An Evaluation of a Sitter Reduction Program Intervention

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Abstract
Hospitals utilize sitters as an alternative to reduce patient falls. The study purpose is to evaluate the effectiveness of a sitter reduction program by examining the differences among sitter use and falls in an acute care hospital. Findings indicate a significant decrease in sitter use and falls remained constant. Reducing sitter use is possible without significantly increasing fall rates.

Key Words: sitter reduction program, sitter use, falls

1. Background

Changes in the healthcare environment coupled with constrained resources have necessitated examination of how best to deliver patient care that requires more intense monitoring. Hospitals utilize sitters (also referred to as *companions, constant observation, or one-to-one patient care)* to reduce patient falls. Sitters are unlicensed assistive personnel that provide constant observation to high-risk patients and notify healthcare providers when a patient's condition deteriorates.[1-3] Researchers report annual hospital spending in the United States for sitter use at $1.3 million dollars,[2,4] and costs are typically not reimbursed by third party payers. Similarly, for fiscal year 2011 (July 1, 2010 through June 30, 2011), the study site spent $1.2 million dollars (45.2 full-time equivalent sitters). With patients requiring more intense monitoring and costs associated with sitter use, effective interventions are needed to assist hospitals to manage sitter costs and provide safe care.

2. Purpose

The study purpose is to evaluate the effectiveness of a sitter reduction program in critical care, step-down, and medical-surgical inpatient nursing units by examining the differences among sitter use and falls.

There is minimal evidence to suggest the use of a sitter improves outcomes for patients at risk to fall. In addition, several researchers have implemented strategies to minimize the use of sitters.

Several researchers have demonstrated no improvement in fall rates with sitter usage.[3, 5, 6] Harding [5] conducted an in-depth review of sitter utilization at a 140-bed acute care hospital and was unable to provide a direct correlation between sitter use and decreased fall rates. Boswell, Ramsey, Smith, and Wagers [6] analyzed the costs and benefits of sitter use in relation to patient falls and found an increased fall rate with the use of sitters. Giles and researchers[7] utilized volunteers to sit with patients from 8am to 8pm on weekdays and found no improvement on overall fall rates pre-post implementation. Contrary to the

above findings, one study was identified that found a 44% reduction in falls with sitter use.[8]

Several researchers have identified strategies to minimize the use of sitters.[3,9-11] Tzeng and researchers[3] implemented a patient attendant assessment tool (PATT) in two medical units to assess the need for a sitter. Findings indicated that the tool improved the allocation of sitters but the rate of injuries from falls did not decrease. One hospital mandated that physicians could no longer order sitters and found a decrease in fall and fall-related fracture rates as a result.[9] Nadler-Moodie and researchers[10] developed an alternative to sitter utilization with Specialized Adult-Focused Environment (S.A.F.E) units. The S.A.F.E. unit was for patients who needed frequent monitoring. Researchers indicated a reduction in falls and restraints with this model. Similarly, Spetz, Jacobs, and Hatler[11] studied the effects of a medical vigilance system and sitter usage on fall rates and found that the less expensive vigilance system had similar outcomes to sitters. The vigilance system consisted of two components: passive sensor placed under the patient's hospital bed and a bedside unit connecting to the nurse call system. The researchers suggested that further research was needed on the vigilance system and on fall prevention strategies.

Inconsistencies in outcomes have been identified with using sitters as a fall prevention measure to maintain patient safety in the inpatient hospital setting. In addition, there are no defined guidelines for sitter implementation, usage, or renewal during hospitalization. Further investigation is warranted to determine the effect of implementing a comprehensive sitter reduction program without negatively affecting fall rates.

3. Methods

This descriptive study was conducted in a 633 bed, community acute care hospital located in a Southeastern state. The setting included five critical care units, two step-down units, and 11 medical-surgical units.

Ethics approval was obtained from the institution's Nursing Research Committee and university's Institutional Review Board for the Protection of Human Subjects. Patient data were de-identified and informed consent was not required. Only the researchers had access to the data and the database used for analysis.

