topic.

Falls in Nursing Homes

Duffy (2013) reported how falling, and/or the fear of falling can impact many things in the older adult including self-confidence, cause depression, feelings of helplessness, social isolation, and anxiety about successive falls, along with personal injury. In Duffy's qualitative

study, the author discussed different examples of intrinsic and extrinsic factors that can lead to falls in the older and interventions that have are shown to reduce falls in residential care settings. To build on the ideas of Duffy, the Health Service Executive, National Council on Ageing and Older People, and Department of Health and Children (2008) further explained the ideas of extrinsic and intrinsic causes for falls. In one section of their report, falls can be classified as either extrinsic, meaning they are caused by environmental hazards, or intrinsic, commonly the result of medical illness (Health Service Executive, National Council on Ageing and Older People, and Department of Health and Children, 2008). Within the report, it discusses the idea that nursing home residents are at highest risk of falls, fractures, and osteoporosis and that their rate of hip fractures related to falls is 3-11 times greater than elderly people living in the community. Falls, bone health, and fracture risk are linked, and the force of the fall and the degree of bone fragility increases fracture risk. It is estimated that one in three women and one in five men over the age of 50 years of age have osteoporosis of the hip, spine or wrist. Interestingly, in the report it brings up the findings in a US study, the bone mineral density of white female nursing home residents age 65-74 years saw an increase in osteoporosis to 63.5% and up to 85.8% for women over 85 years of age (Health Service Executive, National Council on Ageing and Older People, and Department of Health and Children, 2008).

According to a study by Teresi et al. (2013), falls are most prevalent in elderly in long-term care settings, and it is said that on average about half of nursing home residents experience a fall each year and about 10% to 20% result in injury. The World Health Organization (2007) reports the frequency of falls increases with age and frailty level. Approximately 30-50% of individuals who reside in long term care fall every year, and 40% of those individuals will suffer from recurrent falls (WHO, 2007). The World Health Organization (2007) also reports that

when comparing older people who are living in nursing homes to those that live in the community, those living in nursing homes have more reported falls. Approximately 30-50% of people living in long-term care institutions fall each year, and 40% of them experienced recurrent falls. Teresi et al. (2013), also looked at the overall effects from falls, the negative affect and behavior, and the associated costs of utilizing evidence-based education and best practice programs in nursing homes. There were several noteworthy results from the study. The main finding was a significant reduction between 5 and 12 annual falls in a typical nursing home (Teresi et al., 2013). There was also a significant reduction in negative affect associated with training staff and surveyors and the overall net cost savings from fall prevention. The conclusion from the study was that a low-cost intervention plan that targeted dissemination of evidenced-based best practices in nursing homes can result in fall reduction and cost savings (Teresi et al., 2013).

There have been a limited number of studies that examine the costs of falls in nursing homes. Teresi et al. (2013) utilized data from two surveys completed around 2000 and reported the average costs of a typical fall was \$1892 and ranged from \$700 to almost \$13,000. Regarding hip fractures, another study looked at the cost averaged from three studies and found that the cost in the first year averages \$58,120 and the estimated value of lifetime costs was averaged at \$86,967 (Frick, Kung, Parrish, and Narrett, 2010.). Frick et al. (2010) also examined fall prevention strategies with some of the most cost effective strategies being the management of psychotropic medications (particularly withdrawal of such medications), vitamin D supplementation, and home modifications, such as removal of hazards in the home (rugs, cords, improper lighting, etc.). The objective of Frick et al.'s study was to model the incremental cost-utility of seven interventions reported as effective for preventing falls in older adults.

