ORIGINAL RESEARCH

# Reducing sitter use in acute medicine while maintaining safety and quality

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## ABSTRACT

**Background and objective:** Sitters are commonplace in acute care facilities throughout the country. Sitters are used to provide close observations and ensure safety for patients who are at risk for falls. These patients suffer from cognitive impairment, inability to follow instructions, and causing harm to themselves or others. The literature shows that one requirement for an effective sitter process is the use of an assessment tool. Sitter usage at the Louis Stokes Cleveland VA Medical Center (LSCVAMC) has escalated to the point that sitters are causing an overall shortage of nursing staff. This shortage causes excessive overtime, staff burnout, and reduces the quality of patient care provided to non-sitter patients. The purpose of this case-control descriptive pilot study was to reduce sitter usage on an inpatient acute medicine unit, by implementing the Patient Attendant Assessment Tool (PAAT), without reducing patient safety and quality of patient care. The PAAT was developed and utilized by a Midwest hospital for data collection and to assess the need for sitters.
**Methods:** Patients were placed into the Pre- and Post-implementation cohorts, according to the order of their admission. Pre-interventional data was collected from the study group, using the Sitter Justification Form, the 24-hour nursing report and the electronic medical record. The intervention consisted of staff education on the use of a new tool, the PAAT. Following implementation of the tool, the data was collected and analyzed using the SPSS 20 for windows (SPSS.INC), over an 8-month period.
**Results and conclusions:** Sitter usage was reduced without reducing patient safety or quality of care, with the implementation of the PAAT. Among individuals having at least one sitter day, patients in the post intervention group, were less likely to have as many sitter shifts (n = 343, 58.0%) as compared to patients in the Pre-interventional group (n = 451, 75.9%) (Chi Square = 42.88; df = 1, $p < .001$). As can be seen, there was a significant decrease in the number of sitter shifts after the implementation of the PAAT, as compared to the pre-interventional group. There was a slight increase in the quality of patient care.

**Key Words:** Nursing, Sitter, Patient Attendant Assessment Tool (PAAT), Fall risk, Computerized Patient Record System (CPRS)

## 1. INTRODUCTION

The use of sitters in hospitals is a key component of patient care to reduce the risks of falls, physical restraints, and to provide a safe environment.[1] Sitters have become commonplace in acute care facilities throughout the country.[2]

Currently there is no research being conducted on sitter use within the Department of Veterans Affairs, Medical Centers. Sitter use is a very important topic that deserves further exploration within the Louis Stokes Cleveland VA Medical Center (LSCVAMC). The LSCVAMC is the third-largest

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LSCVAMC in the country with a total of 660 beds. The LSC-VAMC is a national and regional referral service for cardiac surgery, spinal cord injuries, invasive cardiology, behavioral health addictions, diabetes mellitus and psychiatric services. Also, the facility continues to be nationally recognized as a recipient of the "Get with The Guidelines Certification" for Heart Failure from the American Heart Association and the Diabetes Center of Excellence certification from the Joint Commission.

There are 1,074 employees in nursing service. The Nursing Service consist of Registered Nurses (RN), License Practical Nurses (LPN) Nursing Assistants (NA), Student Nurse Technicians and other Healthcare Technicians. Any RN, LPN, NA, Student Nurse Technician or other Healthcare technicians can function as a sitter. In addition to providing a safe environment and reducing the use of physical restraints, sitters also prevent decubitus ulcers by following a patient turning schedule that avoids skin break down.

Sitter use benefits are not without unintended consequences or costs. When staff are pulled to serve as sitters, fewer nurses are available to care for the other patients, the nurse-patient ratio and nursing service overtime hours increase. Overtime is costly and contributes to nursing errors and burnout.[2] When nurses work shifts that are longer than twelve hours, work overtime, or work more than 40 hours in a week,[3] adverse outcomes are the results. These adverse outcomes lead to decrease in patient satisfaction, errors with medication administration, charting, and transcription.