In an effort to reduce sitter costs, a sitter reduction program was developed and included tools and training deployed to all healthcare providers at the hospital. The following tools were developed by advanced practice nurses with input from shared governance councils and leadership: sitter decision tree, sitter justification and evaluation form, and letters to nursing and physicians, along with scripting for family and patient by nursing staff, and a letter for the patient and family with a listing of private home care sitters.

The sitter decision tree was an algorithm for the nurse to refer to when making decisions regarding sitter use. The nurse uses the algorithm to assess physiological, psychosocial, and pharmacological causes for the patients' behavior and attempt to use alternatives (i.e., moving patient closer to the nursing station, staffing rotated to provide 1:1 care, or place patient with another sitter patient) prior to using a sitter. The sitter justification form is used to communicate sitter requests to the nursing house supervisor. This form was filled out by the charge nurse and primary nurse caring for the patient every 12 hours and turned in to the house supervisor and unit nurse manager. The charge nurse and

primary nurse are expected review risk factors and answer all the questions regarding alternatives attempted. A sitter evaluation tool is also provided at the bottom of the form for each sitter to be evaluated at the end of the sitter's shift. The evaluation tool is completed and signed by the primary nurse or charge nurse and turned into the unit nurse manager. Letters explaining the sitter program are provided to the nursing staff and physicians. The nurses are provided a scripting example of how to address the family in regards to using an outside sourced sitter. The nurse provides the patient and family a letter explaining the sitter program which includes a list of private home care providers. All tools are stored on the hospital's intranet website for staff to access.

Educational training occurred during the month of March 2011with a follow-up educational fact sheet to staff. The program was implemented April 1, 2011.

Data were collected pre-program (June 2010 to December 2010) and seven months (June 2011 to December 2011) post-program. The following data were collected: falls and patient days from National Database of Nursing Quality Indicators (NDNQI®) and sitter hours and sitter costs from KRONOS Analytics™ (payroll database). A categorical variable was created to adjust for nursing unit type (i.e., critical care, step-down, and medical-surgical). A data collection log was used to record the above variables.

Data were analyzed with descriptive and inferential statistics using SPSS for Windows Release 18.0 (Somers, New York). Statistical methods included means, standard deviations, and paired samples *t* test. In addition, a cost-benefit analysis was conducted.

4. Findings

Sitter hours decreased from 47,218 to 17,208 hours post-program and sitter costs decreased from $536,955 to $215,133 post-program for a total cost savings of $321,822. A paired samples *t* test was conducted to examine the effect the program had on sitter hours and costs. Statistically significant differences were noted for overall sitter hours ($t = 5.59$, $P = .001$) and overall sitter costs ($t = 4.76$, $P = .001$). Overall falls decreased from 199 to 197 ($t = -.050$, $P = .961$) and overall fall rates decreased from 2.45 to 2.39 post-intervention ($t = -.941$, $P = .360$), but neither decrease was statistically significant.

Data were analyzed by unit category and statistically significant differences were noted for sitter hours for the following: critical care ($t = 3.76$, $P = .020$) and medical-surgical ($t = 4.33$, $P = .001$). Sitter dollars were significant for critical care ($t = 3.58$, $P = .023$) and medical-surgical ($t = 3.76$, $P = .004$). The program led to a cost savings of $74,675 in critical care and $17,200 in the step-down. In the medical-surgical units the savings from reduced sitter hours was $229,947. There were no significant differences found in fall rates in critical care ($P = .20$), step-down ($P = .47$), and medical-surgical units ($P = .811$).

However, to account for the increased fall rates post-intervention in the medical-surgical units, the following calculation illustrates the additional cost. In 2009, the hospital conducted a cost analysis comparing patients that fell to the rest of the patient population and the average cost per fall was $12,500. This calculation was used to calculate the average cost of each fall. Falls increased from 155 to 164 post-program and the increase of nine falls amounts to $121,500 increase in cost for an actual cost savings of $108,447. With the additional nine falls in the medical-surgical units the programs' total cost savings results in $200,322. The incidences of fall rates, sitter hours and costs across varying categories are shown in Table 1.