Prevention of falls and fall-related injuries is an incredibly simple idea to help protect the elderly, and cut unneeded healthcare expenses. In 2013, the National Institute for Clinical Excellence (NICE) put out a 33-page report entitled *Falls: Assessment and Prevention of Falls in Older People*. This is the most recent updated guideline, created by the National Institute for Clinical Excellence on the proper assessment and prevention of falls in the elderly. First created in 2004, this document is for healthcare and other professionals and staff who care for older people who are at risk of falling. Based on of the updated 2004 guidelines the report discusses the use of multifactorial falls risk assessment and the use of multifactorial interventions to decrease the rate of falls in the elderly. Some of the interventions that were discussed in the report include ideas such as: supervised schedules for high fall risk individuals, medication reviews and dosage minimization of multiple antipsychotic medications, environment assessment and modifications, management of physical disabilities that could lead to falls, individualized care plans, frequent audits and root-cause analysis of falls, and ongoing education for patients and staff in regards to medical devices and fall prevention strategies (NICE, 2013).

Understanding the proper use of interventions in the care of elderly in the nursing home setting is the most crucial aspect of protecting the elderly from falls and fall related injuries. By following the given guidelines, falls can be prevented, and not only is their physical being protected, but also their mental health is respected and protected as well.

Fall-Related Injuries and Complications Related to Falls

There are many complications that can arise due to falls and immobility. Falls themselves, can lead to increased immobility due to postfall syndrome (WHO, 2007). Postfall syndrome after a fall can result in loss of autonomy, confusion, dependence, depression and immobilization. It has been reported that when a senior suffers from immobility, this increases

the risk of falls (The pernicious complications of resident immobility and inactivity, 2014).

Within the article, it breaks down complications of immobility concerning almost every single system in the body. Some of the complications listed, but not limited to are: an increased risk for pneumonia, edema, blood clots, orthostatic hypotension, impaired skin integrity (increasing the risk of pressure ulcers), muscle weakness and atrophy, contractures, osteoporosis and possible fractures, urinary tract infections, constipation or fecal impaction, decreased gastric mobility also causing heartburn and indigestion, insomnia, confusion, depression, lethargy, boredom and irritability (The pernicious complications of resident immobility and inactivity, 2014). Bowman (2010) also adds the ideas of cardiac overload, malnutrition, increased infection, social isolation and traumatic memories'.

Personal Alarms in Nursing Homes

Personal alarms were considered an improvement in 1987 when the OBRA was introduced. Before that, physical and chemical restraints were the norm, so the idea of personal alarms was a step in the right direction (Horowitz, 2014). Crogan and Dupler (2014) reported that the exact prevalence of alarm use in nursing homes in the United States is unknown, although when performing a telephone survey in Washington, 53% of residents had either a chair or bed alarm or both.

There have been several documented complications related to the use of personal alarms. Some of the issues related to personal alarms include the idea that they create noise, fear, and confusion for all persons in the general area of the alarm, decrease the resident's overall mobility, impinge on dignity, lead to immobility, interrupt sleep or make sleep completely impossible in fear of setting off an alarm by movement (Crogan and Dupler, 2014). Other issues related to alarms are that staff may respond to the alarm, not the person, residents hide or remove

them, alarms can malfunction, multiple alarms going off at once can cause alarm fatigue for staff and confusion for residents, and alarms can give a false sense of security while at the same time be very time consuming for staff responding to multiple alarms. Horowitz (2014) discusses the ideas that bed and chair alarms do not alert staff of a potential fall but in fact, just alert staff that a fall is taking place. This causes a reactive approach to fall prevention versus a proactive approach. Horowitz discusses how this reactive approach has increased the rate of falls.

In 2006, the Jewish Rehabilitation Center for the North Shore in Massachusetts conducted a case study to eliminate resident pressure alarms in efforts to decrease fall rates. The results of the Pilot Study showed that there was a 32% reduction in the quarterly average of falls for the given unit when compared to the average number of falls for the first three-quarters of 2005. It also showed a decrease in the number of pressure ulcers identified for the final quarter of 2005, as compared with the first three-quarters of 2005 (Medicare Quality Improvement Organization for Massachusetts, 2006). In a more recent study conducted by Bressler, Redfern and Brown (2011), personal alarms were removed from their facility. They felt that the staff at their facility in Ohio was over-reliant on technology and they felt that their reliance on position-change alarms was inappropriate due to the high rate of false alarms associated with the devices. They made a tiered approach to remove the alarms and found that after the discontinuous of their use, they had a decrease in the rate of falls, and a decrease in the percentage of residents who fell. Their report also discussed how staff easily adapted and found the environment to be calmer and more pleasant (Bressler, Redfern, & Brown, 2011).