The literature offers a wide degree of variability on the benefits of sitter use. Currently, there is limited research verifying that sitters or constant observation reduces the risk of patient harm from falling.[4] To date several studies have been done on sitter use but the results of the studies are inconsistent. Research conducted by Weeks found that there was a decrease in falls and fractures related to falls after the order for no sitters for dementia patients was implementation.[5] Spiva found that reducing sitter use is possible without significantly increasing fall rates.[6] In contrast Donoghue found that the fall rate decreased by 44% when volunteer (sitters) were present.[7] Adams found that a sitter-reduction program in one hospital resulted in $1.2 million in annual savings without negatively impacting the fall rates.[2] Additional research is needed to improve the body of evidence in the literature surrounding the practice of using sitters. Although the literature is sparse, consistent data shows that one of the requirements for an effective sitter process is the use of a sitter assessment tool.[6] This innovative study utilizes an assessment tool in exploring a method that could help decrease sitter utilization. Sitters are assigned to patients for

numerous reasons. Woods found that sitters are used for patients with dementia and delirium, older adults/geriatrics, violent or suicidal, substance abuse and alcohol withdrawal and mental distress.[8] These categories are consistent with the categories of patient in this study. Other categories observed at LSCVAMC that needed sitters were patient with Interference with medical care and Wanderer.

Current policy at the LSCVAMC is that sitters work under the direct supervision of the RN and provides ongoing status updates and reports regarding the patient. Historically, the RN assigned to the patient assesses the need for sitter, using the Sitter Justification Form, a sitter assessment tool, the Nurses 24-hour Report and nursing documentation in the Computerized Patient Records System (CPRS). If the RN decided that the patient needed a sitter, then arrangements were made by the Nurse Manager or Nursing Supervisor during non-administrative tours of duty.

The goal for this study was to decrease use of sitters on an acute inpatient medicine unit, by the implementation of a different sitter assessment tool. Falls are included in the National Patient Safety goal. The tool that was introduced was the Patient Attendant Assessment Tool (PAAT), a more sophisticated sitter assessment tool. The PAAT is a sitter assessment tool developed and used at the University of Michigan Hospital by a committee comprised of three clinical nurse specialists, three nurse managers and one businesses operation administrator.[9] Falls and falls with injury are a priority in nursing as demonstrative by their inclusion in the Joint Commission National Patient Safety Goals which is the goal standard for patient safety.[10] The PAAT was designed to provide guidance for determining the patients' needs for sitters with the goal of decreasing the use of sitters and maintaining quality of patient care. Information regarding the reason for the sitters and the number of sitter episodes was collected for patients admitted to the acute inpatient medicine unit for a 3-month period prior to the implementation of the PAAT (the pre-intervention cohort). The documents used to gather information for this cohort were the current Sitter Justification Form, the Nurses 24-hour Report, and nursing documentation in CPRS. All staff the acute inpatient medicine unit were oriented on the administration of the PAAT by the Principal Investigator and Co-Principal Investigator. After all staff completed the required competencies, the PAAT tool was implemented.

## 2. METHODS
### The sample and setting
This was a case-control descriptive study that was conducted on an acute medical unit. Validity and reliability of the PAAT was establish by Huey-Ming Tzeng 2008.[9] This tool was

chosen because it is scientific, precise, brief and easy to apply. The PAAT consisted of six separate categories of data. The categories are: (1) Suicide precautions, (2) Danger to self or severe behavioral/cognitive issues, (3) Cannot follow safety instructions, (4) Interference with medical care, (5) Wanders. These categories are consistent with the medical disorders of the patients requiring sitters. For example, patients with cognitive issues, (dementia and delirium), psychological disorders (schizophrenia, psychosis), and present with a threat of self-harm and harm towards others. The PAAT lists behaviors that identify levels of acuity for the patients. Patients with a score of 4 or higher were candidates for sitters. For example, a patient that is a suicide risk would have a PAAT score of 15 and therefore would be a candidate for a sitter. Patients who leave the unit without notifying the nurse would be given a score of one, therefore the patient with the score of one would not need a sitter. Nursing judgement can always be used when assessing sitter needs. Data for this study was collected and compared from 2 independent cohorts of patients on the acute inpatient medicine unit at 2 separate times. Subjects were divided into two groups:

- Pre-interventional cohort-patient admitted to the acute inpatient medical unit with sitters for a 3-month period prior to the implementation of the PAAT.
- Interventional cohort-patient admitted to 4A with sitters for 3-month after the implementation of the PAAT.

