Outcomes of Adding Patient and Family Engagement Education to Fall Prevention Bundled Interventions

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ABSTRACT

Death rates from falls in acute care settings have risen sharply over the past decade. Reducing risk and ensuring safety requires attention to systems that help prevent and mitigate errors. The utilization of bundled fall prevention interventions that include a patient/family engagement education intervention teaching strategy is the focus of this paper. Design and implementation steps of this quality improvement intervention across two different patient populations and post intervention outcomes are presented.

Keywords: Falls, Adult, Inpatient, Falls Reduction

This is the author's manuscript of the article published in final edited form as:
Opsahl, A. G., Ebright, P., Cangany, M., Lowder, M., Scott, D., & Shaner, T. (2017). Outcomes of Adding Patient and Family Engagement Education to Fall Prevention Bundled Interventions. Journal of Nursing Care Quality. https://doi.org/10.1097/NCQ.0000000000000232

Outcomes of Adding Patient and Family Engagement Education to Fall Prevention Bundled Interventions

BACKGROUND AND SIGNIFICANCE

According to Quigley & White, falls remain the number one adverse event problem around the world with approximately 3-20% of patients falling at least once during their hospital stay.[1] The death rates from falls among older men and women have risen sharply over the past decade to approximately 30, 208 older adult deaths from unintentional fall injuries in 2013.[2] Patients within the hospital facility are at greater risk due to medication side-effects, attached equipment, disease process, and an unfamiliar environment.[3]

The health care industry has witnessed heightened regulatory and reimbursement guidelines in recent years from the federal government to prevent fall-related sentinel events. The Joint Commission labeled one priority initiative as the National Patient Safety Goal 9 (NPSG 9) to reduce the risk of patient harm resulting from falls.[4] These serious reportable events have now been labeled as a Hospital Acquired Condition (HAC) and Centers for Medicare & Medicaid Services has made them subject to non-reimbursement which started in 2008 based on the presumption that falls are preventable by the facility.[5]

Research has shown positive outcomes from use of fall prevention bundled interventions by staff with a focus on educational engagement of patients and families. By engaging the patient and their family through education, we empower patients toward an active role in their own safety and create a valuable partnership to prevent falls.[6] Implementing effective visual educational interventions as an educational teaching strategy, the health care team can decrease the incidence of falls and reduce associated costs to the facility. The patient educational engagement video implementation demonstrated in this project reinforced those ultimate positive patient outcomes

and overall organizational safety goals. With this additional teaching method approach for the fall prevention program, the health care team can implement a positive patient outcome approach impacting patient-specific risk factors and the physical environment risk factors.[7]

The purpose of this article is to describe the impact of a video educational engagement teaching strategy intervention for patients and families added to the updated and current fall prevention bundled interventions at a local 92 bed acute care facility. The project is highly relevant to the nursing profession as falls are considered one of the nursing sensitive quality indicators.[8] Nurse clinicians are responsible for preventing patient falls in the inpatient practice setting. Patient fall rates are perceived as an indicator that could be most impacted through nurse-led safety strategies or interventions.[9] The overall quality improvement project was reviewed and considered to have exempt status by both the institutional review board of Franciscan St. Francis Health and the institutional review board of Indiana University.

STATEMENT OF THE PROBLEM

Patient falls can result in lacerations, fractures, and internal bleeding which lead to increased utilization of health care resources. A study by Wong et al. at three regional Midwest hospitals found accidental falls resulted in serious injury (fracture, subdural hematoma, injury requiring surgical intervention, death), an additional increase of $13,300 on average in associated operating costs, and increased length of stay by 6.27 days per patient fall.[10] Nationally, direct hospitalization costs per patient fall with serious injury translates to well over $27,000.[11] Additionally, it is estimated that by the year 2020, more than four million Americans 65 years and over are projected to incur a fall with injury each year which equates to a total cost of $47 billion with adjustment to 2010 monetary value. These direct costs of inpatient falls represent those fees associated with treatments for the injury, but do not account for the long-term

consequences in potential disabilities and decreased quality of life. Within the acute care setting, two types of patients are treated who commonly fall: 1) those patients with transient confusion, hypotension, and compounding medications, and 2) those patients that are frail, wander, have risky behaviors, or with a history of falls.[12] According to Spoelstra, Given, and Given, we have a greater understanding of the factors which may lead to a fall; however, we continue to have difficulty translating this information toward a specific program to prevent falls and fall injuries in our hospital settings.[13] Nursing professionals overall provide evidenced-based high-quality, patient-centered care and educational support to their patients, but current educational teaching strategies and methods may lack all the necessary health literacy to assist the clinician in optimal patient outcomes.[14]