Croghan and Dupler (2014) performed a quality improvement project by implementing an alarm elimination program. Their study looked more at the process of alarm removal versus actual fall rates, although they did report that there was not an increase in the number of falls

after alarms were removed. Within their report, they discussed that the most effective preventative interventions were keeping beds locked, keeping floor surfaces clean and dry, using appropriate footwear, maintaining the call light within reach, and reducing tripping hazards. The study reports that bed or chair alarms were not listed within the top-20 interventions, yet the most common fall prevention interventions included bed alarms more than any other intervention.

Theoretical Framework

Regarding change, it was crucial a theory was utilized to make sure that the new plan was properly implemented with the goal of decreasing the number of falls. The theory of choice for this project was Kurt Lewin's Change Theory. Concepts of his theory include driving forces, restraining forces, and equilibrium, and consist of three stages; unfreezing, movement, and refreezing (CurrentNursing, 2011).

Lewin's Change Theory is a crucial component when stakeholder's involvement and plays a large part in the success of the project. With the Unfreezing stage of Lewin's theory, communication with stakeholders, including the staff and administration was key. It was crucial to ensure that all lines of communication were open and honest, thus allowing staff and administration the ability to have input and to voice their concerns. This helped to promote internal empowerment within the facility and helped decrease the chances or effects of resistance to change (Sutherland, 2013). One of the biggest aspects of a successful fall prevention program in the long term care setting is the effective utilization of a multidisciplinary team. It was crucial that there was a combination of medical treatment, rehabilitation, and environmental changes to prevent falls (CDC, 2015). Although easy to say what needs to be done, it took a strong support from the administration and staff for the program to be successful. The biggest aspect of the

project was to demonstrate a strong leadership role in the facility. By being present frequently and available to address concerns, show support, provide praise, and support the staff, the Falls Champion for the staff and administration was able to provide the staff with the enthusiasm and encouragement needed to embrace the changes within the facility and to provide the best patient care as possible.

During the planning and implementation of the project, communication with the staff and administration appeared to be one of the biggest driving forces for the success of the project. Even with constant communication and encouragement, it was difficult to create a sense of excitement and understanding of the importance of the project, and resistance was met. It was noted that wings in which there was unit manager resistance, this had an effect on the units acceptance of the project as well.

The moving, or changing phase included the implementation of the project. This required continuous efforts of support from both the administration and staff. As the DNP leader, it was imperative that all stakeholders involved in the implementation of the project took ownership of the changes (Sutherland, 2013). During the project, resistance was met regarding staff feeling that the project was not beneficial to them, and was for the benefit of the DNP learner. It was imperative that extensive amounts of encouragement and praise was given when staff performed their hourly rounding, and proper education on the importance of the implementation in regards to the benefit of the patients. During the implementation, after a few weeks of poor compliance, it was noted that the Director of Nursing (DON) had placed notes as reminders for the staff at the nurse's station, which seemed to help with compliance. There was a fine balance of attempting to praise the staff for doing their rounds, and also not trying to

punish the staff if they were low in compliance. If the staff had felt that their efforts were not being appreciated, the compliance would have dropped even lower.

Lastly, the refreezing stage required ongoing support of the staff and administration until the change was considered complete and everyone involved was comfortable with the new policies and requirements for their part in the project. Once this had been completed and the new Alarm Elimination Fall Prevention program was fully operational, the DNP learner was able to perform an evaluation and summary of the problems that were encountered, successes that were discovered and recommendations for future concerns (Sutherland, 2013). Based on conversations with the Executive Director (ED) and DON at the facility, the program will be continued, although modified for the facility. The hourly rounding will continue, although they will not be utilizing the same form for documentation. It is going to continue to take extreme work from everyone involved to get the project through the complete refreezing stage.