Table 1: Pre-Post Sitter Intervention: All Units and Unit Categories Actual Falls, Fall Rates, Sitter Hours and Costs

Unit category	Time period	Number of falls	Fall rate	Sitter hours	Sitter costs
All Units					
	Pre-intervention	199	2.45	47,218	$536,955.00
	Post-intervention	197 p =.961	2.39 p =.360	17,208.4 p = .001	$215,132.58 p = .001
Critical Care					
	Pre-intervention	23	1.18	7,824	$81,193.00
	Post-intervention	16 p =.160	1.38 p =.200	1,008.4 p =.020	$12,517.60 p =.023
Step-Down					
	Pre-intervention	21	4.35	2,277	$25,838.00
	Post-intervention	17 p =.30	2.59 p =.47	681 p =.29	$8,638.16 p =.33
Medical-Surgical					
	Pre-intervention	155	2.68	37,117	$423.924.00
	Post-intervention	164 p =.614	2.81 p =.811	15,519.1 p =.001	$193,976.82 p =.004

5. Discussion

The findings show a significant decrease in sitter hours and costs related to implementing a sitter reduction program without increasing overall fall rates. The sitter program contributed to an overall cost savings of $321,822. For a majority of the units, the fall rates remained constant pre-post project. Fall rates decreased by 50% for the following units post-project: cardiac surgery intensive care, neurology step-down, and surgery unit. However, fall rates increased by nine additional falls in the following medical-surgical units post-project: oncology, dialysis, and neurology. To account for the nine additional falls in the medical-surgical units the project still resulted in a $200,322 cost savings. Step-down units decreased sitter hours and costs, but findings were not significant. However, only two step-down units were included in the sample and the small sample size may have contributed to not identifying a statistically significant change. The increased fall rates for the oncology, dialysis, and neurology units may have resulted in a majority of patients having limited mobility, periodic confusion resulting from either the disease process or administration of multiple high-risk medications including hypnotics/sedatives, psychotropics, tranquilizers/anxiolytics/muscle relaxants, and narcotics compared to the other medical-surgical units.

Before the sitter program, nurses were directly involved in the decisions to order and discontinue sitter use; however no formal process was available to guide these decisions. Similar to other findings[2], a possible factor that may have contributed to higher sitter costs was the failure of nurses to reassess, on a shift basis, whether or not the conditions justified sitter use. Researchers have suggested that the absence of guidelines may

prolong the unnecessary use of sitters[1-2] thus having a formal process in place appeared to assist with this factor. Similar to other researchers, tools developed for nurses to properly assess the patient's need for a sitter assisted with sitter reduction.[3-4] The decision tree guided sitter use and assisted with a decision-making process for the nurse to attempt alternatives including: patient moved closer to the nurses' station, activation of bed alarms, creation of a diversion activity box, family involvement, and implementation of toileting schedules. Nurses were provided guidelines to assist with the decision-making process in regard to sitter use. An algorithm to assess physiological, psychosocial, and pharmacological causes for the patients' behavior assisted the nurses in selecting alternatives prior to use of a sitter. Before the intervention, nurses may have lacked experience in dealing with sitters and tools were not readily available to evaluate the need for a sitter. Similar to Rochefort's findings,[12] the nurses' inexperience may have been associated with greater sitter use pre-intervention.

6. Conclusion

Hospitals planning strategies to reduce sitter costs are challenged to look creatively for alternative solutions. Hospitals should include a formal process related to provision of sitter use. Using a sitter reduction program has demonstrated both improvement in decreasing sitter hours and costs without negatively impacting fall rates. The effectiveness of the sitter program will continue to be monitored over the next year to ensure a safe patient care environment is maintained.

The value of this program assisted nurses to assess high-risk patients needing a sitter which ultimately decreased sitter use and costs. Further research would be beneficial to replicate the study to investigate additional quality outcomes.

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