Data was then collected from each cohort and analyzed using the SPSS 20. The purpose of the data collection was to determine if the PAAT training and implementation would reduce sitter use while maintaining patient's safety and quality of care. The PAAT is an objective tool that includes instructions.

Alternatives must be tried and documented unsuccessful before a sitter is assigned to the patient. The alternatives include but are not limited to the following:

- Moving the patient closer to the nursing station
- Personal alarms
- Low beds with mat
- Side Rail pads
- Diversional activities
- Mitts
- Family involvement
- Assess for infection (especially urinary tract infection)
- Pain relief
- Medication Review
- Decreasing overstimulation

If none of the alternatives were successful, then a sitter is assigned. The PAAT must be completed by the RN assigned to care for the patient within 8 hours. If the nurse is on a twelve-hour shift, the PAAT must still be completed every eight hours.

Use of the Sitter Justification Form (see Table 1) along with the nurses 24-hour report and the nurse's documentation in CPRS had been the evaluation tool being used on the acute inpatient medicine unit to identify patients who required a sitter. The sitter justification form consists of twelve elements of behaviors to be observed. The twelve elements ranged from unable to follow instructions safety, confusion, risk for falls with injury, suicidal ideation, agitation and elopement risk. These behaviors are examples of the most frequently observed behaviors.

**Table 1.** Sitter Justification Form

| Behaviors observed | Number of observed behaviors |
| --- | --- |
| Unable to follow instructions regarding safety | 6 |
| Pulling out necessary lines (IV, catheters, NG tubes) | 1 |
| Removing necessary interventions/equipment | 1 |
| Impaired Judgment-lack of awareness of physical limitations | 1 |
| Wandering | 1 |
| Confusion | 9 |
| Risk for fall with injury | 14 |
| Suicidal Ideation | 11 |
| Hostile behavior | 3 |
| Agitation | 5 |
| Elopement Risk | 4 |
| ETOH withdrawal | 4 |

Prior to implementation of the PAAT, retrospective pre- intervention data were collected. the pre-intervention cohort that consisted of 33 patients that were admitted to the acute inpatient medicine unit for a three-month period, prior to the implementation of the PAAT. This data included the episodes of sitter use and the reasons for sitters.

After being introduced to the PAAT at the unit staff meeting, the PAAT was implemented. The Principal Investigator and the Co-I did all the training. Nurse Manager, and non-administrative tour supervisors were oriented to the new process and assisted with final decision on patient eligibility for sitters.

The pre-intervention cohort consisted of 33 patients that had been assessed for sitters using the traditional assessment process which were: The Sitter Justification Form, the Nurses 24-hour report and the nurse's documentation in CPRS. The registered nurses collected the data with the assistance of other staff members.

Three months after the PAAT was implemented, data were collected from intervention cohort that consisted of 93 patients that were admitted to the acute inpatient medicine unit for a three-month period, after the implementation of the PAAT. This data included sitter episodes and reason for sitters from the PAAT, the nurses 24-hour report and the nurse's documentation in CPRS. This data from the interventional cohort was compared to the data from the pre-intervention cohort to determine if the sitter use was reduced and if safety and quality of patient care was maintained.

As this study was focusing on a single acute inpatient medicine unit, data were collected for two different time periods. Data for the pre-intervention cohort was collected through retrospective review for a three-month period prior to the implementation of the PAAT. Data for the intervention cohort was collected from the PAAT, the Nurses 24-hour report and CPRS for a three-month period after the implementation of the PAAT.

As the predictor variable is dichotomous (control vs. experimental) and the outcomes are continuous in nature, an independent samples t-test were run to determine mean differences between the pre-intervention cohort and the intervention cohort. Equivalent nonparametric procedures were used if there were violations of the assumptions.

The data were analyzed using the SPSS 20 for windows (SPSS.INC). Power analysis was done using 33 subjects from the pre-intervention cohort and 93 subjects from the intervention cohort for these cohorts were adequate for this study and this sample could detect a moderately small effect size of .32 with a power of .80 and an alpha of .05. The

preliminary data collection showed that the average sitters ranged from 4 to 7 per day. According to the historical data for these wards and the power analysis, it was not difficult to include the records of 126 subjects which will equals 126 episodes of sitter usage over two three-month periods.