Design

This quality improvement project followed a four-step Plan-Do-Check-Act (PDCA) Model. The first step involved identifying a problem and formulating an approach to resolve the issue (Holly, 2014). The approach to resolving the issue of high fall rates was the implementation of an Alarm Elimination Fall Prevention Program. During the planning phase, meetings took place with the ED and DON at the facility to identify a concern, discuss current strategies, and to brainstorm possible solutions. Together a facility-specific Alarm Elimination Fall Prevention Program was designed. Since a huge aspect of the project was multidisciplinary in nature, members from all teams were gathered for input on times for hourly rounding that would be most appropriate for their given workloads and scheduled each day. The idea being that if all departments had a say in the program design, a greater opportunity for compliance

would be present. During the planning phase, a mandatory in-service was held to promote the program and answer any questions the staff has about the implementation. Finally, in the planning phase, each wing was prepped with patient identifiers on all the residents considered high fall risks, based on falls history and their fall assessment scores completed on admission.

The second phase, the Do phase was the implementation of the Alarm Elimination Fall Prevention Program. A Falls Champion was present frequently and available to answer questions, help remind, encourage and support staff during the implementation phase. The Fall Champions was also able to answer questions and provide support during this time as well. Weekly data collection looking at compliance noted if resistance or lack of compliance was present during the implementation phase. Based on the numbers, this information was utilized to both provide praise and support for high compliance or as a way to talk to staff (especially those struggling with scheduled rounds) about concerns and reasons for resistance or noncompliance.

The Check phase was where the collected data was analyzed and compared with the goals and expectations created during the Plan phase (Holly, 2014). Finally, the Act phase was where the plan was either refined and improvements were made or the strategies were sustained and put into place permanently, continuously monitoring for positive outcomes.

The project took a multipronged approach (Figure 1) to prevent falls and eliminate the utilization of personal alarms. First, any personal alarms in use on patients were removed the morning of the "go live date." Fortunately, for this project, the staff at the facility had been working towards being alarm free, so at the time, no patients had a personal alarm on that needed removal. Secondly, the utilization of a Falling Leaves program was implemented. Falling Stars/Leaves have been used as early as 1997 and have shown a 19% reduction in falls (Ray, Taylor, & Meador, 1997). This is simply a form of patient identifier to assist staff in being able

to recognize those that are considered at-risk for falls. Typically, these identifier's are seen in hospitals on the door handle and above the patient's bed, but in the nursing home, these identifiers were not only placed on resident's doors, but as well on walkers, wheelchairs, or other assistive devices than could be visualized when the resident was not in their room.



Figure 1. Fall Prevention Program Multipronged Approach

The next intervention implemented was post-fall huddles, which included all staff near the fall at the given time as well as the charge nurse and nurse assistant for that hall. Prior to implementation, the nurse filing the report would make changes to the resident's plan of care that he or she saw fit for fall prevention, but did not utilize other caregivers.

The final intervention was the implementation of intentional hourly rounding. The idea of intentional rounding in the hospital setting is where the nursing staff, both nurses and CNA's take turns checking in and visualizing each patient once every hour during the day. The typical intentional rounding addresses what has become known as the four P's: Pain, Potty (toileting

needs), Position, and Possessions (Peninsula Regional Medical Center, 2010). Intentional rounding has shown to decrease falls in hospitals by as much as 60% (National Guideline Clearinghouse, 2012). Being in a nursing home, where nursing staff has much larger patient loads than those in the hospital, it was not be plausible to expect nurses and CNA's to perform hourly rounding alone. The new program utilized all staff including administration, therapy, nurses, nurse assistants, and the activities department. Hourly rounding was performed every hour during the hours of 7 AM to 5 PM and then every two hours from 5 PM until 7 AM. An hourly rounding documentation log was placed on each unit to document who performed the hourly round, if any needs were noted, and if they were unable to assist, then the name of the individuals that were notified of the resident's needs at that time. Those that were placed on hourly rounding included all high fall risk residents, resident's with any changes in psychoactive or cardiovascular medications for the 72 hours post medication change, and all new admissions for the first 72 hours, regardless of fall risk.