REVIEW OF LOCAL ISSUE

The vast majority of inpatient facilities internally benchmark data on falls and participate in the external database of the National Database of Nursing Quality Indicators (NDNQI) in order to evaluate unit level care of the individual facility.[8] NDNQI reports also provide the institution with an external and internal comparison of data for similar institutions related to bed size, magnet status, and teaching status. Franciscan St. Francis Health Mooresville Hospital (FSFHM) periodic fall rates for the orthopedic and medical-surgical units have been above the national mean for the NDNQI. The organization is working diligently to attain Magnet recognition from the American Nurses Credentialing Center (ANCC) for the use of evidence-based criteria to achieve nursing excellence and quality patient outcomes.[15] Falls data collected for 2011-2013 on both units did not show a sustained performance below the national NDNQI mean for falls or the ability to meet their internal benchmarks for fall incidence. National studies of falls for acute care hospitals have reported fall rates ranging from 1.3 to 8.9 falls/1,000 patient days with higher

rates occurring on eldercare, neurology, and rehabilitation units.[12] Falls are operationally defined according to the NDNQI as an unplanned descent to the floor or extension of the floor (e.g. trash can or equipment) with or without injury.[8] Consistent with the NDNQI, FSFHM fall rates are calculated by dividing the number of inpatient falls by 1,000 inpatient days. The facility protocol prior to this project for fall prevention at FSFHM included assessment of each patient's fall risk with the Morse Fall Scale (MFS) upon admission and during every shift for any changes. The MFS as a fall risk assessment tool was identified as the preferred risk assessment tool due to its proven reliability and validity as recommended by the National Center for Patient Safety.[16] Those patients determined to be at high fall risk upon arrival to the unit in relation to the MFS score are placed on falls precautions which consist of: yellow fall bundle interventions (wristband, socks, blanket, and door magnet), family notification and involvement in care (if they are able), bed alarms and chair alarms application, scheduled environmental checks activation, and MD notification of any MFS score changes. The unit falls champions at FSFHM collect feedback from staff on individual unit fall narrative reports, gather data for quarterly fall rate prevalence, capture timeliness of education to patients, and relays patient outcomes to all monthly unit and Franciscan St. Francis Health Regional Falls Action Team meetings. Franciscan St. Francis Health, like all national hospital systems has been under increased pressures from accrediting bodies, regulatory agencies, and payers to improve the quality of patient care and safety with reduction in the risk of patient injuries from falls as a specific focus. The rippling effects of health care reform have resulted in higher patient acuity with an increased potential for patient falls, making the NDNQI benchmarks become more difficult for institutions to attain. The 2012 through 2013 actual monthly fall incidence data for the two units at Franciscan St. Francis Health Mooresville Hospital (FSFHM) is represented in Table 1. The

addition of an educational video was proposed and accepted by FSFHM as a quality improvement intervention to attain better fall rates.

PROJECT PLANNING

The Clinical Director, Nurse Managers, the Coordinator for Regional Falls Prevention Program, CNS, Orthopedic Nurse Educator, and Unit Falls Champion for FSFHM all met with the primary project investigator in January, 2014. Participants shared the pre-intervention data from 2012-2013 and described current strategies to assist bedside clinicians in fall prevention beyond the current bundled fall interventions in place. After review of all current fall prevention interventions and outcomes from 2012-2013, the FSFMH campus Clinical Director and Nurse Manager requested that this project focus on fall rate reductions for both the orthopedic and medical-surgical units. Both units have similar patient age populations and the highest falls rates in the facility with staff floating from the orthopedic unit to accommodate the medical-surgical unit staffing needs. The goal for the project was a positive impact on the overall FSFHM incidence of unit falls, the NDNQI target numbers necessary for Magnet recognition, and ultimately, influence over all fall-related patient education and teaching strategies. The collaborative and patient-focused nature of Franciscan St. Francis Health led to the implementation of the patient-family engagement education intervention used in this quality improvement project.