Because the study was conducted on only one unit, all the orientation and education was conducted by the same three individuals. Each of the staff were given special attention and could demonstrate their understanding of how to implement the PAAT. The limitation of this article is that the finding only include subjects from only one unit in one medical center. If the same study was repeated on a different unit, the results may have been different.

## 3. RESULTS

The Research Question for this study revolved around this essential question. Can sitters use be reduced in an acute inpatient medicine unit without negatively impacting patient safety and quality of patient care?

Because sitters are costly to the medical center, to reduce the number of sitters also reduces the cost of care. The indicators used in this study to determine Safety and Quality of care were falls, falls with major injuries, Mr. Strong's, fall related complications (subdural hematomas). Among individuals having at least one sitter day (patient can have multiples sitter shifts), patients in the PAAT intervention cohort were less likely to have as many sitter shifts (n = 343, 58.0%) as compared to patients in the Pre- interventional group (n = 451, 75.9%) (Chi Square = 42.88; df = 1, $p <$ .001). There was a significant decrease in the number of sitter shifts after the implementation of the PAAT, as compared to the pre-intervention cohort, assessed with the Sitter Justification Form.

Reduction of sitter use with the use of the PAAT did not cause an increase in the fall rates. Fall rates were assessed using the total number of falls per 1,000 patient days, and the Number of falls resulting in injury per 1,000 patient days as indicators. For Total falls per 1,000 patient days there was a decrease in the fall rate from 6.17 pre-implementation to 5.87 post implementation of the PAAT. For falls resulting in major injury, there was a decrease from .71 pre- implementation to zero post-implementation. These differences were not statistically significant.

The reduction in sitter use with the implementation of the PAAT did not reduce patient safety. Patient safety was assessed by the Number of Mr. Strong's (mental health emergencies) called. The Mr. Strong's rate did not change from 2.66 Mr. Strong's call both pre- and post-implementation cohort. The sitter use was reduced without reducing patient

safety.

Reduction of sitter use with the implementation of the PAAT did not cause an increase the rate of fall-related complications as assessed by the number of subdural hematomas. There was one subdural hematoma pre-implementation cohort and zero hematomas for the implementation cohort.

The most frequently observed behaviors necessary for sitter justification were: a) risks for falls with injury (14), b) suicidal ideation (11), and c) confusion (9).

The largest number of occurrences assessed in the Interventional cohort were: Danger to Self or Severe Behavioral/cognitive Issues (16). The second most observed behavior reflected the number of times patients wandered (14).

Overall, sitters use was reduced in an inpatient acute medicine unit without negatively impacting patient safety and quality of patient care.

Although there was a reduction in sitter use with the implementation of the PAAT, there was fortunately, an increase in patient safety and quality after the implementation of the PAAT.

## 4. DISCUSSION

The finding in this study demonstrates that the sitter usage was reduced without compromising patient safety and quality of care. The PAAT was a valuable tool to identify the significant impact on the variables selected in this study for sitters which were falls, falls with injury and Mr. Strong calls.

Although the literature shows that sitters or physical restraints are used interchangeable in practice, they were not used interchangeable at this medical center.[11, 12] The use of sitters or physical restraints should not be a standard practice without conducting a thorough nursing assessment using the PAAT for patients identified with specific medical conditions or limitations.

During the course of this study, there was only one subdural hematoma recognized within the pre-implementation cohort and none in the post-implementation cohort. We were encouraged by the results of this study to continue to use the PAAT in assessing patients with certain medical conditions and necessitate safety concerns by determining the need for a sitter.

## 5. CONCLUSION

In conclusion, we suggest that all hospitals that use sitters use a sitter assessment tool to determine their sitter needs. The PAAT is an excellent sitter assessment tool and is among the ones that we recommend based on previous research. The sitter assessment should be used as a part of the initial assessment when the patient is admitted to the medical center. This PAAT completion should be a collaborative process among the nursing staff in determining sitter needs. The information gained from the PAAT should be used in developing a patient plan of care. The PAAT should also be completed every eight hours and upon any change in the patient's condition. We feel that this study will assist other nurses in their quest to provide a safe environment for their patients. Again, due to the limitations of this study which is limited by the number of subjects, we would like to see the study repeated with a larger population.

## CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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