One of the biggest concerns that had to be addressed during this project was the idea that staff became resistant, believing that this was creating more work. A crucial aspect was to promote the program and keep staff on board with the idea that the hourly rounding could potentially save them hours of time from not having to chart incident reports on falls. It was important that staff also realize that the utilization of hourly rounding is effective at not only decreasing falls but decreasing call lights as well.

Sample and Setting

The project's setting and population was patients in a rehab and long term care facility in Missouri. The facility is a three-wing long term care facility, with one wing being entirely devoted to rehab-to-home residents, one wing completely dedicated to long-term clients, and the

third wing being a mixture of both types of residents. The facility can hold a maximum of 100 residents. Dating from August 2015 to January 2016, the average daily census was 79.54.

The sample was the residents residing at the facility during data collection period, which went from August 2015 through September 2016. Each month fall data was collected taking the number of total falls out of the average monthly census for the facility. No names or patient information was utilized for the project.

Data Collection

Outcomes measured were fall rates at a long-term care facility in Missouri. To do so, fall data was collected from the Incident Data Reporting Program (IDA) obtained by the MDS coordinators and DON at the facility. The outcomes were measured using pre/post intervention design. Pre-intervention data was collected dating back to August 2015, evaluating the number of monthly falls and the average census each month to get a fall rate percentage for each month. Post intervention, which included the time frame of July 18th until September 12th, 2016, utilized the same fall percentage calculation methods to determine clinical significance.

Results and Discussion

Results (Table 1) were calculated utilizing Excel and a one-tail calculation to assess for statistical significance. No statistical significance was determined in the decrease in fall rates, however the fall rates did decrease across the board a small percentage. In frequent fallers, fall rates dropped -3.49%, fall rates that excluded frequent fallers dropped -0.18%, and overall fall rates had a reduction of falls by -3.66%.

The results, although not statistically significant, were impressive considering some of the limitations that occurred during the implementation phase. One thing to note was in August,

Table 1

Alarm Elimination Fall Prevention Findings

Timeframe	Average Census	Falls (excluding frequent fallers)	Fall Rate (Excluding frequent fallers)	Falls (frequent fallers only)	Fall Rate (Frequent Fallers only)	Falls (all combined)	Fall Rate (all combined)
August 2015*	75.52	4	5.13%	10	12.81%	14	17.94%
September 2015 *	78.93	3	3.80%	13	16.47%	16	20.27%
October 2015 *	81.77	9	10.65%	23	27.22%	32	37.87%
November 2015 *	80.6	10	12.41%	9	11.17%	19	23.57%
December 2015 *	81.19	8	9.53%	9	10.72%	17	20.26%
January 2016 *	79.26	4	4.88%	19	23.20%	23	28.08%
February 2016 *	84.14	10	12.29%	11	13.52%	21	25.82%
March 2016 *	81.87	12	14.18%	15	17.73%	27	31.92%
April 2016 *	81.37	5	6.14%	8	9.83%	13	15.97%
May 2016 *	80.94	3	3.59%	7	8.37%	10	11.96%
June 2016 *	82.64	9	10.89%	6	7.26%	15	18.15%
July 1-17 2016 *	87.58	3	5.71%	8	15.22%	11	20.93%
July 18-30 2016	87.58	1	2.63%	5	13.17%	6	15.81%
Aug-16	93.1	10	10.39%	19	19.75%	29	30.14%
September 1-13 2016 @ 0700	88.9	4	11.25%	0	0%	4	11.25%
<i>Average before implementation</i>	81.37	6.67	8.27%	11.5	14.46%	18.17	22.73%
<i>Average after implementation</i>	89.86	5	8.09%	8	10.97%	13	19.07%
<i>p value (α=0.05)</i>			0.478		0.312		0.294

Note: * (prior to implementation date)

there was a high rate of falls; however, the average census was 93.1 patients per day. This number is significantly higher than their typical average census, and was the highest patient census the facility has had in its history. This spike in census could have quickly left the staff overwhelmed and understaffed, leading to poor compliance with hourly rounding, and due to high resident to staff ratios, a much greater risk for falls with the residents.