VIDEO ENGAGEMENT INTERVENTION DEVELOPMENT

The primary investigator reviewed 23 inpatient facility videos used across the United States by other healthcare entities for comprehensive fall prevention/patient safety orientation and welcome messages to their institutions. Informed by ideas and scripts from this review, the primary project investigator drafted one script reflective of Franciscan St. Francis Health values

and policy. The script was reviewed by the Clinical Director and Nursing Managers initially for any additions or corrections to accurately capture the facility and expectations. The entire stakeholder team, including Clinical Director, Nurse Managers, and the Coordinator for Regional Falls Prevention Program, CNS, Orthopedic Nurse Educator, and Unit Falls Champion reviewed the script for overall feedback. The finalized video script was sent to the system videographer of the Franciscan Alliance Marketing Department for review and scheduling of the actual video production. The schedule for videotaping, specific individual scene sections, and location of taping were completed at the availability of the videographer and selected personnel with all staff time being donated for this project. As the filming of the video neared completion, the video was sent to all stakeholders for additional feedback and accuracy of institutional message. The primary investigator and videographer facilitated questions and discussions about any updates to the final product. The Clinical Director acquired a dedicated channel for the patient television system for continuous loop play of the video at the institution. The final video product was duplicated to a CD for individual copies dispersed by the Orthopedic Nurse Educator for initial education for all surgical patients prior to admission for surgery. The stakeholders made the decision to have all patients and their families review the video within twenty-four hours of arrival to both of the nursing units. The video was loaded to the internal television system one month prior to the official roll out to preview for any technical or mechanical issues for the facility. The official rollout of the video to both patient units was started in June, 2014 for the FSFHM campus.

STUDY DESIGN

The study design for determining changes after implementation of the intervention was quasi-experimental. Data were collected from a convenience sample incorporating patients from two pre-selected units and all nursing staff participating in the study. This study examined the effects of the video on patient engagement and fall rates on the inpatient acute care Orthopedic and Medical-Surgical units. The utilization of a pretest-posttest design for comparison of monthly and quarterly fall rate reports before, during, and after implementation guided the study. The following strategies were used in order to maximize the opportunities for all staff to be educated and aware of the internal implementation of this project:

- To reach weekday and weekend staff, all unit staff received face-to-face educational training about the project implementation at all unit meetings, and a training educational poster was disbursed as an individual handout made available to each employee during change of shift reporting.
- The educational poster was posted with project information updates each month in the combined unit "Communication Log" that all staff must review monthly and sign off on individually for the implementation period.
- The education poster was posted in the break rooms on each unit as a visual cue for staff.
- The unit manager forwarded to each staff member via email the educational information that highlights the steps necessary to allow the patient/family to view the video and the appropriate steps to document this patient/ family education in the electronic health record (EHR).
- All unit staff reviewed a fall prevention nursing educational video prior to the start of the project through the internal staff electronic education system called Learning Compass. The video provided valuable scripted responses to educate patients on the importance of

not toileting alone. The unit nurse educators reported staff compliance percentages in review of the nursing educational video to the investigator and unit manager. New employees to the two units were required to review the fall prevention nursing educational video as well.

- All current staff and new employees to the two units reviewed the project fall safety patient-family engagement video intervention they would be providing to each of their patients and patient families through the internal staff electronic education system.

In order to identify the total patient population of the units, the unit secretary and the unit falls champion printed each daily unit census for the primary investigator. All data from patients discharged from the orthopedic and medical-surgical units were audited through the electronic health record (EPIC), and accessed through coordination between the unit falls champion and the primary project investigator. Data were recorded onto a specific spreadsheet by the primary project investigator. Falls data for both the orthopedic unit and the medical-surgical units were collected from the Risk Monitor Pro computer-based internal incidence recording software which housed reports from unit managers. The unit manager and primary project investigator reviewed fall incident reports on a quarterly basis from the total eligible adult patients discharged during the implementation period. All falls were defined as patient fall occurrences or incidents, irrespective of causation as in the NDNQI reporting of facility falls. All patients unable to be engaged in the intervention were assumed to be of the same proportion in both the pre intervention and post intervention groups. Monthly audit and feedback on the project implementation as reflected in the causal logic model developed for the project took place with Clinical Director, Nurse Manager, Coordinator for Regional Falls Prevention Program, and staff in unit meetings for combined orthopedic and medical-surgical staff. At the completion of the

project all staff received a one page survey during their monthly unit meeting as well as individually via email from the Nurse Manager to determine perceptions of the quality improvement project intervention and provide feedback on the implementation through the following four questions:

- To what extent did the video intervention impact your knowledge of inpatient fall rate for your unit?
- To what extent was the video intervention helpful to the patient in understanding the unit guideline of always requesting assistance from the health care team for toileting?
- To what extent did initiating the patient video implementation protocol within the first 24 hours of patient arrival to the unit impact your workflow process?
- To what extent was the Fall Prevention Nursing Education video helpful for speaking to the patient about always requesting help prior to toileting?

Patient falls data were collected from two sources during the implementation period: the hospital computerized incident report system and abstraction of the individualized patient electronic health record by the investigator. It was considered to be of importance to utilize the two sources of data collection for the primary outcome of a patient fall as recent literature identified limitations to using single sources.[17] Demographic and clinical characteristics of the studied patients were extracted from the administrative data portion of the electronic health record. The patient age, length of stay, any medical diagnosis of cognitive impairment, Morse Fall Risk assessment, and specified unit were collected on each case. In an effort to increase the stability of data collection for the project, all data collection and chart audits were performed only by the primary project investigator. All inpatient falls were to be reported within twenty-four hours of

the occurrence by the respective unit registered nurse and internal system tracking for the event was initiated by the same registered nurse.

OUTCOMES

A total of 2,148 cases on first admission to the Orthopedic and Medical-Surgical units were reviewed during the implementation period from 6/10/14 to 5/31/15 (mean age of 66.91years and a mean length of stay of 3.12 days). The number of fall incidents prior to the study intervention were examined and shown in Table 5 below. The average fall rate per quarter during this timeframe was 2.86 for the Orthopedic unit and 3.27 for the Medical-Surgical unit indicating approximately 3 falls occurred per 1,000 patient days and an overall outcome sitting at or just over the benchmark of 3.0 for this timeframe. The number of fall incidence was examined during the implementation period with a resulting rate at completion of the project of 1.2 falls per 1,000 patient days for the orthopedic unit and 0.88 falls per 1,000 patient days for the Medical-Surgical unit. Neither unit experienced a monthly total fall incidence above the overall internal benchmark after the first 30 days of the implementation period.

The fall incidence during the implementation period on both units is reflected in Table 2 and shows a consistent monthly fall rate on both units at or below the benchmark. Staff nursing video review compliance on the Learning Compass system was 73% initially at the two month point of project with implementation. Staff video review compliance reached 84% after six months with higher compliance recorded for the orthopedic unit staff. Both the medical-surgical and orthopedic units demonstrated an increase in patient/family education documentation measured through the EHR from 50% during the first two months of data collection to 87% by the end of the study.

DISCUSSION

Inclusion of an educational component for staff, in preparation to use the video with patients/families, proved just as important as the supportive education within the video directed toward the patient. Sufficient time is necessary prior to implementation to be sure the team is knowledgeable in the methods to carry out the initiative, as well as, understanding the rationale for why the intervention is necessary to enhance the current process. The attention to the educational component appears to have had a greater effect with the orthopedic unit and could be due in part by the education the patient received in the outpatient setting prior to surgery. Key information share opportunities with staff need to take place well in advance of project implementation and on a regular basis. This timing allows greater insight around the unit culture to ensure clarity of intiatives and reduce uncertainty/stress of the staff. Time spent with the unit clinicians provided the opportunity to share their ideas and provide timely feedback monthly as to what was going well with the process and any barriers perceived by the staff over their various shifts. As the teams became comfortable with the primary project investigator's presence on the units, open and honest communication related to their barriers and observations were established and forged our path toward updates in the standardization of the current bundled interventions. The nursing team recognized early in the process that several different patient safety signs were utilized on separate units with outdated fall prevention information. All patient room signs were updated collectively for continuity to the current stop sign to prompt family and patient throughout both units. The addition of bathroom signs were created and placed in every patient bathroom to assist with increased falls related to toileting. The Coordinator for Regional Falls Prevention Program utilized the new bathroom signs created by the principle investigator for the system wide initiative to have a visual cue for every patient in every room on the ceiling tiles.