Limitations

Several limitations were noted during the implementation of the project, although the biggest being a lack of compliance from the staff. During the data collection, rough estimates were calculated for compliance based on the completion of the hourly rounding forms. Since the forms were not part of the electronic charting that the staff completed, it was difficult to get accurate results due to missing forms and poor documentation techniques (such as forgetting to date/time/initial) leading to unusable data. During the eight weeks, compliance was averaged over each week and totaled approximately 27% house wide. Dealing with the overall lack of compliance was the biggest concern and required extensive follow-up and devotion to the project.

During the project, the DNP learner was present frequently and would round the halls answering questions and collecting data. Each week the data would be compiled and explained to the ED and the DON. Every two week, the DNP learner would meet with the administrative board, attend their morning meeting and discuss the importance of the project and methods in which to promote compliance amongst the staff, themselves included. There were concerns and resistance related to creating “more work” and things that were “higher priority,” but extraneous amounts of energy and education was placed on the ideas surrounding the fact that there was the possibility for less work. It also was important to create the idea that this should be the highest

priority, in that the hourly rounds was not about filling out a paper and more charting, but the focus and goal were patient safety and fall prevention.

Another limitation to consider relates to the census during the implementation and the growth of the facility. The facility moved from a smaller facility into a new, much larger facility, in March of 2014. The older facility only had two wings, while the new facility would have three wings. As with any growth of a facility, it took time to have the referrals for patients and the staff to be able to support opening the third wing. During the past year, the facility has been growing exponentially, and this growth leads to the potential for lack of staff, especially if there are unexpected departures or terminations during this time frame. There was an average daily census of 81.37 in the months before implementation compared to 89.86 during the implementation phase. This is an 8.49 patient-per-day increase in the average daily census, and as previously noted, August was an all-time high census of 93.1, which is an 11.73 patient-per-day increase over the previous average. If the patient load had increased and the staffing had not been addressed, then this could raise the question as to whether the fall rates were a reliable source of information without data looking at the fall rates in relation to the patient-to-staff ratio during the times of higher fall rates.

Finally, a possible limitation of the project was that during the time of implementation, from July to September of 2016, the ED was out twice during this period, once for vacation and once for a work conference, and the DON was out for vacation one week as well. The lack of presence of the upper administration during this time could have played a role in the overall compliance of staff for the project.

The quality improvement program described here was conducted in one nursing home in Missouri. As such, the results may not apply to other settings or populations. However, it

provides a framework for use by others interested in reducing or eliminating the use of bed or chair alarms in nursing homes.

Conclusion

The need for an Alarm Elimination Fall Prevention program was an obvious concern for the chosen facility and the given quality improvement plan, based on the ideas of a PDCA model and Kurt Lewin's Change Theory creates a very systematic, measurable project in order to determine the effectiveness of the given changes. The program required a great amount of support from upper management and administration to help staff realize its importance but also not to view the interventions as "more work." This took a team approach from everyone at the facility, but even with the resistance and noncompliance that was noted, there was still a slight decrease in the number of falls. Recommendations for the future could include further studies looking at the fall rates in relation to patient and staff ratios, and follow up after such programs have been implemented during a much longer time frame to determine the overall significance that could be noticed with higher compliance rates. Overall, the staff and administration could see that even with slight modifications and understanding the ideas of asking the right questions when entering the resident's room, they can create the opportunity to provide a safer environment for those that are receiving care at their facility.