All these additions created a visual reference within the room which reduces confusion for the patient and family regarding what is and is not acceptable in fall prevention. The necessary component of communication in every initiative is immeasurable for the exchange necessary between the clinician and patient, the clinician and clinician, and falls champion and staff. The following recommendations at the completion of the project were made by the primary project investigator after review of the reflective feedback questions obtained from staff:

- With increased responsibilities and expectations of the falls, this primary investigator suggested the necessity of an additional staff to assist in this role going forward to assist in disseminating the data trends and progress toward organizational goals.
- A visual fall trend graph as a method of communicating the data on fall rates with the staff on both units was started by the primary investigator and made available to the manager for the staff lounge and monthly communication logs for each unit. The addition of a Pareto chart will allow everyone to have a pulse point on overall progress toward the goal of no falls (see Table 3).
- Additionally, the need for functional white boards in the patient room was suggested as a means to assist the entire intra-professional team to understand limitations of the patient to prevent any oversights. The old white boards were outdated and in need of greater structure to assist with overall information exchange. These boards were replaced by the Clinical Director and Unit Manager with a new updated version for every room at the completion of the study. The role of effective communication between the patient and clinician, as well as, between all hospital staff interacting with the patient (the white board helps to facilitate effective SBAR each shift) can assist in the type of organizational quality necessary for positive patient outcomes long term.

With the fall rate reduction remaining a primary organizational goal, the sustainability of the outcomes from the study can be a hurdle. The information share related to fall rates with staff will need to be kept as a standing item on the monthly unit meetings, nursing council committees, and all quality improvement committees of the organization.

The orthopedic clinical educator was one of the key stakeholders for the project. This clinical educator adopted the video early in the implementation phase by allowing her patient's to view the video prior to coming in to the hospital for surgery which helped to reinforce the importance of the project with staff. The overall positive shift in patient fall rate could additionally be the result of heightened awareness in the presence of the primary project investigator for case audits each week and the added educational component of patients viewing the video with the orthopedic clinical educator in the outpatient orthopedic center prior to surgery. Further studies could be controlled to examine whether the decreased orthopedic unit falls were related patient preadmission view of the video with inpatient reinforced view of the video after surgery. Analysis of the differences in the various reasons related to the patient fall should be reviewed to determine further interventions which could impact the fall rate and financial outcomes for the facility. Following the implementation of a video with the update of bundled interventions for a fall prevention program, the frequency of falls dropped for both units. Future studies are needed to evaluate ongoing adherence to interventions in hospital fall prevention programs.

LIMITATIONS

The main limitation of this study was the lack of an experimental or randomized controlled trial. The institution requested the implementation to occur on both units when the study was conducted to impact the fall rate on both units. The entire patient population admitted to both units received the intervention as offered by the clinician. An additional limitation to the study

mentioned previously was the inability to generalize the findings to other hospitals. The characteristics of the patients would help to determine the applicability to similar facilities as well. The overall facility fall prevention program was based on best practices and current practice evidence; although this study had limitations for the study variables for the inpatient setting, future studies would be worth trialing in any hospital that seeks to decrease its fall rate.

SUMMARY

The findings of this study suggest that well-planned steps including assessments and ongoing adjustments toward implementation of a fall prevention bundle with video engagement for the patient can result in positive trends toward a decrease in the fall rate of hospitalized patients. The video intervention provides an opportunity for families to assist in the discussion and education of fall prevention with their loved ones. This video technology offers the clinician another facet in the multiple intervention tool kit to prevent patient falls, to collaborate with the patient, and to impact patient education outcomes. According to Carlson et al., there are new shared accountabilities and responsibilities communicated between the hospital clinician and the patient to have an active role in effective partnerships necessary for optimal care delivery in our new healthcare landscape.[18] The quality improvement project information provided by this study should be considered as a supplemental educational tool to the overall inpatient fall prevention program. In order to reduce the number of inpatient falls, the institution must incorporate evidence-based preventative strategies in all levels of the healthcare system for optimal patient outcomes.

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