References

- Bowman, C. (2010). Eliminate restraints, engage the whole person. *Long-Term Living: For the Continuing Care Professional*, 59(11), 50-52 3p.
- Bressler, K., Redfern, R., & Brown, M. (2011). Elimination of position-change alarms in an Alzheimer's and dementia long-term care facility. *American Journal of Alzheimer's Disease & Other Dementias* 26(8), 599-605. doi: 10.1177/1533317511432730.
- Centers for Disease Control and Prevention. (2015). *Falls among older adults: An overview*. Retrieved from www.cdc.gov/homeandrecreationalafety/falls/adultfalls.html.
- CurrentNursing. (2011). Change theory: Kurt Lewin. Retrieved from <http://currentnursing.com>
- Crogan, N., & Dupler, A. (2014). Quality improvement in nursing homes testing of an alarm elimination program. *Journal of Nursing Care Quality* 29(1), 60-65. doi: 10.1097/NCQ.0b013e3182aa6f86
- Duffy, A. (2013). The development of evidenced-based falls assessment in Ireland. *Nursing & Residential Care*, 15(6), 421-425. doi: <http://dx.doi.org/10.12968/nrec.2013.15.6.421>
- Frick, K., Kung, J., Parrish, J., & Narrett, M. (2010). Evaluating the cost-effectiveness of fall prevention programs that reduce fall-related hip fractures in older adults. *Journal of the American Geriatrics Society*, 58(1), 136-141. doi:10.1111/j.1532-5415.2009.02575.x
- Health Service Executive, National Council on Ageing and Older People, and Department of Health and Children (HSE, NCAOP, & DOHC). (2008) *Strategy to prevent falls and fractures in Ireland's aging population*. Retrieved from http://hse.ie/eng/services/Publications/services/olderpeople/Strategy_to_Prevent_Falls_and_Fractures_in_Ireland%E2%80%99s_Ageing_Population_-_Full_report.pdf
- Holly, C. (2014). *Scholarly inquiry and the DNP capstone*. New York, NY: Springer.

Horowitz, A. (2014). Personal resident alarms: More protection or more risk? *Long-Term Living: For the Continuing Care Professional*, 63(9), 13-14.

Medicare Quality Improvement Organization for Massachusetts. (2006). Nursing home alarm elimination program: It's possible to reduce falls by eliminating resident alarms.

Retrieved from

<https://pioneernetwork.net/Data/Documents/MDS3.0/AlarmElimination2006.pdf>

National Guideline Clearinghouse. (2012). *Prevention of falls, (acute care)*. Retrieved from

<https://www.guideline.gov/summaries/summary/36906/prevention-of-falls-acute-care-health-care-protocol>

National Institute for Clinical Excellence. (2013). *Falls: Assessment and prevention of falls in older people*. Royal College of Nursing, London. Retrieved from

<http://www.nice.org.uk/nicemedia/live/14181/64088/64088.pdf>

Peninsula Regional Medical Center. (2010). Hourly rounding—The four P's. Retrieved from

http://www.marylandpatientsafety.org/html/education/solutions/2010/documents/culture/Hourly_Rounding_The_4_Ps.pdf

The pernicious complications of resident immobility and inactivity. (2014). *Canadian Nursing Home*, 25(4), 19-20 2p.

Ray, W., Taylor, J., & Meador, K. (1997). Evaluation of a falls consultation service. *Journal of the American Medical Association*, 278(7), 557-562.

doi:10.1001/jama.1997.03550070049037

Sutherland, K. (2013). Applying Lewin's change management theory to the implementation of bar-coded medication administration. *Canadian Journal of Nursing Informatics* (8)1-2.

Teresi, J. A., Ramirez, M., Remler, D., Ellis, J., Boratgis, G., Silver, S., & Dichter, E. (2013).

Comparative effectiveness of implementing evidence-based education and best practices in nursing homes: Effects on falls, quality-of-life and societal costs. *International Journal of Nursing Studies*, 50(4), 448-463. doi:10.1016/j.ijnurstu.2011.07.003

World Health Organization. (2007). *WHO global report on falls prevention in older age*.

Retrieved from http://www.who.int/ageing/publications/Falls_prevention7March.pdf

Statement of Original Work and Signature

I have read, understood, and abided by Capella University’s Academic Honesty Policy ([3.01.01](#)) and Research Misconduct Policy ([3.03.06](#)), including the Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the APA *Publication Manual*.

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